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Public Service of New Hampshire
Seacoast Reliability Project

Supplement to Characterization of Sediment Quality Along Little Bay Crossing

Durham to Newington, NH

Presented To:
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Executive Summary

Public Service Company of New Hampshire d/b/a Eversource Energy (PSNH) is proposing to construct a new 115 kilovolt (kV) transmission line between the existing Madbury and Portsmouth substations. The Seacoast Reliability Project (SRP) would be located in the Towns of Madbury, Durham and Newington as well as the City of Portsmouth, in Strafford and Rockingham Counties, New Hampshire. The 12.9-mile long project would begin at the existing PSNH Madbury Substation in Madbury, traversing Durham, crossing approximately 0.9 miles of Little Bay via an underwater cable into Newington, and then continuing east before ending in Portsmouth. The entire project lies within existing electric corridor on land, and a mapped cable corridor across Little Bay. The proposed cable installation methods in Little Bay include jet plowing and hand jetting, and will necessarily disturb sediments and suspend them into the water column.

2016 Sediment Testing

Previous testing of surface sediments by USEPA indicated that sediment quality in Little Bay is good. However, in response to concerns regarding the potential increased exposure risk resulting from the dispersal of possible sediment-borne contaminants in the Great Bay system, Eversource conducted sediment testing in September 2016 along the cable route. Sediments along the proposed cable crossing were sampled to the planned burial depth where possible using a vibratory sampler. At several locations, the presence of stiff, naturally occuring clay ("native" or "parent" material) several feet below the substrate surface prevented penetration of the sampler to the full planned depth. In shallow portions of the route where cable burial is planned to be 3.5 feet, four-foot deep cores were collected, homogenized, and analyzed for chemical constituents. Where the cable will cross the channel, burial was originally proposed to 8 feet. Along this stretch when cores penetrated greater than 4 feet, the upper 4 feet of sediments was separated from the lower section and the two portions were analyzed separately.

All samples were analyzed for typical dredge material analytes (grain size, total organic carbon (TOC), a suite of metals, specific PAHs, and specific PCBs) as well as total petroleum hydrocarbons (TPH), dioxins/furans, and perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS). Results were compared to existing data on sediment contaminants in Little Bay and to available screening criteria that were developed based on biological responses to exposure. Grain size, TOC, metal, PAH, and PCB concentrations had all been studied in Little Bay during the US EPA National Coastal Condition Assessment (NCCA) program. Results of the site-specific survey were consistent with the NCCA data and were all below levels of environmental concern with the exception of arsenic. Arsenic was slightly higher than the lowest screening level value, but within the range of concentrations observed in Little Bay in the NCCA program. The NCCA program also included bioassay testing and determined that exposure to sediments from Little Bay resulted in no significant difference in mortality compared to reference sediments.

TPH, PFOA, and PFOS results all fell below detection limits in every sample. Dioxins/furans occurred in most samples but at very low levels, never exceeding the screening guidelines. As discussed in Appendix A, the results of the sediment testing were examined in the context of ecological risk. This analysis concluded that there is no potential

for ecological effects from constituents of potential concern in the sediments that will be disturbed during cable installation, including metals, PAHs, PCBs, PFCs, dioxins and furans.

Grain size data showed that sediments were generally somewhat coarser than the values used during the sediment plume modeling that predicted the potential to exposure Great Bay Estuary resources to suspended sediments during cable installation using jet plow and hand jetting. Coupled with the high quality of the sediments in terms of contaminants, this consistency indicates that impacts to bay resources as a result of cable installation will be minimal.

2017 Sediment Testing

Additional sediment testing was conducted in May 2017 in response to reviewer concerns that pesticides had not been included in the original testing, and because of refinements to the design and installation of the Project. The Project also tested for nitrogen to address a reviewer's concern, and arsenic and sediment grain size to allow comparison with the cores taken in 2016. The sampling was performed in the same twelve locations and with the same equipment as 2016. Vibratory cores were collected to the same depth (4 feet) in the shallows as in 2016, and 6 feet in the channel because the burial depth in the channel has been reduced from 8 feet to 5 feet. Only the upper 2 feet were analyzed for chemical and physical data to address reviewer comments that the original 4-foot homogenization did not represent the fraction of sediments most likely to go into suspension during jet plowing.

Pesticides were all non-detect, indicating no further environmental concern. The contribution of sediment nitrogen to the water column during construction will not affect the long-term compliance with nutrient criteria for the Great Bay system. There was no evidence for substantial segregation of contaminants in the sediment column, indicating that the original conclusions remain valid. The concentrations present in sediment, even under the worst-case assumptions inherent in the USACE RIM mass balance will not result in water quality criteria violations at the expected suspended solids concentrations during the cable installation.

1.0 Introduction

Public Service Company of New Hampshire d/b/a Eversource Energy (PSNH) is proposing to construct a new 115 kilovolt (kV) transmission line between their existing Madbury and Portsmouth substations to enhance the electric reliability in the seacoast region. The Seacoast Reliability Project (SRP) would be located in the Towns of Madbury, Durham and Newington as well as the City of Portsmouth, in Strafford and Rockingham Counties, New Hampshire. The SRP is proposed to be approximately 12.9 miles long including a 0.9-mile crossing under Little Bay (Figure 1). The cable crossing will directly affect a corridor approximately 90 feet wide within a charted Cable Area approximately 1,000 feet wide.

The SRP will cross under Little Bay by being buried 3.5-5 feet in the substrate using jet plow and hand jet technology. For this crossing, the transmission line will be necessarily split into three cables to maintain the required transmissivity for the reliability project.

Sediments along the route for the SRP submarine cables across Little Bay will be fluidized during installation via jet plow technology. Some of this material will be suspended and transported away from the cable route as modeled by RPS ASA (2015 and 2017). The model predicts that sediments will remain in the water column for a limited duration (up to several hours but generally less) before being redeposited and that the exposure of sensitive receptors (e.g., shellfish beds; aquaculture facilities; eelgrass) will be limited at most, although Eversource acknowledges that conditions during installation may differ somewhat from the assumptions used in the modeling. In order to gain a more complete understanding of the potential exposure risk to natural resources, Normandeau tested the sediments along the route for contaminants in September, 2016, the results of which were presented in the report entitled "Characterization of Sediment Quality Along Little Bay Crossing" (Normandeau 2016).

Additional sediment testing was conducted in May 2017 in response to reviewer concerns that pesticides had not been included in the original testing. The Project also tested for total nitrogen and nitrogen species, and retested for arsenic and sediment grain size to compare to the 2016 results. The sampling was performed in the same twelve locations and with the same equipment as 2016. Vibratory cores were collected to the same depth (4 feet) in the shallows as in 2016, and 6 feet in the channel because the burial depth in the channel has been reduced from 8 feet to 5 feet. Only the upper 2 feet were analyzed for chemical and physical data to address reviewer comments that the original 4-foot homogenization did not represent the fraction of sediments most likely to go into suspension during jet plowing. At six of the twelve samples, polycylic aromatic hydrocarbons (PAH), polychlorinated biphenyls (PCB) and lead were also tested to further compare to the 2016 samples.

The results of this sampling effort are presented below, and are compared to the 2016 sediment characterization report (Normandeau 2016).

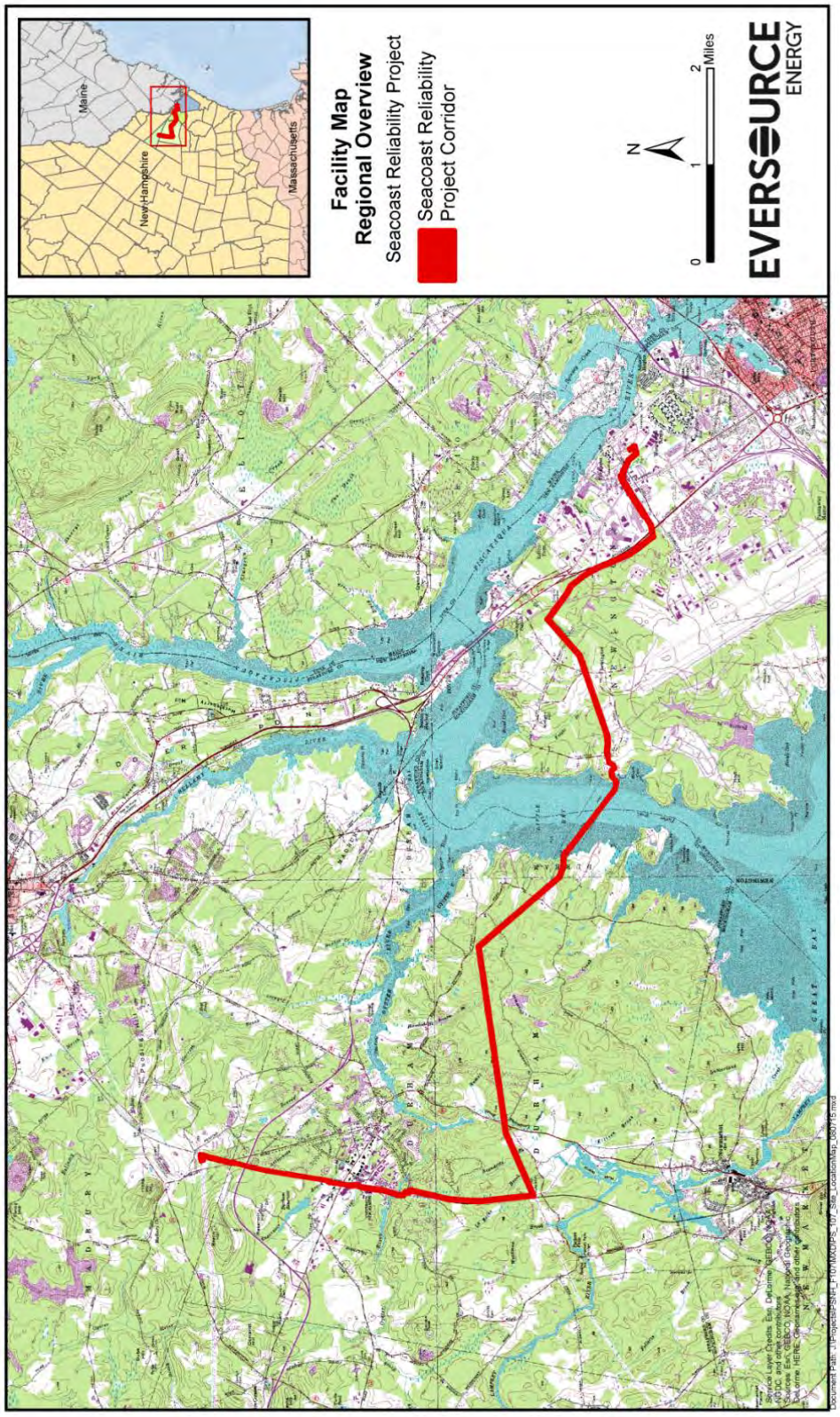

Figure 1. Seacoast Reliability Project Location Map.

2.0 Methods

This section describes the methods used to investigate estuarine sediments along the Little Bay crossing. The sampling and testing plan were provided to USACE and NH DES for concurrence prior to collection of sediments.

2.1 Sediment Collection

The same twelve sampling locations from 2016 were sampled along the cable corridor (Figure 2) in proportion to the two proposed cable burial depths (3.5 ft. and 5 ft.) with the goal of collecting sediment cores to the full burial depth at each location. As in 2016, collections were made using a Rossfelder Model P-3, low frequency vibro-percussive vibracore. Coring tubes were 3-inch diameter semi-rigid Cellulose Acetate Butyrate (CAB) tubes with disposable stainless steel core catchers riveted to the tube. The use of CAB tubes allows samples to be collected without an outer housing or core barrel that needs to be decontaminated between sample locations. At each sampling location, up to three attempts were made to achieve collection of a full length core.

Sampling locations were documented using a Trimble GeoXT GPS with an accuracy of <1meter.

In areas where the cable will be buried to 3.5 ft, a 4-ft core was collected, and the uppermost 2 ft portion of each core was subsampled and characterized. In areas where cable burial will be 5 ft., a 6-ft core was collected and the uppermost 2 ft was subsampled and characterized. Each core was examined for evidence of stratification within each segment to determine whether further separation for chemical testing was necessary. No stratification was evident so no additional subsampling was done. Each core was documented with boring logs and photographs. Each segment identified for chemical analysis was placed into a disposable aluminum container, homogenized with disposable aluminum utensils and then subsamples were placed into containers provided by the analytical laboratories. Separate equipment was used for homogenizing each sample to eliminate the risk of cross-contamination.

2.2 Sample Handling and Analysis

Samples were stored in containers provided by the laboratories on wet ice until delivery to the analytical laboratory. Each sediment sample was tested for the parameters shown on Table 1. Pesticide analytes were taken from the recommended testing limits outlined in the Regional Implementation Manual (RIM; U.S. EPA and U.S. Army corps of Engineers 2004), a document that delineates how estuarine and marine sediments being proposed for dredging and aquatic disposal should be tested for contaminants. The samples were also tested for total nitrogen and nitrogen species (Total Kjeldahl nitrogen, nitrate and nitrite). The samples were re-tested for arsenic because that was the one constituent from the 2016 testing that came back slightly elevated above the minimum recommended limit, and for particle sizes to allow a direct comparison to the 2016 results. A subset of six cores were tested for total PAHs, PCBs and lead, again to support a comparison to the 2016 findings. Results were compared to available regulatory criteria or guidelines as described in Section 3.2.

GEI reviewed the results in the context of ecological risk. Their analytical approach and findings are described in Appendix A.

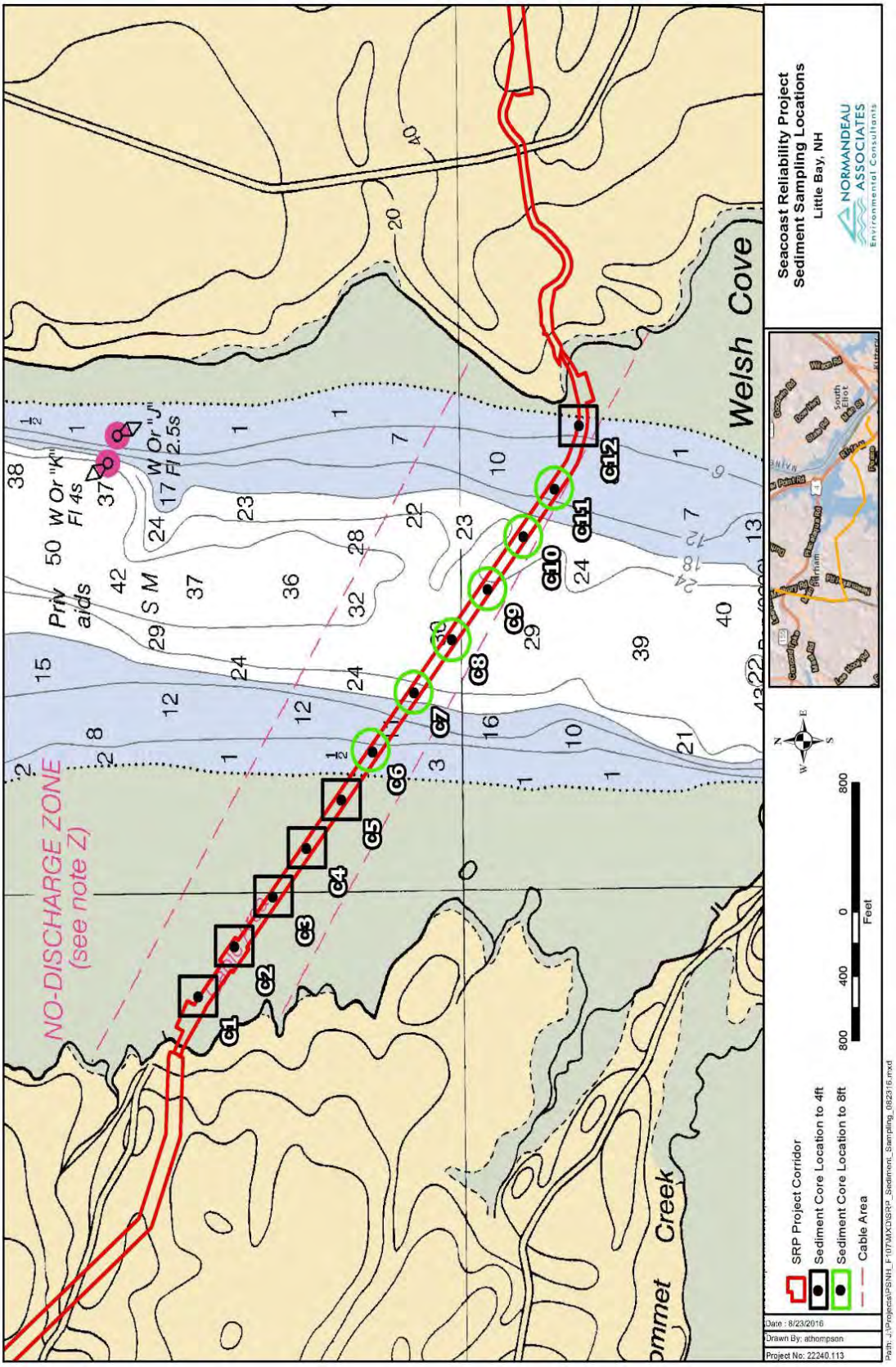

Figure 2. Seacoast Reliability Project sediment sampling locations in Little Bay.

Table 1. Sampling parameters, testing limits and analytical methods for sediments for the 0-2 foot vibracore samples along SRP cable route in Little Bay.

Parameter	RIM Testing Limit (dry weight)	Analytical Method
For all twelve sample locations		
Arsenic	0.4 ppm	6020A
Pesticides – by NOAA	25 ppb	8081B
Total Nitrogen, with nitrogen speciation	n/a	107; 121.4500NO3-F; 121.4500NO3-H
Percent Solids	1.0%	2540G
Grain Size Distribution – wet sieve	Sieve Nos. 4, 10, 40, 60, 200	ASTM D422
Silt/clay Fraction		Hydrometer
For a subset of six sample locations		
Polycyclic Aromatic Hydrocarbons (PAHs)	10 ppb	8270D-SIM
Polychlorinated Biphenyls (PCBs)	1 ppb	8270D-SIM
Lead	0.5 ppm	6020A

3.0 Results

3.1 Field Characterization of Sediment Cores

Sediment boring logs are provided in Appendix B and are summarized in Table 2.

Table 2. Qualitative description of sediments along cable route from vibracore collections, May 2017.

Zone	Station	Penetration Depth	Core Recovery Actual/Planned	Sediment Description
Tidal Flat (west)	C-1	60″	57″/48″	Homogeneous throughout; very soft to soft,; clay with silt,; medium plasticity; cohesive
	C-2	60″	57″/48″	
	C-3	60″	52″/48″	
	C-4	60″	57″/48″	
	C-5	72″	70″/48″	Same as above, but clay with silt and trace of sand
Western Slope	C-6	72″	68″/60″	
Channel	C-7	64″	58″/60″	
	C-8	40″	36″/60″	Stiff; fine to medium sands with silt; nonplastic; non-cohesive; below 17″ fine-med sand with silt and clay; moist; low plasticity; slightly cohesive
	C-9	20″	18″/60″	Homogeneous; med stiffness; clay with silt and sand; some gravel and med sand in upper 6″; high plasticity; cohensive
	C-10	44″	41″/60″	Homogeneous; fine-med sands with silt and trace of clay; low plasticity; cohesive
Eastern Slope	C-11	92″	89″/60″	Homogeneous; very soft to soft; clay with trace of sand; med plasticity; cohesive
Welsh Cove	C-12	46″	39″/48″	Very soft to soft; clay with silt, trace of sand, minor gravel; high plasticity; cohesive

The planned sampling depth of four feet was achieved at Stations C-1, C-2, C-3, C-4, and C-5. At Station C-12, the corer penetrated to just over 3 feet because of the density of the clay substrate. For the deeper 5-foot cores, full retrieval was attained at C-6 and C11. It was not possible to collect the full planned length of the 5-foot cores at Stations C-7 through C-10, likely because of the density of the underlying clay substrate at these stations.

The uppermost 2 feet of all the cores were processed and sent to Alpha Analytical Laboratory for physical and chemical analyses.

3.2 Analytical Results

Complete analytical laboratory results are provided in Appendix C. Review of the laboratory report showed that the analytical laboratory used the requested methods and met the appropriate detection limits. Quality control testing (matrix spike [MS] and matrix spike duplicates [MSD], equipment blanks) results were within acceptable ranges for all analytes. Additional discussion of analytical quality control testing is included in Appendix A.

3.2.1 Physical Characteristics

A summary of 2017 grain size results are provided in Table 3a. At most stations the percent fines (silt plus clay) in upper 2 feet of sediment sampled in 2017 was similar to that reported for the upper 4 feet sampled in 2016 (Table 3b). Both datasets showed that fine grained sediments predominated on the western tidal flat and western slope were predominantly fine grained sediments. The largest variation appeared in the channel and eastern slope. The uppermost sediments at Stations C5 (western tidal flat) and C11 (eastern slope) were substantially coarser than the upper 4 foot composite. At the channel stations C8 and C9, the uppermost sediments were substantially finer grained than the upper 4 foot composite.These differences represent the variability typical of marine substrates, and are presumably compounded by the shallower depth sampled in 2017. The 2016 sediment grain size data were used in the most recent sediment dispersion model runs, in which the slightly higher proportion of silts and clays will provide the more conservative output.

Proportion of fine-grained sediments at Stations C1-C4, C4 and C8-C9 were similar to or greater than the high end of percent fines observed in NCAA Little Bay collections. At Stations C5, C6-C7 and C10-C12 percent fines were similar to the low end of fines observed in NCCA collections.

Percent water was reported in 2017 and percent solids, roughly the inverse of percent moisture, was reported in 2016 (Tables 3a and 3b).

3.3 Metals

Inorganic metals in marine sediments can occur naturally at low levels or at elevated levels as a result of anthropogenic sources (U.S. EPA 2007a). For the 2017 sampling, only arsenic and lead were examined. Concentrations of arsenic and lead along the cable route are shown in Table 4 in comparison to the Effects Range-Low (ER-L) and Effects-Range Median (ER-M) screening levels used by NOAA (2008). ER-L and ER-M values were derived for a wide range of inorganic and organic chemicals by examining biological responses to different chemical concentrations. ER-Ls are defined as the 10th percentile value on an ordered list of concentrations in sediment found in the literature that co-occur with any biological effect. Concentrations lower than the ER-L value represent a minimal-effects range in which biological effects would rarely be observed. ER-M values are defined as the 50th percentile concentration; biological effects are possible at environmental concentrations falling between the ER-L and ER-M values (NOAA 2008).

Arsenic concentrations ranged from 5.47 to 15.0 mg/kg in 2017, which is consistent with the 6.06 to 11.7 mg/kg observed in 2016. With the exception of the uppermost sediments at C9, this range is also within the range of values previously observed in surface sediments in Little Bay during US EPA's National Coastal Condition Assessment program (Figure 3) where concentrations averaged 6.66 mg/kg and ranged from 2 to 10.8 mg/kg. In 2017, the average arsenic concentration was 8.62 mg/kg, which is slightly higher than the ER-L level (8.2 mg/kg) but well below the ER-M value (70 mg/kg). This average is very close to the 2016 average arsenic concentration of 7.99 for the upper 4-foot core. Spatially, arsenic levels exceeded the ER-L at seven stations in 2017, compared to five in 2016. Arsenic is a naturally occurring metal in New England sediments and the range observed along the cable route is not uncommon. As Ayotte et al. (2012) discussed, weathering of bedrock in southeastern New Hampshire has contributed arsenic to groundwater so it is reasonable to assume that

the same process could be a natural source of arsenic to the estuary sediments. Given that the arsenic concentrations found along the cable route are mostly below or only slightly above the ER-L, it is likely that these concentrations reflect local natural background levels.

The 2017 lead results at all stations ranged from 3.58 to 16.9 mg/kg and were well below the ER-L of 46.7. The range of concentrations in 2017 were similar to 2016 (4.6-11.7 mg/kg) and were below the range observed by US EPA (22.2-43.4 mg/kg).

3.4 Organic Compounds

3.4.1 Polycyclic Aromatic Hydrocarbons (PAHs)

PAHs are frequently found in marine sediments. Typical routes of entry are petroleum spills or air emissions of combustion by-products (Normandeau 2016). Similar to 2016, PAHs in 2017 were below the detection limit at Stations C2, C4, C9 and C12 (Table 5). Low concentrations of one or more PAHs were present in C7 and C11 (Table 5). In both of those samples, concentrations of total high molecular weight (HMW) and medium weight (MMW) PAHs were higher than than low molecular weight (LMW) PAHs. Total PAH concentrations in 2017 ranged from 45 – 407 ug/kg, compared to 50-211 ug/kg in 2016 and 229-1479 ug/kg in the NCCA Little Bay samples.

Along the proposed cable route in both 2016 and 2017, total PAH, total LMW PAH and total HMW PAH concentrations were each more than an order of magnitude lower than the respective ER-Ls, indicating that PAHs are unlikely to have detrimental effects on the biology of the Little Bay sediments.

3.4.2 Polychlorinated Byphenyls (PCBs)

PCBs have not been used in the US since the late 1970s but they are extremely stable compounds and persist in the environment (Appendix A2, Normandeau 2016). In 2017, PCB concentrations were below detection limits at all stations (Table 6), which is similar to the 2016 sediment characterization results. The USACE Regional Implementation Manual protocol requires that total PCBs be estimated by doubling the sum of 18 specific PCB congeners, using one half the method detection limit (MDL) for congeners whose values were below the MDL. Using this approach, the total PCBs in the 2017 samples ranged from 6.2 to 8.2 ug/kg, which is similar to the range observed in the 2016 samples (10.6 to 15.1 ug/kg). Concentrations in both 2016 and 2017 are below the ER-L of 22.7 ug/kg for total PCBs.

3.4.3 Pesticides

Pesticides were sampled at all 12 stations in response to a request from the Town of Durham. The results in Table 7 indicate that all species of pesticides tested under the RIM protocol were below the reportable detection limit. ER-L screening values are higher than the detection limits for each of the four pesticides (4,4'-DDD, 4,4'-DDE, 4,4'-DDT and dieldrin) for which such thresholds exist. Similarly, many pesticides in the NCCA Little Bay samples were below detection limits. Exceptions were total DDTs (maximum value 2.0 ppb; present in 3 samples), Endosulfan II (0.12 ppb; one sample), Endosulfan (0.09 ppb; 2 samples), Hexachlorobeneze (0.03 ppb; one sample), Lindane (0.04 ppb; one sample), Mirex (0.16 ppb; one sample), 2,4'-DDD (0.32 ppb; three samples; below ER-L), 2.4'-DDT (0.16; one sample; below ER-L), 4,4'-DDD (0.56 ppb; three samples; below ER-L), 4.4'-DDE (0.87 ppb; three samples), 4,4'-DDT (0.16 ppb; two samples), and trans-nonachlor (0.05 ppb; two samples).

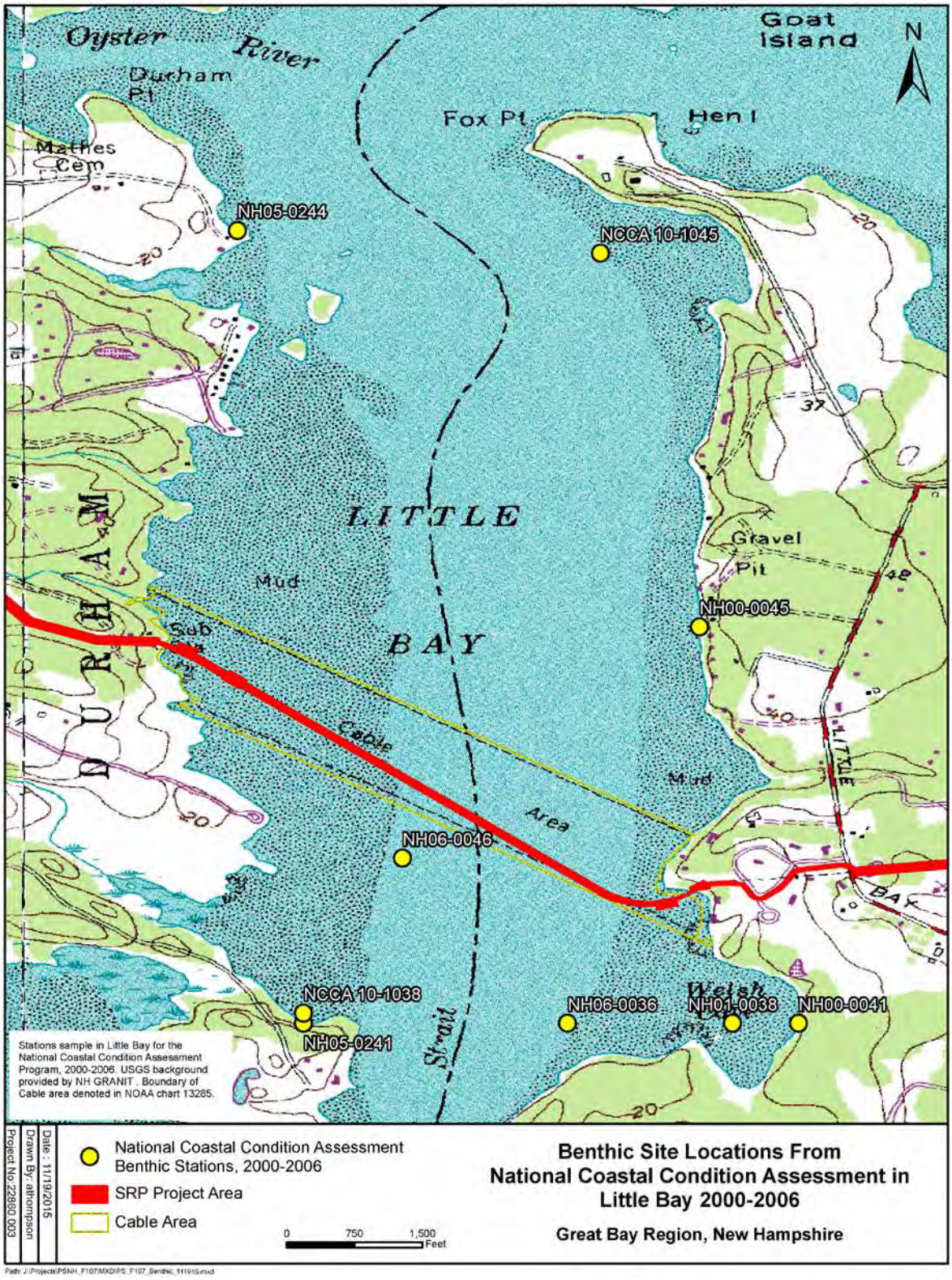

Figure 3. National Coastal Condition Assessment Sampling Locations, 2000-2010. Source: http://www.epa.gov/emap/nca/html/data/index.html

3.4.4 Nitrogen

Nitrogen (total nitrogen, total Kjeldahl nitrogen, and nitrate/nitrite) was tested at all 12 stations in response to a request from the Town of Durham. Results are presented in Table 8. Nitrates/nitrites were below detection limits at all stations. Concentrations of total nitrogen and total Kjeldahl nitrogen were highest at Stations C1-C4 on the western tidal flat, C6 on the western slope to the channel and C11 on the eastern slope of the channel.

3.4.5 Total Petroleum Hydrocarbons (TPH)

TPH was not sampled in 2017. In the 2016 sampling effort, TPH was not detected in any sample. NH DES has established a clean-up criterion for contaminated soils of 10,000 mg/kg (ppm; or 10 x 10^6 µg/kg). Concentrations of TPH in Little Bay sediments along the cable route were more than two orders of magnitude below that standard. and are unlikely to be of ecological concern.

3.4.6 Dioxins/Furans

Dioxins and furans were not sampled in 2017. In the 2016 results, low levels of one to four dioxin/furan compounds were detected in most samples. NOAA's SQuiRTs tables do not provide screening values for total dioxins/furans in marine sediments. The Canadian Council for the Ministers of the Environment (2004) have, however, established a Toxicity Equivalency (TEQ) value of 0.85 ng/kg that was developed using a similar approach to ER-L. The TEQ for a sample is a weighted toxicity value calculated by multiplying the concentration of individual dioxin/furan compounds by their relative (compared to the most toxic compound 2,3,7,8-TCDD) toxicity (the toxicity equivalency factor or TEF) and summing over all compounds. The compound that had the highest concentration in samples along the cable route, 1,2,3,4,6,7,8,9-OCDD has the lowest TEF of the dioxin compounds (DioxinFacts.org, 2016). When calculated based on only the detected compounds (ND=0), total concentrations of dioxin/furans were below the TEQ in all samples.

3.4.7 Perfluorooctanoic acid (PFOA) and Perfluorooctane sulfonate (PFOS)

PFOA and PFOS were not sampled in 2017. Neither compound occurred above detection limits (1.83 to 2.00 ng/kg) in any sample collected in September 2016. It is unlikely that sediment-borne PFOA or PFOS pose a risk to organisms in the vicinity of the cable crossing in Little Bay.

4.0 Conclusions

Sediments were collected in September 2016 and May 2017 along the planned cable route in Little Bay and were tested for chemical constituents that are indicative of anthropogenic pollution. These constituents included contaminants typically associated with industrialized marine harbors (metals, PAHs, PCBs, pesticides). The Project also tested for total petroleum hydrocarbons, dioxins/furans, and perfluoro compounds that are not typically tested for in projects disturbing sediments, but could occur in the Project area due to surrounding conditions. Testing was conducted following established analytical protocols. Several important observations emerged.

- Sediment grain size collected in 2016 was used to conduct additional sediment plume modeling to more accurately predict the behavior of sediments suspended during the cable installation.
- Metals were present in all samples, but concentrations were below NOAA screening criteria (ER-L) for sediment concentrations indicative of biological effects, with the exception of arsenic.
- Arsenic levels in several samples slightly exceeded the NOAA ER-L screening criterion but were well below the ER-M criterion, so by definition, has the possibility of having a biological effect. However, arsenic levels fell within the range of concentrations found in Little Bay by USEPA between 2000 and 2010, for which bioassay testing indicated no adverse biological effects.
- Concentrations of PAH compounds were low or below detection limits and total PAH concentrations were lower than observed by USEPA within Little Bay. Total PAH, total LMW PAH, and total HMW PAH concentrations were below NOAA screening criteria (ER-L).
- Concentrations of PCB congeners were low or below detection limits. No previous data are available for PCBs in Little Bay, but total PCB concentrations were uniformly below NOAA screening criteria (ER-L).
- Concentrations of pesticides were below detection limits and similar to concentrations observed by USEPA within Little Bay. Total pesticide levels were below the NOAA screening criteria (ER-L) for the compounds with ER-Ls.
- Dioxins/furans were present in low concentrations in many samples. The TEQ provides a weighted summation of dioxins/furans representing a potential toxicity level. Although neither NH nor US have developed guidelines for dioxins/furans, the Canadian Council for the Ministers of the Environment (2004) has. Concentrations of dioxins/furans along the cable route were all below the Canadian TEQ ND=0 guidelines.
- Perfluoro compounds were below detection limits in all samples and are below the proposed European PNEC.

GEI evaluated the 2017 sediment chemistry results in terms of potential ecological risk. This analysis is incorporated as Appendix A. GEI determined that all of the analytes except arsenic uniformly occurred at levels below concentrations identified as likely to cause toxic effects in marine sediments. Arsenic was only slightly above the lowest screening criterion (ER-L) and was consistent with levels reported elsewhere in Little Bay. GEI concluded, therefore, that dispersion of sediments into other areas of Little Bay would pose no ecological risk.

In 2007, USEPA (2007b) characterized sediment quality in Little Bay as "good" (the highest rating possible) based on a combination of sediment chemistry and bioassay testing that revealed no significant mortality among test organisms exposed to bay sediments. Given that contaminant levels are within the ranges observed by USEPA, it can be concluded that the quality of sediments along the cable route also meet the EPA characterization as good.

Table 3a. Physical characteristics of sediments along the SRP cable route in Little Bay in May 2017.

Station	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	NCAA Range
Depth (inches)	0-24	0-24	0-24	0-24	0-24	0-24	0-24	0-24	0-18	0-24	0-24	0-24	
Grain Size													
% Total Gravel	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	2.9	0.0	3.3	12.6	
% Coarse Sand	0.6	4.0	1.0	1.6	1.6	1.4	1.0	0.3	1.4	0.8	6.2	13.0	
% Medium Sand	1.9	13.4	6.4	6.4	31.7	5.0	5.2	2.20	6.3	3.4	16.1	9.10	29.4-50.4
% Fine Sand	3.7	11.5	12.9	19.6	64.8	15.2	57.9	31.1	4.3	90.7	49.0	32.7	
% Silt	76.9	62.1	68.0	63.4	1.10	56.5	34.0	63.3	64.1	5.10	17.5	30.1	49.6-70.8
%Clay	16.9	9.0	11.7	9.00	0.300	21.9	1.90	3.10	21.0	0.00	7.90	2.50	
% Solids	61.7	61.9	65.2	67.8	68.2	67.0	69.3	84.6	73.2	73.1	65.4	83.6	

Table 3b. Physical characteristics of sediments along the SRP cable route in Little Bay sampled in September 2016.

Station	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	NCAA Range
Depth (inches)	0-48	0-48	0-48	0-48	0-48	0-48	0-48	0-48	0-48	0-48	0-48	0-48	
Grain Size													
% Total Gravel	0.2	0.2	0.1	0	0.6	0.2	0.1	0.6	2.3	0.1	1.1	2.2	
% Coarse Sand	1.5	1.4	0.7	3.2	2	1.3	0.7	0.4	3.4	0.4	1.7	2.1	
% Medium Sand	3.4	4.7	2.3	7.1	4	4	4.3	8.8	31.6	1.7	5.9	7.1	29.4-50.4
% Fine Sand	6	8	8.2	16.3	24.3	13.1	44.9	66	34	91.6	35.8	39.2	
% Total Fines	88.9	85.7	88.7	73.4	69.1	81.4	50	24.2	28.7	6.2	55.5	49.4	49.6-70.8
Moisture %	41.3	38.9	36.9	35.1	31.7	32.4	28	29.7	18.3	21.1	31.4	24.6	40

Table 4. Concentration (mg/kg [ppm]) of arsenic and lead in sediments from 2016 and 2017 along the SRP cable route in Little Bay.

Station	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	ER-L	ER-M	NCCA Range
2017 Depth (inches)	**0-24**	**0-24**	**0-24**	**0-24**	**0-24**	**0-24**	**0-24**	**0-24**	**0-18**	**0-24**	**0-24**	**0-24**			
Arsenic, Total 2017	**8.41**	**9.85**	**9.17**	7.18	7.53	**10.4**	8.16	**8.52**	**15.0**	5.50	**8.20**	5.47	*8.2*	*70*	*2-10.8*
Arsenic, Total 2016[a]	**10.7**	**10.4**	**9.94**	**8.54**	7.05	**9.14**	7.17	6.56	6.4	6.56	7.39	6.06			
Lead, Total 2017[b]	ND	10.7	ND	5.36	ND	ND	5.22	ND	11.4	ND	16.9	3.58	*46.7*	*218*	*22.2-43.4*
Lead, Total 2016	11.7	7.49	8.36	5.13	4.8	6.03	4.07	4.4	5.39	2.88	9.39	4.6			

[a]2016 cores used 4-foot increments to characterize sediments.

[b]Only six of the twelve cores were tested for lead.

