Sediment Sampling and Testing
In Support of Project Feasibility Study FINAL

Royal River - Section 206
Aquatic Ecosystem Restoration Project
Yarmouth, ME

US Army Corps
of Engineers ®
New England District

January 2024

SEDIMENT SAMPLING AND TESTING

IN SUPPORT OF PROJECT FEASIBILITY STUDY

ROYAL RIVER - SECTION 206

AQUATIC ECOSYSTEM RESORATION STUDY

YARMOUTH, MAINE

January 2024

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1.0 Introduction

The Royal River watershed encompasses approximately 140 square miles of mixed-use land located primarily in Cumberland County, ME. The river originates in Sabbathday Lake, in the town of New Gloucester, and flows in a southeasterly direction for approximately 39 miles before emptying into Casco Bay in Yarmouth. The East Elm Street and Bridge Street Dams, located in Yarmouth, are the last remaining man-made barriers on the mainstem river and pose an obstruction to fish passage due to non-functioning fish ladders. The East Elm Street Dam was originally constructed in 1857, and the associated fish ladder was built in 1979. The Bridge Street Dam was originally constructed in 1894, and the associated fish ladder was built in 1973. Both dams have been identified by town, state, and federal agencies, non-profit organizations, and several stakeholder groups as priorities for aquatic ecological restoration projects.

The New England District (NAE) of the U.S. Army Corps of Engineers (USACE) is currently conducting a feasibility study to evaluate ecosystem restoration alternatives that will increase riverine habitat quality and improve fish passage through the East Elm Street and Bridge Street Dams on the Royal River. The authority for this study is Section 206 of the Water Resources Development (WRDA) of 1996, as amended, which authorizes USACE to carry out aquatic ecosystem restoration projects that will improve the quality of the environment, are in the public interest, and are cost-effective. The non-federal sponsor for the study is the Town of Yarmouth. The project has the potential to restore access to approximately 71 miles of riverine habitat for federally listed and non-listed anadromous fish species, providing the fish with upstream access to historic reproductive habitat for adults and nursery habitat for the development of eggs and juvenile life stages. At present, the project alternatives consist of either the complete removal of both dams or the improvement of existing fish passage structures. Natural sedimentation in the upstream dam impoundments has occurred since their original construction in the 1800s, therefore, the dam removal alternative must address downstream transport of associated sediments or potential removal and onsite reuse of materials.

The purpose of the sediment sampling and testing effort described in this report was to fill existing data gaps and document current site conditions in support of the project feasibility study. The effort was focused on characterizing the sediments in the East Elm Street Dam impoundment and delineating the extent and level of metals contamination downstream of the Bridge Street Dam as indicated by previous sampling and testing conducted by Stantec Consulting Service Inc. (Stantec) for the town of Yarmouth in 2009. Testing results were evaluated against applicable Sediment Quality Guidelines (SQGs) and also compared to data from the Royal River Federal Navigation Project (FNP), located directly downstream. This report describes the field methods employed, site conditions encountered, and results of physical and chemical testing.

2.0 Sample Collection

Sediment sampling activities within the Royal River study area were performed from 3-4 October 2023. Work was carried out onboard a shallow-water workboat outfitted with an A-frame and winch system for equipment deployment. Spud anchors, affixed to the corners of the vessel, were used to maintain position while sampling. Vessel positioning was achieved using a Geode GNSS smart antenna interfaced to a Juniper Mesa 2 tablet running Hypack® survey software for

navigation and data collection. The GNSS antenna was mounted directly above the sampling A-frame, and the horizontal position accuracy of the system was determined to be 3.3 feet or less for the duration of the field effort. The water depth at each sample location was measured to the nearest 0.1 ft using a spooled tape measure with a plumb weight.

Samples of the sediment overlying the bedrock surface were collected at five stations downstream of the Bridge Street Dam (Figure 1) and at ten stations upstream of the East Elm Street Dam (Figure 2). Where sufficient sediment was present, core samples were collected in 3-inch polycarbonate liners using a modular stainless steel coring assembly with an integral check valve and core catchers. The assembly was driven using a gas-powered post driver or by hand as appropriate. Upon collection, the cores were secured in an upright position and allowed to settle before being remeasured. The overlying water in each core was drained by drilling a small hole in the core liner above the water-sediment interface, and any excess headspace was removed from the top of the core tube before it was capped and sealed for transport. A $0.02m^2$ petite Ponar grab sampler was used to collect sediments from stations where conditions such as scoured bedrock or the presence of coarse surficial substrate prevented the use of the sediment corer. Sediments from the grab sampler were transferred directly into food grade zip-top bags upon retrieval. Non-disposal sampling equipment used for this effort was cleaned with a brush and alconox solution then rinsed with site water prior to sampling and between each sample station. The food grade polycarbonate liners used with the coring assembly were assumed to be clean as received from the supplier but were rinsed in site water prior to use.

The riverbed downstream of the Bridge Street Dam (between the dam and First Falls) was composed of exposed bedrock with areas of boulder and cobble substrate. Hard-bottom conditions encountered throughout the river channel resulted in the collection of samples along the banks, which were the only apparent source of sediment in the vicinity. Core samples taken from these areas were driven one half to one foot until refusal on bedrock. Multiple core samples were required at stations BS23-03 and BS23-05 in order to collect enough sediment volume for analytical testing. Grab samples were collected at stations BS23-01 and BS23-05 due to the coarse substrate encountered there.

The riverbed in the East Elm Street Dam impoundment was also composed primarily of bedrock. The only portion of this study reach with any significant accumulation of sediment was located along the banks, immediately adjacent to the dam (corresponding to sampling stations ES23-01 through ES23-04). Core samples taken from these areas were driven one to four feet until refusal on bedrock. The riverbed further upstream (corresponding to sampling stations ES23-05 through ES23-11) consisted of exposed bedrock interspersed with few isolated pockets of sediment. These pockets were typically a thin veneer of material draped over the bedrock surface. Sediment grab samples were attempted at many stations within the river channel in this reach, but were largely unsuccessful due to the hard-bottom conditions encountered. Only stations ES23-10 and ES23-11 contained enough sediment to be recovered with the grab sampler after multiple attempts. The remainder of the samples from this reach were collected adjacent to the riverbank using the grab sampler. A summary of the sediment sample collection data from this field effort is presented in Table 1. Sediment sample logs and photographs are presented in Appendix A. Photographs taken during the field effort to document site conditions are presented in Appendix B.

THIS FIGURE DEPICTS CURRENT AND HISTORIC SEDIMENT SAMPLE LOCATIONS ON THE ROYAL RIVER IN THE VICINITY OF THE BRIDGE STREET DAM. DEPICTED NAVD88 ELEVATIONS ARE DERRIVED FROM MULTIPLE SOURCES AND WERE EXPORTED FROM THE 2023 USACE HEC-RAS MODEL FOR THE PROJECT.

FIGURE 1:
ROYAL RIVER 206 STUDY
BRIDGE STREET SAMPLE LOCATIONS

US Army Corps of Engineers
New England District

0 100 200 300 Feet
0 25 50 75 Meters
1:1,500

GCS NAD1983

2021 NAIP IMAGERY

Legend:

- 2023 USACE Hard Bottom Location
- 2023 USACE Sample Location
- Dam Structure
- 2013 Stantec Sample Location
- 2009 Stantec Sample Location

EAST ELM STREET DAM

ES23-11
ES23-08
EE-IMP-1-SED
ES23-07
ES23-06
ES23-05
ES23-10
00348-IM-SED-01
ES23-03
ES23-02
ES23-04
ES23-01
00348-DS-SED-01

ELEVATION
45 50 60 70 75
FEET NAVD88
5 FOOT CONTOUR INTERVAL

THIS FIGURE DEPICTS CURRENT AND HISTORIC SEDIMENT SAMPLE LOCATIONS ON THE ROYAL RIVER IN THE VICINITY OF THE EAST ELM STREET DAM. DEPICTED NAVD88 ELEVATIONS ARE DERRIVED FROM MULTIPLE SOURCES AND WERE EXPORTED FROM THE 2023 USACE HEC-RAS MODEL FOR THE PROJECT.

FIGURE 2:
ROYAL RIVER 206 STUDY
EAST ELM STREET SAMPLE LOCATIONS

0 100 200 300 Feet
0 25 50 75 Meters
1:1,500

GCS NAD1983

2021 NAIP IMAGERY

US Army Corps of Engineers
New England District

Table 1: Summary of Royal River Sediment Collection Data

Station ID	Latitude (WGS84)	Longitude (WGS84)	Measured Water Depth (ft)	Sample Type	Sample Penetration/ Recovery (ft)	Analysis Type	
						Grain Size	Bulk Chemistry
Bridge Street Dam - Downstream							
BS23-01	43.799374	-70.178220	2.0	Grab	-	X	-
BS23-02	43.799694	-70.177515	2.0	Core	1.0/1.0	X	X
BS23-03	43.800141	-70.178564	1.0	Core	0.5/0.5	X	X
BS23-05	43.800784	70.179104	2.0	Grab	-	X	-
BS23-05-01	43.800739	-70.179170	1.0	Core	0.5/0.5	X	X
East Elm Street Dam - Upstream							
ES23-01	43.807645	-70.189380	2.1	Core	1.3/1.3	X	X
ES23-02	43.807972	-70.189392	9.4	Core	4.2/4.2	X	X
ES23-03	43.807940	-70.189750	3.7	Core	4.1/4.1	X	X
ES23-04	43.807663	-70.189635	5.2	Core	1.3/1.3	X	X
ES23-05	43.807705	-70.190425	1.5	Grab	-	X	X
ES23-06	43.807604	-70.190965	1.2	Grab	-	X	X
ES23-07	43.807230	-70.193057	0.9	Grab	-	X	X
ES23-08	43.807231	-70.193793	13.0	Grab	-	X	X
ES23-10	43.807335	-70.191982	13.9	Grab	-	X	-
ES23-11	43.807753	-70.194021	19.0	Grab	-	X	-

3.0 Sample Processing

All sediment cores and grab samples were processed on site during the field effort. Each sediment core was split lengthwise using electric shears, photographed with a stadia rod for scale, and described in accordance with ASTM D 2488 (Standard Practice for Description and Identification of Soils). After being described, material from the length of each core each core was transferred into a stainless steel bowl, homogenized, and a representative aliquot was placed into laboratory supplied containers for the physical and chemical testing parameters listed in Table 2.

Sediment grab samples were transferred directly from zip-top bags into a stainless-steel bowl for description, homogenization, and sampling. Material from each station was collected for the physical and chemical testing parameters listed in Table 2, with the exception of stations BS23-01, BS23-05, ES23-10, and ES23-11, which were sampled for grain size analysis only. BS23-01 and BS23-05 were not sampled for bulk chemical analysis because they were composed entirely of cobble and gravel. Stations ES23-10 and ES23-11 were collected as supplementary stations to document the distribution of sediments within the upstream project reach.

Non-disposable sample processing equipment used for this effort was decontaminated with a brush and alconox solution and rinsed with deionized water prior to use and between samples. All samples for chemical analysis were maintained in coolers on ice until they were delivered to Alpha

Analytical Laboratory in Mansfield, MA by courier on 6 October 2023. Chain of Custody forms for these samples are presented in Appendix C.

4.0 Physical and Chemical Testing

This section summarizes the analytical methods used for physical and chemical testing of the samples collected from the Royal River in Yarmouth, ME. Grain size analysis was performed by the NAE environmental laboratory located in Devens, MA. All other testing was performed by Alpha Analytical Laboratory in Mansfield, MA. Physical testing included total solids and percent moisture measurements. Chemical analysis included total organic carbon (TOC), metals, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and pesticides. A complete list of parameters and target detection limits is provided in Table 2. A routine set of quality control (QC) samples was prepared with each set of samples, by parameter and media, to monitor data quality in terms of accuracy and precision. The frequency and type of QC samples and QC acceptance criteria are discussed in the laboratory report presented in Appendix C.

Table 2: Analytical Methods and Reporting Limits

Parameter	Method Reference	Method Number	Project RL	RL Units
Physical Tests				
Total Solids/Water Content	ASTM	D-2216	0.10	%
Grain Size (#4, 10, 40, 60, 200)	ASTM	D-422	N/A	%
Total Organic Carbon (TOC)				
Total Organic Carbon	SW-846	9060	0.01	%
Metals				
Arsenic	SW 846	6020A	0.17	ppm
Cadmium	SW 846	6020A	0.07	ppm
Chromium	SW 846	6020A	0.67	ppm
Copper	SW 846	6020A	0.67	ppm
Lead	SW 846	6020A	0.20	ppm
Mercury	SW 846	7474	0.02	ppm
Nickel	SW 846	6020A	0.33	ppm
Zinc	SW 846	6020A	3.34	ppm
Polychlorinated Biphenyls (PCBs)				
Congeners 8, 18, 28, 44, 49, 52, 66, 87, 101, 105, 118, 128, 138, 153, 170, 180, 183, 184, 187, 195, 206, 209	SW-846	8082	0.45	ppb
Semivolatiles				
Polycyclic Aromatic Hydrocarbons (PAHs)	SW-846	8270C-SIM	4.52	ppb
Organochlorine Pesticides				
Pesticides	SW-846	8081B	0.23	ppb

4.1 Quality Assurance/Quality Control Procedures

All field and analytical activities performed in the collection and analysis of sediments for physical and chemical testing followed approved SOPs, referenced approved agency methods, or are otherwise detailed in this report.

4.1.1 Measurement Quality Objectives

Project-specific Measurement Quality Objectives (MQOs), against which all data from this project were evaluated, are presented in Table 3. Physical and chemical data were evaluated against the MQOs and the laboratory-based reporting limits (RLs). Organic compounds and metals analyzed for, but not detected above the laboratory Method Detection Limit (MDL), were reported as one half of the MDL, and flagged with the qualifier "U".

Table 3: Measurement Quality Objectives

QC Parameter	Measure of Acceptance Criteria[a]	Corrective Action
Sediment and Water Chemistry	*Blank*: <5xMDL (or<5xMDL for metals)	Re-extract, reanalyze, and/or document and justify corrective actions
Accuracy: Lab Control Sample (LCS)	*Organics:* 30-130% Recovery *Metals:*80-120% Recovery	As above
Accuracy: Matrix Spike (MS)/ Matrix Spike Duplicate (MSD)	*Organics:* 50-120% Recovery *Metals:* 75 to 125% Recovery	As above
Accuracy: Standard Reference Material (SRM)	Must be within limits provided by the vendor (i.e., for organics, 40-140% recovery from certified concentrations for SRM 1944)	Evaluate LCS, MS/MSD & surrogates in sample, reanalyze if necessary, qualify data and issue narrative
Accuracy: Surrogate Internal Standard (SIS)	*Organics:* 30-150% Recovery	Re-extract, reanalyze, and/or document and justify corrective actions
Precision	*Replicates:* MS/MSD: ≤30% RPD[b] between % recoveries *Sample Duplicate*: ≤30% RPD[c] between values *TOC*: RPD ≤25% Grain Size: RPD <25%	As Above

MDL = method detection limit

RPD = relative percent difference

[a]Quality control samples are based on analytical batch size of 20

[b]Analyte concentration in MS must be >5x background concentration to be used for data quality assessment

4.1.2 Chain of Custody

Sample custody forms accompanied all samples from the field to the laboratory. Copies of sample chain of custody forms are provided in the laboratory report presented in Appendix C.

4.1.3 Data Audits/ QA review

All data received internal verification and validation following established procedures at the laboratory where the data were generated. QA/QC narratives are provided in the laboratory report presented in Appendix C. These narratives include a discussion of the chemistry QC results, a description of MQO exceedances, and the impact, if any, the exceedances may have had on the field sample data.

4.1.4 Protocol Deviations

There were no deviations from the established laboratory testing protocols.

5.0 Results of Analysis and Screening

This section summarizes results obtained from physical and chemical testing of sediments collected from the Royal River study area in Yarmouth, ME during October of 2023. Sediment samples from 11 individual stations were analyzed for grain size, total solids, percent moisture, TOC, metals, PAHs, PCBs, and pesticides. Sediment samples from four additional stations were analyzed for grain size only. A summary of the results of analysis are presented in Tables 4 through 9. Complete testing results for the October 2023 effort are provided in the laboratory reports included in Appendix C and D.

To examine the sediment concentrations in an ecologically meaningful context, NAE used Sediment Quality Guidelines (SQGs) to screen the chemical concentrations documented in the sediment samples from the Royal River. Applicable SQG screening values for freshwater sediments are the Threshold Effect Concentrations (TEC) and Probable Effects Concentrations (PEC) from MacDonald et al (2000). Although sediment mobilization and transport to the downstream estuarine environment is the primary driver for evaluating these sediments, the TEC and PEC were selected because they are typically more conservative than the National Oceanic and Atmospheric Administration (NOAA) screening values for marine and estuarine sediments. It is important to understand that these values were not derived as sediment toxicity pass-fail thresholds. Rather, TEC and PEC values are empirically derived guidelines based on a large number of studies nationwide that identify contaminant levels that indicate probability of toxic effects to inform decision making (Long et al., 1998). Effects are considered unlikely at concentrations below the TEC with an increased probability of toxic effects as concentrations increase. At concentrations above the PEC, toxic effects are considered likely. For samples with sediment concentrations that fall between the TEC and PEC levels, consideration is given to both the number of contaminants that exceed TEC values and where the concentrations fall in the range between TEC and PEC values in assessing the probability of toxic effects and the potential need for further evaluation.

In addition to the TEC and PEC screening values, the October 2023 Royal River analysis results were also compared to the mean analyte concentrations in samples collected from the upstream portion of the Royal River FNP in 2010 to support a suitability determination for subsequent maintenance dredging activities. This comparison was performed to help evaluate the potential for impacts to downstream benthic habitat in the vicinity of the FNP. The TEC, PEC and mean FNP values for each analyte are presented along with the October 2023 testing data in Tables 4 through 9.

The sediment samples from the study area below the Bridge Street Dam were composed of poorly graded sand and fine grained material (passing the no. 200 sieve) with some gravel, except for stations BS23-01 and BS23-05, which were predominantly cobble and gravel. None of the chemical testing results from this area exceeded the corresponding TECs or the mean concentrations documented in the FNP.

The material at station ES23-01, located above the East Elm Street Dam, was composed of poorly graded sand and gravel. The remainder of the stations from this study area above the dam consisted of poorly graded sand and fine grained material with trace amounts of gravel. With the exception of stations ES23-01, ES23-02, and ES23-08 none of the chemical testing results from this area exceeded the corresponding TECs or the mean concentrations documented in the FNP. Stations ES23-01 and ES23-02 represent the sediment that has accumulated immediately behind the dam along either shoreline. These stations contained individual PAH concentrations and a single pesticide group (DDx isomers) that were above the TECs, but below the associated PECs.

Total PAH concentrations in ES23-01 were 1.6 times higher than the mean concentration in the FNP and the total in ES23-02 was 3.5 times higher. The concentration of lead and a single pesticide group (DDx isomers) at station ES23-02 was also found to be above the TEC, but below the PEC. Lead concentrations at ES23-01 and ES23-02 were 1.4 and 5.9 times greater, respectively, than those in the FNP. DDx isomers were not detected in the 2010 FNP samples, so a direct comparison between the data sets could not be made.

Station ES23-08 is situated along the eastern riverbank approximately 1,250 feet upstream from the dam. Individual PAH and DDx isomer concentrations at this station were found to be above the TECs but below the associated PECs. Total PAHs at this location were 3.1 times higher than the mean FNP concentration.

Table 4: Summary of Grain-Size Results

Sample ID	% Cobble	% Gravel	% Sand			% Fines
			Coarse	Medium	Fine	
BS23-01	57.2	26.6	4.4	8.1	3.3	0.5
BS23-02	0.0	1.2	0.4	1.5	47.8	49.0
BS23-03	0.0	0.7	1.4	2.0	28.4	67.4
BS23-05	49.7	42.6	5.8	0.9	0.6	0.4
BS23-05-1	0.0	0.2	0.4	1.7	16.4	81.4
ES23-01	0.0	33.1	32.1	30.6	3.4	0.9
ES23-02	0.0	0.2	1.6	10.9	34.0	53.3
ES23-03	0.0	1.4	1.7	4.6	30.5	61.7
ES23-04	0.0	1.9	1.4	3.9	14.5	78.3
ES23-05	0.0	0.7	2.5	2.7	62.7	31.4
ES23-06	0.0	0.0	0.4	2.9	29.5	67.2
ES23-07	0.0	0.6	2.0	7.8	59.1	30.6
ES23-08	0.0	0.1	1.0	16.8	18.4	63.7
ES23-10	0.0	0.0	0.1	0.6	22.3	77.0
ES23-11	0.0	0.7	3.1	41.9	13.6	40.7

Table 5: Summary of TOC and Total Solids Results

Sample ID	% TOC (Average Value)	% Total Solids
BS23-02	0.8	58.0
BS23-03	1.7	55.4
BS23-05-01	1.7	57.1
ES23-01	0.3	92.7
ES23-02	1.4	62.1
ES23-03	1.1	63.0
ES23-04	2.2	53.5
ES23-05	1.0	40.2
ES23-06	1.6	45.2
ES23-07	1.1	55.0
ES23-08	1.6	61.3

Table 6: Summary of Total Metals Results

Parameter	TEC[1]	PEC[1]	FNP Mean	BS23-02	BS23-03	BS23-05-01	ES23-01	ES23-02	ES23-03	ES23-04	ES23-05	ES23-06	ES23-07	ES23-08
Arsenic, Total	9.79	33	8.81	1.62	2.19	2.84	1.22	4.16	2.53	3.5	2.08	2.72	2.45	2.95
Cadmium, Total	0.99	4.98	0.20	0.11	0.118	0.159	0.02 (J)	0.173	0.116	0.196	0.107	0.147	0.131	0.14
Chromium, Total	43.4	111	37.13	12.6	13.3	15.4	5.55	13.9	12.6	17.4	13.1	17.6	13.9	14.3
Copper, Total	31.6	149	19.13	8.27	8.41	9.47	5.25	9.55	7.94	10.8	6.34	9.89	8.71	8.81
Lead, Total	35.8	128	15.37	13.3	11.1	13.2	22.8	91.6	10.5	13.9	5.94	9.57	7.9	12.3
Mercury, Total	0.18	1.06	0.03	0.02 (J)	0.035	0.041	0.029	0.025	0.028	0.037	0.02 (J)	0.02 (J)	0.02 (J)	0.028
Nickel, Total	22.7	48.6	23.83	10.2	11.6	13.2	4.95	12.5	11	16.1	9.7	14.8	12.7	12.7
Zinc, Total	121	459	87.33	38.6	44.1	52.1	16	47.4	39.9	59.8	36.3	50	43.4	47.2

J = Estimated concentration between the method detection limit (MDL) and the project reporting limit (RL)

All concentrations are presented as mg/kg (i.e., ppm)

Results are reported as dry weight

[1]NOAA threshold effects concentration (TEC) and probable effects concentration (PEC) screening criteria for freshwater sediments

[2]Mean concentration from Royal River FNP anchorage are samples collected in 2010

Yellow highlight indicates an exceedance of the TEC , Red highlight indicates an exceedance of the PEC

Table 7: Summary of PAH Results

Parameter	TEC[1]	PEC[1]	FNP Mean[2]	BS23-02	BS23-03	BS23-05-01	ES23-01	ES23-02	ES23-03	ES23-04	ES23-05	ES23-06	ES23-07	ES23-08
Acenaphthene	NA	NA	19.10	4.38 (J)	1.92 (J)	1.74 (J)	5.39	35.2	5.93	10.4	2.42 (J)	3.37 (J)	2.17 (J)	38.8
Acenaphthylene	NA	NA	22.03	8.03	7.7	9.6	61	122	5.14	13.8	8.24	9.61	9.82	59.9
Anthracene	57.2	845	23.07	20	9.6	10.2	46	144	6.81	10.3	7	8.43	6.46	105
Fluorene	77.4	536	19.10	4.66	3.39 (J)	3.46 (J)	19.1	55	3.91 (J)	10.7	4.81 (J)	3.31 (J)	2.65 (J)	51.2
Naphthalene	176	561	19.10	4.24 (J)	6.47	5.85	8.41	25.8	10.6	3.52 (J)	7.13	9.24	6.19	18.1
Phenanthrene	204	1170	85.53	78.9	49.5	46.7	159	628	27.5	31.5	30.5	35.8	25.7	482
Benz(a)anthracene	108	1050	88.30	80.4	49.6	62.1	207	601	29.8	44.9	29	32.6	30.6	344
Benzo(a)pyrene	150	1450	71.73	63.3	51.8	53.1	140	359	18.5	27.6	18	25	21.6	269
Benzo(b)fluoranthene	NA	NA	106.33	79.6	59.6	74.3	132	387	22.7	41.6	28.8	34.3	29.3	263
Benzo(ghi)perylene	NA	NA	71.20	58.5	44.3	55	108	252	14.7	31.8	17	21.9	20.3	178
Benzo(k)fluoranthene	NA	NA	71.77	45.9	36.6	41.9	108	272	15.2	21.7	11	23	14.8	178
Chrysene	166	1290	92.97	62.8	53	56.2	143	375	19.5	31.8	22.8	31.7	22.5	268
Dibenz(a,h)anthracene	33	NA	20.07	12.4	8.77	12.1	23.5	61.2	4.11 (J)	8.74	21.3	9.42	8.59	47.7
Fluoranthene	423	2230	218.33	161	120	132	302	1700	50.8	74.9	65.1	79.5	60.7	644
Indeno(1,2,3-cd)Pyrene	NA	NA	58.43	60.5	47.3	56.6	97	257	14.4	27.1	18.1	22.9	20.4	192
Pyrene	195	1520	178.67	124	90.5	102	279	1230	37.3	62.4	47.5	60.8	44.4	506
Total PAHs	1610	22800	1165.73	868.61	640.05	722.85	1838.4	6504.2	286.9	452.76	338.7	410.88	326.18	3644.7

J = Estimated concentration between the method detection limit (MDL) and the project reporting limit (RL)

All concentrations are presented as ug/kg (i.e., ppb)

Results are reported as dry weight

[1]NOAA threshold effects concentration (TEC) and probable effects concentration (PEC) screening criteria for freshwater sediments

[2]Mean concentration from Royal River FNP anchorage are samples collected in 2010

Yellow highlight indicates an exceedance of the TEC , Red highlight indicates an exceedance of the PEC

Table 8: Summary of PCB Results

Parameter	TEC[1]	PEC[1]	FNP Mean[2]	BS23-02	BS23-03	BS23-05-01	ES23-01	ES23-02	ES23-03	ES23-04	ES23-05	ES23-06	ES23-07	ES23-08
Cl2-BZ#8	NA	NA	0.95 (U)	0.45 (U)	0.47 (U)	0.44 (U)	0.28 (U)	0.43 (U)	0.42 (U)	0.49 (U)	0.65 (U)	0.28 (J)	0.48 (U)	0.43 (U)
Cl3-BZ#18	NA	NA	0.95 (U)	0.45 (U)	0.47 (U)	0.44 (U)	0.28 (U)	0.43 (U)	0.42 (U)	0.49 (U)	0.65 (U)	0.58 (U)	0.48 (U)	0.43 (U)
Cl3-BZ#28	NA	NA	0.95 (U)	0.45 (U)	0.47 (U)	0.44 (U)	0.28 (U)	0.43 (U)	0.42 (U)	0.49 (U)	0.65 (U)	0.58 (U)	0.48 (U)	0.43 (U)
Cl4-BZ#44	NA	NA	0.95 (U)	0.45 (U)	0.47 (U)	0.44 (U)	0.28 (U)	0.43 (U)	0.42 (U)	0.49 (U)	0.65 (U)	0.58 (U)	0.48 (U)	0.43 (U)
Cl4-BZ#49	NA	NA	0.95 (U)	0.45 (U)	0.47 (U)	0.44 (U)	0.28 (U)	0.43 (U)	0.42 (U)	0.49 (U)	0.65 (U)	0.58 (U)	0.48 (U)	0.43 (U)
Cl4-BZ#52	NA	NA	0.95 (U)	0.45 (U)	0.47 (U)	0.44 (U)	0.28 (U)	0.43 (U)	0.42 (U)	0.49 (U)	0.65 (U)	0.58 (U)	0.48 (U)	0.43 (U)
Cl4-BZ#66	NA	NA	0.95 (U)	0.45 (U)	0.47 (U)	0.44 (U)	0.28 (U)	0.43 (U)	0.42 (U)	0.49 (U)	0.65 (U)	0.58 (U)	0.48 (U)	0.43 (U)
Cl5-BZ#87	NA	NA	0.95 (U)	0.45 (U)	0.47 (U)	0.44 (U)	0.28 (U)	0.43 (U)	0.42 (U)	0.49 (U)	0.65 (U)	0.58 (U)	0.48 (U)	0.43 (U)
Cl5-BZ#101	NA	NA	0.95 (U)	0.45 (U)	0.47 (U)	0.44 (U)	0.28 (U)	0.43 (U)	0.42 (U)	0.49 (U)	0.65 (U)	0.58 (U)	0.48 (U)	0.43 (U)
Cl5-BZ#105	NA	NA	0.95 (U)	0.45 (U)	0.47 (U)	0.44 (U)	0.28 (U)	0.43 (U)	0.42 (U)	0.49 (U)	0.65 (U)	0.58 (U)	0.48 (U)	0.43 (U)
Cl5-BZ#118	NA	NA	0.95 (U)	0.45 (U)	0.47 (U)	0.44 (U)	0.28 (U)	0.43 (U)	0.42 (U)	0.49 (U)	0.65 (U)	0.58 (U)	0.48 (U)	0.43 (U)
Cl6-BZ#128	NA	NA	0.95 (U)	0.45 (U)	0.47 (U)	0.44 (U)	0.28 (U)	0.43 (U)	0.42 (U)	0.49 (U)	0.65 (U)	0.58 (U)	0.48 (U)	0.43 (U)
Cl6-BZ#138	NA	NA	0.95 (U)	0.45 (U)	0.47 (U)	0.44 (U)	0.28 (U)	0.43 (U)	0.42 (U)	0.49 (U)	0.65 (U)	0.58 (U)	0.48 (U)	0.43 (U)
Cl6-BZ#153	NA	NA	0.95 (U)	0.45 (U)	0.47 (U)	0.44 (U)	0.28 (U)	0.43 (U)	0.42 (U)	0.49 (U)	0.65 (U)	0.58 (U)	0.48 (U)	0.43 (U)
Cl7-BZ#170	NA	NA	0.95 (U)	0.45 (U)	0.47 (U)	0.44 (U)	0.28 (U)	0.43 (U)	0.42 (U)	0.49 (U)	0.65 (U)	0.58 (U)	0.48 (U)	0.43 (U)
Cl7-BZ#180	NA	NA	0.95 (U)	0.45 (U)	0.47 (U)	0.44 (U)	0.28 (U)	0.43 (U)	0.42 (U)	0.49 (U)	0.65 (U)	0.58 (U)	0.48 (U)	0.43 (U)
Cl7-BZ#183	NA	NA	0.95 (U)	0.45 (U)	0.47 (U)	0.44 (U)	0.28 (U)	0.43 (U)	0.42 (U)	0.49 (U)	0.65 (U)	0.58 (U)	0.48 (U)	0.43 (U)
Cl7-BZ#184	NA	NA	0.95 (U)	0.45 (U)	0.47 (U)	0.44 (U)	0.28 (U)	0.43 (U)	0.42 (U)	0.49 (U)	0.65 (U)	0.58 (U)	0.48 (U)	0.43 (U)
Cl7-BZ#187	NA	NA	0.95 (U)	0.45 (U)	0.47 (U)	0.44 (U)	0.28 (U)	0.43 (U)	0.42 (U)	0.49 (U)	0.65 (U)	0.58 (U)	0.48 (U)	0.43 (U)
Cl8-BZ#195	NA	NA	0.95 (U)	0.45 (U)	0.47 (U)	0.44 (U)	0.28 (U)	0.43 (U)	0.42 (U)	0.49 (U)	0.65 (U)	0.58 (U)	0.48 (U)	0.43 (U)
Cl9-BZ#206	NA	NA	0.95 (U)	0.45 (U)	0.47 (U)	0.44 (U)	0.28 (U)	0.43 (U)	0.42 (U)	0.49 (U)	0.65 (U)	0.58 (U)	0.48 (U)	0.43 (U)
Cl10-BZ#209	NA	NA	0.95 (U)	0.45 (U)	0.47 (U)	0.44 (U)	0.28 (U)	0.43 (U)	0.42 (U)	0.49 (U)	0.65 (U)	0.58 (U)	0.48 (U)	0.43 (U)
Total PCBs	59.8	676	2.478	1.729	1.793	1.684	1.079	1.777	1.606	1.873	2.489	2.662	1.822	1.66

J = Estimated concentration between the method detection limit (MDL) and the project reporting limit (RL)

U = Non-detected analytes are reported as the method detection limit (MDL) and qualified with a "U"

All concentrations are presented as ug/kg (i.e., ppb)

Results are reported as dry weight

[1]NOAA threshold effects concentration (TEC) and probable effects concentration (PEC) screening criteria for freshwater sediments

