

Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Boston

City/Town

Important:

When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Note: Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

100 Terminal Street
 a. Street Address

Boston
 b. City/Town

02129
 c. Zip Code

Latitude and Longitude:
 42.3844
 d. Latitude

-71.0528
 e. Longitude

0202755004
 f. Assessors Map/Plat Number

g. Parcel /Lot Number

2. Applicant:

John
 a. First Name

O'Donnell
 b. Last Name

Diversified Automotive, Inc.
 c. Organization

100 Terminal Street
 d. Street Address

Boston
 e. City/Town

MA
 f. State

02129
 g. Zip Code

617-936-2108
 h. Phone Number

i. Fax Number

john.o'donnell@diversifiedauto.com
 j. Email Address

3. Property owner (required if different from applicant): Check if more than one owner

James
 a. First Name

Stolecki
 b. Last Name

Massport
 c. Organization

One Harborside Drive, Suite 200
 d. Street Address

East Boston
 e. City/Town

MA
 f. State

02128
 g. Zip Code

617-568-3552
 h. Phone Number

i. Fax Number

jstolecki@massport.com
 j. Email address

4. Representative (if any):

Brad
 a. First Name

Saunders
 b. Last Name

GEI Consultants, Inc.
 c. Company

124 Grove Street, Suite 300
 d. Street Address

Franklin
 e. City/Town

MA
 f. State

02038
 g. Zip Code

774-277-6020
 h. Phone Number

i. Fax Number

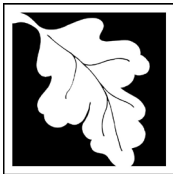
bsaunders@geiconsultants.com
 j. Email address

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

\$787.50
 a. Total Fee Paid

\$712.50
 b. State Fee Paid

\$75.00
 c. City/Town Fee Paid



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A. General Information (continued)

6. General Project Description:

The project is maintenance dredging of the berthing area fronting the north side of the pier located at 100 Terminal Street. The footprint of the dredging area is 1,100 feet by 99.5 feet and the estimated volume of material to be dredged is 15,750 cubic yards. All dredged material will be disposed in the Boston Harbor CAD cell. For additional detail, see attached Project Description.

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

- 1. Single Family Home
- 2. Residential Subdivision
- 3. Commercial/Industrial
- 4. Dock/Pier
- 5. Utilities
- 6. Coastal engineering Structure
- 7. Agriculture (e.g., cranberries, forestry)
- 8. Transportation
- 9. Other

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

- 1. Yes No If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

Suffolk

a. County

8216/8310

c. Book

b. Certificate # (if registered land)

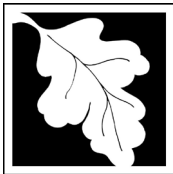
582/316

d. Page Number

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

- 1. Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
- 2. Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.



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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

| Resource Area | Size of Proposed Alteration | Proposed Replacement (if any) |
|--|-----------------------------|-------------------------------|
| a. <input type="checkbox"/> Bank | 1. linear feet | 2. linear feet |
| b. <input type="checkbox"/> Bordering Vegetated Wetland | 1. square feet | 2. square feet |
| c. <input type="checkbox"/> Land Under Waterbodies and Waterways | 1. square feet | 2. square feet |
| | 3. cubic yards dredged | |

| Resource Area | Size of Proposed Alteration | Proposed Replacement (if any) |
|--|---|-------------------------------|
| d. <input type="checkbox"/> Bordering Land Subject to Flooding | 1. square feet | 2. square feet |
| | 3. cubic feet of flood storage lost | 4. cubic feet replaced |
| e. <input type="checkbox"/> Isolated Land Subject to Flooding | 1. square feet | |
| | 2. cubic feet of flood storage lost | 3. cubic feet replaced |
| f. <input type="checkbox"/> Riverfront Area | 1. Name of Waterway (if available) - specify coastal or inland | |

2. Width of Riverfront Area (check one):

- 25 ft. - Designated Densely Developed Areas only
- 100 ft. - New agricultural projects only
- 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: _____ square feet

4. Proposed alteration of the Riverfront Area:

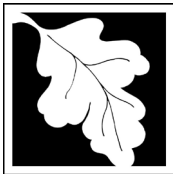
| | | |
|----------------------|-------------------------------|--|
| a. total square feet | b. square feet within 100 ft. | c. square feet between 100 ft. and 200 ft. |
|----------------------|-------------------------------|--|

5. Has an alternatives analysis been done and is it attached to this NOI? Yes No

6. Was the lot where the activity is proposed created prior to August 1, 1996? Yes No

3. Coastal Resource Areas: (See 310 CMR 10.25-10.35)

Note: for coastal riverfront areas, please complete **Section B.2.f.** above.



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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users:
Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

| Resource Area | Size of Proposed Alteration | Proposed Replacement (if any) |
|--|--|----------------------------------|
| a. <input checked="" type="checkbox"/> Designated Port Areas | Indicate size under Land Under the Ocean, below | |
| b. <input checked="" type="checkbox"/> Land Under the Ocean | 109,450 1. square feet 15,750 2. cubic yards dredged | |
| c. <input type="checkbox"/> Barrier Beach | Indicate size under Coastal Beaches and/or Coastal Dunes below | |
| d. <input type="checkbox"/> Coastal Beaches | 1. square feet | 2. cubic yards beach nourishment |
| e. <input type="checkbox"/> Coastal Dunes | 1. square feet | 2. cubic yards dune nourishment |

| Resource Area | Size of Proposed Alteration | Proposed Replacement (if any) |
|---|---|--|
| f. <input type="checkbox"/> Coastal Banks | 1. linear feet | |
| g. <input type="checkbox"/> Rocky Intertidal Shores | 1. square feet | |
| h. <input type="checkbox"/> Salt Marshes | 1. square feet | 2. sq ft restoration, rehab., creation |
| i. <input type="checkbox"/> Land Under Salt Ponds | 1. square feet 2. cubic yards dredged | |
| j. <input type="checkbox"/> Land Containing Shellfish | 1. square feet | |
| k. <input checked="" type="checkbox"/> Fish Runs | Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above 15,750 1. cubic yards dredged | |
| l. <input type="checkbox"/> Land Subject to Coastal Storm Flowage | 1. square feet | |

4. Restoration/Enhancement
If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please enter the additional amount here.

a. square feet of BVW _____ b. square feet of Salt Marsh _____

5. Project Involves Stream Crossings

a. number of new stream crossings _____ b. number of replacement stream crossings _____



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C. Other Applicable Standards and Requirements

- This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Limited Project Checklists – Required Actions (310 CMR 10.11).

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

- a. Yes No **If yes, include proof of mailing or hand delivery of NOI to:**

**Natural Heritage and Endangered Species Program
Division of Fisheries and Wildlife
1 Rabbit Hill Road
Westborough, MA 01581**

8/1/17

b. Date of map

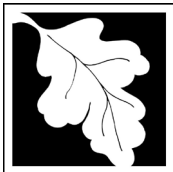
If yes, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); *OR* complete Section C.2.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

- c. Submit Supplemental Information for Endangered Species Review*

1. Percentage/acreage of property to be altered:
- (a) within wetland Resource Area _____ percentage/acreage
- (b) outside Resource Area _____ percentage/acreage
2. Assessor's Map or right-of-way plan of site
2. Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **
- (a) Project description (including description of impacts outside of wetland resource area & buffer zone)
- (b) Photographs representative of the site

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/regulatory-review/>). Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.



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C. Other Applicable Standards and Requirements (cont'd)

(c) MESA filing fee (fee information available at http://www.mass.gov/dfwele/dfw/nhosp/regulatory_review/ mesa/ mesa_fee_schedule.htm).
 Make check payable to “Commonwealth of Massachusetts - NHESP” and **mail to NHESP** at above address

Projects altering 10 or more acres of land, also submit:

(d) Vegetation cover type map of site

(e) Project plans showing Priority & Estimated Habitat boundaries

(f) OR Check One of the Following

1. Project is exempt from MESA review.
 Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, http://www.mass.gov/dfwele/dfw/nhosp/regulatory_review/ mesa/ mesa_exemptions.htm; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

2. Separate MESA review ongoing. _____ a. NHESP Tracking # _____ b. Date submitted to NHESP

3. Separate MESA review completed.
 Include copy of NHESP “no Take” determination or valid Conservation & Management Permit with approved plan.

3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?

a. Not applicable – project is in inland resource area only b. Yes No

If yes, include proof of mailing, hand delivery, or electronic delivery of NOI to either:

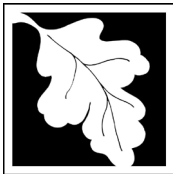
South Shore - Cohasset to Rhode Island border, and the Cape & Islands:

North Shore - Hull to New Hampshire border:

Division of Marine Fisheries -
 Southeast Marine Fisheries Station
 Attn: Environmental Reviewer
 836 South Rodney French Blvd.
 New Bedford, MA 02744
 Email: DMF.EnvReview-South@state.ma.us

Division of Marine Fisheries -
 North Shore Office
 Attn: Environmental Reviewer
 30 Emerson Avenue
 Gloucester, MA 01930
 Email: DMF.EnvReview-North@state.ma.us

Also if yes, the project may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP’s Boston Office. For coastal towns in the Southeast Region, please contact MassDEP’s Southeast Regional Office.



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C. Other Applicable Standards and Requirements (cont'd)

Online Users:
Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

- 4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?
 a. Yes No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.
 b. ACEC

- 5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?
 a. Yes No
- 6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?
 a. Yes No
- 7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?
 a. Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:
 - 1. Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)
 - 2. A portion of the site constitutes redevelopment
 - 3. Proprietary BMPs are included in the Stormwater Management System.
 b. No. Check why the project is exempt:
 - 1. Single-family house
 - 2. Emergency road repair
 - 3. Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

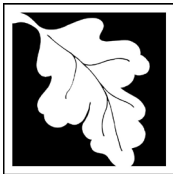
D. Additional Information

- This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.

- 1. USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)
- 2. Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.



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D. Additional Information (cont'd)

3. Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.

4. List the titles and dates for all plans and other materials submitted with this NOI.

See attached List of Attachments.

a. Plan Title

b. Prepared By

c. Signed and Stamped by

d. Final Revision Date

e. Scale

f. Additional Plan or Document Title

g. Date

5. If there is more than one property owner, please attach a list of these property owners not listed on this form.

6. Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.

7. Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.

8. Attach NOI Wetland Fee Transmittal Form

9. Attach Stormwater Report, if needed.

E. Fees

1. Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

754544

2. Municipal Check Number

10/2/2020

3. Check date

754545

4. State Check Number

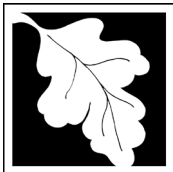
10/2/2020

5. Check date

GEI Consultants, Inc.

6. Payor name on check: First Name

7. Payor name on check: Last Name



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F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

| | |
|---|-----------------|
| | October 8, 2020 |
| 1. Signature of Applicant | 2. Date |
| | 10/16/2020 |
| 3. Signature of Property Owner (if different) | 4. Date |
| | 10/8/2020 |
| 5. Signature of Representative (if any) | 6. Date |

For Conservation Commission:

Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:

One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:

If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.

Checklist for Filing a Notice of Intent with Boston Conservation Commission

In order for the Boston Conservation Commission to effectively process your Notice of Intent, BCC requests that you complete the checklist below and include it with your submission. If you should need assistance please contact Commission Staff: 617-635-3850 (cc@boston.gov).

Please Submit the Following to the Conservation Commission:

- Two copies (a signed original and 1 copy) of a completed Notice of Intent (WPA Form 3)
- Two copies (a signed original and 1 copy) of a completed Boston Notice of Intent (Local Form) **Not Applicable**
- Two copies of plans (reduced to 11" X 17") in their final form with engineer's stamp affixed supporting calculations and other documentation necessary to completely describe the proposed work and mitigating measures. Plans must include existing conditions, the proposed project, erosion controls and mitigation measures, grading and spot elevations and all wetland resource areas and associated buffer zones. Some projects may require both an aerial view of the plans along with a profile view of plans depending on the scope of work.
- Two copies of an 8 ½" x 11" section of the [USGS quadrangle map](#) of the area, containing sufficient information for the Conservation Commission and the Department to locate the site of the work.
- (If applicable) Two copies the Federal Emergency Management Agency Flood Insurance Rate Map for the project site. FEMA Flood Maps: <https://msc.fema.gov/portal>.
- Two copies of the determination regarding the Natural Heritage and Endangered Species Program: Review Section C. Other Applicable Standards and Requirements of the Notice of Intent, page 4 of 8, pertaining to wildlife habitat. The Conservation Commission and the [Natural Heritage & Endangered Species Program](#) have the maps necessary to make this determination. **Not Applicable**
- (If applicable) Two hard copies of a Stormwater Report to document compliance with the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q), including associated drainage calculations for rooftops, parking lots, driveways, etc., for the required design storm events. **Not Applicable**
- (If applicable) A narrative detailing best management practices for stormwater management as set forth in the Stormwater Management Standards of the Massachusetts Department of Environmental Protection and any separate standards and guidelines prepared by the City and the Boston Water and Sewer Commission. **Not Applicable**
- (If applicable) Two hard copies of the Checklist for Stormwater Report **Not Applicable**
- Details of the stormwater management system, including: catch basins, oil separating tanks, detention basins, outfalls, sewer connections, etc. **Not Applicable**
- Any photographs related to the project representing the wetland resource areas. **Not Applicable**
- Two copies of a detailed project narrative describing the following: an overview of the entire project, the work proposed within wetland resource areas and/or buffer zones; how the performance standards specific to the wetland resource areas will be met (listing out each performance standard); a consideration of the effect that projected sea level rise, changes in storm intensity and frequency, and other consequences of climate change may have on the resource areas and proposed activities; construction equipment and material involved; and measures to protect wetland resource areas and mitigate impacts. The applicant shall also include narrative on how they plan to integrate climate change and adaptation planning considerations into their project to promote climate resilience to protect and promote Resource Area Values and functions into the future.
- Two copies of an Abutters List, Affidavit of Service and [Abutter Notification](#), filed concurrently with the Notice of Intent. Abutter notices shall be sent in both English and the second most commonly spoken language(s) in the neighborhood(s) where the project is proposed. Notices shall also include Babel notice cards for additional translation and language access services. [All abutters within 300' of the project](#)

Checklist for Filing a Notice of Intent with Boston Conservation Commission

[property line](#) must be notified including those in a neighboring municipality. In such an instance, a copy of the filing must also be sent to the local Conservation Commission of the neighboring municipality.

EXCEPTION: When work is in land under water bodies and waterways or on a tract of land greater than 50 acres, written notification must only be given to abutters within 300 feet of the "project site."

- Two copies of the BPDA Climate Resiliency Checklist (for new buildings). This can be completed online at <http://www.bostonplans.org/planning/planning-initiatives/article-37-green-building-guidelines>. Please print the pdf that you will receive via email after completion and include it in your submission. **Not Applicable**
- Electronic copies.** Documents may be submitted via email, or via an email link to downloadable documents.



To minimize the use of non-recyclable materials **please do not include vinyl or plastic binders, bindings, folders or covers with the filing.** Staples and binder clips are good choices.

J.F. Moran Terminal Maintenance Dredging – Boston, MA

Wetlands Notice of Intent List of Attachments

Project Description (pages 1 – 5)

Figure Sheets

1. Locus Plan

- Prepared by: GEI Consultants, Inc.
- Date: 1/20/21
- Scale: 1" = 2,000'

2. Existing Conditions Plan

- Prepared by: Russell Titmuss
- Signed and Stamped by: Russell Titmuss
- Date: 1/20/21
- Scale: 1" = 150'

3. Dredging Plan

- Prepared by: Russell Titmuss
- Signed and Stamped by: Russell Titmuss
- Date: 1/20/21
- Scale: 1" = 150'

4. Dredging Section

- Prepared by: Russell Titmuss
- Signed and Stamped by: Russell Titmuss
- Date: 1/20/21
- Scale: 1" = 20'

5. CAD Cell

- Prepared by: Russell Titmuss
- Signed and Stamped by: Russell Titmuss
- Date: 1/20/21
- Scale: 1" = 500'

6. Boston Harbor CAD Cell Plan View

- Prepared by: Russell Titmuss
- Signed and Stamped by: Russell Titmuss
- Date: 1/20/21
- Scale: 1" = 200'

7. Boston Harbor CAD Cell Section

- Prepared by: Russell Titmuss
- Signed and Stamped by: Russell Titmuss
- Date: 1/20/21
- Scale: 1" = 300' (horizontal) / 1" = 30' (vertical)

Miscellaneous Documents

- NOI Wetland Fee Transmittal Form
- Affidavit of Service – Abutter Notification
- Notification to Abutters
- Certified Listing of Abutters
- Proof of Mailing to Abutters
- FEMA FIRMette (City of Boston Panel 25025C0018J) – dated 3/16/16
- Proof of Mailing (email) to Division of Marine Fisheries

Attachment A. Sediment Sampling Report

J.F. Moran Terminal Maintenance Dredging – Boston, MA

Wetlands Notice of Intent – Project Description

Existing Conditions

The project site consists of the Mystic River water sheet and approximately 2.5 acres of Land Under the Ocean wetland resource area located along the north face of the concrete pier at the J.F. Moran cargo terminal on Terminal Street in Boston (see Sheet 1 – Locus Plan). The property is owned by Massport and leased to Diversified Automotive, Inc., with the pier being used for ship-to-shore transfer of automobiles. The site was dredged to restore the berthing area to a depth of 40 to 42 feet (MLW) in 1994 and is located within the boundaries of the Mystic River Designated Port Area. FEMA flood elevation information at the project site is provided in Attachment 1.

Sediments at the project site consist of 31 to 57 percent fine-grain materials and 43 to 57 percent sands and the chemical composition is typical of Boston Harbor maintenance dredging material. The results of bulk chemistry analysis of the sediments are presented in Attachment A – Sediment Sampling Report.

MassGIS data (sourced using OLIVER) indicate that the area is unsuitable habitat for shellfish and is “prohibited” for the growing of shellfish. Further, the area to be dredged does not support beds of submerged aquatic vegetation and is not mapped by the Massachusetts Natural Heritage and Endangered Species Program as either estimated habitat of rare wetland wildlife or priority habitat for rare species. The Mystic River is recognized as anadromous fish habitat, primarily for alewife.

Proposed Action

The proposed project is maintenance dredging of the berthing area along the north face of the concrete pier. The dredging will restore the overall berth to a depth of 40 to 42 feet (MLLW). The footprint of the proposed area of dredging is approximately 1,100 feet x 99.5 feet, inclusive of side slopes (see Sheets 3 and 4). It is estimated that the dredging will generate approximately 15,750 cubic yards of spoil, all of which is to be disposed in the Boston Harbor Confined Aquatic Disposal (CAD) cell created by the U.S. Army Corps of Engineers and located in the harbor’s Main Ship Channel as depicted in Sheet 5. The CAD cell was constructed specifically for the purpose of accommodating the disposal of contaminated sediments from Boston Harbor and Massport facilities.

All dredging will be conducted from the water using a barge-mounted crane. An environmental bucket dredge will be used to remove silts to minimize incidental release and resuspension of sediments. Monitoring of similar projects within Boston Harbor, has indicated that the use of an environmental bucket is an effective method of silt containment during dredging operations. In the event that any harder-material spot shoals remain after removal of the silts, a conventional clamshell bucket will be utilized to complete the dredging to establish the required minimum project depth for vessel safety. Water quality monitoring will be conducted during this work to verify that turbidity outside of the work area remains below performance criteria. Use of a turbidity curtain to minimize dispersal of resuspended sediments at this site was considered but deemed impractical, due to water depths and tidal conditions. No dredging will occur during the MA-DMF recommended time-of-year (TOY) restriction period for the protection of Mystic River anadromous fish (i.e., February 15 through July 15).

Dredged material will be placed in a split hull scow and transported directly from the dredge site to the CAD Cell. Excess water may be decanted from the scow after filtration or settlement to remove suspended solids. Water quality monitoring will be performed during any decanting operation to verify compliance with water quality standards. Consistent with other CAD cell disposal activities, disposal will take place within one (1) hour before and two (2) hours after slack tide.

Impacts to Wetland Resource Areas

Land Under the Ocean

Definition and Existing Conditions

Land Under the Ocean (LUTO) consists of land extending from the mean low water line seaward to the boundary of the municipality's jurisdiction and includes land under estuaries.

At the project site, LUTO consists of the bed of the Mystic River. Within the proposed dredging footprint, the bed is composed of greater than 30 percent fine grain material and greater than 50 percent sand (see Attachment A).

Compliance with Performance Standards

Applicable performance standards for activities conducted within this resource area are defined at 310 CMR 10.25(4, 6, and 7). The performance standards at 310 CMR 10.25(3) are not applicable as the project is not "improvement dredging". The performance standards at 310 CMR 10.25(5) are not applicable as the project is "maintenance dredging" subject to the provisions of 310 CMR 10.25(4).

Performance Standard 4

Performance Standard 4 states that maintenance dredging for navigational purposes affecting land under the ocean shall be designed and carried out using the best available measures so as to minimize adverse effects on such interests caused by changes in marine productivity which will result from the suspension or transport of pollutants, increases in turbidity, the smothering of bottom organisms, the accumulation of pollutants by organisms, or the destruction of marine fisheries habitat or wildlife habitat.

Compliance with Performance Standard 4

The proposed maintenance dredging will be conducted using the best available measures to minimize adverse effects, such as the suspension or transport of pollutants, increases in turbidity, the smothering of bottom organisms, the accumulation of pollutants by organisms, or the destruction of fisheries habitat or nutrient source areas. For the project site, the best practical measures include use of an environmental bucket dredge to minimize the incidental release of dredged silts during the dredging operation and avoidance of dredging activities during the critical period of anadromous fish activity in the area (i.e., February 15 through July 15). The use of a turbidity curtain at this site to control the release of suspended sediments is not practical due to water depth and level of tidal energy experienced.

Additional best practical measures to be implemented include the maintenance of a complete spill containment kit on the dredge barge at all times. The spill containment kit will include "Speedy Dry", or equivalent, and an oil sorbent boom for use in the event of a petroleum-based fluid spill or leak. Further, the dredging equipment will be staffed at all times while operational

and will be inspected daily for leakage.

Performance Standard 6

Performance Standard 6 states that projects which affect land under the ocean shall if water-dependent be designed and constructed, using best available measures, so as to minimize adverse effects

Compliance with Performance Standard 6

The proposed maintenance dredging of the berthing area at the J.F. Moran Terminal is a water-dependent use/activity and will be conducted using the best available measures to minimize adverse effects, such as the suspension or transport of pollutants, increases in turbidity, the smothering of bottom organisms, the accumulation of pollutants by organisms, or the destruction of fisheries habitat or nutrient source areas. For the project site, the best practical measures include use of an environmental bucket dredge to minimize the incidental release of dredged silts during the dredging operation and avoidance of dredging activities during the critical period of anadromous fish activity in the area (i.e., February 15 through July 15). The use of a turbidity curtain at this site to control the release of suspended sediments is not practical due to water depth and level of tidal energy experienced.

Additional best available measures to be implemented include the maintenance of a complete spill containment kit on the dredge barge at all times. The spill containment kit will include “Speedy Dry”, or equivalent, and an oil sorbent boom for use in the event of a petroleum-based fluid spill or leak. Further, the dredging equipment will be staffed at all times while operational and will be inspected daily for leakage.

Performance Standard 7

Performance Standard 7 states that, notwithstanding the provisions of 310 CMR 10.25(3) through (6), no project may be permitted which will have any adverse effect on specified habitat sites of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.

Compliance with Performance Standard 7

A review of maps prepared by the Massachusetts Natural Heritage and Endangered Species Program (updated August 1, 2017) has revealed that the project area is not recognized as habitat for rare species.

Designated Port Area

Definition and Existing Conditions

Designated Port Area (DPA) consists of those areas specifically designated in 301 CMR 25.00. The project site is located entirely within the Mystic River DPA.

Compliance with Performance Standards

Applicable performance standards for activities conducted within this resource area are defined at 310 CMR 10.26(3 and 4).

Performance Standard 3

Performance Standard 3 states that projects shall be designed and constructed, using best practical measures, so as to minimize adverse effects on marine fisheries caused by changes in water circulation and water quality, including, but not limited to, other than natural fluctuations in the level of dissolved oxygen, temperature or turbidity, or the addition of pollutants.

Compliance with Performance Standard 3

As the project is maintenance dredging designed to restore the depth of the berthing area to a depth most recently established in 1994 at 40 feet below mean low water, it will have no more than a de minimis effect on water circulation and water quality. The use of best available measures, as presented herein in the discussion of compliance with LUTO performance standards, will ensure that potential adverse effects on water quality are minimized to the extent practical.

Performance Standard 4

Performance Standard 4 states that projects shall be designed and constructed, using the best practical measures, so as to minimize, adverse effects on storm damage prevention or flood control caused by changes in such land's ability to provide support for adjacent coastal banks or adjacent coastal engineering structures.

Compliance with Performance Standard 4

As the project is maintenance dredging designed to restore the depth of the berthing area to a depth most recently established in 1994 at 40 feet below mean low water, it will have no adverse effect on storm damage prevention or flood control caused by changes in such land's ability to provide support for adjacent coastal banks or adjacent coastal engineering structures, such as the adjacent pier.

Anadromous and Catadromous Fish Run

Definition and Existing Conditions

Anadromous and Catadromous Fish Runs (ACFR) consists of that area within estuaries, ponds, streams, creeks, rivers, lakes or coastal waters, which is a spawning or feeding ground or passageway for anadromous or catadromous fish and which is identified by the Division of Marine Fisheries or has been mapped on the Coastal Atlas of the Coastal Zone Management Program.

The Mystic River at the project site is recognized as anadromous fish habitat, primarily for alewife.

Compliance with Performance Standards

Applicable performance standards for activities conducted within this resource area are defined at 310 CMR 10.35(3 through 5). The performance standards at 310 CMR 10.35(6) are not applicable as the project does not include a stream crossing.

Performance Standard 3

Performance Standard 3 states that any project on such land or bank shall not have an adverse effect on the anadromous or catadromous fish run by: (a) impeding or obstructing the migration of the fish, unless DMF has determined that such impeding or obstructing is acceptable,

pursuant to its authority under M.G.L. c. 130, § 19; (b) changing the volume or rate of flow of water within the fish run; or (c) impairing the capacity of spawning or nursery habitats necessary to sustain the various life stages of the fish.

Compliance with Performance Standard 3

As the project is maintenance dredging designed to restore the depth of the berthing area to a depth most recently established in 1994 at 40 feet below mean low water, it will have no adverse effect on migration of the anadromous fish and the volume or rate of flow of water within the river. The proposed use of an environmental bucket dredge to minimize the incidental release of dredged silts during the dredging operation and avoidance of dredging activities during the critical period of anadromous fish activity in the area (i.e., February 15 through July 15) will prevent adverse impacts to any spawning or nursery habitats that are necessary to sustain the various life stages of the fish.

Performance Standard 4

Performance Standard 4 states that unless otherwise allowed by DMF pursuant to M.G.L. c. 130, § 19, dredging, disposal of dredged material or filling in a fish run shall be prohibited between March 15 and June 15 in any year.

Compliance with Performance Standard 4

The applicant proposes to avoid dredging and dredged material disposal activities during the critical period of anadromous fish activity in the area (i.e., February 15 through July 15). A copy of the Notice of Intent was forwarded to the Division of Marine Fisheries (DMF) on October 20, 2020 for review and comment. The applicant will comply with any Time of Year (TOY) restriction recommended by the DMF upon completion of that review.

Performance Standard 5

Performance Standard 5 states that notwithstanding the provisions of 310 CMR 10.35(3), no project may be permitted which will have any adverse effect on specified habitat sites of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.

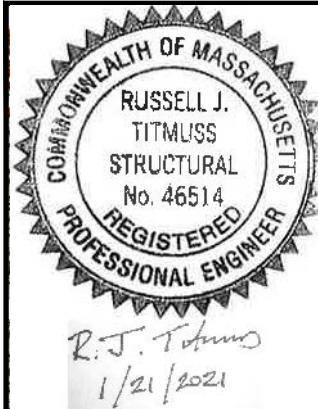
Compliance with Performance Standard 5

A review of maps prepared by the Massachusetts Natural Heritage and Endangered Species Program (updated August 1, 2017) has revealed that the project area is not recognized as habitat for rare species.

Compliance with Massachusetts Stormwater Standards

The proposed project does not include construction or post-construction activities that generate stormwater runoff. Accordingly, the provisions of 310 CMR 10.05(6)(k) regarding the use of stormwater best practices consistent with the Massachusetts Stormwater Management Standards are not applicable.

File: B:\Working\DIVERSIFIED_AUTOMOTIVE_2000408 Moran Terminal Dredging\00_CAD\Design\Working\REGULATORY_USACE_SHT-01_LOCUS_PLAN.dwg



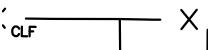
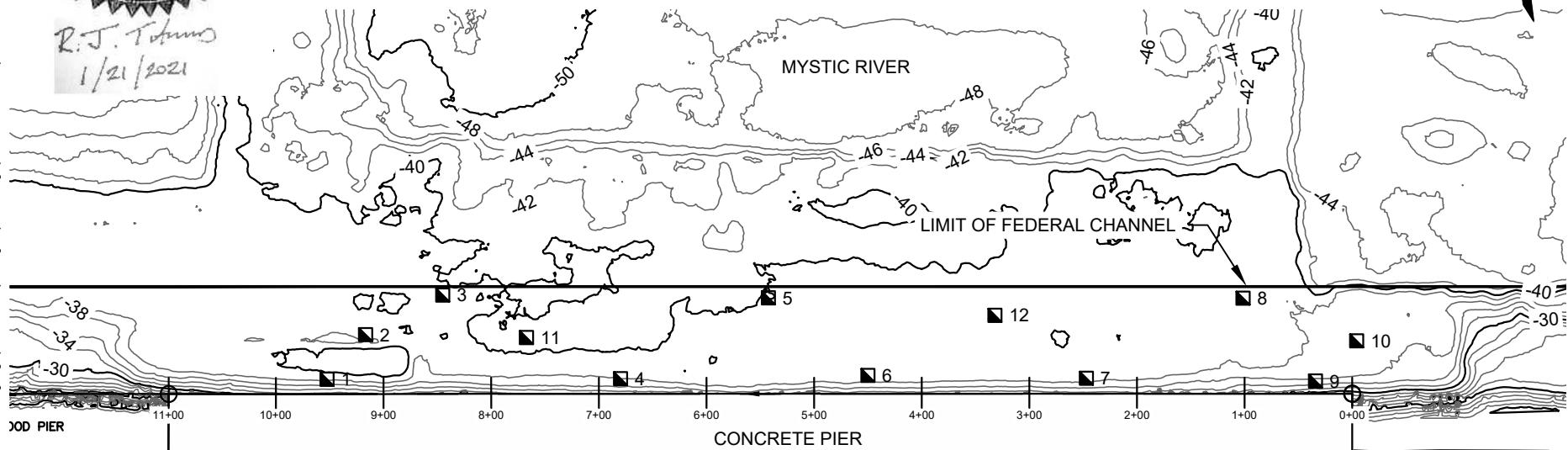
NOTE:
USGS LOCUS MAP
VERTICAL DATUM: NGVD29

| | | | |
|--|--|-------------------|-----------|
| TITLE: LOCUS PLAN | | IN: BOSTON HARBOR | |
| PURPOSE: MAINTENANCE DREDGING | | AT: MYSTIC RIVER | |
| APPLICATION BY: DIVERSIFIED AUTOMOTIVE | | COUNTY: SUFFOLK | STATE: MA |
| | | SHEET 1 OF 7 | |
| | | DATE: 01/20/2021 | |

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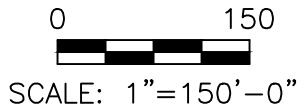
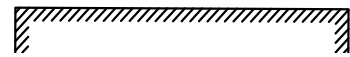


R. J. Titmuss
1/21/2021



| SAMPLE | NORTHING | EASTING | COMPOSITE |
|--------|----------|---------|-----------|
| 1 | 2965451 | 776552 | A |
| 2 | 2965487 | 776593 | |
| 3 | 2965515 | 776668 | |
| 4 | 2965416 | 776822 | B |
| 5 | 2965473 | 776968 | |
| 6 | 2965390 | 777051 | C |
| 7 | 2965351 | 777252 | |
| 8 | 2965416 | 777405 | |
| 9 | 2965331 | 777462 | |
| 10 | 2965363 | 777505 | |
| 11 | 2965466 | 776741 | |
| 12 | 2965430 | 777175 | |

DIVERSIFIED AUTOPORT



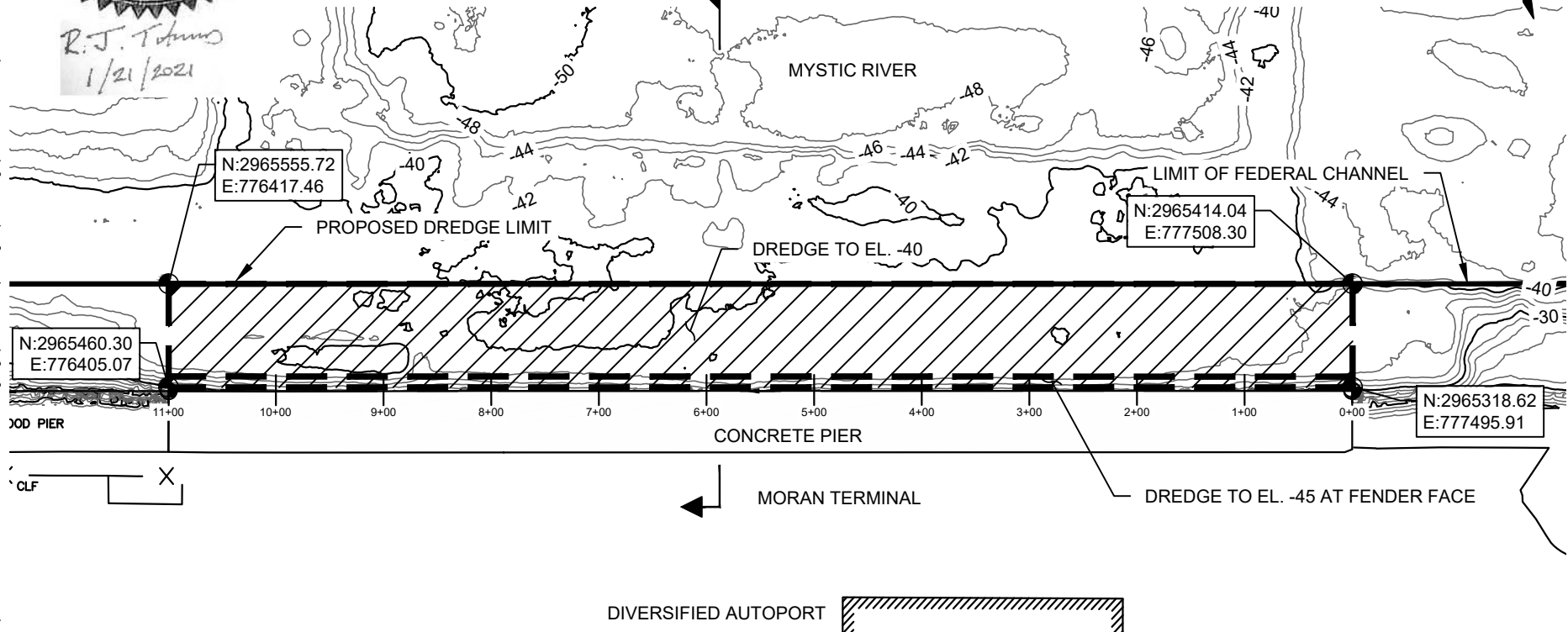
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MLW: 0.34
MLLW: 0.0

| | | |
|--|--|---------------------------|
| TITLE: EXISTING CONDITIONS PLAN | | IN: BOSTON HARBOR |
| PURPOSE: MAINTENANCE DREDGING | | AT: MYSTIC RIVER |
| APPLICATION BY: DIVERSIFIED AUTOMOTIVE | | COUNTY: SUFFOLK STATE: MA |
| | | SHEET 2 OF 7 |
| | | DATE: 01/20/2021 |

File: B:\Working\DIVERSIFIED_AUTOMOTIVE\2000408_Moran_Terminal_Dredging\00_CAD_Design\Working\REGULATORY_USACE_SHT-03_PLAN.dwg



R.J. Titmuss
1/21/2021



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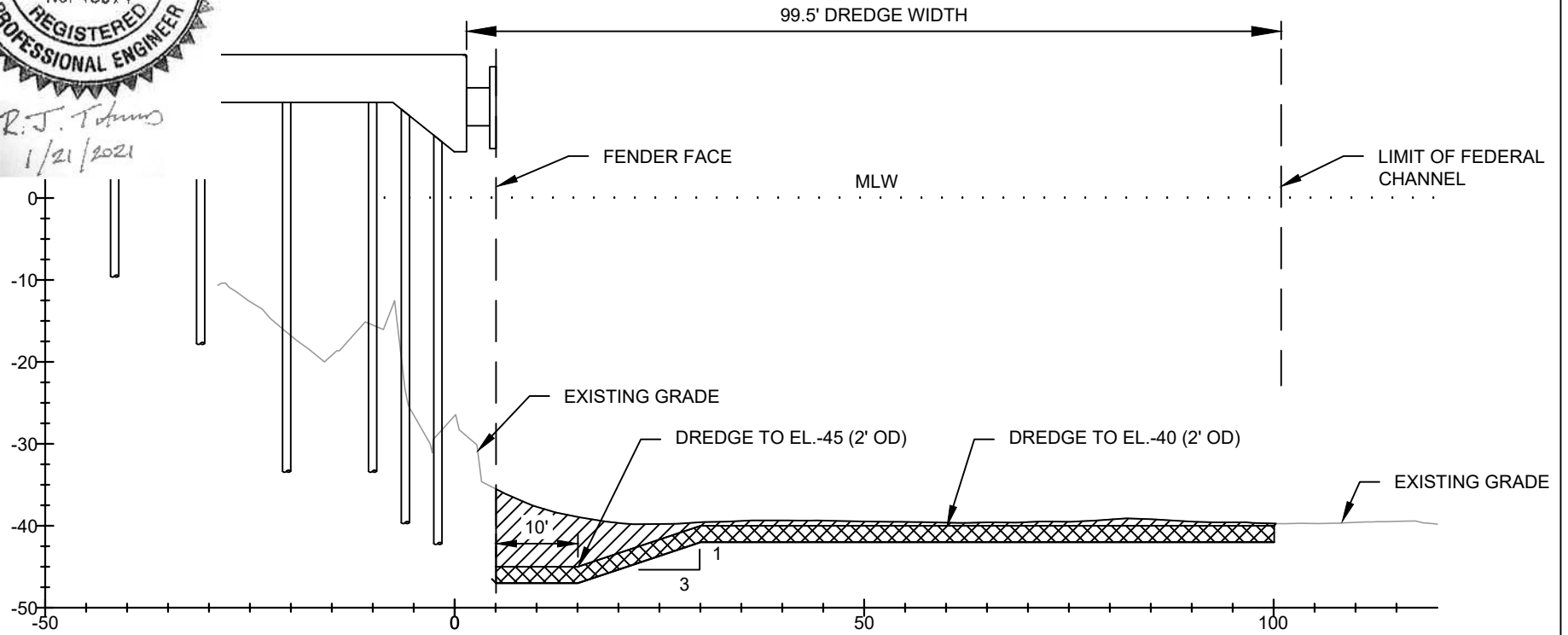
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|--|--|---------------------------|
| TITLE: DREDGING PLAN | | IN: BOSTON HARBOR |
| PURPOSE: MAINTENANCE DREDGING | | AT: MYSTIC RIVER |
| APPLICATION BY: DIVERSIFIED AUTOMOTIVE | | COUNTY: SUFFOLK STATE: MA |
| | | SHEET 3 OF 7 |
| | | DATE: 01/20/2021 |

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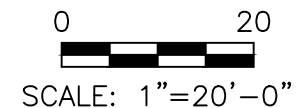


R. J. Titmuss
1/21/2021



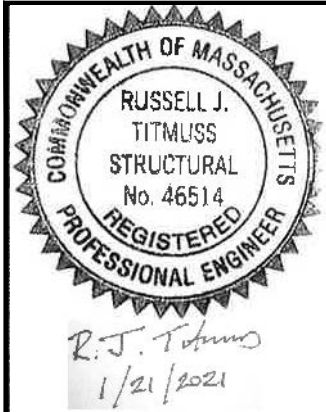
(A) BENCH CUT DREDGING - SECTION
4 SCALE: 1"=20'-0"

DREDGE VOLUMES
BENCH CUT:
DREDGE: 8,050 CU.YDS.
OVERDREDGE: 7,700 CU.YDS.



HTL: 12.5
MHW: 9.83
MLW: 0.34
MLLW: 0.0

| | | |
|--|--|---------------------------|
| TITLE: DREDGING SECTION | | IN: BOSTON HARBOR |
| PURPOSE: MAINTENANCE DREDGING | | AT: MYSTIC RIVER |
| APPLICATION BY: DIVERSIFIED AUTOMOTIVE | | COUNTY: SUFFOLK STATE: MA |
| | | SHEET 4 OF 7 |
| | | DATE: 01/20/2021 |

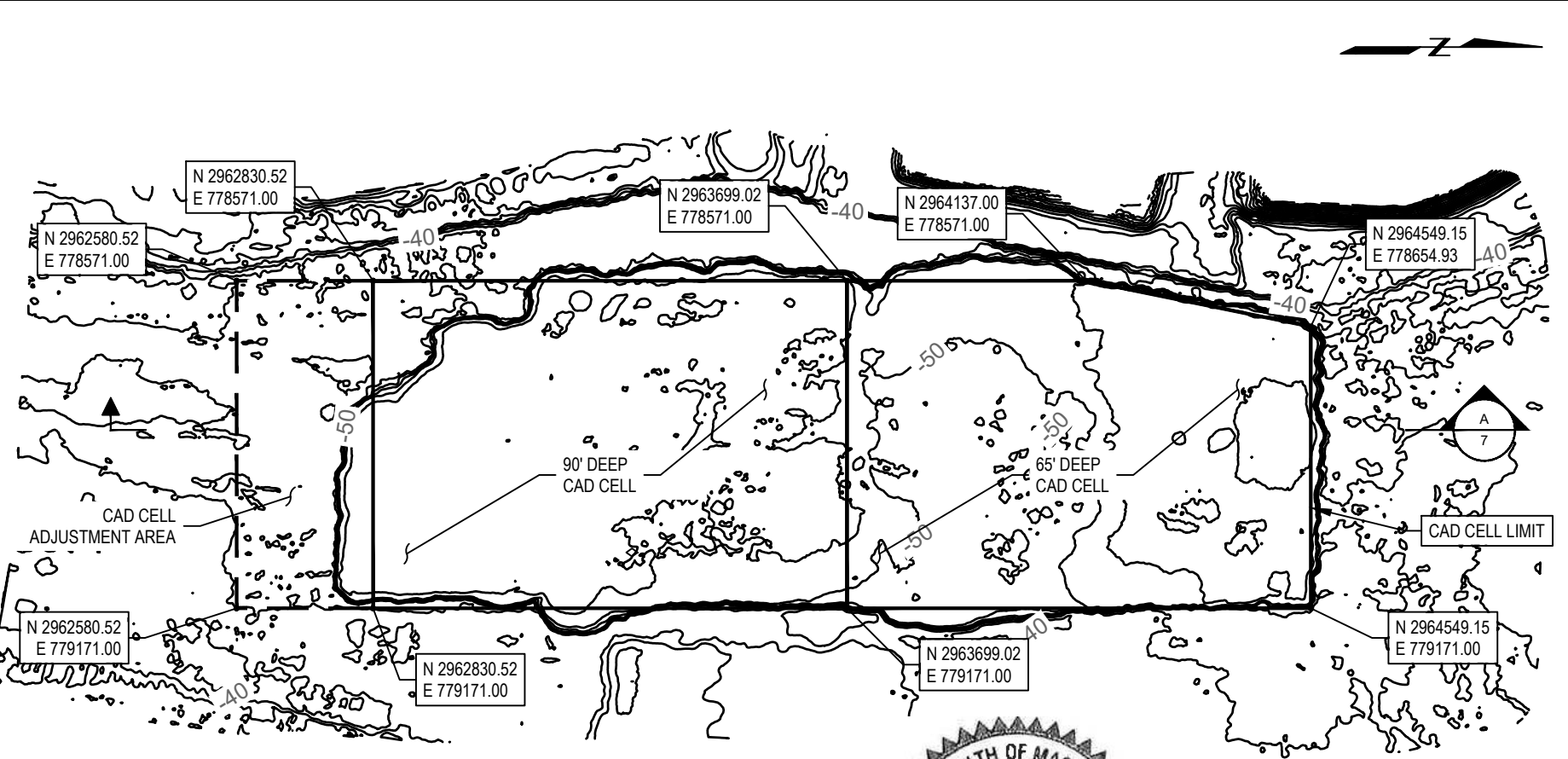


NOTE:
USGS LOCUS MAP
VERTICAL DATUM: NGVD29

HTL: 12.5
MHW: 9.83
MLW: 0.34
MLLW 0.0

| | | |
|--|--|---------------------------|
| TITLE: CAD CELL | | IN: BOSTON HARBOR |
| PURPOSE: MAINTENANCE DREDGING | | AT: MYSTIC RIVER |
| APPLICATION BY: DIVERSIFIED AUTOMOTIVE | | COUNTY: SUFFOLK STATE: MA |
| | | SHEET 5 OF 7 |
| | | DATE: 10/19/2020 |

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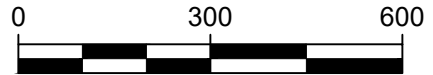


NOTES:

1. HYDROGRAPHIC DATA SHOWN HEREON WAS COLLECTED ON OCTOBER 18, 2020 BY STEELE ASSOCIATES AND CAN ONLY REFLECT CONDITIONS AS THEY EXISTED DURING THE TIME OF THE SURVEY. CONTOURS SHOWN ARE BASED ON 3X3 GRID MINIMUM DATA.
2. COORDINATES ARE BASED ON MASSACHUSETTS MAINLAND 2001 - STATE PLANE COORDINATE SYSTEM NAD83 AND ARE EXPRESSED IN FEET.
3. SOUNDINGS AND ELEVATIONS ARE SHOWN IN FEET AND TENTHS BASED ON MEAN LOWER LOW WATER IN BOSTON HARBOR, POSITIVE VALUES REPRESENT DEPTH BELOW THAT SAME PLANE.