ER-L = Effects Range Low = 10th percentile on an ordered list of concentrations in sediment found in the literature that co-occur with any biological effect; concentrations lower than the ER-L value represent a minimal-effects range in which effects would be rarely observed

ER-M = effects Range Median = 50th percentile; concentrations equal to and above the ER-L, but below the ER-M represent a possible-effects range

Table 5. 2017 Concentration (µg/kg [ppb]) of Polycyclic Aromatic Hydrocarbons (PAHs) along the SRP cable route in Little Bay

Station	C2	C4	C7	C9	C11	C12	ERL	ERM	NCCA Range
Depth (inches)	**0-24**	**0-24**	**0-24**	**0-18**	**0-24**	**0-24**			
Naphthalene	<7.51	<7.14	<7.12	<6.78	<6.99	<5.66	***160***	***2,100***	
Acenaphthylene	<7.51	<7.14	<7.12	<6.78	<6.99	<5.66	***44***	***640***	
Acenaphthene	<7.51	<7.14	<7.12	<6.78	<6.99	<5.66	***16***	***500***	
Fluorene	<7.51	<7.14	<7.12	<6.78	<6.99	<5.66	***19***	***540***	
Phenanthrene	<7.51	<7.14	11.1	<6.78	13.1	<5.66	***240***	***1,500***	
Anthracene	<7.51	<7.14	9.37	<6.78	<6.99	<5.66	***85.3***	***245***	
Fluoranthene	<7.51	<7.14	40.4	<6.78	42.0	<5.66	***600***	***5,100***	
Pyrene	<7.51	<7.14	33.8	<6.78	58.1	<5.66	***665***	***2,600***	
Benz(a)anthracene	<7.51	<7.14	24.1	<6.78	34.7	<5.66	***261***	***1,600***	
Chrysene	<7.51	<7.14	22.0	<6.78	36.3	<5.66	***384***	***2,800***	
Benzo(b) fluoranthene	<7.51	<7.14	16.7	<6.78	42.8	<5.66	***na***	***na***	
Benzo(k) fluoranthene	<7.51	<7.14	19.1	<6.78	36.8	<5.66	***na***	***na***	
Benzo(a) pyrene	<7.51	<7.14	22.9	<6.78	49.0	<5.66	***430***	***1,600***	
Indeno(1,2,3-cd) Pyrene	<7.51	<7.14	11.6	<6.78	32.2	<5.66	***na***	***na***	
Dibenz(a,h) anthracene	<7.51	<7.14	<7.12	<6.78	7.41	<5.66	***63.4***	***260***	
Benzo(ghi) perylene	<7.51	<7.14	11.4	<6.78	37.3	<5.66	***na***	***na***	
Total PAHs*	**60.08**	**57.12**	**240.27**	**54.24**	**407.185**	**45.28**	***4,022***	***44,792***	***229.26-1,479.4***
Total LMW PAHs	**22.53**	**21.42**	**34.71**	**20.34**	**30.575**	**16.98**	***552***	***3,160***	***23.4-270***
Total MMW PAHs	**7.51**	**7.14**	**74.2**	**6.78**	**100.1**	**5.66**	***na***	***na***	
Total HMW PAHs	**30.04**	**28.56**	**131.36**	**27.12**	**276.51**	**22.64**	***1,700***	***9,600***	***191.1-1,029.7***

*total PAHs calculated using half of detection limit

na = not available

Table 6. 2017 Concentration (µg/kg [ppb]) of Polychlorinated Biphenyls (PCBs) in sediments along the SRP cable route in Little Bay (6 stations only).

Station	C2	C4	C7	C9	C11	C12	ERL	ERM
Depth (inches)	**0-24**	**0-24**	**0-24**	**0-18**	**0-24**	**0-24**		
C12-BZ#8*	<0.751	<0.714	<0.712	<0.678	<0.699	<0.566		
C13-BZ#18*	<0.751	<0.714	<0.712	<0.678	<0.699	<0.566		
C13-BZ#28*	<0.751	<0.714	<0.712	<0.678	<0.699	<0.566		
C14-BZ#44*	<0.751	<0.714	<0.712	<0.678	<0.699	<0.566		
C14-BZ#49	<0.751	<0.714	<0.712	<0.678	<0.699	<0.566		
C14-BZ#52*	<0.751	<0.714	<0.712	<0.678	<0.699	<0.566		
C14-BZ#66*	<0.751	<0.714	<0.712	<0.678	<0.699	<0.566		
C15-BZ#87	<0.751	<0.714	<0.712	<0.678	<0.699	<0.566		
C15-BZ#101*	<0.751	<0.714	<0.712	<0.678	<0.699	<0.566		
C15-BZ#105*	<0.751	<0.714	<0.712	<0.678	<0.699	<0.566		
C15-BZ#118*	<0.751	<0.714	<0.712	<0.678	<0.699	<0.566		
C16-BZ#128*	<0.751	<0.714	<0.712	<0.678	<0.699	<0.566		
C16-BZ#138*	<0.751	<0.714	<0.712	<0.678	<0.699	<0.566		
C16-BZ#153*	<0.751	<0.714	<0.712	<0.678	<0.699	<0.566		
C17-BZ#170*	<0.751	<0.714	<0.712	<0.678	<0.699	<0.566		
C17-BZ#180*	<0.751	<0.714	<0.712	<0.678	<0.699	<0.566		
C17-BZ#183	<0.751	<0.714	<0.712	<0.678	<0.699	<0.566		
C17-BZ#184	<0.751	<0.714	<0.712	<0.678	<0.699	<0.566		
C17-BZ#187*	<0.751	<0.714	<0.712	<0.678	<0.699	<0.566		
C18-BZ#195*	<0.751	<0.714	<0.712	<0.678	<0.699	<0.566		
C19-BZ#206*	<0.751	<0.714	<0.712	<0.678	<0.699	<0.566		
C110-BZ#209*	<0.751	<0.714	<0.712	<0.678	<0.699	<0.566		
Total PCBs*	**13.518**	**9.96**	**9.968**	**9.492**	**9.786**	**7.924**	**22.7**	**180**

* Per the RIM, total PCBs are to be estimated based on the following: Total = 2 X [sum of 18 NOAA summation congeners indicated with a *]. For values below the MDL, use one half the MDL; for values between the MDL and the RL use estimated values.

Table 7. Concentrations (µg/kg [ppb]) pesticides in sediments along the SRP cable route in Little Bay

Station	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	ERL	ERM
Depth (inches)	0-24	0-24	0-24	0-24	0-24	0-24	0-24	0-24	0-18	0-24	0-24	0-24		
Hexachlorobenzene	<0.773	<0.751	<0.702	<0.714	<0.698	<0.688	<0.712	<0.555	<0.678	<0.630	<0.699	<0.566		
gamma-BHC	<0.387	<0.376	<0.351	<0.357	<0.349	<0.344	<0.356	<0.277	<0.339	<0.315	<0.349	<0.283		
Heptachlor	<0.387	<0.376	<0.351	<0.357	<0.349	<0.344	<0.356	<0.277	<0.339	<0.315	<0.349	<0.283		
Aldrin	<0.387	<0.376	<0.351	<0.357	<0.349	<0.344	<0.356	<0.277	<0.339	<0.315	<0.349	<0.283		
Heptachlor epoxide	<0.773	<0.751	<0.702	<0.714	<0.698	<0.688	<0.712	<0.555	<0.678	<0.630	<0.699	<0.566		
Oxychlordane	<0.773	<0.751	<0.702	<0.714	<0.698	<0.688	<0.712	<0.555	<0.678	<0.630	<0.699	<0.566		
trans-Chlordane	<0.387	<0.376	<0.351	<0.357	<0.349	<0.344	<0.356	<0.277	<0.339	<0.315	<0.349	<0.283		
Endosulfan I	<0.387	<0.376	<0.351	<0.357	<0.349	<0.344	<0.356	<0.277	<0.339	<0.315	<0.349	<0.283		
cis-Chlorodane	<0.387	<0.376	<0.351	<0.357	<0.349	<0.344	<0.356	<0.277	<0.339	<0.315	<0.349	<0.283		
trans-Nonachlor	<0.387	<0.376	<0.351	<0.357	<0.349	<0.344	<0.356	<0.277	<0.339	<0.315	<0.349	<0.283		
4,4'-DDE	<0.387	<0.376	<0.351	<0.357	<0.349	<0.344	<0.356	<0.277	<0.339	<0.315	<0.349	<0.283	2.2	27
Dieldrin	<0.387	<0.376	<0.351	<0.357	<0.349	<0.344	<0.356	<0.277	<0.339	<0.315	<0.349	<0.283	0.72	8
Endrin	<0.387	<0.376	<0.351	<0.357	<0.349	<0.344	<0.356	<0.277	<0.339	<0.315	<0.349	<0.283		
Endosulfan II	<0.387	<0.376	<0.351	<0.357	<0.349	<0.344	<0.356	<0.277	<0.339	<0.315	<0.349	<0.283		
4,4'-DDD	<0.387	<0.376	<0.351	<0.357	<0.349	<0.344	<0.356	<0.277	<0.339	<0.315	<0.349	<0.283	2	20
cis-Nonachlor	<0.387	<0.376	<0.351	<0.357	<0.349	<0.344	<0.356	<0.277	<0.339	<0.315	<0.349	<0.283		
4,4'-DDT	<0.387	<0.376	<0.351	<0.357	<0.349	<0.344	<0.356	<0.277	<0.339	<0.315	<0.349	<0.283	1	7
Methoxychlor	<3.87	<3.76	<3.51	<3.57	<3.49	<3.44	<3.56	<2.77	<3.39	<3.15	<3.49	<2.83		
Toxaphene	<19.4	<18.9	<17 6	<17.9	<17.5	<17.3	<17.9	<13.9	<17.0	<15.8	<17.5	<14 2		

Table 8. Nitrogen concentration of sediments along the SRP cable route in Little Bay in May 2017.

Station	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12
Depth (inches)	0-24	0-24	0-24	0-24	0-24	0-24	0-24	0-24	0-18	0-24	0-24	0-24
Nitrate/Nitrite	<1.5	<1.5	<1.5	<1.4	<1.3	<1.4	<1.4	<1.1	<1.2	<1.3	<1.3	<1.1
Total Nitrogen	1600	1400	1200	1200	680	950	660	200	350	300	1100	560
Nitrogen, Total Kjeldahl	1600	1400	1200	1200	680	950	660	200	350	300	1100	560

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Appendices

Appendix A: Supplemental Ecological Risk Evaluation for Little Bay Sediments

Appendix –Technical Memorandum

Supplemental Data Analysis: SRP sediment ecological risk evaluation

Executive Summary

This Technical Memorandum, a supplement to the "Technical Memorandum: Review of ecological risk implications of SRP sediment analytical data" reports results and ecological implications of additional analysis conducted in May 2017.

Four additional analyses were conducted to address specific potential data gaps.

1. *Pesticides were all non-detected, indicating no further environmental concern.*
2. *The contribution of sediment nitrogen to the water column will not affect the long-term compliance with nutrient criteria for the Great bay system.*
3. *There was no evidence for substantial segregation of contaminants in the sediment column, indicating that the original conclusions remain valid.*
4. *The concentrations present in sediment, even under the worst-case assumptions inherent in the USACE RIM mass balance will not result in water quality criteria violations at the expected suspended solids concentrations during the cable installation.*

This supplemental analysis reconfirms the conclusions reported in the "Technical Memorandum: Review of ecological risk implications of SRP sediment analytical data" that the proposed Seacoast Reliability Project (SRP) is highly unlikely to present adverse ecological effects from contaminants.

1. Introduction

This Supplemental Technical Memorandum presents results and interpretation of additional sediment data collected in response to comments on results reported in "*Appendix A1 - Technical Memorandum: Review of ecological risk implications of SRP sediment analytical data*" in the *Characterization of Sediment Quality Along Little Bay Crossing* (hereafter "Characterization Report") conducted as part of the Public Service Company of New Hampshire Seacoast Reliability Project.

Comments from third parties identified some concerns and potential data gaps related to the evaluation of potential ecological risks associated with the sediment data. In response, Eversource collected additional sediment data to address these concerns. This document presents the evaluation of four specific additional data sets collected to respond to concerns.

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1. Analysis of potential effects of sediment organochlorine pesticides
2. Analysis of potential effects of releases of sediment bound nitrogen on the water column
3. Analysis of vertical distribution in sediment of potential contaminants
4. Evaluation of the potential effects of any release of sediment contaminants to the water column during jet-plowing operations

This analysis should be considered supplemental to the previously submitted report.

2. Organochlorine Pesticides

Organochlorine pesticides are a standard part of the *USACE Regional Implementation Manual* protocol for dredge spoil disposal. The original sample round did not evaluate these analytes, leaving a potential data gap. The supplemental investigation conducted in May 2017 resampled all 12 sample locations. There were no detections of organochlorine pesticides in any of the samples. Table 1 summarizes the evaluation.

Table 1 Organochlorine Pesticide Analysis Results

Analyte	Threshold Effect ER-L (µg/kg)	Probable Effect ER-M (µg/kg)	Maximum concentration in sediment (Reporting limit in µg/kg)	Conclusion
Hexachlorobenzene	NA	NA	ND (<0.751)	No concern
gamma-BHC	0.32 (TEL)	0.99 (PEL)	ND (<0.376)	No concern
Heptachlor	NA	NA	ND (<0.376)	No concern
Aldrin	NA	NA	ND (<0.376)	No concern
Heptachlor epoxide	NA	2.74 (PEL)	ND (<0.751)	No concern
Oxychlordane	NA	NA	ND (<0.751)	No concern
trans-Chlordane	NA	NA	ND (<0.376)	No concern
Endosulfan I	NA	NA	ND (<0.376)	No concern
cis-Chlordane	NA	NA	ND (<0.376)	No concern
trans-Nonachlor	NA	NA	ND (<0.376)	No concern
4,4'-DDE	2.2	2.76	ND (<0.376)	No concern
Dieldrin	0.02	8	ND (<0.376)	No concern
Endrin	2.67 (TEL-FW)	62.4 (PEL-FW)	ND (<0.376)	No concern
Endosulfan II	NA	NA	ND (<0.376)	No concern
4,4'-DDD	2	20	ND (<0.376)	No concern
cis-Nonachlor	NA	NA	ND (<0.376)	No concern
4,4'-DDT	1	7	ND (<0.376)	No concern
Methoxychlor	NA	NA	ND (<3.76)	No concern
Toxaphene	NA	NA	ND (<18.9)	No concern

NA = No screening level available
ND = Not detected (at the stated reporting limit)
TEL and PEL = No ER-Ls or ER-Ms available. Applied Canadian Sediment Quality Guidelines for the Protection of Aquatic Life Threshold and Probable Effect Levels for marine sediment.
TEL-FW and PEL-FW= No ER-L or ER-M available. Applied Canadian Sediment Quality Guidelines for the Protection of Aquatic Life Threshold and Probable Effect Levels Threshold and Probable Effect Levels for freshwater sediment.

Data were compared to ER-L and ER-M benchmarks (Long and Morgan 1990) as for previously reported contaminants. Where no ER-L or ER-M s were available, Canadian Sediment Quality Guidelines corresponding to ER-L and ER-M were applied where available (CCME 2002). For several less commonly encountered pesticides no established sediment screening criteria exist.

As there were no detections, there is no potential concern about pesticides in sediment. Reporting limits were below the screening criteria except in the case of dieldrin at its threshold level. However, the absence of any pesticides point to the absence of dieldrin as well.

3. Sediment Nitrogen

Nitrogen data were evaluated in the supplemental sampling conducted in May 2017, as there were concerns expressed about the potential for excess nitrogen release to Little Bay.

There is a proposed site-specific nutrient criterion for total nitrogen in effect for Great Bay of 250 µg/L (NHDES 2012). This value, based on seasonal averages over a 5-year period, is intended to allow the reestablishment of eel grass beds in the estuary, which are currently in decline. It needs to be emphasized that the nutrient criteria are not indicative of potentially toxic conditions, but instead are intended to prevent reductions of water clarity and dissolved oxygen due to excessive plankton growth ("eutrophication") resulting from the high nutrient influx.

Water samples from the Great Bay system, including Little Bay, routinely exceed the nutrient criterion due to inflows from upstream sources (NHDES 2012). While nitrogen already present in sediment is generally expected to exist in dynamic equilibrium with overlying water, it is possible that disturbance from jet-plowing may temporarily release additional nitrogen. However, this release would be short-term and return to equilibrium conditions as the disturbances abated. The small total volume of mobilized sediment would be insufficient to cause a noticeable increase in water column nitrogen content over the 5-year averaging period of the nutrient criterion.

To fully document this issue, sediment sampling for total nitrogen was conducted at the 12 sampling locations to evaluate the potential contribution of nitrogen to the system. Samples

were analyzed for total nitrogen, defined as the sum of organic nitrogen and ammonia-nitrogen (reported together as Total Kjeldahl Nitrogen) and nitrate-nitrite nitrogen (Table 2).

Table 2 Sediment total nitrogen results

	Location	Total Kjeldahl Nitrogen (mg/kg)	Nitrate and Nitrite Nitrogen (mg/kg)	Total Nitrogen (mg/kg)
C1	West flats	1600	ND (<1.5)	1600
C2	West flats	250	ND (<1.5)	250
C3	West flats	1200	ND (<1.5)	1200
C4	West flats	1200	ND (<1.5)	1200
C5	West flats	680	ND (<1.5)	680
C6	West slope	950	ND (<1.5)	950
C7	West slope	660	ND (<1.5)	660
C8	Channel	200	ND (<1.5)	200
C9	Channel	350	ND (<1.5)	350
C10	Channel	300	ND (<1.5)	300
C11	East slope	1100	ND (<1.5)	1100
C12	East flats	560	ND (<1.5)	560

ND: Not detected

The nitrogen content in the shallow western mud flats were markedly higher than in the channel (although there are exceptions such as C2). Nitrates and nitrites, which are highly mobile and soluble, were not detected in any of the sediment cores, typical of surface sediments where these compounds are rapidly depleted near the surface-water interface (Wang and Van Cappellen 1996).

The total nitrogen measured in the sediment was compared to concentrations in Chesapeake Bay, a broadly similar estuarine system also affected by runoff elevated in nutrients, to provide some context for the observed values. Total nitrogen in Chesapeake Bay sediment ranges from 1,200 to 4,700 mg/kg nitrogen (Boynton et al. 1995). The concentrations observed in the shallow mudflat samples from Little Bay are commensurate with the lower range of Chesapeake Bay, and are considerably lower than Chesapeake Bay in the channel and slopes. The observed nitrogen in the sediment in Little Bay is therefore what would be expected for a system such as this, and therefore is not likely to be source that would worsen the level of nutrient impairment already present in the water column.

Based on these results, nitrogen in sediment is present as organic nitrogen (reported as Total Kjeldahl nitrogen which is the sum of organic nitrogen and ammonium nitrogen). This is consistent with typical sediments, which usually contain >90% organic nitrogen (Golterman 2004). Water/sediment nitrogen flux is controlled by a dynamic system of deposition of organic matter to the sediment and partial release back to the surface water via denitrification of sediment bound organic nitrogen to ammonia nitrogen or nitrogen gas (Golterman 2004). Nitrogen stores, especially in the ammonium form present in deeper sediments not subject to ongoing water/sediment flux may be remobilized to the water column during disturbance.

These increases in organic nitrogen and ammonium are expected to be short-lived as the system re-equilibrates and the nitrogen reenters the sediment sink. Overall this released nitrogen would account for only a small percentage of the total nitrogen concentrations in the sediment (Dunn et al. 2017). As the nutrient criteria for nitrogen are based on long term exposure values (and are based on a 5-year average), short-term increases in surface water nitrogen concentrations from sediment disturbance are unlikely to adversely affect the attainment status for nutrients in Little Bay.

4. Vertical distribution of contaminants

The sample results in the original report were based on compositing the top 4 feet of the sediment column to characterize the total potentially mobilized during the cable installation. Compositing allows identification of potentially troublesome contamination, which then might be a trigger for further analysis. Concerns were raised about whether the compositing interval was too broad, potentially "losing" or diluting the signal from localized high concentrations.

To address this potential concern, the additional sampling conducted in May 2017 targeted sampling from 0-2 feet at representative locations previously sampled from 0-4 feet. The samples were tested for PAHs, PCBs, arsenic and lead to evaluate whether differences between the two intervals might indicate loss of signal due to compositing or depth segregation of contaminants in general. The selected samples were C2 and C4 on the western flats, C7 and C11 on the slopes, C9 in the channel, and C12 on the eastern flats. Table 3 presents the results

Table 3 Comparison of chemical concentrations at different intervals

	Sample location	October 2016 0-4-foot interval	May 2017 0-2-foot interval
Total PAHs (µg/kg)	**C2**	77	ND (<7.5)
	C4	67	ND (<7.5)
	C7	150	220
	C9	ND (<7.5)	ND (<7.5)
	C11	210	390
	C12	170	ND (<7.5)
PCBs (µg/kg)		All ND (<0.75) except C7 at 2 µg/kg	All ND (<0.75)
Arsenic (mg/kg)	**C2**	10.7	8.4
	C4	8.5	9.9
	C7	7.6	8.2
	C9	6.9	15.0
	C11	10.8	8.2
	C12	6.1	5.5
Lead (mg/kg)	**C2**	11.7	8.4
	C4	7.5	10.7

	C7	4.1	5.2
	C9	5.4	11.4
	C11	9.4	16.9
	C12	4.6	3.6

ND: non-detect

There were only minor differences between the 0-2-foot interval and the 0-4-foot interval. The small differences confirm the absence of significant depth stratification and any consequent loss of signal in the previously reported 0-4 foot composites. The results demonstrate the absence of elevated concentrations in the top two feet of sediment which are most likely to be mobilized during jet plowing. The previously reported conclusions remain representative for the conditions in the footprint of the jet plowing.

5. Water Quality Impacts

The USACE Regional Implementation Manual (RIM) (USACE, 2004) evaluation program for dredge disposal identifies potential transfer of contaminants in sediment to the water column, and consequent water quality impacts as an important ecological concern to address in the sediment ecological evaluations. While the evaluation of the pre-mobilization sediment against conservative screening criteria conducted in the previous report demonstrate that the reported contaminant levels are not elevated enough to trigger any adverse effects, comments suggested that a demonstration of absence of impacts using the procedures outlined in Tier II, Step 1 of the RIM would be appropriate. To evaluate this, Step 1 ("Evaluation for compliance with Water Quality Criteria") of Tier II of the RIM manual is presented here to supplement the previous results.

The mass balance model uses the maximum sediment concentration for listed contaminants and assumes a total (100%) release from the sediments to the water column in accordance with Section 5.1 of the *USACE Inland Testing Manual* [USACE 1998]. If the modeled discharge meets the applicable water quality criteria then even under the worst case no exceedance of water quality standards is expected, and no further analysis is needed.

The USACE model is a simple mass balance model:

$$D = [(C_s \text{ x } SS/1000) — C_{wq}] / (C_{wq} — C_{ds})$$

where:

D= dilution factor required to meet water quality criteria (if D>0, dilution into the receiving water could theoretically result in exceedances of water quality criteria

C_s = concentration of the contaminant in the sediment, in µg/kg

SS= suspended solids concentration at the discharge point, in g/L, from the sediment dispersion model. The appropriate timeframe is one hour average, to match the acute water quality criteria

C_{wq}= water quality criterion or screening value, in µg/L. The New Hampshire acute marine water quality criteria were applied. The acute water quality criteria are regulatory values that are not to be exceeded on average for more than 1 hour every 3 years, and represent concentrations that would cause short term toxicity effects to sensitive biota

C_{ds}= background or typical contaminant concentration in µg/L. A background or typical contaminant concentration for the metal contaminants was set at the upper range of typical marine waters (Donat and Bruland 1995), in the absence of any site-specific information. For organics, the background or typical value was assumed to be zero.

Note that if the concentration of the constituent in the dredged material (C_s x SS/1000) is less than C_{wq}, no calculation is necessary since no dilution is required even assuming a complete dissolution into the water column. It can then be concluded that the contaminants in the sediment cannot cause a water quality concern. For this discussion, rearranging the expression allows calculation of a "critical" SS concentration that should not be exceeded (for more than one hour) to ensure the worst-case absence of water quality impacts.

Dilution factors (D) are negative for all analytes up to 430 mg/L TSS, i.e. any concentration below this level cannot trigger an exceedance of WQC. At 430 mg/L, the most sensitive component, copper, could theoretically leach out of the TSS and cause exceedance of its acute WQC assuming all the copper contained in the TSS were transferred to the equivalent water volume. This is highly unrealistic, as much of the copper remains bound in the sediment phase, particularly in the case of background level natural concentrations which are likely to be bound in the mineral phase with dissolution already in long term equilibrium with overlying water. Review of literature data (ECHA 2008) suggests that the partitioning of copper between particulates (i.e. suspended solids) and water is on the order of 24,000:1, i.e. only about 0.02% dissolution. Therefore, it can be concluded with high confidence that the actual release of copper from the displaced sediment would be orders of magnitude lower than the RIM mass balance estimate conservatively predicts, and exceedances of water quality criteria would not occur for copper.

To illustrate the differences between potential loading to the water column, the RIM dilution equation was rearranged to calculate the SS_{max}, the maximum TSS concentration that should not be exceeded without potentially resulting in a localized water quality exceedance. The WQC allow for a maximum one hour exceedance of the criterion (USEPA 1985). Therefore, these values can be compared with the maximum time integrated excess SS concentrations over 1 hour reported by the sediment dispersion model as a worst-case estimate. Table 4 shows that except for copper there is no potential for exceedance of acute water quality criteria unless the SS concentration is well above 1,000 mg/L. Copper, due to its low acute toxicity value, theoretically could result in a water quality exceedance upon 100% dissolution when SS concentrations exceed 430 mg/L for an hour or more.

Table 4 Critical suspended solids values

	C_{wq}	C_{ds}	C_s	SS_{max}
	NH Acute Marine WQC	Estimated background concentration	Maximum sediment concentration	Minimum one hour average SS (rounded) that could result in exceedance of WQC at C_s
Metals	µg/L	µg/L	µg/kg_{dw}	mg/L
Arsenic	69	1.9	11,700	4,500
Cadmium	33	0.1	190	170,000
Chromium	1100	0.3	36,900	30,000
Copper	4.8	0.3	10,500	430
Lead	210	0.03	11,700	12,000
Mercury	1.8	0.002	40	45,000
Nickel	74	0.7	18,200	4,000
Zinc	90	0.6	58,200	1,500
PAHs				
Acenaphthene	970	*0*	*8.4*	Cannot exceed WQC[1]
Acenaphthylene	300	0	11	Cannot exceed WQC[1]
Anthracene	300	0	9.3	Cannot exceed WQC[1]
Fluoranthene	300	0	39	Cannot exceed WQC[1]
Fluorene	300	0	13	Cannot exceed WQC[1]
Naphthalene	300	*0*	*8.4*	Cannot exceed WQC[1]
Phenanthrene	300	0	14	Cannot exceed WQC[1]
Pyrene	300	0	37	Cannot exceed WQC[1]
Benzo(a)anthracene	300	0	13	Cannot exceed WQC[1]
Benzo(b)fluoranthene	300	0	23	Cannot exceed WQC[1]
Benzo(k)fluoranthene	300	0	20	Cannot exceed WQC[1]
Benzo(a)pyrene	300	0	23	Cannot exceed WQC[1]
Indeno(1,2,3,c,d)pyrene	300	0	19	Cannot exceed WQC[1]
Benzo(g,h,i)perylene	300	0	19	Cannot exceed WQC[1]
Dibenzo(a,h)anthracene	300	*0*	*8*	Cannot exceed WQC[1]
Total PAH_{16}	300	0	390	770,000
PCBs and Pesticides				
PCBs	10	0	15	670,000
DDT	0.13	0	ND (<0.38)	350,000
Dieldrin	0.71	0	ND (<0.38)	Cannot exceed WQC[1]

[1] The WQC cannot be exceeded even if the TSS concentration reached 100% solids.

Review of the revised sediment dispersion model output provides values for maximum time integrated excess suspended solids for the jet plow and hand jetted segments, i.e. the highest concentration of TSS expected over the one hour averaging time. As the value is a maximum and not an average, it will be higher than the average or typical value over the time period. The 1 hour time integrated maximum excess SS concentrations exceeds 430 mg/L, the cutoff for copper, over approximately 0.5 acres for the jet plowed segment, and 0.6 acres for the diver burial segments, for a total of 1.1 acres. The affected area is within and immediately adjacent to the cable burial work area. As noted, the likely dissolution of sediment copper is orders of magnitude less than the 100% dissolution assumed by the RIM mass balance model, indicating any actual impact is exceedingly unlikely.

No other areas, and no other contaminants could result in water quality concerns. Therefore, it can be concluded that acute water quality impacts due to toxic contaminants contained in the sediment are not a concern for the project.

6. Summary.

This Technical Memorandum supplements the "*Technical Memorandum: Review of ecological risk implications of SRP sediment analytical data*" with the results and ecological implications of additional analysis conducted in May 2017 to address data gaps and concerns expressed in comments on the original report.

Four additional analyses were conducted to address specific potential data gaps. These included adding evaluation of organochlorine pesticides, evaluating sediment nitrogen and its potential contribution to the water column, evaluating the representativeness of the sediment composite samples, and estimating worst case water quality impacts from increased suspended sediments in the water column during cable installation activities.

Pesticides were all non-detected, indicating no further environmental concern. The contribution of sediment nitrogen to the water column will not affect the long-term compliance with nutrient criteria for the Great bay system. There was no evidence for substantial segregation of contaminants in the sediment column, indicating that the original conclusions remain valid.

The concentrations present in sediment, even under the worst-case assumptions inherent in the USACE RIM mass balance will not result in water quality criteria violations at the expected suspended solids concentrations during the cable installation.

In conclusion, this supplemental analysis reconfirms the conclusions reported in the *Technical Memorandum: Review of ecological risk implications of SRP sediment analytical*

data" that the proposed project is highly unlikely to present adverse ecological effects from contaminants as envisioned.

7. References

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Appendix B: Vibracore Boring Logs, Field Notes, and Photologs

NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS

PROJECT NUMBER	BORING NUMBER	
22860.006/05	C-1	SHEET _1__ OF _1__

Soil Boring Log

PROJECT : Eversource Little Bay
LOCATION : Little Bay NH
ELEVATION : NA
DRILLING CONTRACTOR : Normandeau
DRILLING METHOD AND EQUIPMENT USED : Vibracore
DATE 5/23/2017
WATER LEVELS : 4.2 feet
START : 1220 END 1235
LOGGER : MKM

DEPTH BELOW SURFACE (inches)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
0					Homogenous throughout	0" to 24"
					Very soft to soft	two bottles sampled at 1225
					Gley1 4/10Y	C-1/0-24
					Clay with silt	
					Very wet to wet	
					Medium plasticity	
					Cohesive	
					Slight sulfur odor	
						24" to 48"
						one bottle sampled at 1230
						C-1/24-48
57"						

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PROJECT NUMBER	BORING NUMBER	
22860.006/05	C-2	SHEET _1__ OF _1__

Soil Boring Log

PROJECT : Eversource Little Bay
LOCATION : Little Bay NH
ELEVATION : NA
DRILLING CONTRACTOR : Normandeau
DRILLING METHOD AND EQUIPMENT USED : Vibracore
DATE 5/23/2017
WATER LEVELS : 4 feet
START : 1040 END 1056
LOGGER : MKM

DEPTH BELOW SURFACE (inches)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
0					Homogenous throughout	0" to 24"
					Very soft to soft	two bottles sampled at 1045
					Gley1 4/10Y	C-2/0-24
					Clay with silt	
					Very wet to wet	
					Medium plasticity	
					Cohesive	
					Slight sulfur odor	
						24" to 48"
						one bottle sampled at 1050
						C-2/24-48
57"						

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PROJECT NUMBER	BORING NUMBER	
22860.006/05	C-3	SHEET _1__ OF _1__

Soil Boring Log

PROJECT : Eversource Little Bay
LOCATION : Little Bay NH
ELEVATION : NA
DRILLING CONTRACTOR : Normandeau
DRILLING METHOD AND EQUIPMENT USED : Vibracore
DATE 5/23/2017
WATER LEVELS : 3.2 feet
START : 1110 END 1117
LOGGER : MKM

DEPTH BELOW SURFACE (inches)	INTERVAL (FT) / RECOVERY (FT) / #/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
0			Homogenous throughout Very soft to soft Gley1 4/10Y Clay with silt Very wet to wet Medium plasticity Cohesive Slight sulfur odor	0" to 24" two bottles sampled at 1110 C-3/0-24 24" to 48" one bottle sampled at 1115 C-3/24-48
52"				

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PROJECT NUMBER	BORING NUMBER	
22860.006/05	C-4	SHEET _1__ OF _1__

Soil Boring Log

PROJECT : Eversource Little Bay
LOCATION : Little Bay NH
ELEVATION : NA
DRILLING CONTRACTOR : Normandeau
DRILLING METHOD AND EQUIPMENT USED : Vibracore
DATE 5/23/2017
WATER LEVELS : 4.9 feet
START : 1425 END 1440
LOGGER : MKM

DEPTH BELOW SURFACE (inches)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION	COMMENTS
0					Homogenous throughout Very soft to soft Gley1 3/10Y Clay with silt Very wet to wet Medium plasticity Cohesive Slight sulfur odor	0" to 24" two bottles sampled at 1430 C-4/0-24 24" to 48" one bottle sampled at 1435 C-4/24-48
57"						

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PROJECT NUMBER	BORING NUMBER	
22860.006/05	C-5	SHEET _1__ OF _1__

Soil Boring Log

PROJECT : Eversource Little Bay
LOCATION : Little Bay NH
ELEVATION : NA
DRILLING CONTRACTOR : Normandeau
DRILLING METHOD AND EQUIPMENT USED : Vibracore
DATE 5/23/2017
WATER LEVELS : 4.4 feet
START : 1411 END 1419
LOGGER : MKM

DEPTH BELOW SURFACE (inches)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION	COMMENTS
0					Homogenous throughout Very soft to soft Gley1 4/10Y Clay with silt and trace sand Very wet to wet Medium plasticity Cohesive Slight sulfur odor	0" to 24" two bottles sampled at 1415 C-5/0-24 24" to 48" one bottle sampled at 1417 C-5/24-48
70"						

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PROJECT NUMBER	BORING NUMBER	
22860.006/05	C-6	SHEET _1__ OF _1__

Soil Boring Log

PROJECT : Eversource Little Bay
LOCATION : Little Bay NH
ELEVATION : NA
DRILLING CONTRACTOR : Normandeau
DRILLING METHOD AND EQUIPMENT USED : Vibracore
DATE 5/23/2017
WATER LEVELS : 14.5 feet
START : 1238 END 1255
LOGGER : MKM

DEPTH BELOW SURFACE (inches)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
0					Homogenous throughout	0" to 24"
					Very soft to soft	two bottles sampled at 1243
					Gley1 4/10Y	C-6/0-24
					Clay with silt and trace sand	
					Very wet to wet	
					Medium plasticity	
					Cohesive	
					Slight sulfur odor	
						24" to 48"
						one bottle sampled at 1245
						C-6/24-48
						48" to 68"
						one bottle sampled at 1250
						C-6/48-68
						Refusal most likely due to clay
68"						

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PROJECT NUMBER	BORING NUMBER	
22860.006/05	C-7	SHEET _1__ OF _1__

Soil Boring Log

PROJECT : Eversource Little Bay
LOCATION : Little Bay NH
ELEVATION : NA
DRILLING CONTRACTOR : Normandeau
DRILLING METHOD AND EQUIPMENT USED : Vibracore
DATE 5/24/2017
WATER LEVELS : 19.2 feet
START : 750 END 0758
LOGGER : MKM

DEPTH BELOW SURFACE (inches)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
0					Homogenous throughout Very soft to soft Gley1 3/10Y Clay with silt and trace sand Very wet to wet Medium plasticity Cohesive Slight sulfur odor	0" to 24" two bottles sampled at 0752 C-7/0-24
						24" to 48" one bottle sampled at 0755 C-7/24-48
						48" to 58" one bottle sampled at 0757 C-7/48-58
						Refusal most likely due to clay
58"						

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PROJECT NUMBER	BORING NUMBER	
22860.006/05	C-8	SHEET _1__ OF _1__

Soil Boring Log

PROJECT : Eversource Little Bay
LOCATION : Little Bay NH
ELEVATION : NA
DRILLING CONTRACTOR : Normandeau
DRILLING METHOD AND EQUIPMENT USED : Vibracore
DATE 5/23/2017
WATER LEVELS : 36.6 feet
START : 1255 END 1305
LOGGER : MKM

DEPTH BELOW SURFACE (inches)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
0					Stiff 5YR 4/2 Fine to medium grain sands with silt Moist Non-plastic Non-cohesive No odor	0" to 24" two bottles sampled at 1300 C-8/0-24
17"					Stiff Gley1 2.5/10Y Fine to medium grain sands with silt and clay Moist Low plasticity Slightly cohesive No odor	24" to 36" one bottle sampled at 1303 C-8/24-36 Refusal most likely due to clay
36"						

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PROJECT NUMBER	BORING NUMBER	
22860.006/05	C-9	SHEET _1__ OF _1__

Soil Boring Log

PROJECT : Eversource Little Bay
LOCATION : Little Bay NH
ELEVATION : NA
DRILLING CONTRACTOR : Normandeau
DRILLING METHOD AND EQUIPMENT USED : Vibracore
DATE 5/24/2017
WATER LEVELS : 30.5 feet
START : 818 END 0825
LOGGER : MKM

DEPTH BELOW SURFACE (inches)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
0					Homogenous throughout Medium stiffness Gley1 6/10Y Clay with silt and trace sand some gravel and medium sands in top 6 inches Moist to wet High plasticity Cohesive No odor	0" to 18" two bottles sampled at 0820 C-9/0-18
18"						Refusal most likely due to clay

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PROJECT NUMBER	BORING NUMBER	
22860.006/05	C-10	SHEET _1__ OF _1__

Soil Boring Log

PROJECT : Eversource Little Bay
LOCATION : Little Bay NH
ELEVATION : NA
DRILLING CONTRACTOR : Normandeau
DRILLING METHOD AND EQUIPMENT USED : Vibracore
DATE 5/24/2017
WATER LEVELS : 21.5 feet
START : 800 END 0810
LOGGER : MKM

DEPTH BELOW SURFACE (inches)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION	COMMENTS
0					Homogenous throughout Medium stiffness Gley1 3/10Y Fine to medium grain sands with silt and trace clay Wet Low plasticity Cohesive Slight sulfur odor	0" to 24" two bottles sampled at 0806 C-10/0-24 24" to 41" one bottle sampled at 0808 C-10/24-41 Refusal most likely due to sands
41"						

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PROJECT NUMBER	BORING NUMBER	
22860.006/05	C-11	SHEET _1__ OF _1__

Soil Boring Log

PROJECT : Eversource Little Bay
LOCATION : Little Bay NH
ELEVATION : NA
DRILLING CONTRACTOR : Normandeau
DRILLING METHOD AND EQUIPMENT USED : Vibracore
DATE 5/24/2017
WATER LEVELS : 13.5 feet
START : 730 END 0745
LOGGER : MKM

DEPTH BELOW SURFACE (inches)	INTERVAL (FT)	RECOVERY (FT)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION	COMMENTS
0					Homogenous throughout Very soft to soft Gley1 3/10Y Clay with silt and trace sand Very wet to wet Medium plasticity Cohesive Slight sulfur odor	0" to 24" two bottles sampled at 0733 C-11/0-24
						24" to 48" one bottle sampled at 0737 C-11/24-48
						48" to 72" one bottle sampled at 0739 C-11/48-72
						72" to 89" one bottle sampled at 0742 C-11/72-89
89"						Refusal most likely due to clay