[2]Mean concentration from Royal River FNP anchorage are samples collected in 2010

Table 9: Summary of Pesticides Results

Parameter	TEC[1]	PEC[1]	FNP Mean[2]	BS23-02	BS23-03	BS23-05-01	ES23-01	ES23-02	ES23-03	ES23-04	ES23-05	ES23-06	ES23-07	ES23-08
4,4'-DDD	4.88	28	0.48 (U)	0.38	0.531	0.666	0.523	8.22	0.474	1.21 (P)	1.14 (P)	0.29 (U)	0.76	5.1
4,4'-DDE	3.16	31.3	0.48 (U)	1.42 (P)	2.93	1.78 (P)	1.6 (P)	7.58 (P)	1.28 (P)	1.33	1.72	1.56 (P)	1.73 (P)	7 (P)
4,4'-DDT	4.16	62.9	0.48 (U)	0.28	0.544	0.36	0.657	15.9	0.21 (U)	0.473	0.33 (U)	0.29 (U)	0.348	2.88
Total DDx	5.28	572	1.43 (U)	2.08	4.005	2.806	2.78	31.7	1.7645	3.013	2.876	1.5855	2.838	14.98
Aldrin	NA	NA	0.48 (U)	0.23 (U)	0.23 (U)	0.22 (U)	0.14 (U)	0.21 (U)	0.21 (U)	0.25 (U)	0.33 (U)	0.29 (U)	0.24 (U)	0.22 (U)
BHC-alpha	NA	NA	-	0.23 (U)	0.23 (U)	0.22 (U)	0.14 (U)	0.21 (U)	0.21 (U)	0.25 (U)	0.33 (U)	0.29 (U)	0.24 (U)	0.22 (U)
BHC-beta	NA	NA	-	0.23 (U)	0.23 (U)	0.22 (U)	0.14 (U)	0.21 (U)	0.21 (U)	0.25 (U)	0.33 (U)	0.29 (U)	0.24 (U)	0.22 (U)
BHC-delta	NA	NA	-	0.23 (U)	0.23 (U)	0.22 (U)	0.14 (U)	0.21 (U)	0.21 (U)	0.25 (U)	0.33 (U)	0.29 (U)	0.24 (U)	0.22 (U)
BHC-gamma	2.37	4.99	0.48 (U)	0.23 (U)	0.23 (U)	0.22 (U)	0.14 (U)	0.21 (U)	0.21 (U)	0.25 (U)	0.33 (U)	0.29 (U)	0.24 (U)	0.22 (U)
cis-Chlordane	3.24	17.6	0.48 (U)	0.23 (U)	0.818	0.22 (U)	0.14 (U)	0.442	0.21 (U)	0.25 (U)	0.33 (U)	0.29 (U)	0.24 (U)	0.22 (U)
trans-Chlordane	3.24	17.6	0.48 (U)	0.23 (U)	0.23 (U)	0.22 (U)	0.14 (U)	0.21 (U)	0.21 (U)	0.25 (U)	0.33 (U)	0.29 (U)	0.24 (U)	0.22 (U)
cis-Nonachlor	NA	NA	0.48 (U)	0.23 (U)	0.334	0.22 (U)	0.14 (U)	0.21 (U)	0.21 (U)	0.25 (U)	0.33 (U)	0.29 (U)	0.24 (U)	0.22 (U)
trans-Nonachlor	NA	NA	0.48 (U)	0.69 (P)	1.43	0.22 (U)	0.14 (U)	2.49 (P)	0.21 (U)	0.25 (U)	0.33 (U)	0.29 (U)	0.24 (U)	2.24
Dieldrin	1.9	61.8	0.48 (U)	0.23 (U)	0.23 (U)	0.22 (U)	0.14 (U)	0.21 (U)	0.21 (U)	0.25 (U)	0.33 (U)	0.29 (U)	0.24 (U)	0.22 (U)
Endosulfan I	NA	NA	0.48 (U)	0.23 (U)	0.23 (U)	0.22 (U)	0.14 (U)	0.21 (U)	0.21 (U)	0.25 (U)	0.33 (U)	0.29 (U)	0.24 (U)	0.22 (U)
Endosulfan II	NA	NA	0.48 (U)	0.23 (U)	0.23 (U)	0.22 (U)	0.14 (U)	0.21 (U)	0.21 (U)	0.25 (U)	0.33 (U)	0.29 (U)	0.24 (U)	0.22 (U)
Endosulfan sulfate	NA	NA	-	0.23 (U)	0.23 (U)	0.22 (U)	0.14 (U)	0.21 (U)	0.21 (U)	0.25 (U)	0.33 (U)	0.29 (U)	0.24 (U)	0.22 (U)
Endrin	2.22	207	0.48 (U)	0.23 (U)	0.23 (U)	0.22 (U)	0.14 (U)	0.21 (U)	0.21 (U)	0.25 (U)	0.33 (U)	0.29 (U)	0.24 (U)	0.22 (U)
Heptachlor	NA	NA	0.48 (U)	0.23 (U)	0.23 (U)	0.22 (U)	0.14 (U)	0.21 (U)	0.21 (U)	0.25 (U)	0.33 (U)	0.29 (U)	0.24 (U)	0.22 (U)
Heptachlor epoxide	2.47	16	0.48 (U)	0.45 (U)	0.47 (U)	0.44 (U)	0.28 (U)	0.43 (U)	0.42 (U)	0.49 (U)	0.65 (U)	0.58 (U)	0.48 (U)	0.43 (U)
Hexachlorobenzene	NA	NA	0.48 (U)	0.45 (U)	0.47 (U)	0.44 (U)	0.28 (U)	0.43 (U)	0.42 (U)	0.49 (U)	0.65 (U)	0.58 (U)	0.48 (U)	0.43 (U)
Methoxychlor	NA	NA	0.48 (U)	0.23 (U)	0.23 (U)	0.22 (U)	0.14 (U)	0.21 (U)	0.21 (U)	0.25 (U)	0.33 (U)	0.29 (U)	0.24 (U)	0.22 (U)
Oxychlordane	NA	NA	0.48 (U)	0.45 (U)	0.47 (U)	0.44 (U)	0.28 (U)	0.43 (U)	0.42 (U)	0.49 (U)	0.65 (U)	0.58 (U)	0.48 (U)	0.43 (U)
Toxaphene	NA	NA	11.95 (U)	11.3 (U)	11.8 (U)	11 (U)	7.08 (U)	10.7 (U)	10.5 (U)	12.3 (U)	16.3 (U)	14.6 (U)	11.9 (U)	10.9 (U)

U = Non-detected analytes are reported as the method detection limit (MDL) and qualified with a "U"

P – The relative percent difference (RPD) between duplicate results exceeds the method-specified criteria

All concentrations are presented as ug/kg (i.e., ppb)

Results are reported as dry weight

[1]NOAA threshold effects concentration (TEC) and probable effects concentration (PEC) screening criteria for freshwater sediments

[2]Mean concentration from Royal River FNP anchorage are samples collected in 2010

Yellow highlight indicates an exceedance of the TEC , Red highlight indicates an exceedance of the PEC

6.0 Conclusions

The riverbed documented during the October 2023 field effort consisted primarily of scoured bedrock and coarse substrate with a fringe of sediment along portions of each bank. The majority of the sediment within the channel profile appears to be highly mobile. In general, bulk chemical concentrations documented in sediment samples from both study areas were very low. There was no trace of elevated mercury concentrations below the Bridge Street Dam, as documented in a single sample from the Stantec 2009 sampling effort. PAHs, pesticides, and lead measured within a subset of the samples from isolated depositional areas above the East Elm Street Dam were present at concentrations above the TEC screening values for freshwater sediments, but were below (typically well below) the associated PEC value. Concentrations that were above the TECs were also higher than the historic mean concentrations documented in the upstream portion of the Royal River FNP, but resuspension and downstream transport of these sediments to the Royal River estuary would result in significant mixing and dilution. A rough volume estimate for these sediments based on the depth of the associated sediment cores and an approximation of the sediment footprint suggests that there is approximately 360 cubic yards of sediment in the vicinity of station ES23-01, 180 cubic yards in the vicinity of station ES23-02, and 60 cubic yards upstream in the vicinity of station ES23-08. In contrast, the last maintenance dredging cycle for the FNP involved the removal of approximately 45,000 cubic yards of material, and typical maintenance dredging volumes in the adjacent marina basins range from 5,000 to 18,000 cubic yards of sediment.

USACE's evaluation of the sediments in the study areas above the East Elm Street Dam and below the Bridge Street Dam aligns with Maine DEP's evaluation of a 2015 Stantec sampling and testing effort performed for The Nature Conservancy (TNC) in the Bridge Street Dam impoundment. A 20 November 2017 memo released by TNC documents that "The DEP's review supports Stantec's conclusion of minimal potential risk to aquatic life related to impounded sediments at the Bridge Street Dam. Moreover, the Department concluded that overall, the site is clean, and is in fact cleaner than sediment tested prior to the harbor dredge in winter 2015-2016." Individual PAH and metals concentrations documented by the 2015 Stantec effort were actually higher than those documented in the upstream and downstream areas by USACE in 2023, but the isolated nature and comparatively low volume of the sediments in question led DEP to conclude that the total average concentrations were low. The recent downstream conditions documented by USACE indicate that these sediments would already be located in the Royal River estuary or Casco Bay if they have been mobilized by storm events since 2015.

Review of the 2023 sediment data in comparison with the NOAA effects-range low (ERL) and effects-range median (ERM) SQGs used for marine sediments along with paired sediment chemistry and biological testing data (10-day toxicity and 28-day bioaccumulation studies) for dredging projects disposed of at the Portland Disposal Site (PDS) suggest that the sediments from all study areas would be suitable for unconfined open water placement, even at the documented in-situ concentrations. Based on the compounding lines of evidence presented in this report including the environmental setting, bulk chemical concentrations, and volumes of material that might be mobilized and transported downstream, USACE finds that the sediments from the study area pose minimal potential risk to the marine environment in the Royal River estuary and Casco Bay under any of the proposed restoration project alternatives.

APPENDIX A

SAMPLEING LOGS

PROJECT NAME: *Royal River Section 206 Study* DATE: *10/4/23*

PROJECT LOCATION: *Yarmouth, ME* SEA STATE: *Calm*

VESSEL: *Dual Jon platform* POSITIONING EQUIPMENT: *Juniper Mesa 2/ Geode GNSS receiver*

SAMPLING EQUIPMENT: *Petite Ponar grab*

SAMPLING PERSONNEL: *RBL, SVT, DJF* LOGGED BY: *RBL*

CORE ID: ***BS23-01*** TIME: *10:44*

LATITUDE: *43.799374* LONGITUDE: *-70.178220* POSITION ACCURACY: *3.3 ft*

MEASURED WATER DEPTH: *2.0'* CORRECTED WATER DEPTH: *NA*

TARGET PENETRATION: *Refusal* ACTUAL PENETRATION: *NA* RECOVERY: *NA*

COMMENTS: *Cobble and gravel*

SAMPLE INTERVAL(S): *Surface*

CORE PHOTO:	CORE DESCRIPTION:
	*Sub-angular to subrounded cobble and gravel. Some well graded sand and leaf litter present.* *Photo of grain size sample included in log.* *Sampling notes: Target station vicinity is all hard bottom (rock, boulder, and cobble substrate). Sample taken adjacent to bank.*

PROJECT NAME: *Royal River Section 206 Study* DATE: *10/4/23*

PROJECT LOCATION: *Yarmouth, ME* SEA STATE: *Calm*

VESSEL: *Dual Jon platform* POSITIONING EQUIPMENT: *Juniper Mesa 2/ Geode GNSS receiver*

SAMPLING EQUIPMENT: *Custom coring assembly with 3" polycarbonate barrels and core keepers*

SAMPLING PERSONNEL: *RBL, SVT, DJF* LOGGED BY: *RBL*

CORE ID: ***BS23-02*** TIME: *10:30*

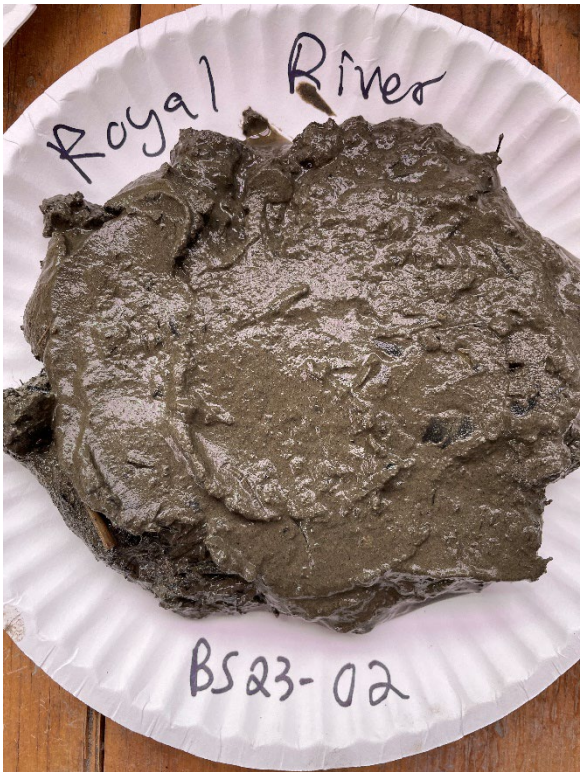
LATITUDE: *43.799694* LONGITUDE: *-70.177515* POSITION ACCURACY: *3.3 ft*

MEASURED WATER DEPTH: *2.0'* CORRECTED WATER DEPTH: *NA*

TARGET PENETRATION: *Refusal* ACTUAL PENETRATION: *6-12"* RECOVERY: *6"*

COMMENTS: *Sand and organic silt with leaf debris*

SAMPLE INTERVAL(S): *0-6"*

CORE PHOTO:	CORE DESCRIPTION:
	*Brown/gray poorly graded fine sand and organic silt with leaf litter and woody debris.* *Photo of grain size sample included in log.* *Sampling notes: Target station vicinity is all hard bottom (rock, boulder, and cobble substrate). Station relocated adjacent to bank. 6-12" of penetration before hard refusal. Material is very loose. Multiple cores taken for sample volume.*

PROJECT NAME: *Royal River Section 206 Study* DATE: *10/4/23*

PROJECT LOCATION: *Yarmouth, ME* SEA STATE: *Calm*

VESSEL: *Dual Jon platform* POSITIONING EQUIPMENT: *Juniper Mesa 2/ Geode GNSS receiver*

SAMPLING EQUIPMENT: *Custom coring assembly with 3" polycarbonate barrels and core keepers*

SAMPLING PERSONNEL: *RBL, SVT, DJF* LOGGED BY: *RBL*

CORE ID: ***BS23-03*** TIME: *10:13*

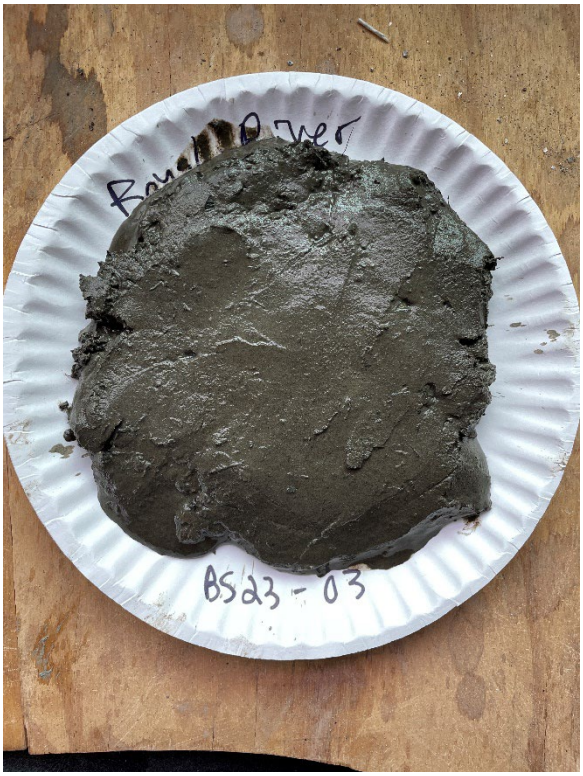
LATITUDE: *43.800141* LONGITUDE: *-70.178564* POSITION ACCURACY: *3.3 ft*

MEASURED WATER DEPTH: *1.0'* CORRECTED WATER DEPTH: *NA*

TARGET PENETRATION: *Refusal* ACTUAL PENETRATION: *6"* RECOVERY: *6"*

COMMENTS: *Organic silt and fine sand*

SAMPLE INTERVAL(S): *0-6"*

CORE PHOTO:	CORE DESCRIPTION:
	*Brown/gray organic silt and poorly graded fine sand* *Photo of grain size sample included in log.* *Sampling notes: Sample taken at mouth of tributary creek, immediately adjacent to bank. 6" of penetration before hard refusal on rock. Multiple cores taken for sample volume.*

PROJECT NAME: *Royal River Section 206 Study* DATE: *10/4/23*

PROJECT LOCATION: *Yarmouth, ME* SEA STATE: *Calm*

VESSEL: *Dual Jon platform* POSITIONING EQUIPMENT: *Juniper Mesa 2/ Geode GNSS receiver*

SAMPLING EQUIPMENT: *Petite Ponar grab*

SAMPLING PERSONNEL: *RBL, SVT, DJF* LOGGED BY: *RBL*

CORE ID: ***BS23-05*** TIME: *09:56*

LATITUDE: LONGITUDE: POSITION ACCURACY: *3.3 ft*

MEASURED WATER DEPTH: *2.0'* CORRECTED WATER DEPTH: *NA*

TARGET PENETRATION: *Refusal* ACTUAL PENETRATION: *NA* RECOVERY: *NA*

COMMENTS: *Cobble and gravel*

SAMPLE INTERVAL(S): *Surface grab*

CORE PHOTO:	CORE DESCRIPTION:
	*Sub-angular to subrounded cobble and grave with trace amounts of sand.* *Photo of grain size sample included in log.* *Sampling notes: Probed target station vicinity with steel spud pole. Entire area is hard bottom (rock/ boulder, with some cobble and gravel substrate). Grab of available loose substrate taken for grain size.*

PROJECT NAME: *Royal River Section 206 Study* DATE: *10/4/23*

PROJECT LOCATION: *Yarmouth, ME* SEA STATE: *Calm*

VESSEL: *Dual Jon platform* POSITIONING EQUIPMENT: *Juniper Mesa 2/ Geode GNSS receiver*

SAMPLING EQUIPMENT: *Custom coring assembly with 3" polycarbonate barrels and core keepers*

SAMPLING PERSONNEL: *RBL, SVT, DJF* LOGGED BY: *RBL*

CORE ID: ***BS23-05-01*** TIME: *10:01*

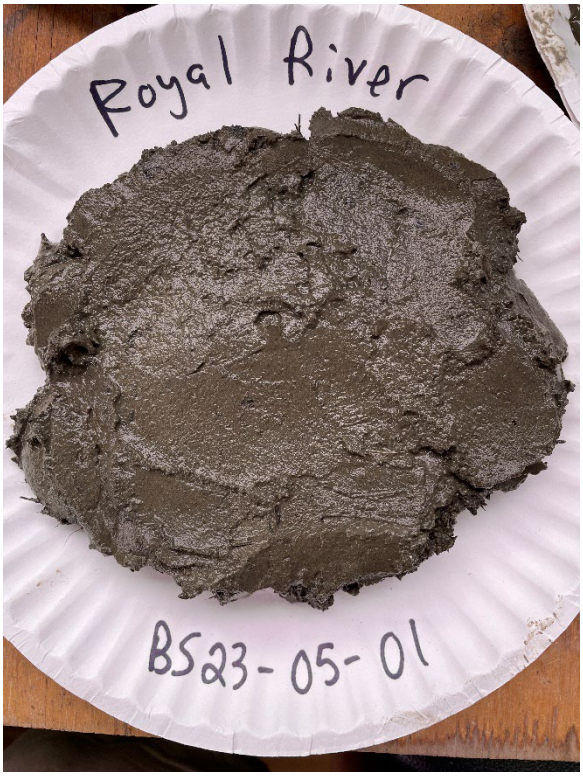
LATITUDE: *43.800739* LONGITUDE: *-70.179170* POSITION ACCURACY: *3.3 ft*

MEASURED WATER DEPTH: *1.0'* CORRECTED WATER DEPTH: *NA*

TARGET PENETRATION: *Refusal* ACTUAL PENETRATION: *6"* RECOVERY: *6"*

COMMENTS: *Organic silt with fine sand*

SAMPLE INTERVAL(S): *0-6"*

CORE PHOTO:	CORE DESCRIPTION:
	*Brown/gray organic silt with fine sand.* *Photo of grain size sample included in log.* *Sampling notes: Collected short core of organic sail and sand immediately adjacent to the bank. 6" of penetration before hard refusal on rock. Multiple cores taken for sample volume.*

PROJECT NAME: *Royal River Section 206 Study* DATE: *10/3/23*

PROJECT LOCATION: *Yarmouth, ME* SEA STATE: *Calm*

VESSEL: *Dual Jon platform* POSITIONING EQUIPMENT: *Juniper Mesa 2/ Geode GNSS receiver*

SAMPLING EQUIPMENT: *Custom coring assembly with 3" polycarbonate barrels and core keepers*

SAMPLING PERSONNEL: *RBL, SVT, DJF* LOGGED BY: *RBL*

CORE ID: ***ES23-01*** TIME: *13:09*

LATITUDE: *43.807645* LONGITUDE: *-70.189380* POSITION ACCURACY: *3.3 ft*

MEASURED WATER DEPTH: *2.1'* CORRECTED WATER DEPTH: *NA*

TARGET PENETRATION: *Refusal* ACTUAL PENETRATION: *16"* RECOVERY: *16"*

COMMENTS: *Poorly graded sand and gravel*

SAMPLE INTERVAL(S): *0-16"*

CORE PHOTO:	CORE DESCRIPTION:
	*0-16": Tan/gray poorly graded medium to coarse sand and fine, subangular to sub rounded gravel. No odor.* *Thin layer of gray fine sand and organic debris mixed with gravel at surface (0-2").* *Sampling notes: Probed area with steel spud pole. Deeper water is all scoured hard bottom with no penetration. Shallower sediment buildup extending from bank is mostly coarse sand. Hard refusal encountered at 16" on multiple attempts.*

PROJECT NAME: *Royal River Section 206 Study* DATE: *10/3/23*

PROJECT LOCATION: *Yarmouth, ME* SEA STATE: *Calm*

VESSEL: *Dual Jon platform* POSITIONING EQUIPMENT: *Juniper Mesa 2/ Geode GNSS receiver*

SAMPLING EQUIPMENT: *Custom coring assembly with 3" polycarbonate barrels and core keepers*

SAMPLING PERSONNEL: *RBL, SVT, DJF* LOGGED BY: *RBL*

CORE ID: ***ES23-02*** TIME: *13:35*

LATITUDE: *43.807972* LONGITUDE: *-70.189392* POSITION ACCURACY: *3.3 ft*

MEASURED WATER DEPTH: *9.4'* CORRECTED WATER DEPTH: *NA*

TARGET PENETRATION: *Refusal* ACTUAL PENETRATION: *50"* RECOVERY: *50"*

COMMENTS: *Sandy organic silt*

SAMPLE INTERVAL(S): *0-50"*

CORE PHOTO:	CORE DESCRIPTION:
	*0-50": Brown/gray sandy organic silt Increasing firmness/ decreasing moisture content with depth. Top of core is loose and saturated. No odor.* *Discrete layers of well graded sand and organic debris are present at 19-21", 28-29", 34-35.5", 40-41", 43-44", and 48-50".* *Sampling notes: Probed from deep water to shallow with steel spud pole. Deeper water is all scoured hard bottom with some cobble/gravel. The sample area closer to the bank has an accumulation of sand and silt with vegetation. Shallower sediment buildup extending from bank is mostly coarse sand. Hard refusal encountered at 50".*

PROJECT NAME: *Royal River Section 206 Study* DATE: *10/3/23*

PROJECT LOCATION: *Yarmouth, ME* SEA STATE: *Calm*

VESSEL: *Dual Jon platform* POSITIONING EQUIPMENT: *Juniper Mesa 2/ Geode GNSS receiver*

SAMPLING EQUIPMENT: *Custom coring assembly with 3" polycarbonate barrels and core keepers*

SAMPLING PERSONNEL: *RBL, SVT, DJF* LOGGED BY: *RBL*

CORE ID: ***ES23-03*** TIME: *13:49*

LATITUDE: *43.807940* LONGITUDE: *-70.189750* POSITION ACCURACY: *3.3 ft*

MEASURED WATER DEPTH: *3.7'* CORRECTED WATER DEPTH: *NA*

TARGET PENETRATION: *Refusal* ACTUAL PENETRATION: *49"* RECOVERY: *49"*

COMMENTS: *Sandy organic silt*

SAMPLE INTERVAL(S): *0-49"*

CORE PHOTO:	CORE DESCRIPTION:
	*0-49": Brown/gray sandy organic silt over poorly graded silty fine sand with root material. Increasing firmness/ decreasing moisture with depth. Top of core is loose and saturated. No odor.* *Discrete, thin layers of woody debris present throughout.* *Sampling notes: Main river channel is scoured hard bottom, immediate vicinity of sample is soft substrate. Hard refusal encountered at 50".*

PROJECT NAME: *Royal River Section 206 Study* DATE: *10/3/23*

PROJECT LOCATION: *Yarmouth, ME* SEA STATE: *Calm*

VESSEL: *Dual Jon platform* POSITIONING EQUIPMENT: *Juniper Mesa 2/ Geode GNSS receiver*

SAMPLING EQUIPMENT: *Custom coring assembly with 3" polycarbonate barrels and core keepers*

SAMPLING PERSONNEL: *RBL, SVT, DJF* LOGGED BY: *RBL*

CORE ID: ***ES23-04*** TIME: *14:11*

LATITUDE: *43.807663* LONGITUDE: *-70.189635* POSITION ACCURACY: *3.3 ft*

MEASURED WATER DEPTH: *3.7'* CORRECTED WATER DEPTH: *NA*

TARGET PENETRATION: *Refusal* ACTUAL PENETRATION: *16"* RECOVERY: *16"*

COMMENTS: *Sandy organic silt*

SAMPLE INTERVAL(S): *0-16"*

CORE PHOTO:	CORE DESCRIPTION:
	*0-16": Brown/gray sandy organic silt with root material and leafy debris. Very soft and wet. No odor.* *Sampling notes: Probed from deep water to shallow with steel spud pole. Deeper water is scoured hard bottom with no penetration. Sample area is mixed sediment with root material. Hard refusal encountered at 16" on multiple attempts.*

PROJECT NAME: *Royal River Section 206 Study* DATE: *10/3/23*

PROJECT LOCATION: *Yarmouth, ME* SEA STATE: *Calm*

VESSEL: *Dual Jon platform* POSITIONING EQUIPMENT: *Juniper Mesa 2/ Geode GNSS receiver*

SAMPLING EQUIPMENT: *Petite Ponar grab*

SAMPLING PERSONNEL: *RBL, SVT, DJF* LOGGED BY: *RBL*

CORE ID: ***ES23-05*** TIME: *15:57*

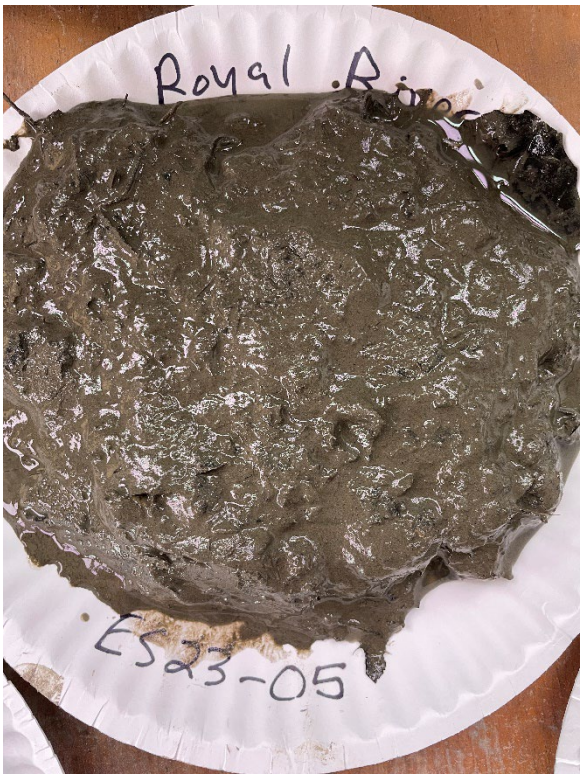
LATITUDE: *43.807705* LONGITUDE: *-70.190425* POSITION ACCURACY: *3.3 ft*

MEASURED WATER DEPTH: *1.5'* CORRECTED WATER DEPTH: *NA*

TARGET PENETRATION: *Refusal* ACTUAL PENETRATION: *NA* RECOVERY: *NA*

COMMENTS: *Silty sand*

SAMPLE INTERVAL(S): *Surface grab*

CORE PHOTO:	CORE DESCRIPTION:
	*Brown/gray (organic) silty fine sand.* *Photo of grain size sample included in log.* *Sampling notes: Main river channel is scoured hard bottom. Sample collected immediately adjacent to shoreline –Not enough material present to use corer.*

PROJECT NAME: *Royal River Section 206 Study* DATE: *10/3/23*

PROJECT LOCATION: *Yarmouth, ME* SEA STATE: *Calm*

VESSEL: *Dual Jon platform* POSITIONING EQUIPMENT: *Juniper Mesa 2/ Geode GNSS receiver*

SAMPLING EQUIPMENT: *Petite Ponar grab*

SAMPLING PERSONNEL: *RBL, SVT, DJF* LOGGED BY: *RBL*

CORE ID: ***ES23-06*** TIME: *15:45*

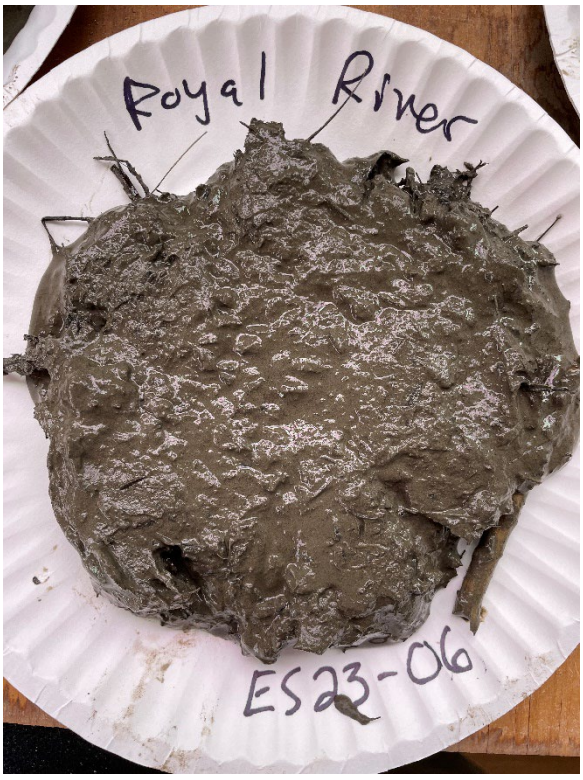
LATITUDE: *43.807604* LONGITUDE: *-70.190965* POSITION ACCURACY: *3.3 ft*

MEASURED WATER DEPTH: *1.2'* CORRECTED WATER DEPTH: *NA*

TARGET PENETRATION: *Refusal* ACTUAL PENETRATION: *NA* RECOVERY: *NA*

COMMENTS: *Sandy organic silt*

SAMPLE INTERVAL(S): *Surface grab*

CORE PHOTO:	CORE DESCRIPTION:
	*Brown/gray sandy organic silt with root mass and leaf litter.* *Photo of grain size sample included in log.* *Sampling notes: Main river channel is scoured hard bottom. Sample collected immediately adjacent to shoreline –Not enough material present to use corer.*

PROJECT NAME: *Royal River Section 206 Study* DATE: *10/3/23*

PROJECT LOCATION: *Yarmouth, ME* SEA STATE: *Calm*

VESSEL: *Dual Jon platform* POSITIONING EQUIPMENT: *Juniper Mesa 2/ Geode GNSS receiver*

SAMPLING EQUIPMENT: *Petite Ponar grab*

SAMPLING PERSONNEL: *RBL, SVT, DJF* LOGGED BY: *RBL*

CORE ID: ***ES23-07*** TIME: *15:34*

LATITUDE: *43.807230* LONGITUDE: *-70.193057* POSITION ACCURACY: *3.3 ft*

MEASURED WATER DEPTH: *0.9'* CORRECTED WATER DEPTH: *NA*

TARGET PENETRATION: *Refusal* ACTUAL PENETRATION: *NA* RECOVERY: *NA*

COMMENTS: *Silty sand*

SAMPLE INTERVAL(S): *Surface grab*

CORE PHOTO:	CORE DESCRIPTION:
	*Brown/gray (organic) silty fine sand with root mass and leaf litter.* *Photo of grain size sample included in log.* *Sampling notes: Main river channel is scoured hard bottom. Sample collected immediately adjacent to shoreline –Not enough material present to use corer.*