R. J. Titmuss
1/21/2021



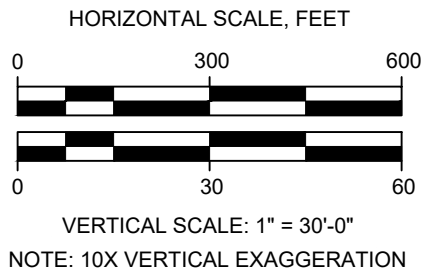
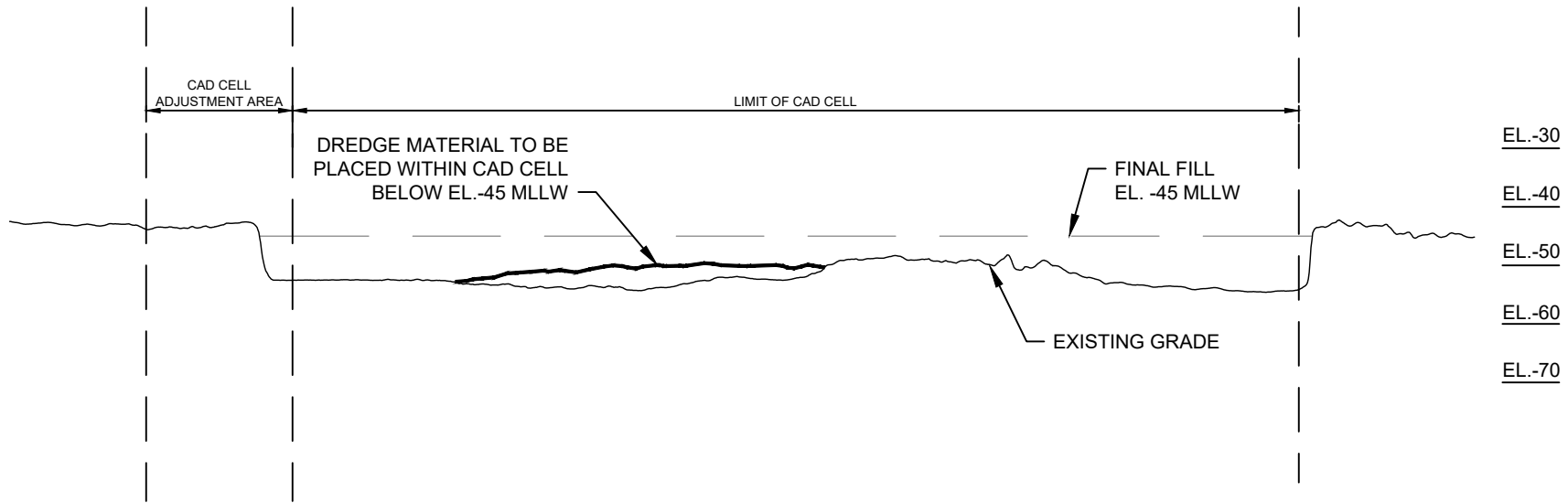
SCALE: 1" = 300'



HTL: 12.5
MHW: 9.83
MLW: 0.34
MLLW 0.0

| | | |
|--|---|--|
| TITLE: BOSTON HARBOR CAD CELL PLAN VIEW | | IN: BOSTON HARBOR AT: MYSTIC RIVER COUNTY: SUFFOLK STATE: MA |
| PURPOSE: MAINTENANCE DREDGING | APPLICATION BY: DIVERSIFIED AUTOMOTIVE | SHEET 6 OF 7 DATE: 01/20/2021 |

File: B:\Working\DIVERSIFIED_AUTOMOTIVE\2000408_Moran_Terminal_Dredging\00_CAD\Design\Working\REGULATORY_USACE_SHT-07_CAD_SECTION.dwg



R. J. Titmuss
1/21/2021



HTL: 12.5
MHW: 9.83
MLW: 0.34
MLLW: 0.0

| | | |
|---------------------------------------|--|--|
| TITLE: BOSTON HARBOR CAD CELL SECTION | | IN: BOSTON HARBOR AT: MYSTIC RIVER COUNTY: SUFFOLK STATE: MA |
| PURPOSE: MAINTENANCE DREDGING | APPLICATION BY: DIVERSIFIED AUTOMOTIVE | SHEET 7 OF 7 DATE: 01/20/2021 |



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands
NOI Wetland Fee Transmittal Form
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A. Applicant Information

1. Location of Project:

| | |
|---------------------|---------------|
| 100 Terminal Street | Boston |
| a. Street Address | b. City/Town |
| 754545 | \$712.50 |
| c. Check number | d. Fee amount |

2. Applicant Mailing Address:

| | | |
|------------------------------|------------------------------------|------------------|
| John | O'Donnell | |
| a. First Name | b. Last Name | |
| Diversified Automotive, Inc. | | |
| c. Organization | | |
| 100 Terminal Street | | |
| d. Mailing Address | | |
| Boston | MA | 02129 |
| e. City/Town | f. State | g. Zip Code |
| 617-936-2108 | john.o'donnell@diversifiedauto.com | |
| h. Phone Number | i. Fax Number | j. Email Address |

3. Property Owner (if different):

| | | |
|---------------------------------|------------------------|------------------|
| James | Stolecki | |
| a. First Name | b. Last Name | |
| Massport | | |
| c. Organization | | |
| One Harborside Drive, Suite 200 | | |
| d. Mailing Address | | |
| East Boston | MA | 02128 |
| e. City/Town | f. State | g. Zip Code |
| 617-568-3552 | jstolecki@massport.com | |
| h. Phone Number | i. Fax Number | j. Email Address |

B. Fees

Fee should be calculated using the following process & worksheet. **Please see Instructions before filling out worksheet.**

Step 1/Type of Activity: Describe each type of activity that will occur in wetland resource area and buffer zone.

Step 2/Number of Activities: Identify the number of each type of activity.

Step 3/Individual Activity Fee: Identify each activity fee from the six project categories listed in the instructions.

Step 4/Subtotal Activity Fee: Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

Step 5/Total Project Fee: Determine the total project fee by adding the subtotal amounts from Step 4.

Step 6/Fee Payments: To calculate the state share of the fee, divide the total fee in half and subtract \$12.50. To calculate the city/town share of the fee, divide the total fee in half and add \$12.50.



Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands
NOI Wetland Fee Transmittal Form
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B. Fees (continued)

| Step 1/Type of Activity | Step 2/Number of Activities | Step 3/Individual Activity Fee | Step 4/Subtotal Activity Fee |
|----------------------------------|-----------------------------|--------------------------------|--------------------------------------|
| Category 4 - Dredging | 1 | \$1,450 | \$1,450 |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| Step 5/Total Project Fee: | | | \$1,450 |
| Step 6/Fee Payments: | | | |
| Total Project Fee: | | | \$1,450 |
| State share of filing Fee: | | | \$712.50 |
| City/Town share of filing Fee: | | | \$75.00 |
| | | | a. Total Fee from Step 5 |
| | | | b. 1/2 Total Fee less \$12.50 |
| | | | c. 1/2 Total Fee plus \$12.50 |

C. Submittal Requirements

- a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection
 Box 4062
 Boston, MA 02211

- b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

To MassDEP Regional Office (see Instructions): Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)

AFFIDAVIT OF SERVICE – ABUTTER NOTIFICATION

Massachusetts Wetlands Protection Act

I, Bradford Saunders, on behalf of Diversified Automotive, hereby certify under the pains and penalties of perjury, that on October 21, 2020, I gave notification to abutters in compliance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40 and 310 CMR 10.05(4)(a) in connection with the following matter.

The filing of a Notice of Intent for the maintenance dredging of the berthing area north of the pier at 100 Terminal Street, Boston, Massachusetts, pursuant to the provisions of the Massachusetts Wetlands Protection Act (M.G.L. c. 131, s. 40), with the conservation commission for the municipality of Boston, Massachusetts.

The form of notification, and a list of the abutters to whom it was given and their addresses, are attached to this Affidavit of Service.



Bradford Saunders

10/21/2020
Date



**NOTIFICATION TO ABUTTERS
BOSTON CONSERVATION COMMISSION**

In accordance with the Massachusetts Wetlands Protection Act, Massachusetts General Laws Chapter 131, Section 40, you are hereby notified as an abutter to a project filed with the Boston Conservation Commission.

- A. Diversified Automotive has filed a Notice of Intent with the Boston Conservation Commission seeking permission to alter an Area Subject to Protection under the Wetlands Protection Act (General Laws Chapter 131, section 40).
- B. The address of the lot where the activity is proposed is 100 Terminal Street.
- C. The project involves the maintenance dredging of approximately 15,750 cubic yards from the berthing area of the terminal. All dredged material will be disposed in the Boston CAD cell.
- D. Copies of the notice of Intent may be obtained by contacting the Boston Conservation Commission at CC@boston.gov.
- E. Copies of the Notice of Intent may be obtained from GEI Consultants, Inc. by calling 774-277-6020 between the hours of 8:00 AM and 5:00 PM, Monday through Friday.
- F. In accordance with the Commonwealth of Massachusetts Executive Order Suspending Certain Provisions of the Open Meeting Law, the public hearing will take place **virtually** at <https://zoom.us/j/6864582044>. If you are unable to access the internet, you can call 1-929-205-6099, enter Meeting ID 686 458 2044 # and use # as your participant ID.
- G. Information regarding the date and time of the public hearing may be obtained from the **Boston Conservation Commission** by emailing CC@boston.gov or calling **(617) 635-3850** between the hours of **9 AM to 5 PM, Monday through Friday**.

NOTE: Notice of the public hearing, including its date, time, and place, will be published at least five (5) days in advance in the **Boston Herald**.

NOTE: Notice of the public hearing, including its date, time, and place, will be posted on www.boston.gov/public-notices and in Boston City Hall not less than forty-eight (48) hours in advance.

NOTE: If you would like to provide comments, you may attend the public hearing or send written comments to CC@boston.gov or Boston City Hall, Environment Department, Room 709, 1 City Hall Square, Boston, MA 02201

NOTE: You also may contact your local Conservation Commission or the Department of Environmental Protection Northeast Regional Office for more information about this application or the Wetlands Protection Act. To contact DEP, call: the Northeast Region: (978) 694-3200.

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| 202756003 | BOSTON AUTOPORT LLC (LESSEE) | 100 TERMINAL ST | CHARLESTOWN MA | 2129 | TERMINAL ST | CHARLESTOWN | 2129 |
| 202756001 | MASSACHUSETTS PORT AUTHORITY | 1 HARBORSIDE DR #2005 | EAST BOSTON MA | 2128 | 60 R TERMINAL ST | CHARLESTOWN | 2129 |
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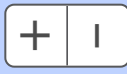
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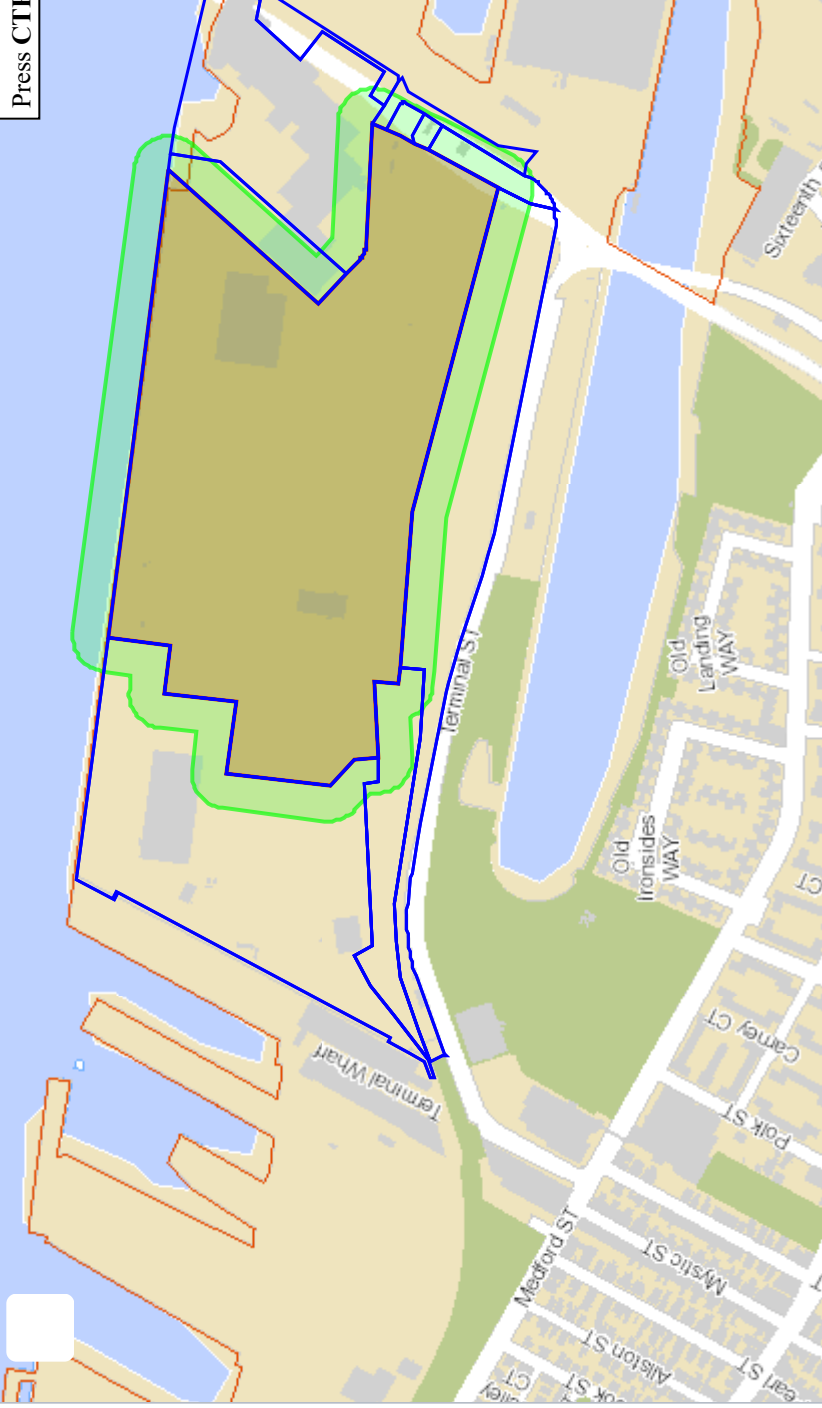
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Saunders, Bradford

From: Saunders, Bradford
Sent: Tuesday, October 20, 2020 4:24 PM
To: 'DMF.EnvReview-North@mass.gov'
Subject: J.F. Moran Terminal Maintenance Dredging Notice of Intent
Attachments: NOI - complete (signed).pdf

Attached is a copy of a Notice of Intent filed with the Boston Conservation Commission regarding the proposed maintenance dredging of approximately 15,750 cubic yards of sediment from the berthing area at the J.F. Moran Terminal at the mouth of the Mystic River. This document is being submitted for your review per the requirements of the Massachusetts Wetlands Protection Act and its implementing regulations.

If you have any questions concerning this document, please contact the undersigned.

 BRAD SAUNDERS
Regulatory Specialist
774.277.6020 cell: 617.921.6435
124 Grove Street, Suite 300, Franklin, MA 02038-3156



National Flood Hazard Layer FIRMette



42°23'15.60"N
71°30.42"W



USGS The National Map. Orthoimagery. Data refreshed April, 2019.
42°22'49.03"N
71°25'2.96"W



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS

- Without Base Flood Elevation (BFE)
Zone A, V, A99
- With BFE or Depth
Zone AE, AO, AH, VE, AR
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD

- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile
Zone X
- Future Conditions 1% Annual Chance Flood Hazard
Zone X
- Area with Reduced Flood Risk due to Levee. See Notes.
Zone X
- Area with Flood Risk due to Levee
Zone D

OTHER AREAS

- Area of Minimal Flood Hazard
Zone X
- Effective LOMRs
Zone D
- Area of Undetermined Flood Hazard
Zone D

GENERAL STRUCTURES

- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES

- Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS

- Digital Data Available
- No Digital Data Available
- Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards.

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **4/2/2020 at 3:47:48 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

ATTACHMENT A
Sediment Sampling Report

Prepared for: Diversified Automotive
Project: Moran Berth Sediment Sampling
Location: Mystic River, Charlestown, MA
Attention: John O'Donnell
Date: September 5, 2020

Steele Associates Marine Consultants, LLC
94 Gifford St.
Falmouth, MA 02540
508.540.0001

Subject: Moran Berth Sediment Sampling Report

Steele Associates Marine Consultants, LLC (SAMC) performed vibrocore sediment sampling at Boston Autoport's Moran Terminal Berth in Charlestown, MA on July 13, 2020. Twelve sediment cores were targeted at sample locations identified in GEI's sampling plan entitled "Approved Sampling Protocol (complete) – FINAL", which is attached to this report.



The 50-ft vessel Mantis (shown above), outfitted with a deck crane, was used as a sampling platform. A pneumatic vibrocore system with a 4-inch diameter stainless steel core barrel and cutter-catcher nose cone assembly. Prior to each sediment core collection, the cutter-catcher nose cone was decontaminated, and the tube lined with polyethylene plastic liner. Positioning was achieved using a sub-meter DGPS and heading sensor and Hypack software. A minimum of three attempts were made at each intended location prior to relocating in five-foot intervals until achieving successful penetration. Sample penetration depth, recovery, coordinates, water depth, and tide have been provided for each sediment core sample.

Laboratory analysis was performed by Alpha Analytical's sediment facility located in Mansfield, MA. Samples were provided to Alpha in accordance with the Chain of Custody, and no significant deviations were reported by Alpha. While the bottle order was incomplete at the time of sampling, arrangements were made with Alpha to perform all required analyses using the bottles provided prior to sampling. Alpha Analytical's Report is attached to this summary.

J.F. Moran Terminal Maintenance Dredging – Boston, MA Sediment Sampling Protocol (approved by MA-DEP on 3/12/20 and U.S. Army Corps of Engineers on 5/20/20)

Sampling Program

1. Collect twelve (12) vibracore samples in the locations depicted in attached Drawing S-01 dated 3/12/20.
2. Vibracores at locations 2, 3, 5, 8, 10, 11, and 12 are to be completed to a depth of -43 feet (MLLW).
3. Vibracores at locations 1, 4, 6, 7, and 9 are to be completed to a depth of -48 feet (MLLW).
4. Upon collection each core is to be split lengthwise, photographed with a stadia rod for scale, and described in accordance with ASTM D 2488 - Standard Practice for Description and Identification of Soils (see attached).
5. Field sampling data including date, time, latitude, longitude, GPS accuracy, measured water depth, tidal correction, and core penetration/recovery are to be recorded for each vibracore. All coordinate data are to be reported in geographic NAD 83 decimal degree format. All depth data should be reported in tenths of feet.
6. All information generated/collected under 4 and 5 above are to be recorded for each core on the attached Sediment Core Log Sheet.

Sample Analysis and Testing

1. For analysis, core samples obtained from sampling locations 1, 2, 3, 4, 5, 6, 8, 9, and 10 are to be composited as follows.
 - Composite A..... Cores 1, 2, and 3
 - Composite B..... Cores 4, 5, and 6
 - Composite C..... Cores 8, 9, and 10
2. Core samples obtained from sampling locations 7, 11, and 12 are to be analyzed as distinct non-composited samples.
3. Assess grain size distribution of the composited and non-composited samples based on the wet passage of material through U.S. Standard Sieve Nos. 4, 10, 40, 60, and 200.
4. Conduct bulk chemistry testing on each composited and non-composited sample as specified at 314 CMR 9.07(2)(b)6 for the following parameters.

| | |
|----------|------------------------------------|
| Arsenic | Zinc |
| Cadmium | PAHs |
| Chromium | PCBs |
| Copper | Extractable Petroleum Hydrocarbons |
| Lead | Volatile Organic Compounds * |
| Mercury | Total Organic Carbon |
| Nickel | |

* Volatile Organic Compounds are to be determined for the noncomposited, samples 7, 11, and 12 only.



| | | | | | | | | |
|--|---------------------------------------|---|------|---|---|--|---|--|
| Attention: 1" = 100' If this scale bar does not measure the length of the map, it is not to scale. | 1 3/24/2020 0 3/12/2020 NO DATE | ACID SAMPLES AND STM OUTFALLS SAMPLING ISS:LERENSON | APP: |  GEI GEI CONSULTANTS 12345 Main Street Anytown, CA 90210 | Designed: Checked: Drawn: Approved By: | DIVERSIFIED AUTOMOTIVE GEI Project 200448 | MAINTENANCE DREDGING MORAN TERMINAL SAMPLING LOCATION | DWS NO S-01 SHEET NO 01 |
|--|---------------------------------------|---|------|---|---|--|---|--|

SEDIMENT CORE LOG SHEET

PROJECT: _____ DATE: _____

SAMPLING PERSONNEL: _____

SEA STATE: _____ WEATHER CODE: _____

LOCATION METHOD: _____

SAMPLE ID: _____ SAMPLER TYPE: _____

TIME: _____

SOUNDING: _____ CORRECTED DEPTH: _____

COORDINATES: N _____ E _____

PENETRATION/RECOVERY: _____ NO. OF ATTEMPTS: _____

MATERIAL DESCRIPTION: _____

| CORE PHOTO: | NOTES: |
|--|--|
| <i>Insert core photograph with scale</i> | <i>Insert field notes and ASTM description of core</i> |



Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)¹

This standard is issued under the fixed designation D 2488; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope *

1.1 This practice covers procedures for the description of soils for engineering purposes.

1.2 This practice also describes a procedure for identifying soils, at the option of the user, based on the classification system described in Test Method D 2487. The identification is based on visual examination and manual tests. It must be clearly stated in reporting an identification that it is based on visual-manual procedures.

1.2.1 When precise classification of soils for engineering purposes is required, the procedures prescribed in Test Method D 2487 shall be used.

1.2.2 In this practice, the identification portion assigning a group symbol and name is limited to soil particles smaller than 3 in. (75 mm).

1.2.3 The identification portion of this practice is limited to naturally occurring soils (disturbed and undisturbed).

NOTE 1—This practice may be used as a descriptive system applied to such materials as shale, claystone, shells, crushed rock, etc. (see Appendix X2).

1.3 The descriptive information in this practice may be used with other soil classification systems or for materials other than naturally occurring soils.

1.4 The values stated in inch-pound units are to be regarded as the standard.

1.5 *This standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use. For specific precautionary statements see Section 8.*

1.6 *This practice offers a set of instructions for performing one or more specific operations. This document cannot replace education or experience and should be used in conjunction with professional judgment. Not all aspects of this practice may be applicable in all circumstances. This ASTM standard is not intended to represent or replace the standard of care by which*

the adequacy of a given professional service must be judged, nor should this document be applied without consideration of a project's many unique aspects. The word "Standard" in the title of this document means only that the document has been approved through the ASTM consensus process.

2. Referenced Documents

2.1 ASTM Standards:

D 653 Terminology Relating to Soil, Rock, and Contained Fluids²

D 1452 Practice for Soil Investigation and Sampling by Auger Borings²

D 1586 Test Method for Penetration Test and Split-Barrel Sampling of Soils²

D 1587 Practice for Thin-Walled Tube Sampling of Soils²

D 2113 Practice for Diamond Core Drilling for Site Investigation²

D 2487 Classification of Soils for Engineering Purposes (Unified Soil Classification System)²

D 3740 Practice for Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and rock as Used in Engineering Design and Construction³

D 4083 Practice for Description of Frozen Soils (Visual-Manual Procedure)²

3. Terminology

3.1 *Definitions*—Except as listed below, all definitions are in accordance with Terminology D 653.

NOTE 2—For particles retained on a 3-in. (75-mm) US standard sieve, the following definitions are suggested:

Cobbles—particles of rock that will pass a 12-in. (300-mm) square opening and be retained on a 3-in. (75-mm) sieve, and

Boulders—particles of rock that will not pass a 12-in. (300-mm) square opening.

3.1.1 *clay*—soil passing a No. 200 (75- μ m) sieve that can be made to exhibit plasticity (putty-like properties) within a range of water contents, and that exhibits considerable strength when air-dry. For classification, a clay is a fine-grained soil, or the fine-grained portion of a soil, with a plasticity index equal to or greater than 4, and the plot of plasticity index versus liquid

¹ This practice is under the jurisdiction of ASTM Committee D-18 on Soil and Rock and is the direct responsibility of Subcommittee D18.07 on Identification and Classification of Soils.

Current edition approved Feb. 10, 2000. Published May 2000. Originally published as D 2488 – 66 T. Last previous edition D 2488 – 93 ^{ϵ 1}.

² *Annual Book of ASTM Standards*, Vol 04.08.

³ *Annual Book of ASTM Standards*, Vol 04.09.

*A Summary of Changes section appears at the end of this standard.

limit falls on or above the “A” line (see Fig. 3 of Test Method D 2487).

3.1.2 *gravel*—particles of rock that will pass a 3-in. (75-mm) sieve and be retained on a No. 4 (4.75-mm) sieve with the following subdivisions:

coarse—passes a 3-in. (75-mm) sieve and is retained on a $\frac{3}{4}$ -in. (19-mm) sieve.

fine—passes a $\frac{3}{4}$ -in. (19-mm) sieve and is retained on a No. 4 (4.75-mm) sieve.

3.1.3 *organic clay*—a clay with sufficient organic content to influence the soil properties. For classification, an organic clay is a soil that would be classified as a clay, except that its liquid limit value after oven drying is less than 75 % of its liquid limit value before oven drying.

3.1.4 *organic silt*—a silt with sufficient organic content to influence the soil properties. For classification, an organic silt is a soil that would be classified as a silt except that its liquid limit value after oven drying is less than 75 % of its liquid limit value before oven drying.

3.1.5 *peat*—a soil composed primarily of vegetable tissue in various stages of decomposition usually with an organic odor, a dark brown to black color, a spongy consistency, and a texture ranging from fibrous to amorphous.

3.1.6 *sand*—particles of rock that will pass a No. 4 (4.75-mm) sieve and be retained on a No. 200 (75- μ m) sieve with the following subdivisions:

coarse—passes a No. 4 (4.75-mm) sieve and is retained on a No. 10 (2.00-mm) sieve.

medium—passes a No. 10 (2.00-mm) sieve and is retained on a No. 40 (425- μ m) sieve.

fine—passes a No. 40 (425- μ m) sieve and is retained on a No. 200 (75- μ m) sieve.

3.1.7 *silt*—soil passing a No. 200 (75- μ m) sieve that is nonplastic or very slightly plastic and that exhibits little or no strength when air dry. For classification, a silt is a fine-grained soil, or the fine-grained portion of a soil, with a plasticity index less than 4, or the plot of plasticity index versus liquid limit falls below the “A” line (see Fig. 3 of Test Method D 2487).

4. Summary of Practice

4.1 Using visual examination and simple manual tests, this practice gives standardized criteria and procedures for describing and identifying soils.

4.2 The soil can be given an identification by assigning a group symbol(s) and name. The flow charts, Fig. 1a and Fig. 1b for fine-grained soils, and Fig. 2, for coarse-grained soils, can be used to assign the appropriate group symbol(s) and name. If the soil has properties which do not distinctly place it into a specific group, borderline symbols may be used, see Appendix X3.

NOTE 3—It is suggested that a distinction be made between *dual symbols* and *borderline symbols*.

Dual Symbol—A dual symbol is two symbols separated by a hyphen, for example, GP-GM, SW-SC, CL-ML used to indicate that the soil has been identified as having the properties of a classification in accordance with Test Method D 2487 where two symbols are required. Two symbols are required when the soil has between 5 and 12 % fines or when the liquid limit and plasticity index values plot in the CL-ML area of the plasticity chart.

Borderline Symbol—A borderline symbol is two symbols separated by a slash, for example, CL/CH, GM/SM, CL/ML. A borderline symbol should be used to indicate that the soil has been identified as having properties that do not distinctly place the soil into a specific group (see Appendix X3).

5. Significance and Use

5.1 The descriptive information required in this practice can be used to describe a soil to aid in the evaluation of its significant properties for engineering use.

5.2 The descriptive information required in this practice should be used to supplement the classification of a soil as determined by Test Method D 2487.

5.3 This practice may be used in identifying soils using the classification group symbols and names as prescribed in Test Method D 2487. Since the names and symbols used in this practice to identify the soils are the same as those used in Test Method D 2487, it shall be clearly stated in reports and all other appropriate documents, that the classification symbol and name are based on visual-manual procedures.

5.4 This practice is to be used not only for identification of soils in the field, but also in the office, laboratory, or wherever soil samples are inspected and described.

5.5 This practice has particular value in grouping similar soil samples so that only a minimum number of laboratory tests need be run for positive soil classification.

NOTE 4—The ability to describe and identify soils correctly is learned more readily under the guidance of experienced personnel, but it may also be acquired systematically by comparing numerical laboratory test results for typical soils of each type with their visual and manual characteristics.

5.6 When describing and identifying soil samples from a given boring, test pit, or group of borings or pits, it is not necessary to follow all of the procedures in this practice for every sample. Soils which appear to be similar can be grouped together; one sample completely described and identified with the others referred to as similar based on performing only a few of the descriptive and identification procedures described in this practice.

5.7 This practice may be used in combination with Practice D 4083 when working with frozen soils.

NOTE 5—Notwithstanding the statements on precision and bias contained in this standard: The precision of this test method is dependent on the competence of the personnel performing it and the suitability of the equipment and facilities used. Agencies that meet the criteria of Practice D 3740 are generally considered capable of competent and objective testing. Users of this test method are cautioned that compliance with Practice D 3740 does not in itself assure reliable testing. Reliable testing depends on several factors; Practice D 3740 provides a means for evaluating some of those factors.

6. Apparatus

6.1 *Required Apparatus:*

6.1.1 *Pocket Knife or Small Spatula.*

6.2 *Useful Auxiliary Apparatus:*

6.2.1 *Small Test Tube and Stopper* (or jar with a lid).

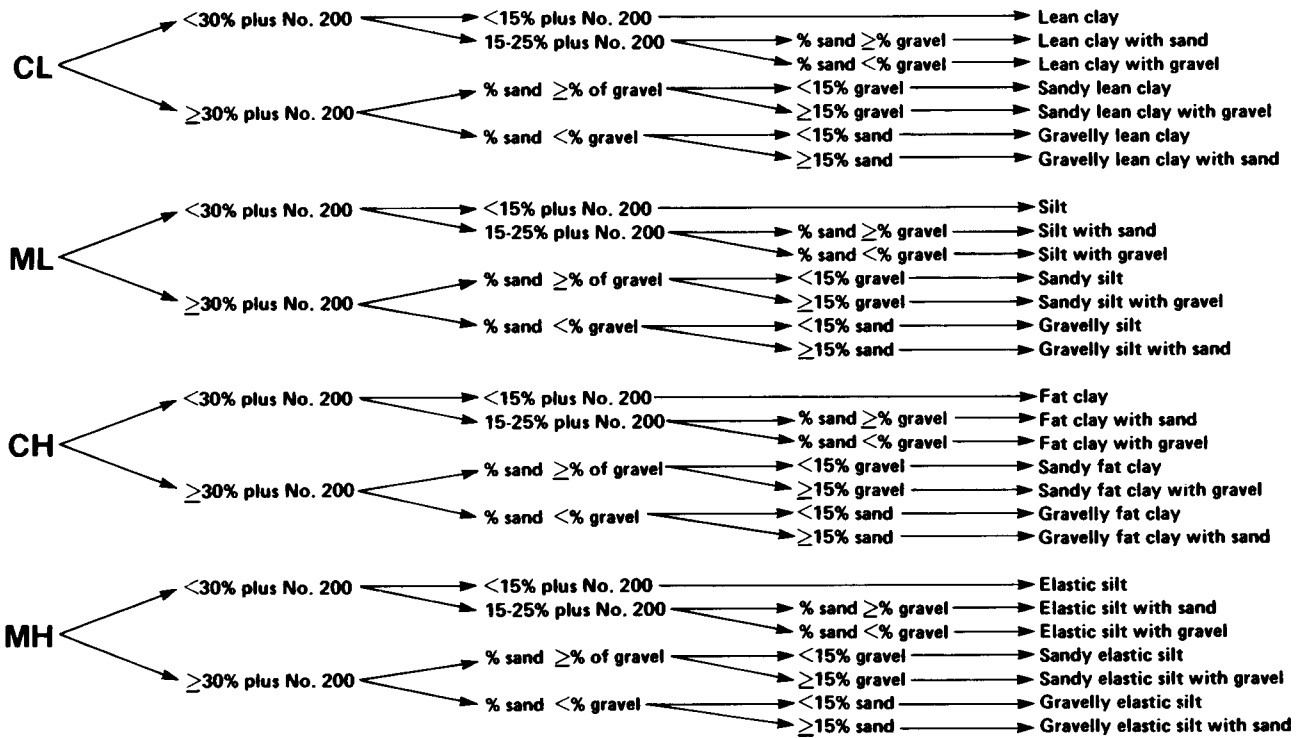
6.2.2 *Small Hand Lens.*

7. Reagents

7.1 *Purity of Water*—Unless otherwise indicated, references to water shall be understood to mean water from a city water

GROUP SYMBOL

GROUP NAME

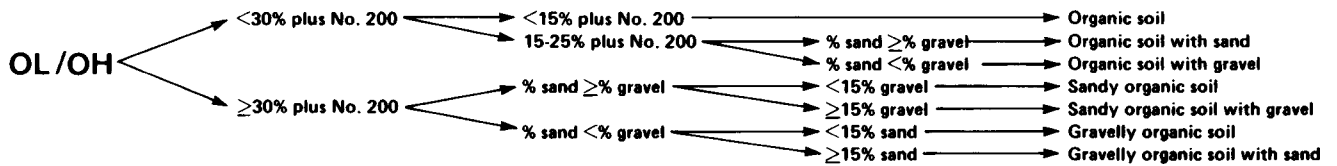


NOTE 1—Percentages are based on estimating amounts of fines, sand, and gravel to the nearest 5 %.

FIG. 1a Flow Chart for Identifying Inorganic Fine-Grained Soil (50 % or more fines)

GROUP SYMBOL

GROUP NAME



NOTE 1—Percentages are based on estimating amounts of fines, sand, and gravel to the nearest 5 %.

FIG. 1 b Flow Chart for Identifying Organic Fine-Grained Soil (50 % or more fines)

supply or natural source, including non-potable water.

7.2 *Hydrochloric Acid*—A small bottle of dilute hydrochloric acid, HCl, one part HCl (10 N) to three parts water (This reagent is optional for use with this practice). See Section 8.

8. Safety Precautions

8.1 When preparing the dilute HCl solution of one part concentrated hydrochloric acid (10 N) to three parts of distilled water, slowly add acid into water following necessary safety precautions. Handle with caution and store safely. If solution comes into contact with the skin, rinse thoroughly with water.

8.2 **Caution**—Do not add water to acid.

9. Sampling

9.1 The sample shall be considered to be representative of the stratum from which it was obtained by an appropriate, accepted, or standard procedure.

NOTE 6—Preferably, the sampling procedure should be identified as

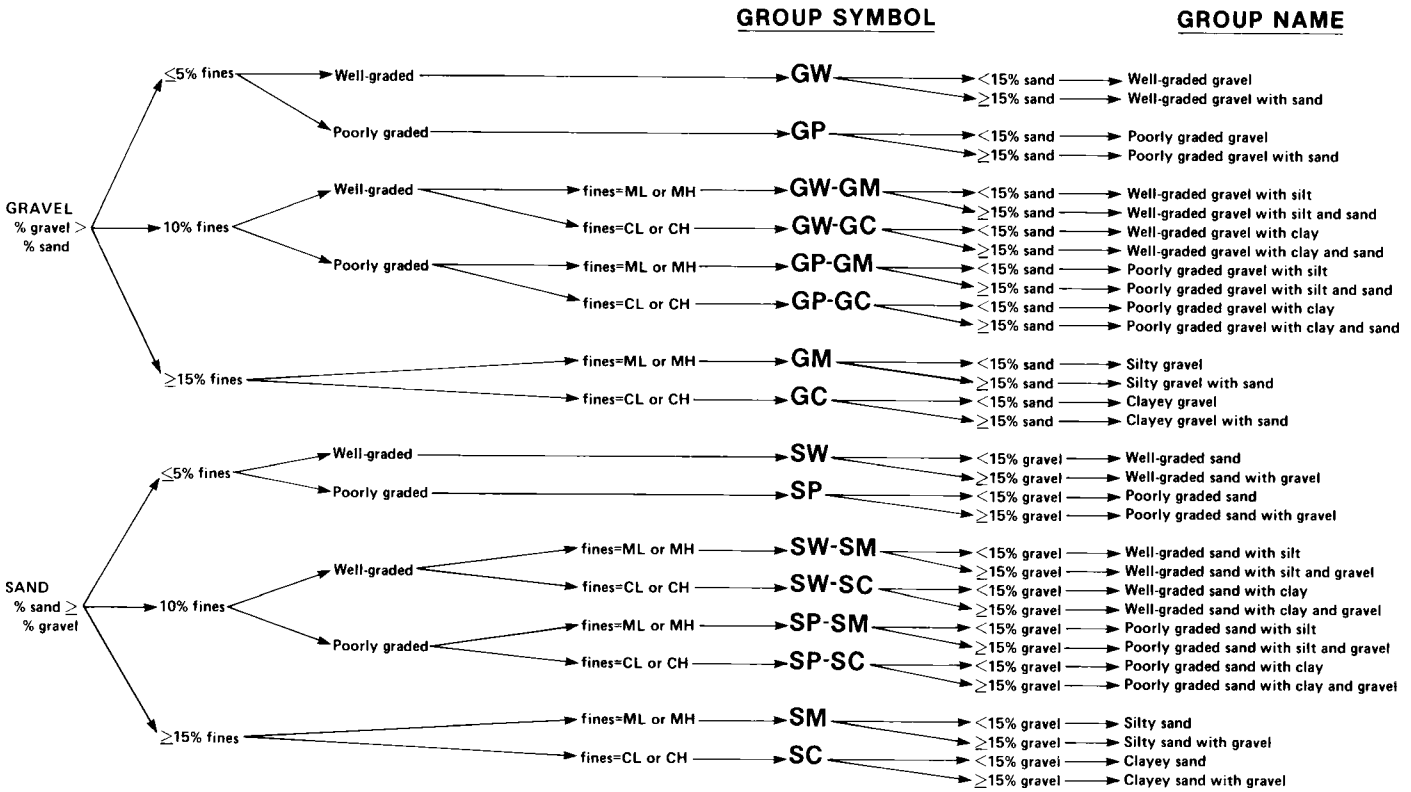
having been conducted in accordance with Practices D 1452, D 1587, or D 2113, or Test Method D 1586.

9.2 The sample shall be carefully identified as to origin.

NOTE 7—Remarks as to the origin may take the form of a boring number and sample number in conjunction with a job number, a geologic stratum, a pedologic horizon or a location description with respect to a permanent monument, a grid system or a station number and offset with respect to a stated centerline and a depth or elevation.

9.3 For accurate description and identification, the minimum amount of the specimen to be examined shall be in accordance with the following schedule:

| Maximum Particle Size, Sieve Opening | Minimum Specimen Size, Dry Weight |
|--------------------------------------|-----------------------------------|
| 4.75 mm (No. 4) | 100 g (0.25 lb) |
| 9.5 mm (¾ in.) | 200 g (0.5 lb) |
| 19.0 mm (¾ in.) | 1.0 kg (2.2 lb) |
| 38.1 mm (1½ in.) | 8.0 kg (18 lb) |
| 75.0 mm (3 in.) | 60.0 kg (132 lb) |



NOTE 1—Percentages are based on estimating amounts of fines, sand, and gravel to the nearest 5 %.

FIG. 2 Flow Chart for Identifying Coarse-Grained Soils (less than 50 % fines)

NOTE 8—If random isolated particles are encountered that are significantly larger than the particles in the soil matrix, the soil matrix can be accurately described and identified in accordance with the preceding schedule.

9.4 If the field sample or specimen being examined is smaller than the minimum recommended amount, the report shall include an appropriate remark.

10. Descriptive Information for Soils

10.1 *Angularity*—Describe the angularity of the sand (coarse sizes only), gravel, cobbles, and boulders, as angular, subangular, subrounded, or rounded in accordance with the criteria in Table 1 and Fig. 3. A range of angularity may be stated, such as: subrounded to rounded.

10.2 *Shape*—Describe the shape of the gravel, cobbles, and boulders as flat, elongated, or flat and elongated if they meet the criteria in Table 2 and Fig. 4. Otherwise, do not mention the shape. Indicate the fraction of the particles that have the shape, such as: one-third of the gravel particles are flat.

TABLE 1 Criteria for Describing Angularity of Coarse-Grained Particles (see Fig. 3)

| Description | Criteria |
|-------------|--|
| Angular | Particles have sharp edges and relatively plane sides with unpolished surfaces |
| Subangular | Particles are similar to angular description but have rounded edges |
| Subrounded | Particles have nearly plane sides but have well-rounded corners and edges |
| Rounded | Particles have smoothly curved sides and no edges |

10.3 *Color*—Describe the color. Color is an important property in identifying organic soils, and within a given locality it may also be useful in identifying materials of similar geologic origin. If the sample contains layers or patches of varying colors, this shall be noted and all representative colors shall be described. The color shall be described for moist samples. If the color represents a dry condition, this shall be stated in the report.

10.4 *Odor*—Describe the odor if organic or unusual. Soils containing a significant amount of organic material usually have a distinctive odor of decaying vegetation. This is especially apparent in fresh samples, but if the samples are dried, the odor may often be revived by heating a moistened sample. If the odor is unusual (petroleum product, chemical, and the like), it shall be described.

10.5 *Moisture Condition*—Describe the moisture condition as dry, moist, or wet, in accordance with the criteria in Table 3.

10.6 *HCl Reaction*—Describe the reaction with HCl as none, weak, or strong, in accordance with the criteria in Table 4. Since calcium carbonate is a common cementing agent, a report of its presence on the basis of the reaction with dilute hydrochloric acid is important.

10.7 *Consistency*—For intact fine-grained soil, describe the consistency as very soft, soft, firm, hard, or very hard, in accordance with the criteria in Table 5. This observation is inappropriate for soils with significant amounts of gravel.

10.8 *Cementation*—Describe the cementation of intact coarse-grained soils as weak, moderate, or strong, in accordance with the criteria in Table 6.

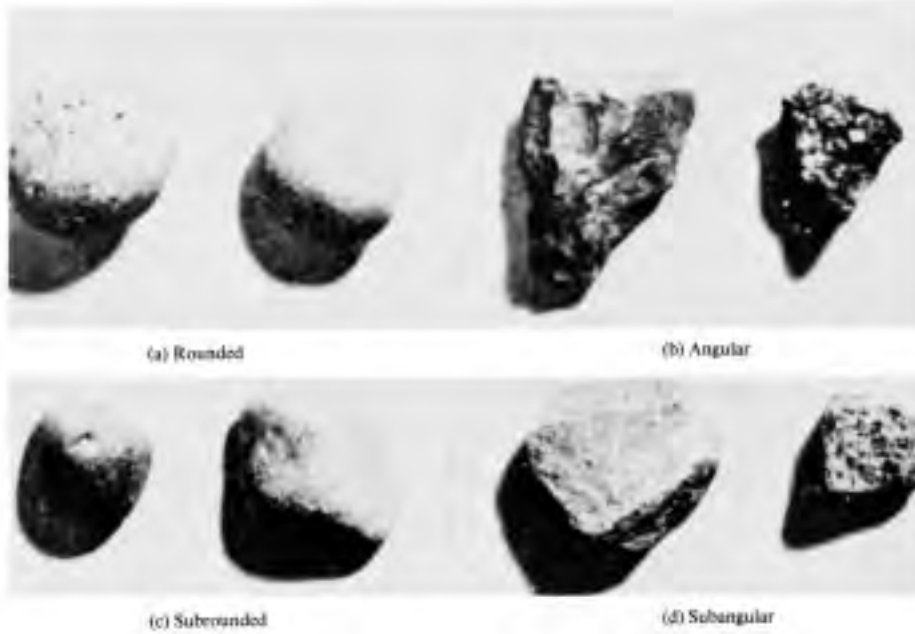


FIG. 3 Typical Angularity of Bulky Grains

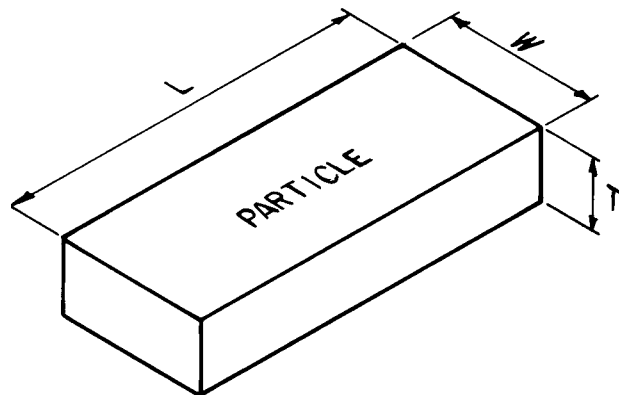
TABLE 2 Criteria for Describing Particle Shape (see Fig. 4)

The particle shape shall be described as follows where length, width, and thickness refer to the greatest, intermediate, and least dimensions of a particle, respectively.

| | |
|--------------------|---|
| Flat | Particles with width/thickness > 3 |
| Elongated | Particles with length/width > 3 |
| Flat and elongated | Particles meet criteria for both flat and elongated |

PARTICLE SHAPE

W = WIDTH
T = THICKNESS
L = LENGTH



FLAT: $W/T > 3$
 ELONGATED: $L/W > 3$
 FLAT AND ELONGATED:
 - meets both criteria

FIG. 4 Criteria for Particle Shape

10.9 *Structure*—Describe the structure of intact soils in accordance with the criteria in Table 7.

10.10 *Range of Particle Sizes*—For gravel and sand components, describe the range of particle sizes within each component as defined in 3.1.2 and 3.1.6. For example, about 20 % fine to coarse gravel, about 40 % fine to coarse sand.

10.11 *Maximum Particle Size*—Describe the maximum particle size found in the sample in accordance with the following information:

10.11.1 *Sand Size*—If the maximum particle size is a sand size, describe as fine, medium, or coarse as defined in 3.1.6. For example: maximum particle size, medium sand.

10.11.2 *Gravel Size*—If the maximum particle size is a gravel size, describe the maximum particle size as the smallest sieve opening that the particle will pass. For example, maximum particle size, 1½ in. (will pass a 1½-in. square opening but not a ¾-in. square opening).

10.11.3 *Cobble or Boulder Size*—If the maximum particle size is a cobble or boulder size, describe the maximum dimension of the largest particle. For example: maximum dimension, 18 in. (450 mm).

10.12 *Hardness*—Describe the hardness of coarse sand and larger particles as hard, or state what happens when the particles are hit by a hammer, for example, gravel-size particles fracture with considerable hammer blow, some gravel-size particles crumble with hammer blow. “Hard” means particles do not crack, fracture, or crumble under a hammer blow.

10.13 Additional comments shall be noted, such as the presence of roots or root holes, difficulty in drilling or augering

TABLE 3 Criteria for Describing Moisture Condition

| Description | Criteria |
|-------------|---|
| Dry | Absence of moisture, dusty, dry to the touch |
| Moist | Damp but no visible water |
| Wet | Visible free water, usually soil is below water table |

TABLE 4 Criteria for Describing the Reaction With HCl

| Description | Criteria |
|-------------|--|
| None | No visible reaction |
| Weak | Some reaction, with bubbles forming slowly |
| Strong | Violent reaction, with bubbles forming immediately |

TABLE 5 Criteria for Describing Dilatancy

| Description | Criteria |
|-------------|--|
| Very soft | Thumb will penetrate soil more than 1 in. (25 mm) |
| Soft | Thumb will penetrate soil about 1 in. (25 mm) |
| Firm | Thumb will indent soil about ¼ in. (6 mm) |
| Hard | Thumb will not indent soil but readily indented with thumbnail |
| Very hard | Thumbnail will not indent soil |

TABLE 6 Criteria for Describing Toughness

| Description | Criteria |
|-------------|--|
| Weak | Crumbles or breaks with handling or little finger pressure |
| Moderate | Crumbles or breaks with considerable finger pressure |
| Strong | Will not crumble or break with finger pressure |

TABLE 7 Criteria for Describing Dilatancy

| Description | Criteria |
|--------------|--|
| Stratified | Alternating layers of varying material or color with layers at least 6 mm thick; note thickness |
| Laminated | Alternating layers of varying material or color with the layers less than 6 mm thick; note thickness |
| Fissured | Breaks along definite planes of fracture with little resistance to fracturing |
| Slickensided | Fracture planes appear polished or glossy, sometimes striated |
| Blocky | Cohesive soil that can be broken down into small angular lumps which resist further breakdown |
| Lensed | Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay; note thickness |
| Homogeneous | Same color and appearance throughout |

hole, caving of trench or hole, or the presence of mica.

10.14 A local or commercial name or a geologic interpretation of the soil, or both, may be added if identified as such.

10.15 A classification or identification of the soil in accordance with other classification systems may be added if identified as such.

11. Identification of Peat

11.1 A sample composed primarily of vegetable tissue in various stages of decomposition that has a fibrous to amorphous texture, usually a dark brown to black color, and an organic odor, shall be designated as a highly organic soil and shall be identified as peat, PT, and not subjected to the identification procedures described hereafter.

12. Preparation for Identification

12.1 The soil identification portion of this practice is based

on the portion of the soil sample that will pass a 3-in. (75-mm) sieve. The larger than 3-in. (75-mm) particles must be removed, manually, for a loose sample, or mentally, for an intact sample before classifying the soil.

12.2 Estimate and note the percentage of cobbles and the percentage of boulders. Performed visually, these estimates will be on the basis of volume percentage.

NOTE 9—Since the percentages of the particle-size distribution in Test Method D 2487 are by dry weight, and the estimates of percentages for gravel, sand, and fines in this practice are by dry weight, it is recommended that the report state that the percentages of cobbles and boulders are by volume.

12.3 Of the fraction of the soil smaller than 3 in. (75 mm), estimate and note the percentage, by dry weight, of the gravel, sand, and fines (see Appendix X4 for suggested procedures).

NOTE 10—Since the particle-size components appear visually on the basis of volume, considerable experience is required to estimate the percentages on the basis of dry weight. Frequent comparisons with laboratory particle-size analyses should be made.

12.3.1 The percentages shall be estimated to the closest 5 %. The percentages of gravel, sand, and fines must add up to 100 %.

12.3.2 If one of the components is present but not in sufficient quantity to be considered 5 % of the smaller than 3-in. (75-mm) portion, indicate its presence by the term *trace*, for example, trace of fines. A trace is not to be considered in the total of 100 % for the components.