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ENVIRONMENTAL CONSULTANTS

PROJECT NUMBER	BORING NUMBER	
22860.006/05	C-12	SHEET _1__ OF _1__

Soil Boring Log

PROJECT : Eversource Little Bay
LOCATION : Little Bay NH
ELEVATION : NA
DRILLING CONTRACTOR : Normandeau
DRILLING METHOD AND EQUIPMENT USED : Vibracore
DATE 5/23/2017
WATER LEVELS : 5.6 feet
START : 1436 END 1450
LOGGER : MKM

DEPTH BELOW SURFACE (inches)	INTERVAL (FT) / RECOVERY (FT) / #/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.
0				0" to 24"
			Very soft to soft	two bottles sampled at 1445
			Gley1 4/10Y	C-12/0-24
			Clay with silt and trace sand and minor gravel	
			Very wet to wet	
			High plasticity	
			Cohesive	
			No odor	
16"				24" to 39"
			Soft to stiff	one bottle sampled at 1448
			7.5YR 4/6	C-12/24-39
			Fine to medium grain sands with silt and clay	
			Very wet to wet	
			Low plasticity	
			Slightly cohesive	
			No odor	
				Refusal most likely due to sands
39"				

Attachment B

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rev:11/08

FIELD DATA SHEET

Project Name:	**Eversource: Seacost Reliability Project**		**Proj. #: 22860.006**
Site Name:	**Little Bay**		**Task #: 05**
City:	**Newington**	**State: NH**	**Date: 05/23/17**

Field Team Leader(s): MKM
Field Team Safety Coordinator: **MKM**
Field Crew: KCM, RCB, GMC
Arrival & Departure Times: **09:55-10:20**
Station ID #: **C-1**
Weather: Clear (Cloudy) Rain Other _____
Photos: Y (N) Roll No./Exposure No.: NA
Wind Conditions (Speed/Direction): **5MPH North**

FIELD DATA

Water Depth: __4.2_____ ft. Tide: Ebb (Flood) Low Slack High Slack Other _____
PID: **N/A** Redox Potential: **N/A** pH: **N/A** H^2O Temp.: **N/A** Air Temp.: **NA**

SAMPLE/PUSH #1

Core ID#: **C-1** Coring Time: __**10:10**__ Penetration Depth: ___60**"**____ Core Recovery: ____**57"**___
Sample Method: Ponar (Vibracore) / Piston Core / Manual Coring Material: (CAB) / Aluminum / SS Core Diameter (OD): 2" 3" (4"
Vibracore Type: (Rossfelder) / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: (Y) N

SAMPLE/PUSH #2

Core ID#: _____ Coring Time: _____ Penetration Depth: _____ft. Core Recovery: _____ft
Sample Method: Ponar / Vibracore / Piston Core / Manual Coring Material: CAB / Aluminum / SS Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

SAMPLE/PUSH #3

Core ID#: _____ Coring Time: _____ Penetration Depth: _____ft. Core Recovery: _____ft
Sample Method: Ponar / Vibracore / Piston Core / Manual Coring Material: CAB / Aluminum / SS Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

DGPS DATA

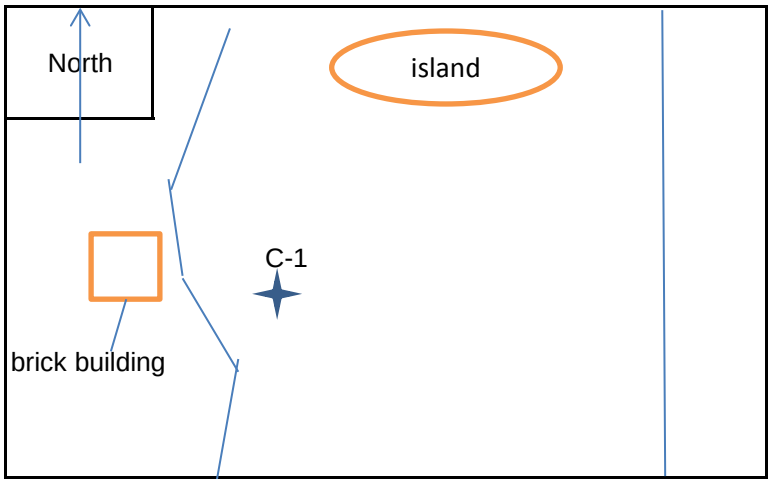
Operator: KCM
File Name: **1-1**
Lat / N: **1446190.77**
Lon / E: **3806291.49**
PDOP or SVs: **11**

Coordinate Units: Lat/Lon (US Survey Feet)
Datum: NAD1983 (Y) N Other _____
Proj.: WGS 84
GPS Serial #: Geo XH 6000

COMMENTS / NOTES

Ft. Tube Used=5'

Preparer's Initial: KCM



Attachment B

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ENVIRONMENTAL CONSULTANTS

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FIELD DATA SHEET

Project Name:	**Eversource: Seacost Reliability Project**	**Proj. #: 22860.006**
Site Name:	**Little Bay**	**Task #: 05**
City:	**Newington** **State:** **NH**	**Date: 05/23/17**

Field Team Leader(s): MKM
Field Team Safety Coordinator: **MKM**
Field Crew: KCM, RCB, GMC
Arrival & Departure Times: **09:35-09:50**
Station ID #: **C-2**
Weather: Clear (Cloudy) Rain Other _____
Photos: Y (N) Roll No./Exposure No.: NA
Wind Conditions (Speed/Direction): **5MPH North**

FIELD DATA

Water Depth: __4.0_____ ft. Tide: Ebb (Flood) Low Slack High Slack Other _____
PID: **N/A** Redox Potential: **N/A** pH: **N/A** H^2O Temp.: **N/A** Air Temp.: **NA**

SAMPLE/PUSH #1

Core ID#: **C-2** Coring Time: __**09:45**__ Penetration Depth: ___**60"**____ Core Recovery: ____**57"**___
Sample Method: Ponar / (Vibracore) / Piston Core / Manual Coring Material: (CAB) / Aluminum / SS Core Diameter (OD): 2" 3" (4"
Vibracore Type: (Rossfelder) / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: (Y) N

SAMPLE/PUSH #2

Core ID#: _____ Coring Time: _____ Penetration Depth: _____ft. Core Recovery: _____ft
Sample Method: Ponar / Vibracore / Piston Core / Manual Coring Material: CAB / Aluminum / SS Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

SAMPLE/PUSH #3

Core ID#: _____ Coring Time: _____ Penetration Depth: _____ft. Core Recovery: _____ft
Sample Method: Ponar / Vibracore / Piston Core / Manual Coring Material: CAB / Aluminum / SS Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

DGPS DATA

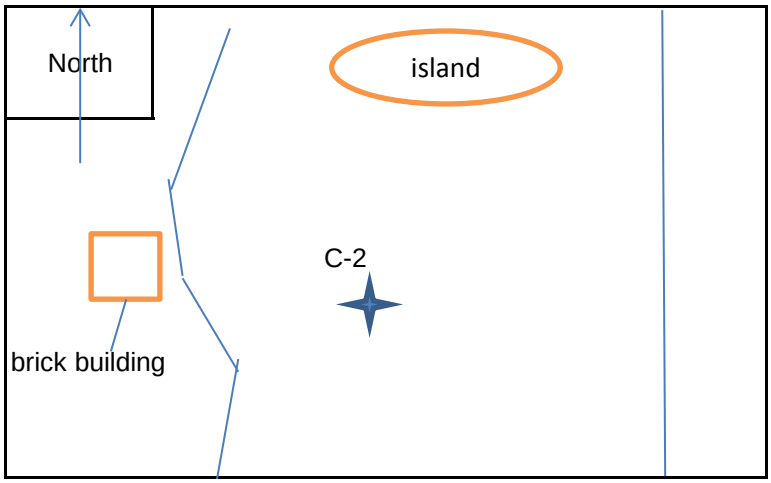
Operator: KCM
File Name: **2-1**
Lat / N: **1445960.26**
Lon / E: **3806538.26**
PDOP or SVs: 9

Coordinate Units: Lat/Lon (US Survey Feet)
Datum: NAD1983 (Y) N Other _____
Proj.: WGS 84
GPS Serial #: Geo XH 6000

COMMENTS / NOTES

Ft. Tube Used=5'

Preparer's Initial: KCM



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FIELD DATA SHEET

Project Name:	**Eversource: Seacost Reliability Project**		**Proj. #: 22860.006**
Site Name:	**Little Bay**		**Task #: 05**
City:	**Newington**	**State: NH**	**Date: 05/23/17**

Field Team Leader(s): MKM
Field Team Safety Coordinator: **MKM**
Field Crew: KCM, RCB, GMC
Arrival & Departure Times: **09:00-09:30**
Station ID #: **C-3**
Weather: Clear (Cloudy) Rain Other _____
Photos: Y (N) Roll No./Exposure No.: NA
Wind Conditions (Speed/Direction): **5 MPH North**

FIELD DATA

Water Depth: 3.2 ft. Tide: Ebb (Flood) Low Slack High Slack Other _____
PID: **N/A** Redox Potential: **N/A** pH: **N/A** H^2O Temp.: **N/A** Air Temp.: **NA**

SAMPLE/PUSH #1

Core ID#: **C-3** Coring Time: **09:15** Penetration Depth: **60"** Core Recovery: **52"**
Sample Method: Ponar (Vibracore) / Piston Core / Manual Coring Material: (CAB) / Aluminum / SS Core Diameter (OD): 2" 3" (4"
Vibracore Type: (Rossfelder) / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: (Y) N

SAMPLE/PUSH #2

Core ID#: _____ Coring Time: _____ Penetration Depth: _____ft. Core Recovery: _____ft
Sample Method: Ponar / Vibracore / Piston Core / Manual Coring Material: CAB / Aluminum / SS Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

SAMPLE/PUSH #3

Core ID#: _____ Coring Time: _____ Penetration Depth: _____ft. Core Recovery: _____ft
Sample Method: Ponar / Vibracore / Piston Core / Manual Coring Material: CAB / Aluminum / SS Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

DGPS DATA

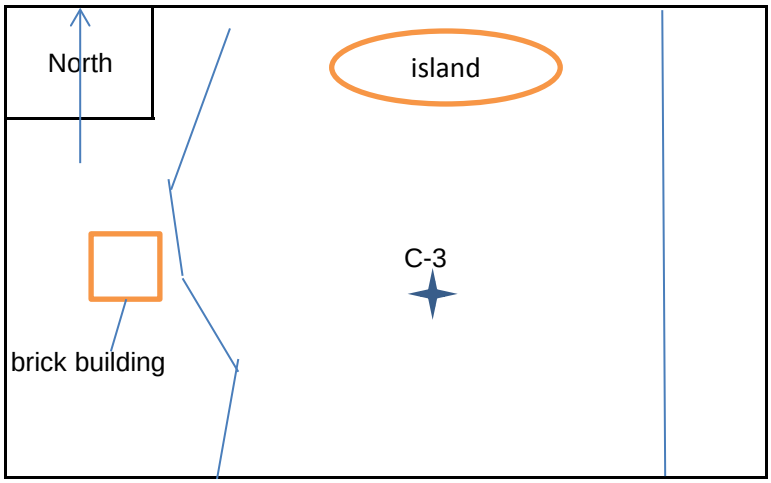
Operator: KCM
File Name: **3-1**
Lat / N: **1445767.99**
Lon / E: **3806882.48**
PDOP or SVs: 9

Coordinate Units: Lat/Lon (US Survey Feet)
Datum: NAD1983 (Y) N Other _____
Proj.: WGS 84
GPS Serial #: Geo XH 6000

COMMENTS / NOTES

Ft. Tube Used=5'

Preparer's Initial: KCM



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FIELD DATA SHEET

Project Name:	**Eversource: Seacost Reliability Project**		**Proj. #: 22860.006**
Site Name:	**Little Bay**		**Task #: 05**
City:	**Newington**	**State: NH**	**Date: 05/23/17**

Field Team Leader(s): MKM
Field Team Safety Coordinator: **MKM**
Field Crew: KCM, RCB, GMC
Arrival & Departure Times: **12:55-13:20**
Station ID #: **C-4**
Weather: (Clear) Cloudy Rain Other _____
Photos: Y (N) Roll No./Exposure No.: NA
Wind Conditions (Speed/Direction): **0-5 MPH W/NW**

FIELD DATA

Water Depth: **4.9** ft. Tide: (Ebb) Flood Low Slack High Slack Other _____
PID: **N/A** Redox Potential: **N/A** pH: **N/A** H^2O Temp.: **N/A** Air Temp.: **NA**

SAMPLE/PUSH #1

Core ID#: **C-4** Coring Time: **13:10** Penetration Depth: 60" Core Recovery: **57"**
Sample Method: Ponar / (Vibracore) / Piston Core / Manual Coring Material: (CAB) / Aluminum / SS Core Diameter (OD): 2" 3" (4"
Vibracore Type: (Rossfelder) / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: (Y) N

SAMPLE/PUSH #2

Core ID#: _____ Coring Time: _____ Penetration Depth: _____ft. Core Recovery: _____ft
Sample Method: Ponar / Vibracore / Piston Core / Manual Coring Material: CAB / Aluminum / SS Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

SAMPLE/PUSH #3

Core ID#: _____ Coring Time: _____ Penetration Depth: _____ft. Core Recovery: _____ft
Sample Method: Ponar / Vibracore / Piston Core / Manual Coring Material: CAB / Aluminum / SS Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

DGPS DATA

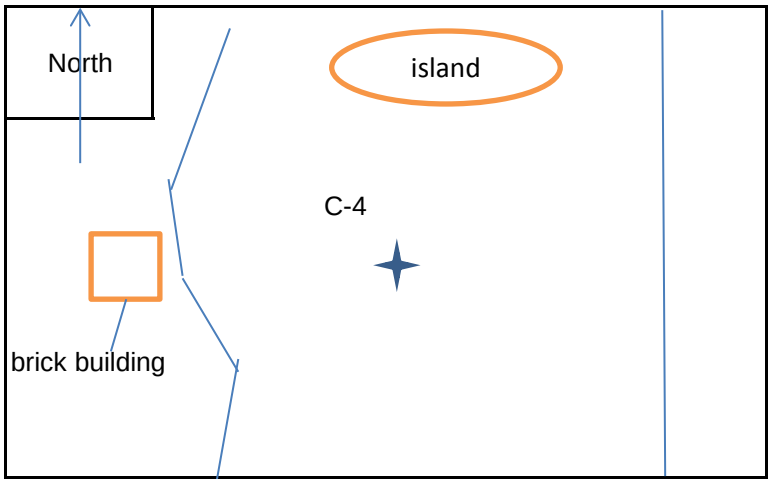
Operator: KCM
File Name: **4-1**
Lat / N: **1445553.75**
Lon / E: **3807198.38**
PDOP or SVs: 10

Coordinate Units: Lat/Lon (US Survey Feet)
Datum: NAD1983 (Y) N Other _____
Proj.: WGS84
GPS Serial #: Geo XH 6000

COMMENTS / NOTES

Ft. Tube Used=5'

Preparer's Initial: KCM



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FIELD DATA SHEET

Project Name:	**Eversource: Seacost Reliability Project**		**Proj. #: 22860.006**
Site Name:	**Little Bay**		**Task #: 05**
City:	**Newington**	**State: NH**	**Date: 05/23/17**

Field Team Leader(s): MKM
Field Team Safety Coordinator: **MKM**
Field Crew: KCM, RCB, GMC
Arrival & Departure Times: **13:30-13:50**
Station ID #: **C-5**
Weather: (Clear) Cloudy Rain Other _____
Photos: Y (N) Roll No./Exposure No.: NA
Wind Conditions (Speed/Direction): **5-10 MPH NW**

FIELD DATA

Water Depth: __4.4_____ ft. Tide: (Ebb) Flood Low Slack High Slack Other _____
PID: **N/A** Redox Potential: **N/A** pH: **N/A** H^2O Temp.: **N/A** Air Temp.: **NA**

SAMPLE/PUSH #1

Core ID#: **C-5** Coring Time: ___**13:40**__ Penetration Depth: ___72**"**____ Core Recovery: ____70**"**___
Sample Method: Ponar / (Vibracore) / Piston Core / Manual Coring Material: (CAB) / Aluminum / SS Core Diameter (OD): 2" 3" (4"
Vibracore Type: (Rossfelder) / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: (Y) N

SAMPLE/PUSH #2

Core ID#: _____ Coring Time: _____ Penetration Depth: _____ft. Core Recovery: _____ft
Sample Method: Ponar / Vibracore / Piston Core / Manual Coring Material: CAB / Aluminum / SS Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

SAMPLE/PUSH #3

Core ID#: _____ Coring Time: _____ Penetration Depth: _____ft. Core Recovery: _____ft
Sample Method: Ponar / Vibracore / Piston Core / Manual Coring Material: CAB / Aluminum / SS Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

DGPS DATA

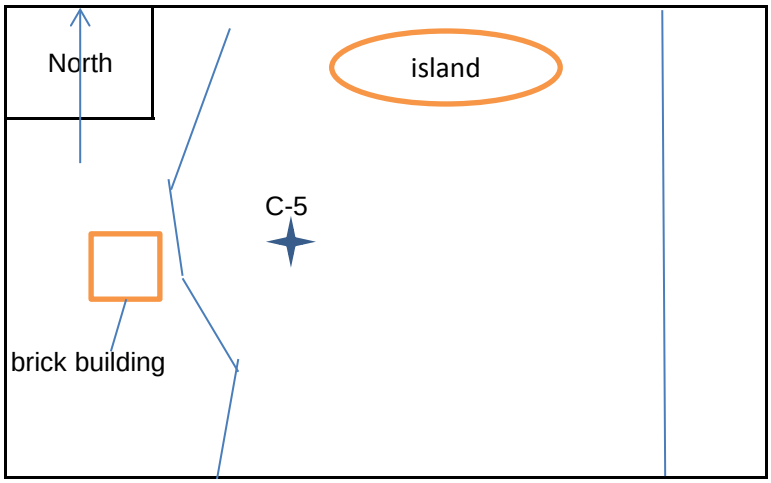
Operator: KCM
File Name: **5-1**
Lat / N: **1445331.25**
Lon / E: **3807521.42**
PDOP or SVs: 11

Coordinate Units: Lat/Lon (US Survey Feet)
Datum: NAD1983 (Y) N Other _____
Proj.: WGS 84
GPS Serial #: Geo XH 6000

COMMENTS / NOTES

Ft. Tube Used=6'

Preparer's Initial: KCM



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FIELD DATA SHEET

Project Name:	**Eversource: Seacost Reliability Project**	**Proj. #: 22860.006**
Site Name:	**Little Bay**	**Task #: 05**
City:	**Newington** **State:** **NH**	**Date: 05/23/17**

Field Team Leader(s): MKM
Field Team Safety Coordinator: **MKM**
Field Crew: KCM, RCB, GMC
Arrival & Departure Times: **10:28-11:05**
Station ID #: **C-6**
Weather: (Clear) Cloudy Rain Other _____
Photos: Y (N) Roll No./Exposure No.: NA
Wind Conditions (Speed/Direction): 5 MPH North

FIELD DATA

Water Depth: 14.5 ft. Tide: Ebb (Flood) Low Slack High Slack Other _____
PID: **N/A** Redox Potential: **N/A** pH: **N/A** H^2O Temp.: **N/A** Air Temp.: **NA**

SAMPLE/PUSH #1

Core ID#: **C-6** Coring Time: **10:40** Penetration Depth: **72"** Core Recovery: **30"**
Sample Method: Ponar / (Vibracore) / Piston Core / Manual Coring Material: (CAB) / Aluminum / SS Core Diameter (OD): 2" 3" (4"
Vibracore Type: (Rossfelder) / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: (Y) N

SAMPLE/PUSH #2

Core ID#: **C-6** Coring Time: **10:55** Penetration Depth: **72"** Core Recovery: **68"**
Sample Method: Ponar / (Vibracore) / Piston Core / Manual Coring Material: (CAB) / Aluminum / SS Core Diameter (OD): 2" 3" (4"
Vibracore Type: (Rossfelder) / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: (Y) N

SAMPLE/PUSH #3

Core ID#: _____ Coring Time: _____ Penetration Depth: _____ Core Recovery: _____
Sample Method: Ponar / Vibracore / Piston Core / Manual Coring Material: CAB / Aluminum / SS Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

DGPS DATA

Operator: KCM
File Name: **6-1**
Lat / N: **1445139.47**
Lon / E: **3807829.11**
PDOP or SVs: 9

Coordinate Units: Lat/Lon (US Survey Feet)
Datum: NAD1983 (Y) N Other _____
Proj.: WGS 84
GPS Serial #: Geo XH 6000

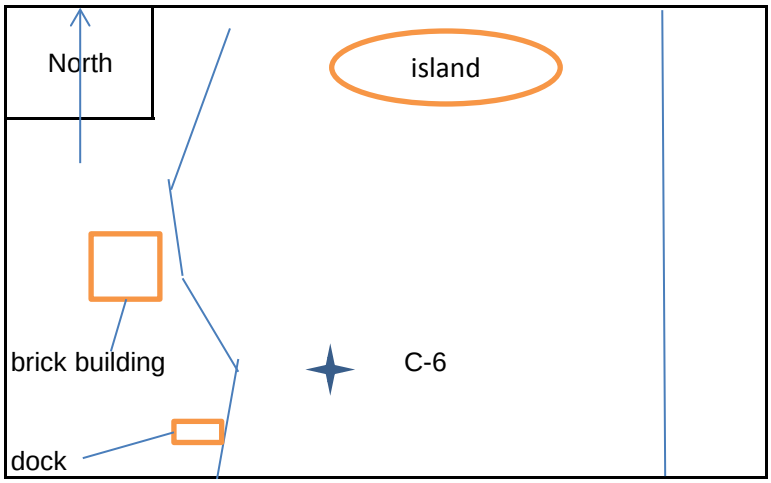
COMMENTS / NOTES

First push went 6' penetration but "bulleting" occurred and recovery was not satisfactory.
Push 2 in same location yielded better recovery.

Kept push 2 for sample.

Ft. Tube Used=6'

Preparer's Initial: KCM



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FIELD DATA SHEET

Project Name:	**Eversource: Seacost Reliability Project**		**Proj. #: 22860.006**
Site Name:	**Little Bay**		**Task #: 05**
City:	**Newington**	**State: NH**	**Date: 05/23/17**

Field Team Leader(s): MKM
Field Team Safety Coordinator: **MKM**
Field Crew: KCM, RCB, GMC
Arrival & Departure Times: **13:53-14:50**
Station ID #: **C-7**
Weather: (Clear) Cloudy Rain Other _____
Photos: Y (N) Roll No./Exposure No.: NA
Wind Conditions (Speed/Direction): **5-10 MPH NW**

FIELD DATA

Water Depth: __19.2____ ft. Tide: (Ebb) Flood Low Slack High Slack Other _____
PID: **N/A** Redox Potential: **N/A** pH: **N/A** H^2O Temp.: **N/A** Air Temp.: **NA**

SAMPLE/PUSH #1

Core ID#: **C-7** Coring Time: ___**14:40**__ Penetration Depth: ___**64"**____ Core Recovery: ____**58"**___
Sample Method: Ponar / (Vibracore) / Piston Core / Manual Coring Material: (CAB) / Aluminum / SS Core Diameter (OD): 2" 3" (4"
Vibracore Type: (Rossfelder) / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: (Y) N

SAMPLE/PUSH #2

Core ID#: _____ Coring Time: _____ Penetration Depth: _____ Core Recovery: _____
Sample Method: Ponar / Vibracore / Piston Core / Manual Coring Material: CAB / Aluminum / SS Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

SAMPLE/PUSH #3

Core ID#: _____ Coring Time: _____ Penetration Depth: _____ Core Recovery: _____
Sample Method: Ponar / Vibracore / Piston Core / Manual Coring Material: CAB / Aluminum / SS Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

DGPS DATA

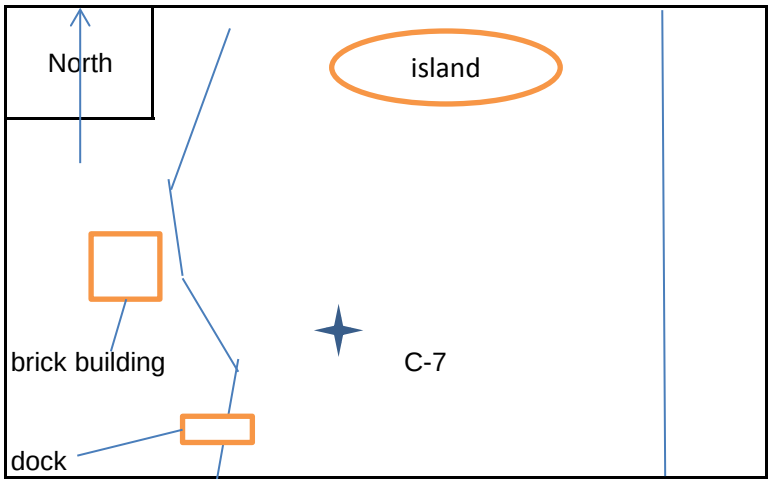
Operator: KCM
File Name: **7-1**
Lat / N: **1444933.64**
Lon / E: **3808087.65**
PDOP or SVs: 10

Coordinate Units: Lat/Lon (US Survey Feet)
Datum: NAD1983 (Y) N Other _____
Proj.: WGS 84
GPS Serial #: Geo XH 6000

COMMENTS / NOTES

Ft. Tube Used=7'

Preparer's Initial: KCM



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FIELD DATA SHEET

Project Name:	**Eversource: Seacost Reliability Project**		**Proj. #: 22860.006**
Site Name:	**Little Bay**		**Task #: 05**
City:	**Newington**	**State: NH**	**Date: 05/23/17**

Field Team Leader(s): MKM
Field Team Safety Coordinator: **MKM**
Field Crew: KCM, RCB, GMC
Arrival & Departure Times: **11:10-11:55**
Station ID #: **C-8**
Weather: (Clear) Cloudy Rain Other _____
Photos: Y (N) Roll No./Exposure No.: NA
Wind Conditions (Speed/Direction): 0-5 **MPH North**

FIELD DATA

Water Depth: **36.6** ft. Tide: Ebb Flood Low Slack (High Slack) Other _____
PID: **N/A** Redox Potential: **N/A** pH: **N/A** H^2O Temp.: **N/A** Air Temp.: **NA**

SAMPLE/PUSH #1

Core ID#: **C-8** Coring Time: 11:25 Penetration Depth: 24" Core Recovery: 24"
Sample Method: Ponar / (Vibracore) / Piston Core / Manual Coring Material: (CAB) / Aluminum / SS Core Diameter (OD): 2" 3" (4"
Vibracore Type: (Rossfelder) / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: (Y) N

SAMPLE/PUSH #2

Core ID#: **C-8** Coring Time: 11:45 Penetration Depth: 40" Core Recovery: 36"
Sample Method: Ponar / (Vibracore) / Piston Core / Manual Coring Material: (CAB) / Aluminum / SS Core Diameter (OD): 2" 3" (4"
Vibracore Type: (Rossfelder) / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: (Y) N

SAMPLE/PUSH #3

Core ID#: _____ Coring Time: _____ Penetration Depth: _____ Core Recovery: _____
Sample Method: Ponar / Vibracore / Piston Core / Manual Coring Material: CAB / Aluminum / SS Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

DGPS DATA

Operator: KCM
File Name: **8-1**
Lat / N: **1444621.17**
Lon / E: **3808598.81**
PDOP or SVs: 10

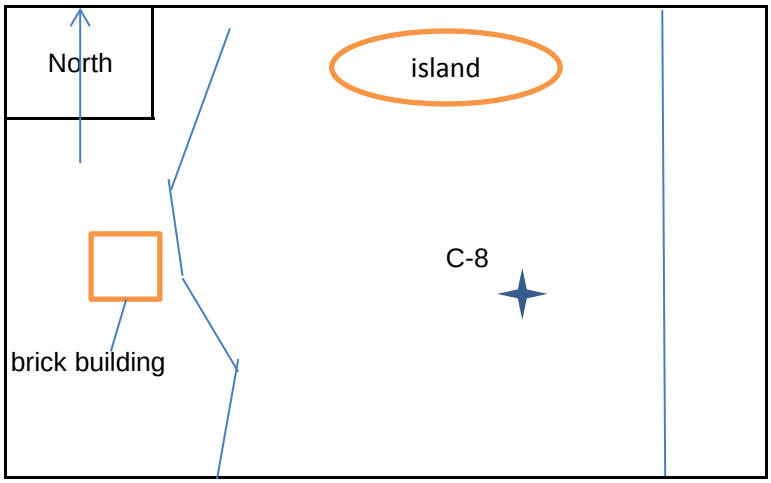
Coordinate Units: Lat/Lon (US Survey Feet)
Datum: NAD1983 (Y) N Other _____
Proj.: WGS 84
GPS Serial #: Geo XH 6000

COMMENTS / NOTES

First push recovery not satisfactory.
Second push at same location yielded ample recovery.

Ft. Tube Used=4'

Preparer's Initial: KCM



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FIELD DATA SHEET

Project Name:	**Eversource: Seacost Reliability Project**		**Proj. #: 22860.006**
Site Name:	**Little Bay**		**Task #: 05**
City:	**Newington**	**State: NH**	**Date: 05/23/17**

Field Team Leader(s): MKM
Field Team Safety Coordinator: **MKM**
Field Crew: KCM, RCB, GMC
Arrival & Departure Times: **16:10-17:15**
Station ID #: **C-9**
Weather: (Clear) Cloudy Rain Other _____
Photos: Y (N) Roll No./Exposure No.: NA
Wind Conditions (Speed/Direction): **5 MPH NW**

FIELD DATA

Water Depth: __30.5____ ft. Tide: (Ebb) Flood Low Slack High Slack Other _____
PID: **N/A** Redox Potential: **N/A** pH: **N/A** H^2O Temp.: **N/A** Air Temp.: **NA**

SAMPLE/PUSH #1

Core ID#: **C-9** Coring Time: ___**17:00**__ Penetration Depth: ___**20"**____ Core Recovery: ____**18"**___
Sample Method: Ponar / (Vibracore) / Piston Core / Manual Coring Material: (CAB) / Aluminum / SS Core Diameter (OD): 2" 3" (4"
Vibracore Type: (Rossfelder) / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: (Y) N

SAMPLE/PUSH #2

Core ID#: _____ Coring Time: _____ Penetration Depth: _____ Core Recovery: _____
Sample Method: Ponar / Vibracore / Piston Core / Manual Coring Material: CAB / Aluminum / SS Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

SAMPLE/PUSH #3

Core ID#: _____ Coring Time: _____ Penetration Depth: _____ Core Recovery: _____
Sample Method: Ponar / Vibracore / Piston Core / Manual Coring Material: CAB / Aluminum / SS Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

DGPS DATA

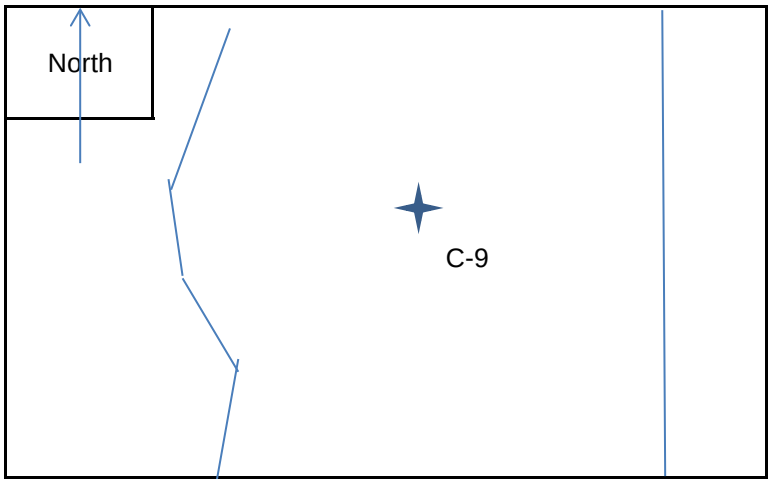
Operator: KCM
File Name: **9-1**
Lat / N: **1444347.46**
Lon / E: **3808984.53**
PDOP or SVs: **11**

Coordinate Units: Lat/Lon (US Survey Feet)
Datum: NAD1983 (Y) N Other _____
Proj.: WGS84
GPS Serial #: Geo XH 6000

COMMENTS / NOTES

Ft. Tube Used=5'

Preparer's Initial: KCM



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FIELD DATA SHEET

Project Name:	**Eversource: Seacost Reliability Project**		**Proj. #: 22860.006**
Site Name:	**Little Bay**		**Task #: 05**
City:	**Newington**	**State: NH**	**Date: 05/23/17**

Field Team Leader(s): MKM
Field Team Safety Coordinator: **MKM**
Field Crew: KCM, RCB, GMC
Arrival & Departure Times: **15:35-16:00**
Station ID #: **C-10**
Weather: (Clear) Cloudy Rain Other _____
Photos: Y (N) Roll No./Exposure No.: NA
Wind Conditions (Speed/Direction): 0-**5 MPH NW**

FIELD DATA

Water Depth: __21.5____ ft. Tide: (Ebb) Flood Low Slack High Slack Other _____
PID: **N/A** Redox Potential: **N/A** pH: **N/A** H^2O Temp.: **N/A** Air Temp.: **NA**

SAMPLE/PUSH #1

Core ID#: **C-10** Coring Time: ___**15:50**__ Penetration Depth: ___**44"**____ Core Recovery: ____**41"**___
Sample Method: Ponar / (Vibracore) / Piston Core / Manual Coring Material: (CAB) / Aluminum / SS Core Diameter (OD): 2" 3" (4"
Vibracore Type: (Rossfelder) / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: (Y) N

SAMPLE/PUSH #2

Core ID#: _____ Coring Time: _____ Penetration Depth: _____ Core Recovery: _____
Sample Method: Ponar / Vibracore / Piston Core / Manual Coring Material: CAB / Aluminum / SS Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

SAMPLE/PUSH #3

Core ID#: _____ Coring Time: _____ Penetration Depth: _____ Core Recovery: _____
Sample Method: Ponar / Vibracore / Piston Core / Manual Coring Material: CAB / Aluminum / SS Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

DGPS DATA

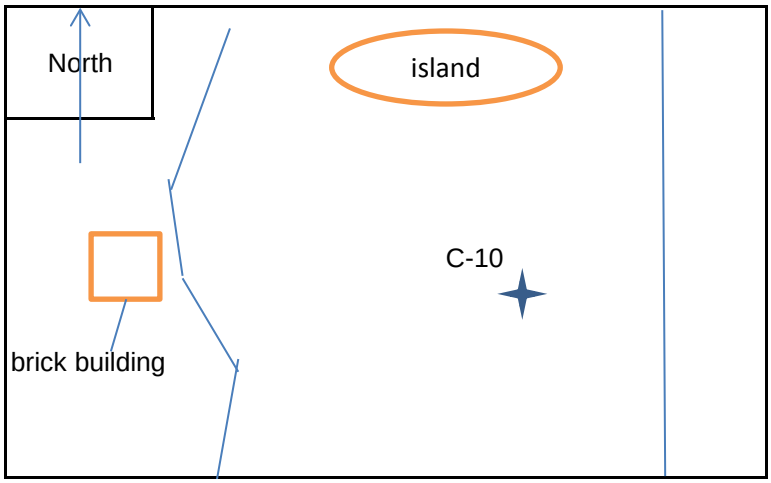
Operator: KCM
File Name: **10-1**
Lat / N: **1444086.67**
Lon / E: **3809389.60**
PDOP or SVs: 11

Coordinate Units: Lat/Lon (US Survey Feet)
Datum: NAD1983 (Y) N Other _____
Proj.: WGS 84
GPS Serial #: Geo XH 6000

COMMENTS / NOTES

Ft. Tube Used=5'

Preparer's Initial: KCM



Attachment B

NORMANDEAU ASSOCIATES™
ENVIRONMENTAL CONSULTANTS

rev:11/08

FIELD DATA SHEET

Project Name:	**Eversource: Seacost Reliability Project**			**Proj. #: 22860.006**
Site Name:	**Little Bay**			**Task #: 05**
City:	**Newington**	**State:**	**NH**	**Date: 05/23/17**

Field Team Leader(s): MKM
Field Team Safety Coordinator: **MKM**
Field Crew: KCM, RCB, GMC
Arrival & Departure Times: **15:00-15:20**
Station ID #: **C-11**
Weather: (Clear) Cloudy Rain Other _____
Photos: Y (N) Roll No./Exposure No.: NA
Wind Conditions (Speed/Direction): **5-10 MPH NW**

FIELD DATA

Water Depth: **13.5** ft. Tide: (Ebb) Flood Low Slack High Slack Other _____
PID: **N/A** Redox Potential: **N/A** pH: **N/A** H^2O Temp.: **N/A** Air Temp.: **NA**

SAMPLE/PUSH #1

Core ID#: **C-11** Coring Time: **15:15** Penetration Depth: **92"** Core Recovery: **89"**
Sample Method: Ponar / (Vibracore) / Piston Core / Manual Coring Material: (CAB) / Aluminum / SS Core Diameter (OD): 2" 3" (4"
Vibracore Type: (Rossfelder) / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: (Y) N

SAMPLE/PUSH #2

Core ID#: _____ Coring Time: _____ Penetration Depth: _____ft. Core Recovery: _____ft
Sample Method: Ponar / Vibracore / Piston Core / Manual Coring Material: CAB / Aluminum / SS Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

SAMPLE/PUSH #3

Core ID#: _____ Coring Time: _____ Penetration Depth: _____ft. Core Recovery: _____ft
Sample Method: Ponar / Vibracore / Piston Core / Manual Coring Material: CAB / Aluminum / SS Core Diameter (OD): 2" 3" 4"
Vibracore Type: Rossfelder / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: Y N

DGPS DATA

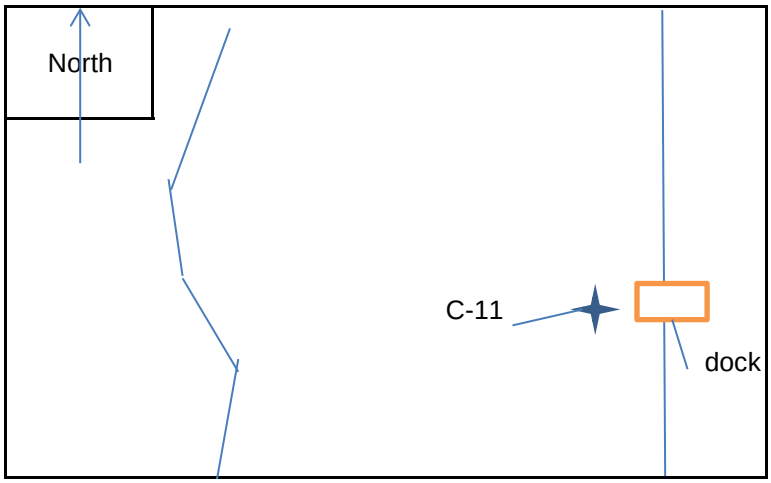
Operator: KCM
File Name: **11-1**
Lat / N: **1443853.96**
Lon / E: 3809758.93
PDOP or SVs: **10**

Coordinate Units: Lat/Lon (US Survey Feet)
Datum: NAD1983 (Y) N Other _____
Proj.: WGS 84
GPS Serial #: Geo XH 6000

COMMENTS / NOTES

Ft. Tube Used=9'

Preparer's Initial: KCM



Attachment B

NORMANDEAU ASSOCIATES™
ENVIRONMENTAL CONSULTANTS

rev:11/08

FIELD DATA SHEET

Project Name:	**Eversource: Seacost Reliability Project**		**Proj. #: 22860.006**
Site Name:	**Little Bay**		**Task #: 05**
City:	**Newington**	**State: NH**	**Date: 05/23/17**

Field Team Leader(s): MKM
Field Team Safety Coordinator: **MKM**
Field Crew: KCM, RCB, GMC
Arrival & Departure Times: 12:0**5-12:45**
Station ID #: **C-12**
Weather: (Clear) Cloudy Rain Other _____
Photos: Y (N) Roll No./Exposure No.: NA
Wind Conditions (Speed/Direction): 0-**5 MPH North**

FIELD DATA

Water Depth: __5.6_____ ft. Tide: (Ebb) Flood Low Slack High Slack Other _____
PID: **N/A** Redox Potential: **N/A** pH: **N/A** H^2O Temp.: **N/A** Air Temp.: **NA**

SAMPLE/PUSH #1

Core ID#: **C-12** Coring Time: ___12**:15**__ Penetration Depth: ___21**"**____ Core Recovery: ____19**"**___
Sample Method: Ponar / (Vibracore) / Piston Core / Manual Coring Material: (CAB) / Aluminum / SS Core Diameter (OD): 2" 3" (4"
Vibracore Type: (Rossfelder) / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: (Y) N

SAMPLE/PUSH #2

Core ID#: **C-12** Coring Time: ___12**:20**__ Penetration Depth: ____33"_____ Core Recovery: ____31"_____
Sample Method: Ponar / (Vibracore) / Piston Core / Manual Coring Material: (CAB) / Aluminum / SS Core Diameter (OD): 2" 3" (4"
Vibracore Type: (Rossfelder) / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: (Y) N

SAMPLE/PUSH #3

Core ID#: **C-12** Coring Time: ___12**:30**__ Penetration Depth: ____46"_____ Core Recovery: ____39"_____
Sample Method: Ponar / (Vibracore) / Piston Core / Manual Coring Material: (CAB) / Aluminum / SS Core Diameter (OD): 2" 3" (4"
Vibracore Type: (Rossfelder) / PVL / Portable Clamp-on / NA Sampling Equipment Deconned or Replaced: (Y) N

DGPS DATA

Operator: KCM
File Name: **12-1**
Lat / N: **1443820.61**
Lon / E: **3810223.79**
PDOP or SVs: 13

Coordinate Units: Lat/Lon (US Survey Feet)
Datum: NAD1983 (Y) N Other _____
Proj.: WGS84
GPS Serial #: Geo XH 6000

COMMENTS / NOTES

Ft. Tube Used=4'

Preparer's Initial: KCM

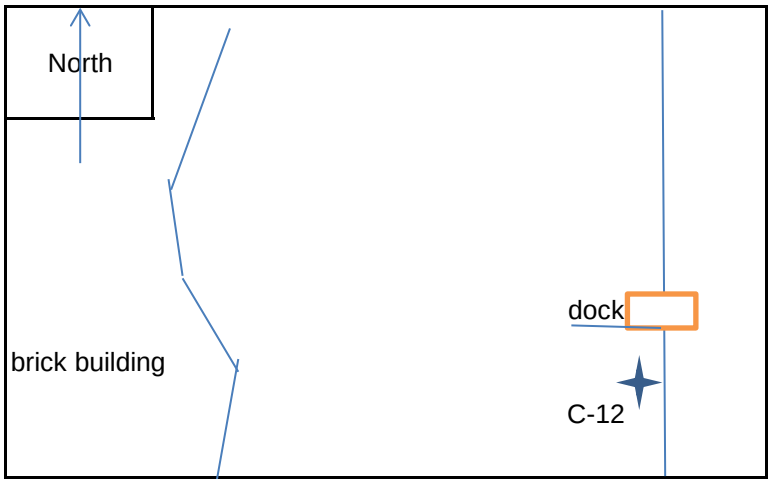


Figure 1. Vibracore boring number C-1.