PROJECT NAME: *Royal River Section 206 Study* DATE: *10/3/23*

PROJECT LOCATION: *Yarmouth, ME* SEA STATE: *Calm*

VESSEL: *Dual Jon platform* POSITIONING EQUIPMENT: *Juniper Mesa 2/ Geode GNSS receiver*

SAMPLING EQUIPMENT: *Petite Ponar grab*

SAMPLING PERSONNEL: *RBL, SVT, DJF* LOGGED BY: *RBL*

CORE ID: ***ES23-08*** TIME: *14:53*

LATITUDE: *43.807231* LONGITUDE: *-70.193793* POSITION ACCURACY: *3.3 ft*

MEASURED WATER DEPTH: *13.0'* CORRECTED WATER DEPTH: *NA*

TARGET PENETRATION: *Refusal* ACTUAL PENETRATION: *NA* RECOVERY: *NA*

COMMENTS: *Sandy organic silt*

SAMPLE INTERVAL(S): *Surface grab*

CORE PHOTO:	CORE DESCRIPTION:
	*Brown/gray sandy organic silt* *Photo of grain size sample included in log.* *Sampling notes: Main river channel is scoured hard bottom. Sample collected immediately adjacent to shoreline –Not enough material present to use corer.*

PROJECT NAME: *Royal River Section 206 Study* DATE: *10/3/23*

PROJECT LOCATION: *Yarmouth, ME* SEA STATE: *Calm*

VESSEL: *Dual Jon platform* POSITIONING EQUIPMENT: *Juniper Mesa 2/ Geode GNSS receiver*

SAMPLING EQUIPMENT: *Petite Ponar grab*

SAMPLING PERSONNEL: *RBL, SVT, DJF* LOGGED BY: *RBL*

CORE ID: ***ES23-10*** TIME: *16:18*

LATITUDE: *43.807335* LONGITUDE: *-70.191982* POSITION ACCURACY: *3.3 ft*

MEASURED WATER DEPTH: *13.9'* CORRECTED WATER DEPTH: *NA*

TARGET PENETRATION: *Refusal* ACTUAL PENETRATION: *NA* RECOVERY: *NA*

COMMENTS: *Sandy organic silt*

SAMPLE INTERVAL(S): *Surface grab*

CORE PHOTO:	CORE DESCRIPTION:
	*Brown/gray organic silt with fine sand.* *Photo of grain size sample included in log.* *Sampling notes: Sample taken from isolated pocket of sediment in river channel. Nearby areas are scoured hard bottom. Not enough material present to use corer.*

PROJECT NAME: *Royal River Section 206 Study* DATE: *10/3/23*

PROJECT LOCATION: *Yarmouth, ME* SEA STATE: *Calm*

VESSEL: *Dual Jon platform* POSITIONING EQUIPMENT: *Juniper Mesa 2/ Geode GNSS receiver*

SAMPLING EQUIPMENT: *Petite Ponar grab*

SAMPLING PERSONNEL: *RBL, SVT, DJF* LOGGED BY: *RBL*

CORE ID: ***ES23-11*** TIME: *16:11*

LATITUDE: *43.807753* LONGITUDE: *-70.194021* POSITION ACCURACY: *3.3 ft*

MEASURED WATER DEPTH: *19.0'* CORRECTED WATER DEPTH: *NA*

TARGET PENETRATION: *Refusal* ACTUAL PENETRATION: *NA* RECOVERY: *NA*

COMMENTS: *Silty sand with leafy debris*

SAMPLE INTERVAL(S): *Surface grab*

CORE PHOTO:	CORE DESCRIPTION:
	*Brown/gray (organic) silty sand. Sand is mostly fine to medium. Leaf litter and woody debris present.* *Photo of grain size sample included in log.* *Sampling notes: Sample taken from isolated pocket of sediment in river channel. Nearby areas are scoured hard bottom. Not enough material present to use corer.*

APPENDIX B

OCTOBER 2023 STUDY AREA IMAGES

Location: ***Downstream of the Bridge Street Dam***	Date: *10/4/2023*
Image	Description
	- *Royal River between the Bridge Street Dam and First Falls; facing upstream* - *Bedrock outcrop and upstream riffle with exposed boulders*
	- *Royal River between the Bridge Street Dam and First Falls; facing eastern riverbank* - *Cobble and boulder substrate*

Location:	***Downstream of the Bridge Street Dam***	Date: *10/4/2023*
Image		Description
		- *Royal River between the Bridge Street Dam and First Falls; facing western riverbank* - *Bedrock outcrop*
		- *Royal River between the Bridge Street Dam and First Falls; facing eastern riverbank* - *Bedrock outrcrop*

Location:	***Downstream of the Bridge Street Dam***	Date: *10/4/2023*
Image		Description
		- *First Falls; facing upstream towards Bridge Street Dam* - *Scoured bedrock and boulders*
		- *First Falls, facing downstream towards FNP* - *Scoured bedrock and boulders* - *Main Street Bridge*

Location: ***Upstream of the East Elm Street Dam***	Date: *10/3/2023*
Image	Description
	- *East Elm Street Dam, facing downstream* - *Dam impoundment*
 	- *East Elm Street Dam, facing downstream* - *Sediment Core Sampling along opposing riverbanks*

APPENDIX C

SEDIMENT CHEMISTRY REPORT

ANALYTICAL REPORT

Lab Number:	L2359291
Client:	U.S. Army Corps of Engineers 696 Virginia Road Concord, MA 01742-2751
ATTN:	Richard Loyd
Phone:	(978) 318-8048
Project Name:	ROYAL RIVER 206
Project Number:	Not Specified
Report Date:	12/22/23

Certifications & Approvals: MA (M-MA030), NH NELAP (2062), CT (PH-0825), DoD (L2474), FL (E87814), IL (200081), IN (C-MA-04), KY (KY98046), LA (85084), ME (MA00030), MD (350), MI (99110) , NJ (MA015), NY (11627), NC (685), OH (CL106), OR (MA-0262), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #525-23-107-88708), USFWS (Permit #206964).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: ROYAL RIVER 206
Project Number: Not Specified

Lab Number: L2359291
Report Date: 12/22/23

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2359291-01	ES23-01	SEDIMENT	YARMOUTH, ME	10/03/23 14:38	10/06/23
L2359291-02	ES23-02	SEDIMENT	YARMOUTH, ME	10/03/23 15:02	10/06/23
L2359291-03	ES23-03	SEDIMENT	YARMOUTH, ME	10/03/23 15:21	10/06/23
L2359291-04	ES23-04	SEDIMENT	YARMOUTH, ME	10/03/23 14:50	10/06/23
L2359291-05	ES23-05	SEDIMENT	YARMOUTH, ME	10/03/23 16:20	10/06/23
L2359291-06	ES23-06	SEDIMENT	YARMOUTH, ME	10/03/23 16:25	10/06/23
L2359291-07	ES23-07	SEDIMENT	YARMOUTH, ME	10/03/23 16:30	10/06/23
L2359291-08	ES23-08	SEDIMENT	YARMOUTH, ME	10/03/23 15:10	10/06/23
L2359291-09	BS23-02	SEDIMENT	YARMOUTH, ME	10/04/23 11:05	10/06/23
L2359291-10	BS23-03	SEDIMENT	YARMOUTH, ME	10/04/23 10:55	10/06/23
L2359291-11	BS23-05-01	SEDIMENT	YARMOUTH, ME	10/04/23 11:00	10/06/23

Project Name:	ROYAL RIVER 206	**Lab Number:**	L2359291
Project Number:	Not Specified	**Report Date:**	12/22/23

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. 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 Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data 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.

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 Alpha Project Manager 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 Project Management at 800-624-9220 with any questions.

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291
Project Number: Not Specified **Report Date:** 12/22/23

Case Narrative (continued)

Report Submission

December 22, 2023: The Laboratory Duplicate for Semivolatile Organics is now included. This was inavdertantly omitted on the 12/21/23 initial report submission.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

The samples were frozen upon receipt in order to arrest the holding time.

Semivolatile Organics

L2359291-02: The sample was re-analyzed on dilution in order to quantitate the results within the calibration range. The result(s) should be considered estimated, and are qualified with an E flag, for any compound(s) that exceeded the calibration range in the initial analysis. The re-analysis was performed only for the compound(s) that exceeded the calibration range.

The WG1857482-5/-6 MS/MSD recoveries, performed on L2359291-03, are outside the RIM acceptance criteria for acenaphthene (44%-MS), pyrene (48%-MS), chrysene (39%/47%), benzo(k)fluoranthene (39%/49%), benzo(a)pyrene (45%-MS), cl4-bz#49 (40%-MS) and cl7-bz#183 (49%-MS). The unacceptable percent recoveries are attributed to the elevated concentrations of target compounds present in the native sample. These recoveries meet the lab SOP criteria, and the LCS/LCSD met the criteria, no further action was needed.

WG1857482-4 Laboratory Duplicate: The sample was re-analyzed on dilution in order to quantitate the results within the calibration range. The result(s) should be considered estimated, and are qualified with an E flag, for any compound(s) that exceeded the calibration range in the initial analysis. The re-analysis was performed only for the compound(s) that exceeded the calibration range.

The WG1857482-4 Laboratory Duplicate RPDs for naphthalene (113%), acenaphthylene (42%), fluorene (55%), anthracene (56%), fluoranthene (37%), chrysene (56%), benzo(k)fluoranthene (55%), benzo(a)pyrene (53%), indeno(1,2,3-cd)pyrene (50%), dibenz(a,h)anthracene (56%) and benzo(ghi)perylene (47%), performed

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291
Project Number: Not Specified **Report Date:** 12/22/23

Case Narrative (continued)

on L2359291-02, are outside the RIM acceptance criteria. The elevated RPDs have been attributed to the non-homogeneous nature of the native sample.

Pesticides

L2359291-10: The surrogate recovery is outside the individual acceptance criteria for dbob (29% - B channel only), but within the overall method/SOP allowances. The results of the original analysis are reported; however, all associated compounds are considered to have a potential bias.

The WG1857491-5/-6 MS/MSD RPDs, performed on L2359291-03, are outside the RIM acceptance criteria for heptachlor epoxide (31%) and oxychlordane (31%). These RPDs meet the lab SOP criteria.

The WG1857491-4 Laboratory Duplicate RPDs for 4,4'-ddd (109%) and 4,4'-ddt (176%), performed on L2359291-02, are outside the RIM acceptance criteria. The elevated RPDs have been attributed to the non-homogeneous nature of the native sample.

Total Metals

The RIM required detection limits have not been met for all samples/elements due to sample moisture.

The WG1837867-4/-5 MS recovery, performed on L2359291-03, is outside the RIM acceptance criteria for chromium (138%/137%). A post digestion spike was performed and was within acceptance criteria.

Total Organic Carbon

The WG1859603-3 Laboratory Duplicate RPDs (Rep1 - 34%) and (Average - 27%), performed on L2359291-02, are outside the RIM acceptance criteria. 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: 12/22/23

ORGANICS

SEMIVOLATILES

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-01
Client ID: ES23-01
Sample Location: YARMOUTH, ME

Date Collected: 10/03/23 14:38
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 105,8270E-SIM/680(M)
Analytical Date: 12/17/23 15:49
Analyst: DB
Percent Solids: 93%

Extraction Method: EPA 3570
Extraction Date: 11/29/23 11:16
Cleanup Method: EPA 3630
Cleanup Date: 11/30/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Naphthalene	8.41		ug/kg	2.82	0.465	1
Acenaphthylene	61.0		ug/kg	2.82	0.333	1
Acenaphthene	5.39		ug/kg	2.82	0.541	1
Fluorene	19.1		ug/kg	2.82	0.302	1
Phenanthrene	159		ug/kg	2.82	0.592	1
Anthracene	46.0		ug/kg	2.82	0.361	1
Fluoranthene	302		ug/kg	2.82	0.533	1
Pyrene	279		ug/kg	2.82	0.784	1
Benz(a)anthracene	207		ug/kg	2.82	0.677	1
Chrysene	143		ug/kg	2.82	0.657	1
Benzo(b)fluoranthene	132		ug/kg	2.82	0.939	1
Benzo(k)fluoranthene	108		ug/kg	2.82	0.431	1
Benzo(a)pyrene	140		ug/kg	2.82	1.26	1
Indeno(1,2,3-cd)Pyrene	97.0		ug/kg	2.82	0.708	1
Dibenz(a,h)anthracene	23.5		ug/kg	2.82	0.350	1
Benzo(ghi)perylene	108		ug/kg	2.82	0.302	1
Cl2-BZ#8	ND		ug/kg	0.282	0.056	1
Cl3-BZ#18	ND		ug/kg	0.282	0.041	1
Cl3-BZ#28	ND		ug/kg	0.282	0.069	1
Cl4-BZ#44	ND		ug/kg	0.282	0.077	1
Cl4-BZ#49	ND		ug/kg	0.282	0.075	1
Cl4-BZ#52	ND		ug/kg	0.282	0.043	1
Cl4-BZ#66	ND		ug/kg	0.282	0.040	1
Cl5-BZ#87	ND		ug/kg	0.282	0.033	1
Cl5-BZ#101	ND		ug/kg	0.282	0.066	1
Cl5-BZ#105	ND		ug/kg	0.282	0.059	1
Cl5-BZ#118	ND		ug/kg	0.282	0.062	1
Cl6-BZ#128	ND		ug/kg	0.282	0.074	1

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-01 Date Collected: 10/03/23 14:38

Client ID: ES23-01 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Cl6-BZ#138	ND		ug/kg	0.282	0.047	1
Cl6-BZ#153	ND		ug/kg	0.282	0.098	1
Cl7-BZ#170	ND		ug/kg	0.282	0.036	1
Cl7-BZ#180	ND		ug/kg	0.282	0.037	1
Cl7-BZ#183	ND		ug/kg	0.282	0.020	1
Cl7-BZ#184	ND		ug/kg	0.282	0.041	1
Cl7-BZ#187	ND		ug/kg	0.282	0.053	1
Cl8-BZ#195	ND		ug/kg	0.282	0.069	1
Cl9-BZ#206	ND		ug/kg	0.282	0.071	1
Cl10-BZ#209	ND		ug/kg	0.282	0.081	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	79		30-150
Pyrene-d10	90		30-150
Benzo(b)fluoranthene-d12	93		30-150
DBOB	88		30-150
BZ 198	119		30-150

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-02
Client ID: ES23-02
Sample Location: YARMOUTH, ME

Date Collected: 10/03/23 15:02
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 105,8270E-SIM/680(M)
Analytical Date: 12/17/23 16:21
Analyst: DB
Percent Solids: 62%

Extraction Method: EPA 3570
Extraction Date: 11/29/23 11:16
Cleanup Method: EPA 3630
Cleanup Date: 11/30/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Naphthalene	25.8		ug/kg	4.25	0.702	1
Acenaphthylene	122		ug/kg	4.25	0.502	1
Acenaphthene	35.2		ug/kg	4.25	0.817	1
Fluorene	55.0		ug/kg	4.25	0.455	1
Phenanthrene	628		ug/kg	4.25	0.893	1
Anthracene	144		ug/kg	4.25	0.544	1
Fluoranthene	1110	E	ug/kg	4.25	0.804	1
Pyrene	878	E	ug/kg	4.25	1.18	1
Benz(a)anthracene	601		ug/kg	4.25	1.02	1
Chrysene	375		ug/kg	4.25	0.991	1
Benzo(b)fluoranthene	387		ug/kg	4.25	1.42	1
Benzo(k)fluoranthene	272		ug/kg	4.25	0.651	1
Benzo(a)pyrene	359		ug/kg	4.25	1.90	1
Indeno(1,2,3-cd)Pyrene	257		ug/kg	4.25	1.07	1
Dibenz(a,h)anthracene	61.2		ug/kg	4.25	0.528	1
Benzo(ghi)perylene	252		ug/kg	4.25	0.455	1
Cl2-BZ#8	ND		ug/kg	0.425	0.084	1
Cl3-BZ#18	ND		ug/kg	0.425	0.061	1
Cl3-BZ#28	ND		ug/kg	0.425	0.104	1
Cl4-BZ#44	ND		ug/kg	0.425	0.116	1
Cl4-BZ#49	ND		ug/kg	0.425	0.114	1
Cl4-BZ#52	ND		ug/kg	0.425	0.065	1
Cl4-BZ#66	ND		ug/kg	0.425	0.061	1
Cl5-BZ#87	ND		ug/kg	0.425	0.049	1
Cl5-BZ#101	ND		ug/kg	0.425	0.099	1
Cl5-BZ#105	ND		ug/kg	0.425	0.089	1
Cl5-BZ#118	ND		ug/kg	0.425	0.094	1
Cl6-BZ#128	ND		ug/kg	0.425	0.111	1

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-02 Date Collected: 10/03/23 15:02

Client ID: ES23-02 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Cl6-BZ#138	ND		ug/kg	0.425	0.071	1
Cl6-BZ#153	0.149	J	ug/kg	0.425	0.148	1
Cl7-BZ#170	ND		ug/kg	0.425	0.054	1
Cl7-BZ#180	ND		ug/kg	0.425	0.056	1
Cl7-BZ#183	ND		ug/kg	0.425	0.030	1
Cl7-BZ#184	ND		ug/kg	0.425	0.061	1
Cl7-BZ#187	ND		ug/kg	0.425	0.080	1
Cl8-BZ#195	ND		ug/kg	0.425	0.105	1
Cl9-BZ#206	ND		ug/kg	0.425	0.107	1
Cl10-BZ#209	ND		ug/kg	0.425	0.122	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	70		30-150
Pyrene-d10	74		30-150
Benzo(b)fluoranthene-d12	76		30-150
DBOB	71		30-150
BZ 198	89		30-150

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-02 D
Client ID: ES23-02
Sample Location: YARMOUTH, ME

Date Collected: 10/03/23 15:02
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 105,8270E-SIM/680(M)
Analytical Date: 12/19/23 14:05
Analyst: DB
Percent Solids: 62%

Extraction Method: EPA 3570
Extraction Date: 11/29/23 11:16
Cleanup Method: EPA 3630
Cleanup Date: 11/30/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Fluoranthene	1700		ug/kg	8.51	1.61	2
Pyrene	1230		ug/kg	8.51	2.36	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	113		30-150
Pyrene-d10	110		30-150
Benzo(b)fluoranthene-d12	121		30-150

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-03
Client ID: ES23-03
Sample Location: YARMOUTH, ME

Date Collected: 10/03/23 15:21
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 105,8270E-SIM/680(M)
Analytical Date: 12/17/23 16:54
Analyst: DB
Percent Solids: 63%

Extraction Method: EPA 3570
Extraction Date: 11/29/23 11:16
Cleanup Method: EPA 3630
Cleanup Date: 11/30/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Naphthalene	10.6		ug/kg	4.20	0.692	1
Acenaphthylene	5.14		ug/kg	4.20	0.495	1
Acenaphthene	5.93		ug/kg	4.20	0.806	1
Fluorene	3.91	J	ug/kg	4.20	0.449	1
Phenanthrene	27.5		ug/kg	4.20	0.881	1
Anthracene	6.81		ug/kg	4.20	0.537	1
Fluoranthene	50.8		ug/kg	4.20	0.793	1
Pyrene	37.3		ug/kg	4.20	1.17	1
Benz(a)anthracene	29.8		ug/kg	4.20	1.01	1
Chrysene	19.5		ug/kg	4.20	0.978	1
Benzo(b)fluoranthene	22.7		ug/kg	4.20	1.40	1
Benzo(k)fluoranthene	15.2		ug/kg	4.20	0.642	1
Benzo(a)pyrene	18.5		ug/kg	4.20	1.87	1
Indeno(1,2,3-cd)Pyrene	14.4		ug/kg	4.20	1.05	1
Dibenz(a,h)anthracene	4.11	J	ug/kg	4.20	0.520	1
Benzo(ghi)perylene	14.7		ug/kg	4.20	0.449	1
Cl2-BZ#8	ND		ug/kg	0.420	0.083	1
Cl3-BZ#18	ND		ug/kg	0.420	0.060	1
Cl3-BZ#28	ND		ug/kg	0.420	0.103	1
Cl4-BZ#44	ND		ug/kg	0.420	0.114	1
Cl4-BZ#49	ND		ug/kg	0.420	0.112	1
Cl4-BZ#52	ND		ug/kg	0.420	0.064	1
Cl4-BZ#66	ND		ug/kg	0.420	0.060	1
Cl5-BZ#87	ND		ug/kg	0.420	0.049	1
Cl5-BZ#101	ND		ug/kg	0.420	0.098	1
Cl5-BZ#105	ND		ug/kg	0.420	0.088	1
Cl5-BZ#118	ND		ug/kg	0.420	0.093	1
Cl6-BZ#128	ND		ug/kg	0.420	0.110	1

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-03 Date Collected: 10/03/23 15:21

Client ID: ES23-03 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Cl6-BZ#138	ND		ug/kg	0.420	0.070	1
Cl6-BZ#153	ND		ug/kg	0.420	0.146	1
Cl7-BZ#170	ND		ug/kg	0.420	0.054	1
Cl7-BZ#180	ND		ug/kg	0.420	0.055	1
Cl7-BZ#183	ND		ug/kg	0.420	0.030	1
Cl7-BZ#184	ND		ug/kg	0.420	0.060	1
Cl7-BZ#187	ND		ug/kg	0.420	0.079	1
Cl8-BZ#195	ND		ug/kg	0.420	0.103	1
Cl9-BZ#206	ND		ug/kg	0.420	0.105	1
Cl10-BZ#209	ND		ug/kg	0.420	0.121	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	51		30-150
Pyrene-d10	56		30-150
Benzo(b)fluoranthene-d12	58		30-150
DBOB	60		30-150
BZ 198	75		30-150

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-04
Client ID: ES23-04
Sample Location: YARMOUTH, ME

Date Collected: 10/03/23 14:50
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 105,8270E-SIM/680(M)
Analytical Date: 12/17/23 18:32
Analyst: DB
Percent Solids: 54%

Extraction Method: EPA 3570
Extraction Date: 11/29/23 11:16
Cleanup Method: EPA 3630
Cleanup Date: 11/30/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Naphthalene	3.52	J	ug/kg	4.89	0.807	1
Acenaphthylene	13.8		ug/kg	4.89	0.577	1
Acenaphthene	10.4		ug/kg	4.89	0.939	1
Fluorene	10.7		ug/kg	4.89	0.524	1
Phenanthrene	31.5		ug/kg	4.89	1.03	1
Anthracene	10.3		ug/kg	4.89	0.626	1
Fluoranthene	74.9		ug/kg	4.89	0.925	1
Pyrene	62.4		ug/kg	4.89	1.36	1
Benz(a)anthracene	44.9		ug/kg	4.89	1.17	1
Chrysene	31.8		ug/kg	4.89	1.14	1
Benzo(b)fluoranthene	41.6		ug/kg	4.89	1.63	1
Benzo(k)fluoranthene	21.7		ug/kg	4.89	0.749	1
Benzo(a)pyrene	27.6		ug/kg	4.89	2.18	1
Indeno(1,2,3-cd)Pyrene	27.1		ug/kg	4.89	1.23	1
Dibenz(a,h)anthracene	8.74		ug/kg	4.89	0.607	1
Benzo(ghi)perylene	31.8		ug/kg	4.89	0.524	1
Cl2-BZ#8	ND		ug/kg	0.489	0.097	1
Cl3-BZ#18	ND		ug/kg	0.489	0.071	1
Cl3-BZ#28	ND		ug/kg	0.489	0.120	1
Cl4-BZ#44	ND		ug/kg	0.489	0.134	1
Cl4-BZ#49	ND		ug/kg	0.489	0.131	1
Cl4-BZ#52	ND		ug/kg	0.489	0.074	1
Cl4-BZ#66	ND		ug/kg	0.489	0.070	1
Cl5-BZ#87	ND		ug/kg	0.489	0.057	1
Cl5-BZ#101	ND		ug/kg	0.489	0.114	1
Cl5-BZ#105	ND		ug/kg	0.489	0.102	1
Cl5-BZ#118	ND		ug/kg	0.489	0.108	1
Cl6-BZ#128	ND		ug/kg	0.489	0.128	1

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-04 Date Collected: 10/03/23 14:50

Client ID: ES23-04 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Cl6-BZ#138	ND		ug/kg	0.489	0.082	1
Cl6-BZ#153	ND		ug/kg	0.489	0.170	1
Cl7-BZ#170	ND		ug/kg	0.489	0.063	1
Cl7-BZ#180	ND		ug/kg	0.489	0.064	1
Cl7-BZ#183	ND		ug/kg	0.489	0.035	1
Cl7-BZ#184	ND		ug/kg	0.489	0.071	1
Cl7-BZ#187	ND		ug/kg	0.489	0.092	1
Cl8-BZ#195	ND		ug/kg	0.489	0.120	1
Cl9-BZ#206	ND		ug/kg	0.489	0.123	1
Cl10-BZ#209	ND		ug/kg	0.489	0.141	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	62		30-150
Pyrene-d10	71		30-150
Benzo(b)fluoranthene-d12	72		30-150
DBOB	63		30-150
BZ 198	82		30-150

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-05
Client ID: ES23-05
Sample Location: YARMOUTH, ME

Date Collected: 10/03/23 16:20
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 105,8270E-SIM/680(M)
Analytical Date: 12/17/23 19:04
Analyst: DB
Percent Solids: 40%

Extraction Method: EPA 3570
Extraction Date: 11/29/23 11:16
Cleanup Method: EPA 3630
Cleanup Date: 11/30/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Naphthalene	7.13		ug/kg	6.50	1.07	1
Acenaphthylene	8.24		ug/kg	6.50	0.767	1
Acenaphthene	2.42	J	ug/kg	6.50	1.25	1
Fluorene	4.81	J	ug/kg	6.50	0.696	1
Phenanthrene	30.5		ug/kg	6.50	1.36	1
Anthracene	7.00		ug/kg	6.50	0.832	1
Fluoranthene	65.1		ug/kg	6.50	1.23	1
Pyrene	47.5		ug/kg	6.50	1.81	1
Benz(a)anthracene	29.0		ug/kg	6.50	1.56	1
Chrysene	22.8		ug/kg	6.50	1.52	1
Benzo(b)fluoranthene	28.8		ug/kg	6.50	2.16	1
Benzo(k)fluoranthene	11.0		ug/kg	6.50	0.995	1
Benzo(a)pyrene	18.0		ug/kg	6.50	2.90	1
Indeno(1,2,3-cd)Pyrene	18.1		ug/kg	6.50	1.63	1
Dibenz(a,h)anthracene	21.3		ug/kg	6.50	0.806	1
Benzo(ghi)perylene	17.0		ug/kg	6.50	0.696	1
Cl2-BZ#8	ND		ug/kg	0.650	0.129	1
Cl3-BZ#18	ND		ug/kg	0.650	0.094	1
Cl3-BZ#28	ND		ug/kg	0.650	0.159	1
Cl4-BZ#44	ND		ug/kg	0.650	0.178	1
Cl4-BZ#49	ND		ug/kg	0.650	0.174	1
Cl4-BZ#52	ND		ug/kg	0.650	0.099	1
Cl4-BZ#66	ND		ug/kg	0.650	0.093	1
Cl5-BZ#87	ND		ug/kg	0.650	0.075	1
Cl5-BZ#101	ND		ug/kg	0.650	0.152	1
Cl5-BZ#105	ND		ug/kg	0.650	0.136	1
Cl5-BZ#118	ND		ug/kg	0.650	0.144	1
Cl6-BZ#128	ND		ug/kg	0.650	0.170	1

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-05 Date Collected: 10/03/23 16:20

Client ID: ES23-05 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Cl6-BZ#138	ND		ug/kg	0.650	0.109	1
Cl6-BZ#153	ND		ug/kg	0.650	0.226	1
Cl7-BZ#170	ND		ug/kg	0.650	0.083	1
Cl7-BZ#180	ND		ug/kg	0.650	0.085	1
Cl7-BZ#183	ND		ug/kg	0.650	0.046	1
Cl7-BZ#184	ND		ug/kg	0.650	0.094	1
Cl7-BZ#187	ND		ug/kg	0.650	0.122	1
Cl8-BZ#195	ND		ug/kg	0.650	0.160	1
Cl9-BZ#206	ND		ug/kg	0.650	0.163	1
Cl10-BZ#209	ND		ug/kg	0.650	0.187	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	63		30-150
Pyrene-d10	64		30-150
Benzo(b)fluoranthene-d12	63		30-150
DBOB	67		30-150
BZ 198	89		30-150

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-06
Client ID: ES23-06
Sample Location: YARMOUTH, ME

Date Collected: 10/03/23 16:25
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 105,8270E-SIM/680(M)
Analytical Date: 12/17/23 19:37
Analyst: DB
Percent Solids: 45%

Extraction Method: EPA 3570
Extraction Date: 11/29/23 11:16
Cleanup Method: EPA 3630
Cleanup Date: 11/30/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Naphthalene	9.24		ug/kg	5.81	0.959	1
Acenaphthylene	9.61		ug/kg	5.81	0.686	1
Acenaphthene	3.37	J	ug/kg	5.81	1.12	1
Fluorene	3.31	J	ug/kg	5.81	0.622	1
Phenanthrene	35.8		ug/kg	5.81	1.22	1
Anthracene	8.43		ug/kg	5.81	0.744	1
Fluoranthene	79.5		ug/kg	5.81	1.10	1
Pyrene	60.8		ug/kg	5.81	1.62	1
Benz(a)anthracene	32.6		ug/kg	5.81	1.39	1
Chrysene	31.7		ug/kg	5.81	1.35	1
Benzo(b)fluoranthene	34.3		ug/kg	5.81	1.93	1
Benzo(k)fluoranthene	23.0		ug/kg	5.81	0.889	1
Benzo(a)pyrene	25.0		ug/kg	5.81	2.59	1
Indeno(1,2,3-cd)Pyrene	22.9		ug/kg	5.81	1.46	1
Dibenz(a,h)anthracene	9.42		ug/kg	5.81	0.720	1
Benzo(ghi)perylene	21.9		ug/kg	5.81	0.622	1
Cl2-BZ#8	0.278	J	ug/kg	0.581	0.115	1
Cl3-BZ#18	ND		ug/kg	0.581	0.084	1
Cl3-BZ#28	ND		ug/kg	0.581	0.142	1
Cl4-BZ#44	ND		ug/kg	0.581	0.159	1
Cl4-BZ#49	ND		ug/kg	0.581	0.155	1
Cl4-BZ#52	ND		ug/kg	0.581	0.088	1
Cl4-BZ#66	ND		ug/kg	0.581	0.083	1
Cl5-BZ#87	ND		ug/kg	0.581	0.067	1
Cl5-BZ#101	ND		ug/kg	0.581	0.135	1
Cl5-BZ#105	ND		ug/kg	0.581	0.121	1
Cl5-BZ#118	ND		ug/kg	0.581	0.128	1
Cl6-BZ#128	ND		ug/kg	0.581	0.152	1

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-06 Date Collected: 10/03/23 16:25

Client ID: ES23-06 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Cl6-BZ#138	ND		ug/kg	0.581	0.097	1
Cl6-BZ#153	ND		ug/kg	0.581	0.202	1
Cl7-BZ#170	ND		ug/kg	0.581	0.074	1
Cl7-BZ#180	ND		ug/kg	0.581	0.076	1
Cl7-BZ#183	ND		ug/kg	0.581	0.041	1
Cl7-BZ#184	ND		ug/kg	0.581	0.084	1
Cl7-BZ#187	ND		ug/kg	0.581	0.109	1
Cl8-BZ#195	ND		ug/kg	0.581	0.143	1
Cl9-BZ#206	ND		ug/kg	0.581	0.146	1
Cl10-BZ#209	ND		ug/kg	0.581	0.167	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	74		30-150
Pyrene-d10	75		30-150
Benzo(b)fluoranthene-d12	72		30-150
DBOB	82		30-150
BZ 198	93		30-150

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-07
Client ID: ES23-07
Sample Location: YARMOUTH, ME

Date Collected: 10/03/23 16:30
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 105,8270E-SIM/680(M)
Analytical Date: 12/17/23 20:09
Analyst: DB
Percent Solids: 55%