13. Preliminary Identification

13.1 The soil is *fine grained* if it contains 50 % or more fines. Follow the procedures for identifying fine-grained soils of Section 14.

13.2 The soil is *coarse grained* if it contains less than 50 % fines. Follow the procedures for identifying coarse-grained soils of Section 15.

14. Procedure for Identifying Fine-Grained Soils

14.1 Select a representative sample of the material for examination. Remove particles larger than the No. 40 sieve (medium sand and larger) until a specimen equivalent to about a handful of material is available. Use this specimen for performing the dry strength, dilatancy, and toughness tests.

14.2 *Dry Strength:*

14.2.1 From the specimen, select enough material to mold into a ball about 1 in. (25 mm) in diameter. Mold the material until it has the consistency of putty, adding water if necessary.

14.2.2 From the molded material, make at least three test specimens. A test specimen shall be a ball of material about ½ in. (12 mm) in diameter. Allow the test specimens to dry in air, or sun, or by artificial means, as long as the temperature does not exceed 60°C.

14.2.3 If the test specimen contains natural dry lumps, those that are about ½ in. (12 mm) in diameter may be used in place of the molded balls.

NOTE 11—The process of molding and drying usually produces higher strengths than are found in natural dry lumps of soil.

14.2.4 Test the strength of the dry balls or lumps by crushing between the fingers. Note the strength as none, low,

medium, high, or very high in accordance with the criteria in Table 8. If natural dry lumps are used, do not use the results of any of the lumps that are found to contain particles of coarse sand.

14.2.5 The presence of high-strength water-soluble cementing materials, such as calcium carbonate, may cause exceptionally high dry strengths. The presence of calcium carbonate can usually be detected from the intensity of the reaction with dilute hydrochloric acid (see 10.6).

14.3 Dilatancy:

14.3.1 From the specimen, select enough material to mold into a ball about 1/2 in. (12 mm) in diameter. Mold the material, adding water if necessary, until it has a soft, but not sticky, consistency.

14.3.2 Smooth the soil ball in the palm of one hand with the blade of a knife or small spatula. Shake horizontally, striking the side of the hand vigorously against the other hand several times. Note the reaction of water appearing on the surface of the soil. Squeeze the sample by closing the hand or pinching the soil between the fingers, and note the reaction as none, slow, or rapid in accordance with the criteria in Table 9. The reaction is the speed with which water appears while shaking, and disappears while squeezing.

14.4 Toughness:

14.4.1 Following the completion of the dilatancy test, the test specimen is shaped into an elongated pat and rolled by hand on a smooth surface or between the palms into a thread about 1/8 in. (3 mm) in diameter. (If the sample is too wet to roll easily, it should be spread into a thin layer and allowed to lose some water by evaporation.) Fold the sample threads and reroll repeatedly until the thread crumbles at a diameter of about 1/8 in. The thread will crumble at a diameter of 1/8 in. when the soil is near the plastic limit. Note the pressure required to roll the thread near the plastic limit. Also, note the strength of the thread. After the thread crumbles, the pieces should be lumped together and kneaded until the lump crumbles. Note the toughness of the material during kneading.

14.4.2 Describe the toughness of the thread and lump as low, medium, or high in accordance with the criteria in Table 10.

14.5 Plasticity—On the basis of observations made during the toughness test, describe the plasticity of the material in accordance with the criteria given in Table 11.

14.6 Decide whether the soil is an *inorganic* or an *organic* fine-grained soil (see 14.8). If inorganic, follow the steps given in 14.7.

TABLE 8 Criteria for Describing Toughness

| Description | Criteria |
|-------------|--|
| None | The dry specimen crumbles into powder with mere pressure of handling |
| Low | The dry specimen crumbles into powder with some finger pressure |
| Medium | The dry specimen breaks into pieces or crumbles with considerable finger pressure |
| High | The dry specimen cannot be broken with finger pressure. Specimen will break into pieces between thumb and a hard surface |
| Very high | The dry specimen cannot be broken between the thumb and a hard surface |

TABLE 9 Criteria for Describing Dilatancy

| Description | Criteria |
|-------------|---|
| None | No visible change in the specimen |
| Slow | Water appears slowly on the surface of the specimen during shaking and does not disappear or disappears slowly upon squeezing |
| Rapid | Water appears quickly on the surface of the specimen during shaking and disappears quickly upon squeezing |

TABLE 10 Criteria for Describing Toughness

| Description | Criteria |
|-------------|--|
| Low | Only slight pressure is required to roll the thread near the plastic limit. The thread and the lump are weak and soft |
| Medium | Medium pressure is required to roll the thread to near the plastic limit. The thread and the lump have medium stiffness |
| High | Considerable pressure is required to roll the thread to near the plastic limit. The thread and the lump have very high stiffness |

TABLE 11 Criteria for Describing Plasticity

| Description | Criteria |
|-------------|---|
| Nonplastic | A 1/8-in. (3-mm) thread cannot be rolled at any water content |
| Low | The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit |
| Medium | The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit |
| High | It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit |

14.7 Identification of Inorganic Fine-Grained Soils:

14.7.1 Identify the soil as a *lean clay*, CL, if the soil has medium to high dry strength, no or slow dilatancy, and medium toughness and plasticity (see Table 12).

14.7.2 Identify the soil as a *fat clay*, CH, if the soil has high to very high dry strength, no dilatancy, and high toughness and plasticity (see Table 12).

14.7.3 Identify the soil as a *silt*, ML, if the soil has no to low dry strength, slow to rapid dilatancy, and low toughness and plasticity, or is nonplastic (see Table 12).

14.7.4 Identify the soil as an *elastic silt*, MH, if the soil has low to medium dry strength, no to slow dilatancy, and low to medium toughness and plasticity (see Table 12).

NOTE 12—These properties are similar to those for a lean clay. However, the silt will dry quickly on the hand and have a smooth, silky feel when dry. Some soils that would classify as MH in accordance with the criteria in Test Method D 2487 are visually difficult to distinguish from lean clays, CL. It may be necessary to perform laboratory testing for proper identification.

TABLE 12 Identification of Inorganic Fine-Grained Soils from Manual Tests

| Soil Symbol | Dry Strength | Dilatancy | Toughness |
|-------------|-------------------|---------------|--------------------------------|
| ML | None to low | Slow to rapid | Low or thread cannot be formed |
| CL | Medium to high | None to slow | Medium |
| MH | Low to medium | None to slow | Low to medium |
| CH | High to very high | None | High |

14.8 Identification of Organic Fine-Grained Soils:

14.8.1 Identify the soil as an *organic soil*, OL/OH, if the soil contains enough organic particles to influence the soil properties. Organic soils usually have a dark brown to black color and may have an organic odor. Often, organic soils will change color, for example, black to brown, when exposed to the air. Some organic soils will lighten in color significantly when air dried. Organic soils normally will not have a high toughness or plasticity. The thread for the toughness test will be spongy.

NOTE 13—In some cases, through practice and experience, it may be possible to further identify the organic soils as organic silts or organic clays, OL or OH. Correlations between the dilatancy, dry strength, toughness tests, and laboratory tests can be made to identify organic soils in certain deposits of similar materials of known geologic origin.

14.9 If the soil is estimated to have 15 to 25 % sand or gravel, or both, the words “with sand” or “with gravel” (whichever is more predominant) shall be added to the group name. For example: “lean clay with sand, CL” or “silt with gravel, ML” (see Fig. 1a and Fig. 1b). If the percentage of sand is equal to the percentage of gravel, use “with sand.”

14.10 If the soil is estimated to have 30 % or more sand or gravel, or both, the words “sandy” or “gravelly” shall be added to the group name. Add the word “sandy” if there appears to be more sand than gravel. Add the word “gravelly” if there appears to be more gravel than sand. For example: “sandy lean clay, CL”, “gravelly fat clay, CH”, or “sandy silt, ML” (see Fig. 1a and Fig. 1b). If the percentage of sand is equal to the percent of gravel, use “sandy.”

15. Procedure for Identifying Coarse-Grained Soils

(Contains less than 50 % fines)

15.1 The soil is a *gravel* if the percentage of gravel is estimated to be more than the percentage of sand.

15.2 The soil is a *sand* if the percentage of gravel is estimated to be equal to or less than the percentage of sand.

15.3 The soil is a *clean gravel* or *clean sand* if the percentage of fines is estimated to be 5 % or less.

15.3.1 Identify the soil as a *well-graded gravel*, GW, or as a *well-graded sand*, SW, if it has a wide range of particle sizes and substantial amounts of the intermediate particle sizes.

15.3.2 Identify the soil as a *poorly graded gravel*, GP, or as a *poorly graded sand*, SP, if it consists predominantly of one size (uniformly graded), or it has a wide range of sizes with some intermediate sizes obviously missing (gap or skip graded).

15.4 The soil is either a *gravel with fines* or a *sand with fines* if the percentage of fines is estimated to be 15 % or more.

15.4.1 Identify the soil as a *clayey gravel*, GC, or a *clayey sand*, SC, if the fines are clayey as determined by the procedures in Section 14.

15.4.2 Identify the soil as a *silty gravel*, GM, or a *silty sand*, SM, if the fines are silty as determined by the procedures in Section 14.

15.5 If the soil is estimated to contain 10 % fines, give the soil a dual identification using two group symbols.

15.5.1 The first group symbol shall correspond to a clean gravel or sand (GW, GP, SW, SP) and the second symbol shall correspond to a gravel or sand with fines (GC, GM, SC, SM).

15.5.2 The group name shall correspond to the first group

symbol plus the words “with clay” or “with silt” to indicate the plasticity characteristics of the fines. For example: “well-graded gravel with clay, GW-GC” or “poorly graded sand with silt, SP-SM” (see Fig. 2).

15.6 If the specimen is predominantly sand or gravel but contains an estimated 15 % or more of the other coarse-grained constituent, the words “with gravel” or “with sand” shall be added to the group name. For example: “poorly graded gravel with sand, GP” or “clayey sand with gravel, SC” (see Fig. 2).

15.7 If the field sample contains any cobbles or boulders, or both, the words “with cobbles” or “with cobbles and boulders” shall be added to the group name. For example: “silty gravel with cobbles, GM.”

16. Report

16.1 The report shall include the information as to origin, and the items indicated in Table 13.

NOTE 14—*Example: Clayey Gravel with Sand and Cobbles, GC*—About 50 % fine to coarse, subrounded to subangular gravel; about 30 % fine to coarse, subrounded sand; about 20 % fines with medium plasticity, high dry strength, no dilatancy, medium toughness; weak reaction with HCl; original field sample had about 5 % (by volume) subrounded cobbles, maximum dimension, 150 mm.

In-Place Conditions—Firm, homogeneous, dry, brown

Geologic Interpretation—Alluvial fan

NOTE 15—Other examples of soil descriptions and identification are given in Appendix X1 and Appendix X2.

NOTE 16—If desired, the percentages of gravel, sand, and fines may be stated in terms indicating a range of percentages, as follows:

Trace—Particles are present but estimated to be less than 5 %

Few—5 to 10 %

Little—15 to 25 %

Some—30 to 45 %

Mostly—50 to 100 %

TABLE 13 Checklist for Description of Soils

| |
|---|
| 1. Group name |
| 2. Group symbol |
| 3. Percent of cobbles or boulders, or both (by volume) |
| 4. Percent of gravel, sand, or fines, or all three (by dry weight) |
| 5. Particle-size range: |
| Gravel—fine, coarse |
| Sand—fine, medium, coarse |
| 6. Particle angularity: angular, subangular, subrounded, rounded |
| 7. Particle shape: (if appropriate) flat, elongated, flat and elongated |
| 8. Maximum particle size or dimension |
| 9. Hardness of coarse sand and larger particles |
| 10. Plasticity of fines: nonplastic, low, medium, high |
| 11. Dry strength: none, low, medium, high, very high |
| 12. Dilatancy: none, slow, rapid |
| 13. Toughness: low, medium, high |
| 14. Color (in moist condition) |
| 15. Odor (mention only if organic or unusual) |
| 16. Moisture: dry, moist, wet |
| 17. Reaction with HCl: none, weak, strong |
| <i>For intact samples:</i> |
| 18. Consistency (fine-grained soils only): very soft, soft, firm, hard, very hard |
| 19. Structure: stratified, laminated, fissured, slickensided, lensed, homogeneous |
| 20. Cementation: weak, moderate, strong |
| 21. Local name |
| 22. Geologic interpretation |
| 23. Additional comments: presence of roots or root holes, presence of mica, gypsum, etc., surface coatings on coarse-grained particles, caving or sloughing of auger hole or trench sides, difficulty in augering or excavating, etc. |

16.2 If, in the soil description, the soil is identified using a classification group symbol and name as described in Test Method D 2487, it must be distinctly and clearly stated in log forms, summary tables, reports, and the like, that the symbol and name are based on visual-manual procedures.

17. Precision and Bias

17.1 This practice provides qualitative information only,

therefore, a precision and bias statement is not applicable.

18. Keywords

18.1 classification; clay; gravel; organic soils; sand; silt; soil classification; soil description; visual classification

APPENDIXES

(Nonmandatory Information)

X1. EXAMPLES OF VISUAL SOIL DESCRIPTIONS

X1.1 The following examples show how the information required in 16.1 can be reported. The information that is included in descriptions should be based on individual circumstances and need.

X1.1.1 *Well-Graded Gravel with Sand (GW)*—About 75 % fine to coarse, hard, subangular gravel; about 25 % fine to coarse, hard, subangular sand; trace of fines; maximum size, 75 mm, brown, dry; no reaction with HCl.

X1.1.2 *Silty Sand with Gravel (SM)*—About 60 % predominantly fine sand; about 25 % silty fines with low plasticity, low dry strength, rapid dilatancy, and low toughness; about 15 % fine, hard, subrounded gravel, a few gravel-size particles fractured with hammer blow; maximum size, 25 mm; no reaction with HCl (Note—Field sample size smaller than recommended).

In-Place Conditions—Firm, stratified and contains lenses of silt 1 to 2 in. (25 to 50 mm) thick, moist, brown to gray; in-place density 106 lb/ft³; in-place moisture 9 %.

X1.1.3 *Organic Soil (OL/OH)*—About 100 % fines with low plasticity, slow dilatancy, low dry strength, and low toughness; wet, dark brown, organic odor; weak reaction with HCl.

X1.1.4 *Silty Sand with Organic Fines (SM)*—About 75 % fine to coarse, hard, subangular reddish sand; about 25 % organic and silty dark brown nonplastic fines with no dry strength and slow dilatancy; wet; maximum size, coarse sand; weak reaction with HCl.

X1.1.5 *Poorly Graded Gravel with Silt, Sand, Cobbles and Boulders (GP-GM)*—About 75 % fine to coarse, hard, subrounded to subangular gravel; about 15 % fine, hard, subrounded to subangular sand; about 10 % silty nonplastic fines; moist, brown; no reaction with HCl; original field sample had about 5 % (by volume) hard, subrounded cobbles and a trace of hard, subrounded boulders, with a maximum dimension of 18 in. (450 mm).

X2. USING THE IDENTIFICATION PROCEDURE AS A DESCRIPTIVE SYSTEM FOR SHALE, CLAYSTONE, SHELLS, SLAG, CRUSHED ROCK, AND THE LIKE

X2.1 The identification procedure may be used as a descriptive system applied to materials that exist in-situ as shale, claystone, sandstone, siltstone, mudstone, etc., but convert to soils after field or laboratory processing (crushing, slaking, and the like).

X2.2 Materials such as shells, crushed rock, slag, and the like, should be identified as such. However, the procedures used in this practice for describing the particle size and plasticity characteristics may be used in the description of the material. If desired, an identification using a group name and symbol according to this practice may be assigned to aid in describing the material.

X2.3 The group symbol(s) and group names should be placed in quotation marks or noted with some type of distinguishing symbol. See examples.

X2.4 Examples of how group names and symbols can be incorporated into a descriptive system for materials that are not

naturally occurring soils are as follows:

X2.4.1 *Shale Chunks*—Retrieved as 2 to 4-in. (50 to 100-mm) pieces of shale from power auger hole, dry, brown, no reaction with HCl. After slaking in water for 24 h, material identified as “Sandy Lean Clay (CL)”; about 60 % fines with medium plasticity, high dry strength, no dilatancy, and medium toughness; about 35 % fine to medium, hard sand; about 5 % gravel-size pieces of shale.

X2.4.2 *Crushed Sandstone*—Product of commercial crushing operation; “Poorly Graded Sand with Silt (SP-SM)”; about 90 % fine to medium sand; about 10 % nonplastic fines; dry, reddish-brown, strong reaction with HCl.

X2.4.3 *Broken Shells*—About 60 % gravel-size broken shells; about 30 % sand and sand-size shell pieces; about 10 % fines; “Poorly Graded Gravel with Sand (GP).”

X2.4.4 *Crushed Rock*—Processed from gravel and cobbles in Pit No. 7; “Poorly Graded Gravel (GP)”; about 90 % fine, hard, angular gravel-size particles; about 10 % coarse, hard,

angular sand-size particles; dry, tan; no reaction with HCl.

X3. SUGGESTED PROCEDURE FOR USING A BORDERLINE SYMBOL FOR SOILS WITH TWO POSSIBLE IDENTIFICATIONS.

X3.1 Since this practice is based on estimates of particle size distribution and plasticity characteristics, it may be difficult to clearly identify the soil as belonging to one category. To indicate that the soil may fall into one of two possible basic groups, a borderline symbol may be used with the two symbols separated by a slash. For example: SC/CL or CL/CH.

X3.1.1 A borderline symbol may be used when the percentage of fines is estimated to be between 45 and 55 %. One symbol should be for a coarse-grained soil with fines and the other for a fine-grained soil. For example: GM/ML or CL/SC.

X3.1.2 A borderline symbol may be used when the percentage of sand and the percentage of gravel are estimated to be about the same. For example: GP/SP, SC/GC, GM/SM. It is practically impossible to have a soil that would have a borderline symbol of GW/SW.

X3.1.3 A borderline symbol may be used when the soil could be either well graded or poorly graded. For example: GW/GP, SW/SP.

X3.1.4 A borderline symbol may be used when the soil could either be a silt or a clay. For example: CL/ML, CH/MH, SC/SM.

X3.1.5 A borderline symbol may be used when a fine-grained soil has properties that indicate that it is at the boundary between a soil of low compressibility and a soil of high compressibility. For example: CL/CH, MH/ML.

X3.2 The order of the borderline symbols should reflect similarity to surrounding or adjacent soils. For example: soils in a borrow area have been identified as CH. One sample is considered to have a borderline symbol of CL and CH. To show similarity, the borderline symbol should be CH/CL.

X3.3 The group name for a soil with a borderline symbol should be the group name for the first symbol, except for:

CL/CH lean to fat clay
ML/CL clayey silt
CL/ML silty clay

X3.4 The use of a borderline symbol should not be used indiscriminately. Every effort shall be made to first place the soil into a single group.

X4. SUGGESTED PROCEDURES FOR ESTIMATING THE PERCENTAGES OF GRAVEL, SAND, AND FINES IN A SOIL SAMPLE

X4.1 *Jar Method*—The relative percentage of coarse- and fine-grained material may be estimated by thoroughly shaking a mixture of soil and water in a test tube or jar, and then allowing the mixture to settle. The coarse particles will fall to the bottom and successively finer particles will be deposited with increasing time; the sand sizes will fall out of suspension in 20 to 30 s. The relative proportions can be estimated from the relative volume of each size separate. This method should be correlated to particle-size laboratory determinations.

X4.2 *Visual Method*—Mentally visualize the gravel size particles placed in a sack (or other container) or sacks. Then, do the same with the sand size particles and the fines. Then, mentally compare the number of sacks to estimate the percentage of plus No. 4 sieve size and minus No. 4 sieve size present.

The percentages of sand and fines in the minus sieve size No. 4 material can then be estimated from the wash test (X4.3).

X4.3 *Wash Test (for relative percentages of sand and fines)*—Select and moisten enough minus No. 4 sieve size material to form a 1-in (25-mm) cube of soil. Cut the cube in half, set one-half to the side, and place the other half in a small dish. Wash and decant the fines out of the material in the dish until the wash water is clear and then compare the two samples and estimate the percentage of sand and fines. Remember that the percentage is based on weight, not volume. However, the volume comparison will provide a reasonable indication of grain size percentages.

X4.3.1 While washing, it may be necessary to break down lumps of fines with the finger to get the correct percentages.

X5. ABBREVIATED SOIL CLASSIFICATION SYMBOLS

X5.1 In some cases, because of lack of space, an abbreviated system may be useful to indicate the soil classification symbol and name. Examples of such cases would be graphical logs, databases, tables, etc.

X5.2 This abbreviated system is not a substitute for the full name and descriptive information but can be used in supple-

mentary presentations when the complete description is referenced.

X5.3 The abbreviated system should consist of the soil classification symbol based on this standard with appropriate lower case letter prefixes and suffixes as:

Prefix:

Suffix:

s = sandy
g = gravelly

s = with sand
g = with gravel
c = with cobbles
b = with boulders

Group Symbol and Full Name

Abbreviated

CL, Sandy lean clay
SP-SM, Poorly graded sand with silt and gravel
GP, poorly graded gravel with sand, cobbles, and boulders
ML, gravelly silt with sand and cobbles

s(CL)
(SP-SM)g
(GP)scb
g(ML)sc

X5.4 The soil classification symbol is to be enclosed in parenthesis. Some examples would be:

SUMMARY OF CHANGES

In accordance with Committee D18 policy, this section identifies the location of changes to this standard since the last edition (1993^{e1}) that may impact the use of this standard.

(1) Added Practice D 3740 to Section 2.

(2) Added Note 5 under 5.7 and renumbered subsequent notes.

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SEDIMENT CORE LOG SHEET

PROJECT: J.F. Moran Terminal Sediment Sampling DATE: 7/13/2020
 SAMPLING PERSONNEL: E. Steele, K. Steek, K. Tongue SEA STATE: Calm
 LOCATION: Mystic River, Charlestown, MA WEATHER CODE: Overcast, Light rain, 70°
 METHODS: Pneumatic vibrocore, 4-inch diameter barrel


SAMPLE ID: JFM-1 SAMPLER TYPE: Vibrocore
 TIME: 0810
 SOUNDING: 47.5' CORRECTED DEPTH: 40'
 COORDINATES: N 42.3844890 E -71.0543936
 PENETRATION/RECOVERY: P: 9.0', large rounded gravel in tip, R: 3.5' NO. OF ATTEMPTS: 3
 MATERIAL DESCRIPTION: See description below

| CORE PHOTO: | NOTES: |
|---|---|
|  <p data-bbox="217 1486 537 1514">0' = Sediment water interface</p> | <p align="center">JFM-1 Field Notes and Description of Core</p> <p>0 - 0.5': Loose black silt with organics</p> <p>0.5 - 1.2': Black sandy silt with small angular gravel and trace shell hash</p> <p>1.2 - 3.1': Grey black sandy silt, trace organics</p> <p>3.1 - 3.5': Rounded gravel 1 - 2.5" diameter</p> <p>Odor: Faint hydrocarbon Sheen: None</p> |

SEDIMENT CORE LOG SHEET

PROJECT: J.F. Moran Terminal Sediment Sampling DATE: 7/13/2020
SAMPLING PERSONNEL: E. Steele, K. Steek, K. Tongue SEA STATE: Calm
LOCATION: Mystic River, Charlestown, MA WEATHER CODE: Overcast, Light rain, 70°
METHODS: Pneumatic vibrocore, 4-inch diameter barrel


SAMPLE ID: JFM-2 SAMPLER TYPE: Vibrocore
TIME: 0900
SOUNDING: 46' CORRECTED DEPTH: 40'
COORDINATES: N 42.3845986 E -71.0542477
PENETRATION/RECOVERY: P: 3.5', R: 2.9' refusal NO. OF ATTEMPTS: 3
MATERIAL DESCRIPTION: See description below

| CORE PHOTO: | NOTES: |
|--|--|
|  | <p style="text-align: center;">JFM-2 Field Notes and Description of Core</p> <p>0 - 0.6': Loose black silt, shell hash</p> <p>0.6 - 1.4': Black silt and trace shell hash</p> <p>1.4 - 2.9': Fine grey sandy silt, trace shell hash</p> <p>Odor: Faint hydrocarbon Sheen: Slight sheen present</p> |
| <p>0' = Sediment water interface</p> | |

SEDIMENT CORE LOG SHEET

PROJECT: J.F. Moran Terminal Sediment Sampling DATE: 7/13/2020
 SAMPLING PERSONNEL: E. Steele, K. Steek, K. Tongue SEA STATE: Calm
 LOCATION: Mystic River, Charlestown, MA WEATHER CODE: Overcast, Light rain, 70°
 METHODS: Pneumatic vibrocore, 4-inch diameter barrel

SAMPLE ID: JFM-3 SAMPLER TYPE: Vibrocore
 TIME: 0935
 SOUNDING: 46' CORRECTED DEPTH: 41'
 COORDINATES: N 42.38465 E -71.0540069
 PENETRATION/RECOVERY: P: 2.0', R: 1.8' NO. OF ATTEMPTS: 3
 MATERIAL DESCRIPTION: See description below


| CORE PHOTO: | NOTES: |
|--|--|
|  | <p align="center">JFM-3 Field Notes and Description of Core</p> <p>0 - 0.2': Loose light grey silt</p> <p>0.2 - 0.6': Light grey silt</p> <p>0.6 - 1.6': Dark grey silt, trace fine grey sand</p> <p>1.6 - 1.8': Fine grey sandy silt</p> <p>Odor: None Sheen: None</p> |
| <p>0' = Sediment water interface</p> | |

SEDIMENT CORE LOG SHEET

PROJECT: J.F. Moran Terminal Sediment Sampling DATE: 7/13/2020
SAMPLING PERSONNEL: E. Steele, K. Steek, K. Tongue SEA STATE: Calm
LOCATION: Mystic River, Charlestown, MA WEATHER CODE: Overcast, Light rain, 70°
METHODS: Pneumatic vibrocore, 4-inch diameter barrel

SAMPLE ID: JFM-4 SAMPLER TYPE: Vibrocore
TIME: 1045
SOUNDING: 44.5' CORRECTED DEPTH: 41'
COORDINATES: N 42.3844418 E -71.0534056
PENETRATION/ P: 6.0', R: 3.5' NO. OF ATTEMPTS: 5
RECOVERY: MATERIAL See description below

DESCRIPTION:


| CORE PHOTO: | NOTES: |
|---|---|
|  <p data-bbox="219 1486 535 1518">0' = Sediment water interface</p> | <p data-bbox="771 793 1234 825" style="text-align: center;">JFM-4 Field Notes and Description of Core</p> <p data-bbox="722 877 1193 909">0 - 0.4': Loose black silt, organics, leaf litter</p> <p data-bbox="722 940 1039 972">0.4 - 2.7': Grey fine sandy silt</p> <p data-bbox="722 1003 982 1035">2.7 - 3.5': Grey firm clay</p> <p data-bbox="722 1066 852 1098">Odor: None</p> <p data-bbox="722 1119 860 1150">Sheen: None</p> |

SEDIMENT CORE LOG SHEET

PROJECT: J.F. Moran Terminal Sediment Sampling DATE: 7/13/2020
 SAMPLING PERSONNEL: E. Steele, K. Steek, K. Tongue SEA STATE: Calm
 LOCATION: Mystic River, Charlestown, MA WEATHER CODE: Overcast, Light rain, 70°
 METHODS: Pneumatic vibrocore, 4-inch diameter barrel

SAMPLE ID: JFM-5 SAMPLER TYPE: Vibrocore
 TIME: 1100
 SOUNDING: 44' CORRECTED DEPTH: 41'
 COORDINATES: N 42.3845429 E -71.0528601
 PENETRATION/ P: 5.5', R: 4.2' NO. OF ATTEMPTS: 1
 RECOVERY: MATERIAL See description below


DESCRIPTION:

| CORE PHOTO: | NOTES: |
|--|---|
|  | <p align="center">JFM-5 Field Notes and Description of Core</p> <p>0 - 0.8': Loose grey silt</p> <p>0.8 - 1.9': Grey fine sandy silt</p> <p>1.9 - 4.2': Grey medium sandy silt</p> <p>Odor: None</p> <p>Sheen: None</p> |
| <p>0' = Sediment water interface</p> | |

SEDIMENT CORE LOG SHEET

PROJECT: J.F. Moran Terminal Sediment Sampling DATE: 7/13/2020
 SAMPLING PERSONNEL: E. Steele, K. Steek, K. Tongue SEA STATE: Calm
 LOCATION: Mystic River, Charlestown, MA WEATHER CODE: Overcast, Light rain, 70°
 METHODS: Pneumatic vibrocore, 4-inch diameter barrel


SAMPLE ID: JFM-6 SAMPLER TYPE: Vibrocore
 TIME: 1112
 SOUNDING: 43' CORRECTED DEPTH: 40'
 COORDINATES: N 42.3843127 E -71.0525877
 PENETRATION/RECOVERY: P: 5.4', R: 4.2' NO. OF ATTEMPTS: 1
 MATERIAL DESCRIPTION: See description below

| CORE PHOTO: | NOTES: |
|--|--|
|  | <p align="center">JFM-6 Field Notes and Description of Core</p> <p>0 - 0.5': Loose black silt, shell hash, organics</p> <p>0.5 - 1.2': Black silt with medium sand</p> <p>1.2 - 1.8': Black firm silt</p> <p>1.8 - 4.2': Black silt with medium sand, trace organics</p> <p>Odor: Slight H₂S</p> <p>Sheen: None</p> |
| <p>0' = Sediment water interface</p> | |

SEDIMENT CORE LOG SHEET

PROJECT: J.F. Moran Terminal Sediment Sampling DATE: 7/13/2020
 SAMPLING PERSONNEL: E. Steele, K. Steek, K. Tongue SEA STATE: Calm
 LOCATION: Mystic River, Charlestown, MA WEATHER CODE: Overcast, Light rain, 70°
 METHODS: Pneumatic vibrocore, 4-inch diameter barrel

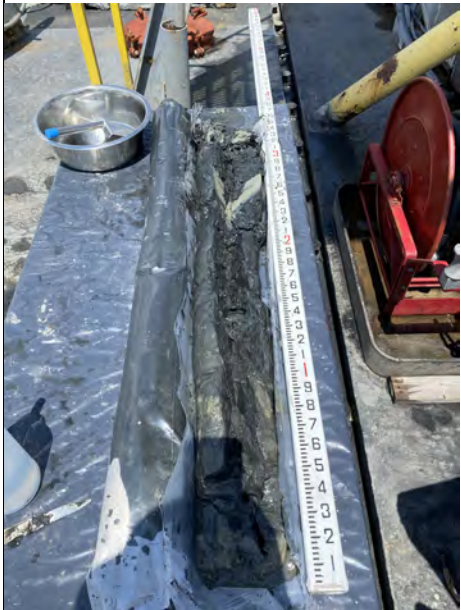
SAMPLE ID: JFM-7 SAMPLER TYPE: Vibrocore
 TIME: 1332
 SOUNDING: 43' CORRECTED DEPTH: 40'
 COORDINATES: N 42.3842229 E -71.0518323
 PENETRATION/RECOVERY: P: 5.5' refusal, R: 3.4' NO. OF ATTEMPTS: 3
 MATERIAL DESCRIPTION: See description below

| CORE PHOTO: | NOTES: |
|--|--|
|  | <p align="center">JFM-7 Field Notes and Description of Core</p> <p>0 - 0.4': Loose black silt, shell hash, mussels</p> <p>0.4 - 3.4': Medium / fine sandy grey silt</p> <p>Odor: None</p> <p>Sheen: None</p> |
| <p>0' = Sediment water interface</p> | |

SEDIMENT CORE LOG SHEET

PROJECT: J.F. Moran Terminal Sediment Sampling DATE: 7/13/2020
 SAMPLING PERSONNEL: E. Steele, K. Steek, K. Tongue SEA STATE: Calm
 LOCATION: Mystic River, Charlestown, MA WEATHER CODE: Overcast, Light rain, 70°
 METHODS: Pneumatic vibrocore, 4-inch diameter barrel

SAMPLE ID: JFM-8 SAMPLER TYPE: Vibrocore
 TIME: 1155
 SOUNDING: 43' CORRECTED DEPTH: 40'
 COORDINATES: N 42.38436245 E -71.05129671
 PENETRATION/RECOVERY: P: 5.0', R: 3.4' NO. OF ATTEMPTS: 3
 MATERIAL DESCRIPTION: See description below

| CORE PHOTO: | NOTES: |
|--|--|
|  | <p align="center">JFM-8 Field Notes and Description of Core</p> <p>0 - 0.5': Loose light grey silt</p> <p>0.5 - 2.2': Dark grey fine sandy silt</p> <p>2.2 - 3.4': Grey firm clay</p> <p>Odor: None</p> <p>Sheen: None</p> |
| <p>0' = Sediment water interface</p> | |

SEDIMENT CORE LOG SHEET

PROJECT: J.F. Moran Terminal Sediment Sampling DATE: 7/13/2020

SAMPLING PERSONNEL: E. Steele, K. Steek, K. Tongue SEA STATE: Calm

LOCATION: Mystic River, Charlestown, MA WEATHER CODE: Overcast, Light rain, 70°

METHODS: Pneumatic vibrocore, 4-inch diameter barrel

SAMPLE ID: JFM-9 SAMPLER TYPE: Vibrocore


TIME: 1220

SOUNDING: 39' CORRECTED DEPTH: 37'

COORDINATES: N 42.38418377 E -71.05104503

PENETRATION/RECOVERY: P: 6.5', R: 3.8' NO. OF ATTEMPTS: 3


MATERIAL DESCRIPTION: See description below

| CORE PHOTO: | NOTES: |
|--|---|
|  | <p align="center">JFM-9 Field Notes and Description of Core</p> <p>0 - 0.3': Loose grey silt</p> <p>0.3 - 1.2': Fine grey fine sandy silt</p> <p>1.2 - 3.8': Medium sandy grey silt</p> <p>with trace organics</p> <p>Odor: None</p> <p>Sheen: None</p> |
| <p>0' = Sediment water interface</p> | |

SEDIMENT CORE LOG SHEET

PROJECT: J.F. Moran Terminal Sediment Sampling DATE: 7/13/2020
 SAMPLING PERSONNEL: E. Steele, K. Steek, K. Tongue SEA STATE: Calm
 LOCATION: Mystic River, Charlestown, MA WEATHER CODE: Overcast, Light rain, 70°
 METHODS: Pneumatic vibrocore, 4-inch diameter barrel


SAMPLE ID: JFM-10 SAMPLER TYPE: Vibrocore
 TIME: 1245
 SOUNDING: 41' CORRECTED DEPTH: 39'
 COORDINATES: N 42.3842308 E -71.0508733
 PENETRATION/ P: 3.5' refusal, R: 2.0' NO. OF ATTEMPTS: 6
 RECOVERY: MATERIAL See description below

| DESCRIPTION: | |
|--|---|
| CORE PHOTO: | NOTES: |
|  | <p align="center">JFM-10 Field Notes and Description of Core</p> <p>0 - 0.4': Loose grey silt</p> <p>0.4 - 2.0': Grey silt with fine sand.</p> <p>Hard grey plug dropped out of cutter-catcher assembly during recovery, clay residue remained</p> <p>Odor: None</p> <p>Sheen: None</p> |
| <p>0' = Sediment water interface</p> | |

SEDIMENT CORE LOG SHEET

PROJECT: J.F. Moran Terminal Sediment Sampling DATE: 7/13/2020
 SAMPLING PERSONNEL: E. Steele, K. Steek, K. Tongue SEA STATE: Calm
 LOCATION: Mystic River, Charlestown, MA WEATHER CODE: Overcast, Light rain, 70°
 METHODS: Pneumatic vibrocore, 4-inch diameter barrel

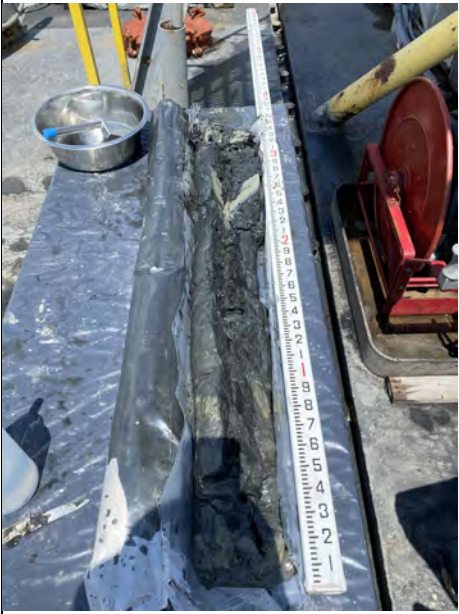
SAMPLE ID: JFM-11 SAMPLER TYPE: Vibrocore
 TIME: 1425
 SOUNDING: 44' CORRECTED DEPTH: 39'
 COORDINATES: N 42.3845375 E -71.0537043
 PENETRATION/RECOVERY: P: 3.0' refusal, R: 2.4' NO. OF ATTEMPTS: 2
 MATERIAL DESCRIPTION: See description below

| CORE PHOTO: | NOTES: |
|---|--|
|  <p data-bbox="217 1486 537 1514">0' = Sediment water interface</p> | <p align="center" data-bbox="769 793 1247 821">JFM-11 Field Notes and Description of Core</p> <p data-bbox="721 877 971 905">0 - 0.4': Loose grey silt</p> <p data-bbox="721 936 1032 963">0.4 - 2.4': Black silt with fine</p> <p data-bbox="721 995 1089 1083">2.4': Clay present in cutter-catcher tip</p> <p data-bbox="721 1115 850 1142">Odor: None</p> <p data-bbox="721 1173 862 1201">Sheen: None</p> |

SEDIMENT CORE LOG SHEET

PROJECT: J.F. Moran Terminal Sediment Sampling DATE: 7/13/2020
SAMPLING PERSONNEL: E. Steele, K. Steek, K. Tongue SEA STATE: Calm
LOCATION: Mystic River, Charlestown, MA WEATHER CODE: Overcast, Light rain, 70°
METHODS: Pneumatic vibrocore, 4-inch diameter barrel

SAMPLE ID: JFM-8 SAMPLER TYPE: Vibrocore
TIME: 1155
SOUNDING: 43' CORRECTED DEPTH: 40'
COORDINATES: N 42.38436245 E -71.05129671
PENETRATION/RECOVERY: P: 5.0', R: 3.4' NO. OF ATTEMPTS: 3
MATERIAL DESCRIPTION: See description below

| CORE PHOTO: | NOTES: |
|--|---|
|  | <p style="text-align: center;">JFM-8 Field Notes and Description of Core</p> <p>0 - 0.5': Loose light grey silt</p> <p>0.5 - 2.2': Dark grey fine sandy silt</p> <p>2.2 - 3.4': Grey firm clay</p> <p>Odor: None</p> <p>Sheen: None</p> |
| <p>0' = Sediment water interface</p> | |



ANALYTICAL REPORT

| | |
|-----------------|---|
| Lab Number: | L2029589 |
| Client: | Steele Associates Marine Consultants LLC 94 Gifford Street Falmouth, MA 02540 |
| ATTN: | Eric Steele |
| Phone: | (508) 540-0001 |
| Project Name: | JF MORAN TERMINAL |
| Project Number: | DA-JFM-200713 |
| Report Date: | 08/13/20 |

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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



Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

| Alpha Sample ID | Client ID | Matrix | Sample Location | Collection Date/Time | Receive Date |
|-----------------|-----------|----------|-----------------|----------------------|--------------|
| L2029589-01 | JFM 1-3 | SEDIMENT | CHARLESTOWN, MA | 07/13/20 09:35 | 07/14/20 |
| L2029589-02 | JFM 4-6 | SEDIMENT | CHARLESTOWN, MA | 07/13/20 11:12 | 07/14/20 |
| L2029589-03 | JFM 8-10 | SEDIMENT | CHARLESTOWN, MA | 07/13/20 12:45 | 07/14/20 |
| L2029589-04 | JFM 7 | SEDIMENT | CHARLESTOWN, MA | 07/13/20 13:32 | 07/14/20 |
| L2029589-05 | JFM 11 | SEDIMENT | CHARLESTOWN, MA | 07/13/20 14:25 | 07/14/20 |
| L2029589-06 | JFM 12 | SEDIMENT | CHARLESTOWN, MA | 07/13/20 13:50 | 07/14/20 |



Project Name: JF MORAN TERMINAL

Lab Number: L2029589

Project Number: DA-JFM-200713

Report Date: 08/13/20

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

| An affirmative response to questions A through F is required for "Presumptive Certainty" status | | |
|--|---|-----|
| A | Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times? | NO |
| B | Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? | YES |
| C | Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances? | YES |
| D | Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?" | YES |
| E a. | VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). | YES |
| E b. | APH and TO-15 Methods only: Was the complete analyte list reported for each method? | N/A |
| F | Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)? | YES |
| A response to questions G, H and I is required for "Presumptive Certainty" status | | |
| G | Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)? | YES |
| H | Were all QC performance standards specified in the CAM protocol(s) achieved? | YES |
| I | Were results reported for the complete analyte list specified in the selected CAM protocol(s)? | YES |
| For any questions answered "No", please refer to the case narrative section on the following page(s). | | |

Please note that sample matrix information is located in the Sample Results section of this report.



Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

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: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

Case Narrative (continued)

Report Submission

The analysis of method 8260 was subcontracted. A copy of the laboratory report is included as an addendum. Please note: This data is only available in PDF format and is not available on Data Merger.

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

MCP Related Narratives

All MCP required questions were answered with affirmative responses; therefore, there are no relevant protocol-specific QC and/or performance standard non-conformances to report.

Sample Receipt

L2029589-04: A sample container identified as "JFM 7" was listed on the Chain of Custody, but not received. This was verified by the client.

L2029589-05: A sample container identified as "JFM 11" was listed on the Chain of Custody, but not received. This was verified by the client.

L2029589-06: A sample container identified as "JFM 12" was listed on the Chain of Custody, but not received. This was verified by the client.

L2029589-04, -05, and -06: The sample was received in an inappropriate container for the Subcontract - VOCs - EPA 8260C/5035 High & Low analysis. An aliquot was taken from an unpreserved container and preserved appropriately.