Figure 2. Vibracore boring number C-1.

Figure 3. Vibracore boring number C-2.

Figure 4. Vibracore boring number C-2.

Figure 5. Vibracore boring number C-3.

Figure 6. Vibracore boring number C-3.

Figure 7. Vibracore boring number C-4.

Figure 8. Vibracore boring number C-4.

Figure 9. Vibracore boring number C-5.

Figure 10. Vibracore boring number C-5.

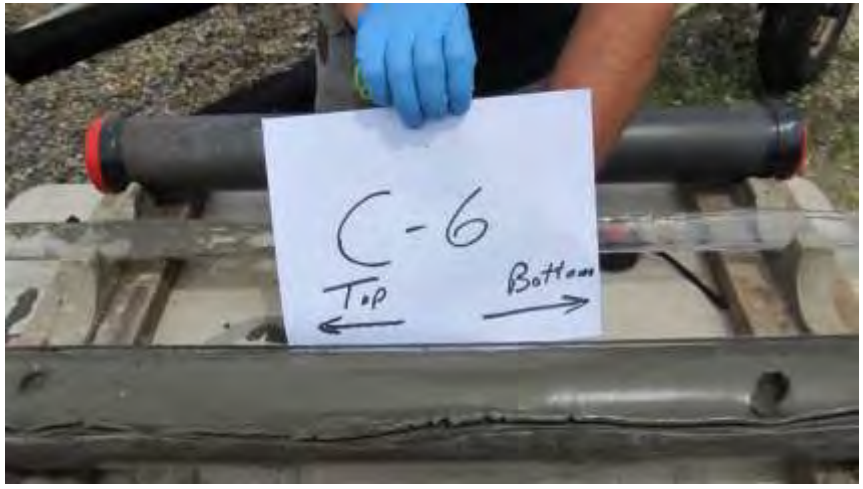


Figure 11. Vibracore boring number C-6.

Figure 12. Vibracore boring number C-6.

Figure 13. Vibracore boring number C-7.

Figure 14. Vibracore boring number C-7 (back core).

Figure 15. Vibracore boring number C-8.

Figure 16. Vibracore boring number C-8.

Figure 17. Vibracore boring number C-9.

Figure 18. Vibracore boring number C-9.

Figure 19. Vibracore boring number C-10.

Figure 20. Vibracore boring number C-10.

Figure 21. Vibracore boring number C-11.

Figure 22. Vibracore boring number C-11.

Figure 23 Vibracore boring number C-12.

Figure 24. Vibracore boring number C-12.

Appendix C: Analytical Results

ANALYTICAL REPORT

Lab Number:	L1716880
Client:	Normandeau Associates 25 Nashua Road Bedford, NH 03110
ATTN:	Ann Pembroke
Phone:	(603) 637-1169
Project Name:	LITTLE BAY
Project Number:	Not Specified
Report Date:	06/08/17

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1716880-01	C2-0"-24"	SEDIMENT	NEW HAMPSHIRE	05/23/17 10:45	05/23/17
L1716880-02	C3-0"-24"	SEDIMENT	NEW HAMPSHIRE	05/23/17 11:10	05/23/17
L1716880-03	C1-0"-24"	SEDIMENT	NEW HAMPSHIRE	05/23/17 12:25	05/23/17
L1716880-04	C6-0"-24"	SEDIMENT	NEW HAMPSHIRE	05/23/17 12:43	05/23/17
L1716880-05	C-8-0"-24"	SEDIMENT	NEW HAMPSHIRE	05/23/17 13:00	05/23/17
L1716880-06	C-5-0"-24"	SEDIMENT	NEW HAMPSHIRE	05/23/17 14:15	05/23/17
L1716880-07	C-4-0"-24"	SEDIMENT	NEW HAMPSHIRE	05/23/17 14:30	05/23/17
L1716880-08	C-12-0"-24"	SEDIMENT	NEW HAMPSHIRE	05/23/17 14:45	05/23/17
L1716880-09	C-11 0"-24"	SEDIMENT	NEW HAMPSHIRE	05/24/17 07:33	05/24/17
L1716880-10	C-7 0"-24"	SEDIMENT	NEW HAMPSHIRE	05/24/17 07:52	05/24/17
L1716880-11	C-10 0"-24"	SEDIMENT	NEW HAMPSHIRE	05/24/17 08:06	05/24/17
L1716880-12	C-9 0"-18"	SEDIMENT	NEW HAMPSHIRE	05/24/17 08:20	05/24/17

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Case Narrative (continued)

Pesticides

The WG1007124-4 SRM recovery for trans-Nonachlor (391%) and the surrogate BZ 198 column B (193%), are above the acceptance criteria.

Grain Size Analysis

The WG1010643-1 Laboratory Duplicate RPD, performed on L1716880-01, is outside the acceptance criteria for % Coarse sand (35%), % Silt fine (27%) and % Clay fine (82%). The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Elizabeth Porta

Title: Technical Director/Representative Date: 06/08/17

ORGANICS

SEMIVOLATILES

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-01
Client ID: C2-0"-24"
Sample Location: NEW HAMPSHIRE

Matrix: Sediment
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 06/07/17 06:06
Analyst: GP
Percent Solids: 62%

Date Collected: 05/23/17 10:45
Date Received: 05/23/17
Field Prep: Not Specified
Extraction Method: EPA 3570
Extraction Date: 05/25/17 19:45
Cleanup Method: EPA 3630
Cleanup Date: 06/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Naphthalene	ND		ug/kg	7.51	--	1
Acenaphthylene	ND		ug/kg	7.51	--	1
Acenaphthene	ND		ug/kg	7.51	--	1
Fluorene	ND		ug/kg	7.51	--	1
Phenanthrene	ND		ug/kg	7.51	--	1
Anthracene	ND		ug/kg	7.51	--	1
Fluoranthene	ND		ug/kg	7.51	--	1
Pyrene	ND		ug/kg	7.51	--	1
Benz(a)anthracene	ND		ug/kg	7.51	--	1
Chrysene	ND		ug/kg	7.51	--	1
Benzo(b)fluoranthene	ND		ug/kg	7.51	--	1
Benzo(k)fluoranthene	ND		ug/kg	7.51	--	1
Benzo(a)pyrene	ND		ug/kg	7.51	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	7.51	--	1
Dibenz(a,h)anthracene	ND		ug/kg	7.51	--	1
Benzo(ghi)perylene	ND		ug/kg	7.51	--	1
Cl2-BZ#8	ND		ug/kg	0.751	--	1
Cl3-BZ#18	ND		ug/kg	0.751	--	1
Cl3-BZ#28	ND		ug/kg	0.751	--	1
Cl4-BZ#44	ND		ug/kg	0.751	--	1
Cl4-BZ#49	ND		ug/kg	0.751	--	1
Cl4-BZ#52	ND		ug/kg	0.751	--	1
Cl4-BZ#66	ND		ug/kg	0.751	--	1
Cl5-BZ#87	ND		ug/kg	0.751	--	1
Cl5-BZ#101	ND		ug/kg	0.751	--	1
Cl5-BZ#105	ND		ug/kg	0.751	--	1
Cl5-BZ#118	ND		ug/kg	0.751	--	1
Cl6-BZ#128	ND		ug/kg	0.751	--	1
Cl6-BZ#138	ND		ug/kg	0.751	--	1
Cl6-BZ#153	ND		ug/kg	0.751	--	1

Project Name: LITTLE BAY
Lab Number: L1716880
Project Number: Not Specified
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-01
Client ID: C2-0"-24"
Sample Location: NEW HAMPSHIRE
Date Collected: 05/23/17 10:45
Date Received: 05/23/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Cl7-BZ#170	ND		ug/kg	0.751	--	1
Cl7-BZ#180	ND		ug/kg	0.751	--	1
Cl7-BZ#183	ND		ug/kg	0.751	--	1
Cl7-BZ#184	ND		ug/kg	0.751	--	1
Cl7-BZ#187	ND		ug/kg	0.751	--	1
Cl8-BZ#195	ND		ug/kg	0.751	--	1
Cl9-BZ#206	ND		ug/kg	0.751	--	1
Cl10-BZ#209	ND		ug/kg	0.751	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	65		30-150
Pyrene-d10	79		30-150
Benzo(b)fluoranthene-d12	71		30-150
DBOB	73		30-150
BZ 198	68		30-150

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-07
Client ID: C-4-0"-24"
Sample Location: NEW HAMPSHIRE

Matrix: Sediment
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 06/07/17 08:20
Analyst: GP
Percent Solids: 68%

Date Collected: 05/23/17 14:30
Date Received: 05/23/17
Field Prep: Not Specified
Extraction Method: EPA 3570
Extraction Date: 05/25/17 19:45
Cleanup Method: EPA 3630
Cleanup Date: 06/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Naphthalene	ND		ug/kg	7.14	--	1
Acenaphthylene	ND		ug/kg	7.14	--	1
Acenaphthene	ND		ug/kg	7.14	--	1
Fluorene	ND		ug/kg	7.14	--	1
Phenanthrene	ND		ug/kg	7.14	--	1
Anthracene	ND		ug/kg	7.14	--	1
Fluoranthene	ND		ug/kg	7.14	--	1
Pyrene	ND		ug/kg	7.14	--	1
Benz(a)anthracene	ND		ug/kg	7.14	--	1
Chrysene	ND		ug/kg	7.14	--	1
Benzo(b)fluoranthene	ND		ug/kg	7.14	--	1
Benzo(k)fluoranthene	ND		ug/kg	7.14	--	1
Benzo(a)pyrene	ND		ug/kg	7.14	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	7.14	--	1
Dibenz(a,h)anthracene	ND		ug/kg	7.14	--	1
Benzo(ghi)perylene	ND		ug/kg	7.14	--	1
Cl2-BZ#8	ND		ug/kg	0.714	--	1
Cl3-BZ#18	ND		ug/kg	0.714	--	1
Cl3-BZ#28	ND		ug/kg	0.714	--	1
Cl4-BZ#44	ND		ug/kg	0.714	--	1
Cl4-BZ#49	ND		ug/kg	0.714	--	1
Cl4-BZ#52	ND		ug/kg	0.714	--	1
Cl4-BZ#66	ND		ug/kg	0.714	--	1
Cl5-BZ#87	ND		ug/kg	0.714	--	1
Cl5-BZ#101	ND		ug/kg	0.714	--	1
Cl5-BZ#105	ND		ug/kg	0.714	--	1
Cl5-BZ#118	ND		ug/kg	0.714	--	1
Cl6-BZ#128	ND		ug/kg	0.714	--	1
Cl6-BZ#138	ND		ug/kg	0.714	--	1
Cl6-BZ#153	ND		ug/kg	0.714	--	1

Project Name: LITTLE BAY
Lab Number: L1716880
Project Number: Not Specified
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-07
Client ID: C-4-0"-24"
Sample Location: NEW HAMPSHIRE
Date Collected: 05/23/17 14:30
Date Received: 05/23/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Cl7-BZ#170	ND		ug/kg	0.714	--	1
Cl7-BZ#180	ND		ug/kg	0.714	--	1
Cl7-BZ#183	ND		ug/kg	0.714	--	1
Cl7-BZ#184	ND		ug/kg	0.714	--	1
Cl7-BZ#187	ND		ug/kg	0.714	--	1
Cl8-BZ#195	ND		ug/kg	0.714	--	1
Cl9-BZ#206	ND		ug/kg	0.714	--	1
Cl10-BZ#209	ND		ug/kg	0.714	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	39		30-150
Pyrene-d10	69		30-150
Benzo(b)fluoranthene-d12	67		30-150
DBOB	48		30-150
BZ 198	60		30-150

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-08
Client ID: C-12-0"-24"
Sample Location: NEW HAMPSHIRE

Matrix: Sediment
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 06/07/17 08:53
Analyst: GP
Percent Solids: 84%

Date Collected: 05/23/17 14:45
Date Received: 05/23/17
Field Prep: Not Specified
Extraction Method: EPA 3570
Extraction Date: 05/25/17 19:45
Cleanup Method: EPA 3630
Cleanup Date: 06/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Naphthalene	ND		ug/kg	5.66	--	1
Acenaphthylene	ND		ug/kg	5.66	--	1
Acenaphthene	ND		ug/kg	5.66	--	1
Fluorene	ND		ug/kg	5.66	--	1
Phenanthrene	ND		ug/kg	5.66	--	1
Anthracene	ND		ug/kg	5.66	--	1
Fluoranthene	ND		ug/kg	5.66	--	1
Pyrene	ND		ug/kg	5.66	--	1
Benz(a)anthracene	ND		ug/kg	5.66	--	1
Chrysene	ND		ug/kg	5.66	--	1
Benzo(b)fluoranthene	ND		ug/kg	5.66	--	1
Benzo(k)fluoranthene	ND		ug/kg	5.66	--	1
Benzo(a)pyrene	ND		ug/kg	5.66	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	5.66	--	1
Dibenz(a,h)anthracene	ND		ug/kg	5.66	--	1
Benzo(ghi)perylene	ND		ug/kg	5.66	--	1
Cl2-BZ#8	ND		ug/kg	0.566	--	1
Cl3-BZ#18	ND		ug/kg	0.566	--	1
Cl3-BZ#28	ND		ug/kg	0.566	--	1
Cl4-BZ#44	ND		ug/kg	0.566	--	1
Cl4-BZ#49	ND		ug/kg	0.566	--	1
Cl4-BZ#52	ND		ug/kg	0.566	--	1
Cl4-BZ#66	ND		ug/kg	0.566	--	1
Cl5-BZ#87	ND		ug/kg	0.566	--	1
Cl5-BZ#101	ND		ug/kg	0.566	--	1
Cl5-BZ#105	ND		ug/kg	0.566	--	1
Cl5-BZ#118	ND		ug/kg	0.566	--	1
Cl6-BZ#128	ND		ug/kg	0.566	--	1
Cl6-BZ#138	ND		ug/kg	0.566	--	1
Cl6-BZ#153	ND		ug/kg	0.566	--	1

Project Name: LITTLE BAY
Lab Number: L1716880
Project Number: Not Specified
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-08
Client ID: C-12-0"-24"
Sample Location: NEW HAMPSHIRE
Date Collected: 05/23/17 14:45
Date Received: 05/23/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Cl7-BZ#170	ND		ug/kg	0.566	--	1
Cl7-BZ#180	ND		ug/kg	0.566	--	1
Cl7-BZ#183	ND		ug/kg	0.566	--	1
Cl7-BZ#184	ND		ug/kg	0.566	--	1
Cl7-BZ#187	ND		ug/kg	0.566	--	1
Cl8-BZ#195	ND		ug/kg	0.566	--	1
Cl9-BZ#206	ND		ug/kg	0.566	--	1
Cl10-BZ#209	ND		ug/kg	0.566	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	57		30-150
Pyrene-d10	69		30-150
Benzo(b)fluoranthene-d12	68		30-150
DBOB	61		30-150
BZ 198	59		30-150

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-09
Client ID: C-11 0"-24"
Sample Location: NEW HAMPSHIRE

Matrix: Sediment
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 06/07/17 09:26
Analyst: GP
Percent Solids: 65%

Date Collected: 05/24/17 07:33
Date Received: 05/24/17
Field Prep: Not Specified
Extraction Method: EPA 3570
Extraction Date: 05/25/17 19:45
Cleanup Method: EPA 3630
Cleanup Date: 06/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Naphthalene	ND		ug/kg	6.99	--	1
Acenaphthylene	ND		ug/kg	6.99	--	1
Acenaphthene	ND		ug/kg	6.99	--	1
Fluorene	ND		ug/kg	6.99	--	1
Phenanthrene	13.1		ug/kg	6.99	--	1
Anthracene	ND		ug/kg	6.99	--	1
Fluoranthene	42.0		ug/kg	6.99	--	1
Pyrene	58.1		ug/kg	6.99	--	1
Benz(a)anthracene	34.7		ug/kg	6.99	--	1
Chrysene	36.3		ug/kg	6.99	--	1
Benzo(b)fluoranthene	42.8		ug/kg	6.99	--	1
Benzo(k)fluoranthene	36.8		ug/kg	6.99	--	1
Benzo(a)pyrene	49.0		ug/kg	6.99	--	1
Indeno(1,2,3-cd)Pyrene	32.2		ug/kg	6.99	--	1
Dibenz(a,h)anthracene	7.41		ug/kg	6.99	--	1
Benzo(ghi)perylene	37.3		ug/kg	6.99	--	1
Cl2-BZ#8	ND		ug/kg	0.699	--	1
Cl3-BZ#18	ND		ug/kg	0.699	--	1
Cl3-BZ#28	ND		ug/kg	0.699	--	1
Cl4-BZ#44	ND		ug/kg	0.699	--	1
Cl4-BZ#49	ND		ug/kg	0.699	--	1
Cl4-BZ#52	ND		ug/kg	0.699	--	1
Cl4-BZ#66	ND		ug/kg	0.699	--	1
Cl5-BZ#87	ND		ug/kg	0.699	--	1
Cl5-BZ#101	ND		ug/kg	0.699	--	1
Cl5-BZ#105	ND		ug/kg	0.699	--	1
Cl5-BZ#118	ND		ug/kg	0.699	--	1
Cl6-BZ#128	ND		ug/kg	0.699	--	1
Cl6-BZ#138	ND		ug/kg	0.699	--	1
Cl6-BZ#153	ND		ug/kg	0.699	--	1

Project Name: LITTLE BAY
Lab Number: L1716880
Project Number: Not Specified
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-09
Client ID: C-11 0"-24"
Sample Location: NEW HAMPSHIRE
Date Collected: 05/24/17 07:33
Date Received: 05/24/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Cl7-BZ#170	ND		ug/kg	0.699	--	1
Cl7-BZ#180	ND		ug/kg	0.699	--	1
Cl7-BZ#183	ND		ug/kg	0.699	--	1
Cl7-BZ#184	ND		ug/kg	0.699	--	1
Cl7-BZ#187	ND		ug/kg	0.699	--	1
Cl8-BZ#195	ND		ug/kg	0.699	--	1
Cl9-BZ#206	ND		ug/kg	0.699	--	1
Cl10-BZ#209	ND		ug/kg	0.699	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	56		30-150
Pyrene-d10	65		30-150
Benzo(b)fluoranthene-d12	61		30-150
DBOB	61		30-150
BZ 198	57		30-150

Project Name: LITTLE BAY
Project Number: Not Specified
Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-10
Client ID: C-7 0"-24"
Sample Location: NEW HAMPSHIRE

Matrix: Sediment
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 06/07/17 09:59
Analyst: GP
Percent Solids: 69%

Date Collected: 05/24/17 07:52
Date Received: 05/24/17
Field Prep: Not Specified
Extraction Method: EPA 3570
Extraction Date: 05/25/17 19:45
Cleanup Method: EPA 3630
Cleanup Date: 06/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Naphthalene	ND		ug/kg	7.12	--	1
Acenaphthylene	ND		ug/kg	7.12	--	1
Acenaphthene	ND		ug/kg	7.12	--	1
Fluorene	ND		ug/kg	7.12	--	1
Phenanthrene	11.1		ug/kg	7.12	--	1
Anthracene	9.37		ug/kg	7.12	--	1
Fluoranthene	40.4		ug/kg	7.12	--	1
Pyrene	33.8		ug/kg	7.12	--	1
Benz(a)anthracene	24.1		ug/kg	7.12	--	1
Chrysene	22.0		ug/kg	7.12	--	1
Benzo(b)fluoranthene	16.7		ug/kg	7.12	--	1
Benzo(k)fluoranthene	19.1		ug/kg	7.12	--	1
Benzo(a)pyrene	22.9		ug/kg	7.12	--	1
Indeno(1,2,3-cd)Pyrene	11.6		ug/kg	7.12	--	1
Dibenz(a,h)anthracene	ND		ug/kg	7.12	--	1
Benzo(ghi)perylene	11.4		ug/kg	7.12	--	1
Cl2-BZ#8	ND		ug/kg	0.712	--	1
Cl3-BZ#18	ND		ug/kg	0.712	--	1
Cl3-BZ#28	ND		ug/kg	0.712	--	1
Cl4-BZ#44	ND		ug/kg	0.712	--	1
Cl4-BZ#49	ND		ug/kg	0.712	--	1
Cl4-BZ#52	ND		ug/kg	0.712	--	1
Cl4-BZ#66	ND		ug/kg	0.712	--	1
Cl5-BZ#87	ND		ug/kg	0.712	--	1
Cl5-BZ#101	ND		ug/kg	0.712	--	1
Cl5-BZ#105	ND		ug/kg	0.712	--	1
Cl5-BZ#118	ND		ug/kg	0.712	--	1
Cl6-BZ#128	ND		ug/kg	0.712	--	1
Cl6-BZ#138	ND		ug/kg	0.712	--	1
Cl6-BZ#153	ND		ug/kg	0.712	--	1

Project Name: LITTLE BAY
Lab Number: L1716880
Project Number: Not Specified
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-10
Client ID: C-7 0"-24"
Sample Location: NEW HAMPSHIRE
Date Collected: 05/24/17 07:52
Date Received: 05/24/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Cl7-BZ#170	ND		ug/kg	0.712	--	1
Cl7-BZ#180	ND		ug/kg	0.712	--	1
Cl7-BZ#183	ND		ug/kg	0.712	--	1
Cl7-BZ#184	ND		ug/kg	0.712	--	1
Cl7-BZ#187	ND		ug/kg	0.712	--	1
Cl8-BZ#195	ND		ug/kg	0.712	--	1
Cl9-BZ#206	ND		ug/kg	0.712	--	1
Cl10-BZ#209	ND		ug/kg	0.712	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	58		30-150
Pyrene-d10	65		30-150
Benzo(b)fluoranthene-d12	62		30-150
DBOB	61		30-150
BZ 198	58		30-150

Project Name: LITTLE BAY
Project Number: Not Specified
Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-12
Client ID: C-9 0"-18"
Sample Location: NEW HAMPSHIRE

Matrix: Sediment
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 06/07/17 10:33
Analyst: GP
Percent Solids: 73%

Date Collected: 05/24/17 08:20
Date Received: 05/24/17
Field Prep: Not Specified
Extraction Method: EPA 3570
Extraction Date: 05/25/17 19:45
Cleanup Method: EPA 3630
Cleanup Date: 06/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Naphthalene	ND		ug/kg	6.78	--	1
Acenaphthylene	ND		ug/kg	6.78	--	1
Acenaphthene	ND		ug/kg	6.78	--	1
Fluorene	ND		ug/kg	6.78	--	1
Phenanthrene	ND		ug/kg	6.78	--	1
Anthracene	ND		ug/kg	6.78	--	1
Fluoranthene	ND		ug/kg	6.78	--	1
Pyrene	ND		ug/kg	6.78	--	1
Benz(a)anthracene	ND		ug/kg	6.78	--	1
Chrysene	ND		ug/kg	6.78	--	1
Benzo(b)fluoranthene	ND		ug/kg	6.78	--	1
Benzo(k)fluoranthene	ND		ug/kg	6.78	--	1
Benzo(a)pyrene	ND		ug/kg	6.78	--	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	6.78	--	1
Dibenz(a,h)anthracene	ND		ug/kg	6.78	--	1
Benzo(ghi)perylene	ND		ug/kg	6.78	--	1
Cl2-BZ#8	ND		ug/kg	0.678	--	1
Cl3-BZ#18	ND		ug/kg	0.678	--	1
Cl3-BZ#28	ND		ug/kg	0.678	--	1
Cl4-BZ#44	ND		ug/kg	0.678	--	1
Cl4-BZ#49	ND		ug/kg	0.678	--	1
Cl4-BZ#52	ND		ug/kg	0.678	--	1
Cl4-BZ#66	ND		ug/kg	0.678	--	1
Cl5-BZ#87	ND		ug/kg	0.678	--	1
Cl5-BZ#101	ND		ug/kg	0.678	--	1
Cl5-BZ#105	ND		ug/kg	0.678	--	1
Cl5-BZ#118	ND		ug/kg	0.678	--	1
Cl6-BZ#128	ND		ug/kg	0.678	--	1
Cl6-BZ#138	ND		ug/kg	0.678	--	1
Cl6-BZ#153	ND		ug/kg	0.678	--	1

Project Name: LITTLE BAY
Lab Number: L1716880
Project Number: Not Specified
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-12
Client ID: C-9 0"-18"
Sample Location: NEW HAMPSHIRE
Date Collected: 05/24/17 08:20
Date Received: 05/24/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Cl7-BZ#170	ND		ug/kg	0.678	--	1
Cl7-BZ#180	ND		ug/kg	0.678	--	1
Cl7-BZ#183	ND		ug/kg	0.678	--	1
Cl7-BZ#184	ND		ug/kg	0.678	--	1
Cl7-BZ#187	ND		ug/kg	0.678	--	1
Cl8-BZ#195	ND		ug/kg	0.678	--	1
Cl9-BZ#206	ND		ug/kg	0.678	--	1
Cl10-BZ#209	ND		ug/kg	0.678	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	54		30-150
Pyrene-d10	67		30-150
Benzo(b)fluoranthene-d12	66		30-150
DBOB	58		30-150
BZ 198	57		30-150

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 06/07/17 03:52
Analyst: GP

Extraction Method: EPA 3570
Extraction Date: 05/25/17 19:45
Cleanup Method: EPA 3630
Cleanup Date: 06/01/17

Parameter	Result	Qualifier	Units	RL	MDL
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab for sample(s): 01,07-10,12 Batch: WG1007125-1					
Naphthalene	ND		ug/kg	5.00	--
Acenaphthylene	ND		ug/kg	5.00	--
Acenaphthene	ND		ug/kg	5.00	--
Fluorene	ND		ug/kg	5.00	--
Phenanthrene	ND		ug/kg	5.00	--
Anthracene	ND		ug/kg	5.00	--
Fluoranthene	ND		ug/kg	5.00	--
Pyrene	ND		ug/kg	5.00	--
Benz(a)anthracene	ND		ug/kg	5.00	--
Chrysene	ND		ug/kg	5.00	--
Benzo(b)fluoranthene	ND		ug/kg	5.00	--
Benzo(k)fluoranthene	ND		ug/kg	5.00	--
Benzo(a)pyrene	ND		ug/kg	5.00	--
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	5.00	--
Dibenz(a,h)anthracene	ND		ug/kg	5.00	--
Benzo(ghi)perylene	ND		ug/kg	5.00	--
Cl2-BZ#8	ND		ug/kg	0.500	--
Cl3-BZ#18	ND		ug/kg	0.500	--
Cl3-BZ#28	ND		ug/kg	0.500	--
Cl4-BZ#44	ND		ug/kg	0.500	--
Cl4-BZ#49	ND		ug/kg	0.500	--
Cl4-BZ#52	ND		ug/kg	0.500	--
Cl4-BZ#66	ND		ug/kg	0.500	--
Cl5-BZ#87	ND		ug/kg	0.500	--
Cl5-BZ#101	ND		ug/kg	0.500	--
Cl5-BZ#105	ND		ug/kg	0.500	--
Cl5-BZ#118	ND		ug/kg	0.500	--
Cl6-BZ#128	ND		ug/kg	0.500	--
Cl6-BZ#138	ND		ug/kg	0.500	--

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 06/07/17 03:52
Analyst: GP

Extraction Method: EPA 3570
Extraction Date: 05/25/17 19:45
Cleanup Method: EPA 3630
Cleanup Date: 06/01/17

Parameter	Result	Qualifier	Units	RL	MDL
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab for sample(s): 01,07-10,12 Batch: WG1007125-1					
Cl6-BZ#153	ND		ug/kg	0.500	--
Cl7-BZ#170	ND		ug/kg	0.500	--
Cl7-BZ#180	ND		ug/kg	0.500	--
Cl7-BZ#183	ND		ug/kg	0.500	--
Cl7-BZ#184	ND		ug/kg	0.500	--
Cl7-BZ#187	ND		ug/kg	0.500	--
Cl8-BZ#195	ND		ug/kg	0.500	--
Cl9-BZ#206	ND		ug/kg	0.500	--
Cl10-BZ#209	ND		ug/kg	0.500	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	67		30-150
Pyrene-d10	79		30-150
Benzo(b)fluoranthene-d12	83		30-150
DBOB	67		30-150
BZ 198	68		30-150

Lab Control Sample Analysis
Batch Quality Control

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab	Associated sample(s): 01,07-10,12		Batch: WG1007125-2 WG1007125-3					
Naphthalene	64		76		50-120	17		30
Acenaphthylene	62		74		50-120	18		30
Acenaphthene	62		74		50-120	18		30
Fluorene	65		76		50-120	16		30
Phenanthrene	72		82		50-120	13		30
Anthracene	69		79		50-120	14		30
Fluoranthene	78		86		50-120	10		30
Pyrene	74		81		50-120	9		30
Benz(a)anthracene	77		85		50-120	10		30
Chrysene	79		87		50-120	10		30
Benzo(b)fluoranthene	81		89		50-120	9		30
Benzo(k)fluoranthene	84		94		50-120	11		30
Benzo(a)pyrene	82		92		50-120	11		30
Indeno(1,2,3-cd)Pyrene	77		86		50-120	11		30
Dibenz(a,h)anthracene	79		88		50-120	11		30
Benzo(ghi)perylene	83		92		50-120	10		30
Cl2-BZ#8	68		81		50-120	17		30
Cl3-BZ#18	66		76		50-120	14		30
Cl3-BZ#28	69		78		50-120	12		30
Cl4-BZ#44	73		83		50-120	13		30
Cl4-BZ#49	73		82		50-120	12		30
Cl4-BZ#52	69		80		50-120	15		30
Cl4-BZ#66	72		82		50-120	13		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab Associated sample(s): 01,07-10,12 Batch: WG1007125-2 WG1007125-3								
Cl5-BZ#87	75		85		50-120	13		30
Cl5-BZ#101	74		82		50-120	10		30
Cl5-BZ#105	75		85		50-120	13		30
Cl5-BZ#118	73		84		50-120	14		30
Cl6-BZ#128	74		86		50-120	15		30
Cl6-BZ#138	74		84		50-120	13		30
Cl6-BZ#153	73		83		50-120	13		30
Cl7-BZ#170	73		82		50-120	12		30
Cl7-BZ#180	75		85		50-120	13		30
Cl7-BZ#183	70		79		50-120	12		30
Cl7-BZ#184	72		83		50-120	14		30
Cl7-BZ#187	70		80		50-120	13		30
Cl8-BZ#195	70		80		50-120	13		30
Cl9-BZ#206	75		86		50-120	14		30
Cl10-BZ#209	74		84		50-120	13		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Methylnaphthalene-d10	61		70		30-150
Pyrene-d10	78		83		30-150
Benzo(b)fluoranthene-d12	81		87		30-150
DBOB	73		77		30-150
BZ 198	71		76		30-150

Matrix Spike Analysis
Batch Quality Control

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab Associated sample(s): 01,07-10,12 QC Batch ID: WG1007125-6 WG1007125-7 QC Sample: L1716880-01 Client ID: C2-0"-24"												
Naphthalene	ND	385	220	57		222	59		50-120	1		30
Acenaphthylene	ND	385	214	56		214	57		50-120	0		30
Acenaphthene	ND	385	214	56		213	56		50-120	0		30
Fluorene	ND	385	216	56		218	58		50-120	1		30
Phenanthrene	ND	385	228	59		235	62		50-120	3		30
Anthracene	ND	385	220	57		224	59		50-120	2		30
Fluoranthene	ND	385	241	63		243	64		50-120	1		30
Pyrene	ND	385	245	64		253	67		50-120	3		30
Benz(a)anthracene	ND	385	236	61		246	65		50-120	4		30
Chrysene	ND	385	237	62		248	66		50-120	5		30
Benzo(b)fluoranthene	ND	385	232	60		246	65		50-120	6		30
Benzo(k)fluoranthene	ND	385	243	63		256	68		50-120	5		30
Benzo(a)pyrene	ND	385	244	63		258	68		50-120	6		30
Indeno(1,2,3-cd)Pyrene	ND	385	226	59		240	63		50-120	6		30
Dibenz(a,h)anthracene	ND	385	228	59		242	64		50-120	6		30
Benzo(ghi)perylene	ND	385	242	63		256	68		50-120	6		30
Cl2-BZ#8	ND	76.9	48.0	62		49.4	65		50-120	3		30
Cl3-BZ#18	ND	76.9	44.1	57		46.4	61		50-120	5		30
Cl3-BZ#28	ND	76.9	45.1	59		48.1	64		50-120	6		30
Cl4-BZ#44	ND	76.9	47.7	62		49.5	65		50-120	4		30
Cl4-BZ#49	ND	76.9	45.6	59		48.3	64		50-120	6		30
Cl4-BZ#52	ND	76.9	45.9	60		48.0	63		50-120	4		30
Cl4-BZ#66	ND	76.9	46.6	61		48.4	64		50-120	4		30

Matrix Spike Analysis

Batch Quality Control

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab Associated sample(s): 01,07-10,12 QC Batch ID: WG1007125-6 WG1007125-7 QC Sample: L1716880-01 Client ID: C2-0"-24"												
Cl5-BZ#87	ND	76.9	46.9	61		49.6	66		50-120	6		30
Cl5-BZ#101	ND	76.9	45.0	59		47.7	63		50-120	6		30
Cl5-BZ#105	ND	76.9	46.1	60		48.3	64		50-120	5		30
Cl5-BZ#118	ND	76.9	45.1	59		47.0	62		50-120	4		30
Cl6-BZ#128	ND	76.9	44.9	58		46.9	62		50-120	4		30
Cl6-BZ#138	ND	76.9	44.7	58		47.3	62		50-120	6		30
Cl6-BZ#153	ND	76.9	45.0	59		47.5	63		50-120	5		30
Cl7-BZ#170	ND	76.9	43.9	57		46.9	62		50-120	7		30
Cl7-BZ#180	ND	76.9	43.9	57		46.4	61		50-120	6		30
Cl7-BZ#183	ND	76.9	42.3	55		44.1	58		50-120	4		30
Cl7-BZ#184	ND	76.9	44.9	58		47.4	63		50-120	5		30
Cl7-BZ#187	ND	76.9	43.0	56		45.0	59		50-120	5		30
Cl8-BZ#195	ND	76.9	41.6	54		44.2	58		50-120	6		30
Cl9-BZ#206	ND	76.9	43.8	57		46.8	62		50-120	7		30
Cl10-BZ#209	ND	76.9	42.0	55		43.8	58		50-120	4		30

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	55		55		30-150
BZ 198	56		58		30-150
Benzo(b)fluoranthene-d12	59		62		30-150
DBOB	62		60		30-150
Pyrene-d10	65		68		30-150

Lab Duplicate Analysis
Batch Quality Control

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab Associated sample(s): 01,07-10,12 QC Batch ID: WG1007125-5 QC Sample: L1716880-01 Client ID: C2-0"-24"						
Naphthalene	ND	ND	ug/kg	NC		30
Acenaphthylene	ND	ND	ug/kg	NC		30
Acenaphthene	ND	ND	ug/kg	NC		30
Fluorene	ND	ND	ug/kg	NC		30
Phenanthrene	ND	ND	ug/kg	NC		30
Anthracene	ND	ND	ug/kg	NC		30
Fluoranthene	ND	ND	ug/kg	NC		30
Pyrene	ND	ND	ug/kg	NC		30
Benz(a)anthracene	ND	ND	ug/kg	NC		30
Chrysene	ND	ND	ug/kg	NC		30
Benzo(b)fluoranthene	ND	ND	ug/kg	NC		30
Benzo(k)fluoranthene	ND	ND	ug/kg	NC		30
Benzo(a)pyrene	ND	ND	ug/kg	NC		30
Indeno(1,2,3-cd)Pyrene	ND	ND	ug/kg	NC		30
D benz(a,h)anthracene	ND	ND	ug/kg	NC		30
Benzo(ghi)perylene	ND	ND	ug/kg	NC		30
Cl2-BZ#8	ND	ND	ug/kg	NC		30
Cl3-BZ#18	ND	ND	ug/kg	NC		30
Cl3-BZ#28	ND	ND	ug/kg	NC		30
Cl4-BZ#44	ND	ND	ug/kg	NC		30
Cl4-BZ#49	ND	ND	ug/kg	NC		30