Extraction Method: EPA 3570
Extraction Date: 11/29/23 11:16
Cleanup Method: EPA 3630
Cleanup Date: 11/30/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Naphthalene	6.19		ug/kg	4.76	0.785	1
Acenaphthylene	9.82		ug/kg	4.76	0.562	1
Acenaphthene	2.17	J	ug/kg	4.76	0.914	1
Fluorene	2.65	J	ug/kg	4.76	0.509	1
Phenanthrene	25.7		ug/kg	4.76	1.00	1
Anthracene	6.46		ug/kg	4.76	0.609	1
Fluoranthene	60.7		ug/kg	4.76	0.900	1
Pyrene	44.4		ug/kg	4.76	1.32	1
Benz(a)anthracene	30.6		ug/kg	4.76	1.14	1
Chrysene	22.5		ug/kg	4.76	1.11	1
Benzo(b)fluoranthene	29.3		ug/kg	4.76	1.58	1
Benzo(k)fluoranthene	14.8		ug/kg	4.76	0.728	1
Benzo(a)pyrene	21.6		ug/kg	4.76	2.12	1
Indeno(1,2,3-cd)Pyrene	20.4		ug/kg	4.76	1.19	1
Dibenz(a,h)anthracene	8.59		ug/kg	4.76	0.590	1
Benzo(ghi)perylene	20.3		ug/kg	4.76	0.509	1
Cl2-BZ#8	ND		ug/kg	0.476	0.094	1
Cl3-BZ#18	ND		ug/kg	0.476	0.069	1
Cl3-BZ#28	ND		ug/kg	0.476	0.117	1
Cl4-BZ#44	ND		ug/kg	0.476	0.130	1
Cl4-BZ#49	ND		ug/kg	0.476	0.127	1
Cl4-BZ#52	ND		ug/kg	0.476	0.072	1
Cl4-BZ#66	ND		ug/kg	0.476	0.068	1
Cl5-BZ#87	ND		ug/kg	0.476	0.055	1
Cl5-BZ#101	ND		ug/kg	0.476	0.111	1
Cl5-BZ#105	ND		ug/kg	0.476	0.100	1
Cl5-BZ#118	ND		ug/kg	0.476	0.105	1
Cl6-BZ#128	ND		ug/kg	0.476	0.124	1

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-07 Date Collected: 10/03/23 16:30

Client ID: ES23-07 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Cl6-BZ#138	ND		ug/kg	0.476	0.080	1
Cl6-BZ#153	ND		ug/kg	0.476	0.166	1
Cl7-BZ#170	ND		ug/kg	0.476	0.061	1
Cl7-BZ#180	ND		ug/kg	0.476	0.062	1
Cl7-BZ#183	ND		ug/kg	0.476	0.034	1
Cl7-BZ#184	ND		ug/kg	0.476	0.069	1
Cl7-BZ#187	ND		ug/kg	0.476	0.090	1
Cl8-BZ#195	ND		ug/kg	0.476	0.117	1
Cl9-BZ#206	ND		ug/kg	0.476	0.119	1
Cl10-BZ#209	ND		ug/kg	0.476	0.137	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	75		30-150
Pyrene-d10	77		30-150
Benzo(b)fluoranthene-d12	82		30-150
DBOB	77		30-150
BZ 198	90		30-150

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-08
Client ID: ES23-08
Sample Location: YARMOUTH, ME

Date Collected: 10/03/23 15:10
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 105,8270E-SIM/680(M)
Analytical Date: 12/17/23 20:42
Analyst: DB
Percent Solids: 61%

Extraction Method: EPA 3570
Extraction Date: 11/29/23 11:16
Cleanup Method: EPA 3630
Cleanup Date: 11/30/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Naphthalene	18.1		ug/kg	4.34	0.715	1
Acenaphthylene	59.9		ug/kg	4.34	0.512	1
Acenaphthene	38.8		ug/kg	4.34	0.832	1
Fluorene	51.2		ug/kg	4.34	0.464	1
Phenanthrene	482		ug/kg	4.34	0.910	1
Anthracene	105		ug/kg	4.34	0.555	1
Fluoranthene	644		ug/kg	4.34	0.819	1
Pyrene	506		ug/kg	4.34	1.20	1
Benz(a)anthracene	344		ug/kg	4.34	1.04	1
Chrysene	268		ug/kg	4.34	1.01	1
Benzo(b)fluoranthene	263		ug/kg	4.34	1.44	1
Benzo(k)fluoranthene	178		ug/kg	4.34	0.663	1
Benzo(a)pyrene	269		ug/kg	4.34	1.93	1
Indeno(1,2,3-cd)Pyrene	192		ug/kg	4.34	1.09	1
Dibenz(a,h)anthracene	47.7		ug/kg	4.34	0.538	1
Benzo(ghi)perylene	178		ug/kg	4.34	0.464	1
Cl2-BZ#8	ND		ug/kg	0.434	0.086	1
Cl3-BZ#18	ND		ug/kg	0.434	0.062	1
Cl3-BZ#28	ND		ug/kg	0.434	0.106	1
Cl4-BZ#44	ND		ug/kg	0.434	0.118	1
Cl4-BZ#49	ND		ug/kg	0.434	0.116	1
Cl4-BZ#52	ND		ug/kg	0.434	0.066	1
Cl4-BZ#66	ND		ug/kg	0.434	0.062	1
Cl5-BZ#87	ND		ug/kg	0.434	0.050	1
Cl5-BZ#101	ND		ug/kg	0.434	0.101	1
Cl5-BZ#105	ND		ug/kg	0.434	0.091	1
Cl5-BZ#118	ND		ug/kg	0.434	0.096	1
Cl6-BZ#128	ND		ug/kg	0.434	0.113	1

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-08 Date Collected: 10/03/23 15:10

Client ID: ES23-08 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Cl6-BZ#138	ND		ug/kg	0.434	0.072	1
Cl6-BZ#153	ND		ug/kg	0.434	0.151	1
Cl7-BZ#170	ND		ug/kg	0.434	0.056	1
Cl7-BZ#180	ND		ug/kg	0.434	0.057	1
Cl7-BZ#183	ND		ug/kg	0.434	0.031	1
Cl7-BZ#184	ND		ug/kg	0.434	0.062	1
Cl7-BZ#187	ND		ug/kg	0.434	0.082	1
Cl8-BZ#195	ND		ug/kg	0.434	0.107	1
Cl9-BZ#206	ND		ug/kg	0.434	0.109	1
Cl10-BZ#209	ND		ug/kg	0.434	0.125	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	45		30-150
Pyrene-d10	49		30-150
Benzo(b)fluoranthene-d12	50		30-150
DBOB	46		30-150
BZ 198	59		30-150

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-09
Client ID: BS23-02
Sample Location: YARMOUTH, ME

Date Collected: 10/04/23 11:05
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 105,8270E-SIM/680(M)
Analytical Date: 12/17/23 21:14
Analyst: DB
Percent Solids: 58%

Extraction Method: EPA 3570
Extraction Date: 11/29/23 11:16
Cleanup Method: EPA 3630
Cleanup Date: 11/30/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Naphthalene	4.24	J	ug/kg	4.52	0.746	1
Acenaphthylene	8.03		ug/kg	4.52	0.533	1
Acenaphthene	4.38	J	ug/kg	4.52	0.868	1
Fluorene	4.66		ug/kg	4.52	0.484	1
Phenanthrene	78.9		ug/kg	4.52	0.949	1
Anthracene	20.0		ug/kg	4.52	0.578	1
Fluoranthene	161		ug/kg	4.52	0.854	1
Pyrene	124		ug/kg	4.52	1.26	1
Benz(a)anthracene	80.4		ug/kg	4.52	1.08	1
Chrysene	62.8		ug/kg	4.52	1.05	1
Benzo(b)fluoranthene	79.6		ug/kg	4.52	1.50	1
Benzo(k)fluoranthene	45.9		ug/kg	4.52	0.691	1
Benzo(a)pyrene	63.3		ug/kg	4.52	2.02	1
Indeno(1,2,3-cd)Pyrene	60.5		ug/kg	4.52	1.13	1
Dibenz(a,h)anthracene	12.4		ug/kg	4.52	0.560	1
Benzo(ghi)perylene	58.5		ug/kg	4.52	0.484	1
Cl2-BZ#8	ND		ug/kg	0.452	0.090	1
Cl3-BZ#18	ND		ug/kg	0.452	0.065	1
Cl3-BZ#28	ND		ug/kg	0.452	0.111	1
Cl4-BZ#44	ND		ug/kg	0.452	0.123	1
Cl4-BZ#49	ND		ug/kg	0.452	0.121	1
Cl4-BZ#52	ND		ug/kg	0.452	0.069	1
Cl4-BZ#66	ND		ug/kg	0.452	0.065	1
Cl5-BZ#87	ND		ug/kg	0.452	0.052	1
Cl5-BZ#101	ND		ug/kg	0.452	0.105	1
Cl5-BZ#105	ND		ug/kg	0.452	0.094	1
Cl5-BZ#118	ND		ug/kg	0.452	0.100	1
Cl6-BZ#128	ND		ug/kg	0.452	0.118	1

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-09 Date Collected: 10/04/23 11:05

Client ID: BS23-02 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Cl6-BZ#138	ND		ug/kg	0.452	0.076	1
Cl6-BZ#153	ND		ug/kg	0.452	0.157	1
Cl7-BZ#170	ND		ug/kg	0.452	0.058	1
Cl7-BZ#180	ND		ug/kg	0.452	0.059	1
Cl7-BZ#183	ND		ug/kg	0.452	0.032	1
Cl7-BZ#184	ND		ug/kg	0.452	0.065	1
Cl7-BZ#187	ND		ug/kg	0.452	0.085	1
Cl8-BZ#195	ND		ug/kg	0.452	0.111	1
Cl9-BZ#206	ND		ug/kg	0.452	0.113	1
Cl10-BZ#209	ND		ug/kg	0.452	0.130	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	49		30-150
Pyrene-d10	52		30-150
Benzo(b)fluoranthene-d12	54		30-150
DBOB	53		30-150
BZ 198	71		30-150

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-10
Client ID: BS23-03
Sample Location: YARMOUTH, ME

Date Collected: 10/04/23 10:55
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 105,8270E-SIM/680(M)
Analytical Date: 12/17/23 21:47
Analyst: DB
Percent Solids: 55%

Extraction Method: EPA 3570
Extraction Date: 11/29/23 11:20
Cleanup Method: EPA 3630
Cleanup Date: 11/30/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Naphthalene	6.47		ug/kg	4.68	0.773	1
Acenaphthylene	7.70		ug/kg	4.68	0.553	1
Acenaphthene	1.92	J	ug/kg	4.68	0.900	1
Fluorene	3.39	J	ug/kg	4.68	0.501	1
Phenanthrene	49.5		ug/kg	4.68	0.984	1
Anthracene	9.60		ug/kg	4.68	0.600	1
Fluoranthene	120		ug/kg	4.68	0.886	1
Pyrene	90.5		ug/kg	4.68	1.30	1
Benz(a)anthracene	49.6		ug/kg	4.68	1.12	1
Chrysene	53.0		ug/kg	4.68	1.09	1
Benzo(b)fluoranthene	59.6		ug/kg	4.68	1.56	1
Benzo(k)fluoranthene	36.6		ug/kg	4.68	0.717	1
Benzo(a)pyrene	51.8		ug/kg	4.68	2.09	1
Indeno(1,2,3-cd)Pyrene	47.3		ug/kg	4.68	1.18	1
Dibenz(a,h)anthracene	8.77		ug/kg	4.68	0.581	1
Benzo(ghi)perylene	44.3		ug/kg	4.68	0.501	1
Cl2-BZ#8	ND		ug/kg	0.468	0.093	1
Cl3-BZ#18	ND		ug/kg	0.468	0.068	1
Cl3-BZ#28	ND		ug/kg	0.468	0.115	1
Cl4-BZ#44	ND		ug/kg	0.468	0.128	1
Cl4-BZ#49	ND		ug/kg	0.468	0.125	1
Cl4-BZ#52	ND		ug/kg	0.468	0.071	1
Cl4-BZ#66	ND		ug/kg	0.468	0.067	1
Cl5-BZ#87	ND		ug/kg	0.468	0.054	1
Cl5-BZ#101	ND		ug/kg	0.468	0.109	1
Cl5-BZ#105	ND		ug/kg	0.468	0.098	1
Cl5-BZ#118	ND		ug/kg	0.468	0.104	1
Cl6-BZ#128	ND		ug/kg	0.468	0.122	1

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-10 Date Collected: 10/04/23 10:55

Client ID: BS23-03 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Cl6-BZ#138	ND		ug/kg	0.468	0.078	1
Cl6-BZ#153	ND		ug/kg	0.468	0.163	1
Cl7-BZ#170	ND		ug/kg	0.468	0.060	1
Cl7-BZ#180	ND		ug/kg	0.468	0.061	1
Cl7-BZ#183	ND		ug/kg	0.468	0.033	1
Cl7-BZ#184	ND		ug/kg	0.468	0.068	1
Cl7-BZ#187	ND		ug/kg	0.468	0.088	1
Cl8-BZ#195	ND		ug/kg	0.468	0.115	1
Cl9-BZ#206	ND		ug/kg	0.468	0.118	1
Cl10-BZ#209	ND		ug/kg	0.468	0.135	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	37		30-150
Pyrene-d10	40		30-150
Benzo(b)fluoranthene-d12	41		30-150
DBOB	35		30-150
BZ 198	45		30-150

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-11
Client ID: BS23-05-01
Sample Location: YARMOUTH, ME

Date Collected: 10/04/23 11:00
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 105,8270E-SIM/680(M)
Analytical Date: 12/17/23 22:19
Analyst: DB
Percent Solids: 57%

Extraction Method: EPA 3570
Extraction Date: 11/29/23 11:20
Cleanup Method: EPA 3630
Cleanup Date: 11/30/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Naphthalene	5.85		ug/kg	4.40	0.727	1
Acenaphthylene	9.60		ug/kg	4.40	0.520	1
Acenaphthene	1.74	J	ug/kg	4.40	0.846	1
Fluorene	3.46	J	ug/kg	4.40	0.471	1
Phenanthrene	46.7		ug/kg	4.40	0.925	1
Anthracene	10.2		ug/kg	4.40	0.564	1
Fluoranthene	132		ug/kg	4.40	0.833	1
Pyrene	102		ug/kg	4.40	1.22	1
Benz(a)anthracene	62.1		ug/kg	4.40	1.06	1
Chrysene	56.2		ug/kg	4.40	1.03	1
Benzo(b)fluoranthene	74.3		ug/kg	4.40	1.47	1
Benzo(k)fluoranthene	41.9		ug/kg	4.40	0.674	1
Benzo(a)pyrene	53.1		ug/kg	4.40	1.96	1
Indeno(1,2,3-cd)Pyrene	56.6		ug/kg	4.40	1.10	1
Dibenz(a,h)anthracene	12.1		ug/kg	4.40	0.546	1
Benzo(ghi)perylene	55.0		ug/kg	4.40	0.471	1
Cl2-BZ#8	ND		ug/kg	0.440	0.087	1
Cl3-BZ#18	ND		ug/kg	0.440	0.063	1
Cl3-BZ#28	ND		ug/kg	0.440	0.108	1
Cl4-BZ#44	ND		ug/kg	0.440	0.120	1
Cl4-BZ#49	ND		ug/kg	0.440	0.118	1
Cl4-BZ#52	ND		ug/kg	0.440	0.067	1
Cl4-BZ#66	ND		ug/kg	0.440	0.063	1
Cl5-BZ#87	ND		ug/kg	0.440	0.051	1
Cl5-BZ#101	ND		ug/kg	0.440	0.103	1
Cl5-BZ#105	ND		ug/kg	0.440	0.092	1
Cl5-BZ#118	ND		ug/kg	0.440	0.097	1
Cl6-BZ#128	ND		ug/kg	0.440	0.115	1

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-11 Date Collected: 10/04/23 11:00

Client ID: BS23-05-01 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab						
Cl6-BZ#138	ND		ug/kg	0.440	0.074	1
Cl6-BZ#153	ND		ug/kg	0.440	0.153	1
Cl7-BZ#170	ND		ug/kg	0.440	0.056	1
Cl7-BZ#180	ND		ug/kg	0.440	0.058	1
Cl7-BZ#183	ND		ug/kg	0.440	0.031	1
Cl7-BZ#184	ND		ug/kg	0.440	0.063	1
Cl7-BZ#187	ND		ug/kg	0.440	0.083	1
Cl8-BZ#195	ND		ug/kg	0.440	0.108	1
Cl9-BZ#206	ND		ug/kg	0.440	0.110	1
Cl10-BZ#209	ND		ug/kg	0.440	0.127	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	41		30-150
Pyrene-d10	44		30-150
Benzo(b)fluoranthene-d12	47		30-150
DBOB	44		30-150
BZ 198	56		30-150

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 105,8270E-SIM/680(M)
Analytical Date: 12/17/23 12:00
Analyst: DB

Extraction Method: EPA 3570
Extraction Date: 11/29/23 11:16
Cleanup Method: EPA 3630
Cleanup Date: 11/30/23

Parameter	Result	Qualifier	Units	RL	MDL
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab for sample(s): 01-11 Batch: WG1857482-1					
Naphthalene	ND		ug/kg	2.67	0.440
Acenaphthylene	ND		ug/kg	2.67	0.315
Acenaphthene	1.07	J	ug/kg	2.67	0.512
Fluorene	ND		ug/kg	2.67	0.285
Phenanthrene	0.639	J	ug/kg	2.67	0.560
Anthracene	ND		ug/kg	2.67	0.341
Fluoranthene	ND		ug/kg	2.67	0.504
Pyrene	ND		ug/kg	2.67	0.741
Benz(a)anthracene	ND		ug/kg	2.67	0.640
Chrysene	ND		ug/kg	2.67	0.621
Benzo(b)fluoranthene	ND		ug/kg	2.67	0.888
Benzo(k)fluoranthene	ND		ug/kg	2.67	0.408
Benzo(a)pyrene	ND		ug/kg	2.67	1.19
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	2.67	0.669
Dibenz(a,h)anthracene	ND		ug/kg	2.67	0.331
Benzo(ghi)perylene	ND		ug/kg	2.67	0.285
Cl2-BZ#8	ND		ug/kg	0.267	0.053
Cl3-BZ#18	ND		ug/kg	0.267	0.038
Cl3-BZ#28	ND		ug/kg	0.267	0.065
Cl4-BZ#44	ND		ug/kg	0.267	0.073
Cl4-BZ#49	ND		ug/kg	0.267	0.071
Cl4-BZ#52	ND		ug/kg	0.267	0.041
Cl4-BZ#66	ND		ug/kg	0.267	0.038
Cl5-BZ#87	ND		ug/kg	0.267	0.031
Cl5-BZ#101	ND		ug/kg	0.267	0.062
Cl5-BZ#105	ND		ug/kg	0.267	0.056
Cl5-BZ#118	ND		ug/kg	0.267	0.059
Cl6-BZ#128	ND		ug/kg	0.267	0.070
Cl6-BZ#138	ND		ug/kg	0.267	0.045

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 105,8270E-SIM/680(M)
Analytical Date: 12/17/23 12:00
Analyst: DB

Extraction Method: EPA 3570
Extraction Date: 11/29/23 11:16
Cleanup Method: EPA 3630
Cleanup Date: 11/30/23

Parameter	Result	Qualifier	Units	RL	MDL
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab for sample(s): 01-11 Batch: WG1857482-1					
Cl6-BZ#153	ND		ug/kg	0.267	0.093
Cl7-BZ#170	ND		ug/kg	0.267	0.034
Cl7-BZ#180	ND		ug/kg	0.267	0.035
Cl7-BZ#183	ND		ug/kg	0.267	0.019
Cl7-BZ#184	ND		ug/kg	0.267	0.038
Cl7-BZ#187	ND		ug/kg	0.267	0.050
Cl8-BZ#195	ND		ug/kg	0.267	0.066
Cl9-BZ#206	ND		ug/kg	0.267	0.067
Cl10-BZ#209	ND		ug/kg	0.267	0.077

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	72		30-150
Pyrene-d10	85		30-150
Benzo(b)fluoranthene-d12	90		30-150
DBOB	71		30-150
BZ 198	102		30-150

Lab Control Sample Analysis

Batch Quality Control

Project Name: ROYAL RIVER 206

Project Number: Not Specified

Lab Number: L2359291

Report Date: 12/22/23

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): 01-11 Batch: WG1857482-2 WG1857482-3								
Naphthalene	71		79		50-120	11		30
Acenaphthylene	82		84		50-120	2		30
Acenaphthene	73		75		50-120	3		30
Fluorene	80		81		50-120	1		30
Phenanthrene	80		87		50-120	8		30
Anthracene	85		88		50-120	3		30
Fluoranthene	81		88		50-120	8		30
Pyrene	74		83		50-120	11		30
Benz(a)anthracene	104		112		50-120	7		30
Chrysene	67		78		50-120	15		30
Benzo(b)fluoranthene	83		98		50-120	17		30
Benzo(k)fluoranthene	76		81		50-120	6		30
Benzo(a)pyrene	73		86		50-120	16		30
Indeno(1,2,3-cd)Pyrene	98		108		50-120	10		30
Dibenz(a,h)anthracene	86		97		50-120	12		30
Benzo(ghi)perylene	93		105		50-120	12		30
Cl2-BZ#8	78		77		50-120	1		30
Cl3-BZ#18	76		76		50-120	0		30
Cl3-BZ#28	78		79		50-120	1		30
Cl4-BZ#44	86		88		50-120	2		30
Cl4-BZ#49	73		76		50-120	4		30
Cl4-BZ#52	88		86		50-120	2		30
Cl4-BZ#66	85		88		50-120	3		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ROYAL RIVER 206

Project Number: Not Specified

Lab Number: L2359291

Report Date: 12/22/23

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): 01-11 Batch: WG1857482-2 WG1857482-3								
Cl5-BZ#87	86		89		50-120	3		30
Cl5-BZ#101	89		95		50-120	7		30
Cl5-BZ#105	88		94		50-120	7		30
Cl5-BZ#118	82		82		50-120	0		30
Cl6-BZ#128	91		93		50-120	2		30
Cl6-BZ#138	92		94		50-120	2		30
Cl6-BZ#153	90		93		50-120	3		30
Cl7-BZ#170	97		99		50-120	2		30
Cl7-BZ#180	80		83		50-120	4		30
Cl7-BZ#183	85		89		50-120	5		30
Cl7-BZ#184	87		88		50-120	1		30
Cl7-BZ#187	99		100		50-120	1		30
Cl8-BZ#195	110		114		50-120	4		30
Cl9-BZ#206	103		106		50-120	3		30
Cl10-BZ#209	94		96		50-120	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Methylnaphthalene-d10	75		83		30-150
Pyrene-d10	88		98		30-150
Benzo(b)fluoranthene-d12	93		103		30-150
DBOB	77		76		30-150
BZ 198	99		108		30-150

Matrix Spike Analysis

Batch Quality Control

Project Name: ROYAL RIVER 206 ***Lab Number:*** L2359291

Project Number: Not Specified ***Report Date:*** 12/22/23

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): 01-11 QC Batch ID: WG1857482-5 WG1857482-6 QC Sample: L2359291-03 Client ID: ES23-03												
Naphthalene	10.6	250	142	53		155	57		50-120	9		30
Acenaphthylene	5.14	250	136	52		178	68		50-120	27		30
Acenaphthene	5.93	250	116	**44**	Q	148	56		50-120	24		30
Fluorene	3.91J	250	124	**50**		164	65		50-120	28		30
Phenanthrene	27.5	250	180	61		204	69		50-120	13		30
Anthracene	6.81	250	133	51		160	60		50-120	18		30
Fluoranthene	50.8	250	179	51		204	60		50-120	13		30
Pyrene	37.3	250	156	**48**	Q	178	55		50-120	13		30
Benz(a)anthracene	29.8	250	216	75		254	88		50-120	16		30
Chrysene	19.5	250	116	**39**	Q	138	**47**	Q	50-120	17		30
Benzo(b)fluoranthene	22.7	250	179	63		205	72		50-120	14		30
Benzo(k)fluoranthene	15.2	250	113	**39**	Q	140	**49**	Q	50-120	21		30
Benzo(a)pyrene	18.5	250	130	**45**	Q	154	53		50-120	17		30
Indeno(1,2,3-cd)Pyrene	14.4	250	184	68		221	81		50-120	18		30
Dibenz(a,h)anthracene	4.11J	250	150	60		181	71		50-120	19		30
Benzo(ghi)perylene	14.7	250	158	57		190	69		50-120	18		30
Cl2-BZ#8	ND	50	24.8	**50**		30.8	61		50-120	22		30
Cl3-BZ#18	ND	50	24.8	**50**		30.4	60		50-120	20		30
Cl3-BZ#28	ND	50	25.7	51		32.1	63		50-120	22		30
Cl4-BZ#44	ND	50	27.6	55		35.0	69		50-120	24		30
Cl4-BZ#49	ND	50	20.2	**40**	Q	25.6	50		50-120	24		30
Cl4-BZ#52	ND	50	31.9	64		39.7	78		50-120	22		30
Cl4-BZ#66	ND	50	27.3	55		34.0	67		50-120	22		30

Matrix Spike Analysis

Batch Quality Control

Project Name: ROYAL RIVER 206
Project Number: Not Specified
Lab Number: L2359291
Report Date: 12/22/23

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): 01-11 QC Batch ID: WG1857482-5 WG1857482-6 QC Sample: L2359291-03 Client ID: ES23-03												
Cl5-BZ#87	ND	50	30.4	61		35.1	69		50-120	14		30
Cl5-BZ#101	ND	50	30.2	60		36.8	72		50-120	20		30
Cl5-BZ#105	ND	50	25.0	50		31.1	61		50-120	22		30
Cl5-BZ#118	ND	50	27.4	55		33.3	66		50-120	19		30
Cl6-BZ#128	ND	50	31.4	63		38.8	76		50-120	21		30
Cl6-BZ#138	ND	50	31.8	64		38.3	75		50-120	19		30
Cl6-BZ#153	ND	50	30.6	61		38.0	75		50-120	22		30
Cl7-BZ#170	ND	50	34.4	69		43.6	86		50-120	24		30
Cl7-BZ#180	ND	50	28.5	57		35.3	69		50-120	21		30
Cl7-BZ#183	ND	50	24.4	**49**	Q	32.4	64		50-120	28		30
Cl7-BZ#184	ND	50	30.1	60		37.4	74		50-120	22		30
Cl7-BZ#187	ND	50	40.0	80		47.6	94		50-120	17		30
Cl8-BZ#195	ND	50	39.7	79		48.4	95		50-120	20		30
Cl9-BZ#206	ND	50	35.4	71		43.7	86		50-120	21		30
Cl10-BZ#209	ND	50	30.9	62		38.2	75		50-120	21		30

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	56		64		30-150
BZ 198	74		95		30-150
Benzo(b)fluoranthene-d12	61		73		30-150
DBOB	58		73		30-150
Pyrene-d10	57		68		30-150

Lab Duplicate Analysis
Batch Quality Control

Project Name: ROYAL RIVER 206
Project Number: Not Specified

Lab Number: L2359291
Report Date: 12/22/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab Associated sample(s): 01-11 QC Batch ID: WG1857482-4 QC Sample: L2359291-02 Client ID: ES23-02						
Naphthalene	25.8	92.4	ug/kg	**113**	Q	30
Acenaphthylene	122	186	ug/kg	**42**	Q	30
Acenaphthene	35.2	46.8	ug/kg	28		30
Fluorene	55.0	96.4	ug/kg	**55**	Q	30
Phenanthrene	628	820	ug/kg	27		30
Anthracene	144	256	ug/kg	**56**	Q	30
Fluoranthene	1110E	1620E	ug/kg	**37**	Q	30
Pyrene	878E	1150E	ug/kg	27		30
Benz(a)anthracene	601	778	ug/kg	26		30
Chrysene	375	670	ug/kg	**56**	Q	30
Benzo(b)fluoranthene	387	498	ug/kg	25		30
Benzo(k)fluoranthene	272	477	ug/kg	**55**	Q	30
Benzo(a)pyrene	359	621	ug/kg	**53**	Q	30
Indeno(1,2,3-cd)Pyrene	257	428	ug/kg	**50**	Q	30
Dibenz(a,h)anthracene	61.2	109	ug/kg	**56**	Q	30
Benzo(ghi)perylene	252	406	ug/kg	**47**	Q	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: ROYAL RIVER 206
Project Number: Not Specified

Lab Number: L2359291
Report Date: 12/22/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab Associated sample(s): 01-11 QC Batch ID: WG1857482-4 QC Sample: L2359291-02 Client ID: ES23-02						
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	0.118J	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	0.231J	ug/kg	NC		30
Cl6-BZ#153	0.149J	0.156J	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	0.138J	ug/kg	NC		30

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	70		81		30-150

Lab Duplicate Analysis
Batch Quality Control

Project Name: ROYAL RIVER 206
Project Number: Not Specified

Lab Number: L2359291
Report Date: 12/22/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits

RIM PAHs/PCB Congeners by GC/MS - Mansfield Lab Associated sample(s): 01-11 QC Batch ID: WG1857482-4 QC Sample: L2359291-02 Client ID: ES23-02

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Pyrene-d10	74		80		30-150
Benzo(b)fluoranthene-d12	76		85		30-150
DBOB	71		72		30-150
BZ 198	89		76		30-150

PESTICIDES

Project Name: ROYAL RIVER 206
Project Number: Not Specified

Lab Number: L2359291
Report Date: 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-01
Client ID: ES23-01
Sample Location: YARMOUTH, ME

Date Collected: 10/03/23 14:38
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 12/01/23 17:44
Analyst: DP
Percent Solids: 93%

Extraction Method: EPA 3570
Extraction Date: 11/29/23 11:16
Cleanup Method: EPA 3630
Cleanup Date: 11/30/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Alpha-BHC	ND		ug/kg	0.141	0.021	1	A
Hexachlorobenzene	ND		ug/kg	0.282	0.190	1	A
Beta-BHC	ND		ug/kg	0.141	0.015	1	A
gamma-BHC	ND		ug/kg	0.141	0.032	1	A
Delta-BHC	ND		ug/kg	0.141	0.017	1	A
Heptachlor	ND		ug/kg	0.141	0.022	1	A
Aldrin	ND		ug/kg	0.141	0.035	1	A
Heptachlor epoxide	ND		ug/kg	0.282	0.045	1	B
Oxychlordane	ND		ug/kg	0.282	0.044	1	B
trans-Chlordane	ND		ug/kg	0.141	0.021	1	A
Endosulfan I	ND		ug/kg	0.141	0.019	1	A
cis-Chlordane	ND		ug/kg	0.141	0.076	1	A
trans-Nonachlor	ND		ug/kg	0.141	0.009	1	A
4,4'-DDE	1.60	P	ug/kg	0.141	0.006	1	B
Dieldrin	ND		ug/kg	0.141	0.021	1	A
Endrin	ND		ug/kg	0.141	0.012	1	A
Endosulfan II	ND		ug/kg	0.141	0.010	1	A
4,4'-DDD	0.523		ug/kg	0.141	0.011	1	A
cis-Nonachlor	ND		ug/kg	0.141	0.010	1	A
Endosulfan sulfate	ND		ug/kg	0.141	0.006	1	A
4,4'-DDT	0.657		ug/kg	0.141	0.014	1	B
Methoxychlor	ND		ug/kg	0.141	0.050	1	A
Toxaphene	ND		ug/kg	7.08	0.916	1	A

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-01 Date Collected: 10/03/23 14:38

Client ID: ES23-01 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	61		30-150	A
BZ 198	82		30-150	A
DBOB	67		30-150	B
BZ 198	98		30-150	B

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-02
Client ID: ES23-02
Sample Location: YARMOUTH, ME

Date Collected: 10/03/23 15:02
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 12/01/23 18:18
Analyst: DP
Percent Solids: 62%

Extraction Method: EPA 3570
Extraction Date: 11/29/23 11:16
Cleanup Method: EPA 3630
Cleanup Date: 11/30/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Alpha-BHC	ND		ug/kg	0.213	0.032	1	A
Hexachlorobenzene	ND		ug/kg	0.425	0.286	1	A
Beta-BHC	ND		ug/kg	0.213	0.022	1	A
gamma-BHC	ND		ug/kg	0.213	0.048	1	A
Delta-BHC	ND		ug/kg	0.213	0.025	1	A
Heptachlor	ND		ug/kg	0.213	0.033	1	A
Aldrin	ND		ug/kg	0.213	0.053	1	A
Heptachlor epoxide	ND		ug/kg	0.425	0.069	1	B
Oxychlordane	ND		ug/kg	0.425	0.066	1	B
trans-Chlordane	ND		ug/kg	0.213	0.032	1	A
Endosulfan I	ND		ug/kg	0.213	0.029	1	A
cis-Chlordane	0.442		ug/kg	0.213	0.115	1	A
trans-Nonachlor	2.49	P	ug/kg	0.213	0.014	1	A
4,4'-DDE	7.58	P	ug/kg	0.213	0.010	1	B
Dieldrin	ND		ug/kg	0.213	0.032	1	A
Endrin	ND		ug/kg	0.213	0.017	1	A
Endosulfan II	ND		ug/kg	0.213	0.015	1	A
4,4'-DDD	8.22		ug/kg	0.213	0.016	1	B
cis-Nonachlor	ND		ug/kg	0.213	0.015	1	A
Endosulfan sulfate	ND		ug/kg	0.213	0.009	1	A
4,4'-DDT	15.9		ug/kg	0.213	0.021	1	A
Methoxychlor	ND		ug/kg	0.213	0.076	1	A
Toxaphene	ND		ug/kg	10.7	1.38	1	A

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-02 Date Collected: 10/03/23 15:02

Client ID: ES23-02 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	64		30-150	A
BZ 198	87		30-150	A
DBOB	63		30-150	B
BZ 198	97		30-150	B

Project Name: ROYAL RIVER 206
Project Number: Not Specified
Lab Number: L2359291
Report Date: 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-03
Client ID: ES23-03
Sample Location: YARMOUTH, ME