Non-MCP Related Narratives

Total Organic Carbon

L2029589-03: The Sample Replicate RPD is outside the acceptance criteria of 30%. A double-burn re-analysis was performed with a confirming result. The results of the original analysis are reported. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

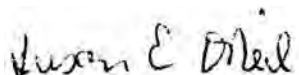
Case Narrative (continued)

Grain Size Analysis

The WG1394358-1 Laboratory Duplicate RPD for % medium sand (21%), performed on L2029589-02, is outside the 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:

 Susan O'Neil

Title: Technical Director/Representative

Date: 08/13/20

QC OUTLIER SUMMARY REPORT

Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

| Method | Client ID (Native ID) | Lab ID | Parameter | QC Type | Recovery/RPD (%) | QC Limits (%) | Associated Samples | Data Quality Assessment |
|-------------------------------------|------------------------|-------------|---------------|-----------|------------------|---------------|--------------------|-------------------------|
| Grain Size Analysis - Mansfield Lab | | | | | | | | |
| D6913/D7928 | Batch QC (L2029589-02) | WG1394358-1 | % Medium Sand | Duplicate | 21 | 20 | 01-06 | non-directional bias |



ORGANICS

SEMIVOLATILES

Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

SAMPLE RESULTS

Lab ID: L2029589-01 D2
 Client ID: JFM 1-3
 Sample Location: CHARLESTOWN, MA

Date Collected: 07/13/20 09:35
 Date Received: 07/14/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Sediment
 Analytical Method: 105,8270D-SIM/680(M)
 Analytical Date: 08/06/20 10:35
 Analyst: GP
 Percent Solids: 48%

Extraction Method: EPA 3570
 Extraction Date: 07/17/20 16:22
 Cleanup Method: EPA 3630
 Cleanup Date: 07/20/20

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|--------|-----------|-------|------|------|-----------------|
| PAHs/PCB Congeners by GC/MS - Mansfield Lab | | | | | | |
| Fluoranthene | 11200 | | ug/kg | 81.9 | 40.9 | 10 |
| Pyrene | 10000 | | ug/kg | 81.9 | 40.9 | 10 |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria |
|--------------------------|------------|-----------|---------------------|
| 2-Methylnaphthalene-d10 | 66 | | 30-150 |
| Pyrene-d10 | 75 | | 30-150 |
| Benzo(b)fluoranthene-d12 | 81 | | 30-150 |
| DBOB | 102 | | 50-125 |
| BZ 198 | 103 | | 50-125 |

Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

SAMPLE RESULTS

Lab ID: L2029589-01 D
 Client ID: JFM 1-3
 Sample Location: CHARLESTOWN, MA

Date Collected: 07/13/20 09:35
 Date Received: 07/14/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Sediment
 Analytical Method: 105,8270D-SIM/680(M)
 Analytical Date: 08/05/20 16:56
 Analyst: GP
 Percent Solids: 48%

Extraction Method: EPA 3570
 Extraction Date: 07/17/20 16:22
 Cleanup Method: EPA 3630
 Cleanup Date: 07/20/20

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|--|--------|-----------|-------|------|------|-----------------|
| PAHs/PCB Congeners by GC/MS - Mansfield Lab | | | | | | |
| Naphthalene | 1320 | | ug/kg | 40.9 | 20.5 | 5 |
| Acenaphthylene | 492 | | ug/kg | 40.9 | 20.5 | 5 |
| Acenaphthene | 427 | | ug/kg | 40.9 | 20.5 | 5 |
| Fluorene | 227 | | ug/kg | 40.9 | 20.5 | 5 |
| Phenanthrene | 4460 | | ug/kg | 40.9 | 20.5 | 5 |
| Anthracene | 929 | | ug/kg | 40.9 | 20.5 | 5 |
| Fluoranthene | 11700 | E | ug/kg | 40.9 | 20.5 | 5 |
| Pyrene | 9870 | E | ug/kg | 40.9 | 20.5 | 5 |
| Benz(a)anthracene | 3880 | | ug/kg | 40.9 | 20.5 | 5 |
| Chrysene | 3940 | | ug/kg | 40.9 | 20.5 | 5 |
| Benzo(b)fluoranthene | 3130 | | ug/kg | 40.9 | 20.5 | 5 |
| Benzo(k)fluoranthene | 2810 | | ug/kg | 40.9 | 20.5 | 5 |
| Benzo(a)pyrene | 3130 | | ug/kg | 40.9 | 20.5 | 5 |
| Indeno(1,2,3-cd)Pyrene | 1700 | | ug/kg | 40.9 | 20.5 | 5 |
| Dibenz(a,h)anthracene | 330 | | ug/kg | 40.9 | 20.5 | 5 |
| Benzo(ghi)perylene | 1570 | | ug/kg | 40.9 | 20.5 | 5 |
| Cl2-BZ#8 | ND | | ug/kg | 4.09 | 2.05 | 5 |
| Cl3-BZ#18 | ND | | ug/kg | 4.09 | 2.05 | 5 |
| Cl3-BZ#28 | 27.3 | | ug/kg | 4.09 | 2.05 | 5 |
| Cl4-BZ#44 | 13.5 | | ug/kg | 4.09 | 2.05 | 5 |
| Cl4-BZ#49 | 7.54 | | ug/kg | 4.09 | 2.05 | 5 |
| Cl4-BZ#52 | 16.3 | | ug/kg | 4.09 | 2.05 | 5 |
| Cl4-BZ#66 | 9.99 | | ug/kg | 4.09 | 2.05 | 5 |
| Cl5-BZ#87 | 12.6 | | ug/kg | 4.09 | 2.05 | 5 |
| Cl5-BZ#101 | 32.0 | | ug/kg | 4.09 | 2.05 | 5 |
| Cl5-BZ#105 | 11.7 | | ug/kg | 4.09 | 2.05 | 5 |
| Cl5-BZ#118 | 25.8 | | ug/kg | 4.09 | 2.05 | 5 |
| Cl6-BZ#128 | 9.49 | | ug/kg | 4.09 | 2.05 | 5 |

Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

SAMPLE RESULTS

Lab ID: L2029589-01 D
 Client ID: JFM 1-3
 Sample Location: CHARLESTOWN, MA

Date Collected: 07/13/20 09:35
 Date Received: 07/14/20
 Field Prep: Not Specified

Sample Depth:

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|--|--------|-----------|-------|------|------|-----------------|
| PAHs/PCB Congeners by GC/MS - Mansfield Lab | | | | | | |
| CI6-BZ#138 | 36.1 | | ug/kg | 4.09 | 2.05 | 5 |
| CI6-BZ#153 | 27.8 | | ug/kg | 4.09 | 2.05 | 5 |
| CI7-BZ#170 | 11.1 | | ug/kg | 4.09 | 2.05 | 5 |
| CI7-BZ#180 | 16.3 | | ug/kg | 4.09 | 2.05 | 5 |
| CI7-BZ#183 | 3.91 | J | ug/kg | 4.09 | 2.05 | 5 |
| CI7-BZ#184 | ND | | ug/kg | 4.09 | 2.05 | 5 |
| CI7-BZ#187 | 7.75 | | ug/kg | 4.09 | 2.05 | 5 |
| CI8-BZ#195 | ND | | ug/kg | 4.09 | 2.05 | 5 |
| CI9-BZ#206 | 2.71 | J | ug/kg | 4.09 | 2.05 | 5 |
| CI10-BZ#209 | 2.14 | J | ug/kg | 4.09 | 2.05 | 5 |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria |
|--------------------------|------------|-----------|---------------------|
| 2-Methylnaphthalene-d10 | 65 | | 30-150 |
| Pyrene-d10 | 72 | | 30-150 |
| Benzo(b)fluoranthene-d12 | 78 | | 30-150 |
| DBOB | 99 | | 50-125 |
| BZ 198 | 100 | | 50-125 |

Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

SAMPLE RESULTS

Lab ID: L2029589-02 D
 Client ID: JFM 4-6
 Sample Location: CHARLESTOWN, MA

Date Collected: 07/13/20 11:12
 Date Received: 07/14/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Sediment
 Analytical Method: 105,8270D-SIM/680(M)
 Analytical Date: 08/05/20 17:26
 Analyst: GP
 Percent Solids: 50%

Extraction Method: EPA 3570
 Extraction Date: 07/17/20 16:22
 Cleanup Method: EPA 3630
 Cleanup Date: 07/20/20

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|--|--------|-----------|-------|------|------|-----------------|
| PAHs/PCB Congeners by GC/MS - Mansfield Lab | | | | | | |
| Naphthalene | 2320 | | ug/kg | 37.3 | 18.6 | 5 |
| Acenaphthylene | 419 | | ug/kg | 37.3 | 18.6 | 5 |
| Acenaphthene | 188 | | ug/kg | 37.3 | 18.6 | 5 |
| Fluorene | 304 | | ug/kg | 37.3 | 18.6 | 5 |
| Phenanthrene | 1220 | | ug/kg | 37.3 | 18.6 | 5 |
| Anthracene | 917 | | ug/kg | 37.3 | 18.6 | 5 |
| Fluoranthene | 3010 | | ug/kg | 37.3 | 18.6 | 5 |
| Pyrene | 4530 | | ug/kg | 37.3 | 18.6 | 5 |
| Benz(a)anthracene | 2080 | | ug/kg | 37.3 | 18.6 | 5 |
| Chrysene | 2640 | | ug/kg | 37.3 | 18.6 | 5 |
| Benzo(b)fluoranthene | 1920 | | ug/kg | 37.3 | 18.6 | 5 |
| Benzo(k)fluoranthene | 1470 | | ug/kg | 37.3 | 18.6 | 5 |
| Benzo(a)pyrene | 1880 | | ug/kg | 37.3 | 18.6 | 5 |
| Indeno(1,2,3-cd)Pyrene | 1020 | | ug/kg | 37.3 | 18.6 | 5 |
| Dibenz(a,h)anthracene | 240 | | ug/kg | 37.3 | 18.6 | 5 |
| Benzo(ghi)perylene | 1000 | | ug/kg | 37.3 | 18.6 | 5 |
| Cl2-BZ#8 | ND | | ug/kg | 3.73 | 1.86 | 5 |
| Cl3-BZ#18 | ND | | ug/kg | 3.73 | 1.86 | 5 |
| Cl3-BZ#28 | 49.1 | | ug/kg | 3.73 | 1.86 | 5 |
| Cl4-BZ#44 | 20.2 | | ug/kg | 3.73 | 1.86 | 5 |
| Cl4-BZ#49 | 13.0 | | ug/kg | 3.73 | 1.86 | 5 |
| Cl4-BZ#52 | 32.6 | | ug/kg | 3.73 | 1.86 | 5 |
| Cl4-BZ#66 | 17.4 | | ug/kg | 3.73 | 1.86 | 5 |
| Cl5-BZ#87 | 18.3 | | ug/kg | 3.73 | 1.86 | 5 |
| Cl5-BZ#101 | 45.6 | | ug/kg | 3.73 | 1.86 | 5 |
| Cl5-BZ#105 | 17.6 | | ug/kg | 3.73 | 1.86 | 5 |
| Cl5-BZ#118 | 34.3 | | ug/kg | 3.73 | 1.86 | 5 |
| Cl6-BZ#128 | 14.0 | | ug/kg | 3.73 | 1.86 | 5 |

Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

SAMPLE RESULTS

Lab ID: L2029589-02 D
 Client ID: JFM 4-6
 Sample Location: CHARLESTOWN, MA

Date Collected: 07/13/20 11:12
 Date Received: 07/14/20
 Field Prep: Not Specified

Sample Depth:

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|--|--------|-----------|-------|------|------|-----------------|
| PAHs/PCB Congeners by GC/MS - Mansfield Lab | | | | | | |
| CI6-BZ#138 | 44.3 | | ug/kg | 3.73 | 1.86 | 5 |
| CI6-BZ#153 | 33.5 | | ug/kg | 3.73 | 1.86 | 5 |
| CI7-BZ#170 | 8.54 | | ug/kg | 3.73 | 1.86 | 5 |
| CI7-BZ#180 | 22.9 | | ug/kg | 3.73 | 1.86 | 5 |
| CI7-BZ#183 | 5.05 | | ug/kg | 3.73 | 1.86 | 5 |
| CI7-BZ#184 | ND | | ug/kg | 3.73 | 1.86 | 5 |
| CI7-BZ#187 | 10.9 | | ug/kg | 3.73 | 1.86 | 5 |
| CI8-BZ#195 | 2.40 | J | ug/kg | 3.73 | 1.86 | 5 |
| CI9-BZ#206 | 3.24 | J | ug/kg | 3.73 | 1.86 | 5 |
| CI10-BZ#209 | 2.52 | J | ug/kg | 3.73 | 1.86 | 5 |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria |
|--------------------------|------------|-----------|---------------------|
| 2-Methylnaphthalene-d10 | 64 | | 30-150 |
| Pyrene-d10 | 72 | | 30-150 |
| Benzo(b)fluoranthene-d12 | 68 | | 30-150 |
| DBOB | 82 | | 50-125 |
| BZ 198 | 73 | | 50-125 |

Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

SAMPLE RESULTS

Lab ID: L2029589-03 D
 Client ID: JFM 8-10
 Sample Location: CHARLESTOWN, MA

Date Collected: 07/13/20 12:45
 Date Received: 07/14/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Sediment
 Analytical Method: 105,8270D-SIM/680(M)
 Analytical Date: 08/05/20 17:56
 Analyst: GP
 Percent Solids: 47%

Extraction Method: EPA 3570
 Extraction Date: 07/17/20 16:22
 Cleanup Method: EPA 3630
 Cleanup Date: 07/20/20

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|--|--------|-----------|-------|------|------|-----------------|
| PAHs/PCB Congeners by GC/MS - Mansfield Lab | | | | | | |
| Naphthalene | 1160 | | ug/kg | 39.7 | 19.8 | 5 |
| Acenaphthylene | 217 | | ug/kg | 39.7 | 19.8 | 5 |
| Acenaphthene | 88.0 | | ug/kg | 39.7 | 19.8 | 5 |
| Fluorene | 122 | | ug/kg | 39.7 | 19.8 | 5 |
| Phenanthrene | 634 | | ug/kg | 39.7 | 19.8 | 5 |
| Anthracene | 396 | | ug/kg | 39.7 | 19.8 | 5 |
| Fluoranthene | 1150 | | ug/kg | 39.7 | 19.8 | 5 |
| Pyrene | 1900 | | ug/kg | 39.7 | 19.8 | 5 |
| Benz(a)anthracene | 778 | | ug/kg | 39.7 | 19.8 | 5 |
| Chrysene | 995 | | ug/kg | 39.7 | 19.8 | 5 |
| Benzo(b)fluoranthene | 1260 | | ug/kg | 39.7 | 19.8 | 5 |
| Benzo(k)fluoranthene | 818 | | ug/kg | 39.7 | 19.8 | 5 |
| Benzo(a)pyrene | 1070 | | ug/kg | 39.7 | 19.8 | 5 |
| Indeno(1,2,3-cd)Pyrene | 656 | | ug/kg | 39.7 | 19.8 | 5 |
| Dibenz(a,h)anthracene | 158 | | ug/kg | 39.7 | 19.8 | 5 |
| Benzo(ghi)perylene | 692 | | ug/kg | 39.7 | 19.8 | 5 |
| Cl2-BZ#8 | ND | | ug/kg | 3.97 | 1.98 | 5 |
| Cl3-BZ#18 | ND | | ug/kg | 3.97 | 1.98 | 5 |
| Cl3-BZ#28 | ND | | ug/kg | 3.97 | 1.98 | 5 |
| Cl4-BZ#44 | 12.3 | | ug/kg | 3.97 | 1.98 | 5 |
| Cl4-BZ#49 | 9.07 | | ug/kg | 3.97 | 1.98 | 5 |
| Cl4-BZ#52 | 18.2 | | ug/kg | 3.97 | 1.98 | 5 |
| Cl4-BZ#66 | 9.80 | | ug/kg | 3.97 | 1.98 | 5 |
| Cl5-BZ#87 | 12.0 | | ug/kg | 3.97 | 1.98 | 5 |
| Cl5-BZ#101 | 28.1 | | ug/kg | 3.97 | 1.98 | 5 |
| Cl5-BZ#105 | 13.4 | | ug/kg | 3.97 | 1.98 | 5 |
| Cl5-BZ#118 | 23.6 | | ug/kg | 3.97 | 1.98 | 5 |
| Cl6-BZ#128 | 7.74 | | ug/kg | 3.97 | 1.98 | 5 |

Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

SAMPLE RESULTS

Lab ID: L2029589-03 D
 Client ID: JFM 8-10
 Sample Location: CHARLESTOWN, MA

Date Collected: 07/13/20 12:45
 Date Received: 07/14/20
 Field Prep: Not Specified

Sample Depth:

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|--|--------|-----------|-------|------|------|-----------------|
| PAHs/PCB Congeners by GC/MS - Mansfield Lab | | | | | | |
| CI6-BZ#138 | 32.1 | | ug/kg | 3.97 | 1.98 | 5 |
| CI6-BZ#153 | 22.4 | | ug/kg | 3.97 | 1.98 | 5 |
| CI7-BZ#170 | 6.30 | | ug/kg | 3.97 | 1.98 | 5 |
| CI7-BZ#180 | 13.5 | | ug/kg | 3.97 | 1.98 | 5 |
| CI7-BZ#183 | 3.13 | J | ug/kg | 3.97 | 1.98 | 5 |
| CI7-BZ#184 | ND | | ug/kg | 3.97 | 1.98 | 5 |
| CI7-BZ#187 | 8.38 | | ug/kg | 3.97 | 1.98 | 5 |
| CI8-BZ#195 | 2.11 | J | ug/kg | 3.97 | 1.98 | 5 |
| CI9-BZ#206 | 3.24 | J | ug/kg | 3.97 | 1.98 | 5 |
| CI10-BZ#209 | 2.25 | J | ug/kg | 3.97 | 1.98 | 5 |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria |
|--------------------------|------------|-----------|---------------------|
| 2-Methylnaphthalene-d10 | 64 | | 30-150 |
| Pyrene-d10 | 67 | | 30-150 |
| Benzo(b)fluoranthene-d12 | 72 | | 30-150 |
| DBOB | 91 | | 50-125 |
| BZ 198 | 97 | | 50-125 |

Project Name: JF MORAN TERMINAL**Lab Number:** L2029589**Project Number:** DA-JFM-200713**Report Date:** 08/13/20**SAMPLE RESULTS**

Lab ID: L2029589-04 D

Date Collected: 07/13/20 13:32

Client ID: JFM 7

Date Received: 07/14/20

Sample Location: CHARLESTOWN, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Sediment

Extraction Method: EPA 3570

Analytical Method: 105,8270D-SIM/680(M)

Extraction Date: 07/17/20 16:22

Analytical Date: 08/05/20 18:26

Cleanup Method: EPA 3630

Analyst: GP

Cleanup Date: 07/20/20

Percent Solids: 47%

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|--|--------|-----------|-------|------|------|-----------------|
| PAHs/PCB Congeners by GC/MS - Mansfield Lab | | | | | | |
| Naphthalene | 454 | | ug/kg | 41.5 | 20.8 | 5 |
| Acenaphthylene | 125 | | ug/kg | 41.5 | 20.8 | 5 |
| Acenaphthene | 44.4 | | ug/kg | 41.5 | 20.8 | 5 |
| Fluorene | 68.3 | | ug/kg | 41.5 | 20.8 | 5 |
| Phenanthrene | 401 | | ug/kg | 41.5 | 20.8 | 5 |
| Anthracene | 230 | | ug/kg | 41.5 | 20.8 | 5 |
| Fluoranthene | 852 | | ug/kg | 41.5 | 20.8 | 5 |
| Pyrene | 1430 | | ug/kg | 41.5 | 20.8 | 5 |
| Benz(a)anthracene | 684 | | ug/kg | 41.5 | 20.8 | 5 |
| Chrysene | 740 | | ug/kg | 41.5 | 20.8 | 5 |
| Benzo(b)fluoranthene | 848 | | ug/kg | 41.5 | 20.8 | 5 |
| Benzo(k)fluoranthene | 602 | | ug/kg | 41.5 | 20.8 | 5 |
| Benzo(a)pyrene | 773 | | ug/kg | 41.5 | 20.8 | 5 |
| Indeno(1,2,3-cd)Pyrene | 475 | | ug/kg | 41.5 | 20.8 | 5 |
| Dibenz(a,h)anthracene | 113 | | ug/kg | 41.5 | 20.8 | 5 |
| Benzo(ghi)perylene | 488 | | ug/kg | 41.5 | 20.8 | 5 |
| Cl2-BZ#8 | ND | | ug/kg | 4.15 | 2.08 | 5 |
| Cl3-BZ#18 | ND | | ug/kg | 4.15 | 2.08 | 5 |
| Cl3-BZ#28 | 12.2 | | ug/kg | 4.15 | 2.08 | 5 |
| Cl4-BZ#44 | 13.0 | | ug/kg | 4.15 | 2.08 | 5 |
| Cl4-BZ#49 | 9.27 | | ug/kg | 4.15 | 2.08 | 5 |
| Cl4-BZ#52 | 21.0 | | ug/kg | 4.15 | 2.08 | 5 |
| Cl4-BZ#66 | 12.5 | | ug/kg | 4.15 | 2.08 | 5 |
| Cl5-BZ#87 | 14.0 | | ug/kg | 4.15 | 2.08 | 5 |
| Cl5-BZ#101 | 32.1 | | ug/kg | 4.15 | 2.08 | 5 |
| Cl5-BZ#105 | 14.1 | | ug/kg | 4.15 | 2.08 | 5 |
| Cl5-BZ#118 | 26.1 | | ug/kg | 4.15 | 2.08 | 5 |
| Cl6-BZ#128 | 12.1 | | ug/kg | 4.15 | 2.08 | 5 |

Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

SAMPLE RESULTS

Lab ID: L2029589-04 D
 Client ID: JFM 7
 Sample Location: CHARLESTOWN, MA

Date Collected: 07/13/20 13:32
 Date Received: 07/14/20
 Field Prep: Not Specified

Sample Depth:

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|--|--------|-----------|-------|------|------|-----------------|
| PAHs/PCB Congeners by GC/MS - Mansfield Lab | | | | | | |
| Cl6-BZ#138 | 37.4 | | ug/kg | 4.15 | 2.08 | 5 |
| Cl6-BZ#153 | 27.2 | | ug/kg | 4.15 | 2.08 | 5 |
| Cl7-BZ#170 | 8.33 | | ug/kg | 4.15 | 2.08 | 5 |
| Cl7-BZ#180 | 15.6 | | ug/kg | 4.15 | 2.08 | 5 |
| Cl7-BZ#183 | 4.21 | | ug/kg | 4.15 | 2.08 | 5 |
| Cl7-BZ#184 | ND | | ug/kg | 4.15 | 2.08 | 5 |
| Cl7-BZ#187 | 10.2 | | ug/kg | 4.15 | 2.08 | 5 |
| Cl8-BZ#195 | ND | | ug/kg | 4.15 | 2.08 | 5 |
| Cl9-BZ#206 | 3.47 | J | ug/kg | 4.15 | 2.08 | 5 |
| Cl10-BZ#209 | 2.95 | J | ug/kg | 4.15 | 2.08 | 5 |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria |
|--------------------------|------------|-----------|---------------------|
| 2-Methylnaphthalene-d10 | 63 | | 30-150 |
| Pyrene-d10 | 67 | | 30-150 |
| Benzo(b)fluoranthene-d12 | 70 | | 30-150 |
| DBOB | 87 | | 50-125 |
| BZ 198 | 99 | | 50-125 |

Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

SAMPLE RESULTS

Lab ID: L2029589-05 D
 Client ID: JFM 11
 Sample Location: CHARLESTOWN, MA

Date Collected: 07/13/20 14:25
 Date Received: 07/14/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Sediment
 Analytical Method: 105,8270D-SIM/680(M)
 Analytical Date: 08/05/20 18:57
 Analyst: GP
 Percent Solids: 44%

Extraction Method: EPA 3570
 Extraction Date: 07/17/20 16:22
 Cleanup Method: EPA 3630
 Cleanup Date: 07/20/20

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|--|--------|-----------|-------|------|------|-----------------|
| PAHs/PCB Congeners by GC/MS - Mansfield Lab | | | | | | |
| Naphthalene | 1640 | | ug/kg | 44.5 | 22.2 | 5 |
| Acenaphthylene | 311 | | ug/kg | 44.5 | 22.2 | 5 |
| Acenaphthene | 453 | | ug/kg | 44.5 | 22.2 | 5 |
| Fluorene | 330 | | ug/kg | 44.5 | 22.2 | 5 |
| Phenanthrene | 3170 | | ug/kg | 44.5 | 22.2 | 5 |
| Anthracene | 741 | | ug/kg | 44.5 | 22.2 | 5 |
| Fluoranthene | 4320 | | ug/kg | 44.5 | 22.2 | 5 |
| Pyrene | 5300 | | ug/kg | 44.5 | 22.2 | 5 |
| Benz(a)anthracene | 2190 | | ug/kg | 44.5 | 22.2 | 5 |
| Chrysene | 2480 | | ug/kg | 44.5 | 22.2 | 5 |
| Benzo(b)fluoranthene | 2640 | | ug/kg | 44.5 | 22.2 | 5 |
| Benzo(k)fluoranthene | 2240 | | ug/kg | 44.5 | 22.2 | 5 |
| Benzo(a)pyrene | 2590 | | ug/kg | 44.5 | 22.2 | 5 |
| Indeno(1,2,3-cd)Pyrene | 1510 | | ug/kg | 44.5 | 22.2 | 5 |
| Dibenz(a,h)anthracene | 344 | | ug/kg | 44.5 | 22.2 | 5 |
| Benzo(ghi)perylene | 1530 | | ug/kg | 44.5 | 22.2 | 5 |
| Cl2-BZ#8 | 5.34 | | ug/kg | 4.45 | 2.22 | 5 |
| Cl3-BZ#18 | 17.0 | | ug/kg | 4.45 | 2.22 | 5 |
| Cl3-BZ#28 | 41.5 | | ug/kg | 4.45 | 2.22 | 5 |
| Cl4-BZ#44 | 17.5 | | ug/kg | 4.45 | 2.22 | 5 |
| Cl4-BZ#49 | 11.9 | | ug/kg | 4.45 | 2.22 | 5 |
| Cl4-BZ#52 | 25.4 | | ug/kg | 4.45 | 2.22 | 5 |
| Cl4-BZ#66 | 13.0 | | ug/kg | 4.45 | 2.22 | 5 |
| Cl5-BZ#87 | 16.8 | | ug/kg | 4.45 | 2.22 | 5 |
| Cl5-BZ#101 | 43.0 | | ug/kg | 4.45 | 2.22 | 5 |
| Cl5-BZ#105 | 20.4 | | ug/kg | 4.45 | 2.22 | 5 |
| Cl5-BZ#118 | 32.4 | | ug/kg | 4.45 | 2.22 | 5 |
| Cl6-BZ#128 | 13.0 | | ug/kg | 4.45 | 2.22 | 5 |

Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

SAMPLE RESULTS

Lab ID: L2029589-05 D
 Client ID: JFM 11
 Sample Location: CHARLESTOWN, MA

Date Collected: 07/13/20 14:25
 Date Received: 07/14/20
 Field Prep: Not Specified

Sample Depth:

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|--|--------|-----------|-------|------|------|-----------------|
| PAHs/PCB Congeners by GC/MS - Mansfield Lab | | | | | | |
| CI6-BZ#138 | 47.3 | | ug/kg | 4.45 | 2.22 | 5 |
| CI6-BZ#153 | 33.8 | | ug/kg | 4.45 | 2.22 | 5 |
| CI7-BZ#170 | 11.6 | | ug/kg | 4.45 | 2.22 | 5 |
| CI7-BZ#180 | 21.1 | | ug/kg | 4.45 | 2.22 | 5 |
| CI7-BZ#183 | 5.25 | | ug/kg | 4.45 | 2.22 | 5 |
| CI7-BZ#184 | ND | | ug/kg | 4.45 | 2.22 | 5 |
| CI7-BZ#187 | 13.1 | | ug/kg | 4.45 | 2.22 | 5 |
| CI8-BZ#195 | 3.04 | J | ug/kg | 4.45 | 2.22 | 5 |
| CI9-BZ#206 | 6.09 | | ug/kg | 4.45 | 2.22 | 5 |
| CI10-BZ#209 | 3.14 | J | ug/kg | 4.45 | 2.22 | 5 |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria |
|--------------------------|------------|-----------|---------------------|
| 2-Methylnaphthalene-d10 | 64 | | 30-150 |
| Pyrene-d10 | 66 | | 30-150 |
| Benzo(b)fluoranthene-d12 | 70 | | 30-150 |
| DBOB | 92 | | 50-125 |
| BZ 198 | 86 | | 50-125 |

Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

SAMPLE RESULTS

Lab ID: L2029589-06 D
 Client ID: JFM 12
 Sample Location: CHARLESTOWN, MA

Date Collected: 07/13/20 13:50
 Date Received: 07/14/20
 Field Prep: Not Specified

Sample Depth:

Matrix: Sediment
 Analytical Method: 105,8270D-SIM/680(M)
 Analytical Date: 08/05/20 19:27
 Analyst: GP
 Percent Solids: 44%

Extraction Method: EPA 3570
 Extraction Date: 07/17/20 16:22
 Cleanup Method: EPA 3630
 Cleanup Date: 07/20/20

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|--|--------|-----------|-------|------|------|-----------------|
| PAHs/PCB Congeners by GC/MS - Mansfield Lab | | | | | | |
| Naphthalene | 923 | | ug/kg | 42.3 | 21.1 | 5 |
| Acenaphthylene | 200 | | ug/kg | 42.3 | 21.1 | 5 |
| Acenaphthene | 66.2 | | ug/kg | 42.3 | 21.1 | 5 |
| Fluorene | 96.6 | | ug/kg | 42.3 | 21.1 | 5 |
| Phenanthrene | 529 | | ug/kg | 42.3 | 21.1 | 5 |
| Anthracene | 342 | | ug/kg | 42.3 | 21.1 | 5 |
| Fluoranthene | 1050 | | ug/kg | 42.3 | 21.1 | 5 |
| Pyrene | 1890 | | ug/kg | 42.3 | 21.1 | 5 |
| Benz(a)anthracene | 693 | | ug/kg | 42.3 | 21.1 | 5 |
| Chrysene | 938 | | ug/kg | 42.3 | 21.1 | 5 |
| Benzo(b)fluoranthene | 1230 | | ug/kg | 42.3 | 21.1 | 5 |
| Benzo(k)fluoranthene | 952 | | ug/kg | 42.3 | 21.1 | 5 |
| Benzo(a)pyrene | 1140 | | ug/kg | 42.3 | 21.1 | 5 |
| Indeno(1,2,3-cd)Pyrene | 692 | | ug/kg | 42.3 | 21.1 | 5 |
| Dibenz(a,h)anthracene | 158 | | ug/kg | 42.3 | 21.1 | 5 |
| Benzo(ghi)perylene | 715 | | ug/kg | 42.3 | 21.1 | 5 |
| Cl2-BZ#8 | 2.60 | J | ug/kg | 4.23 | 2.11 | 5 |
| Cl3-BZ#18 | ND | | ug/kg | 4.23 | 2.11 | 5 |
| Cl3-BZ#28 | 45.8 | | ug/kg | 4.23 | 2.11 | 5 |
| Cl4-BZ#44 | 14.4 | | ug/kg | 4.23 | 2.11 | 5 |
| Cl4-BZ#49 | 8.02 | | ug/kg | 4.23 | 2.11 | 5 |
| Cl4-BZ#52 | 19.6 | | ug/kg | 4.23 | 2.11 | 5 |
| Cl4-BZ#66 | 12.0 | | ug/kg | 4.23 | 2.11 | 5 |
| Cl5-BZ#87 | 14.0 | | ug/kg | 4.23 | 2.11 | 5 |
| Cl5-BZ#101 | 29.8 | | ug/kg | 4.23 | 2.11 | 5 |
| Cl5-BZ#105 | 12.7 | | ug/kg | 4.23 | 2.11 | 5 |
| Cl5-BZ#118 | 25.2 | | ug/kg | 4.23 | 2.11 | 5 |
| Cl6-BZ#128 | 7.92 | | ug/kg | 4.23 | 2.11 | 5 |

Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

SAMPLE RESULTS

Lab ID: L2029589-06 D
 Client ID: JFM 12
 Sample Location: CHARLESTOWN, MA

Date Collected: 07/13/20 13:50
 Date Received: 07/14/20
 Field Prep: Not Specified

Sample Depth:

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|--|--------|-----------|-------|------|------|-----------------|
| PAHs/PCB Congeners by GC/MS - Mansfield Lab | | | | | | |
| CI6-BZ#138 | 36.6 | | ug/kg | 4.23 | 2.11 | 5 |
| CI6-BZ#153 | 26.2 | | ug/kg | 4.23 | 2.11 | 5 |
| CI7-BZ#170 | 9.39 | | ug/kg | 4.23 | 2.11 | 5 |
| CI7-BZ#180 | 15.8 | | ug/kg | 4.23 | 2.11 | 5 |
| CI7-BZ#183 | 3.85 | J | ug/kg | 4.23 | 2.11 | 5 |
| CI7-BZ#184 | ND | | ug/kg | 4.23 | 2.11 | 5 |
| CI7-BZ#187 | 10.2 | | ug/kg | 4.23 | 2.11 | 5 |
| CI8-BZ#195 | ND | | ug/kg | 4.23 | 2.11 | 5 |
| CI9-BZ#206 | 2.64 | J | ug/kg | 4.23 | 2.11 | 5 |
| CI10-BZ#209 | 3.03 | J | ug/kg | 4.23 | 2.11 | 5 |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria |
|--------------------------|------------|-----------|---------------------|
| 2-Methylnaphthalene-d10 | 63 | | 30-150 |
| Pyrene-d10 | 68 | | 30-150 |
| Benzo(b)fluoranthene-d12 | 74 | | 30-150 |
| DBOB | 91 | | 50-125 |
| BZ 198 | 97 | | 50-125 |

Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 08/05/20 14:24
Analyst: GP

Extraction Method: EPA 3570
Extraction Date: 07/17/20 16:22
Cleanup Method: EPA 3630
Cleanup Date: 07/20/20

| Parameter | Result | Qualifier | Units | RL | MDL |
|---|--------|-----------|-------|-------|-------|
| PAHs/PCB Congeners by GC/MS - Mansfield Lab for sample(s): 01-06 Batch: WG1393433-1 | | | | | |
| Naphthalene | ND | | ug/kg | 4.00 | 2.00 |
| Acenaphthylene | ND | | ug/kg | 4.00 | 2.00 |
| Acenaphthene | ND | | ug/kg | 4.00 | 2.00 |
| Fluorene | ND | | ug/kg | 4.00 | 2.00 |
| Phenanthrene | ND | | ug/kg | 4.00 | 2.00 |
| Anthracene | ND | | ug/kg | 4.00 | 2.00 |
| Fluoranthene | ND | | ug/kg | 4.00 | 2.00 |
| Pyrene | ND | | ug/kg | 4.00 | 2.00 |
| Benz(a)anthracene | ND | | ug/kg | 4.00 | 2.00 |
| Chrysene | ND | | ug/kg | 4.00 | 2.00 |
| Benzo(b)fluoranthene | ND | | ug/kg | 4.00 | 2.00 |
| Benzo(k)fluoranthene | ND | | ug/kg | 4.00 | 2.00 |
| Benzo(a)pyrene | ND | | ug/kg | 4.00 | 2.00 |
| Indeno(1,2,3-cd)Pyrene | ND | | ug/kg | 4.00 | 2.00 |
| Dibenz(a,h)anthracene | ND | | ug/kg | 4.00 | 2.00 |
| Benzo(ghi)perylene | ND | | ug/kg | 4.00 | 2.00 |
| Cl2-BZ#8 | ND | | ug/kg | 0.400 | 0.200 |
| Cl3-BZ#18 | ND | | ug/kg | 0.400 | 0.200 |
| Cl3-BZ#28 | ND | | ug/kg | 0.400 | 0.200 |
| Cl4-BZ#44 | ND | | ug/kg | 0.400 | 0.200 |
| Cl4-BZ#49 | ND | | ug/kg | 0.400 | 0.200 |
| Cl4-BZ#52 | ND | | ug/kg | 0.400 | 0.200 |
| Cl4-BZ#66 | ND | | ug/kg | 0.400 | 0.200 |
| Cl5-BZ#87 | ND | | ug/kg | 0.400 | 0.200 |
| Cl5-BZ#101 | ND | | ug/kg | 0.400 | 0.200 |
| Cl5-BZ#105 | ND | | ug/kg | 0.400 | 0.200 |
| Cl5-BZ#118 | ND | | ug/kg | 0.400 | 0.200 |
| Cl6-BZ#128 | ND | | ug/kg | 0.400 | 0.200 |
| Cl6-BZ#138 | ND | | ug/kg | 0.400 | 0.200 |

Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 08/05/20 14:24
Analyst: GP

Extraction Method: EPA 3570
Extraction Date: 07/17/20 16:22
Cleanup Method: EPA 3630
Cleanup Date: 07/20/20

| Parameter | Result | Qualifier | Units | RL | MDL |
|---|--------|-----------|-------|-------|-------|
| PAHs/PCB Congeners by GC/MS - Mansfield Lab for sample(s): 01-06 Batch: WG1393433-1 | | | | | |
| CI6-BZ#153 | ND | | ug/kg | 0.400 | 0.200 |
| CI7-BZ#170 | ND | | ug/kg | 0.400 | 0.200 |
| CI7-BZ#180 | ND | | ug/kg | 0.400 | 0.200 |
| CI7-BZ#183 | ND | | ug/kg | 0.400 | 0.200 |
| CI7-BZ#184 | ND | | ug/kg | 0.400 | 0.200 |
| CI7-BZ#187 | ND | | ug/kg | 0.400 | 0.200 |
| CI8-BZ#195 | ND | | ug/kg | 0.400 | 0.200 |
| CI9-BZ#206 | ND | | ug/kg | 0.400 | 0.200 |
| CI10-BZ#209 | ND | | ug/kg | 0.400 | 0.200 |

| Surrogate | %Recovery | Qualifier | Acceptance Criteria |
|--------------------------|-----------|-----------|---------------------|
| 2-Methylnaphthalene-d10 | 50 | | 30-150 |
| Pyrene-d10 | 82 | | 30-150 |
| Benzo(b)fluoranthene-d12 | 87 | | 30-150 |
| DBOB | 77 | | 50-125 |
| BZ 198 | 87 | | 50-125 |

Lab Control Sample Analysis

Batch Quality Control

Project Name: JF MORAN TERMINAL

Lab Number: L2029589

Project Number: DA-JFM-200713

Report Date: 08/13/20

| Parameter | LCS | | LCSD | | %Recovery | | RPD | |
|--|-----------|------|-----------|------|-----------|------|-----|------|
| | %Recovery | Qual | %Recovery | Qual | %Recovery | Qual | RPD | Qual |
| PAHs/PCB Congeners by GC/MS - Mansfield Lab Associated sample(s): 01-06 Batch: WG1393433-2 WG1393433-3 | | | | | | | | |
| Naphthalene | 57 | | 59 | | 40-140 | | 3 | |
| Acenaphthylene | 65 | | 68 | | 40-140 | | 5 | |
| Acenaphthene | 74 | | 77 | | 40-140 | | 4 | |
| Fluorene | 75 | | 80 | | 40-140 | | 6 | |
| Phenanthrene | 73 | | 77 | | 40-140 | | 5 | |
| Anthracene | 77 | | 82 | | 40-140 | | 6 | |
| Fluoranthene | 71 | | 76 | | 40-140 | | 7 | |
| Pyrene | 86 | | 91 | | 40-140 | | 6 | |
| Benz(a)anthracene | 81 | | 85 | | 40-140 | | 5 | |
| Chrysene | 89 | | 94 | | 40-140 | | 5 | |
| Benzo(b)fluoranthene | 104 | | 107 | | 40-140 | | 3 | |
| Benzo(k)fluoranthene | 89 | | 98 | | 40-140 | | 10 | |
| Benzo(a)pyrene | 78 | | 84 | | 40-140 | | 7 | |
| Indeno(1,2,3-cd)Pyrene | 87 | | 91 | | 40-140 | | 4 | |
| Dibenz(a,h)anthracene | 86 | | 92 | | 40-140 | | 7 | |
| Benzo(ghi)perylene | 87 | | 92 | | 40-140 | | 6 | |
| C12-BZ#8 | 81 | | 84 | | 40-140 | | 4 | |
| C13-BZ#18 | 78 | | 82 | | 40-140 | | 5 | |
| C13-BZ#28 | 79 | | 83 | | 40-140 | | 5 | |
| C14-BZ#44 | 84 | | 89 | | 40-140 | | 6 | |
| C14-BZ#49 | 83 | | 85 | | 40-140 | | 2 | |
| C14-BZ#52 | 76 | | 81 | | 40-140 | | 6 | |
| C14-BZ#66 | 83 | | 87 | | 40-140 | | 5 | |

Lab Control Sample Analysis

Batch Quality Control

Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

| Parameter | LCS | | LCSD | | %Recovery | | RPD | |
|--|-----------|------|-----------|------|-----------|------|-----|------|
| | %Recovery | Qual | %Recovery | Qual | Limits | Qual | RPD | Qual |
| PAHs/PCB Congeners by GC/MS - Mansfield Lab Associated sample(s): 01-06 Batch: WG1393433-2 WG1393433-3 | | | | | | | | |
| C15-BZ#87 | 84 | | 88 | | 40-140 | | 5 | 50 |
| C15-BZ#101 | 80 | | 84 | | 40-140 | | 5 | 50 |
| C15-BZ#105 | 82 | | 87 | | 40-140 | | 6 | 50 |
| C15-BZ#118 | 77 | | 80 | | 40-140 | | 4 | 50 |
| C16-BZ#128 | 84 | | 86 | | 40-140 | | 2 | 50 |
| C16-BZ#138 | 82 | | 85 | | 40-140 | | 4 | 50 |
| C16-BZ#153 | 83 | | 86 | | 40-140 | | 4 | 50 |
| C17-BZ#170 | 77 | | 85 | | 40-140 | | 10 | 50 |
| C17-BZ#180 | 79 | | 82 | | 40-140 | | 4 | 50 |
| C17-BZ#183 | 75 | | 78 | | 40-140 | | 4 | 50 |
| C17-BZ#184 | 81 | | 84 | | 40-140 | | 4 | 50 |
| C17-BZ#187 | 81 | | 84 | | 40-140 | | 4 | 50 |
| C18-BZ#195 | 85 | | 87 | | 40-140 | | 2 | 50 |
| C19-BZ#206 | 77 | | 78 | | 40-140 | | 1 | 50 |
| C110-BZ#209 | 78 | | 81 | | 40-140 | | 4 | 50 |

| Surrogate | LCS | | LCSD | | Acceptance Criteria | |
|--------------------------|-----------|------|-----------|------|---------------------|----------|
| | %Recovery | Qual | %Recovery | Qual | Criteria | Criteria |
| 2-Methylnaphthalene-d10 | 56 | | 57 | | 30-150 | 30-150 |
| Pyrene-d10 | 81 | | 85 | | 30-150 | 30-150 |
| Benzo(b)fluoranthene-d12 | 83 | | 87 | | 30-150 | 30-150 |
| DBOB | 86 | | 89 | | 50-125 | 50-125 |
| BZ 198 | 90 | | 92 | | 50-125 | 50-125 |



PETROLEUM HYDROCARBONS

Project Name: JF MORAN TERMINAL**Lab Number:** L2029589**Project Number:** DA-JFM-200713**Report Date:** 08/13/20**SAMPLE RESULTS**

Lab ID: L2029589-01
 Client ID: JFM 1-3
 Sample Location: CHARLESTOWN, MA

Date Collected: 07/13/20 09:35
 Date Received: 07/14/20
 Field Prep: Not Specified

Sample Depth:
 Matrix: Sediment
 Analytical Method: 135,EPH-19-2.1
 Analytical Date: 08/06/20 00:12
 Analyst: LL
 Percent Solids: 48%

Extraction Method: EPA 3546
 Extraction Date: 07/23/20 15:15
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 07/23/20

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|--------|-----------|-------|------|------|-----------------|
| Extractable Petroleum Hydrocarbons - Westborough Lab | | | | | | |
| C9-C18 Aliphatics | 14.9 | | mg/kg | 13.5 | 13.5 | 1 |
| C19-C36 Aliphatics | 37.5 | | mg/kg | 13.5 | 13.5 | 1 |
| C11-C22 Aromatics | 35.8 | | mg/kg | 13.5 | 13.5 | 1 |
| C11-C22 Aromatics, Adjusted | 34.2 | | mg/kg | 13.5 | 13.5 | 1 |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria |
|--------------------|------------|-----------|---------------------|
| Chloro-Octadecane | 70 | | 40-140 |
| o-Terphenyl | 64 | | 40-140 |
| 2-Fluorobiphenyl | 70 | | 40-140 |
| 2-Bromonaphthalene | 73 | | 40-140 |

Project Name: JF MORAN TERMINAL**Lab Number:** L2029589**Project Number:** DA-JFM-200713**Report Date:** 08/13/20**SAMPLE RESULTS**

Lab ID: L2029589-02
 Client ID: JFM 4-6
 Sample Location: CHARLESTOWN, MA

Date Collected: 07/13/20 11:12
 Date Received: 07/14/20
 Field Prep: Not Specified

Sample Depth:
 Matrix: Sediment
 Analytical Method: 135,EPH-19-2.1
 Analytical Date: 08/06/20 00:36
 Analyst: LL
 Percent Solids: 50%

Extraction Method: EPA 3546
 Extraction Date: 07/23/20 15:15
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 07/23/20

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|--------|-----------|-------|------|------|-----------------|
| Extractable Petroleum Hydrocarbons - Westborough Lab | | | | | | |
| C9-C18 Aliphatics | 71.3 | | mg/kg | 12.9 | 12.9 | 1 |
| C19-C36 Aliphatics | 129 | | mg/kg | 12.9 | 12.9 | 1 |
| C11-C22 Aromatics | 115 | | mg/kg | 12.9 | 12.9 | 1 |
| C11-C22 Aromatics, Adjusted | 107 | | mg/kg | 12.9 | 12.9 | 1 |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria |
|--------------------|------------|-----------|---------------------|
| Chloro-Octadecane | 69 | | 40-140 |
| o-Terphenyl | 67 | | 40-140 |
| 2-Fluorobiphenyl | 74 | | 40-140 |
| 2-Bromonaphthalene | 76 | | 40-140 |

Project Name: JF MORAN TERMINAL**Lab Number:** L2029589**Project Number:** DA-JFM-200713**Report Date:** 08/13/20**SAMPLE RESULTS**

Lab ID: L2029589-03
 Client ID: JFM 8-10
 Sample Location: CHARLESTOWN, MA

Date Collected: 07/13/20 12:45
 Date Received: 07/14/20
 Field Prep: Not Specified

Sample Depth:
 Matrix: Sediment
 Analytical Method: 135,EPH-19-2.1
 Analytical Date: 08/06/20 01:01
 Analyst: LL
 Percent Solids: 47%

Extraction Method: EPA 3546
 Extraction Date: 07/23/20 15:15
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 07/23/20

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|--------|-----------|-------|------|------|-----------------|
| Extractable Petroleum Hydrocarbons - Westborough Lab | | | | | | |
| C9-C18 Aliphatics | ND | | mg/kg | 14.2 | 14.2 | 1 |
| C19-C36 Aliphatics | 30.0 | | mg/kg | 14.2 | 14.2 | 1 |
| C11-C22 Aromatics | 46.3 | | mg/kg | 14.2 | 14.2 | 1 |
| C11-C22 Aromatics, Adjusted | 42.0 | | mg/kg | 14.2 | 14.2 | 1 |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria |
|--------------------|------------|-----------|---------------------|
| Chloro-Octadecane | 67 | | 40-140 |
| o-Terphenyl | 67 | | 40-140 |
| 2-Fluorobiphenyl | 75 | | 40-140 |
| 2-Bromonaphthalene | 78 | | 40-140 |

Project Name: JF MORAN TERMINAL**Lab Number:** L2029589**Project Number:** DA-JFM-200713**Report Date:** 08/13/20**SAMPLE RESULTS**

Lab ID: L2029589-04
 Client ID: JFM 7
 Sample Location: CHARLESTOWN, MA

Date Collected: 07/13/20 13:32
 Date Received: 07/14/20
 Field Prep: Not Specified

Sample Depth:
 Matrix: Sediment
 Analytical Method: 135,EPH-19-2.1
 Analytical Date: 08/06/20 01:26
 Analyst: LL
 Percent Solids: 47%

Extraction Method: EPA 3546
 Extraction Date: 07/23/20 15:15
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 07/23/20

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|--------|-----------|-------|------|------|-----------------|
| Extractable Petroleum Hydrocarbons - Westborough Lab | | | | | | |
| C9-C18 Aliphatics | 28.5 | | mg/kg | 14.1 | 14.1 | 1 |
| C19-C36 Aliphatics | 59.7 | | mg/kg | 14.1 | 14.1 | 1 |
| C11-C22 Aromatics | 38.2 | | mg/kg | 14.1 | 14.1 | 1 |
| C11-C22 Aromatics, Adjusted | 38.2 | | mg/kg | 14.1 | 14.1 | 1 |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria |
|--------------------|------------|-----------|---------------------|
| Chloro-Octadecane | 67 | | 40-140 |
| o-Terphenyl | 63 | | 40-140 |
| 2-Fluorobiphenyl | 70 | | 40-140 |
| 2-Bromonaphthalene | 71 | | 40-140 |

Project Name: JF MORAN TERMINAL**Lab Number:** L2029589**Project Number:** DA-JFM-200713**Report Date:** 08/13/20**SAMPLE RESULTS**

Lab ID: L2029589-05
 Client ID: JFM 11
 Sample Location: CHARLESTOWN, MA

Date Collected: 07/13/20 14:25
 Date Received: 07/14/20
 Field Prep: Not Specified

Sample Depth:
 Matrix: Sediment
 Analytical Method: 135,EPH-19-2.1
 Analytical Date: 08/06/20 01:50
 Analyst: LL
 Percent Solids: 44%

Extraction Method: EPA 3546
 Extraction Date: 07/23/20 15:15
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 07/23/20

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|--------|-----------|-------|------|------|-----------------|
| Extractable Petroleum Hydrocarbons - Westborough Lab | | | | | | |
| C9-C18 Aliphatics | 71.6 | | mg/kg | 14.8 | 14.8 | 1 |
| C19-C36 Aliphatics | 143 | | mg/kg | 14.8 | 14.8 | 1 |
| C11-C22 Aromatics | 137 | | mg/kg | 14.8 | 14.8 | 1 |
| C11-C22 Aromatics, Adjusted | 125 | | mg/kg | 14.8 | 14.8 | 1 |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria |
|--------------------|------------|-----------|---------------------|
| Chloro-Octadecane | 70 | | 40-140 |
| o-Terphenyl | 68 | | 40-140 |
| 2-Fluorobiphenyl | 75 | | 40-140 |
| 2-Bromonaphthalene | 80 | | 40-140 |

Project Name: JF MORAN TERMINAL**Lab Number:** L2029589**Project Number:** DA-JFM-200713**Report Date:** 08/13/20**SAMPLE RESULTS**

Lab ID: L2029589-06
 Client ID: JFM 12
 Sample Location: CHARLESTOWN, MA

Date Collected: 07/13/20 13:50
 Date Received: 07/14/20
 Field Prep: Not Specified

Sample Depth:
 Matrix: Sediment
 Analytical Method: 135,EPH-19-2.1
 Analytical Date: 08/06/20 02:15
 Analyst: LL
 Percent Solids: 44%

Extraction Method: EPA 3546
 Extraction Date: 07/23/20 15:15
 Cleanup Method1: EPH-04-1
 Cleanup Date1: 07/23/20

Quality Control Information

Condition of sample received: Satisfactory
 Sample Temperature upon receipt: Received on Ice
 Sample Extraction method: Extracted Per the Method

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor |
|---|--------|-----------|-------|------|------|-----------------|
| Extractable Petroleum Hydrocarbons - Westborough Lab | | | | | | |
| C9-C18 Aliphatics | 18.1 | | mg/kg | 14.3 | 14.3 | 1 |
| C19-C36 Aliphatics | 51.5 | | mg/kg | 14.3 | 14.3 | 1 |
| C11-C22 Aromatics | 26.8 | | mg/kg | 14.3 | 14.3 | 1 |
| C11-C22 Aromatics, Adjusted | 26.8 | | mg/kg | 14.3 | 14.3 | 1 |

| Surrogate | % Recovery | Qualifier | Acceptance Criteria |
|--------------------|------------|-----------|---------------------|
| Chloro-Octadecane | 80 | | 40-140 |
| o-Terphenyl | 66 | | 40-140 |
| 2-Fluorobiphenyl | 70 | | 40-140 |
| 2-Bromonaphthalene | 72 | | 40-140 |

Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 135,EPH-19-2.1
Analytical Date: 08/05/20 23:47
Analyst: LL

Extraction Method: EPA 3546
Extraction Date: 07/23/20 15:15
Cleanup Method: EPH-04-1
Cleanup Date: 07/23/20

| Parameter | Result | Qualifier | Units | RL | MDL |
|--|--------|-----------|-------|------|------|
| Extractable Petroleum Hydrocarbons - Westborough Lab for sample(s): 01-06 Batch: WG1395060-1 | | | | | |
| C9-C18 Aliphatics | ND | | mg/kg | 6.58 | 6.58 |
| C19-C36 Aliphatics | ND | | mg/kg | 6.58 | 6.58 |
| C11-C22 Aromatics | ND | | mg/kg | 6.58 | 6.58 |
| C11-C22 Aromatics, Adjusted | ND | | mg/kg | 6.58 | 6.58 |

| Surrogate | %Recovery | Qualifier | Acceptance Criteria |
|--------------------|-----------|-----------|---------------------|
| Chloro-Octadecane | 64 | | 40-140 |
| o-Terphenyl | 57 | | 40-140 |
| 2-Fluorobiphenyl | 74 | | 40-140 |
| 2-Bromonaphthalene | 77 | | 40-140 |