Lab Duplicate Analysis
Batch Quality Control

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab Associated sample(s): 01,07-10,12 QC Batch ID: WG1007125-5 QC Sample: L1716880-01 Client ID: C2-0"-24"						
Cl4-BZ#52	ND	ND	ug/kg	NC		30
Cl4-BZ#66	ND	ND	ug/kg	NC		30
Cl5-BZ#87	ND	ND	ug/kg	NC		30
Cl5-BZ#101	ND	ND	ug/kg	NC		30
Cl5-BZ#105	ND	ND	ug/kg	NC		30
Cl5-BZ#118	ND	ND	ug/kg	NC		30
Cl6-BZ#128	ND	ND	ug/kg	NC		30
Cl6-BZ#138	ND	ND	ug/kg	NC		30
Cl6-BZ#153	ND	ND	ug/kg	NC		30
Cl7-BZ#170	ND	ND	ug/kg	NC		30
Cl7-BZ#180	ND	ND	ug/kg	NC		30
Cl7-BZ#183	ND	ND	ug/kg	NC		30
Cl7-BZ#184	ND	ND	ug/kg	NC		30
Cl7-BZ#187	ND	ND	ug/kg	NC		30
Cl8-BZ#195	ND	ND	ug/kg	NC		30
Cl9-BZ#206	ND	ND	ug/kg	NC		30
Cl10-BZ#209	ND	ND	ug/kg	NC		30

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	65		48		30-150

Lab Duplicate Analysis
Batch Quality Control

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits

RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab Associated sample(s): 01,07-10,12 QC Batch ID: WG1007125-5 QC Sample: L1716880-01 Client ID: C2-0"-24"

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Pyrene-d10	79		60		30-150
Benzo(b)fluoranthene-d12	71		56		30-150
DBOB	73		52		30-150
BZ 198	68		51		30-150

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

S.R.M. Standard Quality Control

Standard Reference Material (SRM): WG1007125-4

Parameter	% Recovery	Qual	QC Criteria
Phenanthrene	63		40-140
Fluoranthene	65		40-140
Pyrene	56		40-140
Benz(a)anthracene	58		40-140
Chrysene	80		40-140
Benzo(b)fluoranthene	70		40-140
Benzo(k)fluoranthene	94		40-140
Benzo(a)pyrene	54		40-140
Indeno(1,2,3-cd)Pyrene	66		40-140
D benz(a,h)anthracene	112		40-140
Benzo(ghi)perylene	66		40-140
Cl2-BZ#8	69		40-140
Cl3-BZ#18	75		40-140
Cl3-BZ#28	42		40-140
Cl4-BZ#44	81		40-140
Cl4-BZ#49	69		40-140
Cl4-BZ#52	69		40-140
Cl4-BZ#66	55		40-140
Cl5-BZ#87	71		40-140
Cl5-BZ#101	70		40-140
Cl5-BZ#105	76		40-140
Cl5-BZ#118	69		40-140
Cl6-BZ#128	105		40-140
Cl6-BZ#138	78		40-140
Cl6-BZ#153	56		40-140
Cl7-BZ#170	80		40-140
Cl7-BZ#180	67		40-140
Cl7-BZ#183	57		40-140
Cl7-BZ#187	72		40-140
Cl9-BZ#206	80		40-140
Cl10-BZ#209	77		40-140
2-Methylnaphthalene-d10 (Surrogate)	63		30-150
Pyrene-d10 (Surrogate)	80		30-150
Benzo(b)fluoranthene-d12 (Surrogate)	73		30-150
DBOB (Surrogate)	80		30-150
BZ 198 (Surrogate)	83		30-150

PESTICIDES

Project Name: LITTLE BAY
Project Number: Not Specified
Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-01
Client ID: C2-0"-24"
Sample Location: NEW HAMPSHIRE

Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 06/05/17 20:18
Analyst: DP
Percent Solids: 62%

Date Collected: 05/23/17 10:45
Date Received: 05/23/17
Field Prep: Not Specified
Extraction Method: EPA 3570
Extraction Date: 05/25/17 19:45
Cleanup Method: EPA 3630
Cleanup Date: 06/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Hexachlorobenzene	ND		ug/kg	0.751	--	1	A
gamma-BHC	ND		ug/kg	0.376	--	1	A
Heptachlor	ND		ug/kg	0.376	--	1	A
Aldrin	ND		ug/kg	0.376	--	1	A
Heptachlor epoxide	ND		ug/kg	0.751	--	1	B
Oxychlordane	ND		ug/kg	0.751	--	1	B
trans-Chlordane	ND		ug/kg	0.376	--	1	A
Endosulfan I	ND		ug/kg	0.376	--	1	A
cis-Chlordane	ND		ug/kg	0.376	--	1	A
trans-Nonachlor	ND		ug/kg	0.376	--	1	A
4,4'-DDE	ND		ug/kg	0.376	--	1	A
Dieldrin	ND		ug/kg	0.376	--	1	A
Endrin	ND		ug/kg	0.376	--	1	A
Endosulfan II	ND		ug/kg	0.376	--	1	A
4,4'-DDD	ND		ug/kg	0.376	--	1	A
cis-Nonachlor	ND		ug/kg	0.376	--	1	A
4,4'-DDT	ND		ug/kg	0.376	--	1	A
Methoxychlor	ND		ug/kg	3.76	--	1	A
Toxaphene	ND		ug/kg	18.9	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	68		30-150	A
BZ 198	84		30-150	A
DBOB	61		30-150	B
BZ 198	81		30-150	B

Project Name: LITTLE BAY
Project Number: Not Specified
Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-02
Client ID: C3-0"-24"
Sample Location: NEW HAMPSHIRE

Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 06/05/17 22:34
Analyst: DP
Percent Solids: 65%

Date Collected: 05/23/17 11:10
Date Received: 05/23/17
Field Prep: Not Specified
Extraction Method: EPA 3570
Extraction Date: 05/25/17 19:45
Cleanup Method: EPA 3630
Cleanup Date: 06/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Hexachlorobenzene	ND		ug/kg	0.702	--	1	A
gamma-BHC	ND		ug/kg	0.351	--	1	A
Heptachlor	ND		ug/kg	0.351	--	1	A
Aldrin	ND		ug/kg	0.351	--	1	A
Heptachlor epoxide	ND		ug/kg	0.702	--	1	B
Oxychlordane	ND		ug/kg	0.702	--	1	B
trans-Chlordane	ND		ug/kg	0.351	--	1	A
Endosulfan I	ND		ug/kg	0.351	--	1	A
cis-Chlordane	ND		ug/kg	0.351	--	1	A
trans-Nonachlor	ND		ug/kg	0.351	--	1	A
4,4'-DDE	ND		ug/kg	0.351	--	1	A
Dieldrin	ND		ug/kg	0.351	--	1	A
Endrin	ND		ug/kg	0.351	--	1	A
Endosulfan II	ND		ug/kg	0.351	--	1	A
4,4'-DDD	ND		ug/kg	0.351	--	1	A
cis-Nonachlor	ND		ug/kg	0.351	--	1	A
4,4'-DDT	ND		ug/kg	0.351	--	1	A
Methoxychlor	ND		ug/kg	3.51	--	1	A
Toxaphene	ND		ug/kg	17.6	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	63		30-150	A
BZ 198	67		30-150	A
DBOB	61		30-150	B
BZ 198	70		30-150	B

Project Name: LITTLE BAY
Project Number: Not Specified
Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-03
Client ID: C1-0"-24"
Sample Location: NEW HAMPSHIRE

Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 06/05/17 23:08
Analyst: DP
Percent Solids: 62%

Date Collected: 05/23/17 12:25
Date Received: 05/23/17
Field Prep: Not Specified
Extraction Method: EPA 3570
Extraction Date: 05/25/17 19:45
Cleanup Method: EPA 3630
Cleanup Date: 06/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Hexachlorobenzene	ND		ug/kg	0.773	--	1	A
gamma-BHC	ND		ug/kg	0.387	--	1	A
Heptachlor	ND		ug/kg	0.387	--	1	A
Aldrin	ND		ug/kg	0.387	--	1	A
Heptachlor epoxide	ND		ug/kg	0.773	--	1	B
Oxychlordane	ND		ug/kg	0.773	--	1	B
trans-Chlordane	ND		ug/kg	0.387	--	1	A
Endosulfan I	ND		ug/kg	0.387	--	1	A
cis-Chlordane	ND		ug/kg	0.387	--	1	A
trans-Nonachlor	ND		ug/kg	0.387	--	1	A
4,4'-DDE	ND		ug/kg	0.387	--	1	A
Dieldrin	ND		ug/kg	0.387	--	1	A
Endrin	ND		ug/kg	0.387	--	1	A
Endosulfan II	ND		ug/kg	0.387	--	1	A
4,4'-DDD	ND		ug/kg	0.387	--	1	A
cis-Nonachlor	ND		ug/kg	0.387	--	1	A
4,4'-DDT	ND		ug/kg	0.387	--	1	A
Methoxychlor	ND		ug/kg	3.87	--	1	A
Toxaphene	ND		ug/kg	19.4	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	83		30-150	A
BZ 198	85		30-150	A
DBOB	75		30-150	B
BZ 198	82		30-150	B

Project Name: LITTLE BAY
Project Number: Not Specified
Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-04
Client ID: C6-0"-24"
Sample Location: NEW HAMPSHIRE

Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 06/05/17 23:42
Analyst: DP
Percent Solids: 67%

Date Collected: 05/23/17 12:43
Date Received: 05/23/17
Field Prep: Not Specified
Extraction Method: EPA 3570
Extraction Date: 05/25/17 19:45
Cleanup Method: EPA 3630
Cleanup Date: 06/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Hexachlorobenzene	ND		ug/kg	0.688	--	1	A
gamma-BHC	ND		ug/kg	0.344	--	1	A
Heptachlor	ND		ug/kg	0.344	--	1	A
Aldrin	ND		ug/kg	0.344	--	1	A
Heptachlor epoxide	ND		ug/kg	0.688	--	1	B
Oxychlordane	ND		ug/kg	0.688	--	1	B
trans-Chlordane	ND		ug/kg	0.344	--	1	A
Endosulfan I	ND		ug/kg	0.344	--	1	A
cis-Chlordane	ND		ug/kg	0.344	--	1	A
trans-Nonachlor	ND		ug/kg	0.344	--	1	A
4,4'-DDE	ND		ug/kg	0.344	--	1	A
Dieldrin	ND		ug/kg	0.344	--	1	A
Endrin	ND		ug/kg	0.344	--	1	A
Endosulfan II	ND		ug/kg	0.344	--	1	A
4,4'-DDD	ND		ug/kg	0.344	--	1	A
cis-Nonachlor	ND		ug/kg	0.344	--	1	A
4,4'-DDT	ND		ug/kg	0.344	--	1	A
Methoxychlor	ND		ug/kg	3.44	--	1	A
Toxaphene	ND		ug/kg	17.3	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	67		30-150	A
BZ 198	75		30-150	A
DBOB	65		30-150	B
BZ 198	76		30-150	B

Project Name: LITTLE BAY
Project Number: Not Specified
Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-05
Client ID: C-8-0"-24"
Sample Location: NEW HAMPSHIRE

Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 06/06/17 00:15
Analyst: DP
Percent Solids: 85%

Date Collected: 05/23/17 13:00
Date Received: 05/23/17
Field Prep: Not Specified
Extraction Method: EPA 3570
Extraction Date: 05/25/17 19:45
Cleanup Method: EPA 3630
Cleanup Date: 06/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Hexachlorobenzene	ND		ug/kg	0.555	--	1	A
gamma-BHC	ND		ug/kg	0.277	--	1	A
Heptachlor	ND		ug/kg	0.277	--	1	A
Aldrin	ND		ug/kg	0.277	--	1	A
Heptachlor epoxide	ND		ug/kg	0.555	--	1	B
Oxychlordane	ND		ug/kg	0.555	--	1	B
trans-Chlordane	ND		ug/kg	0.277	--	1	A
Endosulfan I	ND		ug/kg	0.277	--	1	A
cis-Chlordane	ND		ug/kg	0.277	--	1	A
trans-Nonachlor	ND		ug/kg	0.277	--	1	A
4,4'-DDE	ND		ug/kg	0.277	--	1	A
Dieldrin	ND		ug/kg	0.277	--	1	A
Endrin	ND		ug/kg	0.277	--	1	A
Endosulfan II	ND		ug/kg	0.277	--	1	A
4,4'-DDD	ND		ug/kg	0.277	--	1	A
cis-Nonachlor	ND		ug/kg	0.277	--	1	A
4,4'-DDT	ND		ug/kg	0.277	--	1	A
Methoxychlor	ND		ug/kg	2.77	--	1	A
Toxaphene	ND		ug/kg	13.9	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	60		30-150	A
BZ 198	76		30-150	A
DBOB	59		30-150	B
BZ 198	75		30-150	B

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-06
Client ID: C-5-0"-24"
Sample Location: NEW HAMPSHIRE

Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 06/06/17 00:49
Analyst: DP
Percent Solids: 68%

Date Collected: 05/23/17 14:15
Date Received: 05/23/17
Field Prep: Not Specified
Extraction Method: EPA 3570
Extraction Date: 05/25/17 19:45
Cleanup Method: EPA 3630
Cleanup Date: 06/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Hexachlorobenzene	ND		ug/kg	0.698	--	1	A
gamma-BHC	ND		ug/kg	0.349	--	1	A
Heptachlor	ND		ug/kg	0.349	--	1	A
Aldrin	ND		ug/kg	0.349	--	1	A
Heptachlor epoxide	ND		ug/kg	0.698	--	1	B
Oxychlordane	ND		ug/kg	0.698	--	1	B
trans-Chlordane	ND		ug/kg	0.349	--	1	A
Endosulfan I	ND		ug/kg	0.349	--	1	A
cis-Chlordane	ND		ug/kg	0.349	--	1	A
trans-Nonachlor	ND		ug/kg	0.349	--	1	A
4,4'-DDE	ND		ug/kg	0.349	--	1	A
Dieldrin	ND		ug/kg	0.349	--	1	A
Endrin	ND		ug/kg	0.349	--	1	A
Endosulfan II	ND		ug/kg	0.349	--	1	A
4,4'-DDD	ND		ug/kg	0.349	--	1	A
cis-Nonachlor	ND		ug/kg	0.349	--	1	A
4,4'-DDT	ND		ug/kg	0.349	--	1	A
Methoxychlor	ND		ug/kg	3.49	--	1	A
Toxaphene	ND		ug/kg	17.5	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	59		30-150	A
BZ 198	66		30-150	A
DBOB	55		30-150	B
BZ 198	65		30-150	B

Project Name: LITTLE BAY
Project Number: Not Specified
Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-07
Client ID: C-4-0"-24"
Sample Location: NEW HAMPSHIRE

Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 06/06/17 01:23
Analyst: DP
Percent Solids: 68%

Date Collected: 05/23/17 14:30
Date Received: 05/23/17
Field Prep: Not Specified
Extraction Method: EPA 3570
Extraction Date: 05/25/17 19:45
Cleanup Method: EPA 3630
Cleanup Date: 06/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Hexachlorobenzene	ND		ug/kg	0.714	--	1	A
gamma-BHC	ND		ug/kg	0.357	--	1	A
Heptachlor	ND		ug/kg	0.357	--	1	A
Aldrin	ND		ug/kg	0.357	--	1	A
Heptachlor epoxide	ND		ug/kg	0.714	--	1	B
Oxychlordane	ND		ug/kg	0.714	--	1	B
trans-Chlordane	ND		ug/kg	0.357	--	1	A
Endosulfan I	ND		ug/kg	0.357	--	1	A
cis-Chlordane	ND		ug/kg	0.357	--	1	A
trans-Nonachlor	ND		ug/kg	0.357	--	1	A
4,4'-DDE	ND		ug/kg	0.357	--	1	A
Dieldrin	ND		ug/kg	0.357	--	1	A
Endrin	ND		ug/kg	0.357	--	1	A
Endosulfan II	ND		ug/kg	0.357	--	1	A
4,4'-DDD	ND		ug/kg	0.357	--	1	A
cis-Nonachlor	ND		ug/kg	0.357	--	1	A
4,4'-DDT	ND		ug/kg	0.357	--	1	A
Methoxychlor	ND		ug/kg	3.57	--	1	A
Toxaphene	ND		ug/kg	17.9	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	56		30-150	A
BZ 198	76		30-150	A
DBOB	50		30-150	B
BZ 198	75		30-150	B

Project Name: LITTLE BAY
Project Number: Not Specified
Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-08
Client ID: C-12-0"-24"
Sample Location: NEW HAMPSHIRE

Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 06/06/17 01:57
Analyst: DP
Percent Solids: 84%

Date Collected: 05/23/17 14:45
Date Received: 05/23/17
Field Prep: Not Specified
Extraction Method: EPA 3570
Extraction Date: 05/25/17 19:45
Cleanup Method: EPA 3630
Cleanup Date: 06/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Hexachlorobenzene	ND		ug/kg	0.566	--	1	A
gamma-BHC	ND		ug/kg	0.283	--	1	A
Heptachlor	ND		ug/kg	0.283	--	1	A
Aldrin	ND		ug/kg	0.283	--	1	A
Heptachlor epoxide	ND		ug/kg	0.566	--	1	B
Oxychlordane	ND		ug/kg	0.566	--	1	B
trans-Chlordane	ND		ug/kg	0.283	--	1	A
Endosulfan I	ND		ug/kg	0.283	--	1	A
cis-Chlordane	ND		ug/kg	0.283	--	1	A
trans-Nonachlor	ND		ug/kg	0.283	--	1	A
4,4'-DDE	ND		ug/kg	0.283	--	1	A
Dieldrin	ND		ug/kg	0.283	--	1	A
Endrin	ND		ug/kg	0.283	--	1	A
Endosulfan II	ND		ug/kg	0.283	--	1	A
4,4'-DDD	ND		ug/kg	0.283	--	1	A
cis-Nonachlor	ND		ug/kg	0.283	--	1	A
4,4'-DDT	ND		ug/kg	0.283	--	1	A
Methoxychlor	ND		ug/kg	2.83	--	1	A
Toxaphene	ND		ug/kg	14.2	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	53		30-150	A
BZ 198	73		30-150	A
DBOB	53		30-150	B
BZ 198	71		30-150	B

Project Name: LITTLE BAY
Project Number: Not Specified
Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-09
Client ID: C-11 0"-24"
Sample Location: NEW HAMPSHIRE

Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 06/06/17 02:31
Analyst: DP
Percent Solids: 65%

Date Collected: 05/24/17 07:33
Date Received: 05/24/17
Field Prep: Not Specified
Extraction Method: EPA 3570
Extraction Date: 05/25/17 19:45
Cleanup Method: EPA 3630
Cleanup Date: 06/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Hexachlorobenzene	ND		ug/kg	0.699	--	1	A
gamma-BHC	ND		ug/kg	0.349	--	1	A
Heptachlor	ND		ug/kg	0.349	--	1	A
Aldrin	ND		ug/kg	0.349	--	1	A
Heptachlor epoxide	ND		ug/kg	0.699	--	1	B
Oxychlordane	ND		ug/kg	0.699	--	1	B
trans-Chlordane	ND		ug/kg	0.349	--	1	A
Endosulfan I	ND		ug/kg	0.349	--	1	A
cis-Chlordane	ND		ug/kg	0.349	--	1	A
trans-Nonachlor	ND		ug/kg	0.349	--	1	A
4,4'-DDE	ND		ug/kg	0.349	--	1	A
Dieldrin	ND		ug/kg	0.349	--	1	A
Endrin	ND		ug/kg	0.349	--	1	A
Endosulfan II	ND		ug/kg	0.349	--	1	A
4,4'-DDD	ND		ug/kg	0.349	--	1	A
cis-Nonachlor	ND		ug/kg	0.349	--	1	A
4,4'-DDT	ND		ug/kg	0.349	--	1	A
Methoxychlor	ND		ug/kg	3.49	--	1	A
Toxaphene	ND		ug/kg	17.5	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	57		30-150	A
BZ 198	65		30-150	A
DBOB	59		30-150	B
BZ 198	64		30-150	B

Project Name: LITTLE BAY
Project Number: Not Specified
Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-10
Client ID: C-7 0"-24"
Sample Location: NEW HAMPSHIRE

Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 06/06/17 03:05
Analyst: DP
Percent Solids: 69%

Date Collected: 05/24/17 07:52
Date Received: 05/24/17
Field Prep: Not Specified
Extraction Method: EPA 3570
Extraction Date: 05/25/17 19:45
Cleanup Method: EPA 3630
Cleanup Date: 06/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Hexachlorobenzene	ND		ug/kg	0.712	--	1	A
gamma-BHC	ND		ug/kg	0.356	--	1	A
Heptachlor	ND		ug/kg	0.356	--	1	A
Aldrin	ND		ug/kg	0.356	--	1	A
Heptachlor epoxide	ND		ug/kg	0.712	--	1	B
Oxychlordane	ND		ug/kg	0.712	--	1	B
trans-Chlordane	ND		ug/kg	0.356	--	1	A
Endosulfan I	ND		ug/kg	0.356	--	1	A
cis-Chlordane	ND		ug/kg	0.356	--	1	A
trans-Nonachlor	ND		ug/kg	0.356	--	1	A
4,4'-DDE	ND		ug/kg	0.356	--	1	A
Dieldrin	ND		ug/kg	0.356	--	1	A
Endrin	ND		ug/kg	0.356	--	1	A
Endosulfan II	ND		ug/kg	0.356	--	1	A
4,4'-DDD	ND		ug/kg	0.356	--	1	A
cis-Nonachlor	ND		ug/kg	0.356	--	1	A
4,4'-DDT	ND		ug/kg	0.356	--	1	A
Methoxychlor	ND		ug/kg	3.56	--	1	A
Toxaphene	ND		ug/kg	17.9	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	63		30-150	A
BZ 198	64		30-150	A
DBOB	58		30-150	B
BZ 198	62		30-150	B

Project Name: LITTLE BAY
Project Number: Not Specified
Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-11
Client ID: C-10 0"-24"
Sample Location: NEW HAMPSHIRE

Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 06/06/17 03:39
Analyst: DP
Percent Solids: 73%

Date Collected: 05/24/17 08:06
Date Received: 05/24/17
Field Prep: Not Specified
Extraction Method: EPA 3570
Extraction Date: 05/25/17 19:45
Cleanup Method: EPA 3630
Cleanup Date: 06/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Hexachlorobenzene	ND		ug/kg	0.630	--	1	A
gamma-BHC	ND		ug/kg	0.315	--	1	A
Heptachlor	ND		ug/kg	0.315	--	1	A
Aldrin	ND		ug/kg	0.315	--	1	A
Heptachlor epoxide	ND		ug/kg	0.630	--	1	B
Oxychlordane	ND		ug/kg	0.630	--	1	B
trans-Chlordane	ND		ug/kg	0.315	--	1	A
Endosulfan I	ND		ug/kg	0.315	--	1	A
cis-Chlordane	ND		ug/kg	0.315	--	1	A
trans-Nonachlor	ND		ug/kg	0.315	--	1	A
4,4'-DDE	ND		ug/kg	0.315	--	1	A
Dieldrin	ND		ug/kg	0.315	--	1	A
Endrin	ND		ug/kg	0.315	--	1	A
Endosulfan II	ND		ug/kg	0.315	--	1	A
4,4'-DDD	ND		ug/kg	0.315	--	1	A
cis-Nonachlor	ND		ug/kg	0.315	--	1	A
4,4'-DDT	ND		ug/kg	0.315	--	1	A
Methoxychlor	ND		ug/kg	3.15	--	1	A
Toxaphene	ND		ug/kg	15.8	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	64		30-150	A
BZ 198	73		30-150	A
DBOB	63		30-150	B
BZ 198	73		30-150	B

Project Name: LITTLE BAY
Project Number: Not Specified
Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-12
Client ID: C-9 0"-18"
Sample Location: NEW HAMPSHIRE

Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 06/06/17 04:13
Analyst: DP
Percent Solids: 73%

Date Collected: 05/24/17 08:20
Date Received: 05/24/17
Field Prep: Not Specified
Extraction Method: EPA 3570
Extraction Date: 05/25/17 19:45
Cleanup Method: EPA 3630
Cleanup Date: 06/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Hexachlorobenzene	ND		ug/kg	0.678	--	1	A
gamma-BHC	ND		ug/kg	0.339	--	1	A
Heptachlor	ND		ug/kg	0.339	--	1	A
Aldrin	ND		ug/kg	0.339	--	1	A
Heptachlor epoxide	ND		ug/kg	0.678	--	1	B
Oxychlordane	ND		ug/kg	0.678	--	1	B
trans-Chlordane	ND		ug/kg	0.339	--	1	A
Endosulfan I	ND		ug/kg	0.339	--	1	A
cis-Chlordane	ND		ug/kg	0.339	--	1	A
trans-Nonachlor	ND		ug/kg	0.339	--	1	A
4,4'-DDE	ND		ug/kg	0.339	--	1	A
Dieldrin	ND		ug/kg	0.339	--	1	A
Endrin	ND		ug/kg	0.339	--	1	A
Endosulfan II	ND		ug/kg	0.339	--	1	A
4,4'-DDD	ND		ug/kg	0.339	--	1	A
cis-Nonachlor	ND		ug/kg	0.339	--	1	A
4,4'-DDT	ND		ug/kg	0.339	--	1	A
Methoxychlor	ND		ug/kg	3.39	--	1	A
Toxaphene	ND		ug/kg	17.0	--	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	50		30-150	A
BZ 198	73		30-150	A
DBOB	50		30-150	B
BZ 198	70		30-150	B

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8081B
Analytical Date: 06/05/17 16:55
Analyst: DP

Extraction Method: EPA 3570
Extraction Date: 05/25/17 19:45
Cleanup Method: EPA 3630
Cleanup Date: 06/01/17

Parameter	Result	Qualifier	Units	RL	MDL	Column
RIM Organochlorine Pesticides - Mansfield Lab for sample(s): 01-12 Batch: WG1007124-1						
Hexachlorobenzene	ND		ug/kg	0.500	--	A
gamma-BHC	ND		ug/kg	0.250	--	A
Heptachlor	ND		ug/kg	0.250	--	A
Aldrin	ND		ug/kg	0.250	--	A
trans-Chlordane	ND		ug/kg	0.250	--	A
Endosulfan I	ND		ug/kg	0.250	--	A
cis-Chlordane	ND		ug/kg	0.250	--	A
trans-Nonachlor	ND		ug/kg	0.250	--	A
4,4'-DDE	ND		ug/kg	0.250	--	A
Dieldrin	ND		ug/kg	0.250	--	A
Endrin	ND		ug/kg	0.250	--	A
Endosulfan II	ND		ug/kg	0.250	--	A
4,4'-DDD	ND		ug/kg	0.250	--	A
cis-Nonachlor	ND		ug/kg	0.250	--	A
4,4'-DDT	ND		ug/kg	0.250	--	A
Methoxychlor	ND		ug/kg	2.50	--	A
Toxaphene	ND		ug/kg	12.6	--	A
Heptachlor epoxide	ND		ug/kg	0.500	--	B
Oxychlordane	ND		ug/kg	0.500	--	B

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
DBOB	53		30-150	A
BZ 198	81		30-150	A
DBOB	57		30-150	B
BZ 198	78		30-150	B

Lab Control Sample Analysis
Batch Quality Control

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
RIM Organochlorine Pesticides - Mansfield Lab Associated sample(s): 01-12 Batch: WG1007124-2 WG1007124-3									
Hexachlorobenzene	65		63		50-120	3		30	A
gamma-BHC	69		64		50-120	8		30	A
Heptachlor	70		65		50-120	7		30	A
Aldrin	71		61		50-120	15		30	A
trans-Chlordane	88		76		50-120	15		30	A
Endosulfan I	83		76		50-120	9		30	A
cis-Chlordane	83		73		50-120	13		30	A
trans-Nonachlor	83		72		50-120	14		30	A
4,4'-DDE	99		85		50-120	15		30	A
Dieldrin	96		89		50-120	8		30	A
Endrin	79		75		50-120	5		30	A
4,4'-DDD	100		91		50-120	9		30	A
cis-Nonachlor	85		77		50-120	10		30	A
4,4'-DDT	102		93		50-120	9		30	A
Methoxychlor	93		84		50-120	10		30	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
DBOB	67		61		30-150	A
BZ 198	105		93		30-150	A
DBOB	71		63		30-150	B
BZ 198	100		93		30-150	B

Lab Control Sample Analysis
Batch Quality Control

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
RIM Organochlorine Pesticides - Mansfield Lab Associated sample(s): 01-12 Batch: WG1007124-2 WG1007124-3									
Heptachlor epoxide	92		113		50-120	20		30	B
Oxychlordane	84		74		50-120	13		30	B
Endosulfan II	89		84		50-120	6		30	B

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
DBOB	67		61		30-150	A
BZ 198	105		93		30-150	A
DBOB	71		63		30-150	B
BZ 198	100		93		30-150	B

Matrix Spike Analysis

Batch Quality Control

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits	Column
RIM Organochlorine Pesticides - Mansfield Lab Associated sample(s): 01-12 QC Batch ID: WG1007124-6 WG1007124-7 QC Sample: L1716880-01 Client ID: C2-0"-24"													
Hexachlorobenzene	ND	76.9	40.7	53		38.7	51		50-120	5		30	A
gamma-BHC	ND	76.9	45.2	59		41.5	55		50-120	9		30	A
Heptachlor	ND	76.9	46.0	60		42.1	56		50-120	9		30	A
Aldrin	ND	76.9	43.7	57		41.6	55		50-120	5		30	A
Heptachlor epoxide	ND	76.9	54.5	71		51.6	68		50-120	5		30	B
Oxychlordane	ND	76.9	49.8	65		46.8	62		50-120	6		30	B
trans-Chlordane	ND	76.9	52.0	68		49.3	65		50-120	5		30	A
Endosulfan I	ND	76.9	48.4	63		47.5	63		50-120	2		30	A
cis-Chlordane	ND	76.9	48.4	63		47.0	62		50-120	3		30	A
trans-Nonachlor	ND	76.9	48.0	62		47.2	62		50-120	2		30	A
4,4'-DDE	ND	76.9	57.2	74		57.2	76		50-120	0		30	A
Dieldrin	ND	76.9	54.1	70		54.3	72		50-120	0		30	A
Endrin	ND	76.9	46.2	60		46.7	62		50-120	1		30	A
Endosulfan II	ND	76.9	48.2	63		52.0	69		50-120	8		30	B
4,4'-DDD	ND	76.9	56.0	73		57.4	76		50-120	2		30	A
cis-Nonachlor	ND	76.9	48.5	63		48.6	64		50-120	0		30	A
4,4'-DDT	ND	76.9	57.8	75		59.3	78		50-120	3		30	A
Methoxychlor	ND	76.9	50.5	66		56.6	75		50-120	11		30	A

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria	Column
BZ 198	68		71		30-150	A
DBOB	60		60		30-150	A

Matrix Spike Analysis

Batch Quality Control

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
RIM Organochlorine Pesticides - Mansfield Lab Associated sample(s): 01-12 QC Batch ID: WG1007124-6 WG1007124-7 QC Sample: L1716880-01 Client ID: C2-0"-24"												

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria	Column
BZ 198	70		72		30-150	B
DBOB	57		51		30-150	B

Lab Duplicate Analysis
Batch Quality Control

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits	
RIM Organochlorine Pesticides - Mansfield Lab Associated sample(s): 01-12 QC Batch ID: WG1007124-5 QC Sample: L1716880-01 Client ID: C2-0"-24"							
Hexachlorobenzene	ND	ND	ug/kg	NC		30	A
gamma-BHC	ND	ND	ug/kg	NC		30	A
Heptachlor	ND	ND	ug/kg	NC		30	A
Aldrin	ND	ND	ug/kg	NC		30	A
Heptachlor epoxide	ND	ND	ug/kg	NC		30	B
Oxychlordane	ND	ND	ug/kg	NC		30	B
trans-Chlordane	ND	ND	ug/kg	NC		30	A
Endosulfan I	ND	ND	ug/kg	NC		30	A
cis-Chlordane	ND	ND	ug/kg	NC		30	A
trans-Nonachlor	ND	ND	ug/kg	NC		30	A
4,4'-DDE	ND	ND	ug/kg	NC		30	A
Dieldrin	ND	ND	ug/kg	NC		30	A
Endrin	ND	ND	ug/kg	NC		30	A
Endosulfan II	ND	ND	ug/kg	NC		30	A
4,4'-DDD	ND	ND	ug/kg	NC		30	A
cis-Nonachlor	ND	ND	ug/kg	NC		30	A
4,4'-DDT	ND	ND	ug/kg	NC		30	A
Methoxychlor	ND	ND	ug/kg	NC		30	A
Toxaphene	ND	ND	ug/kg	NC		30	A

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria	Column

Lab Duplicate Analysis
Batch Quality Control

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits

RIM Organochlorine Pesticides - Mansfield Lab Associated sample(s): 01-12 QC Batch ID: WG1007124-5 QC Sample: L1716880-01 Client ID: C2-0"-24"

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria	Column
DBOB	68		50		30-150	A
BZ 198	84		59		30-150	A
DBOB	61		49		30-150	B
BZ 198	81		61		30-150	B

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

S.R.M. Standard Quality Control

Standard Reference Material (SRM): WG1007124-4

Parameter	% Recovery	Qual	QC Criteria
Hexachlorobenzene	101		40-140
cis-Chlordane	87		40-140
trans-Nonachlor	391	Q	40-140
DBOB (Surrogate)	57		30-150
DBOB (Surrogate)	62		30-150
BZ 198 (Surrogate)	92		30-150
BZ 198 (Surrogate)	193	Q	30-150

METALS

Project Name: LITTLE BAY
Project Number: Not Specified
Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-01
Client ID: C2-0"-24"
Sample Location: NEW HAMPSHIRE
Matrix: Sediment
Percent Solids: 62%

Date Collected: 05/23/17 10:45
Date Received: 05/23/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	9.85		mg/kg	0.153	--	2	05/31/17 15:00	06/07/17 11:56	EPA 3050B	1,6020A	AM
Lead, Total	10.7		mg/kg	0.184	--	2	05/31/17 15:00	06/07/17 11:56	EPA 3050B	1,6020A	AM

Project Name: LITTLE BAY
Project Number: Not Specified
Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-02
Client ID: C3-0"-24"
Sample Location: NEW HAMPSHIRE
Matrix: Sediment
Percent Solids: 65%

Date Collected: 05/23/17 11:10
Date Received: 05/23/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	9.17		mg/kg	0.152	--	2	05/31/17 15:00	06/07/17 12:36	EPA 3050B	1,6020A	AM

Project Name: LITTLE BAY
Project Number: Not Specified
Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-03
Client ID: C1-0"-24"
Sample Location: NEW HAMPSHIRE
Matrix: Sediment
Percent Solids: 62%

Date Collected: 05/23/17 12:25
Date Received: 05/23/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	8.41		mg/kg	0.158	--	2	05/31/17 15:00	06/07/17 12:56	EPA 3050B	1,6020A	AM

Project Name: LITTLE BAY
Project Number: Not Specified
Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-04
Client ID: C6-0"-24"
Sample Location: NEW HAMPSHIRE
Matrix: Sediment
Percent Solids: 67%

Date Collected: 05/23/17 12:43
Date Received: 05/23/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	10.4		mg/kg	0.143	--	2	05/31/17 15:00	06/07/17 12:59	EPA 3050B	1,6020A	AM

Project Name: LITTLE BAY
Project Number: Not Specified
Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-05
Client ID: C-8-0"-24"
Sample Location: NEW HAMPSHIRE
Matrix: Sediment
Percent Solids: 85%

Date Collected: 05/23/17 13:00
Date Received: 05/23/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	8.52		mg/kg	0.112	--	2	05/31/17 15:00	06/07/17 13:02	EPA 3050B	1,6020A	AM

Project Name: LITTLE BAY
Project Number: Not Specified
Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-06
Client ID: C-5-0"-24"
Sample Location: NEW HAMPSHIRE
Matrix: Sediment
Percent Solids: 68%

Date Collected: 05/23/17 14:15
Date Received: 05/23/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	7.53		mg/kg	0.139	--	2	05/31/17 15:00	06/07/17 13:05	EPA 3050B	1,6020A	AM

Project Name: LITTLE BAY
Project Number: Not Specified
Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-07
Client ID: C-4-0"-24"
Sample Location: NEW HAMPSHIRE
Matrix: Sediment
Percent Solids: 68%

Date Collected: 05/23/17 14:30
Date Received: 05/23/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	7.18		mg/kg	0.140	--	2	05/31/17 15:00	06/07/17 13:08	EPA 3050B	1,6020A	AM
Lead, Total	5.36		mg/kg	0.168	--	2	05/31/17 15:00	06/07/17 13:08	EPA 3050B	1,6020A	AM

Project Name: LITTLE BAY
Project Number: Not Specified
Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-08
Client ID: C-12-0"-24"
Sample Location: NEW HAMPSHIRE
Matrix: Sediment
Percent Solids: 84%

Date Collected: 05/23/17 14:45
Date Received: 05/23/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	5.47		mg/kg	0.116	--	2	05/31/17 15:00	06/07/17 13:11	EPA 3050B	1,6020A	AM
Lead, Total	3.58		mg/kg	0.139	--	2	05/31/17 15:00	06/07/17 13:11	EPA 3050B	1,6020A	AM

Project Name: LITTLE BAY
Project Number: Not Specified
Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-09
Client ID: C-11 0"-24"
Sample Location: NEW HAMPSHIRE
Matrix: Sediment
Percent Solids: 65%

Date Collected: 05/24/17 07:33
Date Received: 05/24/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	8.20		mg/kg	0.146	--	2	05/31/17 15:00	06/07/17 13:15	EPA 3050B	1,6020A	AM
Lead, Total	16.9		mg/kg	0.176	--	2	05/31/17 15:00	06/07/17 13:15	EPA 3050B	1,6020A	AM

Project Name: LITTLE BAY
Project Number: Not Specified
Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-10
Client ID: C-7 0"-24"
Sample Location: NEW HAMPSHIRE
Matrix: Sediment
Percent Solids: 69%

Date Collected: 05/24/17 07:52
Date Received: 05/24/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	8.16		mg/kg	0.143	--	2	05/31/17 15:00	06/07/17 13:18	EPA 3050B	1,6020A	AM
Lead, Total	5.22		mg/kg	0.172	--	2	05/31/17 15:00	06/07/17 13:18	EPA 3050B	1,6020A	AM

Project Name: LITTLE BAY
Project Number: Not Specified
Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-11
Client ID: C-10 0"-24"
Sample Location: NEW HAMPSHIRE
Matrix: Sediment
Percent Solids: 73%

Date Collected: 05/24/17 08:06
Date Received: 05/24/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	5.50		mg/kg	0.135	--	2	05/31/17 15:00	06/07/17 14:19	EPA 3050B	1,6020A	AM

Project Name: LITTLE BAY
Project Number: Not Specified
Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-12
Client ID: C-9 0"-18"
Sample Location: NEW HAMPSHIRE
Matrix: Sediment
Percent Solids: 73%

Date Collected: 05/24/17 08:20
Date Received: 05/24/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	15.0		mg/kg	0.133	--	2	05/31/17 15:00	06/07/17 14:22	EPA 3050B	1,6020A	AM
Lead, Total	11.4		mg/kg	0.160	--	2	05/31/17 15:00	06/07/17 14:22	EPA 3050B	1,6020A	AM

Project Name: LITTLE BAY
Project Number: Not Specified
Lab Number: L1716880
Report Date: 06/08/17