Date Collected: 10/03/23 15:21
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 12/01/23 19:25
Analyst: DP
Percent Solids: 63%

Extraction Method: EPA 3570
Extraction Date: 11/29/23 11:16
Cleanup Method: EPA 3630
Cleanup Date: 11/30/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Alpha-BHC	ND		ug/kg	0.210	0.032	1	A
Hexachlorobenzene	ND		ug/kg	0.420	0.282	1	A
Beta-BHC	ND		ug/kg	0.210	0.022	1	A
gamma-BHC	ND		ug/kg	0.210	0.047	1	A
Delta-BHC	ND		ug/kg	0.210	0.025	1	A
Heptachlor	ND		ug/kg	0.210	0.033	1	A
Aldrin	ND		ug/kg	0.210	0.052	1	A
Heptachlor epoxide	ND		ug/kg	0.420	0.068	1	B
Oxychlordane	ND		ug/kg	0.420	0.065	1	B
trans-Chlordane	ND		ug/kg	0.210	0.032	1	A
Endosulfan I	ND		ug/kg	0.210	0.029	1	A
cis-Chlordane	ND		ug/kg	0.210	0.113	1	A
trans-Nonachlor	ND		ug/kg	0.210	0.014	1	A
4,4'-DDE	1.28	P	ug/kg	0.210	0.010	1	B
Dieldrin	ND		ug/kg	0.210	0.032	1	A
Endrin	ND		ug/kg	0.210	0.017	1	A
Endosulfan II	ND		ug/kg	0.210	0.015	1	A
4,4'-DDD	0.474		ug/kg	0.210	0.016	1	B
cis-Nonachlor	ND		ug/kg	0.210	0.015	1	A
Endosulfan sulfate	ND		ug/kg	0.210	0.009	1	A
4,4'-DDT	ND		ug/kg	0.210	0.021	1	A
Methoxychlor	ND		ug/kg	0.210	0.075	1	A
Toxaphene	ND		ug/kg	10.5	1.36	1	A

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-03 Date Collected: 10/03/23 15:21

Client ID: ES23-03 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	62		30-150	A
BZ 198	110		30-150	A
DBOB	50		30-150	B
BZ 198	69		30-150	B

Project Name: ROYAL RIVER 206
Project Number: Not Specified
Lab Number: L2359291
Report Date: 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-04
Client ID: ES23-04
Sample Location: YARMOUTH, ME

Date Collected: 10/03/23 14:50
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 12/01/23 21:05
Analyst: DP
Percent Solids: 54%

Extraction Method: EPA 3570
Extraction Date: 11/29/23 11:16
Cleanup Method: EPA 3630
Cleanup Date: 11/30/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Alpha-BHC	ND		ug/kg	0.245	0.037	1	A
Hexachlorobenzene	ND		ug/kg	0.489	0.329	1	A
Beta-BHC	ND		ug/kg	0.245	0.025	1	A
gamma-BHC	ND		ug/kg	0.245	0.055	1	A
Delta-BHC	ND		ug/kg	0.245	0.029	1	A
Heptachlor	ND		ug/kg	0.245	0.038	1	A
Aldrin	ND		ug/kg	0.245	0.061	1	A
Heptachlor epoxide	ND		ug/kg	0.489	0.079	1	B
Oxychlordane	ND		ug/kg	0.489	0.076	1	B
trans-Chlordane	ND		ug/kg	0.245	0.037	1	A
Endosulfan I	ND		ug/kg	0.245	0.034	1	A
cis-Chlordane	ND		ug/kg	0.245	0.132	1	A
trans-Nonachlor	ND		ug/kg	0.245	0.016	1	A
4,4'-DDE	1.33		ug/kg	0.245	0.011	1	B
Dieldrin	ND		ug/kg	0.245	0.037	1	A
Endrin	ND		ug/kg	0.245	0.020	1	A
Endosulfan II	ND		ug/kg	0.245	0.017	1	A
4,4'-DDD	1.21	P	ug/kg	0.245	0.018	1	B
cis-Nonachlor	ND		ug/kg	0.245	0.018	1	A
Endosulfan sulfate	ND		ug/kg	0.245	0.010	1	A
4,4'-DDT	0.473		ug/kg	0.245	0.024	1	B
Methoxychlor	ND		ug/kg	0.245	0.087	1	A
Toxaphene	ND		ug/kg	12.3	1.59	1	A

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-04 Date Collected: 10/03/23 14:50

Client ID: ES23-04 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	46		30-150	A
BZ 198	57		30-150	A
DBOB	39		30-150	B
BZ 198	51		30-150	B

Project Name: ROYAL RIVER 206
Project Number: Not Specified
Lab Number: L2359291
Report Date: 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-05
Client ID: ES23-05
Sample Location: YARMOUTH, ME

Date Collected: 10/03/23 16:20
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 12/01/23 21:39
Analyst: DP
Percent Solids: 40%

Extraction Method: EPA 3570
Extraction Date: 11/29/23 11:16
Cleanup Method: EPA 3630
Cleanup Date: 11/30/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Alpha-BHC	ND		ug/kg	0.325	0.049	1	A
Hexachlorobenzene	ND		ug/kg	0.650	0.438	1	A
Beta-BHC	ND		ug/kg	0.325	0.034	1	A
gamma-BHC	ND		ug/kg	0.325	0.074	1	A
Delta-BHC	ND		ug/kg	0.325	0.039	1	A
Heptachlor	ND		ug/kg	0.325	0.051	1	A
Aldrin	ND		ug/kg	0.325	0.081	1	A
Heptachlor epoxide	ND		ug/kg	0.650	0.105	1	B
Oxychlordane	ND		ug/kg	0.650	0.101	1	B
trans-Chlordane	ND		ug/kg	0.325	0.049	1	A
Endosulfan I	ND		ug/kg	0.325	0.045	1	A
cis-Chlordane	ND		ug/kg	0.325	0.176	1	A
trans-Nonachlor	ND		ug/kg	0.325	0.022	1	A
4,4'-DDE	1.72		ug/kg	0.325	0.015	1	B
Dieldrin	ND		ug/kg	0.325	0.049	1	A
Endrin	ND		ug/kg	0.325	0.027	1	A
Endosulfan II	ND		ug/kg	0.325	0.023	1	A
4,4'-DDD	1.14	P	ug/kg	0.325	0.024	1	A
cis-Nonachlor	ND		ug/kg	0.325	0.024	1	A
Endosulfan sulfate	ND		ug/kg	0.325	0.013	1	A
4,4'-DDT	ND		ug/kg	0.325	0.032	1	A
Methoxychlor	ND		ug/kg	0.325	0.116	1	A
Toxaphene	ND		ug/kg	16.3	2.11	1	A

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-05 Date Collected: 10/03/23 16:20

Client ID: ES23-05 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	61		30-150	A
BZ 198	77		30-150	A
DBOB	58		30-150	B
BZ 198	74		30-150	B

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-06
Client ID: ES23-06
Sample Location: YARMOUTH, ME

Date Collected: 10/03/23 16:25
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 12/01/23 22:13
Analyst: DP
Percent Solids: 45%

Extraction Method: EPA 3570
Extraction Date: 11/29/23 11:16
Cleanup Method: EPA 3630
Cleanup Date: 11/30/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Alpha-BHC	ND		ug/kg	0.290	0.044	1	A
Hexachlorobenzene	ND		ug/kg	0.581	0.391	1	A
Beta-BHC	ND		ug/kg	0.290	0.030	1	A
gamma-BHC	ND		ug/kg	0.290	0.066	1	A
Delta-BHC	ND		ug/kg	0.290	0.035	1	A
Heptachlor	ND		ug/kg	0.290	0.046	1	A
Aldrin	ND		ug/kg	0.290	0.073	1	A
Heptachlor epoxide	ND		ug/kg	0.581	0.094	1	B
Oxychlordane	ND		ug/kg	0.581	0.090	1	B
trans-Chlordane	ND		ug/kg	0.290	0.044	1	A
Endosulfan I	ND		ug/kg	0.290	0.040	1	A
cis-Chlordane	ND		ug/kg	0.290	0.157	1	A
trans-Nonachlor	ND		ug/kg	0.290	0.019	1	A
4,4'-DDE	1.56	P	ug/kg	0.290	0.013	1	B
Dieldrin	ND		ug/kg	0.290	0.044	1	A
Endrin	ND		ug/kg	0.290	0.024	1	A
Endosulfan II	ND		ug/kg	0.290	0.021	1	A
4,4'-DDD	ND		ug/kg	0.290	0.022	1	A
cis-Nonachlor	ND		ug/kg	0.290	0.021	1	A
Endosulfan sulfate	ND		ug/kg	0.290	0.012	1	A
4,4'-DDT	ND		ug/kg	0.290	0.029	1	A
Methoxychlor	ND		ug/kg	0.290	0.103	1	A
Toxaphene	ND		ug/kg	14.6	1.89	1	A

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-06 Date Collected: 10/03/23 16:25

Client ID: ES23-06 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	46		30-150	A
BZ 198	59		30-150	A
DBOB	44		30-150	B
BZ 198	54		30-150	B

Project Name: ROYAL RIVER 206
Project Number: Not Specified
Lab Number: L2359291
Report Date: 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-07
Client ID: ES23-07
Sample Location: YARMOUTH, ME

Date Collected: 10/03/23 16:30
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 12/01/23 22:46
Analyst: DP
Percent Solids: 55%

Extraction Method: EPA 3570
Extraction Date: 11/29/23 11:16
Cleanup Method: EPA 3630
Cleanup Date: 11/30/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Alpha-BHC	ND		ug/kg	0.238	0.036	1	A
Hexachlorobenzene	ND		ug/kg	0.476	0.320	1	A
Beta-BHC	ND		ug/kg	0.238	0.025	1	A
gamma-BHC	ND		ug/kg	0.238	0.054	1	A
Delta-BHC	ND		ug/kg	0.238	0.028	1	A
Heptachlor	ND		ug/kg	0.238	0.037	1	A
Aldrin	ND		ug/kg	0.238	0.060	1	A
Heptachlor epoxide	ND		ug/kg	0.476	0.077	1	B
Oxychlordane	ND		ug/kg	0.476	0.074	1	B
trans-Chlordane	ND		ug/kg	0.238	0.036	1	A
Endosulfan I	ND		ug/kg	0.238	0.033	1	A
cis-Chlordane	ND		ug/kg	0.238	0.128	1	A
trans-Nonachlor	ND		ug/kg	0.238	0.016	1	A
4,4'-DDE	1.73	P	ug/kg	0.238	0.011	1	B
Dieldrin	ND		ug/kg	0.238	0.036	1	A
Endrin	ND		ug/kg	0.238	0.020	1	A
Endosulfan II	ND		ug/kg	0.238	0.017	1	A
4,4'-DDD	0.760		ug/kg	0.238	0.018	1	A
cis-Nonachlor	ND		ug/kg	0.238	0.017	1	A
Endosulfan sulfate	ND		ug/kg	0.238	0.010	1	A
4,4'-DDT	0.348		ug/kg	0.238	0.024	1	B
Methoxychlor	ND		ug/kg	0.238	0.085	1	A
Toxaphene	ND		ug/kg	11.9	1.55	1	A

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-07 Date Collected: 10/03/23 16:30

Client ID: ES23-07 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	52		30-150	A
BZ 198	64		30-150	A
DBOB	47		30-150	B
BZ 198	65		30-150	B

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-08
Client ID: ES23-08
Sample Location: YARMOUTH, ME

Date Collected: 10/03/23 15:10
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 12/01/23 23:20
Analyst: DP
Percent Solids: 61%

Extraction Method: EPA 3570
Extraction Date: 11/29/23 11:16
Cleanup Method: EPA 3630
Cleanup Date: 11/30/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Alpha-BHC	ND		ug/kg	0.217	0.033	1	A
Hexachlorobenzene	ND		ug/kg	0.434	0.292	1	A
Beta-BHC	ND		ug/kg	0.217	0.023	1	A
gamma-BHC	ND		ug/kg	0.217	0.049	1	A
Delta-BHC	ND		ug/kg	0.217	0.026	1	A
Heptachlor	ND		ug/kg	0.217	0.034	1	A
Aldrin	ND		ug/kg	0.217	0.054	1	A
Heptachlor epoxide	ND		ug/kg	0.434	0.070	1	B
Oxychlordane	ND		ug/kg	0.434	0.067	1	B
trans-Chlordane	ND		ug/kg	0.217	0.033	1	A
Endosulfan I	ND		ug/kg	0.217	0.030	1	A
cis-Chlordane	ND		ug/kg	0.217	0.117	1	A
trans-Nonachlor	2.24		ug/kg	0.217	0.014	1	A
4,4'-DDE	7.00	P	ug/kg	0.217	0.010	1	B
Dieldrin	ND		ug/kg	0.217	0.033	1	A
Endrin	ND		ug/kg	0.217	0.018	1	A
Endosulfan II	ND		ug/kg	0.217	0.015	1	A
4,4'-DDD	5.10		ug/kg	0.217	0.016	1	A
cis-Nonachlor	ND		ug/kg	0.217	0.016	1	A
Endosulfan sulfate	ND		ug/kg	0.217	0.009	1	A
4,4'-DDT	2.88		ug/kg	0.217	0.021	1	A
Methoxychlor	ND		ug/kg	0.217	0.077	1	A
Toxaphene	ND		ug/kg	10.9	1.41	1	A

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-08 Date Collected: 10/03/23 15:10

Client ID: ES23-08 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	39		30-150	A
BZ 198	47		30-150	A
DBOB	35		30-150	B
BZ 198	56		30-150	B

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-09
Client ID: BS23-02
Sample Location: YARMOUTH, ME

Date Collected: 10/04/23 11:05
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 12/01/23 23:54
Analyst: DP
Percent Solids: 58%

Extraction Method: EPA 3570
Extraction Date: 11/29/23 11:16
Cleanup Method: EPA 3630
Cleanup Date: 11/30/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Alpha-BHC	ND		ug/kg	0.226	0.034	1	A
Hexachlorobenzene	ND		ug/kg	0.452	0.304	1	A
Beta-BHC	ND		ug/kg	0.226	0.024	1	A
gamma-BHC	ND		ug/kg	0.226	0.051	1	A
Delta-BHC	ND		ug/kg	0.226	0.027	1	A
Heptachlor	ND		ug/kg	0.226	0.035	1	A
Aldrin	ND		ug/kg	0.226	0.057	1	A
Heptachlor epoxide	ND		ug/kg	0.452	0.073	1	B
Oxychlordane	ND		ug/kg	0.452	0.070	1	B
trans-Chlordane	ND		ug/kg	0.226	0.034	1	A
Endosulfan I	ND		ug/kg	0.226	0.031	1	A
cis-Chlordane	ND		ug/kg	0.226	0.122	1	A
trans-Nonachlor	0.694	P	ug/kg	0.226	0.015	1	A
4,4'-DDE	1.42	P	ug/kg	0.226	0.010	1	B
Dieldrin	ND		ug/kg	0.226	0.034	1	A
Endrin	ND		ug/kg	0.226	0.019	1	A
Endosulfan II	ND		ug/kg	0.226	0.016	1	A
4,4'-DDD	0.380		ug/kg	0.226	0.017	1	A
cis-Nonachlor	ND		ug/kg	0.226	0.016	1	A
Endosulfan sulfate	ND		ug/kg	0.226	0.009	1	A
4,4'-DDT	0.280		ug/kg	0.226	0.022	1	B
Methoxychlor	ND		ug/kg	0.226	0.080	1	A
Toxaphene	ND		ug/kg	11.3	1.47	1	A

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-09 Date Collected: 10/04/23 11:05

Client ID: BS23-02 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	49		30-150	A
BZ 198	73		30-150	A
DBOB	42		30-150	B
BZ 198	56		30-150	B

Project Name: ROYAL RIVER 206
Project Number: Not Specified

Lab Number: L2359291
Report Date: 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-10
Client ID: BS23-03
Sample Location: YARMOUTH, ME

Date Collected: 10/04/23 10:55
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 12/02/23 00:27
Analyst: DP
Percent Solids: 55%

Extraction Method: EPA 3570
Extraction Date: 11/29/23 11:20
Cleanup Method: EPA 3630
Cleanup Date: 11/30/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Alpha-BHC	ND		ug/kg	0.234	0.036	1	A
Hexachlorobenzene	ND		ug/kg	0.468	0.315	1	A
Beta-BHC	ND		ug/kg	0.234	0.024	1	A
gamma-BHC	ND		ug/kg	0.234	0.053	1	A
Delta-BHC	ND		ug/kg	0.234	0.028	1	A
Heptachlor	ND		ug/kg	0.234	0.037	1	A
Aldrin	ND		ug/kg	0.234	0.059	1	A
Heptachlor epoxide	ND		ug/kg	0.468	0.075	1	B
Oxychlordane	ND		ug/kg	0.468	0.073	1	B
trans-Chlordane	ND		ug/kg	0.234	0.036	1	A
Endosulfan I	ND		ug/kg	0.234	0.032	1	A
cis-Chlordane	0.818		ug/kg	0.234	0.126	1	A
trans-Nonachlor	1.43		ug/kg	0.234	0.016	1	A
4,4'-DDE	2.93		ug/kg	0.234	0.011	1	B
Dieldrin	ND		ug/kg	0.234	0.035	1	A
Endrin	ND		ug/kg	0.234	0.019	1	A
Endosulfan II	ND		ug/kg	0.234	0.017	1	A
4,4'-DDD	0.531		ug/kg	0.234	0.018	1	A
cis-Nonachlor	0.334		ug/kg	0.234	0.017	1	B
Endosulfan sulfate	ND		ug/kg	0.234	0.010	1	A
4,4'-DDT	0.544		ug/kg	0.234	0.023	1	A
Methoxychlor	ND		ug/kg	0.234	0.083	1	A
Toxaphene	ND		ug/kg	11.8	1.52	1	A

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-10 Date Collected: 10/04/23 10:55

Client ID: BS23-03 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	35		30-150	A
BZ 198	44		30-150	A
DBOB	**29**	Q	30-150	B
BZ 198	41		30-150	B

Project Name: ROYAL RIVER 206
Project Number: Not Specified
Lab Number: L2359291
Report Date: 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-11
Client ID: BS23-05-01
Sample Location: YARMOUTH, ME

Date Collected: 10/04/23 11:00
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 12/02/23 01:01
Analyst: DP
Percent Solids: 57%

Extraction Method: EPA 3570
Extraction Date: 11/29/23 11:20
Cleanup Method: EPA 3630
Cleanup Date: 11/30/23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							
Alpha-BHC	ND		ug/kg	0.220	0.034	1	A
Hexachlorobenzene	ND		ug/kg	0.440	0.296	1	A
Beta-BHC	ND		ug/kg	0.220	0.023	1	A
gamma-BHC	ND		ug/kg	0.220	0.050	1	A
Delta-BHC	ND		ug/kg	0.220	0.026	1	A
Heptachlor	ND		ug/kg	0.220	0.035	1	A
Aldrin	ND		ug/kg	0.220	0.055	1	A
Heptachlor epoxide	ND		ug/kg	0.440	0.071	1	B
Oxychlordane	ND		ug/kg	0.440	0.068	1	B
trans-Chlordane	ND		ug/kg	0.220	0.034	1	A
Endosulfan I	ND		ug/kg	0.220	0.030	1	A
cis-Chlordane	ND		ug/kg	0.220	0.119	1	A
trans-Nonachlor	ND		ug/kg	0.220	0.015	1	A
4,4'-DDE	1.78	P	ug/kg	0.220	0.010	1	B
Dieldrin	ND		ug/kg	0.220	0.033	1	A
Endrin	ND		ug/kg	0.220	0.018	1	A
Endosulfan II	ND		ug/kg	0.220	0.016	1	A
4,4'-DDD	0.666		ug/kg	0.220	0.017	1	A
cis-Nonachlor	ND		ug/kg	0.220	0.016	1	A
Endosulfan sulfate	ND		ug/kg	0.220	0.009	1	A
4,4'-DDT	0.360		ug/kg	0.220	0.022	1	B
Methoxychlor	ND		ug/kg	0.220	0.078	1	A
Toxaphene	ND		ug/kg	11.0	1.43	1	A

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-11 Date Collected: 10/04/23 11:00

Client ID: BS23-05-01 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
RIM Organochlorine Pesticides - Mansfield Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
DBOB	41		30-150	A
BZ 198	50		30-150	A
DBOB	34		30-150	B
BZ 198	46		30-150	B

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8081B
Analytical Date: 12/01/23 16:03
Analyst: DP

Extraction Method: EPA 3570
Extraction Date: 11/29/23 11:16
Cleanup Method: EPA 3630
Cleanup Date: 11/30/23

Parameter	Result	Qualifier	Units	RL	MDL	Column
RIM Organochlorine Pesticides - Mansfield Lab for sample(s): 01-11 Batch: WG1857491-1						
Alpha-BHC	ND		ug/kg	0.133	0.020	A
Hexachlorobenzene	ND		ug/kg	0.267	0.179	A
Beta-BHC	ND		ug/kg	0.133	0.014	A
gamma-BHC	ND		ug/kg	0.133	0.030	A
Delta-BHC	ND		ug/kg	0.133	0.016	A
Heptachlor	ND		ug/kg	0.133	0.021	A
Aldrin	ND		ug/kg	0.133	0.033	A
trans-Chlordane	ND		ug/kg	0.133	0.020	A
Endosulfan I	ND		ug/kg	0.133	0.018	A
cis-Chlordane	ND		ug/kg	0.133	0.072	A
trans-Nonachlor	ND		ug/kg	0.133	0.009	A
4,4'-DDE	ND		ug/kg	0.133	0.006	A
Dieldrin	ND		ug/kg	0.133	0.020	A
Endrin	ND		ug/kg	0.133	0.011	A
Endosulfan II	ND		ug/kg	0.133	0.009	A
4,4'-DDD	ND		ug/kg	0.133	0.010	A
cis-Nonachlor	ND		ug/kg	0.133	0.010	A
Endosulfan sulfate	ND		ug/kg	0.133	0.005	A
4,4'-DDT	ND		ug/kg	0.133	0.013	A
Methoxychlor	ND		ug/kg	0.133	0.048	A
Toxaphene	ND		ug/kg	6.69	0.867	A
Heptachlor epoxide	ND		ug/kg	0.267	0.043	B
Oxychlordane	ND		ug/kg	0.267	0.041	B

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8081B
Analytical Date: 12/01/23 16:03
Analyst: DP

Extraction Method: EPA 3570
Extraction Date: 11/29/23 11:16
Cleanup Method: EPA 3630
Cleanup Date: 11/30/23

Parameter	Result	Qualifier	Units	RL	MDL	Column
RIM Organochlorine Pesticides - Mansfield Lab for sample(s): 01-11 Batch: WG1857491-1						

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
DBOB	57		30-150	A
BZ 198	91		30-150	A
DBOB	64		30-150	B
BZ 198	95		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: ROYAL RIVER 206

Project Number: Not Specified

Lab Number: L2359291

Report Date: 12/22/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
RIM Organochlorine Pesticides - Mansfield Lab Associated sample(s): 01-11 Batch: WG1857491-2 WG1857491-3									
Alpha-BHC	80		91		50-120	13		30	A
Hexachlorobenzene	70		75		50-120	7		30	A
Beta-BHC	72		82		50-120	13		30	A
gamma-BHC	61		71		50-120	15		30	A
Delta-BHC	52		61		50-120	16		30	A
Heptachlor	80		89		50-120	11		30	A
Aldrin	80		89		50-120	11		30	A
trans-Chlordane	80		90		50-120	12		30	A
Endosulfan I	82		92		50-120	11		30	A
cis-Chlordane	81		91		50-120	12		30	A
trans-Nonachlor	80		89		50-120	11		30	A
4,4'-DDE	107		115		50-120	7		30	A
Dieldrin	91		103		50-120	12		30	A
Endrin	80		91		50-120	13		30	A
4,4'-DDD	84		94		50-120	11		30	A
cis-Nonachlor	79		88		50-120	11		30	A
Endosulfan sulfate	89		101		50-120	13		30	A
4,4'-DDT	89		101		50-120	13		30	A
Methoxychlor	88		99		50-120	12		30	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: ROYAL RIVER 206

Project Number: Not Specified

Lab Number: L2359291

Report Date: 12/22/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
RIM Organochlorine Pesticides - Mansfield Lab Associated sample(s): 01-11 Batch: WG1857491-2 WG1857491-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
DBOB	50		54		30-150	A
BZ 198	77		85		30-150	A
DBOB	51		58		30-150	B
BZ 198	87		101		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: ROYAL RIVER 206

Project Number: Not Specified

Lab Number: L2359291

Report Date: 12/22/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
RIM Organochlorine Pesticides - Mansfield Lab Associated sample(s): 01-11 Batch: WG1857491-2 WG1857491-3									
Heptachlor epoxide	93		105		50-120	12		30	B
Oxychlordane	99		112		50-120	12		30	B
Endosulfan II	86		101		50-120	16		30	B

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
DBOB	50		54		30-150	A
BZ 198	77		85		30-150	A
DBOB	51		58		30-150	B
BZ 198	87		101		30-150	B

Matrix Spike Analysis

Batch Quality Control

Project Name: ROYAL RIVER 206

Project Number: Not Specified

Lab Number: L2359291

Report Date: 12/22/23

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): 01-11 QC Batch ID: WG1857491-5 WG1857491-6 QC Sample: L2359291-03 Client ID: ES23-03													
Alpha-BHC	ND	50	43.0	86		53.6	105		50-120	22		30	A
Hexachlorobenzene	ND	50	34.7	69		43.4	85		50-120	22		30	A
Beta-BHC	ND	50	41.9	84		52.3	103		50-120	22		30	A
gamma-BHC	ND	50	34.2	68		41.1	81		50-120	18		30	A
Delta-BHC	ND	50	28.7	57		34.8	68		50-120	19		30	A
Heptachlor	ND	50	45.2	90		58.8	116		50-120	26		30	A
Aldrin	ND	50	41.4	83		53.0	104		50-120	25		30	A
Heptachlor epoxide	ND	50	35.2	70		48.2	95		50-120	**31**	Q	30	B
Oxychlordane	ND	50	44.9	90		61.2	120		50-120	**31**	Q	30	B
trans-Chlordane	ND	50	39.0	78		52.4	103		50-120	29		30	A
Endosulfan I	ND	50	42.0	84		53.5	105		50-120	24		30	A
cis-Chlordane	ND	50	40.7	81		52.5	103		50-120	25		30	A
trans-Nonachlor	ND	50	42.8	86		54.7	108		50-120	24		30	A
4,4'-DDE	1.28P	50	40.7	79		53.6	103		50-120	27		30	B
Dieldrin	ND	50	45.4	91		58.2	114		50-120	25		30	A
Endrin	ND	50	42.6	85		53.6	105		50-120	23		30	A
Endosulfan II	ND	50	36.1	72		45.7	90		50-120	23		30	B
4,4'-DDD	0.474	50	37.7	74		50.4	98		50-120	29		30	B
cis-Nonachlor	ND	50	38.4	77		49.8	98		50-120	26		30	A
Endosulfan sulfate	ND	50	43.4	87		54.8	108		50-120	23		30	A
4,4'-DDT	ND	50	44.6	89		55.2	109		50-120	21		30	A
Methoxychlor	ND	50	43.4	87		56.1	110		50-120	26		30	A

Matrix Spike Analysis

Batch Quality Control

Project Name: ROYAL RIVER 206

Project Number: Not Specified

Lab Number: L2359291

Report Date: 12/22/23

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): 01-11 QC Batch ID: WG1857491-5 WG1857491-6 QC Sample: L2359291-03 Client ID: ES23-03												

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria	Column
BZ 198	68		81		30-150	A
DBOB	51		71		30-150	A
BZ 198	66		89		30-150	B
DBOB	46		66		30-150	B

Lab Duplicate Analysis
Batch Quality Control

Project Name: ROYAL RIVER 206
Project Number: Not Specified

Lab Number: L2359291
Report Date: 12/22/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits	
RIM Organochlorine Pesticides - Mansfield Lab Associated sample(s): 01-11 QC Batch ID: WG1857491-4 QC Sample: L2359291-02 Client ID: ES23-02							
Alpha-BHC	ND	ND	ug/kg	NC		30	A
Hexachlorobenzene	ND	ND	ug/kg	NC		30	A
Beta-BHC	ND	ND	ug/kg	NC		30	A
gamma-BHC	ND	ND	ug/kg	NC		30	A
Delta-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	0.442	0.390	ug/kg	13		30	A
trans-Nonachlor	2.49P	3.34P	ug/kg	29		30	A
4,4'-DDE	7.58P	7.60P	ug/kg	0		30	B
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	8.22	2.42	ug/kg	**109**	Q	30	B
cis-Nonachlor	ND	ND	ug/kg	NC		30	A
Endosulfan sulfate	ND	ND	ug/kg	NC		30	A
4,4'-DDT	15.9	1.00	ug/kg	**176**	Q	30	A

Lab Duplicate Analysis
Batch Quality Control

Project Name: ROYAL RIVER 206
Project Number: Not Specified

Lab Number: L2359291
Report Date: 12/22/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits	
RIM Organochlorine Pesticides - Mansfield Lab Associated sample(s): 01-11 QC Batch ID: WG1857491-4 QC Sample: L2359291-02 Client ID: ES23-02							
Methoxychlor	ND	ND	ug/kg	NC		30	A
Toxaphene	ND	ND	ug/kg	NC		30	A

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria	Column
DBOB	64		62		30-150	A
BZ 198	87		92		30-150	A
DBOB	63		63		30-150	B
BZ 198	97		101		30-150	B

METALS

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-01 Date Collected: 10/03/23 14:38

Client ID: ES23-01 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	1.22		mg/kg	0.104	0.014	2	10/27/23 15:36	11/27/23 20:18	EPA 3050B	1,6020B	SMV
Cadmium, Total	0.016	J	mg/kg	0.042	0.005	2	10/27/23 15:36	11/27/23 20:18	EPA 3050B	1,6020B	SMV
Chromium, Total	5.55		mg/kg	0.416	0.097	2	10/27/23 15:36	11/27/23 20:18	EPA 3050B	1,6020B	SMV
Copper, Total	5.25		mg/kg	0.416	0.040	2	10/27/23 15:36	11/27/23 20:18	EPA 3050B	1,6020B	SMV
Lead, Total	22.8		mg/kg	0.125	0.030	2	10/27/23 15:36	11/27/23 20:18	EPA 3050B	1,6020B	SMV
Mercury, Total	0.029		mg/kg	0.016	0.002	5	10/27/23 22:25	10/30/23 15:11	EPA 7474	1,7474	RJP
Nickel, Total	4.95		mg/kg	0.208	0.056	2	10/27/23 15:36	11/27/23 20:18	EPA 3050B	1,6020B	SMV
Zinc, Total	16.0		mg/kg	2.08	0.541	2	10/27/23 15:36	11/27/23 20:18	EPA 3050B	1,6020B	SMV

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-02 Date Collected: 10/03/23 15:02

Client ID: ES23-02 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	4.16		mg/kg	0.158	0.021	2	10/27/23 15:36	11/27/23 20:59	EPA 3050B	1,6020B	SMV
Cadmium, Total	0.173		mg/kg	0.063	0.008	2	10/27/23 15:36	11/27/23 20:59	EPA 3050B	1,6020B	SMV
Chromium, Total	13.9		mg/kg	0.630	0.148	2	10/27/23 15:36	11/27/23 20:59	EPA 3050B	1,6020B	SMV
Copper, Total	9.55		mg/kg	0.630	0.061	2	10/27/23 15:36	11/27/23 20:59	EPA 3050B	1,6020B	SMV
Lead, Total	91.6		mg/kg	0.189	0.046	2	10/27/23 15:36	11/27/23 20:59	EPA 3050B	1,6020B	SMV
Mercury, Total	0.025		mg/kg	0.023	0.003	5	10/27/23 22:25	10/30/23 14:56	EPA 7474	1,7474	RJP
Nickel, Total	12.5		mg/kg	0.315	0.084	2	10/27/23 15:36	11/27/23 20:59	EPA 3050B	1,6020B	SMV
Zinc, Total	47.4		mg/kg	3.15	0.820	2	10/27/23 15:36	11/27/23 20:59	EPA 3050B	1,6020B	SMV

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-03 Date Collected: 10/03/23 15:21

Client ID: ES23-03 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	2.53		mg/kg	0.154	0.020	2	10/27/23 15:36	11/27/23 20:14	EPA 3050B	1,6020B	SMV
Cadmium, Total	0.116		mg/kg	0.062	0.008	2	10/27/23 15:36	11/27/23 20:14	EPA 3050B	1,6020B	SMV
Chromium, Total	12.6		mg/kg	0.615	0.144	2	10/27/23 15:36	11/27/23 20:14	EPA 3050B	1,6020B	SMV
Copper, Total	7.94		mg/kg	0.615	0.060	2	10/27/23 15:36	11/27/23 20:14	EPA 3050B	1,6020B	SMV
Lead, Total	10.5		mg/kg	0.184	0.045	2	10/27/23 15:36	11/27/23 20:14	EPA 3050B	1,6020B	SMV
Mercury, Total	0.028		mg/kg	0.022	0.003	5	10/27/23 22:25	10/30/23 15:02	EPA 7474	1,7474	RJP
Nickel, Total	11.0		mg/kg	0.307	0.082	2	10/27/23 15:36	11/27/23 20:14	EPA 3050B	1,6020B	SMV
Zinc, Total	39.9		mg/kg	3.07	0.799	2	10/27/23 15:36	11/27/23 20:14	EPA 3050B	1,6020B	SMV