Lab Control Sample Analysis

Batch Quality Control

Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

| Parameter | LCS | | LCS D | | %Recovery | | RPD | Qual | RPD | Limits |
|---|-----------|------|-----------|------|-----------|------|-----|------|-----|--------|
| | %Recovery | Qual | %Recovery | Qual | %Recovery | Qual | | | | |
| Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-06 Batch: WG1395060-2 WG1395060-3 | | | | | | | | | | |
| C9-C18 Aliphatics | 56 | | 60 | | 40-140 | | 7 | | | 25 |
| C19-C36 Aliphatics | 73 | | 79 | | 40-140 | | 8 | | | 25 |
| C11-C22 Aromatics | 60 | | 69 | | 40-140 | | 14 | | | 25 |
| Naphthalene | 54 | | 63 | | 40-140 | | 15 | | | 25 |
| 2-Methylnaphthalene | 56 | | 65 | | 40-140 | | 15 | | | 25 |
| Acenaphthylene | 54 | | 63 | | 40-140 | | 15 | | | 25 |
| Acenaphthene | 59 | | 68 | | 40-140 | | 14 | | | 25 |
| Fluorene | 58 | | 68 | | 40-140 | | 16 | | | 25 |
| Phenanthrene | 58 | | 68 | | 40-140 | | 16 | | | 25 |
| Anthracene | 59 | | 70 | | 40-140 | | 17 | | | 25 |
| Fluoranthene | 61 | | 72 | | 40-140 | | 17 | | | 25 |
| Pyrene | 60 | | 70 | | 40-140 | | 15 | | | 25 |
| Benzo(a)anthracene | 59 | | 69 | | 40-140 | | 16 | | | 25 |
| Chrysene | 60 | | 70 | | 40-140 | | 15 | | | 25 |
| Benzo(b)fluoranthene | 58 | | 68 | | 40-140 | | 16 | | | 25 |
| Benzo(k)fluoranthene | 58 | | 68 | | 40-140 | | 16 | | | 25 |
| Benzo(a)pyrene | 57 | | 66 | | 40-140 | | 15 | | | 25 |
| Indeno(1,2,3-cd)Pyrene | 56 | | 64 | | 40-140 | | 13 | | | 25 |
| Dibenzo(a,h)anthracene | 59 | | 68 | | 40-140 | | 14 | | | 25 |
| Benzo(ghi)perylene | 54 | | 62 | | 40-140 | | 14 | | | 25 |

Lab Control Sample Analysis

Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

Batch Quality Control

| Parameter | LCS %Recovery | Qual | LCS %Recovery | Qual | %Recovery Limits | RPD | Qual | RPD Limits |
|-----------|------------------|------|------------------|------|---------------------|-----|------|---------------|
|-----------|------------------|------|------------------|------|---------------------|-----|------|---------------|

Extractable Petroleum Hydrocarbons - Westborough Lab Associated sample(s): 01-06 Batch: WG1395060-2 WG1395060-3

| Surrogate | LCS %Recovery | Qual | LCS %Recovery | Qual | Acceptance Criteria |
|------------------------------------|------------------|------|------------------|------|------------------------|
| Chloro-Octadecane | 64 | | 71 | | 40-140 |
| o-Terphenyl | 56 | | 65 | | 40-140 |
| 2-Fluorobiphenyl | 72 | | 76 | | 40-140 |
| 2-Bromonaphthalene | 76 | | 79 | | 40-140 |
| % Naphthalene Breakthrough | 0 | | 0 | | |
| % 2-Methylnaphthalene Breakthrough | 0 | | 0 | | |



METALS

Project Name: JF MORAN TERMINAL

Lab Number: L2029589

Project Number: DA-JFM-200713

Report Date: 08/13/20

SAMPLE RESULTS

Lab ID: L2029589-01

Date Collected: 07/13/20 09:35

Client ID: JFM 1-3

Date Received: 07/14/20

Sample Location: CHARLESTOWN, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Sediment

Percent Solids: 48%

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Prep Method | Analytical Method | Analyst |
|-------------------------------------|--------|-----------|-------|-------|-------|-----------------|----------------|----------------|-------------|-------------------|---------|
| Total Metals - Mansfield Lab | | | | | | | | | | | |
| Aluminum, Total | 12500 | | mg/kg | 136 | 20.2 | 10 | 07/29/20 19:25 | 07/30/20 11:07 | EPA 3050B | 1,6020B | AM |
| Antimony, Total | 0.942 | J | mg/kg | 2.18 | 0.184 | 10 | 07/29/20 19:25 | 07/30/20 11:07 | EPA 3050B | 1,6020B | AM |
| Arsenic, Total | 14.7 | | mg/kg | 0.682 | 0.090 | 10 | 07/29/20 19:25 | 07/30/20 11:07 | EPA 3050B | 1,6020B | AM |
| Barium, Total | 67.4 | | mg/kg | 4.09 | 0.288 | 10 | 07/29/20 19:25 | 07/30/20 11:07 | EPA 3050B | 1,6020B | AM |
| Beryllium, Total | 0.547 | | mg/kg | 0.409 | 0.119 | 10 | 07/29/20 19:25 | 07/30/20 11:07 | EPA 3050B | 1,6020B | AM |
| Cadmium, Total | 1.21 | | mg/kg | 0.273 | 0.036 | 10 | 07/29/20 19:25 | 07/30/20 11:07 | EPA 3050B | 1,6020B | AM |
| Calcium, Total | 6180 | | mg/kg | 682 | 82.9 | 10 | 07/29/20 19:25 | 07/30/20 11:07 | EPA 3050B | 1,6020B | AM |
| Chromium, Total | 113 | | mg/kg | 2.73 | 0.638 | 10 | 07/29/20 19:25 | 07/30/20 11:07 | EPA 3050B | 1,6020B | AM |
| Cobalt, Total | 8.67 | | mg/kg | 0.682 | 0.073 | 10 | 07/29/20 19:25 | 07/30/20 11:07 | EPA 3050B | 1,6020B | AM |
| Copper, Total | 112 | | mg/kg | 2.73 | 0.264 | 10 | 07/29/20 19:25 | 07/30/20 11:07 | EPA 3050B | 1,6020B | AM |
| Iron, Total | 28800 | | mg/kg | 273 | 28.1 | 10 | 07/29/20 19:25 | 07/30/20 11:07 | EPA 3050B | 1,6020B | AM |
| Lead, Total | 146 | | mg/kg | 0.818 | 0.199 | 10 | 07/29/20 19:25 | 07/30/20 11:07 | EPA 3050B | 1,6020B | AM |
| Magnesium, Total | 7720 | | mg/kg | 136 | 16.8 | 10 | 07/29/20 19:25 | 07/30/20 11:07 | EPA 3050B | 1,6020B | AM |
| Manganese, Total | 287 | | mg/kg | 2.73 | 0.605 | 10 | 07/29/20 19:25 | 07/30/20 11:07 | EPA 3050B | 1,6020B | AM |
| Mercury, Total | 0.629 | | mg/kg | 0.020 | 0.003 | 5 | 07/24/20 17:30 | 07/31/20 17:05 | EPA 7474 | 1,7474 | TM |
| Nickel, Total | 23.3 | | mg/kg | 1.36 | 0.364 | 10 | 07/29/20 19:25 | 07/30/20 11:07 | EPA 3050B | 1,6020B | AM |
| Potassium, Total | 4330 | | mg/kg | 136 | 21.6 | 10 | 07/29/20 19:25 | 07/30/20 11:07 | EPA 3050B | 1,6020B | AM |
| Selenium, Total | 4.33 | | mg/kg | 2.73 | 1.03 | 10 | 07/29/20 19:25 | 07/30/20 11:07 | EPA 3050B | 1,6020B | AM |
| Silver, Total | 2.01 | | mg/kg | 0.682 | 0.067 | 10 | 07/29/20 19:25 | 07/30/20 11:07 | EPA 3050B | 1,6020B | AM |
| Sodium, Total | 10900 | | mg/kg | 204 | 16.0 | 10 | 07/29/20 19:25 | 07/30/20 11:07 | EPA 3050B | 1,6020B | AM |
| Thallium, Total | 0.318 | J | mg/kg | 1.09 | 0.070 | 10 | 07/29/20 19:25 | 07/30/20 11:07 | EPA 3050B | 1,6020B | AM |
| Vanadium, Total | 53.7 | | mg/kg | 1.36 | 0.517 | 10 | 07/29/20 19:25 | 07/30/20 11:07 | EPA 3050B | 1,6020B | AM |
| Zinc, Total | 247 | | mg/kg | 13.6 | 3.54 | 10 | 07/29/20 19:25 | 07/30/20 11:07 | EPA 3050B | 1,6020B | AM |



Project Name: JF MORAN TERMINAL

Lab Number: L2029589

Project Number: DA-JFM-200713

Report Date: 08/13/20

SAMPLE RESULTS

Lab ID: L2029589-02

Date Collected: 07/13/20 11:12

Client ID: JFM 4-6

Date Received: 07/14/20

Sample Location: CHARLESTOWN, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Sediment

Percent Solids: 50%

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Prep Method | Analytical Method | Analyst |
|-------------------------------------|--------|-----------|-------|-------|-------|-----------------|----------------|----------------|-------------|-------------------|---------|
| Total Metals - Mansfield Lab | | | | | | | | | | | |
| Aluminum, Total | 10400 | | mg/kg | 130 | 19.2 | 10 | 07/29/20 19:25 | 07/30/20 11:12 | EPA 3050B | 1,6020B | AM |
| Antimony, Total | 1.36 | J | mg/kg | 2.07 | 0.175 | 10 | 07/29/20 19:25 | 07/30/20 11:12 | EPA 3050B | 1,6020B | AM |
| Arsenic, Total | 13.7 | | mg/kg | 0.648 | 0.086 | 10 | 07/29/20 19:25 | 07/30/20 11:12 | EPA 3050B | 1,6020B | AM |
| Barium, Total | 75.2 | | mg/kg | 3.89 | 0.274 | 10 | 07/29/20 19:25 | 07/30/20 11:12 | EPA 3050B | 1,6020B | AM |
| Beryllium, Total | 0.497 | | mg/kg | 0.389 | 0.113 | 10 | 07/29/20 19:25 | 07/30/20 11:12 | EPA 3050B | 1,6020B | AM |
| Cadmium, Total | 1.77 | | mg/kg | 0.259 | 0.034 | 10 | 07/29/20 19:25 | 07/30/20 11:12 | EPA 3050B | 1,6020B | AM |
| Calcium, Total | 4460 | | mg/kg | 648 | 78.8 | 10 | 07/29/20 19:25 | 07/30/20 11:12 | EPA 3050B | 1,6020B | AM |
| Chromium, Total | 141 | | mg/kg | 2.59 | 0.607 | 10 | 07/29/20 19:25 | 07/30/20 11:12 | EPA 3050B | 1,6020B | AM |
| Cobalt, Total | 7.18 | | mg/kg | 0.648 | 0.069 | 10 | 07/29/20 19:25 | 07/30/20 11:12 | EPA 3050B | 1,6020B | AM |
| Copper, Total | 109 | | mg/kg | 2.59 | 0.252 | 10 | 07/29/20 19:25 | 07/30/20 11:12 | EPA 3050B | 1,6020B | AM |
| Iron, Total | 23900 | | mg/kg | 259 | 26.7 | 10 | 07/29/20 19:25 | 07/30/20 11:12 | EPA 3050B | 1,6020B | AM |
| Lead, Total | 204 | | mg/kg | 0.778 | 0.189 | 10 | 07/29/20 19:25 | 07/30/20 11:12 | EPA 3050B | 1,6020B | AM |
| Magnesium, Total | 6390 | | mg/kg | 130 | 16.0 | 10 | 07/29/20 19:25 | 07/30/20 11:12 | EPA 3050B | 1,6020B | AM |
| Manganese, Total | 248 | | mg/kg | 2.59 | 0.576 | 10 | 07/29/20 19:25 | 07/30/20 11:12 | EPA 3050B | 1,6020B | AM |
| Mercury, Total | 0.864 | | mg/kg | 0.015 | 0.002 | 5 | 07/24/20 17:30 | 07/31/20 17:07 | EPA 7474 | 1,7474 | TM |
| Nickel, Total | 21.8 | | mg/kg | 1.30 | 0.346 | 10 | 07/29/20 19:25 | 07/30/20 11:12 | EPA 3050B | 1,6020B | AM |
| Potassium, Total | 3520 | | mg/kg | 130 | 20.6 | 10 | 07/29/20 19:25 | 07/30/20 11:12 | EPA 3050B | 1,6020B | AM |
| Selenium, Total | 3.70 | | mg/kg | 2.59 | 0.980 | 10 | 07/29/20 19:25 | 07/30/20 11:12 | EPA 3050B | 1,6020B | AM |
| Silver, Total | 2.40 | | mg/kg | 0.648 | 0.063 | 10 | 07/29/20 19:25 | 07/30/20 11:12 | EPA 3050B | 1,6020B | AM |
| Sodium, Total | 10200 | | mg/kg | 194 | 15.2 | 10 | 07/29/20 19:25 | 07/30/20 11:12 | EPA 3050B | 1,6020B | AM |
| Thallium, Total | 0.290 | J | mg/kg | 0.519 | 0.067 | 10 | 07/29/20 19:25 | 07/30/20 11:12 | EPA 3050B | 1,6020B | AM |
| Vanadium, Total | 56.4 | | mg/kg | 1.30 | 0.492 | 10 | 07/29/20 19:25 | 07/30/20 11:12 | EPA 3050B | 1,6020B | AM |
| Zinc, Total | 262 | | mg/kg | 13.0 | 3.37 | 10 | 07/29/20 19:25 | 07/30/20 11:12 | EPA 3050B | 1,6020B | AM |



Project Name: JF MORAN TERMINAL

Lab Number: L2029589

Project Number: DA-JFM-200713

Report Date: 08/13/20

SAMPLE RESULTS

Lab ID: L2029589-03

Date Collected: 07/13/20 12:45

Client ID: JFM 8-10

Date Received: 07/14/20

Sample Location: CHARLESTOWN, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Sediment

Percent Solids: 47%

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Prep Method | Analytical Method | Analyst |
|-------------------------------------|--------|-----------|-------|-------|-------|-----------------|----------------|----------------|-------------|-------------------|---------|
| Total Metals - Mansfield Lab | | | | | | | | | | | |
| Aluminum, Total | 11000 | | mg/kg | 143 | 21.2 | 10 | 07/29/20 19:25 | 07/30/20 11:17 | EPA 3050B | 1,6020B | AM |
| Antimony, Total | 0.700 | J | mg/kg | 2.29 | 0.194 | 10 | 07/29/20 19:25 | 07/30/20 11:17 | EPA 3050B | 1,6020B | AM |
| Arsenic, Total | 14.0 | | mg/kg | 0.717 | 0.095 | 10 | 07/29/20 19:25 | 07/30/20 11:17 | EPA 3050B | 1,6020B | AM |
| Barium, Total | 59.0 | | mg/kg | 4.30 | 0.303 | 10 | 07/29/20 19:25 | 07/30/20 11:17 | EPA 3050B | 1,6020B | AM |
| Beryllium, Total | 0.565 | | mg/kg | 0.430 | 0.125 | 10 | 07/29/20 19:25 | 07/30/20 11:17 | EPA 3050B | 1,6020B | AM |
| Cadmium, Total | 1.54 | | mg/kg | 0.287 | 0.038 | 10 | 07/29/20 19:25 | 07/30/20 11:17 | EPA 3050B | 1,6020B | AM |
| Calcium, Total | 5810 | | mg/kg | 717 | 87.2 | 10 | 07/29/20 19:25 | 07/30/20 11:17 | EPA 3050B | 1,6020B | AM |
| Chromium, Total | 91.9 | | mg/kg | 2.87 | 0.671 | 10 | 07/29/20 19:25 | 07/30/20 11:17 | EPA 3050B | 1,6020B | AM |
| Cobalt, Total | 7.57 | | mg/kg | 0.717 | 0.076 | 10 | 07/29/20 19:25 | 07/30/20 11:17 | EPA 3050B | 1,6020B | AM |
| Copper, Total | 83.2 | | mg/kg | 2.87 | 0.278 | 10 | 07/29/20 19:25 | 07/30/20 11:17 | EPA 3050B | 1,6020B | AM |
| Iron, Total | 24500 | | mg/kg | 287 | 29.5 | 10 | 07/29/20 19:25 | 07/30/20 11:17 | EPA 3050B | 1,6020B | AM |
| Lead, Total | 106 | | mg/kg | 0.860 | 0.209 | 10 | 07/29/20 19:25 | 07/30/20 11:17 | EPA 3050B | 1,6020B | AM |
| Magnesium, Total | 6980 | | mg/kg | 143 | 17.7 | 10 | 07/29/20 19:25 | 07/30/20 11:17 | EPA 3050B | 1,6020B | AM |
| Manganese, Total | 269 | | mg/kg | 2.87 | 0.636 | 10 | 07/29/20 19:25 | 07/30/20 11:17 | EPA 3050B | 1,6020B | AM |
| Mercury, Total | 0.696 | | mg/kg | 0.020 | 0.003 | 5 | 07/24/20 17:30 | 07/31/20 17:10 | EPA 7474 | 1,7474 | TM |
| Nickel, Total | 20.4 | | mg/kg | 1.43 | 0.383 | 10 | 07/29/20 19:25 | 07/30/20 11:17 | EPA 3050B | 1,6020B | AM |
| Potassium, Total | 3980 | | mg/kg | 143 | 22.8 | 10 | 07/29/20 19:25 | 07/30/20 11:17 | EPA 3050B | 1,6020B | AM |
| Selenium, Total | 3.72 | | mg/kg | 2.87 | 1.08 | 10 | 07/29/20 19:25 | 07/30/20 11:17 | EPA 3050B | 1,6020B | AM |
| Silver, Total | 1.73 | | mg/kg | 0.717 | 0.070 | 10 | 07/29/20 19:25 | 07/30/20 11:17 | EPA 3050B | 1,6020B | AM |
| Sodium, Total | 9560 | | mg/kg | 215 | 16.8 | 10 | 07/29/20 19:25 | 07/30/20 11:17 | EPA 3050B | 1,6020B | AM |
| Thallium, Total | 0.286 | J | mg/kg | 0.573 | 0.074 | 10 | 07/29/20 19:25 | 07/30/20 11:17 | EPA 3050B | 1,6020B | AM |
| Vanadium, Total | 46.4 | | mg/kg | 1.43 | 0.544 | 10 | 07/29/20 19:25 | 07/30/20 11:17 | EPA 3050B | 1,6020B | AM |
| Zinc, Total | 180 | | mg/kg | 14.3 | 3.73 | 10 | 07/29/20 19:25 | 07/30/20 11:17 | EPA 3050B | 1,6020B | AM |



Project Name: JF MORAN TERMINAL

Lab Number: L2029589

Project Number: DA-JFM-200713

Report Date: 08/13/20

SAMPLE RESULTS

Lab ID: L2029589-04

Date Collected: 07/13/20 13:32

Client ID: JFM 7

Date Received: 07/14/20

Sample Location: CHARLESTOWN, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Sediment

Percent Solids: 47%

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Prep Method | Analytical Method | Analyst |
|-------------------------------------|--------|-----------|-------|-------|-------|-----------------|----------------|----------------|-------------|-------------------|---------|
| Total Metals - Mansfield Lab | | | | | | | | | | | |
| Aluminum, Total | 14900 | | mg/kg | 137 | 20.3 | 10 | 07/29/20 19:25 | 07/30/20 11:22 | EPA 3050B | 1,6020B | AM |
| Antimony, Total | 0.664 | J | mg/kg | 2.20 | 0.186 | 10 | 07/29/20 19:25 | 07/30/20 11:22 | EPA 3050B | 1,6020B | AM |
| Arsenic, Total | 14.2 | | mg/kg | 0.687 | 0.091 | 10 | 07/29/20 19:25 | 07/30/20 11:22 | EPA 3050B | 1,6020B | AM |
| Barium, Total | 82.6 | | mg/kg | 4.12 | 0.290 | 10 | 07/29/20 19:25 | 07/30/20 11:22 | EPA 3050B | 1,6020B | AM |
| Beryllium, Total | 0.718 | | mg/kg | 0.412 | 0.120 | 10 | 07/29/20 19:25 | 07/30/20 11:22 | EPA 3050B | 1,6020B | AM |
| Cadmium, Total | 2.25 | | mg/kg | 0.275 | 0.036 | 10 | 07/29/20 19:25 | 07/30/20 11:22 | EPA 3050B | 1,6020B | AM |
| Calcium, Total | 5960 | | mg/kg | 687 | 83.6 | 10 | 07/29/20 19:25 | 07/30/20 11:22 | EPA 3050B | 1,6020B | AM |
| Chromium, Total | 165 | | mg/kg | 2.75 | 0.643 | 10 | 07/29/20 19:25 | 07/30/20 11:22 | EPA 3050B | 1,6020B | AM |
| Cobalt, Total | 9.96 | | mg/kg | 0.687 | 0.073 | 10 | 07/29/20 19:25 | 07/30/20 11:22 | EPA 3050B | 1,6020B | AM |
| Copper, Total | 121 | | mg/kg | 2.75 | 0.267 | 10 | 07/29/20 19:25 | 07/30/20 11:22 | EPA 3050B | 1,6020B | AM |
| Iron, Total | 30500 | | mg/kg | 275 | 28.3 | 10 | 07/29/20 19:25 | 07/30/20 11:22 | EPA 3050B | 1,6020B | AM |
| Lead, Total | 119 | | mg/kg | 0.824 | 0.201 | 10 | 07/29/20 19:25 | 07/30/20 11:22 | EPA 3050B | 1,6020B | AM |
| Magnesium, Total | 8840 | | mg/kg | 137 | 16.9 | 10 | 07/29/20 19:25 | 07/30/20 11:22 | EPA 3050B | 1,6020B | AM |
| Manganese, Total | 334 | | mg/kg | 2.75 | 0.610 | 10 | 07/29/20 19:25 | 07/30/20 11:22 | EPA 3050B | 1,6020B | AM |
| Mercury, Total | 0.863 | | mg/kg | 0.019 | 0.002 | 5 | 07/24/20 17:30 | 07/31/20 17:12 | EPA 7474 | 1,7474 | TM |
| Nickel, Total | 29.2 | | mg/kg | 1.37 | 0.367 | 10 | 07/29/20 19:25 | 07/30/20 11:22 | EPA 3050B | 1,6020B | AM |
| Potassium, Total | 5340 | | mg/kg | 137 | 21.8 | 10 | 07/29/20 19:25 | 07/30/20 11:22 | EPA 3050B | 1,6020B | AM |
| Selenium, Total | 5.21 | | mg/kg | 2.75 | 1.04 | 10 | 07/29/20 19:25 | 07/30/20 11:22 | EPA 3050B | 1,6020B | AM |
| Silver, Total | 4.48 | | mg/kg | 0.687 | 0.067 | 10 | 07/29/20 19:25 | 07/30/20 11:22 | EPA 3050B | 1,6020B | AM |
| Sodium, Total | 17200 | | mg/kg | 206 | 16.1 | 10 | 07/29/20 19:25 | 07/30/20 11:22 | EPA 3050B | 1,6020B | AM |
| Thallium, Total | 0.394 | J | mg/kg | 0.550 | 0.071 | 10 | 07/29/20 19:25 | 07/30/20 11:22 | EPA 3050B | 1,6020B | AM |
| Vanadium, Total | 68.0 | | mg/kg | 1.37 | 0.521 | 10 | 07/29/20 19:25 | 07/30/20 11:22 | EPA 3050B | 1,6020B | AM |
| Zinc, Total | 215 | | mg/kg | 13.7 | 3.57 | 10 | 07/29/20 19:25 | 07/30/20 11:22 | EPA 3050B | 1,6020B | AM |



Project Name: JF MORAN TERMINAL

Lab Number: L2029589

Project Number: DA-JFM-200713

Report Date: 08/13/20

SAMPLE RESULTS

Lab ID: L2029589-05

Date Collected: 07/13/20 14:25

Client ID: JFM 11

Date Received: 07/14/20

Sample Location: CHARLESTOWN, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Sediment

Percent Solids: 44%

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Prep Method | Analytical Method | Analyst |
|-------------------------------------|--------|-----------|-------|-------|-------|-----------------|----------------|----------------|-------------|-------------------|---------|
| Total Metals - Mansfield Lab | | | | | | | | | | | |
| Aluminum, Total | 16400 | | mg/kg | 208 | 30.7 | 10 | 07/29/20 19:25 | 07/30/20 12:16 | EPA 3050B | 1,6020B | AM |
| Antimony, Total | 1.69 | J | mg/kg | 3.32 | 0.281 | 10 | 07/29/20 19:25 | 07/30/20 12:16 | EPA 3050B | 1,6020B | AM |
| Arsenic, Total | 21.5 | | mg/kg | 1.04 | 0.137 | 10 | 07/29/20 19:25 | 07/30/20 12:16 | EPA 3050B | 1,6020B | AM |
| Barium, Total | 96.6 | | mg/kg | 6.23 | 0.438 | 10 | 07/29/20 19:25 | 07/30/20 12:16 | EPA 3050B | 1,6020B | AM |
| Beryllium, Total | 0.759 | | mg/kg | 0.623 | 0.181 | 10 | 07/29/20 19:25 | 07/30/20 12:16 | EPA 3050B | 1,6020B | AM |
| Cadmium, Total | 1.93 | | mg/kg | 0.415 | 0.055 | 10 | 07/29/20 19:25 | 07/30/20 12:16 | EPA 3050B | 1,6020B | AM |
| Calcium, Total | 6110 | | mg/kg | 1040 | 126. | 10 | 07/29/20 19:25 | 07/30/20 12:16 | EPA 3050B | 1,6020B | AM |
| Chromium, Total | 164 | | mg/kg | 4.15 | 0.971 | 10 | 07/29/20 19:25 | 07/30/20 12:16 | EPA 3050B | 1,6020B | AM |
| Cobalt, Total | 11.5 | | mg/kg | 1.04 | 0.110 | 10 | 07/29/20 19:25 | 07/30/20 12:16 | EPA 3050B | 1,6020B | AM |
| Copper, Total | 145 | | mg/kg | 4.15 | 0.403 | 10 | 07/29/20 19:25 | 07/30/20 12:16 | EPA 3050B | 1,6020B | AM |
| Iron, Total | 39200 | | mg/kg | 415 | 42.8 | 10 | 07/29/20 19:25 | 07/30/20 12:16 | EPA 3050B | 1,6020B | AM |
| Lead, Total | 234 | | mg/kg | 1.24 | 0.303 | 10 | 07/29/20 19:25 | 07/30/20 12:16 | EPA 3050B | 1,6020B | AM |
| Magnesium, Total | 10300 | | mg/kg | 208 | 25.6 | 10 | 07/29/20 19:25 | 07/30/20 12:16 | EPA 3050B | 1,6020B | AM |
| Manganese, Total | 400 | | mg/kg | 4.15 | 0.922 | 10 | 07/29/20 19:25 | 07/30/20 12:16 | EPA 3050B | 1,6020B | AM |
| Mercury, Total | 0.695 | | mg/kg | 0.019 | 0.002 | 5 | 07/24/20 17:30 | 07/31/20 17:15 | EPA 7474 | 1,7474 | TM |
| Nickel, Total | 33.8 | | mg/kg | 2.08 | 0.554 | 10 | 07/29/20 19:25 | 07/30/20 12:16 | EPA 3050B | 1,6020B | AM |
| Potassium, Total | 5900 | | mg/kg | 208 | 33.0 | 10 | 07/29/20 19:25 | 07/30/20 12:16 | EPA 3050B | 1,6020B | AM |
| Selenium, Total | 5.69 | | mg/kg | 4.15 | 1.57 | 10 | 07/29/20 19:25 | 07/30/20 12:16 | EPA 3050B | 1,6020B | AM |
| Silver, Total | 2.81 | | mg/kg | 1.04 | 0.101 | 10 | 07/29/20 19:25 | 07/30/20 12:16 | EPA 3050B | 1,6020B | AM |
| Sodium, Total | 19500 | | mg/kg | 311 | 24.3 | 10 | 07/29/20 19:25 | 07/30/20 12:16 | EPA 3050B | 1,6020B | AM |
| Thallium, Total | 0.486 | J | mg/kg | 0.830 | 0.107 | 10 | 07/29/20 19:25 | 07/30/20 12:16 | EPA 3050B | 1,6020B | AM |
| Vanadium, Total | 78.4 | | mg/kg | 2.08 | 0.787 | 10 | 07/29/20 19:25 | 07/30/20 12:16 | EPA 3050B | 1,6020B | AM |
| Zinc, Total | 334 | | mg/kg | 20.8 | 5.40 | 10 | 07/29/20 19:25 | 07/30/20 12:16 | EPA 3050B | 1,6020B | AM |



Project Name: JF MORAN TERMINAL

Lab Number: L2029589

Project Number: DA-JFM-200713

Report Date: 08/13/20

SAMPLE RESULTS

Lab ID: L2029589-06

Date Collected: 07/13/20 13:50

Client ID: JFM 12

Date Received: 07/14/20

Sample Location: CHARLESTOWN, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Sediment

Percent Solids: 44%

| Parameter | Result | Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Prep Method | Analytical Method | Analyst |
|-------------------------------------|--------|-----------|-------|-------|-------|-----------------|----------------|----------------|-------------|-------------------|---------|
| Total Metals - Mansfield Lab | | | | | | | | | | | |
| Aluminum, Total | 16900 | | mg/kg | 169 | 25.0 | 10 | 07/29/20 19:25 | 07/30/20 12:21 | EPA 3050B | 1,6020B | AM |
| Antimony, Total | 0.932 | J | mg/kg | 2.71 | 0.229 | 10 | 07/29/20 19:25 | 07/30/20 12:21 | EPA 3050B | 1,6020B | AM |
| Arsenic, Total | 18.7 | | mg/kg | 0.846 | 0.112 | 10 | 07/29/20 19:25 | 07/30/20 12:21 | EPA 3050B | 1,6020B | AM |
| Barium, Total | 83.9 | | mg/kg | 5.07 | 0.357 | 10 | 07/29/20 19:25 | 07/30/20 12:21 | EPA 3050B | 1,6020B | AM |
| Beryllium, Total | 0.759 | | mg/kg | 0.507 | 0.148 | 10 | 07/29/20 19:25 | 07/30/20 12:21 | EPA 3050B | 1,6020B | AM |
| Cadmium, Total | 2.09 | | mg/kg | 0.338 | 0.045 | 10 | 07/29/20 19:25 | 07/30/20 12:21 | EPA 3050B | 1,6020B | AM |
| Calcium, Total | 6810 | | mg/kg | 846 | 103. | 10 | 07/29/20 19:25 | 07/30/20 12:21 | EPA 3050B | 1,6020B | AM |
| Chromium, Total | 154 | | mg/kg | 3.38 | 0.792 | 10 | 07/29/20 19:25 | 07/30/20 12:21 | EPA 3050B | 1,6020B | AM |
| Cobalt, Total | 11.4 | | mg/kg | 0.846 | 0.090 | 10 | 07/29/20 19:25 | 07/30/20 12:21 | EPA 3050B | 1,6020B | AM |
| Copper, Total | 137 | | mg/kg | 3.38 | 0.328 | 10 | 07/29/20 19:25 | 07/30/20 12:21 | EPA 3050B | 1,6020B | AM |
| Iron, Total | 36000 | | mg/kg | 338 | 34.8 | 10 | 07/29/20 19:25 | 07/30/20 12:21 | EPA 3050B | 1,6020B | AM |
| Lead, Total | 150 | | mg/kg | 1.01 | 0.247 | 10 | 07/29/20 19:25 | 07/30/20 12:21 | EPA 3050B | 1,6020B | AM |
| Magnesium, Total | 10500 | | mg/kg | 169 | 20.8 | 10 | 07/29/20 19:25 | 07/30/20 12:21 | EPA 3050B | 1,6020B | AM |
| Manganese, Total | 395 | | mg/kg | 3.38 | 0.751 | 10 | 07/29/20 19:25 | 07/30/20 12:21 | EPA 3050B | 1,6020B | AM |
| Mercury, Total | 0.712 | | mg/kg | 0.020 | 0.003 | 5 | 07/24/20 17:30 | 07/31/20 17:17 | EPA 7474 | 1,7474 | TM |
| Nickel, Total | 32.8 | | mg/kg | 1.69 | 0.452 | 10 | 07/29/20 19:25 | 07/30/20 12:21 | EPA 3050B | 1,6020B | AM |
| Potassium, Total | 6150 | | mg/kg | 169 | 26.9 | 10 | 07/29/20 19:25 | 07/30/20 12:21 | EPA 3050B | 1,6020B | AM |
| Selenium, Total | 5.38 | | mg/kg | 3.38 | 1.28 | 10 | 07/29/20 19:25 | 07/30/20 12:21 | EPA 3050B | 1,6020B | AM |
| Silver, Total | 3.61 | | mg/kg | 0.846 | 0.083 | 10 | 07/29/20 19:25 | 07/30/20 12:21 | EPA 3050B | 1,6020B | AM |
| Sodium, Total | 14800 | | mg/kg | 254 | 19.8 | 10 | 07/29/20 19:25 | 07/30/20 12:21 | EPA 3050B | 1,6020B | AM |
| Thallium, Total | 0.481 | J | mg/kg | 0.677 | 0.087 | 10 | 07/29/20 19:25 | 07/30/20 12:21 | EPA 3050B | 1,6020B | AM |
| Vanadium, Total | 77.5 | | mg/kg | 1.69 | 0.641 | 10 | 07/29/20 19:25 | 07/30/20 12:21 | EPA 3050B | 1,6020B | AM |
| Zinc, Total | 255 | | mg/kg | 16.9 | 4.40 | 10 | 07/29/20 19:25 | 07/30/20 12:21 | EPA 3050B | 1,6020B | AM |



Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

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): 01-06 Batch: WG1394793-1 | | | | | | | | | | |
| Aluminum, Total | ND | | mg/kg | 100 | 14.8 | 10 | 07/29/20 19:25 | 07/30/20 09:32 | 1,6020B | AM |
| Antimony, Total | ND | | mg/kg | 1.60 | 0.135 | 10 | 07/29/20 19:25 | 07/30/20 09:32 | 1,6020B | AM |
| Arsenic, Total | ND | | mg/kg | 0.500 | 0.066 | 10 | 07/29/20 19:25 | 07/30/20 09:32 | 1,6020B | AM |
| Barium, Total | ND | | mg/kg | 3.00 | 0.211 | 10 | 07/29/20 19:25 | 07/30/20 09:32 | 1,6020B | AM |
| Beryllium, Total | ND | | mg/kg | 0.300 | 0.087 | 10 | 07/29/20 19:25 | 07/30/20 09:32 | 1,6020B | AM |
| Cadmium, Total | ND | | mg/kg | 0.200 | 0.026 | 10 | 07/29/20 19:25 | 07/30/20 09:32 | 1,6020B | AM |
| Calcium, Total | ND | | mg/kg | 500 | 60.8 | 10 | 07/29/20 19:25 | 07/30/20 09:32 | 1,6020B | AM |
| Chromium, Total | ND | | mg/kg | 2.00 | 0.468 | 10 | 07/29/20 19:25 | 07/30/20 09:32 | 1,6020B | AM |
| Cobalt, Total | ND | | mg/kg | 0.500 | 0.053 | 10 | 07/29/20 19:25 | 07/30/20 09:32 | 1,6020B | AM |
| Copper, Total | ND | | mg/kg | 2.00 | 0.194 | 10 | 07/29/20 19:25 | 07/30/20 09:32 | 1,6020B | AM |
| Iron, Total | ND | | mg/kg | 200 | 20.6 | 10 | 07/29/20 19:25 | 07/30/20 09:32 | 1,6020B | AM |
| Lead, Total | ND | | mg/kg | 0.600 | 0.146 | 10 | 07/29/20 19:25 | 07/30/20 09:32 | 1,6020B | AM |
| Magnesium, Total | ND | | mg/kg | 100 | 12.3 | 10 | 07/29/20 19:25 | 07/30/20 09:32 | 1,6020B | AM |
| Manganese, Total | ND | | mg/kg | 2.00 | 0.444 | 10 | 07/29/20 19:25 | 07/30/20 09:32 | 1,6020B | AM |
| Nickel, Total | ND | | mg/kg | 1.00 | 0.267 | 10 | 07/29/20 19:25 | 07/30/20 09:32 | 1,6020B | AM |
| Potassium, Total | ND | | mg/kg | 100 | 15.9 | 10 | 07/29/20 19:25 | 07/30/20 09:32 | 1,6020B | AM |
| Selenium, Total | ND | | mg/kg | 2.00 | 0.756 | 10 | 07/29/20 19:25 | 07/30/20 09:32 | 1,6020B | AM |
| Silver, Total | ND | | mg/kg | 0.500 | 0.049 | 10 | 07/29/20 19:25 | 07/30/20 09:32 | 1,6020B | AM |
| Sodium, Total | ND | | mg/kg | 150 | 11.7 | 10 | 07/29/20 19:25 | 07/30/20 09:32 | 1,6020B | AM |
| Thallium, Total | 0.070 | J | mg/kg | 0.400 | 0.052 | 10 | 07/29/20 19:25 | 07/30/20 09:32 | 1,6020B | AM |
| Vanadium, Total | ND | | mg/kg | 1.00 | 0.379 | 10 | 07/29/20 19:25 | 07/30/20 09:32 | 1,6020B | AM |
| Zinc, Total | ND | | mg/kg | 10.0 | 2.60 | 10 | 07/29/20 19:25 | 07/30/20 09:32 | 1,6020B | AM |

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): 01-06 Batch: WG1395443-1 | | | | | | | | | | |
| Mercury, Total | ND | | mg/kg | 0.013 | 0.002 | 5 | 07/24/20 17:30 | 07/31/20 15:27 | 1,7474 | TM |



Project Name: JF MORAN TERMINAL

Lab Number: L2029589

Project Number: DA-JFM-200713

Report Date: 08/13/20

Method Blank Analysis Batch Quality Control

Prep Information

Digestion Method: EPA 7474

Lab Control Sample Analysis

Batch Quality Control

Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

| Parameter | LCS | | LCSD | | %Recovery | | RPD | Qual | RPD Limits |
|--|-----------|------|-----------|------|-----------|------|-----|------|------------|
| | %Recovery | Qual | %Recovery | Qual | Limits | Qual | | | |
| Total Metals - Mansfield Lab Associated sample(s): 01-06 Batch: WG1394793-2 SRM Lot Number: D109-540 | | | | | | | | | |
| Aluminum, Total | 71 | - | - | - | 50-150 | - | - | 20 | |
| Antimony, Total | 160 | - | - | - | 19-250 | - | - | 20 | |
| Arsenic, Total | 104 | - | - | - | 70-130 | - | - | 20 | |
| Barium, Total | 100 | - | - | - | 75-125 | - | - | 20 | |
| Beryllium, Total | 104 | - | - | - | 75-125 | - | - | 20 | |
| Cadmium, Total | 98 | - | - | - | 75-125 | - | - | 20 | |
| Calcium, Total | 100 | - | - | - | 73-128 | - | - | 20 | |
| Chromium, Total | 100 | - | - | - | 70-130 | - | - | 20 | |
| Cobalt, Total | 106 | - | - | - | 75-125 | - | - | 20 | |
| Copper, Total | 102 | - | - | - | 75-125 | - | - | 20 | |
| Iron, Total | 114 | - | - | - | 35-165 | - | - | 20 | |
| Lead, Total | 98 | - | - | - | 72-128 | - | - | 20 | |
| Magnesium, Total | 96 | - | - | - | 62-138 | - | - | 20 | |
| Manganese, Total | 104 | - | - | - | 74-126 | - | - | 20 | |
| Nickel, Total | 103 | - | - | - | 70-130 | - | - | 20 | |
| Potassium, Total | 90 | - | - | - | 59-141 | - | - | 20 | |
| Selenium, Total | 104 | - | - | - | 68-132 | - | - | 20 | |
| Silver, Total | 102 | - | - | - | 68-131 | - | - | 20 | |
| Sodium, Total | 98 | - | - | - | 35-165 | - | - | 20 | |
| Thallium, Total | 111 | - | - | - | 68-131 | - | - | 20 | |
| Vanadium, Total | 103 | - | - | - | 59-141 | - | - | 20 | |



Lab Control Sample Analysis

Batch Quality Control

Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

| Parameter | LCS %Recovery | LCS %Recovery | %Recovery Limits | RPD | RPD Limits |
|---|------------------|------------------|---------------------|-----|------------|
| Total Metals - Mansfield Lab Associated sample(s): 01-06 Batch: WG1394793-2 SRM Lot Number: D109-540 | | | | | |
| Zinc, Total | 102 | - | 70-130 | - | 20 |
| Total Metals - Mansfield Lab Associated sample(s): 01-06 Batch: WG1395443-2 SRM Lot Number: D109-540 | | | | | |
| Mercury, Total | 131 | - | 60-140 | - | 20 |



INORGANICS & MISCELLANEOUS

Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

SAMPLE RESULTS

Lab ID: L2029589-01
Client ID: JFM 1-3
Sample Location: CHARLESTOWN, MA

Date Collected: 07/13/20 09:35
Date Received: 07/14/20
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) | 2.18 | | % | 0.010 | 0.010 | 1 | - | 07/27/20 09:01 | 1,9060A | SP |
| Total Organic Carbon (Rep2) | 2.83 | | % | 0.010 | 0.010 | 1 | - | 07/27/20 09:01 | 1,9060A | SP |
| Total Organic Carbon (Average) | 2.50 | | % | 0.010 | 0.010 | 1 | - | 07/27/20 09:01 | 1,9060A | SP |
| Grain Size Analysis - Mansfield Lab | | | | | | | | | | |
| Cobbles | ND | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Coarse Gravel | 8.20 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Fine Gravel | 4.20 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Total Gravel | 12.4 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Coarse Sand | 16.9 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Medium Sand | 22.3 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Fine Sand | 17.5 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Total Sand | 56.7 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Total Fines | 30.9 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| General Chemistry - Mansfield Lab | | | | | | | | | | |
| Solids, Total | 47.6 | | % | 0.100 | 0.100 | 1 | - | 07/16/20 08:39 | 121,2540G | KM |



Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

SAMPLE RESULTS

Lab ID: L2029589-02
Client ID: JFM 4-6
Sample Location: CHARLESTOWN, MA

Date Collected: 07/13/20 11:12
Date Received: 07/14/20
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) | 3.93 | | % | 0.010 | 0.010 | 1 | - | 07/27/20 09:01 | 1,9060A | SP |
| Total Organic Carbon (Rep2) | 4.15 | | % | 0.010 | 0.010 | 1 | - | 07/27/20 09:01 | 1,9060A | SP |
| Total Organic Carbon (Average) | 4.04 | | % | 0.010 | 0.010 | 1 | - | 07/27/20 09:01 | 1,9060A | SP |
| Grain Size Analysis - Mansfield Lab | | | | | | | | | | |
| Cobbles | ND | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Coarse Gravel | ND | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Fine Gravel | 0.200 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Total Gravel | 0.200 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Coarse Sand | 8.90 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Medium Sand | 15.5 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Fine Sand | 18.8 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Total Sand | 43.2 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Total Fines | 56.6 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| General Chemistry - Mansfield Lab | | | | | | | | | | |
| Solids, Total | 49.8 | | % | 0.100 | 0.100 | 1 | - | 07/16/20 08:39 | 121,2540G | KM |



Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

SAMPLE RESULTS

Lab ID: L2029589-03
Client ID: JFM 8-10
Sample Location: CHARLESTOWN, MA

Date Collected: 07/13/20 12:45
Date Received: 07/14/20
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) | 8.73 | | % | 0.010 | 0.010 | 1 | - | 07/27/20 09:01 | 1,9060A | SP |
| Total Organic Carbon (Rep2) | 4.27 | | % | 0.010 | 0.010 | 1 | - | 07/27/20 09:01 | 1,9060A | SP |
| Total Organic Carbon (Average) | 6.50 | | % | 0.010 | 0.010 | 1 | - | 07/27/20 09:01 | 1,9060A | SP |
| Grain Size Analysis - Mansfield Lab | | | | | | | | | | |
| Cobbles | ND | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Coarse Gravel | ND | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Fine Gravel | 1.10 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Total Gravel | 1.10 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Coarse Sand | 14.2 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Medium Sand | 17.9 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Fine Sand | 20.4 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Total Sand | 52.5 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Total Fines | 46.4 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| General Chemistry - Mansfield Lab | | | | | | | | | | |
| Solids, Total | 46.6 | | % | 0.100 | 0.100 | 1 | - | 07/16/20 08:39 | 121,2540G | KM |



Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

SAMPLE RESULTS

Lab ID: L2029589-04
Client ID: JFM 7
Sample Location: CHARLESTOWN, MA

Date Collected: 07/13/20 13:32
Date Received: 07/14/20
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) | 3.23 | | % | 0.010 | 0.010 | 1 | - | 07/27/20 09:01 | 1,9060A | SP |
| Total Organic Carbon (Rep2) | 3.51 | | % | 0.010 | 0.010 | 1 | - | 07/27/20 09:01 | 1,9060A | SP |
| Total Organic Carbon (Average) | 3.37 | | % | 0.010 | 0.010 | 1 | - | 07/27/20 09:01 | 1,9060A | SP |
| Grain Size Analysis - Mansfield Lab | | | | | | | | | | |
| Cobbles | ND | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Coarse Gravel | ND | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Fine Gravel | 1.40 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Total Gravel | 1.40 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Coarse Sand | 9.90 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Medium Sand | 19.2 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Fine Sand | 15.4 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Total Sand | 44.5 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Total Fines | 54.1 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| General Chemistry - Mansfield Lab | | | | | | | | | | |
| Solids, Total | 46.5 | | % | 0.100 | 0.100 | 1 | - | 07/16/20 08:39 | 121,2540G | KM |



Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

SAMPLE RESULTS

Lab ID: L2029589-05
Client ID: JFM 11
Sample Location: CHARLESTOWN, MA

Date Collected: 07/13/20 14:25
Date Received: 07/14/20
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) | 2.71 | | % | 0.010 | 0.010 | 1 | - | 07/27/20 09:01 | 1,9060A | SP |
| Total Organic Carbon (Rep2) | 2.63 | | % | 0.010 | 0.010 | 1 | - | 07/27/20 09:01 | 1,9060A | SP |
| Total Organic Carbon (Average) | 2.67 | | % | 0.010 | 0.010 | 1 | - | 07/27/20 09:01 | 1,9060A | SP |
| Grain Size Analysis - Mansfield Lab | | | | | | | | | | |
| Cobbles | ND | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Coarse Gravel | ND | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Fine Gravel | 1.40 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Total Gravel | 1.40 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Coarse Sand | 11.3 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Medium Sand | 18.1 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Fine Sand | 24.7 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Total Sand | 54.1 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Total Fines | 44.5 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| General Chemistry - Mansfield Lab | | | | | | | | | | |
| Solids, Total | 43.8 | | % | 0.100 | 0.100 | 1 | - | 07/16/20 08:39 | 121,2540G | KM |



Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

SAMPLE RESULTS

Lab ID: L2029589-06
Client ID: JFM 12
Sample Location: CHARLESTOWN, MA

Date Collected: 07/13/20 13:50
Date Received: 07/14/20
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) | 3.19 | | % | 0.010 | 0.010 | 1 | - | 07/27/20 09:01 | 1,9060A | SP |
| Total Organic Carbon (Rep2) | 2.58 | | % | 0.010 | 0.010 | 1 | - | 07/27/20 09:01 | 1,9060A | SP |
| Total Organic Carbon (Average) | 2.89 | | % | 0.010 | 0.010 | 1 | - | 07/27/20 09:01 | 1,9060A | SP |
| Grain Size Analysis - Mansfield Lab | | | | | | | | | | |
| Cobbles | ND | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Coarse Gravel | ND | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Fine Gravel | 0.700 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Total Gravel | 0.700 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Coarse Sand | 11.7 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Medium Sand | 17.5 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Fine Sand | 21.5 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Total Sand | 50.7 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| % Total Fines | 48.6 | | % | 0.100 | NA | 1 | - | 08/03/20 11:35 | 12,D6913/D7928 | GD |
| General Chemistry - Mansfield Lab | | | | | | | | | | |
| Solids, Total | 44.3 | | % | 0.100 | 0.100 | 1 | - | 07/16/20 08:39 | 121,2540G | KM |



Project Name: JF MORAN TERMINAL

Lab Number: L2029589

Project Number: DA-JFM-200713

Report Date: 08/13/20

Method Blank Analysis
Batch Quality Control

| Parameter | Result Qualifier | Units | RL | MDL | Dilution Factor | Date Prepared | Date Analyzed | Analytical Method | Analyst |
|--|------------------|-------|-------|-------|-----------------|---------------|----------------|-------------------|---------|
| Total Organic Carbon - Mansfield Lab for sample(s): 01-06 Batch: WG1393258-1 | | | | | | | | | |
| Total Organic Carbon (Rep1) | ND | % | 0.010 | 0.010 | 1 | - | 07/27/20 09:01 | 1,9060A | SP |
| Total Organic Carbon (Rep2) | ND | % | 0.010 | 0.010 | 1 | - | 07/27/20 09:01 | 1,9060A | SP |
| Total Organic Carbon (Average) | ND | % | 0.010 | 0.010 | 1 | - | 07/27/20 09:01 | 1,9060A | SP |