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-12 Batch: WG1008398-1										
Arsenic, Total	ND		mg/kg	0.100	--	2	05/31/17 15:00	06/07/17 11:31	1,6020A	AM
Lead, Total	ND		mg/kg	0.120	--	2	05/31/17 15:00	06/07/17 11:31	1,6020A	AM

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-12 Batch: WG1008398-2 SRM Lot Number: D091-540								
Arsenic, Total	103		-		80-121	-		20
Lead, Total	114		-		82-118	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-12 QC Batch ID: WG1008398-3 WG1008398-4 QC Sample: L1716772-01 Client ID: MS Sample												
Arsenic, Total	1.28	9.6	11.1	102		11.8	108		75-125	6		20
Lead, Total	4.77	40.8	46.7	103		48.0	104		75-125	3		20
Total Metals - Mansfield Lab Associated sample(s): 01-12 QC Batch ID: WG1008398-9 WG1008398-10 QC Sample: L1716880-01 Client ID: C2-0"-24"												
Arsenic, Total	9.85	15.3	25.8	104		24.6	97		75-125	5		20
Lead, Total	10.7	64.9	77.7	103		77.9	104		75-125	0		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-12 QC Batch ID: WG1008398-5 QC Sample: L1716772-01 Client ID: DUP Sample						
Arsenic, Total	1.28	1.38	mg/kg	8		20
Lead, Total	4.77	4.73	mg/kg	1		20
Total Metals - Mansfield Lab Associated sample(s): 01-12 QC Batch ID: WG1008398-8 QC Sample: L1716880-01 Client ID: C2-0"-24"						
Arsenic, Total	9.85	10.6	mg/kg	7		20
Lead, Total	10.7	12.0	mg/kg	11		20

INORGANICS
&
MISCELLANEOUS

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-01
Client ID: C2-0"-24"
Sample Location: NEW HAMPSHIRE
Matrix: Sediment

Date Collected: 05/23/17 10:45
Date Received: 05/23/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Coarse Gravel	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Fine Gravel	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Total Gravel	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Coarse Sand	4.00		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Medium Sand	13.4		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Fine Sand	11.5		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Total Sand	28.9		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Silt Fine	62.1		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Clay Fine	9.00		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Total Fines	71.1		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
General Chemistry - Westborough Lab										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	1.5	--	1	-	05/26/17 22:19	121,4500NO3-F	MR
Total Nitrogen	1400		mg/kg	250	--	1	-	06/05/17 10:05	107,-	JO
Nitrogen, Total Kjeldahl	1400		mg/kg	250	--	1	05/25/17 20:00	06/01/17 00:17	121,4500NH3-H	AT
General Chemistry - Mansfield Lab										
Solids, Total	61.9		%	0.100	--	1	-	05/24/17 10:25	121,2540G	SP

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-02
Client ID: C3-0"-24"
Sample Location: NEW HAMPSHIRE
Matrix: Sediment

Date Collected: 05/23/17 11:10
Date Received: 05/23/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Coarse Gravel	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Fine Gravel	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Total Gravel	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Coarse Sand	1.00		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Medium Sand	6.40		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Fine Sand	12.9		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Total Sand	20.3		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Silt Fine	68.0		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Clay Fine	11.7		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Total Fines	79.7		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
General Chemistry - Westborough Lab										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	1.5	--	1	-	05/26/17 22:25	121,4500NO3-F	MR
Total Nitrogen	1200		mg/kg	210	--	1	-	06/05/17 10:05	107,-	JO
Nitrogen, Total Kjeldahl	1200		mg/kg	210	--	1	05/25/17 20:00	06/01/17 00:19	121,4500NH3-H	AT
General Chemistry - Mansfield Lab										
Solids, Total	65.2		%	0.100	--	1	-	05/24/17 10:25	121,2540G	SP

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-03
Client ID: C1-0"-24"
Sample Location: NEW HAMPSHIRE
Matrix: Sediment

Date Collected: 05/23/17 12:25
Date Received: 05/23/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Coarse Gravel	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Fine Gravel	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Total Gravel	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Coarse Sand	0.600		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Medium Sand	1.90		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Fine Sand	3.70		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Total Sand	6.20		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Silt Fine	76.9		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Clay Fine	16.9		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Total Fines	93.8		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
General Chemistry - Westborough Lab										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	1.5	--	1	-	05/26/17 22:26	121,4500NO3-F	MR
Total Nitrogen	1600		mg/kg	250	--	1	-	06/05/17 10:05	107,-	JO
Nitrogen, Total Kjeldahl	1600		mg/kg	250	--	1	05/25/17 20:00	06/01/17 00:20	121,4500NH3-H	AT
General Chemistry - Mansfield Lab										
Solids, Total	61.7		%	0.100	--	1	-	05/24/17 10:25	121,2540G	SP

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-04
Client ID: C6-0"-24"
Sample Location: NEW HAMPSHIRE
Matrix: Sediment

Date Collected: 05/23/17 12:43
Date Received: 05/23/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Coarse Gravel	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Fine Gravel	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Total Gravel	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Coarse Sand	1.40		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Medium Sand	5.00		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Fine Sand	15.2		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Total Sand	21.6		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Silt Fine	56.5		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Clay Fine	21.9		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Total Fines	78.4		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
General Chemistry - Westborough Lab										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	1.4	--	1	-	05/26/17 22:31	121,4500NO3-F	MR
Total Nitrogen	950		mg/kg	210	--	1	-	06/05/17 10:05	107,-	JO
Nitrogen, Total Kjeldahl	950		mg/kg	210	--	1	05/25/17 20:00	06/01/17 00:21	121,4500NH3-H	AT
General Chemistry - Mansfield Lab										
Solids, Total	67.0		%	0.100	--	1	-	05/24/17 10:25	121,2540G	SP

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-05
Client ID: C-8-0"-24"
Sample Location: NEW HAMPSHIRE
Matrix: Sediment

Date Collected: 05/23/17 13:00
Date Received: 05/23/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Coarse Gravel	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Fine Gravel	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Total Gravel	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Coarse Sand	0.300		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Medium Sand	2.20		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Fine Sand	31.1		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Total Sand	33.6		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Silt Fine	63.3		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Clay Fine	3.10		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Total Fines	66.4		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
General Chemistry - Westborough Lab										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	1.1	--	1	-	05/26/17 22:33	121,4500NO3-F	MR
Total Nitrogen	200		mg/kg	170	--	1	-	06/05/17 10:05	107,-	JO
Nitrogen, Total Kjeldahl	200		mg/kg	170	--	1	05/25/17 20:00	06/01/17 00:25	121,4500NH3-H	AT
General Chemistry - Mansfield Lab										
Solids, Total	84.6		%	0.100	--	1	-	05/24/17 10:25	121,2540G	SP

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-06
Client ID: C-5-0"-24"
Sample Location: NEW HAMPSHIRE
Matrix: Sediment

Date Collected: 05/23/17 14:15
Date Received: 05/23/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Coarse Gravel	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Fine Gravel	0.500		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Total Gravel	0.500		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Coarse Sand	1.60		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Medium Sand	31.7		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Fine Sand	64.8		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Total Sand	98.1		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Silt Fine	1.10		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Clay Fine	0.300		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Total Fines	1.40		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
General Chemistry - Westborough Lab										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	1.3	--	1	-	05/26/17 22:34	121,4500NO3-F	MR
Total Nitrogen	680		mg/kg	200	--	1	-	06/05/17 10:05	107,-	JO
Nitrogen, Total Kjeldahl	680		mg/kg	200	--	1	05/25/17 20:00	06/01/17 00:25	121,4500NH3-H	AT
General Chemistry - Mansfield Lab										
Solids, Total	68.2		%	0.100	--	1	-	05/24/17 10:25	121,2540G	SP

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-07
Client ID: C-4-0"-24"
Sample Location: NEW HAMPSHIRE
Matrix: Sediment

Date Collected: 05/23/17 14:30
Date Received: 05/23/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Coarse Gravel	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Fine Gravel	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Total Gravel	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Coarse Sand	1.60		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Medium Sand	6.40		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Fine Sand	19.6		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Total Sand	27.6		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Silt Fine	63.4		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Clay Fine	9.00		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Total Fines	72.4		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
General Chemistry - Westborough Lab										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	1.4	--	1	-	05/26/17 22:35	121,4500NO3-F	MR
Total Nitrogen	1200		mg/kg	210	--	1	-	06/05/17 10:05	107,-	JO
Nitrogen, Total Kjeldahl	1200		mg/kg	210	--	1	05/25/17 20:00	06/01/17 00:26	121,4500NH3-H	AT
General Chemistry - Mansfield Lab										
Solids, Total	67.8		%	0.100	--	1	-	05/24/17 10:25	121,2540G	SP

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-08
Client ID: C-12-0"-24"
Sample Location: NEW HAMPSHIRE
Matrix: Sediment

Date Collected: 05/23/17 14:45
Date Received: 05/23/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Coarse Gravel	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Fine Gravel	12.6		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Total Gravel	12.6		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Coarse Sand	13.0		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Medium Sand	9.10		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Fine Sand	32.7		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Total Sand	54.8		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Silt Fine	30.1		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Clay Fine	2.50		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Total Fines	32.6		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
General Chemistry - Westborough Lab										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	1.1	--	1	-	05/26/17 22:36	121,4500NO3-F	MR
Total Nitrogen	560		mg/kg	160	--	1	-	06/05/17 10:05	107,-	JO
Nitrogen, Total Kjeldahl	560		mg/kg	160	--	1	05/25/17 20:00	06/01/17 00:27	121,4500NH3-H	AT
General Chemistry - Mansfield Lab										
Solids, Total	83.6		%	0.100	--	1	-	05/24/17 10:25	121,2540G	SP

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-09
Client ID: C-11 0"-24"
Sample Location: NEW HAMPSHIRE
Matrix: Sediment

Date Collected: 05/24/17 07:33
Date Received: 05/24/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Coarse Gravel	ND		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Fine Gravel	3.30		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Total Gravel	3.30		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Coarse Sand	6.20		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Medium Sand	16.1		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Fine Sand	49.0		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Total Sand	71.3		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Silt Fine	17.5		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Clay Fine	7.90		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
% Total Fines	25.4		%	0.100	NA	1	-	06/07/17 09:40	12,D6913/D7928	SP
General Chemistry - Westborough Lab										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	1.3	--	1	-	05/26/17 22:38	121,4500NO3-F	MR
Total Nitrogen	1100		mg/kg	210	--	1	-	06/05/17 10:05	107,-	JO
Nitrogen, Total Kjeldahl	1100		mg/kg	210	--	1	05/25/17 20:00	06/01/17 00:28	121,4500NH3-H	AT
General Chemistry - Mansfield Lab										
Solids, Total	65.4		%	0.100	--	1	-	05/30/17 13:58	121,2540G	SP

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-10
Client ID: C-7 0"-24"
Sample Location: NEW HAMPSHIRE
Matrix: Sediment

Date Collected: 05/24/17 07:52
Date Received: 05/24/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Coarse Gravel	ND		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Fine Gravel	ND		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Total Gravel	ND		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Coarse Sand	1.00		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Medium Sand	5.20		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Fine Sand	57.9		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Total Sand	64.1		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Silt Fine	34.0		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Clay Fine	1.90		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Total Fines	35.9		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
General Chemistry - Westborough Lab										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	1.4	--	1	-	05/26/17 22:39	121,4500NO3-F	MR
Total Nitrogen	660		mg/kg	210	--	1	-	06/05/17 10:05	107,-	JO
Nitrogen, Total Kjeldahl	660		mg/kg	210	--	1	05/25/17 20:00	06/01/17 00:29	121,4500NH3-H	AT
General Chemistry - Mansfield Lab										
Solids, Total	69.3		%	0.100	--	1	-	05/30/17 13:58	121,2540G	SP

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-11
Client ID: C-10 0"-24"
Sample Location: NEW HAMPSHIRE
Matrix: Sediment

Date Collected: 05/24/17 08:06
Date Received: 05/24/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Coarse Gravel	ND		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Fine Gravel	ND		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Total Gravel	ND		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Coarse Sand	0.800		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Medium Sand	3.40		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Fine Sand	90.7		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Total Sand	94.9		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Silt Fine	5.10		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Clay Fine	ND		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Total Fines	5.10		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
General Chemistry - Westborough Lab										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	1.3	--	1	-	05/26/17 22:40	121,4500NO3-F	MR
Total Nitrogen	300		mg/kg	190	--	1	-	06/05/17 10:05	107,-	JO
Nitrogen, Total Kjeldahl	300		mg/kg	190	--	1	05/25/17 20:00	06/01/17 00:30	121,4500NH3-H	AT
General Chemistry - Mansfield Lab										
Solids, Total	73.1		%	0.100	--	1	-	05/30/17 13:58	121,2540G	SP

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

SAMPLE RESULTS

Lab ID: L1716880-12
Client ID: C-9 0"-18"
Sample Location: NEW HAMPSHIRE
Matrix: Sediment

Date Collected: 05/24/17 08:20
Date Received: 05/24/17
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Coarse Gravel	ND		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Fine Gravel	2.90		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Total Gravel	2.90		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Coarse Sand	1.40		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Medium Sand	6.30		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Fine Sand	4.30		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Total Sand	12.0		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Silt Fine	64.1		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Clay Fine	21.0		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
% Total Fines	85.1		%	0.100	NA	1	-	06/07/17 14:59	12,D6913/D7928	SP
General Chemistry - Westborough Lab										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	1.2	--	1	-	05/26/17 22:42	121,4500NO3-F	MR
Total Nitrogen	350		mg/kg	200	--	1	-	06/05/17 10:05	107,-	JO
Nitrogen, Total Kjeldahl	350		mg/kg	200	--	1	05/25/17 20:00	06/01/17 00:31	121,4500NH3-H	AT
General Chemistry - Mansfield Lab										
Solids, Total	73.2		%	0.100	--	1	-	05/30/17 13:58	121,2540G	SP

Project Name: LITTLE BAY
Project Number: Not Specified
Lab Number: L1716880
Report Date: 06/08/17

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01-12 Batch: WG1007156-1										
Nitrogen, Total Kjeldahl	ND		mg/kg	150	--	1	05/25/17 20:00	06/01/17 00:13	121,4500NH3-H	AT
General Chemistry - Westborough Lab for sample(s): 01-12 Batch: WG1007176-1										
Nitrogen, Nitrate/Nitrite	ND		mg/kg	1.0	--	1	-	05/26/17 22:52	121,4500NO3-F	MR

Lab Control Sample Analysis
Batch Quality Control

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-12 Batch: WG1007156-2								
Nitrogen, Total Kjeldahl	94		-		84-115	-		26
General Chemistry - Westborough Lab Associated sample(s): 01-12 Batch: WG1007176-2								
Nitrogen, Nitrate/Nitrite	97		-		90-110	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-12 QC Batch ID: WG1007156-4 QC Sample: L1716880-01 Client ID: C2-0"-24"												
Nitrogen, Total Kjeldahl	1400	6500	7100	88		-	-		43-160	-		26
General Chemistry - Westborough Lab Associated sample(s): 01-12 QC Batch ID: WG1007176-4 QC Sample: L1716880-01 Client ID: C2-0"-24"												
Nitrogen, Nitrate/Nitrite	ND	124	120	97		-	-		80-120	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Mansfield Lab Associated sample(s): 01-08 QC Batch ID: WG1006501-1 QC Sample: L1716880-01 Client ID: C2-0"-24"						
Solids, Total	61.9	60.6	%	2		10
General Chemistry - Westborough Lab Associated sample(s): 01-12 QC Batch ID: WG1007156-3 QC Sample: L1716880-01 Client ID: C2-0"-24"						
Nitrogen, Total Kjeldahl	1400	1400	mg/kg	0		26
General Chemistry - Westborough Lab Associated sample(s): 01-12 QC Batch ID: WG1007176-3 QC Sample: L1716880-01 Client ID: C2-0"-24"						
Nitrogen, Nitrate/Nitrite	ND	ND	mg/kg	NC		20
General Chemistry - Mansfield Lab Associated sample(s): 09-12 QC Batch ID: WG1008076-1 QC Sample: L1716836-01 Client ID: DUP Sample						
Solids, Total	45.9	47.3	%	3		10

Lab Duplicate Analysis
Batch Quality Control

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Parameter	Native Sample	Duplicate Sample	Units	RPD		RPD Limits
Grain Size Analysis - Mansfield Lab Associated sample(s): 01-09 QC Batch ID: WG1010643-1 QC Sample: L1716880-01 Client ID: C2-0"-24"						
Cobbles	ND	ND	%	NC		20
% Coarse Gravel	ND	ND	%	NC		20
% Fine Gravel	ND	3.60	%	NC		20
% Total Gravel	ND	3.60	%	NC		20
% Coarse Sand	4.00	2.80	%	**35**	Q	20
% Medium Sand	13.4	15.2	%	13		20
% Fine Sand	11.5	9.60	%	18		20
% Total Sand	28.9	27.6	%	5		20
% Silt Fine	62.1	47.2	%	**27**	Q	20
% Clay Fine	9.00	21.6	%	**82**	Q	20
% Total Fines	71.1	68.8	%	3		20

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
A1	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1716880-01A	Plastic 8oz unpreserved for Grain Size	A	N/A	N/A	3.2	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1716880-01B	Glass 250ml/8oz unpreserved	A	N/A	N/A	3.2	Y	Absent		A2-PB-6020T(180),A2-RIM-PAH/PCBCONG(14),A2-TS(7),A2-AS-6020T(180),A2-PREP-3050:2T(180),A2-RIM-PEST-8081(14)
L1716880-01C	Glass 250ml unpreserved split	A	N/A	N/A	3.2	Y	Absent		TKN-4500(28),NO3/NO2-4500(28),TNITROGEN(28)
L1716880-02A	Plastic 8oz unpreserved for Grain Size	A	N/A	N/A	3.2	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1716880-02B	Glass 250ml/8oz unpreserved	A	N/A	N/A	3.2	Y	Absent		A2-TS(7),A2-AS-6020T(180),A2-PREP-3050:2T(180),A2-RIM-PEST-8081(14)
L1716880-02C	Glass 250ml unpreserved split	A	N/A	N/A	3.2	Y	Absent		TKN-4500(28),NO3/NO2-4500(28),TNITROGEN(28)
L1716880-03A	Plastic 8oz unpreserved for Grain Size	A	N/A	N/A	3.2	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1716880-03B	Glass 250ml/8oz unpreserved	A	N/A	N/A	3.2	Y	Absent		A2-TS(7),A2-AS-6020T(180),A2-PREP-3050:2T(180),A2-RIM-PEST-8081(14)
L1716880-03C	Glass 250ml unpreserved split	A	N/A	N/A	3.2	Y	Absent		TKN-4500(28),NO3/NO2-4500(28),TNITROGEN(28)

*Values in parentheses indicate holding time in days

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1716880-04A	Plastic 8oz unpreserved for Grain Size	A	N/A	N/A	3.2	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1716880-04B	Glass 250ml/8oz unpreserved	A	N/A	N/A	3.2	Y	Absent		A2-TS(7),A2-AS-6020T(180),A2-PREP-3050:2T(180),A2-RIM-PEST-8081(14)
L1716880-04C	Glass 250ml unpreserved split	A	N/A	N/A	3.2	Y	Absent		TKN-4500(28),NO3/NO2-4500(28),TNITROGEN(28)
L1716880-05A	Plastic 8oz unpreserved for Grain Size	A	N/A	N/A	3.2	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1716880-05B	Glass 250ml/8oz unpreserved	A	N/A	N/A	3.2	Y	Absent		A2-TS(7),A2-AS-6020T(180),A2-PREP-3050:2T(180),A2-RIM-PEST-8081(14)
L1716880-05C	Glass 250ml unpreserved split	A	N/A	N/A	3.2	Y	Absent		TKN-4500(28),NO3/NO2-4500(28),TNITROGEN(28)
L1716880-06A	Plastic 8oz unpreserved for Grain Size	A	N/A	N/A	3.2	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1716880-06B	Glass 250ml/8oz unpreserved	A	N/A	N/A	3.2	Y	Absent		A2-TS(7),A2-AS-6020T(180),A2-PREP-3050:2T(180),A2-RIM-PEST-8081(14)
L1716880-06C	Glass 250ml unpreserved split	A	N/A	N/A	3.2	Y	Absent		TKN-4500(28),NO3/NO2-4500(28),TNITROGEN(28)
L1716880-07A	Plastic 8oz unpreserved for Grain Size	A	N/A	N/A	3.2	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1716880-07B	Glass 250ml/8oz unpreserved	A	N/A	N/A	3.2	Y	Absent		A2-PB-6020T(180),A2-RIM-PAH/PCBCONG(14),A2-TS(7),A2-AS-6020T(180),A2-PREP-3050:2T(180),A2-RIM-PEST-8081(14)
L1716880-07C	Glass 250ml unpreserved split	A	N/A	N/A	3.2	Y	Absent		TKN-4500(28),NO3/NO2-4500(28),TNITROGEN(28)

*Values in parentheses indicate holding time in days

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1716880-08A	Plastic 8oz unpreserved for Grain Size	A	N/A	N/A	3.2	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1716880-08B	Glass 250ml/8oz unpreserved	A	N/A	N/A	3.2	Y	Absent		A2-PB-6020T(180),A2-RIM-PAH/PCBCONG(14),A2-TS(7),A2-AS-6020T(180),A2-PREP-3050:2T(180),A2-RIM-PEST-8081(14)
L1716880-08C	Glass 250ml unpreserved split	A	N/A	N/A	3.2	Y	Absent		TKN-4500(28),NO3/NO2-4500(28),TNITROGEN(28)
L1716880-09A	Glass 250ml/8oz unpreserved	A1	N/A	N/A	5.1	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1716880-09B	Glass 250ml/8oz unpreserved	A1	N/A	N/A	5.1	Y	Absent		A2-PB-6020T(180),A2-RIM-PAH/PCBCONG(14),A2-TS(7),A2-AS-6020T(180),A2-PREP-3050:2T(180),A2-RIM-PEST-8081(14)
L1716880-09C	Glass 250ml unpreserved split	A1	N/A	N/A	5.1	Y	Absent		TKN-4500(28),NO3/NO2-4500(28),TNITROGEN(28)
L1716880-10A	Plastic 8oz unpreserved for Grain Size	A1	N/A	N/A	5.1	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1716880-10B	Glass 250ml/8oz unpreserved	A1	N/A	N/A	5.1	Y	Absent		A2-PB-6020T(180),A2-RIM-PAH/PCBCONG(14),A2-TS(7),A2-AS-6020T(180),A2-PREP-3050:2T(180),A2-RIM-PEST-8081(14)
L1716880-10C	Glass 250ml unpreserved split	A1	N/A	N/A	5.1	Y	Absent		TKN-4500(28),NO3/NO2-4500(28),TNITROGEN(28)
L1716880-11A	Plastic 8oz unpreserved for Grain Size	A1	N/A	N/A	5.1	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1716880-11B	Glass 250ml/8oz unpreserved	A1	N/A	N/A	5.1	Y	Absent		A2-TS(7),A2-AS-6020T(180),A2-PREP-3050:2T(180),A2-RIM-PEST-8081(14)
L1716880-11C	Glass 250ml unpreserved split	A1	N/A	N/A	5.1	Y	Absent		TKN-4500(28),NO3/NO2-4500(28),TNITROGEN(28)

*Values in parentheses indicate holding time in days

Project Name: LITTLE BAY
Project Number: Not Specified

Lab Number: L1716880
Report Date: 06/08/17

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1716880-12A	Plastic 8oz unpreserved for Grain Size	A1	N/A	N/A	5.1	Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-SFINE(),A2-HYDRO-TSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1716880-12B	Glass 250ml/8oz unpreserved	A1	N/A	N/A	5.1	Y	Absent		A2-PB-6020T(180),A2-RIM-PAH/PCBCONG(14),A2-TS(7),A2-AS-6020T(180),A2-PREP-3050:2T(180),A2-RIM-PEST-8081(14)
L1716880-12C	Glass 250ml unpreserved split	A1	N/A	N/A	5.1	Y	Absent		TKN-4500(28),NO3/NO2-4500(28),TNITROGEN(28)

*Values in parentheses indicate holding time in days

Project Name:	LITTLE BAY	**Lab Number:**	L1716880
Project Number:	Not Specified	**Report Date:**	06/08/17

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

1	- The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A	- Spectra identified as "Aldol Condensation Product".
B	- The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related

Report Format: Data Usability Report

Project Name:	LITTLE BAY	**Lab Number:**	L1716880
Project Number:	Not Specified	**Report Date:**	06/08/17

Data Qualifiers

projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

Project Name: LITTLE BAY
Project Number: Not Specified
Lab Number: L1716880
Report Date: 06/08/17

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

12 Annual Book of ASTM Standards. (American Society for Testing and Materials) ASTM International.

105 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997 in conjunction with NOAA Technical Memorandum NMFS-NWFSC-59: Extraction, Cleanup and GC/MS Analysis of Sediments and Tissues for Organic Contaminants, March 2004 and the Determination of Pesticides and PCBs in Water and Oil/Sediment by GC/MS: Method 680, EPA 01A0005295, November 1985.

107 Alpha Analytical - In-house calculation method.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

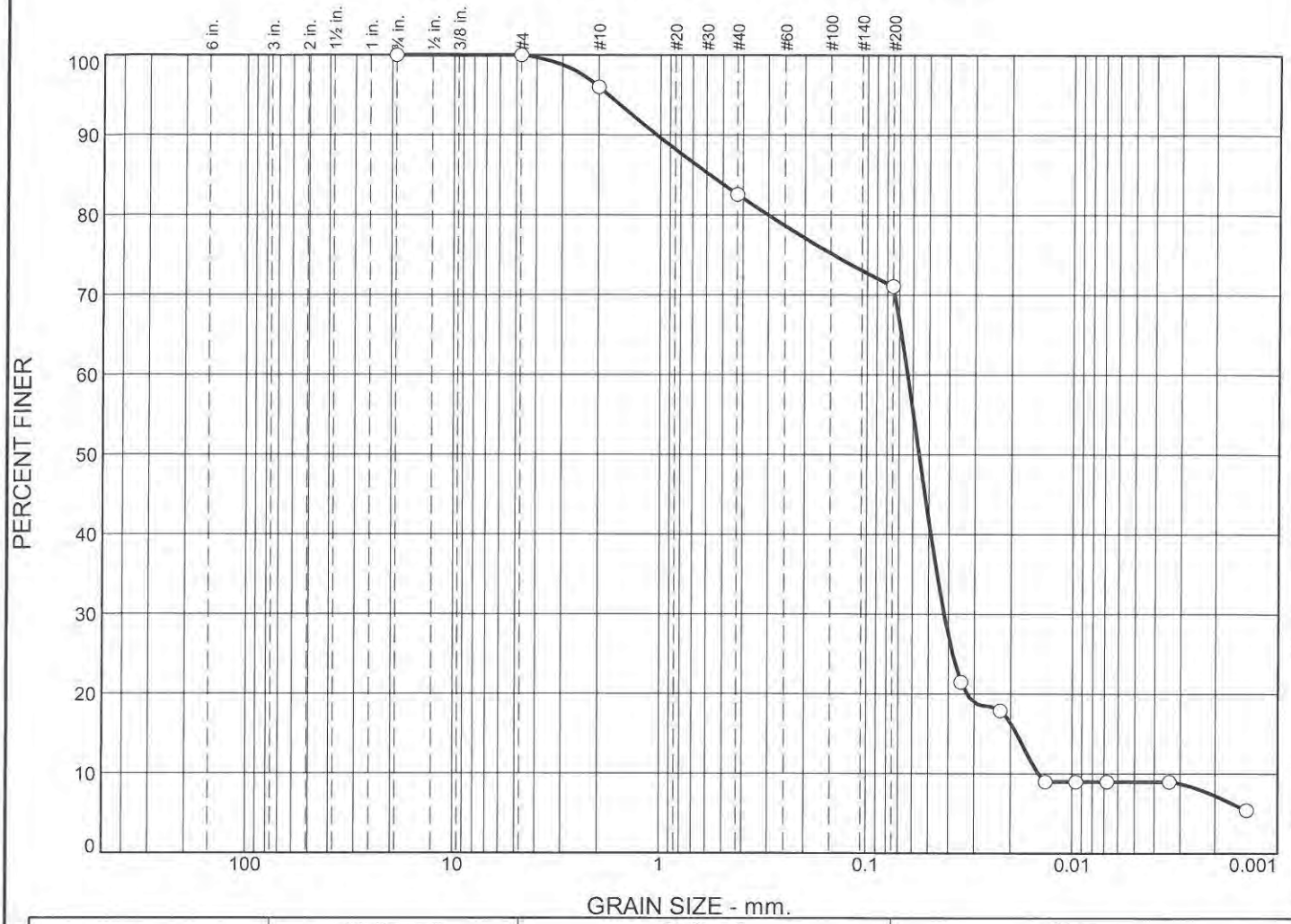
Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

ASTM D6913/D7928

GRAIN SIZE ANALYSIS

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	4.0	13.4	11.5	62.1	9.0

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.5794	0.0638	0.0559	0.0420	0.0187	0.0147	1.89	4.35

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** C2-0"-24" **Sample Number:** L1716880-01

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

6/7/2017

Location: C2-0"-24"

Sample Number: L1716880-01

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 63.90
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
63.90	0.00	0.75	0.00	0.00	100.0
		#4	0.00	0.00	100.0
		#10	2.56	0.00	96.0
		#40	8.59	0.00	82.6
		#200	7.34	0.00	71.1

Hydrometer Test Data

Hydrometer test uses material passing #200
Percent passing #200 based upon complete sample = 71.1
Weight of hydrometer sample =63.90
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.4	1.0120	1.0120	0.0136	12.0	13.1	0.0348	21.5
5.00	20.4	1.0100	1.0100	0.0136	10.0	13.6	0.0224	17.9
15.00	20.4	1.0050	1.0050	0.0136	5.0	15.0	0.0136	9.0
30.00	20.4	1.0050	1.0050	0.0136	5.0	15.0	0.0096	9.0
60.00	20.4	1.0050	1.0050	0.0136	5.0	15.0	0.0068	9.0
240.00	20.4	1.0050	1.0050	0.0136	5.0	15.0	0.0034	9.0
1440.00	20.4	1.0030	1.0030	0.0136	3.0	15.5	0.0014	5.4

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	4.0	13.4	11.5	28.9	62.1	9.0	71.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0147	0.0187	0.0326	0.0420	0.0559	0.0638	0.3024	0.5794	1.0457	1.8030

Fineness Modulus	C_u	C_c
0.71	4.35	1.89

Alpha Analytical

Particle Size Distribution Report

	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	3.6	2.8	15.2	9.6	47.2	21.6

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.8996	0.0637	0.0540	0.0367				

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** C2-0"-24" **Sample Number:** WG1010643-1

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

6/7/2017

Location: C2-0"-24"

Sample Number: WG1010643-1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 60.52
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
60.52	0.00	0.75	0.00	0.00	100.0
		#4	2.19	0.00	96.4
		#10	1.70	0.00	93.6
		#40	9.16	0.00	78.4
		#200	5.86	0.00	68.8

Hydrometer Test Data

Hydrometer test uses material passing #200
Percent passing #200 based upon complete sample = 68.8
Weight of hydrometer sample =60.52
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.4	1.0150	1.0150	0.0136	15.0	12.3	0.0337	27.4
5.00	20.4	1.0140	1.0140	0.0136	14.0	12.6	0.0215	25.6
15.00	20.4	1.0130	1.0130	0.0136	13.0	12.9	0.0126	23.8
30.00	20.4	1.0120	1.0120	0.0136	12.0	13.1	0.0090	21.9
60.00	20.4	1.0120	1.0120	0.0136	12.0	13.1	0.0063	21.9
240.00	20.4	1.0110	1.0110	0.0136	11.0	13.4	0.0032	20.1
1440.00	20.4	1.0110	1.0110	0.0136	11.0	13.4	0.0013	20.1

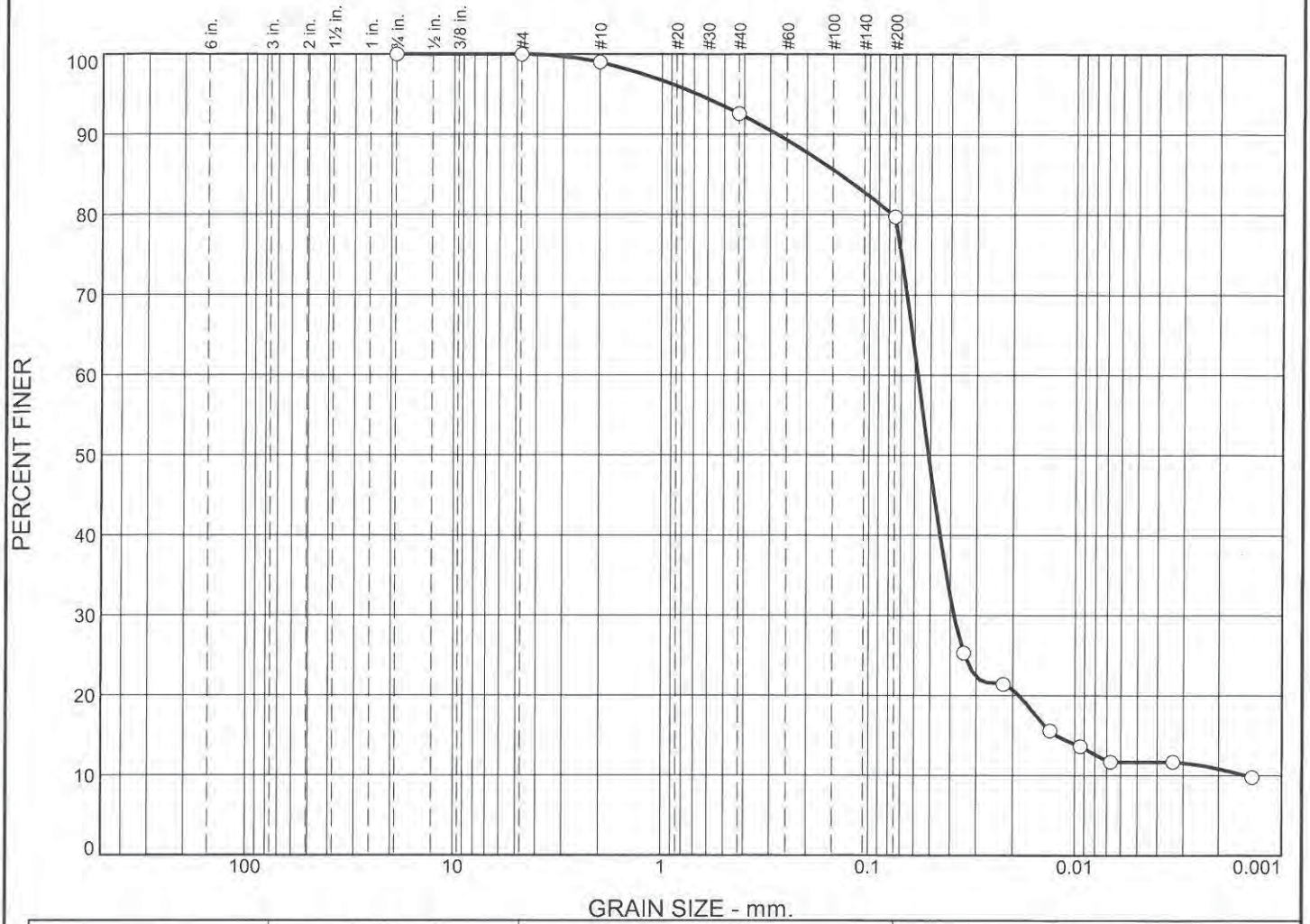
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	3.6	3.6	2.8	15.2	9.6	27.6	47.2	21.6	68.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0367	0.0540	0.0637	0.5162	0.8996	1.4598	2.5024

Fineness Modulus
0.94

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	1.0	6.4	12.9	68.0	11.7

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.1391	0.0579	0.0512	0.0384	0.0123	0.0015	17.10	38.89

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** C3-0"-24" **Sample Number:** L1716880-02

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

6/7/2017

Location: C3-0"-24"

Sample Number: L1716880-02

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 65.95
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
65.95	0.00	0.75	0.00	0.00	100.0
		#4	0.00	0.00	100.0
		#10	0.66	0.00	99.0
		#40	4.23	0.00	92.6
		#200	8.47	0.00	79.7

Hydrometer Test Data

Hydrometer test uses material passing #200
Percent passing #200 based upon complete sample = 79.7
Weight of hydrometer sample =65.95
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.4	1.0130	1.0130	0.0136	13.0	12.9	0.0344	25.3
5.00	20.4	1.0110	1.0110	0.0136	11.0	13.4	0.0222	21.4
15.00	20.4	1.0080	1.0080	0.0136	8.0	14.2	0.0132	15.6
30.00	20.4	1.0070	1.0070	0.0136	7.0	14.4	0.0094	13.6
60.00	20.4	1.0060	1.0060	0.0136	6.0	14.7	0.0067	11.7
240.00	20.4	1.0060	1.0060	0.0136	6.0	14.7	0.0034	11.7
1440.00	20.4	1.0050	1.0050	0.0136	5.0	15.0	0.0014	9.8

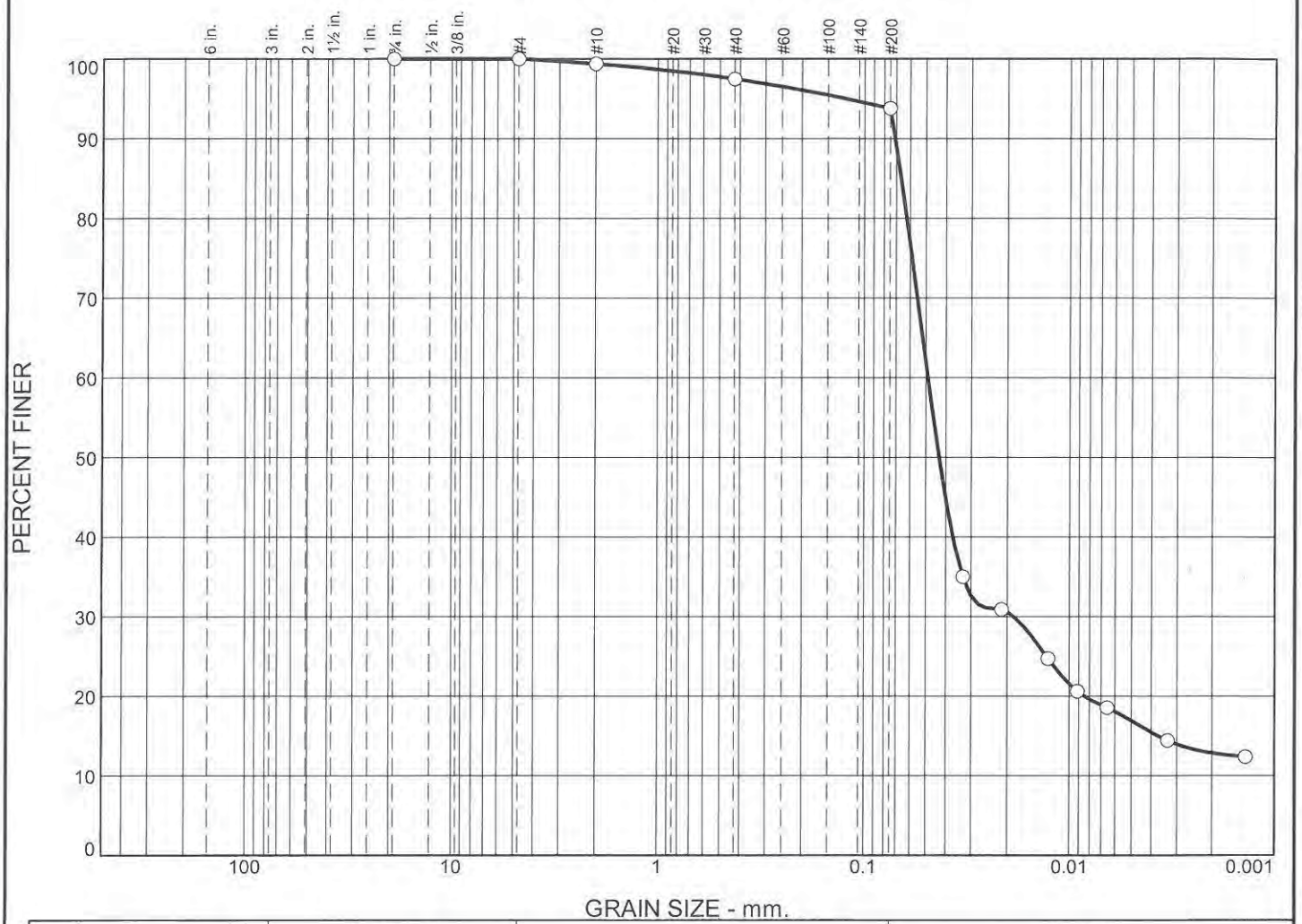
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	1.0	6.4	12.9	20.3	68.0	11.7	79.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0015	0.0123	0.0187	0.0384	0.0512	0.0579	0.0772	0.1391	0.2782	0.6749