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-04 Date Collected: 10/03/23 14:50

Client ID: ES23-04 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	3.50		mg/kg	0.180	0.024	2	10/27/23 15:36	11/27/23 21:04	EPA 3050B	1,6020B	SMV
Cadmium, Total	0.196		mg/kg	0.072	0.010	2	10/27/23 15:36	11/27/23 21:04	EPA 3050B	1,6020B	SMV
Chromium, Total	17.4		mg/kg	0.721	0.169	2	10/27/23 15:36	11/27/23 21:04	EPA 3050B	1,6020B	SMV
Copper, Total	10.8		mg/kg	0.721	0.070	2	10/27/23 15:36	11/27/23 21:04	EPA 3050B	1,6020B	SMV
Lead, Total	13.9		mg/kg	0.216	0.053	2	10/27/23 15:36	11/27/23 21:04	EPA 3050B	1,6020B	SMV
Mercury, Total	0.037		mg/kg	0.027	0.003	5	10/27/23 22:25	10/30/23 15:13	EPA 7474	1,7474	RJP
Nickel, Total	16.1		mg/kg	0.360	0.096	2	10/27/23 15:36	11/27/23 21:04	EPA 3050B	1,6020B	SMV
Zinc, Total	59.8		mg/kg	3.60	0.937	2	10/27/23 15:36	11/27/23 21:04	EPA 3050B	1,6020B	SMV

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-05 Date Collected: 10/03/23 16:20

Client ID: ES23-05 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	2.08		mg/kg	0.235	0.031	2	10/27/23 15:36	11/27/23 21:08	EPA 3050B	1,6020B	SMV
Cadmium, Total	0.107		mg/kg	0.094	0.012	2	10/27/23 15:36	11/27/23 21:08	EPA 3050B	1,6020B	SMV
Chromium, Total	13.1		mg/kg	0.941	0.220	2	10/27/23 15:36	11/27/23 21:08	EPA 3050B	1,6020B	SMV
Copper, Total	6.34		mg/kg	0.941	0.091	2	10/27/23 15:36	11/27/23 21:08	EPA 3050B	1,6020B	SMV
Lead, Total	5.94		mg/kg	0.282	0.069	2	10/27/23 15:36	11/27/23 21:08	EPA 3050B	1,6020B	SMV
Mercury, Total	0.020	J	mg/kg	0.035	0.004	5	10/27/23 22:25	10/30/23 15:25	EPA 7474	1,7474	RJP
Nickel, Total	9.70		mg/kg	0.470	0.126	2	10/27/23 15:36	11/27/23 21:08	EPA 3050B	1,6020B	SMV
Zinc, Total	36.3		mg/kg	4.70	1.22	2	10/27/23 15:36	11/27/23 21:08	EPA 3050B	1,6020B	SMV

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-06 Date Collected: 10/03/23 16:25

Client ID: ES23-06 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	2.72		mg/kg	0.218	0.029	2	10/27/23 15:36	11/27/23 21:13	EPA 3050B	1,6020B	SMV
Cadmium, Total	0.147		mg/kg	0.087	0.012	2	10/27/23 15:36	11/27/23 21:13	EPA 3050B	1,6020B	SMV
Chromium, Total	17.6		mg/kg	0.870	0.204	2	10/27/23 15:36	11/27/23 21:13	EPA 3050B	1,6020B	SMV
Copper, Total	9.89		mg/kg	0.870	0.084	2	10/27/23 15:36	11/27/23 21:13	EPA 3050B	1,6020B	SMV
Lead, Total	9.57		mg/kg	0.261	0.064	2	10/27/23 15:36	11/27/23 21:13	EPA 3050B	1,6020B	SMV
Mercury, Total	0.021	J	mg/kg	0.031	0.004	5	10/27/23 22:25	10/30/23 15:27	EPA 7474	1,7474	RJP
Nickel, Total	14.8		mg/kg	0.435	0.116	2	10/27/23 15:36	11/27/23 21:13	EPA 3050B	1,6020B	SMV
Zinc, Total	50.0		mg/kg	4.35	1.13	2	10/27/23 15:36	11/27/23 21:13	EPA 3050B	1,6020B	SMV

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-07 Date Collected: 10/03/23 16:30

Client ID: ES23-07 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	2.45		mg/kg	0.181	0.024	2	10/27/23 15:36	11/27/23 21:18	EPA 3050B	1,6020B	SMV
Cadmium, Total	0.131		mg/kg	0.072	0.010	2	10/27/23 15:36	11/27/23 21:18	EPA 3050B	1,6020B	SMV
Chromium, Total	13.9		mg/kg	0.724	0.170	2	10/27/23 15:36	11/27/23 21:18	EPA 3050B	1,6020B	SMV
Copper, Total	8.71		mg/kg	0.724	0.070	2	10/27/23 15:36	11/27/23 21:18	EPA 3050B	1,6020B	SMV
Lead, Total	7.90		mg/kg	0.217	0.053	2	10/27/23 15:36	11/27/23 21:18	EPA 3050B	1,6020B	SMV
Mercury, Total	0.018	J	mg/kg	0.027	0.003	5	10/27/23 22:25	10/30/23 15:30	EPA 7474	1,7474	RJP
Nickel, Total	12.7		mg/kg	0.362	0.097	2	10/27/23 15:36	11/27/23 21:18	EPA 3050B	1,6020B	SMV
Zinc, Total	43.4		mg/kg	3.62	0.942	2	10/27/23 15:36	11/27/23 21:18	EPA 3050B	1,6020B	SMV

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-08 Date Collected: 10/03/23 15:10

Client ID: ES23-08 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	2.95		mg/kg	0.162	0.021	2	10/27/23 15:36	11/27/23 21:22	EPA 3050B	1,6020B	SMV
Cadmium, Total	0.140		mg/kg	0.065	0.009	2	10/27/23 15:36	11/27/23 21:22	EPA 3050B	1,6020B	SMV
Chromium, Total	14.3		mg/kg	0.648	0.152	2	10/27/23 15:36	11/27/23 21:22	EPA 3050B	1,6020B	SMV
Copper, Total	8.81		mg/kg	0.648	0.063	2	10/27/23 15:36	11/27/23 21:22	EPA 3050B	1,6020B	SMV
Lead, Total	12.3		mg/kg	0.194	0.047	2	10/27/23 15:36	11/27/23 21:22	EPA 3050B	1,6020B	SMV
Mercury, Total	0.028		mg/kg	0.024	0.003	5	10/27/23 22:25	10/30/23 15:33	EPA 7474	1,7474	RJP
Nickel, Total	12.7		mg/kg	0.324	0.087	2	10/27/23 15:36	11/27/23 21:22	EPA 3050B	1,6020B	SMV
Zinc, Total	47.2		mg/kg	3.24	0.842	2	10/27/23 15:36	11/27/23 21:22	EPA 3050B	1,6020B	SMV

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-09 Date Collected: 10/04/23 11:05

Client ID: BS23-02 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	1.62		mg/kg	0.167	0.022	2	10/27/23 15:36	11/27/23 21:27	EPA 3050B	1,6020B	SMV
Cadmium, Total	0.110		mg/kg	0.067	0.009	2	10/27/23 15:36	11/27/23 21:27	EPA 3050B	1,6020B	SMV
Chromium, Total	12.6		mg/kg	0.667	0.156	2	10/27/23 15:36	11/27/23 21:27	EPA 3050B	1,6020B	SMV
Copper, Total	8.27		mg/kg	0.667	0.065	2	10/27/23 15:36	11/27/23 21:27	EPA 3050B	1,6020B	SMV
Lead, Total	13.3		mg/kg	0.200	0.049	2	10/27/23 15:36	11/27/23 21:27	EPA 3050B	1,6020B	SMV
Mercury, Total	0.020	J	mg/kg	0.024	0.003	5	10/27/23 22:25	10/30/23 15:35	EPA 7474	1,7474	RJP
Nickel, Total	10.2		mg/kg	0.334	0.089	2	10/27/23 15:36	11/27/23 21:27	EPA 3050B	1,6020B	SMV
Zinc, Total	38.6		mg/kg	3.34	0.867	2	10/27/23 15:36	11/27/23 21:27	EPA 3050B	1,6020B	SMV

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-10 Date Collected: 10/04/23 10:55

Client ID: BS23-03 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	2.19		mg/kg	0.170	0.023	2	10/27/23 15:36	11/27/23 21:32	EPA 3050B	1,6020B	SMV
Cadmium, Total	0.118		mg/kg	0.068	0.009	2	10/27/23 15:36	11/27/23 21:32	EPA 3050B	1,6020B	SMV
Chromium, Total	13.3		mg/kg	0.681	0.159	2	10/27/23 15:36	11/27/23 21:32	EPA 3050B	1,6020B	SMV
Copper, Total	8.41		mg/kg	0.681	0.066	2	10/27/23 15:36	11/27/23 21:32	EPA 3050B	1,6020B	SMV
Lead, Total	11.1		mg/kg	0.204	0.050	2	10/27/23 15:36	11/27/23 21:32	EPA 3050B	1,6020B	SMV
Mercury, Total	0.035		mg/kg	0.021	0.003	5	10/27/23 22:25	10/30/23 15:38	EPA 7474	1,7474	RJP
Nickel, Total	11.6		mg/kg	0.340	0.091	2	10/27/23 15:36	11/27/23 21:32	EPA 3050B	1,6020B	SMV
Zinc, Total	44.1		mg/kg	3.40	0.885	2	10/27/23 15:36	11/27/23 21:32	EPA 3050B	1,6020B	SMV

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-11 Date Collected: 10/04/23 11:00

Client ID: BS23-05-01 Date Received: 10/06/23

Sample Location: YARMOUTH, ME Field Prep: Not Specified

Sample Depth:

Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Arsenic, Total	2.84		mg/kg	0.164	0.022	2	10/27/23 15:36	11/27/23 22:56	EPA 3050B	1,6020B	SMV
Cadmium, Total	0.159		mg/kg	0.066	0.009	2	10/27/23 15:36	11/27/23 22:56	EPA 3050B	1,6020B	SMV
Chromium, Total	15.4		mg/kg	0.655	0.153	2	10/27/23 15:36	11/27/23 22:56	EPA 3050B	1,6020B	SMV
Copper, Total	9.47		mg/kg	0.655	0.064	2	10/27/23 15:36	11/27/23 22:56	EPA 3050B	1,6020B	SMV
Lead, Total	13.2		mg/kg	0.196	0.048	2	10/27/23 15:36	11/27/23 22:56	EPA 3050B	1,6020B	SMV
Mercury, Total	0.041		mg/kg	0.019	0.002	5	10/27/23 22:25	10/30/23 15:41	EPA 7474	1,7474	RJP
Nickel, Total	13.2		mg/kg	0.327	0.088	2	10/27/23 15:36	11/27/23 22:56	EPA 3050B	1,6020B	SMV
Zinc, Total	52.1		mg/kg	3.27	0.851	2	10/27/23 15:36	11/27/23 22:56	EPA 3050B	1,6020B	SMV

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

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): 01-11 Batch: WG1837867-1										
Arsenic, Total	ND		mg/kg	0.050	0.007	1	10/27/23 15:36	11/27/23 20:50	1,6020B	SMV
Cadmium, Total	ND		mg/kg	0.020	0.003	1	10/27/23 15:36	11/27/23 20:50	1,6020B	SMV
Chromium, Total	0.102	J	mg/kg	0.200	0.047	1	10/27/23 15:36	11/27/23 20:50	1,6020B	SMV
Copper, Total	ND		mg/kg	0.200	0.019	1	10/27/23 15:36	11/27/23 20:50	1,6020B	SMV
Lead, Total	ND		mg/kg	0.060	0.015	1	10/27/23 15:36	11/27/23 20:50	1,6020B	SMV
Nickel, Total	ND		mg/kg	0.100	0.027	1	10/27/23 15:36	11/27/23 20:50	1,6020B	SMV
Zinc, Total	ND		mg/kg	1.00	0.260	1	10/27/23 15:36	11/27/23 20:50	1,6020B	SMV

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-11 Batch: WG1837868-1										
Mercury, Total	ND		mg/kg	0.013	0.002	5	10/27/23 22:25	10/30/23 14:50	1,7474	RJP

Prep Information

Digestion Method: EPA 7474

Lab Control Sample Analysis

Batch Quality Control

Project Name: ROYAL RIVER 206

Project Number: Not Specified

Lab Number: L2359291

Report Date: 12/22/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-11 Batch: WG1837867-2 SRM Lot Number: D119-540								
Arsenic, Total	98		-		83-117	-		20
Cadmium, Total	99		-		82-117	-		20
Chromium, Total	94		-		82-119	-		20
Copper, Total	98		-		84-116	-		20
Lead, Total	96		-		82-118	-		20
Nickel, Total	103		-		82-117	-		20
Zinc, Total	99		-		80-120	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-11 Batch: WG1837868-2 SRM Lot Number: D119-540								
Mercury, Total	77		-		73-127	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: ROYAL RIVER 206
Project Number: Not Specified

Lab Number: L2359291
Report Date: 12/22/23

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): 01-11 QC Batch ID: WG1837867-4 WG1837867-5 QC Sample: L2359291-03 Client ID: ES23-03												
Arsenic, Total	2.53	14.3	16.3	96		17.0	95		75-125	4		20
Cadmium, Total	0.116	6.33	6.44	100		6.57	96		75-125	2		20
Chromium, Total	12.6	23.9	45.7	**138**	Q	47.4	**137**	Q	75-125	4		20
Copper, Total	7.94	29.8	39.7	106		41.0	104		75-125	3		20
Lead, Total	10.5	63.3	75.6	103		75.4	96		75-125	0		20
Nickel, Total	11.0	59.7	72.2	102		74.5	100		75-125	3		20
Zinc, Total	39.9	59.7	106	111		109	109		75-125	3		20
Total Metals - Mansfield Lab Associated sample(s): 01-11 QC Batch ID: WG1837868-4 WG1837868-5 QC Sample: L2359291-03 Client ID: ES23-03												
Mercury, Total	0.028	1.15	1.14	97		1.10	97		80-120	4		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: ROYAL RIVER 206
Project Number: Not Specified

Lab Number: L2359291
Report Date: 12/22/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-11 QC Batch ID: WG1837867-3 QC Sample: L2359291-02 Client ID: ES23-02						
Arsenic, Total	4.16	3.70	mg/kg	12		20
Cadmium, Total	0.173	0.163	mg/kg	6		20
Chromium, Total	13.9	14.5	mg/kg	4		20
Copper, Total	9.55	9.87	mg/kg	3		20
Lead, Total	91.6	95.4	mg/kg	4		20
Nickel, Total	12.5	12.8	mg/kg	2		20
Zinc, Total	47.4	48.6	mg/kg	3		20
Total Metals - Mansfield Lab Associated sample(s): 01-11 QC Batch ID: WG1837868-3 QC Sample: L2359291-02 Client ID: ES23-02						
Mercury, Total	0.025	0.022J	mg/kg	NC		20

INORGANICS
&
MISCELLANEOUS

Project Name: ROYAL RIVER 206
Project Number: Not Specified

Lab Number: L2359291
Report Date: 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-01
Client ID: ES23-01
Sample Location: YARMOUTH, ME

Date Collected: 10/03/23 14:38
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	0.255		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
Total Organic Carbon (Rep2)	0.254		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
Total Organic Carbon (Average)	0.254		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
General Chemistry - Mansfield Lab										
Solids, Total	92.7		%	0.100	0.100	1	-	10/08/23 22:01	121,2540G	CLF
Moisture	7.30		%	0.100	0.100	1	-	10/08/23 22:01	121,2540G	CLF

Project Name: ROYAL RIVER 206
Project Number: Not Specified

Lab Number: L2359291
Report Date: 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-02
Client ID: ES23-02
Sample Location: YARMOUTH, ME

Date Collected: 10/03/23 15:02
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	1.51		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
Total Organic Carbon (Rep2)	1.31		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
Total Organic Carbon (Average)	1.41		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
General Chemistry - Mansfield Lab										
Solids, Total	62.1		%	0.100	0.100	1	-	10/08/23 22:01	121,2540G	CLF
Moisture	37.9		%	0.100	0.100	1	-	10/08/23 22:01	121,2540G	CLF

Project Name: ROYAL RIVER 206
Project Number: Not Specified

Lab Number: L2359291
Report Date: 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-03
Client ID: ES23-03
Sample Location: YARMOUTH, ME

Date Collected: 10/03/23 15:21
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	1.11		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
Total Organic Carbon (Rep2)	1.14		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
Total Organic Carbon (Average)	1.12		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
General Chemistry - Mansfield Lab										
Solids, Total	63.0		%	0.100	0.100	1	-	10/08/23 22:01	121,2540G	CLF
Moisture	37.0		%	0.100	0.100	1	-	10/08/23 22:01	121,2540G	CLF

Project Name: ROYAL RIVER 206
Project Number: Not Specified

Lab Number: L2359291
Report Date: 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-04
Client ID: ES23-04
Sample Location: YARMOUTH, ME

Date Collected: 10/03/23 14:50
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	2.33		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
Total Organic Carbon (Rep2)	2.05		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
Total Organic Carbon (Average)	2.19		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
General Chemistry - Mansfield Lab										
Solids, Total	53.5		%	0.100	0.100	1	-	10/08/23 22:01	121,2540G	CLF
Moisture	46.5		%	0.100	0.100	1	-	10/08/23 22:01	121,2540G	CLF

Project Name: ROYAL RIVER 206
Project Number: Not Specified

Lab Number: L2359291
Report Date: 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-05
Client ID: ES23-05
Sample Location: YARMOUTH, ME

Date Collected: 10/03/23 16:20
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	0.899		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
Total Organic Carbon (Rep2)	1.01		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
Total Organic Carbon (Average)	0.953		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
General Chemistry - Mansfield Lab										
Solids, Total	40.2		%	0.100	0.100	1	-	10/08/23 22:01	121,2540G	CLF
Moisture	59.8		%	0.100	0.100	1	-	10/08/23 22:01	121,2540G	CLF

Project Name: ROYAL RIVER 206
Project Number: Not Specified

Lab Number: L2359291
Report Date: 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-06
Client ID: ES23-06
Sample Location: YARMOUTH, ME

Date Collected: 10/03/23 16:25
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	1.54		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
Total Organic Carbon (Rep2)	1.69		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
Total Organic Carbon (Average)	1.62		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
General Chemistry - Mansfield Lab										
Solids, Total	45.2		%	0.100	0.100	1	-	10/08/23 22:01	121,2540G	CLF
Moisture	54.8		%	0.100	0.100	1	-	10/08/23 22:01	121,2540G	CLF

Project Name: ROYAL RIVER 206
Project Number: Not Specified

Lab Number: L2359291
Report Date: 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-07
Client ID: ES23-07
Sample Location: YARMOUTH, ME

Date Collected: 10/03/23 16:30
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	1.17		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
Total Organic Carbon (Rep2)	1.00		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
Total Organic Carbon (Average)	1.09		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
General Chemistry - Mansfield Lab										
Solids, Total	55.0		%	0.100	0.100	1	-	10/08/23 22:01	121,2540G	CLF
Moisture	45.0		%	0.100	0.100	1	-	10/08/23 22:01	121,2540G	CLF

Project Name: ROYAL RIVER 206
Project Number: Not Specified

Lab Number: L2359291
Report Date: 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-08
Client ID: ES23-08
Sample Location: YARMOUTH, ME

Date Collected: 10/03/23 15:10
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	1.53		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
Total Organic Carbon (Rep2)	1.74		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
Total Organic Carbon (Average)	1.63		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
General Chemistry - Mansfield Lab										
Solids, Total	61.3		%	0.100	0.100	1	-	10/08/23 22:01	121,2540G	CLF
Moisture	38.7		%	0.100	0.100	1	-	10/08/23 22:01	121,2540G	CLF

Project Name: ROYAL RIVER 206
Project Number: Not Specified

Lab Number: L2359291
Report Date: 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-09
Client ID: BS23-02
Sample Location: YARMOUTH, ME

Date Collected: 10/04/23 11:05
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	0.719		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
Total Organic Carbon (Rep2)	0.821		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
Total Organic Carbon (Average)	0.770		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
General Chemistry - Mansfield Lab										
Solids, Total	58.0		%	0.100	0.100	1	-	10/08/23 22:01	121,2540G	CLF
Moisture	42.0		%	0.100	0.100	1	-	10/08/23 22:01	121,2540G	CLF

Project Name: ROYAL RIVER 206
Project Number: Not Specified

Lab Number: L2359291
Report Date: 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-10
Client ID: BS23-03
Sample Location: YARMOUTH, ME

Date Collected: 10/04/23 10:55
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	1.59		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
Total Organic Carbon (Rep2)	1.73		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
Total Organic Carbon (Average)	1.66		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
General Chemistry - Mansfield Lab										
Solids, Total	55.4		%	0.100	0.100	1	-	10/08/23 22:01	121,2540G	CLF
Moisture	44.6		%	0.100	0.100	1	-	10/08/23 22:01	121,2540G	CLF

Project Name: ROYAL RIVER 206
Project Number: Not Specified

Lab Number: L2359291
Report Date: 12/22/23

SAMPLE RESULTS

Lab ID: L2359291-11
Client ID: BS23-05-01
Sample Location: YARMOUTH, ME

Date Collected: 10/04/23 11:00
Date Received: 10/06/23
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	1.73		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
Total Organic Carbon (Rep2)	1.76		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
Total Organic Carbon (Average)	1.74		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
General Chemistry - Mansfield Lab										
Solids, Total	57.1		%	0.100	0.100	1	-	10/08/23 22:01	121,2540G	CLF
Moisture	42.9		%	0.100	0.100	1	-	10/08/23 22:01	121,2540G	CLF

Project Name: ROYAL RIVER 206 **Lab Number:** L2359291

Project Number: Not Specified **Report Date:** 12/22/23

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab for sample(s): 01-11 Batch: WG1837105-1										
Solids, Total	100		%	0.100	0.100	1	-	10/08/23 22:01	121,2540G	CLF
Moisture	ND		%	0.100	0.100	1	-	10/08/23 22:01	121,2540G	CLF
Total Organic Carbon - Mansfield Lab for sample(s): 01-11 Batch: WG1859603-1										
Total Organic Carbon (Rep1)	ND		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
Total Organic Carbon (Rep2)	ND		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP
Total Organic Carbon (Average)	ND		%	0.010	0.010	1	-	12/04/23 10:47	1,9060A	SPP

Lab Control Sample Analysis

Batch Quality Control

Project Name: ROYAL RIVER 206

Project Number: Not Specified

Lab Number: L2359291

Report Date: 12/22/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Organic Carbon - Mansfield Lab Associated sample(s): 01-11 Batch: WG1859603-2								
Total Organic Carbon (Rep1)	92		-		75-125	-		25
Total Organic Carbon (Rep2)	96		-		75-125	-		25
Total Organic Carbon (Average)	94		-		75-125	-		25

Matrix Spike Analysis
Batch Quality Control

Project Name: ROYAL RIVER 206
Project Number: Not Specified

Lab Number: L2359291
Report Date: 12/22/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Organic Carbon - Mansfield Lab Associated sample(s): 01-11 QC Batch ID: WG1859603-4 WG1859603-5 QC Sample: L2359291-03 Client ID: ES23-03												
Total Organic Carbon (Rep1)	1.11	0.902	1.93	91		1.77	82		75-125	9		25
Total Organic Carbon (Rep2)	1.14	0.868	1.94	92		1.72	96		75-125	12		25

Lab Duplicate Analysis
Batch Quality Control

Project Name: ROYAL RIVER 206
Project Number: Not Specified

Lab Number: L2359291
Report Date: 12/22/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Mansfield Lab Associated sample(s): 01-11 QC Batch ID: WG1837105-2 QC Sample: L2359291-02 Client ID: ES23-02						
Solids, Total	62.1	63.3	%	2		10
Moisture	37.9	36.7	%	3		10
Total Organic Carbon - Mansfield Lab Associated sample(s): 01-11 QC Batch ID: WG1859603-3 QC Sample: L2359291-02 Client ID: ES23-02						
Total Organic Carbon (Rep1)	1.51	1.07	%	**34**	Q	25
Total Organic Carbon (Rep2)	1.31	1.09	%	18		25
Total Organic Carbon (Average)	1.41	1.08	%	**27**	Q	25

Project Name: ROYAL RIVER 206
Project Number: Not Specified

Lab Number: L2359291
Report Date: 12/22/23

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2359291-01A	Glass 250ml/8oz unpreserved	A	NA		4.3	Y	Absent		A2-RIM-PAH/PCBCONG(14),A2-ME-TS(7),A2-PB-6020T(180),A2-ZN-6020T(180),A2-NI-6020T(180),A2-HG-7474T(28),A2-ME-MOISTURE-2540(7),A2-CR-6020T(180),A2-AS-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-TOC-9060-2REPS(28),A2-PREP-3050:2T(180),A2-RIM-PEST-8081(14),A2-CU-6020T(180)
L2359291-02A	Glass 250ml/8oz unpreserved	A	NA		4.3	Y	Absent		A2-RIM-PAH/PCBCONG(14),A2-PB-6020T(180),A2-ME-TS(7),A2-ZN-6020T(180),A2-NI-6020T(180),A2-HG-7474T(28),A2-ME-MOISTURE-2540(7),A2-CR-6020T(180),A2-AS-6020T(180),A2-HGPREP-AF(28),A2-CD-6020T(180),A2-TOC-9060-2REPS(28),A2-PREP-3050:2T(180),A2-RIM-PEST-8081(14),A2-CU-6020T(180)
L2359291-02B	Glass 120ml/4oz unpreserved	A	NA		4.3	Y	Absent		A2-RIM-PAH/PCBCONG(14),A2-PB-6020T(180),A2-ME-TS(7),A2-ZN-6020T(180),A2-NI-6020T(180),A2-HG-7474T(28),A2-ME-MOISTURE-2540(7),A2-CR-6020T(180),A2-AS-6020T(180),A2-HGPREP-AF(28),A2-CD-6020T(180),A2-TOC-9060-2REPS(28),A2-PREP-3050:2T(180),A2-RIM-PEST-8081(14),A2-CU-6020T(180)
L2359291-03A	Glass 250ml/8oz unpreserved	A	NA		4.3	Y	Absent		A2-PB-6020T(180),A2-RIM-PAH/PCBCONG(14),A2-ME-TS(7),A2-NI-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-ME-MOISTURE-2540(7),A2-CR-6020T(180),A2-AS-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-TOC-9060-2REPS(28),A2-PREP-3050:2T(180),A2-RIM-PEST-8081(14),A2-CU-6020T(180)
L2359291-03A1	Glass 120ml/4oz unpreserved	A	NA		4.3	Y	Absent		A2-PB-6020T(180),A2-RIM-PAH/PCBCONG(14),A2-ME-TS(7),A2-NI-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-ME-MOISTURE-2540(7),A2-CR-6020T(180),A2-AS-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-TOC-9060-2REPS(28),A2-PREP-3050:2T(180),A2-RIM-PEST-8081(14),A2-CU-6020T(180)

*Values in parentheses indicate holding time in days

Project Name: ROYAL RIVER 206
Project Number: Not Specified

Lab Number: L2359291
Report Date: 12/22/23

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2359291-04A	Glass 250ml/8oz unpreserved	A	NA		4.3	Y	Absent		A2-PB-6020T(180),A2-RIM-PAH/PCBCONG(14),A2-ME-TS(7),A2-ZN-6020T(180),A2-NI-6020T(180),A2-HG-7474T(28),A2-ME-MOISTURE-2540(7),A2-CR-6020T(180),A2-AS-6020T(180),A2-HGPREP-AF(28),A2-CD-6020T(180),A2-TOC-9060-2REPS(28),A2-PREP-3050:2T(180),A2-CU-6020T(180),A2-RIM-PEST-8081(14)
L2359291-05A	Glass 250ml/8oz unpreserved	A	NA		4.3	Y	Absent		A2-ME-TS(7),A2-PB-6020T(180),A2-RIM-PAH/PCBCONG(14),A2-ZN-6020T(180),A2-NI-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-ME-MOISTURE-2540(7),A2-AS-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-TOC-9060-2REPS(28),A2-PREP-3050:2T(180),A2-CU-6020T(180),A2-RIM-PEST-8081(14)
L2359291-06A	Glass 250ml/8oz unpreserved	A	NA		4.3	Y	Absent		A2-ME-TS(7),A2-RIM-PAH/PCBCONG(14),A2-PB-6020T(180),A2-ZN-6020T(180),A2-NI-6020T(180),A2-HG-7474T(28),A2-ME-MOISTURE-2540(7),A2-CR-6020T(180),A2-AS-6020T(180),A2-HGPREP-AF(28),A2-CD-6020T(180),A2-PREP-3050:2T(180),A2-TOC-9060-2REPS(28),A2-CU-6020T(180),A2-RIM-PEST-8081(14)
L2359291-07A	Glass 250ml/8oz unpreserved	A	NA		4.3	Y	Absent		A2-RIM-PAH/PCBCONG(14),A2-ME-TS(7),A2-PB-6020T(180),A2-ZN-6020T(180),A2-NI-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-ME-MOISTURE-2540(7),A2-AS-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-TOC-9060-2REPS(28),A2-PREP-3050:2T(180),A2-CU-6020T(180),A2-RIM-PEST-8081(14)
L2359291-08A	Glass 250ml/8oz unpreserved	A	NA		4.3	Y	Absent		A2-ME-TS(7),A2-PB-6020T(180),A2-RIM-PAH/PCBCONG(14),A2-NI-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-ME-MOISTURE-2540(7),A2-AS-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-TOC-9060-2REPS(28),A2-CU-6020T(180),A2-RIM-PEST-8081(14)
L2359291-09A	Glass 250ml/8oz unpreserved	A	NA		4.3	Y	Absent		A2-ME-TS(7),A2-PB-6020T(180),A2-RIM-PAH/PCBCONG(14),A2-NI-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-ME-MOISTURE-2540(7),A2-CR-6020T(180),A2-AS-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-TOC-9060-2REPS(28),A2-PREP-3050:2T(180),A2-RIM-PEST-8081(14),A2-CU-6020T(180)

*Values in parentheses indicate holding time in days

Project Name: ROYAL RIVER 206
Project Number: Not Specified

Lab Number: L2359291
Report Date: 12/22/23

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2359291-10A	Glass 250ml/8oz unpreserved	A	NA		4.3	Y	Absent		A2-ME-TS(7),A2-PB-6020T(180),A2-RIM-PAH/PCBCONG(14),A2-ZN-6020T(180),A2-NI-6020T(180),A2-HG-7474T(28),A2-ME-MOISTURE-2540(7),A2-CR-6020T(180),A2-AS-6020T(180),A2-HGPREP-AF(28),A2-CD-6020T(180),A2-PREP-3050:2T(180),A2-TOC-9060-2REPS(28),A2-CU-6020T(180),A2-RIM-PEST-8081(14)
L2359291-11A	Glass 250ml/8oz unpreserved	A	NA		4.3	Y	Absent		A2-ME-TS(7),A2-RIM-PAH/PCBCONG(14),A2-PB-6020T(180),A2-NI-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-ME-MOISTURE-2540(7),A2-CR-6020T(180),A2-AS-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-TOC-9060-2REPS(28),A2-CU-6020T(180),A2-RIM-PEST-8081(14)

*Values in parentheses indicate holding time in days

Project Name:	ROYAL RIVER 206	**Lab Number:**	L2359291
Project Number:	Not Specified	**Report Date:**	12/22/23

GLOSSARY

Acronyms

DL	- 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 limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
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).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
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.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
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. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
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.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
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.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
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.

Report Format: DU Report with 'J' Qualifiers

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Project Number:	Not Specified	**Report Date:**	12/22/23

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.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

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'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

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.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

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 Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

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 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.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

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.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers

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Data Qualifiers

Identified Compounds (TICs). For calculated parameters, this represents that one or more values used in the calculation were estimated.

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

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

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.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name:	ROYAL RIVER 206	**Lab Number:**	L2359291
Project Number:	Not Specified	**Report Date:**	12/22/23

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

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.

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.