Lab Control Sample Analysis

Batch Quality Control

Project Name: JF MORAN TERMINAL

Lab Number: L2029589

Project Number: DA-JFM-200713

Report Date: 08/13/20

| Parameter | LCS %Recovery | Qual | LCS %Recovery | Qual | %Recovery Limits | RPD | Qual | RPD Limits |
|--|------------------|------|------------------|------|---------------------|-----|------|------------|
| Total Organic Carbon - Mansfield Lab Associated sample(s): 01-06 Batch: WG1393258-2 | | | | | | | | |
| Total Organic Carbon (Rep1) | 109 | | - | | 75-125 | - | | 25 |
| Total Organic Carbon (Rep2) | 102 | | - | | 75-125 | - | | 25 |
| Total Organic Carbon (Average) | 105 | | - | | 75-125 | - | | 25 |



Lab Duplicate Analysis

Batch Quality Control

Project Name: JF MORAN TERMINAL

Project Number: DA-JFM-200713

Lab Number: L2029589

Report Date: 08/13/20

| Parameter | Native Sample | Duplicate Sample | Units | RPD | Qual | RPD Limits |
|--|---------------|------------------|-------|-----|------|------------|
| General Chemistry - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1392791-1 QC Sample: L2029589-01 Client ID: JFM 1-3 | | | | | | |
| Solids, Total | 47.6 | 47.8 | % | 0 | | 10 |
| Grain Size Analysis - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1394358-1 QC Sample: L2029589-02 Client ID: JFM 4-6 | | | | | | |
| Cobbles | ND | ND | % | NC | | 20 |
| % Coarse Gravel | ND | ND | % | NC | | 20 |
| % Fine Gravel | 0.200 | 0.200 | % | 0 | | 20 |
| % Total Gravel | 0.200 | 0.200 | % | 0 | | 20 |
| % Coarse Sand | 8.90 | 8.10 | % | 9 | | 20 |
| % Medium Sand | 15.5 | 19.1 | % | 21 | Q | 20 |
| % Fine Sand | 18.8 | 22.1 | % | 16 | | 20 |
| % Total Sand | 43.2 | 49.3 | % | 13 | | 20 |
| % Total Fines | 56.6 | 50.5 | % | 11 | | 20 |

Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Serial_No:08132016:52
Lab Number: L2029589
Report Date: 08/13/20

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(*) |
|--------------|--|--------|------------|----------|------------|------|--------|------------------|---|
| L2029589-01A | Vial MeOH preserved | A | NA | | 4.8 | Y | Absent | | - |
| L2029589-01B | Vial water preserved | A | NA | | 4.8 | Y | Absent | 14-JUL-20 22:00 | - |
| L2029589-01C | Vial water preserved | A | NA | | 4.8 | Y | Absent | 14-JUL-20 22:00 | - |
| L2029589-01D | Plastic 2oz unpreserved for TS | A | NA | | 4.8 | Y | Absent | | A2-TS(7) |
| L2029589-01E | Plastic 2oz unpreserved for TS | A | NA | | 4.8 | Y | Absent | | SUB-8260HLW(2),A2-TS(7) |
| L2029589-01F | Glass 60mL/2oz unpreserved | A | NA | | 4.8 | Y | Absent | | A2-FE-6020T(180),A2-PB-6020T(180),A2-BA-6020T(180),A2-ZN-6020T(180),SUB-8260HLW(2),A2-NI-6020T(180),A2-SB-6020T(180),A2-HG-7474T(28),A2-K-6020T(180),A2-CR-6020T(180),A2-TL-6020T(180),A2-MN-6020T(180),A2-AS-6020T(180),A2-CO-6020T(180),A2-CD-6020T(180),A2-BE-6020T(180),A2-V-6020T(180),A2-HGPREP-AF(28),A2-SE-6020T(180),A2-MG-6020T(180),A2-PREP-3050:2T(180),A2-AL-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-CA-6020T(180),A2-NA-6020T(180),A2-PREP-3050:1T(180) |
| L2029589-01G | Glass 120ml/4oz unpreserved | A | NA | | 4.8 | Y | Absent | | SUB-8260HLW(2),A2-TOC-9060-2REPS(28),A2-PAH/PCBCONG(14) |
| L2029589-01H | Plastic 8oz unpreserved for Grain Size | A | NA | | 4.8 | Y | Absent | | A2-HYDRO-TFINE(),A2-HYDRO-FSAND(),A2-HYDRO-CGRAVEL(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBLES(),A2-HYDRO-FGRAVEL() |
| L2029589-01J | Glass 250ml/8oz unpreserved | A | NA | | 4.8 | Y | Absent | | EPH-20(14) |
| L2029589-02A | Vial MeOH preserved | A | NA | | 4.8 | Y | Absent | | - |
| L2029589-02B | Vial water preserved | A | NA | | 4.8 | Y | Absent | 14-JUL-20 22:00 | - |
| L2029589-02C | Vial water preserved | A | NA | | 4.8 | Y | Absent | 14-JUL-20 22:00 | - |
| L2029589-02D | Plastic 2oz unpreserved for TS | A | NA | | 4.8 | Y | Absent | | A2-TS(7) |
| L2029589-02E | Plastic 2oz unpreserved for TS | A | NA | | 4.8 | Y | Absent | | SUB-8260HLW(2),A2-TS(7) |

*Values in parentheses indicate holding time in days



| Container Information | | | Initial pH | Final pH | Temp deg C | Pres | Seal | Frozen Date/Time | Analysis(*) |
|-----------------------|--|--------|------------|----------|------------|------|--------|------------------|---|
| Container ID | Container Type | Cooler | pH | pH | deg C | C | Seal | Date/Time | Analysis(*) |
| L2029589-02F | Glass 60ml/2oz unpreserved | A | NA | 4.8 | 4.8 | Y | Absent | | A2-FE-6020T(180),A2-PB-6020T(180),A2-SB-6020T(180),A2-BA-6020T(180),A2-NI-6020T(180),SUB-8260HLW(2),A2-ZN-6020T(180),A2-HG-7474T(28),A2-K-6020T(180),A2-TL-6020T(180),A2-CR-6020T(180),A2-CO-6020T(180),A2-MN-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-V-6020T(180),A2-HGPREP-AF(28),A2-SE-6020T(180),A2-PREP-3050:2T(180),A2-MG-6020T(180),A2-CU-6020T(180),A2-NA-6020T(180),A2-AL-6020T(180),A2-PREP-3050:1T(180),A2-CA-6020T(180),A2-AG-6020T(180) |
| L2029589-02G | Glass 120ml/4oz unpreserved | A | NA | 4.8 | 4.8 | Y | Absent | | SUB-8260HLW(2),A2-TOC-9060-2REPS(28),A2-PAH/PCBCONG(14) |
| L2029589-02H | Plastic 8oz unpreserved for Grain Size | A | NA | 4.8 | 4.8 | Y | Absent | | A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBLES(),A2-HYDRO-FGRAVEL() |
| L2029589-02J | Glass 250ml/8oz unpreserved | A | NA | 4.8 | 4.8 | Y | Absent | | EPH-20(14) |
| L2029589-03A | Vial MeOH preserved | A | NA | 4.8 | 4.8 | Y | Absent | | - |
| L2029589-03B | Vial water preserved | A | NA | 4.8 | 4.8 | Y | Absent | 14-JUL-20 22:00 | - |
| L2029589-03C | Vial water preserved | A | NA | 4.8 | 4.8 | Y | Absent | 14-JUL-20 22:00 | - |
| L2029589-03D | Plastic 2oz unpreserved for TS | A | NA | 4.8 | 4.8 | Y | Absent | | A2-TS(7) |
| L2029589-03E | Plastic 2oz unpreserved for TS | A | NA | 4.8 | 4.8 | Y | Absent | | SUB-8260HLW(2),A2-TS(7) |
| L2029589-03F | Glass 60ml/2oz unpreserved | A | NA | 4.8 | 4.8 | Y | Absent | | A2-FE-6020T(180),A2-PB-6020T(180),A2-ZN-6020T(180),A2-BA-6020T(180),A2-SB-6020T(180),A2-NI-6020T(180),SUB-8260HLW(2),A2-HG-7474T(28),A2-K-6020T(180),A2-TL-6020T(180),A2-CR-6020T(180),A2-CO-6020T(180),A2-AS-6020T(180),A2-MN-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-V-6020T(180),A2-MG-6020T(180),A2-SE-6020T(180),A2-PREP-3050:2T(180),A2-CA-6020T(180),A2-PREP-3050:1T(180),A2-NA-6020T(180),A2-AG-6020T(180),A2-AL-6020T(180),A2-CU-6020T(180) |
| L2029589-03G | Glass 120ml/4oz unpreserved | A | NA | 4.8 | 4.8 | Y | Absent | | SUB-8260HLW(2),A2-TOC-9060-2REPS(28),A2-PAH/PCBCONG(14) |



Serial_No:08132016:52

Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

| Container Information | | | Initial | Final | Temp | Pres | Seal | Frozen | Analysis(*) |
|-----------------------|--|--------|---------|-------|-------|------|--------|-----------------|---|
| Container ID | Container Type | Cooler | pH | pH | deg C | C | | Date/Time | |
| L2029589-03H | Plastic 8oz unpreserved for Grain Size | A | NA | 4.8 | 4.8 | Y | Absent | | A2-HYDRO-TFINE(),A2-HYDRO-FSAND(),A2-HYDRO-CGRAVEL(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBLES(),A2-HYDRO-FGRAVEL() |
| L2029589-03J | Glass 250ml/8oz unpreserved | A | NA | 4.8 | 4.8 | Y | Absent | | EPH-20(14) |
| L2029589-04A | Plastic 2oz unpreserved for TS | A | NA | 4.8 | 4.8 | Y | Absent | | A2-TS(7) |
| L2029589-04B | Glass 60mL/2oz unpreserved | A | NA | 4.8 | 4.8 | Y | Absent | | EPH-20(14) |
| L2029589-04C | Glass 120ml/4oz unpreserved | A | NA | 4.8 | 4.8 | Y | Absent | | A2-FE-6020T(180),A2-BA-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-K-6020T(180),A2-CR-6020T(180),A2-TL-6020T(180),A2-CO-6020T(180),A2-AS-6020T(180),A2-CD-6020T(180),A2-V-6020T(180),A2-HGPREP-AF(28),A2-BE-6020T(180),A2-PREP-3050:2T(180),A2-TOC-9060:2REPS(28),A2-PREP-3050:1T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-AL-6020T(180),A2-PAH/PCBCONG(14),A2-CA-6020T(180) |
| L2029589-04D | Plastic 8oz unpreserved for Grain Size | A | NA | 4.8 | 4.8 | Y | Absent | | A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-FGRAVEL(),A2-HYDRO-COBLES() |
| L2029589-04E | Vial MeOH preserved split | A | NA | 4.8 | 4.8 | N | Absent | | SUB-8260HLW(2) |
| L2029589-04F | Vial Water preserved split | A | NA | 4.8 | 4.8 | Y | Absent | | SUB-8260HLW(2) |
| L2029589-04G | Vial Water preserved split | A | NA | 4.8 | 4.8 | Y | Absent | | SUB-8260HLW(2) |
| L2029589-05A | Plastic 2oz unpreserved for TS | A | NA | 4.8 | 4.8 | Y | Absent | 15-JUL-20 19:32 | A2-TS(7) |
| L2029589-05B | Glass 60mL/2oz unpreserved | A | NA | 4.8 | 4.8 | Y | Absent | | EPH-20(14) |
| L2029589-05C | Glass 120ml/4oz unpreserved | A | NA | 4.8 | 4.8 | Y | Absent | | A2-PB-6020T(180),A2-FE-6020T(180),A2-ZN-6020T(180),A2-NI-6020T(180),A2-BA-6020T(180),A2-SB-6020T(180),A2-HG-7474T(28),A2-K-6020T(180),A2-CR-6020T(180),A2-TL-6020T(180),A2-MN-6020T(180),A2-AS-6020T(180),A2-CO-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-V-6020T(180),A2-BE-6020T(180),A2-SE-6020T(180),A2-PREP-3050:2T(180),A2-TOC-9060:2REPS(28),A2-MG-6020T(180),A2-AL-6020T(180),A2-CA-6020T(180),A2-AG-6020T(180),A2-NA-6020T(180),A2-PREP-3050:1T(180),A2-CU-6020T(180),A2-PAH/PCBCONG(14) |



Serial_No:08132016:52

Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

| Container Information | | | Initial pH | Final pH | Temp deg C | Pres | Seal | Frozen Date/Time | Analysis(*) |
|------------------------------|--|---------------|-------------------|-----------------|-------------------|-------------|-------------|-------------------------|---|
| Container ID | Container Type | Cooler | pH | pH | deg C | C | Y | Date/Time | Analysis(*) |
| L2029589-05D | Plastic 8oz unpreserved for Grain Size | A | NA | 4.8 | 4.8 | Y | Y | Absent | A2-HYDRO-TFINE(),A2-HYDRO-FSAND(),A2-HYDRO-CGRAVEL(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBLES(),A2-HYDRO-FGRAVEL() |
| L2029589-05E | Vial MeOH preserved split | A | NA | 4.8 | 4.8 | N | N | Absent | SUB-8260HLW(2) |
| L2029589-05F | Vial Water preserved split | A | NA | 4.8 | 4.8 | Y | Y | 15-JUL-20 19:32 | SUB-8260HLW(2) |
| L2029589-05G | Vial Water preserved split | A | NA | 4.8 | 4.8 | Y | Y | 15-JUL-20 19:32 | SUB-8260HLW(2) |
| L2029589-06A | Plastic 2oz unpreserved for TS | A | NA | 4.8 | 4.8 | Y | Y | Absent | A2-TS(7) |
| L2029589-06B | Glass 60mL/2oz unpreserved | A | NA | 4.8 | 4.8 | Y | Y | Absent | EPH-20(14) |
| L2029589-06C | Glass 120ml/4oz unpreserved | A | NA | 4.8 | 4.8 | Y | Y | Absent | A2-PB-6020T(180),A2-FE-6020T(180),A2-BA-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-NI-6020T(180),A2-HG-7474T(28),A2-K-6020T(180),A2-CR-6020T(180),A2-TL-6020T(180),A2-CO-6020T(180),A2-MN-6020T(180),A2-AS-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-BE-6020T(180),A2-V-6020T(180),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-TOC-9060-2REPS(28),A2-MG-6020T(180),A2-PREP-3050:1T(180),A2-NA-6020T(180),A2-CA-6020T(180),A2-CU-6020T(180),A2-AG-6020T(180),A2-AL-6020T(180),A2-PAH/PCBCONG(14) |
| L2029589-06D | Plastic 8oz unpreserved for Grain Size | A | NA | 4.8 | 4.8 | Y | Y | Absent | A2-HYDRO-TFINE(),A2-HYDRO-FSAND(),A2-HYDRO-CGRAVEL(),A2-HYDRO-MSAND(),A2-HYDRO-TGRAVEL(),A2-HYDRO-CSAND(),A2-HYDRO-TSAND(),A2-HYDRO-COBLES(),A2-HYDRO-FGRAVEL() |
| L2029589-06E | Vial MeOH preserved split | A | NA | 4.8 | 4.8 | N | N | Absent | SUB-8260HLW(2) |
| L2029589-06F | Vial Water preserved split | A | NA | 4.8 | 4.8 | Y | Y | 15-JUL-20 19:32 | SUB-8260HLW(2) |
| L2029589-06G | Vial Water preserved split | A | NA | 4.8 | 4.8 | Y | Y | 15-JUL-20 19:32 | SUB-8260HLW(2) |

Container Comments

L2029589-04F WM: broken upon receipt in Westborough login 7/15/20 19:30



Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

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. |
| 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. |

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

- 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.

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'.

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. If a 'Total' result is requested, the results of its individual components will also be reported.

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.)

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. (DoD and NYSDEC Part 375 PFAS only.)
- 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 Identified Compounds (TICs).
- 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.

Report Format: DU Report with 'J' Qualifiers



Project Name: JF MORAN TERMINAL
Project Number: DA-JFM-200713

Lab Number: L2029589
Report Date: 08/13/20

Data Qualifiers

- 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.

Report Format: DU Report with 'J' Qualifiers



Project Name: JF MORAN TERMINAL

Lab Number: L2029589

Project Number: DA-JFM-200713

Report Date: 08/13/20

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 12 Annual Book of ASTM Standards. (American Society for Testing and Materials) ASTM International.
- 105 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997 in conjunction with NOAA Technical Memorandum NMFS-NWFSC-59: Extraction, Cleanup and GC/MS Analysis of Sediments and Tissues for Organic Contaminants, March 2004 and the Determination of Pesticides and PCBs in Water and Oil/Sediment by GC/MS: Method 680, EPA 01A0005295, November 1985.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.
- 135 Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MassDEP, December 2019, Revision 2.1 with QC Requirements & Performance Standards for the Analysis of EPH under the Massachusetts Contingency Plan, WSC-CAM-IVB, March 1, 2020.

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.

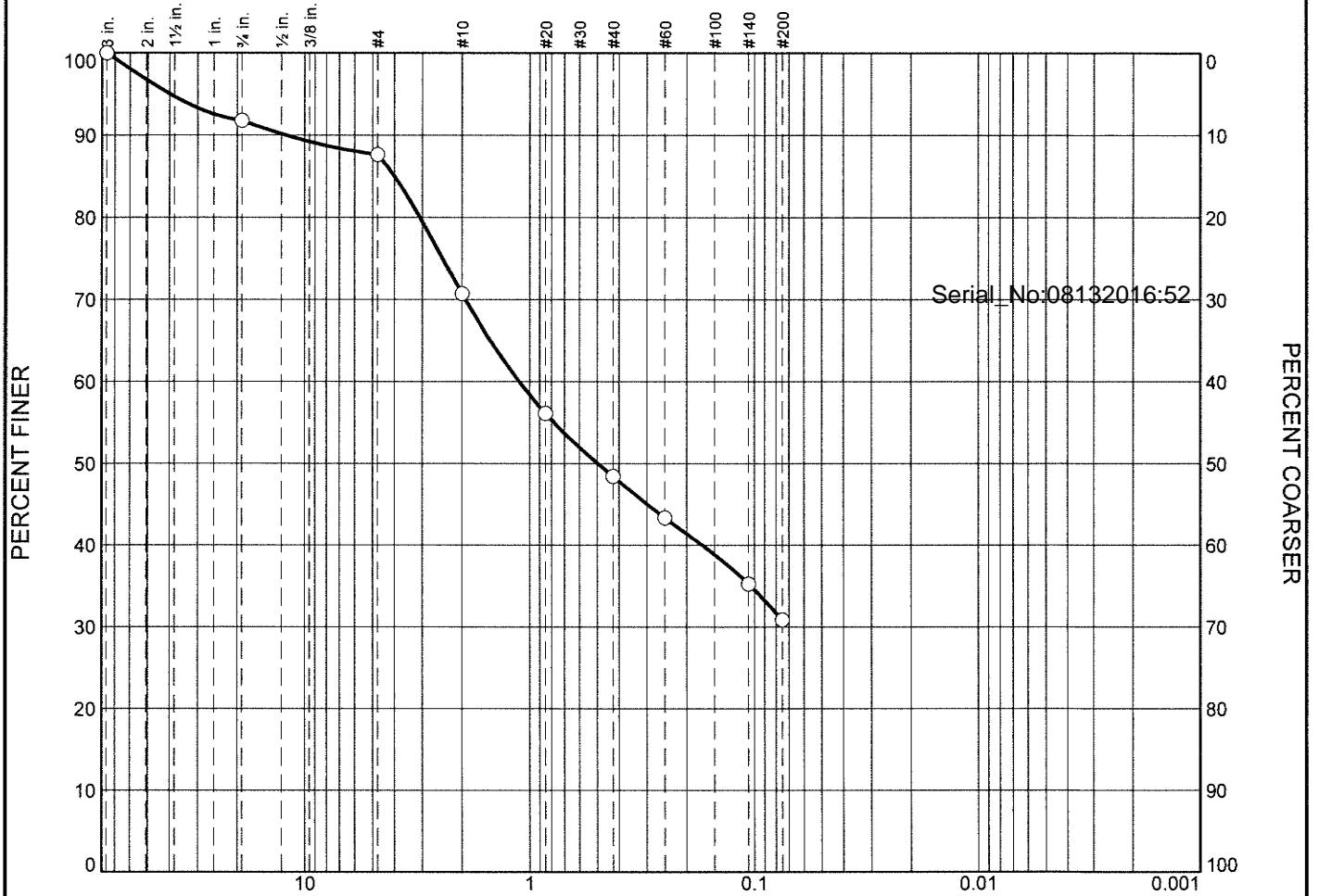
We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Serial_No:08132016:52

ASTM D6913/D7928
GRAIN SIZE ANALYSIS

Particle Size Distribution Report



GRAIN SIZE - mm.

| % | % Gravel | | % Sand | | | % Fines | | | | |
|-------|----------|------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay | | | |
| ○ 0.0 | 8.2 | 4.2 | 16.9 | 22.3 | 17.5 | 30.9 | | | | |
| ⊗ | LL | PL | D ₈₅ | D ₆₀ | D ₅₀ | D ₃₀ | D ₁₅ | D ₁₀ | C _c | C _u |
| ○ | | | 3.9972 | 1.1137 | 0.4972 | | | | | |

| MATERIAL DESCRIPTION | TEST DATE | USCS | NM |
|----------------------|-----------|------|----|
| ○ | | | |

| | |
|---|--|
| Project No. Project: ○ Source of Sample: JFM 1-3 Sample Number: L2029589-01 | Client: Remarks: <div style="text-align: center; border-top: 1px solid black; padding-top: 5px;"> Alpha Analytical Mansfield, MA </div> |
|---|--|

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

8/13/2020

Location: JFM 1-3

Sample Number: L2029589-01

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =99.82
 Tare Wt. = 0.00
 Minus #200 from wash =0.0%

| Dry Sample and Tare (grams) | Tare (grams) | Sieve Opening Size | Weight Retained (grams) | Sieve Weight (grams) | Percent Finer | Percent Retained | Serial_No:08132016:52 |
|-----------------------------|--------------|--------------------|-------------------------|----------------------|---------------|------------------|-----------------------|
| 99.82 | 0.00 | 3 | 0.00 | 0.00 | 100.0 | 0.0 | |
| | | 0.75 | 8.20 | 0.00 | 91.8 | 8.2 | |
| | | #4 | 4.15 | 0.00 | 87.6 | 12.4 | |
| | | #10 | 16.90 | 0.00 | 70.7 | 29.3 | |
| | | #20 | 14.57 | 0.00 | 56.1 | 43.9 | |
| | | #40 | 7.66 | 0.00 | 48.4 | 51.6 | |
| | | #60 | 5.08 | 0.00 | 43.3 | 56.7 | |
| | | #140 | 8.04 | 0.00 | 35.3 | 64.7 | |
| | | #200 | 4.40 | 0.00 | 30.9 | 69.1 | |

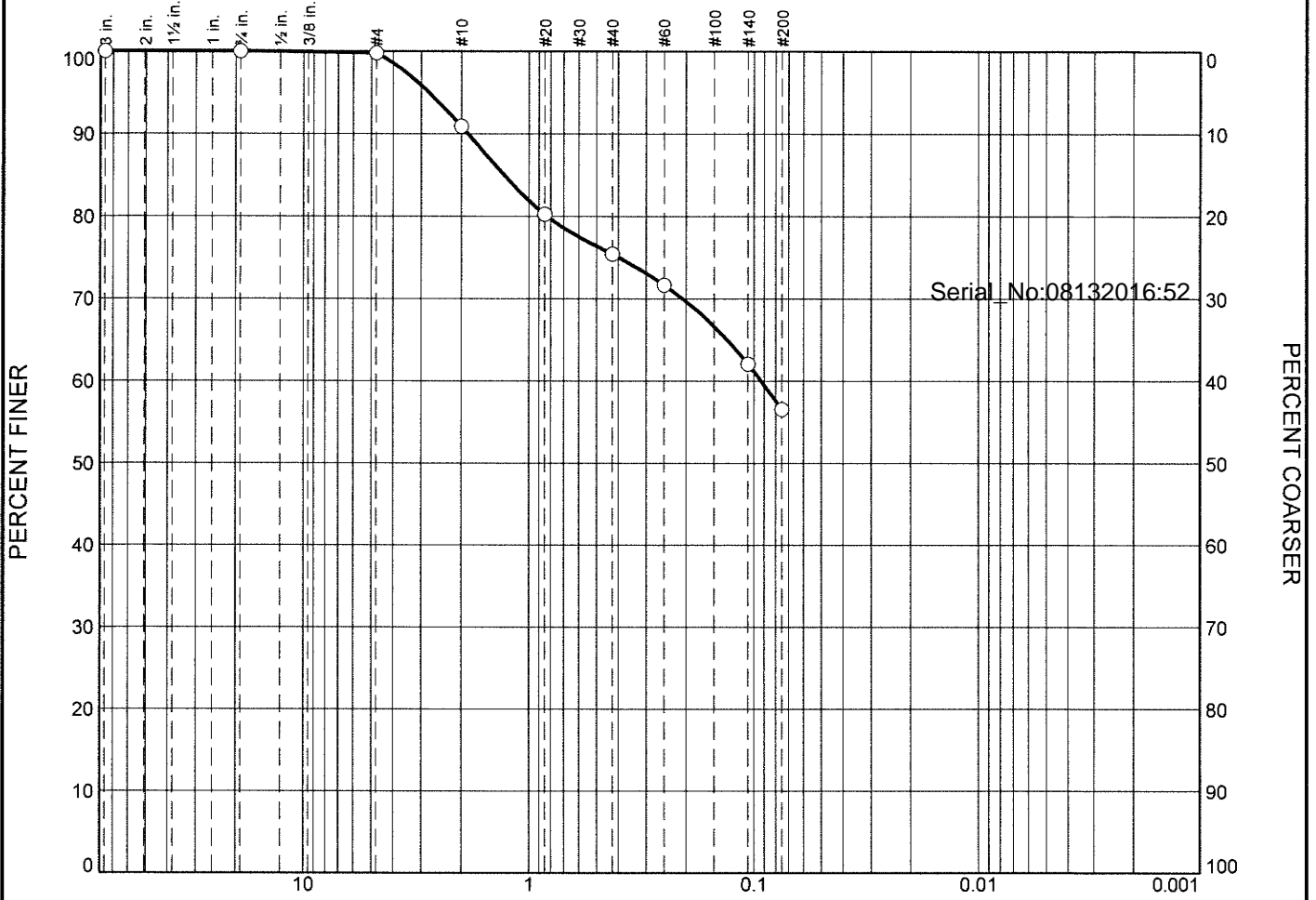
Fractional Components

| Cobbles | Gravel | | | Sand | | | | Fines | | |
|---------|--------|------|-------|--------|--------|------|-------|-------|------|-------|
| | Coarse | Fine | Total | Coarse | Medium | Fine | Total | Silt | Clay | Total |
| 0.0 | 8.2 | 4.2 | 12.4 | 16.9 | 22.3 | 17.5 | 56.7 | | | 30.9 |

| D ₅ | D ₁₀ | D ₁₅ | D ₂₀ | D ₃₀ | D ₄₀ | D ₅₀ | D ₆₀ | D ₈₀ | D ₈₅ | D ₉₀ | D ₉₅ |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | | | | 0.1704 | 0.4972 | 1.1137 | 3.0820 | 3.9972 | 12.1753 | 39.8348 |

| |
|-------------------------|
| Fineness Modulus |
| 2.66 |

Particle Size Distribution Report



GRAIN SIZE - mm.

| % | % Gravel | | % Sand | | | % Fines | | | | |
|---|----------|------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay | | | |
| ○ | 0.0 | 0.2 | 8.9 | 15.5 | 18.8 | 56.6 | | | | |
| ⊗ | LL | PL | D ₈₅ | D ₆₀ | D ₅₀ | D ₃₀ | D ₁₅ | D ₁₀ | C _c | C _u |
| ○ | | | 1.2881 | 0.0927 | | | | | | |

| MATERIAL DESCRIPTION | TEST DATE | USCS | NM |
|----------------------|-----------|------|----|
| ○ | | | |

| | |
|--|------------------------|
| <p>Project No. _____ Client: _____</p> <p>Project: _____</p> <p>○ Source of Sample: JFM 4-6 Sample Number: L2029589-02</p> | <p>Remarks:</p> |
| <p>Alpha Analytical</p> <p>Mansfield, MA</p> | <p>Figure</p> |

GRAIN SIZE DISTRIBUTION TEST DATA

8/13/2020

Location: JFM 4-6

Sample Number: L2029589-02

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =47.09

Tare Wt. =0.00

Minus #200 from wash =0.0%

| Dry Sample and Tare (grams) | Tare (grams) | Sieve Opening Size | Weight Retained (grams) | Sieve Weight (grams) | Percent Finer | Percent Retained | Serial_No:08132016:52 |
|-----------------------------|--------------|--------------------|-------------------------|----------------------|---------------|------------------|-----------------------|
| 47.09 | 0.00 | 3 | 0.00 | 0.00 | 100.0 | 0.0 | |
| | | 0.75 | 0.00 | 0.00 | 100.0 | 0.0 | |
| | | #4 | 0.11 | 0.00 | 99.8 | 0.2 | |
| | | #10 | 4.18 | 0.00 | 90.9 | 9.1 | |
| | | #20 | 5.02 | 0.00 | 80.2 | 19.8 | |
| | | #40 | 2.27 | 0.00 | 75.4 | 24.6 | |
| | | #60 | 1.77 | 0.00 | 71.7 | 28.3 | |
| | | #140 | 4.52 | 0.00 | 62.1 | 37.9 | |
| | | #200 | 2.59 | 0.00 | 56.6 | 43.4 | |

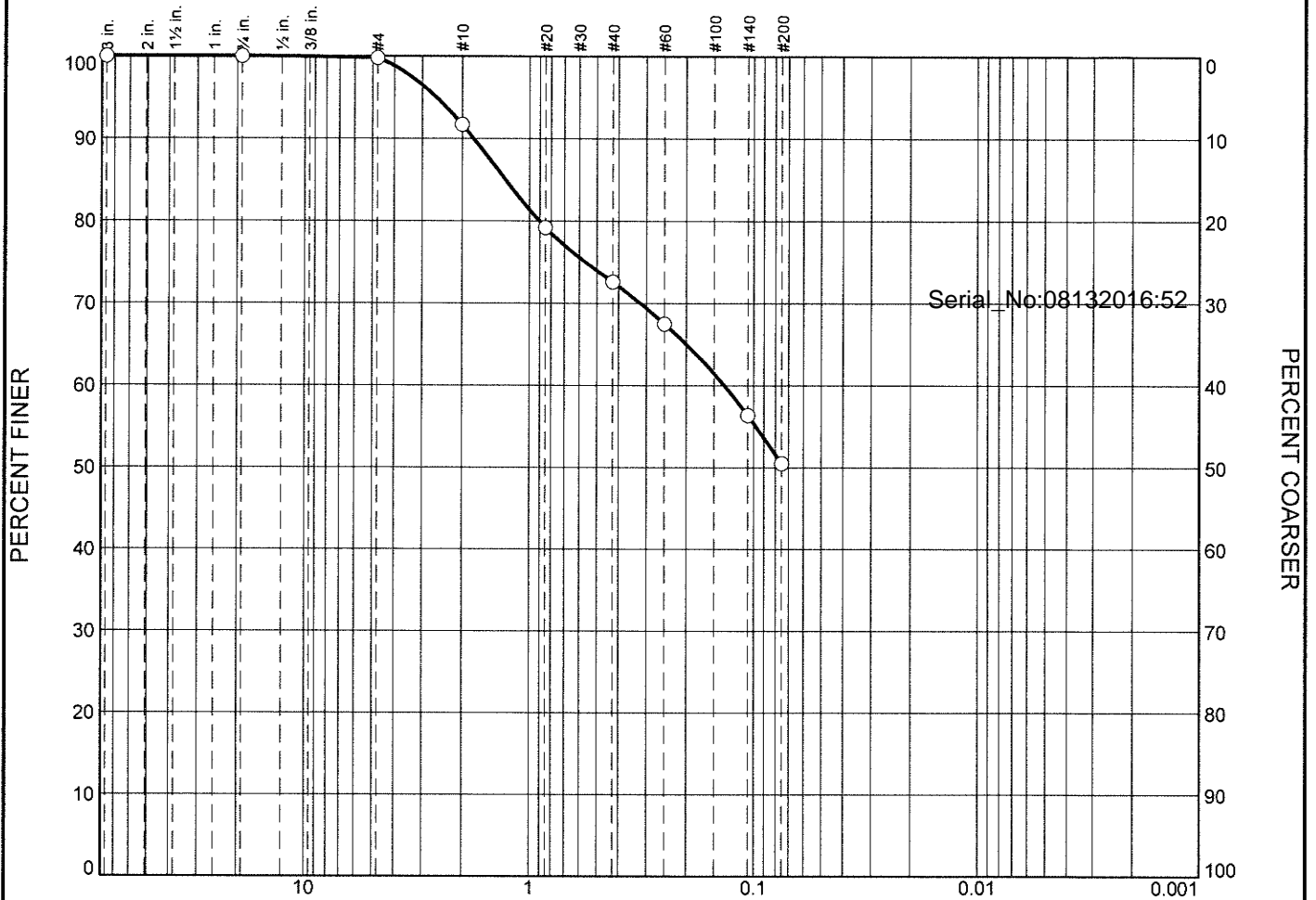
Fractional Components

| Cobbles | Gravel | | | Sand | | | | Fines | | |
|---------|--------|------|-------|--------|--------|------|-------|-------|------|-------|
| | Coarse | Fine | Total | Coarse | Medium | Fine | Total | Silt | Clay | Total |
| 0.0 | 0.0 | 0.2 | 0.2 | 8.9 | 15.5 | 18.8 | 43.2 | | | 56.6 |

| D ₅ | D ₁₀ | D ₁₅ | D ₂₀ | D ₃₀ | D ₄₀ | D ₅₀ | D ₆₀ | D ₈₀ | D ₈₅ | D ₉₀ | D ₉₅ |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | | | | | | 0.0927 | 0.8293 | 1.2881 | 1.8708 | 2.7823 |

| |
|-------------------------|
| Fineness Modulus |
| 1.06 |

Particle Size Distribution Report



GRAIN SIZE - mm.

| % | % Gravel | | % Sand | | | % Fines | | | | |
|---|----------|--------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|
| | +3" | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay | | |
| ○ | 0.0 | 0.0 | 0.2 | 8.1 | 19.1 | 22.1 | 50.5 | | | |
| ⊗ | LL | PL | D ₈₅ | D ₆₀ | D ₅₀ | D ₃₀ | D ₁₅ | D ₁₀ | C _c | C _u |
| ○ | | | 1.2791 | 0.1351 | | | | | | |

| MATERIAL DESCRIPTION | TEST DATE | USCS | NM |
|----------------------|-----------|------|----|
| ○ | | | |

| | | |
|-----------------------------------|--|----------|
| Project No. Project: | Client: Source of Sample: JFM 4-6 Sample Number: WG1394358-1 | Remarks: |
| Alpha Analytical Mansfield, MA | | Figure |

GRAIN SIZE DISTRIBUTION TEST DATA

8/13/2020

Location: JFM 4-6

Sample Number: WG1394358-1

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =56.55
 Tare Wt. = 0.00
 Minus #200 from wash =0.0%

| Dry Sample and Tare (grams) | Tare (grams) | Sieve Opening Size | Weight Retained (grams) | Sieve Weight (grams) | Percent Finer | Percent Retained | Serial_No:08132016:52 |
|-----------------------------|--------------|--------------------|-------------------------|----------------------|---------------|------------------|-----------------------|
| 56.55 | 0.00 | 3 | 0.00 | 0.00 | 100.0 | 0.0 | |
| | | 0.75 | 0.00 | 0.00 | 100.0 | 0.0 | |
| | | #4 | 0.12 | 0.00 | 99.8 | 0.2 | |
| | | #10 | 4.57 | 0.00 | 91.7 | 8.3 | |
| | | #20 | 7.07 | 0.00 | 79.2 | 20.8 | |
| | | #40 | 3.74 | 0.00 | 72.6 | 27.4 | |
| | | #60 | 2.88 | 0.00 | 67.5 | 32.5 | |
| | | #140 | 6.30 | 0.00 | 56.4 | 43.6 | |
| | | #200 | 3.32 | 0.00 | 50.5 | 49.5 | |

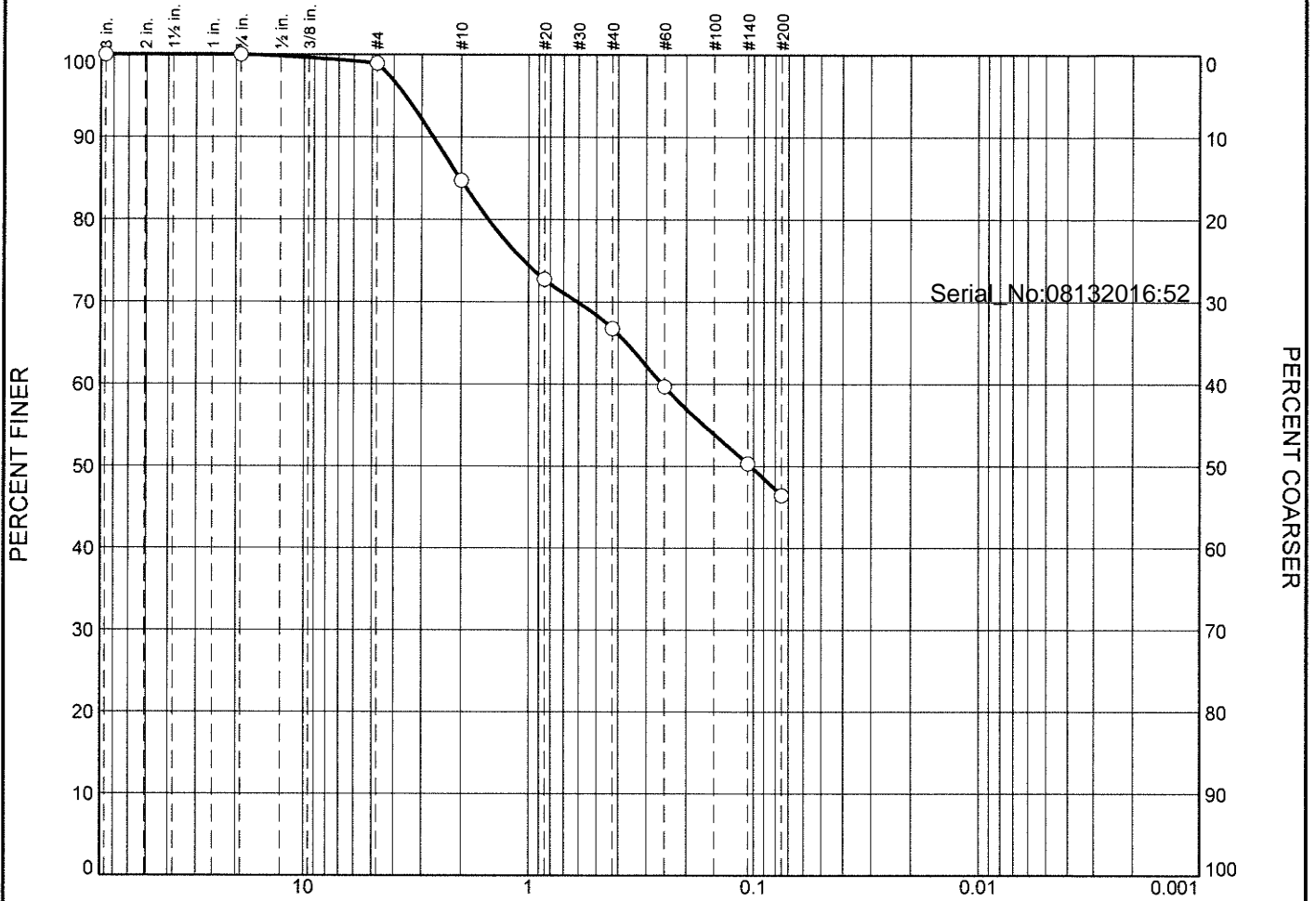
Fractional Components

| Cobbles | Gravel | | | Sand | | | | Fines | | |
|---------|--------|------|-------|--------|--------|------|-------|-------|------|-------|
| | Coarse | Fine | Total | Coarse | Medium | Fine | Total | Silt | Clay | Total |
| 0.0 | 0.0 | 0.2 | 0.2 | 8.1 | 19.1 | 22.1 | 49.3 | | | 50.5 |

| D5 | D10 | D15 | D20 | D30 | D40 | D50 | D60 | D80 | D85 | D90 | D95 |
|----|-----|-----|-----|-----|-----|-----|--------|--------|--------|--------|--------|
| | | | | | | | 0.1351 | 0.9053 | 1.2791 | 1.7743 | 2.6063 |

| |
|-------------------------|
| Fineness Modulus |
| 1.16 |

Particle Size Distribution Report



| % | % Gravel | | % Sand | | | % Fines | | | | |
|---|----------|------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay | | | |
| ○ | 0.0 | 1.1 | 14.2 | 17.9 | 20.4 | 46.4 | | | | |
| × | LL | PL | D ₈₅ | D ₆₀ | D ₅₀ | D ₃₀ | D ₁₅ | D ₁₀ | C _c | C _u |
| ○ | | | 2.0302 | 0.2561 | 0.1031 | | | | | |

| MATERIAL DESCRIPTION | TEST DATE | USCS | NM |
|----------------------|-----------|------|----|
| ○ | | | |

| | | |
|--|---------|----------|
| Project No. Project: | Client: | Remarks: |
| ○ Source of Sample: JFM 8-10 Sample Number: L2029589-03 | | |
| Alpha Analytical Mansfield, MA | | Figure |

GRAIN SIZE DISTRIBUTION TEST DATA

8/13/2020

Location: JFM 8-10

Sample Number: L2029589-03

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =92.68
 Tare Wt. =0.00
 Minus #200 from wash =0.0%

| Dry Sample and Tare (grams) | Tare (grams) | Sieve Opening Size | Weight Retained (grams) | Sieve Weight (grams) | Percent Finer | Percent Retained | Serial_No:08132016:52 |
|-----------------------------|--------------|--------------------|-------------------------|----------------------|---------------|------------------|-----------------------|
| 92.68 | 0.00 | 3 | 0.00 | 0.00 | 100.0 | 0.0 | |
| | | 0.75 | 0.00 | 0.00 | 100.0 | 0.0 | |
| | | #4 | 0.98 | 0.00 | 98.9 | 1.1 | |
| | | #10 | 13.17 | 0.00 | 84.7 | 15.3 | |
| | | #20 | 11.12 | 0.00 | 72.7 | 27.3 | |
| | | #40 | 5.53 | 0.00 | 66.8 | 33.2 | |
| | | #60 | 6.57 | 0.00 | 59.7 | 40.3 | |
| | | #140 | 8.69 | 0.00 | 50.3 | 49.7 | |
| | | #200 | 3.58 | 0.00 | 46.4 | 53.6 | |

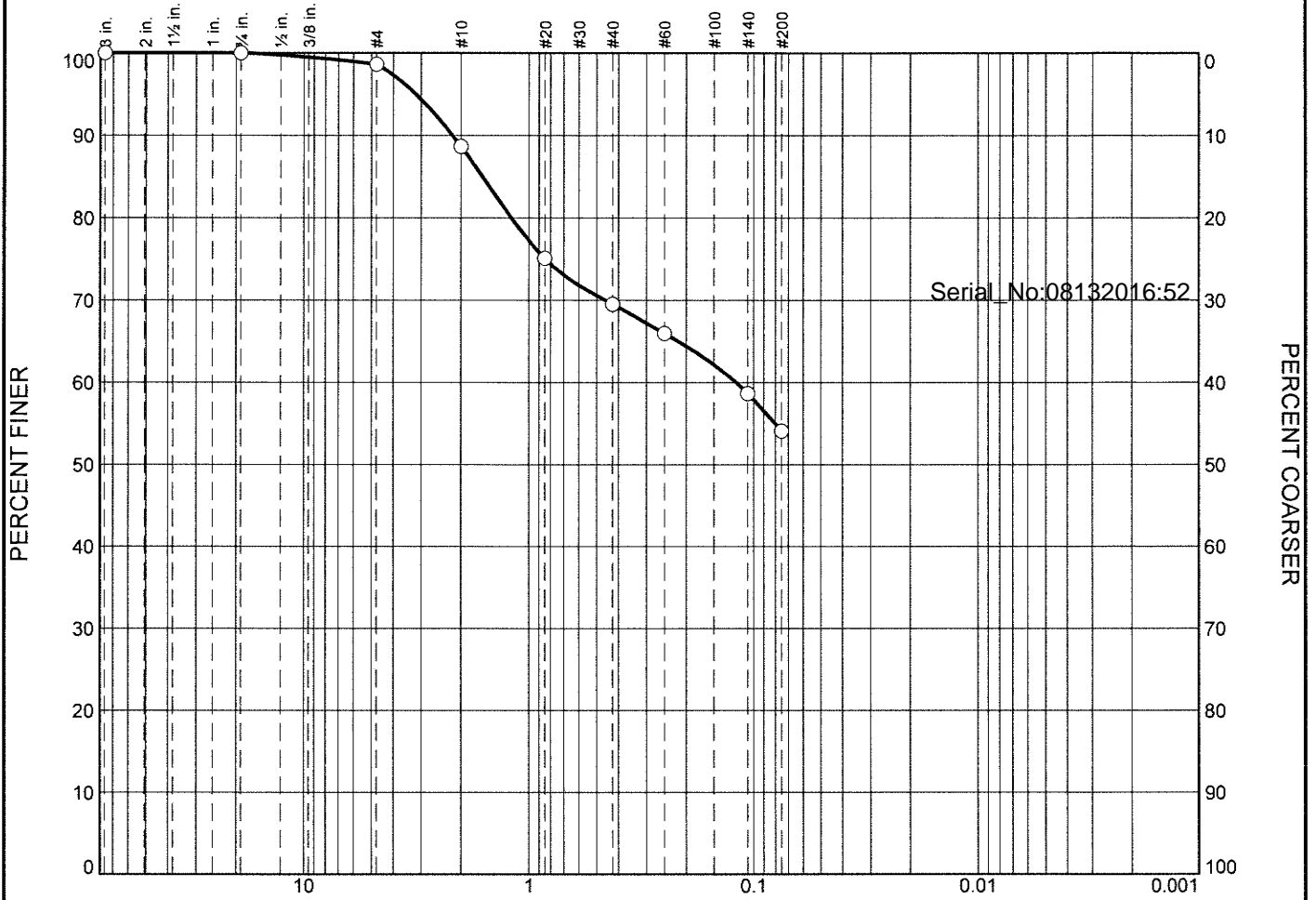
Fractional Components

| Cobbles | Gravel | | | Sand | | | | Fines | | |
|---------|--------|------|-------|--------|--------|------|-------|-------|------|-------|
| | Coarse | Fine | Total | Coarse | Medium | Fine | Total | Silt | Clay | Total |
| 0.0 | 0.0 | 1.1 | 1.1 | 14.2 | 17.9 | 20.4 | 52.5 | | | 46.4 |

| D ₅ | D ₁₀ | D ₁₅ | D ₂₀ | D ₃₀ | D ₄₀ | D ₅₀ | D ₆₀ | D ₈₀ | D ₈₅ | D ₉₀ | D ₉₅ |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | | | | | 0.1031 | 0.2561 | 1.5072 | 2.0302 | 2.6654 | 3.5507 |

| |
|-------------------------|
| Fineness Modulus |
| 1.51 |

Particle Size Distribution Report



| % | % Gravel | | % Sand | | | % Fines | | | | |
|-------|----------|------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay | | | |
| ○ 0.0 | 0.0 | 1.4 | 9.9 | 19.2 | 15.4 | 54.1 | | | | |
| × | LL | PL | D ₈₅ | D ₆₀ | D ₅₀ | D ₃₀ | D ₁₅ | D ₁₀ | C _c | C _u |
| ○ | | | 1.6050 | 0.1197 | | | | | | |

| MATERIAL DESCRIPTION | TEST DATE | USCS | NM |
|----------------------|-----------|------|----|
| ○ | | | |

| | | |
|---------------------------|----------------------------|----------|
| Project No. | Client: | Remarks: |
| Project: | | |
| ○ Source of Sample: JFM 7 | Sample Number: L2029589-04 | |
| Alpha Analytical | | Figure |
| Mansfield, MA | | |