Fineness Modulus	C_u	C_c
0.33	38.89	17.10

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.6	1.9	3.7	76.9	16.9

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.0663	0.0490	0.0431	0.0186	0.0037			

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** C1-0"-24" **Sample Number:** L1716880-03

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

6/7/2017

Location: C1-0"-24"

Sample Number: L1716880-03

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 73.27
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
73.27	0.00	0.75	0.00	0.00	100.0
		#4	0.00	0.00	100.0
		#10	0.47	0.00	99.4
		#40	1.39	0.00	97.5
		#200	2.70	0.00	93.8

Hydrometer Test Data

Hydrometer test uses material passing #200
Percent passing #200 based upon complete sample = 93.8
Weight of hydrometer sample =73.27
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.4	1.0170	1.0170	0.0136	17.0	11.8	0.0330	35.0
5.00	20.4	1.0150	1.0150	0.0136	15.0	12.3	0.0213	30.9
15.00	20.4	1.0120	1.0120	0.0136	12.0	13.1	0.0127	24.7
30.00	20.4	1.0100	1.0100	0.0136	10.0	13.6	0.0092	20.6
60.00	20.4	1.0090	1.0090	0.0136	9.0	13.9	0.0065	18.6
240.00	20.4	1.0070	1.0070	0.0136	7.0	14.4	0.0033	14.4
1440.00	20.4	1.0060	1.0060	0.0136	6.0	14.7	0.0014	12.4

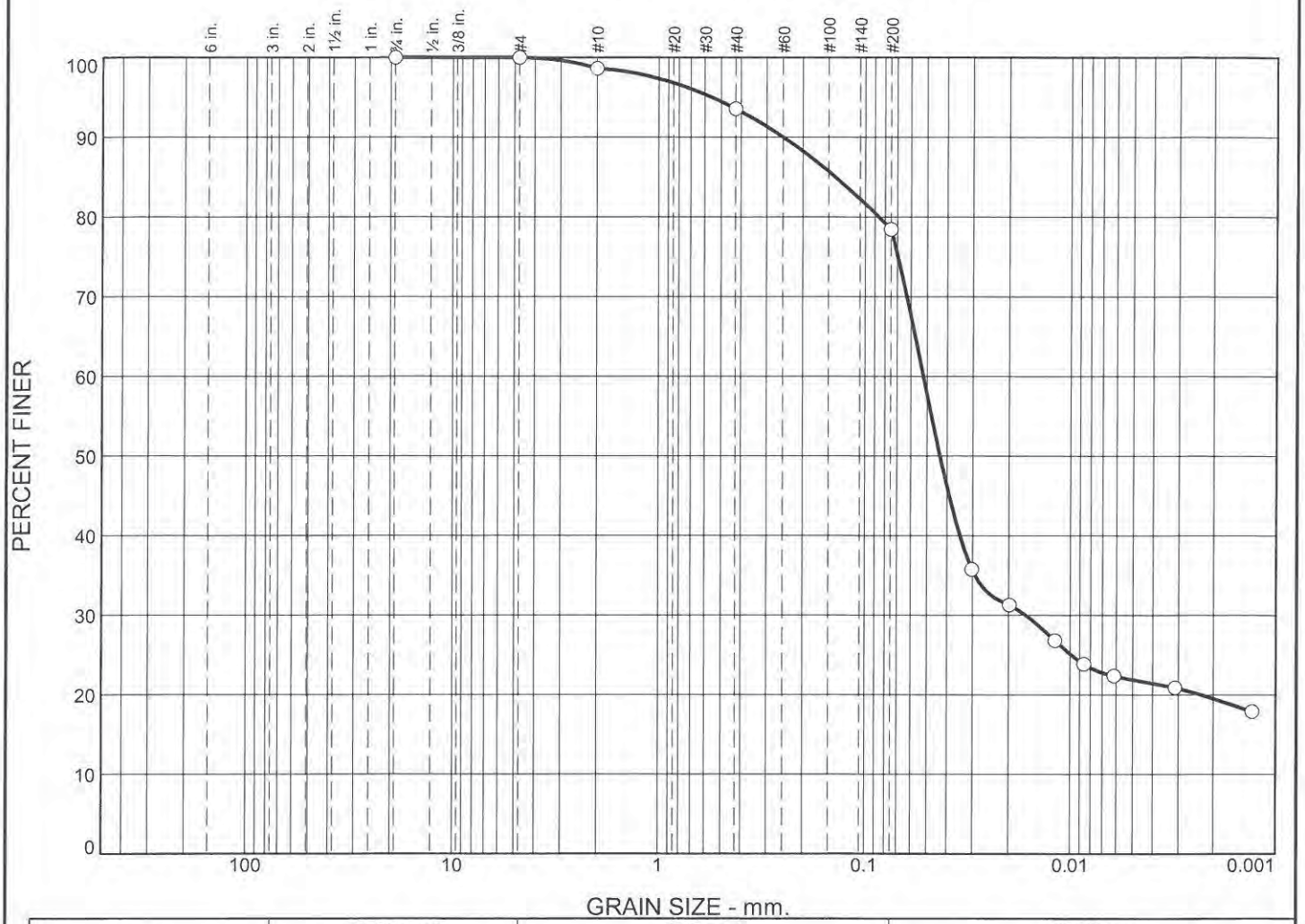
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.6	1.9	3.7	6.2	76.9	16.9	93.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0037	0.0085	0.0186	0.0431	0.0490	0.0622	0.0663	0.0709	0.1232

Fineness Modulus
0.11

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	1.4	5.0	15.2	56.5	21.9

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.1395	0.0523	0.0433	0.0166				

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** C6-0"-24" **Sample Number:** L1716880-04

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

6/7/2017

Location: C6-0"-24"

Sample Number: L1716880-04

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 84.63
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
84.63	0.00	0.75	0.00	0.00	100.0
		#4	0.00	0.00	100.0
		#10	1.18	0.00	98.6
		#40	4.27	0.00	93.6
		#200	12.80	0.00	78.4

Hydrometer Test Data

Hydrometer test uses material passing #200
Percent passing #200 based upon complete sample = 78.4
Weight of hydrometer sample =84.63
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.4	1.0240	1.0240	0.0136	24.0	9.9	0.0303	35.8
5.00	20.4	1.0210	1.0210	0.0136	21.0	10.7	0.0199	31.3
15.00	20.4	1.0180	1.0180	0.0136	18.0	11.5	0.0119	26.8
30.00	20.4	1.0160	1.0160	0.0136	16.0	12.1	0.0086	23.9
60.00	20.4	1.0150	1.0150	0.0136	15.0	12.3	0.0062	22.4
240.00	20.4	1.0140	1.0140	0.0136	14.0	12.6	0.0031	20.9
1440.00	20.4	1.0120	1.0120	0.0136	12.0	13.1	0.0013	17.9

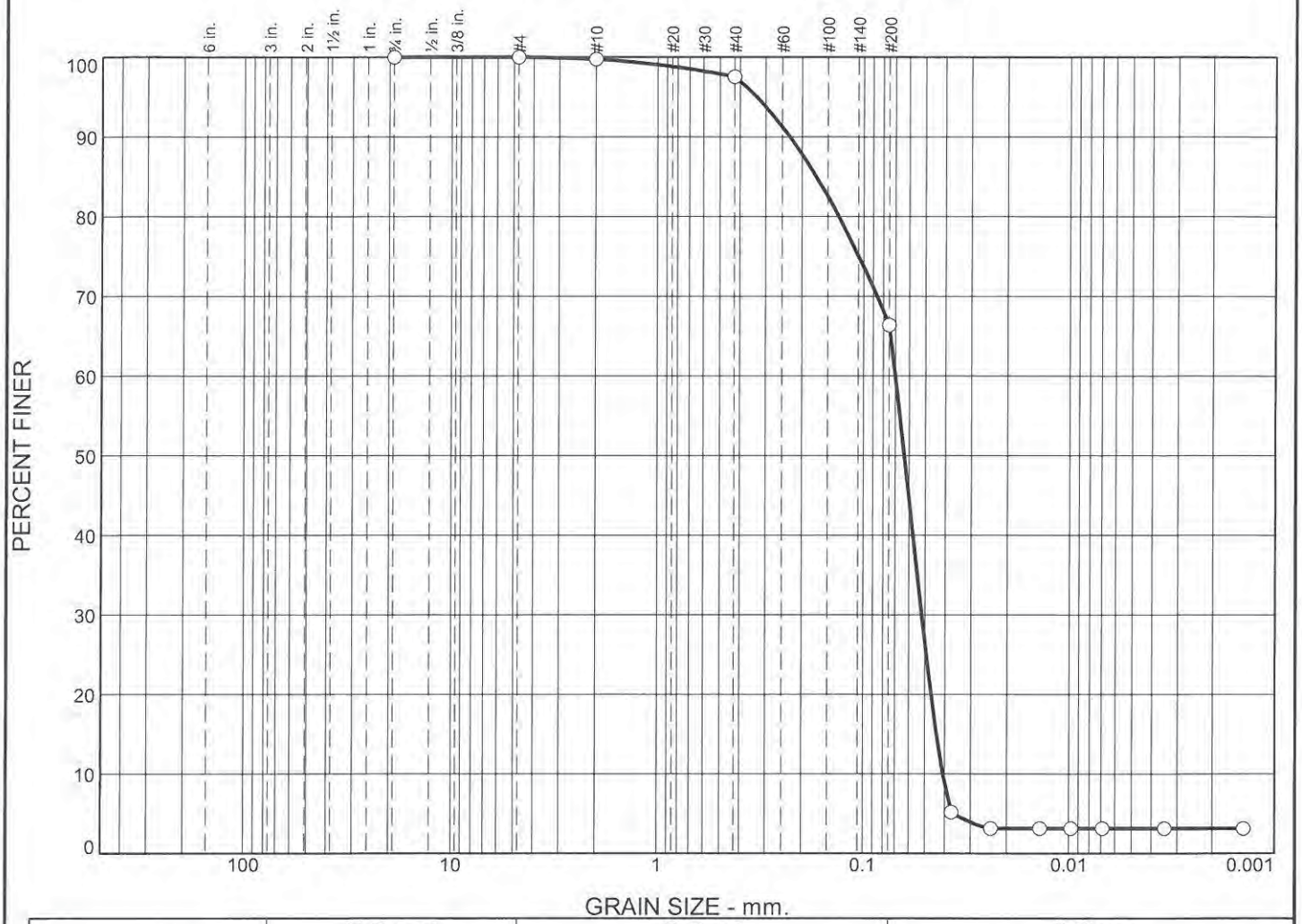
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	1.4	5.0	15.2	21.6	56.5	21.9	78.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0023	0.0166	0.0433	0.0523	0.0861	0.1395	0.2501	0.5551

Fineness Modulus
0.31

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.3	2.2	31.1	63.3	3.1

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.1713	0.0700	0.0632	0.0519	0.0438	0.0408	0.95	1.72

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** C-8-0"-24" **Sample Number:** L1716880-05

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

6/7/2017

Location: C-8-0"-24"

Sample Number: L1716880-05

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 103.31
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
103.31	0.00	0.75	0.00	0.00	100.0
		#4	0.00	0.00	100.0
		#10	0.28	0.00	99.7
		#40	2.26	0.00	97.5
		#200	32.20	0.00	66.4

Hydrometer Test Data

Hydrometer test uses material passing #200
Percent passing #200 based upon complete sample = 66.4
Weight of hydrometer sample =103.31
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.4	1.0050	1.0050	0.0136	5.0	15.0	0.0371	5.2
5.00	20.4	1.0030	1.0030	0.0136	3.0	15.5	0.0239	3.1
15.00	20.4	1.0030	1.0030	0.0136	3.0	15.5	0.0138	3.1
30.00	20.4	1.0030	1.0030	0.0136	3.0	15.5	0.0098	3.1
60.00	20.4	1.0030	1.0030	0.0136	3.0	15.5	0.0069	3.1
240.00	20.4	1.0030	1.0030	0.0136	3.0	15.5	0.0035	3.1
1440.00	20.4	1.0030	1.0030	0.0136	3.0	15.5	0.0014	3.1

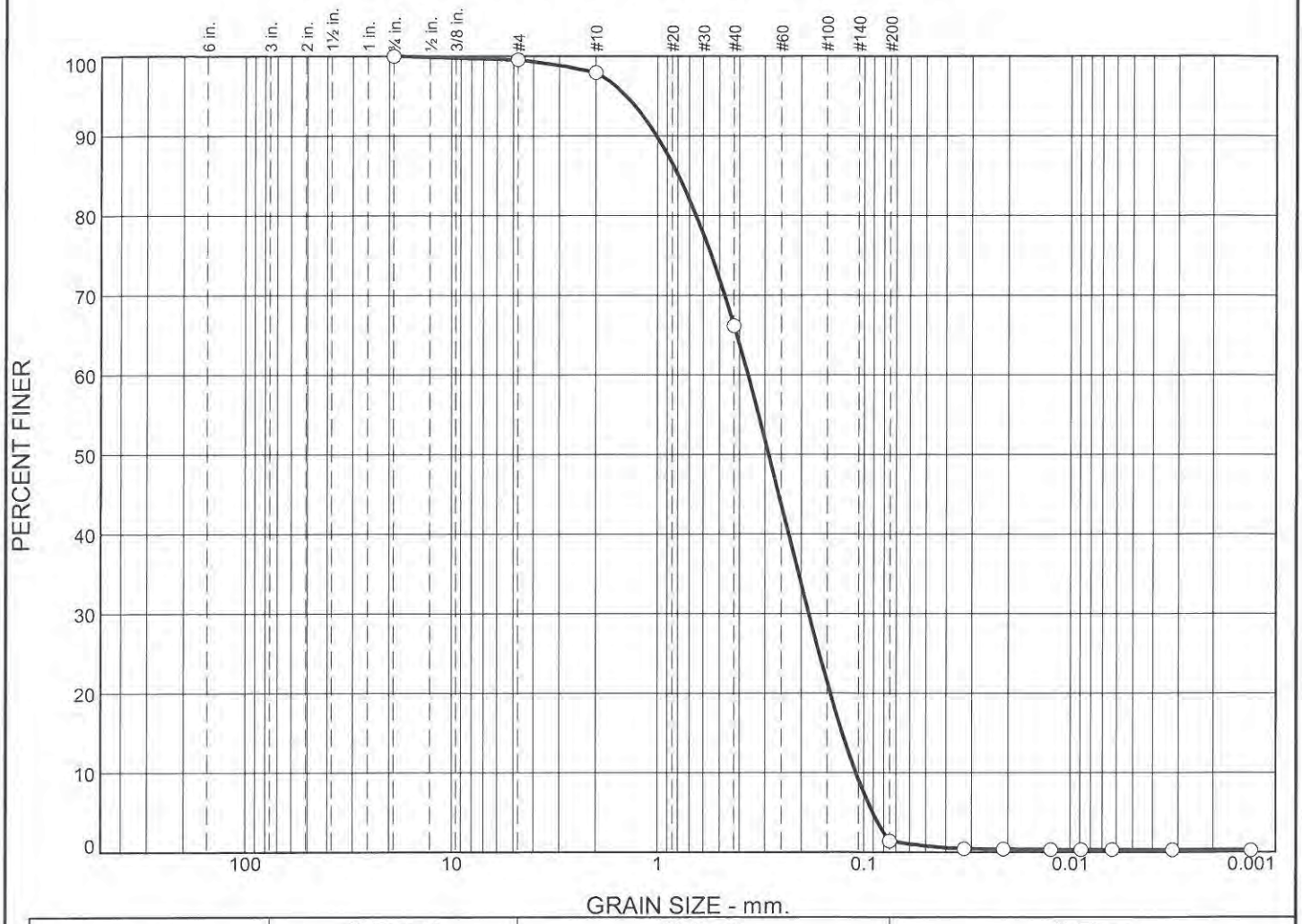
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.3	2.2	31.1	33.6	63.3	3.1	66.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0408	0.0438	0.0466	0.0519	0.0632	0.0700	0.1329	0.1713	0.2303	0.3332

Fineness Modulus	C_u	C_c
0.27	1.72	0.95

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.5	1.6	31.7	64.8	1.1	0.3

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.7941	0.3639	0.2884	0.1844	0.1269	0.1092	0.86	3.33

	Material Description	USCS	AASHTO
○		SP	

Project No. **Client:**

Project:

○ **Source of Sample:** C-5-0"-24" **Sample Number:** L1716880-06

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

6/7/2017

Location: C-5-0"-24"
Sample Number: L1716880-06
USCS Classification: SP

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 94.49
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
94.49	0.00	0.75	0.00	0.00	100.0
		#4	0.44	0.00	99.5
		#10	1.51	0.00	97.9
		#40	30.03	0.00	66.2
		#200	61.17	0.00	1.4

Hydrometer Test Data

Hydrometer test uses material passing #200
Percent passing #200 based upon complete sample = 1.4
Weight of hydrometer sample =94.49
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.4	1.0180	1.0180	0.0136	18.0	11.5	0.0326	0.4
5.00	20.4	1.0160	1.0160	0.0136	16.0	12.1	0.0211	0.4
15.00	20.4	1.0140	1.0140	0.0136	14.0	12.6	0.0124	0.3
30.00	20.4	1.0130	1.0130	0.0136	13.0	12.9	0.0089	0.3
60.00	20.4	1.0130	1.0130	0.0136	13.0	12.9	0.0063	0.3
240.00	20.4	1.0115	1.0115	0.0136	11.5	13.3	0.0032	0.3
1440.00	20.4	1.0110	1.0110	0.0136	11.0	13.4	0.0013	0.3

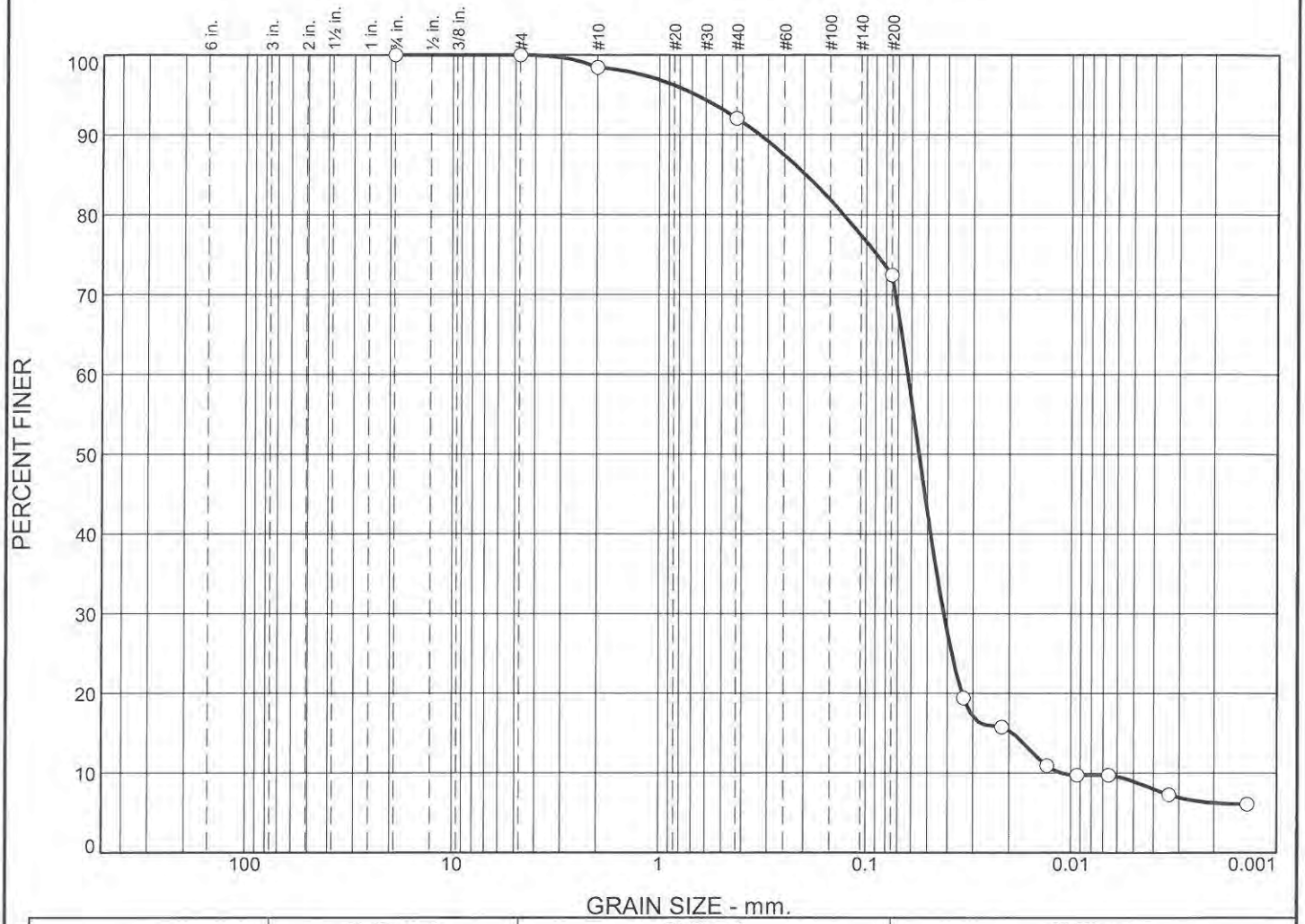
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.5	0.5	1.6	31.7	64.8	98.1	1.1	0.3	1.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1092	0.1269	0.1450	0.1844	0.2884	0.3639	0.6509	0.7941	1.0149	1.4283

Fineness Modulus	C_u	C_c
1.59	3.33	0.86

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	1.6	6.4	19.6	63.4	9.0

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.1973	0.0627	0.0551	0.0417	0.0192	0.0110	2.51	5.69

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** C-4-0"-24" **Sample Number:** L1716880-07

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

6/7/2017

Location: C-4-0"-24"

Sample Number: L1716880-07

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 96.04
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
96.04	0.00	0.75	0.00	0.00	100.0
		#4	0.00	0.00	100.0
		#10	1.52	0.00	98.4
		#40	6.12	0.00	92.0
		#200	18.82	0.00	72.4

Hydrometer Test Data

Hydrometer test uses material passing #200
Percent passing #200 based upon complete sample = 72.4
Weight of hydrometer sample =96.04
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.4	1.0160	1.0160	0.0136	16.0	12.1	0.0333	19.4
5.00	20.4	1.0130	1.0130	0.0136	13.0	12.9	0.0218	15.8
15.00	20.4	1.0090	1.0090	0.0136	9.0	13.9	0.0131	10.9
30.00	20.4	1.0080	1.0080	0.0136	8.0	14.2	0.0093	9.7
60.00	20.4	1.0080	1.0080	0.0136	8.0	14.2	0.0066	9.7
240.00	20.4	1.0060	1.0060	0.0136	6.0	14.7	0.0034	7.3
1440.00	20.4	1.0050	1.0050	0.0136	5.0	15.0	0.0014	6.1

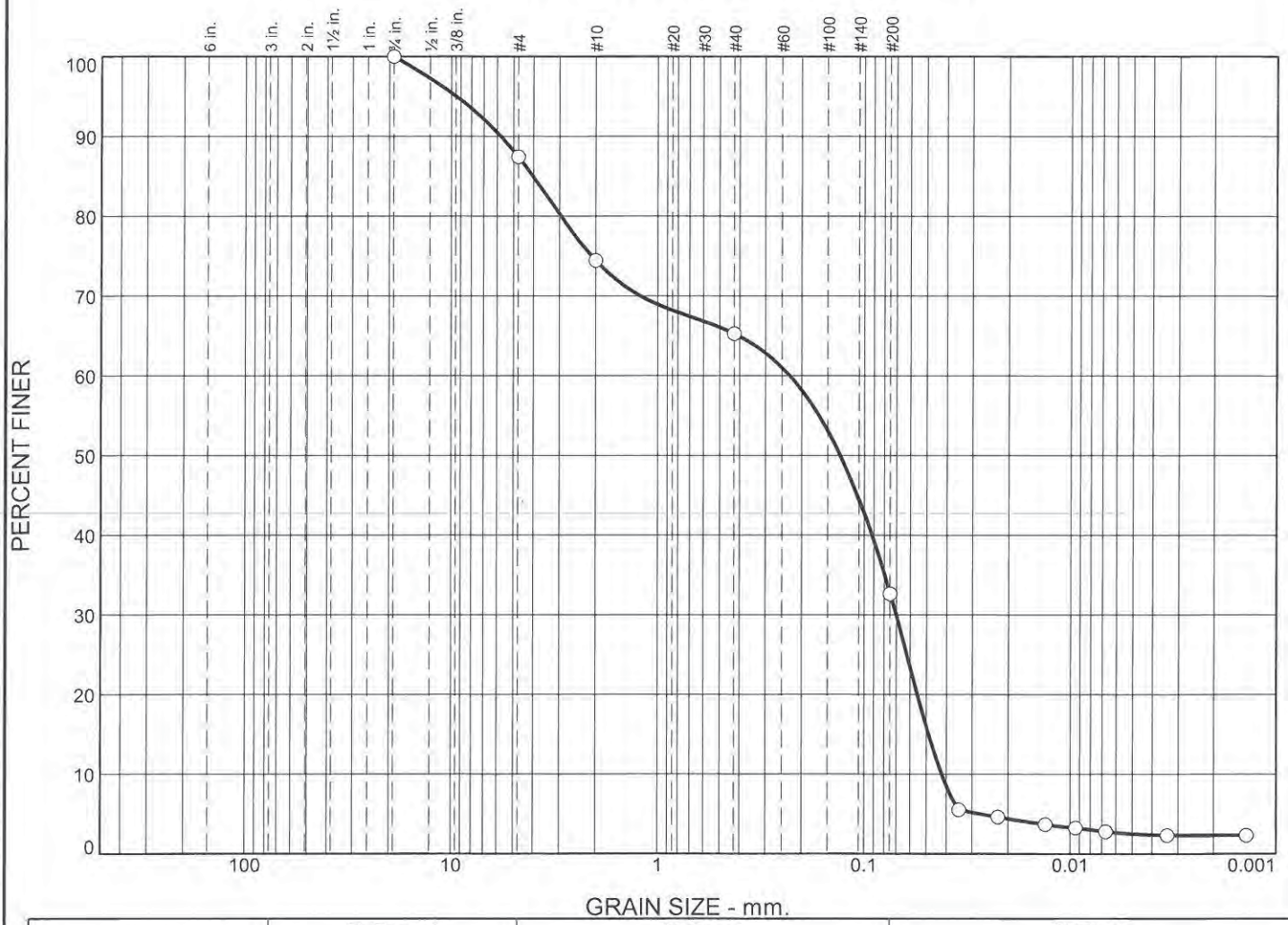
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	1.6	6.4	19.6	27.6	63.4	9.0	72.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0110	0.0192	0.0340	0.0417	0.0551	0.0627	0.1291	0.1973	0.3297	0.6692

Fineness Modulus	C_u	C_c
0.38	5.69	2.51

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	12.6	13.0	9.1	32.7	30.1	2.5

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			4.0378	0.2295	0.1307	0.0702	0.0489	0.0423	0.51	5.43

	Material Description	USCS	AASHTO
○			

Project No. **Client:**
Project:

○ **Source of Sample:** C-12-0"-24" **Sample Number:** L1716880-08

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

6/7/2017

Location: C-12-0"-24"

Sample Number: L1716880-08

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 114.17
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
114.17	0.00	0.75	0.00	0.00	100.0
		#4	14.37	0.00	87.4
		#10	14.83	0.00	74.4
		#40	10.46	0.00	65.3
		#200	37.24	0.00	32.6

Hydrometer Test Data

Hydrometer test uses material passing #200
Percent passing #200 based upon complete sample = 32.6
Weight of hydrometer sample =114.17
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.4	1.0120	1.0120	0.0136	12.0	13.1	0.0348	5.5
5.00	20.4	1.0100	1.0100	0.0136	10.0	13.6	0.0224	4.6
15.00	20.4	1.0080	1.0080	0.0136	8.0	14.2	0.0132	3.7
30.00	20.4	1.0070	1.0070	0.0136	7.0	14.4	0.0094	3.2
60.00	20.4	1.0060	1.0060	0.0136	6.0	14.7	0.0067	2.8
240.00	20.4	1.0050	1.0050	0.0136	5.0	15.0	0.0034	2.3
1440.00	20.4	1.0050	1.0050	0.0136	5.0	15.0	0.0014	2.3

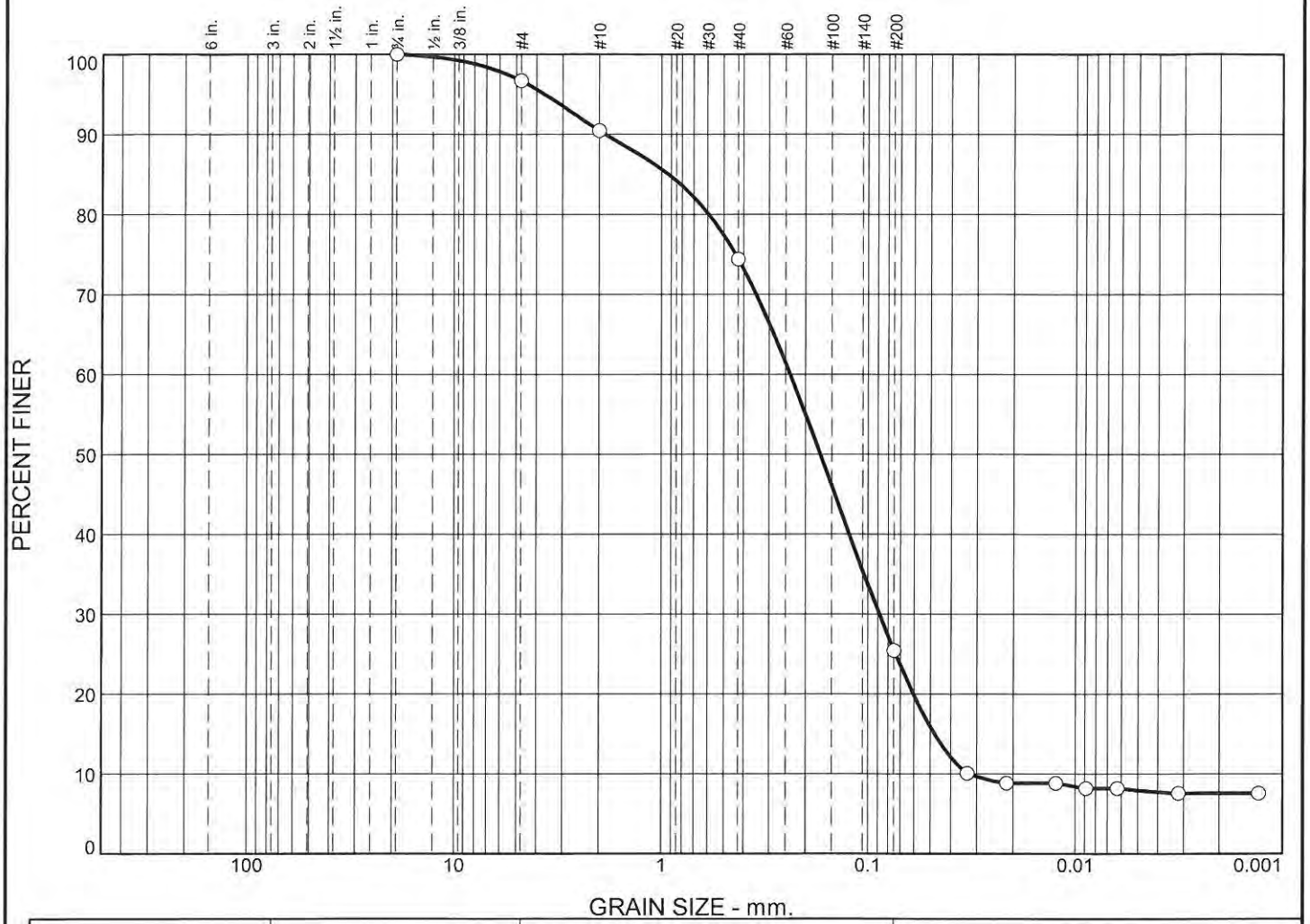
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	12.6	12.6	13.0	9.1	32.7	54.8	30.1	2.5	32.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0423	0.0489	0.0554	0.0702	0.1307	0.2295	2.9487	4.0378	5.7885	9.4894

Fineness Modulus	C_u	C_c
1.88	5.43	0.51

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	3.3	6.2	16.1	49.0	17.5	7.9

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.9306	0.2383	0.1705	0.0884	0.0478	0.0327	1.00	7.29

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** C-11 0"-24" **Sample Number:** L1716880-09

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

6/7/2017

Location: C-11 0"-24"

Sample Number: L1716880-09

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 64.92
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
64.92	0.00	0.75	0.00	0.00	100.0
		#4	2.15	0.00	96.7
		#10	4.04	0.00	90.5
		#40	10.44	0.00	74.4
		#200	31.78	0.00	25.4

Hydrometer Test Data

Hydrometer test uses material passing #200
Percent passing #200 based upon complete sample = 25.4
Weight of hydrometer sample =64.92
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.4	1.0160	1.0160	0.0136	16.0	12.1	0.0333	10.1
5.00	20.4	1.0140	1.0140	0.0136	14.0	12.6	0.0215	8.8
15.00	20.4	1.0140	1.0140	0.0136	14.0	12.6	0.0124	8.8
30.00	20.4	1.0130	1.0130	0.0136	13.0	12.9	0.0089	8.2
60.00	20.4	1.0130	1.0130	0.0136	13.0	12.9	0.0063	8.2
240.00	20.4	1.0120	1.0120	0.0136	12.0	13.1	0.0032	7.6
1440.00	20.4	1.0120	1.0120	0.0136	12.0	13.1	0.0013	7.6

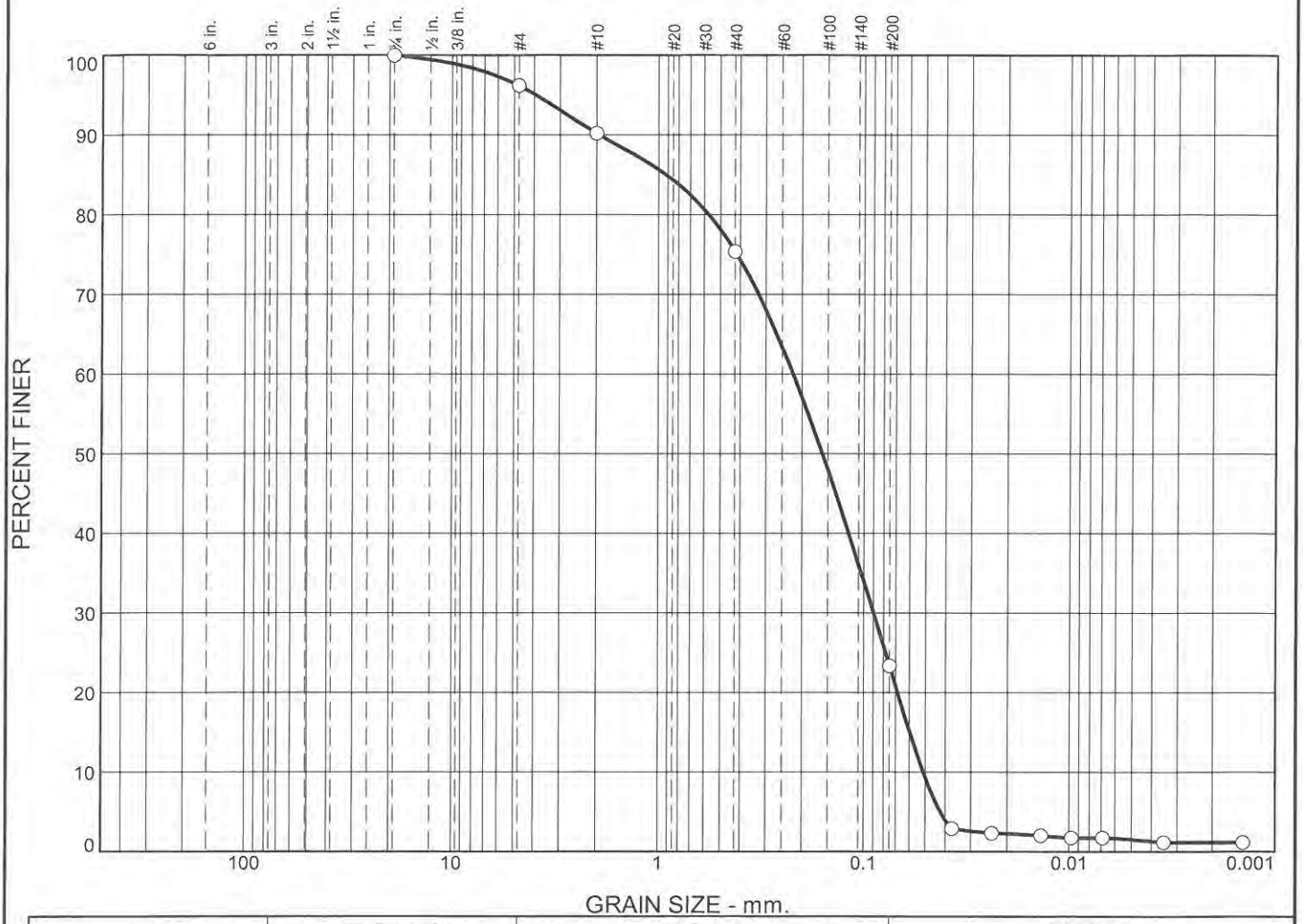
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	3.3	3.3	6.2	16.1	49.0	71.3	17.5	7.9	25.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0327	0.0478	0.0605	0.0884	0.1705	0.2383	0.5932	0.9306	1.8711	3.6609

Fineness Modulus	C_u	C_c
1.33	7.29	1.00

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	3.8	6.0	14.8	52.1	21.8	1.5

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.9197	0.2219	0.1598	0.0898	0.0598	0.0513	0.71	4.32

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** C-11 0"-24" **Sample Number:** WG1010792-1

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

6/7/2017

Location: C-11 0"-24"

Sample Number: WG1010792-1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 65.40
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
65.40	0.00	0.75	0.00	0.00	100.0
		#4	2.50	0.00	96.2
		#10	3.91	0.00	90.2
		#40	9.69	0.00	75.4
		#200	34.03	0.00	23.3