Certification Information

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

Westborough Facility
EPA 624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625.1: alpha-Terpineol
EPA 8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS.
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: Chloride, 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, SM4500NO2-B**
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: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, 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 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: 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 625.1: SVOC (Acid/Base/Neutral Extractables).
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

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, Fe, Pb, Mn, Ni, K, Se, Ag, Na, 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?	N/A
4. Was the SAP approved by the New England District?	Yes
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?	No, Metals, see Case Narrative
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?	N/A
16. Were the matrix spike/matrix spike duplicates run at the required frequency and was the percent recovery/RPD within the acceptance criteria?	No, PAH, PCB, Pesticides, Metals, see Case Narrative
17. Were the duplicate samples analyzed and were the RPDs within the required acceptance criteria?	No, PAH, Pesticides, TOC, see Case 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, Pesticides, see Case 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?	N/A
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: 8270D

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)	No, within overall method/SOP allowances	WG1865896-2: Pyrene (15.5%)	Retained at Lab
Standard Reference Materials	Within the limits provided by vendor	N/A		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%)	No, LCS/LCSD meets criteria	L2359291-03MS: acenaphthene (44%), pyrene (48%), chrysene (39%), benzo(k)fluoranthene (39%), benzo(a)pyrene (45%) L2359291-03MSD: chrysene (47%) and benzo(k)fluoranthene (49%)	In Data Package
Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD < 30%)	No, due to sample non-homogeneity	L2359291-02DUP: naphthalene (113%), acenaphthylene (42%), fluorene (55%), anthracene (56%), fluoranthene (37%), chrysene (56%), benzo(k)fluoranthene (55%), benzo(a)pyrene (53%), indeno(1,2,3-cd)pyrene (50%), dibenz(a,h)anthracene (56%) and	In Data Package

			benzo(ghi)perylene (47%)	
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	N/A		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%)	No, LCS/LCSD meets the criteria	L2359291-03RPD: Heptachlor epoxide (31%), Oxychlordane (31%)	In Data Package
Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD < 30%)	No, due to sample non-homogeneity	L2359291-02DUP: 4,4'-ddd (109%), 4,4'-ddt (176%)	In Data Package
Surrogate Recoveries	Calculate % recovery (30 to 150% recovery)	No, within overall method/SOP allowances	L2359291-10:DBOB (29% - B channel only)	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: 8270D

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	N/A		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%)	No, LCS/LCSD meets the criteria	L2359291-03MS: C14-BZ#49 (40%), C17-BZ#183 (49%)	In Data Package
Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD < 30%)	No, due to sample non-homogeneity		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	No	Annual	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	N/A		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%)	No, LCS meets criteria, post spike meets criteria	L2359291-03 MS/MSD: Cd(138%/137%)	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%)			In Data Package
Total Organic Carbon: Standard Reference Materials	Within the limits provided by vendor	Yes		In Data Package
Total Organic Carbon: Analytical Replicates	Analyze one sample in duplicate for each group of field samples (RPD <30%)	No, due to sample non-homogeneity	L2359291-02Dup: TOC (Rep1) = 34%	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.

Serial_No:12222310:30

CHAIN OF CUSTODY

PAGE 1 OF 2

Date Rec'd in Lab: 10/6/23

ALPHA Job #: L2359291

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: US ARMY CORPS OF ENGINEERS
Address: 696 VIRGINIA RD CONCORD, MA 01742
Phone: 978 318 8049
Email: RICHARD.B.LOYD@USACE.ARMY.MIL

Project Information

Project Name: ROYAL RIVER 206
Project Location: YARMOUTH, ME
Project #:
Project Manager: RICHARD LOYD
ALPHA Quote #:

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due:

Additional Project Information:

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 RIM Criteria RIM

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; RIM METALS; TOC; % MOIST/TOTAL SOLIDS

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	PAH	PCB/PEST	RIM METALS	TOC	% MOIST/TOTAL SOLIDS	Sample Comments	TOTAL # BOTTLES
59291-01	ES23-01	10/3	1438	SE	RBL	/	/	/	/	/		1
-02	ES23-02	↓	1502	↓	↓	/	/	/	/	/		1
-03 QC	DUP(ES23-02)	↓	1502	↓	↓	/	/	/	/	/		1
-03	ES23-03	↓	1521	↓	↓	/	/	/	/	/		1
-05 QC	MS/MSD(ES23-03)	↓	1521	↓	↓	/	/	/	/	/		1
-04	ES23-04	↓	1450	↓	↓	/	/	/	/	/		1
-05	ES23-05	↓	1620	↓	↓	/	/	/	/	/		1
-06	ES23-06	↓	1625	↓	↓	/	/	/	/	/		1
-07	ES23-07	↓	1630	↓	↓	/	/	/	/	/		1
-08	ES23-08	↓	1510	↓	↓	/	/	/	/	/		1
					Container Type	A	A	A	A	A		
					Preservative	A	A	A	A	A		

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
Richard B. Loyd	10/6	Eric Woods AAL	10/6/23 13 17
Eric Woods AAL	10/6/23 1410	[illegible]	10/6 1410
[illegible]	10/6/23 15:00	H. Rule AAL	10.6.23 1500
H. Rule AAL	10.6.23 1600	[illegible] AAL	10/6/23 1600

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

CHAIN OF CUSTODY

PAGE 2 OF 2

Date Rec'd in Lab: 10/6/23

ALPHA Job #: L2394291

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: US ARMY CORPS OF ENGINEERS

Address: 696 VIRGINIA RD
CONCORD, MA 01742

Phone: 978 318 8048

Email: RICHARD.B.LOYD@USACE.ARMY.MIL

Additional Project Information:

Project Information

Project Name: ROYAL RIVER 206

Project Location: YARMOUTH, ME

Project #:

Project Manager: RICHARD LOYD

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 RIM Criteria RIM

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler Initials	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	RIM METALS	TOC	% MOISTURE/TOTAL SOLID	SAMPLE INFO: Filtration ☐ Field ☐ Lab to do; Preservation ☐ Lab to do	Sample Comments	TOTAL # BOTTLES
-09	BS23-02	10/4	1105	SE	RBL		1					1		1	1	1			1
-10	BS23-03	↓	1055	↓	↓		1					1		1	1	1			1
-11	BS23-05-01	↓	1100	↓	↓		1					1		1	1	1			1

Container Type	A											A			A	A	A		
Preservative	A											A			A	A	A		

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
[signature]	10/6	[signature]	10/6/23 1317
[signature]	10/6/23 RIM	[signature]	10/6 1410
[signature]	10/6/23 15.00	[signature]	10/6/23 2500
[signature] RIM	10/6/23 1600	[signature]	10/6/23 1600

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

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

APPENDIX D

GRAIN SIZE REPORT

US Army Corps of Engineers®
New England District

NAE ENVIRONMENTAL LABORATORY
Project Name: Royal River
Project Location: Yarmouth, ME

Date Collected: 10/05/23
Date Recieved: 10/05/23
Date Analyzed: 01/16/24

Preparation Method: ASTM D421-85

Analysis Method: ASTM D 422-63 - Sieve Nos. 3/4", 4, 10, 40, 100, 200

Lab SOP: Particle Size Analysis of Sediments - Without Hydrometer

Received By: RBL **Analyzed By:** SVT **Checked By:** RBL

Discussion: Fifteen samples were received by the lab upon completion of field activities. There were no deviations from the established laboratory testing protocols during preparation or analysis.

Summary of Results:

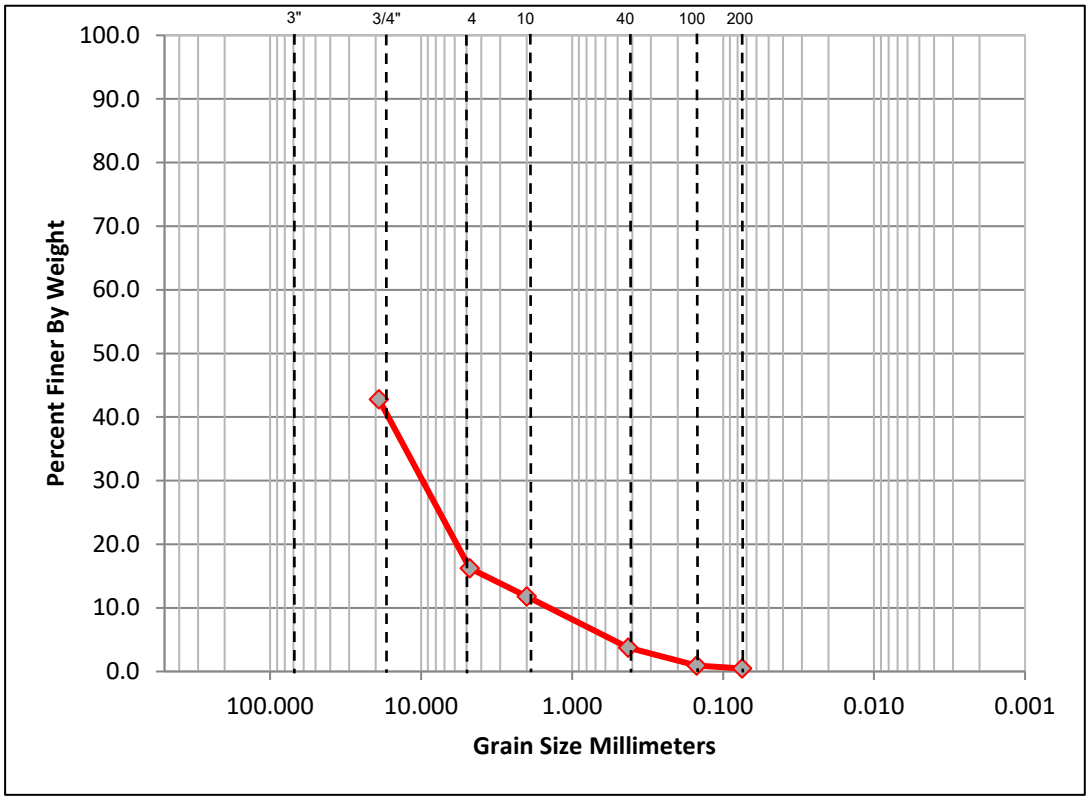
Sample ID	%Cobble	%Gravel		%Sand			%Fines
		Coarse	Fine	Coarse	Medium	Fine	
BS23-01	57.2	26.6		4.4	8.1	3.3	0.5
BS23-02	0.0	1.2		0.4	1.5	47.8	49.0
BS23-03	0.0	0.7		1.4	2.0	28.4	67.4
BS23-05	49.7	42.6		5.8	0.9	0.6	0.4
BS23-05-1	0.0	0.2		0.4	1.7	16.4	81.4
ES23-01	0.0	33.1		32.1	30.6	3.4	0.9
ES23-02	0.0	0.2		1.6	10.9	34.0	53.3
ES23-03	0.0	1.4		1.7	4.6	30.5	61.7
ES23-04	0.0	1.9		1.4	3.9	14.5	78.3
ES23-05	0.0	0.7		2.5	2.7	62.7	31.4
ES23-06	0.0	0.0		0.4	2.9	29.5	67.2
ES23-07	0.0	0.6		2.0	7.8	59.1	30.6
ES23-08	0.0	0.1		1.0	16.8	18.4	63.7
ES23-10	0.0	0.0		0.1	0.6	22.3	77.0
ES23-11	0.0	0.7		3.1	41.9	13.6	40.7

US Army Corps of Engineers®
New England District

Project Name: Royal River
Project Location: Yarmouth, ME
Sample ID: BS23-01

Date: 01/16/24

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



%Cobble	%Gravel		%Sand			%Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
57.2	26.6		4.4	8.1	3.3	0.5	

D10	D15	D30	D50	D60	D85	Cc	Cu
1.6487	3.9983	-	-	-	-	-	-

Original Sample Weight (g)			1312.0	Post Wash Weight (g)			-
Sieve	Sieve Size (mm)	Sieve Weight (g)	Shaken Weight (g)	Weight Retained (g)	Percent Retained	Cum. Percent Retained	Percent Finer
3/4"	19.050	542.3	1292.9	750.6	57.2	57.2	42.8
#4	4.750	496.3	845.1	348.8	26.6	83.8	16.2
#10	2.000	467.8	525.6	57.8	4.4	88.2	11.8
#40	0.425	357.8	463.6	105.8	8.1	96.3	3.7
#100	0.150	334.3	371.4	37.1	2.8	99.1	0.9
#200	0.075	316.5	322.2	5.7	0.4	99.5	0.5
Pan	-	458.4	464.4	6.0	0.5	100.0	-

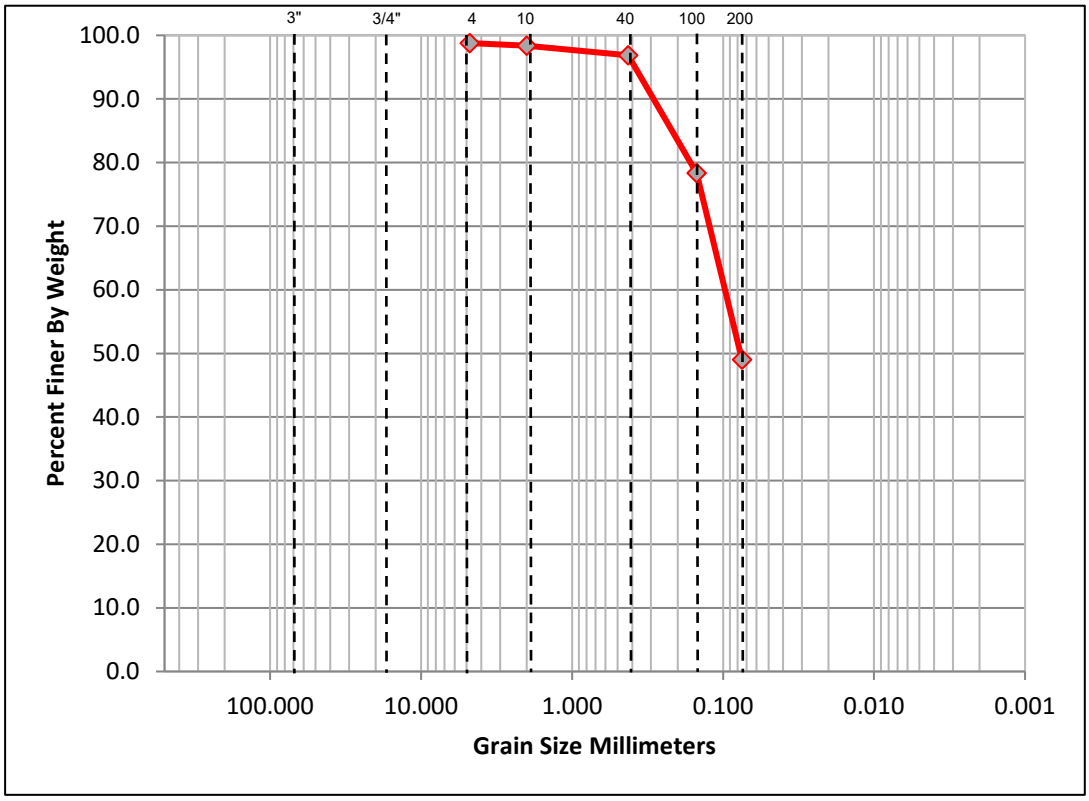
Sample Notes: Sub-angular to subrounded cobble and gravel. Some well graded sand and leaf litter present.

US Army Corps of Engineers®
New England District

Project Name: Royal River
Project Location: Yarmouth, ME
Sample ID: BS23-02

Date: 01/16/24

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



%Cobble	%Gravel		%Sand			%Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	1.2		0.4	1.5	47.8	49.0	

D10	D15	D30	D50	D60	D85	Cc	Cu
-	-	-	0.0775	0.1031	0.2490	-	-

Original Sample Weight (g)			541.4	Post Wash Weight (g)			291.5
Sieve	Sieve Size (mm)	Sieve Weight (g)	Shaken Weight (g)	Weight Retained (g)	Percent Retained	Cum. Percent Retained	Percent Finer
#4	4.750	496.3	502.9	6.6	1.2	1.2	98.8
#10	2.000	467.8	470.0	2.2	0.4	1.6	98.4
#40	0.425	357.8	366.1	8.3	1.5	3.2	96.8
#100	0.150	334.1	434.3	100.2	18.5	21.7	78.3
#200	0.075	316.4	475.0	158.6	29.3	51.0	49.0
Pan	-	458.3	473.9	15.6	2.9	53.8	-

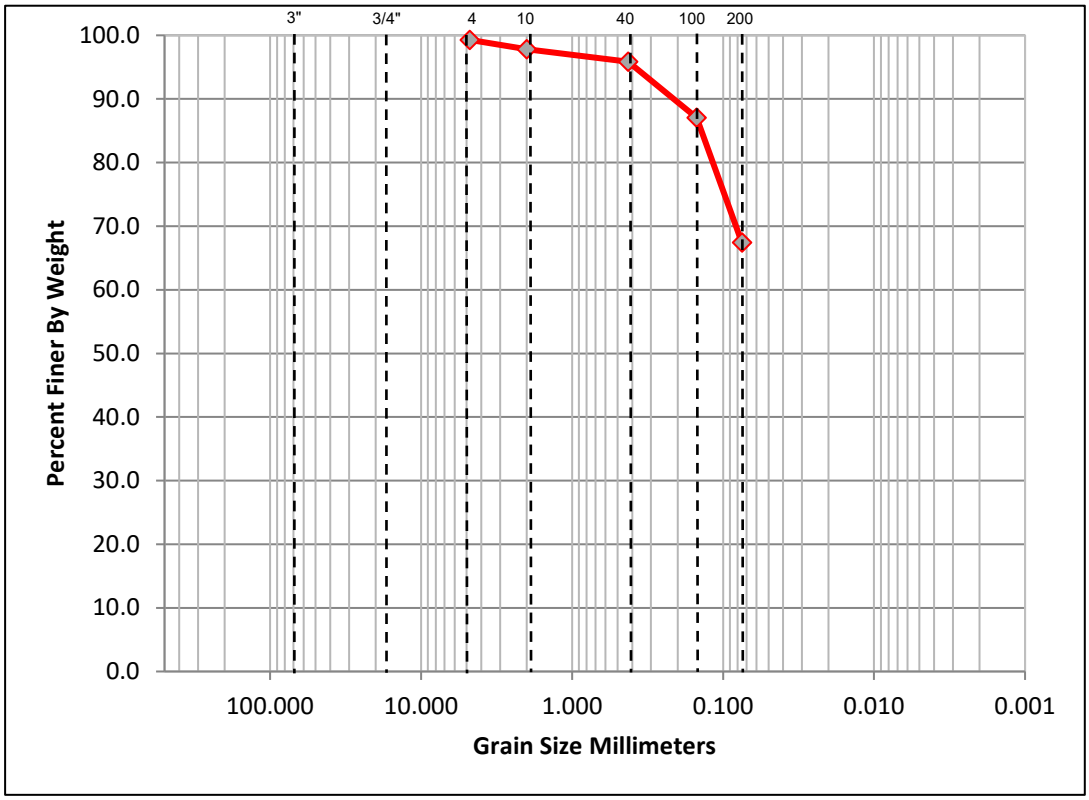
Sample Notes: Fine sand and silt. Material retained on sieves 4, 10, and 40 was primarily woody debris and leaf litter.

US Army Corps of Engineers®
New England District

Project Name: Royal River
Project Location: Yarmouth, ME
Sample ID: BS23-03

Date: 01/16/24

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



%Cobble	%Gravel		%Sand			%Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.7		1.4	2.0	28.4	67.4	

D10	D15	D30	D50	D60	D85	Cc	Cu
-	-	-	-	-	0.1423	-	-

Original Sample Weight (g)			373.8	Post Wash Weight (g)			131.5
Sieve	Sieve Size (mm)	Sieve Weight (g)	Shaken Weight (g)	Weight Retained (g)	Percent Retained	Cum. Percent Retained	Percent Finer
#4	4.750	496.2	498.9	2.7	0.7	0.7	99.3
#10	2.000	467.7	473.1	5.4	1.4	2.2	97.8
#40	0.425	357.7	365.2	7.5	2.0	4.2	95.8
#100	0.150	334.3	367.2	32.9	8.8	13.0	87.0
#200	0.075	316.6	389.9	73.3	19.6	32.6	67.4
Pan	-	458.5	468.2	9.7	2.6	35.2	-

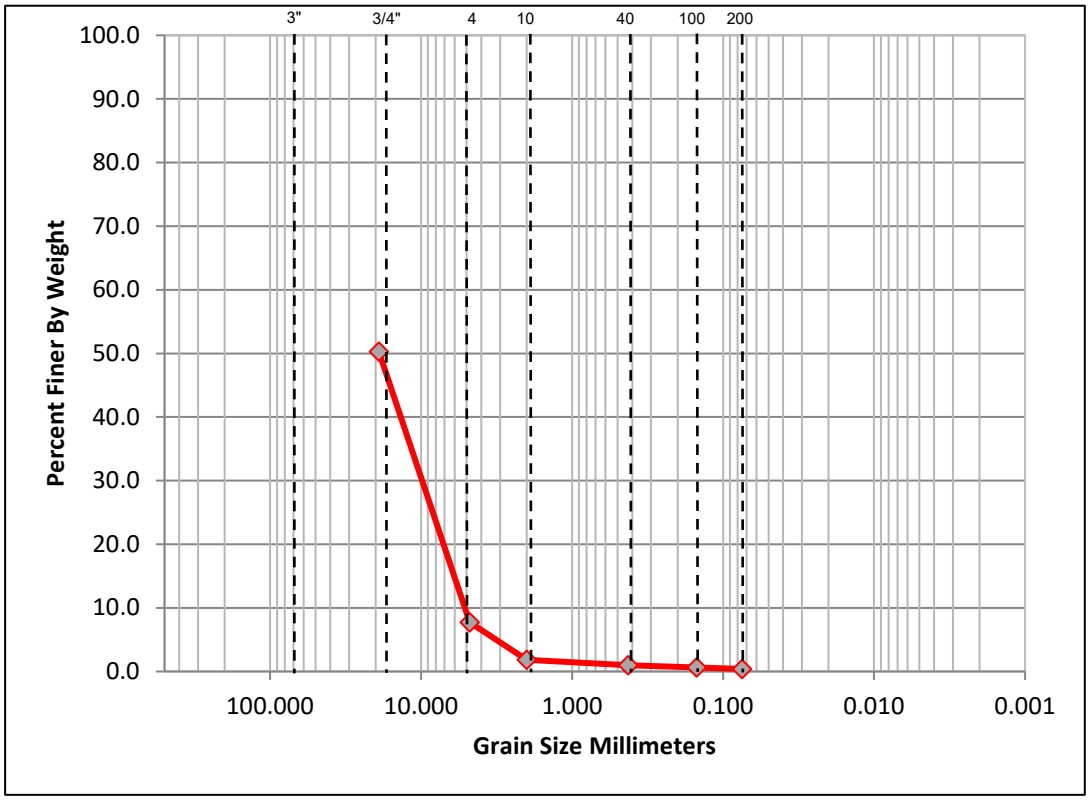
Sample Notes: Silt with fine sand.

US Army Corps of Engineers®
New England District

Project Name: Royal River
Project Location: Yarmouth, ME
Sample ID: BS23-05

Date: 01/16/24

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



%Cobble	%Gravel		%Sand			%Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
49.7	42.6		5.8	0.9	0.6	0.4	

D10	D15	D30	D50	D60	D85	Cc	Cu
-	-	-	-	-	-	-	-

Original Sample Weight (g)			1176.2	Post Wash Weight (g)			-
Sieve	Sieve Size (mm)	Sieve Weight (g)	Shaken Weight (g)	Weight Retained (g)	Percent Retained	Cum. Percent Retained	Percent Finer
3/4"	19.050	542.3	1127.0	584.7	49.7	49.7	50.3
#4	4.750	496.3	997.2	500.9	42.6	92.3	7.7
#10	2.000	467.8	536.5	68.7	5.8	98.1	1.9
#40	0.425	357.8	368.0	10.2	0.9	99.0	1.0
#100	0.150	334.3	338.3	4.0	0.3	99.3	0.7
#200	0.075	316.5	319.5	3.0	0.3	99.6	0.4
Pan	-	458.4	463.2	4.8	0.4	100.0	-

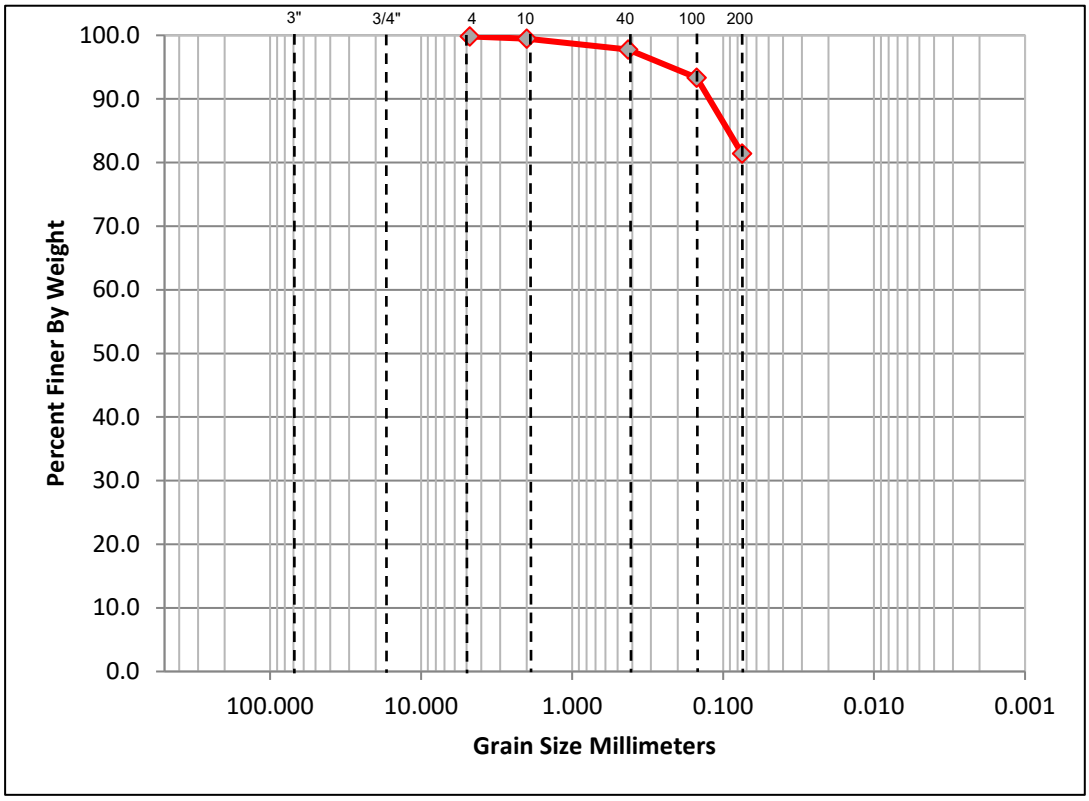
Sample Notes: Sub-angular to subrounded cobble and grave with trace amounts of sand.

US Army Corps of Engineers®
New England District

Project Name: Royal River
Project Location: Yarmouth, ME
Sample ID: BS23-05-1

Date: 01/16/24

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



%Cobble	%Gravel		%Sand			%Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.2		0.4	1.7	16.4	81.4	

D10	D15	D30	D50	D60	D85	Cc	Cu
-	-	-	-	-	0.0976	-	-

Original Sample Weight (g)			334.0	Post Wash Weight (g)			66.1
Sieve	Sieve Size (mm)	Sieve Weight (g)	Shaken Weight (g)	Weight Retained (g)	Percent Retained	Cum. Percent Retained	Percent Finer
#4	4.750	496.3	496.9	0.6	0.2	0.2	99.8
#10	2.000	467.8	469.0	1.2	0.4	0.5	99.5
#40	0.425	357.8	363.4	5.6	1.7	2.2	97.8
#100	0.150	334.1	348.9	14.8	4.4	6.6	93.4
#200	0.075	316.4	356.3	39.9	11.9	18.6	81.4
Pan	-	458.3	462.3	4.0	1.2	19.8	-

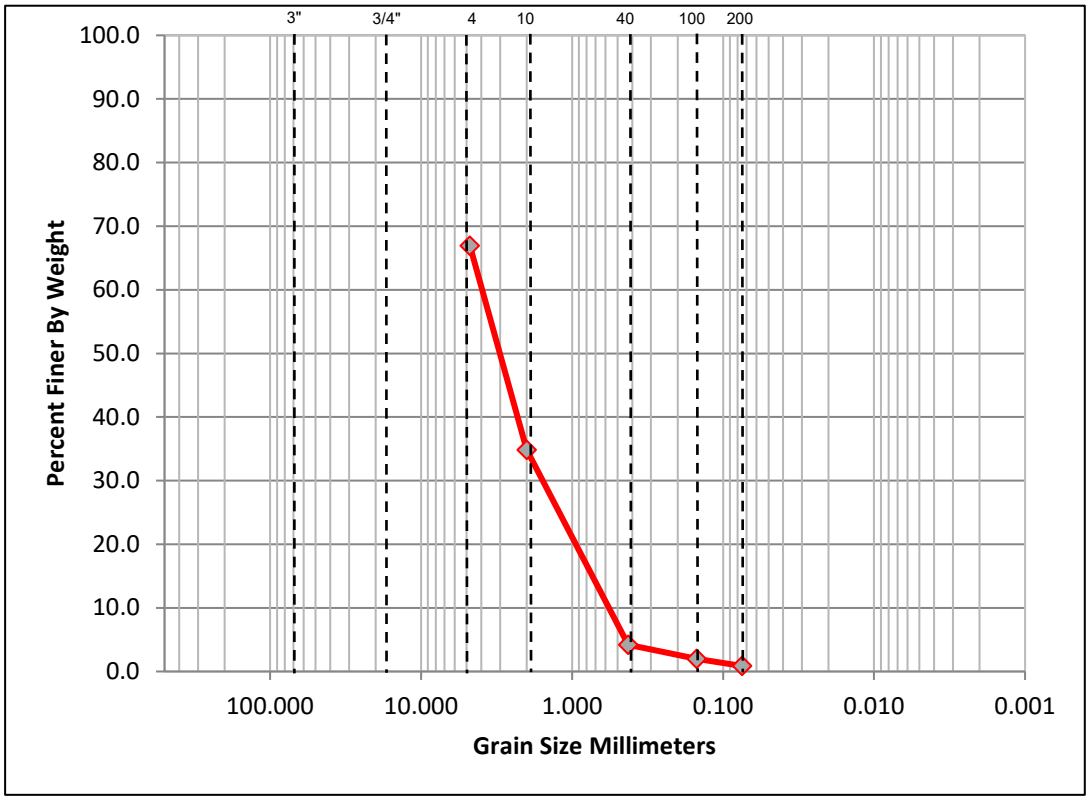
Sample Notes: Silt with fine sand.