GRAIN SIZE DISTRIBUTION TEST DATA

8/13/2020

Location: JFM 7

Sample Number: L2029589-04

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =98.98
 Tare Wt. =0.00
 Minus #200 from wash =0.0%

| Dry Sample and Tare (grams) | Tare (grams) | Sieve Opening Size | Weight Retained (grams) | Sieve Weight (grams) | Percent Finer | Percent Retained | Serial_No:08132016:52 |
|-----------------------------|--------------|--------------------|-------------------------|----------------------|---------------|------------------|-----------------------|
| 98.98 | 0.00 | 3 | 0.00 | 0.00 | 100.0 | 0.0 | |
| | | 0.75 | 0.00 | 0.00 | 100.0 | 0.0 | |
| | | #4 | 1.37 | 0.00 | 98.6 | 1.4 | |
| | | #10 | 9.86 | 0.00 | 88.7 | 11.3 | |
| | | #20 | 13.41 | 0.00 | 75.1 | 24.9 | |
| | | #40 | 5.52 | 0.00 | 69.5 | 30.5 | |
| | | #60 | 3.54 | 0.00 | 66.0 | 34.0 | |
| | | #140 | 7.24 | 0.00 | 58.6 | 41.4 | |
| | | #200 | 4.52 | 0.00 | 54.1 | 45.9 | |

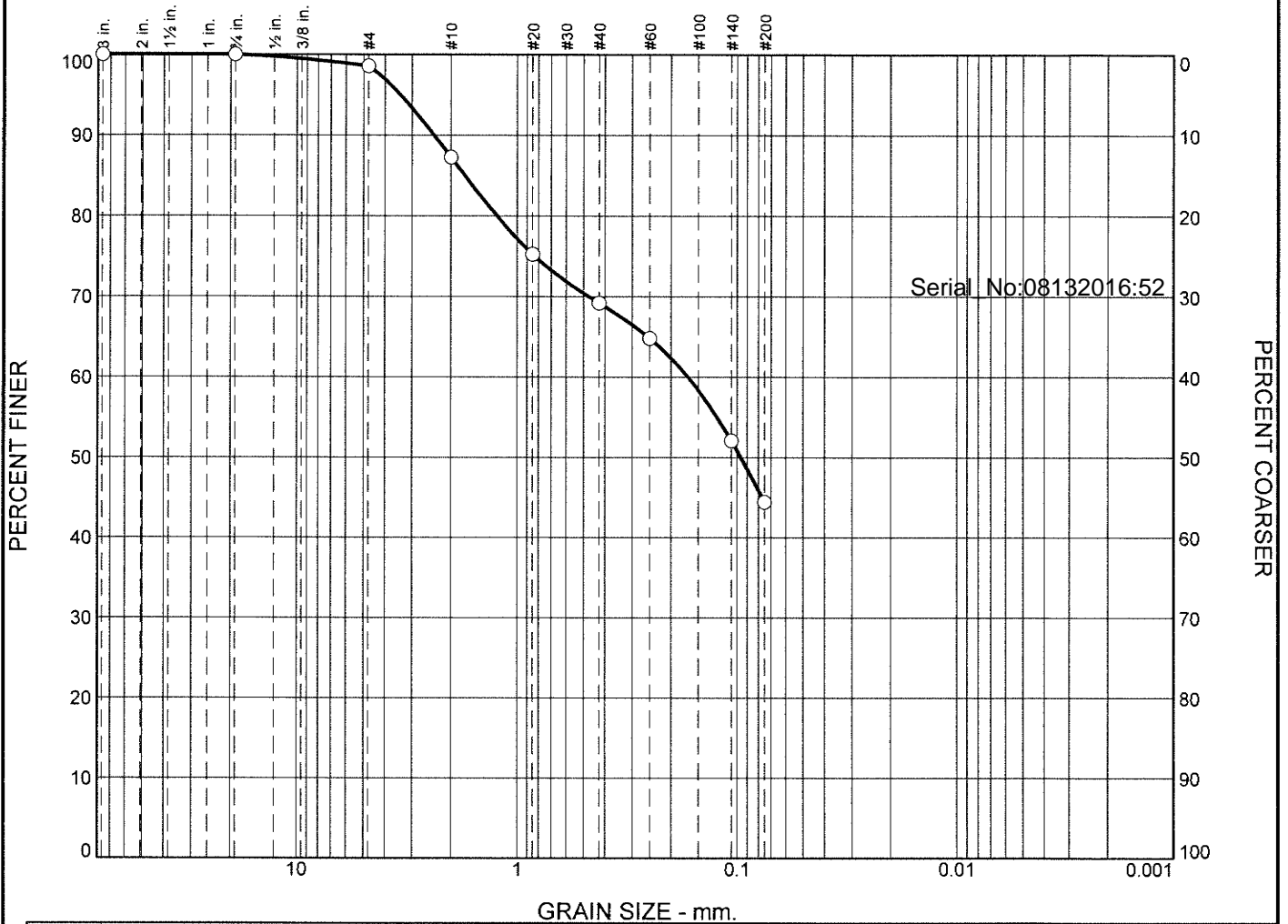
Fractional Components

| Cobbles | Gravel | | | Sand | | | | Fines | | |
|---------|--------|------|-------|--------|--------|------|-------|-------|------|-------|
| | Coarse | Fine | Total | Coarse | Medium | Fine | Total | Silt | Clay | Total |
| 0.0 | 0.0 | 1.4 | 1.4 | 9.9 | 19.2 | 15.4 | 44.5 | | | 54.1 |

| D ₅ | D ₁₀ | D ₁₅ | D ₂₀ | D ₃₀ | D ₄₀ | D ₅₀ | D ₆₀ | D ₈₀ | D ₈₅ | D ₉₀ | D ₉₅ |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | | | | | | 0.1197 | 1.1937 | 1.6050 | 2.1812 | 3.1773 |

| |
|-------------------------|
| Fineness Modulus |
| 1.30 |

Particle Size Distribution Report



| % | % Gravel | | % Sand | | | % Fines | |
|---|----------|------|--------|--------|------|---------|------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
| ○ | 0.0 | 1.4 | 11.3 | 18.1 | 24.7 | 44.5 | |

| | LL | PL | D ₈₅ | D ₆₀ | D ₅₀ | D ₃₀ | D ₁₅ | D ₁₀ | C _c | C _u |
|---|----|----|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|
| ○ | | | 1.7269 | 0.1678 | 0.0960 | | | | | |

| MATERIAL DESCRIPTION | TEST DATE | USCS | NM |
|----------------------|-----------|------|----|
| ○ | | | |

| | | |
|----------------------------|----------------------------|----------|
| Project No. | Client: | Remarks: |
| Project: | | |
| ○ Source of Sample: JFM 11 | Sample Number: L2029589-05 | |
| Alpha Analytical | | Figure |
| Mansfield, MA | | |

GRAIN SIZE DISTRIBUTION TEST DATA

8/13/2020

Location: JFM 11

Sample Number: L2029589-05

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =93.02
 Tare Wt. =0.00
 Minus #200 from wash =0.0%

| Dry Sample and Tare (grams) | Tare (grams) | Sieve Opening Size | Weight Retained (grams) | Sieve Weight (grams) | Percent Finer | Percent Retained | Serial_No:08132016:52 |
|-----------------------------|--------------|--------------------|-------------------------|----------------------|---------------|------------------|-----------------------|
| 93.02 | 0.00 | 3 | 0.00 | 0.00 | 100.0 | 0.0 | |
| | | 0.75 | 0.00 | 0.00 | 100.0 | 0.0 | |
| | | #4 | 1.33 | 0.00 | 98.6 | 1.4 | |
| | | #10 | 10.51 | 0.00 | 87.3 | 12.7 | |
| | | #20 | 11.19 | 0.00 | 75.2 | 24.8 | |
| | | #40 | 5.63 | 0.00 | 69.2 | 30.8 | |
| | | #60 | 4.07 | 0.00 | 64.8 | 35.2 | |
| | | #140 | 11.85 | 0.00 | 52.1 | 47.9 | |
| | | #200 | 7.09 | 0.00 | 44.5 | 55.5 | |

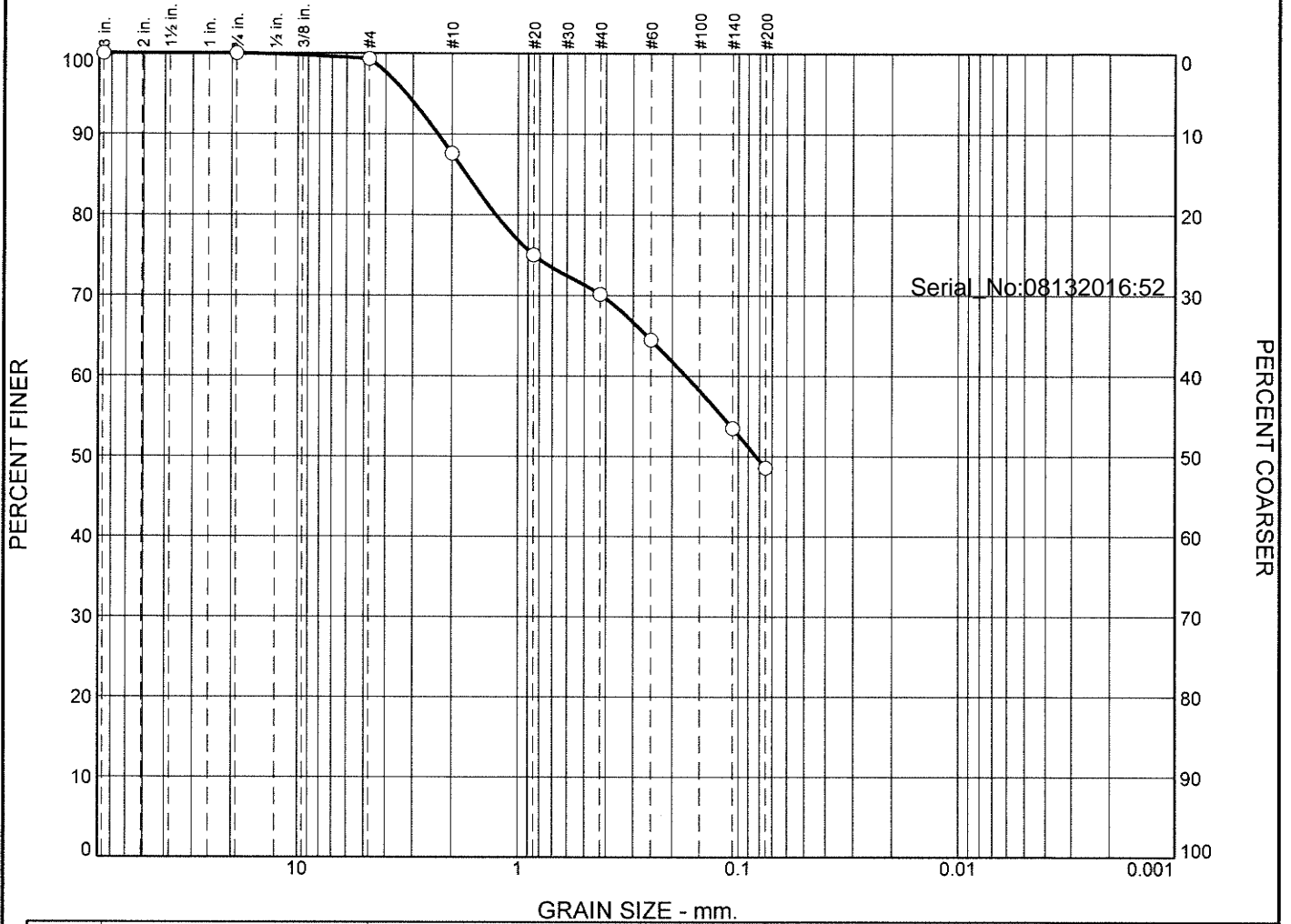
Fractional Components

| Cobbles | Gravel | | | Sand | | | | Fines | | |
|---------|--------|------|-------|--------|--------|------|-------|-------|------|-------|
| | Coarse | Fine | Total | Coarse | Medium | Fine | Total | Silt | Clay | Total |
| 0.0 | 0.0 | 1.4 | 1.4 | 11.3 | 18.1 | 24.7 | 54.1 | | | 44.5 |

| D ₅ | D ₁₀ | D ₁₅ | D ₂₀ | D ₃₀ | D ₄₀ | D ₅₀ | D ₆₀ | D ₈₀ | D ₈₅ | D ₉₀ | D ₉₅ |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | | | | | 0.0960 | 0.1678 | 1.2337 | 1.7269 | 2.3874 | 3.3965 |

| |
|-------------------------|
| Fineness Modulus |
| 1.36 |

Particle Size Distribution Report



| % +3" | % Gravel | | % Sand | | | % Fines | | | | |
|-------|----------|------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|
| | Coarse | Fine | Coarse | Medium | Fine | Silt | Clay | | | |
| ○ 0.0 | 0.0 | 0.7 | 11.7 | 17.5 | 21.5 | 48.6 | | | | |
| × | LL | PL | D ₈₅ | D ₆₀ | D ₅₀ | D ₃₀ | D ₁₅ | D ₁₀ | C _c | C _u |
| ○ | | | 1.7135 | 0.1735 | 0.0828 | | | | | |

| MATERIAL DESCRIPTION | TEST DATE | USCS | NM |
|----------------------|-----------|------|----|
| ○ | | | |

| | | |
|----------------------------|----------------------------|----------|
| Project No. | Client: | Remarks: |
| Project: | | |
| ○ Source of Sample: JFM 12 | Sample Number: L2029589-06 | |
| Alpha Analytical | | Figure |
| Mansfield, MA | | |

GRAIN SIZE DISTRIBUTION TEST DATA

8/13/2020

Location: JFM 12

Sample Number: L2029589-06

Sieve Test Data

Post #200 Wash Test Weights (grams): Dry Sample and Tare =89.02

Tare Wt. =0.00

Minus #200 from wash =0.0%

| Dry Sample and Tare (grams) | Tare (grams) | Sieve Opening Size | Weight Retained (grams) | Sieve Weight (grams) | Percent Finer | Percent Retained | Serial_No:08132016:52 |
|-----------------------------|--------------|--------------------|-------------------------|----------------------|---------------|------------------|-----------------------|
| 89.02 | 0.00 | 3 | 0.00 | 0.00 | 100.0 | 0.0 | |
| | | 0.75 | 0.00 | 0.00 | 100.0 | 0.0 | |
| | | #4 | 0.61 | 0.00 | 99.3 | 0.7 | |
| | | #10 | 10.43 | 0.00 | 87.6 | 12.4 | |
| | | #20 | 11.19 | 0.00 | 75.0 | 25.0 | |
| | | #40 | 4.36 | 0.00 | 70.1 | 29.9 | |
| | | #60 | 5.03 | 0.00 | 64.5 | 35.5 | |
| | | #140 | 9.76 | 0.00 | 53.5 | 46.5 | |
| | | #200 | 4.40 | 0.00 | 48.6 | 51.4 | |

Fractional Components

| Cobbles | Gravel | | | Sand | | | | Fines | | |
|---------|--------|------|-------|--------|--------|------|-------|-------|------|-------|
| | Coarse | Fine | Total | Coarse | Medium | Fine | Total | Silt | Clay | Total |
| 0.0 | 0.0 | 0.7 | 0.7 | 11.7 | 17.5 | 21.5 | 50.7 | | | 48.6 |

| D ₅ | D ₁₀ | D ₁₅ | D ₂₀ | D ₃₀ | D ₄₀ | D ₅₀ | D ₆₀ | D ₈₀ | D ₈₅ | D ₉₀ | D ₉₅ |
|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | | | | | | 0.0828 | 0.1735 | 1.2567 | 1.7135 | 2.3126 | 3.2176 |

| |
|-------------------------|
| Fineness Modulus |
| 1.34 |

Certification Information

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

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

EPA TO-12 Non-methane organics

EPA 3C Fixed gases

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, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: 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), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

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.

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.

CHAIN OF CUSTODY

PAGE 1 OF 1


 8 Washup Drive
 Westboro, MA 01581
 Tel: 508-898-9220

320 Forbes Blvd
 Mansfield, MA 02048
 Tel: 508-322-9300

Project Information
 Project Name: **JF MORAN TERMINAL**
 Project Location: **CHARLESTOWN, MA**

Project #: **DA-JFM-200713**
 Project Manager: **ERIC STEELE**
 ALPHA Quote #: **11614**

Client Information
 Client: **STEELE ASSOCIATES**
 Address: **94 GIFFORD ST.**
FALMOUTH, MA 02540
 Phone: **508 540-0001**
 Email: **eric@steeleassociates.net**

Regulatory Requirements & Project Information Requirements
 Yes No MA MCP 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

Report Information - Data Deliverables
 ADEX EMAIL
 Same as Client info PO #

Regulatory Requirements & Project Information Requirements
 Yes No MA MCP 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

Turn-Around Time
 Standard RUSH (only confirmed if pre-approval)
 Date Due:

| ALPHA Lab ID (Lab Use Only) | Sample ID | Collection | | Sample Matrix | Sampler Initials | TOTAL # BOTTLES |
|--------------------------------|-----------|------------|------|---------------|------------------|-----------------|
| | | Date | Time | | | |
| 29589-01 | JFM 1-3 | 7/13/20 | 0935 | | EMS | |
| 02 | JFM 4-6 | | 1112 | | EMS | |
| 03 | JFM 8-10 | | 1245 | | EMS | |
| 04 | JFM 7 | | 1332 | | EMS | |
| 05 | JFM 11 | | 1425 | | EMS | |
| 06 | JFM 12 | | 1350 | | EMS | |

Additional Project Information:
 ANALYSIS: VOC: E266/ B24 5242 SVOC: ABN PAH METALS: MCP 13 MCP 14 RCP 15 METALS: RCRAS RCRAB PPT3 EPH: Ranges & Targets Ranges Only VPH: Ranges & Targets Ranges Only TPH: Quant Only Fingerprint
 GRAN SIZE PAH/PCB TOC TS-SM2540

Container Type
 Preservative
 Relinquished By: [Signature] Date/Time: 7/14/20
 Received By: [Signature] Date/Time: 7/14/20

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.
 FORM NO. 01-01 (rev. 12-Mar-2012)

2061178

CHAIN OF CUSTODY

ALPHA Job #: L2029589

Date Rec'd in Lab: 7/14/20

PAGE 1 OF 1

Report Information - Data Deliverables

ALPHA ANALYTICAL CORPORATION
320 Forbes Blvd
Westford, MA 02084
Tel: 508-895-9220

Billing Information
PO #:

Report Information - Data Deliverables
ADEX EMAIL

Project Information
Project Name: JFMORAN TERMINAL

Client Information
Client: STEELE ASSOCIATES

Regulatory Requirements & Project Information Requirements
Yes No MA MCP 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

Project Location: CHARLESTOWN, MA
Project #: DA-SFM-200713
Project Manager: ERIC STEELE
ALPHA Quote #: 11614

Address: 94 GIFFORD ST.
FALMOUTH, MA 02540
Phone: 508 540-6001
Email: eric@steeleassociates.net

Turn-Around Time
Standard RUSH (only confirmed if pre-approved)

Additional Project Information:
Per Alpha, need original back contest to make copies for records
7/31/20 Rec: M... 7/31/20 1350

Additional Project Information:
Per Alpha, need original back contest to make copies for records
7/31/20 Rec: M... 7/31/20 1350

| ALPHA Lab ID (Lab Use Only) | Sample ID | Collection Date | Time | Sample Matrix | Sampler Initials | Criteria |
|-----------------------------|-----------|-----------------|------|---------------|------------------|--|
| 2958901 | SFM 1-3 | 7/13/20 | 0935 | | EMS | VOC: <input checked="" type="checkbox"/> B260 <input checked="" type="checkbox"/> B24 <input checked="" type="checkbox"/> S242 METALS: <input checked="" type="checkbox"/> ABN <input checked="" type="checkbox"/> PAH METALS: <input checked="" type="checkbox"/> MCP 13 <input checked="" type="checkbox"/> MCP 14 <input checked="" type="checkbox"/> MCP 15 METALS: <input checked="" type="checkbox"/> RCRAS <input checked="" type="checkbox"/> RCRAB <input checked="" type="checkbox"/> PPT3 EPH: <input checked="" type="checkbox"/> Ranges & Targets <input checked="" type="checkbox"/> Ranges Only VPH: <input checked="" type="checkbox"/> Ranges & Targets <input checked="" type="checkbox"/> Ranges Only TPH: <input checked="" type="checkbox"/> Quant Only <input checked="" type="checkbox"/> Fingerprint |
| 02 | SFM 4-6 | | 1112 | | EMS | GRAND SIZE PAH/PCB TOC TS-SM2540 |
| 03 | SFM 8-10 | | 1245 | | EMS | |
| 04 | SFM 7 | | 1332 | | EMS | |
| 08 | SFM 11 | | 1425 | | EMS | |
| 06 | SFM 12 | | 1350 | | EMS | |

| Relinquished By: | Date/Time | Received By: | Date/Time |
|--------------------|---------------|--------------------|---------------|
| <i>[Signature]</i> | 7/14/20 | <i>[Signature]</i> | 7/14/20 11:35 |
| <i>[Signature]</i> | 7/14/20 17:15 | <i>[Signature]</i> | 7/14/20 17:15 |

| Container Type | Preservative |
|----------------|---------------|
| Plastic | None |
| Amber glass | HCl |
| Vial | HNO3 |
| Glass | H2SO4 |
| Bacter-a cup | NaOH |
| Cube | MeOH |
| Other | NaHSO4 |
| Encore | Na2S2O8 |
| BOO Bottle | Ascorbic Acid |
| | NH4Cl |
| | Zn Acetate |
| | Other |

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August 7, 2020

Mary Davis
Alpha Analytical Laboratory
8 Walkup Drive
Westborough, MA 01581

Project Location: Charlestown, MA
Client Job Number:
Project Number: L2029589
Laboratory Work Order Number: 20G1178

Enclosed are results of analyses for samples received by the laboratory on July 24, 2020. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Raymond J. McCarthy
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Alpha Analytical Laboratory
8 Walkup Drive
Westborough, MA 01581
ATTN: Mary Davis

REPORT DATE: 8/7/2020

PURCHASE ORDER NUMBER:

PROJECT NUMBER: L2029589

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 20G1178

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Charlestown, MA

| FIELD SAMPLE # | LAB ID: | MATRIX | SAMPLE DESCRIPTION | TEST | SUB LAB |
|----------------|------------|--------|--------------------|----------------------------|---------|
| JFM 1-3 | 20G1178-01 | Soil | | SM 2540G SW-846 8260C-D | |
| JFM 4-6 | 20G1178-02 | Soil | | SM 2540G SW-846 8260C-D | |
| JFM 8-10 | 20G1178-03 | Soil | | SM 2540G SW-846 8260C-D | |
| JFM 7 | 20G1178-04 | Soil | | SM 2540G SW-846 8260C-D | |
| JFM 11 | 20G1178-05 | Soil | | SM 2540G SW-846 8260C-D | |
| JFM 12 | 20G1178-06 | Soil | | SM 2540G SW-846 8260C-D | |

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

SW-846 8260C-D**Qualifications:**

V-05
Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:**1,2-Dibromo-3-chloropropane (DBP)**

20G1178-01[JFM 1-3], 20G1178-02[JFM 4-6], 20G1178-03[JFM 8-10], 20G1178-04[JFM 7], 20G1178-05[JFM 11], 20G1178-06[JFM 12], B262682-BLK1, B262682-BS1, B262682-BSD1

Carbon Tetrachloride

20G1178-01[JFM 1-3], 20G1178-02[JFM 4-6], 20G1178-03[JFM 8-10], 20G1178-04[JFM 7], 20G1178-05[JFM 11], 20G1178-06[JFM 12], B262682-BLK1, B262682-BS1, B262682-BSD1

V-16
Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.

Analyte & Samples(s) Qualified:**1,4-Dioxane**

20G1178-01[JFM 1-3], 20G1178-02[JFM 4-6], 20G1178-03[JFM 8-10], 20G1178-04[JFM 7], 20G1178-05[JFM 11], 20G1178-06[JFM 12], B262682-BLK1, B262682-BS1, B262682-BSD1

V-34
Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated.

Analyte & Samples(s) Qualified:**Bromomethane**

20G1178-01[JFM 1-3], 20G1178-02[JFM 4-6], 20G1178-03[JFM 8-10], 20G1178-04[JFM 7], 20G1178-05[JFM 11], 20G1178-06[JFM 12], B262682-BLK1, B262682-BS1, B262682-BSD1

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Lisa A. Worthington
Technical Representative

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Charlestown, MA

Sample Description:

Work Order: 20G1178

Date Received: 7/24/2020

Field Sample #: JFM 1-3

Sampled: 7/13/2020 09:35

Sample ID: 20G1178-01

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|------------------------------------|---------|--------|-----------|----------|-----------|----------------|---------------|--------------------|---------|
| Acetone | 0.39 | 0.12 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| tert-Amyl Methyl Ether (TAME) | ND | 0.0012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Benzene | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Bromobenzene | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Bromochloromethane | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Bromodichloromethane | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Bromoform | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Bromomethane | ND | 0.012 | mg/Kg dry | 1 | V-34 | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| 2-Butanone (MEK) | 0.096 | 0.046 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| n-Butylbenzene | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| sec-Butylbenzene | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| tert-Butylbenzene | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| tert-Butyl Ethyl Ether (TBEE) | ND | 0.0012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Carbon Disulfide | 0.030 | 0.0070 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Carbon Tetrachloride | ND | 0.0023 | mg/Kg dry | 1 | V-05 | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Chlorobenzene | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Chlorodibromomethane | ND | 0.0012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Chloroethane | ND | 0.012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Chloroform | ND | 0.0046 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Chloromethane | ND | 0.012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| 2-Chlorotoluene | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| 4-Chlorotoluene | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| 1,2-Dibromo-3-chloropropane (DBCP) | ND | 0.0023 | mg/Kg dry | 1 | V-05 | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| 1,2-Dibromoethane (EDB) | ND | 0.0012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Dibromomethane | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| 1,2-Dichlorobenzene | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| 1,3-Dichlorobenzene | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| 1,4-Dichlorobenzene | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Dichlorodifluoromethane (Freon 12) | ND | 0.012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| 1,1-Dichloroethane | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| 1,2-Dichloroethane | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| 1,1-Dichloroethylene | ND | 0.0046 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| cis-1,2-Dichloroethylene | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| trans-1,2-Dichloroethylene | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| 1,2-Dichloropropane | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| 1,3-Dichloropropane | ND | 0.0012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| 2,2-Dichloropropane | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| 1,1-Dichloropropene | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| cis-1,3-Dichloropropene | ND | 0.0012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| trans-1,3-Dichloropropene | ND | 0.0012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Diethyl Ether | ND | 0.012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Diisopropyl Ether (DIPE) | ND | 0.0012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| 1,4-Dioxane | ND | 0.12 | mg/Kg dry | 1 | V-16 | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Ethylbenzene | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Charlestown, MA

Sample Description:

Work Order: 20G1178

Date Received: 7/24/2020

Field Sample #: JFM 1-3

Sampled: 7/13/2020 09:35

Sample ID: 20G1178-01

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|-----------------------------------|---------|------------|-----------------|----------|-----------|----------------|---------------|--------------------|---------|
| Hexachlorobutadiene | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| 2-Hexanone (MBK) | ND | 0.023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Isopropylbenzene (Cumene) | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| p-Isopropyltoluene (p-Cymene) | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Methyl tert-Butyl Ether (MTBE) | ND | 0.0046 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Methylene Chloride | ND | 0.012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Naphthalene | ND | 0.0046 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| n-Propylbenzene | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Styrene | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| 1,1,1,2-Tetrachloroethane | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| 1,1,2,2-Tetrachloroethane | ND | 0.0012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Tetrachloroethylene | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Tetrahydrofuran | ND | 0.012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Toluene | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| 1,2,3-Trichlorobenzene | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| 1,2,4-Trichlorobenzene | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| 1,1,1-Trichloroethane | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| 1,1,2-Trichloroethane | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Trichloroethylene | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Trichlorofluoromethane (Freon 11) | ND | 0.012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| 1,2,3-Trichloropropane | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| 1,2,4-Trimethylbenzene | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| 1,3,5-Trimethylbenzene | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Vinyl Chloride | ND | 0.012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| m+p Xylene | ND | 0.0046 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| o-Xylene | ND | 0.0023 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 15:42 | MFF |
| Surrogates | | % Recovery | Recovery Limits | | Flag/Qual | | | | |
| 1,2-Dichloroethane-d4 | | 84.9 | 70-130 | | | | | 7/26/20 15:42 | |
| Toluene-d8 | | 92.3 | 70-130 | | | | | 7/26/20 15:42 | |
| 4-Bromofluorobenzene | | 98.6 | 70-130 | | | | | 7/26/20 15:42 | |

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Charlestown, MA

Sample Description:

Work Order: 20G1178

Date Received: 7/24/2020

Sampled: 7/13/2020 09:35

Field Sample #: JFM 1-3

Sample ID: 20G1178-01

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|----------|---------|----|-------|----------|-----------|----------|---------------|--------------------|---------|
| % Solids | 47.6 | | % Wt | 1 | | SM 2540G | 8/7/20 | 8/7/20 13:26 | FWD |

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Charlestown, MA

Sample Description:

Work Order: 20G1178

Date Received: 7/24/2020

Field Sample #: JFM 4-6

Sampled: 7/13/2020 11:12

Sample ID: 20G1178-02

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|------------------------------------|---------|--------|-----------|----------|-----------|----------------|---------------|--------------------|---------|
| Acetone | 0.22 | 0.12 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| tert-Amyl Methyl Ether (TAME) | ND | 0.0012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Benzene | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Bromobenzene | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Bromochloromethane | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Bromodichloromethane | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Bromoform | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Bromomethane | ND | 0.012 | mg/Kg dry | 1 | V-34 | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| 2-Butanone (MEK) | 0.053 | 0.049 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| n-Butylbenzene | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| sec-Butylbenzene | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| tert-Butylbenzene | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| tert-Butyl Ethyl Ether (TBEE) | ND | 0.0012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Carbon Disulfide | 0.019 | 0.0073 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Carbon Tetrachloride | ND | 0.0024 | mg/Kg dry | 1 | V-05 | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Chlorobenzene | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Chlorodibromomethane | ND | 0.0012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Chloroethane | ND | 0.012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Chloroform | ND | 0.0049 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Chloromethane | ND | 0.012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| 2-Chlorotoluene | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| 4-Chlorotoluene | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| 1,2-Dibromo-3-chloropropane (DBCP) | ND | 0.0024 | mg/Kg dry | 1 | V-05 | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| 1,2-Dibromoethane (EDB) | ND | 0.0012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Dibromomethane | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| 1,2-Dichlorobenzene | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| 1,3-Dichlorobenzene | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| 1,4-Dichlorobenzene | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Dichlorodifluoromethane (Freon 12) | ND | 0.012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| 1,1-Dichloroethane | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| 1,2-Dichloroethane | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| 1,1-Dichloroethylene | ND | 0.0049 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| cis-1,2-Dichloroethylene | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| trans-1,2-Dichloroethylene | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| 1,2-Dichloropropane | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| 1,3-Dichloropropane | ND | 0.0012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| 2,2-Dichloropropane | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| 1,1-Dichloropropene | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| cis-1,3-Dichloropropene | ND | 0.0012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| trans-1,3-Dichloropropene | ND | 0.0012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Diethyl Ether | ND | 0.012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Diisopropyl Ether (DIPE) | ND | 0.0012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| 1,4-Dioxane | ND | 0.12 | mg/Kg dry | 1 | V-16 | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Ethylbenzene | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Charlestown, MA

Sample Description:

Work Order: 20G1178

Date Received: 7/24/2020

Field Sample #: JFM 4-6

Sampled: 7/13/2020 11:12

Sample ID: 20G1178-02

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|-----------------------------------|---------|------------|-----------------|----------|-----------|----------------|---------------|--------------------|---------|
| Hexachlorobutadiene | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| 2-Hexanone (MBK) | ND | 0.024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Isopropylbenzene (Cumene) | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| p-Isopropyltoluene (p-Cymene) | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Methyl tert-Butyl Ether (MTBE) | ND | 0.0049 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Methylene Chloride | ND | 0.012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Naphthalene | 0.0054 | 0.0049 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| n-Propylbenzene | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Styrene | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| 1,1,1,2-Tetrachloroethane | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| 1,1,2,2-Tetrachloroethane | ND | 0.0012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Tetrachloroethylene | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Tetrahydrofuran | ND | 0.012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Toluene | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| 1,2,3-Trichlorobenzene | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| 1,2,4-Trichlorobenzene | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| 1,1,1-Trichloroethane | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| 1,1,2-Trichloroethane | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Trichloroethylene | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Trichlorofluoromethane (Freon 11) | ND | 0.012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| 1,2,3-Trichloropropane | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| 1,2,4-Trimethylbenzene | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| 1,3,5-Trimethylbenzene | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Vinyl Chloride | ND | 0.012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| m+p Xylene | ND | 0.0049 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| o-Xylene | ND | 0.0024 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:07 | MFF |
| Surrogates | | % Recovery | Recovery Limits | | Flag/Qual | | | | |
| 1,2-Dichloroethane-d4 | | 89.7 | 70-130 | | | | | 7/26/20 16:07 | |
| Toluene-d8 | | 91.7 | 70-130 | | | | | 7/26/20 16:07 | |
| 4-Bromofluorobenzene | | 93.5 | 70-130 | | | | | 7/26/20 16:07 | |

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Charlestown, MA

Sample Description:

Work Order: 20G1178

Date Received: 7/24/2020

Sampled: 7/13/2020 11:12

Field Sample #: JFM 4-6

Sample ID: 20G1178-02

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|----------|---------|----|-------|----------|-----------|----------|---------------|--------------------|---------|
| % Solids | 49.8 | | % Wt | 1 | | SM 2540G | 8/7/20 | 8/7/20 13:26 | FWD |

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Charlestown, MA

Sample Description:

Work Order: 20G1178

Date Received: 7/24/2020

Field Sample #: JFM 8-10

Sampled: 7/13/2020 12:45

Sample ID: 20G1178-03

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|------------------------------------|---------|--------|-----------|----------|-----------|----------------|---------------|--------------------|---------|
| Acetone | 0.21 | 0.12 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| tert-Amyl Methyl Ether (TAME) | ND | 0.0012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Benzene | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Bromobenzene | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Bromochloromethane | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Bromodichloromethane | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Bromoform | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Bromomethane | ND | 0.012 | mg/Kg dry | 1 | V-34 | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| 2-Butanone (MEK) | ND | 0.049 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| n-Butylbenzene | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| sec-Butylbenzene | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| tert-Butylbenzene | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| tert-Butyl Ethyl Ether (TBEE) | ND | 0.0012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Carbon Disulfide | 0.013 | 0.0074 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Carbon Tetrachloride | ND | 0.0025 | mg/Kg dry | 1 | V-05 | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Chlorobenzene | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Chlorodibromomethane | ND | 0.0012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Chloroethane | ND | 0.012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Chloroform | ND | 0.0049 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Chloromethane | ND | 0.012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| 2-Chlorotoluene | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| 4-Chlorotoluene | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| 1,2-Dibromo-3-chloropropane (DBCP) | ND | 0.0025 | mg/Kg dry | 1 | V-05 | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| 1,2-Dibromoethane (EDB) | ND | 0.0012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Dibromomethane | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| 1,2-Dichlorobenzene | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| 1,3-Dichlorobenzene | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| 1,4-Dichlorobenzene | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Dichlorodifluoromethane (Freon 12) | ND | 0.012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| 1,1-Dichloroethane | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| 1,2-Dichloroethane | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| 1,1-Dichloroethylene | ND | 0.0049 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| cis-1,2-Dichloroethylene | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| trans-1,2-Dichloroethylene | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| 1,2-Dichloropropane | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| 1,3-Dichloropropane | ND | 0.0012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| 2,2-Dichloropropane | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| 1,1-Dichloropropene | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| cis-1,3-Dichloropropene | ND | 0.0012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| trans-1,3-Dichloropropene | ND | 0.0012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Diethyl Ether | ND | 0.012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Diisopropyl Ether (DIPE) | ND | 0.0012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| 1,4-Dioxane | ND | 0.12 | mg/Kg dry | 1 | V-16 | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Ethylbenzene | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Charlestown, MA

Sample Description:

Work Order: 20G1178

Date Received: 7/24/2020

Field Sample #: JFM 8-10

Sampled: 7/13/2020 12:45

Sample ID: 20G1178-03

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|-----------------------------------|---------|--------|-----------|----------|-----------|----------------|---------------|--------------------|---------|
| Hexachlorobutadiene | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| 2-Hexanone (MBK) | ND | 0.025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Isopropylbenzene (Cumene) | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| p-Isopropyltoluene (p-Cymene) | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Methyl tert-Butyl Ether (MTBE) | ND | 0.0049 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Methylene Chloride | ND | 0.012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Naphthalene | ND | 0.0049 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| n-Propylbenzene | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Styrene | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| 1,1,1,2-Tetrachloroethane | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| 1,1,2,2-Tetrachloroethane | ND | 0.0012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Tetrachloroethylene | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Tetrahydrofuran | ND | 0.012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Toluene | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| 1,2,3-Trichlorobenzene | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| 1,2,4-Trichlorobenzene | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| 1,1,1-Trichloroethane | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| 1,1,2-Trichloroethane | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Trichloroethylene | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Trichlorofluoromethane (Freon 11) | ND | 0.012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| 1,2,3-Trichloropropane | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| 1,2,4-Trimethylbenzene | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| 1,3,5-Trimethylbenzene | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| Vinyl Chloride | ND | 0.012 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| m+p Xylene | ND | 0.0049 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |
| o-Xylene | ND | 0.0025 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:32 | MFF |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual |
|-----------------------|------------|-----------------|-----------|
| 1,2-Dichloroethane-d4 | 90.9 | 70-130 | |
| Toluene-d8 | 89.8 | 70-130 | |
| 4-Bromofluorobenzene | 94.4 | 70-130 | |

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Charlestown, MA

Sample Description:

Work Order: 20G1178

Date Received: 7/24/2020

Sampled: 7/13/2020 12:45

Field Sample #: JFM 8-10

Sample ID: 20G1178-03

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|----------|---------|----|-------|----------|-----------|----------|---------------|--------------------|---------|
| % Solids | 46.6 | | % Wt | 1 | | SM 2540G | 8/7/20 | 8/7/20 13:26 | FWD |

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Charlestown, MA

Sample Description:

Work Order: 20G1178

Date Received: 7/24/2020

Field Sample #: JFM 7

Sampled: 7/13/2020 13:32

Sample ID: 20G1178-04

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|------------------------------------|---------|--------|-----------|----------|-----------|----------------|---------------|--------------------|---------|
| Acetone | 0.32 | 0.19 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| tert-Amyl Methyl Ether (TAME) | ND | 0.0019 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Benzene | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Bromobenzene | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Bromochloromethane | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Bromodichloromethane | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Bromoform | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Bromomethane | ND | 0.019 | mg/Kg dry | 1 | V-34 | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| 2-Butanone (MEK) | ND | 0.074 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| n-Butylbenzene | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| sec-Butylbenzene | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| tert-Butylbenzene | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| tert-Butyl Ethyl Ether (TBEE) | ND | 0.0019 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Carbon Disulfide | 0.043 | 0.011 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Carbon Tetrachloride | ND | 0.0037 | mg/Kg dry | 1 | V-05 | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Chlorobenzene | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Chlorodibromomethane | ND | 0.0019 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Chloroethane | ND | 0.019 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Chloroform | ND | 0.0074 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Chloromethane | ND | 0.019 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| 2-Chlorotoluene | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| 4-Chlorotoluene | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| 1,2-Dibromo-3-chloropropane (DBCP) | ND | 0.0037 | mg/Kg dry | 1 | V-05 | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| 1,2-Dibromoethane (EDB) | ND | 0.0019 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Dibromomethane | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| 1,2-Dichlorobenzene | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| 1,3-Dichlorobenzene | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| 1,4-Dichlorobenzene | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Dichlorodifluoromethane (Freon 12) | ND | 0.019 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| 1,1-Dichloroethane | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| 1,2-Dichloroethane | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| 1,1-Dichloroethylene | ND | 0.0074 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| cis-1,2-Dichloroethylene | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| trans-1,2-Dichloroethylene | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| 1,2-Dichloropropane | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| 1,3-Dichloropropane | ND | 0.0019 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| 2,2-Dichloropropane | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| 1,1-Dichloropropene | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| cis-1,3-Dichloropropene | ND | 0.0019 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| trans-1,3-Dichloropropene | ND | 0.0019 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Diethyl Ether | ND | 0.019 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Diisopropyl Ether (DIPE) | ND | 0.0019 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| 1,4-Dioxane | ND | 0.19 | mg/Kg dry | 1 | V-16 | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Ethylbenzene | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Charlestown, MA

Sample Description:

Work Order: 20G1178

Date Received: 7/24/2020

Field Sample #: JFM 7

Sampled: 7/13/2020 13:32

Sample ID: 20G1178-04

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|-----------------------------------|---------|--------|-----------|----------|-----------|----------------|---------------|--------------------|---------|
| Hexachlorobutadiene | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| 2-Hexanone (MBK) | ND | 0.037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Isopropylbenzene (Cumene) | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| p-Isopropyltoluene (p-Cymene) | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Methyl tert-Butyl Ether (MTBE) | ND | 0.0074 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Methylene Chloride | ND | 0.019 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Naphthalene | ND | 0.0074 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| n-Propylbenzene | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Styrene | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| 1,1,1,2-Tetrachloroethane | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| 1,1,2,2-Tetrachloroethane | ND | 0.0019 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Tetrachloroethylene | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Tetrahydrofuran | ND | 0.019 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Toluene | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| 1,2,3-Trichlorobenzene | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| 1,2,4-Trichlorobenzene | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| 1,1,1-Trichloroethane | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| 1,1,2-Trichloroethane | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Trichloroethylene | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Trichlorofluoromethane (Freon 11) | ND | 0.019 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| 1,2,3-Trichloropropane | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| 1,2,4-Trimethylbenzene | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| 1,3,5-Trimethylbenzene | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| Vinyl Chloride | ND | 0.019 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| m+p Xylene | ND | 0.0074 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |
| o-Xylene | ND | 0.0037 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 16:56 | MFF |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual |
|-----------------------|------------|-----------------|-----------|
| 1,2-Dichloroethane-d4 | 92.8 | 70-130 | |
| Toluene-d8 | 94.0 | 70-130 | |
| 4-Bromofluorobenzene | 97.2 | 70-130 | |

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Charlestown, MA

Sample Description:

Work Order: 20G1178

Date Received: 7/24/2020

Sampled: 7/13/2020 13:32

Field Sample #: JFM 7

Sample ID: 20G1178-04

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|----------|---------|----|-------|----------|-----------|----------|---------------|--------------------|---------|
| % Solids | 46.5 | | % Wt | 1 | | SM 2540G | 8/7/20 | 8/7/20 13:26 | FWD |

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Charlestown, MA

Sample Description:

Work Order: 20G1178

Date Received: 7/24/2020

Field Sample #: JFM 11

Sampled: 7/13/2020 14:25

Sample ID: 20G1178-05

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|------------------------------------|---------|--------|-----------|----------|-----------|----------------|---------------|--------------------|---------|
| Acetone | 0.31 | 0.21 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| tert-Amyl Methyl Ether (TAME) | ND | 0.0021 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Benzene | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Bromobenzene | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Bromochloromethane | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Bromodichloromethane | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Bromoform | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Bromomethane | ND | 0.021 | mg/Kg dry | 1 | V-34 | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| 2-Butanone (MEK) | ND | 0.086 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| n-Butylbenzene | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| sec-Butylbenzene | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| tert-Butylbenzene | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| tert-Butyl Ethyl Ether (TBEE) | ND | 0.0021 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Carbon Disulfide | 0.039 | 0.013 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Carbon Tetrachloride | ND | 0.0043 | mg/Kg dry | 1 | V-05 | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Chlorobenzene | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Chlorodibromomethane | ND | 0.0021 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Chloroethane | ND | 0.021 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Chloroform | ND | 0.0086 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Chloromethane | ND | 0.021 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| 2-Chlorotoluene | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| 4-Chlorotoluene | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| 1,2-Dibromo-3-chloropropane (DBCP) | ND | 0.0043 | mg/Kg dry | 1 | V-05 | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| 1,2-Dibromoethane (EDB) | ND | 0.0021 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Dibromomethane | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| 1,2-Dichlorobenzene | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| 1,3-Dichlorobenzene | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| 1,4-Dichlorobenzene | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Dichlorodifluoromethane (Freon 12) | ND | 0.021 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| 1,1-Dichloroethane | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| 1,2-Dichloroethane | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| 1,1-Dichloroethylene | ND | 0.0086 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| cis-1,2-Dichloroethylene | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| trans-1,2-Dichloroethylene | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| 1,2-Dichloropropane | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| 1,3-Dichloropropane | ND | 0.0021 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| 2,2-Dichloropropane | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| 1,1-Dichloropropene | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| cis-1,3-Dichloropropene | ND | 0.0021 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| trans-1,3-Dichloropropene | ND | 0.0021 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Diethyl Ether | ND | 0.021 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Diisopropyl Ether (DIPE) | ND | 0.0021 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| 1,4-Dioxane | ND | 0.21 | mg/Kg dry | 1 | V-16 | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Ethylbenzene | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Charlestown, MA

Sample Description:

Work Order: 20G1178

Date Received: 7/24/2020

Field Sample #: JFM 11

Sampled: 7/13/2020 14:25

Sample ID: 20G1178-05

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|-----------------------------------|---------|--------|-----------|----------|-----------|----------------|---------------|--------------------|---------|
| Hexachlorobutadiene | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| 2-Hexanone (MBK) | ND | 0.043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Isopropylbenzene (Cumene) | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| p-Isopropyltoluene (p-Cymene) | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Methyl tert-Butyl Ether (MTBE) | ND | 0.0086 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Methylene Chloride | ND | 0.021 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Naphthalene | ND | 0.0086 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| n-Propylbenzene | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Styrene | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| 1,1,1,2-Tetrachloroethane | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| 1,1,2,2-Tetrachloroethane | ND | 0.0021 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Tetrachloroethylene | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Tetrahydrofuran | ND | 0.021 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Toluene | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| 1,2,3-Trichlorobenzene | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| 1,2,4-Trichlorobenzene | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| 1,1,1-Trichloroethane | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| 1,1,2-Trichloroethane | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Trichloroethylene | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Trichlorofluoromethane (Freon 11) | ND | 0.021 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| 1,2,3-Trichloropropane | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| 1,2,4-Trimethylbenzene | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| 1,3,5-Trimethylbenzene | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| Vinyl Chloride | ND | 0.021 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| m+p Xylene | ND | 0.0086 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |
| o-Xylene | ND | 0.0043 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:21 | MFF |

| Surrogates | % Recovery | Recovery Limits | Flag/Qual |
|-----------------------|------------|-----------------|-----------|
| 1,2-Dichloroethane-d4 | 88.3 | 70-130 | |
| Toluene-d8 | 94.9 | 70-130 | |
| 4-Bromofluorobenzene | 98.6 | 70-130 | |

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Charlestown, MA

Sample Description:

Work Order: 20G1178

Date Received: 7/24/2020

Sampled: 7/13/2020 14:25

Field Sample #: JFM 11

Sample ID: 20G1178-05

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|----------|---------|----|-------|----------|-----------|----------|---------------|--------------------|---------|
| % Solids | 43.8 | | % Wt | 1 | | SM 2540G | 8/7/20 | 8/7/20 13:26 | FWD |

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Charlestown, MA

Sample Description:

Work Order: 20G1178

Date Received: 7/24/2020

Field Sample #: JFM 12

Sampled: 7/13/2020 13:50

Sample ID: 20G1178-06

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|------------------------------------|---------|--------|-----------|----------|-----------|----------------|---------------|--------------------|---------|
| Acetone | 0.35 | 0.22 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| tert-Amyl Methyl Ether (TAME) | ND | 0.0022 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Benzene | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Bromobenzene | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Bromochloromethane | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Bromodichloromethane | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Bromoform | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Bromomethane | ND | 0.022 | mg/Kg dry | 1 | V-34 | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| 2-Butanone (MEK) | ND | 0.088 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| n-Butylbenzene | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| sec-Butylbenzene | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| tert-Butylbenzene | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| tert-Butyl Ethyl Ether (TBEE) | ND | 0.0022 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Carbon Disulfide | 0.056 | 0.013 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Carbon Tetrachloride | ND | 0.0044 | mg/Kg dry | 1 | V-05 | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Chlorobenzene | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Chlorodibromomethane | ND | 0.0022 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Chloroethane | ND | 0.022 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Chloroform | ND | 0.0088 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Chloromethane | ND | 0.022 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| 2-Chlorotoluene | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| 4-Chlorotoluene | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| 1,2-Dibromo-3-chloropropane (DBCP) | ND | 0.0044 | mg/Kg dry | 1 | V-05 | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| 1,2-Dibromoethane (EDB) | ND | 0.0022 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Dibromomethane | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| 1,2-Dichlorobenzene | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| 1,3-Dichlorobenzene | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| 1,4-Dichlorobenzene | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Dichlorodifluoromethane (Freon 12) | ND | 0.022 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| 1,1-Dichloroethane | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| 1,2-Dichloroethane | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| 1,1-Dichloroethylene | ND | 0.0088 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| cis-1,2-Dichloroethylene | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| trans-1,2-Dichloroethylene | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| 1,2-Dichloropropane | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| 1,3-Dichloropropane | ND | 0.0022 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| 2,2-Dichloropropane | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| 1,1-Dichloropropene | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| cis-1,3-Dichloropropene | ND | 0.0022 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| trans-1,3-Dichloropropene | ND | 0.0022 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Diethyl Ether | ND | 0.022 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Diisopropyl Ether (DIPE) | ND | 0.0022 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| 1,4-Dioxane | ND | 0.22 | mg/Kg dry | 1 | V-16 | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Ethylbenzene | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Charlestown, MA