Hydrometer Test Data

Hydrometer test uses material passing #200
Percent passing #200 based upon complete sample = 23.3
Weight of hydrometer sample =65.40
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.4	1.0050	1.0050	0.0136	5.0	15.0	0.0371	2.9
5.00	20.4	1.0040	1.0040	0.0136	4.0	15.2	0.0237	2.3
15.00	20.4	1.0035	1.0035	0.0136	3.5	15.4	0.0137	2.0
30.00	20.4	1.0030	1.0030	0.0136	3.0	15.5	0.0098	1.7
60.00	20.4	1.0030	1.0030	0.0136	3.0	15.5	0.0069	1.7
240.00	20.4	1.0020	1.0020	0.0136	2.0	15.8	0.0035	1.2
1440.00	20.4	1.0020	1.0020	0.0136	2.0	15.8	0.0014	1.2

Fractional Components

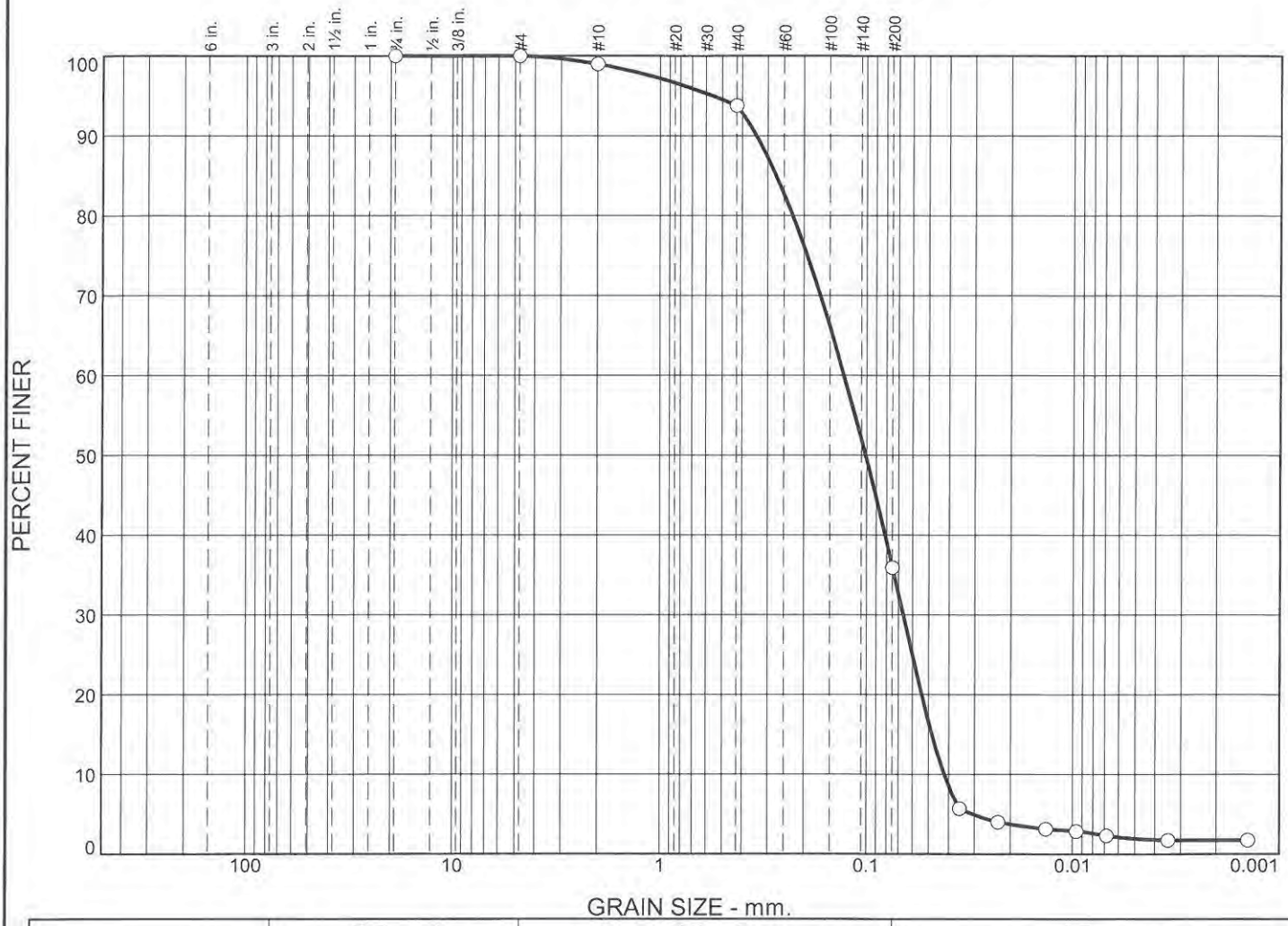
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	3.8	3.8	6.0	14.8	52.1	72.9	21.8	1.5	23.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0513	0.0598	0.0686	0.0898	0.1598	0.2219	0.5705	0.9197	1.9412	3.9262

Fineness Modulus	C_u	C_c
1.30	4.32	0.71

Alpha Analytical

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	1.0	5.2	57.9	34.0	1.9

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.2739	0.1283	0.1013	0.0666	0.0483	0.0421	0.82	3.05

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** C-7 0"-24" **Sample Number:** L1716880-10

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

6/7/2017

Location: C-7 0"-24"

Sample Number: L1716880-10

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 101.25
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
101.25	0.00	0.75	0.00	0.00	100.0
		#4	0.00	0.00	100.0
		#10	1.05	0.00	99.0
		#40	5.26	0.00	93.8
		#200	58.57	0.00	35.9

Hydrometer Test Data

Hydrometer test uses material passing #200
Percent passing #200 based upon complete sample = 35.9
Weight of hydrometer sample =101.25
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.4	1.0100	1.0100	0.0136	10.0	13.6	0.0355	5.7
5.00	20.4	1.0070	1.0070	0.0136	7.0	14.4	0.0231	4.0
15.00	20.4	1.0055	1.0055	0.0136	5.5	14.8	0.0135	3.1
30.00	20.4	1.0050	1.0050	0.0136	5.0	15.0	0.0096	2.9
60.00	20.4	1.0040	1.0040	0.0136	4.0	15.2	0.0068	2.3
240.00	20.4	1.0030	1.0030	0.0136	3.0	15.5	0.0035	1.7
1440.00	20.4	1.0030	1.0030	0.0136	3.0	15.5	0.0014	1.7

Fractional Components

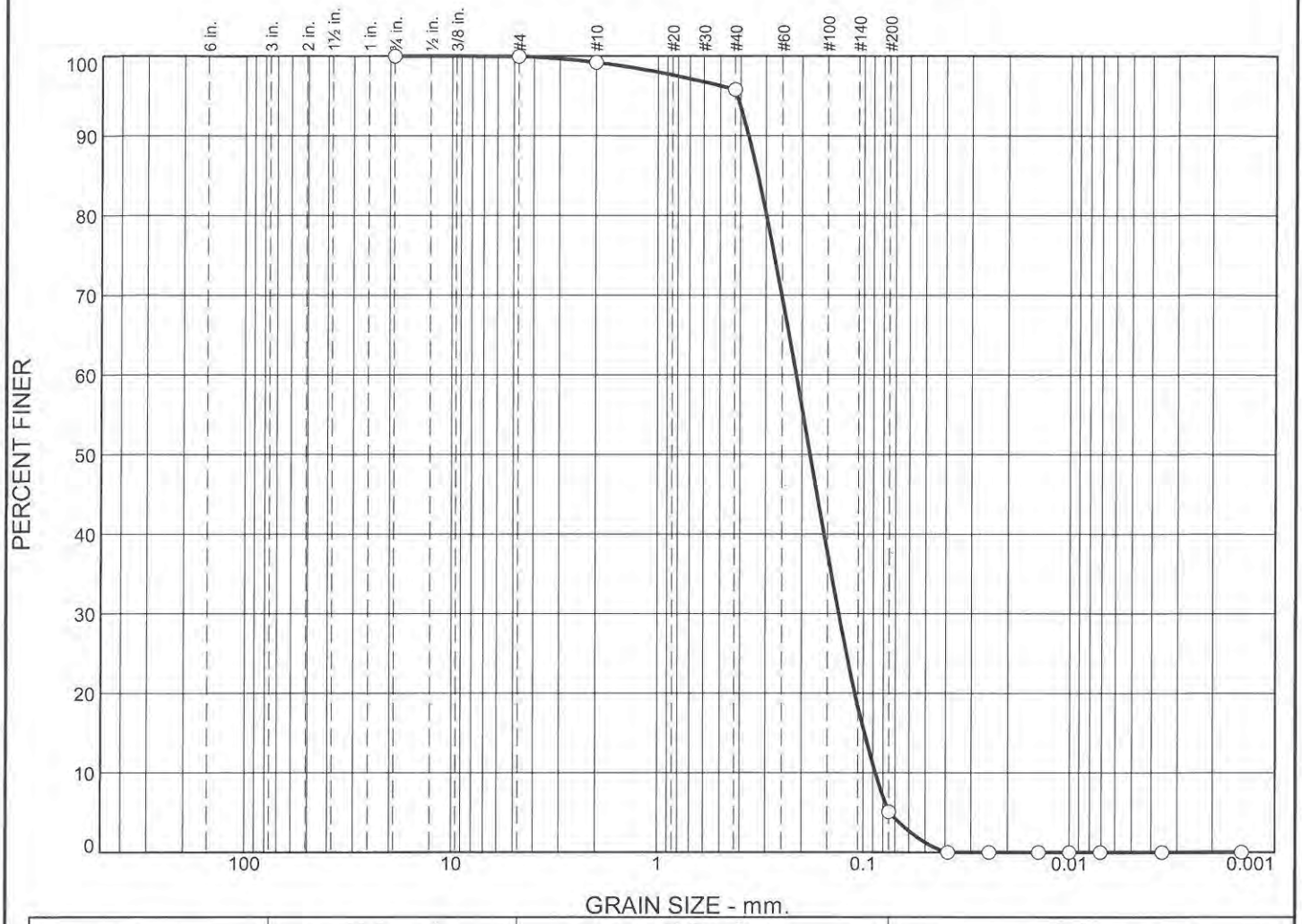
Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	1.0	5.2	57.9	64.1	34.0	1.9	35.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0421	0.0483	0.0541	0.0666	0.1013	0.1283	0.2277	0.2739	0.3420	0.5591

Fineness Modulus	C_u	C_c
0.54	3.05	0.82

Alpha Analytical

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.8	3.4	90.7	5.1	0.0

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.3295	0.2137	0.1826	0.1319	0.0989	0.0876	0.93	2.44

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** C-10 0"-24" **Sample Number:** L1716880-11

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

6/7/2017

Location: C-10 0"-24"

Sample Number: L1716880-11

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 102.38
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
102.38	0.00	0.75	0.00	0.00	100.0
		#4	0.05	0.00	100.0
		#10	0.79	0.00	99.2
		#40	3.48	0.00	95.8
		#200	92.86	0.00	5.1

Hydrometer Test Data

Hydrometer test uses material passing #200
Percent passing #200 based upon complete sample = 5.1
Weight of hydrometer sample =102.38
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.4	1.0000	1.0000	0.0136	0.0	16.3	0.0388	0.0
5.00	20.4	1.0000	1.0000	0.0136	0.0	16.3	0.0245	0.0
15.00	20.4	1.0000	1.0000	0.0136	0.0	16.3	0.0142	0.0
30.00	20.4	1.0000	1.0000	0.0136	0.0	16.3	0.0100	0.0
60.00	20.4	1.0000	1.0000	0.0136	0.0	16.3	0.0071	0.0
240.00	20.4	1.0000	1.0000	0.0136	0.0	16.3	0.0035	0.0
1440.00	20.4	1.0000	1.0000	0.0136	0.0	16.3	0.0014	0.0

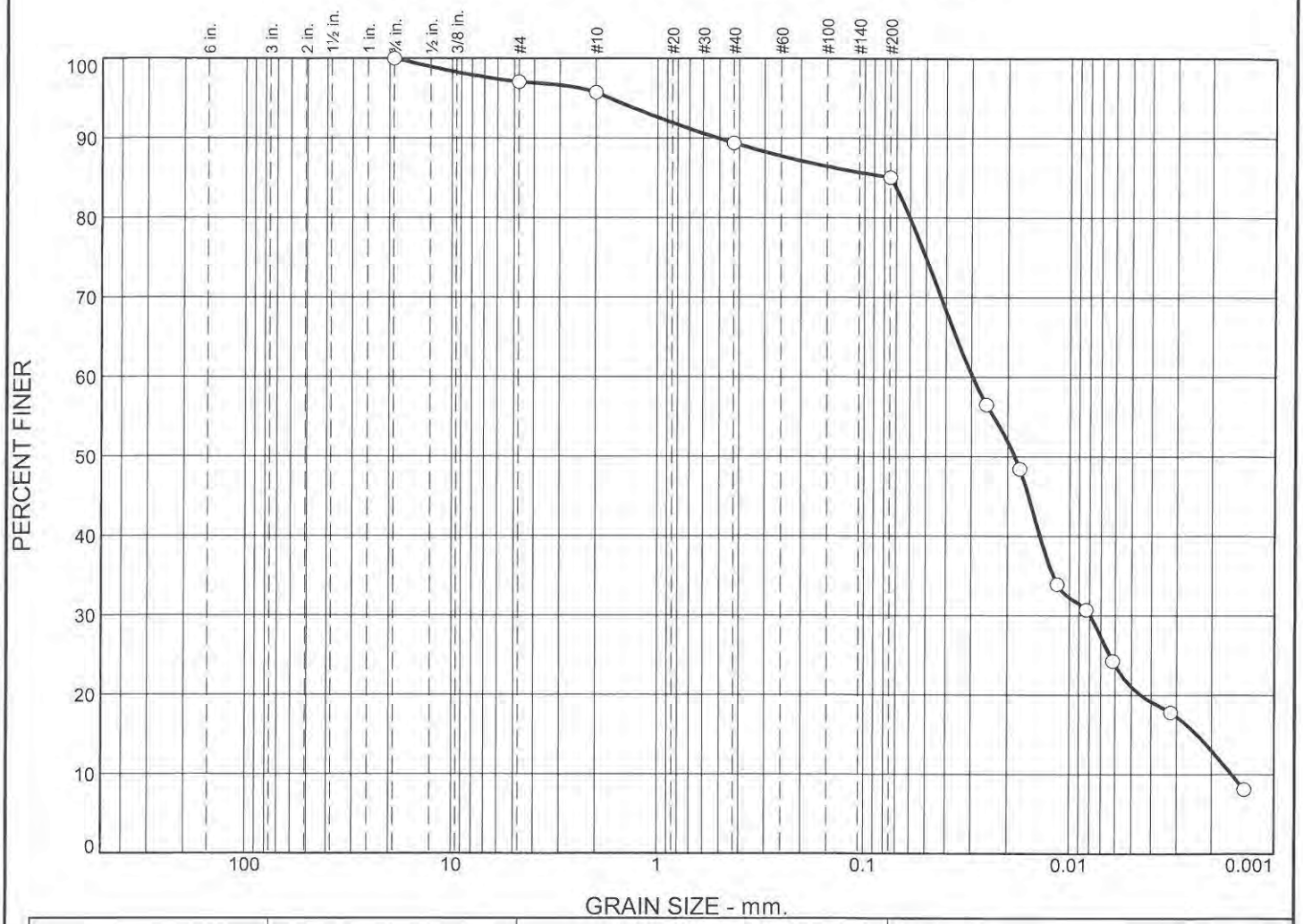
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.8	3.4	90.7	94.9	5.1	0.0	5.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0876	0.0989	0.1098	0.1319	0.1826	0.2137	0.2993	0.3295	0.3666	0.4156

Fineness Modulus	C_u	C_c
0.88	2.44	0.93

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	2.9	1.4	6.3	4.3	64.1	21.0

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.0747	0.0297	0.0185	0.0080	0.0024	0.0016	1.34	18.69

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** C-9 0"-18" **Sample Number:** L1716880-12

Remarks:

Alpha Analytical

Mansfield, MA

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

6/7/2017

Location: C-9 0"-18"

Sample Number: L1716880-12

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare = 84.68
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
84.68	0.00	0.75	0.00	0.00	100.0
		#4	2.48	0.00	97.1
		#10	1.13	0.00	95.7
		#40	5.38	0.00	89.4
		#200	3.65	0.00	85.1

Hydrometer Test Data

Hydrometer test uses material passing #200
Percent passing #200 based upon complete sample = 85.1
Weight of hydrometer sample =84.68
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = 0
Meniscus correction only = 0.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.4	1.0350	1.0350	0.0136	35.0	7.0	0.0255	56.5
5.00	20.4	1.0300	1.0300	0.0136	30.0	8.4	0.0176	48.4
15.00	20.4	1.0210	1.0210	0.0136	21.0	10.7	0.0115	33.9
30.00	20.4	1.0190	1.0190	0.0136	19.0	11.3	0.0083	30.7
60.00	20.4	1.0150	1.0150	0.0136	15.0	12.3	0.0062	24.2
240.00	20.4	1.0110	1.0110	0.0136	11.0	13.4	0.0032	17.8
1440.00	20.4	1.0050	1.0050	0.0136	5.0	15.0	0.0014	8.1

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	2.9	2.9	1.4	6.3	4.3	12.0	64.1	21.0	85.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0016	0.0024	0.0045	0.0080	0.0185	0.0297	0.0603	0.0747	0.5087	1.7148

Fineness Modulus	C_u	C_c
0.50	18.69	1.34

Alpha Analytical

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 300: DW: Bromide
EPA 6860: NPW and SCM: Perchlorate
EPA 9010: NPW and SCM: Amenable Cyanide Distillation
EPA 9012B: NPW: Total Cyanide
EPA 9050A: NPW: Specific Conductance
SM3500: NPW: Ferrous Iron
SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO2, NO3.
SM5310C: DW: Dissolved Organic Carbon

Mansfield Facility
SM 2540D: TSS
EPA 3005A NPW
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **SM4500NO3-F, EPA 353.2**: Nitrate-N**, EPA 351.1, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.**
EPA 624: Volatile Halocarbons & Aromatics,
EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E.**

Mansfield Facility:

Drinking Water
EPA 200.7: Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1** Hg.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Table II-1: Completeness Checklist

Quality Assurance/Quality Control Questions	Yes/No? Comments?
1. Was the report signed by the responsible applicant approved representative?	Yes
2. Were the methods for sampling, chemical and biological testing described in the Sampling and Analysis Plan (SAP) and the Laboratory QA Plan (LQAP) followed?	Yes
3. If not, were deviations documented?	
4. Was the SAP approved by the New England District?	
5. Did the applicant use a laboratory with a LQAP on file at the New England District?	Yes
6. Did the samples adequately represent the physical/chemical variability in the dredging area?	
7. Were the correct stations sampled (include the precision of the navigation method used)?	
8. Were the preservation and storage requirements in Chapter 8 of the EPA/Corps QA/QC Manual (EPA/USACE 1995) and EPA (2001d) followed?	Yes
9. Were the samples properly labeled?	Yes
10. Were all the requested data included?	Yes
11. Were the reporting limits met?	Yes
12. Were the chain-of-custody forms properly processed?	Yes
13. Were the method blanks run and were the concentration below the acceptance criteria?	Yes
14. Was the MDL study performed on each matrix (with this data submission) or within the last 12 months?	Yes
15. Were the SRM/CRM analyses within acceptance criteria?	No – see Narrative
16. Were the matrix spike/matrix spike duplicates run at the required frequency and was the percent recovery/RPD within the acceptance criteria?	Yes
17. Were the duplicate samples analyzed and were the RPDs within the required acceptance criteria?	No – see Narrative
18. For each analytical fraction of organic compounds, were recoveries for the internal standard within the acceptance criteria?	Yes
19. Were surrogate recoveries within the required acceptance criteria?	No – see Narrative

Table II-1 (*Continued*): Completeness Checklist

Quality Assurance/Quality Control Questions	Yes/No? Comments?
20. Were corrective action forms provided for all non-conforming data?	Yes
21. Were all the species-specific test conditions in Appendix V met?	
22. Were the test-specific age requirements met for each test species?	
23. Was the bulk physical/chemical testing performed on the sediments/composites that were biologically tested?	
24. Were the mortality acceptance criteria met for the water column and sediment toxicity tests?	
25. Were the test performance requirements in Table 11.3 of EPA (1994a) met?	

Table II-2: Quality Control Summary for Analyses of Polyaromatic Hydrocarbons (PAHs) and other base-neutrals in Sediment and Tissue Matrices

Method Reference Number: 8270C

Quality Control (QC) Element	Acceptance Criteria*	Criteria Met? Yes/No	List results outside criteria (Cross-reference results table in data report)	Location of Results (Retained at Lab or in Data Package)
Initial Calibration	Must be performed prior to the analysis of any QC sample or field sample (<20 % RSD for each compound)	Yes		Retained at Lab
Calculation of Method Detection Limits (MDLs)	For each matrix, analyzed once per 12 month period (see Section 5.2 for MDL procedure)	Yes		Retained at Lab and On file at USACoE-NED
Calibration Verification (Second Source)	Once, after initial calibration (80 to 120% recovery of each compound)	Yes		Retained at Lab
Continuing Calibration	At the beginning of every 12 hour shift (± 15 % D)	Yes		Retained at Lab
Standard Reference Materials	Within the limits provided by vendor	Yes		In Data Package
Method Blank	No target analytes > RL	Yes		In Data Package
Matrix Spike/Matrix Spike Duplicate (MS/MSD)	One set (MS/MSD) per group of field samples. Must contain all target analytes. (Recovery Limits 50 to 120%; RPD <30%)	Yes		In Data Package
Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD < 30%)	Yes		In Data Package
Surrogate Recoveries	Calculate % recovery (30 to 150% recovery)	Yes		In Data Package
Internal Standard Areas	Within 50 to 200% of internal standards in continuing calibration check	Yes		Retained at Lab

* The Quality Control Acceptance Criteria are general guidelines. If alternate criteria are used, they must be documented in this table.

Table II-3: Quality Control Summary for the Analyses of Pesticides in Sediment, Tissue, and Water Matrices

Method Reference Number: 8081B

Quality Control (QC) Element	Acceptance Criteria*	Criteria Met? Yes/No	List results outside criteria (Cross-reference results table in data report)	Location of Results (Retained at Lab or in Data Package)
Initial Calibration	Must be performed prior to the analysis of any QC sample or field sample (<20 % RSD for each compound)	Yes		Retained at Lab
Calculation of Method Detection Limits (MDLs)	For each matrix, analyzed once per 12 month period (see Section 5.2 for MDL procedure)	Yes		Retained at Lab and On file at USACoE-NED
Calibration Verification (Second Source)	Once, after initial calibration (80 to 120% recovery of each compound)	Yes		Retained at Lab
Continuing Calibration	Every 20 injections (± 15 % D)	Yes		Retained at Lab
Standard Reference Materials	Within the limits provided by vendor	No	WG1007124-4: Trans-Nonachlor (391%)	In Data Package
Method Blank	No target analytes > RL	Yes		In Data Package
Matrix Spike/Matrix Spike Duplicate (MS/MSD)	One set (MS/MSD) per group of field samples. Must contain all target analytes. (Recovery Limits 50 to 120%; RPD <30%)	Yes		In Data Package
Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD < 30%)	Yes		In Data Package
Surrogate Recoveries	Calculate % recovery (30 to 150% recovery)	No	SRM-WG1007124-4 BZ198 (193%)	In Data Package

* The Quality Control Acceptance Criteria are general guidelines. If alternate criteria are used, they must be documented in this table.

Table II-4: Quality Control Summary for Analyses of Polychlorinated Biphenyls (PCB Congeners) in Sediment, Tissue, and Water Matrices

Method Reference Number: 8270C

Quality Control (QC) Element	Acceptance Criteria*	Criteria Met? Yes/No	List results outside criteria (Cross-reference results table in data report)	Location of Results (Retained at Lab or in Data Package)
Initial Calibration	Must be performed prior to the analysis of any QC sample or field sample (<20 % RSD for each compound)	Yes		Retained at Lab
Calculation of Method Detection Limits (MDLs)	For each matrix, analyzed once per 12 month period (see Section 5.2 for MDL procedure)	Yes		Retained at Lab and On file at USACoE-NED
Calibration Verification (Second Source)	Once, after initial calibration (80 to 120% recovery of each compound)	No	Cl5-BZ#101 (27%)	Retained at Lab
Continuing Calibration	Every 20 injections (± 15 % D)	No	BZ198 (18.6%), Cl8-BZ#195 (19.3%), Cl9-BZ#206 (17.8%), Cl10-BZ#209 (16.8%)	Retained at Lab
Standard Reference Materials	Within the limits provided by vendor	Yes		In Data Package
Method Blank	No target analytes > RL	Yes		In Data Package
Matrix Spike/Matrix Spike Duplicate (MS/MSD)	One set (MS/MSD) per group of field samples. Must contain all target analytes. (Recovery Limits 50 to 120%; RPD <30%)	Yes		In Data Package
Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD < 30%)	Yes		In Data Package
Surrogate Recoveries	Calculate % recovery (30 to 150% recovery)	Yes		In Data Package

* The Quality Control Acceptance Criteria are general guidelines. If alternate criteria are used, they must be documented in this table.

Table II-5: Quality Control Summary for Analyses of Metals in Sediments, Tissue, and Water Matrices

Method Reference Numbers: Various Reference Numbers

Quality Control (QC) Element	Acceptance Criteria*	Criteria Met? Yes/No	List results outside criteria (Cross-reference results table in data report)	Location of Results (Retained at Lab or in Data Package)
Linear Range Determination for ICP	Performed Quarterly	Yes		Retained at Lab
Initial Calibration for AA, Hg	Performed Daily (Correlation Coefficient ≥0.995)	Yes		Retained at Lab
Calculation of Method Detection Limits (MDLs)	For each matrix, analyzed once per 12 month period (see Section 5.2 for MDL procedure)	Yes		Retained at Lab and On file at USACoE-NED
Initial Calibration Verification/ Continuing Calibration Verification	Hg: 80 to 120% recovery Other metals: 90 to 110% recovery	Yes		Retained at Lab
Initial Calibration Blank/ Continuing Calibration Blank	No target analytes > Instrument Detection Limit (IDL)	No	Results >3x IDL noted, on file at lab	Retained at Lab
Standard Reference Materials	Within the limits provided by vendor	Yes		In Data Package
Method Blank	No target analytes > RL	Yes		In Data Package
Sample Spike/ Sample Duplicate	One set per group of field samples. Must contain all target analytes. Recovery Limits (75 to 125%; RPD < 20% or < 35%)	Yes		In Data Package
Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD < 30%)	Yes		In Data Package

* The Quality Control Acceptance Criteria are general guidelines. If alternate criteria are used, they must be documented in this table.

Table II-6: Quality Control Summary for Analyses of other Organic Chemicals not listed in Sediment, Tissue, and Water Matrices

Method Reference Numbers:

Quality Control (QC) Element	Acceptance Criteria*	Criteria Met? Yes/No	List results outside criteria (Cross-reference results table in data report)	Location of Results (Retained at Lab or in Data Package)
Initial Calibration	Must be performed prior to the analysis of any QC sample or field sample (<20 % RSD for each compound)			Retained at Lab
Calculation of Method Detection Limits (MDLs)	For each matrix, analyzed once per 12 month period (see Section 5.2 for MDL procedure)			In Data Package
Calibration Verification (Second Source)	Once, after initial calibration (80 to 120% recovery of each compound)			Retained at Lab
Continuing Calibration	At the beginning of every 12 hour shift (± 15 % D)			Retained at Lab
Standard Reference Materials	Within the limits provided by vendor			In Data Package
Method Blank	No target analytes > RL			In Data Package
Matrix Spike/Matrix Spike Duplicate (MS/MSD)	One set (MS/MSD) per group of field samples. Must contain all target analytes. (Recovery Limits 50 to 120%; RPD <30%)			In Data Package
Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD < 30%)			In Data Package
Surrogate Recoveries	Calculate % recovery (30 to 150% recovery)			In Data Package
Internal Standard Areas (if applicable)	Within 50 to 200% of internal standards in continuing calibration check			In Data Package

* The Quality Control Acceptance Criteria are general guidelines. If alternate criteria are used, they must be documented in this table.

Table II-7: Quality Control Summary for Analyses of Sediment Grain Size and Total Organic Carbon

Method Reference Numbers:

Quality Control (QC) Element	Acceptance Criteria*	Criteria Met? Yes/No	List results outside criteria (Cross-reference results table in data report)	Location of Results (Retained at Lab or in Data Package)
Grain Size: Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD < 25%)	No	% Coarse Sand @ 35% % Silt @ 27% % Clay @ 82%	In Data Package
Total Organic Carbon: Standard Reference Materials	Within the limits provided by vendor			In Data Package
Total Organic Carbon: Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD <30%)			In Data Package

* The Quality Control Acceptance Criteria are general guidelines. If alternate criteria are used, they must be documented in this table.

Table II-8: Quality Control Summary for Biological Toxicity Testing only

Method Reference Numbers:

Quality Control (QC) Element	Acceptance Criteria*	Criteria Met? Yes/No	List results outside criteria (Cross-reference results table in data report)	Location of Results (Retained at Lab or in Data Package)
Test condition requirements for each species: Temperature, Salinity, pH, D.O., Ammonia (Total, Un-ionized)	Test conditions within the requirements specified for each species			In Data Package
Test species age	Age/health within guidelines for each species (Appendix V)			In Data Package
Bulk physical/chemical analyses (If required by the Sampling plan)	Required? If so, performed? Yes or No			In Data Package
Water column toxicity test: Control mortality Control abnormality	 < 10% mean < 30% mussel/oyster; < 40% clam larvae, < 30% sea urchin larvae			In Data Package
Sediment toxicity test: Control mortality Compliance with applicable test acceptability requirements in Table 11.3 (EPA 1994a)	 < 10% mean (no chamber >20%) See EPA (1994a) Section 9; Table 11.3			In Data Package

* The Quality Control Acceptance Criteria are general guidelines. If alternate criteria are used, they must be documented in this table.

Reference:

Regional Implementation Manual for the Evaluation of Dredged Material Proposed for Disposal in New England Waters, U.S. EPA and U.S. Army Corps of Engineers, New England District, April 2004.

CHAIN OF COUSTODY

PAGE 1 OF 2

Date Rec'd in Lab: 5/23/17

ALPHA Job #: L1716880

ALPHA ANALYTICAL
World Class Chemistry
8 Walkup Drive, Westboro, MA 01581, Tel: 508-898-9220
320 Forbes Blvd, Mansfield, MA 02048, Tel: 508-822-9300

Client Information

Client: Normandeau / Eversource
Address: 400 Old Reading Pike, Stowe, PA
Phone: 610-705-5733
Email: mmettler@normandeau.com

Additional Project Information:

Project Information

Project Name: Little Bay
Project Location: New Hampshire
Project #:
Project Manager:
ALPHA Quote #:

Turn-Around Time

☐ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due:

Report Information - Data Deliverables

☐ ADEx ☐ EMAIL

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements & Project Information Requirements

☐ Yes ☐ No MA MCP Analytical Methods
☐ Yes ☐ No CT RCP Analytical Methods
☐ Yes ☐ No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
☐ Yes ☐ No GW1 Standards (Info Required for Metals & EPH with Targets)
☐ Yes ☐ No NPDES RGP
☐ Other State /Fed Program ______ Criteria ______

ANALYSIS

VOC: ☐ 8260 ☐ 624 ☐ 524.2
SVOC: ☐ ABN ☐ PAH
METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15
METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13
EPH: ☐ Ranges & Targets ☐ Ranges Only
VPH: ☐ Ranges & Targets ☐ Ranges Only
☑ PCB ☐ PEST
TPH: ☐ Quant Only ☐ Fingerprint
Grain Size
Total Nitrogen
TS, Metals

SAMPLE INFO
Filtration ☐ Field ☐ Lab to do
Preservation ☐ Lab to do

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	PCB	Grain Size	Total Nitrogen	TS, Metals	Sample Comments (Archive)	Total # Bottles
16880 -01	C2 - 0"-24"	5-23-17	1045	Sed	MKM	✓	✓	✓	✓		2
	C2 - 24"-48"	"	1050	"	"					✓	1
-02	C3 - 0"-24"	"	1110	"	"	✓	✓	✓	✓		2
	C3 - 24"-48"	"	1115	"	"					✓	1
-03	C1 - 0"-24"	"	1225	"	"	✓	✓	✓	✓		2
	C1 - 24"-48"	"	1230	"	"					✓	1
-04	C6 - 0"-24"	"	1243	"	"	✓	✓	✓	✓		2
	C6 - 24"-48"	"	1245	"	"					✓	1
	C6 - 48"-68"	"	1250	"	"					✓	1

Container Type: P= Plastic, A= Amber glass, V= Vial, G= Glass, B= Bacteria cup, C= Cube, O= Other, E= Encore, D= BOD Bottle

Preservative: A= None, B= HCl, C= HNO_3, D= H_2SO_4, E= NaOH, F= MeOH, G= $NaHSO_4$, H = $Na_2S_2O_3$, I= Ascorbic Acid, J = NH_4Cl, K= Zn Acetate, O= Other

Container Type	
Preservative	

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	5/23/17 1635	[signature] AAL 5/23/17	16:35
[signature] AAL 5/23/17	18:20	[signature]	5/23/17 1820

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 12-Mar-2012)

CHAIN OF CUSTODY

PAGE 2 OF 2

Date Rec'd in Lab: 5/23/17

ALPHA Job #: L1716880

ALPHA ANALYTICAL
8 Walkup Drive, Westboro, MA 01581, Tel: 508-898-9220
320 Forbes Blvd, Mansfield, MA 02048, Tel: 508-822-9300

Client Information

Client: Normandeau / Eversource

Address:

Phone:

Email:

Additional Project Information:

Project Information

Project Name: Little Bay

Project Location:

Project #:

Project Manager:

ALPHA Quote #:

Turn-Around Time

☐ Standard ☐ RUSH (only confirmed if pre-approved)

Date Due:

Report Information - Data Deliverables

☐ ADEx ☐ EMAIL

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements & Project Information Requirements

☐ Yes ☐ No MA MCP Analytical Methods ☐ Yes ☐ No CT RCP Analytical Methods
☐ Yes ☐ No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
☐ Yes ☐ No GW1 Standards (Info Required for Metals & EPH with Targets)
☐ Yes ☐ No NPDES RGP
☐ Other State /Fed Program _____ Criteria _____

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	VOC: ☐ 8260 ☐ 624 ☐ 524.2	SVOC: ☐ ABN ☐ PAH	METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15	METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13	EPH: ☐ Ranges & Targets ☐ Ranges Only	VPH: ☐ Ranges & Targets ☐ Ranges Only	☐ PCB ☐ PEST	TPH: ☐ Quant Only ☐ Fingerprint	Grain Size	Total Nitrogen	TS, Metals	Archive	Sample Comments	TOTAL # BOTTLES
-05	C-8 0" to 24"	5-23-17	1300	Sed	MKM							✓		✓	✓	✓			2
	C-8 24"-36"	"	1303	"	"												✓		1
-06	C-5 0" to 24"	"	1415	"	"							✓		✓	✓	✓			2
	C-5 24" to 48"	"	1417	"	"												✓		1
-07	C-4 0" to 24"	"	1430	"	"							✓		✓	✓	✓			2
	C-4 24" to 48"	"	1435	"	"												✓		1
-08	C-12 0" to 24"	"	1445	"	"							✓		✓	✓	✓			2
	C-12 24"-39"	"	1448	"	"												✓		1

SAMPLE INFO
Filtration ☐ Field ☐ Lab to do
Preservation ☐ Lab to do

Container Type																			
Preservative																			

Container Type
P= Plastic
A= Amber glass
V= Vial
G= Glass
B= Bacteria cup
C= Cube
O= Other
E= Encore
D= BOD Bottle

Preservative
A= None
B= HCl
C= HNO_3
D= H_2SO_4
E= NaOH
F= MeOH
G= $NaHSO_4$
H = $Na_2S_2O_3$
I= Ascorbic Acid
J = NH_4Cl
K= Zn Acetate
O= Other

Relinquished By:	Date/Time	Received By:	Date/Time
	5/23/17 1437		
AAL	5/23/17 18:20	AAL	5/23/17 16:35

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 12-Mar-2012)

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL
World Class Chemistry
8 Walkup Drive
Westboro, MA 01581
Tel: 508-898-9220
320 Forbes Blvd
Mansfield, MA 02048
Tel: 508-822-9300

Date Rec'd in Lab: 5/24/17

ALPHA Job #: L1716880

Project Information
Project Name: Little Bay
Project Location: New Hampshire
Project #:
Project Manager:
ALPHA Quote #:

Report Information - Data Deliverables
☐ ADEx ☐ EMAIL

Billing Information
☐ Same as Client info PO #:

Client Information
Client: Eversource / Normandeau
Address: 4100 Old Reading Pike Suite, PA
Phone: 610-705-5733
Email: mmeHler@normandeau.com

Regulatory Requirements & Project Information Requirements
☐ Yes ☐ No MA MCP Analytical Methods ☐ Yes ☐ No CT RCP Analytical Methods
☐ Yes ☐ No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
☐ Yes ☐ No GW1 Standards (Info Required for Metals & EPH with Targets)
☐ Yes ☐ No NPDES RGP
☐ Other State /Fed Program _____ Criteria _____

Additional Project Information:

Turn-Around Time
☐ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due:

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	VOC: ☐ 8260 ☐ 624 ☐ 524.2	SVOC: ☐ ABN ☐ PAH	METALS: ☐ MCP 13 ☐ MCP 14 ☐ RCP 15	METALS: ☐ RCRA5 ☐ RCRA8 ☐ PP13	EPH: ☐ Ranges & Targets ☐ Ranges Only	VPH: ☐ Ranges & Targets ☐ Ranges Only	☐ PCB ☑ PEST	TPH: ☐ Quant Only ☐ Fingerprint	Grain Size	Total Nitrogen	TS Metals	Archive	Sample Comments	TOTAL # BOTTLES
L1716880-09	C-11 0"-24"	5-24-17	0733	Sed	MKM							✓		✓	✓	✓			2
	C-11 24"-48"	"	0737	"	"												✓		1
	C-11 48"-72"	"	0739	"	"												✓		1
	C-11 72"-89"	"	0742	"	"												✓		1
-10-02	C-7 0"-24"	"	0752	"	"							✓		✓	✓	✓			2
	C-7 24"-48"	"	0755	"	"												✓		1
	C-7 48"-58"	"	0757	"	"												✓		1
-11	C-10 0"-24"	"	0806	"	"							✓		✓	✓	✓			2
	C-10 24"-41"	"	0808	"	"												✓		1
-12	C-9 0"-18"	"	0820	"	"							✓		✓	✓	✓			2

SAMPLE INFO
Filtration
☐ Field
☐ Lab to do
Preservation
☐ Lab to do

Container Type																			
Preservative																			

no archive for C-9

Container Type
P= Plastic
A= Amber glass
V= Vial
G= Glass
B= Bacteria cup
C= Cube
O= Other
E= Encore
D= BOD Bottle

Preservative
A= None
B= HCl
C= HNO_3
D= H_2SO_4
E= NaOH
F= MeOH
G= $NaHSO_4$
H = $Na_2S_2O_3$
I= Ascorbic Acid
J = NH_4Cl
K= Zn Acetate
O= Other

Relinquished By:	Date/Time	Received By:	Date/Time
	5/24/17-0945	Matt Balge	5/24/17 0945
Matt Balge	5/24/17 1052		
	AAL 5/24/17 18:05		AAL 5/24/17 10:55 3/24/17 18:05

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FORM NO: 01-01 (rev. 12-Mar-2012)