US Army Corps of Engineers®
New England District

Project Name: Royal River
Project Location: Yarmouth, ME
Sample ID: ES23-01

Date: 01/16/24

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



%Cobble	%Gravel		%Sand			%Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	33.1		32.1	30.6	3.4	0.9	

D10	D15	D30	D50	D60	D85	Cc	Cu
0.7223	0.9793	1.7506	3.2988	4.1561	-	1.17	5.75

Original Sample Weight (g)			922.2	Post Wash Weight (g)			-
Sieve	Sieve Size (mm)	Sieve Weight (g)	Shaken Weight (g)	Weight Retained (g)	Percent Retained	Cum. Percent Retained	Percent Finer
#4	4.750	488.5	793.5	305.0	33.1	33.1	66.9
#10	2.000	463.1	758.9	295.8	32.1	65.1	34.9
#40	0.425	355.1	637.6	282.5	30.6	95.8	4.2
#100	0.150	325.7	346.2	20.5	2.2	98.0	2.0
#200	0.075	315.2	325.6	10.4	1.1	99.1	0.9
Pan	-	457.5	465.5	8.0	0.9	100.0	-

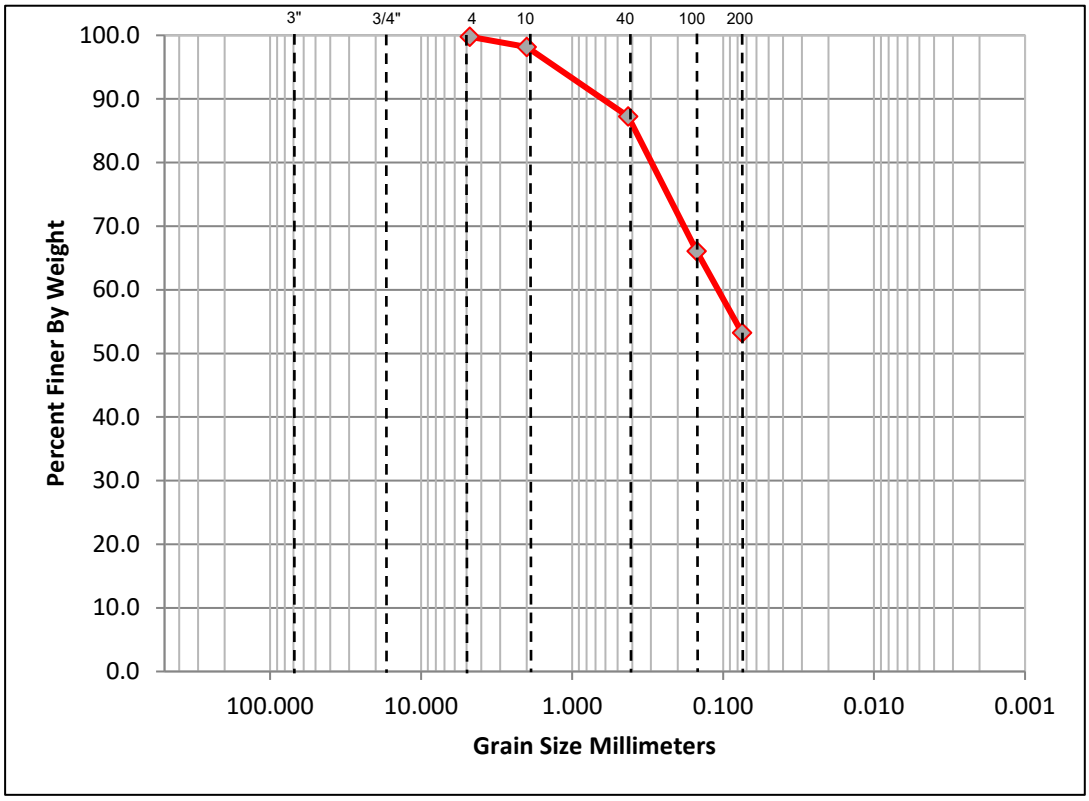
Sample Notes: Poorly graded medium to coarse sand and gravel

US Army Corps of Engineers®
New England District

Project Name: Royal River
Project Location: Yarmouth, ME
Sample ID: ES23-02

Date: 01/16/24

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



%Cobble	%Gravel		%Sand			%Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.2		1.6	10.9	34.0	53.3	

D10	D15	D30	D50	D60	D85	Cc	Cu
-	-	-	-	0.1145	0.3960	-	-

Original Sample Weight (g)			440.1	Post Wash Weight (g)			207.9
Sieve	Sieve Size (mm)	Sieve Weight (g)	Shaken Weight (g)	Weight Retained (g)	Percent Retained	Cum. Percent Retained	Percent Finer
#4	4.750	496.2	497.2	1.0	0.2	0.2	99.8
#10	2.000	467.7	474.8	7.1	1.6	1.8	98.2
#40	0.425	357.7	405.8	48.1	10.9	12.8	87.2
#100	0.150	334.3	427.5	93.2	21.2	33.9	66.1
#200	0.075	316.6	372.9	56.3	12.8	46.7	53.3
Pan	-	458.5	460.7	2.2	0.5	47.2	-

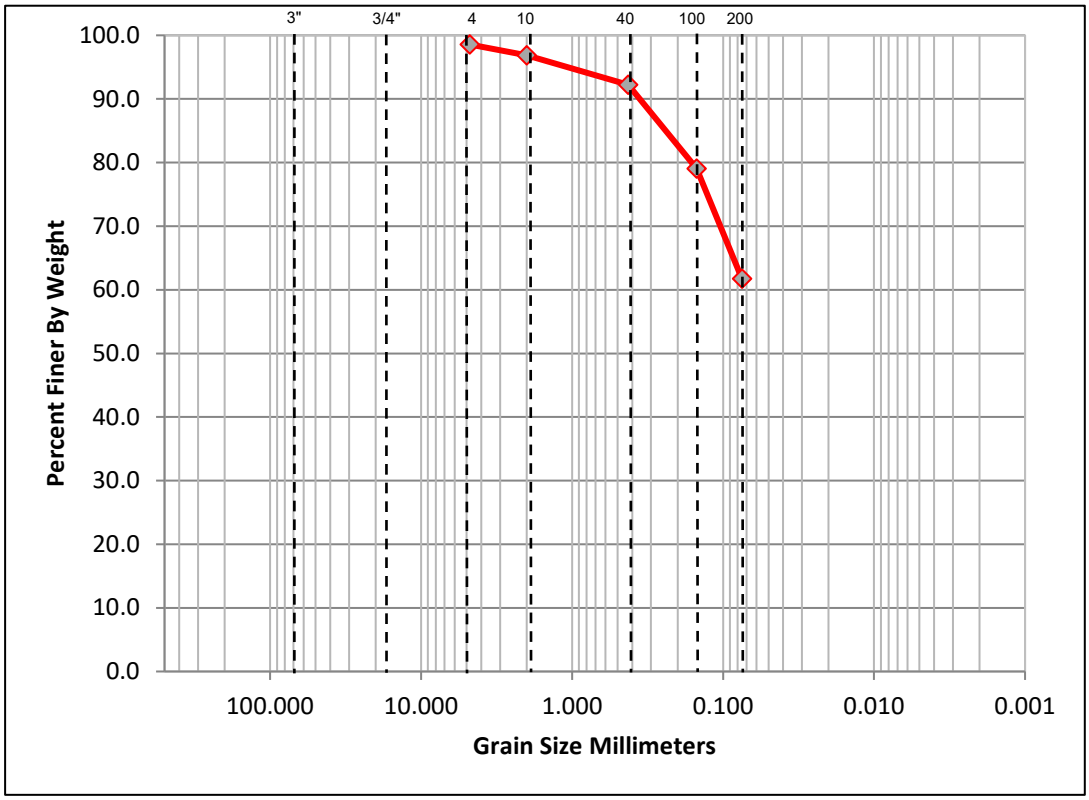
Sample Notes: Sandy silt. Material retained on sieves 4, 10, and 40 was woody debris.

US Army Corps of Engineers®
New England District

Project Name: Royal River
Project Location: Yarmouth, ME
Sample ID: ES23-03

Date: 01/16/24

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



%Cobble	%Gravel		%Sand			%Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	1.4		1.7	4.6	30.5	61.7	

D10	D15	D30	D50	D60	D85	Cc	Cu
-	-	-	-	-	0.2739	-	-

Original Sample Weight (g)			366.2	Post Wash Weight (g)			152.2
Sieve	Sieve Size (mm)	Sieve Weight (g)	Shaken Weight (g)	Weight Retained (g)	Percent Retained	Cum. Percent Retained	Percent Finer
#4	4.750	488.5	493.8	5.3	1.4	1.4	98.6
#10	2.000	463.2	469.5	6.3	1.7	3.2	96.8
#40	0.425	354.8	371.6	16.8	4.6	7.8	92.2
#100	0.150	325.8	374.1	48.3	13.2	20.9	79.1
#200	0.075	315.2	378.6	63.4	17.3	38.3	61.7
Pan	-	457.4	469.5	12.1	3.3	41.6	-

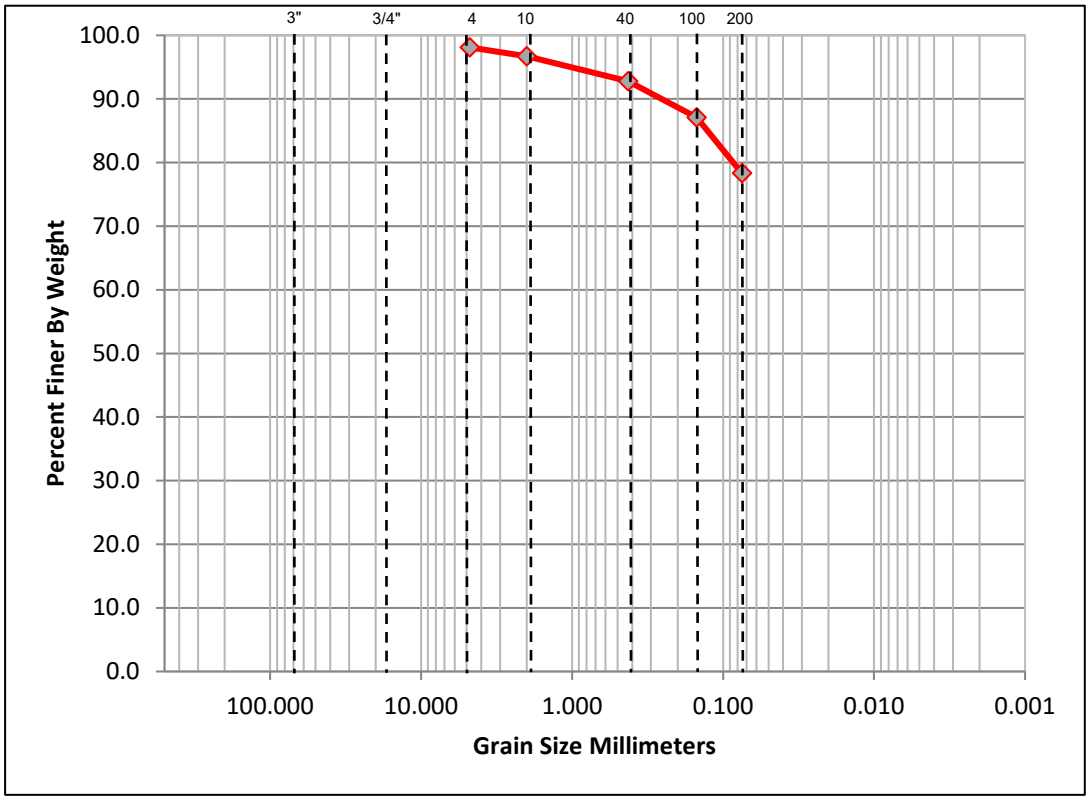
Sample Notes: Sandy silt. Material retained on sieves 4 and 10 was woody debris.

US Army Corps of Engineers®
New England District

Project Name: Royal River
Project Location: Yarmouth, ME
Sample ID: ES23-04

Date: 01/16/24

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



%Cobble	%Gravel		%Sand			%Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	1.9		1.4	3.9	14.5	78.3	

D10	D15	D30	D50	D60	D85	Cc	Cu
-	-	-	-	-	0.1320	-	-

Original Sample Weight (g)			231.1	Post Wash Weight (g)			51.1
Sieve	Sieve Size (mm)	Sieve Weight (g)	Shaken Weight (g)	Weight Retained (g)	Percent Retained	Cum. Percent Retained	Percent Finer
#4	4.750	493.2	497.6	4.4	1.9	1.9	98.1
#10	2.000	470.0	473.2	3.2	1.4	3.3	96.7
#40	0.425	353.1	362.2	9.1	3.9	7.2	92.8
#100	0.150	328.7	341.8	13.1	5.7	12.9	87.1
#200	0.075	313.4	333.7	20.3	8.8	21.7	78.3
Pan	-	454.7	455.7	1.0	0.4	22.1	-

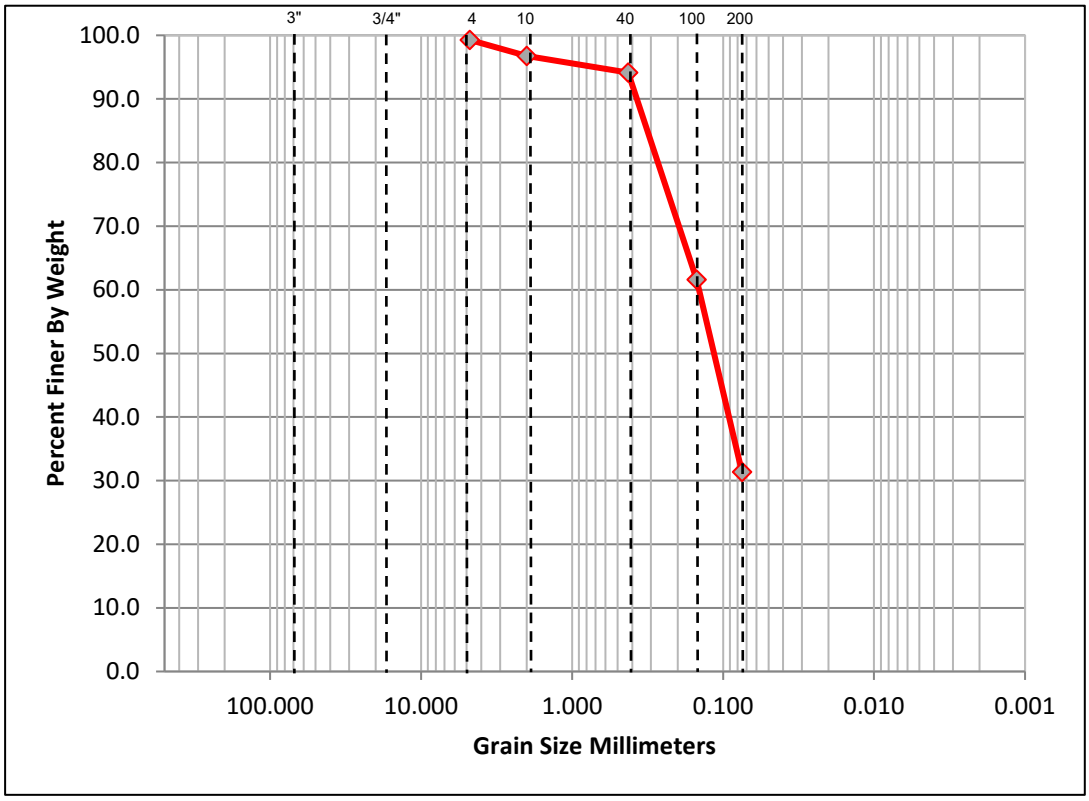
Sample Notes: Silt with fine sand.

US Army Corps of Engineers®
New England District

Project Name: Royal River
Project Location: Yarmouth, ME
Sample ID: ES23-05

Date: 01/16/24

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



%Cobble	%Gravel		%Sand			%Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.7		2.5	2.7	62.7	31.4	

D10	D15	D30	D50	D60	D85	Cc	Cu
-	-	-	0.1212	0.1460	0.3479	-	-

Original Sample Weight (g)			353.7	Post Wash Weight (g)			-
Sieve	Sieve Size (mm)	Sieve Weight (g)	Shaken Weight (g)	Weight Retained (g)	Percent Retained	Cum. Percent Retained	Percent Finer
#4	4.750	496.3	498.9	2.6	0.7	0.7	99.3
#10	2.000	467.8	476.6	8.8	2.5	3.2	96.8
#40	0.425	357.8	367.2	9.4	2.7	5.9	94.1
#100	0.150	334.1	449.1	115.0	32.5	38.4	61.6
#200	0.075	316.4	423.3	106.9	30.2	68.6	31.4
Pan	-	458.3	568.6	110.3	31.2	99.8	-

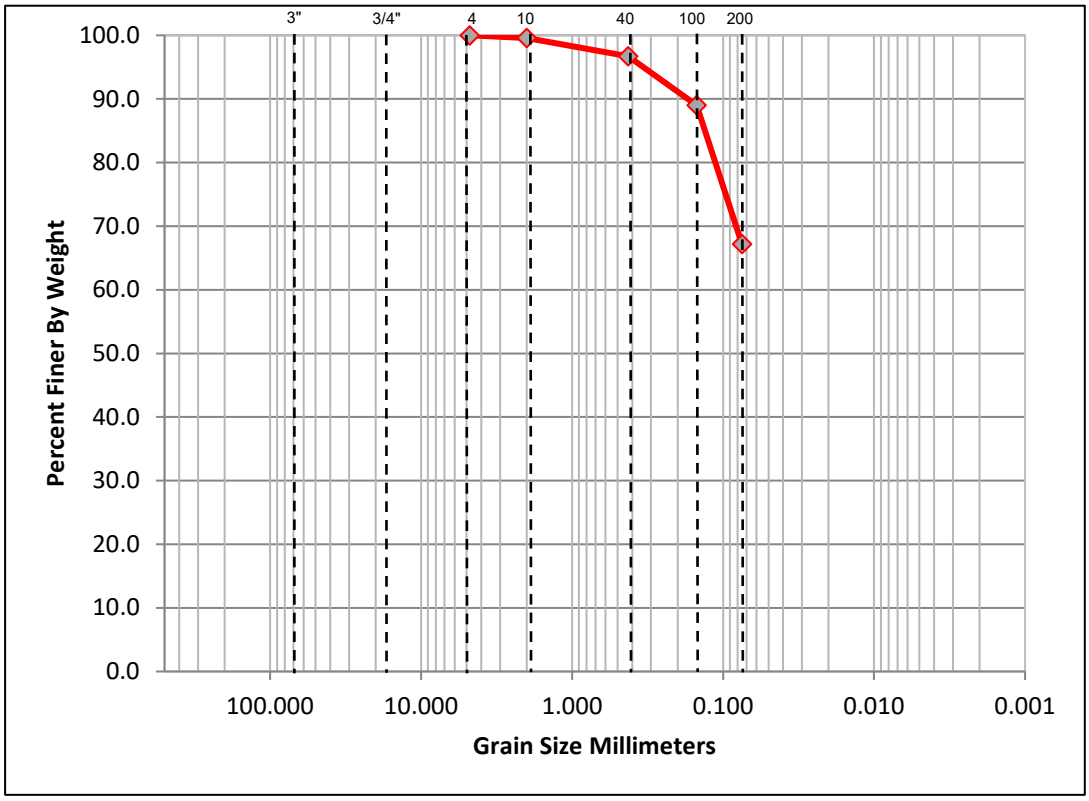
Sample Notes: Silty fine sand. Material retained on sieves 4, 10, and 40 consisted of leaf litter.

US Army Corps of Engineers®
New England District

Project Name: Royal River
Project Location: Yarmouth, ME
Sample ID: ES23-06

Date: 01/16/24

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



%Cobble	%Gravel		%Sand			%Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0		0.4	2.9	29.5	67.2	

D10	D15	D30	D50	D60	D85	Cc	Cu
-	-	-	-	-	0.1363	-	-

Original Sample Weight (g)			276.2	Post Wash Weight (g)			93.7
Sieve	Sieve Size (mm)	Sieve Weight (g)	Shaken Weight (g)	Weight Retained (g)	Percent Retained	Cum. Percent Retained	Percent Finer
#4	4.750	496.2	496.2	0.0	0.0	0.0	100.0
#10	2.000	467.7	468.9	1.2	0.4	0.4	99.6
#40	0.425	357.7	365.6	7.9	2.9	3.3	96.7
#100	0.150	334.3	355.6	21.3	7.7	11.0	89.0
#200	0.075	316.6	376.8	60.2	21.8	32.8	67.2
Pan	-	458.5	461.6	3.1	1.1	33.9	-

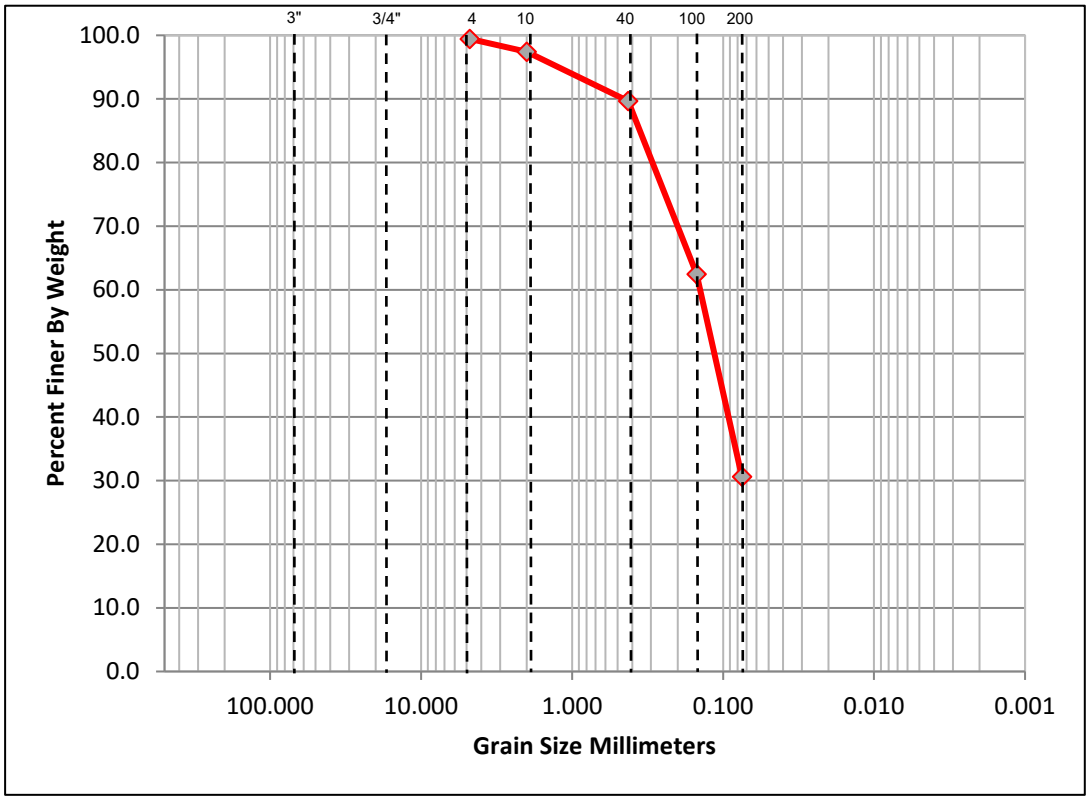
Sample Notes: Sandy silt.

US Army Corps of Engineers®
New England District

Project Name: Royal River
Project Location: Yarmouth, ME
Sample ID: ES23-07

Date: 01/16/24

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



%Cobble	%Gravel		%Sand			%Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.6		2.0	7.8	59.1	30.6	

D10	D15	D30	D50	D60	D85	Cc	Cu
-	-	-	0.1207	0.1442	0.3780	-	-

Original Sample Weight (g)			390.0	Post Wash Weight (g)			275.1
Sieve	Sieve Size (mm)	Sieve Weight (g)	Shaken Weight (g)	Weight Retained (g)	Percent Retained	Cum. Percent Retained	Percent Finer
#4	4.750	488.5	490.7	2.2	0.6	0.6	99.4
#10	2.000	463.2	471.1	7.9	2.0	2.6	97.4
#40	0.425	354.6	384.9	30.3	7.8	10.4	89.6
#100	0.150	325.7	431.7	106.0	27.2	37.5	62.5
#200	0.075	315.3	439.6	124.3	31.9	69.4	30.6
Pan	-	457.5	461.9	4.4	1.1	70.5	-

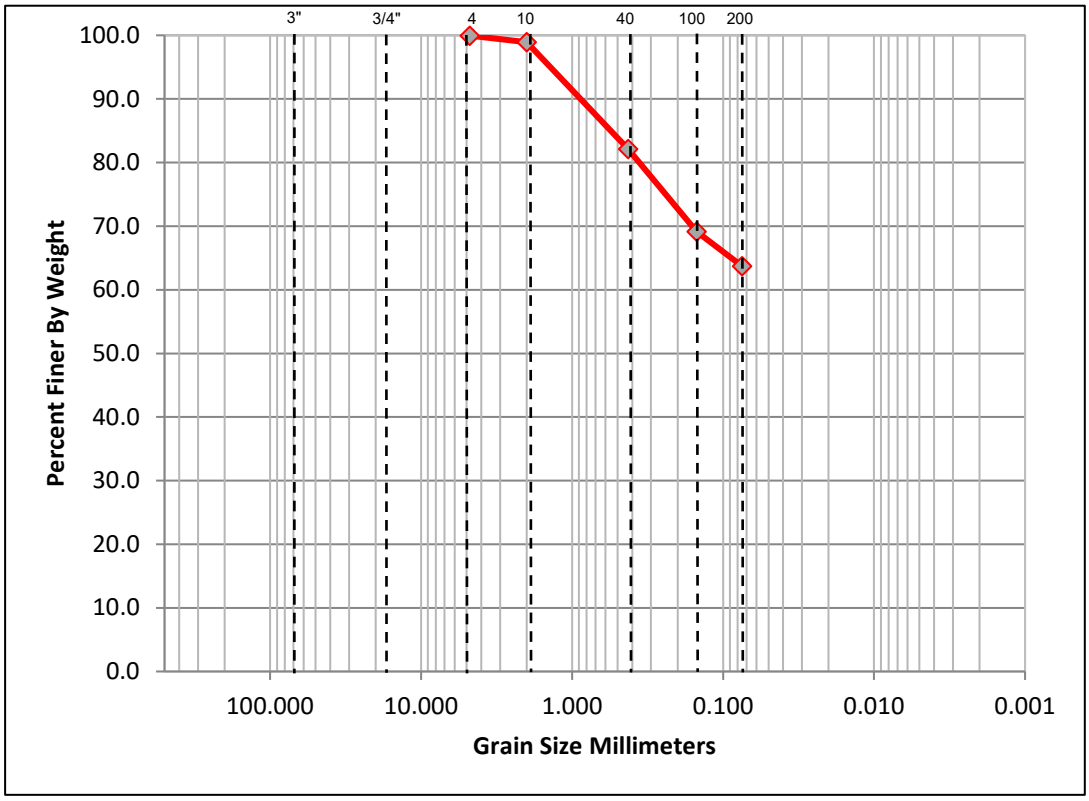
Sample Notes: Silty fine sand. Material retained on sieves 4, 10, and 40 was leaf litter.

US Army Corps of Engineers®
New England District

Project Name: Royal River
Project Location: Yarmouth, ME
Sample ID: ES23-08

Date: 01/16/24

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



%Cobble	%Gravel		%Sand			%Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.1		1.0	16.8	18.4	63.7	

D10	D15	D30	D50	D60	D85	Cc	Cu
-	-	-	-	-	0.6932	-	-

Original Sample Weight (g)			384.1	Post Wash Weight (g)			140.1
Sieve	Sieve Size (mm)	Sieve Weight (g)	Shaken Weight (g)	Weight Retained (g)	Percent Retained	Cum. Percent Retained	Percent Finer
#4	4.750	493.1	493.3	0.2	0.1	0.1	99.9
#10	2.000	470.0	473.9	3.9	1.0	1.1	98.9
#40	0.425	353.1	417.6	64.5	16.8	17.9	82.1
#100	0.150	328.7	378.7	50.0	13.0	30.9	69.1
#200	0.075	313.4	334.1	20.7	5.4	36.3	63.7
Pan	-	454.7	455.5	0.8	0.2	36.5	-

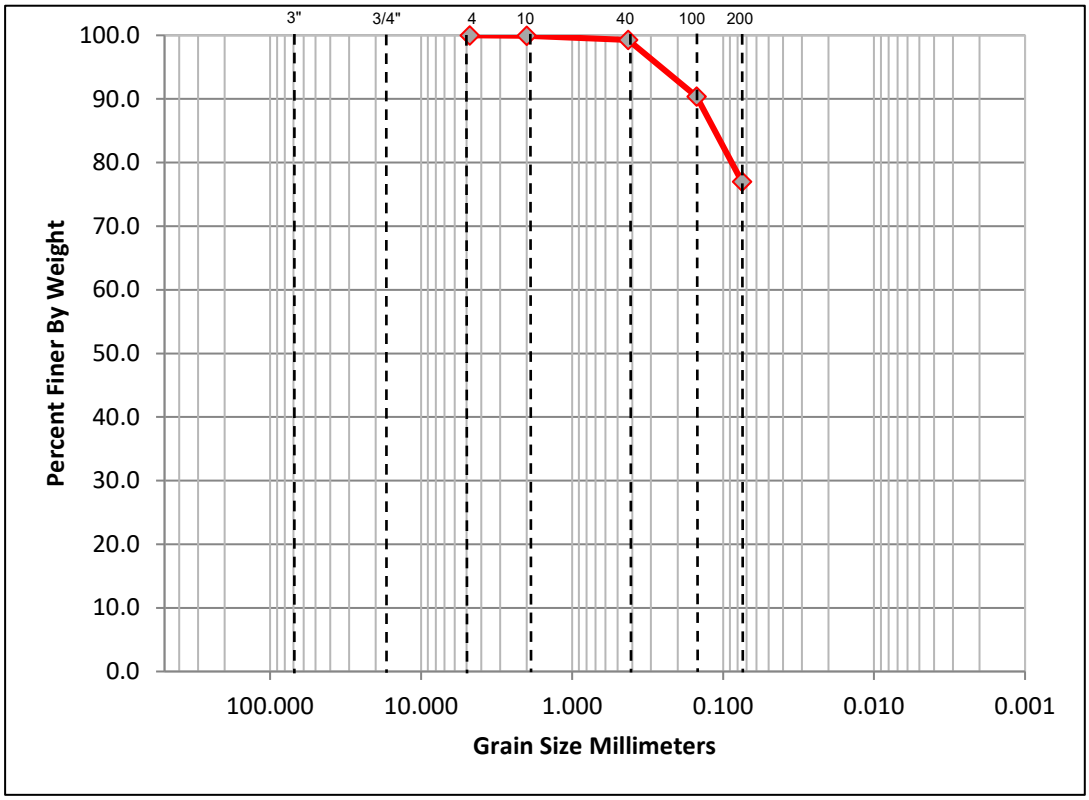
Sample Notes: Sandy silt.

US Army Corps of Engineers®
New England District

Project Name: Royal River
Project Location: Yarmouth, ME
Sample ID: ES23-10

Date: 01/16/24

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



%Cobble	%Gravel		%Sand			%Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0		0.1	0.6	22.3	77.0	

D10	D15	D30	D50	D60	D85	Cc	Cu
-	-	-	-	-	0.1199	-	-

Original Sample Weight (g)			421.5	Post Wash Weight (g)			101.8
Sieve	Sieve Size (mm)	Sieve Weight (g)	Shaken Weight (g)	Weight Retained (g)	Percent Retained	Cum. Percent Retained	Percent Finer
#4	4.750	496.3	496.3	0.0	0.0	0.0	100.0
#10	2.000	467.8	468.2	0.4	0.1	0.1	99.9
#40	0.425	357.8	360.4	2.6	0.6	0.7	99.3
#100	0.150	334.1	371.7	37.6	8.9	9.6	90.4
#200	0.075	316.4	372.8	56.4	13.4	23.0	77.0
Pan	-	458.3	463.1	4.8	1.1	24.2	-

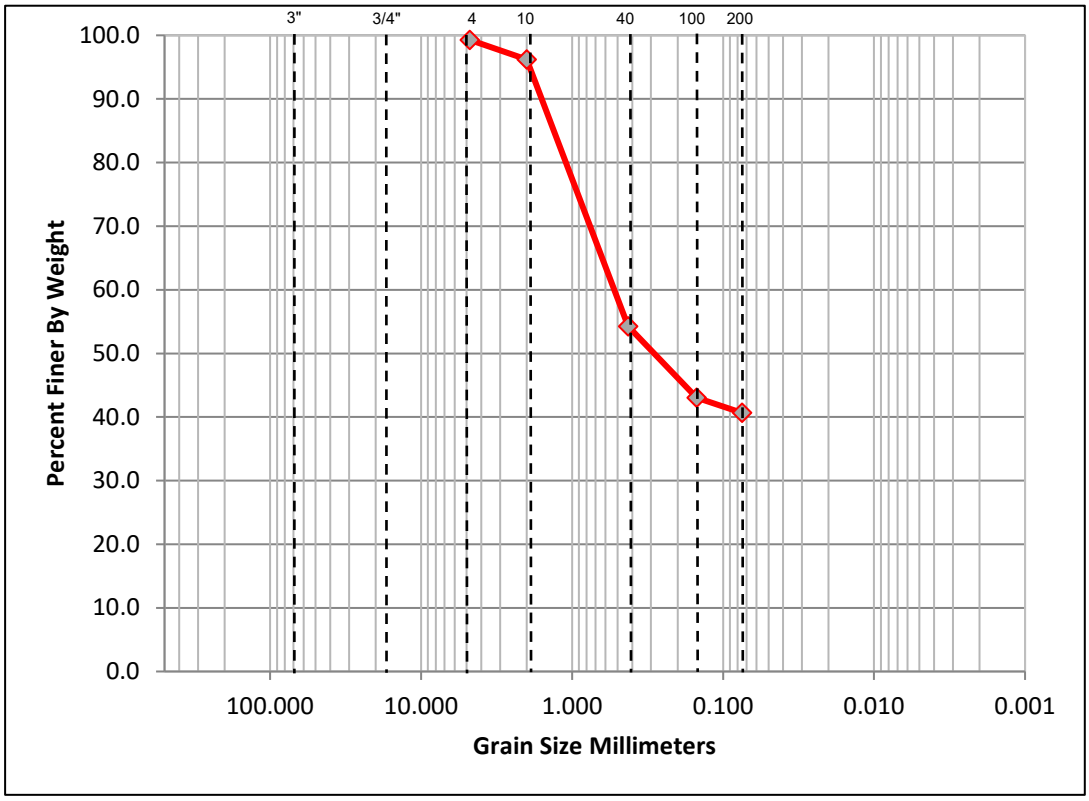
Sample Notes: Silt with fine sand. Material retained on sieves 10 and 40 was shell debris.

US Army Corps of Engineers®
New England District

Project Name: Royal River
Project Location: Yarmouth, ME
Sample ID: ES23-11

Date: 01/16/24

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



%Cobble	%Gravel		%Sand			%Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.7		3.1	41.9	13.6	40.7	

D10	D15	D30	D50	D60	D85	Cc	Cu
-	-	-	0.3207	0.6406	1.5794	-	-

Original Sample Weight (g)			358.1	Post Wash Weight (g)			212.6
Sieve	Sieve Size (mm)	Sieve Weight (g)	Shaken Weight (g)	Weight Retained (g)	Percent Retained	Cum. Percent Retained	Percent Finer
#4	4.750	496.2	498.8	2.6	0.7	0.7	99.3
#10	2.000	467.7	478.7	11.0	3.1	3.8	96.2
#40	0.425	357.7	507.9	150.2	41.9	45.7	54.3
#100	0.150	334.3	374.5	40.2	11.2	57.0	43.0
#200	0.075	316.6	325.1	8.5	2.4	59.3	40.7
Pan	-	458.5	458.6	0.1	0.0	59.4	-

Sample Notes: Silty fine-to-medium sand. Material retained on sieves 4 and 10 was woody debris and leaf litter.