Sample Description:

Work Order: 20G1178

Date Received: 7/24/2020

Field Sample #: JFM 12

Sampled: 7/13/2020 13:50

Sample ID: 20G1178-06

Sample Matrix: Soil

Volatile Organic Compounds by GC/MS

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|-----------------------------------|---------|------------|-----------------|----------|-----------|----------------|---------------|--------------------|---------|
| Hexachlorobutadiene | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| 2-Hexanone (MBK) | ND | 0.044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Isopropylbenzene (Cumene) | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| p-Isopropyltoluene (p-Cymene) | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Methyl tert-Butyl Ether (MTBE) | ND | 0.0088 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Methylene Chloride | ND | 0.022 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Naphthalene | ND | 0.0088 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| n-Propylbenzene | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Styrene | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| 1,1,1,2-Tetrachloroethane | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| 1,1,2,2-Tetrachloroethane | ND | 0.0022 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Tetrachloroethylene | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Tetrahydrofuran | ND | 0.022 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Toluene | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| 1,2,3-Trichlorobenzene | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| 1,2,4-Trichlorobenzene | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| 1,1,1-Trichloroethane | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| 1,1,2-Trichloroethane | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Trichloroethylene | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Trichlorofluoromethane (Freon 11) | ND | 0.022 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| 1,2,3-Trichloropropane | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| 1,2,4-Trimethylbenzene | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| 1,3,5-Trimethylbenzene | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Vinyl Chloride | ND | 0.022 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| m+p Xylene | ND | 0.0088 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| o-Xylene | ND | 0.0044 | mg/Kg dry | 1 | | SW-846 8260C-D | 7/26/20 | 7/26/20 17:46 | MFF |
| Surrogates | | % Recovery | Recovery Limits | | Flag/Qual | | | | |
| 1,2-Dichloroethane-d4 | | 85.5 | 70-130 | | | | | 7/26/20 17:46 | |
| Toluene-d8 | | 94.0 | 70-130 | | | | | 7/26/20 17:46 | |
| 4-Bromofluorobenzene | | 101 | 70-130 | | | | | 7/26/20 17:46 | |

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Charlestown, MA

Sample Description:

Work Order: 20G1178

Date Received: 7/24/2020

Sampled: 7/13/2020 13:50

Field Sample #: JFM 12

Sample ID: 20G1178-06

Sample Matrix: Soil

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

| Analyte | Results | RL | Units | Dilution | Flag/Qual | Method | Date Prepared | Date/Time Analyzed | Analyst |
|----------|---------|----|-------|----------|-----------|----------|---------------|--------------------|---------|
| % Solids | 44.3 | | % Wt | 1 | | SM 2540G | 8/7/20 | 8/7/20 13:26 | FWD |

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data
Prep Method: % Solids Analytical Method: SM 2540G

| Lab Number [Field ID] | Batch | Date |
|-----------------------|---------|----------|
| 20G1178-01 [JFM 1-3] | B263778 | 08/07/20 |
| 20G1178-02 [JFM 4-6] | B263778 | 08/07/20 |
| 20G1178-03 [JFM 8-10] | B263778 | 08/07/20 |
| 20G1178-04 [JFM 7] | B263778 | 08/07/20 |
| 20G1178-05 [JFM 11] | B263778 | 08/07/20 |
| 20G1178-06 [JFM 12] | B263778 | 08/07/20 |

Prep Method: SW-846 5035 Analytical Method: SW-846 8260C-D

| Lab Number [Field ID] | Batch | Initial [g] | Final [mL] | Date |
|-----------------------|---------|-------------|------------|----------|
| 20G1178-01 [JFM 1-3] | B262682 | 9.04 | 10.0 | 07/26/20 |
| 20G1178-02 [JFM 4-6] | B262682 | 8.21 | 10.0 | 07/26/20 |
| 20G1178-03 [JFM 8-10] | B262682 | 8.71 | 10.0 | 07/26/20 |
| 20G1178-04 [JFM 7] | B262682 | 5.81 | 10.0 | 07/26/20 |
| 20G1178-05 [JFM 11] | B262682 | 5.32 | 10.0 | 07/26/20 |
| 20G1178-06 [JFM 12] | B262682 | 5.14 | 10.0 | 07/26/20 |

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

Batch B262682 - SW-846 5035

Blank (B262682-BLK1)

Prepared & Analyzed: 07/26/20

| | | | | | | | | | | |
|------------------------------------|----|--------|-----------|--|--|--|--|--|--|------|
| Acetone | ND | 0.10 | mg/Kg wet | | | | | | | |
| tert-Amyl Methyl Ether (TAME) | ND | 0.0010 | mg/Kg wet | | | | | | | |
| Benzene | ND | 0.0020 | mg/Kg wet | | | | | | | |
| Bromobenzene | ND | 0.0020 | mg/Kg wet | | | | | | | |
| Bromochloromethane | ND | 0.0020 | mg/Kg wet | | | | | | | |
| Bromodichloromethane | ND | 0.0020 | mg/Kg wet | | | | | | | |
| Bromoform | ND | 0.0020 | mg/Kg wet | | | | | | | |
| Bromomethane | ND | 0.010 | mg/Kg wet | | | | | | | V-34 |
| 2-Butanone (MEK) | ND | 0.040 | mg/Kg wet | | | | | | | |
| n-Butylbenzene | ND | 0.0020 | mg/Kg wet | | | | | | | |
| sec-Butylbenzene | ND | 0.0020 | mg/Kg wet | | | | | | | |
| tert-Butylbenzene | ND | 0.0020 | mg/Kg wet | | | | | | | |
| tert-Butyl Ethyl Ether (TBEE) | ND | 0.0010 | mg/Kg wet | | | | | | | |
| Carbon Disulfide | ND | 0.0060 | mg/Kg wet | | | | | | | |
| Carbon Tetrachloride | ND | 0.0020 | mg/Kg wet | | | | | | | V-05 |
| Chlorobenzene | ND | 0.0020 | mg/Kg wet | | | | | | | |
| Chlorodibromomethane | ND | 0.0010 | mg/Kg wet | | | | | | | |
| Chloroethane | ND | 0.010 | mg/Kg wet | | | | | | | |
| Chloroform | ND | 0.0040 | mg/Kg wet | | | | | | | |
| Chloromethane | ND | 0.010 | mg/Kg wet | | | | | | | |
| 2-Chlorotoluene | ND | 0.0020 | mg/Kg wet | | | | | | | |
| 4-Chlorotoluene | ND | 0.0020 | mg/Kg wet | | | | | | | |
| 1,2-Dibromo-3-chloropropane (DBCP) | ND | 0.0020 | mg/Kg wet | | | | | | | V-05 |
| 1,2-Dibromoethane (EDB) | ND | 0.0010 | mg/Kg wet | | | | | | | |
| Dibromomethane | ND | 0.0020 | mg/Kg wet | | | | | | | |
| 1,2-Dichlorobenzene | ND | 0.0020 | mg/Kg wet | | | | | | | |
| 1,3-Dichlorobenzene | ND | 0.0020 | mg/Kg wet | | | | | | | |
| 1,4-Dichlorobenzene | ND | 0.0020 | mg/Kg wet | | | | | | | |
| Dichlorodifluoromethane (Freon 12) | ND | 0.010 | mg/Kg wet | | | | | | | |
| 1,1-Dichloroethane | ND | 0.0020 | mg/Kg wet | | | | | | | |
| 1,2-Dichloroethane | ND | 0.0020 | mg/Kg wet | | | | | | | |
| 1,1-Dichloroethylene | ND | 0.0040 | mg/Kg wet | | | | | | | |
| cis-1,2-Dichloroethylene | ND | 0.0020 | mg/Kg wet | | | | | | | |
| trans-1,2-Dichloroethylene | ND | 0.0020 | mg/Kg wet | | | | | | | |
| 1,2-Dichloropropane | ND | 0.0020 | mg/Kg wet | | | | | | | |
| 1,3-Dichloropropane | ND | 0.0010 | mg/Kg wet | | | | | | | |
| 2,2-Dichloropropane | ND | 0.0020 | mg/Kg wet | | | | | | | |
| 1,1-Dichloropropene | ND | 0.0020 | mg/Kg wet | | | | | | | |
| cis-1,3-Dichloropropene | ND | 0.0010 | mg/Kg wet | | | | | | | |
| trans-1,3-Dichloropropene | ND | 0.0010 | mg/Kg wet | | | | | | | |
| Diethyl Ether | ND | 0.010 | mg/Kg wet | | | | | | | |
| Diisopropyl Ether (DIPE) | ND | 0.0010 | mg/Kg wet | | | | | | | |
| 1,4-Dioxane | ND | 0.10 | mg/Kg wet | | | | | | | V-16 |
| Ethylbenzene | ND | 0.0020 | mg/Kg wet | | | | | | | |
| Hexachlorobutadiene | ND | 0.0020 | mg/Kg wet | | | | | | | |
| 2-Hexanone (MBK) | ND | 0.020 | mg/Kg wet | | | | | | | |
| Isopropylbenzene (Cumene) | ND | 0.0020 | mg/Kg wet | | | | | | | |
| p-Isopropyltoluene (p-Cymene) | ND | 0.0020 | mg/Kg wet | | | | | | | |
| Methyl tert-Butyl Ether (MTBE) | ND | 0.0040 | mg/Kg wet | | | | | | | |
| Methylene Chloride | ND | 0.010 | mg/Kg wet | | | | | | | |
| 4-Methyl-2-pentanone (MIBK) | ND | 0.020 | mg/Kg wet | | | | | | | |
| Naphthalene | ND | 0.0040 | mg/Kg wet | | | | | | | |

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|------------------------------------|--------|-----------------|-----------|-------------|---------------|------|-------------|-----|-----------|-------|
| Batch B262682 - SW-846 5035 | | | | | | | | | | |
| Blank (B262682-BLK1) | | | | | | | | | | |
| Prepared & Analyzed: 07/26/20 | | | | | | | | | | |
| n-Propylbenzene | ND | 0.0020 | mg/Kg wet | | | | | | | |
| Styrene | ND | 0.0020 | mg/Kg wet | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ND | 0.0020 | mg/Kg wet | | | | | | | |
| 1,1,2,2-Tetrachloroethane | ND | 0.0010 | mg/Kg wet | | | | | | | |
| Tetrachloroethylene | ND | 0.0020 | mg/Kg wet | | | | | | | |
| Tetrahydrofuran | ND | 0.010 | mg/Kg wet | | | | | | | |
| Toluene | ND | 0.0020 | mg/Kg wet | | | | | | | |
| 1,2,3-Trichlorobenzene | ND | 0.0020 | mg/Kg wet | | | | | | | |
| 1,2,4-Trichlorobenzene | ND | 0.0020 | mg/Kg wet | | | | | | | |
| 1,1,1-Trichloroethane | ND | 0.0020 | mg/Kg wet | | | | | | | |
| 1,1,2-Trichloroethane | ND | 0.0020 | mg/Kg wet | | | | | | | |
| Trichloroethylene | ND | 0.0020 | mg/Kg wet | | | | | | | |
| Trichlorofluoromethane (Freon 11) | ND | 0.010 | mg/Kg wet | | | | | | | |
| 1,2,3-Trichloropropane | ND | 0.0020 | mg/Kg wet | | | | | | | |
| 1,2,4-Trimethylbenzene | ND | 0.0020 | mg/Kg wet | | | | | | | |
| 1,3,5-Trimethylbenzene | ND | 0.0020 | mg/Kg wet | | | | | | | |
| Vinyl Chloride | ND | 0.010 | mg/Kg wet | | | | | | | |
| m+p Xylene | ND | 0.0040 | mg/Kg wet | | | | | | | |
| o-Xylene | ND | 0.0020 | mg/Kg wet | | | | | | | |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0433 | | mg/Kg wet | 0.0500 | | 86.7 | 70-130 | | | |
| Surrogate: Toluene-d8 | 0.0468 | | mg/Kg wet | 0.0500 | | 93.7 | 70-130 | | | |
| Surrogate: 4-Bromofluorobenzene | 0.0508 | | mg/Kg wet | 0.0500 | | 102 | 70-130 | | | |
| LCS (B262682-BS1) | | | | | | | | | | |
| Prepared & Analyzed: 07/26/20 | | | | | | | | | | |
| Acetone | 0.154 | 0.10 | mg/Kg wet | 0.200 | | 76.9 | 40-160 | | | † |
| tert-Amyl Methyl Ether (TAME) | 0.0168 | 0.0010 | mg/Kg wet | 0.0200 | | 83.9 | 70-130 | | | |
| Benzene | 0.0175 | 0.0020 | mg/Kg wet | 0.0200 | | 87.3 | 70-130 | | | |
| Bromobenzene | 0.0188 | 0.0020 | mg/Kg wet | 0.0200 | | 93.9 | 70-130 | | | |
| Bromochloromethane | 0.0181 | 0.0020 | mg/Kg wet | 0.0200 | | 90.7 | 70-130 | | | |
| Bromodichloromethane | 0.0157 | 0.0020 | mg/Kg wet | 0.0200 | | 78.4 | 70-130 | | | |
| Bromoform | 0.0153 | 0.0020 | mg/Kg wet | 0.0200 | | 76.7 | 70-130 | | | |
| Bromomethane | 0.0160 | 0.010 | mg/Kg wet | 0.0200 | | 80.1 | 40-160 | | V-34 | † |
| 2-Butanone (MEK) | 0.177 | 0.040 | mg/Kg wet | 0.200 | | 88.4 | 40-160 | | | † |
| n-Butylbenzene | 0.0169 | 0.0020 | mg/Kg wet | 0.0200 | | 84.4 | 70-130 | | | |
| sec-Butylbenzene | 0.0176 | 0.0020 | mg/Kg wet | 0.0200 | | 88.2 | 70-130 | | | |
| tert-Butylbenzene | 0.0183 | 0.0020 | mg/Kg wet | 0.0200 | | 91.7 | 70-130 | | | |
| tert-Butyl Ethyl Ether (TBEE) | 0.0164 | 0.0010 | mg/Kg wet | 0.0200 | | 82.1 | 70-130 | | | |
| Carbon Disulfide | 0.165 | 0.0060 | mg/Kg wet | 0.200 | | 82.6 | 70-130 | | | |
| Carbon Tetrachloride | 0.0150 | 0.0020 | mg/Kg wet | 0.0200 | | 74.8 | 70-130 | | V-05 | |
| Chlorobenzene | 0.0204 | 0.0020 | mg/Kg wet | 0.0200 | | 102 | 70-130 | | | |
| Chlorodibromomethane | 0.0159 | 0.0010 | mg/Kg wet | 0.0200 | | 79.7 | 70-130 | | | |
| Chloroethane | 0.0155 | 0.010 | mg/Kg wet | 0.0200 | | 77.5 | 70-130 | | | |
| Chloroform | 0.0168 | 0.0040 | mg/Kg wet | 0.0200 | | 83.8 | 70-130 | | | |
| Chloromethane | 0.0171 | 0.010 | mg/Kg wet | 0.0200 | | 85.4 | 40-160 | | | † |
| 2-Chlorotoluene | 0.0190 | 0.0020 | mg/Kg wet | 0.0200 | | 95.0 | 70-130 | | | |
| 4-Chlorotoluene | 0.0194 | 0.0020 | mg/Kg wet | 0.0200 | | 97.2 | 70-130 | | | |
| 1,2-Dibromo-3-chloropropane (DBCP) | 0.0140 | 0.0020 | mg/Kg wet | 0.0200 | | 70.1 | 70-130 | | V-05 | |
| 1,2-Dibromoethane (EDB) | 0.0180 | 0.0010 | mg/Kg wet | 0.0200 | | 89.8 | 70-130 | | | |
| Dibromomethane | 0.0171 | 0.0020 | mg/Kg wet | 0.0200 | | 85.4 | 70-130 | | | |
| 1,2-Dichlorobenzene | 0.0192 | 0.0020 | mg/Kg wet | 0.0200 | | 95.9 | 70-130 | | | |
| 1,3-Dichlorobenzene | 0.0192 | 0.0020 | mg/Kg wet | 0.0200 | | 96.1 | 70-130 | | | |
| 1,4-Dichlorobenzene | 0.0190 | 0.0020 | mg/Kg wet | 0.0200 | | 94.8 | 70-130 | | | |

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|------------------------------------|--------|-----------------|-----------|-------------|---------------|------|-------------|-----|-----------|--------|
| Batch B262682 - SW-846 5035 | | | | | | | | | | |
| LCS (B262682-BS1) | | | | | | | | | | |
| Prepared & Analyzed: 07/26/20 | | | | | | | | | | |
| Dichlorodifluoromethane (Freon 12) | 0.0145 | 0.010 | mg/Kg wet | 0.0200 | | 72.7 | 40-160 | | | † |
| 1,1-Dichloroethane | 0.0168 | 0.0020 | mg/Kg wet | 0.0200 | | 84.1 | 70-130 | | | |
| 1,2-Dichloroethane | 0.0169 | 0.0020 | mg/Kg wet | 0.0200 | | 84.4 | 70-130 | | | |
| 1,1-Dichloroethylene | 0.0159 | 0.0040 | mg/Kg wet | 0.0200 | | 79.5 | 70-130 | | | |
| cis-1,2-Dichloroethylene | 0.0170 | 0.0020 | mg/Kg wet | 0.0200 | | 85.0 | 70-130 | | | |
| trans-1,2-Dichloroethylene | 0.0170 | 0.0020 | mg/Kg wet | 0.0200 | | 85.1 | 70-130 | | | |
| 1,2-Dichloropropane | 0.0172 | 0.0020 | mg/Kg wet | 0.0200 | | 85.8 | 70-130 | | | |
| 1,3-Dichloropropane | 0.0180 | 0.0010 | mg/Kg wet | 0.0200 | | 89.9 | 70-130 | | | |
| 2,2-Dichloropropane | 0.0152 | 0.0020 | mg/Kg wet | 0.0200 | | 76.0 | 70-130 | | | |
| 1,1-Dichloropropene | 0.0170 | 0.0020 | mg/Kg wet | 0.0200 | | 85.0 | 70-130 | | | |
| cis-1,3-Dichloropropene | 0.0168 | 0.0010 | mg/Kg wet | 0.0200 | | 84.1 | 70-130 | | | |
| trans-1,3-Dichloropropene | 0.0170 | 0.0010 | mg/Kg wet | 0.0200 | | 84.9 | 70-130 | | | |
| Diethyl Ether | 0.0177 | 0.010 | mg/Kg wet | 0.0200 | | 88.5 | 70-130 | | | |
| Diisopropyl Ether (DIPE) | 0.0176 | 0.0010 | mg/Kg wet | 0.0200 | | 88.0 | 70-130 | | | |
| 1,4-Dioxane | 0.248 | 0.10 | mg/Kg wet | 0.200 | | 124 | 40-160 | | | V-16 † |
| Ethylbenzene | 0.0195 | 0.0020 | mg/Kg wet | 0.0200 | | 97.3 | 70-130 | | | |
| Hexachlorobutadiene | 0.0196 | 0.0020 | mg/Kg wet | 0.0200 | | 98.0 | 70-130 | | | |
| 2-Hexanone (MBK) | 0.171 | 0.020 | mg/Kg wet | 0.200 | | 85.6 | 40-160 | | | † |
| Isopropylbenzene (Cumene) | 0.0202 | 0.0020 | mg/Kg wet | 0.0200 | | 101 | 70-130 | | | |
| p-Isopropyltoluene (p-Cymene) | 0.0183 | 0.0020 | mg/Kg wet | 0.0200 | | 91.3 | 70-130 | | | |
| Methyl tert-Butyl Ether (MTBE) | 0.0171 | 0.0040 | mg/Kg wet | 0.0200 | | 85.4 | 70-130 | | | |
| Methylene Chloride | 0.0173 | 0.010 | mg/Kg wet | 0.0200 | | 86.3 | 70-130 | | | |
| 4-Methyl-2-pentanone (MIBK) | 0.179 | 0.020 | mg/Kg wet | 0.200 | | 89.4 | 40-160 | | | † |
| Naphthalene | 0.0186 | 0.0040 | mg/Kg wet | 0.0200 | | 93.1 | 70-130 | | | |
| n-Propylbenzene | 0.0192 | 0.0020 | mg/Kg wet | 0.0200 | | 95.9 | 70-130 | | | |
| Styrene | 0.0202 | 0.0020 | mg/Kg wet | 0.0200 | | 101 | 70-130 | | | |
| 1,1,1,2-Tetrachloroethane | 0.0178 | 0.0020 | mg/Kg wet | 0.0200 | | 89.1 | 70-130 | | | |
| 1,1,2,2-Tetrachloroethane | 0.0187 | 0.0010 | mg/Kg wet | 0.0200 | | 93.4 | 70-130 | | | |
| Tetrachloroethylene | 0.0198 | 0.0020 | mg/Kg wet | 0.0200 | | 99.2 | 70-130 | | | |
| Tetrahydrofuran | 0.0184 | 0.010 | mg/Kg wet | 0.0200 | | 92.1 | 70-130 | | | |
| Toluene | 0.0173 | 0.0020 | mg/Kg wet | 0.0200 | | 86.6 | 70-130 | | | |
| 1,2,3-Trichlorobenzene | 0.0194 | 0.0020 | mg/Kg wet | 0.0200 | | 97.2 | 70-130 | | | |
| 1,2,4-Trichlorobenzene | 0.0196 | 0.0020 | mg/Kg wet | 0.0200 | | 98.1 | 70-130 | | | |
| 1,1,1-Trichloroethane | 0.0165 | 0.0020 | mg/Kg wet | 0.0200 | | 82.7 | 70-130 | | | |
| 1,1,2-Trichloroethane | 0.0181 | 0.0020 | mg/Kg wet | 0.0200 | | 90.4 | 70-130 | | | |
| Trichloroethylene | 0.0178 | 0.0020 | mg/Kg wet | 0.0200 | | 89.0 | 70-130 | | | |
| Trichlorofluoromethane (Freon 11) | 0.0157 | 0.010 | mg/Kg wet | 0.0200 | | 78.7 | 70-130 | | | |
| 1,2,3-Trichloropropane | 0.0188 | 0.0020 | mg/Kg wet | 0.0200 | | 94.1 | 70-130 | | | |
| 1,2,4-Trimethylbenzene | 0.0176 | 0.0020 | mg/Kg wet | 0.0200 | | 87.9 | 70-130 | | | |
| 1,3,5-Trimethylbenzene | 0.0198 | 0.0020 | mg/Kg wet | 0.0200 | | 99.1 | 70-130 | | | |
| Vinyl Chloride | 0.0161 | 0.010 | mg/Kg wet | 0.0200 | | 80.3 | 70-130 | | | |
| m+p Xylene | 0.0391 | 0.0040 | mg/Kg wet | 0.0400 | | 97.7 | 70-130 | | | |
| o-Xylene | 0.0195 | 0.0020 | mg/Kg wet | 0.0200 | | 97.6 | 70-130 | | | |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0445 | | mg/Kg wet | 0.0500 | | 89.0 | 70-130 | | | |
| Surrogate: Toluene-d8 | 0.0474 | | mg/Kg wet | 0.0500 | | 94.9 | 70-130 | | | |
| Surrogate: 4-Bromofluorobenzene | 0.0504 | | mg/Kg wet | 0.0500 | | 101 | 70-130 | | | |

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Volatile Organic Compounds by GC/MS - Quality Control

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|------------------------------------|--------|-----------------|-----------|-------------|---------------|------|-------------|-------|-----------|--------|
| Batch B262682 - SW-846 5035 | | | | | | | | | | |
| LCS Dup (B262682-BSD1) | | | | | | | | | | |
| Prepared & Analyzed: 07/26/20 | | | | | | | | | | |
| Acetone | 0.169 | 0.10 | mg/Kg wet | 0.200 | | 84.4 | 40-160 | 9.41 | 20 | † |
| tert-Amyl Methyl Ether (TAME) | 0.0175 | 0.0010 | mg/Kg wet | 0.0200 | | 87.7 | 70-130 | 4.46 | 20 | |
| Benzene | 0.0181 | 0.0020 | mg/Kg wet | 0.0200 | | 90.4 | 70-130 | 3.53 | 20 | |
| Bromobenzene | 0.0196 | 0.0020 | mg/Kg wet | 0.0200 | | 98.2 | 70-130 | 4.54 | 20 | |
| Bromochloromethane | 0.0185 | 0.0020 | mg/Kg wet | 0.0200 | | 92.5 | 70-130 | 1.92 | 20 | |
| Bromodichloromethane | 0.0172 | 0.0020 | mg/Kg wet | 0.0200 | | 86.0 | 70-130 | 9.24 | 20 | |
| Bromoform | 0.0173 | 0.0020 | mg/Kg wet | 0.0200 | | 86.4 | 70-130 | 11.8 | 20 | |
| Bromomethane | 0.0160 | 0.010 | mg/Kg wet | 0.0200 | | 80.2 | 40-160 | 0.150 | 20 | V-34 † |
| 2-Butanone (MEK) | 0.191 | 0.040 | mg/Kg wet | 0.200 | | 95.3 | 40-160 | 7.55 | 20 | † |
| n-Butylbenzene | 0.0181 | 0.0020 | mg/Kg wet | 0.0200 | | 90.5 | 70-130 | 7.04 | 20 | |
| sec-Butylbenzene | 0.0185 | 0.0020 | mg/Kg wet | 0.0200 | | 92.4 | 70-130 | 4.64 | 20 | |
| tert-Butylbenzene | 0.0194 | 0.0020 | mg/Kg wet | 0.0200 | | 97.2 | 70-130 | 5.73 | 20 | |
| tert-Butyl Ethyl Ether (TBEE) | 0.0170 | 0.0010 | mg/Kg wet | 0.0200 | | 85.1 | 70-130 | 3.54 | 20 | |
| Carbon Disulfide | 0.171 | 0.0060 | mg/Kg wet | 0.200 | | 85.3 | 70-130 | 3.26 | 20 | |
| Carbon Tetrachloride | 0.0154 | 0.0020 | mg/Kg wet | 0.0200 | | 76.8 | 70-130 | 2.64 | 20 | V-05 |
| Chlorobenzene | 0.0216 | 0.0020 | mg/Kg wet | 0.0200 | | 108 | 70-130 | 5.67 | 20 | |
| Chlorodibromomethane | 0.0174 | 0.0010 | mg/Kg wet | 0.0200 | | 86.9 | 70-130 | 8.58 | 20 | |
| Chloroethane | 0.0166 | 0.010 | mg/Kg wet | 0.0200 | | 82.8 | 70-130 | 6.59 | 20 | |
| Chloroform | 0.0173 | 0.0040 | mg/Kg wet | 0.0200 | | 86.6 | 70-130 | 3.29 | 20 | |
| Chloromethane | 0.0190 | 0.010 | mg/Kg wet | 0.0200 | | 94.8 | 40-160 | 10.4 | 20 | † |
| 2-Chlorotoluene | 0.0202 | 0.0020 | mg/Kg wet | 0.0200 | | 101 | 70-130 | 6.20 | 20 | |
| 4-Chlorotoluene | 0.0204 | 0.0020 | mg/Kg wet | 0.0200 | | 102 | 70-130 | 5.01 | 20 | |
| 1,2-Dibromo-3-chloropropane (DBCP) | 0.0160 | 0.0020 | mg/Kg wet | 0.0200 | | 80.0 | 70-130 | 13.2 | 20 | V-05 |
| 1,2-Dibromoethane (EDB) | 0.0198 | 0.0010 | mg/Kg wet | 0.0200 | | 99.2 | 70-130 | 9.93 | 20 | |
| Dibromomethane | 0.0180 | 0.0020 | mg/Kg wet | 0.0200 | | 89.9 | 70-130 | 5.15 | 20 | |
| 1,2-Dichlorobenzene | 0.0202 | 0.0020 | mg/Kg wet | 0.0200 | | 101 | 70-130 | 5.20 | 20 | |
| 1,3-Dichlorobenzene | 0.0200 | 0.0020 | mg/Kg wet | 0.0200 | | 100 | 70-130 | 4.18 | 20 | |
| 1,4-Dichlorobenzene | 0.0200 | 0.0020 | mg/Kg wet | 0.0200 | | 99.8 | 70-130 | 5.13 | 20 | |
| Dichlorodifluoromethane (Freon 12) | 0.0155 | 0.010 | mg/Kg wet | 0.0200 | | 77.3 | 40-160 | 6.12 | 20 | † |
| 1,1-Dichloroethane | 0.0173 | 0.0020 | mg/Kg wet | 0.0200 | | 86.7 | 70-130 | 3.02 | 20 | |
| 1,2-Dichloroethane | 0.0181 | 0.0020 | mg/Kg wet | 0.0200 | | 90.3 | 70-130 | 6.74 | 20 | |
| 1,1-Dichloroethylene | 0.0163 | 0.0040 | mg/Kg wet | 0.0200 | | 81.4 | 70-130 | 2.42 | 20 | |
| cis-1,2-Dichloroethylene | 0.0172 | 0.0020 | mg/Kg wet | 0.0200 | | 86.1 | 70-130 | 1.38 | 20 | |
| trans-1,2-Dichloroethylene | 0.0171 | 0.0020 | mg/Kg wet | 0.0200 | | 85.3 | 70-130 | 0.188 | 20 | |
| 1,2-Dichloropropane | 0.0184 | 0.0020 | mg/Kg wet | 0.0200 | | 92.0 | 70-130 | 6.96 | 20 | |
| 1,3-Dichloropropane | 0.0191 | 0.0010 | mg/Kg wet | 0.0200 | | 95.3 | 70-130 | 5.84 | 20 | |
| 2,2-Dichloropropane | 0.0154 | 0.0020 | mg/Kg wet | 0.0200 | | 77.2 | 70-130 | 1.58 | 20 | |
| 1,1-Dichloropropene | 0.0178 | 0.0020 | mg/Kg wet | 0.0200 | | 89.0 | 70-130 | 4.63 | 20 | |
| cis-1,3-Dichloropropene | 0.0179 | 0.0010 | mg/Kg wet | 0.0200 | | 89.4 | 70-130 | 6.14 | 20 | |
| trans-1,3-Dichloropropene | 0.0177 | 0.0010 | mg/Kg wet | 0.0200 | | 88.4 | 70-130 | 4.08 | 20 | |
| Diethyl Ether | 0.0184 | 0.010 | mg/Kg wet | 0.0200 | | 92.2 | 70-130 | 4.07 | 20 | |
| Diisopropyl Ether (DIPE) | 0.0182 | 0.0010 | mg/Kg wet | 0.0200 | | 91.1 | 70-130 | 3.42 | 20 | |
| 1,4-Dioxane | 0.253 | 0.10 | mg/Kg wet | 0.200 | | 126 | 40-160 | 1.74 | 20 | V-16 † |
| Ethylbenzene | 0.0202 | 0.0020 | mg/Kg wet | 0.0200 | | 101 | 70-130 | 3.86 | 20 | |
| Hexachlorobutadiene | 0.0210 | 0.0020 | mg/Kg wet | 0.0200 | | 105 | 70-130 | 6.88 | 20 | |
| 2-Hexanone (MBK) | 0.192 | 0.020 | mg/Kg wet | 0.200 | | 96.0 | 40-160 | 11.4 | 20 | † |
| Isopropylbenzene (Cumene) | 0.0210 | 0.0020 | mg/Kg wet | 0.0200 | | 105 | 70-130 | 4.35 | 20 | |
| p-Isopropyltoluene (p-Cymene) | 0.0195 | 0.0020 | mg/Kg wet | 0.0200 | | 97.3 | 70-130 | 6.41 | 20 | |
| Methyl tert-Butyl Ether (MTBE) | 0.0179 | 0.0040 | mg/Kg wet | 0.0200 | | 89.6 | 70-130 | 4.72 | 20 | |
| Methylene Chloride | 0.0177 | 0.010 | mg/Kg wet | 0.0200 | | 88.6 | 70-130 | 2.59 | 20 | |
| 4-Methyl-2-pentanone (MIBK) | 0.197 | 0.020 | mg/Kg wet | 0.200 | | 98.5 | 40-160 | 9.69 | 20 | † |
| Naphthalene | 0.0201 | 0.0040 | mg/Kg wet | 0.0200 | | 101 | 70-130 | 7.70 | 20 | |

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QUALITY CONTROL
Volatile Organic Compounds by GC/MS - Quality Control

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|------------------------------------|--------|-----------------|-----------|-------------|---------------|------|-------------|--------|-----------|-------|
| Batch B262682 - SW-846 5035 | | | | | | | | | | |
| LCS Dup (B262682-BSD1) | | | | | | | | | | |
| Prepared & Analyzed: 07/26/20 | | | | | | | | | | |
| n-Propylbenzene | 0.0202 | 0.0020 | mg/Kg wet | 0.0200 | | 101 | 70-130 | 5.20 | 20 | |
| Styrene | 0.0209 | 0.0020 | mg/Kg wet | 0.0200 | | 104 | 70-130 | 3.20 | 20 | |
| 1,1,1,2-Tetrachloroethane | 0.0186 | 0.0020 | mg/Kg wet | 0.0200 | | 92.9 | 70-130 | 4.14 | 20 | |
| 1,1,2,2-Tetrachloroethane | 0.0205 | 0.0010 | mg/Kg wet | 0.0200 | | 102 | 70-130 | 9.13 | 20 | |
| Tetrachloroethylene | 0.0209 | 0.0020 | mg/Kg wet | 0.0200 | | 104 | 70-130 | 5.12 | 20 | |
| Tetrahydrofuran | 0.0206 | 0.010 | mg/Kg wet | 0.0200 | | 103 | 70-130 | 11.4 | 20 | |
| Toluene | 0.0185 | 0.0020 | mg/Kg wet | 0.0200 | | 92.4 | 70-130 | 6.45 | 20 | |
| 1,2,3-Trichlorobenzene | 0.0212 | 0.0020 | mg/Kg wet | 0.0200 | | 106 | 70-130 | 8.56 | 20 | |
| 1,2,4-Trichlorobenzene | 0.0212 | 0.0020 | mg/Kg wet | 0.0200 | | 106 | 70-130 | 7.61 | 20 | |
| 1,1,1-Trichloroethane | 0.0174 | 0.0020 | mg/Kg wet | 0.0200 | | 87.1 | 70-130 | 5.18 | 20 | |
| 1,1,2-Trichloroethane | 0.0195 | 0.0020 | mg/Kg wet | 0.0200 | | 97.6 | 70-130 | 7.60 | 20 | |
| Trichloroethylene | 0.0187 | 0.0020 | mg/Kg wet | 0.0200 | | 93.6 | 70-130 | 5.02 | 20 | |
| Trichlorofluoromethane (Freon 11) | 0.0158 | 0.010 | mg/Kg wet | 0.0200 | | 78.8 | 70-130 | 0.0508 | 20 | |
| 1,2,3-Trichloropropane | 0.0220 | 0.0020 | mg/Kg wet | 0.0200 | | 110 | 70-130 | 15.6 | 20 | |
| 1,2,4-Trimethylbenzene | 0.0186 | 0.0020 | mg/Kg wet | 0.0200 | | 93.3 | 70-130 | 5.94 | 20 | |
| 1,3,5-Trimethylbenzene | 0.0208 | 0.0020 | mg/Kg wet | 0.0200 | | 104 | 70-130 | 5.04 | 20 | |
| Vinyl Chloride | 0.0170 | 0.010 | mg/Kg wet | 0.0200 | | 85.0 | 70-130 | 5.72 | 20 | |
| m+p Xylene | 0.0405 | 0.0040 | mg/Kg wet | 0.0400 | | 101 | 70-130 | 3.54 | 20 | |
| o-Xylene | 0.0200 | 0.0020 | mg/Kg wet | 0.0200 | | 100 | 70-130 | 2.48 | 20 | |
| Surrogate: 1,2-Dichloroethane-d4 | 0.0437 | | mg/Kg wet | 0.0500 | | 87.4 | 70-130 | | | |
| Surrogate: Toluene-d8 | 0.0481 | | mg/Kg wet | 0.0500 | | 96.2 | 70-130 | | | |
| Surrogate: 4-Bromofluorobenzene | 0.0517 | | mg/Kg wet | 0.0500 | | 103 | 70-130 | | | |

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

FLAG/QUALIFIER SUMMARY

| | |
|------|---|
| * | QC result is outside of established limits. |
| † | Wide recovery limits established for difficult compound. |
| ‡ | Wide RPD limits established for difficult compound. |
| # | Data exceeded client recommended or regulatory level |
| ND | Not Detected |
| RL | Reporting Limit is at the level of quantitation (LOQ) |
| DL | Detection Limit is the lower limit of detection determined by the MDL study |
| MCL | Maximum Contaminant Level |
| | Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded. |
| | No results have been blank subtracted unless specified in the case narrative section. |
| V-05 | Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound. |
| V-16 | Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result. |
| V-34 | Initial calibration verification (ICV) did not meet method specifications and was biased on the low side for this compound. Reported result is estimated. |

CERTIFICATIONS
Certified Analyses included in this Report

| Analyte | Certifications |
|------------------------------------|----------------|
| <i>SW-846 8260C-D in Soil</i> | |
| Acetone | CT,NH,NY,ME |
| Benzene | CT,NH,NY,ME |
| Bromobenzene | NH,NY,ME |
| Bromochloromethane | NH,NY,ME |
| Bromodichloromethane | CT,NH,NY,ME |
| Bromoform | CT,NH,NY,ME |
| Bromomethane | CT,NH,NY,ME |
| 2-Butanone (MEK) | CT,NH,NY,ME |
| n-Butylbenzene | CT,NH,NY,ME |
| sec-Butylbenzene | CT,NH,NY,ME |
| tert-Butylbenzene | CT,NH,NY,ME |
| Carbon Disulfide | CT,NH,NY,ME |
| Carbon Tetrachloride | CT,NH,NY,ME |
| Chlorobenzene | CT,NH,NY,ME |
| Chlorodibromomethane | CT,NH,NY,ME |
| Chloroethane | CT,NH,NY,ME |
| Chloroform | CT,NH,NY,ME |
| Chloromethane | CT,NH,NY,ME |
| 2-Chlorotoluene | CT,NH,NY,ME |
| 4-Chlorotoluene | CT,NH,NY,ME |
| 1,2-Dibromo-3-chloropropane (DBCP) | NY |
| 1,2-Dibromoethane (EDB) | NY |
| Dibromomethane | NH,NY,ME |
| 1,2-Dichlorobenzene | CT,NH,NY,ME |
| 1,3-Dichlorobenzene | CT,NH,NY,ME |
| 1,4-Dichlorobenzene | CT,NH,NY,ME |
| Dichlorodifluoromethane (Freon 12) | NY,ME |
| 1,1-Dichloroethane | CT,NH,NY,ME |
| 1,2-Dichloroethane | CT,NH,NY,ME |
| 1,1-Dichloroethylene | CT,NH,NY,ME |
| cis-1,2-Dichloroethylene | CT,NH,NY,ME |
| trans-1,2-Dichloroethylene | CT,NH,NY,ME |
| 1,2-Dichloropropane | CT,NH,NY,ME |
| 1,3-Dichloropropane | NH,NY,ME |
| 2,2-Dichloropropane | NH,NY,ME |
| 1,1-Dichloropropene | NH,NY,ME |
| cis-1,3-Dichloropropene | CT,NH,NY,ME |
| trans-1,3-Dichloropropene | CT,NH,NY,ME |
| 1,4-Dioxane | NY |
| Ethylbenzene | CT,NH,NY,ME |
| Hexachlorobutadiene | NH,NY,ME |
| 2-Hexanone (MBK) | CT,NH,NY,ME |
| Isopropylbenzene (Cumene) | CT,NH,NY,ME |
| p-Isopropyltoluene (p-Cymene) | NH,NY |
| Methyl tert-Butyl Ether (MTBE) | NH,NY |
| Methylene Chloride | CT,NH,NY,ME |
| 4-Methyl-2-pentanone (MIBK) | CT,NH,NY |

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS
Certified Analyses included in this Report

| Analyte | Certifications |
|-----------------------------------|----------------|
| <i>SW-846 8260C-D in Soil</i> | |
| Naphthalene | NH,NY,ME |
| n-Propylbenzene | NH,NY |
| Styrene | CT,NH,NY,ME |
| 1,1,1,2-Tetrachloroethane | CT,NH,NY,ME |
| 1,1,2,2-Tetrachloroethane | CT,NH,NY,ME |
| Tetrachloroethylene | CT,NH,NY,ME |
| Toluene | CT,NH,NY,ME |
| 1,2,3-Trichlorobenzene | NY |
| 1,2,4-Trichlorobenzene | NH,NY,ME |
| 1,1,1-Trichloroethane | CT,NH,NY,ME |
| 1,1,2-Trichloroethane | CT,NH,NY,ME |
| Trichloroethylene | CT,NH,NY,ME |
| Trichlorofluoromethane (Freon 11) | CT,NH,NY,ME |
| 1,2,3-Trichloropropane | NH,NY,ME |
| 1,2,4-Trimethylbenzene | CT,NH,NY,ME |
| 1,3,5-Trimethylbenzene | CT,NH,NY,ME |
| Vinyl Chloride | CT,NH,NY,ME |
| m+p Xylene | CT,NH,NY,ME |
| o-Xylene | CT,NH,NY,ME |

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

| Code | Description | Number | Expires |
|-------|--|---------------|------------|
| AIHA | AIHA-LAP, LLC - ISO17025:2017 | 100033 | 03/1/2022 |
| MA | Massachusetts DEP | M-MA100 | 06/30/2021 |
| CT | Connecticut Department of Public Health | PH-0567 | 09/30/2021 |
| NY | New York State Department of Health | 10899 NELAP | 04/1/2021 |
| NH-S | New Hampshire Environmental Lab | 2516 NELAP | 02/5/2021 |
| RI | Rhode Island Department of Health | LAO00112 | 12/30/2020 |
| NC | North Carolina Div. of Water Quality | 652 | 12/31/2020 |
| NJ | New Jersey DEP | MA007 NELAP | 06/30/2021 |
| FL | Florida Department of Health | E871027 NELAP | 06/30/2021 |
| VT | Vermont Department of Health Lead Laboratory | LL015036 | 07/30/2021 |
| ME | State of Maine | 2011028 | 06/9/2021 |
| VA | Commonwealth of Virginia | 460217 | 12/14/2020 |
| NH-P | New Hampshire Environmental Lab | 2557 NELAP | 09/6/2020 |
| VT-DW | Vermont Department of Health Drinking Water | VT-255716 | 06/12/2021 |
| NC-DW | North Carolina Department of Health | 25703 | 07/31/2021 |
| PA | Commonwealth of Pennsylvania DEP | 68-05812 | 06/30/2021 |

2061178

CHAIN OF CUSTODY

PAGE 1 OF 1

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: STEELE ASSOCIATES
 Address: 94 GIFFORD ST.
 FALMOUTH, MA 02540
 Phone: 508 540-0001
 Email: eric@steeleassociates.net

Project Information

Project Name: JFMORAN TERMINAL
 Project Location: CHARLESTOWN, MA
 Project #: DA-SFM-200713
 Project Manager: ERIC STEELE
 ALPHA Quote #: 11614

Turn-Around Time

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

Additional Project Information:

Date Rec'd in Lab: 7/14/20
 ALPHA Job #: L2029584

Report Information - Data Deliverables
 ADEX EMAIL Same as Client info PO #:
 Billing Information

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

| ALPHA Lab ID (Lab Use Only) | Sample ID | Collection | | Sample Matrix | Sampler Initials | TOTAL # BOTTLES |
|--------------------------------|-----------|------------|------|---------------|------------------|-----------------|
| | | Date | Time | | | |
| 2958501 | SFM 1-3 | 7/13/20 | 0935 | | EMS | |
| 02 | SFM 4-6 | | 1112 | | EMS | |
| 03 | SFM 8-10 | | 1245 | | EMS | |
| 04 | SFM 7 | | 1332 | | EMS | |
| 05 | SFM 11 | | 1425 | | EMS | |
| 06 | SFM 12 | | 1350 | | EMS | |

| ANALYSIS | VOC: <input type="checkbox"/> Bz <input type="checkbox"/> E2 <input type="checkbox"/> 524.2 | SVOC: <input type="checkbox"/> ABN <input type="checkbox"/> PAH | METALS: <input type="checkbox"/> MCP 13 <input type="checkbox"/> MCP 14 <input type="checkbox"/> RCP 15 | METALS: <input type="checkbox"/> RCRAS <input type="checkbox"/> RCRAS <input type="checkbox"/> RCRAS | EPH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only | VPH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only | TPH: <input type="checkbox"/> Quant Only <input type="checkbox"/> Fingerprint | GRAN SIZE | PAH/PCB | TOC | TS-SM2540 |
|----------|---|---|---|--|---|---|---|-----------|---------|-----|-----------|
| | | | | | | | | | | | |

Only run 8260, report as wet weight per Mary D - MEK 7/27/2020

| Container Type | Preservative | Date/Time | Relinquished By: | Received By: | Date/Time |
|----------------|--------------|-----------|------------------|--------------|-------------|
| | | 7/14/20 | [Signature] | [Signature] | 7/14/20 135 |

- 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= HNO₃
 D= H₂SO₄
 E= NaOH
 F= MeOH
 G= NaHSO₄
 H= Na₂S₂O₈
 I= Ascorbic Acid
 J= NH₄Cl
 K= Zn Acetate
 O= Other

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.
 FORM NO. 01-01 (rev. 12-Mar-2012)

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples _____



con-test
ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client Speake Associates Date 7/24 Time 1815
 Received By MP
 How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____
 Direct from Sampling _____ Ambient _____ Melted Ice _____
 Were samples within Temperature? 2-6°C T By Gun # L Actual Temp - 6.0
 By Blank # _____ Actual Temp - _____
 Was Custody Seal Intact? NA Were Samples Tampered with? NA
 Was COC Relinquished? T Does Chain Agree With Samples? T
 Are there broken/leaking/loose caps on any samples? F
 Is COC in ink/ Legible? T Were samples received within holding time? T
 Did COC include all pertinent information? Client T Analysis T Sampler Name T
 Project T ID's T Collection Dates/Times T
 Are Sample labels filled out and legible? T
 Are there Lab to Filters? F Who was notified? _____
 Are there Rushes? F Who was notified? _____
 Are there Short Holds? F Who was notified? _____
 Is there enough Volume? T
 Is there Headspace where applicable? F MS/MSD? F
 Proper Media/Containers Used? T Is splitting samples required? F
 Were trip blanks received? F On COC? F
 Do all samples have the proper pH? NA Acid _____ Base _____

| Vials | # | Containers: | # | # | # |
|--------------|----|--------------|---|-----------------|-------------------|
| Unp- | | 1 Liter Amb. | | 1 Liter Plastic | 16 oz Amb. |
| HCL- | | 500 mL Amb. | | 500 mL Plastic | 8oz Amb/Clear |
| Meoh- | 6 | 250 mL Amb. | | 250 mL Plastic | 4oz Amb/Clear |
| Bisulfate- | | Flashpoint | | Col./Bacteria | 2oz Amb/Clear |
| DI- | 11 | Other Glass | | Other Plastic | Encore |
| Thiosulfate- | | SOC Kit | | Plastic Bag | Frozen: 7/24 1815 |
| Sulfuric- | | Perchlorate | | Ziplock | |

Unused Media

| Vials | # | Containers: | # | # | # |
|--------------|---|---------------|---|-----------------|---------------|
| Unp- | | 1 Liter Amb. | | 1 Liter Plastic | 16 oz Amb. |
| HCL- | | 500 mL Amb. | | 500 mL Plastic | 8oz Amb/Clear |
| Meoh- | | 250 mL Amb. | | 250 mL Plastic | 4oz Amb/Clear |
| Bisulfate- | | Col./Bacteria | | Flashpoint | 2oz Amb/Clear |
| DI- | | Other Plastic | | Other Glass | Encore |
| Thiosulfate- | | SOC Kit | | Plastic Bag | Frozen: |
| Sulfuric- | | Perchlorate | | Ziplock | |

Comments: