Ecological Evaluation Report

Rockaway River and Eastern Drainage Ditch

Dayco Corporation/L.E. Carpenter Superfund Site, Wharton, New Jersey

August 2016

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Section 1
Introduction

This report documents activities conducted in support of an ecological evaluation of the Eastern Drainage Ditch and the Rockaway River, both of which are adjacent to the Dayco Corporation/ L.E. Carpenter (LEC) Superfund Site (Site) in Wharton, New Jersey. The purpose of conducting this ecological evaluation is to assess the potential for adverse ecological effects from site-related constituents to the portions of the Eastern Drainage Ditch and Rockaway River adjacent to the Site. The ecological evaluation is used to determine either the need to conduct an ecological risk assessment or that no additional ecological evaluation is required.

1.1 Background

The Dayco Corporation/LEC Site (Site) is a former manufacturing facility located at 170 North Main Street, Wharton, New Jersey. In 1981, NJDEP conducted soil and groundwater sampling at the site. This investigation detected volatile organic compounds, base neutral compounds, metals and polychlorinated biphenyls (PCBs) in soil and groundwater. In addition, light non-aqueous phase liquid (LNAPL or floating product) was observed floating on the groundwater table. Subsequently, LEC and NJDEP entered into an Administrative Consent Order (ACO), in which LEC agreed to delineate and remediate the soil and groundwater contamination at the site.

In April 1985, the United States Environmental Protection Agency (USEPA) placed the Site on the National Priorities List, and in September 1986, NJDEP and LEC entered into an amended ACO to conduct a Remedial Investigation/Feasibility Study (RI/FS) at the Site. LEC conducted the RI/FS from 1986 to 1993, and in 1995 USEPA issued a Record of Decision (ROD), selecting a remedy to address the areas of concern at the Site (USEPA, 1995).

USEPA assumed the lead enforcement role for the site in 2009, at which time the 2009 Unilateral Administrative Order (UAO) was issued to LEC by the USEPA (effective August 6, 2009). The UAO directed LEC to undertake the cleanup of limited residual soil hot spot areas (discovered during post-remedial groundwater monitoring) and continue a natural attenuation groundwater study that was being conducted at the site. Since that time, quarterly groundwater and surface water monitoring events are performed and associated semiannual reports are completed and submitted to the USEPA, to comply with paragraph 49 of the 2009

UAO.[1] The ecological evaluation presented in the report herein is one aspect of USEPA's continuing oversight and involvement.

1.2 Focus of Ecological Evaluation

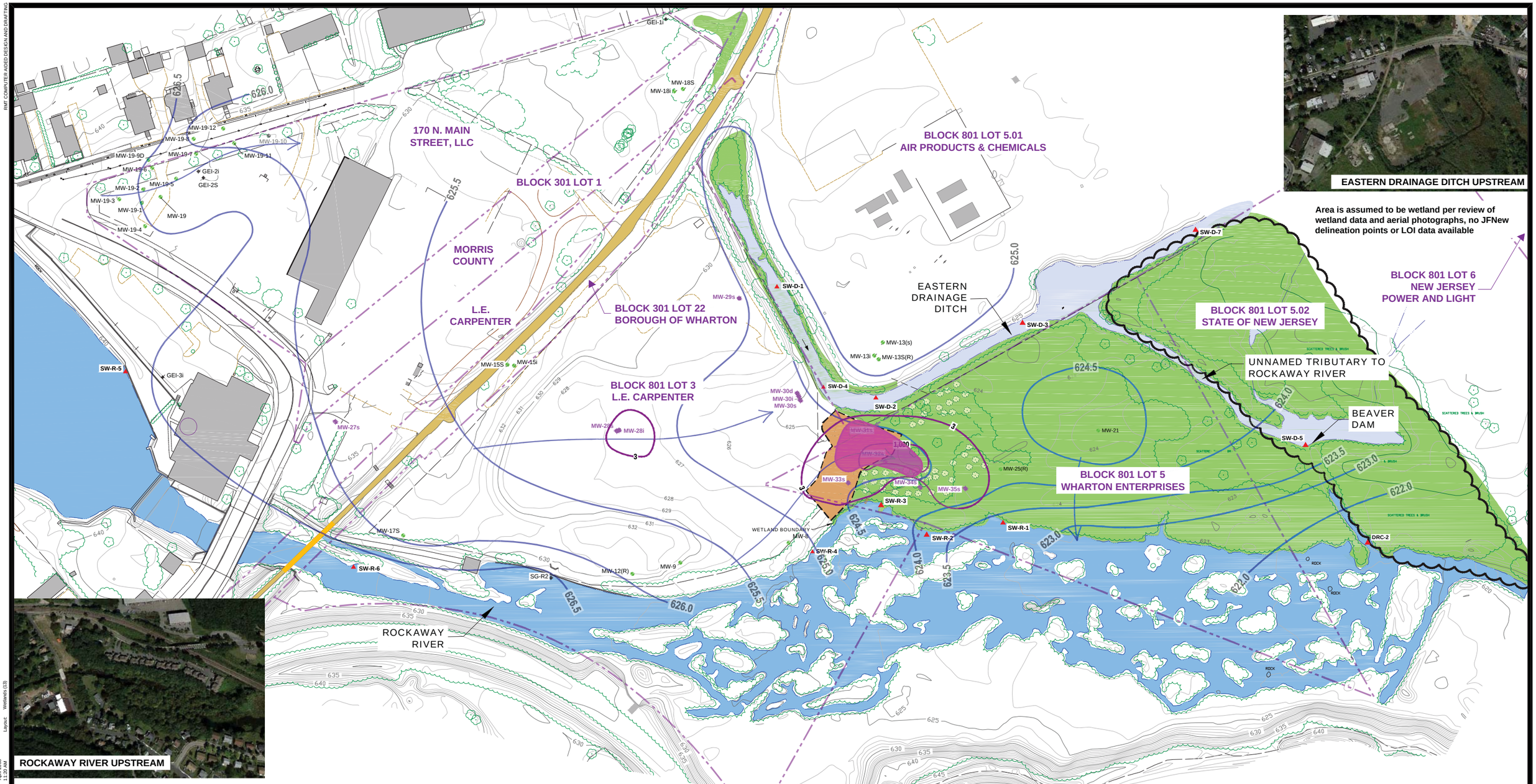
TRC, on the behalf of LEC, has been investigating the nature and extent of diethylhexyl phthalate (DEHP) in soil, groundwater, pore water, and surface water on and adjacent to an area of the Site referred to as the MW-30 Area. In the 2nd Semiannual Monitoring Report 2014 for the Site, TRC concluded that migration of DEHP from the Site to the Rockaway River is not a concern. TRC's opinion was based on: the use of phytoremediation to control DEHP migration; the small footprint of the dissolved DEHP plume, as well as extensive sampling that has shown a small number of surface water samples in which DEHP has been detected (4 out of 35); low concentrations of dissolved DEHP detected in pore water collected adjacent to the Rockaway River; and infrequent and low concentrations of DEHP in Rockaway River sediments. Figure 1 presents a summary of the 2nd Quarter 2016 conditions with respect to groundwater flow, and total and dissolved DEHP in groundwater.

USEPA commented that this conclusion may be premature due to detections of DEHP in both pore water and surface water above the Site-specific, background-based, New Jersey Surface Water Quality Standard (NJSWQS), which is reflective of the Practical Quantitation Limit (PQL) of 1.0 µg/L. In the same comment, the agencies also requested an ecological evaluation of the Eastern Drainage Ditch due to detections of DEHP in sediment and surface water samples.

The Eastern Drainage Ditch is a man-made feature that appears to have been constructed to convey surface water from the adjoining Air Products and Chemicals, Incorporated (APCI) site. Aerial photographs show this ditch to be a semi-circular feature on the border of the APCI site on the west, south and east. The Eastern Drainage Ditch appears to be connected to the Rockaway River by a northwest to southeast trending drainage feature.

Field sampling and analysis activities reported in this ecological evaluation were conducted in accordance with the April 6, 2016, Work Plan for Ecological Evaluation of the Eastern Drainage Ditch and Rockaway River (Work Plan; TRC, 2016) reviewed and approved by the USEPA on April 27, 2016.

[1] In February 2012, USEPA approved a change to semiannual reporting of findings from the quarterly monitoring events.



LEGEND

- APPROXIMATE PROPERTY LINE
- FENCE LINE
- TREES
- MW-25(R) — GROUNDWATER ELEVATION MONITORING WELL LOCATION AND NUMBER (s = shallow, i = intermediate, d = deep)
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- ISOCONCENTRATION FOR DISSOLVED DEHP @ 3.0 ug/L IN GROUNDWATER
- PHYTOREMEDIATION TREE LOCATION

NOTES

1. BASE MAP DEVELOPED FROM TOPOGRAPHIC SURVEY PROVIDED BY JAMES M.STEWART, INC. LAND SURVEYORS, DRAWING NO 2793-03.DWG, DATED 02-14-02 AS REVISED 04-10-07 (DRAWING NO. 314907REV.DWG).
2. WETLAND BOUNDARIES BASED ON JFNEW DELINEATION (SEPT 2004) AND LETTERS OF INTERPRETATION (LOI) (JUNE 14, 2000). 1439-00-0001.1 REFERENCES THE NEW JERSEY LANDUSE REGULATION PROGRAM FILE NUMBER.
3. ELEVATIONS FOR THE FLOOD HARZARD LINE FROM THE STATE OF NEW JERSERY, DEPARTMENT OF ENVIRONMENTAL PROTECTION, DIVISION OF WATER RESOURCES, DELINEATION OF FLOODWAY AND FLOOD HAZARD AREA (SHEETS B-16 and C-16).
4. INSET AERIAL PHOTOGRAPHY OBTAINED FROM GOOGLE EARTH AND IS DATED SEPTEMBER 18, 2013.
5. BLOCK 301, LOT 1 HAS BEEN SUBDIVIDED INTO THREE PARCELS, ONE OWNED BY 170 N. MAIN STREET, LLC, ONE OWNED BY MORRIS COUNTY, AND ONE OWNED BY L.E. CARPENTER.

N

0 60' 120' 180' 240'
SCALE IN FEET

NO.	BY	DATE	REVISION	APP'D.
5.				
4.				
3.				
2.				
1.				

DAYCO CORPORATION / L.E. CARPENTER
SUPERFUND SITE
WHARTON, NEW JERSEY

TOTAL AND DISSOLVED DEHP ISOCONCENTRATION (ug/L)

DRAWN BY:	AFEIGL	DRAWING SCALE:	PROJECT NO. 248642.0.0
CHECKED BY:	RHANLEY	1"=60'	FILE NO. Fig01_TotalDissolvedDEHP.dwg
APPROVED BY:	KSAUCIER	DATE PRINTED:	FIGURE 1
DATE:	JULY 2016		

TRC
30 Patewood Drive, Suite 300
Patewood Plaza One
Greenville, SC 29615

Drawing Name: J:\CADLE Carpenter\Fig01_TotalDissolvedDEHP.dwg
Operator Name: FEIGL, ADAM
Drawing Plot Scale: 1:2
Dwg Size: 0.95 Mb
Plot Date: April 2008
Plot Time: 11:20 AM
Layout: Wetlands (13)
RMT COMPUTER AIDED DESIGN AND DRAFTING

Section 2
Relevant Ecological Resources

Consistent with USEPA Risk Assessment Guidance for Superfund (ERAGS, 1997) ecological evaluations focus on *relevant ecological resources and habitats — i.e.*, the ecological resources that are valued at the site. Identification of relevant ecological receptors and habitats is dependent upon site-specific factors. Examples of relevant ecological resources may include species or communities afforded special protection by law or regulation; recreationally, commercially, or culturally important resources; regionally or nationally rare habitats or communities; communities with high aesthetic quality; and habitats, species, or communities that are important in maintaining the integrity and biodiversity of the environment.

Likewise, in its *Ecological Evaluation Technical Guidance* (EETG; NJDEP, 2015) NJDEP defines Environmentally Sensitive Natural Resources (ESNRs) to include "…any area that supports any wildlife including all areas defined at N.J.A.C. 7:1E-1.8(a), ground water, and areas and/or resources that are protected or managed pursuant to the Pinelands Protection Act, N.J.S.A. 13:18A-1 et seq. and the Pinelands Comprehensive Management Plan, N.J.A.C. 7:50 (N.J.A.C. 7:26E-1.8)." N.J.A.C. 7:1E-1.8(a) defines the term "environmentally sensitive areas" to include fifteen specific types of habitats, including but not limited to: surface waters, including rivers, streams, creeks, ponds, or lakes; riparian zones; wetlands, wetland buffers and wetland transition areas; and habitat for Federal and State endangered or threatened plant and animal species, including critical wildlife habitat. NJDEP guidance for conducting ecological evaluations also requires an assessment of manmade features to "…determine whether they function as an ESNR or discharge to an ESNR." This section discusses ESNRs on or in the vicinity of the Site that could be affected by site-specific constituents of potential ecological concern (COPEC), namely DEHP.

2.1 Site Setting

The Site is an approximately 14-acre property located at 170 North Main Street, Wharton New Jersey. Figure 2 depicts the Site and surroundings.

The Site is in the Rockaway River watershed (HUC-14 02030103030070). It is generally level and mostly cleared, open land. Surface water runoff drains to the east, into a manmade ditch, the Eastern Drainage Ditch, on the APCI property and to a wetland area on the Wharton Enterprises property, and to the south and the Rockaway River. No surface water features are present on the Site.

The general surroundings, with the exception of the adjacent Wharton Enterprises property have been developed for commercial, industrial, and residential purposes.

The Site is in the Mount Hope Mining district, one of the first iron ore mining and production areas developed in colonial North America (Bayley, 1910). Of the scores of iron mines in New Jersey, mines in the Mt. Hope Mining district were among the most productive. In addition to mining, ore smelting into pig iron took place in Wharton south of the Rockaway River. The Site overlies two subsurface iron mines, the West Mount Pleasant Mine and the Washington Forge Mine. Both mines were underground, and from which both ore and overburden were hauled to the surface.

2.2 Data Review

TRC identified potential ESNRs based on site observations and from on-line information, as summarized in the following narrative:

2.2.1 NJ-GeoWeb

NJ-GeoWeb (http://www.nj.gov/dep/gis/geowebsplash.htm) is an online geographic information system (GIS) maintained by the NJDEP. This application can locate areas of interest, view and interact with NJDEP's GIS data, and query related environmental information. NJ-GeoWeb presents users with a suite of customized profiles that present data in a graphic interface. Users can work within a more tailored application that includes specific datasets, tools, searches, and reports developed to address the interests of the general public, targeted groups of users, and the regulated community.

NJ-GeoWeb allows users to view an area of interest either as a map or an aerial photograph. Aerial photographs date back to 1930 and include black and white images (1930), color images spanning 2006 to 2013, color infrared images. Observations from these images have been incorporated into this report. Other Site-related attributes relevant to this ecological evaluation that were identified from the NJ-GeoWeb are:

- Environmental monitoring activities in the vicinity include:
  - NJDEP Ambient Monitoring Network and Water Quality Monitoring station AN0242 on Green Pond Brook, a tributary to the Rockaway River that is situated east of the site and that is moderately impaired. It was last assessed in 2013.
  - USEPA STORET water quality station 3133602470, which is located in Washington Pond, upstream from the site.

- United States Geological Survey National Water Information System (NWIS) station 01379750, which is located on the Rockaway River adjacent to the Site and station 01379800 on Green Pond Brook. The Rockaway River station was last monitored in 1985.

- Critical Environmental and Historic Sites (CEHS)
  - The Rockaway River floodplain is mapped as a CEHS. CEHS are areas, generally less than one square mile, that include one, or more, environmentally or historically sensitive features and are recognized by the State Planning Commission. CEHS locations were submitted by county and local entities. All sites submitted were accepted, with minimal requirement for documentation.
  - NJ-GeoWeb identified no freshwater mussel habitat or natural heritage priority sites in the immediate vicinity of the Site.

- Landscape Project – Skylands Region
  - The NJDEP Landscape Project is an ecosystem scaled approach to provide long-term protection of at risk species and their habitats. The Landscape Project mapping lists several reports of protected species from the Rockaway River and the easternmost portion of Block 801 Lot 3. The only federally and state protected species mapped by the Landscape Project report is the Indiana bat (*Myotis sodalis*). State protected species mapped by the Landscape Project are the bobcat (*Lynx rufus*) and the great blue heron (*Ardea herodias*).

- Surface Water features
  - The Rockaway River is mapped as a stream/river, with some of the channel being "artificial."
  - A former mill raceway is mapped as paralleling the left descending bank of the Rockaway River from Washington Pond downstream.
  - The Eastern Drainage Ditch is identified as a Canal or Ditch.
  - The unnamed tributary connecting the Eastern Drainage Ditch to the Rockaway River is identified as a stream/river.
  - All three of these features are identified as NJDEP Category One waters, which are waters protected from any measurable changes in water quality because of their exceptional ecological significance, exceptional recreational significance, exceptional water supply significance, or exceptional fisheries resources.

- All of these water features are classified by NJDEP as FW2-TMC1 waters. FW2-TMC1 waters are freshwaters subject to wastewater discharges that support a managed cold water fishery and are identified as Category One waters.
- No water features are mapped in the Eastern Drainage Ditch watershed upgradient from the Eastern Drainage Ditch.

– Land Use

- Most of the western portion of the Site (between the rails-to-trails corridor and N. Main St. and south of Ross St.) is mapped as Urban Industrial Land.
- That portion of the Site north of Ross St. is mapped as Herbaceous Wetlands surrounded by Old Field that has less than 25 percent brush coverage.
- The eastern portion of the Site is mapped as Other Urban Land.
- The Rockaway River is mapped as Other Streams and Channels.
- Where the Rockaway River widens to form a braided channel and series of islands, much of the river corridor is mapped as Deciduous Wooded Wetlands.
- Land bordering the left descending bank of the Rockaway River is mapped from upstream to downstream as Other Urban Land (most of the Site), Deciduous Wooded Wetlands, and Deciduous Forest on the Wharton Enterprises property.
- Land bordering the right descending bank of the Rockaway River is mapped as Deciduous Forest with more than 50 percent canopy coverage.
- Much of the Wharton Enterprises property is mapped as Deciduous Brush/Shrubland.
- The eastern portion of the Wharton Enterprises and State of New Jersey properties are mapped as Phragmites Dominated Old Field.
- Most of the APCI site is mapped as Other Urban or Built-Up Land.
- Two abandoned mines are mapped on the Site, the West Mount Pleasant magnetite mine, which was active from 1880 through 1896, and the Washington Forge magnetite mine, which was active from 1868 through 1881.
- The southeastern corner of the APCI site is mapped as a mosaic of Phragmites Dominated Old Field, Herbaceous Wetlands, and Old Field that has less than 25 percent brush coverage.

2.2.2 National Wetland Inventory

The National Wetland Inventory (NWI), maintained by the United States Fish and Wildlife Service (USFWS), is a GIS-based depiction of areas exhibiting wetland features. The NWI identifies wetlands based on stereoscopic interpretation of color, infrared aerial photographs. NWI wetland polygons are not verified with field observations, and are not to be used for jurisdictional wetland determinations. The NWI identifies four wetland areas on or proximate to the Site. These four areas are:

- A palustrine, emergent, persistent, seasonally flooded or saturated wetland along the northern side of the site adjacent to Ross Avenue. TRC evaluated this area in May 2016. It is a mixture of grassland, shrubs and trees. Some low-lying areas showed signs of wetland hydrology. Soils in this area were not examined. In TRC's opinion, much of the NWI mapped area may not exhibit wetland hydrology; however its jurisdictional status would have to be determined by a wetland delineation.
- A palustrine, forested, broad-leaved deciduous, temporarily flooded wetland on the southeast corner of the APCI property that adjoins the Site. TRC did not inspect this area. However, aerial photographs reviewed by TRC suggest that much of this area is *Phragmites* dominated grassland.
- Riverine, lower perennial, unconsolidated bottomed, permanently flooded wetland, adjacent to the southwestern portion of the Site. The mapped area is the Rockaway River and adjoining woods downstream from the Washington Pond dam. The Rockaway River in this area flows through a narrow, rocky channel with scattered backwaters where sediments deposit.
- Palustrine, forested, broad-leaved deciduous, seasonally flooded wetland, adjacent to the southeastern portion of the Site. The mapped area is where the Rockaway River channel widens to a series of channels and small islands. Most of the islands are wooded.

2.2.3 Protected Animal and Plant Species

TRC accessed the USFWS Information for Planning and Conservation (IPaC) website (https://ecos.fws.gov/ipac/) to identify federally protected natural resources within the project area. Federally protected species considered in the analysis include species regulated by the federal Endangered Species Act (ESA), golden and bald eagles protected by the federal Bald and Golden Eagle Protection Act, and birds protected by the Migratory Bird Treaty Act (MBTA). The IPaC report (Appendix A) identified three ESA protected species and twenty-one MBTA protected species.

TRC also submitted a request to the NJDEP Natural Heritage Inventory Program to identify reports of federal and/or state protected plants and animals reported within ¼ of a mile from the Site. The Natural Heritage Inventory Report (Appendix A) identified no rare plant species and ecologically important plant communities, no vernal pool habitat, no Natural Heritage Priority sites and no Rare Wildlife Habitat either on the Site or within ¼ of a mile of the Site. This report listed four federally and/or State protected species as occurring on the Site, and one additional State protected species as occurring within ¼ of a mile from the Site.

Federally and/or State protected species identified by the IPaC and NJDEP Natural Heritage Inventory analyses are as follows:

- Indiana bat (*Myotis sodalis*) – Federally endangered, New Jersey endangered: This species was added to the federal ESA list of endangered species in 1967. White-nose syndrome, a fungal disease that is often fatal and that manifests itself during hibernation, has further reduced breeding populations. The Indiana bat is a year-round resident in Morris County, hibernating in caves and mine adits during the winter and emerging to nesting and foraging sites in the spring. Females raise their young in maternity colonies in mature riparian or upland forest. Females prefer trees with loose bark, which provides shelter. Tree clearing during the nesting season is one stress on this species. Wharton has a known Indiana bat hibernaculum (South Jersey Resource Conservation and Development Council, 2002; USFWS 2016b). The USFWS has not reported maternity colonies in Wharton. Wooded areas in the vicinity of the Site may provide suitable nesting and foraging habitat for Indiana bat.
- Northern long-eared bat (*Myotis septentrionalis*) – Federally threatened, New Jersey not listed: This species was added to the ESA list of threatened species in 2015. Like the Indiana bat, northern long-eared bat populations have substantially declined due to white nose syndrome. This bat species is also a year-round resident in Morris County. It hibernates in caves and mine adits during the winter and emerges and migrates to nesting and foraging sites in the spring. Females typically migrate in the spring to maternity colonies in mature woods; however, maternity colonies have also been observed in open structures, such as barns. As with the Indiana bat, clearing during the nesting season is one stress on this species. Wharton has a documented northern long-eared bat hibernaculum and documented maternity colonies (USFWS 2016c). Wooded areas in the vicinity of the Site may provide suitable nesting and foraging habitat for northern long-eared bat.
- Bog turtle (*Clemmys muhlenbergii*) – Federally threatened, New Jersey endangered: Bog turtles usually occur in small, discrete populations. They prefer open-canopy, herbaceous sedge meadows and fens bordered by wooded areas. These wetlands

are a mosaic of micro-habitats that include dry pockets, saturated areas, and areas that are periodically flooded. Bog turtles depend upon this diversity of micro-habitats for foraging, nesting, basking, hibernating, and sheltering. Wharton is within the historic bog turtle range and has been reported as recently as 2002 to harbor viable bog turtle populations (South Jersey Resource Conservation and Development Council, 2002, Louis Berger, 2004). The wetland area on the eastern portion of the Wharton Enterprises and adjoining State of New Jersey properties may provide suitable bog turtle habitat.

- Wood turtle (*Glyptemys insculpta*) – Federally not listed, New Jersey threatened: Freshwater streams, brooks, creeks, or rivers that are relatively remote provide the habitat needed by these turtles. Wood turtles are often found within streams containing native brook trout that are adjoined by open fields or thickets of alder, greenbrier, or multiflora rose. However, this species may also be found in streams flowing through lowland, mid-successional forests dominated by oaks, black birch, and red maple. Morris County is within the historic wood turtle range and the NJDEP Natural Heritage Inventory has a reported siting from near the Site. The Rockaway River and wetland area on the eastern portion of the Wharton Enterprises and adjoining State of New Jersey properties may provide suitable wood turtle habitat.
- Great blue heron (*Ardea herodias*) – Federally not listed, New Jersey species of special concern: This wading bird has been listed by NJDEP as a species of special concern due to habitat loss. The great blue heron is a wading bird that forages in shallow water, where it feeds on fish, amphibians, large crustaceans, and small reptiles. The greatest threat to this species is loss of breeding habitat. It is a colonial nester, and breeding colonies require stands of tall trees. The NJDEP Natural Heritage Inventory has reported sightings from the Rockaway River adjacent to the Site and the wetland area that extends east from the Site.
- Bobcat (*Lynx rufus*) – Federally not listed, New Jersey endangered: In New Jersey, the bobcat is a woodland species that requires fairly large tracts of woodland to maintain viable populations, such as the federally managed Picatinny Arsenal. The NJDEP Natural Heritage Inventory has reported sightings from wooded area east of the Site and north the Rockaway River, and from wooded areas further to the east.

With the exception of flying great blue heron, none of these species have been observed during site visits.

2.3 Environmentally Sensitive Natural Resources

Based on this data review, TRC has identified the following ESNRs on or adjacent to the Site: a state jurisdictional wetland area that is situated on the easternmost portion of the Site and that

extends eastward onto property owned by Wharton Enterprises and, further to the east, by the State of New Jersey, and the Rockaway River. As requested by USEPA, TRC has also evaluated the Eastern Drainage Ditch as a potential ESNR. The following narrative describes each of these three features. Locations of these features are depicted on Figure 2.

2.3.1 Wetland

A state jurisdictional wetland has been delineated within the area of interest. This wetland has been delineated only on the Site and Wharton Enterprises properties. It is bordered on the north by the Eastern Drainage Ditch and on the south by the Rockaway River. This wetland transitions from a palustrine, forested, broad-leaved deciduous wetland on the west to a palustrine, emergent, persistent, beaver modified wetland on the east. The forested portion is an open canopied hardwood forest. Dominant trees include red maple, silver maple, river birch, ironwood, and white ash, and the dominant herbaceous species include soft rush, joe-pye weed, jewel weed, sensitive fern, false stinging nettle and carrion vine. To the east, the forest canopy opens and the wetland plant community changes to an emergent wetland that is dominated by *Phragmites*. A stream bisects this portion of the wetland, and the stream channel is blocked by one beaver dam. The location of this beaver dam is depicted on Figure 2. This stream is the outlet from the Eastern Drainage Ditch and connects with the Rockaway River. Several areas of open water are visible on the portion of the wetland that extends further east onto property owned by the State of New Jersey.

This wetland is an ESNR by definition (NJAC 7:1E-1.8.(a).6).

2.3.2 Rockaway River

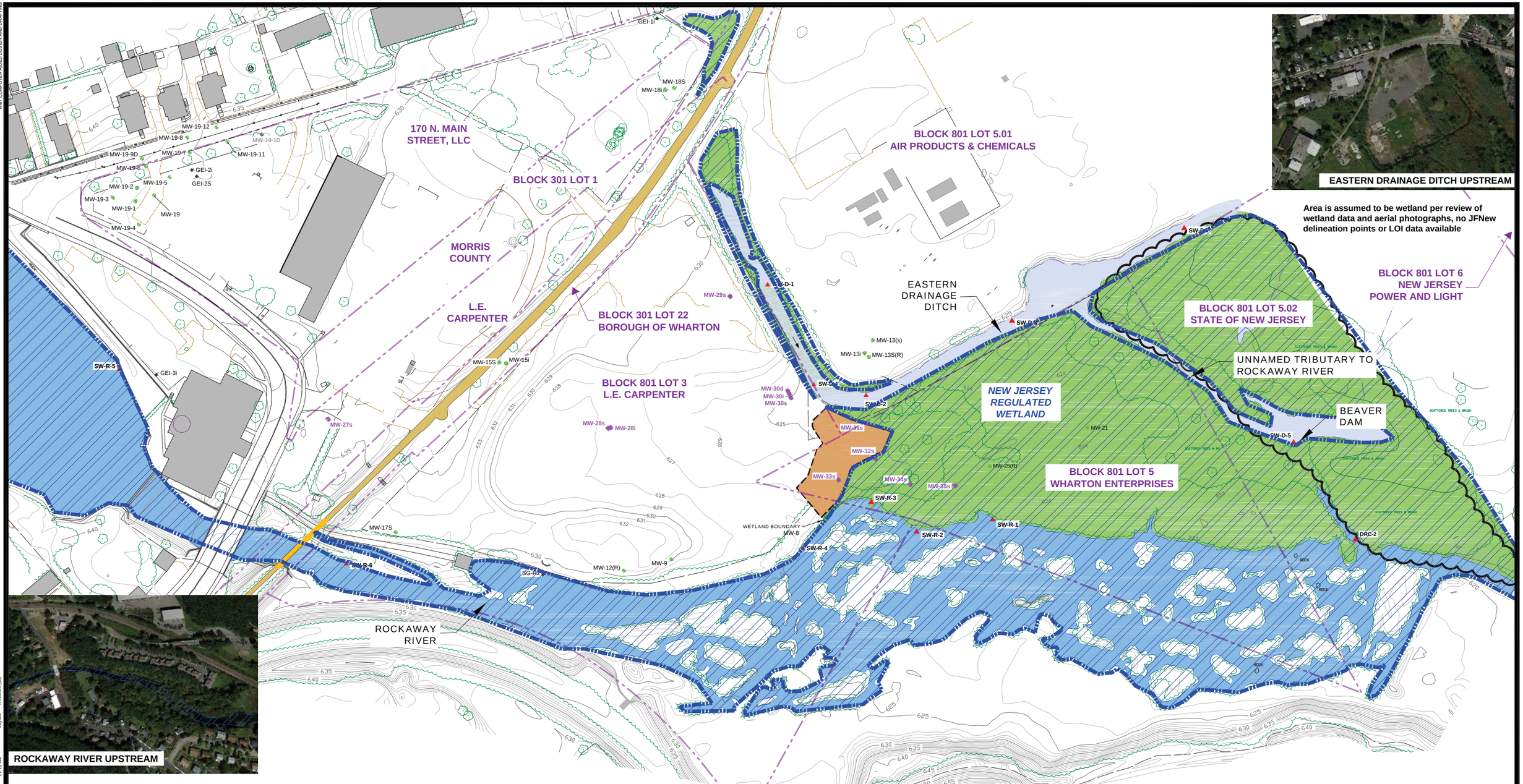
The Rockaway River flows from west to east along the southern border of the Site. This reach of the river has likely been modified by mining activities and industrial development in the 18th and 19th centuries. Flow in this reach of the river is controlled somewhat by the dam that forms Washington Pond, upstream from North Main Street. The river upstream and downstream from the Site flows rapidly through a narrow channel (20 to 30' wide). As the river passes by the Site, the channel widens and the channel morphology changes to being braided, with numerous wooded islands. Shortly downstream from the discharge of the outlet from the Eastern Drainage Ditch the river channel once again narrows and drops rapidly. Throughout this reach, the bottom is mostly rocky. Sediment deposits are patchy and confined to slack-water channels between the islands, and backwaters along the banks. Sediments range from coarse grained to fine grained.

The Rockaway River is an ENSR by definition (NJAC 7:1E-1.8.(a).1).

2.3.3 Eastern Drainage Ditch

The Eastern Drainage Ditch is a man-made feature. Documents reviewed by TRC suggest that this ditch was constructed to control runoff from the APCI property, which was developed in the mid-1960s. The Eastern Drainage Ditch lies entirely on APCI property. Water depth is controlled by the beaver dam on the outlet stream (Section 2.1, above and Figure 2), and ranges from less than 6 inches in the western arm to more than three feet near the outlet stream. Flow is negligible. The bottom consists of decaying organic matter, silt, sand, and clay and rock. Deeper water supports submerged aquatic vegetation, such as watershield and naiads. Emergent vegetation, such as cattails and arrowhead border the shoreline, especially in the western arm adjacent to the Site.

Manmade features such as the Eastern Drainage Ditch do not meet any of the defined sensitive environments in ERAGS or any of the ESNR types. However, NJDEP guidance suggests that man-made features such as the Eastern Drainage Ditch be considered in an ecological evaluation if they function as or discharge to an ESNR. Since the Eastern Drainage Ditch borders an ESNR (the wetland area on the Site and Wharton Enterprises/State of New Jersey properties) and does discharge to an ESNR (the Rockaway River), it was included in the ecological evaluation at the request of USEPA.



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- ENVIRONMENTALLY SENSITIVE NATURAL RESOURCE (ESNR)

NOTES

1. BASE MAP DEVELOPED FROM TOPOGRAPHIC SURVEY PROVIDED BY JAMES M.STEWART, INC. LAND SURVEYORS, DRAWING NO 2793-03.DWG, DATED 02-14-02 AS REVISED 04-10-07 (DRAWING NO. 314907REV.DWG).
2. WETLAND BOUNDARIES BASED ON JFNEW DELINEATION (SEPT 2004) AND LETTERS OF INTERPRETATION (LOI) (JUNE 14, 2000). 1439-00-0001.1 REFERENCES THE NEW JERSEY LANDUSE REGULATION PROGRAM FILE NUMBER.
3. ELEVATIONS FOR THE FLOOD HARZARD LINE FROM THE STATE OF NEW JERSERY, DEPARTMENT OF ENVIRONMENTAL PROTECTION, DIVISION OF WATER RESOURCES, DELINEATION OF FLOODWAY AND FLOOD HAZARD AREA (SHEETS B-16 and C-16).
4. INSET AERIAL PHOTOGRAPHY OBTAINED FROM GOOGLE EARTH AND IS DATED SEPTEMBER 18, 2013.
5. BLOCK 301, LOT 1 HAS BEEN SUBDIVIDED INTO THREE PARCELS, ONE OWNED BY 170 N. MAIN STREET, LLC, ONE OWNED BY MORRIS COUNTY, AND ONE OWNED BY L.E. CARPENTER.

N

0 60' 120' 180' 240'
SCALE IN FEET

NO.	BY	DATE	REVISION	APP'D.
5.				
4.				
3.				
2.				
1.				

DAYCO CORPORATION / L.E. CARPENTER
SUPERFUND SITE
WHARTON, NEW JERSEY

PROJECT SITE LAYOUT WITH ESNR LOCATIONS

DRAWN BY:	AFEIGL	DRAWING SCALE:	PROJECT NO. 248642.0.0
CHECKED BY:	RHANLEY	1"=60'	FILE NO. Fig02_LayoutwithESNRs.dwg
APPROVED BY:	KSAUCIER	DATE PRINTED:	**FIGURE 2**
DATE:	JULY 2016		

TRC
30 Patewood Drive, Suite 300
Patewood Plaza One
Greenville, SC 29615

RMT COMPUTER AIDED DESIGN AND DRAFTING
Layout: Wetlands (13)
Dwg Size: 0.91 Mb
Plot Date: April 2008
Plot Time: 11:19 AM
J:\CADLE Carpenter\Fig02_LayoutwithESNRs.dwg
Drawing Name:
Operator Name: FEIGL, ADAM
Drawing Plot Scale: 1:2

Section 3
Habitat and Community Surveys

This section summarizes the previous habitat and community survey of the Rockaway River and discusses the recently performed habitat and community survey in the Eastern Drainage Ditch.

3.1 Rockaway River

In 1992, Roy F. Weston, Inc. (Weston) conducted an ecological assessment of sediments in the Rockaway River (*Rockaway River Sediment Ecological Assessment L.E. Carpenter and Co. Wharton, New Jersey Site*). This assessment examined the benthic community and abiotic factors at six locations on the Rockaway River in the environs of the Site, consisting of two upstream reference locations, two locations adjacent to the Site, and two locations downstream from the Site. The study concluded that resource type and availability were the predominant contributors to observed variations in the benthic macroinvertebrate community in the study area, and that evidence of adverse ecological effects due to releases of constituents of potential environmental concern (COPECs) from the Site was not observed. NJDEP and USEPA concurred with the findings of the Weston study in a 1993 letter to LEC.

Since the 1992 Weston study was conducted, LEC has completed substantial source removal and remedial actions at the Site. These actions have resulted in significant reductions in on-site COPEC concentrations, which translates into significant reductions in COPECs available for migration pathways, and thus, further bolsters the findings of the 1992 Weston study.

3.2 Eastern Drainage Ditch

TRC commissioned a benthic macroinvertebrate survey and qualitative fish population survey of the Eastern Drainage Ditch. On May 26, 2016, Sovereign Consulting Inc. (Sovereign), on behalf of TRC, conducted biological assessment sampling of the Eastern Drainage Ditch associated with the Site. The biological assessment included benthic macroinvertebrate sampling and a fish survey at three locations (SW-D-3, SW-D-4, and SWD-7) and the documentation of other potential ecological receptors (avian, amphibian, etc.) observed during the sampling event. The results of the biological assessment sampling are presented in this *Letter Report of Findings* included in Appendix B.

The study concluded:

- The habitat quality of the Eastern Drainage Ditch was scored as “marginal” given that it is a man-made feature with a lack of flow/low velocity, heavy sediment deposits, fine/heavy muck substrate and the absence of riffles/ bends.
- The analytical results indicated taxonomically rich invertebrate communities at each sample location station. As expected based on habitat and water quality ratings, the observed communities were dominated by pollution tolerant forms.
- Fish collected included forage species and predator species, but all of the fish collected were small. Given the short overall length the Eastern Drainage Ditch and the close proximity of the sample locations in relation to each other, it is likely that all four species identified utilize the entire reach of the Eastern Drainage Ditch.
- Though the Eastern Drainage Ditch habitat is rated as marginal, the benthic macroinvertebrate sampling, fish survey, and incidental observation data indicate that the feature functions as a wetland/open water habitat and is utilized by a variety of species representing multiple trophic levels.
- Water quality ratings ranged from 'very poor' to 'poor' based on flow considerations and low dissolved oxygen, and biological condition ranged from 'poor' to 'fair.' These results represent non-attainment regulatory thresholds at each of the three sample locations.

Section 4
Constituents of Potential Ecological Concern

Extensive sediment, soil, groundwater and surface water sampling has determined that the site-related COPEC for the ESNRs and related areas described above is DEHP. This ecological evaluation was designed to supplement extensive DEHP sampling that has occurred and continues on the Site, adjoining properties (APCI, Wharton Enterprises), and the Rockaway River. The following narrative describes sampling and analysis outlined in the Work Plan for Ecological Evaluation of the Eastern Drainage Ditch and Rockaway River dated April 8, 2016 (TRC, 2016). Sampling activities took place in May and June 2016 to support this ecological evaluation.

4.1 Eastern Drainage Ditch

Background surface water samples and sediment samples were collected from the Eastern Drainage Ditch from May 24 through May 26, 2016. The routine surface water samples were collected from the Eastern Drainage Ditch during the 2nd quarterly sampling event conducted the week of May 16th. Laboratory data sheets for Eastern Drainage Ditch samples are included as Appendix C.

4.1.1 Surface Water

Surface water samples were collected from six locations in the Eastern Drainage Ditch and from three upstream (background) locations. The approved Work Plan called for collection of four background samples. However, during the field work, no surface water was observed at the proposed background surface water location SW-EDD-B1).[2] Eastern Drainage Ditch samples were analyzed for total and dissolved DEHP and benzene, toluene, ethylbenzene, and xylene (BTEX). Samples for dissolved DEHP were filtered in the laboratory. Table 4-1 presents the results of the Eastern Drainage Ditch surface water samples. These data are also mapped on Figure 3.

As presented in Table 4-1, dissolved DEHP was not detected in any of the background or Eastern Drainage Ditch samples. Total DEHP was detected at similar concentrations in background sample SW-EDD-B2 (1.3 µg/L), and in Eastern Drainage Ditch samples SW-D-1 (3.5 µg/L) and SW-D-2 (2.2 µg/L). Each of the detected concentrations is greater

[2] SW-EDD-B1 was proposed to be collected from an area immediately north of the former Dayco/L.E. Carpenter manufacturing facility. During the May 2016 field work, extensive inspection of this area did not find any surface water features.

than the NJDEP freshwater ecological screening criterion, based on the PQL[3], of 1.0 µg/L.

Table 4-1
DEHP Concentrations (µg/L) in Eastern Drainage Ditch Surface Water

SAMPLE LOCATION	SAMPLE DATE	TOTAL DEHP (µg/L)	DISSOLVED DEHP (µg/L)
SW-EDD-B2[b]	5/24/2016	**1.3**	<1.0
SW-EDD-B3[b]	5/24/2016	<1.0	<1.0
SW-EDD-B4[b]	5/24/2016	<1.0	<1.0
SW-D-1[a]	5/16/2016	**3.5**	<1.0
SW-D-2[a]	5/16/2016	**2.2**	<1.0
SW-D-3[a]	5/16/2016	<1.0	<1.0
SW-D-4[a]	5/16/2016	<1.0	<1.0
SW-D-5[a]	5/16/2016	<1.0	<1.0
SW-D-7[b]	5/24/2016	<1.0	<1.0

a. Sample collected during routine 2nd quarterly monitoring event
b. Sample collected during ecological evaluation data collection event
Bold, concentration above detection limit
Concentration exceeds NJDEP Ecological Screening Criterion of 1.0 µg/L [PQL].

SW-EDD-B2 was collected in an area of standing water west of the walking trail and immediately hydrologically downgradient from the Rongene Mold and Plastics Corporation site located at 94 E. Dewey Ave. Rongene Mold and Plastics is a deed noticed property for pyrene releases to soil and groundwater.

This surface water sampling event reinforces the site conceptual model that the low concentration total DEHP observations in surface water are associated with solids entrained in the samples. Dissolved DEHP is not detected in or migrating with surface water.

4.1.2 Sediment

Sediment samples were collected from six locations in the Eastern Drainage Ditch. Samples were collected using a 2-inch inner diameter sediment coring device with neoprene liners. Dedicated liners were used for each individual sample. Cores were described in the field and extruded into stainless steel bowls for compositing. Where

[3] The NJDEP freshwater ecological screening criterion for DEHP is 0.3 µg/L. The Practical Quantitation Limit for DEHP in surface water using USEPA method 8270C is 1.0 µg/L. As such 1.0 µg/L will be used as the surrogate ESC.

sediment depth allowed, samples from the 0–0.5-foot and 0.5–1.0-foot intervals were collected and analyzed separately for DEHP and grain size. Eastern Drainage Ditch sediment sampling results are presented on Table 4-2 and depicted in Figure 4. DEHP was detected above the conservative NJDEP sediment ecological screening (ESC) value (0.182 mg/kg, dry weight basis) in each of the samples except the 0.5–1.0-foot interval sample collected at SED-D-7.

Table 4-2
DEHP Concentrations (mg/kg, dry weight) in Eastern Drainage Ditch Sediment

SAMPLE LOCATION	SAMPLE DATE	DEHP (mg/kg, dry weight)	GRAIN SIZE % GRAVEL | SAND | FINES
SED-D-1 (0.0-0.5)	5/26/2016	6.4	1 | 23 | 76
SED-D-2 (0.0-0.5)	5/26/2016	23	NA
(0.5-1.0)	5/26/2016	410	0 | 41| 59
SED-D-3 (0.0-0.5)	5/26/2016	1.7	2 | 18 | 80
SED-D-4 (0.0-0.5)	5/26/2016	19	0 | 7 | 93
(0.5-1.0)	5/26/2016	380	6 | 31 | 63
SED-D-5 (0.0-0.5)	5/26/2016	17	0 | 72 | 28
SED-D-7 (0.0-0.5)	5/26/2016	16	1 | 45 | 54
(0.5-1.0)	5/26/2016	<0.330	0 | 51 | 49

NA — Sample not analyzed for grain size.
Concentration exceeds observed background concentration (0.79 mg/kg, dry weight, observed at the 0.0-0.5' sample from SED-RR-TA-LB)
Concentration exceeds Probable Effects Level (2.65 mg/kg, from McDonald, 1994)

The sediment ESC for DEHP of 0.182 mg/kg is reflective of a threshold effects level (TEL) developed by MacDonald (1994). The TEL represents the upper limit of the minimal effects range for DEHP. Within this range, the DEHP concentrations in sediment are not considered to represent significant hazards to aquatic organisms. This same study (MacDonald, 1994) derived probable effects levels (PEL) which in-turn define the lower limit of the range of DEHP concentrations that are usually associated with adverse biological effects (*i.e.,* the lower limit of the probable effects range). Table 4-2 presents the Eastern Drainage Ditch sediment observations screened against the published DEHP PEL of 2.65 mg/kg and the maximum observed background DEHP concentration of 0.79 mg/kg.

Sediment cores collected immediately adjacent to the 2005 Source Reduction Area (SED-D-2 and SED-D-4) exhibited higher DEHP results in the 0.5–1.0-foot interval than in the 0.0-0.5–foot interval. This is to be expected if older sediments affected by DEHP

migration from the Site are being covered by newer native/regional sediment loads from upstream portions of the EDD.

In contrast, at sediment sampling location SED-D-7 in the eastern arm of the Eastern Drainage Ditch, the shallower sample displayed a higher DEHP concentration than the deeper sample. This is most likely explained by DEHP affected sediment from that portion of the Eastern Drainage Ditch adjacent to the Site being carried during major storm flooding events to the eastern arm of the ditch and covering clean, older sediment.

The grain size data for the sediment samples confirm the habitat survey observation that the Eastern Drainage Ditch sediments are dominated by the fines fraction, averaging 63 percent fines. This sediment fraction would be expected to tightly bind hydrophobic DEHP and therefore, DEHP would not be expected to mobilize from affected sediment into surface water. This migration characteristic is reinforced by the absence of dissolved DEHP in surface water. DEHP migration in the ditch is expected to be localized and associated with movement of sediment particles. Given that the ditch has negligible flow and a soft bottom with vegetative debris, sediment scour would only be expected in association with major storm flooding events.

4.2 Pore Water Sampling

In April 2016, 11 stainless steel drive point piezometers were installed along the left descending bank of the Rockaway River for pore water analysis. As the pore water samplers were installed on the bank of the Rockaway River the water collected is considered representative of groundwater. However, to be conservative in the evaluation, the pore water results were also compared in Table 4-3 to the NJDEP surface water ESC.

The piezometers were sampled between May 24 and 26, 2016, and samples were analyzed for total and dissolved DEHP. Samples for dissolved DEHP were filtered in the laboratory. Three of the piezometers (PW-R-03, PW-R-05, and PW-R-07) did not yield sufficient water for DEHP analysis. Pore water analytical results are presented on Table 4-3.

Dissolved DEHP was only detected in two of the eight pore water samples, PW-R-01 and PW-R-08. These two locations represent the highest observed total DEHP concentrations at 380 µg/L and 400 µg/L, respectively. Total DEHP concentrations ranged from a low of 1.2 µg/L in three of the pore water locations to a high of 400 µg/L at PW-R-08.

Table 4-3
DEHP Concentrations (µg/L) in Rockaway River Pore Water

SAMPLE LOCATION	SAMPLE DATE	TOTAL DEHP (µg/L)	DISSOLVED DEHP (µg/L)
PW-R-01	5/25/2016	**380**	**3.0**
PW-R-02	5/26/2016	**1.2**	<1.0
PW-R-04	5/24/2016	**1.2**	<1.0
PW-R-06	5/25/2016	**5.8**	<1.0
PW-R-08	5/26/2016	**400**	**2.8**
PW-R-09	5/24/2016	**58**	<1.0
PW-R-10	5/24/2016	**10**	<1.0
PW-R-10	5/26/2016	<1.0	<1.0
PW-R-11	5/26/2016	**1.2**	<1.0

Bold, concentration above detection limit
Concentration is greater than NJDEP Ecological Screening Criterion of 1 µg/L [PQL] for surface water.
Concentration also is greater than NJGWQS of 3.0 µg/L.

Pore water location PW-R-10 was sampled on May 24 and May 26 with total DEHP concentrations of 10 µg/L and <1.0 µg/L, respectively. This result, along with the material absence of dissolved DEHP in pore water samples, reinforces the conceptual model that DEHP is preferentially adsorbed to particulate matter and variations in sampling can translate into differences in observed results, especially at low concentrations near the detection limit.

4.3 Rockaway River Sampling

As described in the 2016 Ecological Evaluation Work Plan, thirteen transects were located along the Rockaway River. Four of these transects were upstream from the Site and were designed to establish background conditions. One of the four background transects was located in Washington Pond. All of the other transects were located in the Rockaway River. With the exception of the Washington Pond transect, surface water and sediment samples were collected from three to five locations along each transect. The number of sampling locations per transect was based on the width of the river channel at an individual transect.

Samples were designated as SW-RR-Tx-YYY, SD-RR-Tx-YYY-Int, where SW represents surface water, SD represents sediment, RR represents the Rockaway River, Tx represents the transect (from A to M upstream to downstream), YYY represents the location on the transect (RB, right descending bank; RMC, right mid-channel; MC, mid-channel; LMC, left mid-channel; and LB, left descending bank), and Int represents the depth from which sediment was sampled (0.0–0.5-

foot and 0.5–1.0-foot). Surface water samples were analyzed for total and dissolved DEHP. Samples for dissolved DEHP were filtered in the laboratory. In the field, dissolved oxygen, pH, conductivity, temperature, and oxidation reduction potential were recorded at each sampling location using a multi-meter. Sediment samples were analyzed for DEHP and grain size.

No sediment samples were collected from Transect M. The channel at this location was narrow, stream velocity was high, the banks were rocky, and no substantial sediment deposits were observed.

4.3.1 Surface Water

Table 4-4 and Figure 3 present total and dissolved DEHP analytical results for Rockaway River surface water. Dissolved DEHP was not detected in any of the 52 surface water samples (inclusive of four duplicates) from the Rockaway River. Total DEHP was only detected at one of the 52 surface water sampling locations. Total DEHP was detected at the right descending bank sample at transect L, at a concentration of 2 µg/L, which is above the NJDEP ESC of 1.0 µg/L (based on the PQL).

Table 4-4
DEHP Concentrations (µg/L) in Rockaway River Surface Water

SAMPLE LOCATION	SAMPLE DATE	TOTAL DEHP (µg/L)	DISSOLVED DEHP (µg/L)
SW-RR-TA-LB	6/01/2016	<1.0	<1.0
SW-RR-TA-MC	6/01/2016	<1.0	<1.0
SW-RR-TA-RB	6/01/2016	<1.0	<1.0
SW-RR-TB-LB	6/01/2016	<1.0	<1.0
SW-RR-TB-MC	6/01/2016	<1.0	1.3u
SW-RR-TB-RB	6/01/2016	<1.0	<1.0
SW-RR-TB-RB (DUP)	6/01/2016	<1.0	<1.0
SW-RR-TC-LB	6/01/2016	<1.0	<1.0
SW-RR-TC-RB	6/01/2016	<1.0	<1.0
SW-RR-TD-LB	6/01/2016	<1.0	<1.0
SW-RR-TD-RB	6/01/2016	<1.0	2.7u
SW-RR-TE-LB	6/01/2016	<1.0	<1.0
SW-RR-TE-MC	6/01/2016	<1.0	<1.0
SW-RR-TE-RB	6/01/2016	<1.0	<1.0
SW-RR-TF-LB	5/27/2016	<1.0	<1.0
SW-RR-TF-LMC	5/27/2016	<1.0	<1.0
SW-RR-TF-MC	5/27/2016	<1.0	<1.0
SW-RR-TF-RMC	5/27/2016	<1.0	<1.0
SW-RR-TF-RB	5/27/2016	<1.0	<1.0

Table 4-4
DEHP Concentrations (µg/L) in Rockaway River Surface Water

SAMPLE LOCATION	SAMPLE DATE	TOTAL DEHP (µg/L)	DISSOLVED DEHP (µg/L)
SW-RR-TG-LB	5/27/2016	<1.0	<1.0
SW-RR-TG-LB (DUP)	5/27/2016	<1.0	1.6u
SW-RR-TG-LMC	5/27/2016	<1.0	<1.0
SW-RR-TG-RMC	5/27/2016	<1.0	<1.0
SW-RR-TG-RB	5/27/2016	1.1u	<1.0
SW-RR-TH-LB	5/26/2016	<1.0	<1.0
SW-RR-TH-LB (DUP)	5/26/2016	<1.0	<1.0
SW-RR-TH-LMC	5/26/2016	<1.0	<1.0
SW-RR-TH-RMC	5/26/2016	<1.0	<1.0
SW-RR-TH-RB	5/26/2016	<1.0	<1.0
SW-RR-TI-LB	5/26/2016	<1.0	<1.0
SW-RR-TI-LMC	5/26/2016	<1.0	<1.0
SW-RR-TI-RMC	5/26/2016	<1.0	<1.0
SW-RR-TI-RB	5/26/2016	<1.0	<1.0
SW-RR-TJ-LB	5/25/2016	<1.0	<1.0
SW-RR-TJ-LMC	5/25/2016	<1.0	<1.0
SW-RR-TJ-MC	5/25/2016	<1.0	<1.0
SW-RR-TJ-RMC	5/25/2016	<1.0	<1.0
SW-RR-TJ-RB	5/25/2016	<1.0	<1.0
SW-RR-TK-LB	5/25/2016	<1.0	<1.0
SW-RR-TK-LMC	5/25/2016	<1.0	<1.0
SW-RR-TK-MC	5/25/2016	<1.0	<1.0
SW-RR-TK-RMC	5/25/2016	<1.0	<1.0
SW-RR-TK-RB	5/25/2016	<1.0	<1.0
SW-RR-TK-RB (DUP)	5/25/2016	<1.0	1.5u
SW-RR-TL-LB	5/25/2016	<1.0	<1.0
SW-RR-TL-LMC	5/25/2016	<1.0	<1.0
SW-RR-TL-MC	5/25/2016	<1.0	<1.0
SW-RR-TL-RMC	5/25/2016	<1.0	<1.0
SW-RR-TL-RB	5/25/2016	**2.0**	<1.0
SW-RR-TM-LB	5/25/2016	<1.0	<1.0
SW-RR-TM-MC	5/25/2016	<1.0	<1.0
SW-RR-TM-RB	5/25/2016	<1.0	<1.0

Bold, concentration above detection limit

Italics typeface indicates a background, upstream location.

u Low detected concentration was invalidated based on professional validation and QC review.

Concentration greater than NJDEP Ecological Screening Criterion (1 µg/L [PQL])

The material absence of DEHP in Rockaway River surface water demonstrates that flux of dissolved DEHP from the Site is minimal and is not be expected to pose a risk to aquatic receptors present in the river.

4.3.2 Sediment

Table 4-5 and Figure 4 present DEHP analytical results for Rockaway River sediment samples. DEHP was detected at one background sampling location - the right descending bank sample from Transect A - at 0.79 mg/kg. This is the furthest upstream transect from the Site. DEHP was detected above the NDJEP sediment ESC of 0.182 mg/kg in eight of 52 sediment samples and from samples collected at Transects A, F, G, H and I.

Table 4-5
DEHP Concentrations (mg/kg, dry weight) in Rockaway River Sediment

SAMPLE LOCATION	SAMPLE DATE	DEHP (mg/kg, dry weight)	GRAIN SIZE % GRAVEL | SAND | FINES
SED-RR-TA-LB (0.0-0.5)	6/01/2016	**0.79**	27 | 64 | 9
SED-RR-TA-MC (0.0-0.5)	6/01/2016	<0.041	37 | 62 | 1
SED-RR-TA-RB (0.0-0.5)	6/01/2016	<0.051	28 | 66 | 6
SED-RR-TB-LB (0.0-0.5)	6/01/2016	<0.065	1 | 23 | 76
SED-RR-TB-MC (0.0-0.5)	6/01/2016	<0.060	0 | 91 | 9
SED-RR-TB-MC (0.5-1.0)	6/01/2016	<0.049	3 | 91 | 6
SED-RR-TB-RB (0.0-0.5)	6/01/2016	<0.052	0 | 95 | 5
SED-RR-TC-LB (0.0-0.5)	6/01/2016	<0.086	13 | 74 | 13
SED-RR-TC-RB (0.0-0.5)	6/01/2016	<0.044	51 | 44 | 5
SED-RR-TD-LB (0.0-0.5)	6/01/2016	<0.044	31 | 66 | 3
SED-RR-TD-LB (0.0-0.5) (DUP)	6/01/2016	<0.042	33 | 65 | 2
SED-RR-TD-RB (0.0-0.5)	6/01/2016	<0.041	58 | 41 | 1
SED-RR-TE-LB (0.0-0.5)	6/01/2016	**0.18**	10 | 89 | 1
SED-RR-TE-MC (0.0-0.5)	6/01/2016	**0.062**	3 | 88 | 9
SED-RR-TE-RB (0.0-0.5)	6/01/2016	<0.042	25 | 74 | 1
SED-RR-TF-LB (0.0-0.5)	5/27/2016	**0.12**	19 | 80 | 1
SED-RR-TF-LMC (0.0-0.5)	5/27/2016	**0.1**	1 | 92 | 7
SED-RR-TF-MC (0.0-0.5)	5/27/2016	**3.0**	10 | 84 | 6
SED-RR-TF-RMC (0.0-0.5)	5/27/2016	<0.077	46 | 42 | 12
SED-RR-TF-RB (0.0-0.5)	5/27/2016	**0.095**	8 | 42 | 50
SED-RR-TG-LB (0.0-0.5)	5/27/2016	**1.3**	0 | 51 | 49
SED-RR-TG-LMC (0.0-0.5)	5/27/2016	**0.11 j**	6 | 91 | 3
SED-RR-TG-LMC (0.0-0.5) (DUP)	5/27/2016	**0.57 j**	8 | 88 | 4

Table 4-5
DEHP Concentrations (mg/kg, dry weight) in Rockaway River Sediment

SAMPLE LOCATION	SAMPLE DATE	DEHP (mg/kg, dry weight)	GRAIN SIZE % GRAVEL | SAND | FINES
SED-RR-TG-RMC (0.0-0.5)	5/27/2016	**0.26**	17 | 72 | 11
SED-RR-TG-RB (0.0-0.5)	5/27/2016	**0.069**	18 | 79 | 3
SED-RR-TH-LB (0.0-0.5)	5/26/2016	**0.39 j**	9 | 84 | 7
SED-RR-TH-LB (0.0-0.5) (DUP)	5/26/2016	**2.00 j**	26 | 69 | 5
SED-RR-TH-LMC (0.0-0.5)	5/26/2016	<0.330	10 | 85 | 5
SED-RR-TH-RMC (0.0-0.5)	5/26/2016	<0.330	21 | 74 | 5
SED-RR-TH-RB (0.0-0.5)	5/26/2016	<0.330	24 | 72 | 4
SED-RR-TI-LB (0.0-0.5)	5/26/2016	**0.92**	9 | 78 | 13
SED-RR-TI-LMC (0.0-0.5)	5/26/2016	**0.58**	39 | 59 | 2
SED-RR-TI-RMC (0.0-0.5)	5/26/2016	<0.330	20 | 78 | 2
SED-RR-TI-RB (0.0-0.5)	5/26/2016	<0.330	2 | 89 | 9
SED-RR-TJ-LB (0.0-0.5)	5/25/2016	<0.055	1 | 43 | 56
SED-RR-TJ-LMC (0.0-0.5)	5/25/2016	<0.048	2 | 94 | 4
SED-RR-TJ-MC (0.0-0.5)	5/25/2016	**0.049**	4 | 85 | 11
SED-RR-TJ-RMC (0.0-0.5)	5/25/2016	<0.042	2 | 88 | 10
SED-RR-TJ-RB (0.0-0.5)	5/25/2016	**0.072**	1 | 29 | 70
SED-RR-TK-LB (0.5-1.0)	5/25/2016	**0.058**	17 | 68 | 15
SED-RR-TK-LB (DUP)	5/25/2016	<0.047	15 | 76 | 9
SED-RR-TK-LMC (0.0-0.5)	5/25/2016	**0.14**	2 | 66 | 32
SED-RR-TK-LMC (0.5-1.0)	5/25/2016	<0.092	1 | 88 | 11
SED-RR-TK-MC (0.0-0.5)	5/25/2016	**0.056**	4 | 87 | 9
SED-RR-TK-RMC (0.0-0.5)	5/25/2016	<0.043	1 | 89 | 10
SED-RR-TK-RB (0.0-0.5)	5/25/2016	<0.049	2 | 84 | 14
SED-RR-TL-LB (0.0-0.5)	5/25/2016	**0.084**	1 | 89 | 10
SED-RR-TL-LMC (0.0-0.5)	5/25/2016	**0.046**	1 | 90 | 9
SED-RR-TL-MC (0.0-0.5)	5/25/2016	**0.059**	1 | 89 | 10
SED-RR-TL-RMC (0.0-0.5)	5/25/2016	<0.083	2 | 83 | 15
SED-RR-TL-RMC (0.5-1.0)	5/25/2016	<0.053	1 | 84 | 15
SED-RR-TL-RB (0.0-0.5)	5/25/2016	<0.048	2 | 88 | 10

Bold, concentration above detection limit

Italics typeface indicates a background, upstream location.

Concentration exceeds background concentration (0.79 mg/kg, dry weight, which is the 0.0 - 0.5' sediment sample from SED-RR-TA-LB)

Concentration exceeds Probable Effects Level (2.65 mg/kg, from McDonald, 1994)

j Estimated concentration due to validation. Relative percent difference between duplicate samples was out of acceptable range. These samples were not considered in # samples over threshold unless both samples were greater that the criteria being discussed.

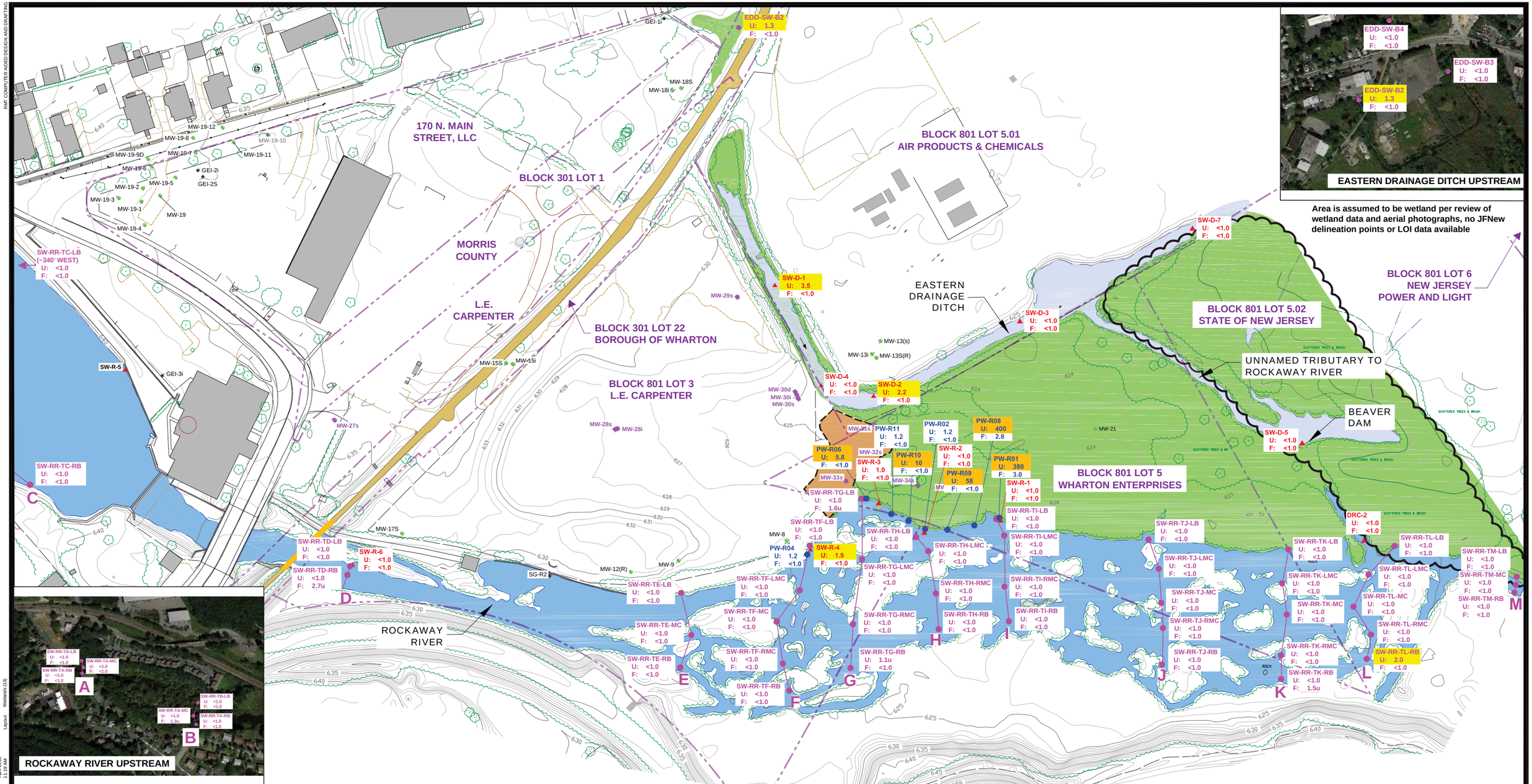
Concentrations greater than the upstream background of 0.79 mg/kg were detected in three sediment samples - one collected at each Transect F, G, and I. Only the DEHP concentration at the mid-channel location at Transect G was greater than the DEHP PEL of 2.65 mg/kg. No DEHP concentrations in sediment downstream of Transect I were greater than the NDJEP sediment ESC of 0.182 mg/kg.

DEHP detections are more prevalent at transects immediately adjacent to the Site. However, no definitive pattern of DEHP concentration distribution is evident from these results, either in a cross-channel direction or related to depth.

The grain size data for the Rockaway River sediment samples are dominated by the sand fraction with few exceptions. The fines fraction range from 1 to 70 percent but with a median value of 9 percent. There is not a discernable correlation with percent fines and DEHP concentrations in the river.

Conclusions reached from the Rockaway River sediment sampling are as follows:

- A background sediment sample from Transect A detected DEHP above the NJDEP sediment ESC. Only three samples from Transects E through L exhibited concentrations greater than background.
- Only one of 52 samples, inclusive of three duplicates, contained DEHP at a concentration (3.0 mg/kg) slightly above a PEL of 2.65 mg/kg.
- DEHP has a sporadic distribution in sediments.
    - The highest DEHP concentration is detected in a mid-channel sample with clean samples (below the NJDEP ESC of 0.182 mg/kg) between this sample and the Site.
    - While the next highest two or three concentrations appear to be nearer the left descending bank, the variability in DEHP concentrations is such that no clear pattern can be discerned.
- Sediment deposits in this reach of the Rockaway River are shallow and unevenly distributed. The river is wide in this reach and exhibits braided channel development.



LEGEND

- APPROXIMATE PROPERTY LINE
- FENCE LINE
- TREES
- MW-25(R) — GROUNDWATER ELEVATION MONITORING WELL LOCATION AND NUMBER ($s = shallow, i = intermediate, d = deep)
- MW-29s — PRMP MONITORING WELL LOCATION AND NUMBER ($s = shallow, i = intermediate, d = deep)
- SG-R1 — RIVER POINT SURFACE WATER ELEVATION
- SG-D1 — DRAINAGE CHANNEL POINT SURFACE WATER ELEVATION
- GEI-2i — PIEZOMETER LOCATION
- SW-R-1 — SURFACE WATER SAMPLING LOCATION (D = DITCH; R = RIVER)
- 630 — POST-REMEDIATION GROUND SURFACE ELEVATIONS CONTOUR INTERVAL = 1 ft.
- RAILS TO TRAILS
- REGULATED WETLAND
- TRANSITION ZONE
- STATE OPEN WATERS
- COVERTED FOOT BRIDGE
- PORE WATER SAMPLE LOCATION
- SEDIMENT SAMPLING LOCATION
- E — SEDIMENT WATER SAMPLING TRANSECT
- SW-RR-TL-RB — SAMPLE ID
- U: 2.0 — UNFILTERED DEHP RESULT*
- F: <1.0 — FILTERED DEHP RESULT

*YELLOW-HIGHLIGHTED CALL-OUT BOXES INDICATE SURFACE WATER SAMPLE RESULT GREATER THAN NJDEP ECOLOGICAL SCREENING CRITERION FOR DEHP OF 1.0 ug/L (PQL).

ORANGE-HIGHLIGHTED CALL-OUT BOXES INDICATE PORE WATER SAMPLE RESULT GREATER THAN NJGWQS OF 3.0 ug/L.

NOTES

1. ALL RESULTS ARE MEASURED IN MICROGRAMS PER LITER (ug/L).
2. BASE MAP DEVELOPED FROM TOPOGRAPHIC SURVEY PROVIDED BY JAMES M.STEWART, INC. LAND SURVEYORS, DRAWING NO 2793-03.DWG, DATED 02-14-02 AS REVISED 04-10-07 (DRAWING NO. 314907REV.DWG).
3. WETLAND BOUNDARIES BASED ON JFNEW DELINEATION (SEPT 2004) AND LETTERS OF INTERPRETATION (LOI) (JUNE 14, 2000). 1439-00-0001.1 REFERENCES THE NEW JERSEY LANDUSE REGULATION PROGRAM FILE NUMBER:
4. ELEVATIONS FOR THE FLOOD HARZARD LINE FROM THE STATE OF NEW JERSERY, DEPARTMENT OF ENVIRONMENTAL PROTECTION, DIVISION OF WATER RESOURCES, DELINEATION OF FLOODWAY AND FLOOD HAZARD AREA (SHEETS B-16 and C-16).
5. INSET AERIAL PHOTOGRAPHY OBTAINED FROM GOOGLE EARTH AND IS DATED SEPTEMBER 18, 2013.
6. BLOCK 301, LOT 1 HAS BEEN SUBDIVIDED INTO THREE PARCELS, ONE OWNED BY 170 N. MAIN STREET, LLC, ONE OWNED BY MORRIS COUNTY, AND ONE OWNED BY L.E. CARPENTER.

N

0 60' 120' 180' 240'
SCALE IN FEET

NO.	BY	DATE	REVISION	APP'D.
5.				
4.				
3.				
2.				
1.				

DAYCO CORPORATION / L.E. CARPENTER
SUPERFUND SITE
WHARTON, NEW JERSEY

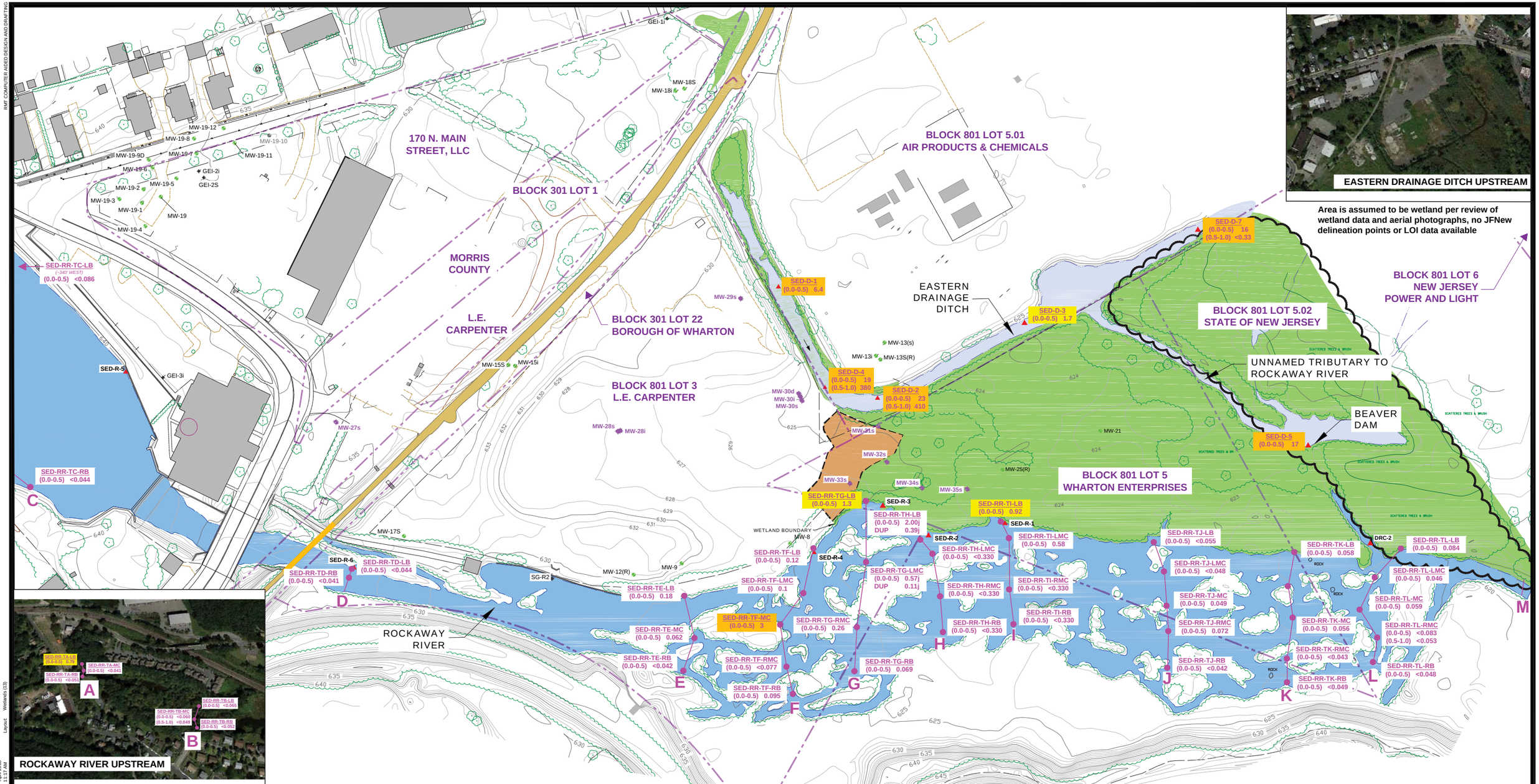
DEHP SURFACE WATER SAMPLING (ug/L)

DRAWN BY: AFEIGL	DRAWING SCALE: 1"=60'	PROJECT NO. 248642.0.0	
CHECKED BY: RHANLEY		FILE NO. Fig03_SurfaceWater.dwg	
APPROVED BY: KSAUCIER	DATE PRINTED:	**FIGURE 3**	
DATE: JULY 2016			

TRC
30 Patewood Drive, Suite 300
Patewood Plaza One
Greenville, SC 29615

RMT COMPUTER AIDED DESIGN AND DRAFTING

Drawing Name: J:\CAD\LE Carpenter\Fig03_SurfaceWater.dwg
Operator Name: FEIGL, ADAM
Drawing Plot Scale: 1:2
Dwg Size: 0.93 Mb
Plot Date: April 2008
Plot Time: 11:19 AM
Layout: Wetlands (13)



EASTERN DRAINAGE DITCH UPSTREAM

Area is assumed to be wetland per review of wetland data and aerial photographs, no JFNew delineation points or LOI data available

ROCKAWAY RIVER UPSTREAM

LEGEND

- APPROXIMATE PROPERTY LINE
- FENCE LINE
- TREES
- MW-25(R) — GROUNDWATER ELEVATION MONITORING WELL LOCATION AND NUMBER ($s = shallow, i = intermediate, d = deep)
- MW-29s — PRMP MONITORING WELL LOCATION AND NUMBER ($s = shallow, i = intermediate, d = deep)
- SG-R1 — RIVER POINT SURFACE WATER ELEVATION
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- SED-R-1 — SURFACE WATER SAMPLING LOCATION (D = DITCH; R = RIVER)
- 630 — POST-REMEDIATION GROUND SURFACE ELEVATIONS CONTOUR INTERVAL = 1 ft.
- RAILS TO TRAILS
- REGULATED WETLAND
- TRANSITION ZONE
- STATE OPEN WATERS
- COVERTED FOOT BRIDGE
- E — SEDIMENT WATER SAMPLING TRANSECT
- SEDIMENT SAMPLING LOCATION
- SED-RR-TG-LB (0.0-0.5) 1.3 — SAMPLE ID; SAMPLE RESULT (DEHP DRY WEIGHT)*; SAMPLE DEPTH (FEET BELOW SEDIMENT SURFACE)

*ORANGE-HIGHLIGHTED CALL-OUT BOXES INDICATE SAMPLE RESULT GREATER THAN ECOLOGICAL SCREENING CRITERION FOR DEHP OF 2.7 mg/kg (PEL), FROM MCDONALD, 1994. YELLOW-HIGHLIGHTED CALL-OUT BOXES INDICATE SAMPLE RESULT GREATER THAN 0.790 mg/kg, BASED ON BACKGROUND.

NOTES

1. ALL RESULTS ARE MEASURED IN MILLOGRAMS PER KILOGRAM (mg/kg).
2. SAMPLES WHERE RPD WAS OUT OF RANGE ARE ESTIMATED VALUES AND NOT EVALUATED AGAINST SCREENING CRITERIA.
3. BASE MAP DEVELOPED FROM TOPOGRAPHIC SURVEY PROVIDED BY JAMES M.STEWART, INC. LAND SURVEYORS, DRAWING NO 2793-03.DWG, DATED 02-14-02 AS REVISED 04-10-07 (DRAWING NO. 314907REV.DWG).
4. WETLAND BOUNDARIES BASED ON JFNEW DELINEATION (SEPT 2004) AND LETTERS OF INTERPRETATION (LOI) (JUNE 14, 2000). 1439-00-0001.1 REFERENCES THE NEW JERSEY LANDUSE REGULATION PROGRAM FILE NUMBER.
5. ELEVATIONS FOR THE FLOOD HARZARD LINE FROM THE STATE OF NEW JERSERY, DEPARTMENT OF ENVIRONMENTAL PROTECTION, DIVISION OF WATER RESOURCES, DELINEATION OF FLOODWAY AND FLOOD HAZARD AREA (SHEETS B-16 and C-16).
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N

0 60' 120' 180' 240'
SCALE IN FEET

NO.	BY	DATE	REVISION	APP'D.
5.				
4.				
3.				
2.				
1.				

DAYCO CORPORATION / L.E. CARPENTER
SUPERFUND SITE
WHARTON, NEW JERSEY

DEHP SEDIMENT SAMPLING (mg/kg)

DRAWN BY: AFEIGL	DRAWING SCALE: 1"=60'	PROJECT NO. 248642.0.0	
CHECKED BY: RHANLEY		FILE NO. Fig04_Sediment.dwg	
APPROVED BY: KSAUCIER	DATE PRINTED:	FIGURE 4	
DATE: JULY 2016			

TRC
30 Patewood Drive, Suite 300
Patewood Plaza One
Greenville, SC 29615

RMT COMPUTER AIDED DESIGN AND DRAFTING

Layout: Wetlands (13)
Dwg Size: 0.92 Mb
Plot Date: April 2008
Plot Time: 11:17 AM
J:\CAD\LE Carpenter\Fig04_Sediment.dwg
Operator Name: FEIGL, ADAM
Drawing Plot Scale: 1:2
Drawing Name:

Section 5
Conclusions and Recommendations

This ecological evaluation was performed to evaluate the potential for adverse ecological effects that could be associated with DEHP identified at the Dayco Corporation/L.E. Carpenter Site, located at 170 North Main Street, Wharton, Morris County, New Jersey.

ESNRs identified for this site are a state jurisdictional wetland that extends from the eastern edge of the Site onto the adjoining property to the east (ESNR 1) and the Rockaway River (ESNR 2). The Eastern Drainage Ditch, a manmade surface water conveyance, is included for consideration in this report as a related area due to its proximity and hydrologic connection to the wetland and the Rockaway River.

Completed migration pathways have historically existed from the Site to the Eastern Drainage Ditch and from the Eastern Drainage Ditch to the adjoining wetland and to the Rockaway River. DEHP observations in the Eastern Drainage Ditch and Rockaway River are likely attributable to migration from the site prior to significant source removal actions 2005 to 2009. However, current DEHP migration potential to surface water is minimal due to DEHP's low solubility, and affinity for and partitioning to sediment.

Based on the nature and extent of DEHP distribution in the Eastern Drainage Ditch and the Rockaway River:

- DEHP is not present at concentrations in Rockaway River surface water that would pose an adverse ecological impact to aquatic populations
- DEHP is not present at concentrations in Rockaway River sediment that would pose an adverse ecological impact to benthic populations
- DEHP is not present at concentrations in Eastern Drainage Ditch surface water that would pose an adverse ecological impact to aquatic populations
- The marginal habitat of the Eastern Drainage Ditch in conjunction with the observed DEHP concentrations in ditch sediments pose a potential adverse ecological impact to benthic populations

In summary, only Eastern Drainage Ditch sediments are considered a potential medium of concern based on this ecological evaluation.

Based on the conclusions of the ecological evaluation no further ecological evaluation of the Rockaway River and the Eastern Drainage Ditch is warranted. The following actions are recommended for the Rockaway River and the Eastern Drainage Ditch:

- Reduce routine quarterly monitoring of Rockaway River surface water for DEHP to a semiannual frequency. Continue analysis for total and dissolved DEHP in surface water.
- Continue routine quarterly monitoring of Eastern Drainage Ditch surface water for total and dissolved DEHP.
- Evaluate engineering alternatives to address affected sediment in the Eastern Drainage Ditch.

Section 6
References

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USFWS, 2016a. Bog Turtle (threatened). United States Fish and Wildlife Service, New Jersey Field Office, Galloway, NJ. https://www.fws.gov/northeast/njfieldoffice/endangered/bogturtle.html

USFWS, 2016b. Indiana Bat (endangered). United States Fish and Wildlife Service, New Jersey Field Office, Galloway, NJ. https://www.fws.gov/northeast/njfieldoffice/endangered/bogturtle.html

USFWS, 2016c. Northern Long-eared Bat (threatened). United States Fish and Wildlife Service, New Jersey Field Office, Galloway, NJ. https://www.fws.gov/northeast/njfieldoffice/endangered/bogturtle.html

Appendix A
Information on Protected Animal and Plant Species

U.S. Fish & Wildlife Service

LECarpenter Wharton, NJ

IPaC Trust Resources Report

Generated July 16, 2016 03:12 PM MDT, IPaC v3.0.8

This report is for informational purposes only and should not be used for planning or analyzing project level impacts. For project reviews that require U.S. Fish & Wildlife Service review or concurrence, please return to the IPaC website and request an official species list from the Regulatory Documents page.

IPaC - Information for Planning and Conservation (https://ecos.fws.gov/ipac/): A project planning tool to help streamline the U.S. Fish & Wildlife Service environmental review process.

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Project Description 1
Endangered Species 2
Migratory Birds 4
Refuges & Hatcheries 6
Wetlands 7

U.S. Fish & Wildlife Service

IPaC Trust Resources Report

NAME

LECarpenter Wharton, NJ

LOCATION

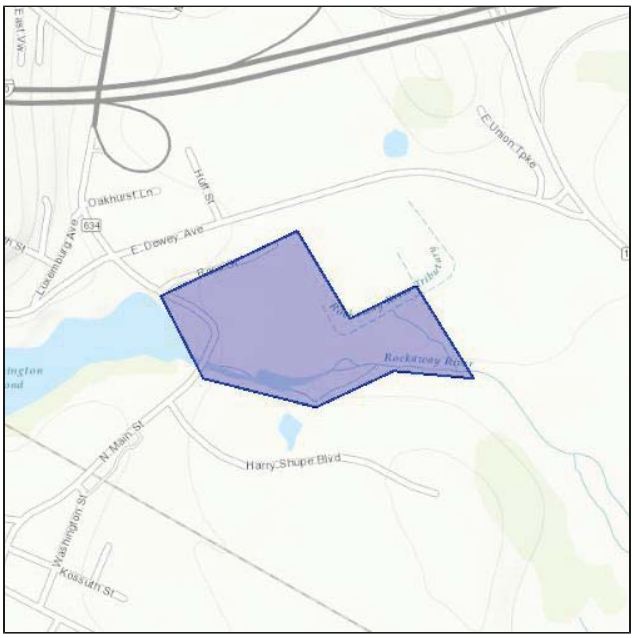
Morris County, New Jersey

DESCRIPTION

Site restoration

IPAC LINK

https://ecos.fws.gov/ipac/project/ZH2KB-RHWLB-AFDFE-RDYVT-CQK6ZA



U.S. Fish & Wildlife Service Contact Information

Trust resources in this location are managed by:

New Jersey Ecological Services Field Office
927 North Main Street, Building D
Pleasantville, NJ 08232-1454
(609) 646-9310

Endangered Species

Proposed, candidate, threatened, and endangered species are managed by the Endangered Species Program of the U.S. Fish & Wildlife Service.

This USFWS trust resource report is for informational purposes only and should not be used for planning or analyzing project level impacts.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list from the Regulatory Documents section.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency.

A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list either from the Regulatory Documents section in IPaC or from the local field office directly.

The list of species below are those that may occur or could potentially be affected by activities in this location:

Mammals

Indiana Bat Myotis sodalis — Endangered

CRITICAL HABITAT
No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=A000

Northern Long-eared Bat Myotis septentrionalis — Threatened

CRITICAL HABITAT
No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=A0JE

Reptiles

Bog (=muhlenberg) Turtle Clemmys muhlenbergii — Threatened

CRITICAL HABITAT
No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=C048

Critical Habitats

There are no critical habitats in this location

Migratory Birds

Birds are protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Any activity that results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish & Wildlife Service.[1] There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

---

1. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern
  http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Conservation measures for birds
  http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Year-round bird occurrence data
  http://www.birdscanada.org/birdmon/default/datasummaries.jsp

The following species of migratory birds could potentially be affected by activities in this location:

American Bittern Botaurus lentiginosus — Bird of conservation concern
Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0F3

Bald Eagle Haliaeetus leucocephalus — Bird of conservation concern
Season: Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B008

Black-billed Cuckoo Coccyzus erythropthalmus — Bird of conservation concern
Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HI

Blue-winged Warbler Vermivora pinus — Bird of conservation concern
Season: Breeding

Canada Warbler Wilsonia canadensis — Bird of conservation concern
Season: Breeding

Cerulean Warbler Dendroica cerulea — Bird of conservation concern
Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B09I

Fox Sparrow Passerella iliaca — Bird of conservation concern
Season: Wintering

Golden-winged Warbler Vermivora chrysoptera — Bird of conservation concern
Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0G4

Kentucky Warbler Oporornis formosus — Bird of conservation concern
Season: Breeding

Louisiana Waterthrush Parkesia motacilla — Bird of conservation concern
Season: Breeding

Olive-sided Flycatcher Contopus cooperi — Bird of conservation concern
Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0AN

Peregrine Falcon Falco peregrinus — Bird of conservation concern
Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0FU

Pied-billed Grebe Podilymbus podiceps — Bird of conservation concern
Season: Year-round

Prairie Warbler Dendroica discolor — Bird of conservation concern
Season: Breeding

Purple Sandpiper Calidris maritima — Bird of conservation concern
Season: Wintering

Rusty Blackbird Euphagus carolinus — Bird of conservation concern
Season: Wintering

Short-eared Owl Asio flammeus — Bird of conservation concern
Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HD

Upland Sandpiper Bartramia longicauda — Bird of conservation concern
Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HC

Willow Flycatcher Empidonax traillii — Bird of conservation concern
Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0F6

Wood Thrush Hylocichla mustelina — Bird of conservation concern
Season: Breeding

Worm Eating Warbler Helmitheros vermivorum — Bird of conservation concern
Season: Breeding

Wildlife refuges and fish hatcheries

There are no refuges or fish hatcheries in this location

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

DATA LIMITATIONS

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

DATA EXCLUSIONS

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

DATA PRECAUTIONS

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

This location overlaps all or part of the following wetlands:

Freshwater Emergent Wetland

PEM1E

Freshwater Forested/shrub Wetland

PFO1A
PFO1C

Freshwater Pond

PUBHh

Riverine

R2UBH
R5UBFx
R5UBH

A full description for each wetland code can be found at the National Wetlands Inventory website: http://107.20.228.18/decoders/wetlands.aspx

State of New Jersey

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Parks & Forestry
State Forestry Service
Mail Code 501-04
Office of Natural Lands Management – Natural Heritage Program
P.O. Box 420
Trenton, NJ 08625-0420
Tel. (609) 984-1339 Fax. (609) 984-1427

BOB MARTIN
Commissioner

July 28, 2016

Robert W. Hanley
TRC Environmental Corp.
30 Patewood Drive, Suite 300
Greenville, SC 29605

Re: Dayco Corporation/L.E. Carpenter Ecological Evaluation
Block(s) - 301; 801, Lot(s) - 1; 3 and 5
Wharton Borough, Morris County

Dear Mr. Hanley:

Thank you for your data request regarding rare species information for the above referenced project site.

Searches of the Natural Heritage Database and the Landscape Project (Version 3.1) are based on a representation of the boundaries of your project site in our Geographic Information System (GIS). We make every effort to accurately transfer your project bounds from the topographic map(s) submitted with the Natural Heritage Data Request Form into our Geographic Information System. We do not typically verify that your project bounds are accurate, or check them against other sources.

We have checked the Landscape Project habitat mapping and the Biotics Database for occurrences of any rare wildlife species or wildlife habitat on the referenced site. The Natural Heritage Database was searched for occurrences of rare plant species or ecological communities that may be on the project site. Please refer to Table 1 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented on site. A detailed report is provided for each category coded as 'Yes' in Table 1.

This report does not include information concerning known Northern Long-eared Bat hibernacula and maternity roost trees protected under the provisions of the U.S. Fish & Wildlife Service's 4(d) Rule. You must contact the U.S. Fish & Wildlife Service, New Jersey Field Office, for additional information concerning the location of these features, or visit their website at: http://www.fws.gov/northeast/njfieldoffice/endangered/consultation.html.

We have also checked the Landscape Project habitat mapping and Biotics Database for occurrences of rare wildlife species or wildlife habitat in the immediate vicinity (within ¼ mile) of the referenced site. Additionally, the Natural Heritage Database was checked for occurrences of rare plant species or ecological communities within ¼ mile of the site. Please refer to Table 2 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented within the immediate vicinity of the site. Detailed reports are provided for all categories coded as 'Yes' in Table 2. These reports may include species that have also been documented on the project site.

The Natural Heritage Program reviews its data periodically to identify priority sites for natural diversity in the State. Included as priority sites are some of the State's best habitats for rare and endangered species and ecological communities. Please refer to Tables 1 and 2 (attached) to determine if any priority sites are located on or in the immediate vicinity of the site.

A list of rare plant species and ecological communities that have been documented from the county (or counties), referenced above, can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/countylist.html. If suitable habitat is present at the project site, the species in that list have potential to be present.

Status and rank codes used in the tables and lists are defined in EXPLANATION OF CODES USED IN NATURAL HERITAGE REPORTS, which can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/nhpcodes_2010.pdf.

If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend that you visit the interactive NJ-GeoWeb website at the following URL, http://www.state.nj.us/dep/gis/geowebsplash.htm or contact the Division of Fish and Wildlife, Endangered and Nongame Species Program at (609) 292-9400.

PLEASE SEE 'CAUTIONS AND RESTRICTIONS ON NHP DATA', which can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/newcaution2008.pdf.

Thank you for consulting the Natural Heritage Program. The attached invoice details the payment due for processing this data request. Feel free to contact us again regarding any future data requests.

Sincerely,

Robert J. Cartica
Administrator

c: NHP File No. 16-4007485-10265

Table 1: On Site Data Request Search Results (6 Possible Reports)

Report Name	Included	Number of Pages
1. Possibly on Project Site Based on Search of Natural Heritage Database: Rare Plant Species and Ecological Communities Currently Recorded in the New Jersey Natural Heritage Database	No	0 pages included
2. Natural Heritage Priority Sites On Site	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.1 Species Based Patches	Yes	1 page(s) included
4. Vernal Pool Habitat on the Project Site Based on Search of Landscape Project 3.1	No	0 pages included
5. Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.1 Stream Habitat File	No	0 pages included
6. Other Animal Species On the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program	Yes	1 page(s) included

Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.1 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
Aves								
	Great Blue Heron	Ardea herodias	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Great Blue Heron	Ardea herodias	Nesting Colony	2	NA	Special Concern	G5	S3B,S4N
Mammalia								
	Bobcat	Lynx rufus	Live Individual Sighting	4	NA	State Endangered	G5	S1
	Bobcat	Lynx rufus	On Road	4	NA	State Endangered	G5	S1
	Bobcat	Lynx rufus	Physical evidence	4	NA	State Endangered	G5	S1
	Indiana Bat	Myotis sodalis	Hibernaculum	5	Federally Listed Endangered	State Endangered	G2	S1
	Indiana Bat	Myotis sodalis	Non-breeding Sighting	5	Federally Listed Endangered	State Endangered	G2	S1

Other Animal Species On the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program

Scientific Name	Common Name	Federal Protection Status	State Protection Status	Grank	Srank
Invertebrate Animals					
Polites mystic	Long Dash			G5	S3?

Total number of records: 1

Table 2: Vicinity Data Request Search Results (6 possible reports)

Report Name	Included	Number of Pages
1. Immediate Vicinity of the Project Site Based on Search of Natural Heritage Database: Rare Plant Species and Ecological Communities Currently Recorded in the New Jersey Natural Heritage Database	No	0 pages included
2. Natural Heritage Priority Sites within the Immediate Vicinity	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.1 Species Based Patches	Yes	1 page(s) included
4. Vernal Pool Habitat In the Immediate Vicinity of Project Site Based on Search of Landscape Project 3.1	No	0 pages included
5. Rare Wildlife Species or Wildlife Habitat In the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.1 Stream Habitat File	No	0 pages included
6. Other Animal Species In the Immediate Vicinity of the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program	Yes	1 page(s) included

Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.1 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
Aves								
	Great Blue Heron	Ardea herodias	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Great Blue Heron	Ardea herodias	Nesting Colony	2	NA	Special Concern	G5	S3B,S4N
Mammalia								
	Bobcat	Lynx rufus	Live Individual Sighting	4	NA	State Endangered	G5	S1
	Bobcat	Lynx rufus	On Road	4	NA	State Endangered	G5	S1
	Bobcat	Lynx rufus	Physical evidence	4	NA	State Endangered	G5	S1
	Indiana Bat	Myotis sodalis	Hibernaculum	5	Federally Listed Endangered	State Endangered	G2	S1
	Indiana Bat	Myotis sodalis	Non-breeding Sighting	5	Federally Listed Endangered	State Endangered	G2	S1
Reptilia								
	Wood Turtle	Glyptemys insculpta	Occupied Habitat	3	NA	State Threatened	G4	S2

Other Animal Species
In the Immediate Vicinity of the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program

Scientific Name	Common Name	Federal Protection Status	State Protection Status	Grank	Srank
Invertebrate Animals					
Polites mystic	Long Dash			G5	S3?

Total number of records: 1

Appendix B
Sovereign Letter Report of Findings

SOVEREIGN CONSULTING INC.

June 22, 2016

TRANSMITTED VIA ELECTRONIC MAIL

Robert W. Hanley, Ph.D.
Senior Environmental Scientist
TRC Environmental Corporation
30 Patewood Drive, Suite 300
Greenville, SC 29615

Re: Letter Report of Findings
Biological Assessment Sampling
L.E. Carpenter Site – Eastern Drainage Ditch
Wharton, Morris County, New Jersey
Work Order #2486420002-001; TRC Project #248642 Phase 2
Purchase Order #96027

Dear Mr. Hanley:

On May 26, 2016, Sovereign Consulting Inc. (Sovereign), on behalf of TRC Environmental Corporation (TRC), conducted biological assessment sampling of the 'Eastern Drainage Ditch' associated with the L.E. Carpenter site located in Wharton, Morris County, New Jersey. The biological assessment included benthic macroinvertebrate sampling and a fish survey at three (3) locations (SW-D-3, SW-D-4, and SW-D-7) and the documentation of other potential ecological receptors (avian, amphibian, etc.) observed during the sampling event.

The results of the May 26, 2016 biological assessment sampling are presented in this *Letter Report of Findings.*

Habitat Assessment

The habitat at each of the three biological sample locations (SW-D-3, SW-D-4, and SW-D-7) was evaluated following the NJDEP Rapid Bioassesment Protocol (RBP). Habitat assessment is defined in the NJDEP RBP as "the evaluation of the structure of the surrounding physical habitat that influences the quality of the water resource and the condition of the resident aquatic community" (Barbour et al. 1999). The habitat assessment uses ten metrics, including an evaluation of the variety and quality of the substrate, channel morphology, bank structure and riparian vegetation, to determine the overall habitat score. All parameters are evaluated and rated on a numerical scale of 0 to 20 (highest) for each sample reach. A final habitat assessment of optimal (highest score), suboptimal, marginal or poor (lowest score) is achieved by tallying the scores from all ten metrics and comparing them to a reference condition provided by NJDEP. Scores increase as habitat quality increases. **Table 1** presents the reference values associated with each final habitat assessment as provided in the NJDEP RBP.

Table 1: RBP Habitat Assessment Reference Values

Habitat Score	Value
Optimal	160 - 200
Sub-optimal	110 - 159
Marginal	60 - 109
Poor	< 60

Habitat Assessment Discussion of Results

The Eastern Drainage Ditch is a man-made feature that is hydraulically connected to a larger freshwater wetland complex associated with the Rockaway River. Due to the lack of flow/low velocity, heavy sediment deposits, fine/heavy much substrate and the absence of riffles/ bends, each of the three locations scored in the 'marginal' habitat assessment value range.

Habitat assessment field data sheets were completed for each sample location in accordance with the RBP. Tabulated sample location specific scores are presented as **Table 2;** completed field datasheets and parameter specific scores are provided in **Attachment 1**.

Table 2: Habitat Assessment Values

Location ID	Total Score	Habitat Assessment
SW-D-3	97	Marginal
SW-D-4	89	Marginal
SW-D-7	104	Marginal

Benthic Macroinvertebrate Sampling

Sovereign collected benthic macroinvertebrate samples from locations SW-D-3, SW-D-4, and SW-D-7 in accordance with the NJDEP RBP, as adapted from procedures outlined in the USEPA *Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates and Fish* (Barbour et al. 1999), and the NJDEP *Development of the New Jersey High Gradient Macroinvertebrate Index (HGMI)* (Tetra Tech, Inc. 2007). Sampling proceeded from the most downstream location to the most upstream location and included collection of water quality data with a field instrument.

At each sample location, an approximately 25 foot segment of the stream that was representative of overall stream characteristics was targeted for sample collection. Note that the entire man-made Eastern Drainage Ditch was largely homogeneous in terms of depth, habitat type, bank composition, and flow, and the three sample locations were located in close proximity to each other (within approximately 250 feet), thus, shorter segments than the typical 100-foot were targeted for sampling. A 0.5 millimeter D-Frame dip net was used to collected benthic macroinvertebrates in all available habitat types [i.e. areas with woody snags, submerged stream banks, areas of Submerged Aquatic Vegetation (SAV) if present], by jabbing the potentially productive habitats in accordance with the RBP. Each jab was followed with a series of sweeps to collect dislodged organisms.

Benthic macroinvertebrate samples were transferred to laboratory provided bottles, preserved in the field with 70% ethanol, and transported to the Normandeau Associates, Inc. (Normandeau) Biological Laboratory in Stowe, PA for processing, identification, enumeration, analysis and calculation of the appropriate New Jersey macroinvertebrate metrics.

Benthic Macroinvertebrate Sampling Discussion of Results

Analysis of benthic macroinvertebrate data uses seven metrics to calculate the HGMI, which was adopted by NJDEP as a tool for identifying biological degradation in the high gradient streams of New Jersey (Tetra Tech, Inc. 2007). The index was developed using guidelines in USEPA's RBP and the indices assess sites from two perspectives: the condition of the macroinvertebrate community and the regulatory use attainment.

The seven metrics included in the HGMI calculation are total number of genera, percent genera that are not insects, percent of ephemeroptera/plecoptera/trichoptera individuals (excluding hydropsychidae, including diplectrona), number of scraper genera, Hilsenhoff Biotic Index (HBI), number of attribute 2 genera (highly sensitive and uncommon taxa), and number of attribute 3 genera (sensitive and common taxa). These metrics are combined to assess the overall biological condition of the sample location, known as the HGMI. The HGMI includes four descriptive categories that are established at break points along the statistical distribution of scores from reference to degraded conditions. "Excellent" and "Good" fall into the acceptable regulatory range of fully attaining the aquatic life use. "Fair" and "Poor" fall below the acceptable regulatory range and are considered impaired from a Federal Clean Water Act perspective (i.e. they did attain the aquatic life use). Reference values for the HGMI are presented as **Table 3**.

Table 3 - New Jersey High Gradient Macroinvertebrate Index (HGMI)

Biological Condition	Index Score	Regulatory Threshold
Excellent	63 - 100	Full Attainment
Good	< 63 - 42	Full Attainment
Fair	< 42 - 21	Non-Attainment
Poor	< 21	Non-Attainment

Benthic macroinvertebrate sample analysis was conducted by Normandeau according to the NJDEP HGMI as follows:

- The samples were processed as random 100-specimen sub-samples and all specimens were identified to the genus/species taxonomic endpoint, as their age/condition allowed;
- The data were reduced to a set of seven ecological metrics published by NJDEP;
- Equations were used to adjust four of seven metrics according to the Eastern Drainage Ditch basin area;
- All metrics were then scored using standardization equations where individual metric scores range from 0.0 to 100.0;
- The HGMI was then calculated as an average of the seven metric scores (Range between 0.0 and 100.0). Narrative descriptors were then assigned according to the HGMI protocol.

The analytical results indicated taxonomically rich invertebrate communities at each sample location station that were poorly represented by pollution intolerant forms. The metric scores for Richness ranged between 72.5 and 100.0 at individual stations. Scores for the remaining metrics were no higher than 57.1 and were often 0.0. Final HGMI values are presented below as **Table 4**; all metric scores are included with the benthic macroinvertebrate laboratory data in **Attachment 2.**

Table 4 - Macroinvertebrate Assessment

Location ID	New Jersey High Gradient Macroinvertebrate Index	Biological Condition	Regulatory Threshold
SW-D-3	29.8	Fair	Non-attainment
SW-D-4	19.5	Poor	Non-attainment
SW-D-7	26.4	Fair	Non-attainment

Fish Survey

Following collection benthic macroinvertebrates samples, Sovereign completed a fish survey at locations SW-D-3, SW-D-4, and SW-D-7 using a seine net. The seine was deployed from each stream bank with the purse opening facing upstream and then advanced upstream for approximately 25-feet at which time the seine was raised and the purse closed, trapping specimens in the purse. Collected fish were transferred to a water-filled bucket on-shore, identified to the lowest practical taxonomic level, counted, measured, and data was recorded on field data sheets (**Attachment 3**). Collected specimens were returned to the sample collection location immediately following sample processing.

Fish Survey Discussion of Results

A total of nine individual fish representing four species (including predator and prey species) were collected from the three sample locations combined. Collected species included: Redfin Pickerel (*Esox americanus americanus*) - three individuals at two sample locations; Pumpkinseed (*Lepomis gibbosus*) - two individuals at two sample locations; Golden Shiner (*Notemigonus crysoleucas*) – two individuals at one sample location; and, Swamp Darter (*Etheostoma fusiforme*) – one individual at one sample location.

Given the short overall length the Eastern Drainage Ditch, the close proximity of the sample locations in relation to each other, and the difficulty experienced with seine deployment/retrieval (due to SAV, soft bottom, and bank angle/access) it is likely that all four species identified utilize the entire reach of the Eastern Drainage Ditch.

Incidental Observations

Throughout the sampling event, incidental observations of potential ecological receptors other than those specifically targeted for sampling and evaluation, such as avian and amphibian species, were recorded by Sovereign staff in an effort to develop a more comprehensive understating of site utilization by fauna. Incidental observation data are presented below as **Table 5**; Field notes are included as **Attachment 4.**

Table 5 - Incidental Observations

Avian	Amphibian	Reptilian
Red-winged blackbird	Bullfrog	Garter snake
Canada geese	Leopard Frog	
Blue jay		
Grackle		

Discussion

- The Eastern Drainage Ditch is a man-made feature that is hydraulically connected to a larger freshwater wetland complex associated with the Rockaway River.

- It provides only marginal habitat due to the lack of water flow, extremely fine/muck substrate, heavy sediment deposits, and absence of riffles/ bends.

- Though the Eastern Drainage Ditch habitat is rated as marginal, the benthic macroinvertebrate sampling, fish survey, and incidental observation data indicate that the feature functions as a wetland/open water habitat and is utilized by a variety of species representing multiple trophic levels.

- Though limited, the fish survey (and incidental observations) found that both predator and prey species actively utilize/inhabit the site.

- Benthic macroinvertebrate results indicated taxonomically rich invertebrate communities that were poorly represented by pollution intolerant forms.

- Water quality ratings ranged from 'very poor' to 'poor'; biological condition ranged from 'poor' to 'fair' (non-attainment regulatory threshold at all three sample locations).

Benthic macroinvertebrate populations and resulting HGMI scores are influenced by multiple factors. Habitat quality, site position in the landscape, background impacts, and site-related compounds of ecological concern can individually or in combination, influence the benthic macroinvertebrate community and HGMI score. The May 26, 2016 biological assessment sampling and data presented herein represent a single data point and did not include temporal or reference area sampling for comparison, as such, it is not possible to conclude if the benthic macroinvertebrate population and resulting HGMI score was a function of site-related compounds of ecological concern, the marginal habitat provided by the eastern Drainage Ditch, regional/background stressors, and/or some combination of multiple factors.

Should you have any questions regarding this *Letter Report of Findings* or if you require additional information, please do not hesitate to contact me at 609-259-8200. Sovereign appreciates this opportunity to be of service to TRC.

Sincerely,
SOVEREIGN CONSULTING INC.

Gregory Flanagan
Senior Ecologist

Attachements

Attachment 1

Habitat Assessment
2016 Biological Monitoring
TRC L.E. Carpenter
Wharton, Morris County, NJ

Location ID	Epifaunal Substrate/ Available Cover	Embeddedness	Velocity/Depth Regimes	Sediment Deposition	Channel Flow Status	Channel Alteration	Frequency of Riffles (or bends)	Bank Stability		Bank Vegetative Protection		Riparian Vegetative Zone Width		Total Score	Habitat Assessment
								Left Bank	Right Bank	Left Bank	Right Bank	Left Bank	Right Bank		
SW-D-3	15	9	3	3	17	7	2	7	7	9	9	5	4	97	Marginal
SW-D-4	15	6	3	3	17	7	2	7	7	8	8	4	2	89	Marginal
SW-D-7	15	10	3	3	17	8	2	7	7	9	9	7	7	104	Marginal

Notes:
All habitat parameters are evaluated and rated on a numerical scale of 0 to 20 for each sample location. A final habitat assessment of optimal, suboptimal, marginal or poor is achieved by tallying the scores from all ten metrics and comparing them to a reference condition provided by the New Jersey Department of Environmental Protection (NJDEP).

SW-D-4

HABITAT ASSESSMENT FOR *HIGH* GRADIENT STREAMS

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE 15	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
SCORE 6	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Velocity/Depth Regimes	All 4 velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (slow is <0.3 m/s, deep is >0.5 m)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity / depth regime (usually slow-deep).
SCORE 3	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% (<20% for low-gradient streams) of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50-80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE 3	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE 17	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. In stream habitat greatly altered or removed entirely.
SCORE 7	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
SCORE 2	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE 7 (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 7 (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9. Bank Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE 8 (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 8 (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE 4 (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 2 (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

HABITAT SCORE

89

HABITAT SCORES	VALUE
OPTIMAL	160 - 200
SUB-OPTIMAL	110 - 159
MARGINAL	60 - 109
POOR	< 60

SW-D-3

HABITAT ASSESSMENT FOR *HIGH* GRADIENT STREAMS

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE 15	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
SCORE 9	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Velocity/Depth Regimes	All 4 velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (slow is <0.3 m/s, deep is >0.5 m)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity / depth regime (usually slow-deep).
SCORE 3	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% (<20% for low-gradient streams) of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50-80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE 3	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE 17	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. In stream habitat greatly altered or removed entirely.
SCORE 7	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
SCORE 2	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE 7 (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 7 (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9. Bank Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, under story shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE 9 (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 9 (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE 5 (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 4 (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

HABITAT SCORE

87

HABITAT SCORES	VALUE
OPTIMAL	160 - 200
SUB-OPTIMAL	110 - 159
MARGINAL	60 - 109
POOR	< 60

SW-D-7

HABITAT ASSESSMENT FOR *HIGH* GRADIENT STREAMS

Habitat Parameter	Condition Category: Optimal	Suboptimal	Marginal	Poor
1. Epifaunal Substrate/Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
SCORE 15	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
SCORE 10	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3. Velocity/Depth Regimes	All 4 velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (slow is <0.3 m/s, deep is >0.5 m)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity / depth regime (usually slow-deep).
SCORE 3	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% (<20% for low-gradient streams) of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50-80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
SCORE 3	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
SCORE 17	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. In stream habitat greatly altered or removed entirely.
SCORE 8	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
SCORE 2	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion.	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
SCORE 7 (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 7 (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9. Bank Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, under story shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE 9 (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 9 (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6-12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
SCORE 7 (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE 7 (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

HABITAT SCORE

104

HABITAT SCORES	VALUE
OPTIMAL	160 - 200
SUB-OPTIMAL	110 - 159
MARGINAL	60 - 109
POOR	< 60

Attachment 2

NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS
www.normandeau.com (603) 472-5191

Chain of Custody Form

Project Name: TRC - L.E. Carpenter
Project Number: RB 584.001
Originating Contact: Greg Flanagan
Originator Location: Robbinsville, NJ
Final Destination: Normandeau, George Christian
Sampler(s): B. Dietz, J.R. Williams

Presv.: Ice

Parameters: NJ HGvI

Page 1 of 1

Method of Shipment: Drop off by Brett Dietz on 5/27/16

Comments Below: Only double containers for sample SW-D-4

Sample No.	Identification	Collection Date	Collection Time	Containers No.	Containers Type	Grab.	Comp.
	SW-D-4-1	5/26/16	0945	1	1L plastic		X
	SW-D-4-2	↓	0945	1	"		X
	SW-D-3	↓	1100	1	"		X
	SW-D-7	↓	1205	1	"		X

Total 4

Relinquished by: (signature)	Received by: (signature)	Relinquished by: (signature)	Received by: (signature)	Relinquished by: (signature)	Received by: (signature)
[signature]	[signature]				
Printed Name: Brett Dietz	Printed Name:	Printed Name:	Printed Name:	Printed Name:	Printed Name:
Date: 5/27/16	Date:	Date:	Date:	Date:	Date:

Benthic Macroinvertebrates collected from an Un-named Tributary to Rockaway Creek

Location: **SW - D - 3 (drainage ditch)**
Drainage Area: 0.388 km²
Sample Date: May 26, 2016
Sample Type: Traveling Kick (NJ HGMI 100-specimen sub-sample)

Taxon	Hil. Tol.	Feeding Guild	Common Name	Count	Percent Abundance
Tubificida					
Aulodrilus pigueti	7	c-g	tube worm	3	3.1%
imm.tubificid w/capilliform chaetae	10	c-g	tube worm	1	1.0%
Nais	8	c-g	naiad worm	3	3.1%
Basommatophora					
Lymnaeidae	6	c-g	pond snail	1	1.0%
Micromenetus dilitatus	6	scr	orb snail	5	5.2%
Physa sp.	8	c-g	pouch snail	9	9.4%
Veneroidea					
Musculium sp.	6	c-f	fingernail clam	1	1.0%
Amphipoda					
Hyalella azteca gr.	8	c-g	side swimmer	11	11.5%
Acariformes					
Arrenurus sp.	6	prd	water mite	3	3.1%
Piona sp.	6	prd	water mite	1	1.0%
Ephemeroptera					
Caenis sp.	6	c-g	mayfly	2	2.1%
Odonata					
Coenagrionidae	8	prd	damselfly	1	1.0%
Lestes sp.	6	prd	damselfly	1	1.0%
Libellulidae	2	prd	dragonfly	1	1.0%
Hemiptera					
Hesperocorixa sp.	5	prd	water boatman	9	9.4%
Neoplea sp.	5	prd	pygmy backswimmer	1	1.0%
Coleoptera					
Agabus sp.	5	prd	predaceous diving beetle	1	1.0%
Berosus sp.	5	c-g	water scavenger beetle	1	1.0%
Hydrocanthus sp.	5	prd	burrowing water beetle	1	1.0%
Neoporus sp.	5	prd	predaceous diving beetle	1	1.0%
Peltodytes sp.	5	shr	crawling water beetle	1	1.0%
Diptera					
Ablabesmyia mallochi	8	prd	midge	2	2.1%
Ablabesmyia peleensis	8	prd	midge	2	2.1%
Ablabesmyia sp.	8	prd	midge	2	2.1%
Bezzia sp.	6	prd	biting midge	1	1.0%
Culicoides sp.	10	prd	biting midge	1	1.0%
Dicrotendipes sp.	8	c-g	midge	2	2.1%
Dixella sp.	1	c-f	meniscus midge	1	1.0%
Glyptotendipes sp.	10	shr	midge	1	1.0%
Orthocladius cplx.	6	c-g	midge	8	8.3%
Phaenopsectra obedians gr.	7	scr	midge	5	5.2%
Psectrocladius flavus	8	c-g	midge	5	5.2%
Pseudochironomus sp.	5	c-g	midge	5	5.2%
Tanypus sp.	10	prd	midge	1	1.0%
Zavreliella marmorata	6	c-f	midge	2	2.1%
Total Taxa				35	
Total Specimens				96	100.0%

Benthic Macroinvertebrates collected from an Un-named Tributary to Rockaway Creek

Location:	**SW - D - 3 (drainage ditch)**
Drainage Area:	0.388 km²
Sample Date:	May 26, 2016
Sample Type:	Traveling Kick (NJ HGMI 100-specimen sub-sample)

HGMI Genus Index Metrics:	**HGMI Metric Value**	**HGMI Metric Adjusted**	**HGMI Metric Score**
Taxa Richness	**34**	**39**	**100.0**
Percent Genera not Insects	**28.6**	**28.6**	**57.1**
Number of Scraper Genera	**2**	**4**	**38.7**
Percent Sensitive EPT	**2.1**	**-16.0**	**0.0**
Hilsenhoff Biotic Index	**6.72**	**7.92**	**0.0**
Number of NJ TALU Attribute 2 genera	**1**	**1**	**12.5**
Number of NJ TALU Attribute 3 genera	**0**	**0**	**0.0**
	Site Score (max. = 100)		**29.8**
	Assessment Category		**Fair**
	Regulatory Threshold		**Non-Attainment**

Benthic Macroinvertebrates collected from an Un-named Tributary to Rockaway Creek

Location:	**SW - D - 4 (drainage ditch)**
Drainage Area:	0.388 km²
Sample Date:	May 26, 2016
Sample Type:	Traveling Kick (NJ HGMI 100-specimen sub-sample)

Taxon	Hil. Tol.	Feeding Guild	Common Name	Count	Percent Abundance
Tubificida					
imm.tubificid w/capilliform chaetae	10	c-g	tube worm	14	13.9%
Limnodrilus sp.	10	c-g	tube worm	23	22.8%
Nais	8	c-g	naiad worm	1	1.0%
Basommatophora					
Lymnaeidae	6	c-g	pond snail	1	1.0%
Physa sp.	8	c-g	pouch snail	4	4.0%
Planorbella sp.	6	scr	orb snail	3	3.0%
Veneroidea					
Musculium sp.	6	c-f	fingernail clam	1	1.0%
Hemiptera					
Hesperocorixa sp.	5	prd	water boatman	3	3.0%
Notonecta sp.	5	prd	back swimmer	1	1.0%
Diptera					
Chironomus sp.	10	c-g	midge	6	5.9%
Cricotopus sp.	7	shr	midge	8	7.9%
Culicoides sp.	10	prd	biting midge	3	3.0%
Orthocladius cplx.	6	c-g	midge	16	15.8%
Parachironomus sp.	10	prd	midge	1	1.0%
Paratanytarsus sp.	6	c-f	midge	4	4.0%
Psectrotanypus dyari	10	prd	midge	9	8.9%
Tanypus sp.	10	prd	midge	3	3.0%
Total Taxa				17	
Total Specimens				101	100.0%

HGMI Genus Index Metrics:	**HGMI Metric Value**	**HGMI Metric Adjusted**	**HGMI Metric Score**
Taxa Richness	**17**	**22**	**72.5**
Percent Genera not Insects	**41.2**	**41.2**	**34.2**
Number of Scraper Genera	**1**	**3**	**29.6**
Percent Sensitive EPT	**0**	**-18.1**	**0.0**
Hilsenhoff Biotic Index	**8.48**	**9.68**	**0.0**
Number of NJ TALU Attribute 2 genera	**0**	**0**	**0.0**
Number of NJ TALU Attribute 3 genera	**0**	**0**	**0.0**
Site Score (max. = 100)			**19.5**
Assessment Category			**Poor**
Regulatory Threshold			**Non-Attainment**

Benthic Macroinvertebrates collected from an Un-named Tributary to Rockaway Creek

Location: **SW - D - 7 (drainage ditch)**
Drainage Area: 0.388 km²
Sample Date: May 26, 2016
Sample Type: Traveling Kick (NJ HGMI 100-specimen sub-sample)

Taxon	Hil. Tol.	Feeding Guild	Common Name	Count	Percent Abundance
Tubificida					
imm.tubificid w/capilliform chaetae	10	c-g	tube worm	1	1.0%
Basommatophora					
Physa sp.	8	c-g	pouch snail	13	12.4%
Planorbella sp.	6	scr	orb snail	6	5.7%
Veneroidea					
Musculium sp.	6	c-f	fingernail clam	1	1.0%
Amphipoda					
Hyalella azteca gr.	8	c-g	side swimmer	17	16.2%
Isopoda					
Caecidotea sp.	8	c-g	water slater	1	1.0%
Acariformes					
Arrenurus sp.	6	prd	water mite	1	1.0%
Ephemeroptera					
Caenis sp.	6	c-g	mayfly	6	5.7%
Odonata					
Libellulidae	2	prd	dragonfly	1	1.0%
Hemiptera					
Hesperocorixa sp.	5	prd	water boatman	13	12.4%
Neoplea sp.	5	prd	pygmy backswimmer	3	2.9%
Coleoptera					
Haliplus sp.	5	shr	crawling water beetle	2	1.9%
Diptera					
Ablabesmyia sp.	8	prd	midge	4	3.8%
Dicrotendipes sp.	8	c-g	midge	5	4.8%
Orthocladius cplx.	6	c-g	midge	10	9.5%
Paratanytarsus sp.	6	c-f	midge	4	3.8%
Phaenopsectra obedians gr.	7	scr	midge	1	1.0%
Psectrocladius flavus	8	c-g	midge	5	4.8%
Pseudochironomus sp.	5	c-g	midge	1	1.0%
Tanypus sp.	10	prd	midge	7	6.7%
Zavreliella marmorata	6	c-f	midge	3	2.9%
Total Taxa				21	
Total Specimens				105	100.0%

HGMI Genus Index Metrics:	**HGMI Metric Value**	**HGMI Metric Adjusted**	**HGMI Metric Score**
Taxa Richness	**21**	**26**	**85.4**
Percent Genera not Insects	**33.3**	**33.3**	**48.5**
Number of Scraper Genera	**2**	**4**	**38.7**
Percent Sensitive EPT	**5.7**	**-12.4**	**0.0**
Hilsenhoff Biotic Index	**6.95**	**8.15**	**0.0**
Number of NJ TALU Attribute 2 genera	**1**	**1**	**12.5**
Number of NJ TALU Attribute 3 genera	**0**	**0**	**0.0**
	Site Score (max. = 100)		**26.4**
	Assessment Category		**Fair**
	Regulatory Threshold		**Non-Attainment**

BENTHIC MACROINVERTEBRATE FIELD DATA SHEET

STREAM NAME	LOCATION SW-D-4	
STATION #_____ RIVERMILE_____	STREAM CLASS 2nd order (man-made ditch)	
LAT _____ LONG _____	RIVER BASIN Rockaway	
STORET #	AGENCY	
INVESTIGATORS B. Dietz JR Williams		LOT NUMBER
FORM COMPLETED BY B. Dietz	DATE 5/26/16 TIME 0945 AM PM	REASON FOR SURVEY

HABITAT TYPES	**Indicate the percentage of each habitat type present** ☐ Cobble_____% ☐ Snags_____% ☑ Vegetated Banks 20 % ☐ Sand_____% ☑ Submerged Macrophytes 60 % ☐ Other ( )_____%
SAMPLE COLLECTION	**Gear used** ☑ D-frame ☐ kick-net ☐ Other _____ **How were the samples collected?** ☑ wading ☑ from bank ☐ from boat **Indicate the number of jabs/kicks taken in each habitat type.** ☐ Cobble_____ ☐ Snags_____ ☐ Vegetated Banks_____ ☐ Sand_____ ☐ Submerged Macrophytes_____ ☐ Other ( )_____
GENERAL COMMENTS	channel primarily filled w/ SAV. Some vegetated areas along bank. Rest of channel was open water.

QUALITATIVE LISTING OF AQUATIC BIOTA
Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare, 2 = Common, 3= Abundant, 4 = Dominant

Periphyton	0	1	2	3	4	Slimes	0	1	2	3	4
Filamentous Algae	0	1	2	3	4	Macroinvertebrates	0	1	(2)	3	4
Macrophytes	0	1	2	(3)	4	Fish	0	(1)	2	3	4

FIELD OBSERVATIONS OF MACROBENTHOS
Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare (1-3 organisms), 2 = Common (3-9 organisms), 3= Abundant (>10 organisms), 4 = Dominant (>50 organisms)

Porifera	0	1	2	3	4	Anisoptera	0	1	2	3	4	Chironomidae	0	1	2	3	4
Hydrozoa	0	1	2	3	4	Zygoptera	0	1	2	3	4	Ephemeroptera	0	1	2	3	4
Platyhelminthes	0	1	2	3	4	Hemiptera	0	1	2	3	4	Trichoptera	0	1	2	3	4
Turbellaria	0	1	2	3	4	Coleoptera	0	1	2	3	4	Other	0	1	2	3	4
Hirudinea	0	1	2	3	4	Lepidoptera	0	1	2	3	4						
Oligochaeta	0	1	2	3	4	Sialidae	0	1	2	3	4						
Isopoda	0	1	2	3	4	Corydalidae	0	1	2	3	4						
Amphipoda	0	1	2	3	4	Tipulidae	0	1	2	3	4						
Decapoda	0	1	2	3	4	Empididae	0	1	2	3	4						
Gastropoda	0	1	2	3	4	Simuliidae	0	1	2	3	4						
Bivalvia	0	1	2	3	4	Tabinidae	0	1	2	3	4						
						Culcidae	0	1	2	3	4						

* sent to Norman deau for count

BENTHIC MACROINVERTEBRATE FIELD DATA SHEET

STREAM NAME	LOCATION SW-D-3	
STATION #_____ RIVERMILE_____	STREAM CLASS	
LAT _____ LONG _____	RIVER BASIN	
STORET #	AGENCY	
INVESTIGATORS B. Dietz, JR Williams		LOT NUMBER
FORM COMPLETED BY B. Dietz	DATE 5/26/16 TIME 1100 (AM) PM	REASON FOR SURVEY

HABITAT TYPES	**Indicate the percentage of each habitat type present** ☐ Cobble_____% ☐ Snags_____% ☑ Vegetated Banks 20 % ☐ Sand_____% ☑ Submerged Macrophytes 80 % ☐ Other ( )_____%
SAMPLE COLLECTION	**Gear used** ☑ D-frame ☐ kick-net ☐ Other _____ **How were the samples collected?** ☑ wading ☑ from bank ☐ from boat **Indicate the number of jabs/kicks taken in each habitat type.** ☐ Cobble_____ ☐ Snags_____ ☐ Vegetated Banks_____ ☐ Sand_____ ☐ Submerged Macrophytes_____ ☐ Other ( )_____
GENERAL COMMENTS	same as location SW-D-4. Primarily SAV with vegetation along banks

QUALITATIVE LISTING OF AQUATIC BIOTA
Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare, 2 = Common, 3= Abundant, 4 = Dominant

Periphyton	0	1	2	3	4	Slimes	0	1	2	3	4
Filamentous Algae	0	1	2	3	4	Macroinvertebrates	0	1	2	3	4
Macrophytes	0	1	2	3	4	Fish	0	1	2	3	4

FIELD OBSERVATIONS OF MACROBENTHOS
Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare (1-3 organisms), 2 = Common (3-9 organisms), 3= Abundant (>10 organisms), 4 = Dominant (>50 organisms)

Porifera	0	1	2	3	4	Anisoptera	0	1	2	3	4	Chironomidae	0	1	2	3	4
Hydrozoa	0	1	2	3	4	Zygoptera	0	1	2	3	4	Ephemeroptera	0	1	2	3	4
Platyhelminthes	0	1	2	3	4	Hemiptera	0	1	2	3	4	Trichoptera	0	1	2	3	4
Turbellaria	0	1	2	3	4	Coleoptera	0	1	2	3	4	Other	0	1	2	3	4
Hirudinea	0	1	2	3	4	Lepidoptera	0	1	2	3	4						
Oligochaeta	0	1	2	3	4	Sialidae	0	1	2	3	4	* sent to					
Isopoda	0	1	2	3	4	Corydalidae	0	1	2	3	4						
Amphipoda	0	1	2	3	4	Tipulidae	0	1	2	3	4	Norman dean					
Decapoda	0	1	2	3	4	Empididae	0	1	2	3	4						
Gastropoda	0	1	2	3	4	Simuliidae	0	1	2	3	4	for count					
Bivalvia	0	1	2	3	4	Tabinidae	0	1	2	3	4						
						Culcidae	0	1	2	3	4						

BENTHIC MACROINVERTEBRATE FIELD DATA SHEET

STREAM NAME	LOCATION SW-D-7	
STATION #_____ RIVERMILE_____	STREAM CLASS	
LAT _____ LONG _____	RIVER BASIN	
STORET #	AGENCY	
INVESTIGATORS B. Dietz, JR Williams		LOT NUMBER
FORM COMPLETED BY B. Dietz	DATE 5/26/16 TIME 1205 AM (PM)	REASON FOR SURVEY

HABITAT TYPES	**Indicate the percentage of each habitat type present** ☐ Cobble_____% ☐ Snags_____% ☑ Vegetated Banks 20 % ☐ Sand_____% ☑ Submerged Macrophytes 60 % ☐ Other ( )_____%
SAMPLE COLLECTION	**Gear used** ☑ D-frame ☐ kick-net ☐ Other _____ **How were the samples collected?** ☑ wading ☑ from bank ☐ from boat **Indicate the number of jabs/kicks taken in each habitat type.** ☐ Cobble_____ ☐ Snags_____ ☐ Vegetated Banks_____ ☐ Sand_____ ☐ Submerged Macrophytes_____ ☐ Other ( )_____
GENERAL COMMENTS	Same as previous locations. Primarily SAV with vegetation along banks

QUALITATIVE LISTING OF AQUATIC BIOTA
Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare, 2 = Common, 3= Abundant, 4 = Dominant

Periphyton	0	1	2	3	4	Slimes	0	1	2	3	4
Filamentous Algae	0	1	2	3	4	Macroinvertebrates	0	1	2	(3)	4
Macrophytes	0	1	2	(3)	4	Fish	0	(1)	2	3	4

FIELD OBSERVATIONS OF MACROBENTHOS
Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare (1-3 organisms), 2 = Common (3-9 organisms), 3= Abundant (>10 organisms), 4 = Dominant (>50 organisms)

Porifera	0	1	2	3	4	Anisoptera	0	1	2	3	4	Chironomidae	0	1	2	3	4
Hydrozoa	0	1	2	3	4	Zygoptera	0	1	2	3	4	Ephemeroptera	0	1	2	3	4
Platyhelminthes	0	1	2	3	4	Hemiptera	0	1	2	3	4	Trichoptera	0	1	2	3	4
Turbellaria	0	1	2	3	4	Coleoptera	0	1	2	3	4	Other	0	1	2	3	4
Hirudinea	0	1	2	3	4	Lepidoptera	0	1	2	3	4						
Oligochaeta	0	1	2	3	4	Sialidae	0	1	2	3	4						
Isopoda	0	1	2	3	4	Corydalidae	0	1	2	3	4						
Amphipoda	0	1	2	3	4	Tipulidae	0	1	2	3	4						
Decapoda	0	1	2	3	4	Empididae	0	1	2	3	4						
Gastropoda	0	1	2	3	4	Simuliidae	0	1	2	3	4						
Bivalvia	0	1	2	3	4	Tabinidae	0	1	2	3	4						
						Culcidae	0	1	2	3	4						

* sent to Normandeau for count

Attachment 3

FISH SAMPLING FIELD DATA SHEET (FRONT)

STREAM NAME man made ditch	LOCATION SW-D-4
STATION # _____ RIVERMILE _____	STREAM CLASS 2nd order
LAT _____ LONG _____	RIVER BASIN Rockaway
STORET #	AGENCY
GEAR chest waders, seine net	INVESTIGATORS B. Dietz, JR Williams
FORM COMPLETED BY B Dietz	DATE _____ TIME _____ AM PM / REASON FOR SURVEY

SAMPLE COLLECTION	**How were the fish captured?** ☐ back pack ☐ tote barge ☑ other seine net **Block nets used?** ☐ YES ☑ NO **Sampling Duration** Start time _____ End time _____ Duration _____ **Stream width (in meters)** Max 10 Mean _____
HABITAT TYPES	**Indicate the percentage of each habitat type present** ☐ Riffles ____% ☐ Pools ____% ☐ Runs ____% ☐ Snags ____% ☑ Submerged Macrophytes 70 % ☐ Other ( ) ____%
GENERAL COMMENTS	only one fish caught area hard to use seine net

SPECIES	TOTAL (COUNT)	OPTIONAL: LENGTH (mm)/WEIGHT (g) (25 SPECIMEN MAX SUBSAMPLE)					ANOMALIES* D	E	F	L	M	S	T	Z
Redfin Pickerel	1	139	(5 1/2")											

FISH SAMPLING FIELD DATA SHEET (FRONT)

STREAM NAME man made ditch	LOCATION SW-D-3
STATION # _____ RIVERMILE _____	STREAM CLASS 2nd order
LAT _____ LONG _____	RIVER BASIN Rockaway
STORET #	AGENCY
GEAR chest waders, seine net	INVESTIGATORS B. Dietz, JR Williams
FORM COMPLETED BY B. Dietz	DATE _____ TIME _____ AM PM / REASON FOR SURVEY

SAMPLE COLLECTION	**How were the fish captured?** ☐ back pack ☐ tote barge ☑ other seine net **Block nets used?** ☐ YES ☑ NO **Sampling Duration** Start time _____ End time _____ Duration _____ **Stream width (in meters)** Max 10 Mean _____
HABITAT TYPES	**Indicate the percentage of each habitat type present** ☐ Riffles ____% ☐ Pools ____% ☐ Runs ____% ☐ Snags ____% ☑ Submerged Macrophytes 70 % ☐ Other ( ) ____%
GENERAL COMMENTS	

SPECIES	TOTAL (COUNT)	OPTIONAL: LENGTH (mm)/WEIGHT (g) (25 SPECIMEN MAX SUBSAMPLE)					ANOMALIES*							
							D	E	F	L	M	S	T	Z
Redfin Pickerel	2	127	(5")											
		139	(5½")											
Pumpkinseed	1	139	(5½")											
Golden Shiner	2	127	(5")											
		25.4	(1")											
Swamp Darter	1	63.5	(2.5")											

FISH SAMPLING FIELD DATA SHEET (FRONT)

page 1 of 1

STREAM NAME man made ditch	LOCATION SW- D-7
STATION #_____ RIVERMILE_____	STREAM CLASS 2nd order
LAT _____ LONG _____	RIVER BASIN Rockaway
STORET #	AGENCY
GEAR chest waders, seine net	INVESTIGATORS B Dietz, JR Williams
FORM COMPLETED BY B. Dietz	DATE _____ TIME _____ AM PM / REASON FOR SURVEY

SAMPLE COLLECTION	**How were the fish captured?** ☐ back pack ☐ tote barge ☐ other _____ **Block nets used?** ☐ YES ☐ NO **Sampling Duration** Start time _____ End time _____ Duration _____ **Stream width (in meters)** Max_____ Mean_____
HABITAT TYPES	**Indicate the percentage of each habitat type present** ☐ Riffles_____% ☐ Pools_____% ☐ Runs_____% ☐ Snags_____% ☐ Submerged Macrophytes_____% ☐ Other ( )_____%
GENERAL COMMENTS	

SPECIES	TOTAL (COUNT)	OPTIONAL: LENGTH (mm)/WEIGHT (g) (25 SPECIMEN MAX SUBSAMPLE)					ANOMALIES*							
							D	E	F	L	M	S	T	Z
Redfin Pickerel	1	152	(6")											
Pumpkinseed	1	114	(4.5")											

Attachment 4

Location TRC - Carpenter Date 5/26/16

Project / Client Wharton, NJ

AM - G. Flanagan

arrive onsite @ 0800 hot, 80-90's

reviewed HASP and site status with Rob (TRC) and Nick (Langan)

checked in w/ Scott (TRC H+S)

will perform rapid bioassessment of man-made channel along southern portion of property

benthic survey and water quality first, then fish survey. move from SW-D-4 → SW-D-3 → SW-D-7

* note location SW-D-7 was previously noted on figure as SW-D-6

left bank will be the north bank, right bank is south bank

Rob and Nick will provide oversight during job

Location TRC - Carpenter Date 5/26/16

Project / Client Wharton, NJ

SW-D-4

16.56 °	5.8% DO
0.676 ms/cm	0.50 mg/L DO
7.83 pH	-126 orp

location has no flow, high amounts of aquatic vegetation. Substrate is extremely fine, black, muck w/ larger organic material spread throughout.

channel is approx 10-15' wide, 4-5' deep, no flow. Right bank has cattail w/ nesting red-winged blackbirds. Left bank has cattail and shrubs further up bank. Bull frogs + Leopard frogs observed.

successfully collected benthics via d-frame nets see attached forms for more detailed data

SW-D-3

19.31 ~~18.46~~ ° C	22.5% DO
0.03 ~~0.274~~ ms/cm	2.20 mg/L DO
7.64 ~~7.86~~ pH	-11 orp

Location TRC - Carpenter Date 5/26/16

Project / Client Wharton, NJ

same as previous location. No flow, heavy organic material, fine, black substrate

more duckweed (lemna minor) observed @ this location

benthics are being collected from both banks, as well as SAV in middle of channel. No other habitats available in these areas

SW-D-7

18.98 °C	20.5% DO
1.219 ms/cm	1.90 mg/L DO
7.56 pH	-138.6 orp

area similar to other locations: very little variability between locations

see attached forms for more detailed data

Location TRC - Carpenter Date 5/26/16

Project / Client Wharton, NJ

after water quality + benthic survey, fish survey conducted

will pull seine net across approx 25-30' of channel (limited due to SAV and total channel length)

fish will be identified, measured for length, and released

SW-D-4

(1) Redfin Pickerel - 5 1/2"

SW-D-3

(2) Redfin Pickerel - 5", 5 1/2"
(1) Pumpkinseed - 5 1/2"
(2) Golden shiner - 5", 1"
(1) Swamp Darter - 2 1/2"

SW-D-7

(1) Redfin Pickerel - 6"
(1) Pumpkinseed - 4 1/2"

Location TRC-Carpenter Date 5/26/16

Project / Client Wharton, NJ

other biota observed include
crayfish, bull frog, leopard frog,
Canada geese, blue jay, red-winged blackbird,
grackle, garter snake

had a variety of benthics from
dragonfly to scud to worms.

samples were preserved in Rupropy/
and dropped off @ Normandeau
for official count

no issues, all data collected
safely and efficiently

checked out w/ Rob and Nick
cleaned/secured gear and truck

Brett Dietz

Location Date

Project / Client

Appendix C
Laboratory Data Sheets

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June 28, 2016

Mr. Scott Pawlukiewicz
TRC Solutions
2025 E. Beltline Ave., SE, Ste 402
Grand Rapids, MI 49546

Phone: (201) 636-5884
Fax: (616) 975-1098

RE: Trace Project T16F037
Client Project LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Dear Mr. Pawlukiewicz:

Enclosed are your analytical results. The results of this report relate only to the samples listed in the body of this report.

All reports were examined through Trace's validation process to ensure that requirements for quality and completeness were satisfied. All reported analytical results were obtained in accordance with the methods referenced on the reports. Every practical effort was made to meet the reporting limit specifications for this work, however, some results may have raised reporting limits to correct for percent solids.

For clients that require NELAC Accreditation, Trace certifies that these test results meet all requirements of the NELAC Standard, except for those analytes with a "N" notation. These analytes have not been evaluated by NELAC at Trace's discretion and will not be reported unless requested by client.

If you have questions concerning this report, please contact me at 231.773.5998 or by email at jmink@trace-labs.com.

Sincerely,

Jon Mink
Senior Project Manager
Enclosures

NJDEP Accreditation No. MI008

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SAMPLE SUMMARY

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID	Sample ID	Matrix	Collected By	Date Collected	Date Received
T16F037-01	SW-RR-TE-RB	Surface Water	rh	06/01/16 10:20	06/02/16 09:41
T16F037-02	SW-RR-TE-RB (F)	Surface Water	rh	06/01/16 10:20	06/02/16 09:41
T16F037-03	SW-RR-TE-MC	Surface Water	rh	06/01/16 10:40	06/02/16 09:41
T16F037-04	SW-RR-TE-MC (F)	Surface Water	rh	06/01/16 10:40	06/02/16 09:41
T16F037-05	SW-RR-TE-LB	Surface Water	rh	06/01/16 11:00	06/02/16 09:41
T16F037-06	SW-RR-TE-LB (F)	Surface Water	rh	06/01/16 11:00	06/02/16 09:41
T16F037-07	SW-RR-TD-RB	Surface Water	rh	06/01/16 12:05	06/02/16 09:41
T16F037-08	SW-RR-TD-RB (F)	Surface Water	rh	06/01/16 12:05	06/02/16 09:41
T16F037-09	SW-RR-TA-RB	Surface Water	rh	06/01/16 16:20	06/02/16 09:41
T16F037-10	SW-RR-TA-RB (F)	Surface Water	rh	06/01/16 16:20	06/02/16 09:41
T16F037-11	SW-RR-TD-LB	Surface Water	rh	06/01/16 12:15	06/02/16 09:41
T16F037-12	SW-RR-TD-LB (F)	Surface Water	rh	06/01/16 12:15	06/02/16 09:41
T16F037-13	SW-RR-TC-RB	Surface Water	rh	06/01/16 12:30	06/02/16 09:41
T16F037-14	SW-RR-TC-RB (F)	Surface Water	rh	06/01/16 12:30	06/02/16 09:41
T16F037-15	SW-RR-TC-LB	Surface Water	rh	06/01/16 13:05	06/02/16 09:41
T16F037-16	SW-RR-TC-LB (F)	Surface Water	rh	06/01/16 13:05	06/02/16 09:41
T16F037-17	SW-RR-TB-RB	Surface Water	rh	06/01/16 14:45	06/02/16 09:41
T16F037-18	SW-RR-TB-RB (F)	Surface Water	rh	06/01/16 14:45	06/02/16 09:41
T16F037-19	SW-RR-TB-RB (DUP)	Surface Water	rh	06/01/16 14:50	06/02/16 09:41
T16F037-20	SW-RR-TB-RB (DUP) (F)	Surface Water	rh	06/01/16 14:45	06/02/16 09:41
T16F037-21	SW-RR-TB-MC	Surface Water	rh	06/01/16 14:55	06/02/16 09:41
T16F037-22	SW-RR-TB-MC (F)	Surface Water	rh	06/01/16 14:55	06/02/16 09:41
T16F037-23	SW-RR-TB-LB	Surface Water	rh	06/01/16 15:10	06/02/16 09:41
T16F037-24	SW-RR-TB-LB (F)	Surface Water	rh	06/01/16 15:10	06/02/16 09:41
T16F037-25	SW-RR-TA-LB	Surface Water	rh	06/01/16 15:55	06/02/16 09:41
T16F037-26	SW-RR-TA-LB (F)	Surface Water	rh	06/01/16 15:55	06/02/16 09:41
T16F037-27	SW-RR-TA-MC	Surface Water	rh	06/01/16 16:10	06/02/16 09:41
T16F037-28	SW-RR-TA-MC (F)	Surface Water	rh	06/01/16 16:10	06/02/16 09:41
T16F037-29	SED-RR-TE-RB (0.0-0.5)	Sediment	rh	06/01/16 10:20	06/02/16 09:41
T16F037-30	SED-RR-TE-MC (0.0-0.5)	Sediment	rh	06/01/16 10:40	06/02/16 09:41
T16F037-31	SED-RR-TE-LB (0.0-0.5)	Sediment	rh	06/01/16 11:00	06/02/16 09:41
T16F037-32	SED-RR-TD-RB (0.0-0.5)	Sediment	rh	06/01/16 12:05	06/02/16 09:41
T16F037-33	SED-RR-TD-LB (0.0-0.5)	Sediment	rh	06/01/16 12:15	06/02/16 09:41
T16F037-34	SED-RR-TD-LB (0.0-0.5) (DUP)	Sediment	rh	06/01/16 12:20	06/02/16 09:41
T16F037-35	SED-RR-TC-RB (0.0-0.5)	Sediment	rh	06/01/16 12:30	06/02/16 09:41
T16F037-36	SED-RR-TC-LB (0.0-0.5)	Sediment	rh	06/01/16 13:05	06/02/16 09:41
T16F037-37	SED-RR-TB-RB (0.0-0.5)	Sediment	rh	06/01/16 14:45	06/02/16 09:41

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T16F037-38	SED-RR-TB-MC (0.0-0.5)	Sediment	rh	06/01/16 14:55	06/02/16 09:41
T16F037-39	SED-RR-TB-MC (0.5-1.0)	Sediment	rh	06/01/16 15:00	06/02/16 09:41
T16F037-40	SED-RR-TA-LB (0.0-0.5)	Sediment	rh	06/01/16 15:55	06/02/16 09:41
T16F037-41	SED-RR-TB-LB (0.0-0.5)	Sediment	rh	06/01/16 15:10	06/02/16 09:41
T16F037-42	SED-RR-TA-MC (0.0-0.5)	Sediment	rh	06/01/16 16:10	06/02/16 09:41
T16F037-43	SED-RR-TA-RB (0.0-0.5)	Sediment	rh	06/01/16 16:20	06/02/16 09:41

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AN EXPLANATION OF TERMS AND SYMBOLS WHICH MAY OCCUR IN THIS REPORT

DEFINITIONS

LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
DUP	Matrix Duplicate
RDL	Reporting Detection Limit
MCL	Maximum Contamination Limit
TIC	Tentatively Identified Compound
<, ND or U	Indicates the compound was analyzed for but not detected
*	Indicates a result that exceeds its associated MCL or Surrogate control limits
N	Indicates that the compound has not been evaluated by NELAC
NA	Indicates that the compound is not available.

NOTE: Samples for volatiles that have been extracted with a water miscible solvent were corrected for the total volume of the solvent/water mixture.

DATA QUALIFIERS

Trace ID: T16F037-08

Analysis: EPA 8270C

Bis(2-ethylhexyl)phthalate	Note 607 : A positive result for this analyte was found and reported in the method blank. The concentration found in the sample is less than five times the amount found in the method blank and, therefore, must be considered estimated.

Trace ID: T16F037-36

Analysis: EPA 8270C

Note 407 : The reporting limit was raised due to a post extraction dilution required based on matrix interference present in the sample.

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-01 | Date Collected: 06/01/16 10:20 | Matrix: Surface Water
Sample ID: SW-RR-TE-RB | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061629										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/08/16	kbc	06/08/16	avl		
Surrogates:										
Nitrobenzene-d5	60	%	36-103	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	63	%	36-119	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	60	%	37-109	1	06/08/16	kbc	06/08/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-02 | Date Collected: 06/01/16 10:20 | Matrix: Surface Water
Sample ID: SW-RR-TE-RB (F) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061629										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/08/16	kbc	06/08/16	avl		
Surrogates:										
Nitrobenzene-d5	62	%	36-103	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	66	%	36-119	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	66	%	37-109	1	06/08/16	kbc	06/08/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-03 | Date Collected: 06/01/16 10:40 | Matrix: Surface Water
Sample ID: SW-RR-TE-MC | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061629										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/08/16	kbc	06/08/16	avl		
Surrogates:										
Nitrobenzene-d5	73	%	36-103	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	76	%	36-119	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	84	%	37-109	1	06/08/16	kbc	06/08/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-04 | Date Collected: 06/01/16 10:40 | Matrix: Surface Water
Sample ID: SW-RR-TE-MC (F) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061629										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/08/16	kbc	06/08/16	avl		
Surrogates:										
Nitrobenzene-d5	67	%	36-103	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	68	%	36-119	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	70	%	37-109	1	06/08/16	kbc	06/08/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-05 | Date Collected: 06/01/16 11:00 | Matrix: Surface Water
Sample ID: SW-RR-TE-LB | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061629										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/08/16	kbc	06/08/16	avl		
Surrogates:										
Nitrobenzene-d5	80	%	36-103	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	88	%	36-119	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	79	%	37-109	1	06/08/16	kbc	06/08/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-06 | Date Collected: 06/01/16 11:00 | Matrix: Surface Water
Sample ID: SW-RR-TE-LB (F) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061629										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/08/16	kbc	06/08/16	avl		
Surrogates:										
Nitrobenzene-d5	78	%	36-103	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	83	%	36-119	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	76	%	37-109	1	06/08/16	kbc	06/08/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-07 | Date Collected: 06/01/16 12:05 | Matrix: Surface Water
Sample ID: SW-RR-TD-RB | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061629										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/08/16	kbc	06/08/16	avl		
Surrogates:										
Nitrobenzene-d5	47	%	36-103	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	52	%	36-119	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	54	%	37-109	1	06/08/16	kbc	06/08/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-08 | Date Collected: 06/01/16 12:05 | Matrix: Surface Water
Sample ID: SW-RR-TD-RB (F) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061629										
Bis(2-ethylhexyl)phthalate	**2.7**	**ug/L**	**1.0**	**1**	**06/08/16**	**kbc**	**06/08/16**	**avl**	607	
Surrogates:										
Nitrobenzene-d5	76	%	36-103	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	80	%	36-119	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	92	%	37-109	1	06/08/16	kbc	06/08/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-09 | Date Collected: 06/01/16 16:20 | Matrix: Surface Water
Sample ID: SW-RR-TA-RB | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061629										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/08/16	kbc	06/08/16	avl		
Surrogates:										
Nitrobenzene-d5	65	%	36-103	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	71	%	36-119	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	70	%	37-109	1	06/08/16	kbc	06/08/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-10 | Date Collected: 06/01/16 16:20 | Matrix: Surface Water
Sample ID: SW-RR-TA-RB (F) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061629										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/08/16	kbc	06/08/16	avl		
Surrogates:										
Nitrobenzene-d5	79	%	36-103	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	82	%	36-119	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	77	%	37-109	1	06/08/16	kbc	06/08/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-11 | Date Collected: 06/01/16 12:15 | Matrix: Surface Water
Sample ID: SW-RR-TD-LB | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061629										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/08/16	kbc	06/08/16	avl		
Surrogates:										
Nitrobenzene-d5	80	%	36-103	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	83	%	36-119	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	72	%	37-109	1	06/08/16	kbc	06/08/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-12 | Date Collected: 06/01/16 12:15 | Matrix: Surface Water
Sample ID: SW-RR-TD-LB (F) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061629										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/08/16	kbc	06/08/16	avl		
Surrogates:										
Nitrobenzene-d5	77	%	36-103	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	75	%	36-119	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	84	%	37-109	1	06/08/16	kbc	06/08/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-13 | Date Collected: 06/01/16 12:30 | Matrix: Surface Water
Sample ID: SW-RR-TC-RB | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061629										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/08/16	kbc	06/08/16	avl		
Surrogates:										
Nitrobenzene-d5	80	%	36-103	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	82	%	36-119	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	81	%	37-109	1	06/08/16	kbc	06/08/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-14 | Date Collected: 06/01/16 12:30 | Matrix: Surface Water
Sample ID: SW-RR-TC-RB (F) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061629										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/08/16	kbc	06/08/16	avl		
Surrogates:										
Nitrobenzene-d5	70	%	36-103	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	69	%	36-119	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	67	%	37-109	1	06/08/16	kbc	06/08/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-15 | Date Collected: 06/01/16 13:05 | Matrix: Surface Water
Sample ID: SW-RR-TC-LB | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061629										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/08/16	kbc	06/08/16	avl		
Surrogates:										
Nitrobenzene-d5	64	%	36-103	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	61	%	36-119	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	82	%	37-109	1	06/08/16	kbc	06/08/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-16 | Date Collected: 06/01/16 13:05 | Matrix: Surface Water
Sample ID: SW-RR-TC-LB (F) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061629										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/08/16	kbc	06/09/16	avl		
Surrogates:										
Nitrobenzene-d5	58	%	36-103	1	06/08/16	kbc	06/09/16	avl		
2-Fluorobiphenyl	58	%	36-119	1	06/08/16	kbc	06/09/16	avl		
Terphenyl-d14	63	%	37-109	1	06/08/16	kbc	06/09/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-17 | Date Collected: 06/01/16 14:45 | Matrix: Surface Water
Sample ID: SW-RR-TB-RB | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061629										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/08/16	kbc	06/08/16	avl		
Surrogates:										
Nitrobenzene-d5	45	%	36-103	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	47	%	36-119	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	44	%	37-109	1	06/08/16	kbc	06/08/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-18 | Date Collected: 06/01/16 14:45 | Matrix: Surface Water
Sample ID: SW-RR-TB-RB (F) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061629										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/08/16	kbc	06/08/16	avl		
Surrogates:										
Nitrobenzene-d5	72	%	36-103	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	73	%	36-119	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	82	%	37-109	1	06/08/16	kbc	06/08/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-19 | Date Collected: 06/01/16 14:50 | Matrix: Surface Water
Sample ID: SW-RR-TB-RB (DUP) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061629										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/08/16	kbc	06/08/16	avl		
Surrogates:										
Nitrobenzene-d5	77	%	36-103	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	76	%	36-119	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	80	%	37-109	1	06/08/16	kbc	06/08/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-20 | Date Collected: 06/01/16 14:45 | Matrix: Surface Water
Sample ID: SW-RR-TB-RB (DUP) (F) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061630										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/08/16	kbc	06/08/16	avl		
Surrogates:										
Nitrobenzene-d5	66	%	36-103	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	69	%	36-119	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	93	%	37-109	1	06/08/16	kbc	06/08/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-21 | Date Collected: 06/01/16 14:55 | Matrix: Surface Water
Sample ID: SW-RR-TB-MC | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061630										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/08/16	kbc	06/08/16	avl		
Surrogates:										
Nitrobenzene-d5	67	%	36-103	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	72	%	36-119	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	78	%	37-109	1	06/08/16	kbc	06/08/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-22 | Date Collected: 06/01/16 14:55 | Matrix: Surface Water
Sample ID: SW-RR-TB-MC (F) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061630										
Bis(2-ethylhexyl)phthalate	**1.3**	**ug/L**	**1.0**	**1**	**06/08/16**	**kbc**	**06/08/16**	**avl**		
Surrogates:										
Nitrobenzene-d5	74	%	36-103	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	73	%	36-119	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	91	%	37-109	1	06/08/16	kbc	06/08/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-23 | Date Collected: 06/01/16 15:10 | Matrix: Surface Water
Sample ID: SW-RR-TB-LB | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061629										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/08/16	kbc	06/09/16	avl		
Surrogates:										
Nitrobenzene-d5	64	%	36-103	1	06/08/16	kbc	06/09/16	avl		
2-Fluorobiphenyl	78	%	36-119	1	06/08/16	kbc	06/09/16	avl		
Terphenyl-d14	80	%	37-109	1	06/08/16	kbc	06/09/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-24 | Date Collected: 06/01/16 15:10 | Matrix: Surface Water
Sample ID: SW-RR-TB-LB (F) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061630										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/08/16	kbc	06/08/16	avl		
Surrogates:										
Nitrobenzene-d5	76	%	36-103	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	79	%	36-119	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	90	%	37-109	1	06/08/16	kbc	06/08/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-25 | Date Collected: 06/01/16 15:55 | Matrix: Surface Water
Sample ID: SW-RR-TA-LB | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061630										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/08/16	kbc	06/08/16	avl		
Surrogates:										
Nitrobenzene-d5	79	%	36-103	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	78	%	36-119	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	81	%	37-109	1	06/08/16	kbc	06/08/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-26 | Date Collected: 06/01/16 15:55 | Matrix: Surface Water
Sample ID: SW-RR-TA-LB (F) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061630										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/08/16	kbc	06/08/16	avl		
Surrogates:										
Nitrobenzene-d5	76	%	36-103	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	74	%	36-119	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	90	%	37-109	1	06/08/16	kbc	06/08/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-27 | Date Collected: 06/01/16 16:10 | Matrix: Surface Water
Sample ID: SW-RR-TA-MC | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061630										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/08/16	kbc	06/08/16	avl		
Surrogates:										
Nitrobenzene-d5	56	%	36-103	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	53	%	36-119	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	63	%	37-109	1	06/08/16	kbc	06/08/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-28 | Date Collected: 06/01/16 16:10 | Matrix: Surface Water
Sample ID: SW-RR-TA-MC (F) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061630										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/08/16	kbc	06/08/16	avl		
Surrogates:										
Nitrobenzene-d5	79	%	36-103	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	75	%	36-119	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	85	%	37-109	1	06/08/16	kbc	06/08/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-29 | Date Collected: 06/01/16 10:20 | Matrix: Sediment
Sample ID: SED-RR-TE-RB (0.0-0.5) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061648										
Bis(2-ethylhexyl)phthalate	<42	ug/kg dry	42	1	06/09/16	kbc	06/09/16	avl		
Surrogates:										
Nitrobenzene-d5	69	%	36-98	1	06/09/16	kbc	06/09/16	avl		
2-Fluorobiphenyl	64	%	44-105	1	06/09/16	kbc	06/09/16	avl		
Terphenyl-d14	84	%	46-109	1	06/09/16	kbc	06/09/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2974-87										
Batch: T061593										
% Solids	**78**	**% by Wt.**	**0.10**	**1**	**06/06/16**	**nws**	**06/06/16**	**nws**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-30 | Date Collected: 06/01/16 10:40 | Matrix: Sediment
Sample ID: SED-RR-TE-MC (0.0-0.5) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061648										
Bis(2-ethylhexyl)phthalate	**62**	**ug/kg dry**	**48**	**1**	**06/09/16**	**kbc**	**06/09/16**	**avl**		
Surrogates:										
Nitrobenzene-d5	80	%	36-98	1	06/09/16	kbc	06/09/16	avl		
2-Fluorobiphenyl	76	%	44-105	1	06/09/16	kbc	06/09/16	avl		
Terphenyl-d14	92	%	46-109	1	06/09/16	kbc	06/09/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2974-87										
Batch: T061593										
% Solids	**68**	**% by Wt.**	**0.10**	**1**	**06/06/16**	**nws**	**06/06/16**	**nws**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-31 | Date Collected: 06/01/16 11:00 | Matrix: Sediment
Sample ID: SED-RR-TE-LB (0.0-0.5) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061648										
Bis(2-ethylhexyl)phthalate	**180**	**ug/kg dry**	**40**	**1**	**06/09/16**	**kbc**	**06/09/16**	**avl**		
Surrogates:										
Nitrobenzene-d5	77	%	36-98	1	06/09/16	kbc	06/09/16	avl		
2-Fluorobiphenyl	77	%	44-105	1	06/09/16	kbc	06/09/16	avl		
Terphenyl-d14	104	%	46-109	1	06/09/16	kbc	06/09/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2974-87										
Batch: T061593										
% Solids	**82**	**% by Wt.**	**0.10**	**1**	**06/06/16**	**nws**	**06/06/16**	**nws**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-32 | Date Collected: 06/01/16 12:05 | Matrix: Sediment
Sample ID: SED-RR-TD-RB (0.0-0.5) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061648										
Bis(2-ethylhexyl)phthalate	<41	ug/kg dry	41	1	06/09/16	kbc	06/09/16	avl		
Surrogates:										
Nitrobenzene-d5	79	%	36-98	1	06/09/16	kbc	06/09/16	avl		
2-Fluorobiphenyl	78	%	44-105	1	06/09/16	kbc	06/09/16	avl		
Terphenyl-d14	101	%	46-109	1	06/09/16	kbc	06/09/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2974-87										
Batch: T061593										
% Solids	**81**	**% by Wt.**	**0.10**	**1**	**06/06/16**	**nws**	**06/06/16**	**nws**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-33 | Date Collected: 06/01/16 12:15 | Matrix: Sediment
Sample ID: SED-RR-TD-LB (0.0-0.5) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061648									
Bis(2-ethylhexyl)phthalate	<44 ug/kg dry	44	1	06/09/16	kbc	06/09/16	avl		
Surrogates:									
Nitrobenzene-d5	76 %	36-98	1	06/09/16	kbc	06/09/16	avl		
2-Fluorobiphenyl	71 %	44-105	1	06/09/16	kbc	06/09/16	avl		
Terphenyl-d14	92 %	46-109	1	06/09/16	kbc	06/09/16	avl		
WET CHEMISTRY									
Analysis Method: ASTM D2974-87									
Batch: T061593									
% Solids	**75 % by Wt.**	**0.10**	**1**	**06/06/16**	**nws**	**06/06/16**	**nws**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-34 | Date Collected: 06/01/16 12:20 | Matrix: Sediment
Sample ID: SED-RR-TD-LB (0.0-0.5) (DUP) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061648									
Bis(2-ethylhexyl)phthalate	<42 ug/kg dry	42	1	06/09/16	kbc	06/09/16	avl		
Surrogates:									
Nitrobenzene-d5	60 %	36-98	1	06/09/16	kbc	06/09/16	avl		
2-Fluorobiphenyl	65 %	44-105	1	06/09/16	kbc	06/09/16	avl		
Terphenyl-d14	64 %	46-109	1	06/09/16	kbc	06/09/16	avl		
WET CHEMISTRY									
Analysis Method: ASTM D2974-87									
Batch: T061593									
% Solids	**78 % by Wt.**	**0.10**	**1**	**06/06/16**	**nws**	**06/06/16**	**nws**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-35 | Date Collected: 06/01/16 12:30 | Matrix: Sediment
Sample ID: SED-RR-TC-RB (0.0-0.5) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061648										
Bis(2-ethylhexyl)phthalate	<44	ug/kg dry	44	1	06/09/16	kbc	06/09/16	avl		
Surrogates:										
Nitrobenzene-d5	77	%	36-98	1	06/09/16	kbc	06/09/16	avl		
2-Fluorobiphenyl	64	%	44-105	1	06/09/16	kbc	06/09/16	avl		
Terphenyl-d14	68	%	46-109	1	06/09/16	kbc	06/09/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2974-87										
Batch: T061593										
% Solids	**76**	**% by Wt.**	**0.10**	**1**	**06/06/16**	**nws**	**06/06/16**	**nws**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-36 | Date Collected: 06/01/16 13:05 | Matrix: Sediment
Sample ID: SED-RR-TC-LB (0.0-0.5) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									407	
Analysis Method: EPA 8270C										
Batch: T061648										
Bis(2-ethylhexyl)phthalate	<86	ug/kg dry	86	2	06/09/16	kbc	06/09/16	avl		
Surrogates:										
Nitrobenzene-d5	77	%	36-98	2	06/09/16	kbc	06/09/16	avl		
2-Fluorobiphenyl	80	%	44-105	2	06/09/16	kbc	06/09/16	avl		
Terphenyl-d14	97	%	46-109	2	06/09/16	kbc	06/09/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2974-87										
Batch: T061593										
% Solids	**77**	**% by Wt.**	**0.10**	**1**	**06/06/16**	**nws**	**06/06/16**	**nws**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-37 | Date Collected: 06/01/16 14:45 | Matrix: Sediment
Sample ID: SED-RR-TB-RB (0.0-0.5) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061648										
Bis(2-ethylhexyl)phthalate	<52	ug/kg dry	52	1	06/09/16	kbc	06/09/16	avl		
Surrogates:										
Nitrobenzene-d5	70	%	36-98	1	06/09/16	kbc	06/09/16	avl		
2-Fluorobiphenyl	62	%	44-105	1	06/09/16	kbc	06/09/16	avl		
Terphenyl-d14	68	%	46-109	1	06/09/16	kbc	06/09/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2974-87										
Batch: T061593										
% Solids	**64**	**% by Wt.**	**0.10**	**1**	**06/06/16**	**nws**	**06/06/16**	**nws**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-38 | Date Collected: 06/01/16 14:55 | Matrix: Sediment
Sample ID: SED-RR-TB-MC (0.0-0.5) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061648									
Bis(2-ethylhexyl)phthalate	<60 ug/kg dry	60	1	06/09/16	kbc	06/09/16	avl		
Surrogates:									
Nitrobenzene-d5	64 %	36-98	1	06/09/16	kbc	06/09/16	avl		
2-Fluorobiphenyl	62 %	44-105	1	06/09/16	kbc	06/09/16	avl		
Terphenyl-d14	71 %	46-109	1	06/09/16	kbc	06/09/16	avl		
WET CHEMISTRY									
Analysis Method: ASTM D2974-87									
Batch: T061593									
% Solids	**54 % by Wt.**	**0.10**	**1**	**06/06/16**	**nws**	**06/06/16**	**nws**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-39 | Date Collected: 06/01/16 15:00 | Matrix: Sediment
Sample ID: SED-RR-TB-MC (0.5-1.0) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061648										
Bis(2-ethylhexyl)phthalate	<49	ug/kg dry	49	1	06/09/16	kbc	06/09/16	avl		
Surrogates:										
Nitrobenzene-d5	67	%	36-98	1	06/09/16	kbc	06/09/16	avl		
2-Fluorobiphenyl	70	%	44-105	1	06/09/16	kbc	06/09/16	avl		
Terphenyl-d14	72	%	46-109	1	06/09/16	kbc	06/09/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2974-87										
Batch: T061593										
% Solids	**68**	**% by Wt.**	**0.10**	**1**	**06/06/16**	**nws**	**06/06/16**	**nws**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-40 | Date Collected: 06/01/16 15:55 | Matrix: Sediment
Sample ID: SED-RR-TA-LB (0.0-0.5) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061648										
Bis(2-ethylhexyl)phthalate	**790**	**ug/kg dry**	**47**	**1**	**06/09/16**	**kbc**	**06/09/16**	**avl**		
Surrogates:										
Nitrobenzene-d5	66	%	36-98	1	06/09/16	kbc	06/09/16	avl		
2-Fluorobiphenyl	66	%	44-105	1	06/09/16	kbc	06/09/16	avl		
Terphenyl-d14	76	%	46-109	1	06/09/16	kbc	06/09/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2974-87										
Batch: T061593										
% Solids	**70**	**% by Wt.**	**0.10**	**1**	**06/06/16**	**nws**	**06/06/16**	**nws**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-41 | Date Collected: 06/01/16 15:10 | Matrix: Sediment
Sample ID: SED-RR-TB-LB (0.0-0.5) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061648										
Bis(2-ethylhexyl)phthalate	<65	ug/kg dry	65	1	06/09/16	kbc	06/09/16	avl		
Surrogates:										
Nitrobenzene-d5	59	%	36-98	1	06/09/16	kbc	06/09/16	avl		
2-Fluorobiphenyl	59	%	44-105	1	06/09/16	kbc	06/09/16	avl		
Terphenyl-d14	75	%	46-109	1	06/09/16	kbc	06/09/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2974-87										
Batch: T061593										
% Solids	**51**	**% by Wt.**	**0.10**	**1**	**06/06/16**	**nws**	**06/06/16**	**nws**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-42 | Date Collected: 06/01/16 16:10 | Matrix: Sediment
Sample ID: SED-RR-TA-MC (0.0-0.5) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061648									
Bis(2-ethylhexyl)phthalate	<41 ug/kg dry	41	1	06/09/16	kbc	06/09/16	avl		
Surrogates:									
Nitrobenzene-d5	78 %	36-98	1	06/09/16	kbc	06/09/16	avl		
2-Fluorobiphenyl	79 %	44-105	1	06/09/16	kbc	06/09/16	avl		
Terphenyl-d14	87 %	46-109	1	06/09/16	kbc	06/09/16	avl		
WET CHEMISTRY									
Analysis Method: ASTM D2974-87									
Batch: T061593									
% Solids	**81 % by Wt.**	**0.10**	**1**	**06/06/16**	**nws**	**06/06/16**	**nws**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID: T16F037-43 | Date Collected: 06/01/16 16:20 | Matrix: Sediment
Sample ID: SED-RR-TA-RB (0.0-0.5) | Date Received: 06/02/16 09:41

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061649									
Bis(2-ethylhexyl)phthalate	<51 ug/kg dry	51	1	06/09/16	kbc	06/09/16	avl		
Surrogates:									
Nitrobenzene-d5	79 %	36-98	1	06/09/16	kbc	06/09/16	avl		
2-Fluorobiphenyl	75 %	44-105	1	06/09/16	kbc	06/09/16	avl		
Terphenyl-d14	82 %	46-109	1	06/09/16	kbc	06/09/16	avl		
WET CHEMISTRY									
Analysis Method: ASTM D2974-87									
Batch: T061593									
% Solids	**64 % by Wt.**	**0.10**	**1**	**06/06/16**	**nws**	**06/06/16**	**nws**	N	

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QUALITY CONTROL RESULTS

Trace Project ID: T16F037

Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

QC Batch: T061615
QC Batch Method: EPA 3510C Separatory Funnel Liquid-Liquid Extr.
Analysis Description: Filtration for Dissolved Analysis
Analysis Method: Dissolved Analysis

Trace Project ID: T16F037

Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

QC Batch: T061629
QC Batch Method: EPA 3510C Separatory Funnel Liquid-Liquid Extr.
Analysis Description: Semi-volatiles, Phthalates only
Analysis Method: EPA 8270C

METHOD BLANK: T061629-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Bis(2-ethylhexyl)phthalate	ug/L	1.01	1.0	
Nitrobenzene-d5 (S)	%	83	36-103	
2-Fluorobiphenyl (S)	%	86	36-119	
Terphenyl-d14 (S)	%	90	37-109	

LABORATORY CONTROL SAMPLE: T061629-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Bis(2-ethylhexyl)phthalate	ug/L	100	99.9	100	57-107	
Nitrobenzene-d5 (S)	%	101	91.8	91	36-103	
2-Fluorobiphenyl (S)	%	101	93.4	92	36-119	
Terphenyl-d14 (S)	%	100	109	109	37-109	

MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T061629-MSD1

Original: **T16F037-23**

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Bis(2-ethylhexyl)phthalate	ug/L	0.613	96.6	83.1	91.3	84	94	52-106	11	29	
Nitrobenzene-d5 (S)	%		97.6	73.3	86.8	74	89	36-103			
2-Fluorobiphenyl (S)	%		97.6	75.3	91.7	76	94	36-119			
Terphenyl-d14 (S)	%		96.6	89.3	96.1	91	100	37-109			

Trace Project ID: T16F037

Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

QC Batch: T061630
QC Batch Method: EPA 3510C Separatory Funnel Liquid-Liquid Extr.
Analysis Description: Semi-volatiles, Phthalates only
Analysis Method: EPA 8270C

METHOD BLANK: T061630-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Bis(2-ethylhexyl)phthalate	ug/L	<1.0	1.0	
Nitrobenzene-d5 (S)	%	57	36-103	

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METHOD BLANK: T061630-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
2-Fluorobiphenyl (S)	%	65	36-119	
Terphenyl-d14 (S)	%	68	37-109	

LABORATORY CONTROL SAMPLE: T061630-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Bis(2-ethylhexyl)phthalate	ug/L	100	77.0	77	57-107	
Nitrobenzene-d5 (S)	%	101	65.2	65	36-103	
2-Fluorobiphenyl (S)	%	101	65.2	65	36-119	
Terphenyl-d14 (S)	%	100	67.4	67	37-109	

MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T061630-MSD1 Original: **T16F037-24**

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Bis(2-ethylhexyl)phthalate	ug/L	0.683	174	161	140	92	80	52-106	14	29	
Nitrobenzene-d5 (S)	%		176	134	108	76	61	36-103			
2-Fluorobiphenyl (S)	%		176	133	113	76	64	36-119			
Terphenyl-d14 (S)	%		174	136	130	78	75	37-109			

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

QC Batch: T061648
QC Batch Method: EPA 3550B Ultrasonic Extraction
Analysis Description: Semi-volatiles, Phthalates only
Analysis Method: EPA 8270C

METHOD BLANK: T061648-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Bis(2-ethylhexyl)phthalate	ug/kg wet	<83	83	
Nitrobenzene-d5 (S)	%	78	36-98	
2-Fluorobiphenyl (S)	%	76	44-105	
Terphenyl-d14 (S)	%	89	46-109	

LABORATORY CONTROL SAMPLE: T061648-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Bis(2-ethylhexyl)phthalate	ug/kg wet	3330	3420	103	49-121	
Nitrobenzene-d5 (S)	%	3370	2830	84	36-98	
2-Fluorobiphenyl (S)	%	3370	2880	86	44-105	
Terphenyl-d14 (S)	%	3330	3240	97	46-109	

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

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QC Batch: T061649
QC Batch Method: EPA 3550B Ultrasonic Extraction
Analysis Description: Semi-volatiles, Phthalates only
Analysis Method: EPA 8270C

METHOD BLANK: T061649-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Bis(2-ethylhexyl)phthalate	ug/kg wet	<330	330	
Nitrobenzene-d5 (S)	%	71	36-98	
2-Fluorobiphenyl (S)	%	73	44-105	
Terphenyl-d14 (S)	%	74	46-109	

LABORATORY CONTROL SAMPLE: T061649-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Bis(2-ethylhexyl)phthalate	ug/kg wet	3330	3050	92	49-121	
Nitrobenzene-d5 (S)	%	3360	2870	85	36-98	
2-Fluorobiphenyl (S)	%	3360	2740	81	44-105	
Terphenyl-d14 (S)	%	3330	2920	88	46-109	

MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T061649-MSD1 Original: **T16F037-43**

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Bis(2-ethylhexyl)phthalate	ug/kg dry	0	5170	5180	5070	100	98	40-124	2	35	
Nitrobenzene-d5 (S)	%		5220	3740	4060	71	78	36-98			
2-Fluorobiphenyl (S)	%		5220	4030	3850	77	74	44-105			
Terphenyl-d14 (S)	%		5170	4630	4840	89	94	46-109			

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

QC Batch: T061593
QC Batch Method: % Solids
Analysis Description: Solids, Dry Weight
Analysis Method: ASTM D2974-87

SAMPLE DUPLICATE: T061593-DUP1 Original: **T16F037-43**

Parameter	Units	Original Result	DUP Result	RPD	Max RPD	Notes
% Solids	% by Wt.	64.3	67.5	5	20	

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Page 1 of 4

TRACE ID NO. T16F037

TRACE USE ONLY
Logged By: [illegible] Checked By: [illegible]
Received on ice: Yes No Preservative Checked: Yes No (N/A)
Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Report Results To:
Company Name: TRC Environmental Corp
Report to: Scott Pawlukiewicz
Mailing Address: 2025 E. Beltline Ave. SE, Ste 402
City, State, Zip Code: Grand Rapids, MI 49546
Phone: 616-915-3604 Fax: 616-975-1098
Email Address: SPawlukiewicz@trcsolutions.com
Cell #: 616-915-3604 Sampled by: RH
Project Name & #: LEC Ecological Evaluation, 248642.0000.0000 ph 2

Bill To:
Billing Address (if different)
City, State, Zip Code Windsor, CT
Attn: AP Invoice Phone: PO #:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐
Turnaround Requirements: Standard ☒ 3 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ * Requires Prior Approval
Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, Oil = Oil, Wi = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

Request for Analytical Services — ANALYSIS REQUESTED

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	COOL	HCL	H_2SO_4	HNO_3	NaOH	OHW	DEHP	DEHP (Dissolved to be LAB FILTERED)								REMARKS	Foreign Health Hazards
1/2	6/1/16	1020	SW-RR-TE-RB		W	3							2	1									
3/4	↓	1040	SW-RR-TE-MC		W	3							2	1									
5/6	↓	1100	SW-RR-TE-LB		W	3							2	1									
7/8	↓	1205	SW-RR-TD-RB		W	3							2	1									
9/10	↓	426	SW-RR-TA-RB		W	3							2	1									

Please Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
1) [illegible]	Fed Ex	6/1/16	1830	2) Fed Ex	[illegible]	6/2/16	9:41	3)			
4)				5)				6)			

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Page 2 of 4

TRACE ID NO. T16F037

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Logged By: dll — Checked By: [illegible]

Received on ice: Yes (circled) No — Preservative Checked: Yes No N/A (circled)

Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Report Results To:

Company Name: TRC Environmental Corp

Report to: Scott Pawlukiewicz

Mailing Address: 2025 E. Beltline Ave. SE, Ste 402

City, State, Zip Code: Grand Rapids, MI 49546

Phone: 616-915-3604 — Fax: 616-975-1098

Email Address: spawlukiewicz@trcsolutions.com

Cell #: 616-915-3604 — Sampled by: RH

Project Name & #: LEC Ecological Evaluation, 248642.0000.0000.Ph 2

Bill To:

Billing Address (if different)

City, State, Zip Code: Windsor, CT

Attn: AP Invoice — Phone: — PO #:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐

Turnaround Requirements: Standard ☒ 3 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ * Requires Prior Approval

Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, Ot = Oil, Wi = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

Request for Analytical Services — ANALYSIS REQUESTED

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	COOL	HCL	HNO3	H2SO4	NaOH	Other	DEHP	DEHP (Dissolved-to be LAB FILTERED)	MS/MSD							REMARKS	Flashpoint than Water
11/12	6/1/16	1215	SW-RR-TD-LB		W	3							2	1									
13/14		1230	SW-RR-TC-RB		W	3							2	1									
15/16		1305	SW-RR-TC-LB		W	3							2	1									
17/18		2 45	SW-RR-TB-RB		W	3							2	1									
19/20		2 50	SW-RR-TB-RB (DUP)		W	1							1										
21/22		2 55	SW-RR-TB-MC		W	3							2	1									
23/24		3 10	SW-RR-TB-LB		W	5							2	1	2							MS/MSD	
25/26		3 55	SW-RR-TA-LB		W	3							2	1									
27/28		4 10	SW-RR-TA-MC		W	3							2	1									

Please Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
1) [signature]	Fed Ex	6/1/16	1630	2) Fed Ex	[signature]	6/2/16	9:41	3)			
4)				5)				6)			

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Page 3 of 4

TRACE ID NO. T16F037

TRACE USE ONLY
Logged By: AH Checked By: [illegible]
Received on ice: Yes No Preservative Checked: Yes No N/A
Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Report Results To:
Company Name: TRC Environmental Corp.
Report to: Scott Pawlukiewicz
Mailing Address: 2025 E. Beltline Ave, SE, Ste 402
City, State, Zip Code: Grand Rapids, MI 49546
Phone: 616-915-3604 Fax: 616-975-1098
Email Address: spawlukiewicz@trcsolutions.com
Cell #: 616-915-3604 Sampled by: RH
Project Name & #: LEC Ecological Evaluation; 248642.0000.000 ph 2

Bill To:
Billing Address (if different)
City, State, Zip Code Windsor, CT
Attn: AP Invoice Phone: PO #:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐
Turnaround Requirements: Standard ☒ 3 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ * Requires Prior Approval
Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, Oil = Oil, Wi = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

ANALYSIS REQUESTED

Request for Analytical Services

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	COOL	HCL	HNO3	H2SO4	NaOH	Other	DEHP	Grain Size								REMARKS	Possible Hazardous
29	6/1/16	1020	SED-RR-TE-RB (0.0-0.5)		S	2							1	1									
30		1040	SED-RR-TE-MC (0.0-0.5)		S	2							1	1									
31		1100	SED-RR-TE-LB (0.0-0.5)		S	2							1	1									
32		1205	SED-RR-TD-RB (0.0-0.5)		S	2							1	1									
33		1215	SED-RR-TD-LB (0.0-0.5)		S	2							1	1									
34		1220	SED-RR-TD-LB (0.0-0.5) (DUP)		S	1							1										
35		1230	SED-RR-TC-RB (0.0-0.5)		S	2							1	1									
36		105	SED-RR-TC-LB (0.0-0.5)		S	2							1	1									
37		245	SED-RR-TB-RB (0.0-0.5)		S	2							1	1									
38		255	SED-RR-TB-MC (0.0-0.5)		S	2							1	1									

Please Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
1) [signature]	Fed Ex	6/1	1850	2) Fed Ex	[signature]	6/2/16	9:41	3)			
4)				5)				6)			

In executing this Chain of Custody, the client acknowledges acceptance of the terms and conditions of the agreement as set forth at http://www.trace-labs.com/cocterms.php

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Report ID: T16F037 TRACE_QC FINAL 06 28 16 1501 06 28 16 1501

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CHAIN-OF-CUSTODY RECORD

Page 4 of 4

TRACE ID NO. T16F037

TRACE USE ONLY

Logged By: AM Checked By:

Received on ice: (Yes) No Preservative Checked: Yes No (N/A)

Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Report Results To:

Company Name: TRC Environmental Corp.
Report to: Scott Pawlukiewicz
Mailing Address: 2025 E. Beltline Ave, SE, Ste 402
City, State, Zip Code: Grand Rapids, MI 49546
Phone: 616-915-3604 Fax: 616-975-1098
Email Address: spawlukiewicz@trcsolutions.com
Cell #: 616-915-3604 Sampled by: RH
Project Name & #: LEC Ecological Evaluation, 248142.0000.0000, ph 2

Bill To:

Billing Address (if different)
City, State, Zip Code Windsor, CT
Attn: AP Invoice Phone: PO #:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐

Turnaround Requirements: Standard ☒ 3 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ * Requires Prior Approval

Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, Oi = Oil, Wi = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

Request for Analytical Services

ANALYSIS REQUESTED

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	PRESERVATION: COOL	HCL	HNO3	H2SO4	NaOH	Other	SEHP	Grain Size	MS/MSD	REMARKS	Possible Hazard Hazards
39	6/1/16	300	SED-RR-TB-MC (0.5-1.0)		S	2							1	1			
40		355	SED-RR-TA-LB (0.0-0.5)		S	2							1	1			
41		310	SED-RR-TB-LB (0.0-0.5)		S	2							1	1			
42		410	SED-RR-TA-MC (0.0-0.5)		S	2							1	1			
43		420	SED-RR-TA-RB (0.0-0.5)		S	2							1	1	2	MS/MSD	

Please Sign

	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
1)	[signature]	Fed Ex	6/1/16	1830	2) Fed Ex	[signature]	6/2/16	9:41	3)			
4)					5)				6)			

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SAMPLE LOG IN CHECKLIST

Trace ID #: T16F037 Date: 6/2/16 Package Description: Cooler Temperature: -2.0
Client Name: TRC Environmental Time: 9:50 Logged in by: JS

Cooler Receipt

Cooler/samples delivered by: Trace courier [ ] Hand delivered [ ] Name of delivery person: _____
Commercial courier [ ] UPS [ ] FED EX [X] US Mail [ ]

Tracking Number: [ ] Not Applicable
Tracking #: 7832 5903 3667, 7832 5904 5590, 7832 5903 999C

COC Seals present and intact on cooler? No [ ] Yes [ ] [X] Not Applicable 7832 5905 1931

Custody seals signed by Client? No [ ] Yes [ ] Client custody seal # (if applicable): _____

Coolant and Temperature

Type of Coolant Used

Slurry w/ crushed, cubed, or chip ice? [X]
Multiple bags of ice around samples? [ ]
Ice Packs/ Blue Ice : [ ]
No Coolant Present [ ]

Cooler Temperature

Correction Factor: IR Thermometer -0.4 °C (Plastic or Glass -circle one)
Digital Stick Thermometer -0.2 °C
Temperature Blank: None °C (Use Digital Stick Thermometer)
Range of 3 samples: 2.3-4.8 °C (Use IR Thermometer)
Melt Water: None °C (Use Digital Stick Thermometer)
Ice still present upon receipt: [X] Yes [ ] No [ ] N/A

General

	Yes	No	NA	Comments
All bottles arrived unbroken with labels in good condition?	[ ]	[X]	[ ]	SW-RR-TE-RB amber broken
Each sample point is in a sealed plastic bag?	[ ]	[X]	[ ]	
Labels filled out completely?	[X]	[ ]	[ ]	
All bottle labels agree with Chain of Custody (COC)?	[X]	[ ]	[ ]	
Sufficient sample to run tests requested?	[X]	[ ]	[ ]	
pH checked and samples at correct pH?	[ ]	[ ]	[X]	See Below*
Correct preservative added to samples?	[ ]	[ ]	[X]	
Air bubbles absent from VOAs?	[ ]	[ ]	[X]	
COC filled out properly and signed by client?	[X]	[ ]	[ ]	
COC signed in by TRACE sample custodian?	[X]	[ ]	[ ]	
Was project manager called and samples discussed?	[ ]	[X]	[ ]	

Notes: _____

*EMD pH Test Strips Used:
[ ] pH 0-2.5 Lot: HC563733 [ ] pH 11.0-13.0 Lot: HC547328
[ ] Other: _____

Form 70-A.12
Effective 10/13/15

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June 28, 2016

Mr. Scott Pawlukiewicz
TRC Solutions
2025 E. Beltline Ave., SE, Ste 402
Grand Rapids, MI 49546

Phone: (201) 636775- - 4
Fax: (616) 9857109-

RE: Trace Project T16E496
Client Project LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Dear Mr. Pawlukiewicz:

Enclosed are your analytical results. The results of this report relate only to the samples listed in the body of this report.

All reports were examined through Trace's validation process to ensure that requirements for quality and completeness were satisfied. All reported analytical results were obtained in accordance with the methods referenced on the reports. Every practical effort was made to meet the reporting limit specifications for this work, however, some results may have raised reporting limits to correct for percent solids.

For clients that require NELAC Accreditation, Trace certifies that these test results meet all requirements of the NELAC Standard, except for those analytes with a "N" notation. These analytes have not been evaluated by NELAC at Trace's discretion and will not be reported unless requested by client.

If you have questions concerning this report, please contact me at 231.883.599- or by email at jmink@trace7labs.com.

Sincerely,

Jon Mink
Senior Project Manager
Enclosures

NJDEP Accreditation No. MI00-

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SAMPLE SUMMARY

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID	Sample ID	Matrix	Collected By	Date Collected	Date Received
T16E496701	SED7RR7TG7RB (0.070.5)	Sediment	sp	05\28\16 09:40	05\31\16 08:12
T16E496702	SED7RR7TG7RMC (0.070.5)	Sediment	sp	05\28\16 09:55	05\31\16 08:12
T16E496703	SED7RR7TG7LMC (0.070.5)	Sediment	sp	05\28\16 10:15	05\31\16 08:12
T16E496704	SED7RR7TG7LMC (0.070.5) (D/ P)	Sediment	sp	05\28\16 10:15	05\31\16 08:12
T16E496705	SED7RR7TG7LB (0.070.5)	Sediment	sp	05\28\16 10:30	05\31\16 08:12
T16E496706	SED7RR7TF7RB (0.070.5)	Sediment	sp	05\28\16 11:30	05\31\16 08:12
T16E496708	SED7RR7TF7RMC (0.070.5)	Sediment	sp	05\28\16 11:45	05\31\16 08:12
T16E49670-	SED7RR7TF7MC (0.070.5)	Sediment	sp	05\28\16 12:05	05\31\16 08:12
T16E496709	SED7RR7TF7LMC (0.070.5)	Sediment	sp	05\28\16 12:25	05\31\16 08:12
T16E496710	SED7RR7TF7LB (0.070.5)	Sediment	sp	05\28\16 12:35	05\31\16 08:12
T16E496711	SU 7RR7TG7RB	Surface U ater	sp	05\28\16 09:30	05\31\16 08:12
T16E496712	SU 7RR7TG7RB (F)	Surface U ater	sp	05\28\16 09:30	05\31\16 08:12
T16E496713	SU 7RR7TG7RMC	Surface U ater	sp	05\28\16 09:50	05\31\16 08:12
T16E496714	SU 7RR7TG7RMC (F)	Surface U ater	sp	05\28\16 09:50	05\31\16 08:12
T16E496715	SU 7RR7TG7LMC	Surface U ater	sp	05\28\16 10:10	05\31\16 08:12
T16E496716	SU 7RR7TG7LMC (F)	Surface U ater	sp	05\28\16 10:10	05\31\16 08:12
T16E496718	SU 7RR7TG7LB	Surface U ater	sp	05\28\16 10:25	05\31\16 08:12
T16E49671-	SU 7RR7TG7LB (F)	Surface U ater	sp	05\28\16 10:25	05\31\16 08:12
T16E496719	SU 7RR7TG7LB (D/ P)	Surface U ater	sp	05\28\16 10:25	05\31\16 08:12
T16E496720	SU 7RR7TG7LB (D/ P) (F)	Surface U ater	sp	05\28\16 10:25	05\31\16 08:12
T16E496721	SU 7RR7TF7RB	Surface U ater	sp	05\28\16 11:25	05\31\16 08:12
T16E496722	SU 7RR7TF7RB (F)	Surface U ater	sp	05\28\16 11:25	05\31\16 08:12
T16E496723	SU 7RR7TF7RMC	Surface U ater	sp	05\28\16 11:40	05\31\16 08:12
T16E496724	SU 7RR7TF7RMC (F)	Surface U ater	sp	05\28\16 11:40	05\31\16 08:12
T16E496725	SU 7RR7TF7MC	Surface U ater	sp	05\28\16 12:00	05\31\16 08:12
T16E496726	SU 7RR7TF7MC (F)	Surface U ater	sp	05\28\16 12:00	05\31\16 08:12
T16E496728	SU 7RR7TF7LMC	Surface U ater	sp	05\28\16 12:20	05\31\16 08:12
T16E49672-	SU 7RR7TF7LMC (F)	Surface U ater	sp	05\28\16 12:20	05\31\16 08:12
T16E496729	SU 7RR7TF7LB	Surface U ater	sp	05\28\16 12:30	05\31\16 08:12
T16E496730	SU 7RR7TF7LB (F)	Surface U ater	sp	05\28\16 12:30	05\31\16 08:12

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AN EXPLANATION OF TERMS AND SYMBOLS WHICH MAY OCCUR IN THIS REPORT

DEFINITIONS

LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
D/ P	Matrix Duplicate
RDL	Reporting Detection Limit
MCL	Maximum Contamination Limit
TIC	Tentatively Identified Compound
<, ND or /	Indicates the compound was analyzed for but not detected
*	Indicates a result that exceeds its associated MCL or Surrogate control limits
N	Indicates that the compound has not been evaluated by NELAC
NA	Indicates that the compound is not available.

NOTE: Samples for volatiles that have been extracted with a water miscible solvent were corrected for the total volume of the solvent/Water mixture.

DATA QUALIFIERS

Trace ID: T16E496711

Analysis: EPA 8270C

Bis(2-ethylhexyl)phthalate	Note 608 : A positive result for this analyte was found and reported in the method blank. The concentration found in the sample is less than five times the amount found in the method blank and, therefore, must be considered estimated.

Trace ID: T16E496720

Analysis: EPA 8270C

Bis(2-ethylhexyl)phthalate	Note 608 : A positive result for this analyte was found and reported in the method blank. The concentration found in the sample is less than five times the amount found in the method blank and, therefore, must be considered estimated.

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID: T16E496701 Date Collected: 05/28/16 09:40 Matrix: Sediment
Sample ID: SED7RR7TG7RB (0.07-0.5) Date Received: 05/31/16 08:12

PARAMETERS	RES/ LTS / NITS	RDL	DIL/ TION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061604									
Bis(2-ethylhexyl)phthalate	**69 ug/kg dry**	**43**	**1**	**06/07/16**	**kbc**	**06/07/16**	**avl**		
Surrogates:									
Nitrobenzene-d5	63 %	36-79	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	55 %	44-105	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	62 %	46-109	1	06/08/16	kbc	06/08/16	avl		
WET CHEMISTRY									
Analysis Method: ASTM D2974-87									
Batch: T061592									
% Solids	**76 % by Wt.**	**0.10**	**1**	**06/06/16**	**nws**	**06/06/16**	**nws**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID: T16E496702 Date Collected: 05/28/16 09:55 Matrix: Sediment
Sample ID: SED-RR-TG-RMC (0.0-0.5) Date Received: 05/31/16 08:12

PARAMETERS	RES/ LTS / NITS	RDL	DIL/ TION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061604									
Bis(2-ethylhexyl)phthalate	**260 ug/kg dry**	**43**	**1**	**06/07/16**	**kbc**	**06/07/16**	**avl**		
Surrogates:									
Nitrobenzene-d5	54 %	36-79	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	53 %	44-105	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	63 %	46-109	1	06/08/16	kbc	06/08/16	avl		
WET CHEMISTRY									
Analysis Method: ASTM D2974-87									
Batch: T061592									
% Solids	**77 % by Wt.**	**0.10**	**1**	**06/06/16**	**nws**	**06/06/16**	**nws**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID: T16E496703 Date Collected: 05/28/16 10:15 Matrix: Sediment
Sample ID: SED7RR7TG7LMC (0.07-0.5) Date Received: 05/31/16 08:12

PARAMETERS	RES/ LTS / NITS	RDL	DIL/ TION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061604									
Bis(2-ethylhexyl)phthalate	**110 ug/kg dry**	**45**	**1**	**06/07/16**	**kbc**	**06/07/16**	**avl**		
Surrogates:									
Nitrobenzene-d5	58 %	36-79	1	06/07/16	kbc	06/07/16	avl		
2-Fluorobiphenyl	5- %	44-105	1	06/07/16	kbc	06/07/16	avl		
Terphenyl-d14	68 %	46-109	1	06/07/16	kbc	06/07/16	avl		
WET CHEMISTRY									
Analysis Method: ASTM D2974-87									
Batch: T061592									
% Solids	**74 % by Wt.**	**0.10**	**1**	**06/06/16**	**nws**	**06/06/16**	**nws**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID: T16E496704 Date Collected: 05/28/16 10:15 Matrix: Sediment
Sample ID: SED7RR7TG7LMC (0.07-0.5) (D/ P) Date Received: 05/31/16 08:12

PARAMETERS	RES/ LTS / NITS	RDL	DIL/ TION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061604									
Bis(2-ethylhexyl)phthalate	**570 ug/kg dry**	**45**	**1**	**06/07/16**	**kbc**	**06/07/16**	**avl**		
Surrogates:									
Nitrobenzene-d5	55 %	36-79	1	06/08/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	62 %	44-105	1	06/08/16	kbc	06/08/16	avl		
Terphenyl-d14	8 %	46-109	1	06/08/16	kbc	06/08/16	avl		
WET CHEMISTRY									
Analysis Method: ASTM D2974-87									
Batch: T061592									
% Solids	**73 % by Wt.**	**0.10**	**1**	**06/06/16**	**nws**	**06/06/16**	**nws**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID: T16E496705 Date Collected: 05/28/16 10:30 Matrix: Sediment
Sample ID: SED7RR7TG7LB (0.07-0.5) Date Received: 05/31/16 08:12

PARAMETERS	RES/ LTS / NITS	RDL	DIL/ TION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061648									
Bis(2-ethylhexyl)phthalate	**1300 ug/kg dry**	**120**	**1**	**06/09/16**	**kbc**	**06/09/16**	**avl**		
Surrogates:									
Nitrobenzene-d5	86 %	36-79	1	06/09/16	kbc	06/09/16	avl		
2-Fluorobiphenyl	58 %	44-105	1	06/09/16	kbc	06/09/16	avl		
Terphenyl-d14	82 %	46-109	1	06/09/16	kbc	06/09/16	avl		
WET CHEMISTRY									
Analysis Method: ASTM D2974-87									
Batch: T061592									
% Solids	**28 % by Wt.**	**0.10**	**1**	**06/06/16**	**nws**	**06/06/16**	**nws**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID: T16E496706 Date Collected: 05/28/16 11:30 Matrix: Sediment
Sample ID: SED7RR7TF7RB (0.07-0.5) Date Received: 05/31/16 08:12

PARAMETERS	RES/ LTS / NITS	RDL	DIL/ TION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061648									
Bis(2-ethylhexyl)phthalate	**95 ug/kg dry**	**47**	**1**	**06/09/16**	**kbc**	**06/09/16**	**avl**		
Surrogates:									
Nitrobenzene-d5	63 %	36-79	1	06/09/16	kbc	06/09/16	avl		
2-Fluorobiphenyl	58 %	44-105	1	06/09/16	kbc	06/09/16	avl		
Terphenyl-d14	60 %	46-109	1	06/09/16	kbc	06/09/16	avl		
WET CHEMISTRY									
Analysis Method: ASTM D2974-87									
Batch: T061592									
% Solids	**69 % by Wt.**	**0.10**	**1**	**06/06/16**	**nws**	**06/06/16**	**nws**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID: T16E496708 Date Collected: 05/28/16 11:45 Matrix: Sediment
Sample ID: SED7RR7TF7RMC (0.07-0.5) Date Received: 05/31/16 08:12

PARAMETERS	RES/ LTS / NITS	RDL	DIL/ TION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061648									
Bis(2-ethylhexyl)phthalate	<88 ug/kg dry	88	2	06/09/16	kbc	06/09/16	avl		
Surrogates:									
Nitrobenzene-d5	-4 %	36-79	2	06/09/16	kbc	06/09/16	avl		
2-Fluorobiphenyl	85 %	44-105	2	06/09/16	kbc	06/09/16	avl		
Terphenyl-d14	93 %	46-109	2	06/09/16	kbc	06/09/16	avl		
WET CHEMISTRY									
Analysis Method: ASTM D2974-87									
Batch: T061592									
% Solids	**85 % by Wt.**	**0.10**	**1**	**06/06/16**	**nws**	**06/06/16**	**nws**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID: T16E49670- Date Collected: 05/28/16 12:05 Matrix: Sediment
Sample ID: SED7RR7TF7MC (0.07-0.5) Date Received: 05/31/16 08:12

PARAMETERS	RES/ LTS / NITS	RDL	DIL/ TION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061648									
Bis(2-ethylhexyl)phthalate	**3000 ug/kg dry**	**50**	**1**	**06/09/16**	**kbc**	**06/09/16**	**avl**		
Surrogates:									
Nitrobenzene-d5	89 %	36-79	1	06/09/16	kbc	06/09/16	avl		
2-Fluorobiphenyl	81 %	44-105	1	06/09/16	kbc	06/09/16	avl		
Terphenyl-d14	- 6 %	46-109	1	06/09/16	kbc	06/09/16	avl		
WET CHEMISTRY									
Analysis Method: ASTM D2974-87									
Batch: T061592									
% Solids	**67 % by Wt.**	**0.10**	**1**	**06/06/16**	**nws**	**06/06/16**	**nws**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID: T16E496709 Date Collected: 05/28/16 12:25 Matrix: Sediment
Sample ID: SED7RR7TF7LMC (0.07-0.5) Date Received: 05/31/16 08:12

PARAMETERS	RES/ LTS / NITS	RDL	DIL/ TION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061648									
Bis(2-ethylhexyl)phthalate	**100 ug/kg dry**	**48**	**1**	**06/09/16**	**kbc**	**06/09/16**	**avl**		
Surrogates:									
Nitrobenzene-d5	86 %	36-79	1	06/09/16	kbc	06/09/16	avl		
2-Fluorobiphenyl	83 %	44-105	1	06/09/16	kbc	06/09/16	avl		
Terphenyl-d14	92 %	46-109	1	06/09/16	kbc	06/09/16	avl		
WET CHEMISTRY									
Analysis Method: ASTM D2974-87									
Batch: T061558									
% Solids	**68 % by Wt.**	**0.10**	**1**	**06/03/16**	**ef**	**06/03/16**	**ef/nw**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID: T16E496710 Date Collected: 05/28/16 12:35 Matrix: Sediment
Sample ID: SED7RR7TF7LB (0.07-0.5) Date Received: 05/31/16 08:12

PARAMETERS	RES/ LTS / NITS	RDL	DIL/ TION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061648									
Bis(2-ethylhexyl)phthalate	**120 ug/kg dry**	**43**	**1**	**06/09/16**	**kbc**	**06/09/16**	**avl**		
Surrogates:									
Nitrobenzene-d5	89 %	36-79	1	06/09/16	kbc	06/09/16	avl		
2-Fluorobiphenyl	86 %	44-105	1	06/09/16	kbc	06/09/16	avl		
Terphenyl-d14	94 %	46-109	1	06/09/16	kbc	06/09/16	avl		
WET CHEMISTRY									
Analysis Method: ASTM D2974-87									
Batch: T061558									
% Solids	**77 % by Wt.**	**0.10**	**1**	**06/03/16**	**ef**	**06/03/16**	**ef/nw**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID: T16E496711 Date Collected: 05/28/16 09:30 Matrix: Surface Water
Sample ID: SW-RR-TG-RB Date Received: 05/31/16 08:12

PARAMETERS	RESULTS / UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061545									
Bis(2-ethylhexyl)phthalate	**1.1 ug/L**	**1.0**	**1**	**06/03/16**	**kbc**	**06/06/16**	**avl**	608	
Surrogates:									
Nitrobenzene-d5	89 %	36-103	1	06/03/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	91 %	36-119	1	06/03/16	kbc	06/06/16	avl		
Terphenyl-d14	91 %	38-109	1	06/03/16	kbc	06/06/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID: T16E496712 Date Collected: 05/28/16 09:30 Matrix: Surface Water
Sample ID: SW-RR-TG-RB (F) Date Received: 05/31/16 08:12

PARAMETERS	RESULTS / UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061545									
Bis(2-ethylhexyl)phthalate	<1.0 ug/L	1.0	1	06/03/16	kbc	06/06/16	avl		
Surrogates:									
Nitrobenzene-d5	84 %	36-103	1	06/03/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	84 %	36-119	1	06/03/16	kbc	06/06/16	avl		
Terphenyl-d14	69 %	38-109	1	06/03/16	kbc	06/06/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID: T16E496713 Date Collected: 05/28/16 09:50 Matrix: Surface Water
Sample ID: SW-RR-TG-RMC Date Received: 05/31/16 08:12

PARAMETERS	RESULTS / UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061545									
Bis(2-ethylhexyl)phthalate	<1.0 ug/L	1.0	1	06/03/16	kbc	06/06/16	avl		
Surrogates:									
Nitrobenzene-d5	85 %	36-103	1	06/03/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	70 %	36-119	1	06/03/16	kbc	06/06/16	avl		
Terphenyl-d14	89 %	38-109	1	06/03/16	kbc	06/06/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID: T16E496714 Date Collected: 05/28/16 09:50 Matrix: Surface Water
Sample ID: SW-RR-TG-RMC (F) Date Received: 05/31/16 08:12

PARAMETERS	RESULTS / UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061545									
Bis(2-ethylhexyl)phthalate	<1.0 ug/L	1.0	1	06/03/16	kbc	06/06/16	avl		
Surrogates:									
Nitrobenzene-d5	59 %	36-103	1	06/03/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	62 %	36-119	1	06/03/16	kbc	06/06/16	avl		
Terphenyl-d14	62 %	38-109	1	06/03/16	kbc	06/06/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID: T16E496715 Date Collected: 05/28/16 10:10 Matrix: Surface Water
Sample ID: SW-RR-TG-LMC Date Received: 05/31/16 08:12

PARAMETERS	RESULTS / UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061545									
Bis(2-ethylhexyl)phthalate	<1.0 ug/L	1.0	1	06/03/16	kbc	06/06/16	avl		
Surrogates:									
Nitrobenzene-d5	80 %	36-103	1	06/03/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	85 %	36-119	1	06/03/16	kbc	06/06/16	avl		
Terphenyl-d14	83 %	38-109	1	06/03/16	kbc	06/06/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID: T16E496716 Date Collected: 05/28/16 10:10 Matrix: Surface Water
Sample ID: SW-RR-TG-LMC (F) Date Received: 05/31/16 08:12

PARAMETERS	RESULTS / UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061545									
Bis(2-ethylhexyl)phthalate	<1.0 ug/L	1.0	1	06/03/16	kbc	06/06/16	avl		
Surrogates:									
Nitrobenzene-d5	89 %	36-103	1	06/03/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	89 %	36-119	1	06/03/16	kbc	06/06/16	avl		
Terphenyl-d14	-0 %	38-109	1	06/03/16	kbc	06/06/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID: T16E496718 Date Collected: 05/28/16 10:25 Matrix: Surface Water
Sample ID: SW-RR-TG-LB Date Received: 05/31/16 08:12

PARAMETERS	RESULTS / UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061545									
Bis(2-ethylhexyl)phthalate	<1.0 ug/L	1.0	1	06/03/16	kbc	06/06/16	avl		
Surrogates:									
Nitrobenzene-d5	85 %	36-103	1	06/03/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	8- %	36-119	1	06/03/16	kbc	06/06/16	avl		
Terphenyl-d14	85 %	38-109	1	06/03/16	kbc	06/06/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID: T16E49671- Date Collected: 05/28/16 10:25 Matrix: Surface Water
Sample ID: SW-RR-TG-LB (F) Date Received: 05/31/16 08:12

PARAMETERS	RESULTS / UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061545									
Bis(2-ethylhexyl)phthalate	<1.0 ug/L	1.0	1	06/03/16	kbc	06/06/16	avl		
Surrogates:									
Nitrobenzene-d5	82 %	36-103	1	06/03/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	69 %	36-119	1	06/03/16	kbc	06/06/16	avl		
Terphenyl-d14	81 %	38-109	1	06/03/16	kbc	06/06/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID: T16E496719 Date Collected: 05/28/16 10:25 Matrix: Surface Water
Sample ID: SW-RR-TG-LB (D/ P) Date Received: 05/31/16 08:12

PARAMETERS	RESULTS / UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061545									
Bis(2-ethylhexyl)phthalate	<1.0 ug/L	1.0	1	06/03/16	kbc	06/06/16	avl		
Surrogates:									
Nitrobenzene-d5	66 %	36-103	1	06/03/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	65 %	36-119	1	06/03/16	kbc	06/06/16	avl		
Terphenyl-d14	68 %	38-109	1	06/03/16	kbc	06/06/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID: T16E496720 Date Collected: 05/28/16 10:25 Matrix: Surface Water
Sample ID: SW-RR-TG-LB (D/ P) (F) Date Received: 05/31/16 08:12

PARAMETERS	RESULTS / UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061545									
Bis(2-ethylhexyl)phthalate	**1.6 ug/L**	**1.0**	**1**	**06/03/16**	**kbc**	**06/06/16**	**avl**	608	
Surrogates:									
Nitrobenzene-d5	66 %	36-103	1	06/03/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	66 %	36-119	1	06/03/16	kbc	06/06/16	avl		
Terphenyl-d14	86 %	38-109	1	06/03/16	kbc	06/06/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24-642.0000.0000, Phase Z

Trace ID: T16E496721 Date Collected: 05/28/16 11:25 Matrix: Surface Water
Sample ID: SW-RR-TF-RB Date Received: 05/31/16 08:12

PARAMETERS	RESULTS / UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061545									
Bis(2-ethylhexyl)phthalate	<1.0 ug/L	1.0	1	06/03/16	kbc	06/06/16	avl		
Surrogates:									
Nitrobenzene-d5	6- %	36-103	1	06/03/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	82 %	36-119	1	06/03/16	kbc	06/06/16	avl		
Terphenyl-d14	81 %	38-109	1	06/03/16	kbc	06/06/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24-642.0000.0000, Phase Z

Trace ID: T16E496722 Date Collected: 05/28/16 11:25 Matrix: Surface Water
Sample ID: SW-RR-TF-RB (F) Date Received: 05/31/16 08:12

PARAMETERS	RESULTS / UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061545									
Bis(2-ethylhexyl)phthalate	<1.0 ug/L	1.0	1	06/03/16	kbc	06/06/16	avl		
Surrogates:									
Nitrobenzene-d5	3- %	36-103	1	06/03/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	3- %	36-119	1	06/03/16	kbc	06/06/16	avl		
Terphenyl-d14	4- %	38-109	1	06/03/16	kbc	06/06/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID: T16E496723 Date Collected: 05/28/16 11:40 Matrix: Surface Water
Sample ID: SW-RR-TF-RMC Date Received: 05/31/16 08:12

PARAMETERS	RESULTS / UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061545									
Bis(2-ethylhexyl)phthalate	<1.0 ug/L	1.0	1	06/03/16	kbc	06/08/16	avl		
Surrogates:									
Nitrobenzene-d5	62 %	36-103	1	06/03/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	61 %	36-119	1	06/03/16	kbc	06/08/16	avl		
Terphenyl-d14	80 %	38-109	1	06/03/16	kbc	06/08/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID: T16E496724 Date Collected: 05/28/16 11:40 Matrix: Surface Water
Sample ID: SW-RR-TF-RMC (F) Date Received: 05/31/16 08:12

PARAMETERS	RESULTS / UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061545									
Bis(2-ethylhexyl)phthalate	<1.0 ug/L	1.0	1	06/03/16	kbc	06/08/16	avl		
Surrogates:									
Nitrobenzene-d5	58 %	36-103	1	06/03/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	65 %	36-119	1	06/03/16	kbc	06/08/16	avl		
Terphenyl-d14	80 %	38-109	1	06/03/16	kbc	06/08/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID: T16E496725 Date Collected: 05/28/16 12:00 Matrix: Surface Water
Sample ID: SW-RR-TF-MC Date Received: 05/31/16 08:12

PARAMETERS	RESULTS / UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061545									
Bis(2-ethylhexyl)phthalate	<1.0 ug/L	1.0	1	06/03/16	kbc	06/06/16	avl		
Surrogates:									
Nitrobenzene-d5	69 %	36-103	1	06/03/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	83 %	36-119	1	06/03/16	kbc	06/06/16	avl		
Terphenyl-d14	-5 %	38-109	1	06/03/16	kbc	06/06/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID: T16E496726 Date Collected: 05/28/16 12:00 Matrix: Surface Water
Sample ID: SW-RR-TF-MC (F) Date Received: 05/31/16 08:12

PARAMETERS	RESULTS / UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061545									
Bis(2-ethylhexyl)phthalate	<1.0 ug/L	1.0	1	06/03/16	kbc	06/06/16	avl		
Surrogates:									
Nitrobenzene-d5	83 %	36-103	1	06/03/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	82 %	36-119	1	06/03/16	kbc	06/06/16	avl		
Terphenyl-d14	-3 %	38-109	1	06/03/16	kbc	06/06/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24-642.0000.0000, Phase Z

Trace ID: T16E496728 Date Collected: 05/28/16 12:20 Matrix: Surface Water
Sample ID: SW-RR-TF-LMC Date Received: 05/31/16 08:12

PARAMETERS	RESULTS / UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061545									
Bis(2-ethylhexyl)phthalate	<1.0 ug/L	1.0	1	06/03/16	kbc	06/06/16	avl		
Surrogates:									
Nitrobenzene-d5	68 %	36-103	1	06/03/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	6- %	36-119	1	06/03/16	kbc	06/06/16	avl		
Terphenyl-d14	90 %	38-109	1	06/03/16	kbc	06/06/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID: T16E49672- Date Collected: 05/28/16 12:20 Matrix: Surface Water
Sample ID: SW-RR-TF-LMC (F) Date Received: 05/31/16 08:12

PARAMETERS	RESULTS / UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061545									
Bis(2-ethylhexyl)phthalate	<1.0 ug/L	1.0	1	06/03/16	kbc	06/06/16	avl		
Surrogates:									
Nitrobenzene-d5	84 %	36-103	1	06/03/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	81 %	36-119	1	06/03/16	kbc	06/06/16	avl		
Terphenyl-d14	-4 %	38-109	1	06/03/16	kbc	06/06/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID: T16E496729 Date Collected: 05/28/16 12:30 Matrix: Surface Water
Sample ID: SW-RR-TF-LB Date Received: 05/31/16 08:12

PARAMETERS	RESULTS / UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061545									
Bis(2-ethylhexyl)phthalate	<1.0 ug/L	1.0	1	06/03/16	kbc	06/06/16	avl		
Surrogates:									
Nitrobenzene-d5	54 %	36-103	1	06/03/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	54 %	36-119	1	06/03/16	kbc	06/06/16	avl		
Terphenyl-d14	62 %	38-109	1	06/03/16	kbc	06/06/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID: T16E496730 Date Collected: 05/28/16 12:30 Matrix: Surface Water
Sample ID: SW-RR-TF-LB (F) Date Received: 05/31/16 08:12

PARAMETERS	RESULTS / UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS									
Analysis Method: EPA 8270C									
Batch: T061545									
Bis(2-ethylhexyl)phthalate	<1.0 ug/L	1.0	1	06/03/16	kbc	06/06/16	avl		
Surrogates:									
Nitrobenzene-d5	82 %	36-103	1	06/03/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	80 %	36-119	1	06/03/16	kbc	06/06/16	avl		
Terphenyl-d14	-6 %	38-109	1	06/03/16	kbc	06/06/16	avl		

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QUALITY CONTROL RESULTS

Trace Project ID: T16E496

Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

QC Batch: T061545
QC Batch Method: EPA 3510C Separatory Funnel Liquid7Liquid Extr.
Analysis Description: Semi7volatiles, Phthalates only
Analysis Method: EPA - 280C

METHOD BLANK: T061545-BLK1

Parameter	/ nits	Blank Result	Reporting Limit	Notes
Bis(27ethylhexyl)phthalate	ugW	22.2	1.0	
Nitrobenzene7d5 (S)	%	8-	367103	
27Fluorobiphenyl (S)	%	- 8	367119	
Terphenyl7d14 (S)	%	92	387109	

LABORATORY CONTROL SAMPLE: T061545-BS1

Parameter	/ nits	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Bis(27ethylhexyl)phthalate	ugW	100	- - .0	- -	587108	
Nitrobenzene7d5 (S)	%	101	89.9	89	367103	
27Fluorobiphenyl (S)	%	101	- 3.3	- 2	367119	
Terphenyl7d14 (S)	%	100	103	103	387109	

MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T061545-MSD1

Original: **T16E496-15**

Parameter	/ nits	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Bis(27ethylhexyl)phthalate	ugW	0	95.2	95.2	- 5.2	9-	90	527106	9	29	
Nitrobenzene7d5 (S)	%		96.2	89.0	84.4	- 0	88	367103			
27Fluorobiphenyl (S)	%		96.2	- - .8	86.5	90	- 0	367119			
Terphenyl7d14 (S)	%		95.2	90.0	80.8	92	84	387109			

MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T061545-MSD2

Original: **T16E496-16**

Parameter	/ nits	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Bis(27ethylhexyl)phthalate	ugW	0	184	181	163	9-	94	527106	4	29	
Nitrobenzene7d5 (S)	%		186	145	140	- 3	- 0	367103			
27Fluorobiphenyl (S)	%		186	138	136	8-	8-	367119			
Terphenyl7d14 (S)	%		184	143	133	- 2	86	387109			

Trace Project ID: T16E496

Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

QC Batch: T061604
QC Batch Method: EPA 3550B / ltrasonic Extraction
Analysis Description: Semi7volatiles, Phthalates only
Analysis Method: EPA - 280C

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METHOD BLANK: T061604-BLK1

Parameter	/ nits	Blank Result	Reporting Limit	Notes
Bis(27ethylhexyl)phthalate	ugWg wet	<- 3	- 3	
Nitrobenzene7d5 (S)	%	82	3679-	
27Fluorobiphenyl (S)	%	69	447105	
Terphenyl7d14 (S)	%	82	467109	

LABORATORY CONTROL SAMPLE: T061604-BS1

Parameter	/ nits	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Bis(27ethylhexyl)phthalate	ugWg wet	3330	2590	8-	497121	
Nitrobenzene7d5 (S)	%	3360	2400	81	3679-	
27Fluorobiphenyl (S)	%	3360	2330	69	447105	
Terphenyl7d14 (S)	%	3330	25- 0	8-	467109	

Trace Project ID: T16E496

Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

QC Batch: T06164-

QC Batch Method: EPA 3550B / ltrasonic Extraction

Analysis Description: Semi7volatiles, Phthalates only

Analysis Method: EPA - 280C

METHOD BLANK: T061648-BLK1

Parameter	/ nits	Blank Result	Reporting Limit	Notes
Bis(27ethylhexyl)phthalate	ugWg wet	<- 3	- 3	
Nitrobenzene7d5 (S)	%	8-	3679-	
27Fluorobiphenyl (S)	%	86	447105	
Terphenyl7d14 (S)	%	- 9	467109	

LABORATORY CONTROL SAMPLE: T061648-BS1

Parameter	/ nits	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Bis(27ethylhexyl)phthalate	ugWg wet	3330	3420	103	497121	
Nitrobenzene7d5 (S)	%	3380	2- 30	- 4	3679-	
27Fluorobiphenyl (S)	%	3380	2- - 0	- 6	447105	
Terphenyl7d14 (S)	%	3330	3240	98	467109	

MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T061648-MSD1 Original: **T16E496-05**

Parameter	/ nits	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Bis(27ethylhexyl)phthalate	ugWg dry	1250	11- 00	11400	12600	- 6	96	407124	11	35	
Nitrobenzene7d5 (S)	%		11900	9340	95- 0	8-	- 0	3679-			
27Fluorobiphenyl (S)	%		11900	8920	- 940	66	85	447105			
Terphenyl7d14 (S)	%		11- 00	9300	9330	89	89	467109			

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Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

QC Batch: T06155-	Analysis Description: Solids, Dry U eight
QC Batch Method: % Solids	Analysis Method: ASTM D29847- 8

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

QC Batch: T061592	Analysis Description: Solids, Dry U eight
QC Batch Method: % Solids	Analysis Method: ASTM D29847- 8

SAMPLE DUPLICATE: T061592-DUP1 Original: **T16E496-05**

Parameter	/ nits	Original Result	D/ P Result	RPD	Max RPD	Notes
% Solids	% by U t.	2- .2	28.3	3	20	

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Page 1 of 2

TRACE ID NO. T16E496

TRACE USE ONLY
Logged By: Checked By:
Received on ice: (Yes) No Preservative Checked: Yes No (N/A)
Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Report Results To:
Company Name: TRC Environmental Corp
Report to: Scott Pawlukiewicz
Mailing Address: 2025 E. Beltline Ave SE STE 402
City, State, Zip Code: Grand Rapids, MI 49546
Phone: 616 915 3604 Fax: 616 975 1098
Email Address: SPawlukiewicz@TRCSolutions.com
Cell #: 616 915 3604 Sampled by:
Project Name & #: LEC Ecologic Evolution, 248642.0000000, Phase 2

Bill To:
Billing Address (if different)
City, State, Zip Code Windsor, CT
Attn: Phone: PO #:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐
Turnaround Requirements: Standard ☒ 3 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ * Requires Prior Approval
Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, Ol = Oil, Wi = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

Request for Analytical Services — ANALYSIS REQUESTED

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	PRESERVATION: COOL	HCL	HNO3	H2SO4	NaOH	Other	DEHP	Grain Size									REMARKS	Potential Health Hazards
01	05/27/16	0940	SED-RR-TG-RB(0.0-0.5)		S	2							1	1										
02	05/27/16	0955	SED-RR-TG-RMC(0.0-0.5)		S	2							1	1										
03	05/27/16	1015	SED-RR-TG-LMC(0.0-0.5)		S	2							1	1										
04	05/27/16	1015	SED-RR-TG-LMC(0.0-0.5)(DUP)		S	2							1	1										
05	05/27/16	1030	SED-RR-TG-LB(0.0-0.5)		S	3							2	1									(MS/MSD)	
06	05/27/16	1130	SED-RR-TF-RB(0.0-0.5)		S	2							1	1										
07	05/27/16	1145	SED-RR-TF-RMC(0.0-0.5)		S	2							1	1										
08	05/27/16	1205	SED-RR-TF-MC(0.0-0.5)		S	2							1	1										
09	05/27/16	1225	SED-RR-TF-LMC(0.0-0.5)		S	2							1	1										
10	05/27/16	1235	SED-RR-TF-LB(0.0-0.5)		S	2							1	1										

Please Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
1) [signature]	FEDEX	05/27/16	1500	2) FEDEX	[signature]	5/31/16	7:12	3)			
4)				5)				6)			

In executing this Chain of Custody, the client acknowledges acceptance of the terms and conditions of the agreement as set forth at http://www.trace-labs.com/cocterms.php

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Page 2 of 2

TRACE ID NO. T16E496

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Logged By: Checked By:
Received on ice: (Yes) No Preservative Checked: Yes No (N/A)
Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Report Results To:
Company Name: TRC Environmental Corp
Report to: Scott Pawlukiewicz
Mailing Address: 2025 E Beltline Ave SE STE 402
City, State, Zip Code: Grand Rapids, MI 49546
Phone: 616 915 3604 Fax: 616 975 1098
Email Address: spawlukiewicz@trcsolutions.com
Cell #: 616 915 3604 Sampled by: SP
Project Name & #: LEC Ecologic Evolution, 248642.0000.0000 phase 2

Bill To:
Billing Address (if different)
City, State, Zip Code Windsor, CT
Attn: Phone: PO #:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐
Turnaround Requirements: Standard ☒ 3 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ * Requires Prior Approval
Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, Oi = Oil, Wi = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

ANALYSIS REQUESTED

Request for Analytical Services

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	COOL	HCL	HNO3	H_2SO_4	NaOH	Other	DEHP	DISS. DEHP									REMARKS	Please to Hazardous Waste
11/12	05/27/16	0930	SW-RR-TG-RB		W	3							2	1									LAB FILTER	
13/14	05/27/16	0950	SW-RR-TG-RMC		W	3							2	1									DISS. DEHP	
15/16	05/27/16	1010	SW-RR-TG-LMC		W	5							3	2	(MS/MSD)								SAMPLES.	
17/18	05/27/16	1025	SW-RR-TG-LB		W	3							2	1										
19/20	05/27/16	1025	SW-RR-TG-LB (DUP)		W	3							2	1										
21/22	05/27/16	1125	SW-RR-TF-RB		W	3							2	1										
23/24	05/27/16	1140	SW-RR-TF-RMC		W	3							2	1										
25/26	05/27/16	1200	SW-RR-TF-MC		W	3							2	1										
27/28	05/27/16	1220	SW-RR-TF-LMC		W	3							2	1										
29/30	05/27/16	1230	SW-RR-TF-LB		W	3							2	1										

Please Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
1)	FEDEX	05/27/16	1500	2) FEDEX		5/31/16	7:12	3)			
4)				5)				6)			

In executing this Chain of Custody, the client acknowledges acceptance of the terms and conditions of the agreement as set forth at http://www.trace-labs.com/cocterms.php

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Report ID: T16E496 TRACE_QC FINAL 06 28 16 1004 06 28 16 1004

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SAMPLE LOG IN CHECKLIST

Trace ID #: T16E496 Date: 5-3-16 Package Description: Cooler Temperature: 6.5
Client Name: TRC Time: 7:12 Logged in by: GH

Cooler Receipt

Cooler/samples delivered by: Trace courier [ ] Hand delivered [ ] Name of delivery person: ____
Commercial courier [X] UPS [ ] FED EX [X] US Mail [ ]

Tracking Number: [ ] Not Applicable
7832 2544 0477 Tracking #: 7832 2544 0488 7832 2544 0466

COC Seals present and intact on cooler? No [ ] Yes [ ] [X] Not Applicable

Custody seals signed by Client? No [ ] Yes [ ] Client custody seal # (if applicable): ____

Coolant and Temperature

Type of Coolant Used

Slurry w/ crushed, cubed, or chip ice? [X]
Multiple bags of ice around samples? [ ]
Ice Packs/ Blue Ice : [ ]
No Coolant Present: [ ]

Cooler Temperature

Correction Factor: IR Thermometer -0.4 °C (Plastic or Glass -circle one)
Digital Stick Thermometer -0.2 °C

Temperature Blank: none °C (Use Digital Stick Thermometer)
Range of 3 samples: 38 11.3 °C (Use IR Thermometer)
Melt Water: none °C (Use Digital Stick Thermometer)
Ice still present upon receipt: [X] Yes [ ] No [ ] N/A

General

	Yes	No	NA	Comments
All bottles arrived unbroken with labels in good condition?	X			
Each sample point is in a sealed plastic bag?		X		
Labels filled out completely?	X			
All bottle labels agree with Chain of Custody (COC)?	X			
Sufficient sample to run tests requested?	X			
pH checked and samples at correct pH?			X	See Below
Correct preservative added to samples?			X	
Air bubbles absent from VOAs?			X	
COC filled out properly and signed by client?	X			
COC signed in by TRACE sample custodian?	X			
Was project manager called and samples discussed?		X		

Notes: ____

*EMD pH Test Strips Used:
[ ] pH 0-2.5 Lot: HC563733 [ ] pH 11.0-13.0 Lot: HC547328
[ ] Other: ____

Form 70-A.12
Effective 10/13/15

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June 27, 2016

Mr. Scott Pawlukiewicz
TRC Solutions
2025 E. Beltline Ave., SE, Ste 402
Grand Rapids, MI 49546

Phone: (201) 636-5884
Fax: (616) 975-1098

RE: Trace Project T16E480
Client Project LEC Ecological Evaluation 248642.0000.0000 Phase Z

Dear Mr. Pawlukiewicz:

Enclosed are your analytical results. The results of this report relate only to the samples listed in the body of this report.

All reports were examined through Trace's validation process to ensure that requirements for quality and completeness were satisfied. All reported analytical results were obtained in accordance with the methods referenced on the reports. Every practical effort was made to meet the reporting limit specifications for this work, however, some results may have raised reporting limits to correct for percent solids.

For clients that require NELAC Accreditation, Trace certifies that these test results meet all requirements of the NELAC Standard, except for those analytes with a "N" notation. These analytes have not been evaluated by NELAC at Trace's discretion and will not be reported unless requested by client.

If you have questions concerning this report, please contact me at 231.773.5998 or by email at jmink@trace-labs.com.

Sincerely,

Jon Mink
Senior Project Manager
Enclosures

ACCREDITED IN ACCORDANCE WITH nelac

NJDEP Accreditation No. MI008

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SAMPLE SUMMARY

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID	Sample ID	Matrix	Collected By	Date Collected	Date Received
T16E480-01	SW-D-7	Surface Water	sp	05/26/16 08:50	05/27/16 10:22
T16E480-02	SW-D-7 (F)	Surface Water	sp	05/26/16 08:50	05/27/16 10:22
T16E480-03	SW-RR-TI-RB	Surface Water	sp	05/26/16 10:00	05/27/16 10:22
T16E480-04	SW-RR-TI-RB (F)	Surface Water	sp	05/26/16 10:00	05/27/16 10:22
T16E480-05	SW-RR-TI-RMC	Surface Water	sp	05/26/16 10:15	05/27/16 10:22
T16E480-06	SW-RR-TI-RMC (F)	Surface Water	sp	05/26/16 10:15	05/27/16 10:22
T16E480-07	SW-RR-TI-LMC	Surface Water	sp	05/26/16 10:35	05/27/16 10:22
T16E480-08	SW-RR-TI-LMC (F)	Surface Water	sp	05/26/16 10:35	05/27/16 10:22
T16E480-09	SW-RR-TI-LB	Surface Water	sp	05/26/16 10:45	05/27/16 10:22
T16E480-10	SW-RR-TI-LB (F)	Surface Water	sp	05/26/16 10:45	05/27/16 10:22
T16E480-11	SW-RR-TH-RB	Surface Water	sp	05/26/16 11:20	05/27/16 10:22
T16E480-12	SW-RR-TH-RB (F)	Surface Water	sp	05/26/16 11:20	05/27/16 10:22
T16E480-13	SW-RR-TH-RMC	Surface Water	sp	05/26/16 11:32	05/27/16 10:22
T16E480-14	SW-RR-TH-RMC (F)	Surface Water	sp	05/26/16 11:32	05/27/16 10:22
T16E480-15	SW-RR-TH-LMC	Surface Water	sp	05/26/16 11:50	05/27/16 10:22
T16E480-16	SW-RR-TH-LMC (F)	Surface Water	sp	05/26/16 11:50	05/27/16 10:22
T16E480-17	SW-RR-TH-LB	Surface Water	sp	05/26/16 12:10	05/27/16 10:22
T16E480-18	SW-RR-TH-LB (F)	Surface Water	sp	05/26/16 12:10	05/27/16 10:22
T16E480-19	SW-RR-TH-LB (DUP)	Surface Water	sp	05/26/16 12:10	05/27/16 10:22
T16E480-20	SW-RR-TH-LB (DUP) (F)	Surface Water	sp	05/26/16 12:10	05/27/16 10:22
T16E480-21	SED-RR-TI-RB (0.0-0.5)	Sediment	sp	05/26/16 10:05	05/27/16 10:22
T16E480-22	SED-RR-TI-RMC (0.0-0.5)	Sediment	sp	05/26/16 10:25	05/27/16 10:22
T16E480-23	SED-RR-TI-LMC (0.0-0.5)	Sediment	sp	05/26/16 10:40	05/27/16 10:22
T16E480-24	SED-RR-TI-LB (0.0-0.5)	Sediment	sp	05/26/16 10:50	05/27/16 10:22
T16E480-25	SED-RR-TH-RB (0.0-0.5)	Sediment	sp	05/26/16 11:25	05/27/16 10:22
T16E480-26	SED-RR-TH-RMC (0.0-0.5)	Sediment	sp	05/26/16 11:38	05/27/16 10:22
T16E480-27	SED-RR-TH-LMC (0.0-0.5)	Sediment	sp	05/26/16 11:55	05/27/16 10:22
T16E480-28	SED-RR-TH-LB (0.0-0.5)	Sediment	sp	05/26/16 12:15	05/27/16 10:22
T16E480-29	SED-RR-TH-LB (0.0-0.5) (DUP)	Sediment	sp	05/26/16 12:15	05/27/16 10:22
T16E480-30	SED-D-1 (0.0-0.5)	Sediment	sp	05/26/16 15:10	05/27/16 10:22
T16E480-31	SED-D-2 (0.0-0.5)	Sediment	sp	05/26/16 15:30	05/27/16 10:22
T16E480-32	SED-D-2 (0.5-1.0)	Sediment	sp	05/26/16 15:35	05/27/16 10:22
T16E480-33	SED-D-4 (0.0-0.5)	Sediment	sp	05/26/16 15:50	05/27/16 10:22
T16E480-34	SED-D-4 (0.5-1.0)	Sediment	sp	05/26/16 15:55	05/27/16 10:22
T16E480-35	SED-D-3 (0.0-0.5)	Sediment	sp	05/26/16 16:30	05/27/16 10:22
T16E480-36	SED-D-7 (0.0-0.5)	Sediment	sp	05/26/16 16:50	05/27/16 10:22
T16E480-37	SED-D-7 (0.5-1.0)	Sediment	sp	05/26/16 16:55	05/27/16 10:22

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T16E480-38	SED-D-5 (0.0-0.5)	Sediment	sp	05/26/16 17:45	05/27/16 10:22
T16E480-39	PW-R-6	Pore Water	sp	05/25/16 12:35	05/27/16 10:22
T16E480-40	PW-R-6 (F)	Pore Water	sp	05/25/16 12:35	05/27/16 10:22
T16E480-41	PW-R-2	Pore Water	sp	05/26/16 11:00	05/27/16 10:22
T16E480-42	PW-R-2 (F)	Pore Water	sp	05/26/16 11:00	05/27/16 10:22
T16E480-43	PW-R-8	Pore Water	sp	05/26/16 14:53	05/27/16 10:22
T16E480-44	PW-R-8 (F)	Pore Water	sp	05/26/16 14:53	05/27/16 10:22
T16E480-45	PW-R-11	Pore Water	sp	05/26/16 16:00	05/27/16 10:22
T16E480-46	PW-R-11 (F)	Pore Water	sp	05/26/16 16:00	05/27/16 10:22
T16E480-47	PW-R-10	Pore Water	sp	05/26/16 16:50	05/27/16 10:22
T16E480-48	PW-R-10 (F)	Pore Water	sp	05/26/16 16:50	05/27/16 10:22

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AN EXPLANATION OF TERMS AND SYMBOLS WHICH MAY OCCUR IN THIS REPORT

DEFINITIONS

LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
DUP	Matrix Duplicate
RDL	Reporting Detection Limit
MCL	Maximum Contamination Limit
TIC	Tentatively Identified Compound
<, ND or U	Indicates the compound was analyzed for but not detected
*	Indicates a result that exceeds its associated MCL or Surrogate control limits
N	Indicates that the compound has not been evaluated by NELAC
NA	Indicates that the compound is not available.

NOTE: Samples for volatiles that have been extracted with a water miscible solvent were corrected for the total volume of the solvent/water mixture.

DATA QUALIFIERS

Trace ID: T061514-BLK1

Analysis: EPA 8270C

2-Fluorobiphenyl	Note 320.7 : The surrogate was out of control low when compared to the control limits. This is deemed an isolated incident and not related to the batch as a whole.
Nitrobenzene-d5	Note 320.7 : The surrogate was out of control low when compared to the control limits. This is deemed an isolated incident and not related to the batch as a whole.
Terphenyl-d14	Note 320.7 : The surrogate was out of control low when compared to the control limits. This is deemed an isolated incident and not related to the batch as a whole.

Trace ID: T16E480-32

Analysis: EPA 8270C

2-Fluorobiphenyl	Note 302 : A dilution of 1:10 or greater was required on this sample. Consequently, surrogate recoveries are not available.
Nitrobenzene-d5	Note 302 : A dilution of 1:10 or greater was required on this sample. Consequently, surrogate recoveries are not available.
Terphenyl-d14	Note 302 : A dilution of 1:10 or greater was required on this sample. Consequently, surrogate recoveries are not available.

Trace ID: T16E480-33

Analysis: EPA 8270C

Nitrobenzene-d5	Note 802 : One of the base/neutral surrogate recoveries was outside the control limits. Since the other two base/neutral surrogates were within the control limits, no data require qualification.

Trace ID: T16E480-34

Analysis: EPA 8270C

2-Fluorobiphenyl	Note 302 : A dilution of 1:10 or greater was required on this sample. Consequently, surrogate recoveries are not available.

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Nitrobenzene-d5	Note 302 : A dilution of 1:10 or greater was required on this sample. Consequently, surrogate recoveries are not available.
Terphenyl-d14	Note 302 : A dilution of 1:10 or greater was required on this sample. Consequently, surrogate recoveries are not available.

Trace ID: T16E480-35

Analysis: EPA 8270C

2-Fluorobiphenyl	Note 802 : One of the base/neutral surrogate recoveries was outside the control limits. Since the other two base/neutral surrogates were within the control limits, no data require qualification.

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-01 | Date Collected: 05/26/16 08:50 | Matrix: Surface Water
Sample ID: SW-D-7 | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061913										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/02/16	kbc	06/02/16	avl		
Surrogates:										
Nitrobenzene-d5	56	%	36-103	1	06/02/16	kbc	06/02/16	avl		
2-Fluorobiphenyl	58	%	36-119	1	06/02/16	kbc	06/02/16	avl		
Terphenyl-d14	66	%	37-109	1	06/02/16	kbc	06/02/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-02 | Date Collected: 05/26/16 08:50 | Matrix: Surface Water
Sample ID: SW-D-7 (F) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061913										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/02/16	kbc	06/02/16	avl		
Surrogates:										
Nitrobenzene-d5	69	%	36-103	1	06/02/16	kbc	06/02/16	avl		
2-Fluorobiphenyl	69	%	36-119	1	06/02/16	kbc	06/02/16	avl		
Terphenyl-d14	76	%	37-109	1	06/02/16	kbc	06/02/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-03 | Date Collected: 05/26/16 10:00 | Matrix: Surface Water
Sample ID: SW-RR-TI-RB | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061913										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/02/16	kbc	06/02/16	avl		
Surrogates:										
Nitrobenzene-d5	72	%	36-103	1	06/02/16	kbc	06/02/16	avl		
2-Fluorobiphenyl	71	%	36-119	1	06/02/16	kbc	06/02/16	avl		
Terphenyl-d14	76	%	37-109	1	06/02/16	kbc	06/02/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-04 | Date Collected: 05/26/16 10:00 | Matrix: Surface Water
Sample ID: SW-RR-TI-RB (F) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061913										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/02/16	kbc	06/02/16	avl		
Surrogates:										
Nitrobenzene-d5	67	%	36-103	1	06/02/16	kbc	06/02/16	avl		
2-Fluorobiphenyl	65	%	36-119	1	06/02/16	kbc	06/02/16	avl		
Terphenyl-d14	69	%	37-109	1	06/02/16	kbc	06/02/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-05 | Date Collected: 05/26/16 10:15 | Matrix: Surface Water
Sample ID: SW-RR-TI-RMC | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061913										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/02/16	kbc	06/02/16	avl		
Surrogates:										
Nitrobenzene-d5	55	%	36-103	1	06/02/16	kbc	06/02/16	avl		
2-Fluorobiphenyl	56	%	36-119	1	06/02/16	kbc	06/02/16	avl		
Terphenyl-d14	67	%	37-109	1	06/02/16	kbc	06/02/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-06 | Date Collected: 05/26/16 10:15 | Matrix: Surface Water
Sample ID: SW-RR-TI-RMC (F) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061913										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/02/16	kbc	06/02/16	avl		
Surrogates:										
Nitrobenzene-d5	44	%	36-103	1	06/02/16	kbc	06/02/16	avl		
2-Fluorobiphenyl	44	%	36-119	1	06/02/16	kbc	06/02/16	avl		
Terphenyl-d14	46	%	37-109	1	06/02/16	kbc	06/02/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-07 | Date Collected: 05/26/16 10:35 | Matrix: Surface Water
Sample ID: SW-RR-TI-LMC | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061913										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/02/16	kbc	06/03/16	avl		
Surrogates:										
Nitrobenzene-d5	66	%	36-103	1	06/02/16	kbc	06/03/16	avl		
2-Fluorobiphenyl	68	%	36-119	1	06/02/16	kbc	06/03/16	avl		
Terphenyl-d14	72	%	37-109	1	06/02/16	kbc	06/03/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-08 | Date Collected: 05/26/16 10:35 | Matrix: Surface Water
Sample ID: SW-RR-TI-LMC (F) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061913										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/02/16	kbc	06/03/16	avl		
Surrogates:										
Nitrobenzene-d5	63	%	36-103	1	06/02/16	kbc	06/03/16	avl		
2-Fluorobiphenyl	62	%	36-119	1	06/02/16	kbc	06/03/16	avl		
Terphenyl-d14	70	%	37-109	1	06/02/16	kbc	06/03/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-09 | Date Collected: 05/26/16 10:45 | Matrix: Surface Water
Sample ID: SW-RR-TI-LB | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061913										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/02/16	kbc	06/03/16	avl		
Surrogates:										
Nitrobenzene-d5	57	%	36-103	1	06/02/16	kbc	06/03/16	avl		
2-Fluorobiphenyl	59	%	36-119	1	06/02/16	kbc	06/03/16	avl		
Terphenyl-d14	68	%	37-109	1	06/02/16	kbc	06/03/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-10 | Date Collected: 05/26/16 10:45 | Matrix: Surface Water
Sample ID: SW-RR-TI-LB (F) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061913										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/02/16	kbc	06/03/16	avl		
Surrogates:										
Nitrobenzene-d5	60	%	36-103	1	06/02/16	kbc	06/03/16	avl		
2-Fluorobiphenyl	70	%	36-119	1	06/02/16	kbc	06/03/16	avl		
Terphenyl-d14	65	%	37-109	1	06/02/16	kbc	06/03/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-11 | Date Collected: 05/26/16 11:20 | Matrix: Surface Water
Sample ID: SW-RR-TH-RB | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061913										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/02/16	kbc	06/03/16	avl		
Surrogates:										
Nitrobenzene-d5	61	%	36-103	1	06/02/16	kbc	06/03/16	avl		
2-Fluorobiphenyl	67	%	36-119	1	06/02/16	kbc	06/03/16	avl		
Terphenyl-d14	62	%	37-109	1	06/02/16	kbc	06/03/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-12 | Date Collected: 05/26/16 11:20 | Matrix: Surface Water
Sample ID: SW-RR-TH-RB (F) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061913										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/02/16	kbc	06/03/16	avl		
Surrogates:										
Nitrobenzene-d5	67	%	36-103	1	06/02/16	kbc	06/03/16	avl		
2-Fluorobiphenyl	71	%	36-119	1	06/02/16	kbc	06/03/16	avl		
Terphenyl-d14	70	%	37-109	1	06/02/16	kbc	06/03/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-13 | Date Collected: 05/26/16 11:32 | Matrix: Surface Water
Sample ID: SW-RR-TH-RMC | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061913										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/02/16	kbc	06/03/16	avl		
Surrogates:										
Nitrobenzene-d5	73	%	36-103	1	06/02/16	kbc	06/03/16	avl		
2-Fluorobiphenyl	73	%	36-119	1	06/02/16	kbc	06/03/16	avl		
Terphenyl-d14	68	%	37-109	1	06/02/16	kbc	06/03/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-14 | Date Collected: 05/26/16 11:32 | Matrix: Surface Water
Sample ID: SW-RR-TH-RMC (F) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061913										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/02/16	kbc	06/03/16	avl		
Surrogates:										
Nitrobenzene-d5	63	%	36-103	1	06/02/16	kbc	06/03/16	avl		
2-Fluorobiphenyl	69	%	36-119	1	06/02/16	kbc	06/03/16	avl		
Terphenyl-d14	63	%	37-109	1	06/02/16	kbc	06/03/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-15 | Date Collected: 05/26/16 11:50 | Matrix: Surface Water
Sample ID: SW-RR-TH-LMC | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061913										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/02/16	kbc	06/03/16	avl		
Surrogates:										
Nitrobenzene-d5	66	%	36-103	1	06/02/16	kbc	06/03/16	avl		
2-Fluorobiphenyl	70	%	36-119	1	06/02/16	kbc	06/03/16	avl		
Terphenyl-d14	71	%	37-109	1	06/02/16	kbc	06/03/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-16 | Date Collected: 05/26/16 11:50 | Matrix: Surface Water
Sample ID: SW-RR-TH-LMC (F) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061913										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/02/16	kbc	06/03/16	avl		
Surrogates:										
Nitrobenzene-d5	77	%	36-103	1	06/02/16	kbc	06/03/16	avl		
2-Fluorobiphenyl	82	%	36-119	1	06/02/16	kbc	06/03/16	avl		
Terphenyl-d14	75	%	37-109	1	06/02/16	kbc	06/03/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-17 | Date Collected: 05/26/16 12:10 | Matrix: Surface Water
Sample ID: SW-RR-TH-LB | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061913										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/02/16	kbc	06/03/16	avl		
Surrogates:										
Nitrobenzene-d5	54	%	36-103	1	06/02/16	kbc	06/03/16	avl		
2-Fluorobiphenyl	57	%	36-119	1	06/02/16	kbc	06/03/16	avl		
Terphenyl-d14	56	%	37-109	1	06/02/16	kbc	06/03/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-18 | Date Collected: 05/26/16 12:10 | Matrix: Surface Water
Sample ID: SW-RR-TH-LB (F) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061913										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/02/16	kbc	06/03/16	avl		
Surrogates:										
Nitrobenzene-d5	71	%	36-103	1	06/02/16	kbc	06/03/16	avl		
2-Fluorobiphenyl	68	%	36-119	1	06/02/16	kbc	06/03/16	avl		
Terphenyl-d14	70	%	37-109	1	06/02/16	kbc	06/03/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-19 | Date Collected: 05/26/16 12:10 | Matrix: Surface Water
Sample ID: SW-RR-TH-LB (DUP) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061913										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/02/16	kbc	06/03/16	avl		
Surrogates:										
Nitrobenzene-d5	67	%	36-103	1	06/02/16	kbc	06/03/16	avl		
2-Fluorobiphenyl	68	%	36-119	1	06/02/16	kbc	06/03/16	avl		
Terphenyl-d14	75	%	37-109	1	06/02/16	kbc	06/03/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-20 | Date Collected: 05/26/16 12:10 | Matrix: Surface Water
Sample ID: SW-RR-TH-LB (DUP) (F) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061913										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/02/16	kbc	06/03/16	avl		
Surrogates:										
Nitrobenzene-d5	61	%	36-103	1	06/02/16	kbc	06/03/16	avl		
2-Fluorobiphenyl	67	%	36-119	1	06/02/16	kbc	06/03/16	avl		
Terphenyl-d14	71	%	37-109	1	06/02/16	kbc	06/03/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-21 | Date Collected: 05/26/16 10:05 | Matrix: Sediment
Sample ID: SED-RR-TI-RB (0.0-0.5) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061974										
Bis(2-ethylhexyl)phthalate	<330	ug/kg dry	330	1	06/06/16	kbc	06/06/16	avl		
Surrogates:										
Nitrobenzene-d5	64	%	36-98	1	06/06/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	49	%	44-105	1	06/06/16	kbc	06/06/16	avl		
Terphenyl-d14	51	%	46-109	1	06/06/16	kbc	06/06/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2- 73587										
Batch: T061370										
% Solids	**46**	**% by Wt.**	**0.10**	**1**	**05/31/16**	**ef**	**05/31/16**	**ef**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-22 | Date Collected: 05/26/16 10:25 | Matrix: Sediment
Sample ID: SED-RR-TI-RMC (0.0-0.5) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061974										
Bis(2-ethylhexyl)phthalate	<330	ug/kg dry	330	1	06/06/16	kbc	06/06/16	avl		
Surrogates:										
Nitrobenzene-d5	65	%	36-98	1	06/06/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	56	%	44-105	1	06/06/16	kbc	06/06/16	avl		
Terphenyl-d14	60	%	46-109	1	06/06/16	kbc	06/06/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2- 73587										
Batch: T061370										
% Solids	**86**	**% by Wt.**	**0.10**	**1**	**05/31/16**	**ef**	**05/31/16**	**ef**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-23 | Date Collected: 05/26/16 10:40 | Matrix: Sediment
Sample ID: SED-RR-TI-LMC (0.0-0.5) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061603										
Bis(2-ethylhexyl)phthalate	**580**	**ug/kg dry**	**330**	**1**	**06/07/16**	**kbc**	**06/07/16**	**avl**		
Surrogates:										
Nitrobenzene-d5	66	%	36-98	1	06/07/16	kbc	06/07/16	avl		
2-Fluorobiphenyl	65	%	44-105	1	06/07/16	kbc	06/07/16	avl		
Terphenyl-d14	78	%	46-109	1	06/07/16	kbc	06/07/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2- 73587										
Batch: T061998										
% Solids	**84**	**% by Wt.**	**0.10**	**1**	**06/03/16**	**ef**	**06/03/16**	**ef/nw**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-24 | Date Collected: 05/26/16 10:50 | Matrix: Sediment
Sample ID: SED-RR-TI-LB (0.0-0.5) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061603										
Bis(2-ethylhexyl)phthalate	**920**	**ug/kg dry**	**330**	**1**	**06/07/16**	**kbc**	**06/07/16**	**avl**		
Surrogates:										
Nitrobenzene-d5	70	%	36-98	1	06/07/16	kbc	06/07/16	avl		
2-Fluorobiphenyl	61	%	44-105	1	06/07/16	kbc	06/07/16	avl		
Terphenyl-d14	80	%	46-109	1	06/07/16	kbc	06/07/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2- 73587										
Batch: T061998										
% Solids	**57**	**% by Wt.**	**0.10**	**1**	**06/03/16**	**ef**	**06/03/16**	**ef/nw**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-25 | Date Collected: 05/26/16 11:25 | Matrix: Sediment
Sample ID: SED-RR-TH-RB (0.0-0.5) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061603										
Bis(2-ethylhexyl)phthalate	<330	ug/kg dry	330	1	06/07/16	kbc	06/07/16	avl		
Surrogates:										
Nitrobenzene-d5	67	%	36-98	1	06/07/16	kbc	06/07/16	avl		
2-Fluorobiphenyl	60	%	44-105	1	06/07/16	kbc	06/07/16	avl		
Terphenyl-d14	66	%	46-109	1	06/07/16	kbc	06/07/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2- 73587										
Batch: T061998										
% Solids	**70**	**% by Wt.**	**0.10**	**1**	**06/03/16**	**ef**	**06/03/16**	**ef/nw**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-26 | Date Collected: 05/26/16 11:38 | Matrix: Sediment
Sample ID: SED-RR-TH-RMC (0.0-0.5) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061603										
Bis(2-ethylhexyl)phthalate	<330	ug/kg dry	330	1	06/07/16	kbc	06/07/16	avl		
Surrogates:										
Nitrobenzene-d5	66	%	36-98	1	06/07/16	kbc	06/07/16	avl		
2-Fluorobiphenyl	64	%	44-105	1	06/07/16	kbc	06/07/16	avl		
Terphenyl-d14	81	%	46-109	1	06/07/16	kbc	06/07/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2- 73587										
Batch: T061998										
% Solids	**79**	**% by Wt.**	**0.10**	**1**	**06/03/16**	**ef**	**06/03/16**	**ef/nw**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-27 | Date Collected: 05/26/16 11:55 | Matrix: Sediment
Sample ID: SED-RR-TH-LMC (0.0-0.5) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061603										
Bis(2-ethylhexyl)phthalate	<330	ug/kg dry	330	1	06/07/16	kbc	06/07/16	avl		
Surrogates:										
Nitrobenzene-d5	66	%	36-98	1	06/07/16	kbc	06/07/16	avl		
2-Fluorobiphenyl	61	%	44-105	1	06/07/16	kbc	06/07/16	avl		
Terphenyl-d14	77	%	46-109	1	06/07/16	kbc	06/07/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2- 73587										
Batch: T061998										
% Solids	**75**	**% by Wt.**	**0.10**	**1**	**06/03/16**	**ef**	**06/03/16**	**ef/nw**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-28 | Date Collected: 05/26/16 12:15 | Matrix: Sediment
Sample ID: SED-RR-TH-LB (0.0-0.5) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061603										
Bis(2-ethylhexyl)phthalate	**390**	**ug/kg dry**	**330**	**1**	**06/07/16**	**kbc**	**06/07/16**	**avl**		
Surrogates:										
Nitrobenzene-d5	64	%	36-98	1	06/07/16	kbc	06/07/16	avl		
2-Fluorobiphenyl	61	%	44-105	1	06/07/16	kbc	06/07/16	avl		
Terphenyl-d14	82	%	46-109	1	06/07/16	kbc	06/07/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2- 73587										
Batch: T061998										
% Solids	**66**	**% by Wt.**	**0.10**	**1**	**06/03/16**	**ef**	**06/03/16**	**ef/nw**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-29 | Date Collected: 05/26/16 12:15 | Matrix: Sediment
Sample ID: SED-RR-TH-LB (0.0-0.5) (DUP) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061603										
Bis(2-ethylhexyl)phthalate	**2000**	**ug/kg dry**	**330**	**1**	**06/07/16**	**kbc**	**06/07/16**	**avl**		
Surrogates:										
Nitrobenzene-d5	57	%	36-98	1	06/07/16	kbc	06/07/16	avl		
2-Fluorobiphenyl	54	%	44-105	1	06/07/16	kbc	06/07/16	avl		
Terphenyl-d14	67	%	46-109	1	06/07/16	kbc	06/07/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2- 73587										
Batch: T061998										
% Solids	**76**	**% by Wt.**	**0.10**	**1**	**06/03/16**	**ef**	**06/03/16**	**ef/nw**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-30 | Date Collected: 05/26/16 15:10 | Matrix: Sediment
Sample ID: SED-D-1 (0.0-0.5) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061603										
Bis(2-ethylhexyl)phthalate	**6400**	**ug/kg dry**	**330**	**1**	**06/07/16**	**kbc**	**06/07/16**	**avl**		
Surrogates:										
Nitrobenzene-d5	58	%	36-98	1	06/07/16	kbc	06/07/16	avl		
2-Fluorobiphenyl	49	%	44-105	1	06/07/16	kbc	06/07/16	avl		
Terphenyl-d14	56	%	46-109	1	06/07/16	kbc	06/07/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2- 73587										
Batch: T061998										
% Solids	**25**	**% by Wt.**	**0.10**	**1**	**06/03/16**	**ef**	**06/03/16**	**ef/nw**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-31 | Date Collected: 05/26/16 15:30 | Matrix: Sediment
Sample ID: SED-D-2 (0.0-0.5) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061603										
Bis(2-ethylhexyl)phthalate	**23000**	**ug/kg dry**	**1500**	**5**	**06/07/16**	**kbc**	**06/08/16**	**avl**		
Surrogates:										
Nitrobenzene-d5	52	%	36-98	5	06/07/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	51	%	44-105	5	06/07/16	kbc	06/08/16	avl		
Terphenyl-d14	59	%	46-109	5	06/07/16	kbc	06/08/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2- 73587										
Batch: T061998										
% Solids	**28**	**% by Wt.**	**0.10**	**1**	**06/03/16**	**ef**	**06/03/16**	**ef/nw**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-32 | Date Collected: 05/26/16 15:35 | Matrix: Sediment
Sample ID: SED-D-2 (0.5-1.0) | Date Received: 05/27/16 10:22

PARAMETERS		RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Analysis Method: EPA 8270C											
Batch: T061603											
Bis(2-ethylhexyl)phthalate		**410000**	**ug/kg dry**	**17000**	**100**	**06/07/16**	**kbc**	**06/08/16**	**avl**		
Surrogates:											
Nitrobenzene-d5	*		%	36-98	100	06/07/16	kbc	06/08/16	avl	302	
2-Fluorobiphenyl	*		%	44-105	100	06/07/16	kbc	06/08/16	avl	302	
Terphenyl-d14	*		%	46-109	100	06/07/16	kbc	06/08/16	avl	302	
WET CHEMISTRY											
Analysis Method: ASTM D2- 73587											
Batch: T061998											
% Solids		**49**	**% by Wt.**	**0.10**	**1**	**06/03/16**	**ef**	**06/03/16**	**ef/nw**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-33 | Date Collected: 05/26/16 15:50 | Matrix: Sediment
Sample ID: SED-D-4 (0.0-0.5) | Date Received: 05/27/16 10:22

PARAMETERS		RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Analysis Method: EPA 8270C											
Batch: T061603											
Bis(2-ethylhexyl)phthalate		**19000**	**ug/kg dry**	**1700**	**10**	**06/07/16**	**kbc**	**06/08/16**	**avl**		
Surrogates:											
Nitrobenzene-d5	*		%	36-98	10	06/07/16	kbc	06/08/16	avl	802	
2-Fluorobiphenyl		52	%	44-105	10	06/07/16	kbc	06/08/16	avl		
Terphenyl-d14		57	%	46-109	10	06/07/16	kbc	06/08/16	avl		
WET CHEMISTRY											
Analysis Method: ASTM D2- 73587											
Batch: T061998											
% Solids		**49**	**% by Wt.**	**0.10**	**1**	**06/03/16**	**ef**	**06/03/16**	**ef/nw**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-34 | Date Collected: 05/26/16 15:55 | Matrix: Sediment
Sample ID: SED-D-4 (0.5-1.0) | Date Received: 05/27/16 10:22

PARAMETERS		RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Analysis Method: EPA 8270C											
Batch: T061603											
Bis(2-ethylhexyl)phthalate		**380000**	**ug/kg dry**	**16000**	**100**	**06/07/16**	**kbc**	**06/08/16**	**avl**		
Surrogates:											
Nitrobenzene-d5	*		%	36-98	100	06/07/16	kbc	06/08/16	avl	302	
2-Fluorobiphenyl	*		%	44-105	100	06/07/16	kbc	06/08/16	avl	302	
Terphenyl-d14	*		%	46-109	100	06/07/16	kbc	06/08/16	avl	302	
WET CHEMISTRY											
Analysis Method: ASTM D2- 73587											
Batch: T061998											
% Solids		**52**	**% by Wt.**	**0.10**	**1**	**06/03/16**	**ef**	**06/03/16**	**ef/nw**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-35 | Date Collected: 05/26/16 16:30 | Matrix: Sediment
Sample ID: SED-D-3 (0.0-0.5) | Date Received: 05/27/16 10:22

PARAMETERS		RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS											
Analysis Method: EPA 8270C											
Batch: T061603											
Bis(2-ethylhexyl)phthalate		**1700**	**ug/kg dry**	**330**	**1**	**06/07/16**	**kbc**	**06/07/16**	**avl**		
Surrogates:											
Nitrobenzene-d5		49	%	36-98	1	06/07/16	kbc	06/07/16	avl		
2-Fluorobiphenyl	*	**39**	%	44-105	1	06/07/16	kbc	06/07/16	avl	802	
Terphenyl-d14		51	%	46-109	1	06/07/16	kbc	06/07/16	avl		
WET CHEMISTRY											
Analysis Method: ASTM D2- 73587											
Batch: T061998											
% Solids		**54**	**% by Wt.**	**0.10**	**1**	**06/03/16**	**ef**	**06/03/16**	**ef/nw**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-36 | Date Collected: 05/26/16 16:50 | Matrix: Sediment
Sample ID: SED-D-7 (0.0-0.5) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061603										
Bis(2-ethylhexyl)phthalate	**16000**	**ug/kg dry**	**600**	**5**	**06/07/16**	**kbc**	**06/08/16**	**avl**		
Surrogates:										
Nitrobenzene-d5	70	%	36-98	5	06/07/16	kbc	06/08/16	avl		
2-Fluorobiphenyl	70	%	44-105	5	06/07/16	kbc	06/08/16	avl		
Terphenyl-d14	71	%	46-109	5	06/07/16	kbc	06/08/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2- 73587										
Batch: T061998										
% Solids	**69**	**% by Wt.**	**0.10**	**1**	**06/03/16**	**ef**	**06/03/16**	**ef/nw**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-37 | Date Collected: 05/26/16 16:55 | Matrix: Sediment
Sample ID: SED-D-7 (0.5-1.0) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061603										
Bis(2-ethylhexyl)phthalate	<330	ug/kg dry	330	1	06/07/16	kbc	06/07/16	avl		
Surrogates:										
Nitrobenzene-d5	50	%	36-98	1	06/07/16	kbc	06/07/16	avl		
2-Fluorobiphenyl	48	%	44-105	1	06/07/16	kbc	06/07/16	avl		
Terphenyl-d14	60	%	46-109	1	06/07/16	kbc	06/07/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2- 73587										
Batch: T061998										
% Solids	**76**	**% by Wt.**	**0.10**	**1**	**06/03/16**	**ef**	**06/03/16**	**ef/nw**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-38 | Date Collected: 05/26/16 17:45 | Matrix: Sediment
Sample ID: SED-D-5 (0.0-0.5) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061603										
Bis(2-ethylhexyl)phthalate	**17000**	**ug/kg dry**	**540**	**1**	**06/07/16**	**kbc**	**06/07/16**	**avl**		
Surrogates:										
Nitrobenzene-d5	60	%	36-98	1	06/07/16	kbc	06/07/16	avl		
2-Fluorobiphenyl	65	%	44-105	1	06/07/16	kbc	06/07/16	avl		
Terphenyl-d14	79	%	46-109	1	06/07/16	kbc	06/07/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2- 73587										
Batch: T061998										
% Solids	**15**	**% by Wt.**	**0.10**	**1**	**06/03/16**	**ef**	**06/03/16**	**ef/nw**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-39 | Date Collected: 05/25/16 12:35 | Matrix: Pore Water
Sample ID: PW-R-6 | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061381										
Bis(2-ethylhexyl)phthalate	**5.8**	**ug/L**	**1.0**	**1**	**06/01/16**	**kbc**	**06/02/16**	**avl**		
Surrogates:										
Nitrobenzene-d5	75	%	36-103	1	06/01/16	kbc	06/02/16	avl		
2-Fluorobiphenyl	76	%	36-119	1	06/01/16	kbc	06/02/16	avl		
Terphenyl-d14	79	%	37-109	1	06/01/16	kbc	06/02/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-40 | Date Collected: 05/25/16 12:35 | Matrix: Pore Water
Sample ID: PW-R-6 (F) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061381										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/02/16	avl		
Surrogates:										
Nitrobenzene-d5	60	%	36-103	1	06/01/16	kbc	06/02/16	avl		
2-Fluorobiphenyl	63	%	36-119	1	06/01/16	kbc	06/02/16	avl		
Terphenyl-d14	75	%	37-109	1	06/01/16	kbc	06/02/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-41 | Date Collected: 05/26/16 11:00 | Matrix: Pore Water
Sample ID: PW-R-2 | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061919										
Bis(2-ethylhexyl)phthalate	**1.2**	**ug/L**	**1.0**	**1**	**06/02/16**	**kbc**	**06/03/16**	**avl**		
Surrogates:										
Nitrobenzene-d5	50	%	36-103	1	06/02/16	kbc	06/03/16	avl		
2-Fluorobiphenyl	56	%	36-119	1	06/02/16	kbc	06/03/16	avl		
Terphenyl-d14	50	%	37-109	1	06/02/16	kbc	06/03/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-42 | Date Collected: 05/26/16 11:00 | Matrix: Pore Water
Sample ID: PW-R-2 (F) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061919										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/02/16	kbc	06/03/16	avl		
Surrogates:										
Nitrobenzene-d5	60	%	36-103	1	06/02/16	kbc	06/03/16	avl		
2-Fluorobiphenyl	69	%	36-119	1	06/02/16	kbc	06/03/16	avl		
Terphenyl-d14	70	%	37-109	1	06/02/16	kbc	06/03/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-43 | Date Collected: 05/26/16 14:53 | Matrix: Pore Water
Sample ID: PW-R-8 | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061919										
Bis(2-ethylhexyl)phthalate	**400**	**ug/L**	**4.8**	**5**	**06/02/16**	**kbc**	**06/06/16**	**avl**		
Surrogates:										
Nitrobenzene-d5	58	%	36-103	5	06/02/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	71	%	36-119	5	06/02/16	kbc	06/06/16	avl		
Terphenyl-d14	80	%	37-109	5	06/02/16	kbc	06/06/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-44 | Date Collected: 05/26/16 14:53 | Matrix: Pore Water
Sample ID: PW-R-8 (F) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061919										
Bis(2-ethylhexyl)phthalate	**2.8**	**ug/L**	**1.0**	**1**	**06/02/16**	**kbc**	**06/03/16**	**avl**		
Surrogates:										
Nitrobenzene-d5	51	%	36-103	1	06/02/16	kbc	06/03/16	avl		
2-Fluorobiphenyl	54	%	36-119	1	06/02/16	kbc	06/03/16	avl		
Terphenyl-d14	63	%	37-109	1	06/02/16	kbc	06/03/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-45 | Date Collected: 05/26/16 16:00 | Matrix: Pore Water
Sample ID: PW-R-11 | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061919										
Bis(2-ethylhexyl)phthalate	**1.2**	**ug/L**	**1.0**	**1**	**06/02/16**	**kbc**	**06/03/16**	**avl**		
Surrogates:										
Nitrobenzene-d5	65	%	36-103	1	06/02/16	kbc	06/03/16	avl		
2-Fluorobiphenyl	71	%	36-119	1	06/02/16	kbc	06/03/16	avl		
Terphenyl-d14	72	%	37-109	1	06/02/16	kbc	06/03/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-46 | Date Collected: 05/26/16 16:00 | Matrix: Pore Water
Sample ID: PW-R-11 (F) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061919										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/02/16	kbc	06/03/16	avl		
Surrogates:										
Nitrobenzene-d5	39	%	36-103	1	06/02/16	kbc	06/03/16	avl		
2-Fluorobiphenyl	41	%	36-119	1	06/02/16	kbc	06/03/16	avl		
Terphenyl-d14	48	%	37-109	1	06/02/16	kbc	06/03/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-47 | Date Collected: 05/26/16 16:50 | Matrix: Pore Water
Sample ID: PW-R-10 | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061919										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/02/16	kbc	06/03/16	avl		
Surrogates:										
Nitrobenzene-d5	51	%	36-103	1	06/02/16	kbc	06/03/16	avl		
2-Fluorobiphenyl	58	%	36-119	1	06/02/16	kbc	06/03/16	avl		
Terphenyl-d14	57	%	37-109	1	06/02/16	kbc	06/03/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID: T16E480-48 | Date Collected: 05/26/16 16:50 | Matrix: Pore Water
Sample ID: PW-R-10 (F) | Date Received: 05/27/16 10:22

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS										
Analysis Method: EPA 8270C										
Batch: T061919										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/02/16	kbc	06/03/16	avl		
Surrogates:										
Nitrobenzene-d5	73	%	36-103	1	06/02/16	kbc	06/03/16	avl		
2-Fluorobiphenyl	71	%	36-119	1	06/02/16	kbc	06/03/16	avl		
Terphenyl-d14	76	%	37-109	1	06/02/16	kbc	06/03/16	avl		

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QUALITY CONTROL RESULTS

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

QC Batch: T061534
QC Batch Method: EPA 3510C Separatory Funnel Liquid-Liquid Extr.
Analysis Description: Filtration for Dissolved Analysis
Analysis Method: Dissolved Analysis

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

QC Batch: T061481
QC Batch Method: EPA 3510C Separatory Funnel Liquid-Liquid Extr.
Analysis Description: Semi-volatiles, Phthalates only
Analysis Method: EPA 8270C

METHOD BLANK: T061481-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Bis(2-ethylhexyl)phthalate	ug/L	<1.0	1.0	
Nitrobenzene-d5 (S)	%	74	36-103	
2-Fluorobiphenyl (S)	%	76	36-119	
Terphenyl-d14 (S)	%	73	37-109	

LABORATORY CONTROL SAMPLE: T061481-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Bis(2-ethylhexyl)phthalate	ug/L	100	91.0	91	57-107	
Nitrobenzene-d5 (S)	%	101	84.5	84	36-103	
2-Fluorobiphenyl (S)	%	101	86.6	86	36-119	
Terphenyl-d14 (S)	%	100	85.4	85	37-109	

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

QC Batch: T061514
QC Batch Method: EPA 3510C Separatory Funnel Liquid-Liquid Extr.
Analysis Description: Semi-volatiles, Phthalates only
Analysis Method: EPA 8270C

METHOD BLANK: T061514-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Bis(2-ethylhexyl)phthalate	ug/L	<1.0	1.0	
Nitrobenzene-d5 (S)	**%**	**6**	**36-103**	**320.7**
2-Fluorobiphenyl (S)	**%**	**7**	**36-119**	**320.7**
Terphenyl-d14 (S)	**%**	**8**	**37-109**	**320.7**

LABORATORY CONTROL SAMPLE: T061514-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Bis(2-ethylhexyl)phthalate	ug/L	100	80.6	81	57-107	
Nitrobenzene-d5 (S)	%	101	78.8	78	36-103	
2-Fluorobiphenyl (S)	%	101	74.6	74	36-119	

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LABORATORY CONTROL SAMPLE: T061514-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Terphenyl-d14 (S)	%	100	82.2	82	37-109	

Trace Project ID: T16E480

Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

QC Batch: T061515
QC Batch Method: EPA 3510C Separatory Funnel Liquid-Liquid Extr.
Analysis Description: Semi-volatiles, Phthalates only
Analysis Method: EPA 8270C

METHOD BLANK: T061515-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Bis(2-ethylhexyl)phthalate	ug/L	<1.0	1.0	
Nitrobenzene-d5 (S)	%	61	36-103	
2-Fluorobiphenyl (S)	%	68	36-119	
Terphenyl-d14 (S)	%	69	37-109	

LABORATORY CONTROL SAMPLE: T061515-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Bis(2-ethylhexyl)phthalate	ug/L	100	86.4	86	57-107	
Nitrobenzene-d5 (S)	%	101	76.5	76	36-103	
2-Fluorobiphenyl (S)	%	101	71.3	71	36-119	
Terphenyl-d14 (S)	%	100	80.8	81	37-109	

Trace Project ID: T16E480

Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

QC Batch: T061573
QC Batch Method: EPA 3550B Ultrasonic Extraction
Analysis Description: Semi-volatiles, Phthalates only
Analysis Method: EPA 8270C

METHOD BLANK: T061573-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Bis(2-ethylhexyl)phthalate	ug/kg wet	<330	330	
Nitrobenzene-d5 (S)	%	56	36-98	
2-Fluorobiphenyl (S)	%	56	44-105	
Terphenyl-d14 (S)	%	63	46-109	

LABORATORY CONTROL SAMPLE: T061573-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Bis(2-ethylhexyl)phthalate	ug/kg wet	3330	3060	92	49-121	
Nitrobenzene-d5 (S)	%	3360	2550	76	36-98	
2-Fluorobiphenyl (S)	%	3360	2510	75	44-105	
Terphenyl-d14 (S)	%	3330	2710	81	46-109	

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Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

QC Batch: T061604
QC Batch Method: EPA 3550B Ultrasonic Extraction
Analysis Description: Semi-volatiles, Phthalates only
Analysis Method: EPA 8270C

METHOD BLANK: T061604-BLK1

Parameter	Units	Blank Result	Reporting Limit	Notes
Bis(2-ethylhexyl)phthalate	ug/kg wet	<83	83	
Nitrobenzene-d5 (S)	%	72	36-98	
2-Fluorobiphenyl (S)	%	69	44-105	
Terphenyl-d14 (S)	%	72	46-109	

LABORATORY CONTROL SAMPLE: T061604-BS1

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Bis(2-ethylhexyl)phthalate	ug/kg wet	3330	2590	78	49-121	
Nitrobenzene-d5 (S)	%	3360	2400	71	36-98	
2-Fluorobiphenyl (S)	%	3360	2330	69	44-105	
Terphenyl-d14 (S)	%	3330	2580	78	46-109	

MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T061604-MSD1 Original: **T16E480-23**

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Bis(2-ethylhexyl)phthalate	ug/kg dry	575	3960	4470	3670	98	78	40-124	23	35	
Nitrobenzene-d5 (S)	%		4000	2940	2350	73	59	36-98			
2-Fluorobiphenyl (S)	%		4000	2780	2460	70	61	44-105			
Terphenyl-d14 (S)	%		3960	2970	3040	75	77	46-109			

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

QC Batch: T061470
QC Batch Method: % Solids
Analysis Description: Solids, Dry Weight
Analysis Method: ASTM D2974-87

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

QC Batch: T061558
QC Batch Method: % Solids
Analysis Description: Solids, Dry Weight
Analysis Method: ASTM D2974-87

SAMPLE DUPLICATE: T061558-DUP1 Original: **T16E480-30**

Parameter	Units	Original Result	DUP Result	RPD	Max RPD	Notes
% Solids	% by Wt.	25.2	24.6	3	20	

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CHAIN-OF-CUSTODY RECORD

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Page 1 of 4

TRACE ID NO. T16E480

Report Results To:

Company Name: TRC Environmental Corp.
Report to: Scott Pawlukiewicz
Mailing Address: 2025 E. Beltline Ave. SE Ste. 402
City, State, Zip Code: Grand Rapids, MI 48546
Phone: ~~616 975~~ 616 915 3604 Fax: 616 975 1098
Email Address: SPawlukiewicz@trcsolutions.com
Cell #: 616 915 3604 Sampled by: SP
Project Name & #: LEC Ecological Evaluation, 248642.0000.0000, phase 2

Bill To:

Billing Address (if different)
City, State, Zip Code Windsor, CT
Attn: Phone: PO #:

TRACE USE ONLY

Logged By: Checked By:
Received on ice: Yes No Preservative Checked: Yes No N/A
Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐

Turnaround Requirements: Standard ☒ 3 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ * Requires Prior Approval

Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, Oil = Oil, Wi = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

Request for Analytical Services

ANALYSIS REQUESTED

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	COOL	HCL	HNO3	H2SO4	NaOH	Other	DEHP	Dissolved DEHP									REMARKS	Preliminary Results Available
1/2	5/26/16	0850	SW-D-7		W	3							2	1										
3/4	5/26/16	1000	SW-RR-TI-RB		W	3							2	1									LAB FILTER	
5/6	5/26/16	1015	SW-RR-TI-RMC		W	3							2	1									DISS. DEHP	
7/8	5/26/16	1035	SW-RR-TI-LMC		W	3							2	1									SAMPLES	
9/10	5/26/16	1015	SW-RR-TI-LB		W	3							2	1										
11/12	5/26/16	1120	SW-RR-TH-RB		W	3							2	1										
13/14	5/26/16	1132	SW-RR-TH-RMC		W	3							2	1										
15/16	5/26/16	1150	SW-RR-TH-LMC		W	3							2	1										
17/18	5/26/16	1210	SW-RR-TH-LB		W	3							2	1										
19/20	5/26/16	1210	SW-RR-TH-LB (DUP)		W	3							2	1										

Please Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
1) [signature]	FedEx	5/26/16	1930	2) FedEx	[signature]	5/27/16	11:22	3)			
4)				5)				6)			

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TRACE the science of compliance phone 231.773.5998 toll-free 800.733.5998 fax 231.773.6537 Trace Analytical Laboratories, Inc. 2241 Black Creek Road Muskegon, MI 49444-2673 info@trace-labs.com www.trace-labs.com

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Page 2 of 4

TRACE ID NO. T16E480

TRACE USE ONLY
Logged By: AU Checked By: GH
Received on ice: (Yes) No Preservative Checked: Yes No (N/A)
Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Report Results To:
Company Name: TRC Environmental Corporation
Report to: Scott Pawlukiewicz
Mailing Address: 2025 E. Beltline Ave. SE Ste 402
City, State, Zip Code: Grand Rapids, MI 49546
Phone: 616 916 3604 Fax: 616 975 1088
Email Address: SPawlukiewicz@trcsolutions.com
Cell #: 616 915 3604 Sampled by: SP
Project Name & #: CEE Ecological Evaluation, 248642.0000.0000, phase 2

Bill To:
Billing Address (if different)
City, State, Zip Code: Windsor, CT
Attn: Phone: PO #:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐
Turnaround Requirements: Standard ☒ 3 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ * Requires Prior Approval
Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, Oil = Oil, Wi = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

Request for Analytical Services — ANALYSIS REQUESTED

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	PRESERVATION: COOL	HCL	HNO3	H2SO4	NaOH	Other	DEHP	Grain Size									REMARKS	Possible Hazards
21	5/26/16	1005	SED-RR-TI-RB (0.0-0.5)		S	2							1	1										
22	5/26/16	1025	SED-RR-TI-RMC (0.0-0.5)		S	2							1	1										
23	5/26/16	1040	SED-RR-TI-LMC (0.0-0.5)		S	2							1	1										
24	5/26/16	1050	SED-RR-TI-LB (0.0-0.5)		S	2							1	1										
25	5/26/16	1125	SED-RR-TH-RB (0.0-0.5)		S	2							1	1										
26	5/26/16	1138	SED-RR-TH-RMC (0.0-0.5)		S	2							1	1										
27	5/26/16	1155	SED-RR-TH-LMC (0.0-0.5)		S	2							1	1										
28	5/26/16	1215	SED-RR-TH-LB (0.0-0.5)		S	2							1	1										
29	5/26/16	1215	SED-RR-TH-LB (0.0-0.5) (DUP)		S	2							1	1										
30	5/26/16	1510	SED-D-I (0.0-0.5)		S	2							1	1										

Please Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
1) B. Pawly	FedEx	5/26/16	1930	2) FedEx	[illegible]	5/27/16	10:22	3)			
4)				5)				6)			

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Page 3 of 4

TRACE ID NO. T16E480

Report Results To:

Company Name: TRC Environmental Corp
Report to: Scott Pawlukiewicz
Mailing Address: 2025 E. Beltline Ave. SE Ste. 402
City, State, Zip Code: Grand Rapids, MI 49546
Phone: 616 915 3604 Fax: 616 975 1098
Email Address: SPawlukiewicz@trcsolutions.com
Cell #: 616 915 3604 Sampled by: SP
Project Name & #: LEC Ecological Evaluation, 248542.0000.0000, PM

Bill To:

Billing Address (if different)
City, State, Zip Code Windsor, CT
Attn: AP Invoice Phone: PO #:

TRACE USE ONLY

Logged By: GM Checked By: GH
Received on Ice: (Yes) No Preservative Checked: Yes No (N/A)
Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐

Turnaround Requirements: Standard ☒ 3 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ * Requires Prior Approval

Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, Oil = Oil, WI = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

Request for Analytical Services

ANALYSIS REQUESTED

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	COOL	HCL	HNO3	H2SO4	NaOH	Other	DEHP	Grain Size	REMARKS	Potable Heals Hazard
31	5/26/16	1530	SED-D-2 (0.0-0.5)		S	2							1	1		
32	5/26/16	1535	SED-D-2 (0.5-1.0)		S	2							1	1		
33	5/26/16	1550	SED-D-4 (0.0-0.5)		S	2							1	1		
34	5/26/16	1555	SED-D-4 (0.5-1.0)		S	2							1	1		
35	5/26/16	1630	SED-D-3 (0.0-0.5)		S	2							1	1		
36	5/26/16	1650	SED-D-7 (0.0-0.5)		S	2							1	1		
37	5/26/16	1655	SED-D-7 (0.5-1.0)		S	2							1	1		
38	5/26/16	1745	SED-D-5 (0.0-0.5)		S	2							1	1		

Please Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
1) [signature]	FEDEX	5/26/16	1730	2) Fed Ex	[signature]	5/27/16	10:22	3)			
4)				5)				6)			

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Page 4 of 4

TRACE ID NO. T16E480

Report Results To:

Company Name: TRL Environmental Corp
Report to: Scott Pawlukiewicz
Mailing Address: 2025 E. Beltline Ave SE Ste 402
City, State, Zip Code: Grand Rapids, MI 49546
Phone: 616 915 3604 Fax: 616 975 1098
Email Address: SPawlukiewicz@trcsolutions.com
Cell #: 616 915 3604 Sampled by: WM
Project Name & #: LEC Ecological Evaluation, 248642.0000 WSS Phase 2

Bill To:

Billing Address (if different)
City, State, Zip Code Windsor, CT
Attn: AP invoice Phone: PO #:

TRACE USE ONLY

Logged By: Checked By: GH
Received on ice: (Yes) No Preservative Checked: Yes No (N/A)
Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐

Turnaround Requirements: Standard ☒ 5 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ * Requires Prior Approval

Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, Oil = Oil, WI = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

Request for Analytical Services

ANALYSIS REQUESTED

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	COOL	HCL	HNO3	H2SO4	NaOH	Other	DEHP	DEHP (Dissolved)	REMARKS	Field Sb Hitch Hazard
39/40	5/25/16	1235	PW-R-16 (per client email)		W	3							2	1		
41/42	5/26/16	1100	PW-R-2		W	3							2	1	LAB FILTER	
43/44	5/26/16	1453	PW-R-8		W	3							2	1	LAB FILTER	
45/46	5/26/16	1606	PW-R-11		W	3							2	1	LAB FILTER	
47/48	5/26/16	1650	PW-R-16		W	3							2	1	LAB FILTER	
															LAB FILTER	

Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
[signature]	FEDEX	5/26/16	1930	2) Fed Ex	[signature]	5/27/16	1022	3)			
				5)				6)			

* Custody, the client acknowledges acceptance of the terms and conditions of the agreement as set forth at http://www.trace-labs.com/

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info@trace-labs.com
www.trace-labs.com

SAMPLE LOG IN CHECKLIST

Trace ID #: T16E480 Date: 5-27-16 Package Description: Cooler Temperature: -3.6
Client Name: IRC Time: 10:22 Logged in by: GH

Cooler Receipt

Cooler/samples delivered by: Trace courier [ ] Hand delivered [ ] Name of delivery person: _____
Commercial courier [X] UPS [ ] FED EX [X] US Mail [ ]

Tracking Number: [ ] Not Applicable
Tracking #: _____

COC Seals present and intact on cooler? No [ ] Yes [ ] [X] Not Applicable

Custody seals signed by Client? No [ ] Yes [ ] Client custody seal # (if applicable): _____

Coolant and Temperature

Type of Coolant Used

Slurry w/ crushed, cubed, or chip ice? [X]
Multiple bags of ice around samples? [ ]
Ice Packs/ Blue Ice : [ ]
No Coolant Present: [ ]

Cooler Temperature

Correction Factor: IR Thermometer -0.4 °C (Plastic or Glass -circle one)
Digital Stick Thermometer -0.2 °C
Temperature Blank: None °C (Use Digital Stick Thermometer)
Range of 3 samples: 2.9 10.4 °C (Use IR Thermometer)
Melt Water: None °C (Use Digital Stick Thermometer)
Ice still present upon receipt: [X] Yes [ ] No [ ] N/A

General

	Yes	No	N/A	Comments
All bottles arrived unbroken with labels in good condition?	X			
Each sample point is in a sealed plastic bag?		X		
Labels filled out completely?	X			
All bottle labels agree with Chain of Custody (COC)?	X			
Sufficient sample to run tests requested?	X			
pH checked and samples at correct pH?			X	See Below*
Correct preservative added to samples?			X	
Air bubbles absent from VOAs?			X	
COC filled out properly and signed by client?	X			
COC signed in by TRACE sample custodian?	X			
Was project manager called and samples discussed?		X		

Notes: TRK#'s 7832 2027 8212, 7832 2026 2280, 7832 2029 3521, 7832 2030 8333

*EMD pH Test Strips Used:
[ ] pH 0-2.5 Lot: HC563733
[ ] pH 11.0-13.0 Lot: HC547328
[ ] Other: _____

Form 70-A.12
Effective 10/13/15

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info@trace-labs.com
www.trace-labs.com

Alyson Yagiela

From: Jon Mink
Sent: Friday, May 27, 2016 9:15 AM
To: Alyson Yagiela; Grant Hilleary; Jim Sjoberg
Subject: FW: Lec- PW sample id switch?

FYI for today

Jon Mink
Senior Project Manager

Trace Analytical Laboratories
2241 Black Creek Rd
Muskegon, MI 49444

Phone: 231-773-5998 x224
Fax: 231-773-6537
Website: www.trace-labs.com
E-Mail: jmink@trace-labs.com

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-----Original Message-----
From: Pawlukiewicz, Scott [mailto:SPawlukiewicz@trcsolutions.com]
Sent: Friday, May 27, 2016 8:48 AM
To: Jon Mink
Subject: Lec- PW sample id switch?

Jon-
Had a mix up sampling the temp pore water locations. The submitted water sample yesterday with ID "PW-R-5" is actually PW-R-6". Is it possible for you to edit on your end? We will be sampling the actual R-5 location today and would like to submit under the correct name.

Sent from my iPhone

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June 15, 2016

Mr. Scott Pawlukiewicz
TRC Solutions
2025 E. Beltline Ave., SE, Ste 402
Grand Rapids, MI 49546

Phone: (201) 636-5884
Fax: (616) 975-1098

RE: Trace Project T16E464
Client Project LEC Ecological Evaluation 248642.0000.0000 Phase 2

Dear Mr. Pawlukiewicz:

Enclosed are your analytical results. The results of this report relate only to the samples listed in the body of this report.

All reports were examined through Trace's validation process to ensure that requirements for quality and completeness were satisfied. All reported analytical results were obtained in accordance with the methods referenced on the reports. Every practical effort was made to meet the reporting limit specifications for this work, however, some results may have raised reporting limits to correct for percent solids.

For clients that require NELAC Accreditation, Trace certifies that these test results meet all requirements of the NELAC Standard, except for those analytes with a "N" notation. These analytes have not been evaluated by NELAC at Trace's discretion and will not be reported unless requested by client.

If you have questions concerning this report, please contact me at 231.773.5998 or by email at jmink@trace-labs.com.

Sincerely,

Jon Mink
Senior Project Manager
Enclosures

NJDEP Accreditation No. MI008

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info@trace-labs.com
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SAMPLE SUMMARY

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID	Sample ID	Matrix	Collected By	Date Collected	Date Received
T16E464-01	SW-EDD-B3	Surface Water	sp	05/24/16 10:35	05/26/16 10:33
T16E464-02	SW-EDD-B3 (F)	Surface Water	sp	05/24/16 10:35	05/26/16 10:33
T16E464-03	SW-EDD-B4	Surface Water	sp	05/24/16 10:55	05/26/16 10:33
T16E464-04	SW-EDD-B4 (F)	Surface Water	sp	05/24/16 10:55	05/26/16 10:33
T16E464-05	SW-EDD-B2	Surface Water	sp	05/24/16 11:40	05/26/16 10:33
T16E464-06	SW-EDD-B2 (F)	Surface Water	sp	05/24/16 11:40	05/26/16 10:33
T16E464-07	PW-R-09	Pore Water	sp	05/24/16 14:00	05/26/16 10:33
T16E464-08	PW-R-09 (F)	Pore Water	sp	05/24/16 14:00	05/26/16 10:33
T16E464-09	PW-R-10	Pore Water	sp	05/24/16 16:30	05/26/16 10:33
T16E464-10	PW-R-10 (F)	Pore Water	sp	05/24/16 16:30	05/26/16 10:33
T16E464-11	PW-R-04	Pore Water	sp	05/24/16 17:30	05/26/16 10:33
T16E464-12	PW-R-04 (F)	Pore Water	sp	05/24/16 17:30	05/26/16 10:33
T16E464-13	PW-R-01	Pore Water	sp	05/25/16 09:40	05/26/16 10:33
T16E464-14	PW-R-01 (F)	Pore Water	sp	05/25/16 09:40	05/26/16 10:33
T16E464-15	Trip Blank	Aqueous	sp	05/25/16	05/26/16 10:33
T16E464-16	SW-RR-TM-RB	Surface Water	sp	05/25/16 10:05	05/26/16 10:33
T16E464-17	SW-RR-TM-RB (F)	Surface Water	sp	05/25/16 10:05	05/26/16 10:33
T16E464-18	SW-RR-TM-MC	Surface Water	sp	05/25/16 10:05	05/26/16 10:33
T16E464-19	SW-RR-TM-MC (F)	Surface Water	sp	05/25/16 10:05	05/26/16 10:33
T16E464-20	SW-RR-TM-LB	Surface Water	sp	05/25/16 10:05	05/26/16 10:33
T16E464-21	SW-RR-TM-LB (F)	Surface Water	sp	05/25/16 10:05	05/26/16 10:33
T16E464-22	SW-RR-TL-LB	Surface Water	sp	05/25/16 11:10	05/26/16 10:33
T16E464-23	SW-RR-TL-LB (F)	Surface Water	sp	05/25/16 11:10	05/26/16 10:33
T16E464-24	SW-RR-TL-LMC	Surface Water	sp	05/25/16 11:10	05/26/16 10:33
T16E464-25	SW-RR-TL-LMC (F)	Surface Water	sp	05/25/16 11:10	05/26/16 10:33
T16E464-26	SW-RR-TL-MC	Surface Water	sp	05/25/16 11:10	05/26/16 10:33
T16E464-27	SW-RR-TL-MC (F)	Surface Water	sp	05/25/16 11:10	05/26/16 10:33
T16E464-28	SW-RR-TL-RMC	Surface Water	sp	05/25/16 11:10	05/26/16 10:33
T16E464-29	SW-RR-TL-RMC (F)	Surface Water	sp	05/25/16 11:10	05/26/16 10:33
T16E464-30	SW-RR-TL-RB	Surface Water	sp	05/25/16 11:10	05/26/16 10:33
T16E464-31	SW-RR-TL-RB (F)	Surface Water	sp	05/25/16 11:10	05/26/16 10:33
T16E464-32	SW-RR-TK-RB	Surface Water	sp	05/25/16 14:50	05/26/16 10:33
T16E464-33	SW-RR-TK-RB (F)	Surface Water	sp	05/25/16 14:50	05/26/16 10:33
T16E464-34	SW-RR-TK-RB (DUP)	Surface Water	sp	05/25/16 14:50	05/26/16 10:33
T16E464-35	SW-RR-TK-RB (DUP) (F)	Surface Water	sp	05/25/16 14:50	05/26/16 10:33
T16E464-36	SW-RR-TK-RMC	Surface Water	sp	05/25/16 15:10	05/26/16 10:33
T16E464-37	SW-RR-TK-RMC (F)	Surface Water	sp	05/25/16 15:10	05/26/16 10:33

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info@trace-labs.com
www.trace-labs.com

T16E464-38	SW-RR-TK-MC	Surface Water	sp	05/25/16 15:20	05/26/16 10:33
T16E464-39	SW-RR-TK-MC (F)	Surface Water	sp	05/25/16 15:20	05/26/16 10:33
T16E464-40	SW-RR-TK-LMC	Surface Water	sp	05/25/16 15:30	05/26/16 10:33
T16E464-41	SW-RR-TK-LMC (F)	Surface Water	sp	05/25/16 15:30	05/26/16 10:33
T16E464-42	SW-RR-TK-LB	Surface Water	sp	05/25/16 15:45	05/26/16 10:33
T16E464-43	SW-RR-TK-LB (F)	Surface Water	sp	05/25/16 15:45	05/26/16 10:33
T16E464-44	SW-RR-TJ-LB	Surface Water	sp	05/25/16 16:30	05/26/16 10:33
T16E464-45	SW-RR-TJ-LB (F)	Surface Water	sp	05/25/16 16:30	05/26/16 10:33
T16E464-46	SW-RR-TJ-RB	Surface Water	sp	05/25/16 16:45	05/26/16 10:33
T16E464-47	SW-RR-TJ-RB (F)	Surface Water	sp	05/25/16 16:45	05/26/16 10:33
T16E464-48	SW-RR-TJ-RMC	Surface Water	sp	05/25/16 17:05	05/26/16 10:33
T16E464-49	SW-RR-TJ-RMC (F)	Surface Water	sp	05/25/16 17:05	05/26/16 10:33
T16E464-50	SW-RR-TJ-MC	Surface Water	sp	05/25/16 17:15	05/26/16 10:33
T16E464-51	SW-RR-TJ-MC (F)	Surface Water	sp	05/25/16 17:15	05/26/16 10:33
T16E464-52	SW-RR-TJ-LMC	Surface Water	sp	05/25/16 17:25	05/26/16 10:33
T16E464-53	SW-RR-TJ-LMC (F)	Surface Water	sp	05/25/16 17:25	05/26/16 10:33
T16E464-54	SED-RR-TL-RB (0.0-0.5)	Sediment	sp	05/25/16 11:10	05/26/16 10:33
T16E464-55	SED-RR-TL-RMC (0.0-0.5)	Sediment	sp	05/25/16 11:10	05/26/16 10:33
T16E464-56	SED-RR-TL-MC (0.0-0.5)	Sediment	sp	05/25/16 11:10	05/26/16 10:33
T16E464-57	SED-RR-TL-LMC (0.0-0.5)	Sediment	sp	05/25/16 11:10	05/26/16 10:33
T16E464-58	SED-RR-TL-RMC (0.5-1.0)	Sediment	sp	05/25/16 11:10	05/26/16 10:33
T16E464-59	SED-RR-TL-LB (0.0-0.5)	Sediment	sp	05/25/16 11:10	05/26/16 10:33
T16E464-60	SED-RR-TK-RB (0.0-0.5)	Sediment	sp	05/25/16 15:00	05/26/16 10:33
T16E464-61	SED-RR-TK-RMC (0.0-0.5)	Sediment	sp	05/25/16 15:15	05/26/16 10:33
T16E464-62	SED-RR-TK-MC (0.0-0.5)	Sediment	sp	05/25/16 15:25	05/26/16 10:33
T16E464-63	SED-RR-TK-LMC (0.0-0.5)	Sediment	sp	05/25/16 15:35	05/26/16 10:33
T16E464-64	SED-RR-TK-LMC (0.5-1.0)	Sediment	sp	05/25/16 15:40	05/26/16 10:33
T16E464-65	SED-RR-TK-LB (0.5-1.0)	Sediment	sp	05/25/16 15:50	05/26/16 10:33
T16E464-66	SED-RR-TK-LB (DUP)	Sediment	sp	05/25/16 15:50	05/26/16 10:33
T16E464-67	SED-RR-TJ-LB	Sediment	sp	05/25/16 16:35	05/26/16 10:33
T16E464-68	SED-RR-TJ-RB	Sediment	sp	05/25/16 16:50	05/26/16 10:33
T16E464-69	SED-RR-TJ-RMC	Sediment	sp	05/25/16 17:10	05/26/16 10:33
T16E464-70	SED-RR-TJ-MC	Sediment	sp	05/25/16 17:20	05/26/16 10:33
T16E464-71	SED-RR-TJ-LMC	Sediment	sp	05/25/16 17:30	05/26/16 10:33

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AN EXPLANATION OF TERMS AND SYMBOLS WHICH MAY OCCUR IN THIS REPORT

DEFINITIONS

LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
DUP	Matrix Duplicate
RDL	Reporting Detection Limit
MCL	Maximum Contamination Limit
TIC	Tentatively Identified Compound
<, ND or U	Indicates the compound was analyzed for but not detected
*	Indicates a result that exceeds its associated MCL or Surrogate control limits
N	Indicates that the compound has not been evaluated by NELAC
NA	Indicates that the compound is not available.

NOTE: Samples for volatiles that have been extracted with a water miscible solvent were corrected for the total volume of the solvent/water mixture.

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-01 | Date Collected: 05/24/16 10:35 | Matrix: Surface Water
Sample ID: SW-EDD-B3 | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
QOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8260B										
Batch: T061446										
Benzene	<0.50	ug/L	0.50	1	05/30/16	was	05/30/16	was		
T(2- et e	**l xl**	**- hyL**	**) xp)**	**a**	**) pyW) yaG**	**u g/**	**) pyW) yaG**	**u g/**		
Ethylbenzene	<0.50	ug/L	0.50	1	05/30/16	was	05/30/16	was		
m,p-Xylene	<1.0	ug/L	1.0	1	05/30/16	was	05/30/16	was	N	
o-Xylene	<0.50	ug/L	0.50	1	05/30/16	was	05/30/16	was	N	
Xylenes, total	<1.5	ug/L	1.5	1	05/30/16	was	05/30/16	was		
Surrogates:										
1,2-Dichloroethane-d4	111	%	68-133	1	05/30/16	was	05/30/16	was		
Toluene-d8	80	%	75-120	1	05/30/16	was	05/30/16	was		
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061453										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	05/31/16	kbc	05/31/16	avl		
Surrogates:										
Nitrobenzene-d5	53	%	36-103	1	05/31/16	kbc	05/31/16	avl		
2-Fluorobiphenyl	49	%	36-119	1	05/31/16	kbc	05/31/16	avl		
Terphenyl-d14	42	%	37-109	1	05/31/16	kbc	05/31/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-02 | Date Collected: 05/24/16 10:35 | Matrix: Surface Water
Sample ID: SW-EDD-B3 (F) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061453										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	05/31/16	kbc	05/31/16	avl		
Surrogates:										
Nitrobenzene-d5	51	%	36-103	1	05/31/16	kbc	05/31/16	avl		
2-Fluorobiphenyl	49	%	36-119	1	05/31/16	kbc	05/31/16	avl		
Terphenyl-d14	56	%	37-109	1	05/31/16	kbc	05/31/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-03 | Date Collected: 05/24/16 10:55 | Matrix: Surface Water
Sample ID: SW-EDD-B4 | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
QOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8260B										
Batch: T061446										
Benzene	<0.50	ug/L	0.50	1	05/30/16	was	05/30/16	was		
Toluene	<0.50	ug/L	0.50	1	05/30/16	was	05/30/16	was		
Ethylbenzene	<0.50	ug/L	0.50	1	05/30/16	was	05/30/16	was		
m,p-Xylene	<1.0	ug/L	1.0	1	05/30/16	was	05/30/16	was	N	
o-Xylene	<0.50	ug/L	0.50	1	05/30/16	was	05/30/16	was	N	
Xylenes, total	<1.5	ug/L	1.5	1	05/30/16	was	05/30/16	was		
Surrogates:										
1,2-Dichloroethane-d4	113	%	68-133	1	05/30/16	was	05/30/16	was		
Toluene-d8	80	%	75-120	1	05/30/16	was	05/30/16	was		
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061453										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	05/31/16	kbc	05/31/16	avl		
Surrogates:										
Nitrobenzene-d5	61	%	36-103	1	05/31/16	kbc	05/31/16	avl		
2-Fluorobiphenyl	59	%	36-119	1	05/31/16	kbc	05/31/16	avl		
Terphenyl-d14	60	%	37-109	1	05/31/16	kbc	05/31/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-04 | Date Collected: 05/24/16 10:55 | Matrix: Surface Water
Sample ID: SW-EDD-B4 (F) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061453										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	05/31/16	kbc	06/01/16	avl		
Surrogates:										
Nitrobenzene-d5	60	%	36-103	1	05/31/16	kbc	06/01/16	avl		
2-Fluorobiphenyl	60	%	36-119	1	05/31/16	kbc	06/01/16	avl		
Terphenyl-d14	60	%	37-109	1	05/31/16	kbc	06/01/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-05 | Date Collected: 05/24/16 11:40 | Matrix: Surface Water
Sample ID: SW-EDD-B2 | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
QOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8260B										
Batch: T061494										
Benzene	<0.50	ug/L	0.50	1	06/01/16	was	06/01/16	was		
T(2- et e	**) xkd - hyL**		**) xp)**	**a**	**) Gy) ayaG**	**u g/**	**) Gy) ayaG**	**u g/**		
Ethylbenzene	<0.50	ug/L	0.50	1	06/01/16	was	06/01/16	was		
m,p-Xylene	<1.0	ug/L	1.0	1	06/01/16	was	06/01/16	was	N	
o-Xylene	<0.50	ug/L	0.50	1	06/01/16	was	06/01/16	was	N	
Xylenes, total	<1.5	ug/L	1.5	1	06/01/16	was	06/01/16	was		
Surrogates:										
1,2-Dichloroethane-d4	105	%	68-133	1	06/01/16	was	06/01/16	was		
Toluene-d8	79	%	75-120	1	06/01/16	was	06/01/16	was		
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061453										
Br/ 69se43123e0127b343g2g4e	**axV - hyL**		**ax)**	**a**	**) pyVayaG**	**cv%**	**) Gy) ayaG**	**go2**		
Surrogates:										
Nitrobenzene-d5	57	%	36-103	1	05/31/16	kbc	06/01/16	avl		
2-Fluorobiphenyl	57	%	36-119	1	05/31/16	kbc	06/01/16	avl		
Terphenyl-d14	60	%	37-109	1	05/31/16	kbc	06/01/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-06 | Date Collected: 05/24/16 11:40 | Matrix: Surface Water
Sample ID: SW-EDD-B2 (F) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061453										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	05/31/16	kbc	05/31/16	avl		
Surrogates:										
Nitrobenzene-d5	73	%	36-103	1	05/31/16	kbc	05/31/16	avl		
2-Fluorobiphenyl	71	%	36-119	1	05/31/16	kbc	05/31/16	avl		
Terphenyl-d14	72	%	37-109	1	05/31/16	kbc	05/31/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-07 | Date Collected: 05/24/16 14:00 | Matrix: Pore Water
Sample ID: PW-R-09 | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061453										
Br/ 69se4312 3e012 7b343g2g4e	**pk - hyL**		**ax)**	**a**	**) pyVayaG**	**cv%**	**) pyVayaG**	**go2**		
Surrogates:										
Nitrobenzene-d5	57	%	36-103	1	05/31/16	kbc	05/31/16	avl		
2-Fluorobiphenyl	62	%	36-119	1	05/31/16	kbc	05/31/16	avl		
Terphenyl-d14	58	%	37-109	1	05/31/16	kbc	05/31/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-08 | Date Collected: 05/24/16 14:00 | Matrix: Pore Water
Sample ID: PW-R-09 (F) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061453										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	05/31/16	kbc	05/31/16	avl		
Surrogates:										
Nitrobenzene-d5	73	%	36-103	1	05/31/16	kbc	05/31/16	avl		
2-Fluorobiphenyl	77	%	36-119	1	05/31/16	kbc	05/31/16	avl		
Terphenyl-d14	80	%	37-109	1	05/31/16	kbc	05/31/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-09 | Date Collected: 05/24/16 16:30 | Matrix: Pore Water
Sample ID: PW-R-10 | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061453										
Br/ 69se4312 3e012 7b343g2g4e	**a)**	**- hyL**	**ax**	**9**	**) pyVayaG**	**cv%**	**) pyVayaG**	**go2**		
Surrogates:										
Nitrobenzene-d5	65	%	36-103	2	05/31/16	kbc	05/31/16	avl		
2-Fluorobiphenyl	73	%	36-119	2	05/31/16	kbc	05/31/16	avl		
Terphenyl-d14	65	%	37-109	2	05/31/16	kbc	05/31/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-10 | Date Collected: 05/24/16 16:30 | Matrix: Pore Water
Sample ID: PW-R-10 (F) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061453										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	05/31/16	kbc	05/31/16	avl		
Surrogates:										
Nitrobenzene-d5	60	%	36-103	1	05/31/16	kbc	05/31/16	avl		
2-Fluorobiphenyl	65	%	36-119	1	05/31/16	kbc	05/31/16	avl		
Terphenyl-d14	63	%	37-109	1	05/31/16	kbc	05/31/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-11 | Date Collected: 05/24/16 17:30 | Matrix: Pore Water
Sample ID: PW-R-04 | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061453										
Br/ 69se4312 3e012 7b343g2g4e	**ax9 - hyL**		**ax)**	**a**	**) pyVayaG**	**cv%**	**) pyVayaG**	**go2**		
Surrogates:										
Nitrobenzene-d5	69	%	36-103	1	05/31/16	kbc	05/31/16	avl		
2-Fluorobiphenyl	76	%	36-119	1	05/31/16	kbc	05/31/16	avl		
Terphenyl-d14	72	%	37-109	1	05/31/16	kbc	05/31/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-12 | Date Collected: 05/24/16 17:30 | Matrix: Pore Water
Sample ID: PW-R-04 (F) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061453										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	05/31/16	kbc	05/31/16	avl		
Surrogates:										
Nitrobenzene-d5	63	%	36-103	1	05/31/16	kbc	05/31/16	avl		
2-Fluorobiphenyl	66	%	36-119	1	05/31/16	kbc	05/31/16	avl		
Terphenyl-d14	68	%	37-109	1	05/31/16	kbc	05/31/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-13 | Date Collected: 05/25/16 09:40 | Matrix: Pore Water
Sample ID: PW-R-01 | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061453										
Br/ 69se43123e012Zb343g2g4e	**Vk) - hyL**		**I xk**	**p**	**) pyVayaG**	**cv%**	**) Gy) ayaG**	**go2**		
Surrogates:										
Nitrobenzene-d5	73	%	36-103	5	05/31/16	kbc	06/01/16	avl		
2-Fluorobiphenyl	81	%	36-119	5	05/31/16	kbc	06/01/16	avl		
Terphenyl-d14	64	%	37-109	5	05/31/16	kbc	06/01/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-14 | Date Collected: 05/25/16 09:40 | Matrix: Pore Water
Sample ID: PW-R-01 (F) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061453										
Br/ 69se4312 3e012 7b343g2g4e	**Vx)**	**- hyL**	**ax)**	**a**	**) pyVayaG**	**cv%**	**) pyVayaG**	**go2**		
Surrogates:										
Nitrobenzene-d5	57	%	36-103	1	05/31/16	kbc	05/31/16	avl		
2-Fluorobiphenyl	61	%	36-119	1	05/31/16	kbc	05/31/16	avl		
Terphenyl-d14	68	%	37-109	1	05/31/16	kbc	05/31/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-15 | Date Collected: 05/25/16 | Matrix: Aqueous
Sample ID: Trip Blank | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
QOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8260B										
Batch: T061494										
Benzene	<0.50	ug/L	0.50	1	06/01/16	was	06/01/16	was		
Toluene	<0.50	ug/L	0.50	1	06/01/16	was	06/01/16	was		
Ethylbenzene	<0.50	ug/L	0.50	1	06/01/16	was	06/01/16	was		
m,p-Xylene	<1.0	ug/L	1.0	1	06/01/16	was	06/01/16	was	N	
o-Xylene	<0.50	ug/L	0.50	1	06/01/16	was	06/01/16	was	N	
Xylenes, total	<1.5	ug/L	1.5	1	06/01/16	was	06/01/16	was		
Surrogates:										
1,2-Dichloroethane-d4	106	%	68-133	1	06/01/16	was	06/01/16	was		
Toluene-d8	79	%	75-120	1	06/01/16	was	06/01/16	was		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-16 | Date Collected: 05/25/16 10:05 | Matrix: Surface Water
Sample ID: SW-RR-TM-RB | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061453										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	05/31/16	kbc	06/01/16	avl		
Surrogates:										
Nitrobenzene-d5	37	%	36-103	1	05/31/16	kbc	06/01/16	avl		
2-Fluorobiphenyl	45	%	36-119	1	05/31/16	kbc	06/01/16	avl		
Terphenyl-d14	56	%	37-109	1	05/31/16	kbc	06/01/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-17 | Date Collected: 05/25/16 10:05 | Matrix: Surface Water
Sample ID: SW-RR-TM-RB (F) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061480										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/01/16	avl		
Surrogates:										
Nitrobenzene-d5	67	%	36-103	1	06/01/16	kbc	06/01/16	avl		
2-Fluorobiphenyl	74	%	36-119	1	06/01/16	kbc	06/01/16	avl		
Terphenyl-d14	78	%	37-109	1	06/01/16	kbc	06/01/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-18 | Date Collected: 05/25/16 10:05 | Matrix: Surface Water
Sample ID: SW-RR-TM-MC | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061480										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/01/16	avl		
Surrogates:										
Nitrobenzene-d5	52	%	36-103	1	06/01/16	kbc	06/01/16	avl		
2-Fluorobiphenyl	59	%	36-119	1	06/01/16	kbc	06/01/16	avl		
Terphenyl-d14	54	%	37-109	1	06/01/16	kbc	06/01/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-19 | Date Collected: 05/25/16 10:05 | Matrix: Surface Water
Sample ID: SW-RR-TM-MC (F) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061480										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/01/16	avl		
Surrogates:										
Nitrobenzene-d5	65	%	36-103	1	06/01/16	kbc	06/01/16	avl		
2-Fluorobiphenyl	65	%	36-119	1	06/01/16	kbc	06/01/16	avl		
Terphenyl-d14	64	%	37-109	1	06/01/16	kbc	06/01/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-20 | Date Collected: 05/25/16 10:05 | Matrix: Surface Water
Sample ID: SW-RR-TM-LB | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061480										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/01/16	avl		
Surrogates:										
Nitrobenzene-d5	70	%	36-103	1	06/01/16	kbc	06/01/16	avl		
2-Fluorobiphenyl	75	%	36-119	1	06/01/16	kbc	06/01/16	avl		
Terphenyl-d14	86	%	37-109	1	06/01/16	kbc	06/01/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-21 | Date Collected: 05/25/16 10:05 | Matrix: Surface Water
Sample ID: SW-RR-TM-LB (F) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061480										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/01/16	avl		
Surrogates:										
Nitrobenzene-d5	43	%	36-103	1	06/01/16	kbc	06/01/16	avl		
2-Fluorobiphenyl	43	%	36-119	1	06/01/16	kbc	06/01/16	avl		
Terphenyl-d14	42	%	37-109	1	06/01/16	kbc	06/01/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-22 | Date Collected: 05/25/16 11:10 | Matrix: Surface Water
Sample ID: SW-RR-TL-LB | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061480										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/01/16	avl		
Surrogates:										
Nitrobenzene-d5	77	%	36-103	1	06/01/16	kbc	06/01/16	avl		
2-Fluorobiphenyl	81	%	36-119	1	06/01/16	kbc	06/01/16	avl		
Terphenyl-d14	83	%	37-109	1	06/01/16	kbc	06/01/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-23 | Date Collected: 05/25/16 11:10 | Matrix: Surface Water
Sample ID: SW-RR-TL-LB (F) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061480										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/01/16	avl		
Surrogates:										
Nitrobenzene-d5	69	%	36-103	1	06/01/16	kbc	06/01/16	avl		
2-Fluorobiphenyl	69	%	36-119	1	06/01/16	kbc	06/01/16	avl		
Terphenyl-d14	82	%	37-109	1	06/01/16	kbc	06/01/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-24 | Date Collected: 05/25/16 11:10 | Matrix: Surface Water
Sample ID: SW-RR-TL-LMC | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061480										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/01/16	avl		
Surrogates:										
Nitrobenzene-d5	78	%	36-103	1	06/01/16	kbc	06/01/16	avl		
2-Fluorobiphenyl	78	%	36-119	1	06/01/16	kbc	06/01/16	avl		
Terphenyl-d14	85	%	37-109	1	06/01/16	kbc	06/01/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-25 | Date Collected: 05/25/16 11:10 | Matrix: Surface Water
Sample ID: SW-RR-TL-LMC (F) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061480										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/01/16	avl		
Surrogates:										
Nitrobenzene-d5	77	%	36-103	1	06/01/16	kbc	06/01/16	avl		
2-Fluorobiphenyl	80	%	36-119	1	06/01/16	kbc	06/01/16	avl		
Terphenyl-d14	84	%	37-109	1	06/01/16	kbc	06/01/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-26 | Date Collected: 05/25/16 11:10 | Matrix: Surface Water
Sample ID: SW-RR-TL-MC | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061480										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/01/16	avl		
Surrogates:										
Nitrobenzene-d5	76	%	36-103	1	06/01/16	kbc	06/01/16	avl		
2-Fluorobiphenyl	73	%	36-119	1	06/01/16	kbc	06/01/16	avl		
Terphenyl-d14	84	%	37-109	1	06/01/16	kbc	06/01/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-27 | Date Collected: 05/25/16 11:10 | Matrix: Surface Water
Sample ID: SW-RR-TL-MC (F) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061480										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/01/16	avl		
Surrogates:										
Nitrobenzene-d5	73	%	36-103	1	06/01/16	kbc	06/01/16	avl		
2-Fluorobiphenyl	83	%	36-119	1	06/01/16	kbc	06/01/16	avl		
Terphenyl-d14	80	%	37-109	1	06/01/16	kbc	06/01/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-28 | Date Collected: 05/25/16 11:10 | Matrix: Surface Water
Sample ID: SW-RR-TL-RMC | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061480										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/01/16	avl		
Surrogates:										
Nitrobenzene-d5	72	%	36-103	1	06/01/16	kbc	06/01/16	avl		
2-Fluorobiphenyl	74	%	36-119	1	06/01/16	kbc	06/01/16	avl		
Terphenyl-d14	80	%	37-109	1	06/01/16	kbc	06/01/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-29 | Date Collected: 05/25/16 11:10 | Matrix: Surface Water
Sample ID: SW-RR-TL-RMC (F) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061480										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/01/16	avl		
Surrogates:										
Nitrobenzene-d5	67	%	36-103	1	06/01/16	kbc	06/01/16	avl		
2-Fluorobiphenyl	74	%	36-119	1	06/01/16	kbc	06/01/16	avl		
Terphenyl-d14	73	%	37-109	1	06/01/16	kbc	06/01/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-30 | Date Collected: 05/25/16 11:10 | Matrix: Surface Water
Sample ID: SW-RR-TL-RB | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061480										
Br/ 69se4312 3e012 7b343g2g4e	**9x) - hyL**		**ax)**	**a**	**) G) ayaG**	**cv%**	**) G) ayaG**	**go2**		
Surrogates:										
Nitrobenzene-d5	67	%	36-103	1	06/01/16	kbc	06/01/16	avl		
2-Fluorobiphenyl	77	%	36-119	1	06/01/16	kbc	06/01/16	avl		
Terphenyl-d14	84	%	37-109	1	06/01/16	kbc	06/01/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-31 | Date Collected: 05/25/16 11:10 | Matrix: Surface Water
Sample ID: SW-RR-TL-RB (F) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061480										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/01/16	avl		
Surrogates:										
Nitrobenzene-d5	56	%	36-103	1	06/01/16	kbc	06/01/16	avl		
2-Fluorobiphenyl	54	%	36-119	1	06/01/16	kbc	06/01/16	avl		
Terphenyl-d14	55	%	37-109	1	06/01/16	kbc	06/01/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-32 | Date Collected: 05/25/16 14:50 | Matrix: Surface Water
Sample ID: SW-RR-TK-RB | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061480										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/02/16	avl		
Surrogates:										
Nitrobenzene-d5	70	%	36-103	1	06/01/16	kbc	06/02/16	avl		
2-Fluorobiphenyl	73	%	36-119	1	06/01/16	kbc	06/02/16	avl		
Terphenyl-d14	86	%	37-109	1	06/01/16	kbc	06/02/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-33 | Date Collected: 05/25/16 14:50 | Matrix: Surface Water
Sample ID: SW-RR-TK-RB (F) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061480										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/02/16	avl		
Surrogates:										
Nitrobenzene-d5	78	%	36-103	1	06/01/16	kbc	06/02/16	avl		
2-Fluorobiphenyl	78	%	36-119	1	06/01/16	kbc	06/02/16	avl		
Terphenyl-d14	76	%	37-109	1	06/01/16	kbc	06/02/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-34 | Date Collected: 05/25/16 14:50 | Matrix: Surface Water
Sample ID: SW-RR-TK-RB (DUP) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061480										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/01/16	avl		
Surrogates:										
Nitrobenzene-d5	59	%	36-103	1	06/01/16	kbc	06/01/16	avl		
2-Fluorobiphenyl	63	%	36-119	1	06/01/16	kbc	06/01/16	avl		
Terphenyl-d14	71	%	37-109	1	06/01/16	kbc	06/01/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-35 | Date Collected: 05/25/16 14:50 | Matrix: Surface Water
Sample ID: SW-RR-TK-RB (DUP) (F) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061480										
Br/ 69se4312 3e012 7b343g2g4e	**axp - hyL**		**ax)**	**a**	**) G)/ ayaG**	**cv%**	**) G)/ ayaG**	**go2**		
Surrogates:										
Nitrobenzene-d5	68	%	36-103	1	06/01/16	kbc	06/01/16	avl		
2-Fluorobiphenyl	68	%	36-119	1	06/01/16	kbc	06/01/16	avl		
Terphenyl-d14	75	%	37-109	1	06/01/16	kbc	06/01/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-36 | Date Collected: 05/25/16 15:10 | Matrix: Surface Water
Sample ID: SW-RR-TK-RMC | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061481										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/02/16	avl		
Surrogates:										
Nitrobenzene-d5	75	%	36-103	1	06/01/16	kbc	06/02/16	avl		
2-Fluorobiphenyl	72	%	36-119	1	06/01/16	kbc	06/02/16	avl		
Terphenyl-d14	74	%	37-109	1	06/01/16	kbc	06/02/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-37 | Date Collected: 05/25/16 15:10 | Matrix: Surface Water
Sample ID: SW-RR-TK-RMC (F) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061481										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/02/16	avl		
Surrogates:										
Nitrobenzene-d5	76	%	36-103	1	06/01/16	kbc	06/02/16	avl		
2-Fluorobiphenyl	83	%	36-119	1	06/01/16	kbc	06/02/16	avl		
Terphenyl-d14	86	%	37-109	1	06/01/16	kbc	06/02/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-38 | Date Collected: 05/25/16 15:20 | Matrix: Surface Water
Sample ID: SW-RR-TK-MC | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061481										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/02/16	avl		
Surrogates:										
Nitrobenzene-d5	76	%	36-103	1	06/01/16	kbc	06/02/16	avl		
2-Fluorobiphenyl	81	%	36-119	1	06/01/16	kbc	06/02/16	avl		
Terphenyl-d14	85	%	37-109	1	06/01/16	kbc	06/02/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-39 | Date Collected: 05/25/16 15:20 | Matrix: Surface Water
Sample ID: SW-RR-TK-MC (F) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061481										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/02/16	avl		
Surrogates:										
Nitrobenzene-d5	75	%	36-103	1	06/01/16	kbc	06/02/16	avl		
2-Fluorobiphenyl	78	%	36-119	1	06/01/16	kbc	06/02/16	avl		
Terphenyl-d14	76	%	37-109	1	06/01/16	kbc	06/02/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-40 | Date Collected: 05/25/16 15:30 | Matrix: Surface Water
Sample ID: SW-RR-TK-LMC | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061481										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/02/16	avl		
Surrogates:										
Nitrobenzene-d5	77	%	36-103	1	06/01/16	kbc	06/02/16	avl		
2-Fluorobiphenyl	79	%	36-119	1	06/01/16	kbc	06/02/16	avl		
Terphenyl-d14	91	%	37-109	1	06/01/16	kbc	06/02/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-41 | Date Collected: 05/25/16 15:30 | Matrix: Surface Water
Sample ID: SW-RR-TK-LMC (F) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061481										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/02/16	avl		
Surrogates:										
Nitrobenzene-d5	69	%	36-103	1	06/01/16	kbc	06/02/16	avl		
2-Fluorobiphenyl	73	%	36-119	1	06/01/16	kbc	06/02/16	avl		
Terphenyl-d14	77	%	37-109	1	06/01/16	kbc	06/02/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-42 | Date Collected: 05/25/16 15:45 | Matrix: Surface Water
Sample ID: SW-RR-TK-LB | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061481										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/02/16	avl		
Surrogates:										
Nitrobenzene-d5	70	%	36-103	1	06/01/16	kbc	06/02/16	avl		
2-Fluorobiphenyl	70	%	36-119	1	06/01/16	kbc	06/02/16	avl		
Terphenyl-d14	78	%	37-109	1	06/01/16	kbc	06/02/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-43 | Date Collected: 05/25/16 15:45 | Matrix: Surface Water
Sample ID: SW-RR-TK-LB (F) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061481										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/02/16	avl		
Surrogates:										
Nitrobenzene-d5	65	%	36-103	1	06/01/16	kbc	06/02/16	avl		
2-Fluorobiphenyl	70	%	36-119	1	06/01/16	kbc	06/02/16	avl		
Terphenyl-d14	75	%	37-109	1	06/01/16	kbc	06/02/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-44 | Date Collected: 05/25/16 16:30 | Matrix: Surface Water
Sample ID: SW-RR-TJ-LB | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061481										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/02/16	avl		
Surrogates:										
Nitrobenzene-d5	62	%	36-103	1	06/01/16	kbc	06/02/16	avl		
2-Fluorobiphenyl	72	%	36-119	1	06/01/16	kbc	06/02/16	avl		
Terphenyl-d14	86	%	37-109	1	06/01/16	kbc	06/02/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-45 | Date Collected: 05/25/16 16:30 | Matrix: Surface Water
Sample ID: SW-RR-TJ-LB (F) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061481										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/02/16	avl		
Surrogates:										
Nitrobenzene-d5	75	%	36-103	1	06/01/16	kbc	06/02/16	avl		
2-Fluorobiphenyl	76	%	36-119	1	06/01/16	kbc	06/02/16	avl		
Terphenyl-d14	84	%	37-109	1	06/01/16	kbc	06/02/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-46 | Date Collected: 05/25/16 16:45 | Matrix: Surface Water
Sample ID: SW-RR-TJ-RB | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061480										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/01/16	avl		
Surrogates:										
Nitrobenzene-d5	46	%	36-103	1	06/01/16	kbc	06/01/16	avl		
2-Fluorobiphenyl	46	%	36-119	1	06/01/16	kbc	06/01/16	avl		
Terphenyl-d14	48	%	37-109	1	06/01/16	kbc	06/01/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-47 | Date Collected: 05/25/16 16:45 | Matrix: Surface Water
Sample ID: SW-RR-TJ-RB (F) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061481										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/02/16	avl		
Surrogates:										
Nitrobenzene-d5	70	%	36-103	1	06/01/16	kbc	06/02/16	avl		
2-Fluorobiphenyl	74	%	36-119	1	06/01/16	kbc	06/02/16	avl		
Terphenyl-d14	83	%	37-109	1	06/01/16	kbc	06/02/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-48 | Date Collected: 05/25/16 17:05 | Matrix: Surface Water
Sample ID: SW-RR-TJ-RMC | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061481										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/02/16	avl		
Surrogates:										
Nitrobenzene-d5	60	%	36-103	1	06/01/16	kbc	06/02/16	avl		
2-Fluorobiphenyl	64	%	36-119	1	06/01/16	kbc	06/02/16	avl		
Terphenyl-d14	76	%	37-109	1	06/01/16	kbc	06/02/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-49 | Date Collected: 05/25/16 17:05 | Matrix: Surface Water
Sample ID: SW-RR-TJ-RMC (F) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061481										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/02/16	avl		
Surrogates:										
Nitrobenzene-d5	69	%	36-103	1	06/01/16	kbc	06/02/16	avl		
2-Fluorobiphenyl	71	%	36-119	1	06/01/16	kbc	06/02/16	avl		
Terphenyl-d14	84	%	37-109	1	06/01/16	kbc	06/02/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-50 | Date Collected: 05/25/16 17:15 | Matrix: Surface Water
Sample ID: SW-RR-TJ-MC | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061481										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/02/16	avl		
Surrogates:										
Nitrobenzene-d5	75	%	36-103	1	06/01/16	kbc	06/02/16	avl		
2-Fluorobiphenyl	73	%	36-119	1	06/01/16	kbc	06/02/16	avl		
Terphenyl-d14	83	%	37-109	1	06/01/16	kbc	06/02/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-51 | Date Collected: 05/25/16 17:15 | Matrix: Surface Water
Sample ID: SW-RR-TJ-MC (F) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061481										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/02/16	avl		
Surrogates:										
Nitrobenzene-d5	68	%	36-103	1	06/01/16	kbc	06/02/16	avl		
2-Fluorobiphenyl	70	%	36-119	1	06/01/16	kbc	06/02/16	avl		
Terphenyl-d14	68	%	37-109	1	06/01/16	kbc	06/02/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-52 | Date Collected: 05/25/16 17:25 | Matrix: Surface Water
Sample ID: SW-RR-TJ-LMC | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061481										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/02/16	avl		
Surrogates:										
Nitrobenzene-d5	66	%	36-103	1	06/01/16	kbc	06/02/16	avl		
2-Fluorobiphenyl	75	%	36-119	1	06/01/16	kbc	06/02/16	avl		
Terphenyl-d14	62	%	37-109	1	06/01/16	kbc	06/02/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-53 | Date Collected: 05/25/16 17:25 | Matrix: Surface Water
Sample ID: SW-RR-TJ-LMC (F) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061481										
Bis(2-ethylhexyl)phthalate	<1.0	ug/L	1.0	1	06/01/16	kbc	06/02/16	avl		
Surrogates:										
Nitrobenzene-d5	73	%	36-103	1	06/01/16	kbc	06/02/16	avl		
2-Fluorobiphenyl	75	%	36-119	1	06/01/16	kbc	06/02/16	avl		
Terphenyl-d14	93	%	37-109	1	06/01/16	kbc	06/02/16	avl		

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-54 | Date Collected: 05/25/16 11:10 | Matrix: Sediment
Sample ID: SED-RR-TL-RB (0.0-0.5) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061573										
Bis(2-ethylhexyl)phthalate	<48	ug/kg dry	48	1	06/06/16	kbc	06/06/16	avl		
Surrogates:										
Nitrobenzene-d5	66	%	36-98	1	06/06/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	61	%	44-105	1	06/06/16	kbc	06/06/16	avl		
Terphenyl-d14	60	%	46-109	1	06/06/16	kbc	06/06/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2974-87										
Batch: T061470										
n S(2w/	**Gk n v1 W4x**		**) xa)**	**a**	**) pyVayaG**	**e5**	**) pyVayaG**	**e5**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-55 | Date Collected: 05/25/16 11:10 | Matrix: Sediment
Sample ID: SED-RR-TL-RMC (0.0-0.5) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061573										
Bis(2-ethylhexyl)phthalate	<83	ug/kg dry	83	1	06/06/16	kbc	06/07/16	avl		
Surrogates:										
Nitrobenzene-d5	70	%	36-98	1	06/06/16	kbc	06/07/16	avl		
2-Fluorobiphenyl	59	%	44-105	1	06/06/16	kbc	06/07/16	avl		
Terphenyl-d14	72	%	46-109	1	06/06/16	kbc	06/07/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2974-87										
Batch: T061470										
n S(2w/	**I) n v1 W4x**		**) xa)**	**a**	**) pyVayaG**	**e5**	**) pyVayaG**	**e5**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-56 | Date Collected: 05/25/16 11:10 | Matrix: Sediment
Sample ID: SED-RR-TL-MC (0.0-0.5) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061573										
Br/ 69se43123e0127b343g2g4e	**p. - hych w61**		**I V**	**a**	**) G) GyaG**	**cv%**	**) G) GyaG**	**go2**		
Surrogates:										
Nitrobenzene-d5	67	%	36-98	1	06/06/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	59	%	44-105	1	06/06/16	kbc	06/06/16	avl		
Terphenyl-d14	50	%	46-109	1	06/06/16	kbc	06/06/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2974-87										
Batch: T061470										
n S(2w/	**dd n v1 W4x**		**) xa)**	**a**	**) pyVayaG**	**e5**	**) pyVayaG**	**e5**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-57 | Date Collected: 05/25/16 11:10 | Matrix: Sediment
Sample ID: SED-RR-TL-LMC (0.0-0.5) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061573										
Br/ 69se43123e0127b343g2g4e	**I G - hych w61**		**I I**	**a**	**) G) GyaG**	**cv%**	**) G) GyaG**	**go2**		
Surrogates:										
Nitrobenzene-d5	67	%	36-98	1	06/06/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	61	%	44-105	1	06/06/16	kbc	06/06/16	avl		
Terphenyl-d14	55	%	46-109	1	06/06/16	kbc	06/06/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2974-87										
Batch: T061470										
n S(2w/	**dp n v1 W4x**		**) xa)**	**a**	**) pyVayaG**	**e5**	**) pyVayaG**	**e5**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-58 | Date Collected: 05/25/16 11:10 | Matrix: Sediment
Sample ID: SED-RR-TL-RMC (0.5-1.0) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061573										
Bis(2-ethylhexyl)phthalate	<53	ug/kg dry	53	1	06/06/16	kbc	06/06/16	avl		
Surrogates:										
Nitrobenzene-d5	68	%	36-98	1	06/06/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	54	%	44-105	1	06/06/16	kbc	06/06/16	avl		
Terphenyl-d14	57	%	46-109	1	06/06/16	kbc	06/06/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2974-87										
Batch: T061470										
n S(2w/	**G9 n v1 W4x**		**) xa)**	**a**	**) pyVayaG**	**e5**	**) pyVayaG**	**e5**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-59 | Date Collected: 05/25/16 11:10 | Matrix: Sediment
Sample ID: SED-RR-TL-LB (0.0-0.5) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061573										
Br/ 69se43123e0127b343g2g4e	**kl - hych w61**		**I V**	**a**	**) G) GyaG**	**cv%**	**) G) GyaG**	**go2**		
Surrogates:										
Nitrobenzene-d5	64	%	36-98	1	06/06/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	54	%	44-105	1	06/06/16	kbc	06/06/16	avl		
Terphenyl-d14	46	%	46-109	1	06/06/16	kbc	06/06/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2974-87										
Batch: T061470										
n S(2w/	**dd n v1 W4x**		**) xa)**	**a**	**) pyVayaG**	**e5**	**) pyVayaG**	**e5**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-60 | Date Collected: 05/25/16 15:00 | Matrix: Sediment
Sample ID: SED-RR-TK-RB (0.0-0.5) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061573										
Bis(2-ethylhexyl)phthalate	<49	ug/kg dry	49	1	06/06/16	kbc	06/06/16	avl		
Surrogates:										
Nitrobenzene-d5	61	%	36-98	1	06/06/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	60	%	44-105	1	06/06/16	kbc	06/06/16	avl		
Terphenyl-d14	64	%	46-109	1	06/06/16	kbc	06/06/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2974-87										
Batch: T061470										
n S(2w/	**Gd n v1 W4x**		**) xa)**	**a**	**) pyVayaG**	**e5**	**) pyVayaG**	**e5**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-61 | Date Collected: 05/25/16 15:15 | Matrix: Sediment
Sample ID: SED-RR-TK-RMC (0.0-0.5) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061573										
Bis(2-ethylhexyl)phthalate	<43	ug/kg dry	43	1	06/06/16	kbc	06/06/16	avl		
Surrogates:										
Nitrobenzene-d5	67	%	36-98	1	06/06/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	60	%	44-105	1	06/06/16	kbc	06/06/16	avl		
Terphenyl-d14	54	%	46-109	1	06/06/16	kbc	06/06/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2974-87										
Batch: T061470										
n S(2w/	**dd n v1 W4x**		**) xa)**	**a**	**) pyVayaG**	**e5**	**) pyVayaG**	**e5**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-62 | Date Collected: 05/25/16 15:25 | Matrix: Sediment
Sample ID: SED-RR-TK-MC (0.0-0.5) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061573										
Br/ 69se43123e0127b343g2g4e	**pG - hych w61**		**I .**	**a**	**) G) GyaG**	**cv%**	**) G) GyaG**	**go2**		
Surrogates:										
Nitrobenzene-d5	66	%	36-98	1	06/06/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	57	%	44-105	1	06/06/16	kbc	06/06/16	avl		
Terphenyl-d14	53	%	46-109	1	06/06/16	kbc	06/06/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2974-87										
Batch: T061470										
n S(2w/	**Gk n v1 W4x**		**) xa)**	**a**	**) pyVayaG**	**e5**	**) pyVayaG**	**e5**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-63 | Date Collected: 05/25/16 15:35 | Matrix: Sediment
Sample ID: SED-RR-TK-LMC (0.0-0.5) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061573										
Br/ 69se43123e0127b343g2g4e	**al) - hych w61**		**I G**	**a**	**) G) GyaG**	**cv%**	**) G) GyaG**	**go2**		
Surrogates:										
Nitrobenzene-d5	69	%	36-98	1	06/06/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	63	%	44-105	1	06/06/16	kbc	06/06/16	avl		
Terphenyl-d14	53	%	46-109	1	06/06/16	kbc	06/06/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2974-87										
Batch: T061470										
n S(2w/	**da n v1 W4x**		**) xa)**	**a**	**) pyVayaG**	**e5**	**) pyVayaG**	**e5**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-64 | Date Collected: 05/25/16 15:40 | Matrix: Sediment
Sample ID: SED-RR-TK-LMC (0.5-1.0) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061573										
Bis(2-ethylhexyl)phthalate	<92	ug/kg dry	92	1	06/06/16	kbc	06/06/16	avl		
Surrogates:										
Nitrobenzene-d5	56	%	36-98	1	06/06/16	kbc	06/06/16	avl		
2-Fluorobiphenyl	48	%	44-105	1	06/06/16	kbc	06/06/16	avl		
Terphenyl-d14	54	%	46-109	1	06/06/16	kbc	06/06/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2974-87										
Batch: T061470										
n S(2w/	**VG n v1 W4x**		**) xa)**	**a**	**) pyVayaG**	**e5**	**) pyVayaG**	**e5**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-65 | Date Collected: 05/25/16 15:50 | Matrix: Sediment
Sample ID: SED-RR-TK-LB (0.5-1.0) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061573										
Br/ 69se43123e0127b343g2g4e	**pk - hych w61**		**I p**	**a**	**) G) GyaG**	**cv%**	**) G) dyaG**	**go2**		
Surrogates:										
Nitrobenzene-d5	64	%	36-98	1	06/06/16	kbc	06/07/16	avl		
2-Fluorobiphenyl	70	%	44-105	1	06/06/16	kbc	06/07/16	avl		
Terphenyl-d14	70	%	46-109	1	06/06/16	kbc	06/07/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2974-87										
Batch: T061470										
n S(2w/	**dl n v1 W4x**		**) xa)**	**a**	**) pyVayaG**	**e5**	**) pyVayaG**	**e5**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-66 | Date Collected: 05/25/16 15:50 | Matrix: Sediment
Sample ID: SED-RR-TK-LB (DUP) | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061573										
Bis(2-ethylhexyl)phthalate	<47	ug/kg dry	47	1	06/06/16	kbc	06/07/16	avl		
Surrogates:										
Nitrobenzene-d5	74	%	36-98	1	06/06/16	kbc	06/07/16	avl		
2-Fluorobiphenyl	71	%	44-105	1	06/06/16	kbc	06/07/16	avl		
Terphenyl-d14	68	%	46-109	1	06/06/16	kbc	06/07/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2974-87										
Batch: T061470										
n S(2w/	**d) n v1 W4x**		**) xa)**	**a**	**) pyVayaG**	**e5**	**) pyVayaG**	**e5**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-67 Date Collected: 05/25/16 16:35 Matrix: Sediment
Sample ID: SED-RR-TJ-LB Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061573										
Bis(2-ethylhexyl)phthalate	<55	ug/kg dry	55	1	06/06/16	kbc	06/07/16	avl		
Surrogates:										
Nitrobenzene-d5	65	%	36-98	1	06/06/16	kbc	06/07/16	avl		
2-Fluorobiphenyl	70	%	44-105	1	06/06/16	kbc	06/07/16	avl		
Terphenyl-d14	73	%	46-109	1	06/06/16	kbc	06/07/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2974-87										
Batch: T061470										
n S(2w/	**G) n v1 W4x**		**) xa)**	**a**	**) pyVayaG**	**e5**	**) pyVayaG**	**e5**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-68 | Date Collected: 05/25/16 16:50 | Matrix: Sediment
Sample ID: SED-RR-TJ-RB | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061573										
Br/ 69se43123e0127b343g2g4e	**d9 - hych w61**		**da**	**a**	**) G) GyaG**	**cv%**	**) G) dyaG**	**go2**		
Surrogates:										
Nitrobenzene-d5	70	%	36-98	1	06/06/16	kbc	06/07/16	avl		
2-Fluorobiphenyl	63	%	44-105	1	06/06/16	kbc	06/07/16	avl		
Terphenyl-d14	63	%	46-109	1	06/06/16	kbc	06/07/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2974-87										
Batch: T061470										
n S(2w/	**I Gn v1 W4x**		**) xa)**	**a**	**) pyVayaG**	**e5**	**) pyVayaG**	**e5**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-69 Date Collected: 05/25/16 17:10 Matrix: Sediment
Sample ID: SED-RR-TJ-RMC Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061573										
Bis(2-ethylhexyl)phthalate	<42	ug/kg dry	42	1	06/06/16	kbc	06/07/16	avl		
Surrogates:										
Nitrobenzene-d5	59	%	36-98	1	06/06/16	kbc	06/07/16	avl		
2-Fluorobiphenyl	65	%	44-105	1	06/06/16	kbc	06/07/16	avl		
Terphenyl-d14	65	%	46-109	1	06/06/16	kbc	06/07/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2974-87										
Batch: T061470										
n S(2w/	**d. n v1 W4x**		**) xa)**	**a**	**) pyVayaG**	**e5**	**) pyVayaG**	**e5**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-70 | Date Collected: 05/25/16 17:20 | Matrix: Sediment
Sample ID: SED-RR-TJ-MC | Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061573										
Br/ 69se43123e0127b343g2g4e	**I . - hych w61**		**I I**	**a**	**) G) GyaG**	**cv%**	**) G) dyaG**	**go2**		
Surrogates:										
Nitrobenzene-d5	73	%	36-98	1	06/06/16	kbc	06/07/16	avl		
2-Fluorobiphenyl	65	%	44-105	1	06/06/16	kbc	06/07/16	avl		
Terphenyl-d14	68	%	46-109	1	06/06/16	kbc	06/07/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2974-87										
Batch: T061470										
n S(2w/	**dl n v1 W4x**		**) xa)**	**a**	**) pyVayaG**	**e5**	**) pyVayaG**	**e5**	N	

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ANALYTICAL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID: T16E464-71 Date Collected: 05/25/16 17:30 Matrix: Sediment
Sample ID: SED-RR-TJ-LMC Date Received: 05/26/16 10:33

PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
SEMIsQOLATILE ORi ANIC COMPOUNDS BY i CsMS										
Analysis Method: EPA 8270C										
Batch: T061573										
Bis(2-ethylhexyl)phthalate	<48	ug/kg dry	48	1	06/06/16	kbc	06/07/16	avl		
Surrogates:										
Nitrobenzene-d5	66	%	36-98	1	06/06/16	kbc	06/07/16	avl		
2-Fluorobiphenyl	67	%	44-105	1	06/06/16	kbc	06/07/16	avl		
Terphenyl-d14	78	%	46-109	1	06/06/16	kbc	06/07/16	avl		
WET CHEMISTRY										
Analysis Method: ASTM D2974-87										
Batch: T061470										
n S(2w/	**G n v1 W4x**		**) xa)**	**a**	**) pyVayaG**	**e5**	**) pyVayaG**	**e5**	N	

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f UALITY CONTROL RESULTS

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

QC Batch: T061389
QC Batch Method: EPA 3510C Separatory Funnel Liquid-Liquid Extr.
Analysis Description: Filtration for Dissolved Analysis
Analysis Method: Dissolved Analysis

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

QC Batch: T061453
QC Batch Method: EPA 3510C Separatory Funnel Liquid-Liquid Extr.
Analysis Description: Semi-volatiles, Phthalates only
Analysis Method: EPA 8270C

METHOD BLANK: T) Gal pVsBLKa

Parameter	Units	Blank Result	Reporting Limit	Notes
Bis(2-ethylhexyl)phthalate	ug/L	<1.0	1.0	
Nitrobenzene-d5 (S)	%	63	36-103	
2-Fluorobiphenyl (S)	%	63	36-119	
Terphenyl-d14 (S)	%	71	37-109	

LABORATORY CONTROL SAMPLE: T) Gal pVsBSa

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Bis(2-ethylhexyl)phthalate	ug/L	100	72.5	73	57-107	
Nitrobenzene-d5 (S)	%	101	66.4	66	36-103	
2-Fluorobiphenyl (S)	%	101	62.1	62	36-119	
Terphenyl-d14 (S)	%	100	70.9	71	37-109	

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

QC Batch: T061480
QC Batch Method: EPA 3510C Separatory Funnel Liquid-Liquid Extr.
Analysis Description: Semi-volatiles, Phthalates only
Analysis Method: EPA 8270C

METHOD BLANK: T) Gal k) sBLKa

Parameter	Units	Blank Result	Reporting Limit	Notes
Bis(2-ethylhexyl)phthalate	ug/L	<1.0	1.0	
Nitrobenzene-d5 (S)	%	71	36-103	
2-Fluorobiphenyl (S)	%	72	36-119	
Terphenyl-d14 (S)	%	96	37-109	

LABORATORY CONTROL SAMPLE: T) Gal k) sBSa

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Bis(2-ethylhexyl)phthalate	ug/L	100	84.9	85	57-107	
Nitrobenzene-d5 (S)	%	101	78.9	78	36-103	
2-Fluorobiphenyl (S)	%	101	84.9	84	36-119	

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LABORATORY CONTROL SAMPLE: T) Gal k) sBSa

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Terphenyl-d14 (S)	%	100	90.0	90	37-109	

MATRIX SPIKE yMATRIX SPIKE DUPLICATE: T) Gal k) sMSDa Original: **TaGEl Gl sl G**

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Bis(2-ethylhexyl)phthalate	ug/L	0	94.7	86.1	73.6	91	78	52-106	16	29	
Nitrobenzene-d5 (S)	%		95.6	66.6	59.6	70	62	36-103			
2-Fluorobiphenyl (S)	%		95.6	67.7	60.0	71	63	36-119			
Terphenyl-d14 (S)	%		94.7	74.7	61.9	79	65	37-109			

Trace Project ID: T16E464

Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

QC Batch: T061481

QC Batch Method: EPA 3510C Separatory Funnel Liquid-Liquid Extr.

Analysis Description: Semi-volatiles, Phthalates only

Analysis Method: EPA 8270C

METHOD BLANK: T) Gal kasBLKa

Parameter	Units	Blank Result	Reporting Limit	Notes
Bis(2-ethylhexyl)phthalate	ug/L	<1.0	1.0	
Nitrobenzene-d5 (S)	%	74	36-103	
2-Fluorobiphenyl (S)	%	76	36-119	
Terphenyl-d14 (S)	%	73	37-109	

LABORATORY CONTROL SAMPLE: T) Gal kasBSa

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Bis(2-ethylhexyl)phthalate	ug/L	100	91.0	91	57-107	
Nitrobenzene-d5 (S)	%	101	84.5	84	36-103	
2-Fluorobiphenyl (S)	%	101	86.6	86	36-119	
Terphenyl-d14 (S)	%	100	85.4	85	37-109	

MATRIX SPIKE yMATRIX SPIKE DUPLICATE: T) Gal kasMSDa Original: **TaGEl Gl sl d**

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Bis(2-ethylhexyl)phthalate	ug/L	0	174	173	164	99	95	52-106	5	29	
Nitrobenzene-d5 (S)	%		176	136	142	77	81	36-103			
2-Fluorobiphenyl (S)	%		176	129	147	73	84	36-119			
Terphenyl-d14 (S)	%		174	134	162	77	93	37-109			

Trace Project ID: T16E464

Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

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QC Batch: T061573
QC Batch Method: EPA 3550B Ultrasonic Extraction
Analysis Description: Semi-volatiles, Phthalates only
Analysis Method: EPA 8270C

METHOD BLANK: T) GapdVsBLKa

Parameter	Units	Blank Result	Reporting Limit	Notes
Bis(2-ethylhexyl)phthalate	ug/kg wet	<330	330	
Nitrobenzene-d5 (S)	%	56	36-98	
2-Fluorobiphenyl (S)	%	56	44-105	
Terphenyl-d14 (S)	%	63	46-109	

LABORATORY CONTROL SAMPLE: T) GapdVsBSa

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Bis(2-ethylhexyl)phthalate	ug/kg wet	3330	3060	92	49-121	
Nitrobenzene-d5 (S)	%	3360	2550	76	36-98	
2-Fluorobiphenyl (S)	%	3360	2510	75	44-105	
Terphenyl-d14 (S)	%	3330	2710	81	46-109	

MATRIX SPIKE yMATRIX SPIKE DUPLICATE: T) GapdVsMSDa Original: **TaGEl Gl sGd**

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Bis(2-ethylhexyl)phthalate	ug/kg dry	0	5550	3740	4300	67	77	40-124	14	35	
Nitrobenzene-d5 (S)	%		5610	3150	3050	56	54	36-98			
2-Fluorobiphenyl (S)	%		5610	3240	3630	58	65	44-105			
Terphenyl-d14 (S)	%		5550	3100	4040	56	73	46-109			

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

QC Batch: T061446
QC Batch Method: EPA 624 Purge and Trap
Analysis Description: Volatiles, BTEX/MTBE (GC/MS)
Analysis Method: EPA 8260B

METHOD BLANK: T) Gal l GsBLKa

Parameter	Units	Blank Result	Reporting Limit	Notes
Benzene	ug/L	<1.0	1.0	
Toluene	ug/L	<1.0	1.0	
Ethylbenzene	ug/L	<1.0	1.0	
m,p-Xylene	ug/L	<2.0	2.0	
o-Xylene	ug/L	<1.0	1.0	
Xylenes, total	ug/L	<3.0	3.0	
1,2-Dichloroethane-d4 (S)	%	101	68-133	
Toluene-d8 (S)	%	81	75-120	

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LABORATORY CONTROL SAMPLE: T) Gal I GsBSa

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Benzene	ug/L	20.0	17.1	86	80-120	
Toluene	ug/L	20.0	16.0	80	80-120	
1,2-Dichloroethane-d4 (S)	%	28.0	29.7	106	68-133	
Toluene-d8 (S)	%	28.0	23.1	82	75-120	

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

QC Batch: T061494
QC Batch Method: EPA 624 Purge and Trap
Analysis Description: Volatiles, BTEX/MTBE (GC/MS)
Analysis Method: EPA 8260B

METHOD BLANK: T) Gal . I sBLKa

Parameter	Units	Blank Result	Reporting Limit	Notes
Benzene	ug/L	<1.0	1.0	
Toluene	ug/L	<1.0	1.0	
Ethylbenzene	ug/L	<1.0	1.0	
m,p-Xylene	ug/L	<2.0	2.0	
o-Xylene	ug/L	<1.0	1.0	
Xylenes, total	ug/L	<3.0	3.0	
1,2-Dichloroethane-d4 (S)	%	107	68-133	
Toluene-d8 (S)	%	81	75-120	

LABORATORY CONTROL SAMPLE: T) Gal . I sBSa

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Benzene	ug/L	20.0	20.6	103	80-120	
Toluene	ug/L	20.0	19.1	96	80-120	
1,2-Dichloroethane-d4 (S)	%	28.0	29.3	105	68-133	
Toluene-d8 (S)	%	28.0	23.6	84	75-120	

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

QC Batch: T061470
QC Batch Method: % Solids
Analysis Description: Solids, Dry Weight
Analysis Method: ASTM D2974-87

SAMPLE DUPLICATE: T) Gal d) sDUPa Original: **TaGEI GI sGd**

Parameter	Units	Original Result	DUP Result	RPD	Max RPD	Notes
% Solids	% by Wt.	60.1	58.1	3	20	

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Page 1 of 5

TRACE ID NO. T16E464

TRACE USE ONLY
Logged By: AY Checked By: [illegible]
Received on ice: (Yes) No Preservative Checked: Yes No (N/A)
Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Report Results To:
Company Name: TRC ENVIRONMENTAL CORP.
Report to: SCOTT PAWLUKIEWICZ
Mailing Address: 2025 E. BELTLINE AVE SE STE. 402
City, State, Zip Code: GRAND RAPIDS, MI 49546
Phone: ~~201 638 5~~ 616 915 3604 Fax: 616 975 1098
Email Address: SPawlukiewicz@trcsolutions.com
Cell #: 616 915 3604 Sampled by: SP
Project Name & #: LEE ECOLOGICAL EVALUATION, 249642.0000.0000 phase 2

Bill To:
Billing Address (if different)
City, State, Zip Code: WINDSOR, CT
Attn: AP Invoice Phone: PO #:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐
Turnaround Requirements: Standard ☒ 3 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ * Requires Prior Approval
Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, Ot = Oil, Wi = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

Request for Analytical Services — ANALYSIS REQUESTED

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	COOL	HCL	HNO3	H2SO4	NaOH	Other	DEHP	DEHP (Dissolved)	BTEX								REMARKS	Possible Waste Hazards
1/2	5/24/16	1035	SW-EDD-B3		W	6		x					2	2	2								LAB FILTER	
3/4	5/24/16	1055	SW-EDD-B4		W	6		x					2	2	2								DISS. DEHP	
5/6	5/24/16	1140	SW-EDD-B2		W	6		x					2	2	2								SAMPLES	
7/8	5/24/16	1400	PW-R-09		W	4							2	2										
9/10	5/24/16	1630	PW-R-10		W	4							2	2										
11/12	5/24/16	1730	PW-R-04		W	4							2	2										
13/14	5/25/16	0948	PW-R-01		W	4							2	2										
15	5/25/16	—	TRIP BLANK		W	1									1									

Please Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
1) [illegible]	FEDEX	5/26/16	8:30	2) Fed Ex	[illegible]	5/26/16	10:33	3)			
4)				5)				6)			

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fax 231.773.6537
Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444-2673
www.trace-labs.com

Page 2 of 5

TRACE ID NO. T16E464

TRACE USE ONLY
Logged By: AM Checked By: GH
Received on ice: Yes No Preservative Checked: Yes No N/A
Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Report Results To:
Company Name: TRC ENVIRONMENTAL CORP.
Report to: SCOTT PAWLKIEWICZ
Mailing Address: 2025 E. BELTLINE AVE SE SR. 402
City, State, Zip Code: GRAND RAPIDS MI 49546
Phone: 616 915 7604 Fax: 616 975 1098
Email Address: SPawlkiewicz@trcsolutions.com
Cell #: 616 915 7604 Sampled by: SP
Project Name & #: LEC Ecological Evaluation, 248642.0000.0000, phase 2

Bill To:
Billing Address (if different)
City, State, Zip Code WINDSOR CT
Attn: Phone: PO #:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐
Turnaround Requirements: Standard ☒ 3 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ * Requires Prior Approval
Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, Oil = Oil, WI = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

ANALYSIS REQUESTED

Request for Analytical Services

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	COOL	HCL	HNO3	H_2SO_4	NaOH	Other	DEHP	DEHP (DISSOLVED)	BTEX		DEHP	GRAIN SIZE					REMARKS	Please Highlight Hazards
16/17	5/25/16	1005	SW-RR-TM-RB		W	4							2	2									LAB FILTER	
18/19	5/25/16	1005	SW-RR-TM-MC		W	4							2	2									DISSOLVED DEHP	
20/21	5/25/16	1005	SW-RR-TM-LB		W	4							2	2										
22/23	5/25/16	1110	~~SW-RR-TM~~ SP SW-RR-TL-LB		W	4							2	2										
24/25	5/25/16	1110	SW-RR-TL-LMC		W	4							2	2										
26/27	5/25/16	1110	SW-RR-TL-MC		W	4							2	2										
28/29	5/25/16	1110	SW-RR-TL-RMC		W	4							2	2										
30/31	5/25/16	1110	SW-RR-TL-RB		W	4							2	2										
32/33	5/25/16	1450	SW-RR-TK-RB		W	3							2	1										
34/35	5/25/16	1450	SW-RR-TK-RB (DUP)		W	3							2	1										

Please Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
1) B Pawlkiewicz	FEDEX	5/25/16	1930	2) FedEx	[illegible]	5/26/16	10:33	3)			
4)				5)				6)			

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toll-free 800.733.5998
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Trace Analytical Laboratories, Inc.
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Muskegon, MI 49444-2673
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www.trace-labs.com

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Page 3 of 5

TRACE ID NO. T16E464

TRACE USE ONLY
Logged By: LM Checked By: CH
Received on ice: Yes No Preservative Checked: Yes No N/A
Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Report Results To:
Company Name: TRC Environmental Corp.
Report to: Scott Pawlukiewicz
Mailing Address: 2025 E. Beltline Ave. SE. Ste. 402
City, State, Zip Code: Grand Rapids, MI 49546
Phone: 616 915 3604 Fax: 616 975 1098
Email Address: spawlukiewicz@trcsolutions.com
Cell #: 616 915 3604 Sampled by: SD
Project Name & #: LEE Ecological Evaluation, 248642.0000.0002, phase 2

Bill To:
Billing Address (if different)
City, State, Zip Code Windsor, CT
Attn: Phone: PO #:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐
Turnaround Requirements: Standard ☒ 3 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ * Requires Prior Approval
Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, Oil = Oil, WI = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

Request for Analytical Services — ANALYSIS REQUESTED

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	COOL	HCL	HNO3	H2SO4	NaOH	ZnAc	DENP (PRESERVATION)	Dissolved DENP	REMARKS	Possible Hazardous Materials
36/37	5/25/16	1510	SW-RR-TK-RMC		W	3							2	1	LAB FILTER	
38/39	5/25/16	1520	SW-RR-TK-MC		W	3							2	1	DISS. DENP	
40/41	5/25/16	1530	SW-RR-TK-LMC		W	3							2	1	Samples	
42/43	5/25/16	1545	SW-RR-TK-LB		W	3							2	1		
44/45	5/25/16	1630	SW-RR-TJ-LB		W	3							2	1		
46/47	5/25/16	1645	SW-RR-TJ-RB		W	3							2	1		
48/49	5/25/16	1705	SW-RR-TJ-RMC		W	3							2	1		
50/51	5/26/16	1715	SW-RR-TJ-MC		W	3							2	1		
52/53	5/26/16	1725	SW-RR-TJ-LMC		W	3							2	1		

Please Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
1) S. Pawl	FedEx	5/27/16	1830	2) FedEx	[illegible]	5/26/16	10:33	3)			
4)				5)				6)			

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phone 231.773.5998 toll-free 800.733.5998 fax 231.773.6537
Trace Analytical Laboratories, Inc. 2241 Black Creek Road Muskegon, MI 49444-2673 info@trace-labs.com www.trace-labs.com

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www.trace-labs.com

CHAIN-OF-CUSTODY RECORD

Page 4 of 5

TRACE ID NO. T16E464

TRACE USE ONLY

Logged By: dM Checked By: GH

Received on ice: Yes No Preservative Checked: Yes No N/A

Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Report Results To:

Company Name: TRC Environmental Corp.

Report to: Scott Pawlukiewicz

Mailing Address: 2025 E. Beltline Ave. SE Ste 402

City, State, Zip Code: Grand Rapids MI 49546

Phone: 616 915 3604 Fax: 616 975 1078

Email Address: spawlukiewicz@trc-solutions.com

Cell #: 616 915 3604 Sampled by: SP

Project Name & #: LEE Ecological Evaluation, 248642.0000.0000, phase 2

Bill To:

Billing Address (if different)

City, State, Zip Code: Windsor, CT

Attn: Phone: PO #:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐

Turnaround Requirements: Standard ☒ 3 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ * Requires Prior Approval

Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, Oil = Oil, Wi = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

Request for Analytical Services

ANALYSIS REQUESTED

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	PRESERVATION: COOL	HCL	HNO3	H_2SO_4	NaOH	Other	DEHP	Grain Size	REMARKS	Possibly Hazardous
54	5/25/16	1110	SED-RR-TL-RB (0.0-0.5)		S	2							1	1		
55	5/25/16	1110	SED-RR-TL-RMC (0.0-0.5)		S	2							1	1		
56	5/25/16	1110	SED-RR-TL-MC (0.0-0.5)		S	2							1	1		
57	5/25/16	1110	SED-RR-TL-LMC (0.0-0.5)		S	2							1	1		
58	5/25/16	1110	SED-RR-TL-~~BMC~~ 5-26-16 (0.5-1.0)		S	2							1	1		
59	5/25/16	1110	SED-RR-TL-LB (0.0-0.5)		S	2							1	1		
60	5/25/16	1500	SED-RR-TK-RB (0.0-0.5)		S	2							1	1		
61	5/25/16	1515	SED-RR-TK-RMC (0.0-0.5)		S	2							1	1		
62	5/25/16	1525	SED-RR-TK-MC (0.0-0.5)		S	2							1	1		
63	5/25/16	1535	SED-RR-TK-LMC (0.0-0.5)		S	2							1	1		

Please Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
1) B. Pairing	FedEx	5/25/16	1700	2) FedEx	[illegible]	5/26/16	10:33	3)			
4)				5)				6)			

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Page 5 of 5

TRACE ID NO. T16E464

TRACE USE ONLY

Logged By: dM Checked By: GA

Received on ice: (Yes) No Preservative Checked: Yes No (N/A)

Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Report Results To:

Company Name: TRC ENVIRONMENTAL CORP

Report to: SCOTT PAWLUKIEWICZ

Mailing Address: 2025 E. BELTLINE AVE. SE. STE 402

City, State, Zip Code: GRAND RAPIDS, MI 49546

Phone: 616 915 3604 Fax: 616 975-1078

Email Address: spawlukiewicz@trcsolutions.com

Cell #: 616 915 3604 Sampled by: SP

Project Name & #: LEC Ecological Evaluation, 248642.0000.0000, phase 2

Bill To:

Billing Address (if different)

City, State, Zip Code WINDSOR, CT

Attn: Phone: PO #:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐

Turnaround Requirements: Standard ☑ 3 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ *Requires Prior Approval

Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, Oi = Oil, WI = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

Request for Analytical Services

ANALYSIS REQUESTED

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	COOL	HCL	HNO3	H2SO4	NaOH	Other	DEHP	GRAIN SIZE									REMARKS	Sample Matrix (Solids)
64	5/25/16	1540	SED-RR-TK-LMC (0.5-1.0)		S	2							1	1										
65	5/25/16	1550	SED-RR-TK-LB (0.5-1.0)		S	2							1	1										
66	5/25/16	1550	SED-RR-TK-LB (DUP)		S	2							1	1										
67	5/25/16	1635	SED-RR-TJ-LB		S	4							2	2									MS/MSD	
68	5/25/16	1650	SED-RR-TJ-RB		S	2							1	1										
69	5/25/16	1710	SED-RR-TJ-RMC		S	2							1	1										
70	5/25/16	1720	SED-RR-TJ-MC		S	2							1	1										
71	5/25/16	1730	SED-RR-TJ-LMC		S	2							1	1										
SP	~~5/25/16~~																							

Please Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
1) B. Pauley	FEDEX	5/26/16	1930	2) Fed Ex	[illegible]	5/26/16	10:33	3)			
4)				5)				6)			

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info@trace-labs.com
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June 28, 2016

Mr. Scott Pawlukiewicz
TRC Solutions
2025 E. Beltline Ave., SE, Ste 402
Grand Rapids, MI 49546

Phone: (201) 636-5884
Fax: (616) 975-1098

RE: Trace Project T16F037
Client Project LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Dear Mr. Pawlukiewicz:

Enclosed are your analytical results. The results of this report relate only to the samples listed in the body of this report.

All reports were examined through Trace's validation process to ensure that requirements for quality and completeness were satisfied. All reported analytical results were obtained in accordance with the methods referenced on the reports. Every practical effort was made to meet the reporting limit specifications for this work, however, some results may have raised reporting limits to correct for percent solids.

For clients that require NELAC Accreditation, Trace certifies that these test results meet all requirements of the NELAC Standard, except for those analytes with a "N" notation. These analytes have not been evaluated by NELAC at Trace's discretion and will not be reported unless requested by client.

If you have questions concerning this report, please contact me at 231.773.5998 or by email at jmink@trace-labs.com.

Sincerely,

Jon Mink
Senior Project Manager

Enclosures

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SAMPLE SUMMARY

Trace Project ID: T16F037
Client Project ID: LEC Ecological Evaluation, 248642.0000.0000, Ph Z

Trace ID	Sample ID	Matrix	Collected By	Date Collected	Date Received
T16F037-29	SED-RR-TE-RB (0.0-0.5)	Sediment	rh	06/01/16 10:20	06/02/16 09:41
T16F037-30	SED-RR-TE-MC (0.0-0.5)	Sediment	rh	06/01/16 10:40	06/02/16 09:41
T16F037-31	SED-RR-TE-LB (0.0-0.5)	Sediment	rh	06/01/16 11:00	06/02/16 09:41
T16F037-32	SED-RR-TD-RB (0.0-0.5)	Sediment	rh	06/01/16 12:05	06/02/16 09:41
T16F037-33	SED-RR-TD-LB (0.0-0.5)	Sediment	rh	06/01/16 12:15	06/02/16 09:41
T16F037-35	SED-RR-TC-RB (0.0-0.5)	Sediment	rh	06/01/16 12:30	06/02/16 09:41
T16F037-36	SED-RR-TC-LB (0.0-0.5)	Sediment	rh	06/01/16 13:05	06/02/16 09:41
T16F037-37	SED-RR-TB-RB (0.0-0.5)	Sediment	rh	06/01/16 14:45	06/02/16 09:41
T16F037-38	SED-RR-TB-MC (0.0-0.5)	Sediment	rh	06/01/16 14:55	06/02/16 09:41
T16F037-39	SED-RR-TB-MC (0.5-1.0)	Sediment	rh	06/01/16 15:00	06/02/16 09:41
T16F037-40	SED-RR-TA-LB (0.0-0.5)	Sediment	rh	06/01/16 15:55	06/02/16 09:41
T16F037-41	SED-RR-TB-LB (0.0-0.5)	Sediment	rh	06/01/16 15:10	06/02/16 09:41
T16F037-42	SED-RR-TA-MC (0.0-0.5)	Sediment	rh	06/01/16 16:10	06/02/16 09:41
T16F037-43	SED-RR-TA-RB (0.0-0.5)	Sediment	rh	06/01/16 16:20	06/02/16 09:41

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AN EXPLANATION OF TERMS AND SYMBOLS WHICH MAY OCCUR IN THIS REPORT

DEFINITIONS

LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
DUP	Matrix Duplicate
RDL	Reporting Detection Limit
MCL	Maximum Contamination Limit
TIC	Tentatively Identified Compound
<, ND or U	Indicates the compound was analyzed for but not detected
*	Indicates a result that exceeds its associated MCL or Surrogate control limits
N	Indicates that the compound has not been evaluated by NELAC
NA	Indicates that the compound is not available.

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Page 1 of 4

TRACE ID NO. T16F037

TRACE USE ONLY

Logged By: [illegible] Checked By: [illegible]

Received on ice: Yes No Preservative Checked: Yes No N/A

Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Report Results To:

Company Name: TRC Environmental Corp

Report to: Scott Powlukiewicz

Mailing Address: 2025 E. Beltline Ave. SE, Ste 402

City, State, Zip Code: Grand Rapids, MI 49546

Phone: 616-915-3604 Fax: 616-975-1098

Email Address: SPowlukiewicz@trcsolutions.com

Cell #: 616-915-3604 Sampled by: RH

Project Name & #: LEC Ecological Evaluation, 248642.0000.0000, ph 2

Bill To:

Billing Address (if different)

City, State, Zip Code Windsor, CT

Attn: AP Invoice Phone: PO #:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐

Turnaround Requirements: Standard ☒ 3 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ * Requires Prior Approval

Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, OI = Oil, WI = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

ANALYSIS REQUESTED

Request for Analytical Services

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	COOL	HCL	H_2SO_4	HNO_3	NaOH	OTHER	DEHP	DEHP (Dissolved to be LAB FILTERED)								REMARKS	Possible Health Hazards
1/2	6/1/16	1020	SW-RR-TE-RB		W	3							2	1									
3/4		1040	SW-RR-TE-MC		W	3							2	1									
5/6		1100	SW-RR-TE-LB		W	3							2	1									
7/8		1205	SW-RR-TD-RB		W	3							2	1									
9/10		420	SW-RR-TA-RB		W	3							2	1									

Please Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
1) [signature]	Fed Ex	6/1/16	1830	2) Fed Ex	[signature]	6/2/16	9:41	3)			
4)				5)				6)			

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2241 Black Creek Road
Muskegon, MI 49444-2673
www.trace-labs.com

Page 2 of 4

TRACE ID NO. T16F037

TRACE USE ONLY

Logged By: dll Checked By: [illegible]

Received on ice: (Yes) No Preservative Checked: Yes No (N/A)

Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Report Results To:

Company Name: TRC Environmental Corp

Report to: Scott Pawlukiewicz

Mailing Address: 2025 E. Beltline Ave. SE, Ste 402

City, State, Zip Code: Grand Rapids, MI 49546

Phone: 616-915-3604 Fax: 616-975-1098

Email Address: spawlukiewicz@trcsolutions.com

Cell #: 616-915-3604 Sampled by: RH

Project Name & #: LEC Ecological Evaluation, 248642.0000.0000.Ph 2

Bill To:

Billing Address (if different)

City, State, Zip Code Windsor, CT

Attn: AP Invoice Phone: PO #:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐

Turnaround Requirements: Standard ☒ 3 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ * Requires Prior Approval

Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, Ot = Oil, Wi = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

ANALYSIS REQUESTED

Request for Analytical Services

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	COOL	HCL	HNO3	H2SO4	NaOH	Other	DEHP	DEHP (Dissolved-to be LAB FILTERED)	MS/MSD							REMARKS	Flashpoint (Yes/No)
11/12	6/1/16	1215	SW-RR-TD-LB		W	3							2	1									
13/14		1230	SW-RR-TC-RB		W	3							2	1									
15/16		1305	SW-RR-TC-LB		W	3							2	1									
17/18		2 45	SW-RR-TB-RB		W	3							2	1									
19/20		2 50	SW-RR-TB-RB (DUP)		W	1							1										
21/22		2 55	SW-RR-TB-MC		W	3							2	1									
23/24		3 10	SW-RR-TB-LB		W	5							2	1	2							MS/MSD	
25/26		3 55	SW-RR-TA-LB		W	3							2	1									
27/28		4 10	SW-RR-TA-MC		W	3							2	1									

Please Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
1) [illegible]	Fed Ex	6/1/16	1630	2) Fed Ex	[illegible]	6/2/16	9:41	3)			
4)				5)				6)			

In executing this Chain of Custody, the client acknowledges acceptance of the terms and conditions of the agreement as set forth at http://www.trace-labs.com/cocterms.php

TRACE the science of compliance
phone 231.773.5998 toll-free 800.733.5998 fax 231.773.6537
Trace Analytical Laboratories, Inc. 2241 Black Creek Road Muskegon, MI 49444-2673 info@trace-labs.com www.trace-labs.com

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CHAIN-OF-CUSTODY RECORD

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Muskegon, MI 49444-2673
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Page 3 of 4

TRACE ID NO. T16F037

TRACE USE ONLY

Logged By: AH Checked By: [illegible]

Received on ice: (Yes) No Preservative Checked: Yes No (N/A)

Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Report Results To:

Company Name: TRC Environmental Corp.
Report to: Scott Pawlukiewicz
Mailing Address: 2025 E. Beltline Ave, SE, Ste 402
City, State, Zip Code: Grand Rapids, MI 49546
Phone: 616-915-3604 Fax: 616-975-1098
Email Address: spawlukiewicz@trcsolutions.com
Cell #: 616-915-3604 Sampled by: RH
Project Name & #: LEC Ecological Evaluation; 248642.0000.000 ph 2

Bill To:

Billing Address (if different)
City, State, Zip Code Windsor, CT
Attn: AP Invoice Phone: PO #:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐

Turnaround Requirements: Standard ☒ 3 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ * Requires Prior Approval

Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, Oil = Oil, Wi = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

Request for Analytical Services

ANALYSIS REQUESTED

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	PRESERVATION: COOL	HCL	HNO3	H2SO4	NaOH	Other	DEHP	Grain Size	REMARKS	Possible Hazardous
29	6/1/16	1020	SED-RR-TE-RB (0.0-0.5)		S	2							1	1		
30		1040	SED-RR-TE-MC (0.0-0.5)		S	2							1	1		
31		1100	SED-RR-TE-LB (0.0-0.5)		S	2							1	1		
32		1205	SED-RR-TD-RB (0.0-0.5)		S	2							1	1		
33		1215	SED-RR-TD-LB (0.0-0.5)		S	2							1	1		
34		1220	SED-RR-TD-LB (0.0-0.5) (DUP)		S	1							1			
35		1230	SED-RR-TC-RB (0.0-0.5)		S	2							1	1		
36		105	SED-RR-TC-LB (0.0-0.5)		S	2							1	1		
37		245	SED-RR-TB-RB (0.0-0.5)		S	2							1	1		
38		255	SED-RR-TB-MC (0.0-0.5)		S	2							1	1		

Please Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
1) [illegible]	Fed Ex	6/1	1850	2) Fed Ex	[illegible]	6/2/16	9:41	3)			
4)				5)				6)			

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CHAIN-OF-CUSTODY RECORD

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Page 4 of 4

TRACE ID NO. T16F037

TRACE USE ONLY

Logged By: AM Checked By: [illegible]

Received on ice: (Yes) No Preservative Checked: Yes No (N/A)

Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Report Results To:

Company Name: TRC Environmental Corp.
Report to: Scott Pawlukiewicz
Mailing Address: 2025 E. Beltline Ave, SE, Ste 402
City, State, Zip Code: Grand Rapids, MI 49546
Phone: 616-915-3604 Fax: 616-975-1098
Email Address: spawlukiewicz@trcsolutions.com
Cell #: 616-915-3604 Sampled by: RH
Project Name & #: LEC Ecological Evaluation, 248142.0000.0000, ph 2

Bill To:

Billing Address (if different)
City, State, Zip Code Windsor, CT
Attn: AP Invoice Phone: PO #:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐

Turnaround Requirements: Standard ☒ 3 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ * Requires Prior Approval

Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, Oi = Oil, Wi = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

Request for Analytical Services

ANALYSIS REQUESTED

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	PRESERVATION: COOL	HCL	HNO3	H2SO4	NaOH	Other	SEHP	Grain Size	MS/MSD	REMARKS	Possible Hazard Hazards
39	6/1/16	300	SED-RR-TB-MC (0.5-1.0)		S	2							1	1			
40		355	SED-RR-TA-LB (0.0-0.5)		S	2							1	1			
41		310	SED-RR-TB-LB (0.0-0.5)		S	2							1	1			
42		410	SED-RR-TA-MC (0.0-0.5)		S	2							1	1			
43		420	SED-RR-TA-RB (0.0-0.5)		S	2							1	1	2	MS/MSD	

Please Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
1) [illegible]	Fed Ex	6/1/16	1830	2) Fed Ex	[illegible]	6/2/16	9:41	3)			
4)				5)				6)			

In executing this Chain of Custody, the client acknowledges acceptance of the terms and conditions of the agreement as set forth at http://www.trace-labs.com/cocterms.php

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info@trace-labs.com
www.trace-labs.com

SAMPLE LOG IN CHECKLIST

Trace ID #: TLF037 Date: 6/2/16 Package Description: Cooler Temperature: -2.0
Client Name: TRC Environmental Time: 9:50 Logged in by: JS

Cooler Receipt

Cooler/samples delivered by: Trace courier [ ] Hand delivered [ ] Commercial courier [ ] Name of delivery person: ____ UPS [ ] FED EX [X] US Mail [ ]

Tracking Number: [ ] Not Applicable
Tracking #: 7832 5903 3667, 7832 5904 5590, 7832 5903 999C

COC Seals present and intact on cooler? No [ ] Yes [ ] [X] Not Applicable 7832 5905 1931

Custody seals signed by Client? No [ ] Yes [ ] Client custody seal # (if applicable): ____

Coolant and Temperature

Type of Coolant Used

Slurry w/ crushed, cubed, or chip ice? [X]
Multiple bags of ice around samples? [ ]
Ice Packs/ Blue Ice : [ ]
No Coolant Present [ ]

Cooler Temperature

Correction Factor: IR Thermometer -0.4 °C (Plastic or Glass -circle one)
Digital Stick Thermometer -0.2 °C
Temperature Blank: None °C (Use Digital Stick Thermometer)
Range of 3 samples: 2.3-4.8 °C (Use IR Thermometer)
Melt Water: None °C (Use Digital Stick Thermometer)
Ice still present upon receipt: [X] Yes [ ] No [ ] N/A

General

	Yes	No	NA	Comments
All bottles arrived unbroken with labels in good condition?	[ ]	[X]	[ ]	SW-RR-TE-RB amber broken
Each sample point is in a sealed plastic bag?	[ ]	[X]	[ ]	
Labels filled out completely?	[X]	[ ]	[ ]	
All bottle labels agree with Chain of Custody (COC)?	[X]	[ ]	[ ]	
Sufficient sample to run tests requested?	[X]	[ ]	[ ]	
pH checked and samples at correct pH?	[ ]	[ ]	[X]	See Below*
Correct preservative added to samples?	[ ]	[ ]	[X]	
Air bubbles absent from VOAs?	[ ]	[ ]	[X]	
COC filled out properly and signed by client?	[X]	[ ]	[ ]	
COC signed in by TRACE sample custodian?	[X]	[ ]	[ ]	
Was project manager called and samples discussed?	[ ]	[X]	[ ]	

Notes:

*EMD pH Test Strips Used:
[ ] pH 0-2.5 Lot: HC563733 [ ] pH 11.0-13.0 Lot: HC547328
[ ] Other: ____

Form 70-A.12
Effective 10/13/15

TRACE Analytical Laboratories, Inc.

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GRAIN SIZE DISTRIBUTION TEST DATA

6/27/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16F037
Depth: 29 **Sample Number:** SED-RR-TE-RB (0-.5)
Material Description: Appears to be mostly sand
Moisture Content Received=31.8%
Date: 6/16/2016
USCS Classification: SP
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D2216
Tested by: ef **Checked by:** gmr

Sieve Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
200.00	0.00	76.2	0.00	0.00	100
		25.4	0.00	0.00	100
		19.0	155.05	141.33	93
		9.50	148.53	141.33	90
		4.75	170.79	141.33	75
		2.00	188.63	141.33	51
96.47	0.00	0.85	169.68	141.66	36
		0.425	175.24	141.66	18
		0.18	169.59	141.66	4
		0.15	143.97	141.66	2
		0.075	143.77	141.66	1.3
		0.053	142.92	141.66	0.7

Hydrometer Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 51
Weight of hydrometer sample =92.47
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.0	1.0060	1.0031	0.0135	5.0	15.0	0.0369	2.8
5.00	21.0	1.0055	1.0026	0.0135	4.5	15.1	0.0234	2.3
15.00	21.1	1.0050	1.0021	0.0135	4.0	15.2	0.0136	1.9
30.00	21.4	1.0050	1.0022	0.0134	4.0	15.2	0.0096	1.9
60.00	21.2	1.0050	1.0021	0.0134	4.0	15.2	0.0068	1.9
250.00	20.8	1.0050	1.0021	0.0135	4.0	15.2	0.0033	1.8
1440.00	20.4	1.0045	1.0015	0.0136	3.5	15.4	0.0014	1.4

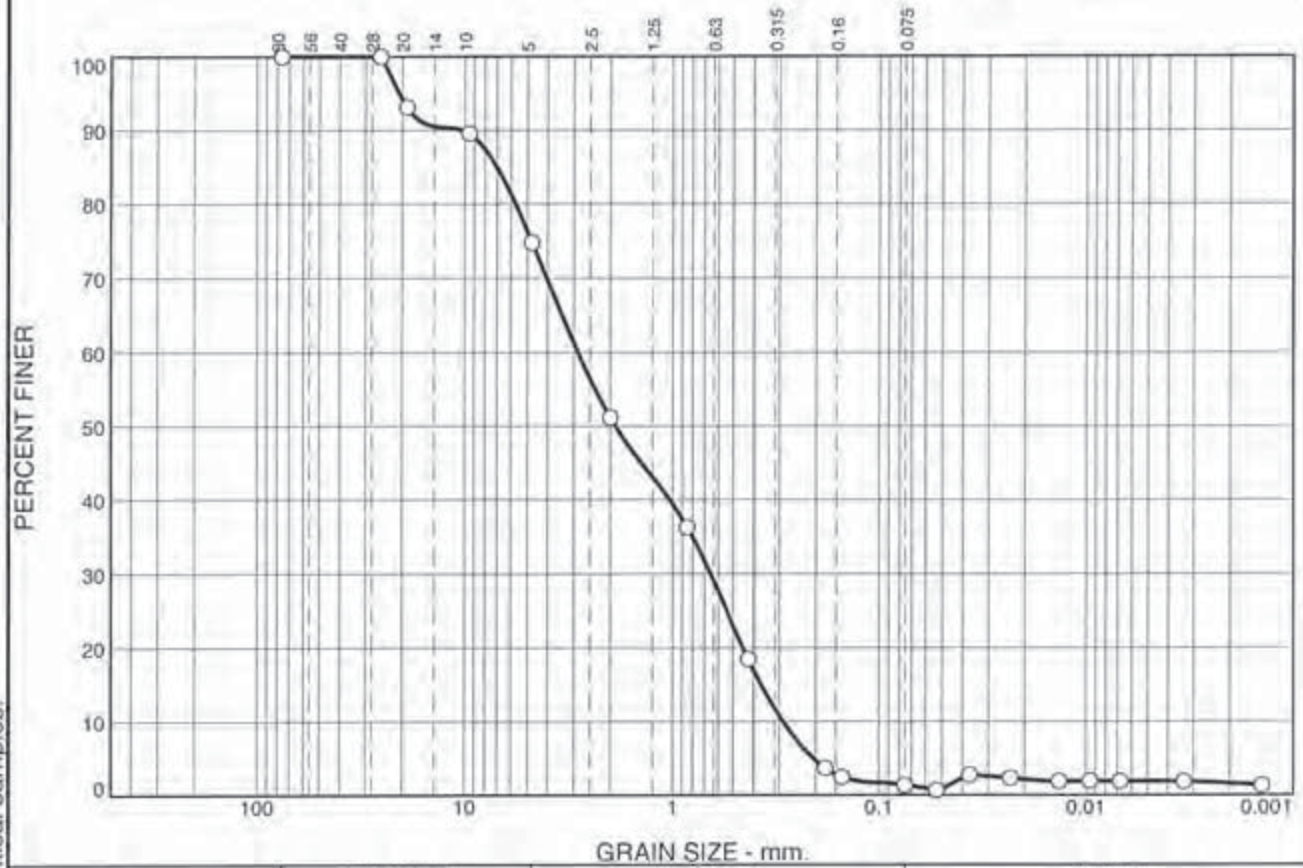
Material Component

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	7	18	25	24	33	17	74		2	1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.2872	0.3670	0.4509	0.6549	1.8883	2.8606	5.7151	7.0299	10.2411	20.7241

Fineness Modulus	C_u	C_c
4.04	9.96	0.52

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	7	18	24	33	17	1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
76.2	100		
25.4	100		
19.0	93		
9.50	90		
4.75	75		
2.00	51		
0.85	36		
0.425	18		
0.18	4		
0.15	2		
0.075	1.3		
0.053	0.7		
0.0369 mm.	2.8		
0.0234 mm.	2.3		
0.0136 mm.	1.9		
0.0096 mm.	1.9		
0.0068 mm.	1.9		
0.0033 mm.	1.8		
0.0014 mm.	1.4		

* (no specification provided)

Soil Description

Appears to be mostly sand
Moisture Content Received=31.8%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 10.2411 D_{85}= 7.0299 D_{60}= 2.8606
D_{50}= 1.8883 D_{30}= 0.6549 D_{15}= 0.3670
D_{10}= 0.2872 C_u= 9.96 C_c= 0.52

Classification

USCS= SP AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D2216

Source of Sample: T16F037 **Depth:** 29
Sample Number: SED-RR-TE-RB (0-.5)

Date: 6/16/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,

Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

GRAIN SIZE DISTRIBUTION TEST DATA

6/21/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16F037
Depth: 30 **Sample Number:** SED-RR-TE-MC (0-.5)
Material Description: Appears to be mostly sand with small stones
Moisture Content Received=31.9%
Date: 6/21/2016
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D2216
Tested by: ef **Checked by:** gmr

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
180.95	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	143.75	141.35	99
		4.75 mm	144.32	141.35	97
		2.00 mm	150.95	141.35	92
164.64	0.00	0.850 mm	178.87	141.35	71
		0.425 mm	209.28	141.35	33
		0.180 mm	177.25	141.35	13
		0.150 mm	144.41	141.35	11
		0.075 mm	144.97	141.35	9.3
		0.053 mm	143.90	141.35	7.8

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 92
Weight of hydrometer sample =164.64
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -7
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x **Rm**

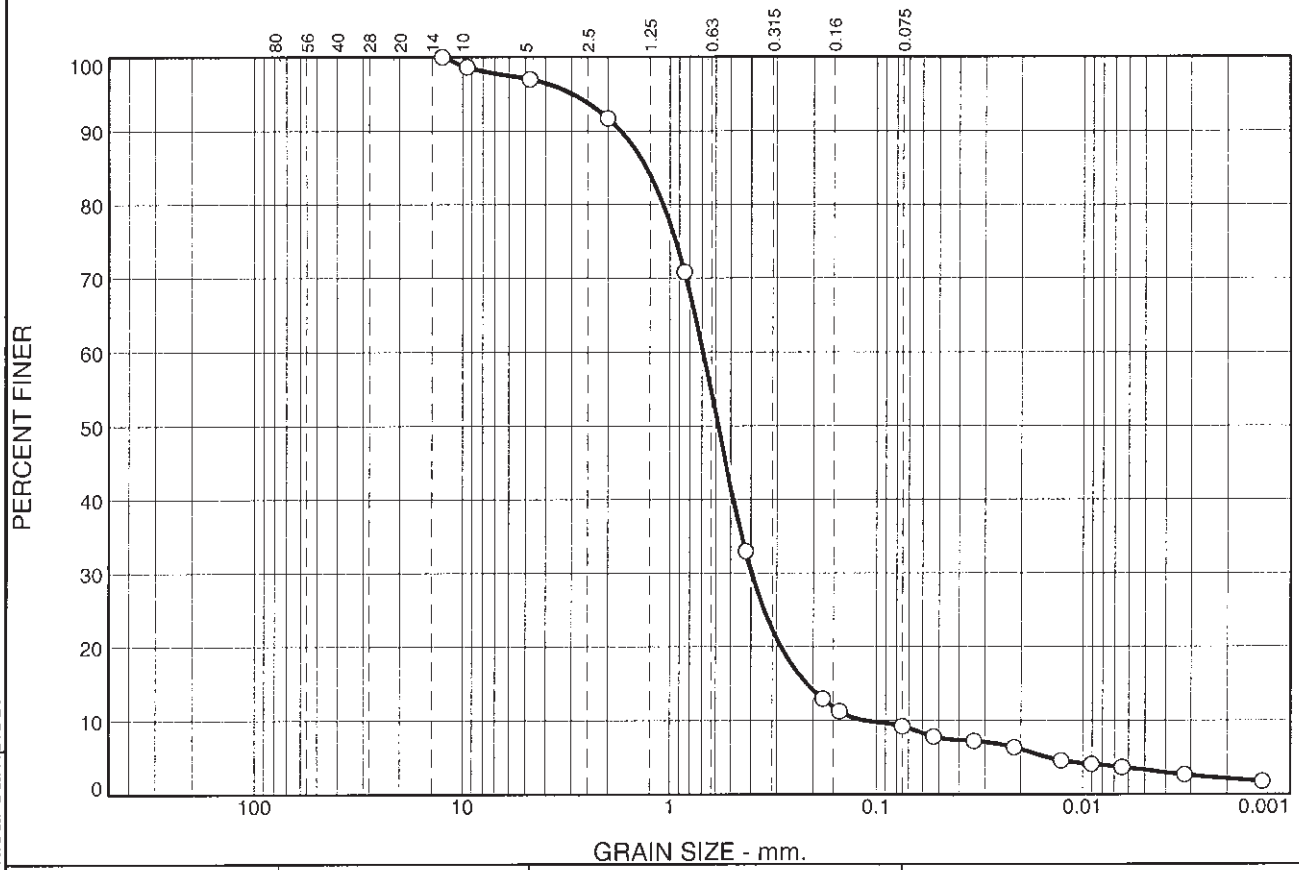
Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.0	1.0150	1.0081	0.0135	14.0	12.6	0.0338	7.3
5.00	21.0	1.0140	1.0071	0.0135	13.0	12.9	0.0216	6.4
15.00	21.2	1.0120	1.0051	0.0134	11.0	13.4	0.0127	4.6
30.00	21.0	1.0115	1.0046	0.0135	10.5	13.5	0.0090	4.1
60.00	21.0	1.0110	1.0041	0.0135	10.0	13.6	0.0064	3.7
250.00	20.0	1.0100	1.0030	0.0136	9.0	13.9	0.0032	2.7
1440.00	20.1	1.0090	1.0020	0.0136	8.0	14.2	0.0014	1.8

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	3	3	5	59	24	88	6	3	9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1122	0.2143	0.2868	0.3967	0.5828	0.6918	1.0765	1.2963	1.7275	2.9602

Fineness Modulus	C_u	C_c
2.44	6.17	2.03

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	3	5	59	24	6	3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	99		
4.75 mm	97		
2.00 mm	92		
0.850 mm	71		
0.425 mm	33		
0.180 mm	13		
0.150 mm	11		
0.075 mm	9.3		
0.053 mm	7.8		
0.0338 mm.	7.3		
0.0216 mm.	6.4		
0.0127 mm.	4.6		
0.0090 mm.	4.1		
0.0064 mm.	3.7		
0.0032 mm.	2.7		
0.0014 mm.	1.8		

* (no specification provided)

Soil Description

Appears to be mostly sand with small stones
Moisture Content Received=31.9%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 1.7275 D_{85}= 1.2963 D_{60}= 0.6918
D_{50}= 0.5828 D_{30}= 0.3967 D_{15}= 0.2143
D_{10}= 0.1122 C_u= 6.17 C_c= 2.03

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D2216

Source of Sample: T16F037 **Depth:** 30
Sample Number: SED-RR-TE-MC (0-.5) **Date:** 6/21/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

GRAIN SIZE DISTRIBUTION TEST DATA

6/21/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16F037
Depth: 31 **Sample Number:** SED-RR-TE-LB (0-.5)
Material Description: Appears to be mostly sand with small stones
Moisture Content Received=18.5%
Date: 6/21/2016
USCS Classification: SP
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D2216
Tested by: ef **Checked by:** gmr

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
200.70	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	144.44	141.35	98
		4.75 mm	158.45	141.35	90
		2.00 mm	193.63	141.35	64
123.33	0.00	0.850 mm	198.63	141.35	34
		0.425 mm	187.53	141.35	10
		0.180 mm	158.59	141.35	1
		0.150 mm	141.99	141.35	1
		0.075 mm	141.94	141.35	0.7
		0.053 mm	141.80	141.35	0.5

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 64
Weight of hydrometer sample =123.33
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

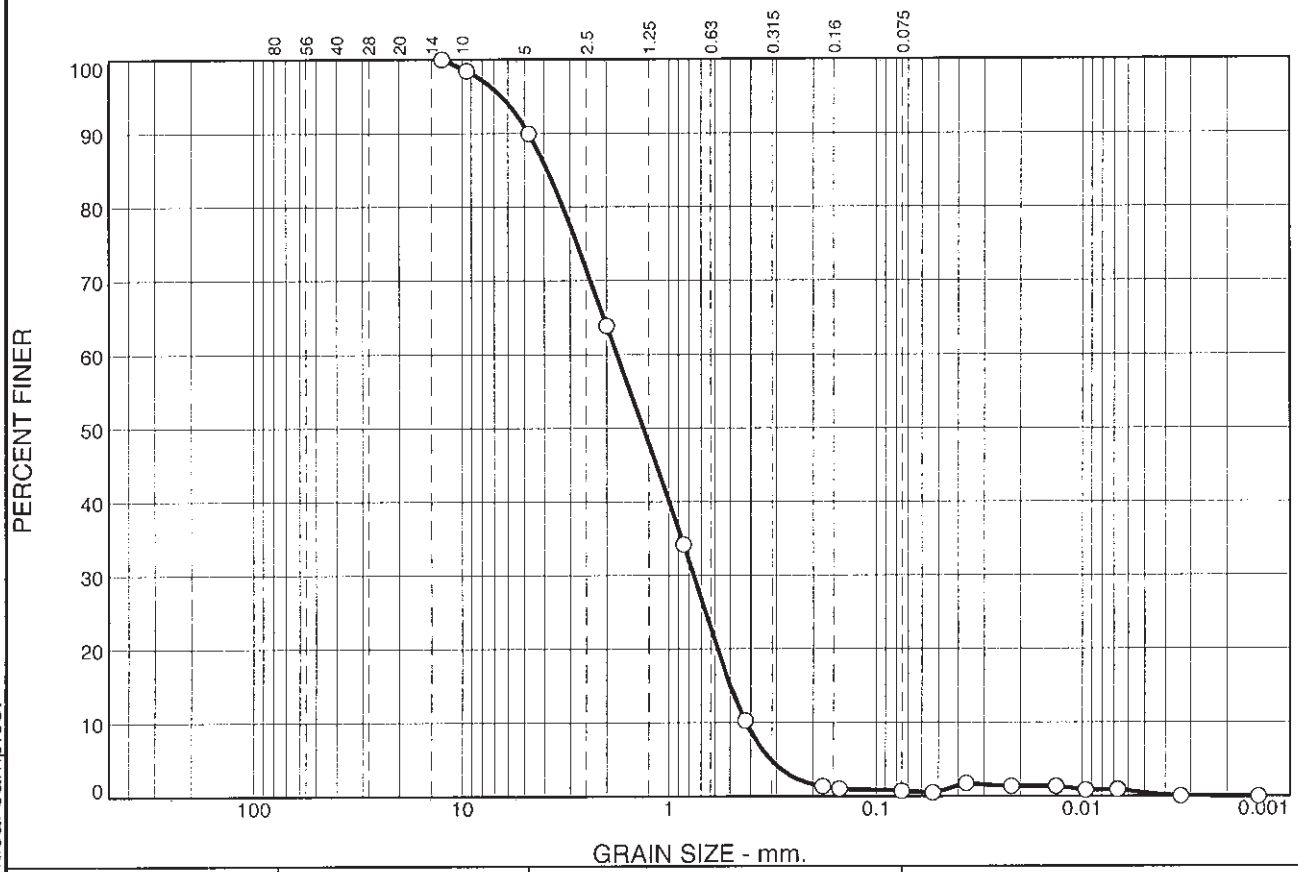
Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.2	1.0070	1.0021	0.0134	6.0	14.7	0.0365	1.8
5.50	21.2	1.0065	1.0016	0.0134	5.5	14.8	0.0221	1.4
15.00	21.4	1.0065	1.0017	0.0134	5.5	14.8	0.0133	1.4
30.00	20.3	1.0060	1.0010	0.0136	5.0	15.0	0.0096	0.8
60.00	21.2	1.0060	1.0011	0.0134	5.0	15.0	0.0067	0.9
250.00	20.5	1.0050	1.0000	0.0136	4.0	15.2	0.0033	0.0
1440.00	20.0	1.0050	1.0000	0.0136	4.0	15.2	0.0014	0.0

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	10	10	26	54	9	89	1	0	1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.4199	0.5018	0.5820	0.7605	1.3260	1.7827	3.2538	3.8697	4.7636	6.4632

Fineness Modulus	C_u	C_c
3.70	4.25	0.77

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	10	26	54	9	1	0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	98		
4.75 mm	90		
2.00 mm	64		
0.850 mm	34		
0.425 mm	10		
0.180 mm	1		
0.150 mm	1		
0.075 mm	0.7		
0.053 mm	0.5		
0.0365 mm.	1.8		
0.0221 mm.	1.4		
0.0133 mm.	1.4		
0.0096 mm.	0.8		
0.0067 mm.	0.9		
0.0033 mm.	0.0		
0.0014 mm.			

* (no specification provided)

Soil Description

Appears to be mostly sand with small stones
Moisture Content Received=18.5%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 4.7636 D_{85}= 3.8697 D_{60}= 1.7827
D_{50}= 1.3260 D_{30}= 0.7605 D_{15}= 0.5018
D_{10}= 0.4199 C_u= 4.25 C_c= 0.77

Classification

USCS= SP AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D2216

Source of Sample: T16F037 **Depth:** 31
Sample Number: SED-RR-TE-LB (0-.5)

Date: 6/21/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

GRAIN SIZE DISTRIBUTION TEST DATA

6/27/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16F037
Depth: 32 **Sample Number:** SED-RR-TD-RB (0-.5)
Material Description: Appears to be mostly sand
Moisture Content Received=19.3%
Date: 6/16/16
USCS Classification: GP
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D2216
Tested by: ef **Checked by:** gmr

Sieve Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
201.59	0.00	76.2	0.00	0.00	100
		25.4	0.00	0.00	100
		19.0	152.60	141.35	94
		12.5 mm	0.00	0.00	94
		9.50	220.02	141.35	55
		4.75	169.16	141.35	42
		2.00	165.63	141.35	30
57.93	0.00	0.850 mm	163.41	141.35	18
		0.425 mm	160.39	141.35	9
		0.180 mm	154.48	141.35	2
		0.150 mm	108.28	107.20	1
		0.075 mm	108.07	107.20	0.9
		0.053 mm	108.11	107.20	0.4

Hydrometer Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 30
Weight of hydrometer sample =57.93
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

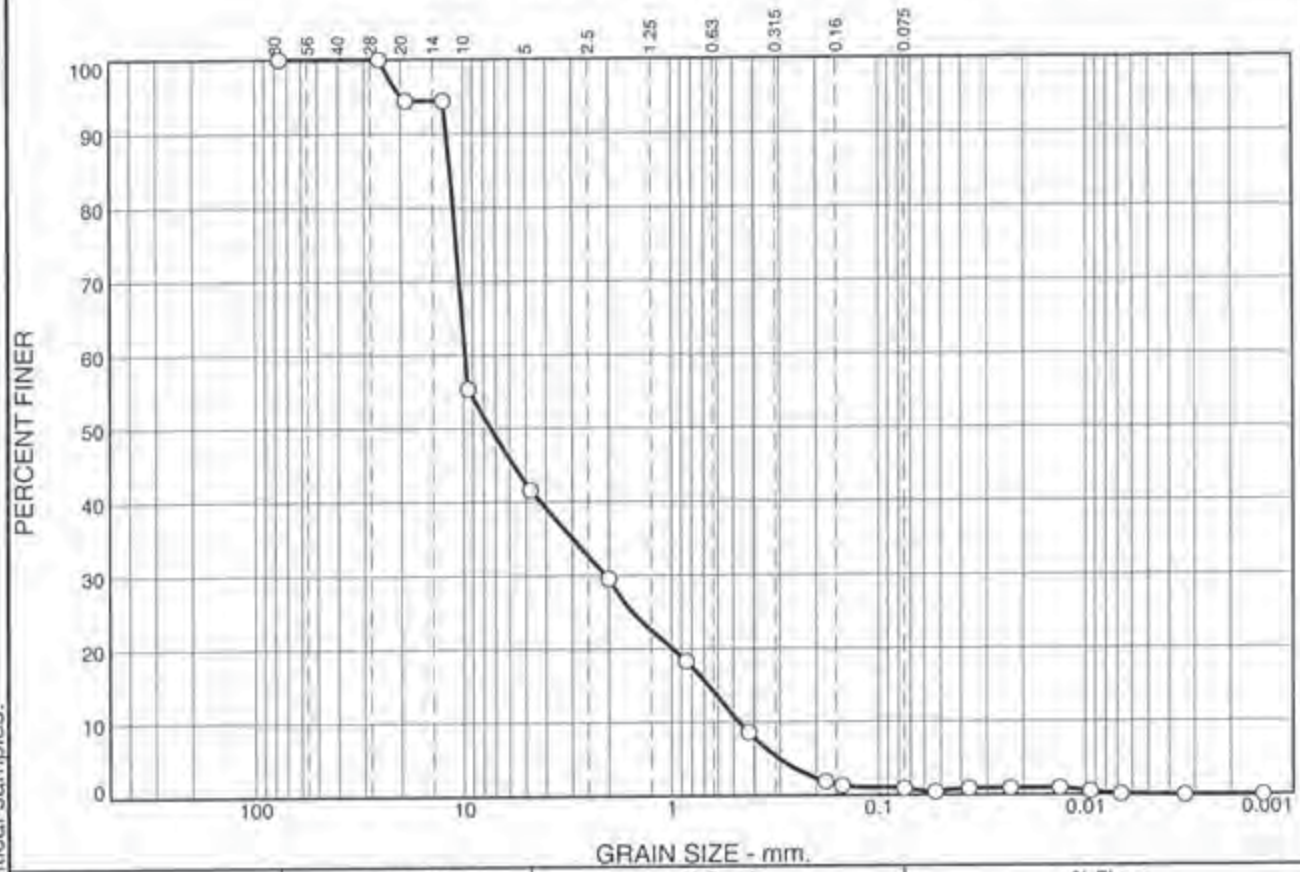
Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.0	1.0070	1.0011	0.0135	6.0	14.7	0.0365	0.9
5.00	21.0	1.0070	1.0011	0.0135	6.0	14.7	0.0231	0.9
15.00	21.2	1.0070	1.0011	0.0134	6.0	14.7	0.0133	0.9
30.00	21.0	1.0065	1.0006	0.0135	5.5	14.8	0.0095	0.5
60.00	20.8	1.0060	1.0001	0.0135	5.0	15.0	0.0067	0.1
250.00	19.8	1.0060	0.9999	0.0137	5.0	15.0	0.0033	0.0
1440.00	19.9	1.0060	1.0000	0.0137	5.0	15.0	0.0014	0.0

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	6	52	58	12	21	8	41	1	0	1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.4729	0.6668	0.9863	2.0668	7.4008	9.8207	11.1627	11.5476	11.9942	19.8959

Fineness Modulus	C_u	C_c
5.35	20.77	0.92

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	6	52	12	21	8	1	0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
76.2	100		
25.4	100		
19.0	94		
12.5 mm	94		
9.50	55		
4.75	42		
2.00	30		
0.850 mm	18		
0.425 mm	9		
0.180 mm	2		
0.150 mm	1		
0.075 mm	0.9		
0.053 mm	0.4		
0.0365 mm	0.9		
0.0231 mm	0.9		
0.0133 mm	0.9		
0.0095 mm	0.5		
0.0067 mm	0.1		
0.0033 mm			
0.0014 mm			

* (no specification provided)

Soil Description

Appears to be mostly sand
Moisture Content Received=19.3%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 11.9942 D_{85}= 11.5476 D_{60}= 9.8207
D_{50}= 7.4008 D_{30}= 2.0668 D_{15}= 0.6668
D_{10}= 0.4729 C_u= 20.77 C_c= 0.92

Classification

USCS= GP AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D2216

Source of Sample: T16F037 **Depth:** 32
Sample Number: SED-RR-TD-RB (0-.5)

Date: 6/16/16

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,

Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/27/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16F037
Depth: 33 **Sample Number:** SED-RR-TD-LB (0-.5)
Material Description: Appears to be mostly sand
Moisture Content Received=25.3%
Date: 6/22/16
USCS Classification: SP
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D2216
Tested by: ef **Checked by:** gmr

SIEVE ANALYSIS

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
223.68	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	182.00	141.35	82
		4.75 mm	170.93	141.35	69
		2.00 mm	190.61	141.35	47
99.23	0.00	0.850 mm	179.60	141.69	29
		0.425 mm	170.03	141.69	15
		0.180 mm	163.78	141.69	5
		0.150 mm	143.73	141.69	4
		0.075 mm	144.06	141.69	3.0
		0.053 mm	143.37	141.69	2.3

HYDROMETER ANALYSIS

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 47
Weight of hydrometer sample =99.23
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.4	1.0090	1.0032	0.0134	8.0	14.2	0.0357	2.4
5.00	21.4	1.0090	1.0032	0.0134	8.0	14.2	0.0226	2.4
15.00	21.6	1.0080	1.0022	0.0134	7.0	14.4	0.0131	1.7
30.00	21.0	1.0080	1.0021	0.0135	7.0	14.4	0.0094	1.6
60.00	21.0	1.0080	1.0021	0.0135	7.0	14.4	0.0066	1.6
250.00	21.2	1.0075	1.0016	0.0134	6.5	14.6	0.0032	1.2
1440.00	20.8	1.0070	1.0011	0.0135	6.0	14.7	0.0014	0.8

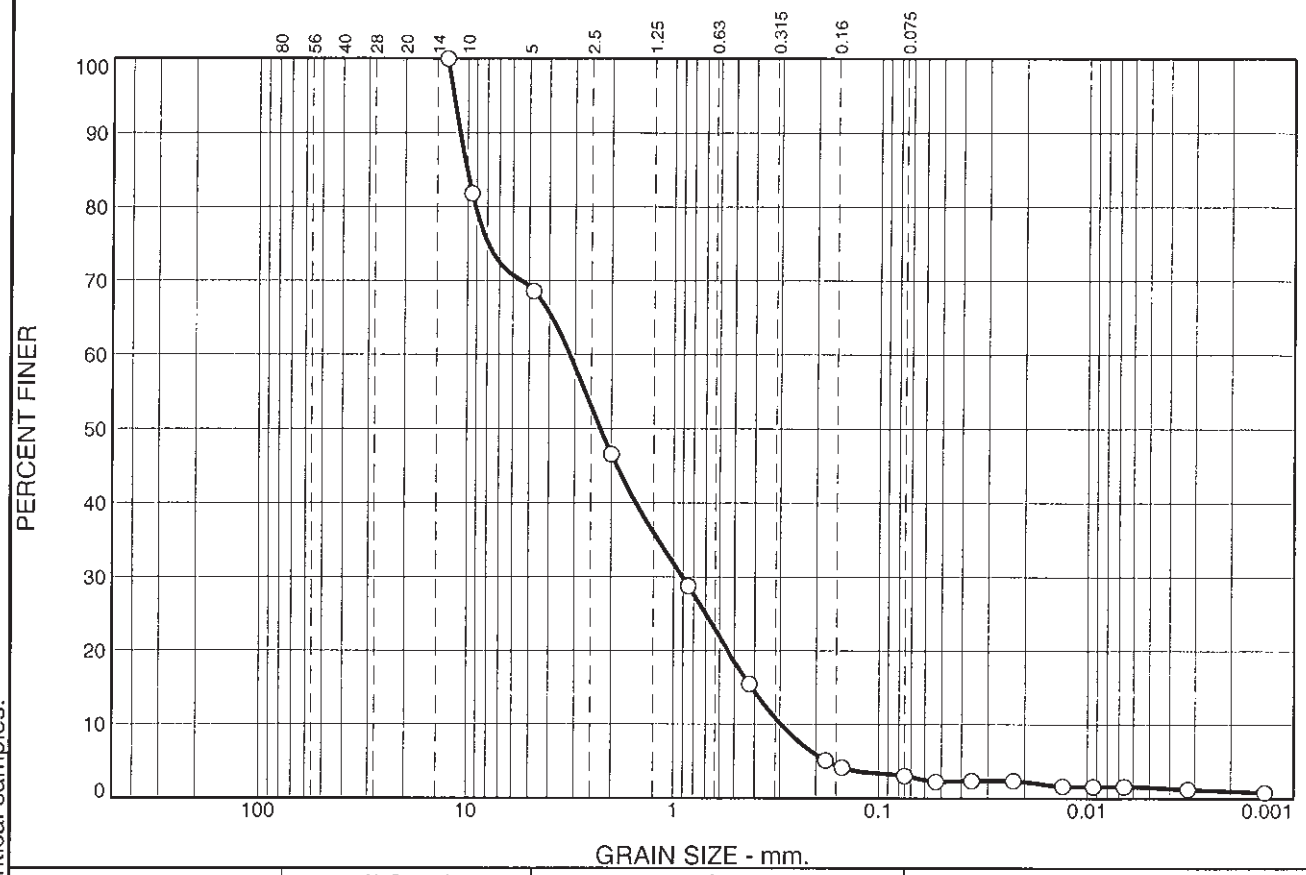
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	31	31	22	32	12	66	2	1	3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.2961	0.4132	0.5433	0.9063	2.2607	3.1832	9.1448	10.0596	10.8762	11.6763

Fineness Modulus	C_u	C_c
4.27	10.75	0.87

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	31	22	32	12	2	1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	82		
4.75 mm	69		
2.00 mm	47		
0.850 mm	29		
0.425 mm	15		
0.180 mm	5		
0.150 mm	4		
0.075 mm	3.0		
0.053 mm	2.3		
0.0357 mm.	2.4		
0.0226 mm.	2.4		
0.0131 mm.	1.7		
0.0094 mm.	1.6		
0.0066 mm.	1.6		
0.0032 mm.	1.2		
0.0014 mm.	0.8		

* (no specification provided)

Soil Description

Appears to be mostly sand
Moisture Content Received=25.3%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 10.8762 D_{85}= 10.0596 D_{60}= 3.1832
D_{50}= 2.2607 D_{30}= 0.9063 D_{15}= 0.4132
D_{10}= 0.2961 C_u= 10.75 C_c= 0.87

Classification

USCS= SP AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D2216

Source of Sample: T16F037 **Depth:** 33
Sample Number: SED-RR-TD-LB (0-.5) **Date:** 6/22/16

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/27/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16F037
Depth: 34 **Sample Number:** SED-RR-TD-LB DUP
Material Description: Appears to be mostly sand
Moisture Content Received=22.5%
Date: 6/22/16
USCS Classification: SW
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D2216
Tested by: ef **Checked by:** gmr

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
165.02	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	166.71	141.35	85
		4.75 mm	170.64	141.35	67
		2.00 mm	183.28	141.35	41
62.73	0.00	0.850 mm	168.47	141.69	24
		0.425 mm	159.11	141.69	12
		0.180 mm	155.31	141.69	3
		0.150 mm	142.41	141.69	3
		0.075 mm	142.41	141.69	2.3
		0.053 mm	142.24	141.69	1.9

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 41
Weight of hydrometer sample =62.73
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

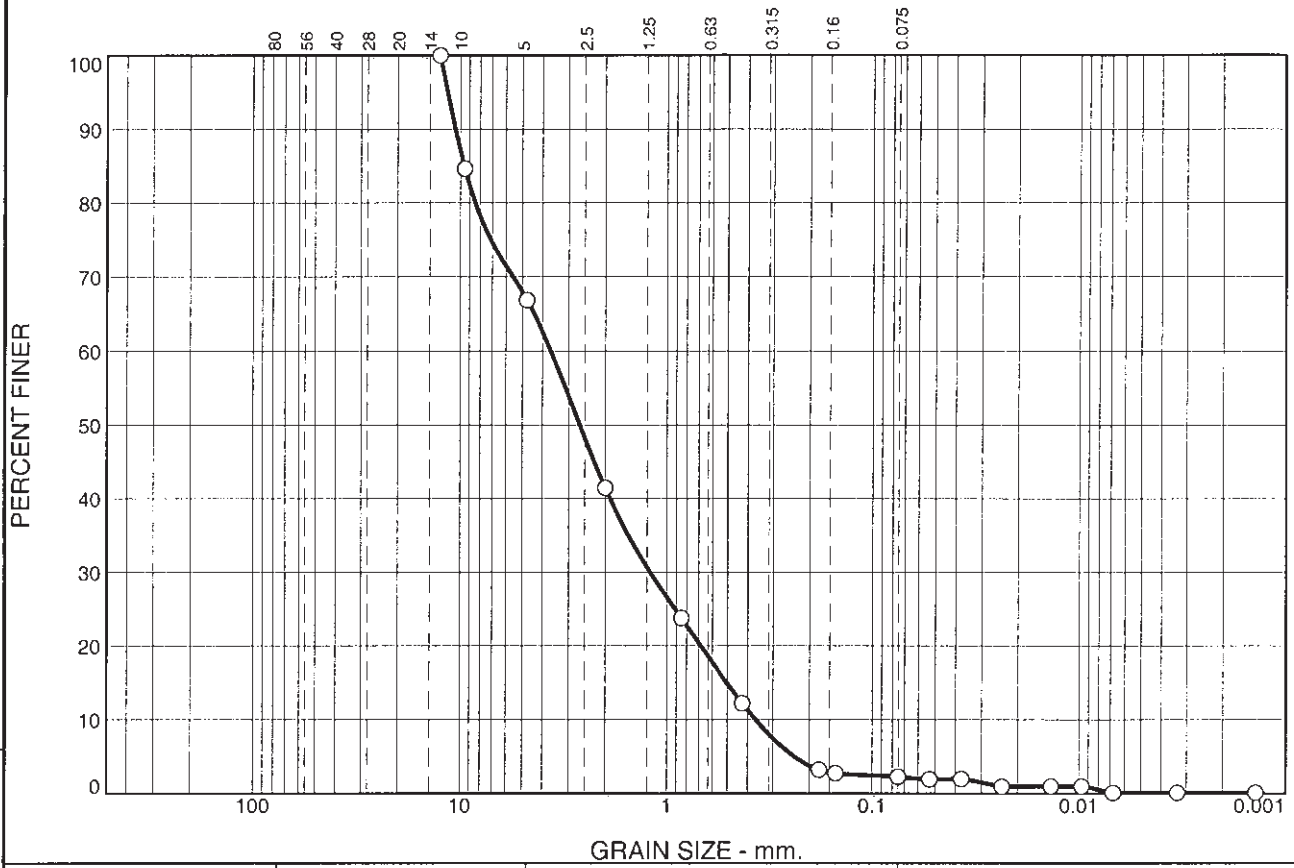
Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	19.2	1.0070	1.0019	0.0138	6.0	14.7	0.0374	2.0
5.00	19.4	1.0060	1.0009	0.0137	5.0	15.0	0.0238	1.0
15.00	19.6	1.0060	1.0009	0.0137	5.0	15.0	0.0137	1.0
30.00	19.7	1.0060	1.0009	0.0137	5.0	15.0	0.0097	1.0
60.00	21.0	1.0050	1.0001	0.0135	4.0	15.2	0.0068	0.1
250.00	21.0	1.0050	1.0001	0.0135	4.0	15.2	0.0033	0.1
1440.00	21.0	1.0050	1.0001	0.0135	4.0	15.2	0.0014	0.1

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	33	33	26	29	10	65	2	0	2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.3642	0.5065	0.6831	1.2063	2.6512	3.6503	8.4710	9.5754	10.5528	11.5082

Fineness Modulus	C_u	C_c
4.44	10.02	1.09

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	33	26	29	10	2	0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	85		
4.75 mm	67		
2.00 mm	41		
0.850 mm	24		
0.425 mm	12		
0.180 mm	3		
0.150 mm	3		
0.075 mm	2.3		
0.053 mm	1.9		
0.0374 mm.	2.0		
0.0238 mm.	1.0		
0.0137 mm.	1.0		
0.0097 mm.	1.0		
0.0068 mm.	0.1		
0.0033 mm.	0.1		
0.0014 mm.	0.1		

* (no specification provided)

Soil Description

Appears to be mostly sand
Moisture Content Received=22.5%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 10.5528 D_{85}= 9.5754 D_{60}= 3.6503
D_{50}= 2.6512 D_{30}= 1.2063 D_{15}= 0.5065
D_{10}= 0.3642 C_u= 10.02 C_c= 1.09

Classification

USCS= SW AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D2216

Source of Sample: T16F037 **Depth:** 34
Sample Number: SED-RR-TD-LB DUP **Date:** 6/22/16

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/27/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16F037
Depth: 35 **Sample Number:** SED-RR-TC-RB (0-.5)
Material Description: Appears to be mostly sand
Moisture Content Received=%24.4
Date: 6/22/16
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D2216
Tested by: ef **Checked by:** gmr

Sieve Analysis

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
135.37	0.00	76.2	0.00	0.00	100
		25.4	0.00	0.00	100
		19.0	157.26	141.35	88
		9.50	167.57	141.35	69
		4.75	167.90	141.35	49
		2.00	151.71	141.35	42
51.09	0.00	0.85	147.48	141.69	37
		0.425	154.13	141.69	27
		0.18	162.15	141.69	10
		0.15	144.48	141.69	8
		0.075	145.07	141.69	5.1
		0.053	143.48	141.69	3.6

Hydrometer Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 42
Weight of hydrometer sample =51.09
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.1	1.0090	1.0040	0.0136	8.0	14.2	0.0363	5.2
5.00	20.1	1.0080	1.0030	0.0136	7.0	14.4	0.0232	3.9
15.00	20.1	1.0080	1.0030	0.0136	7.0	14.4	0.0134	3.9
30.00	20.2	1.0070	1.0020	0.0136	6.0	14.7	0.0095	2.6
60.00	21.0	1.0070	1.0021	0.0135	6.0	14.7	0.0067	2.8
250.00	20.9	1.0060	1.0011	0.0135	5.0	15.0	0.0033	1.4
1440.00	21.0	1.0060	1.0011	0.0135	5.0	15.0	0.0014	1.4

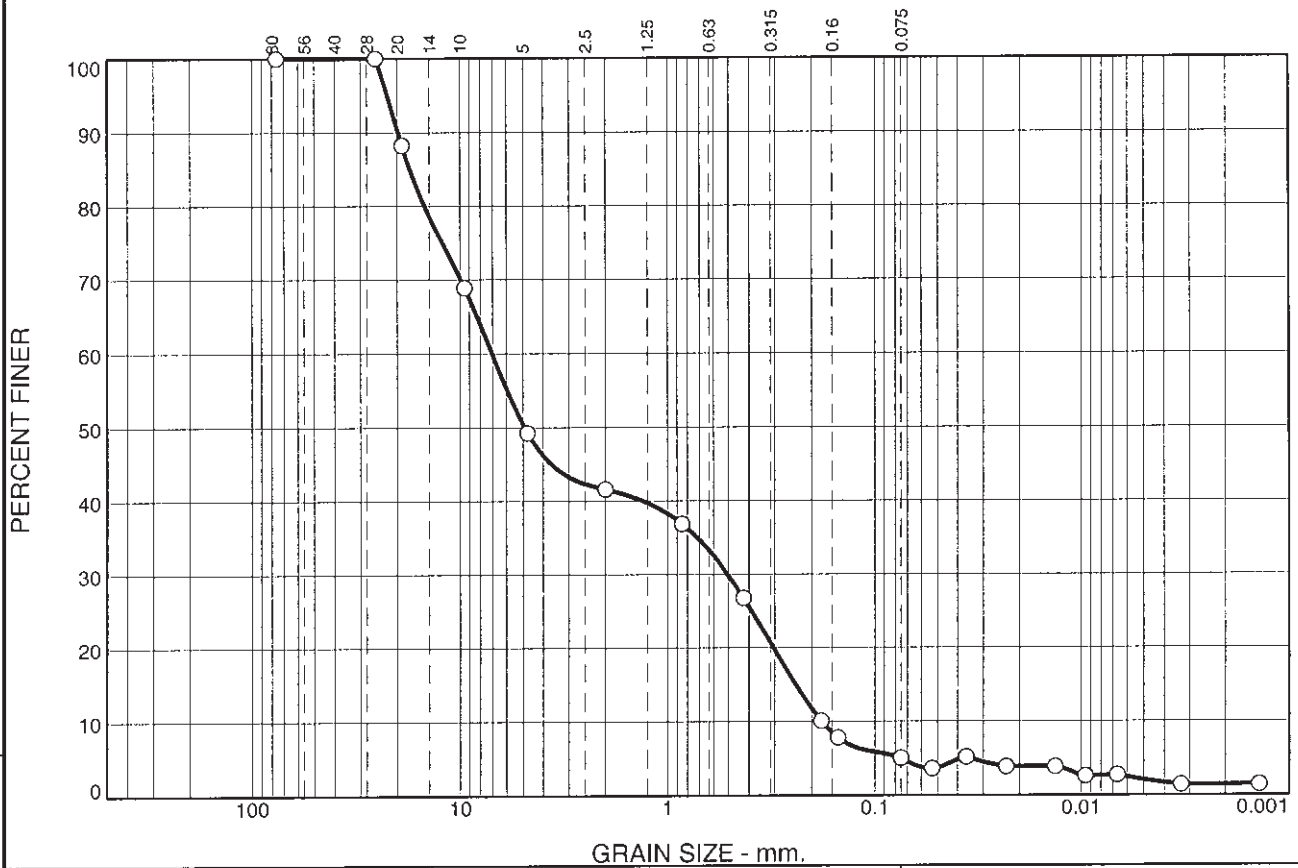
Fraction Component

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	12	39	51	7	15	22	44	3	2	5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1788	0.2385	0.3048	0.5088	4.9114	7.0404	14.7563	17.3820	19.8462	22.3392

Fineness Modulus	C_u	C_c
4.52	39.38	0.21

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	12	39	7	15	22	3	2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
76.2	100		
25.4	100		
19.0	88		
9.50	69		
4.75	49		
2.00	42		
0.85	37		
0.425	27		
0.18	10		
0.15	8		
0.075	5.1		
0.053	3.6		
0.0363 mm.	5.2		
0.0232 mm.	3.9		
0.0134 mm.	3.9		
0.0095 mm.	2.6		
0.0067 mm.	2.8		
0.0033 mm.	1.4		
0.0014 mm.	1.4		

* (no specification provided)

Soil Description

Appears to be mostly sand
Moisture Content Received=%24.4

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 19.8462 D_{85}= 17.3820 D_{60}= 7.0404
D_{50}= 4.9114 D_{30}= 0.5088 D_{15}= 0.2385
D_{10}= 0.1788 C_u= 39.38 C_c= 0.21

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D2216

Source of Sample: T16F037 **Depth:** 35
Sample Number: SED-RR-TC-RB (0-.5)

Date: 6/22/16

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/27/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16F037
Depth: 36 **Sample Number:** SED-RR-TC-LB (0-.5)
Material Description: Appears to be mostly sand
Moisture Content Received=23.3%
Date: 6/22/16
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D2216
Tested by: ef **Checked by:** gmr

Sieve Results

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
128.77	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	141.81	141.35	100
		4.75 mm	158.10	141.35	87
		2.00 mm	162.06	141.35	71
82.98	0.00	0.850 mm	158.13	141.69	57
		0.425 mm	156.78	141.69	44
		0.180 mm	164.25	141.69	25
		0.150 mm	146.03	141.69	21
		0.075 mm	150.58	141.69	13
		0.053 mm	144.57	141.69	11

Hydrometer Results

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 71
Weight of hydrometer sample =82.98
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.0	1.0090	1.0061	0.0135	8.0	14.2	0.0359	8.3
5.00	21.0	1.0070	1.0041	0.0135	6.0	14.7	0.0231	5.6
15.00	21.0	1.0070	1.0041	0.0135	6.0	14.7	0.0133	5.6
30.00	21.0	1.0060	1.0031	0.0135	5.0	15.0	0.0095	4.2
60.00	21.0	1.0060	1.0031	0.0135	5.0	15.0	0.0067	4.2
250.00	21.0	1.0040	1.0011	0.0135	3.0	15.5	0.0034	1.5
1440.00	20.8	1.0040	1.0011	0.0135	3.0	15.5	0.0014	1.5

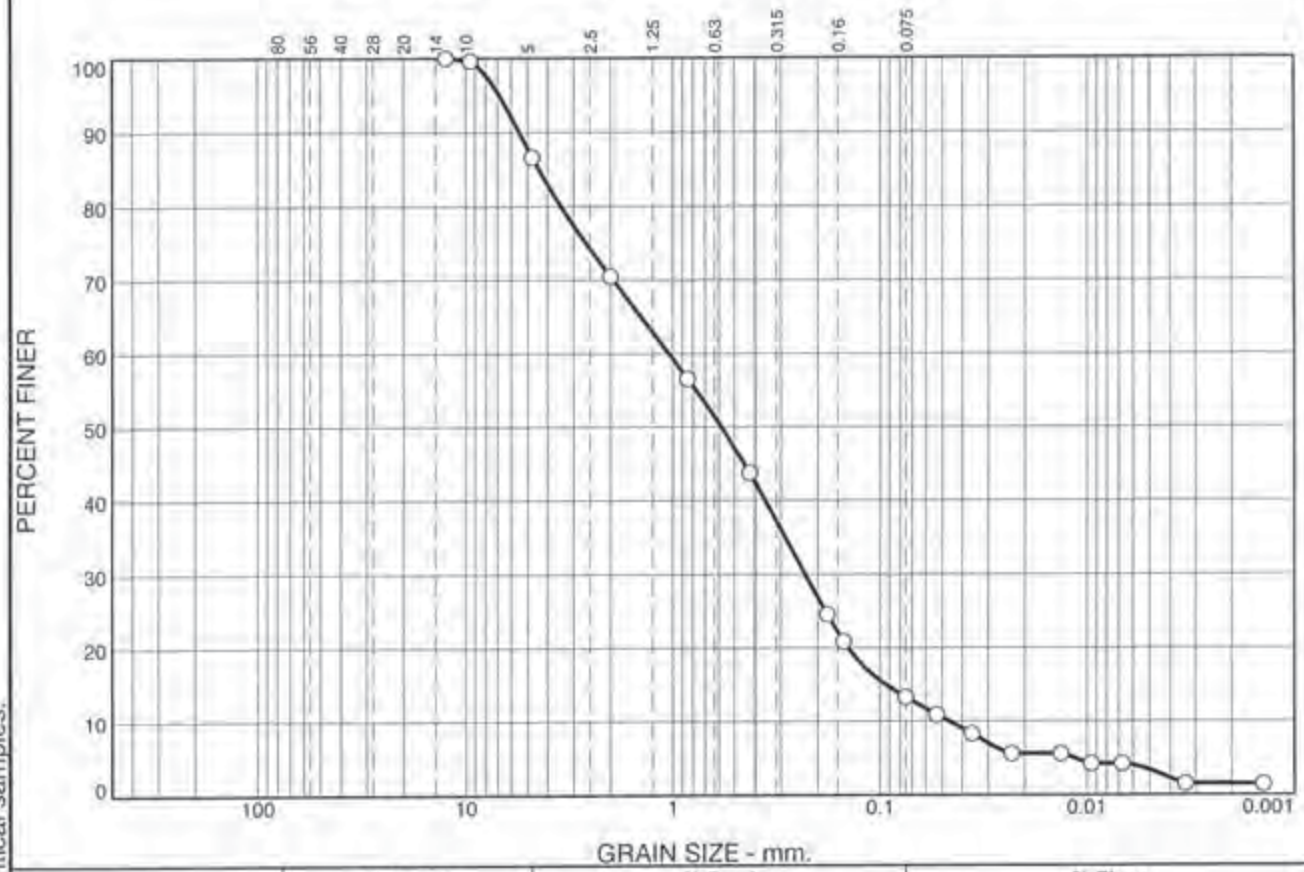
Additional Comments

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	13	13	16	27	31	74	10	3	13

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0462	0.0935	0.1426	0.2298	0.5850	1.0440	3.4465	4.4109	5.4938	6.8784

Fineness Modulus	C_u	C_c
2.71	22.58	1.09

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	13	16	27	31	10	3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	87		
2.00 mm	71		
0.850 mm	57		
0.425 mm	44		
0.180 mm	25		
0.150 mm	21		
0.075 mm	13		
0.053 mm	11		
0.0359 mm.	8.3		
0.0231 mm.	5.6		
0.0133 mm.	5.6		
0.0095 mm.	4.2		
0.0067 mm.	4.2		
0.0034 mm.	1.5		
0.0014 mm.	1.5		

* (no specification provided)

Soil Description

Appears to be mostly sand
Moisture Content Received=23.3%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 5.4938 D_{85}= 4.4109 D_{60}= 1.0440
D_{50}= 0.5850 D_{30}= 0.2298 D_{15}= 0.0935
D_{10}= 0.0462 C_u= 22.58 C_c= 1.09

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D2216

Source of Sample: T16F037 **Depth:** 36
Sample Number: SED-RR-TC-LB (0-.5)

Date: 6/22/16

TRACE

Client: TRC Environmental Corps
Project: Lee Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/27/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16F037
Depth: 37 **Sample Number:** SED-RR-TB-RB (0-.5)
Material Description: Appears to be mostly sand
Moisture Content Received=36.3%
Date: 6/22/16
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D2216
Tested by: ef **Checked by:** gmr

Sieve Analysis

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
167.10	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	141.52	141.35	100
		2.00 mm	141.76	141.35	100
165.96	0.00	0.850 mm	143.61	141.69	99
		0.425 mm	169.70	141.69	82
		0.180 mm	249.74	141.69	17
		0.150 mm	150.43	141.69	12
		0.075 mm	152.06	141.69	5.3
		0.053 mm	145.15	141.69	3.2

Hydrometer Analysis

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100
Weight of hydrometer sample =165.96
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

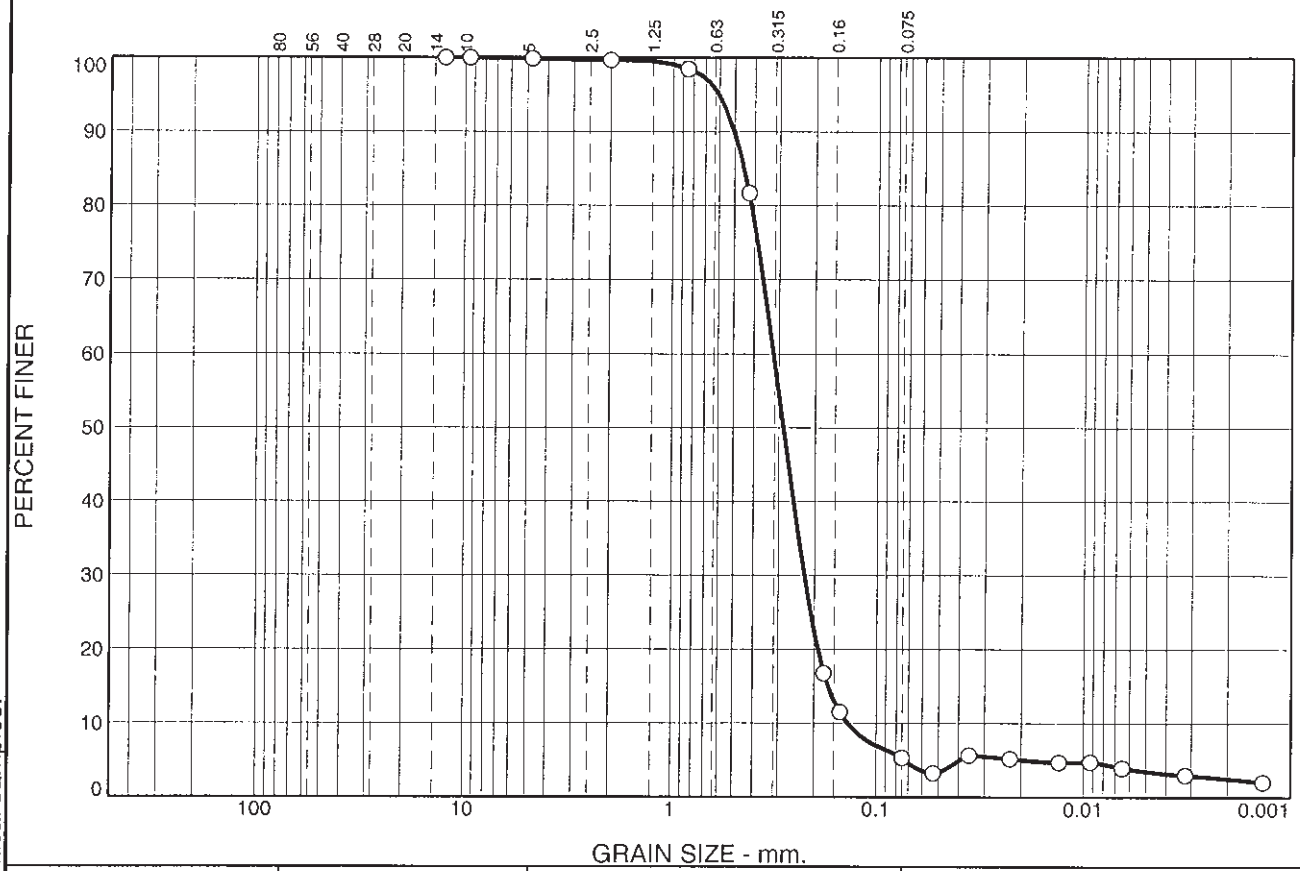
Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	19.3	1.0120	1.0059	0.0138	11.0	13.4	0.0356	5.7
5.00	19.5	1.0115	1.0054	0.0137	10.5	13.5	0.0226	5.2
15.00	19.4	1.0110	1.0049	0.0137	10.0	13.6	0.0131	4.7
30.00	19.7	1.0110	1.0049	0.0137	10.0	13.6	0.0092	4.8
60.00	21.0	1.0100	1.0041	0.0135	9.0	13.9	0.0065	4.0
250.00	21.0	1.0090	1.0031	0.0135	8.0	14.2	0.0032	3.0
1440.00	21.0	1.0080	1.0021	0.0135	7.0	14.4	0.0013	2.0

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	18	77	95	2	3	5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1370	0.1716	0.1924	0.2243	0.2852	0.3196	0.4136	0.4511	0.5051	0.6035

Fineness Modulus	C_u	C_c
1.40	2.33	1.15

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	18	77	2	3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	100		
2.00 mm	100		
0.850 mm	99		
0.425 mm	82		
0.180 mm	17		
0.150 mm	12		
0.075 mm	5.3		
0.053 mm	3.2		
0.0356 mm.	5.7		
0.0226 mm.	5.2		
0.0131 mm.	4.7		
0.0092 mm.	4.8		
0.0065 mm.	4.0		
0.0032 mm.	3.0		
0.0013 mm.	2.0		

* (no specification provided)

Soil Description

Appears to be mostly sand
Moisture Content Received=36.3%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.5051 D_{85}= 0.4511 D_{60}= 0.3196
D_{50}= 0.2852 D_{30}= 0.2243 D_{15}= 0.1716
D_{10}= 0.1370 C_u= 2.33 C_c= 1.15

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D2216

Source of Sample: T16F037 **Depth:** 37
Sample Number: SED-RR-TB-RB (0-.5) **Date:** 6/22/16

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/27/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16F037
Depth: 38 **Sample Number:** SED-RR-TB-MC (0-.5)
Material Description: Appears to be mostly sand
Moisture Content Received=45.5%
Date: 6/22/16
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D2216
Tested by: ef **Checked by:** gmr

Sieve Analysis

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
106.22	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	0.00	0.00	100
		2.00 mm	0.00	0.00	100
101.89	0.00	0.850 mm	145.03	141.69	97
		0.425 mm	152.57	141.69	86
		0.180 mm	201.36	141.69	27
		0.150 mm	150.48	141.69	19
		0.075 mm	151.64	141.69	9.1
		0.053 mm	142.91	141.69	7.9

Hydrometer Analysis

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100
Weight of hydrometer sample =101.89
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.4	1.0100	1.0040	0.0136	9.0	13.9	0.0358	6.3
5.00	20.2	1.0100	1.0040	0.0136	9.0	13.9	0.0227	6.3
15.00	20.1	1.0100	1.0040	0.0136	9.0	13.9	0.0131	6.3
30.00	20.3	1.0100	1.0040	0.0136	9.0	13.9	0.0093	6.3
60.00	21.0	1.0090	1.0031	0.0135	8.0	14.2	0.0066	4.9
250.00	21.0	1.0080	1.0021	0.0135	7.0	14.4	0.0032	3.3
1440.00	20.4	1.0070	1.0010	0.0136	6.0	14.7	0.0014	1.6

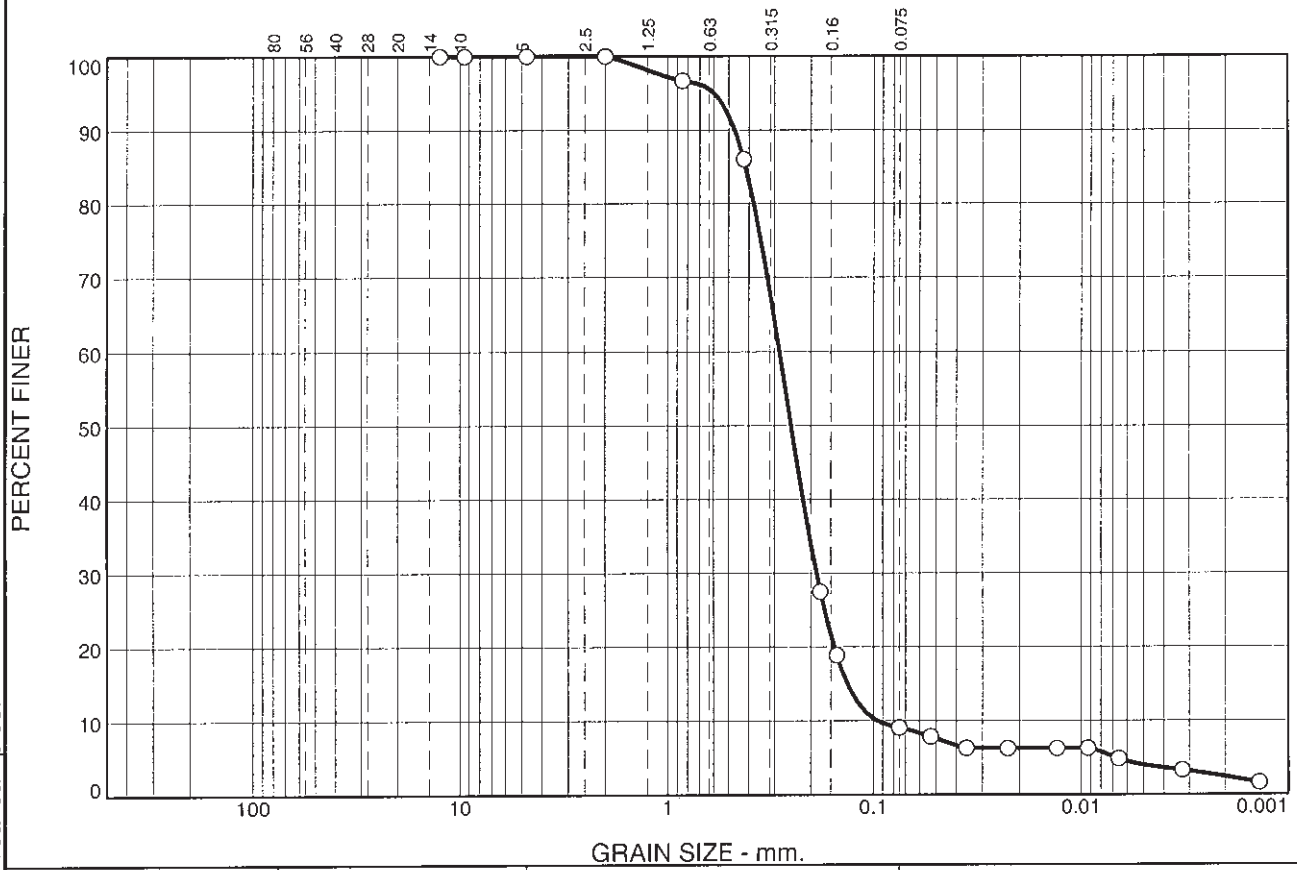
Particle Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	14	77	91	5	4	9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0950	0.1329	0.1544	0.1878	0.2492	0.2838	0.3785	0.4156	0.4709	0.5965

Fineness Modulus	C_u	C_c
1.24	2.99	1.31

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	14	77	5	4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	100		
2.00 mm	100		
0.850 mm	97		
0.425 mm	86		
0.180 mm	27		
0.150 mm	19		
0.075 mm	9.1		
0.053 mm	7.9		
0.0358 mm.	6.3		
0.0227 mm.	6.3		
0.0131 mm.	6.3		
0.0093 mm.	6.3		
0.0066 mm.	4.9		
0.0032 mm.	3.3		
0.0014 mm.	1.6		

* (no specification provided)

Soil Description

Appears to be mostly sand
Moisture Content Received=45.5%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4709 D_{85}= 0.4156 D_{60}= 0.2838
D_{50}= 0.2492 D_{30}= 0.1878 D_{15}= 0.1329
D_{10}= 0.0950 C_u= 2.99 C_c= 1.31

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D2216

Source of Sample: T16F037 **Depth:** 38
Sample Number: SED-RR-TB-MC (0-.5)

Date: 6/22/16

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,

Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/27/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16F037
Depth: 39 **Sample Number:** SED-RR-TB-MC (.5-1)
Material Description: Appears to be mostly sand
Moisture Content Received=32.1%
Date: 6/22/16
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D2216
Tested by: ef **Checked by:** gmr

SIEVE ANALYSIS

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
114.69	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	144.32	141.35	97
		2.00 mm	144.06	141.35	95
107.77	0.00	0.850 mm	147.50	141.69	90
		0.425 mm	162.60	141.69	71
		0.180 mm	201.69	141.69	19
		0.150 mm	149.26	141.69	12
		0.075 mm	148.40	141.69	6.0
		0.053 mm	143.69	141.69	4.2

HYDROMETER ANALYSIS

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 95
Weight of hydrometer sample =107.77
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.0	1.0080	1.0031	0.0135	7.0	14.4	0.0362	4.4
5.00	21.0	1.0070	1.0021	0.0135	6.0	14.7	0.0231	3.0
15.00	20.8	1.0070	1.0021	0.0135	6.0	14.7	0.0134	2.9
30.00	20.9	1.0070	1.0021	0.0135	6.0	14.7	0.0094	3.0
60.00	21.0	1.0060	1.0011	0.0135	5.0	15.0	0.0067	1.6
250.00	21.0	1.0050	1.0001	0.0135	4.0	15.2	0.0033	0.2
1440.00	20.8	1.0050	1.0001	0.0135	4.0	15.2	0.0014	0.1

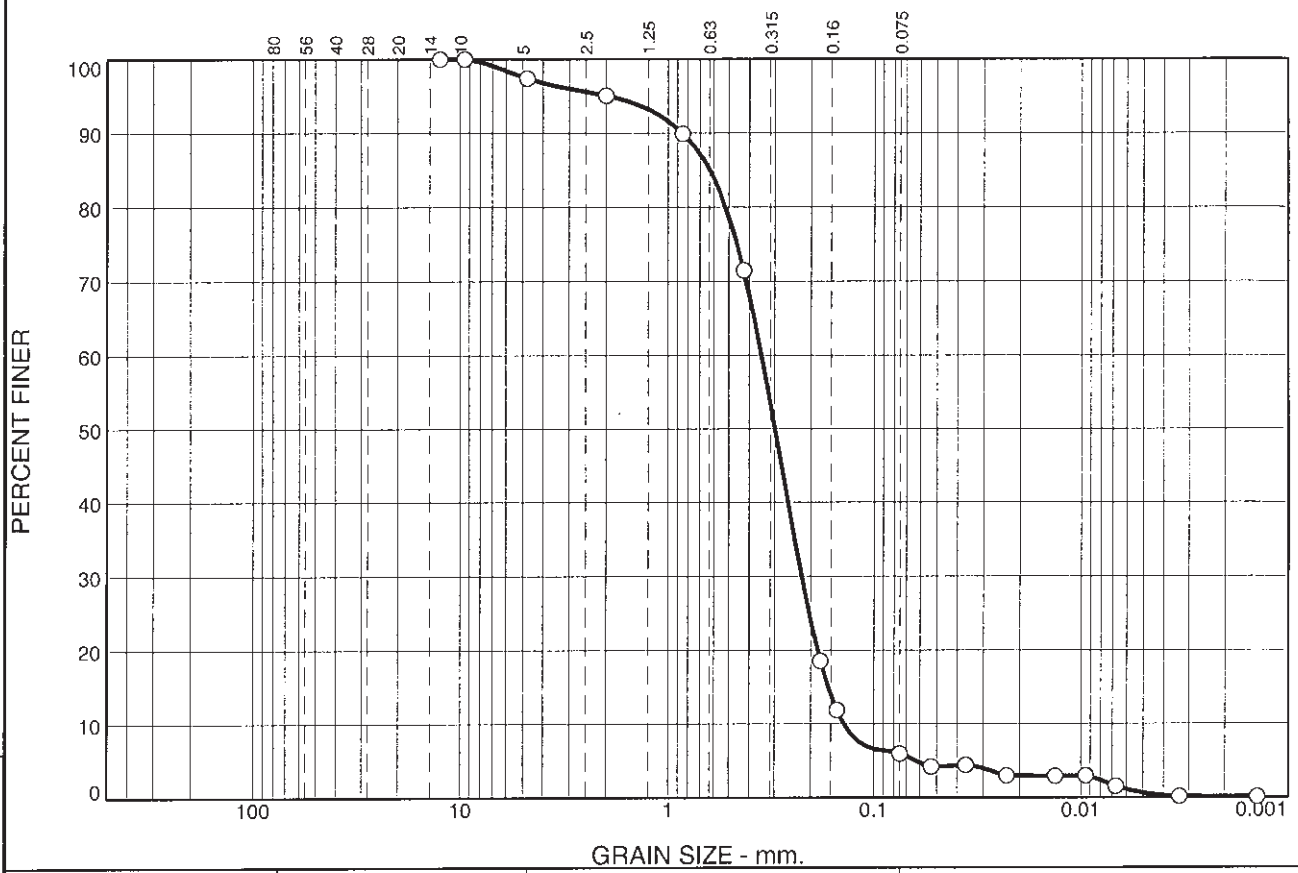
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	3	3	2	24	65	91	5	1	6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1387	0.1651	0.1856	0.2219	0.2994	0.3481	0.5226	0.6270	0.8556	1.9643

Fineness Modulus	C_u	C_c
1.68	2.51	1.02

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	3	2	24	65	5	1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	97		
2.00 mm	95		
0.850 mm	90		
0.425 mm	71		
0.180 mm	19		
0.150 mm	12		
0.075 mm	6.0		
0.053 mm	4.2		
0.0362 mm.	4.4		
0.0231 mm.	3.0		
0.0134 mm.	2.9		
0.0094 mm.	3.0		
0.0067 mm.	1.6		
0.0033 mm.	0.2		
0.0014 mm.	0.1		

* (no specification provided)

Soil Description

Appears to be mostly sand
Moisture Content Received=32.1%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.8556 D_{85}= 0.6270 D_{60}= 0.3481
D_{50}= 0.2994 D_{30}= 0.2219 D_{15}= 0.1651
D_{10}= 0.1387 C_u= 2.51 C_c= 1.02

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D2216

Source of Sample: T16F037 **Depth:** 39
Sample Number: SED-RR-TB-MC (.5-1)

Date: 6/22/16

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/27/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16F037
Depth: 40 **Sample Number:** SED-RR-TA-LB (0-.5)
Material Description: Appears to be mostly sand
Moisture Content Received=30.2%
Date: 6/23/16
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D2216
Tested by: ef **Checked by:** gmr

Sieve Analysis

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
137.68	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	144.12	141.35	98
		4.75 mm	147.38	141.35	94
		2.00 mm	145.89	141.35	90
123.10	0.00	0.850 mm	149.09	141.69	85
		0.425 mm	154.34	141.69	76
		0.180 mm	194.12	141.69	37
		0.150 mm	157.57	141.69	25
		0.075 mm	165.81	141.69	7.8
		0.053 mm	145.12	141.69	5.3

Hydrometer Analysis

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 90
Weight of hydrometer sample =123.10
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.4	1.0110	1.0062	0.0134	10.0	13.6	0.0350	7.3
5.00	21.4	1.0090	1.0042	0.0134	8.0	14.2	0.0226	4.9
15.00	21.6	1.0085	1.0037	0.0134	7.5	14.3	0.0131	4.4
30.00	21.0	1.0085	1.0036	0.0135	7.5	14.3	0.0093	4.3
60.00	21.2	1.0070	1.0021	0.0134	6.0	14.7	0.0067	2.5
250.00	21.0	1.0060	1.0011	0.0135	5.0	15.0	0.0033	1.3
1440.00	20.8	1.0050	1.0001	0.0135	4.0	15.2	0.0014	0.1

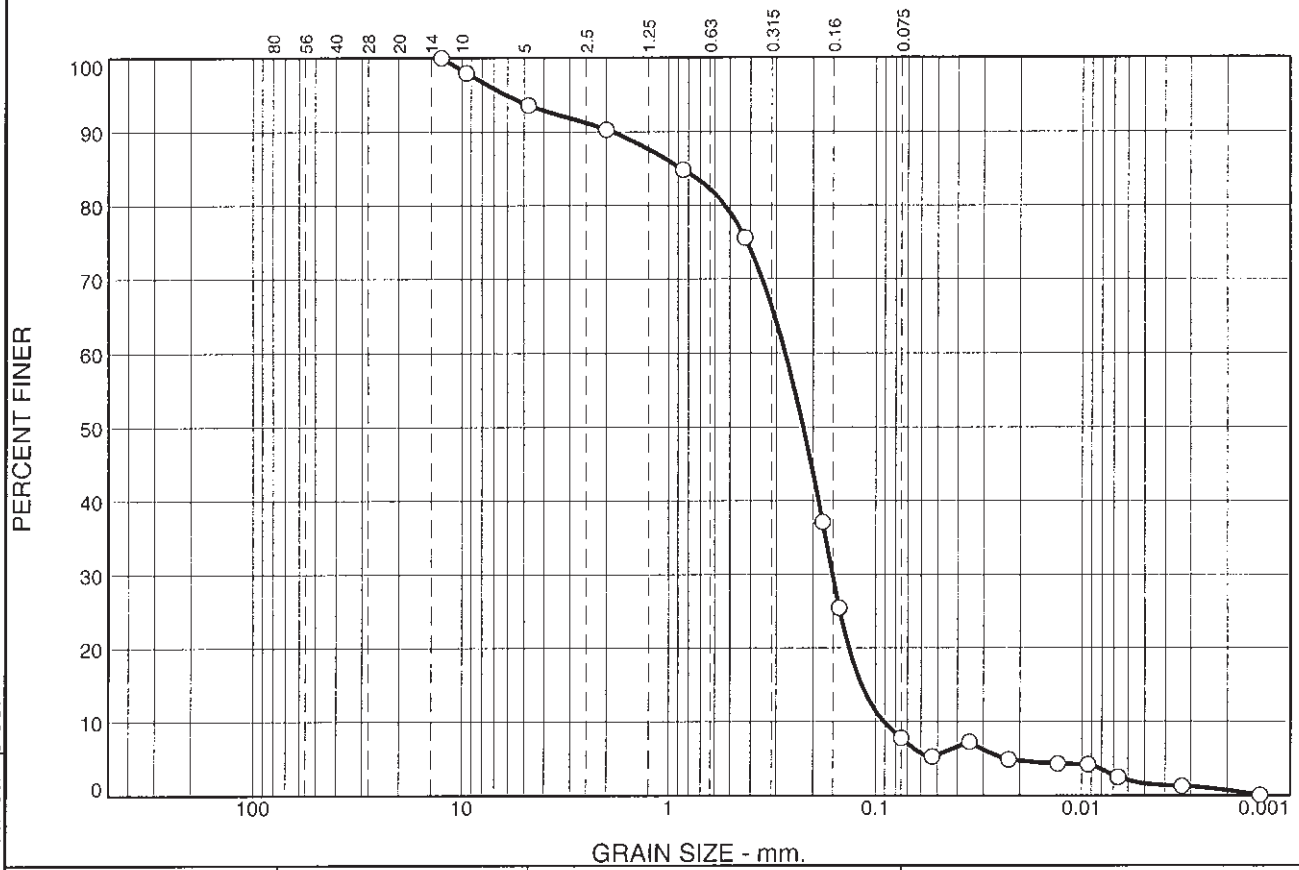
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	6	6	4	14	68	86	6	2	8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0910	0.1167	0.1343	0.1615	0.2230	0.2721	0.5310	0.8634	1.8723	6.1212

Fineness Modulus	C_u	C_c
1.59	2.99	1.05

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	6	4	14	68	6	2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	98		
4.75 mm	94		
2.00 mm	90		
0.850 mm	85		
0.425 mm	76		
0.180 mm	37		
0.150 mm	25		
0.075 mm	7.8		
0.053 mm	5.3		
0.0350 mm.	7.3		
0.0226 mm.	4.9		
0.0131 mm.	4.4		
0.0093 mm.	4.3		
0.0067 mm.	2.5		
0.0033 mm.	1.3		
0.0014 mm.	0.1		

* (no specification provided)

Soil Description

Appears to be mostly sand
Moisture Content Received=30.2%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 1.8723 D_{85}= 0.8634 D_{60}= 0.2721
D_{50}= 0.2230 D_{30}= 0.1615 D_{15}= 0.1167
D_{10}= 0.0910 C_u= 2.99 C_c= 1.05

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D2216

Source of Sample: T16F037 **Depth:** 40
Sample Number: SED-RR-TA-LB (0-.5) **Date:** 6/23/16

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

GRAIN SIZE DISTRIBUTION TEST DATA

6/27/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16F037
Depth: 41 **Sample Number:** SED-RR-TB-LB (0-.5)
Material Description: Appears to be mostly sand
Moisture Content Received=49.4%
Date: 6/23/16
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D2216
Tested by: ef **Checked by:** gmr

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
147.33	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	152.95	141.35	92
		4.75 mm	169.30	141.35	73
		2.00 mm	171.01	141.35	53
72.79	0.00	0.850 mm	153.49	141.69	44
		0.425 mm	158.04	141.69	33
		0.180 mm	165.08	141.69	15
		0.150 mm	145.46	141.69	13
		0.075 mm	147.38	141.69	8.6
		0.053 mm	144.37	141.69	6.6

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 53
Weight of hydrometer sample =72.79
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x **Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.0	1.0120	1.0070	0.0136	11.0	13.4	0.0353	8.2
5.00	19.8	1.0110	1.0059	0.0137	10.0	13.6	0.0226	7.0
15.00	20.0	1.0100	1.0050	0.0136	9.0	13.9	0.0131	5.8
30.00	20.2	1.0090	1.0040	0.0136	8.0	14.2	0.0094	4.7
60.00	21.2	1.0085	1.0036	0.0134	7.5	14.3	0.0066	4.3
250.00	20.9	1.0070	1.0021	0.0135	6.0	14.7	0.0033	2.4
1440.00	20.6	1.0070	1.0021	0.0135	6.0	14.7	0.0014	2.4

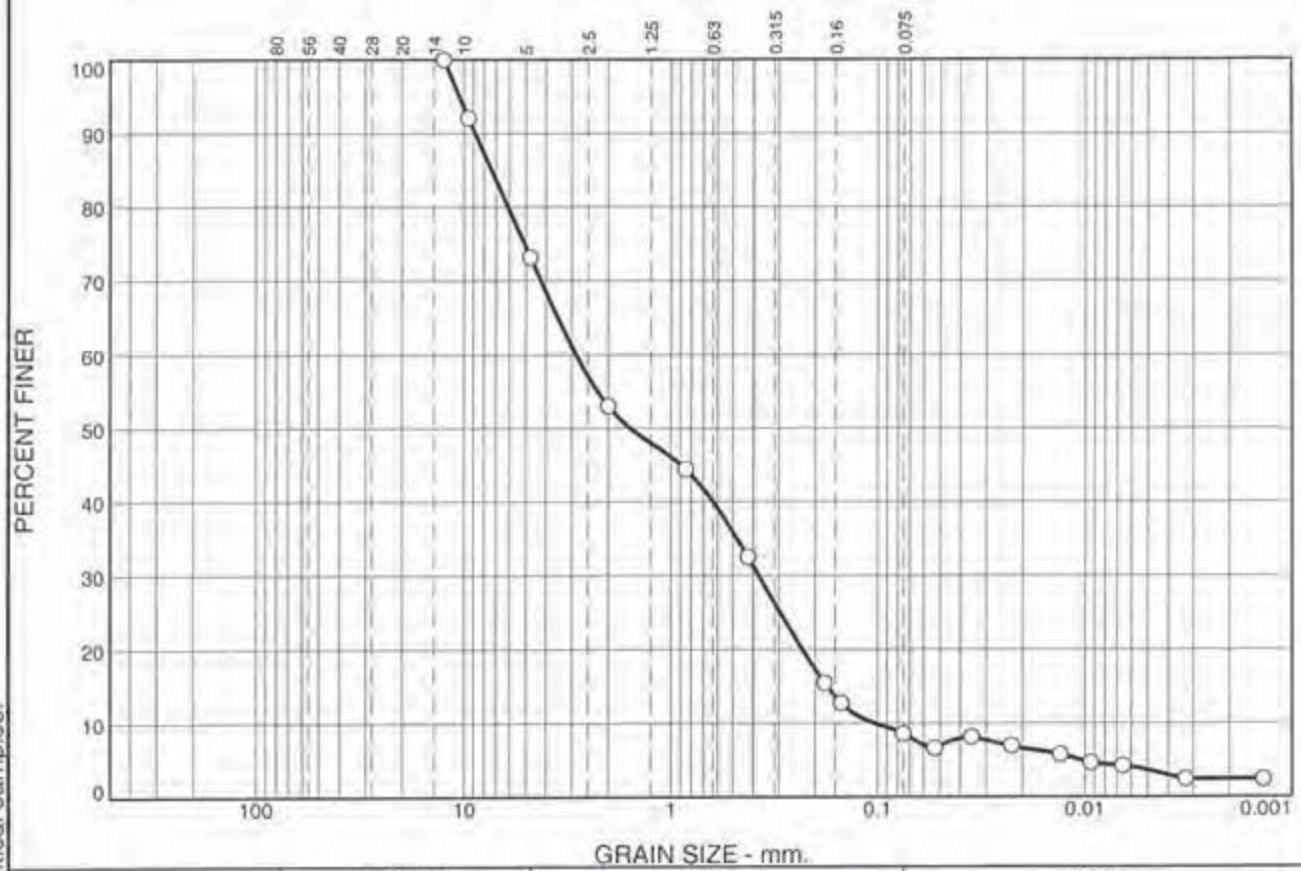
Textural Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	27	27	20	20	24	64	5	4	9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1027	0.1749	0.2306	0.3762	1.5633	2.8570	6.1179	7.3516	8.8081	10.5086

Fineness Modulus	C_u	C_c
3.54	27.81	0.48

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	27	20	20	24	5	4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	92		
4.75 mm	73		
2.00 mm	53		
0.850 mm	44		
0.425 mm	33		
0.180 mm	15		
0.150 mm	13		
0.075 mm	8.6		
0.053 mm	6.6		
0.0353 mm	8.2		
0.0226 mm	7.0		
0.0131 mm	5.8		
0.0094 mm	4.7		
0.0066 mm	4.3		
0.0033 mm	2.4		
0.0014 mm	2.4		

* (no specification provided)

Soil Description

Appears to be mostly sand
Moisture Content Received=49.4%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 8.8081 D_{85}= 7.3516 D_{60}= 2.8570
D_{50}= 1.5633 D_{30}= 0.3762 D_{15}= 0.1749
D_{10}= 0.1027 C_u= 27.81 C_c= 0.48

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D2216

Source of Sample: T16F037 **Depth:** 41
Sample Number: SED-RR-TB-LB (0-.5)

Date: 6/23/16

TRACE

Client: TRC Environmental Corps
Project: Lee Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/27/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16F037
Depth: 42 **Sample Number:** SED-RR-TA-MC (0-.5)
Material Description: Appears to be mostly sand
Moisture Content Received=18.7%
Date: 6/23/16
USCS Classification: SW
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D2216
Tested by: ef **Checked by:** gmr

Sieve Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
172.32	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	169.19	141.33	84
		4.75 mm	176.54	141.33	63
		2.00 mm	185.69	141.33	38
60.27	0.00	0.850 mm	176.14	141.69	16
		0.425 mm	151.88	141.69	10
		0.180 mm	152.01	141.69	3
		0.150 mm	143.24	141.69	2
		0.075 mm	144.37	141.69	0.7
		0.053 mm	142.33	141.69	0.3

Sieve to Hydrometer

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 38
Weight of hydrometer sample =60.27
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.0	1.0070	1.0010	0.0136	6.0	14.7	0.0370	1.0
5.00	20.0	1.0065	1.0005	0.0136	5.5	14.8	0.0235	0.5
15.00	20.0	1.0060	1.0000	0.0136	5.0	15.0	0.0136	0.0
30.00	20.3	1.0060	1.0000	0.0136	5.0	15.0	0.0096	0.0
60.00	21.0	1.0060	1.0001	0.0135	5.0	15.0	0.0067	0.1
250.00	20.9	1.0055	0.9996	0.0135	4.5	15.1	0.0033	-0.4
1440.00	20.7	1.0055	0.9996	0.0135	4.5	15.1	0.0014	-0.4

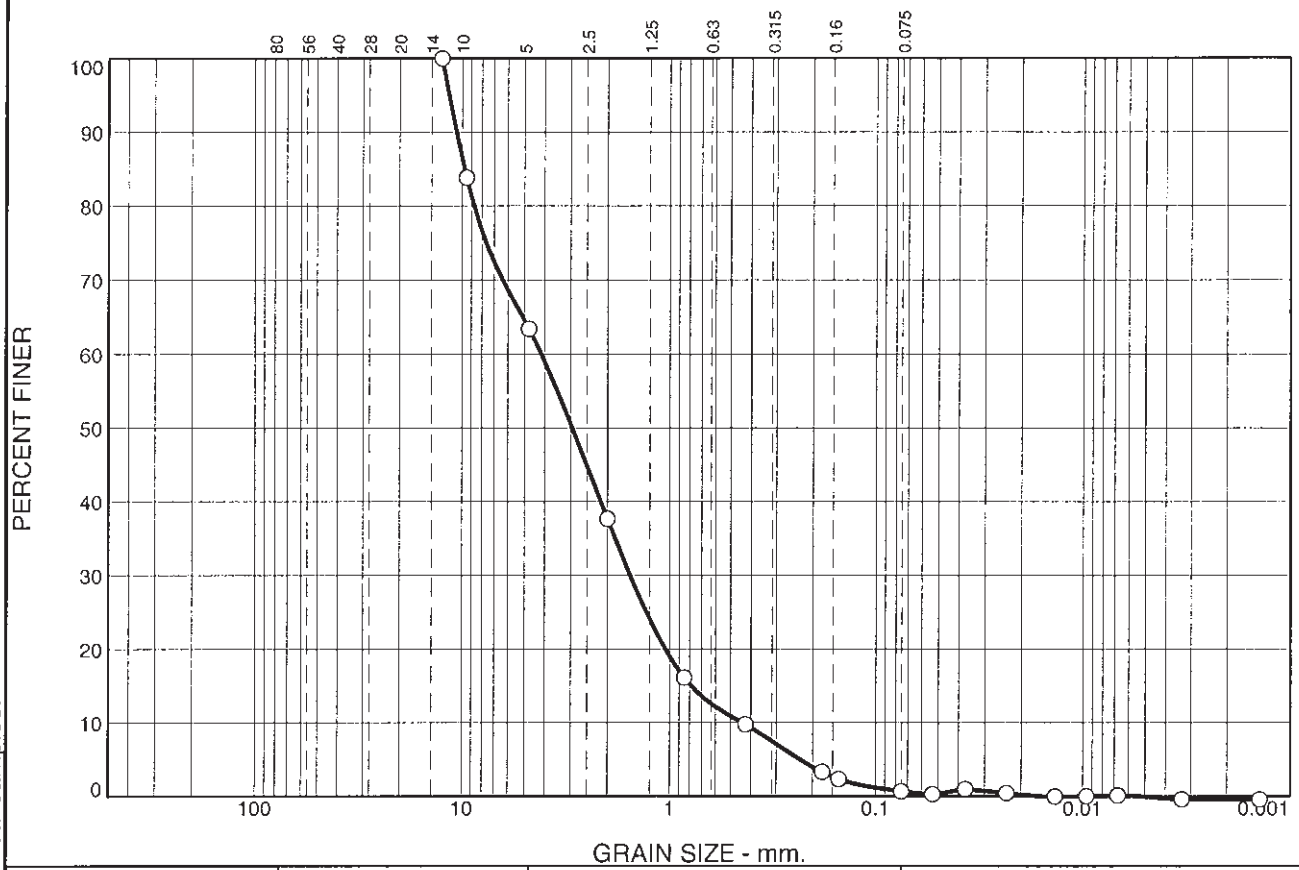
Gradation Analysis

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	37	37	25	28	9	62			1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.4397	0.7857	1.0475	1.5527	2.9494	4.1499	8.7370	9.7206	10.6354	11.5479

Fineness Modulus	C_u	C_c
4.65	9.44	1.32

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	37	25	28	9	1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	84		
4.75 mm	63		
2.00 mm	38		
0.850 mm	16		
0.425 mm	10		
0.180 mm	3		
0.150 mm	2		
0.075 mm	0.7		
0.053 mm	0.3		
0.0370 mm.	1.0		
0.0235 mm.	0.5		
0.0136 mm.			
0.0096 mm.	0.0		
0.0067 mm.	0.1		
0.0033 mm.			
0.0014 mm.			

* (no specification provided)

Soil Description

Appears to be mostly sand
Moisture Content Received=18.7%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 10.6354 D_{85}= 9.7206 D_{60}= 4.1499
D_{50}= 2.9494 D_{30}= 1.5527 D_{15}= 0.7857
D_{10}= 0.4397 C_u= 9.44 C_c= 1.32

Classification

USCS= SW AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D2216

Source of Sample: T16F037 **Depth:** 42
Sample Number: SED-RR-TA-MC (0-.5) **Date:** 6/23/16

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

GRAIN SIZE DISTRIBUTION TEST DATA

6/27/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16F037
Depth: 43 **Sample Number:** SED-RR-TA-RB (0-.5)
Material Description: Appears to be mostly sand
Moisture Content Received=35.7%
Date: 6/23/16
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D2216
Tested by: ef **Checked by:** gmr

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
154.81	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	164.33	141.33	85
		4.75 mm	161.03	141.33	72
		2.00 mm	163.55	141.33	58
86.36	0.00	0.850 mm	162.13	141.69	44
		0.425 mm	162.55	141.69	30
		0.180 mm	168.88	141.69	12
		0.150 mm	145.73	141.69	9
		0.075 mm	146.96	141.69	5.8
		0.053 mm	144.01	141.69	4.2

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 58
Weight of hydrometer sample =86.36
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	19.8	1.0070	1.0039	0.0137	6.0	14.7	0.0371	4.3
5.00	19.8	1.0060	1.0029	0.0137	5.0	15.0	0.0237	3.2
15.00	20.2	1.0060	1.0030	0.0136	5.0	15.0	0.0136	3.2
30.00	20.4	1.0060	1.0030	0.0136	5.0	15.0	0.0096	3.3
60.00	21.0	1.0050	1.0021	0.0135	4.0	15.2	0.0068	2.3
250.00	21.0	1.0050	1.0021	0.0135	4.0	15.2	0.0033	2.3
1440.00	20.7	1.0050	1.0021	0.0135	4.0	15.2	0.0014	2.2

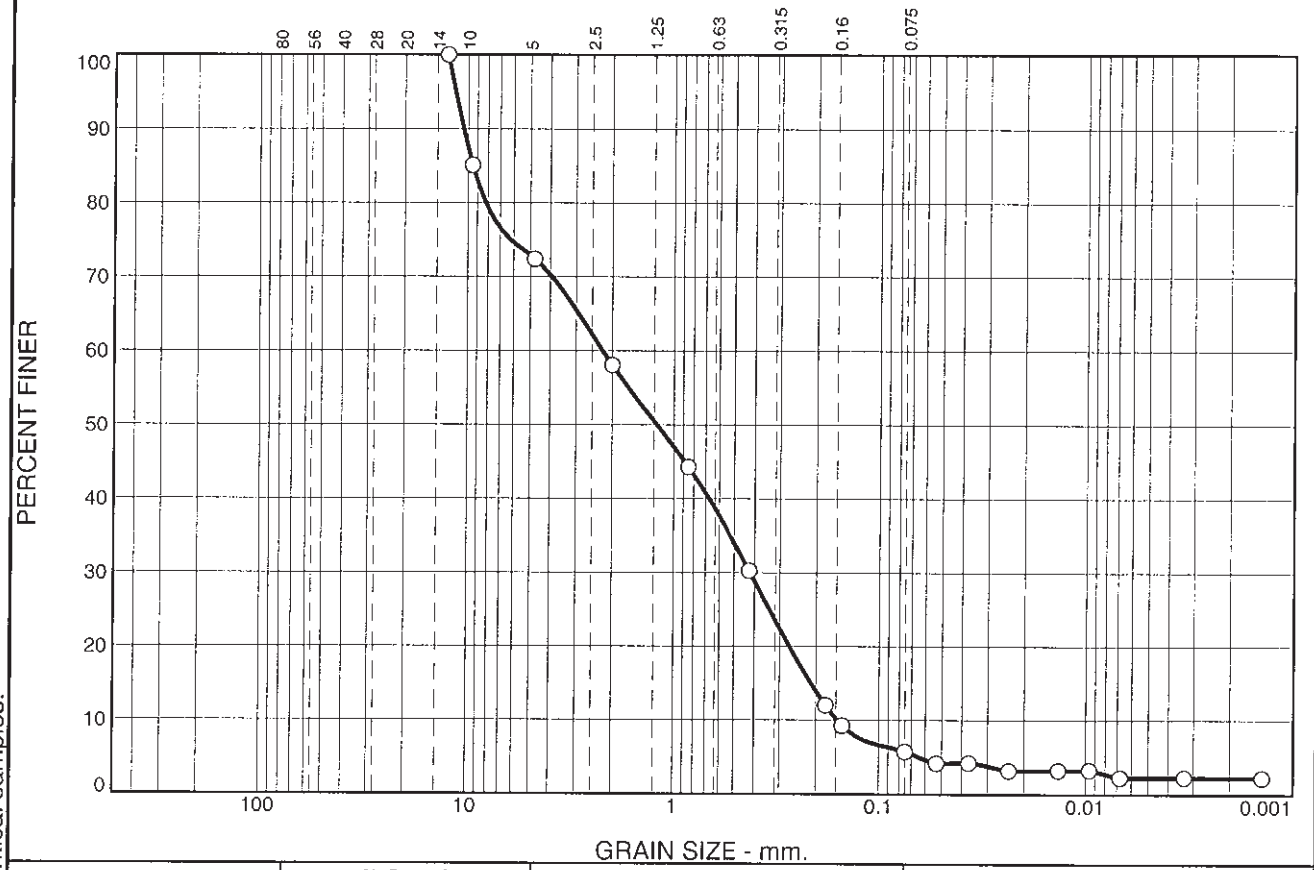
Material Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	28	28	14	28	24	66	4	2	6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1583	0.2118	0.2693	0.4194	1.2069	2.2277	8.2042	9.4684	10.5022	11.4862

Fineness Modulus	C_u	C_c
3.62	14.07	0.50

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	28	14	28	24	4	2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	85		
4.75 mm	72		
2.00 mm	58		
0.850 mm	44		
0.425 mm	30		
0.180 mm	12		
0.150 mm	9		
0.075 mm	5.8		
0.053 mm	4.2		
0.0371 mm.	4.3		
0.0237 mm.	3.2		
0.0136 mm.	3.2		
0.0096 mm.	3.3		
0.0068 mm.	2.3		
0.0033 mm.	2.3		
0.0014 mm.	2.2		

* (no specification provided)

Soil Description

Appears to be mostly sand
Moisture Content Received=35.7%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 10.5022 D_{85}= 9.4684 D_{60}= 2.2277
D_{50}= 1.2069 D_{30}= 0.4194 D_{15}= 0.2118
D_{10}= 0.1583 C_u= 14.07 C_c= 0.50

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D2216

Source of Sample: T16F037 **Depth:** 43
Sample Number: SED-RR-TA-RB (0-.5) **Date:** 6/23/16

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

GRAIN SIZE DISTRIBUTION TEST DATA

6/27/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16F037
Depth: 43 dup **Sample Number:** SED-RR-TA-RB (0-.5)
Material Description: Appears to be mostly sand with larger stones
Moisture Content Received=32.5%
Date: 6/23/16
USCS Classification: SP
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D2216
Tested by: ef **Checked by:** gmr

Sieve Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
161.00	0.00	76.2	0.00	0.00	100
		25.4	0.00	0.00	100
		19.0	149.80	141.34	95
		9.50	187.03	141.34	66
		4.75	161.72	141.34	54
		2.00	158.61	141.34	43
64.10	0.00	0.85	155.02	141.69	34
		0.425	154.90	141.69	25
		0.18	162.93	141.69	11
		0.15	146.02	141.69	8
		0.075	148.34	141.69	3.6
		0.053	143.17	141.69	2.6

Hydrometer Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 43
Weight of hydrometer sample =64.10
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x **Rm**

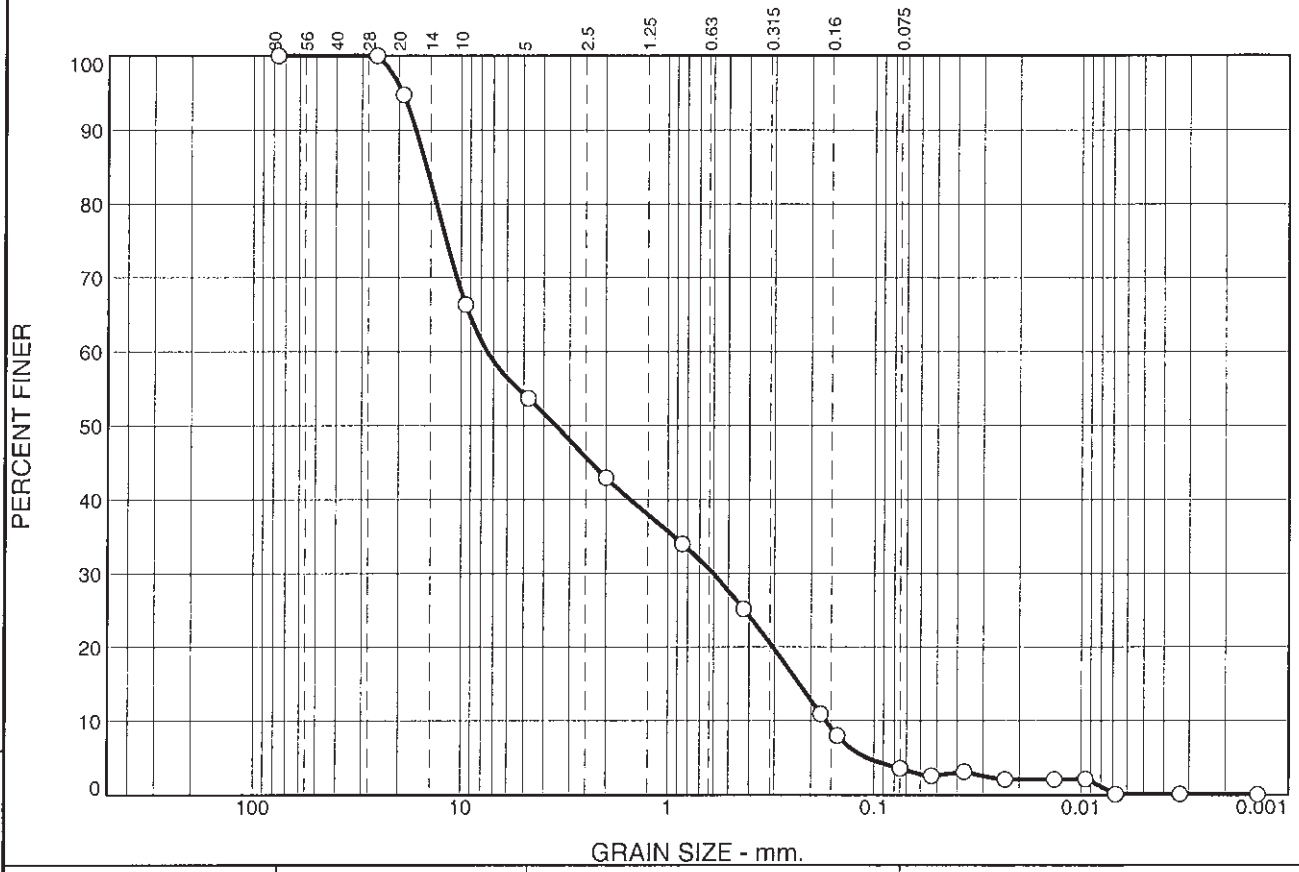
Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	19.6	1.0080	1.0029	0.0137	7.0	14.4	0.0369	3.1
5.00	20.0	1.0070	1.0020	0.0136	6.0	14.7	0.0234	2.1
15.00	20.0	1.0070	1.0020	0.0136	6.0	14.7	0.0135	2.1
30.00	20.2	1.0070	1.0020	0.0136	6.0	14.7	0.0095	2.2
60.00	21.0	1.0050	1.0001	0.0135	4.0	15.2	0.0068	0.1
250.00	21.0	1.0050	1.0001	0.0135	4.0	15.2	0.0033	0.1
1440.00	20.6	1.0050	1.0001	0.0135	4.0	15.2	0.0014	0.1

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	5	41	46	11	18	21	50	4	0	4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1702	0.2280	0.3062	0.6030	3.5004	7.4937	13.1201	14.6554	16.5224	19.1739

Fineness Modulus	C_u	C_c
4.45	44.02	0.28

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	5	41	11	18	21	4	0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
76.2	100		
25.4	100		
19.0	95		
9.50	66		
4.75	54		
2.00	43		
0.85	34		
0.425	25		
0.18	11		
0.15	8		
0.075	3.6		
0.053	2.6		
0.0369 mm.	3.1		
0.0234 mm.	2.1		
0.0135 mm.	2.1		
0.0095 mm.	2.2		
0.0068 mm.	0.1		
0.0033 mm.	0.1		
0.0014 mm.	0.1		

* (no specification provided)

Soil Description

Appears to be mostly sand with larger stones
Moisture Content Received=32.5%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 16.5224 D_{85}= 14.6554 D_{60}= 7.4937
D_{50}= 3.5004 D_{30}= 0.6030 D_{15}= 0.2280
D_{10}= 0.1702 C_u= 44.02 C_c= 0.28

Classification

USCS= SP AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D2216

Source of Sample: T16F037 **Depth:** 43 dup
Sample Number: SED-RR-TA-RB (0-.5) **Date:** 6/23/16

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

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Tested By: ef **Checked By:** gmr

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June 28, 2016

Mr. Scott Pawlukiewicz
TRC Solutions
2025 E. Beltline Ave., SE, Ste 402
Grand Rapids, MI 49546

Phone: (201) 636-75- - 4
Fax: (616) 985-7109-

RE: Trace Project T16E496
Client Project LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Dear Mr. Pawlukiewicz:

Enclosed are your analytical results. The results of this report relate only to the samples listed in the body of this report.

All reports were examined through Trace's validation process to ensure that requirements for quality and completeness were satisfied. All reported analytical results were obtained in accordance with the methods referenced on the reports. Every practical effort was made to meet the reporting limit specifications for this work, however, some results may have raised reporting limits to correct for percent solids.

For clients that require NELAC Accreditation, Trace certifies that these test results meet all requirements of the NELAC Standard, except for those analytes with a "N" notation. These analytes have not been evaluated by NELAC at Trace's discretion and will not be reported unless requested by client.

If you have questions concerning this report, please contact me at 231.883.599- or by email at jmink@trace-labs.com.

Sincerely,

Jon Mink
Senior Project Manager

Enclosures

ACCREDITED IN ACCORDANCE WITH nelac
NJDEP Accreditation No. MI00-

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SAMPLE SUMMARY

Trace Project ID: T16E496
Client Project ID: LEC Ecologic Evolution, 24- 642.0000.0000, Phase Z

Trace ID	Sample ID	Matrix	Collected By	Date Collected	Date Received
T16E496701	SED/RR7/TG7/RB (0.0/0.5)	Sediment	sp	05/28/16 09:40	05/31/16 08:12
T16E496702	SED/RR7/TG7/RMC (0.0/0.5)	Sediment	sp	05/28/16 09:55	05/31/16 08:12
T16E496703	SED/RR7/TG7/LMC (0.0/0.5)	Sediment	sp	05/28/16 10:15	05/31/16 08:12
T16E496704	SED/RR7/TG7/LMC (0.0/0.5) (DUP)	Sediment	sp	05/28/16 10:15	05/31/16 08:12
T16E496705	SED/RR7/TG7/LB (0.0/0.5)	Sediment	sp	05/28/16 10:30	05/31/16 08:12
T16E496706	SED/RR7/TF7/RB (0.0/0.5)	Sediment	sp	05/28/16 11:30	05/31/16 08:12
T16E496708	SED/RR7/TF7/RMC (0.0/0.5)	Sediment	sp	05/28/16 11:45	05/31/16 08:12
T16E4967/0-	SED/RR7/TF7/MC (0.0/0.5)	Sediment	sp	05/28/16 12:05	05/31/16 08:12
T16E496709	SED/RR7/TF7/LMC (0.0/0.5)	Sediment	sp	05/28/16 12:25	05/31/16 08:12
T16E496710	SED/RR7/TF7/LB (0.0/0.5)	Sediment	sp	05/28/16 12:35	05/31/16 08:12

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TRACE
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AN EXPLANATION OF TERMS AND SYMBOLS WHICH MAY OCCUR IN THIS REPORT

DEFINITIONS

LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
DUP	Matrix Duplicate
RDL	Reporting Detection Limit
MCL	Maximum Contamination Limit
TIC	Tentatively Identified Compound
<, ND or U	Indicates the compound was analyzed for but not detected
*	Indicates a result that exceeds its associated MCL or Surrogate control limits
N	Indicates that the compound has not been evaluated by NELAC
NA	Indicates that the compound is not available.

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CHAIN-OF-CUSTODY RECORD

Page 1 of 2

TRACE ID NO. T16E496

TRACE USE ONLY

Logged By: NM Checked By: [illegible]

Received on ice: (Yes) No Preservative Checked: Yes No (N/A)

Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Report Results To:

Company Name: TRC Environmental Corp

Report to: Scott Pawlukiewcz

Mailing Address: 2025 E. Beltline Ave SE STE 402

City, State, Zip Code: Grand Rapids, MI 49546

Phone: 616 915 3604 Fax: 616 975 1098

Email Address: SPawlukiewcz@TRCSolutions.com

Cell #: 616 915 3604 Sampled by:

Project Name & #: LEC Ecologic Evolution, 248642.0000000, Phase 2

Bill To:

Billing Address (if different)

City, State, Zip Code Windsor, CT

Attn: Phone: PO #:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐

Turnaround Requirements: Standard ☒ 3 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ * Requires Prior Approval

Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, OI = Oil, WI = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

ANALYSIS REQUESTED

Request for Analytical Services

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	COOL	HCL	HNO3	H_2SO_4	NaOH	Other	DEHP	Grain Size								REMARKS	Potential Health Hazards
01	05/27/16	0940	SED-RR-TG-RB(0.0-0.5)		S	2							1	1									
02	05/27/16	0955	SED-RR-TG-RMC(0.0-0.5)		S	2							1	1									
03	05/27/16	1015	SED-RR-TG-LMC(0.0-0.5)		S	2							1	1									
04	05/27/16	1015	SED-RR-TG-LMC(0.0-0.5)(DUP)		S	2							1	1									
05	05/27/16	1030	SED-RR-TG-LB(0.0-0.5)		S	3							2	1								(MS/MSD)	
06	05/27/16	1130	SED-RR-TF-RB(0.0-0.5)		S	2							1	1									
07	05/27/16	1145	SED-RR-TF-RMC(0.0-0.5)		S	2							1	1									
08	05/27/16	1205	SED-RR-TF-MC(0.0-0.5)		S	2							1	1									
09	05/27/16	1225	SED-RR-TF-LMC(0.0-0.5)		S	2							1	1									
10	05/27/16	1235	SED-RR-TF-LB(0.0-0.5)		S	2							1	1									

Please Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
1) [signature]	FEDEX	05/27/16	1500	2) FEDEX	[signature]	5/31/16	7:12	3)			
4)				5)				6)			

In executing this Chain of Custody, the client acknowledges acceptance of the terms and conditions of the agreement as set forth at http://www.trace-labs.com/cocterms.php

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CHAIN-OF-CUSTODY RECORD

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Page 2 of 2

TRACE ID NO. T16E496

TRACE USE ONLY

Logged By: [illegible] Checked By: [illegible]

Received on ice: (Yes) No Preservative Checked: Yes No (N/A)

Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Report Results To:

Company Name: TRC Environmental Corp

Report to: Scott Pawlukiewicz

Mailing Address: 2025 E Beltline Ave SE STE 402

City, State, Zip Code: Grand Rapids, MI 49546

Phone: 616 915 3604 Fax: 616 975 1098

Email Address: spawlukiewicz@trcsolutions.com

Cell #: 616 915 3604 Sampled by: SP

Project Name & #: LEC Ecologic Evolution, 248642.0000.0000 phase 2

Bill To:

Billing Address (if different)

City, State, Zip Code Windsor, CT

Attn: Phone: PO #:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐

Turnaround Requirements: Standard ☒ 3 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ * Requires Prior Approval

Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, OI = Oil, WI = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

Request for Analytical Services

ANALYSIS REQUESTED

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	PRESERVATION: COOL	HCL	HNO3	H_2SO_4	NaOH	Other	DEHP	DISS. DEHP									REMARKS	Please Note Hazards
11/12	05/27/16	0930	SW-RR-TG-RB		W	3							2	1									LAB FILTER	
13/14	05/27/16	0950	SW-RR-TG-RMC		W	3							2	1									DISS. DEHP	
15/16	05/27/16	1010	SW-RR-TG-LMC		W	5							3	2	(MS/MSD)								SAMPLES.	
17/18	05/27/16	1025	SW-RR-TG-LB		W	3							2	1										
19/20	05/27/16	1025	SW-RR-TG-LB (DUP)		W	3							2	1										
21/22	05/27/16	1125	SW-RR-TF-RB		W	3							2	1										
23/24	05/27/16	1140	SW-RR-TF-RMC		W	3							2	1										
25/26	05/27/16	1200	SW-RR-TF-MC		W	3							2	1										
27/28	05/27/16	1220	SW-RR-TF-LMC		W	3							2	1										
29/30	05/27/16	1230	SW-RR-TF-LB		W	3							2	1										

Please Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
1) [signature]	FEDEX	05/27/16	1500	2) FEDEX	[signature]	5/31/16	7:12	3)			
4)				5)				6)			

In executing this Chain of Custody, the client acknowledges acceptance of the terms and conditions of the agreement as set forth at http://www.trace-labs.com/cocterms.php

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SAMPLE LOG IN CHECKLIST

Trace ID #: T16E496 Date: 5-3-16 Package Description: Cooler Temperature: 6.5
Client Name: TRC Time: 7:12 Logged in by: GH

Cooler Receipt

Cooler/samples delivered by: Trace courier [ ] Hand delivered [ ] Name of delivery person: ____
Commercial courier [X] UPS [ ] FED EX [X] US Mail [ ]

Tracking Number: [ ] Not Applicable
7832 2544 0477 Tracking #: 7832 2544 0488 7832 2544 0466

COC Seals present and intact on cooler? No [ ] Yes [ ] [X] Not Applicable

Custody seals signed by Client? No [ ] Yes [ ] Client custody seal # (if applicable): ____

Coolant and Temperature

Type of Coolant Used

Slurry w/ crushed, cubed, or chip ice? [X]
Multiple bags of ice around samples? [ ]
Ice Packs/ Blue Ice : [ ]
No Coolant Present: [ ]

Cooler Temperature

Correction Factor: IR Thermometer -0.4 °C (Plastic or Glass -circle one)
Digital Stick Thermometer -0.2 °C

Temperature Blank: none °C (Use Digital Stick Thermometer)
Range of 3 samples: 38 11.3 °C (Use IR Thermometer)
Melt Water: none °C (Use Digital Stick Thermometer)
Ice still present upon receipt: [X] Yes [ ] No [ ] N/A

General

	Yes	No	NA	Comments
All bottles arrived unbroken with labels in good condition?	X			
Each sample point is in a sealed plastic bag?		X		
Labels filled out completely?	X			
All bottle labels agree with Chain of Custody (COC)?	X			
Sufficient sample to run tests requested?	X			
pH checked and samples at correct pH?			X	See Below
Correct preservative added to samples?			X	
Air bubbles absent from VOAs?			X	
COC filled out properly and signed by client?	X			
COC signed in by TRACE sample custodian?	X			
Was project manager called and samples discussed?		X		

Notes: ____

*EMD pH Test Strips Used:
[ ] pH 0-2.5 Lot: HC563733
[ ] pH 11.0-13.0 Lot: HC547328
[ ] Other: ____

Form 70-A.12
Effective 10/13/15

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GRAIN SIZE DISTRIBUTION TEST DATA

6/17/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E496
Depth: 01 **Sample Number:** SED-RR-TG-RB (0-.5)
Material Description: Appears to be mostly sand with a few stones
Moisture Content Received= 23.6%
Date: 6/15/16
USCS Classification: SP
Testing Remarks: Test Methods Used: ASTM D-4221. D-422, D-2216
Tested by: ef **Checked by:** gmr

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
165.00	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	142.80	141.32	99
		4.75 mm	168.75	141.32	82
		2.00 mm	168.77	141.32	66
106.65	0.00	0.850 mm	170.60	141.32	48
		0.425 mm	177.19	141.32	26
		0.180 mm	172.40	141.32	6
		0.150 mm	143.81	141.32	5
		0.075 mm	144.17	141.32	3.1
		0.053 mm	141.97	141.32	2.7

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 66
Weight of hydrometer sample =106.65
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -7
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

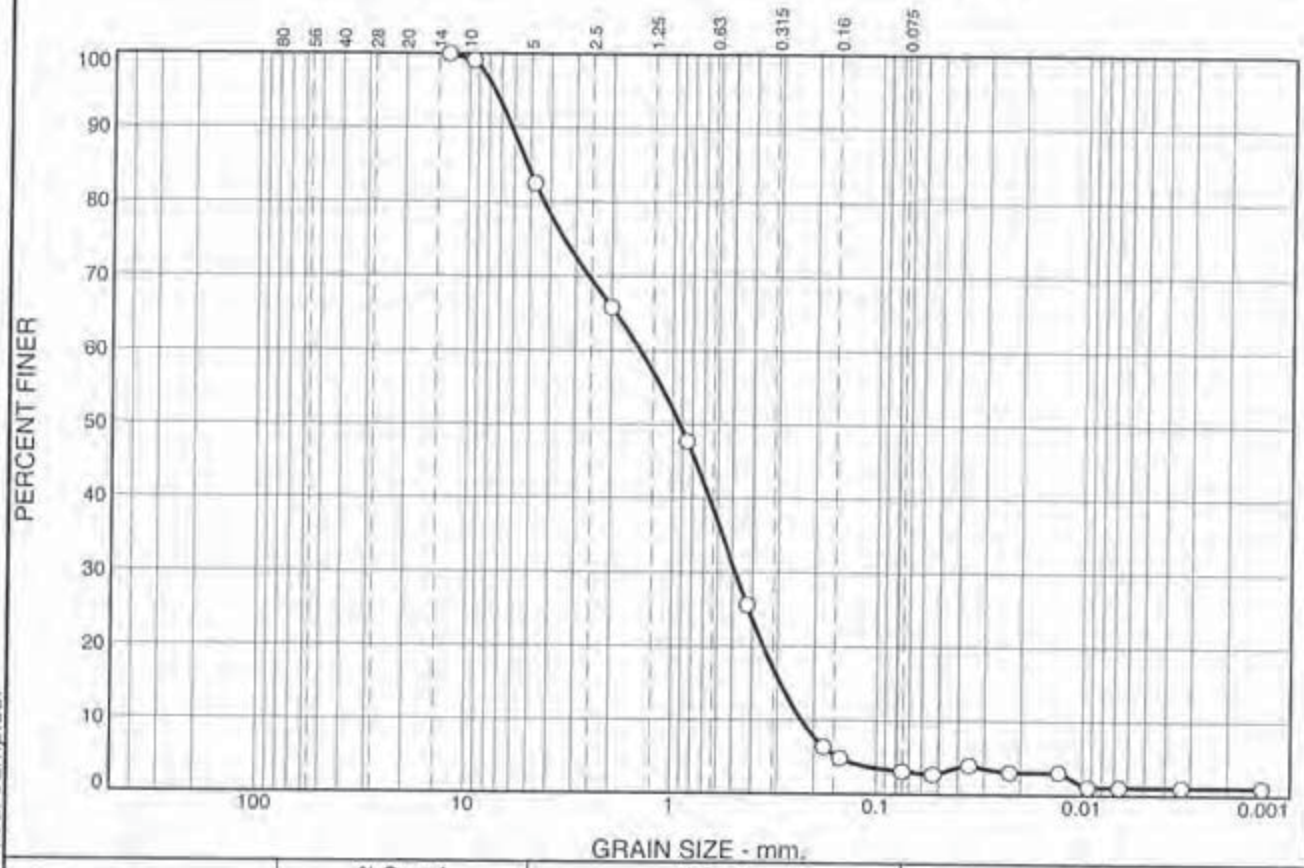
Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.4	1.0110	1.0040	0.0136	10.0	13.6	0.0355	4.0
5.00	20.6	1.0100	1.0031	0.0135	9.0	13.9	0.0226	3.0
15.00	20.8	1.0100	1.0031	0.0135	9.0	13.9	0.0130	3.1
30.00	20.7	1.0080	1.0011	0.0135	7.0	14.4	0.0094	1.1
60.00	20.8	1.0080	1.0011	0.0135	7.0	14.4	0.0066	1.1
240.00	20.5	1.0080	1.0010	0.0136	7.0	14.4	0.0033	1.0
1440.00	20.6	1.0080	1.0011	0.0135	7.0	14.4	0.0014	1.0

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	18	18	16	40	23	79	2	1	3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.2294	0.2904	0.3516	0.4873	0.9222	1.4381	4.3027	5.2086	6.2032	7.5027

Fineness Modulus	C_u	C_c
3.36	6.27	0.72

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	18	16	40	23	2	1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	99		
4.75 mm	82		
2.00 mm	66		
0.850 mm	48		
0.425 mm	26		
0.180 mm	6		
0.150 mm	5		
0.075 mm	3.1		
0.053 mm	2.7		
0.0355 mm.	4.0		
0.0226 mm.	3.0		
0.0130 mm.	3.1		
0.0094 mm.	1.1		
0.0066 mm.	1.1		
0.0033 mm.	1.0		
0.0014 mm.	1.0		

* (no specification provided)

Soil Description

Appears to be mostly sand with a few stones
Moisture Content Received= 23.6%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 6.2032 D_{85}= 5.2086 D_{60}= 1.4381
D_{50}= 0.9222 D_{30}= 0.4873 D_{15}= 0.2904
D_{10}= 0.2294 C_u= 6.27 C_c= 0.72

Classification

USCS= SP AASHTO=

Remarks

Test Methods Used: ASTM D-4221, D-422, D-2216

Source of Sample: T16E496 **Depth:** 01
Sample Number: SED-RR-TG-RB (0-.5)

Date: 6/15/16

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,

Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

GRAIN SIZE DISTRIBUTION TEST DATA

6/22/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E496
Depth: 02 **Sample Number:** SED-RR-TG-RMC (0-.5)
Material Description: Appears to be mostly sand with a few stones
Moisture Content Received= 23.1%
Testing Remarks: Test Methods Used: ASTM D-421, D-422, and D-2216
Tested by: ef **Checked by:** gmr

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
147.18	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	144.51	141.33	98
		4.75 mm	163.26	141.33	83
		2.00 mm	175.65	141.33	60
85.60	0.00	0.850 mm	165.80	141.33	43
		0.425 mm	159.57	141.33	30
		0.180 mm	165.31	141.33	13
		0.150 mm	143.53	141.33	12
		0.075 mm	142.80	141.33	11
		0.053 mm	142.54	141.33	9.8

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 60
Weight of hydrometer sample =85.60
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

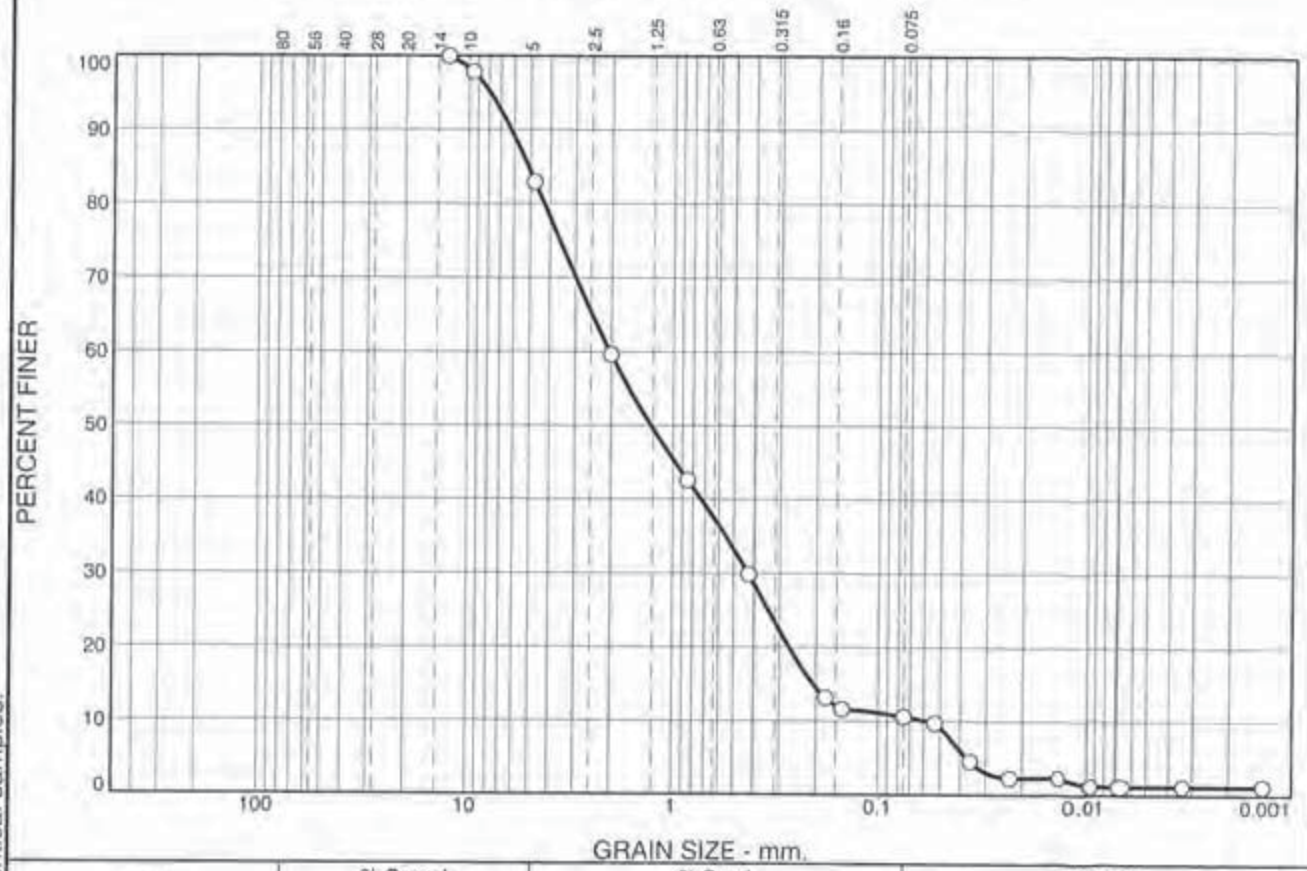
Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.6	1.0100	1.0041	0.0135	9.0	13.9	0.0357	4.5
5.00	20.7	1.0080	1.0021	0.0135	7.0	14.4	0.0230	2.3
15.00	20.6	1.0080	1.0021	0.0135	7.0	14.4	0.0133	2.3
30.00	20.7	1.0070	1.0011	0.0135	6.0	14.7	0.0095	1.2
60.00	20.6	1.0070	1.0011	0.0135	6.0	14.7	0.0067	1.2
240.00	20.4	1.0070	1.0010	0.0136	6.0	14.7	0.0034	1.1
1440.00	20.6	1.0070	1.0011	0.0135	6.0	14.7	0.0014	1.2

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	17	17	23	30	19	72	10	1	11

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0577	0.2064	0.2704	0.4276	1.2773	2.0318	4.2699	5.1252	6.2301	7.8689

Fineness Modulus	C_u	C_c
3.37	35.19	1.56

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	17	23	30	19	10	1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	98		
4.75 mm	83		
2.00 mm	60		
0.850 mm	43		
0.425 mm	30		
0.180 mm	13		
0.150 mm	12		
0.075 mm	11		
0.053 mm	9.8		
0.0357 mm.	4.5		
0.0230 mm.	2.3		
0.0133 mm.	2.3		
0.0095 mm.	1.2		
0.0067 mm.	1.2		
0.0034 mm.	1.1		
0.0014 mm.	1.2		

* (no specification provided)

Soil Description

Appears to be mostly sand with a few stones
Moisture Content Received= 23.1%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 6.2301 D_{85}= 5.1252 D_{60}= 2.0318
D_{50}= 1.2773 D_{30}= 0.4276 D_{15}= 0.2064
D_{10}= 0.0577 C_u= 35.19 C_c= 1.56

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, and D-2216

Source of Sample: T16E496 **Depth:** 02
Sample Number: SED-RR-TG-RMC (0-.5) **Date:**

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000. **Plate**

Tested By: ef **Checked By:** gmr

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

GRAIN SIZE DISTRIBUTION TEST DATA

6/17/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E496
Depth: 03 **Sample Number:** SED-RR-TG-LMC (0-.5)
Material Description: Appears to be mostly sand with a few small stones
Moisture Content Received= 26.5%
Date: 6/15/16
USCS Classification: SP
Testing Remarks: Test Methods Used: ASTM D-421, D-422, and D-2216
Tested by: ef **Checked by:** gmr

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
153.26	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	144.11	141.33	98
		4.75 mm	147.05	141.33	94
		2.00 mm	156.98	141.33	84
127.65	0.00	0.850 mm	189.83	141.33	52
		0.425 mm	191.24	141.33	19
		0.180 mm	163.53	141.33	5
		0.150 mm	142.50	141.33	4
		0.075 mm	142.85	141.33	2.9
		0.053 mm	141.78	141.33	2.6

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 84
Weight of hydrometer sample =127.65
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	19.9	1.0090	1.0040	0.0137	8.0	14.2	0.0364	4.2
5.00	20.0	1.0080	1.0030	0.0136	7.0	14.4	0.0232	3.2
15.00	20.1	1.0080	1.0030	0.0136	7.0	14.4	0.0134	3.2
30.00	19.9	1.0070	1.0020	0.0137	6.0	14.7	0.0096	2.1
60.00	20.5	1.0070	1.0020	0.0136	6.0	14.7	0.0067	2.2
250.00	19.8	1.0070	1.0019	0.0137	6.0	14.7	0.0033	2.1
1440.00	20.1	1.0070	1.0020	0.0136	6.0	14.7	0.0014	2.1

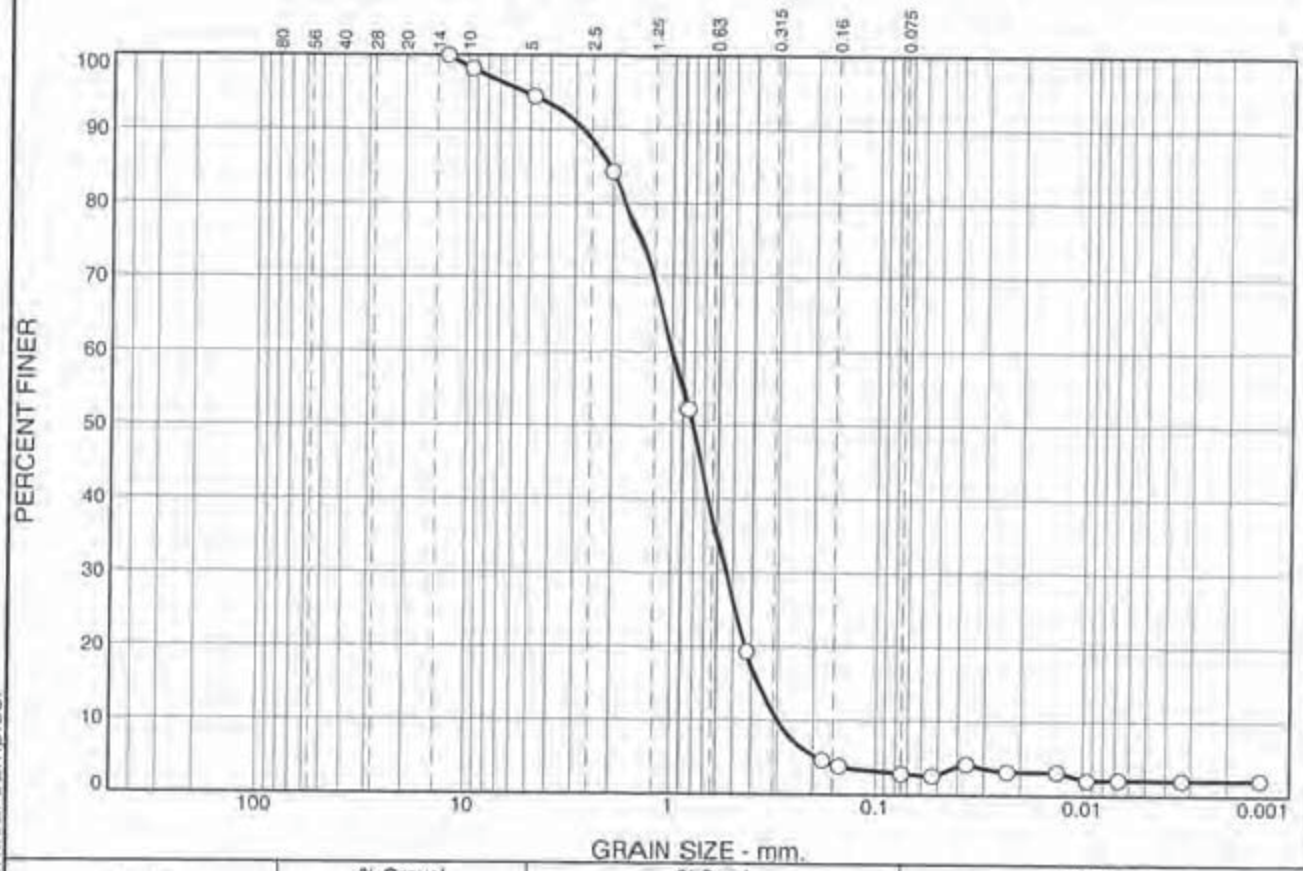
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	6	6	10	65	16	91	1	2	3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.2996	0.3718	0.4332	0.5469	0.8127	1.0013	1.7017	2.0681	2.7656	5.2602

Fineness Modulus	C_u	C_c
3.04	3.34	1.00

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	6	10	65	16	1	2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	98		
4.75 mm	94		
2.00 mm	84		
0.850 mm	52		
0.425 mm	19		
0.180 mm	5		
0.150 mm	4		
0.075 mm	2.9		
0.053 mm	2.6		
0.0364 mm.	4.2		
0.0232 mm.	3.2		
0.0134 mm.	3.2		
0.0096 mm.	2.1		
0.0067 mm.	2.2		
0.0033 mm.	2.1		
0.0014 mm.	2.1		

* (no specification provided)

Soil Description

Appears to be mostly sand with a few small stones
Moisture Content Received= 26.5%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 2.7656 D_{85}= 2.0681 D_{60}= 1.0013
D_{50}= 0.8127 D_{30}= 0.5469 D_{15}= 0.3718
D_{10}= 0.2996 C_u= 3.34 C_c= 1.00

Classification

USCS= SP AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, and D-2216

Source of Sample: T16E496 **Depth:** 03
Sample Number: SED-RR-TG-LMC (0-.5)

Date: 6/15/16

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,

Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/17/2016

Client: TRC Environmental Corps
Project: Lee Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E496
Depth: 04 **Sample Number:** SED-RR-TG-LMC DUP
Material Description: Appears to be mostly sand with a few stones
Moisture Content Received= 27.3%
Date: 6/15/16
USCS Classification: SP
Testing Remarks: Test Methods Used: ASTM D-421, D-422, and D-2216
Tested by: ef **Checked by:** gmr

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
150.90	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	145.35	141.32	97
		4.75 mm	150.09	141.32	92
		2.00 mm	156.16	141.32	82
121.51	0.00	0.850 mm	189.80	141.32	49
		0.425 mm	190.60	141.32	16
		0.180 mm	158.29	141.32	5
		0.150 mm	142.13	141.32	4
		0.075 mm	141.93	141.32	3.6
		0.053 mm	142.17	141.32	3.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 82
Weight of hydrometer sample =121.51
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	19.9	1.0070	1.0020	0.0137	6.0	14.7	0.0370	2.1
5.00	20.0	1.0060	1.0010	0.0136	5.0	15.0	0.0236	1.1
15.00	20.0	1.0060	1.0010	0.0136	5.0	15.0	0.0136	1.1
30.00	20.0	1.0050	1.0000	0.0136	4.0	15.2	0.0097	0.0
60.00	20.0	1.0050	1.0000	0.0136	4.0	15.2	0.0069	0.0
250.00	19.8	1.0050	0.9999	0.0137	4.0	15.2	0.0034	-0.1
1440.00	19.8	1.0050	0.9999	0.0137	4.0	15.2	0.0014	-0.1

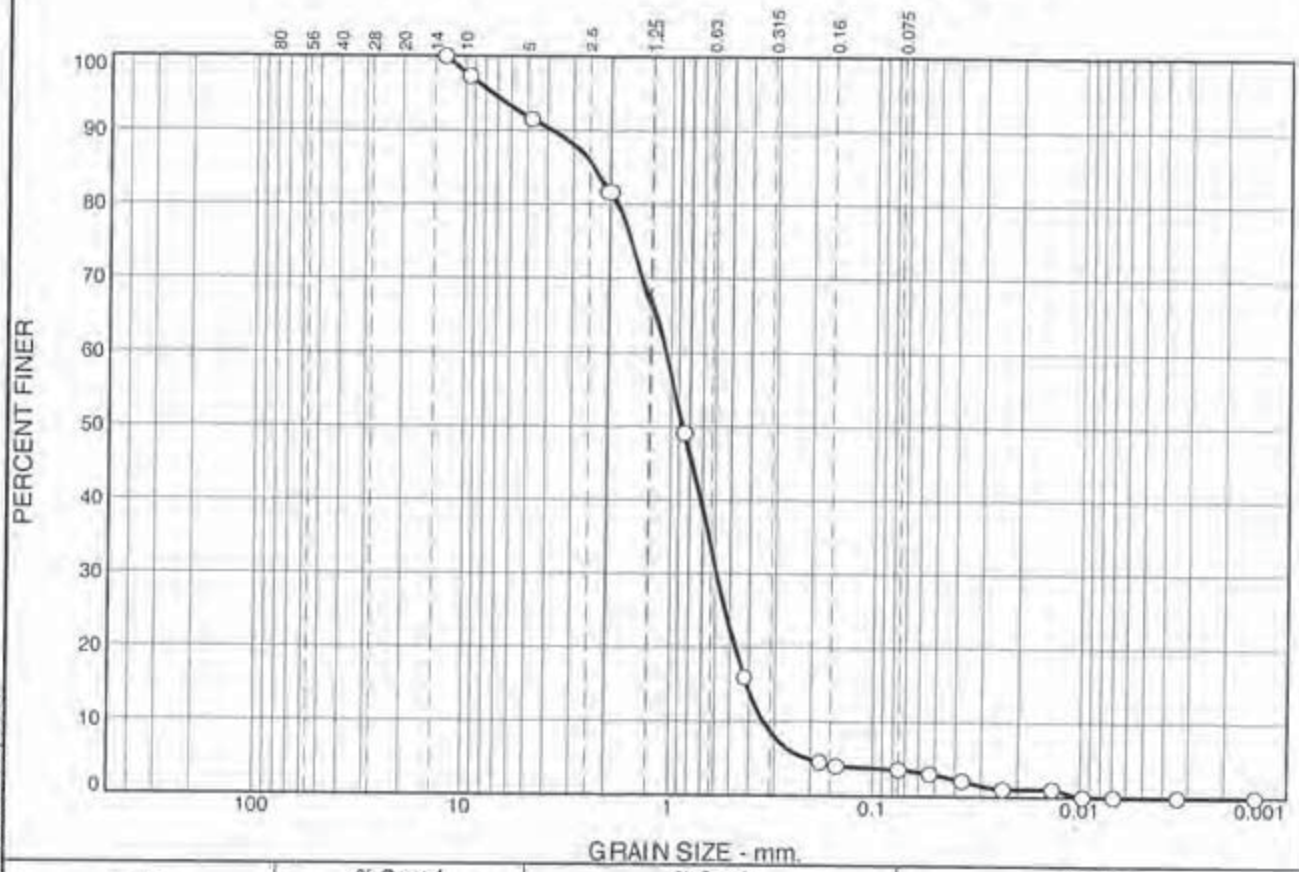
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	8	8	10	66	12	88			4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.3389	0.4127	0.4734	0.5885	0.8654	1.0673	1.8655	2.3729	3.7895	7.3745

Fineness Modulus	C_u	C_c
3.19	3.15	0.96

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	8	10	66	12	4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	97		
4.75 mm	92		
2.00 mm	82		
0.850 mm	49		
0.425 mm	16		
0.180 mm	5		
0.150 mm	4		
0.075 mm	3.6		
0.053 mm	3.0		
0.0370 mm.	2.1		
0.0236 mm.	1.1		
0.0136 mm.	1.1		
0.0097 mm.			
0.0069 mm.			
0.0034 mm.			
0.0014 mm.			

* (no specification provided)

Soil Description

Appears to be mostly sand with a few stones
Moisture Content Received= 27.3%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 3.7895 D_{85}= 2.3729 D_{60}= 1.0673
D_{50}= 0.8654 D_{30}= 0.5885 D_{15}= 0.4127
D_{10}= 0.3389 C_u= 3.15 C_c= 0.96

Classification

USCS= SP AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, and D-2216

Source of Sample: T16E496 **Depth:** 04
Sample Number: SED-RR-TG-LMC DUP

Date: 6/15/16

TRACE

Client: TRC Environmental Corps
Project: Lee Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E496
Depth: 05 **Sample Number:** SED-RR-TG-LB (0-.5)
Material Description: Appears to be mostly sand with a few stones
Moisture Content Received= 71.8%
Date: 6/22/16
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D2216
Tested by: ef **Checked by:** gmr

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
44.45	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75	0.00	0.00	100
		2.00 mm	0.00	0.00	100
		0.850 mm	143.91	141.69	95
		0.425 mm	144.70	141.69	88
		0.180 mm	150.87	141.69	68
		0.150 mm	144.20	141.69	62
		0.075 mm	147.55	141.69	49
		0.053 mm	144.69	141.69	42

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100
Weight of hydrometer sample =44.45
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

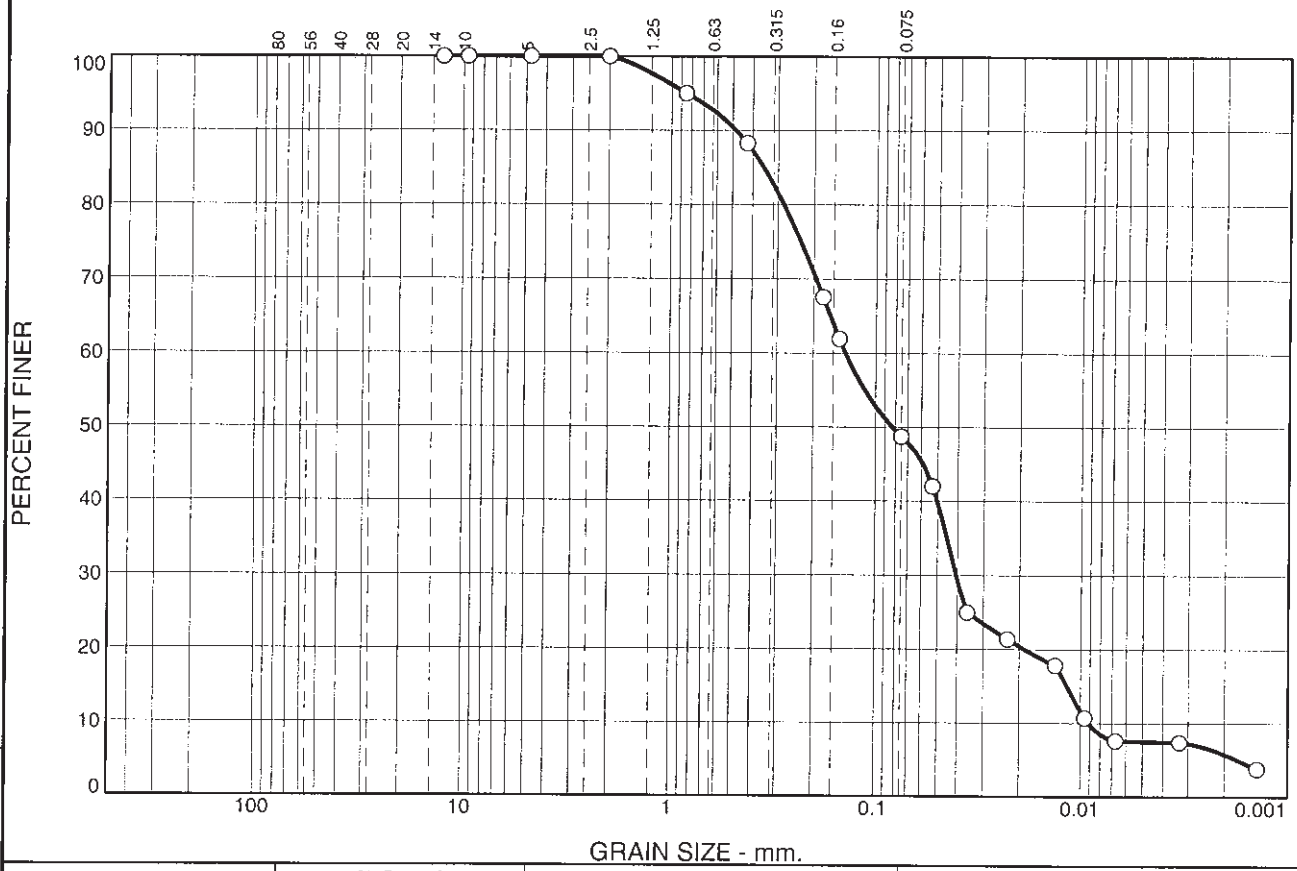
Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	19.6	1.0110	1.0069	0.0137	10.0	13.6	0.0358	25.0
5.00	19.6	1.0100	1.0059	0.0137	9.0	13.9	0.0229	21.4
15.00	19.8	1.0090	1.0049	0.0137	8.0	14.2	0.0133	17.9
30.00	20.0	1.0070	1.0030	0.0136	6.0	14.7	0.0096	10.7
60.00	21.0	1.0060	1.0021	0.0135	5.0	15.0	0.0067	7.6
250.00	20.6	1.0060	1.0021	0.0135	5.0	15.0	0.0033	7.4
1440.00	20.6	1.0050	1.0011	0.0135	4.0	15.2	0.0014	3.8

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	12	39	51	41	8	49

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0091	0.0116	0.0188	0.0406	0.0827	0.1399	0.2808	0.3529	0.4831	0.8493

Fineness Modulus	C_u	C_c
0.67	15.33	1.29

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	12	39	41	8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75	100		
2.00 mm	100		
0.850 mm	95		
0.425 mm	88		
0.180 mm	68		
0.150 mm	62		
0.075 mm	49		
0.053 mm	42		
0.0358 mm.	25		
0.0229 mm.	21		
0.0133 mm.	18		
0.0096 mm.	11		
0.0067 mm.	7.6		
0.0033 mm.	7.4		
0.0014 mm.	3.8		

* (no specification provided)

Soil Description

Appears to be mostly sand with a few stones
Moisture Content Received= 71.8%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4831 D_{85}= 0.3529 D_{60}= 0.1399
D_{50}= 0.0827 D_{30}= 0.0406 D_{15}= 0.0116
D_{10}= 0.0091 C_u= 15.33 C_c= 1.29

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D2216

Source of Sample: T16E496 **Depth:** 05
Sample Number: SED-RR-TG-LB (0-.5)

Date: 6/22/16

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,

Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E496
Depth: 05 DUP
Sample Number: SED-RR-TG-LB (0-.5)
Material Description: Appears to be mostly silt and fine
Moisture Content Received= 72.7%
Date: 6/22/16
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D-2216
Tested by: ef
Checked by: gmr

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
49.77	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	0.00	0.00	100
		2.00 mm	0.00	0.00	100
		0.850 mm	144.51	141.69	94
		0.425 mm	146.07	141.69	86
		0.180 mm	156.98	141.69	55
		0.150 mm	145.44	141.69	47
		0.075 mm	148.32	141.69	34
		0.053 mm	144.79	141.69	28

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100
Weight of hydrometer sample =49.77
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

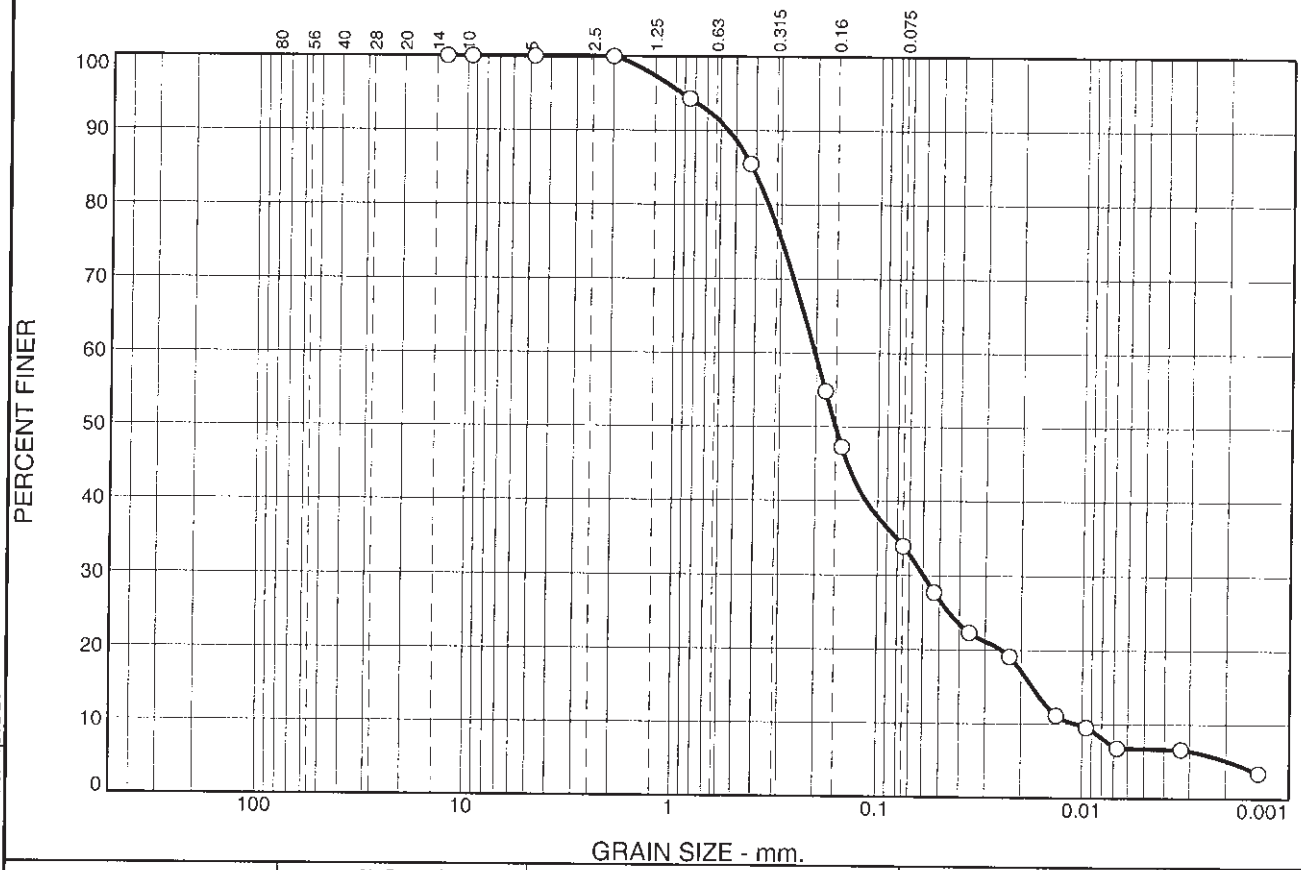
Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	19.6	1.0110	1.0069	0.0137	10.0	13.6	0.0358	22.3
5.00	19.7	1.0100	1.0059	0.0137	9.0	13.9	0.0228	19.2
15.00	20.0	1.0075	1.0035	0.0136	6.5	14.6	0.0135	11.2
30.00	20.0	1.0070	1.0030	0.0136	6.0	14.7	0.0096	9.6
60.00	21.0	1.0060	1.0021	0.0135	5.0	15.0	0.0067	6.8
250.00	20.6	1.0060	1.0021	0.0135	5.0	15.0	0.0033	6.6
1440.00	20.6	1.0050	1.0011	0.0135	4.0	15.2	0.0014	3.4

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	14	52	66	27	7	34

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0105	0.0175	0.0249	0.0599	0.1609	0.2030	0.3454	0.4153	0.5465	0.9230

Fineness Modulus	C_u	C_c
0.89	19.35	1.69

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	14	52	27	7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	100		
2.00 mm	100		
0.850 mm	94		
0.425 mm	86		
0.180 mm	55		
0.150 mm	47		
0.075 mm	34		
0.053 mm	28		
0.0358 mm.	22		
0.0228 mm.	19		
0.0135 mm.	11		
0.0096 mm.	9.6		
0.0067 mm.	6.8		
0.0033 mm.	6.6		
0.0014 mm.	3.4		

* (no specification provided)

Soil Description

Appears to be mostly silt and fine
Moisture Content Received= 72.7%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.5465 D_{85}= 0.4153 D_{60}= 0.2030
D_{50}= 0.1609 D_{30}= 0.0599 D_{15}= 0.0175
D_{10}= 0.0105 C_u= 19.35 C_c= 1.69

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D-2216

Source of Sample: T16E496 **Depth:** 05 DUP
Sample Number: SED-RR-TG-LB (0-.5) **Date:** 6/22/16

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/17/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E496
Depth: 06 **Sample Number:** SED-RR-TF-RB (0-.5)
Material Description: Appears to be mostly sand with a few stones
Moisture Content Received= 30.7%
Date: 6/15/16
Testing Remarks: Test Methods Used: ASTM D-421, D-422, and D-2216
Tested by: ef **Checked by:** gmr

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
146.18	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	144.72	141.32	98
		4.75 mm	149.29	141.32	92
		2.00 mm	150.90	141.32	86
123.40	0.00	0.850 mm	159.65	141.32	73
		0.425 mm	160.43	141.32	60
		0.180 mm	153.82	141.32	51
		0.150 mm	142.16	141.32	50
		0.075 mm	142.04	141.32	50
		0.053 mm	141.83	141.32	50

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 86
Weight of hydrometer sample =123.40
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

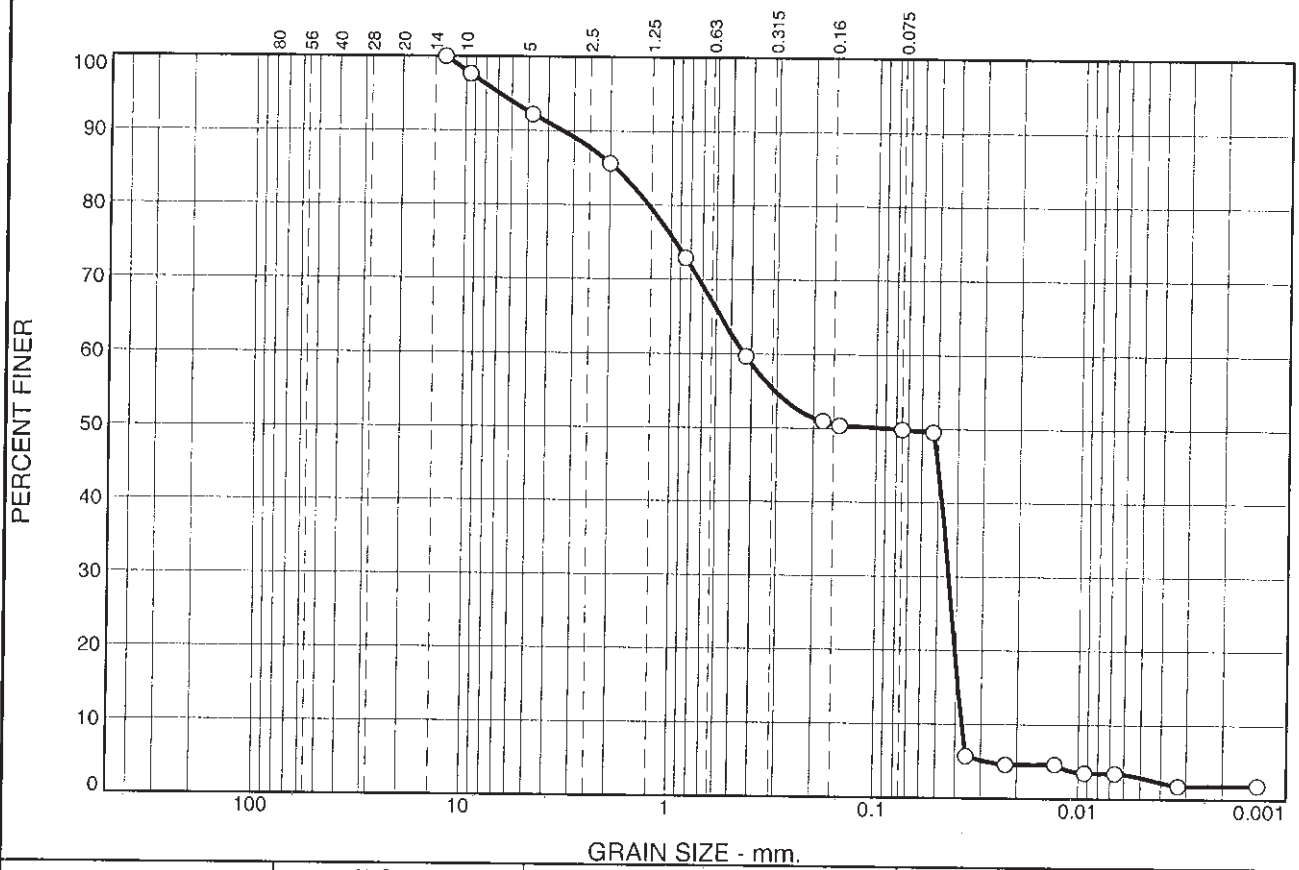
Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.2	1.0100	1.0051	0.0134	9.0	13.9	0.0355	5.7
5.00	21.1	1.0090	1.0041	0.0135	8.0	14.2	0.0227	4.6
15.00	21.3	1.0090	1.0041	0.0134	8.0	14.2	0.0131	4.6
30.00	21.2	1.0080	1.0031	0.0134	7.0	14.4	0.0093	3.5
60.00	21.0	1.0080	1.0031	0.0135	7.0	14.4	0.0066	3.5
250.00	20.8	1.0065	1.0016	0.0135	5.5	14.8	0.0033	1.8
1440.00	21.3	1.0065	1.0016	0.0134	5.5	14.8	0.0014	1.8

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	8	8	6	26	10	42	47	3	50

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0372	0.0390	0.0407	0.0440	0.0825	0.4332	1.2853	1.8794	3.4055	6.8698

Fineness Modulus	C_u	C_c
1.73	11.64	0.12

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	8	6	26	10	47	3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	98		
4.75 mm	92		
2.00 mm	86		
0.850 mm	73		
0.425 mm	60		
0.180 mm	51		
0.150 mm	50		
0.075 mm	50		
0.053 mm	50		
0.0355 mm.	5.7		
0.0227 mm.	4.6		
0.0131 mm.	4.6		
0.0093 mm.	3.5		
0.0066 mm.	3.5		
0.0033 mm.	1.8		
0.0014 mm.	1.8		

* (no specification provided)

Soil Description

Appears to be mostly sand with a few stones
Moisture Content Received= 30.7%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 3.4055 D_{85}= 1.8794 D_{60}= 0.4332
D_{50}= 0.0825 D_{30}= 0.0440 D_{15}= 0.0390
D_{10}= 0.0372 C_u= 11.64 C_c= 0.12

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, and D-2216

Source of Sample: T16E496 **Depth:** 06
Sample Number: SED-RR-TF-RB (0-.5) **Date:** 6/15/16

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/22/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E496
Depth: 07
Sample Number: SED-RR-TF-RMC (0-.5)
Material Description: Appears to be mostly sand with a few small and medium stones
Moisture Content Received= 14.6%
Date: 6/15/16
Testing Remarks: Test Methods Used: ASTM D-421, D-422, and D-2216
Tested by: ef
Checked by: gmr

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
166.11	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	179.68	141.32	77
		4.75 mm	178.55	141.32	54
		2.00 mm	174.20	141.32	35
53.73	0.00	0.850 mm	155.89	141.32	25
		0.425 mm	143.85	141.32	24
		0.180 mm	148.30	141.32	19
		0.150 mm	146.09	141.32	16
		0.075 mm	146.94	141.32	12
		0.053 mm	142.76	141.32	12

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 35
Weight of hydrometer sample =53.73
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

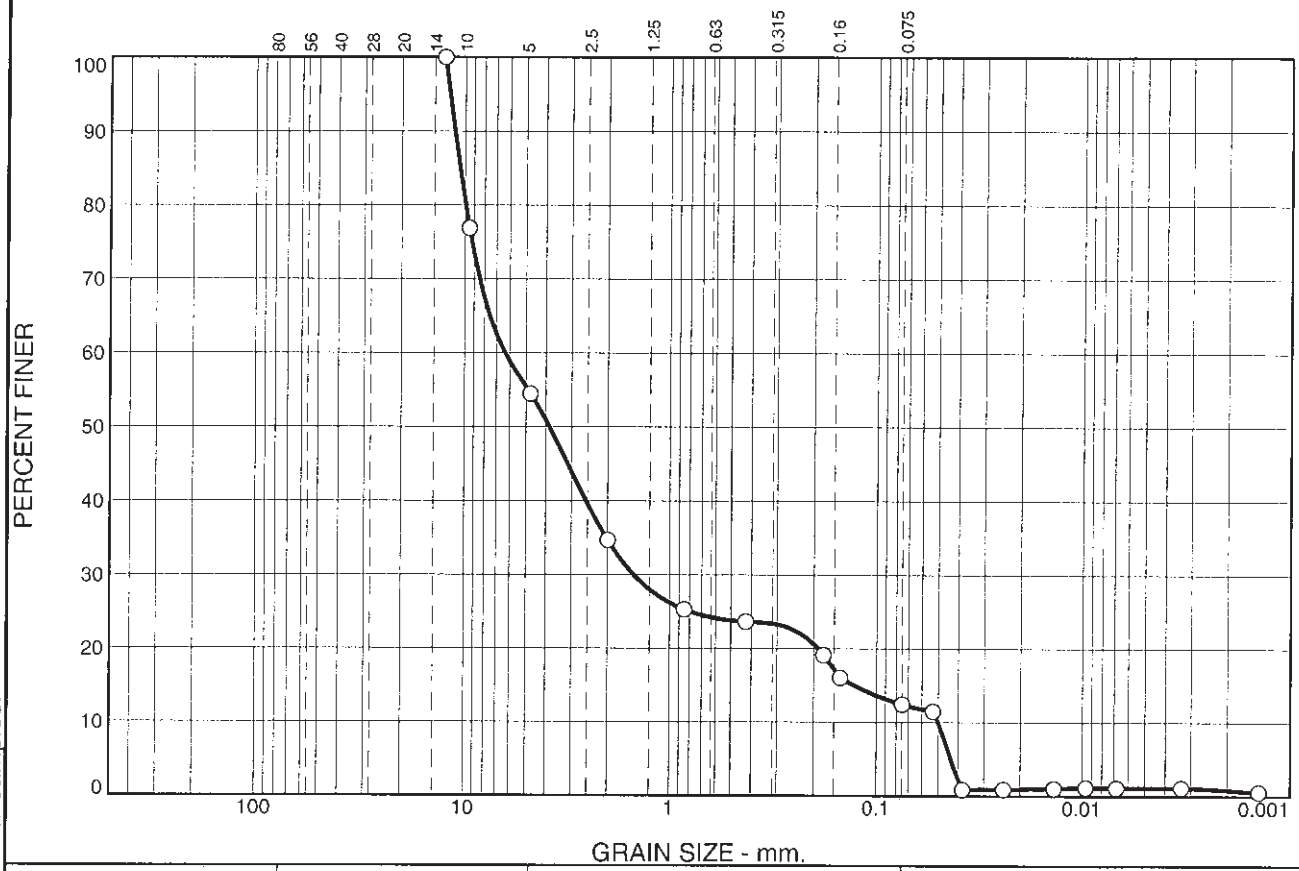
Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	19.0	1.0050	1.0008	0.0138	4.0	15.2	0.0381	0.9
5.00	19.1	1.0050	1.0009	0.0138	4.0	15.2	0.0241	0.9
15.00	20.3	1.0050	1.0010	0.0136	4.0	15.2	0.0137	1.1
30.00	21.2	1.0050	1.0011	0.0134	4.0	15.2	0.0096	1.2
60.00	20.9	1.0050	1.0011	0.0135	4.0	15.2	0.0068	1.1
250.00	20.7	1.0050	1.0011	0.0135	4.0	15.2	0.0033	1.1
1440.00	20.3	1.0045	1.0005	0.0136	3.5	15.4	0.0014	0.5

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	46	46	19	11	12	42	11	1	12

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0501	0.1274	0.1908	1.4927	3.8428	6.3512	9.9168	10.5611	11.1947	11.8361

Fineness Modulus	C_u	C_c
4.39	126.84	7.01

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	46	19	11	12	11	1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	77		
4.75 mm	54		
2.00 mm	35		
0.850 mm	25		
0.425 mm	24		
0.180 mm	19		
0.150 mm	16		
0.075 mm	12		
0.053 mm	12		
0.0381 mm.	0.9		
0.0241 mm.	0.9		
0.0137 mm.	1.1		
0.0096 mm.	1.2		
0.0068 mm.	1.1		
0.0033 mm.	1.1		
0.0014 mm.	0.5		

* (no specification provided)

Soil Description

Appears to be mostly sand with a few small and medium stones

Moisture Content Received= 14.6%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 11.1947 D_{85}= 10.5611 D_{60}= 6.3512
D_{50}= 3.8428 D_{30}= 1.4927 D_{15}= 0.1274
D_{10}= 0.0501 C_u= 126.84 C_c= 7.01

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, and D-2216

Source of Sample: T16E496 **Depth:** 07
Sample Number: SED-RR-TF-RMC (0-.5) **Date:** 6/15/16

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

GRAIN SIZE DISTRIBUTION TEST DATA

6/22/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E496
Depth: 08 **Sample Number:** SED-RR-TF-MC (0-.5)
Material Description: Appears to be mostly sand with a few stones
Moisture Content Received= 33.5%
Date: 6/15/16
Testing Remarks: Test Methods Used: ASTM D-421, D-422, and D-2216
Tested by: ef **Checked by:** gmr

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
130.28	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	146.63	141.32	96
		4.75 mm	149.35	141.32	90
		2.00 mm	160.72	141.32	75
95.04	0.00	0.850 mm	169.52	141.32	53
		0.425 mm	173.26	141.32	27
		0.180 mm	163.67	141.32	10
		0.150 mm	143.42	141.32	8
		0.075 mm	143.98	141.32	6.1
		0.053 mm	142.49	141.32	5.2

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 75
Weight of hydrometer sample =95.04
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.1	1.0095	1.0036	0.0135	8.5	14.0	0.0357	4.6
5.00	21.1	1.0090	1.0031	0.0135	8.0	14.2	0.0227	3.9
15.00	21.3	1.0090	1.0031	0.0134	8.0	14.2	0.0131	4.0
30.00	21.1	1.0090	1.0031	0.0135	8.0	14.2	0.0093	3.9
60.00	21.0	1.0080	1.0021	0.0135	7.0	14.4	0.0066	2.7
250.00	20.7	1.0070	1.0011	0.0135	6.0	14.7	0.0033	1.3
1440.00	20.7	1.0070	1.0011	0.0135	6.0	14.7	0.0014	1.3

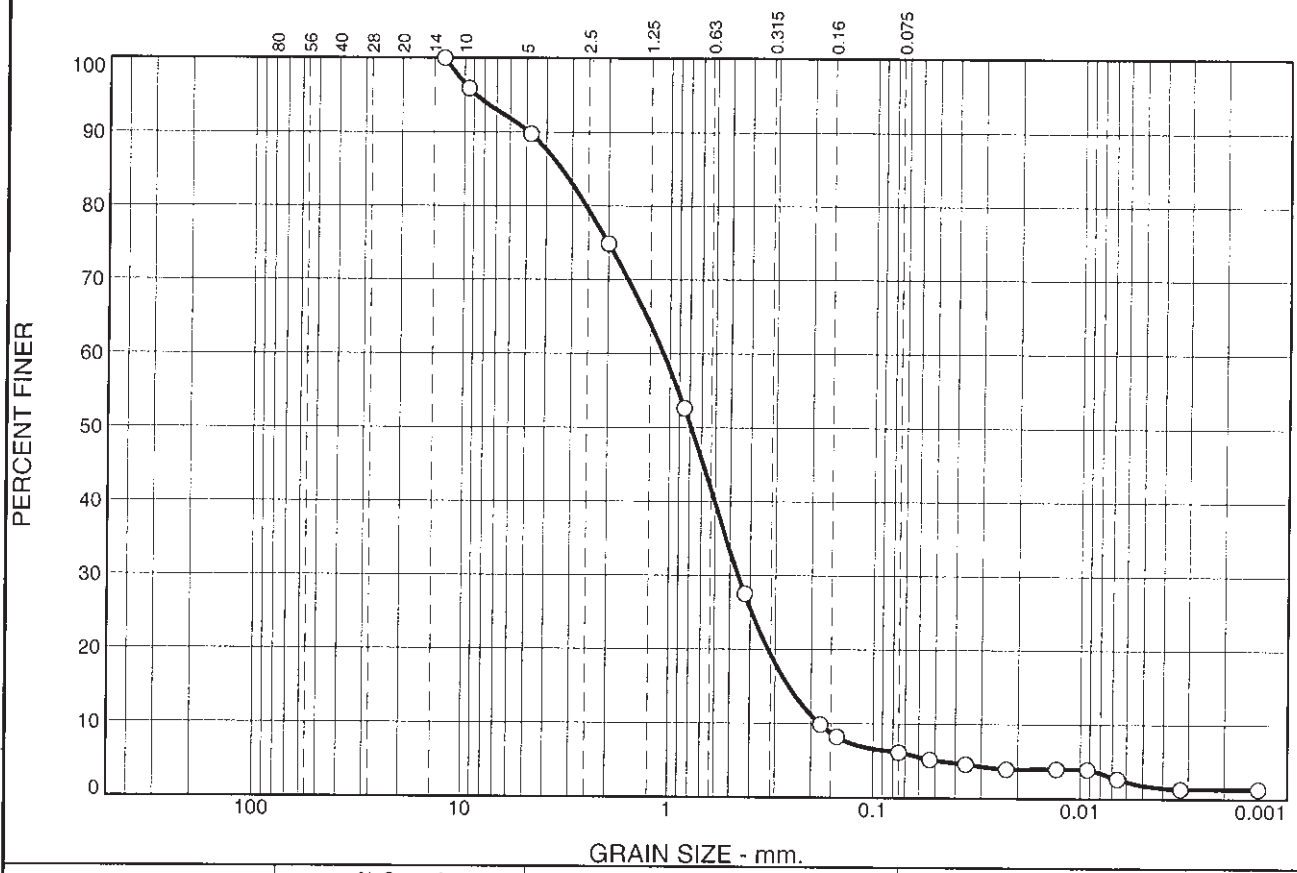
Particle Component

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	10	10	15	48	21	84	4	2	6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1819	0.2569	0.3254	0.4584	0.7876	1.0767	2.5660	3.3710	4.8599	8.7671

Fineness Modulus	C_u	C_c
3.07	5.92	1.07

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	10	15	48	21	4	2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	96		
4.75 mm	90		
2.00 mm	75		
0.850 mm	53		
0.425 mm	27		
0.180 mm	10		
0.150 mm	8		
0.075 mm	6.1		
0.053 mm	5.2		
0.0357 mm.	4.6		
0.0227 mm.	3.9		
0.0131 mm.	4.0		
0.0093 mm.	3.9		
0.0066 mm.	2.7		
0.0033 mm.	1.3		
0.0014 mm.	1.3		

* (no specification provided)

Soil Description

Appears to be mostly sand with a few stones
Moisture Content Received= 33.5%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 4.8599 D_{85}= 3.3710 D_{60}= 1.0767
D_{50}= 0.7876 D_{30}= 0.4584 D_{15}= 0.2569
D_{10}= 0.1819 C_u= 5.92 C_c= 1.07

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, and D-2216

Source of Sample: T16E496 **Depth:** 08
Sample Number: SED-RR-TF-MC (0-.5) **Date:** 6/15/16

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/17/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E496
Depth: 09 **Sample Number:** SED-RR-TF-LMC (0-.5)
Material Description: Appears to be mostly sand
Moisture Content Received= 31.9%
Date: 6/15/2016
Testing Remarks: Test Methods Used: ASTM D-421, D-422, and D-2216
Tested by: ef **Checked by:** gmr

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
140.27	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	142.16	141.33	99
		2.00 mm	144.18	141.33	97
135.34	0.00	0.850 mm	153.24	141.33	89
		0.425 mm	170.21	141.33	68
		0.180 mm	209.65	141.33	19
		0.150 mm	148.71	141.33	14
		0.075 mm	150.61	141.33	6.9
		0.053 mm	142.54	141.33	6.0

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 97
Weight of hydrometer sample =135.34
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

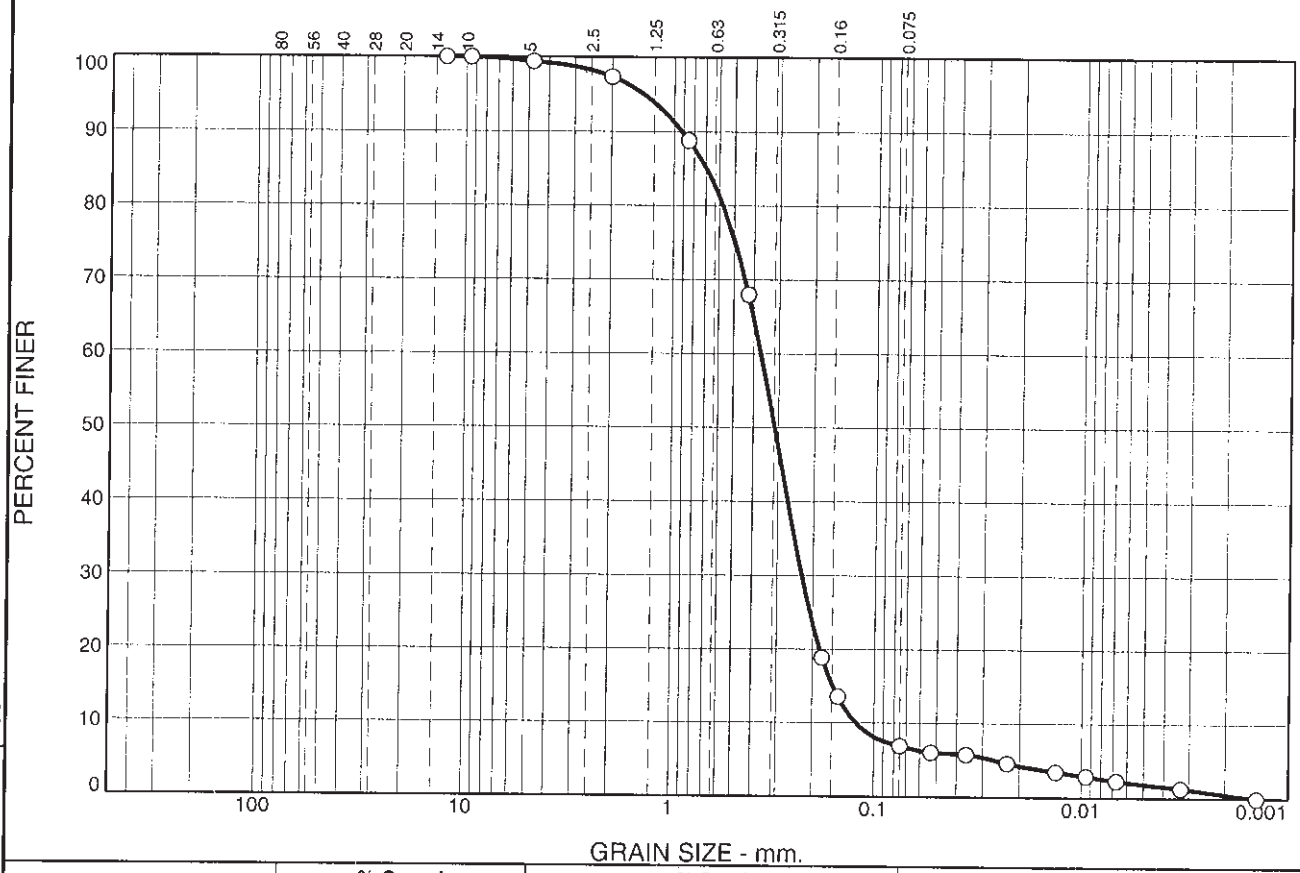
Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.1	1.0100	1.0050	0.0136	9.0	13.9	0.0359	5.8
5.00	20.1	1.0090	1.0040	0.0136	8.0	14.2	0.0229	4.6
15.00	20.3	1.0080	1.0030	0.0136	7.0	14.4	0.0133	3.5
30.00	20.2	1.0075	1.0025	0.0136	6.5	14.6	0.0095	2.9
60.00	20.1	1.0070	1.0020	0.0136	6.0	14.7	0.0067	2.3
250.00	21.0	1.0060	1.0011	0.0135	5.0	15.0	0.0033	1.3
1440.00	19.9	1.0050	1.0000	0.0137	4.0	15.2	0.0014	0.0

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	1	1	2	29	61	92	5	2	7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1221	0.1592	0.1853	0.2269	0.3129	0.3675	0.5743	0.6959	0.9162	1.3998

Fineness Modulus	C_u	C_c
1.67	3.01	1.15

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	2	29	61	5	2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	99		
2.00 mm	97		
0.850 mm	89		
0.425 mm	68		
0.180 mm	19		
0.150 mm	14		
0.075 mm	6.9		
0.053 mm	6.0		
0.0359 mm.	5.8		
0.0229 mm.	4.6		
0.0133 mm.	3.5		
0.0095 mm.	2.9		
0.0067 mm.	2.3		
0.0033 mm.	1.3		
0.0014 mm.			

* (no specification provided)

Soil Description

Appears to be mostly sand
Moisture Content Received= 31.9%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.9162 D_{85}= 0.6959 D_{60}= 0.3675
D_{50}= 0.3129 D_{30}= 0.2269 D_{15}= 0.1592
D_{10}= 0.1221 C_u= 3.01 C_c= 1.15

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, and D-2216

Source of Sample: T16E496 **Depth:** 09
Sample Number: SED-RR-TF-LMC (0-.5)

Date: 6/15/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/17/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E496
Depth: 10 **Sample Number:** SED-RR-TF-LB (0-.5)
Material Description: Appears to be mostly sand with a decent amount of stones
Moisture Content Received= 22.7%
Date: 6/15/2016
USCS Classification: SP
Testing Remarks: Test Methods Used: ASTM D-421, D-422, and D-2216
Tested by: ef **Checked by:** gmr

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
170.81	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	151.72	141.33	94
		4.75 mm	163.51	141.33	81
		2.00 mm	179.81	141.33	58
94.01	0.00	0.850 mm	178.15	141.33	36
		0.425 mm	178.95	141.33	12
		0.180 mm	157.91	141.33	2
		0.150 mm	141.91	141.33	1
		0.075 mm	141.81	141.33	1.2
		0.053 mm	142.43	141.33	0.5

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 58
Weight of hydrometer sample =94.01
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

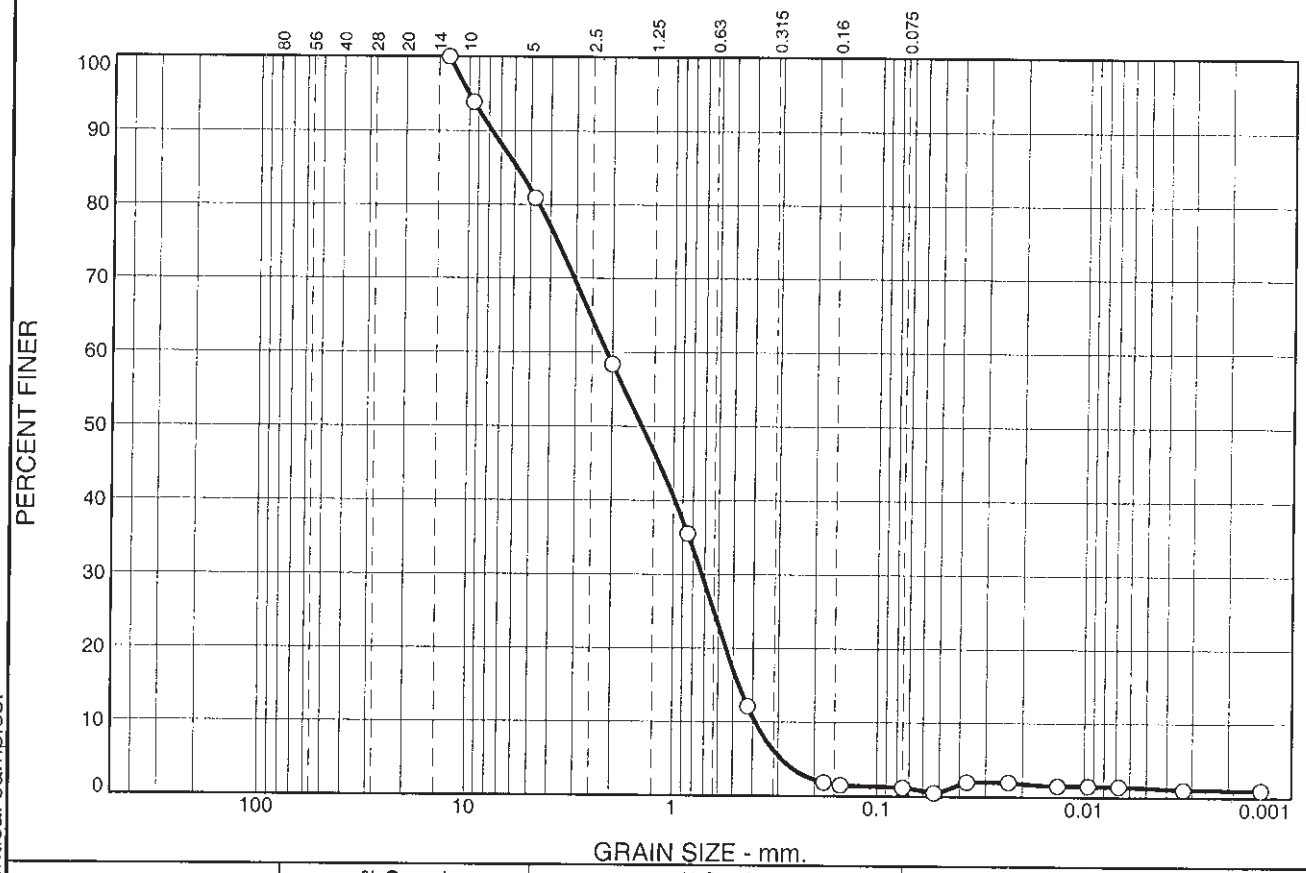
Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.1	1.0070	1.0020	0.0136	6.0	14.7	0.0370	2.0
5.00	20.2	1.0070	1.0020	0.0136	6.0	14.7	0.0233	2.0
15.00	20.4	1.0065	1.0015	0.0136	5.5	14.8	0.0135	1.5
30.00	20.2	1.0065	1.0015	0.0136	5.5	14.8	0.0096	1.5
60.00	20.0	1.0065	1.0015	0.0136	5.5	14.8	0.0068	1.5
250.00	20.6	1.0060	1.0011	0.0135	5.0	15.0	0.0033	1.1
1440.00	20.0	1.0060	1.0010	0.0136	5.0	15.0	0.0014	1.0

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	19	19	23	46	11	80	0	1	1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.3890	0.4697	0.5476	0.7241	1.4293	2.1251	4.5525	5.8374	7.7324	10.0041

Fineness Modulus	C_u	C_c
3.87	5.46	0.63

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	19	23	46	11	0	1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	94		
4.75 mm	81		
2.00 mm	58		
0.850 mm	36		
0.425 mm	12		
0.180 mm	2		
0.150 mm	1		
0.075 mm	1.2		
0.053 mm	0.5		
0.0370 mm.	2.0		
0.0233 mm.	2.0		
0.0135 mm.	1.5		
0.0096 mm.	1.5		
0.0068 mm.	1.5		
0.0033 mm.	1.1		
0.0014 mm.	1.0		

* (no specification provided)

Soil Description

Appears to be mostly sand with a decent amount of stones
Moisture Content Received= 22.7%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 7.7324 D_{85}= 5.8374 D_{60}= 2.1251
D_{50}= 1.4293 D_{30}= 0.7241 D_{15}= 0.4697
D_{10}= 0.3890 C_u= 5.46 C_c= 0.63

Classification

USCS= SP AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, and D-2216

Source of Sample: T16E496 **Depth:** 10
Sample Number: SED-RR-TF-LB (0-.5) **Date:** 6/15/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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June 27, 2016

Mr. Scott Pawlukiewicz
TRC Solutions
2025 E. Beltline Ave., SE, Ste 402
Grand Rapids, MI 49546

Phone: (201) 636-5884
Fax: (616) 975-1098

RE: Trace Project T16E480
Client Project LEC Ecological Evaluation 248642.0000.0000 Phase Z

Dear Mr. Pawlukiewicz:

Enclosed are your analytical results. The results of this report relate only to the samples listed in the body of this report.

All reports were examined through Trace's validation process to ensure that requirements for quality and completeness were satisfied. All reported analytical results were obtained in accordance with the methods referenced on the reports. Every practical effort was made to meet the reporting limit specifications for this work, however, some results may have raised reporting limits to correct for percent solids.

For clients that require NELAC Accreditation, Trace certifies that these test results meet all requirements of the NELAC Standard, except for those analytes with a "N" notation. These analytes have not been evaluated by NELAC at Trace's discretion and will not be reported unless requested by client.

If you have questions concerning this report, please contact me at 231.773.5998 or by email at jmink@trace-labs.com.

Sincerely,

Jon Mink
Senior Project Manager

Enclosures

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SAMPLE SUMMARY

Trace Project ID: T16E480
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase Z

Trace ID	Sample ID	Matrix	Collected By	Date Collected	Date Received
T16E480-21	SED-RR-TI-RB (0.0-0.5)	Sediment	sp	05/26/16 10:05	05/27/16 10:22
T16E480-22	SED-RR-TI-RMC (0.0-0.5)	Sediment	sp	05/26/16 10:25	05/27/16 10:22
T16E480-23	SED-RR-TI-LMC (0.0-0.5)	Sediment	sp	05/26/16 10:40	05/27/16 10:22
T16E480-24	SED-RR-TI-LB (0.0-0.5)	Sediment	sp	05/26/16 10:50	05/27/16 10:22
T16E480-25	SED-RR-TH-RB (0.0-0.5)	Sediment	sp	05/26/16 11:25	05/27/16 10:22
T16E480-26	SED-RR-TH-RMC (0.0-0.5)	Sediment	sp	05/26/16 11:38	05/27/16 10:22
T16E480-27	SED-RR-TH-LMC (0.0-0.5)	Sediment	sp	05/26/16 11:55	05/27/16 10:22
T16E480-28	SED-RR-TH-LB (0.0-0.5)	Sediment	sp	05/26/16 12:15	05/27/16 10:22
T16E480-29	SED-RR-TH-LB (0.0-0.5) (DUP)	Sediment	sp	05/26/16 12:15	05/27/16 10:22
T16E480-30	SED-D-1 (0.0-0.5)	Sediment	sp	05/26/16 15:10	05/27/16 10:22
T16E480-31	SED-D-2 (0.0-0.5)	Sediment	sp	05/26/16 15:30	05/27/16 10:22
T16E480-32	SED-D-2 (0.5-1.0)	Sediment	sp	05/26/16 15:35	05/27/16 10:22
T16E480-33	SED-D-4 (0.0-0.5)	Sediment	sp	05/26/16 15:50	05/27/16 10:22
T16E480-34	SED-D-4 (0.5-1.0)	Sediment	sp	05/26/16 15:55	05/27/16 10:22
T16E480-35	SED-D-3 (0.0-0.5)	Sediment	sp	05/26/16 16:30	05/27/16 10:22
T16E480-36	SED-D-7 (0.0-0.5)	Sediment	sp	05/26/16 16:50	05/27/16 10:22
T16E480-37	SED-D-7 (0.5-1.0)	Sediment	sp	05/26/16 16:55	05/27/16 10:22
T16E480-38	SED-D-5 (0.0-0.5)	Sediment	sp	05/26/16 17:45	05/27/16 10:22

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AN EXPLANATION OF TERMS AND SYMBOLS WHICH MAY OCCUR IN THIS REPORT

DEFINITIONS

LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
DUP	Matrix Duplicate
RDL	Reporting Detection Limit
MCL	Maximum Contamination Limit
TIC	Tentatively Identified Compound
<, ND or U	Indicates the compound was analyzed for but not detected
*	Indicates a result that exceeds its associated MCL or Surrogate control limits
N	Indicates that the compound has not been evaluated by NELAC
NA	Indicates that the compound is not available.

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2241 Black Creek Road
Muskegon, MI 49444-2673
www.trace-labs.com

CHAIN-OF-CUSTODY RECORD

TRACE ID NO. T16E480

Report Results To:

Company Name: TRC Environmental Corp.
Report to: Scott Pawlukiewicz
Mailing Address: 2025 E. Beltline Ave. SE Ste. 402
City, State, Zip Code: Grand Rapids, MI 48546
Phone: ~~616 975~~ 616 915 3604 Fax: 616 975 1098
Email Address: SPawlukiewicz@trcsolutions.com
Cell #: 616 915 3604 Sampled by: SP
Project Name & #: LSC Ecological Evaluation, 248642.0000.0000, phase 2

Bill To:

Billing Address (if different)
City, State, Zip Code Windsor, CT
Attn: Phone: PO #:

TRACE USE ONLY

Logged By: Checked By:
Received on ice: Yes No Preservative Checked: Yes No N/A
Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐

Turnaround Requirements: Standard ☒ 3 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ * Requires Prior Approval

Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, Oil = Oil, Wi = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

Request for Analytical Services

ANALYSIS REQUESTED

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	PRESERVATION: COOL	HCL	HNO3	H2SO4	NaOH	Other	DEHP	Dissolved DEHP	REMARKS	Positive Results Issued
1/2	5/26/16	0850	SW-D-7		W	3							2	1		
3/4	5/26/16	1000	SW-RR-TI-RB		W	3							2	1	Lab Filter	
5/6	5/26/16	1015	SW-RR-TI-RMC		W	3							2	1	Diss. DEHP	
7/8	5/26/16	1035	SW-RR-TI-LMC		W	3							2	1	Samples	
9/10	5/26/16	1045	SW-RR-TI-LB		W	3							2	1		
11/12	5/26/16	1120	SW-RR-TH-RB		W	3							2	1		
13/14	5/26/16	1132	SW-RR-TH-RMC		W	3							2	1		
15/16	5/26/16	1150	SW-RR-TH-LMC		W	3							2	1		
17/18	5/26/16	1210	SW-RR-TH-LB		W	3							2	1		
19/20	5/26/16	1210	SW-RR-TH-LB (DUP)		W	3							2	1		

Please Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
1) [signature]	FedEx	5/26/16	1930	2) FedEx	[signature]	5/27/16	11:22	3)			
4)				5)				6)			

In executing this Chain of Custody, the client acknowledges acceptance of the terms and conditions of the agreement as set forth at http://www.trace-labs.com/coctermsplic

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CHAIN-OF-CUSTODY RECORD

TRACE ID NO. T16E480

TRACE USE ONLY

Logged By: AU Checked By: GH

Received on ice: (Yes) No Preservative Checked: Yes No (N/A)

Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Report Results To:

Company Name: TRC Environmental Corporation

Report to: Scott Pawlukiewicz

Mailing Address: 2025 E. Beltline Ave. SE Ste 402

City, State, Zip Code: Grand Rapids, MI 49546

Phone: 616 916 3604 Fax: 616 975 1088

Email Address: SPawlukiewicz@trcsolutions.com

Cell #: 616 915 3604 Sampled by: SP

Project Name & #: CEE Ecological Evaluation, 248642.0000.0000, phase 2

Bill To:

Billing Address (if different)

City, State, Zip Code Windsor, CT

Attn: Phone: PO #:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐

Turnaround Requirements: Standard ☒ 3 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ * Requires Prior Approval

Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, Oil = Oil, Wi = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

ANALYSIS REQUESTED

Request for Analytical Services

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	PRESERVATION: COOL	HCL	HNO3	H2SO4	NaOH	Other	DEHP	Grain Size									REMARKS	Possible Hazards Hazards
21	5/26/16	1005	SED-RR-TI-RB (0.0-0.5)		S	2							1	1										
22	5/26/16	1025	SED-RR-TI-RMC (0.0-0.5)		S	2							1	1										
23	5/26/16	1040	SED-RR-TI-LMC (0.0-0.5)		S	2							1	1										
24	5/26/16	1050	SED-RR-TI-LB (0.0-0.5)		S	2							1	1										
25	5/26/16	1125	SED-RR-TH-RB (0.0-0.5)		S	2							1	1										
26	5/26/16	1138	SED-RR-TH-RMC (0.0-0.5)		S	2							1	1										
27	5/26/16	1155	SED-RR-TH-LMC (0.0-0.5)		S	2							1	1										
28	5/26/16	1215	SED-RR-TH-LB (0.0-0.5)		S	2							1	1										
29	5/26/16	1215	SED-RR-TH-LB (0.0-0.5) (DUP)		S	2							1	1										
30	5/26/16	1510	SED-D-I (0.0-0.5)		S	2							1	1										

Please Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
1) B. Pawly	FedEx	5/26/16	1930	2) Fed Ex	[illegible]	5/27/16	10:22	3)			
4)				5)				6)			

In executing this Chain of Custody, the client acknowledges acceptance of the terms and conditions of the agreement as set forth at http://www.trace-labs.com/cocterms.php

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CHAIN-OF-CUSTODY RECORD

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Muskegon, MI 49444-2673
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Page 3 of 4

TRACE ID NO. T16E480

Report Results To:

Company Name: TRC Environmental Corp
Report to: Scott Pawlukiewicz
Mailing Address: 2025 E. Beltline Ave. SE Ste. 402
City, State, Zip Code: Grand Rapids, MI 49546
Phone: 616 915 3604 Fax: 616 975 1098
Email Address: SPawlukiewicz@trcsolutions.com
Cell #: 616 915 3604 Sampled by: SP
Project Name & #: LEC Ecological Evaluation, 248542.0000.0000, PM

Bill To:

Billing Address (if different)
City, State, Zip Code Windsor, CT
Attn: AP Invoice Phone: PO #:

TRACE USE ONLY

Logged By: GM Checked By: GH
Received on Ice: Yes No Preservative Checked: Yes No N/A
Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐
Turnaround Requirements: Standard ☒ 3 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ * Requires Prior Approval
Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, OI = Oil, WI = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

Request for Analytical Services

ANALYSIS REQUESTED

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	COOL	HCL	HNO3	H2SO4	NaOH	Other	DEHP	Grain Size									REMARKS	Potable Hydric Nuisance
31	5/26/16	1530	SED-D-2 (0.0-0.5)		S	2							1	1										
32	5/26/16	1535	SED-D-2 (0.5-1.0)		S	2							1	1										
33	5/26/16	1550	SED-D-4 (0.0-0.5)		S	2							1	1										
34	5/26/16	1555	SED-D-4 (0.5-1.0)		S	2							1	1										
35	5/26/16	1630	SED-D-3 (0.0-0.5)		S	2							1	1										
36	5/26/16	1650	SED-D-7 (0.0-0.5)		S	2							1	1										
37	5/26/16	1655	SED-D-7 (0.5-1.0)		S	2							1	1										
38	5/26/16	1745	SED-D-5 (0.0-0.5)		S	2							1	1										

Please Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
1) [signature]	FEDEX	5/26/16	1730	2) Fed Ex	[signature]	5/27/16	10:22	3)			
4)				5)				6)			

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CHAIN-OF-CUSTODY RECORD

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Page 4 of 4

TRACE ID NO. T16E480

Report Results To:

Company Name: TRL Environmental Corp
Report to: Scott Pawlukiewicz
Mailing Address: 2025 E. Beltline Ave SE Ste 402
City, State, Zip Code: Grand Rapids, MI 49546
Phone: 616 915 3604 Fax: 616 975 1098
Email Address: SPawlukiewicz@trcsolutions.com
Cell #: 616 915 3604 Sampled by: WM
Project Name & #: LEC Ecological Evaluation, 248642.0000 WBS Phase 2

Bill To:

Billing Address (if different)
City, State, Zip Code Windsor, CT
Attn: AP invoice Phone: PO #:

TRACE USE ONLY

Logged By: Checked By: GH
Received on ice: (Yes) No Preservative Checked: Yes No (N/A)
Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐

Turnaround Requirements: Standard ☒ 5 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ * Requires Prior Approval

Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, Oil = Oil, WI = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

Request for Analytical Services

ANALYSIS REQUESTED

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	COOL	HCL	HNO3	H2SO4	NaOH	Other	DEHP	DEHP (Dissolved)	REMARKS	Field Sb Hexch Hexavl
39/40	5/25/16	1235	PW-R-6 (per client email)		W	3							2	1		
41/42	5/26/16	1100	PW-R-2		W	3							2	1	LAB FILTER	
43/44	5/26/16	1453	PW-R-8		W	3							2	1	LAB FILTER	
45/46	5/26/16	1606	PW-R-11		W	3							2	1	LAB FILTER	
47/48	5/26/16	1650	PW-R-16		W	3							2	1	LAB FILTER	
															LAB FILTER	

Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
[signature]	FEDEX	5/26/16	1930	2) Fed Ex	[signature]	5/27/16	1022	3)			
				5)				6)			

Custody, the client acknowledges acceptance of the terms and conditions of the agreement as set forth at http://www.trace-labs.com/

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SAMPLE LOG IN CHECKLIST

Trace ID #: TGE480 Date: 5-27-16 Package Description: Cooler Temperature: -3.6
Client Name: IRC Time: 10:22 Logged in by: GH

Cooler Receipt

Cooler/samples delivered by: Trace courier [ ] Hand delivered [ ] Name of delivery person: _____
Commercial courier [X] UPS [ ] FED EX [X] US Mail [ ]

Tracking Number: [ ] Not Applicable
Tracking #: _____

COC Seals present and intact on cooler? No [ ] Yes [ ] [X] Not Applicable

Custody seals signed by Client? No [ ] Yes [ ] Client custody seal # (if applicable): _____

Coolant and Temperature

Type of Coolant Used

Slurry w/ crushed, cubed, or chip ice? [X]
Multiple bags of ice around samples? [ ]
Ice Packs/ Blue Ice : [ ]
No Coolant Present: [ ]

Cooler Temperature

Correction Factor: IR Thermometer -0.4 °C (Plastic or Glass -circle one)
Digital Stick Thermometer -0.2 °C
Temperature Blank: None °C (Use Digital Stick Thermometer)
Range of 3 samples: 2.9 10.4 °C (Use IR Thermometer)
Melt Water: None °C (Use Digital Stick Thermometer)
Ice still present upon receipt: [X] Yes [ ] No [ ] N/A

General

	Yes	No	N/A	Comments
All bottles arrived unbroken with labels in good condition?	X			
Each sample point is in a sealed plastic bag?		X		
Labels filled out completely?	X			
All bottle labels agree with Chain of Custody (COC)?	X			
Sufficient sample to run tests requested?	X			
pH checked and samples at correct pH?			X	See Below*
Correct preservative added to samples?			X	
Air bubbles absent from VOAs?			X	
COC filled out properly and signed by client?	X			
COC signed in by TRACE sample custodian?	X			
Was project manager called and samples discussed?		X		

Notes: TRK#'s 7832 2027 8212, 7832 2026 2280, 7832 2029 3521, 7832 2030 8333

*EMD pH Test Strips Used:
[ ] pH 0-2.5 Lot: HC563733
[ ] pH 11.0-13.0 Lot: HC547328
[ ] Other: _____

Form 70-A.12
Effective 10/13/15

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Alyson Yagiela

From: Jon Mink
Sent: Friday, May 27, 2016 9:15 AM
To: Alyson Yagiela; Grant Hilleary; Jim Sjoberg
Subject: FW: Lec- PW sample id switch?

FYI for today

Jon Mink
Senior Project Manager

Trace Analytical Laboratories
2241 Black Creek Rd
Muskegon, MI 49444

Phone: 231-773-5998 x224
Fax: 231-773-6537
Website: www.trace-labs.com
E-Mail: jmink@trace-labs.com

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-----Original Message-----
From: Pawlukiewicz, Scott [mailto:SPawlukiewicz@trcsolutions.com]
Sent: Friday, May 27, 2016 8:48 AM
To: Jon Mink
Subject: Lec- PW sample id switch?

Jon-
Had a mix up sampling the temp pore water locations. The submitted water sample yesterday with ID "PW-R-5" is actually PW-R-6". Is it possible for you to edit on your end? We will be sampling the actual R-5 location today and would like to submit under the correct name.

Sent from my iPhone

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GRAIN SIZE DISTRIBUTION TEST DATA

6/15/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E480
Depth: 21 **Sample Number:** SED-RR-TI-RB (0-.5)
Material Description: Appears to be mostly sand
Mositure Content Received=54.3%
Date: 6/13/2016
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D-2216
Tested by: ef **Checked by:** gmr

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
104.06	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	143.27	141.35	98
		2.00 mm	150.50	141.35	89
91.63	0.00	0.850 mm	153.48	141.35	78
		0.425 mm	160.53	141.35	59
		0.180 mm	182.71	141.35	18
		0.150 mm	146.33	141.35	14
		0.075 mm	146.19	141.35	8.9
		0.053 mm	146.99	141.35	3.4

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 89
Weight of hydrometer sample =91.63
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x **Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.7	1.0120	1.0061	0.0135	11.0	13.4	0.0350	9.5
5.00	20.8	1.0120	1.0061	0.0135	11.0	13.4	0.0221	9.5
15.00	21.0	1.0110	1.0051	0.0135	10.0	13.6	0.0129	8.0
30.00	21.0	1.0110	1.0051	0.0135	10.0	13.6	0.0091	8.0
60.00	21.0	1.0110	1.0051	0.0135	10.0	13.6	0.0064	8.0
250.00	21.0	1.0100	1.0041	0.0135	9.0	13.9	0.0032	6.4
1440.00	20.5	1.0090	1.0030	0.0136	8.0	14.2	0.0013	4.8

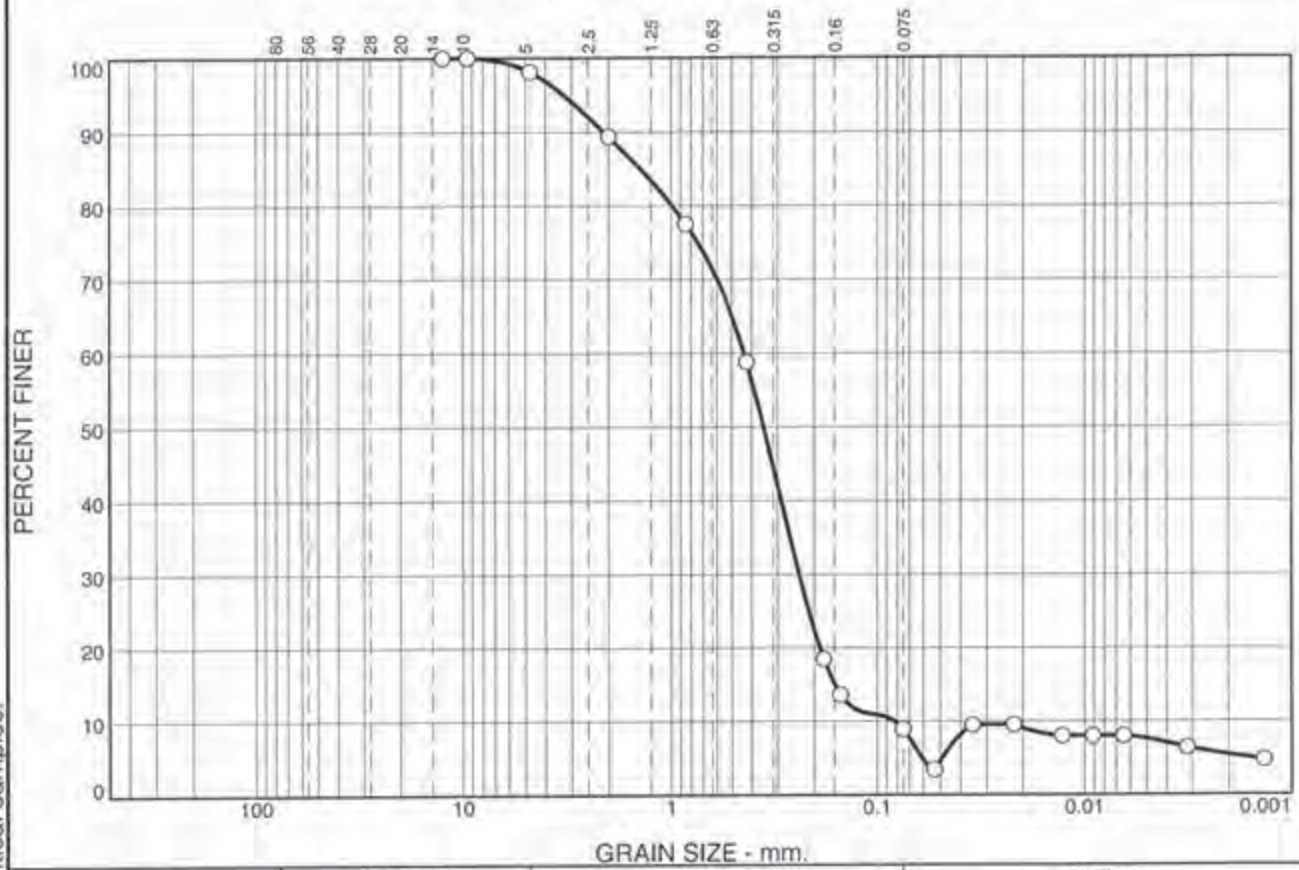
Particle Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	2	2	9	30	50	89	1	8	9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0821	0.1598	0.1878	0.2366	0.3506	0.4375	0.9863	1.4039	2.1087	3.2677

Fineness Modulus	C_u	C_c
2.02	5.33	1.56

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	9	30	50	1	8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	98		
2.00 mm	89		
0.850 mm	78		
0.425 mm	59		
0.180 mm	18		
0.150 mm	14		
0.075 mm	8.9		
0.053 mm	3.4		
0.0350 mm	9.5		
0.0221 mm	9.5		
0.0129 mm	8.0		
0.0091 mm	8.0		
0.0064 mm	8.0		
0.0032 mm	6.4		
0.0013 mm	4.8		

* (no specification provided)

Soil Description

Appears to be mostly sand
Mositure Content Received=54.3%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 2.1087 D_{85}= 1.4039 D_{60}= 0.4375
D_{50}= 0.3506 D_{30}= 0.2366 D_{15}= 0.1598
D_{10}= 0.0821 C_u= 5.33 C_c= 1.56

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D-2216

Source of Sample: T16E480 **Depth:** 21
Sample Number: SED-RR-TI-RB (0-.5)

Date: 6/13/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

GRAIN SIZE DISTRIBUTION TEST DATA

6/15/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E480
Depth: 22 **Sample Number:** SED-RR-TI-RMC (0-.5)
Material Description: Appears to be mostly sand with some small stones
Mositure Content Received=14.137%
Date: 6/13/2016
USCS Classification: SP
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D-2216
Tested by: ef **Checked by:** gmr

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
187.29	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	178.00	141.35	80
		2.00 mm	191.90	141.35	53
97.00	0.00	0.850 mm	181.07	141.35	32
		0.425 mm	171.94	141.35	15
		0.180 mm	160.65	141.35	4
		0.150 mm	142.80	141.35	3
		0.075 mm	143.24	141.35	2.2
		0.053 mm	141.75	141.35	2.0

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 53
Weight of hydrometer sample =97.00
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -7
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

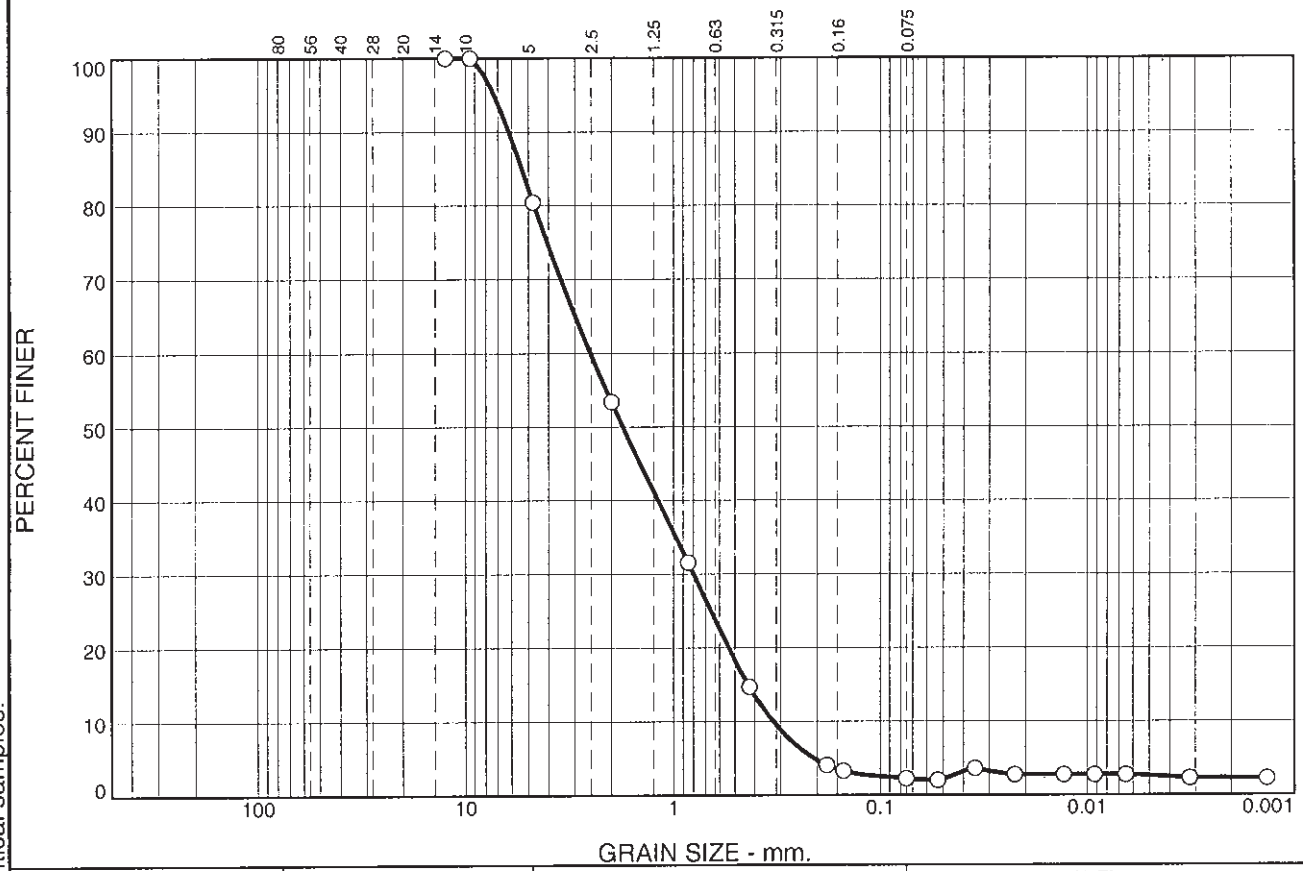
Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.9	1.0110	1.0041	0.0135	10.0	13.6	0.0353	3.6
5.00	21.0	1.0100	1.0031	0.0135	9.0	13.9	0.0225	2.7
15.00	21.0	1.0100	1.0031	0.0135	9.0	13.9	0.0130	2.7
30.00	24.0	1.0100	1.0036	0.0130	9.0	13.9	0.0089	3.2
60.00	21.0	1.0100	1.0031	0.0135	9.0	13.9	0.0065	2.7
250.00	21.0	1.0095	1.0026	0.0135	8.5	14.0	0.0032	2.3
1440.00	20.4	1.0095	1.0025	0.0136	8.5	14.0	0.0013	2.2

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	20	20	27	38	13	78	0	2	2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.3249	0.4312	0.5394	0.8002	1.7582	2.5255	4.6932	5.3862	6.2035	7.2872

Fineness Modulus	C_u	C_c
3.87	7.77	0.78

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	20	27	38	13	2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	80		
2.00 mm	53		
0.850 mm	32		
0.425 mm	15		
0.180 mm	4		
0.150 mm	3		
0.075 mm	2.2		
0.053 mm	2.0		
0.0353 mm.	3.6		
0.0225 mm.	2.7		
0.0130 mm.	2.7		
0.0092 mm.	2.7		
0.0065 mm.	2.7		
0.0032 mm.	2.3		
0.0013 mm.	2.2		

* (no specification provided)

Soil Description

Appears to be mostly sand with some small stones
Mositure Content Received=14.137%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 6.2035 D_{85}= 5.3862 D_{60}= 2.5255
D_{50}= 1.7582 D_{30}= 0.8002 D_{15}= 0.4312
D_{10}= 0.3249 C_u= 7.77 C_c= 0.78

Classification

USCS= SP AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D-2216

Source of Sample: T16E480 **Depth:** 22
Sample Number: SED-RR-TI-RMC (0-.5)

Date: 6/13/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/15/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E480
Depth: 23
Sample Number: SED-RR-TI-LMC (0-.5)
Material Description: Appears to be mostly sand
Mositure Content Received=15.8%
Date: 6/13/2016
USCS Classification: SW
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D-2216
Tested by: ef
Checked by: gmr

Sieve Analysis

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
162.90	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	156.95	141.35	90
		4.75 mm	189.46	141.35	61
		2.00 mm	179.66	141.35	37
52.57	0.00	0.850 mm	159.26	141.35	25
		0.425 mm	156.75	141.35	14
		0.180 mm	154.37	141.35	4
		0.150 mm	142.72	141.35	3
		0.075 mm	142.79	141.35	2.4
		0.053 mm	0.00	0.00	2.4

Hydrometer Analysis

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 37
Weight of hydrometer sample =52.57
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	19.3	1.0060	1.0019	0.0138	5.0	15.0	0.0377	2.2
5.00	19.4	1.0060	1.0019	0.0137	5.0	15.0	0.0238	2.2
15.00	19.6	1.0060	1.0019	0.0137	5.0	15.0	0.0137	2.2
30.00	19.5	1.0060	1.0019	0.0137	5.0	15.0	0.0097	2.2
60.00	19.4	1.0055	1.0014	0.0137	4.5	15.1	0.0069	1.6
250.00	19.0	1.0052	1.0010	0.0138	4.2	15.2	0.0034	1.2
1440.00	19.0	1.0050	1.0008	0.0138	4.0	15.2	0.0014	1.0

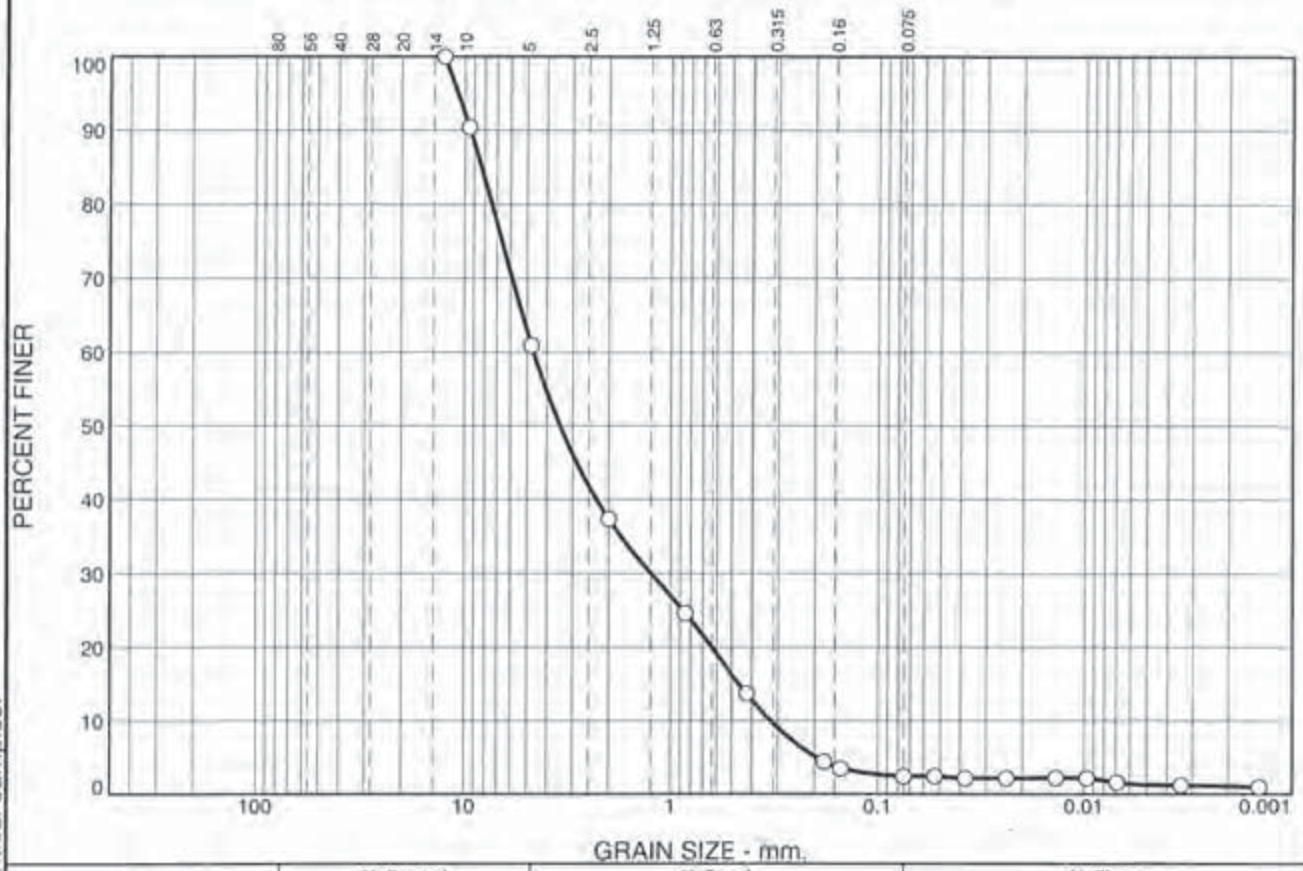
Fraction Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	39	39	24	23	12	59	1	1	2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.3239	0.4635	0.6333	1.2422	3.4485	4.6418	7.3958	8.3037	9.3957	10.7779

Fineness Modulus	C_u	C_c
4.47	14.33	1.03

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	39	24	23	12	1	1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	90		
4.75 mm	61		
2.00 mm	37		
0.850 mm	25		
0.425 mm	14		
0.180 mm	4		
0.150 mm	3		
0.075 mm	2.4		
0.053 mm	2.4		
0.0377 mm.	2.2		
0.0238 mm.	2.2		
0.0137 mm.	2.2		
0.0097 mm.	2.2		
0.0069 mm.	1.6		
0.0034 mm.	1.2		
0.0014 mm.	1.0		

* (no specification provided)

Soil Description

Appears to be mostly sand
Mositure Content Received=15.8%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 9.3957 D_{85}= 8.3037 D_{60}= 4.6418
D_{50}= 3.4485 D_{30}= 1.2422 D_{15}= 0.4635
D_{10}= 0.3239 C_u= 14.33 C_c= 1.03

Classification

USCS= SW AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D-2216

Source of Sample: T16E480 **Depth:** 23
Sample Number: SED-RR-TI-LMC (0-.5) **Date:** 6/13/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000. **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/13/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E480
Depth: 24 **Sample Number:** SED-RR-TI-LB (0-.5)
Material Description: Appears to be mostly fine sand with small stones
Mositure Content Received=42.9%
Date: 6/13/2016
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D-2216
Tested by: ef **Checked by:** gmr

Sieve Analysis

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
68.49	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	147.32	141.35	91
		2.00 mm	148.60	141.35	81
53.23	0.00	0.850 mm	150.27	141.35	67
		0.425 mm	152.12	141.35	51
		0.180 mm	159.08	141.35	24
		0.150 mm	144.11	141.35	20
		0.075 mm	145.79	141.35	13
		0.053 mm	142.24	141.35	12

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 81
Weight of hydrometer sample =53.23
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	19.4	1.0110	1.0059	0.0137	10.0	13.6	0.0359	14.4
5.00	19.4	1.0100	1.0049	0.0137	9.0	13.9	0.0229	11.9
15.00	19.5	1.0100	1.0049	0.0137	9.0	13.9	0.0132	12.0
30.00	19.6	1.0090	1.0039	0.0137	8.0	14.2	0.0094	9.5
60.00	19.5	1.0090	1.0039	0.0137	8.0	14.2	0.0067	9.5
250.00	19.2	1.0075	1.0024	0.0138	6.5	14.6	0.0033	5.8
1440.00	19.0	1.0070	1.0018	0.0138	6.0	14.7	0.0014	4.5

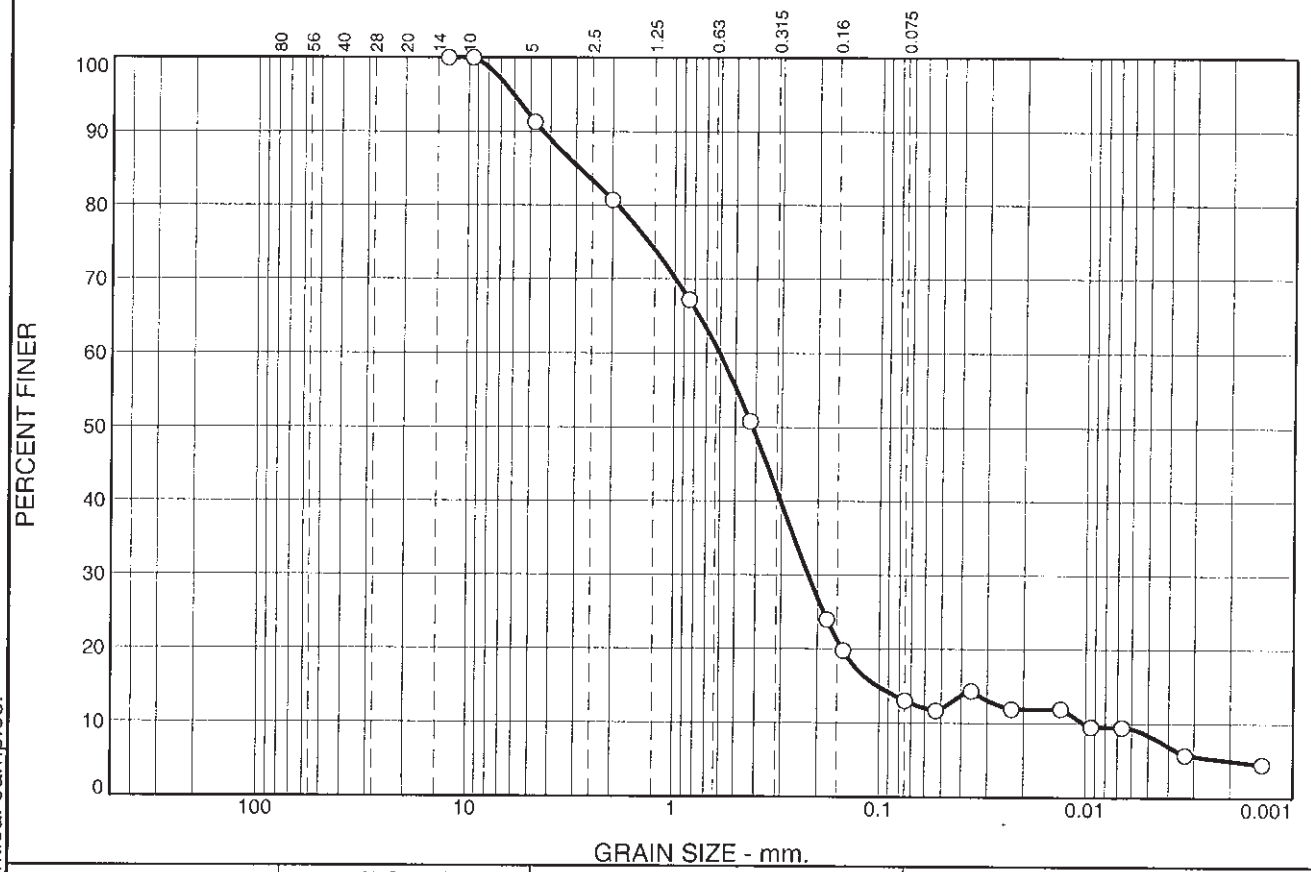
Particle Composition

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	9	9	10	30	38	78	5	8	13

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0102	0.1018	0.1517	0.2221	0.4130	0.6039	1.8935	2.8861	4.3400	6.0418

Fineness Modulus	C_u	C_c
2.34	59.28	8.02

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	9	10	30	38	5	8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	91		
2.00 mm	81		
0.850 mm	67		
0.425 mm	51		
0.180 mm	24		
0.150 mm	20		
0.075 mm	13		
0.053 mm	12		
0.0359 mm.	14		
0.0229 mm.	12		
0.0132 mm.	12		
0.0094 mm.	9.5		
0.0067 mm.	9.5		
0.0033 mm.	5.8		
0.0014 mm.	4.5		

* (no specification provided)

Soil Description

Appears to be mostly fine sand with small stones
Mositure Content Received=42.9%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 4.3400 D_{85}= 2.8861 D_{60}= 0.6039
D_{50}= 0.4130 D_{30}= 0.2221 D_{15}= 0.1018
D_{10}= 0.0102 C_u= 59.28 C_c= 8.02

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D-2216

Source of Sample: T16E480 **Depth:** 24
Sample Number: SED-RR-TI-LB (0-.5) **Date:** 6/13/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/13/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E480
Depth: 25 **Sample Number:** SED-RR-TH-RB(0-.5)
Material Description: Appears to be mostly sand with a few small and medium stones
Mositure Content Received=29.7%
Date: 6/13/2016
USCS Classification: SP
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D-2216
Tested by: ef **Checked by:** gmr

Sieve Analysis

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
116.04	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	148.38	141.35	94
		4.75 mm	162.68	141.35	76
		2.00 mm	155.58	141.35	63
71.05	0.00	0.850 mm	152.86	141.35	53
		0.425 mm	162.91	141.35	34
		0.180 mm	168.81	141.35	9
		0.150 mm	144.20	141.35	7
		0.075 mm	144.42	141.35	4.1
		0.053 mm	142.19	141.35	3.3

Hydrometer Test

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 63
Weight of hydrometer sample =71.05
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -7
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

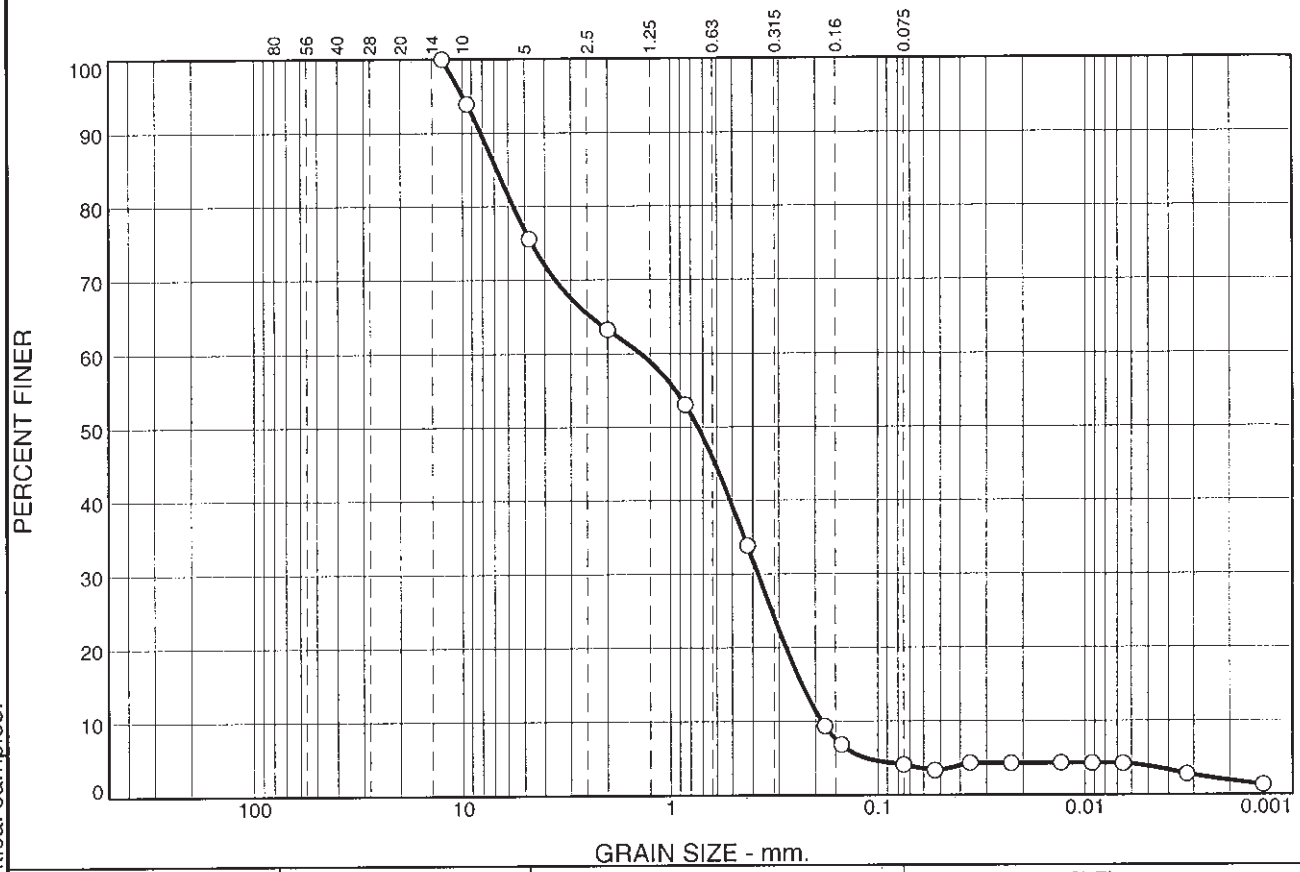
Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.3	1.0100	1.0030	0.0136	9.0	13.9	0.0359	4.3
5.00	20.1	1.0100	1.0030	0.0136	9.0	13.9	0.0227	4.3
15.00	20.3	1.0100	1.0030	0.0136	9.0	13.9	0.0131	4.3
30.00	20.2	1.0100	1.0030	0.0136	9.0	13.9	0.0093	4.3
60.00	20.0	1.0100	1.0030	0.0136	9.0	13.9	0.0066	4.3
250.00	20.0	1.0090	1.0020	0.0136	8.0	14.2	0.0032	2.8
1440.00	19.8	1.0080	1.0009	0.0137	7.0	14.4	0.0014	1.4

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	24	24	13	29	30	72	0	4	4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1863	0.2321	0.2768	0.3782	0.7401	1.3873	5.6765	6.8072	8.1527	9.9329

Fineness Modulus	C_u	C_c
3.34	7.45	0.55

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	24	13	29	30	0	4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	94		
4.75 mm	76		
2.00 mm	63		
0.850 mm	53		
0.425 mm	34		
0.180 mm	9		
0.150 mm	7		
0.075 mm	4.1		
0.053 mm	3.3		
0.0359 mm.	4.3		
0.0227 mm.	4.3		
0.0131 mm.	4.3		
0.0093 mm.	4.3		
0.0066 mm.	4.3		
0.0032 mm.	2.8		
0.0014 mm.	1.4		

* (no specification provided)

Soil Description

Appears to be mostly sand with a few small and medium stones

Mositure Content Received=29.7%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 8.1527 D_{85}= 6.8072 D_{60}= 1.3873
D_{50}= 0.7401 D_{30}= 0.3782 D_{15}= 0.2321
D_{10}= 0.1863 C_u= 7.45 C_c= 0.55

Classification

USCS= SP AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D-2216

Source of Sample: T16E480 **Depth:** 25
Sample Number: SED-RR-TH-RB(0-.5)

Date: 6/13/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/13/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E480
Depth: 26 **Sample Number:** SED-RR-TH-RMC (0-.5)
Material Description: Appears to be mostly sand with small stones
Mositure Content Received=20.9%
Date: 6/13/2016
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D-2216
Tested by: ef **Checked by:** gmr

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
184.37	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	145.25	141.35	98
		4.75 mm	175.99	141.35	79
		2.00 mm	191.56	141.35	52
93.13	0.00	0.850 mm	173.65	141.35	34
		0.425 mm	164.12	141.35	21
		0.180 mm	164.37	141.35	8
		0.150 mm	143.84	141.35	7
		0.075 mm	144.50	141.35	5.2
		0.053 mm	142.00	141.35	4.9

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 52
Weight of hydrometer sample =93.13
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x **Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.2	1.0100	1.0050	0.0136	9.0	13.9	0.0359	4.5
5.00	20.3	1.0090	1.0040	0.0136	8.0	14.2	0.0229	3.6
15.00	20.4	1.0080	1.0030	0.0136	7.0	14.4	0.0133	2.7
30.00	20.4	1.0080	1.0030	0.0136	7.0	14.4	0.0094	2.7
60.00	20.1	1.0080	1.0030	0.0136	7.0	14.4	0.0067	2.7
250.00	19.9	1.0070	1.0020	0.0137	6.0	14.7	0.0033	1.8
1440.00	20.6	1.0070	1.0021	0.0135	6.0	14.7	0.0014	1.8

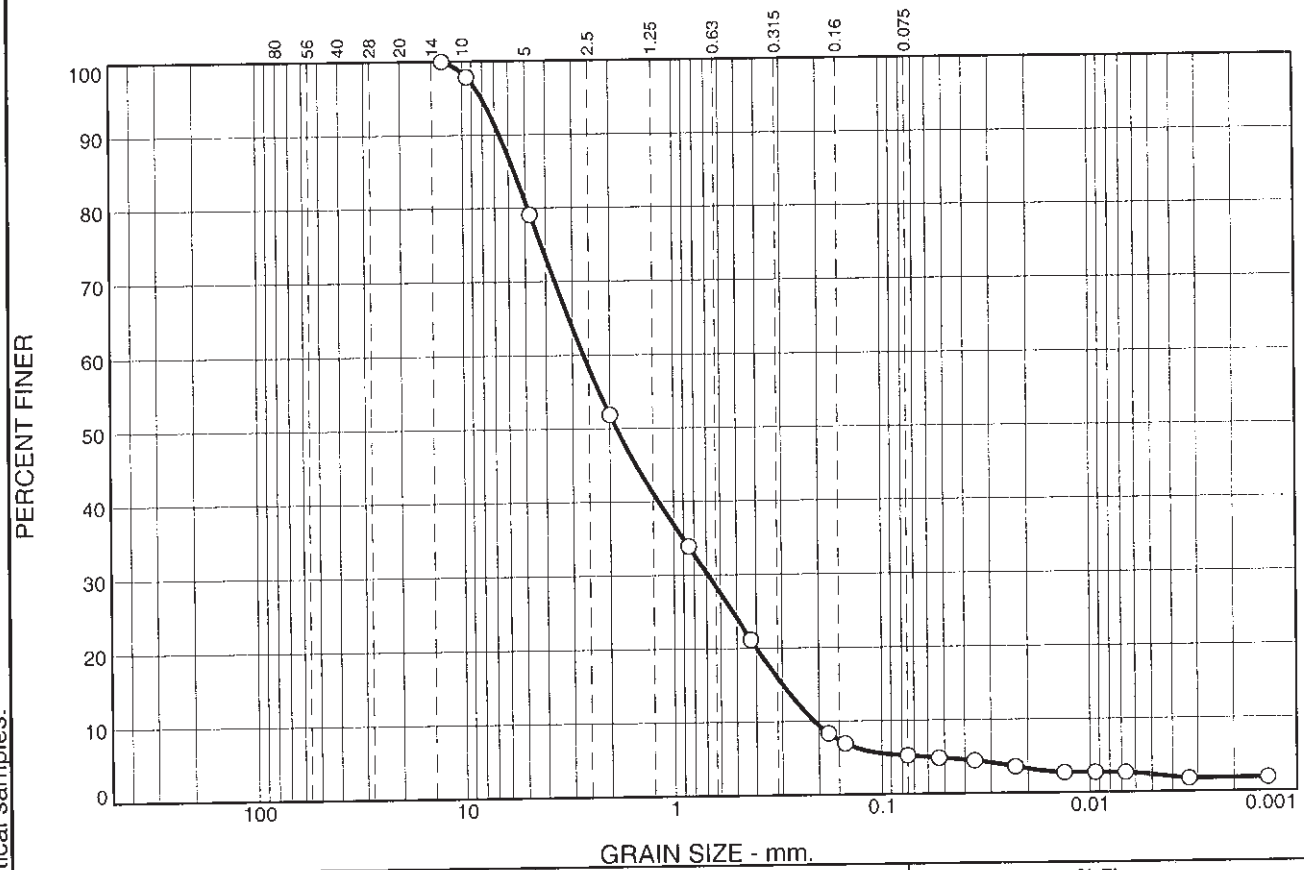
Fraction Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	21	21	27	31	16	74	3	2	5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.2097	0.2974	0.3976	0.6887	1.8595	2.6596	4.8777	5.6617	6.6485	8.0725

Fineness Modulus	C_u	C_c
3.77	12.68	0.85

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	21	27	31	16	3	2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	98		
4.75 mm	79		
2.00 mm	52		
0.850 mm	34		
0.425 mm	21		
0.180 mm	8		
0.150 mm	7		
0.075 mm	5.2		
0.053 mm	4.9		
0.0359 mm.	4.5		
0.0229 mm.	3.6		
0.0133 mm.	2.7		
0.0094 mm.	2.7		
0.0067 mm.	2.7		
0.0033 mm.	1.8		
0.0014 mm.	1.8		

* (no specification provided)

Soil Description

Appears to be mostly sand with small stones
Mositure Content Received=20.9%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 6.6485 D_{85}= 5.6617 D_{60}= 2.6596
D_{50}= 1.8595 D_{30}= 0.6887 D_{15}= 0.2974
D_{10}= 0.2097 C_u= 12.68 C_c= 0.85

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D-2216

Source of Sample: T16E480 **Depth:** 26
Sample Number: SED-RR-TH-RMC (0-.5)

Date: 6/13/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/13/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E480
Depth: 27 **Sample Number:** SED-RR-TH-LMC (0-.5)
Material Description: Appears to be mostly sand with small stones
Mositure Content Received=24.8%
Date: 6/13/2016
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D-2216
Tested by: ef **Checked by:** gmr

Sieve Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
201.32	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	143.03	141.35	99
		4.75 mm	159.24	141.35	90
		2.00 mm	173.96	141.35	74
120.53	0.00	0.850 mm	169.88	141.35	57
		0.425 mm	175.66	141.35	35
		0.180 mm	178.45	141.35	13
		0.150 mm	145.92	141.35	10
		0.075 mm	148.45	141.35	5.5
		0.053 mm	143.47	141.35	4.2

Hydrometer Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 74
Weight of hydrometer sample =120.53
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x **Rm**

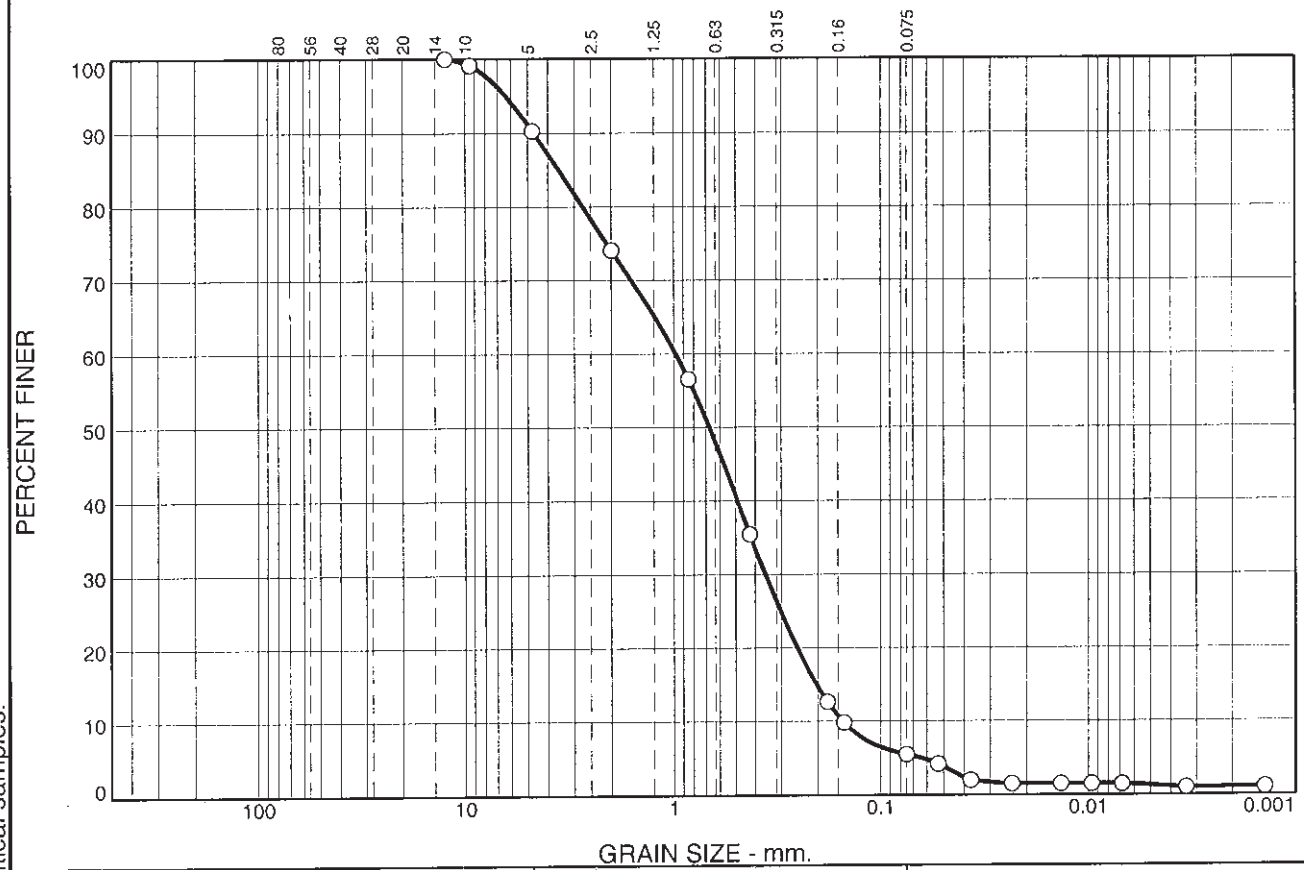
Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.4	1.0060	1.0020	0.0136	5.0	15.0	0.0371	2.0
5.00	20.4	1.0055	1.0015	0.0136	4.5	15.1	0.0236	1.5
15.00	20.5	1.0055	1.0015	0.0136	4.5	15.1	0.0136	1.5
30.00	20.4	1.0055	1.0015	0.0136	4.5	15.1	0.0096	1.5
60.00	20.2	1.0055	1.0015	0.0136	4.5	15.1	0.0068	1.5
250.00	20.1	1.0050	1.0010	0.0136	4.0	15.2	0.0034	1.0
1440.00	20.8	1.0050	1.0011	0.0135	4.0	15.2	0.0014	1.1

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	10	10	16	39	30	85	4	1	5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1518	0.2029	0.2511	0.3570	0.6738	0.9779	2.7341	3.5554	4.6750	6.3640

Fineness Modulus	C_u	C_c
2.88	6.44	0.86

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	10	16	39	30	4	1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	99		
4.75 mm	90		
2.00 mm	74		
0.850 mm	57		
0.425 mm	35		
0.180 mm	13		
0.150 mm	10		
0.075 mm	5.5		
0.053 mm	4.2		
0.0371 mm.	2.0		
0.0236 mm.	1.5		
0.0136 mm.	1.5		
0.0096 mm.	1.5		
0.0068 mm.	1.5		
0.0034 mm.	1.0		
0.0014 mm.	1.1		

* (no specification provided)

Soil Description

Appears to be mostly sand with small stones
Mositure Content Received=24.8%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 4.6750 D_{85}= 3.5554 D_{60}= 0.9779
D_{50}= 0.6738 D_{30}= 0.3570 D_{15}= 0.2029
D_{10}= 0.1518 C_u= 6.44 C_c= 0.86

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D-2216

Source of Sample: T16E480 **Depth:** 27
Sample Number: SED-RR-TH-LMC (0-.5)

Date: 6/13/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,

Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/15/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E480
Depth: 28 **Sample Number:** SED-RR-TH-LB (0-.5)
Material Description: Appears to be mostly sand with small rocks
Mositure Content Received=33.9%
Date: 6/13/2016
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D-2216
Tested by: ef **Checked by:** gmr

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
159.38	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	155.92	141.35	91
		2.00 mm	177.27	141.35	68
105.92	0.00	0.850 mm	168.54	141.35	51
		0.425 mm	155.51	141.35	42
		0.180 mm	175.89	141.35	19
		0.150 mm	147.87	141.35	15
		0.075 mm	153.64	141.35	7.2
		0.053 mm	143.43	141.35	5.9

Hydrometer Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 68
Weight of hydrometer sample =105.92
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.2	1.0100	1.0040	0.0136	9.0	13.9	0.0359	4.1
5.00	20.3	1.0100	1.0040	0.0136	9.0	13.9	0.0227	4.2
15.00	20.3	1.0090	1.0030	0.0136	8.0	14.2	0.0132	3.1
30.00	20.4	1.0090	1.0030	0.0136	8.0	14.2	0.0093	3.1
60.00	20.5	1.0080	1.0020	0.0136	7.0	14.4	0.0067	2.1
250.00	20.0	1.0070	1.0010	0.0136	6.0	14.7	0.0033	1.0
1440.00	20.6	1.0070	1.0011	0.0135	6.0	14.7	0.0014	1.1

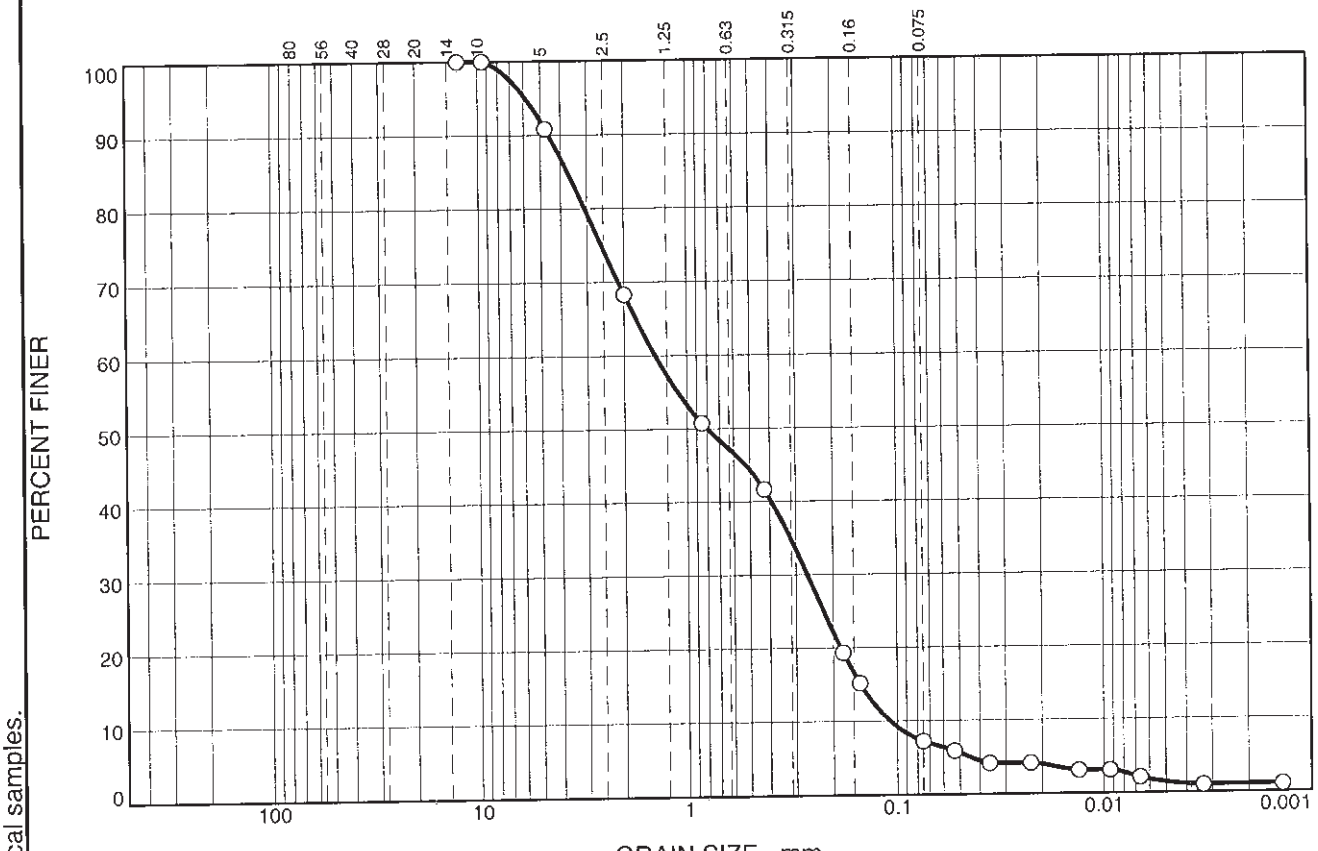
Gradation Analysis

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	9	9	23	26	35	84	6	1	7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1077	0.1488	0.1845	0.2651	0.8007	1.4168	3.0754	3.7147	4.5690	5.8786

Fineness Modulus	C_u	C_c
2.85	13.16	0.46

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	9	23	26	35	6	1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	91		
2.00 mm	68		
0.850 mm	51		
0.425 mm	42		
0.180 mm	19		
0.150 mm	15		
0.075 mm	7.2		
0.053 mm	5.9		
0.0359 mm.	4.1		
0.0227 mm.	4.2		
0.0132 mm.	3.1		
0.0093 mm.	3.1		
0.0067 mm.	2.1		
0.0033 mm.	1.0		
0.0014 mm.	1.1		

* (no specification provided)

Soil Description

Appears to be mostly sand with small rocks
Mositure Content Received=33.9%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 4.5690 D_{85}= 3.7147 D_{60}= 1.4168
D_{50}= 0.8007 D_{30}= 0.2651 D_{15}= 0.1488
D_{10}= 0.1077 C_u= 13.16 C_c= 0.46

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D-2216

Source of Sample: T16E480 **Depth:** 28
Sample Number: SED-RR-TH-LB (0-.5)

Date: 6/13/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/13/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E480
Depth: 29 **Sample Number:** SED-RR-TH-LB-DUP
Material Description: Appears to be mostly sand with small adn medium stones
Mositure Content Received=24.2%
Date: 6/13/2016
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D-2216
Tested by: ef **Checked by:** gmr

Sieve Analysis

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
166.26	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	149.92	141.35	95
		4.75 mm	175.34	141.35	74
		2.00 mm	177.43	141.35	53
87.21	0.00	0.850 mm	165.21	141.35	38
		0.425 mm	156.09	141.35	29
		0.180 mm	170.43	141.35	12
		0.150 mm	145.73	141.35	9
		0.075 mm	147.57	141.35	5.4
		0.053 mm	143.54	141.35	4.1

Hydrometer Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 53
Weight of hydrometer sample =87.21
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	19.6	1.0075	1.0024	0.0137	6.5	14.6	0.0370	2.4
5.00	19.5	1.0075	1.0024	0.0137	6.5	14.6	0.0234	2.3
15.00	19.6	1.0075	1.0024	0.0137	6.5	14.6	0.0135	2.4
30.00	19.6	1.0075	1.0024	0.0137	6.5	14.6	0.0096	2.4
60.00	19.3	1.0065	1.0014	0.0138	5.5	14.8	0.0068	1.3
250.00	19.4	1.0055	1.0004	0.0137	4.5	15.1	0.0034	0.4
1440.00	20.7	1.0050	1.0001	0.0135	4.0	15.2	0.0014	0.1

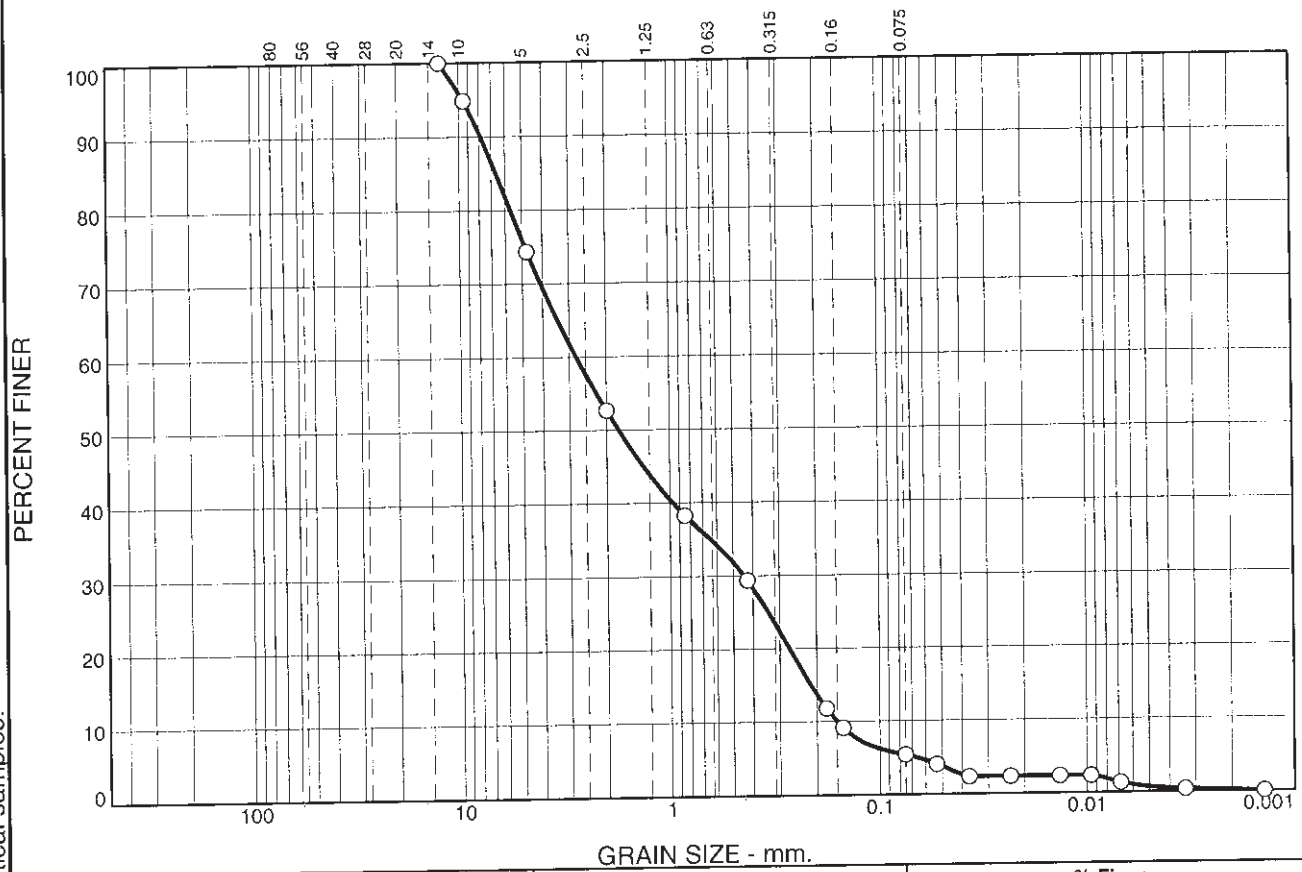
Particle Size Distribution

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	26	26	21	24	24	69	4	1	5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1601	0.2135	0.2696	0.4412	1.7488	2.7821	5.6762	6.6457	7.8562	9.5665

Fineness Modulus	C_u	C_c
3.66	17.37	0.44

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	26	21	24	24	4	1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	95		
4.75 mm	74		
2.00 mm	53		
0.850 mm	38		
0.425 mm	29		
0.180 mm	12		
0.150 mm	9		
0.075 mm	5.4		
0.053 mm	4.1		
0.0370 mm.	2.4		
0.0234 mm.	2.3		
0.0135 mm.	2.4		
0.0096 mm.	2.4		
0.0068 mm.	1.3		
0.0034 mm.	0.4		
0.0014 mm.	0.1		

* (no specification provided)

Soil Description

Appears to be mostly sand with small adn medium stones
Mositure Content Received=24.2%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 7.8562 D_{85}= 6.6457 D_{60}= 2.7821
D_{50}= 1.7488 D_{30}= 0.4412 D_{15}= 0.2135
D_{10}= 0.1601 C_u= 17.37 C_c= 0.44

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D-2216

Source of Sample: T16E480 **Depth:** 29
Sample Number: SED-RR-TH-LB-DUP

Date: 6/13/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/13/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E480
Depth: 30
Sample Number: SED-D-I (0-.5)
Material Description: Appears to all silt
Mositure Content Received=74.7%
Date: 6/13/2016
Tested by: ef
Checked by: gmr

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
29.91	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	141.76	141.35	99
		2.00 mm	143.02	141.35	93
26.68	0.00	0.850 mm	142.18	141.35	90
		0.425 mm	142.17	141.35	87
		0.180 mm	142.58	141.35	83
		0.150 mm	141.72	141.35	82
		0.075 mm	143.09	141.35	76
		0.053 mm	142.52	141.35	72

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 93
Weight of hydrometer sample =26.68
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	19.7	1.0135	1.0104	0.0137	12.5	13.0	0.0349	58.4
5.00	19.6	1.0120	1.0089	0.0137	11.0	13.4	0.0224	50.0
15.00	19.7	1.0100	1.0069	0.0137	9.0	13.9	0.0132	38.8
30.00	19.6	1.0075	1.0044	0.0137	6.5	14.6	0.0096	24.8
60.00	19.3	1.0070	1.0039	0.0138	6.0	14.7	0.0068	21.8
250.00	19.0	1.0055	1.0023	0.0138	4.5	15.1	0.0034	13.1
1440.00	20.6	1.0050	1.0021	0.0135	4.0	15.2	0.0014	11.5

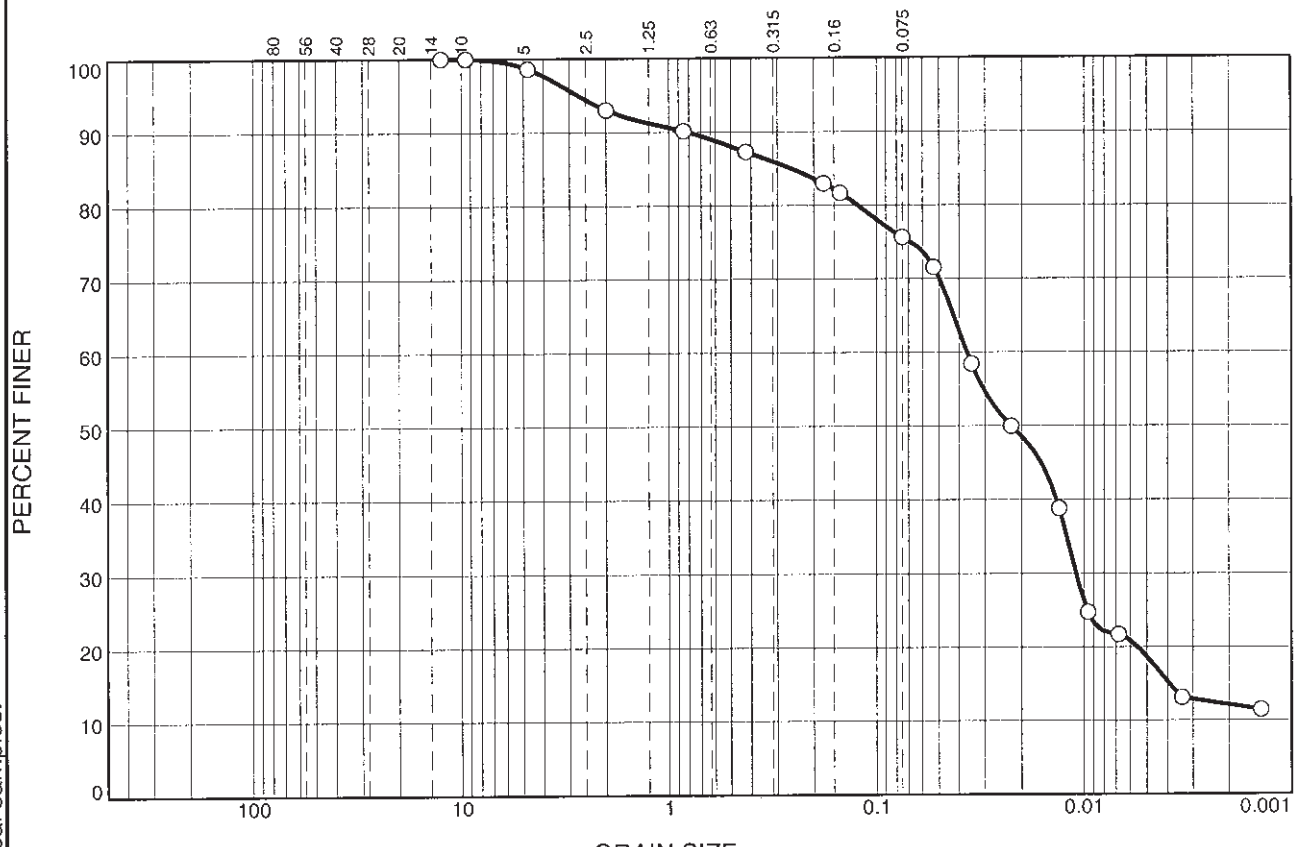
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	1	1	6	6	11	23	57	19	76

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0039	0.0055	0.0109	0.0225	0.0367	0.1228	0.2566	0.8125	2.7136

Fineness Modulus
0.60

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	6	6	11	57	19

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	99		
2.00 mm	93		
0.850 mm	90		
0.425 mm	87		
0.180 mm	83		
0.150 mm	82		
0.075 mm	76		
0.053 mm	72		
0.0349 mm.	58		
0.0224 mm.	50		
0.0132 mm.	39		
0.0096 mm.	25		
0.0068 mm.	22		
0.0034 mm.	13		
0.0014 mm.	12		

* (no specification provided)

Soil Description

Appears to all silt
Mositure Content Received=74.7%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.8125 D_{85}= 0.2566 D_{60}= 0.0367
D_{50}= 0.0225 D_{30}= 0.0109 D_{15}= 0.0039
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Source of Sample: T16E480 **Depth:** 30
Sample Number: SED-D-I (0-.5) **Date:** 6/13/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/23/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E480
Depth: 31 **Sample Number:** SED-D-2(.5-1.0)
Material Description: Appears to be all fines and silts
Mositure Content Received=71.8%
Date: 6/22/16
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D-2216
Tested by: ef **Checked by:** gmr

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
41.95	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	0.00	0.00	100
		2.00 mm	0.00	0.00	100
		0.850 mm	142.37	141.69	98
		0.425 mm	142.50	141.69	96
		0.180 mm	142.79	141.69	94
		0.150 mm	141.98	141.69	93
		0.075 mm	142.77	141.69	91
		0.053 mm	142.87	141.69	88

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100
Weight of hydrometer sample =41.95
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

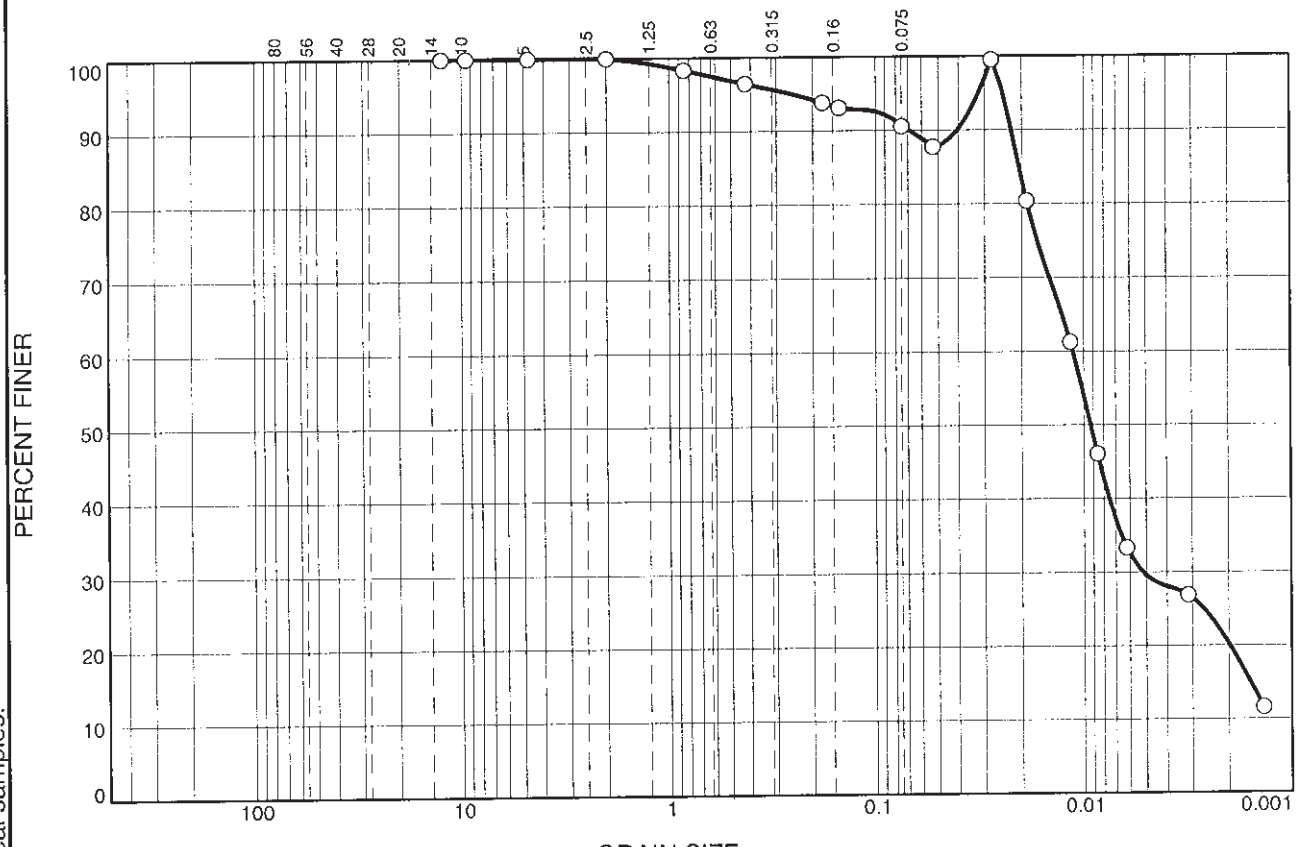
Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.2	1.0310	1.0260	0.0136	30.0	8.4	0.0278	99.5
5.00	20.2	1.0260	1.0210	0.0136	25.0	9.7	0.0189	80.4
15.00	20.3	1.0210	1.0160	0.0136	20.0	11.0	0.0116	61.3
30.00	20.5	1.0170	1.0120	0.0136	16.0	12.1	0.0086	46.1
60.00	21.8	1.0135	1.0087	0.0133	12.5	13.0	0.0062	33.4
250.00	20.4	1.0120	1.0070	0.0136	11.0	13.4	0.0031	26.9
1440.00	20.5	1.0080	1.0030	0.0136	7.0	14.4	0.0014	11.6

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	4	5	9	61	30	91

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0016	0.0020	0.0052	0.0093	0.0113	0.0188	0.0206	0.0224	0.2506

Fineness Modulus
0.15

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	4	5	61	30

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	100		
2.00 mm	100		
0.850 mm	98		
0.425 mm	96		
0.180 mm	94		
0.150 mm	93		
0.075 mm	91		
0.053 mm	88		
0.0278 mm.	100		
0.0189 mm.	80		
0.0116 mm.	61		
0.0086 mm.	46		
0.0062 mm.	33		
0.0031 mm.	27		
0.0014 mm.	12		

* (no specification provided)

Soil Description

Appears to be all fines and silts
Mositure Content Received=71.8%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.0224 D_{85}= 0.0206 D_{60}= 0.0113
D_{50}= 0.0093 D_{30}= 0.0052 D_{15}= 0.0016
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D-2216

Source of Sample: T16E480 **Depth:** 31
Sample Number: SED-D-2(.5-1.0)

Date: 6/22/16

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,

Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

Reanalysis of sample had the same pattern

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E480
Depth: 32 **Sample Number:** SED-D-2(.5-1.0)
Material Description: Appears to be mostly silt
Mositure Content Received=51.0%
Date: 6/22/16
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D-2216
Tested by: ef **Checked by:** gmr

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
52.63	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	0.00	0.00	100
		2.00 mm	0.00	0.00	100
		0.850 mm	147.51	141.69	89
		0.425 mm	146.04	141.69	81
		0.180 mm	148.17	141.69	68
		0.150 mm	143.04	141.69	66
		0.075 mm	145.22	141.69	59
		0.053 mm	143.66	141.69	55

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100
Weight of hydrometer sample =52.63
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.2	1.0280	1.0220	0.0136	27.0	9.2	0.0291	67.1
5.00	20.3	1.0240	1.0180	0.0136	23.0	10.2	0.0194	55.0
15.00	20.4	1.0175	1.0115	0.0136	16.5	11.9	0.0121	35.2
30.00	20.5	1.0120	1.0060	0.0136	11.0	13.4	0.0091	18.4
60.00	21.0	1.0105	1.0046	0.0135	9.5	13.8	0.0065	14.1
250.00	20.6	1.0100	1.0041	0.0135	9.0	13.9	0.0032	12.4
1440.00	20.4	1.0080	1.0020	0.0136	7.0	14.4	0.0014	6.2

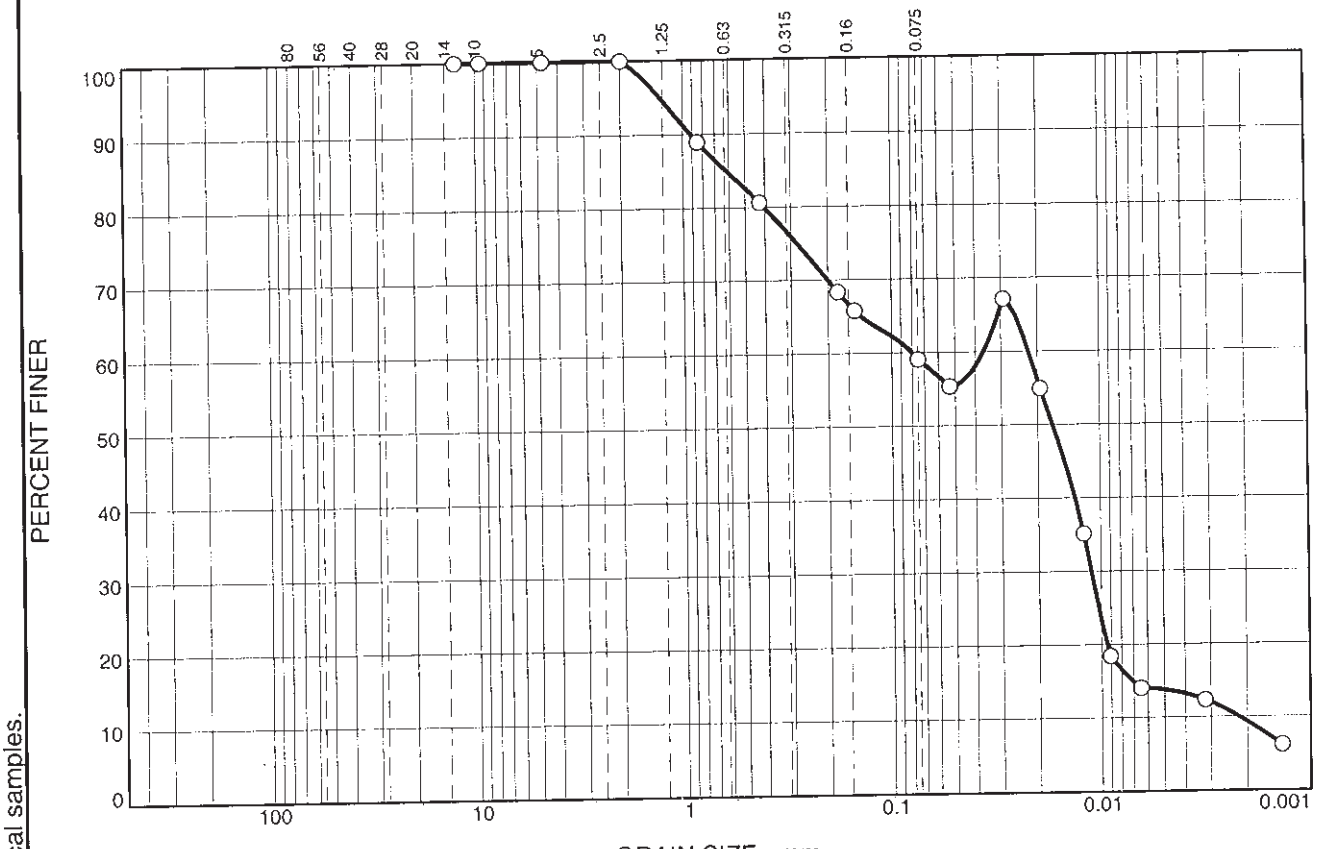
Fraction Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	19	22	41	45	14	59

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0022	0.0071	0.0094	0.0111	0.0170	0.0798	0.4027	0.6172	0.9166	1.2846

Fineness Modulus	C_u	C_c
0.80	36.46	0.71

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	19	22	45	14

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	100		
2.00 mm	100		
0.850 mm	89		
0.425 mm	81		
0.180 mm	68		
0.150 mm	66		
0.075 mm	59		
0.053 mm	55		
0.0291 mm.	67		
0.0194 mm.	55		
0.0121 mm.	35		
0.0091 mm.	18		
0.0065 mm.	14		
0.0032 mm.	12		
0.0014 mm.	6.2		

* (no specification provided)

Soil Description

Appears to be mostly silt
Mositure Content Received=51.0%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.9166 D_{85}= 0.6172 D_{60}= 0.0798
D_{50}= 0.0170 D_{30}= 0.0111 D_{15}= 0.0071
D_{10}= 0.0022 C_u= 36.46 C_c= 0.71

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D-2216

Source of Sample: T16E480 **Depth:** 32
Sample Number: SED-D-2(.5-1.0)

Date: 6/22/16

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

Tested By: ef **Checked By:** gmr

Reanalysis had the same pattern

GRAIN SIZE DISTRIBUTION TEST DATA

6/15/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E480
Depth: 33 **Sample Number:** SED-D-4 (0-.5)
Material Description: Appears to be mostly silt
Mositure Content Received=51.3%
Date: 6/13/2016
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D-2216
Tested by: ef **Checked by:** gmr

Sieve Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
31.58	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	0.00	0.00	100
		2.00 mm	0.00	0.00	100
31.24	0.00	0.850 mm	141.53	141.33	99
		0.425 mm	141.71	141.33	98
		0.180 mm	142.04	141.33	96
		0.150 mm	141.57	141.33	95
		0.075 mm	141.92	141.33	93
		0.053 mm	142.51	141.33	89

Hydrometer Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100
Weight of hydrometer sample =31.24
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	19.4	1.0180	1.0139	0.0137	17.0	11.8	0.0334	71.4
5.00	19.4	1.0160	1.0119	0.0137	15.0	12.3	0.0216	61.2
15.00	19.5	1.0140	1.0099	0.0137	13.0	12.9	0.0127	50.9
30.00	19.5	1.0110	1.0069	0.0137	10.0	13.6	0.0093	35.5
60.00	19.5	1.0095	1.0054	0.0137	8.5	14.0	0.0066	27.8
250.00	19.6	1.0080	1.0039	0.0137	7.0	14.4	0.0033	20.2
1440.00	19.6	1.0065	1.0024	0.0137	5.5	14.8	0.0014	12.5

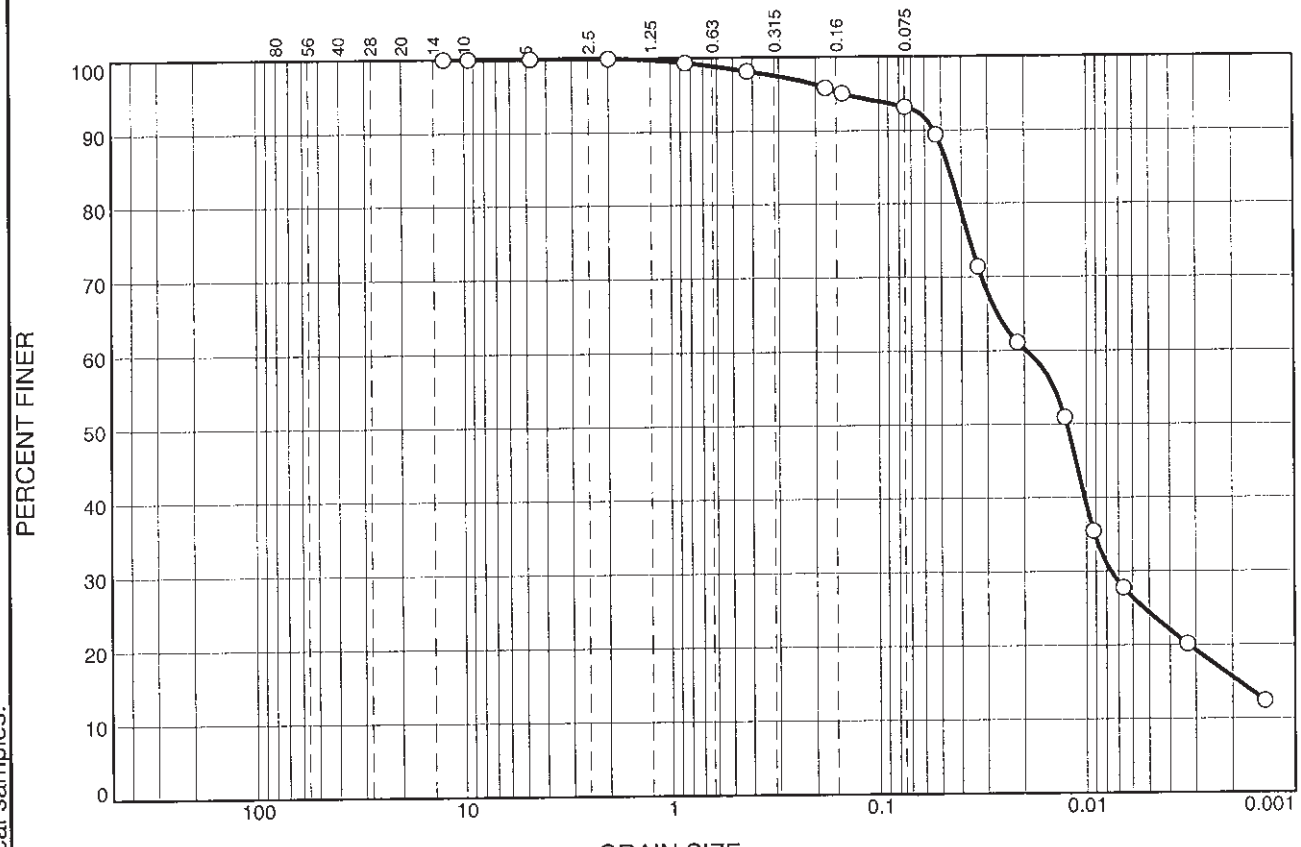
Fraction Composition

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	2	5	7	69	24	93

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0019	0.0032	0.0076	0.0124	0.0196	0.0410	0.0463	0.0543	0.1460

Fineness Modulus
0.09

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	2	5	69	24

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	100		
2.00 mm	100		
0.850 mm	99		
0.425 mm	98		
0.180 mm	96		
0.150 mm	95		
0.075 mm	93		
0.053 mm	89		
0.0334 mm.	71		
0.0216 mm.	61		
0.0127 mm.	51		
0.0093 mm.	36		
0.0066 mm.	28		
0.0033 mm.	20		
0.0014 mm.	12		

* (no specification provided)

Soil Description

Appears to be mostly silt
Mositure Content Received=51.3%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.0543 D_{85}= 0.0463 D_{60}= 0.0196
D_{50}= 0.0124 D_{30}= 0.0076 D_{15}= 0.0019
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D-2216

Source of Sample: T16E480 **Depth:** 33
Sample Number: SED-D-4 (0-.5) **Date:** 6/13/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/14/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E480
Depth: 34 **Sample Number:** SED-D-4 (.5-1.0)
Material Description: Appears to be mostly silt with 4 or 5 stones
Mositure Content Received=48.4
Date: 6/13/2016
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D-2216
Tested by: ef **Checked by:** gmr

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
72.16	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	143.01	141.33	98
		4.75 mm	144.08	141.33	94
		2.00 mm	145.05	141.33	89
62.71	0.00	0.850 mm	145.47	141.33	83
		0.425 mm	145.20	141.33	77
		0.180 mm	146.47	141.33	70
		0.150 mm	142.49	141.33	68
		0.075 mm	145.29	141.33	63
		0.053 mm	145.69	141.33	57

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 89
Weight of hydrometer sample =62.71
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

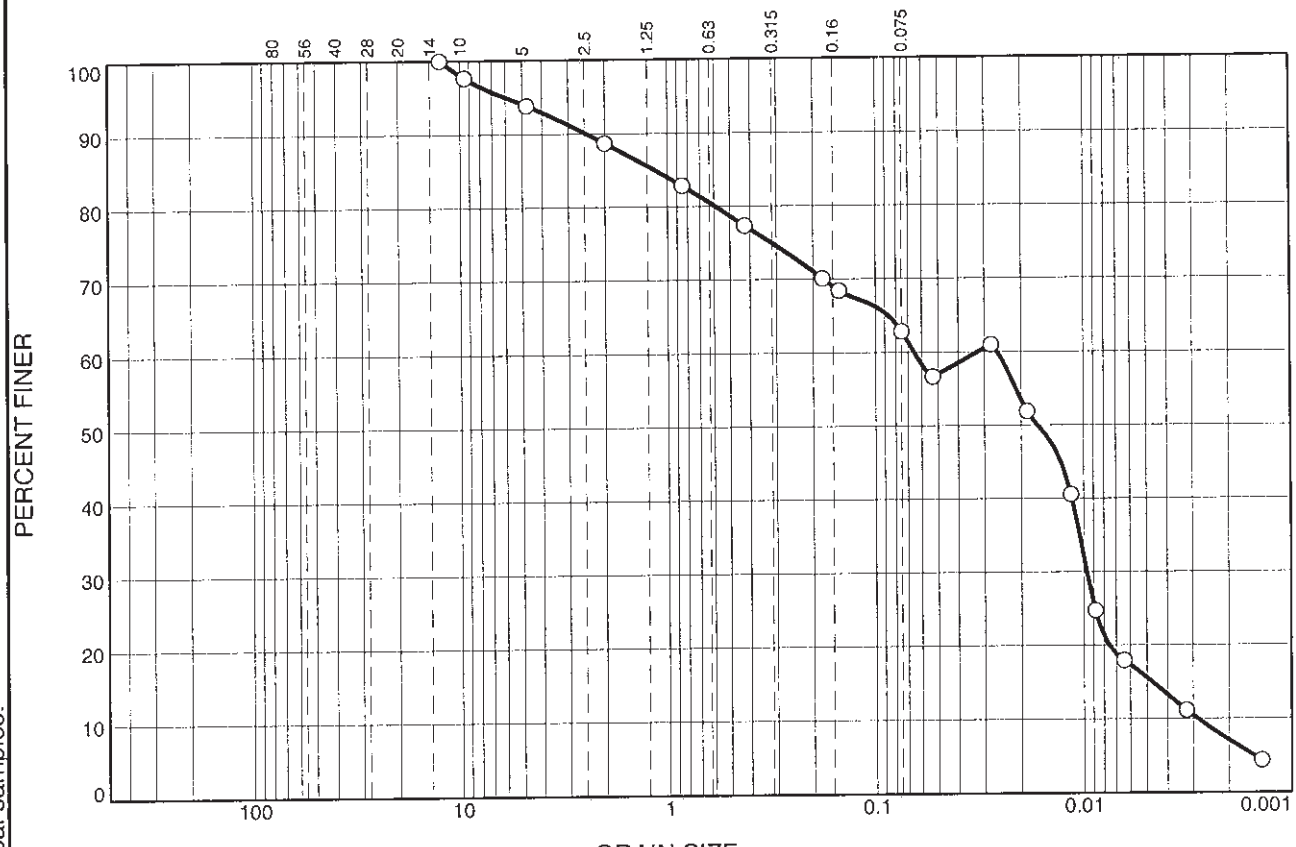
Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	19.0	1.0320	1.0268	0.0138	31.0	8.1	0.0278	61.0
5.00	19.0	1.0280	1.0228	0.0138	27.0	9.2	0.0187	51.9
15.00	19.1	1.0230	1.0179	0.0138	22.0	10.5	0.0115	40.6
30.00	19.3	1.0160	1.0109	0.0138	15.0	12.3	0.0088	24.7
60.00	19.5	1.0130	1.0079	0.0137	12.0	13.1	0.0064	18.0
250.00	19.6	1.0100	1.0049	0.0137	9.0	13.9	0.0032	11.2
1440.00	19.6	1.0070	1.0019	0.0137	6.0	14.7	0.0014	4.4

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	6	6	5	12	14	31	47	16	63

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0028	0.0047	0.0076	0.0097	0.0167	0.0260	0.5891	1.1462	2.4458	6.0122

Fineness Modulus	C_u	C_c
1.10	9.13	1.27

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	6	5	12	14	47	16

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	98		
4.75 mm	94		
2.00 mm	89		
0.850 mm	83		
0.425 mm	77		
0.180 mm	70		
0.150 mm	68		
0.075 mm	63		
0.053 mm	57		
0.0278 mm.	61		
0.0187 mm.	52		
0.0115 mm.	41		
0.0088 mm.	25		
0.0064 mm.	18		
0.0032 mm.	11		
0.0014 mm.	4.4		

* (no specification provided)

Soil Description

Appears to be mostly silt with 4 or 5 stones
Mositure Content Received=48.4

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 2.4458 D_{85}= 1.1462 D_{60}= 0.0260
D_{50}= 0.0167 D_{30}= 0.0097 D_{15}= 0.0047
D_{10}= 0.0028 C_u= 9.13 C_c= 1.27

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D-2216

Source of Sample: T16E480 **Depth:** 34
Sample Number: SED-D-4 (.5-1.0)

Date: 6/13/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E480
Depth: 35 **Sample Number:** SED-D-3 (0-.5)
Material Description: Appears to be mostly silt and fines with a few stones
Mositure Content Received=46.5
Date: 6/13/16
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D-2216
Tested by: ef **Checked by:** gmr

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
86.77	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	143.21	141.33	98
		2.00 mm	143.27	141.33	96
78.07	0.00	0.850 mm	143.19	141.33	93
		0.425 mm	144.29	141.33	90
		0.180 mm	145.53	141.33	85
		0.150 mm	142.38	141.33	83
		0.075 mm	143.92	141.33	80
		0.053 mm	145.90	141.33	74

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 96
Weight of hydrometer sample =78.07
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x **Rm**

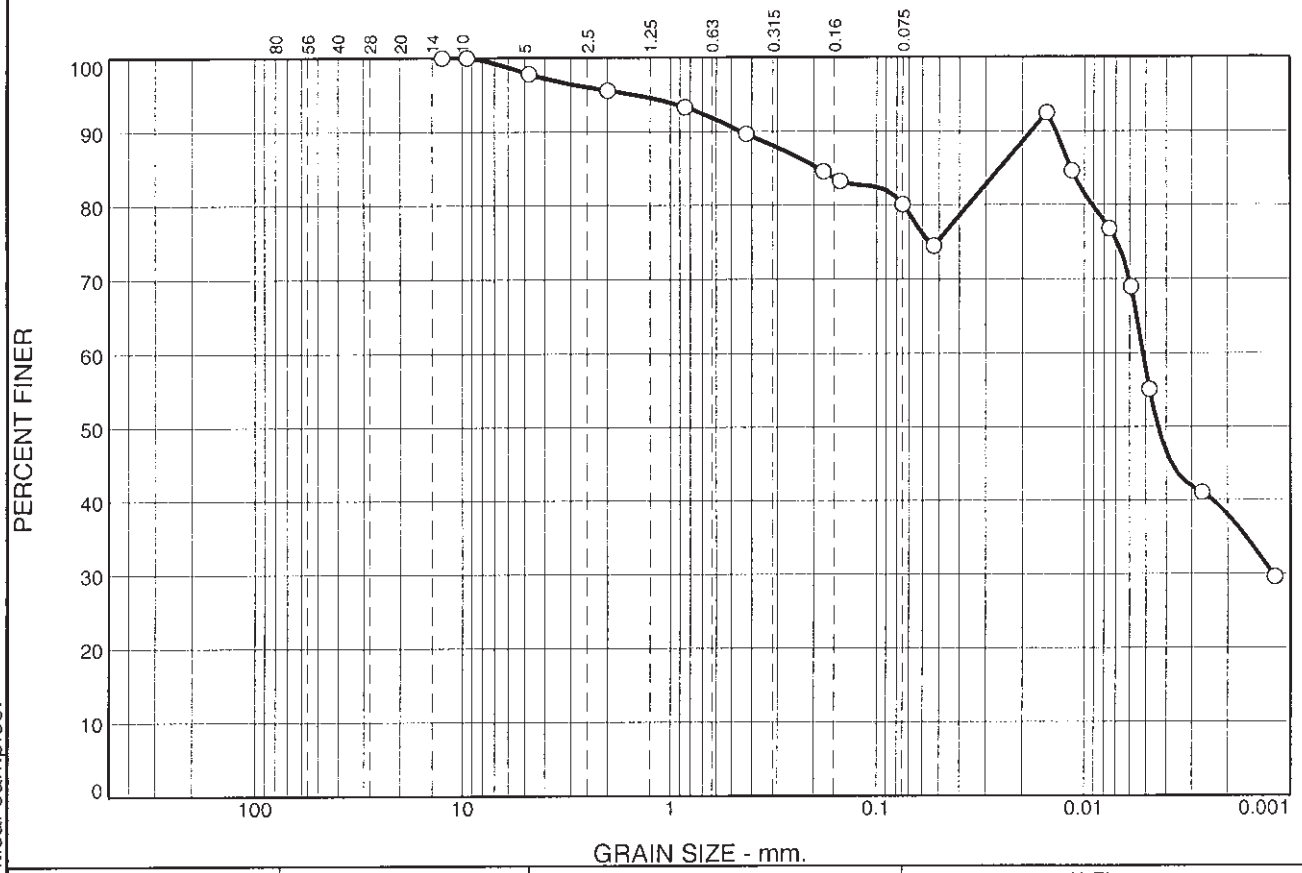
Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.5	1.0530	1.0470	0.0136	52.0	2.5	0.0153	92.5
5.00	20.5	1.0490	1.0430	0.0136	48.0	3.6	0.0115	84.6
15.00	20.6	1.0450	1.0391	0.0135	44.0	4.7	0.0075	76.8
30.00	20.7	1.0410	1.0351	0.0135	40.0	5.7	0.0059	69.0
60.00	20.5	1.0340	1.0280	0.0136	33.0	7.6	0.0048	55.1
250.00	19.5	1.0270	1.0209	0.0137	26.0	9.4	0.0027	41.1
1440.00	20.6	1.0210	1.0151	0.0135	20.0	11.0	0.0012	29.6

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	2	2	2	6	10	18	22	58	80

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0012	0.0044	0.0052	0.0092	0.1911	0.4491	1.4911

Fineness Modulus
0.49

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	2	6	10	22	58

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	98		
2.00 mm	96		
0.850 mm	93		
0.425 mm	90		
0.180 mm	85		
0.150 mm	83		
0.075 mm	80		
0.053 mm	74		
0.0153 mm.	93		
0.0115 mm.	85		
0.0075 mm.	77		
0.0059 mm.	69		
0.0048 mm.	55		
0.0027 mm.	41		
0.0012 mm.	30		

* (no specification provided)

Soil Description

Appears to be mostly silt and fines with a few stones
Mositure Content Received=46.5

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4491 D_{85}= 0.1911 D_{60}= 0.0052
D_{50}= 0.0044 D_{30}= 0.0012 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D-2216

Source of Sample: T16E480 **Depth:** 35
Sample Number: SED-D-3 (0-.5) **Date:** 6/13/16

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

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Tested By: ef **Checked By:** gmr

Recirculpics of sample using less sample showed same pattern.

GRAIN SIZE DISTRIBUTION TEST DATA

6/15/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E480
Depth: 36 **Sample Number:** SED-D-7(0-.5)
Material Description: Appears to be mostly clay with a lot of fines
Mositure Content Received=30.7%
Date: 6/13/2016
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D-2216
Tested by: ef **Checked by:** gmr

Coarse Grain

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
90.24	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	141.80	141.33	99
		2.00 mm	143.05	141.33	98
85.24	0.00	0.850 mm	147.55	141.33	90
		0.425 mm	151.29	141.33	79
		0.180 mm	155.11	141.33	63
		0.150 mm	143.72	141.33	61
		0.075 mm	147.20	141.33	54
		0.053 mm	144.06	141.33	51

Hydrometer Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 98
Weight of hydrometer sample =85.24
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.4	1.0260	1.0230	0.0136	25.0	9.7	0.0299	42.3
5.00	20.4	1.0240	1.0210	0.0136	23.0	10.2	0.0194	38.7
15.00	20.6	1.0220	1.0191	0.0135	21.0	10.7	0.0115	35.0
30.00	20.5	1.0180	1.0150	0.0136	17.0	11.8	0.0085	27.6
60.00	20.6	1.0160	1.0131	0.0135	15.0	12.3	0.0061	24.0
250.00	19.7	1.0130	1.0099	0.0137	12.0	13.1	0.0031	18.3
1440.00	20.5	1.0100	1.0070	0.0136	9.0	13.9	0.0013	12.9

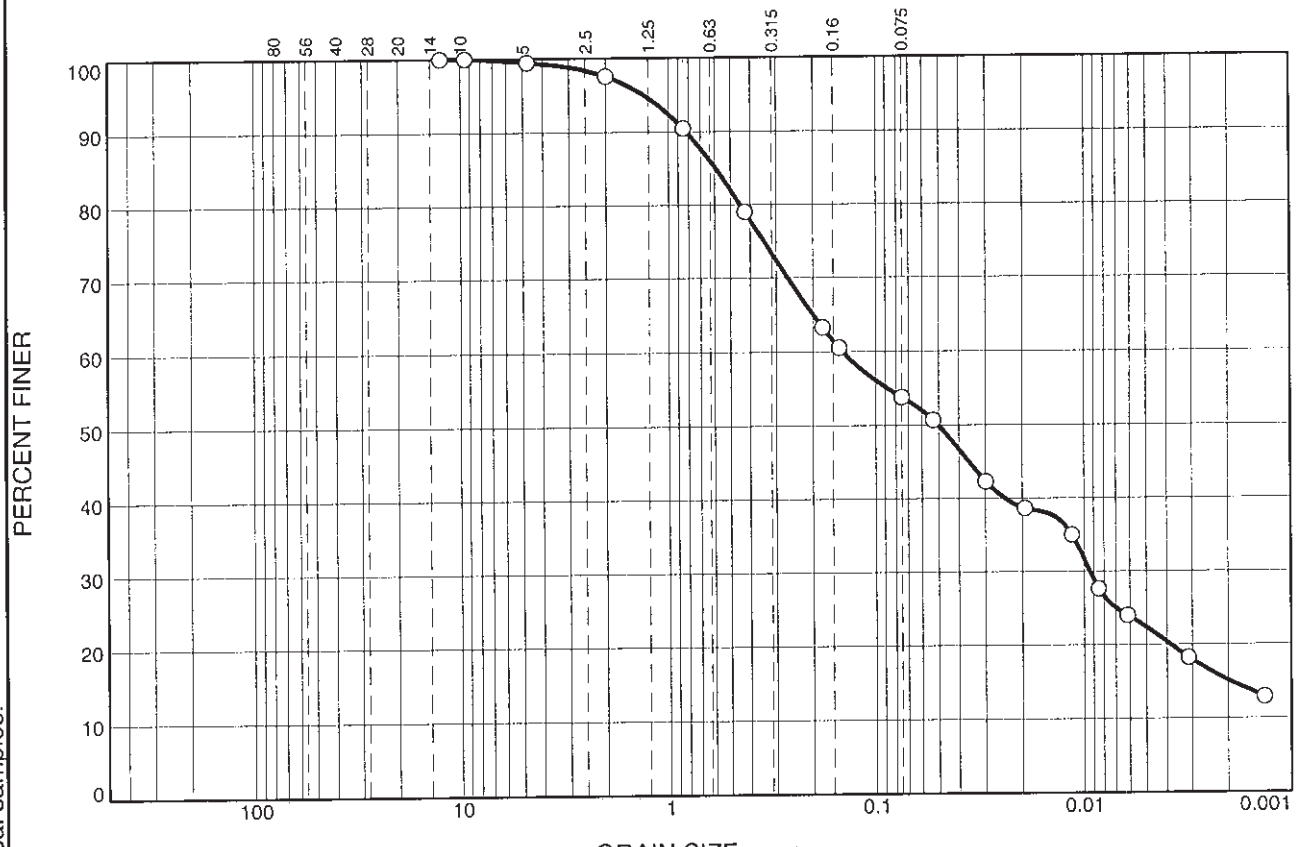
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	1	1	1	19	25	45	32	22	54

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0019	0.0038	0.0094	0.0501	0.1440	0.4472	0.5923	0.8215	1.3131

Fineness Modulus
0.90

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	1	19	25	32	22

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	99		
2.00 mm	98		
0.850 mm	90		
0.425 mm	79		
0.180 mm	63		
0.150 mm	61		
0.075 mm	54		
0.053 mm	51		
0.0299 mm.	42		
0.0194 mm.	39		
0.0115 mm.	35		
0.0085 mm.	28		
0.0061 mm.	24		
0.0031 mm.	18		
0.0013 mm.	13		

* (no specification provided)

Soil Description

Appears to be mostly clay with a lot of fines
Mositure Content Received=30.7%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.8215 D_{85}= 0.5923 D_{60}= 0.1440
D_{50}= 0.0501 D_{30}= 0.0094 D_{15}= 0.0019
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D-2216

Source of Sample: T16E480 **Depth:** 36
Sample Number: SED-D-7(0-.5) **Date:** 6/13/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E480
Depth: 37 **Sample Number:** SED-D-7(.5-1.0)
Material Description: Appears to be mostly clay with small stones
Mositure Content Received=24.0%
Date: 6/13/2016
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D-2216
Tested by: ef **Checked by:** gmr

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
80.86	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	0.00	0.00	100
		2.00 mm	144.71	141.33	96
75.10	0.00	0.850 mm	148.83	141.33	86
		0.425 mm	153.97	141.33	70
		0.180 mm	153.19	141.33	55
		0.150 mm	143.04	141.33	53
		0.075 mm	144.00	141.33	49
		0.053 mm	144.03	141.33	46

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 96
Weight of hydrometer sample =75.10
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -7
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

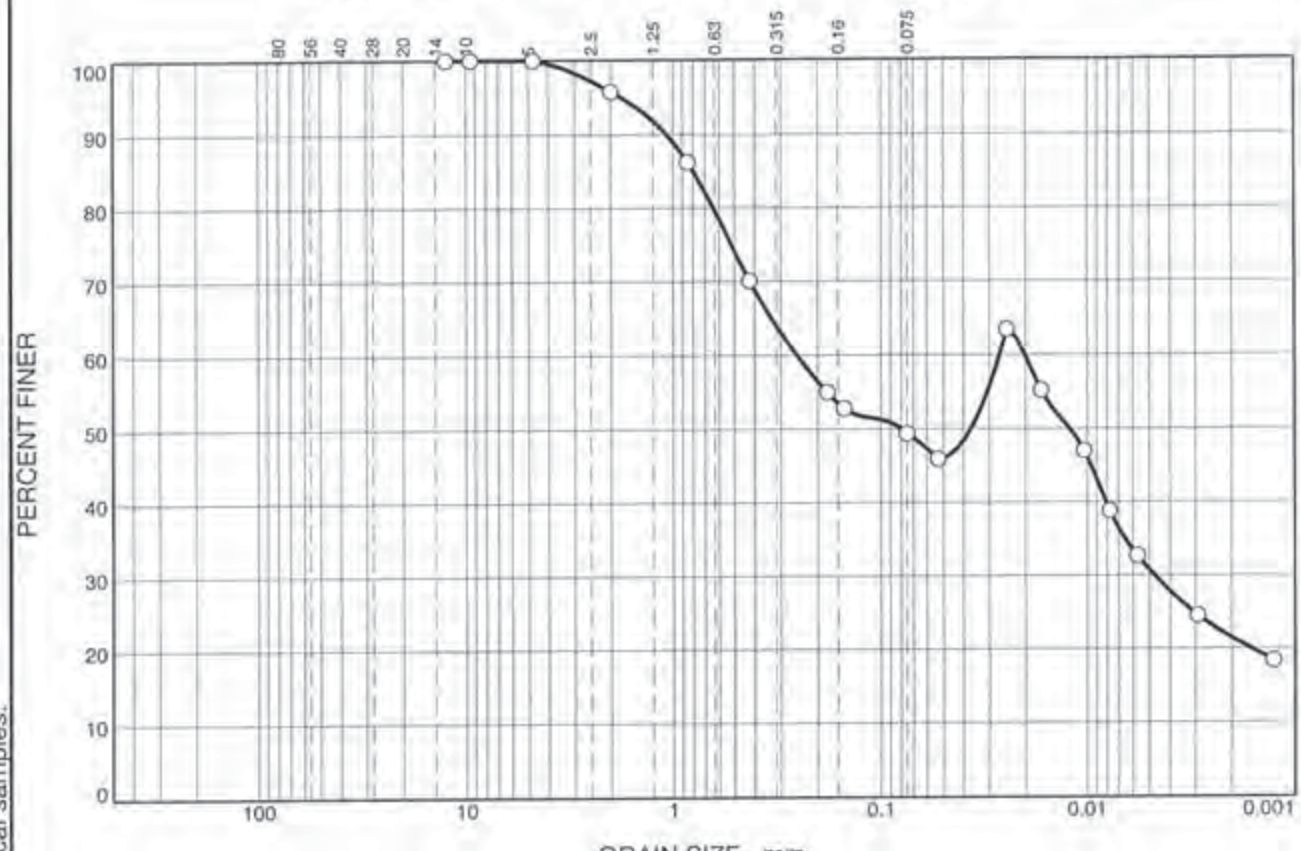
Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	19.8	1.0380	1.0309	0.0137	37.0	6.5	0.0247	63.4
5.00	19.8	1.0340	1.0269	0.0137	33.0	7.6	0.0168	55.2
15.00	19.9	1.0300	1.0230	0.0137	29.0	8.6	0.0104	47.1
30.00	19.9	1.0260	1.0190	0.0137	25.0	9.7	0.0078	38.9
60.00	19.9	1.0230	1.0160	0.0137	22.0	10.5	0.0057	32.7
250.00	20.0	1.0190	1.0120	0.0136	18.0	11.5	0.0029	24.5
1440.00	20.1	1.0160	1.0090	0.0136	15.0	12.3	0.0013	18.4

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	4	26	21	51	18	31	49

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0016	0.0047	0.0791	0.2517	0.6389	0.7978	1.0716	1.7794

Fineness Modulus
1.18

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	4	26	21	18	31

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	100		
2.00 mm	96		
0.850 mm	86		
0.425 mm	70		
0.180 mm	55		
0.150 mm	53		
0.075 mm	49		
0.053 mm	46		
0.0247 mm.	63		
0.0168 mm.	55		
0.0104 mm.	47		
0.0078 mm.	39		
0.0057 mm.	33		
0.0029 mm.	25		
0.0013 mm.	18		

* (no specification provided)

Soil Description

Appears to be mostly clay with small stones
Mositure Content Received=24.0%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 1.0716 D_{85}= 0.7978 D_{60}= 0.2517
D_{50}= 0.0791 D_{30}= 0.0047 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D-2216

Source of Sample: T16E480 **Depth:** 37
Sample Number: SED-D-7(.5-1.0) **Date:** 6/13/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

Tested By: ef **Checked By:** gmr

Reanalysis of sample had same pattern

GRAIN SIZE DISTRIBUTION TEST DATA

6/24/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E480
Depth: 38 **Sample Number:** SED-D-5 (0-.5)
Material Description: Appears to be mostly clay
Mositure Content Received=84.6%
Date: 6/22/16
Testing Remarks: Test Methods Used: ASTM D-421, D-422, D-2216
Tested by: ef **Checked by:** gmr

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
42.52	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	0.00	0.00	100
		2.00 mm	0.00	0.00	100
		0.850 mm	150.54	141.69	79
		0.425 mm	154.23	141.69	50
		0.180 mm	144.29	141.69	44
		0.150 mm	143.66	141.69	39
		0.075 mm	146.36	141.69	28
		0.053 mm	142.39	141.69	26

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100
Weight of hydrometer sample =42.52
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 **x Rm**

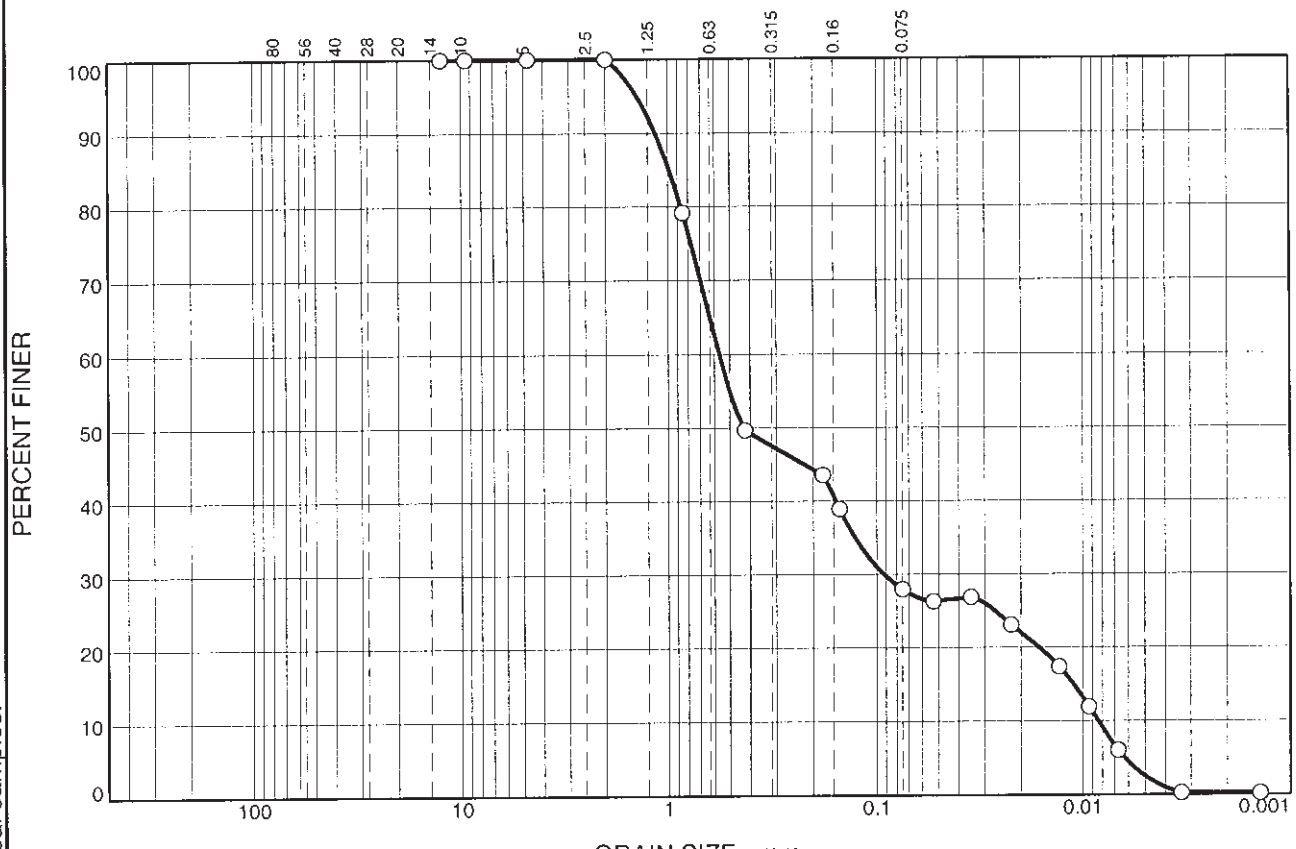
Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.0	1.0120	1.0071	0.0135	11.0	13.4	0.0349	26.8
5.00	21.0	1.0110	1.0061	0.0135	10.0	13.6	0.0223	23.1
15.00	21.0	1.0095	1.0046	0.0135	8.5	14.0	0.0130	17.4
30.00	21.4	1.0080	1.0032	0.0134	7.0	14.4	0.0093	12.0
60.00	21.0	1.0065	1.0016	0.0135	5.5	14.8	0.0067	6.1
250.00	20.7	1.0050	1.0001	0.0135	4.0	15.2	0.0033	0.3
1440.00	20.6	1.0050	1.0001	0.0135	4.0	15.2	0.0014	0.2

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	0	0	0	50	22	72	25	3	28

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0084	0.0111	0.0163	0.0921	0.4304	0.5665	0.8663	0.9841	1.1471	1.4026

Fineness Modulus	C_u	C_c
1.60	67.61	1.79

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	50	22	25	3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	100		
2.00 mm	100		
0.850 mm	79		
0.425 mm	50		
0.180 mm	44		
0.150 mm	39		
0.075 mm	28		
0.053 mm	26		
0.0349 mm.	27		
0.0223 mm.	23		
0.0130 mm.	17		
0.0093 mm.	12		
0.0067 mm.	6.1		
0.0033 mm.	0.3		
0.0014 mm.	0.2		

* (no specification provided)

Soil Description

Appears to be mostly clay
Mositure Content Received=84.6%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 1.1471 D_{85}= 0.9841 D_{60}= 0.5665
D_{50}= 0.4304 D_{30}= 0.0921 D_{15}= 0.0111
D_{10}= 0.0084 C_u= 67.61 C_c= 1.79

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422, D-2216

Source of Sample: T16E480 **Depth:** 38
Sample Number: SED-D-5 (0-.5) **Date:** 6/22/16

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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June 15, 2016

Mr. Scott Pawlukiewicz
TRC Solutions
2025 E. Beltline Ave., SE, Ste 402
Grand Rapids, MI 49546

Phone: (201) 636-5884
Fax: (616) 975-1098

RE: Trace Project T16E464
Client Project LEC Ecological Evaluation 248642.0000.0000 Phase 2

Dear Mr. Pawlukiewicz:

Enclosed are your analytical results. The results of this report relate only to the samples listed in the body of this report.

All reports were examined through Trace's validation process to ensure that requirements for quality and completeness were satisfied. All reported analytical results were obtained in accordance with the methods referenced on the reports. Every practical effort was made to meet the reporting limit specifications for this work, however, some results may have raised reporting limits to correct for percent solids.

For clients that require NELAC Accreditation, Trace certifies that these test results meet all requirements of the NELAC Standard, except for those analytes with a "N" notation. These analytes have not been evaluated by NELAC at Trace's discretion and will not be reported unless requested by client.

If you have questions concerning this report, please contact me at 231.773.5998 or by email at jmink@trace-labs.com.

Sincerely,

Jon Mink
Senior Project Manager

Enclosures

ACCREDITED IN ACCORDANCE WITH nelac
NJDEP Accreditation No. MI008

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www.trace-labs.com

SAMPLE SUMMARY

Trace Project ID: T16E464
Client Project ID: LEC Ecological Evaluation 248642.0000.0000 Phase 2

Trace ID	Sample ID	Matrix	Collected By	Date Collected	Date Received
T16E464-54	SED-RR-TL-RB (0.0-0.5)	Sediment	sp	05/25/16 11:10	05/26/16 10:33
T16E464-55	SED-RR-TL-RMC (0.0-0.5)	Sediment	sp	05/25/16 11:10	05/26/16 10:33
T16E464-56	SED-RR-TL-MC (0.0-0.5)	Sediment	sp	05/25/16 11:10	05/26/16 10:33
T16E464-57	SED-RR-TL-LMC (0.0-0.5)	Sediment	sp	05/25/16 11:10	05/26/16 10:33
T16E464-58	SED-RR-TL-RMC (0.5-1.0)	Sediment	sp	05/25/16 11:10	05/26/16 10:33
T16E464-59	SED-RR-TL-LB (0.0-0.5)	Sediment	sp	05/25/16 11:10	05/26/16 10:33
T16E464-60	SED-RR-TK-RB (0.0-0.5)	Sediment	sp	05/25/16 15:00	05/26/16 10:33
T16E464-61	SED-RR-TK-RMC (0.0-0.5)	Sediment	sp	05/25/16 15:15	05/26/16 10:33
T16E464-62	SED-RR-TK-MC (0.0-0.5)	Sediment	sp	05/25/16 15:25	05/26/16 10:33
T16E464-63	SED-RR-TK-LMC (0.0-0.5)	Sediment	sp	05/25/16 15:35	05/26/16 10:33
T16E464-64	SED-RR-TK-LMC (0.5-1.0)	Sediment	sp	05/25/16 15:40	05/26/16 10:33
T16E464-65	SED-RR-TK-LB (0.5-1.0)	Sediment	sp	05/25/16 15:50	05/26/16 10:33
T16E464-66	SED-RR-TK-LB (DUP)	Sediment	sp	05/25/16 15:50	05/26/16 10:33
T16E464-67	SED-RR-TJ-LB	Sediment	sp	05/25/16 16:35	05/26/16 10:33
T16E464-68	SED-RR-TJ-RB	Sediment	sp	05/25/16 16:50	05/26/16 10:33
T16E464-69	SED-RR-TJ-RMC	Sediment	sp	05/25/16 17:10	05/26/16 10:33
T16E464-70	SED-RR-TJ-MC	Sediment	sp	05/25/16 17:20	05/26/16 10:33
T16E464-71	SED-RR-TJ-LMC	Sediment	sp	05/25/16 17:30	05/26/16 10:33

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AN EXPLANATION OF TERMS AND SYMBOLS WHICH MAY OCCUR IN THIS REPORT

DEFINITIONS

LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
DUP	Matrix Duplicate
RDL	Reporting Detection Limit
MCL	Maximum Contamination Limit
TIC	Tentatively Identified Compound
<, ND or U	Indicates the compound was analyzed for but not detected
*	Indicates a result that exceeds its associated MCL or Surrogate control limits
N	Indicates that the compound has not been evaluated by NELAC
NA	Indicates that the compound is not available.

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CHAIN-OF-CUSTODY RECORD

Page 1 of 5

TRACE ID NO. T16E464

TRACE USE ONLY

Logged By: AY Checked By: [illegible]

Received on ice: (Yes) No Preservative Checked: Yes No (N/A)

Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Report Results To:

Company Name: TRC ENVIRONMENTAL CORP.

Report to: SCOTT PAWLUKIEWICZ

Mailing Address: 2025 E. BELTLINE AVE SE STE. 402

City, State, Zip Code: GRAND RAPIDS, MI 49546

Phone: ~~801 638 5~~ 616 915 3604 Fax 616 975 1098

Email Address: SPawlukiewicz@trcsolutions.com

Cell #: 616 915 3604 Sampled by: SP

Project Name & #: LEC ECOLOGICAL EVALUATION, 248642.0000.0000 PHASE 2

Bill To:

Billing Address (if different)

City, State, Zip Code WINDSOR, CT

Attn: AP INVOICE Phone: PO #:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐

Turnaround Requirements: Standard ☒ 3 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ * Requires Prior Approval

Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, Ol = Oil, WI = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

Request for Analytical Services

ANALYSIS REQUESTED

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	PRESERVATION: COOL	HCL	HNO3	H2SO4	NaOH	Other	DEHP	DEHP (DISSOLVED)	BTEX								REMARKS	Possible Sample Hazards
1/2	5/24/16	1035	SW-EDD-B3		W	6		x					2	2	2								LAB FILTER	
3/4	5/24/16	1055	SW-EDD-B4		W	6		x					2	2	2								DISS. DEHP	
5/6	5/24/16	1140	SW-EDD-B2		W	6		x					2	2	2								SAMPLES	
7/8	5/24/16	1400	PW-R-09		W	4							2	2										
9/10	5/24/16	1630	PW-R-10		W	4							2	2										
11/12	5/24/16	1730	PW-R-04		W	4							2	2										
13/14	5/25/16	0948	PW-R-01		W	4							2	2										
15	5/25/16	—	TRIP BLANK		W	1									1									

Please Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
1) [illegible]	FEDEX	5/26/16	8:30	2) Fed Ex	[illegible]	5/26/16	10:33	3)			
4)				5)				6)			

In executing this Chain of Custody, the client acknowledges acceptance of the terms and conditions of the agreement as set forth at http://www.trace-labs.com/cocterms.php

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Page 2 of 5

TRACE ID NO. T16E464

TRACE USE ONLY

Logged By: AM Checked By: GH

Received on ice: Yes No Preservative Checked: Yes No N/A

Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Regulatory Requirements		Turnaround Requirements		Matrix Key	
MERA TMDL's	☐	Standard	☒	S = Soil/Solid	WI = Wipes
Drinking Water	☐	3 Day* ☐ 4 Day*	☐	W = Water	LW = Liquid Waste
NPDES	☐	48 Hour* ☐ 24 Hour*	☐	SL = Sludge	A = Air
Special	☐	* Requires Prior Approval		OI = Oil	D = Drinking Water

Report Results To:

Company Name: TRC Environmental Corp.
Report to: Scott Pawlikiewicz
Mailing Address: 2025 E. Beltline Ave SE Ste. 402
City, State, Zip Code: Grand Rapids MI 49546
Phone: 616 915 7604 Fax: 616 975 1098
Email Address: SPawlikiewicz@trcsolutions.com
Cell #: 616 915 7604 Sampled by: SP
Project Name & #: LEC Ecological Evaluation, 248642.0000.0000, phase 2

Bill To:

Billing Address (if different)
City, State, Zip Code Windsor CT
Attn: Phone: PO #:

Request for Analytical Services

ANALYSIS REQUESTED

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	PRESERVATION: COOL	HCL	HNO3	H_2SO_4	NaOH	Other	DEHP	DEHP (Dissolved)	BTEX		DEHP	Grain Size					REMARKS	Possible Hazardous
16/17	5/25/16	1005	SW-RR-TM-RB		W	4							2	2									LAB FILTER	
18/19	5/25/16	1005	SW-RR-TM-MC		W	4							2	2									DISSOLVED DEHP	
20/21	5/25/16	1005	SW-RR-TM-LB		W	4							2	2										
22/23	5/25/16	1110	SP ~~SW-RR-TM~~ SW-RR-TL-LB		W	4							2	2										
24/25	5/25/16	1110	SW-RR-TL-LMC		W	4							2	2										
26/27	5/25/16	1110	SW-RR-TL-MC		W	4							2	2										
28/29	5/25/16	1110	SW-RR-TL-RMC		W	4							2	2										
30/31	5/25/16	1110	SW-RR-TL-RB		W	4							2	2										
32/33	5/25/16	1450	SW-RR-TK-RB		W	3							2	1										
34/35	5/25/16	1450	SW-RR-TK-RB (DUP)		W	3							2	1										

Please Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
1) S Pawlikiewicz	FedEx	5/25/16	1930	2) FedEx	[illegible]	5/26/16	10:33	3)			
4)				5)				6)			

In executing this Chain of Custody, the client acknowledges acceptance of the terms and conditions of the agreement as set forth at http://www.trace-labs.com/cocterms.php

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CHAIN-OF-CUSTODY RECORD

Page 3 of 5

TRACE ID NO. T16E464

TRACE USE ONLY

Logged By: LM Checked By: CH

Received on ice: Yes No Preservative Checked: Yes No N/A

Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐

Turnaround Requirements: Standard ☒ 3 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ * Requires Prior Approval

Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, Oil = Oil, WI = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

Report Results To:

Company Name: TRC Environmental Corp.
Report to: Scott Pawlukiewicz
Mailing Address: 2025 E. Beltline Ave. SE. Ste. 402
City, State, Zip Code: Grand Rapids, MI 49546
Phone: 616 915 3604 Fax: 616 975 1098
Email Address: spawlukiewicz@trcsolutions.com
Cell #: 616 915 3604 Sampled by: SD
Project Name & #: LEE Ecological Evaluation, 248642.0000.0002, phase 2

Bill To:

Billing Address (if different)
City, State, Zip Code Windsor, CT
Attn: Phone: PO #:

Request for Analytical Services

ANALYSIS REQUESTED

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	COOL	HCL	HNO3	H2SO4	NaOH	ZnAc	DEHP	Dissolved DEHP									REMARKS	Possible Hazardous Materials
36/37	5/25/16	1510	SW-RR-TK-RMC		W	3							2	1									LAB FILTER	
38/39	5/25/16	1520	SW-RR-TK-MC		W	3							2	1									DIS. DEHP	
40/41	5/25/16	1530	SW-RR-TK-LMC		W	3							2	1									Samples	
42/43	5/25/16	1545	SW-RR-TK-LB		W	3							2	1										
44/45	5/25/16	1630	SW-RR-TJ-LB		W	3							2	1										
46/47	5/25/16	1645	SW-RR-TJ-RB		W	3							2	1										
48/49	5/25/16	1705	SW-RR-TJ-RMC		W	3							2	1										
50/51	5/26/16	1715	SW-RR-TJ-MC		W	3							2	1										
52/53	5/26/16	1725	SW-RR-TJ-LMC		W	3							2	1										

Please Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
1) S. Pawl	FedEx	5/27/16	1830	2) FedEx	[illegible]	5/26/16	10:33	3)			
4)				5)				6)			

In executing this Chain of Custody, the client acknowledges acceptance of the terms and conditions of the agreement as set forth at http://www.trace-labs.com/cocterms.php

TRACE the science of compliance
phone 231.773.5998 toll-free 800.733.5998 fax 231.773.6537
Trace Analytical Laboratories, Inc. 2241 Black Creek Road Muskegon, MI 49444-2673 info@trace-labs.com www.trace-labs.com

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Muskegon, MI 49444-2673
www.trace-labs.com

Page 4 of 5

TRACE ID NO. T16E464

TRACE USE ONLY

Logged By: dM Checked By: GH

Received on ice: Yes No Preservative Checked: Yes No N/A

Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Report Results To:

Company Name: TRC Environmental Corp.

Report to: Scott Pawlukiewicz

Mailing Address: 2025 E. Beltline Ave. SE Ste 402

City, State, Zip Code: Grand Rapids MI 49546

Phone: 616 915 3604 Fax: 616 975 1078

Email Address: spawlukiewicz@trcsolutions.com

Cell #: 616 915 3604 Sampled by: SP

Project Name & #: LEE Ecological Evaluation, 248642.0000.0000, phase 2

Bill To:

Billing Address (if different)

City, State, Zip Code Windsor, CT

Attn: Phone: PO #:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐

Turnaround Requirements: Standard ☒ 3 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ * Requires Prior Approval

Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, Oil = Oil, Wi = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

ANALYSIS REQUESTED

Request for Analytical Services

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	COOL	HCL	HNO3	H_2SO_4	NaOH	Other	DEHP	Grain Size	REMARKS	Possibly Hazardous
54	5/25/16	1110	SED-RR-TL-RB (0.0-0.5)		S	2							1	1		
55	5/25/16	1110	SED-RR-TL-RMC (0.0-0.5)		S	2							1	1		
56	5/25/16	1110	SED-RR-TL-MC (0.0-0.5)		S	2							1	1		
57	5/25/16	1110	SED-RR-TL-LMC (0.0-0.5)		S	2							1	1		
58	5/25/16	1110	SED-RR-TL-~~BMC~~ 5-26-16 (0.5-1.0)		S	2							1	1		
59	5/25/16	1110	SED-RR-TL-LB (0.0-0.5)		S	2							1	1		
60	5/25/16	1500	SED-RR-TK-RB (0.0-0.5)		S	2							1	1		
61	5/25/16	1515	SED-RR-TK-RMC (0.0-0.5)		S	2							1	1		
62	5/25/16	1525	SED-RR-TK-MC (0.0-0.5)		S	2							1	1		
63	5/25/16	1535	SED-RR-TK-LMC (0.0-0.5)		S	2							1	1		

Please Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
1) B. Pairing	FedEx	5/25/16	1930	2) FedEx	[illegible]	5/26/16	10:33	3)			
4)				5)				6)			

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Page 5 of 5

TRACE ID NO. T16E464

TRACE USE ONLY

Logged By: dM Checked By: GA

Received on ice: (Yes) No Preservative Checked: Yes No (N/A)

Soil Volatiles Preserved: MeOH Low Level Lab Sampling Time:

Report Results To:

Company Name: TRC ENVIRONMENTAL CORP

Report to: SCOTT PAWLUKIEWICZ

Mailing Address: 2025 E. BELTLINE AVE. SE. STE 402

City, State, Zip Code: GRAND RAPIDS, MI 49546

Phone: 616 915 3604 Fax: 616 975-1078

Email Address: spawlukiewicz@trcsolutions.com

Cell #: 616 915 3604 Sampled by: SP

Project Name & #: LEC Ecological Evaluation, 248642.0000.0000, phase 2

Bill To:

Billing Address (if different)

City, State, Zip Code WINDSOR, CT

Attn: Phone: PO #:

Regulatory Requirements: MERA TMDL's ☐ Drinking Water ☐ NPDES ☐ Special ☐

Turnaround Requirements: Standard ☑ 3 Day* ☐ 4 Day* ☐ 48 Hour* ☐ 24 Hour* ☐ *Requires Prior Approval

Matrix Key: S = Soil/Solid, W = Water, SL = Sludge, Oi = Oil, WI = Wipes, LW = Liquid Waste, A = Air, D = Drinking Water

Request for Analytical Services

ANALYSIS REQUESTED

TRACE NO.	DATE TAKEN	TIME TAKEN	CLIENT SAMPLE ID	METALS FIELD FILTERED	MATRIX	NUMBER OF CONTAINERS	COOL	HCL	HNO3	H2SO4	NaOH	Other	DEHP	GRAIN SIZE									REMARKS	Sample Matrix (Solids)
64	5/25/16	1540	SED-RR-TK-LMC (0.5-1.0)		S	2							1	1										
65	5/25/16	1550	SED-RR-TK-LB (0.5-1.0)		S	2							1	1										
66	5/25/16	1550	SED-RR-TK-LB (DUP)		S	2							1	1										
67	5/25/16	1635	SED-RR-TJ-LB		S	4							2	2									MS/MSD	
68	5/25/16	1650	SED-RR-TJ-RB		S	2							1	1										
69	5/25/16	1710	SED-RR-TJ-RMC		S	2							1	1										
70	5/25/16	1720	SED-RR-TJ-MC		S	2							1	1										
71	5/25/16	1730	SED-RR-TJ-LMC		S	2							1	1										
SP	~~5/25/16~~																							

Please Sign

RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME	RELEASED BY	RECEIVED BY	DATE	TIME
1) B. Pauley	FEDEX	5/26/16	1930	2) Fed Ex	[illegible]	5/26/16	10:33	3)			
4)				5)				6)			

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GRAIN SIZE DISTRIBUTION TEST DATA

6/10/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E464
Depth: 54 **Sample Number:** SED-RR-TL-RB 0.0-0.5
Material Description: Appears to be mostly sand with a few smaller rocks.
Moisture Content Received=31.8%
Date: 5/31/2016
Testing Remarks: Test Methods Used: ASTM D-421, D-422 and D-2216
Tested by: ef **Checked by:** gmr

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
126.21	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	144.23	141.32	98
		2.00 mm	157.46	141.32	85
		0.850 mm	152.88	141.32	76
		0.425 mm	168.86	141.32	54
		0.180 mm	186.78	141.32	18
		0.150 mm	145.34	141.32	15
		0.075 mm	146.85	141.32	10
		0.053 mm	142.44	141.32	9.5

Hydrometer Test Data

Hydrometer test uses material passing #4
Percent passing #4 based upon complete sample = 98
Weight of hydrometer sample =126.21
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.3	1.0130	1.0080	0.0136	12.0	13.1	0.0348	10.0
5.00	20.7	1.0120	1.0071	0.0135	11.0	13.4	0.0221	8.8
15.00	21.3	1.0120	1.0071	0.0134	11.0	13.4	0.0127	8.9
30.00	21.5	1.0120	1.0072	0.0134	11.0	13.4	0.0089	8.9
60.00	21.1	1.0100	1.0051	0.0135	9.0	13.9	0.0065	6.4
250.00	19.8	1.0100	1.0049	0.0137	9.0	13.9	0.0032	6.2
1440.00	19.8	1.0090	1.0039	0.0137	8.0	14.2	0.0014	4.9

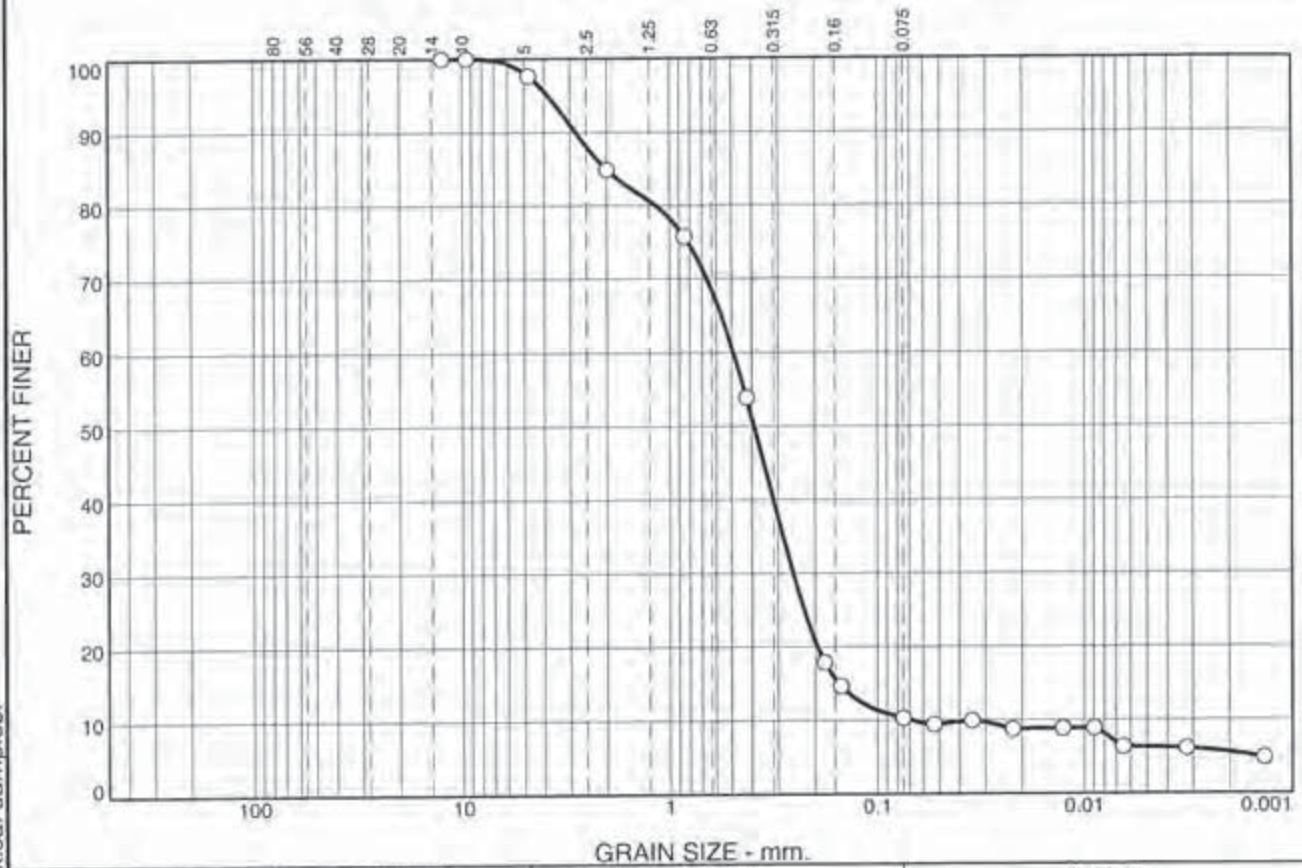
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	2	2	13	31	44	88	4	6	10

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0680	0.1531	0.1948	0.2546	0.3896	0.4922	1.1645	2.0156	2.8147	3.8343

Fineness Modulus	C_u	C_c
2.16	7.24	1.94

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	13	31	44	4	6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	98		
2.00 mm	85		
0.850 mm	76		
0.425 mm	54		
0.180 mm	18		
0.150 mm	15		
0.075 mm	10		
0.053 mm	9.5		
0.0348 mm.	10.0		
0.0221 mm.	8.8		
0.0127 mm.	8.9		
0.0089 mm.	8.9		
0.0065 mm.	6.4		
0.0032 mm.	6.2		
0.0014 mm.	4.9		

* (no specification provided)

Soil Description

Appears to be mostly sand with a few smaller rocks.
Moisture Content Received=31.8%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 2.8147 D_{85}= 2.0156 D_{60}= 0.4922
D_{50}= 0.3896 D_{30}= 0.2546 D_{15}= 0.1531
D_{10}= 0.0680 C_u= 7.24 C_c= 1.94

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421. D-422 and D-2216

Source of Sample: T16E464 **Depth:** 54
Sample Number: SED-RR-TL-RB 0.0-0.5

Date: 5/31/2016

TRACE

Client: TRC Environmental Corps
Project: Lee Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

GRAIN SIZE DISTRIBUTION TEST DATA

6/10/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation.
Project Number: 267642.0000.0000, phase Z
Location: T16E464
Depth: 55 **Sample Number:** SED-RR-TL-RMC 0-.5
Material Description: Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 60.4%
Date: 6/9/16
Testing Remarks: Test Methods Used: ASTM D-421, D-422 amd D-2216
Tested by: ef **Checked by:** gmr

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
115.04	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	143.54	141.32	98
		2.00 mm	150.70	141.32	90
		0.850 mm	153.07	141.32	80
		0.425 mm	167.41	141.32	57
		0.180 mm	181.43	141.32	22
		0.150 mm	145.98	141.32	18
		0.075 mm	144.73	141.32	15
		0.053 mm	142.60	141.32	14

Hydrometer Test Data

Hydrometer test uses material passing #4
Percent passing #4 based upon complete sample = 98
Weight of hydrometer sample =115.04
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -7
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.6	1.0130	1.0061	0.0135	12.0	13.1	0.0347	8.3
5.00	20.0	1.0120	1.0050	0.0136	11.0	13.4	0.0223	6.8
15.00	21.0	1.0110	1.0041	0.0135	10.0	13.6	0.0129	5.6
30.00	21.3	1.0110	1.0041	0.0134	10.0	13.6	0.0091	5.7
60.00	21.4	1.0100	1.0032	0.0134	9.0	13.9	0.0065	4.3
250.00	19.9	1.0090	1.0020	0.0137	8.0	14.2	0.0033	2.7
1440.00	19.6	1.0090	1.0019	0.0137	8.0	14.2	0.0014	2.6

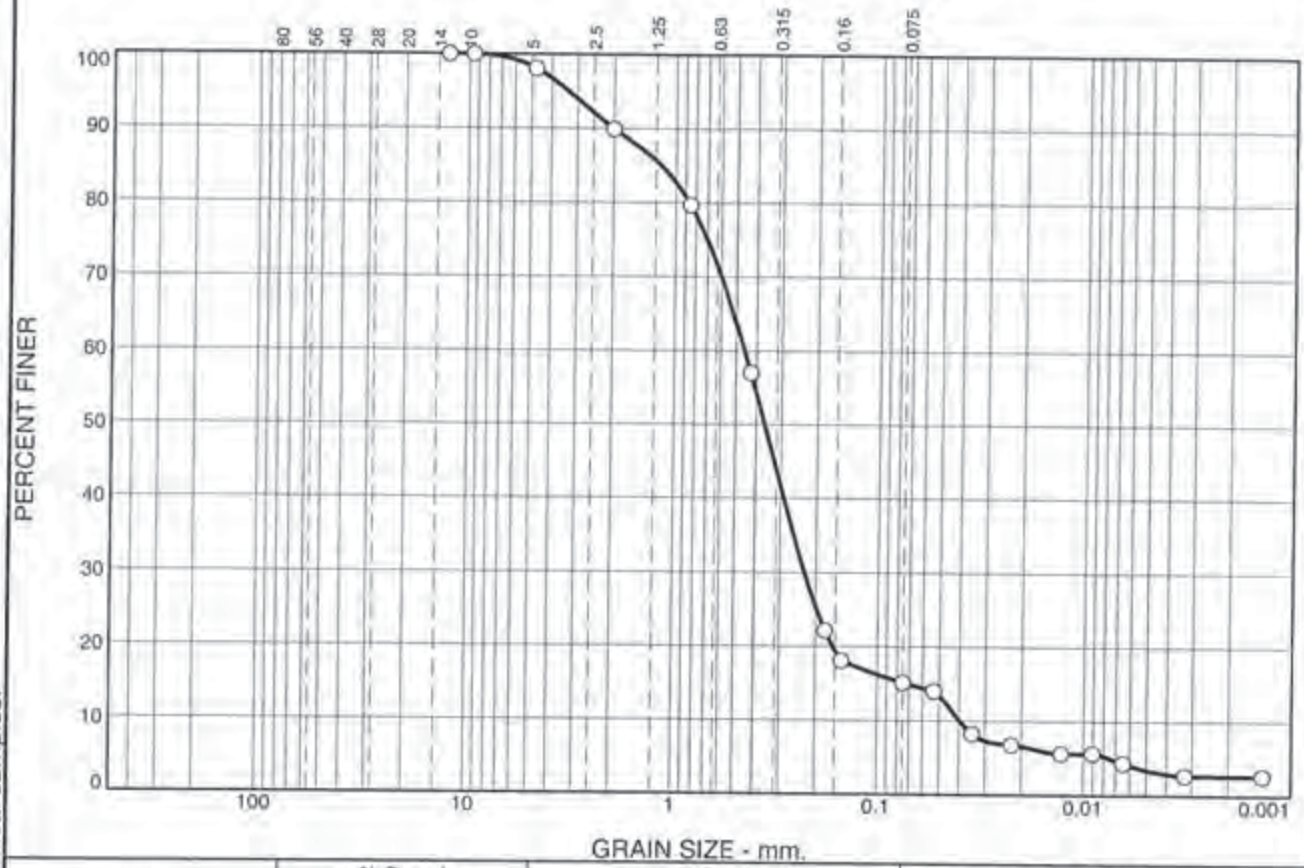
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	2	2	8	33	42	83	12	3	15

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0397	0.0720	0.1651	0.2278	0.3619	0.4566	0.8620	1.1773	2.0185	3.3141

Fineness Modulus	C_u	C_c
1.96	11.51	2.86

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	8	33	42	12	3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	98		
2.00 mm	90		
0.850 mm	80		
0.425 mm	57		
0.180 mm	22		
0.150 mm	18		
0.075 mm	15		
0.053 mm	14		
0.0347 mm.	8.3		
0.0223 mm.	6.8		
0.0129 mm.	5.6		
0.0091 mm.	5.7		
0.0065 mm.	4.3		
0.0033 mm.	2.7		
0.0014 mm.	2.6		

* (no specification provided)

Soil Description

Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 60.4%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 2.0185 D_{85}= 1.1773 D_{60}= 0.4566
D_{50}= 0.3619 D_{30}= 0.2278 D_{15}= 0.0720
D_{10}= 0.0397 C_u= 11.51 C_c= 2.86

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422 amd D-2216

Source of Sample: T16E464 **Depth:** 55
Sample Number: SED-RR-TL-RMC 0-.5 **Date:** 6/9/16

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

GRAIN SIZE DISTRIBUTION TEST DATA

6/10/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E464
Depth: 56 **Sample Number:** SED-RR-TL-MC 0-.5
Material Description: Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 22.7%
Date: 6/8/2016
Testing Remarks: Test Methods Used: ASTM D-421, D-422 and D-2216
Tested by: ef **Checked by:** gmr

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
152.24	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	142.33	141.35	99
		2.00 mm	147.70	141.35	95
		0.850 mm	151.64	141.35	88
		0.425 mm	168.91	141.35	70
		0.180 mm	219.36	141.35	19
		0.150 mm	148.15	141.35	15
		0.075 mm	149.11	141.35	9.5
		0.053 mm	142.78	141.35	8.6

Hydrometer Test Data

Hydrometer test uses material passing #4
Percent passing #4 based upon complete sample = 99
Weight of hydrometer sample =152.24
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -7
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.0	1.0150	1.0080	0.0136	14.0	12.6	0.0342	8.4
5.00	20.1	1.0150	1.0080	0.0136	14.0	12.6	0.0216	8.4
15.00	20.3	1.0130	1.0060	0.0136	12.0	13.1	0.0127	6.3
30.00	20.3	1.0120	1.0050	0.0136	11.0	13.4	0.0091	5.3
60.00	20.2	1.0110	1.0040	0.0136	10.0	13.6	0.0065	4.2
250.00	20.1	1.0100	1.0030	0.0136	9.0	13.9	0.0032	3.1
1440.00	19.6	1.0090	1.0019	0.0137	8.0	14.2	0.0014	2.0

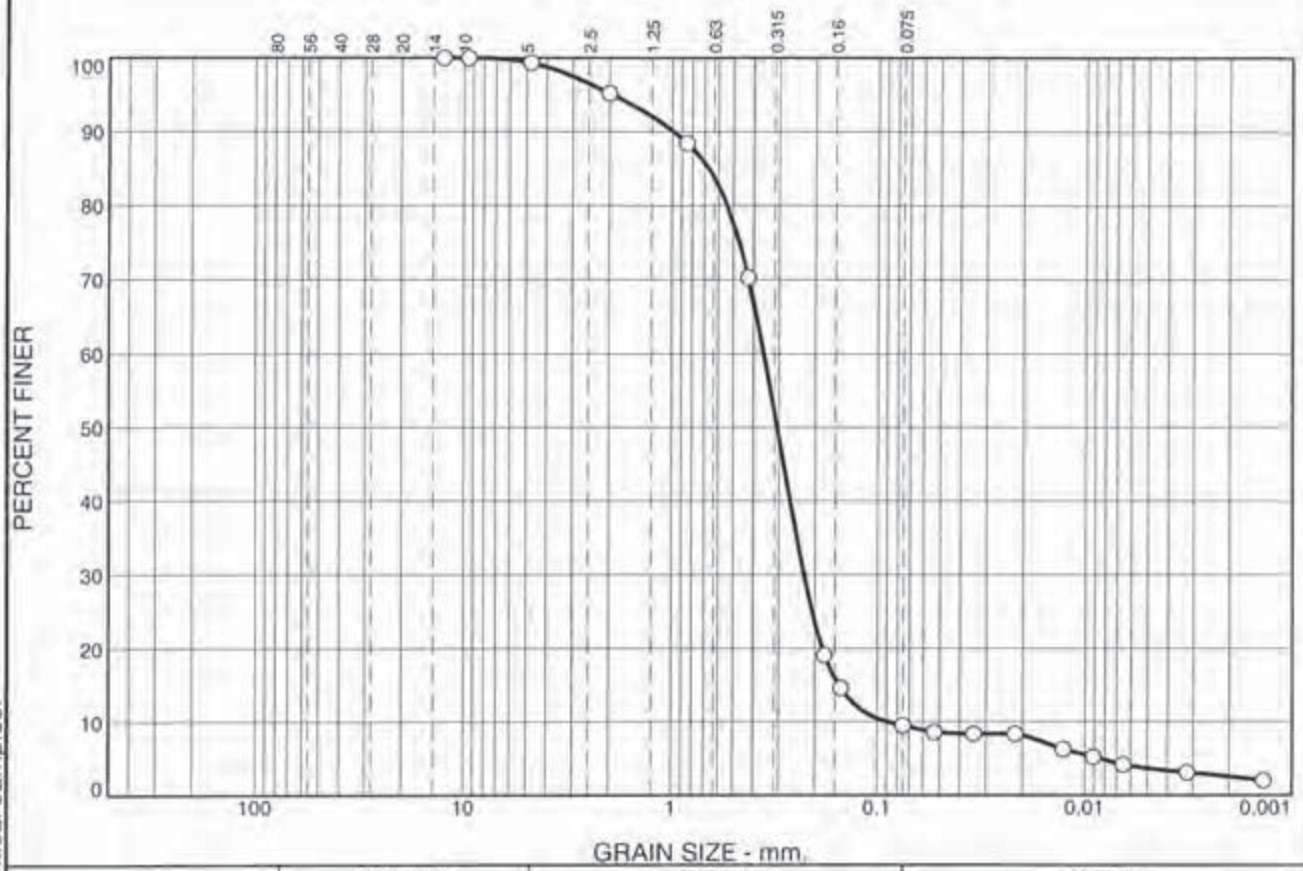
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	1	1	4	25	60	89	6	4	10

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0887	0.1532	0.1846	0.2263	0.3065	0.3559	0.5419	0.6691	0.9847	1.9391

Fineness Modulus	C_u	C_c
1.67	4.01	1.62

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	4	25	60	6	4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	99		
2.00 mm	95		
0.850 mm	88		
0.425 mm	70		
0.180 mm	19		
0.150 mm	15		
0.075 mm	9.5		
0.053 mm	8.6		
0.0342 mm.	8.4		
0.0216 mm.	8.4		
0.0127 mm.	6.3		
0.0091 mm.	5.3		
0.0065 mm.	4.2		
0.0032 mm.	3.1		
0.0014 mm.	2.0		

* (no specification provided)

Soil Description

Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 22.7%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.9847 D_{85}= 0.6691 D_{60}= 0.3559
D_{50}= 0.3065 D_{30}= 0.2263 D_{15}= 0.1532
D_{10}= 0.0887 C_u= 4.01 C_c= 1.62

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422 and D-2216

Source of Sample: T16E464 **Depth:** 56
Sample Number: SED-RR-TL-MC 0-.5 **Date:** 6/8/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

GRAIN SIZE DISTRIBUTION TEST DATA

6/10/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E464
Depth: 57 **Sample Number:** SED-RR-TL-LMC 0-.5
Material Description: Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 25.2%
Date: 6/8/2016
Testing Remarks: Test Methods Used: ASTM D-421, D-422 and D-2216
Tested by: ef **Checked by:** gmr

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
129.01	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	142.83	141.32	99
		2.00 mm	157.26	141.32	86
		0.850 mm	163.71	141.32	69
		0.425 mm	166.13	141.32	50
		0.180 mm	185.46	141.32	16
		0.150 mm	145.25	141.32	13
		0.075 mm	146.31	141.32	8.8
		0.053 mm	142.44	141.32	7.9

Hydrometer Test Data

Hydrometer test uses material passing #4
Percent passing #4 based upon complete sample = 99
Weight of hydrometer sample =129.01
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.0	1.0120	1.0071	0.0135	11.0	13.4	0.0349	8.7
5.00	21.0	1.0110	1.0061	0.0135	10.0	13.6	0.0223	7.5
15.00	21.3	1.0100	1.0051	0.0134	9.0	13.9	0.0129	6.3
30.00	22.0	1.0095	1.0048	0.0133	8.5	14.0	0.0091	5.8
60.00	21.8	1.0075	1.0027	0.0133	6.5	14.6	0.0066	3.3
250.00	20.7	1.0070	1.0021	0.0135	6.0	14.7	0.0033	2.5
1440.00	20.9	1.0070	1.0021	0.0135	6.0	14.7	0.0014	2.6

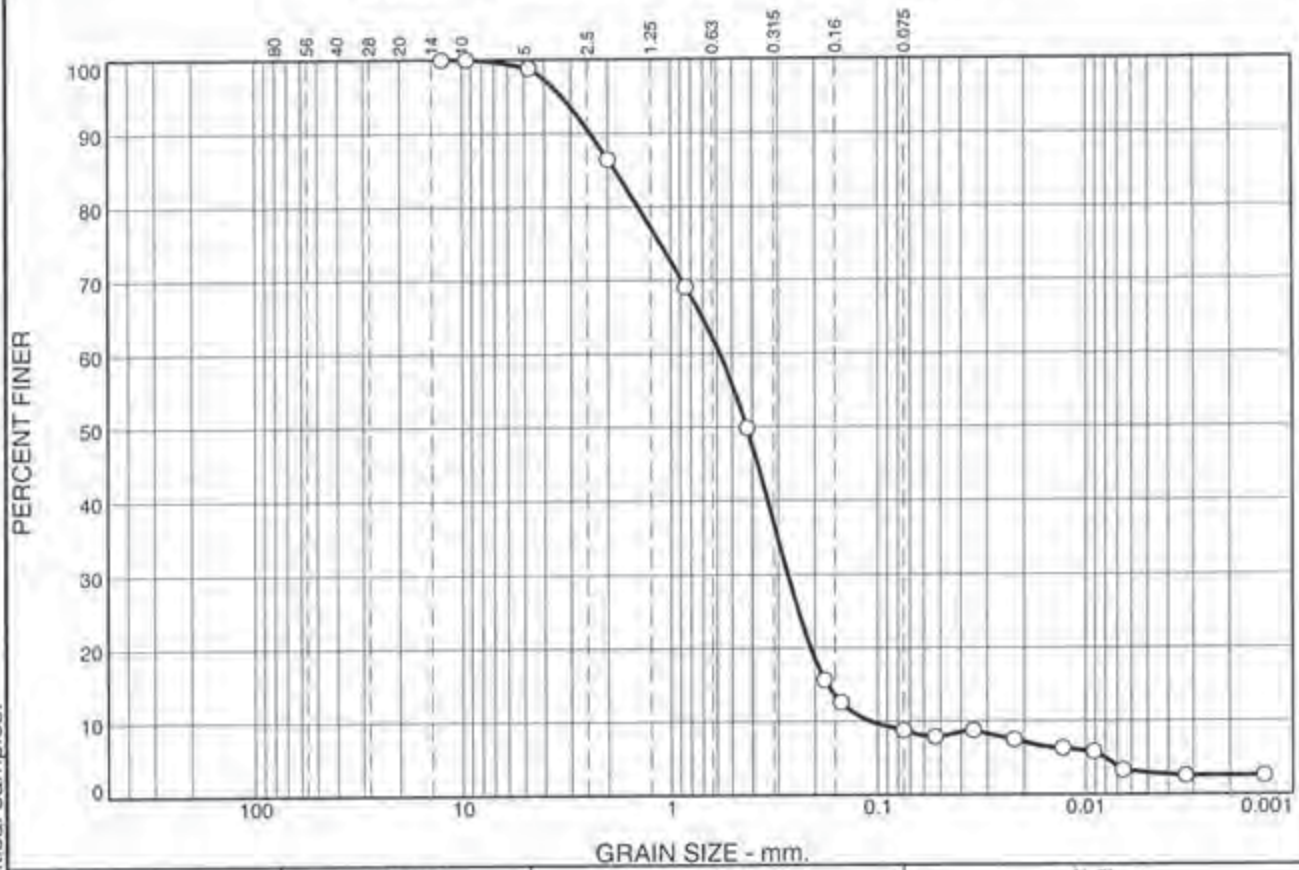
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	1	1	13	36	41	90	6	3	9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1080	0.1744	0.2096	0.2700	0.4262	0.5799	1.4320	1.8501	2.4252	3.3154

Fineness Modulus	C_u	C_c
2.27	5.37	1.16

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	13	36	41	6	3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	99		
2.00 mm	86		
0.850 mm	69		
0.425 mm	50		
0.180 mm	16		
0.150 mm	13		
0.075 mm	8.8		
0.053 mm	7.9		
0.0349 mm	8.7		
0.0223 mm	7.5		
0.0129 mm	6.3		
0.0091 mm	5.8		
0.0066 mm	3.3		
0.0033 mm	2.5		
0.0014 mm	2.6		

* (no specification provided)

Soil Description

Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 25.2%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 2.4252 D_{85}= 1.8501 D_{60}= 0.5799
D_{50}= 0.4262 D_{30}= 0.2700 D_{15}= 0.1744
D_{10}= 0.1080 C_u= 5.37 C_c= 1.16

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422 and D-2216

Source of Sample: T16E464 **Depth:** 57
Sample Number: SED-RR-TL-LMC 0-.5

Date: 6/8/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/11/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E464
Depth: 58 **Sample Number:** SED-RR-TL-RNM 0.5-1.
Material Description: Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 38.2%
Date: 6/09/2016
Testing Remarks: Test Methods Used: ASTM D-421, D-422 and D-2216
Tested by: ef **Checked by:** gmr

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
115.21	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	141.95	141.32	99
		2.00 mm	148.49	141.32	93
		0.850 mm	150.90	141.32	85
		0.425 mm	160.02	141.32	69
		0.180 mm	189.44	141.32	27
		0.150 mm	147.51	141.32	22
		0.075 mm	149.39	141.32	15
		0.053 mm	142.82	141.32	13

Hydrometer Test Data

Hydrometer test uses material passing #4
Percent passing #4 based upon complete sample = 99
Weight of hydrometer sample =115.12
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	21.1	1.0170	1.0121	0.0135	16.0	12.1	0.0331	16.8
5.00	21.2	1.0140	1.0091	0.0134	13.0	12.9	0.0216	12.7
15.00	21.5	1.0130	1.0082	0.0134	12.0	13.1	0.0125	11.3
30.00	22.0	1.0120	1.0073	0.0133	11.0	13.4	0.0089	10.1
60.00	21.9	1.0120	1.0072	0.0133	11.0	13.4	0.0063	10.0
250.00	20.7	1.0110	1.0061	0.0135	10.0	13.6	0.0032	8.4
1440.00	20.6	1.0095	1.0046	0.0135	8.5	14.0	0.0013	6.3

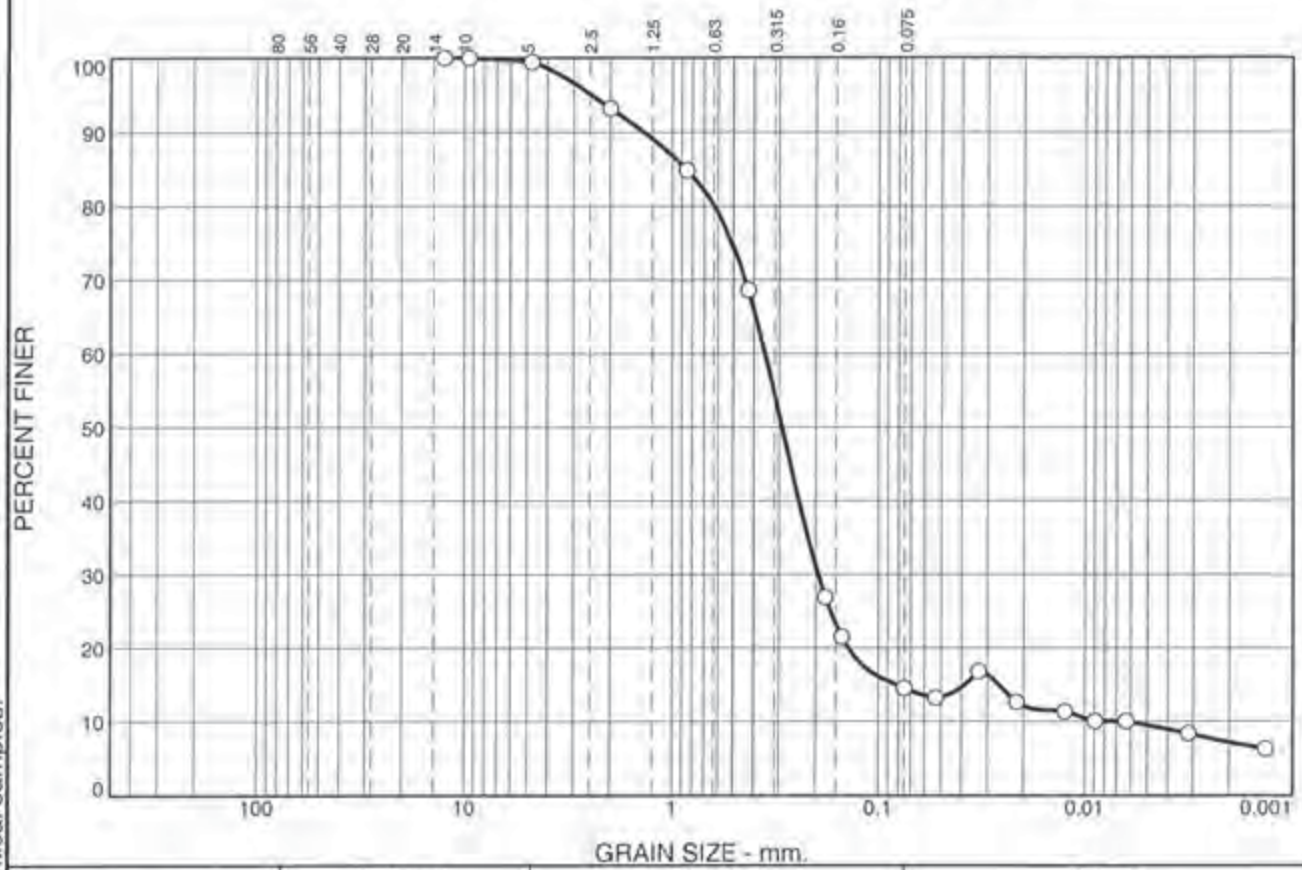
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	1	1	6	24	54	84	5	10	15

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0062	0.0814	0.1394	0.1948	0.2906	0.3516	0.6248	0.8557	1.3728	2.4548

Fineness Modulus	C_u	C_c
1.65	56.84	17.45

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	6	24	54	5	10

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	99		
2.00 mm	93		
0.850 mm	85		
0.425 mm	69		
0.180 mm	27		
0.150 mm	22		
0.075 mm	15		
0.053 mm	13		
0.0331 mm.	17		
0.0216 mm.	13		
0.0125 mm.	11		
0.0089 mm.	10		
0.0063 mm.	10		
0.0032 mm.	8.4		
0.0013 mm.	6.3		

* (no specification provided)

Soil Description

Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 38.2%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 1.3728 D_{85}= 0.8557 D_{60}= 0.3516
D_{50}= 0.2906 D_{30}= 0.1948 D_{15}= 0.0814
D_{10}= 0.0062 C_u= 56.84 C_c= 17.45

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422 and D-2216

Source of Sample: T16E464 **Depth:** 58
Sample Number: SED-RR-TL-RNM 0.5-1.

Date: 6/09/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/10/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E464
Depth: 59 **Sample Number:** SED-RR-TL-LB 0.0-0.5
Material Description: Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 22.8%
Date: 6/9/2016
Testing Remarks: Test Methods Used: ASTM D-421, D-422 and D-2216
Tested by: ef **Checked by:** gmr

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
138.86	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	142.23	141.32	99
		2.00 mm	147.22	141.32	95
		0.850 mm	151.69	141.32	88
		0.425 mm	177.63	141.32	61
		0.180 mm	200.36	141.32	19
		0.150 mm	146.29	141.32	15
		0.075 mm	148.41	141.32	10
		0.053 mm	142.84	141.32	9.2

Hydrometer Test Data

Hydrometer test uses material passing #4
Percent passing #4 based upon complete sample = 99
Weight of hydrometer sample =138.86
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.7	1.0160	1.0111	0.0135	15.0	12.3	0.0336	12.7
5.00	20.7	1.0140	1.0091	0.0135	13.0	12.9	0.0217	10.4
15.00	21.0	1.0130	1.0081	0.0135	12.0	13.1	0.0126	9.3
30.00	21.0	1.0100	1.0051	0.0135	9.0	13.9	0.0092	5.9
60.00	21.0	1.0090	1.0041	0.0135	8.0	14.2	0.0066	4.7
250.00	20.6	1.0090	1.0041	0.0135	8.0	14.2	0.0032	4.7
1440.00	20.4	1.0070	1.0020	0.0136	6.0	14.7	0.0014	2.3

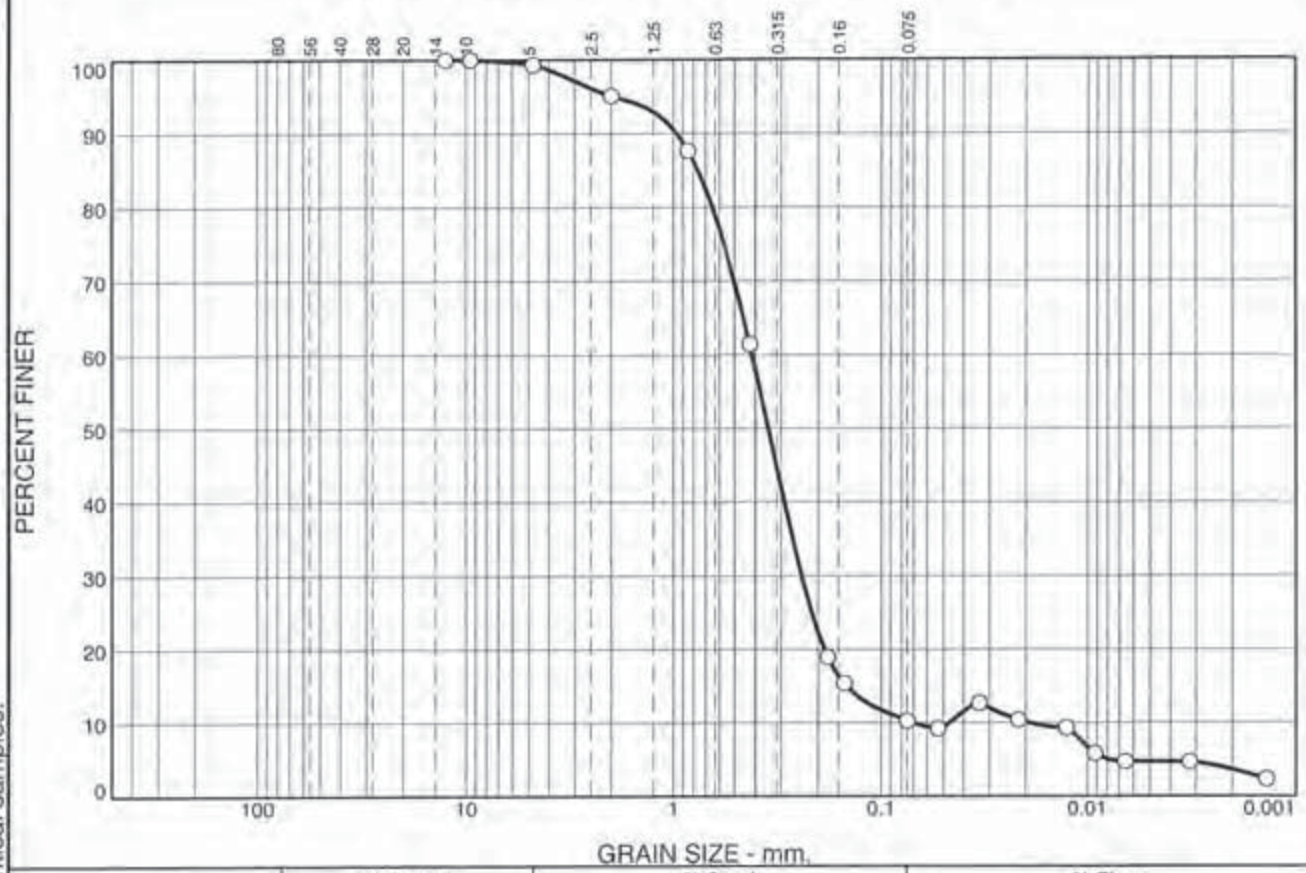
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	1	1	4	34	51	89	5	5	10

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0192	0.1459	0.1867	0.2395	0.3454	0.4133	0.6489	0.7631	0.9645	1.9514

Fineness Modulus	C_u	C_c
1.78	21.53	7.23

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	4	34	51	5	5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	99		
2.00 mm	95		
0.850 mm	88		
0.425 mm	61		
0.180 mm	19		
0.150 mm	15		
0.075 mm	10		
0.053 mm	9.2		
0.0336 mm	13		
0.0217 mm	10		
0.0126 mm	9.3		
0.0092 mm	5.9		
0.0066 mm	4.7		
0.0032 mm	4.7		
0.0014 mm	2.3		

* (no specification provided)

Soil Description

Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 22.8%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.9645 D_{85}= 0.7631 D_{60}= 0.4133
D_{50}= 0.3454 D_{30}= 0.2395 D_{15}= 0.1459
D_{10}= 0.0192 C_u= 21.53 C_c= 7.23

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422 and D-2216

Source of Sample: T16E464 **Depth:** 59
Sample Number: SED-RR-TL-LB 0.0-0.5 **Date:** 6/9/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/13/2016

Client: TRC Environmental Corps
Project: Lee Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E464
Depth: 60 **Sample Number:** SED-RR-TK-RB 0-.5
Material Description: Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 32.6%
Date: 6/09/2016
Testing Remarks: Test Methods Used: ASTM D-421, D-422 and D-2216
Tested by: ef **Checked by:** gmr

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
117.23	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	141.95	141.33	99
		4.75 mm	142.62	141.33	98
		2.00 mm	152.66	141.33	89
		0.850 mm	164.21	141.33	69
		0.425 mm	176.39	141.33	39
		0.180 mm	163.43	141.33	20
		0.150 mm	143.93	141.33	18
		0.075 mm	146.81	141.33	14
		0.053 mm	142.86	141.33	12

Hydrometer Test Data

Hydrometer test uses material passing #4
Percent passing #4 based upon complete sample = 98
Weight of hydrometer sample = 117.23
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.0	1.0150	1.0100	0.0136	14.0	12.6	0.0342	13.4
5.00	20.0	1.0130	1.0080	0.0136	12.0	13.1	0.0221	10.7
15.00	20.2	1.0120	1.0070	0.0136	11.0	13.4	0.0129	9.4
30.00	20.9	1.0110	1.0061	0.0135	10.0	13.6	0.0091	8.2
60.00	10.2	1.0105	1.0037	0.0155	9.5	13.8	0.0074	5.0
250.00	19.0	1.0105	1.0053	0.0138	9.5	13.8	0.0032	7.2
1440.00	19.0	1.0100	1.0048	0.0138	9.0	13.9	0.0014	6.5

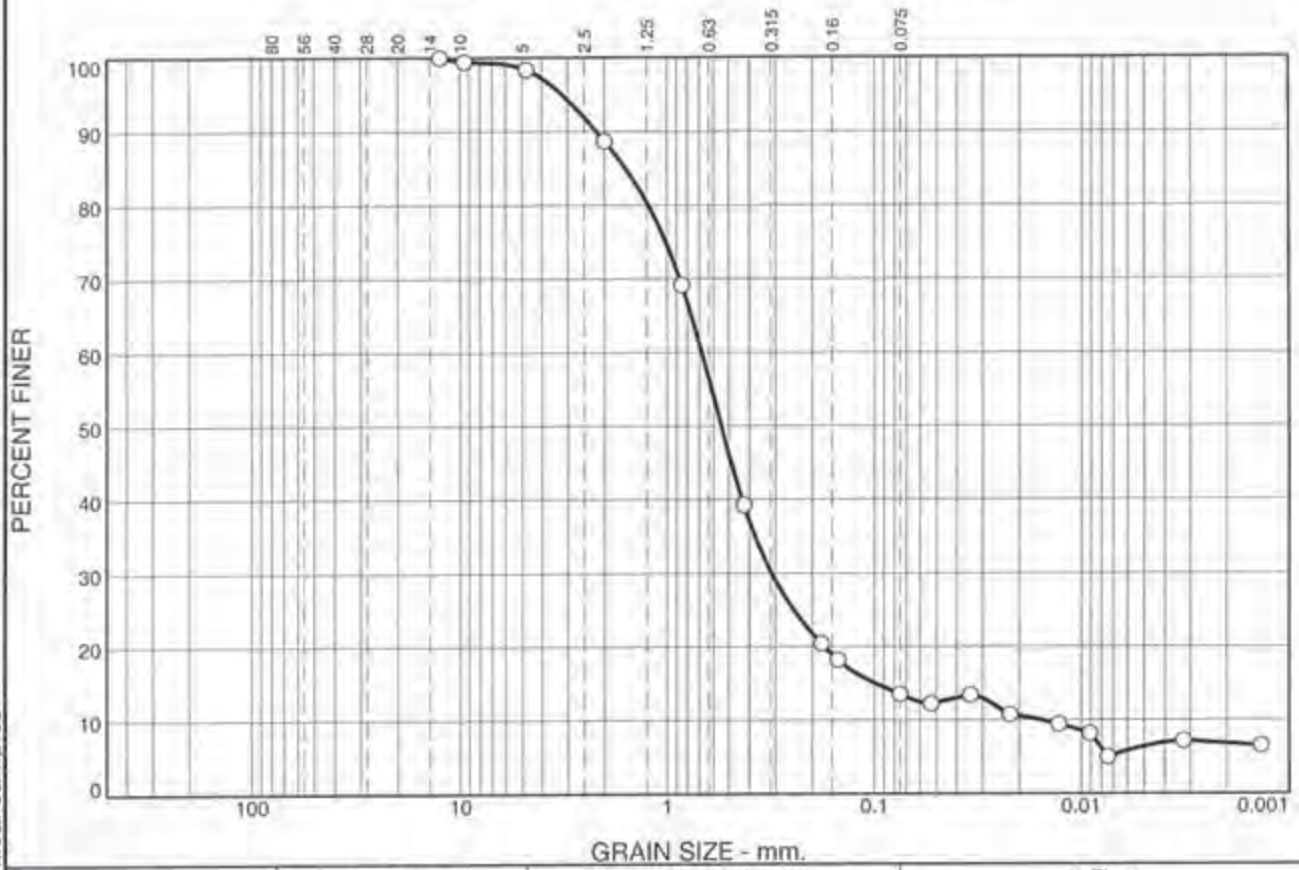
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	2	2	9	50	25	84	8	6	14

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0157	0.0988	0.1741	0.3129	0.5482	0.6822	1.2252	1.5795	2.1843	3.1945

Fineness Modulus	C_u	C_c
2.31	43.50	9.15

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	9	50	25	8	6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	99		
4.75 mm	98		
2.00 mm	89		
0.850 mm	69		
0.425 mm	39		
0.180 mm	20		
0.150 mm	18		
0.075 mm	14		
0.053 mm	12		
0.0342 mm	13		
0.0221 mm	11		
0.0129 mm	9.4		
0.0091 mm	8.2		
0.0074 mm	5.0		
0.0032 mm	7.2		
0.0014 mm	6.5		

* (no specification provided)

Soil Description

Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 32.6%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 2.1843 D_{85}= 1.5795 D_{60}= 0.6822
D_{50}= 0.5482 D_{30}= 0.3129 D_{15}= 0.0988
D_{10}= 0.0157 C_u= 43.50 C_c= 9.15

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422 and D-2216

Source of Sample: T16E464 **Depth:** 60
Sample Number: SED-RR-TK-RB 0-.5

Date: 6/09/2016

TRACE

Client: TRC Environmental Corps
Project: Lee Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/10/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E464
Depth: 61 **Sample Number:** SED-RR-TK-RMC 0-.5
Material Description: Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 23.3%
Date: 6/9/2016
Testing Remarks: Test Methods Used: ASTM D-421, D-422 and D-2216
Tested by: ef **Checked by:** gmr

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
177.54	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	143.41	141.33	99
		2.00 mm	151.29	141.33	93
		0.850 mm	176.10	141.33	74
		0.425 mm	184.56	141.33	49
		0.180 mm	196.72	141.33	18
		0.150 mm	147.20	141.33	15
		0.075 mm	150.47	141.33	9.6
		0.053 mm	143.38	141.33	8.5

Hydrometer Test Data

Hydrometer test uses material passing #4
Percent passing #4 based upon complete sample = 99
Weight of hydrometer sample =177.54
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.2	1.0110	1.0060	0.0136	10.0	13.6	0.0356	5.4
5.00	20.2	1.0090	1.0040	0.0136	8.0	14.2	0.0229	3.6
15.00	20.7	1.0080	1.0031	0.0135	7.0	14.4	0.0133	2.7
30.00	20.8	1.0075	1.0026	0.0135	6.5	14.6	0.0094	2.3
60.00	20.7	1.0070	1.0021	0.0135	6.0	14.7	0.0067	1.8
20.00	19.3	1.0060	1.0009	0.0138	5.0	15.0	0.0119	0.8
1440.00	18.8	1.0055	1.0003	0.0139	4.5	15.1	0.0014	0.3

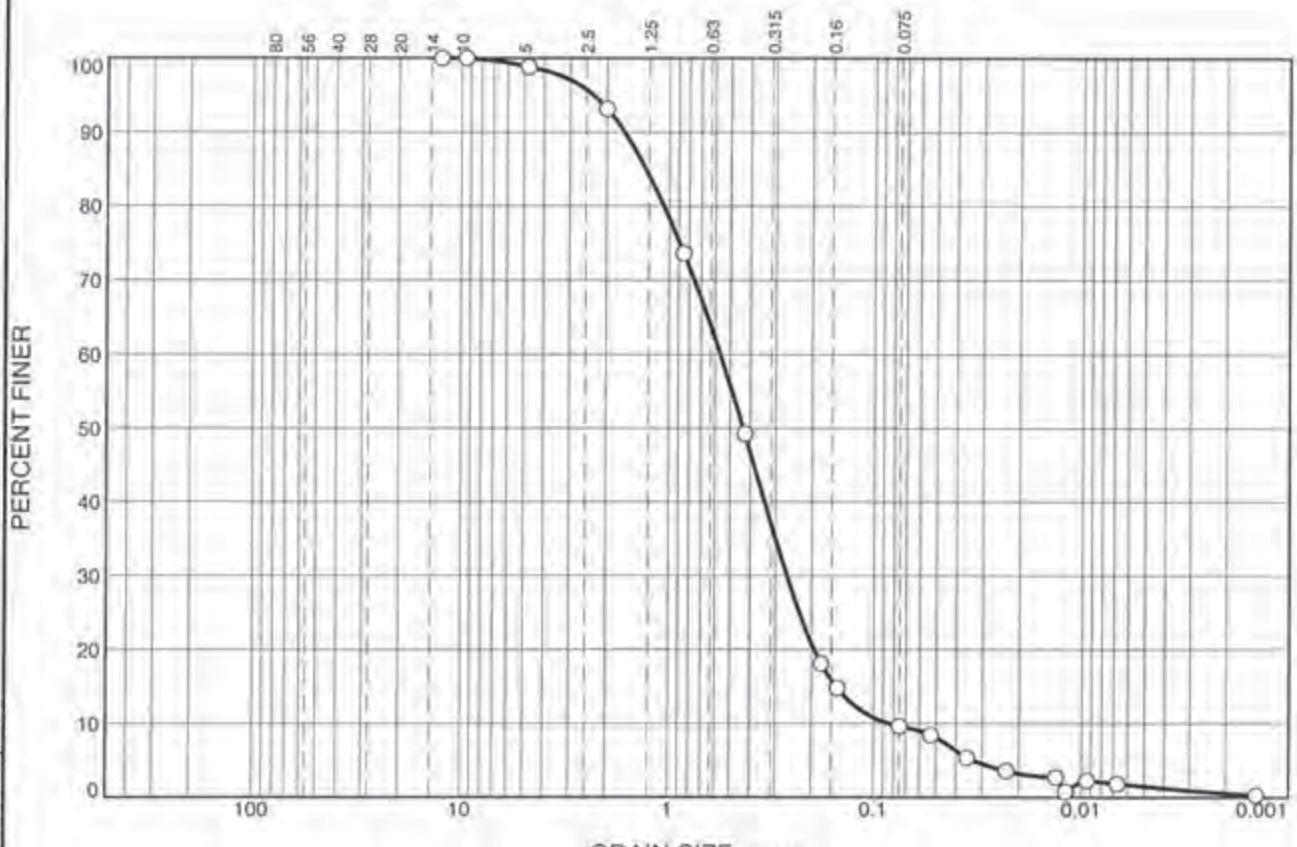
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	1	1	6	44	39	89	9	1	10

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0842	0.1522	0.1946	0.2640	0.4327	0.5633	1.0612	1.2935	1.6403	2.3168

Fineness Modulus	C_u	C_c
2.11	6.69	1.47

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	6	44	39	9	1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	99		
2.00 mm	93		
0.850 mm	74		
0.425 mm	49		
0.180 mm	18		
0.150 mm	15		
0.075 mm	9.6		
0.053 mm	8.5		
0.0356 mm.	5.4		
0.0229 mm.	3.6		
0.0133 mm.	2.7		
0.0119 mm.	0.8		
0.0094 mm.	2.3		
0.0067 mm.	1.8		
0.0014 mm.	0.3		

* (no specification provided)

Soil Description

Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 23.3%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 1.6403 D_{85}= 1.2935 D_{60}= 0.5633
D_{50}= 0.4327 D_{30}= 0.2640 D_{15}= 0.1522
D_{10}= 0.0842 C_u= 6.69 C_c= 1.47

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422 and D-2216

Source of Sample: T16E464 **Depth:** 61
Sample Number: SED-RR-TK-RMC 0-.5 **Date:** 6/9/2016

TRC

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

GRAIN SIZE DISTRIBUTION TEST DATA

6/13/2016

Client: TRC Environmental Corps
Project: Lee Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E464
Depth: 62 **Sample Number:** SED-RR-TK-MC 0-.5
Material Description: Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 32.0%
Date: 6/9/2016
Testing Remarks: Test Methods Used: ASTM D-421, D-422 and D-2216
Tested by: ef **Checked by:** gm

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
140.37	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	142.31	141.33	99
		4.75 mm	145.94	141.33	96
		2.00 mm	152.09	141.33	88
		0.850 mm	155.27	141.33	78
		0.425 mm	179.20	141.33	51
		0.180 mm	189.53	141.33	17
		0.150 mm	146.23	141.33	14
		0.075 mm	147.78	141.33	9.0
		0.053 mm	142.66	141.33	8.1

Hydrometer Test Data

Hydrometer test uses material passing #4
Percent passing #4 based upon complete sample = 96
Weight of hydrometer sample =138.86
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.7	1.0160	1.0111	0.0135	15.0	12.3	0.0336	12.3
5.00	20.7	1.0140	1.0091	0.0135	13.0	12.9	0.0217	10.1
15.00	21.0	1.0130	1.0081	0.0135	12.0	13.1	0.0126	9.0
30.00	21.0	1.0100	1.0051	0.0135	9.0	13.9	0.0092	5.7
60.00	21.0	1.0090	1.0041	0.0135	8.0	14.2	0.0066	4.6
250.00	20.6	1.0090	1.0041	0.0135	8.0	14.2	0.0032	4.5
1440.00	20.4	1.0070	1.0020	0.0136	6.0	14.7	0.0014	2.3

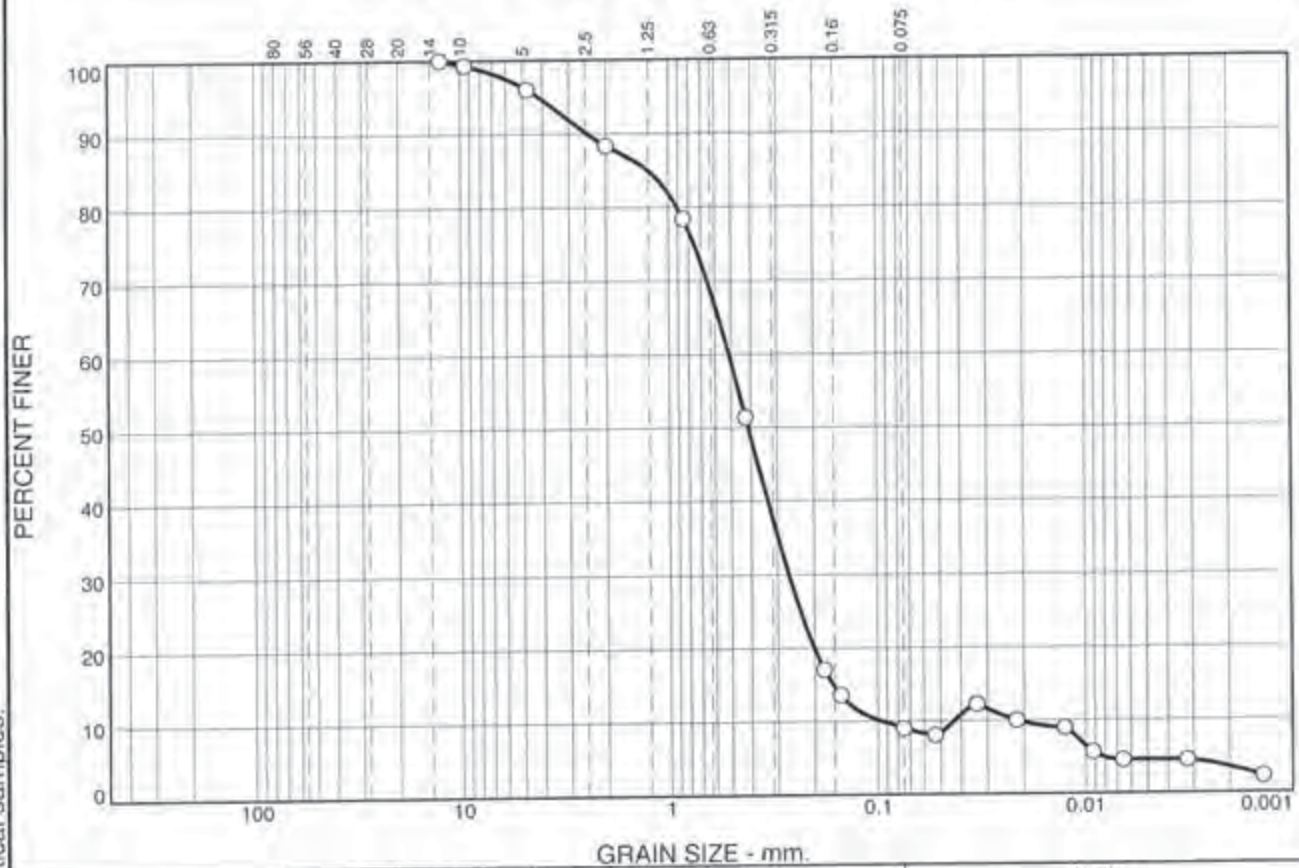
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	4	4	8	37	42	87	4	5	9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0952	0.1630	0.2004	0.2646	0.4121	0.5126	0.9082	1.2553	2.4537	4.1887

Fineness Modulus	C_u	C_c
2.15	5.39	1.44

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	4	8	37	42	4	5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	99		
4.75 mm	96		
2.00 mm	88		
0.850 mm	78		
0.425 mm	51		
0.180 mm	17		
0.150 mm	14		
0.075 mm	9.0		
0.053 mm	8.1		
0.0336 mm	12		
0.0217 mm	10		
0.0126 mm	9.0		
0.0092 mm	5.7		
0.0066 mm	4.6		
0.0032 mm	4.5		
0.0014 mm	2.3		

* (no specification provided)

Soil Description

Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 32.0%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 2.4537 D_{85}= 1.2553 D_{60}= 0.5126
D_{50}= 0.4121 D_{30}= 0.2646 D_{15}= 0.1630
D_{10}= 0.0952 C_u= 5.39 C_c= 1.44

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422 and D-2216

Source of Sample: T16E464 **Depth:** 62
Sample Number: SED-RR-TK-MC 0-.5

Date: 6/9/2016

TRACE

Client: TRC Environmental Corps
Project: Lee Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/10/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation.
Project Number: 267642.0000.0000, phase Z
Location: T16E464
Depth: 63 **Sample Number:** SED-RR-TK-LMC 0-.5
Material Description: Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 28.6%
Date: 6/9/2016
Testing Remarks: Test Methods Used: ASTM D-421, D-422 and D-2216
Tested by: ef **Checked by:** gmr

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
73.43	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	142.65	141.33	98
		2.00 mm	147.18	141.33	90
		0.850 mm	145.98	141.33	84
		0.425 mm	148.34	141.33	74
		0.180 mm	159.40	141.33	50
		0.150 mm	145.66	141.33	44
		0.075 mm	149.75	141.33	32
		0.053 mm	143.40	141.33	30

Hydrometer Test Data

Hydrometer test uses material passing #4
Percent passing #4 based upon complete sample = 98
Weight of hydrometer sample =73.43
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	19.6	1.0140	1.0089	0.0137	13.0	12.9	0.0348	19.2
5.00	19.8	1.0120	1.0069	0.0137	11.0	13.4	0.0224	14.9
15.00	20.0	1.0105	1.0055	0.0136	9.5	13.8	0.0131	11.8
30.00	19.7	1.0105	1.0054	0.0137	9.5	13.8	0.0093	11.7
60.00	18.7	1.0090	1.0038	0.0139	8.0	14.2	0.0067	8.2
250.00	19.1	1.0090	1.0039	0.0138	8.0	14.2	0.0033	8.3
1440.00	19.0	1.0060	1.0008	0.0138	5.0	15.0	0.0014	1.8

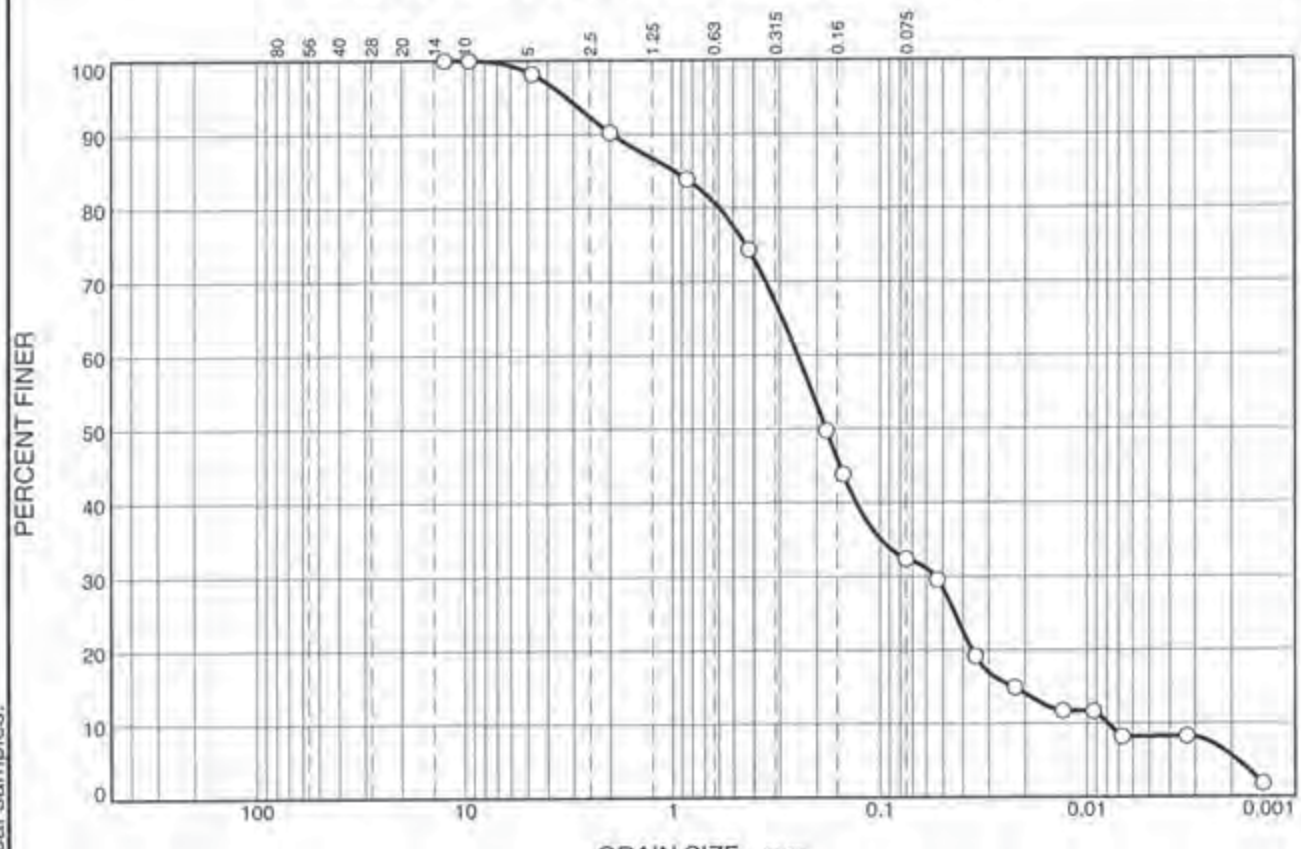
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	2	2	8	16	42	66	24	8	32

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0079	0.0227	0.0362	0.0544	0.1814	0.2470	0.5934	0.9724	1.9458	3.2477

Fineness Modulus	C_u	C_c
1.34	31.33	1.52

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	8	16	42	24	8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	98		
2.00 mm	90		
0.850 mm	84		
0.425 mm	74		
0.180 mm	50		
0.150 mm	44		
0.075 mm	32		
0.053 mm	30		
0.0348 mm	19		
0.0224 mm	15		
0.0131 mm	12		
0.0093 mm	12		
0.0067 mm	8.2		
0.0033 mm	8.3		
0.0014 mm	1.8		

* (no specification provided)

Soil Description

Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 28.6%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 1.9458 D_{85}= 0.9724 D_{60}= 0.2470
D_{50}= 0.1814 D_{30}= 0.0544 D_{15}= 0.0227
D_{10}= 0.0079 C_u= 31.33 C_c= 1.52

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422 and D-2216

Source of Sample: T16E464 **Depth:** 63
Sample Number: SED-RR-TK-LMC 0-.5 **Date:** 6/9/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: el **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/10/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E464
Depth: 64 **Sample Number:** SED-RR-TK-LMC 0.5-1.
Material Description: Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 64.2%
Date: 6/9/2016
Testing Remarks: Test Methods Used: ASTM D-421, D-422 and D-2216
Tested by: ef **Checked by:** gmr

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
138.25	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	142.24	141.33	99
		2.00 mm	158.17	141.33	87
		0.850 mm	164.20	141.33	71
		0.425 mm	173.71	141.33	47
		0.180 mm	181.62	141.33	18
		0.150 mm	145.33	141.33	15
		0.075 mm	147.45	141.33	11
		0.053 mm	142.90	141.33	9.6

Hydrometer Test Data

Hydrometer test uses material passing #4
Percent passing #4 based upon complete sample = 99
Weight of hydrometer sample =138.25
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.3	1.0130	1.0080	0.0136	12.0	13.1	0.0348	9.2
5.00	20.4	1.0120	1.0070	0.0136	11.0	13.4	0.0222	8.1
15.00	20.7	1.0100	1.0051	0.0135	9.0	13.9	0.0130	5.8
30.00	21.0	1.0090	1.0041	0.0135	8.0	14.2	0.0093	4.7
60.00	20.4	1.0075	1.0025	0.0136	6.5	14.6	0.0067	2.9
250.00	19.2	1.0070	1.0019	0.0138	6.0	14.7	0.0033	2.2
1440.00	19.0	1.0060	1.0008	0.0138	5.0	15.0	0.0014	1.0

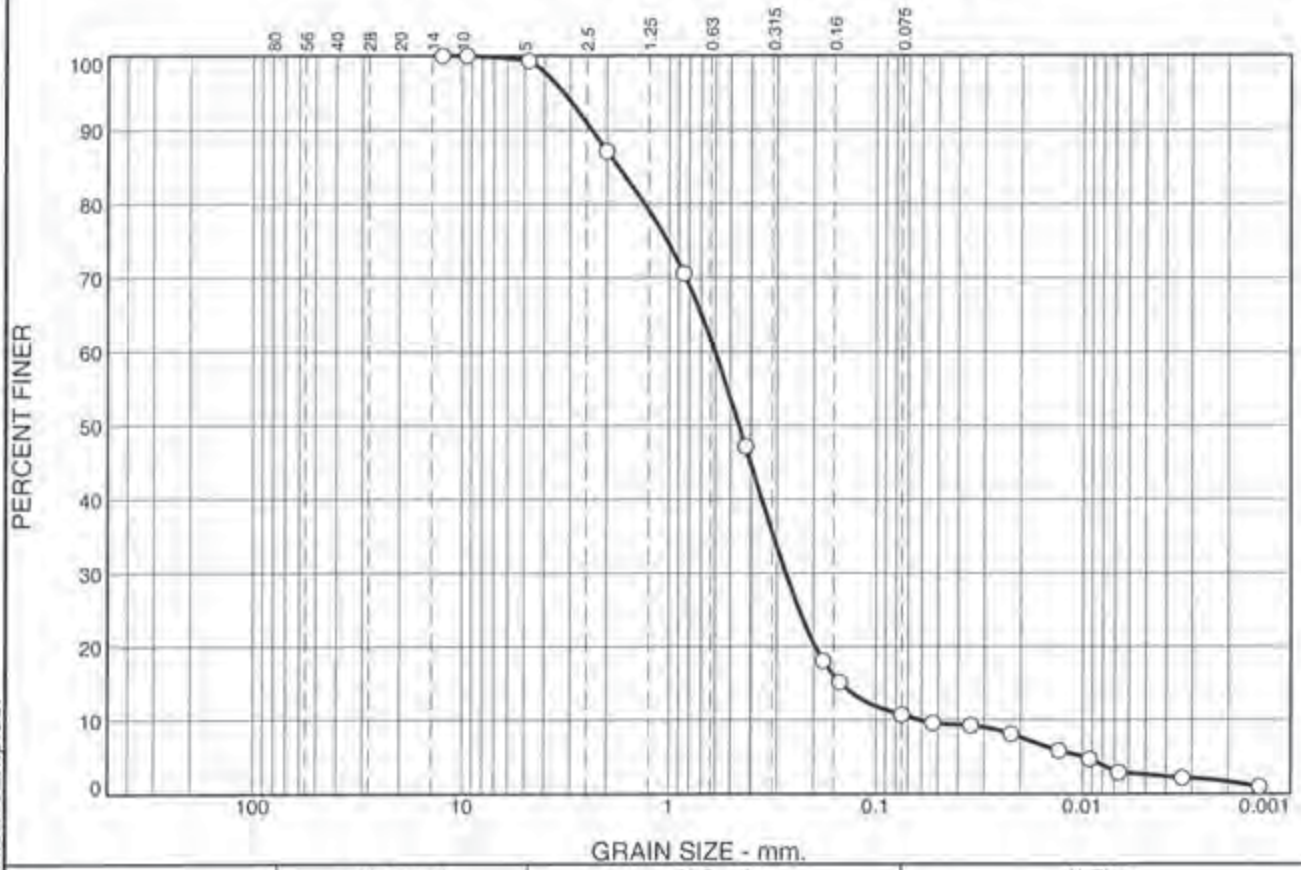
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	1	1	12	40	36	88	8	3	11

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0613	0.1481	0.1965	0.2722	0.4570	0.6011	1.3093	1.7556	2.3635	3.2190

Fineness Modulus	C_u	C_c
2.24	9.80	2.01

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	12	40	36	8	3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	99		
2.00 mm	87		
0.850 mm	71		
0.425 mm	47		
0.180 mm	18		
0.150 mm	15		
0.075 mm	11		
0.053 mm	9.6		
0.0348 mm.	9.2		
0.0222 mm.	8.1		
0.0130 mm.	5.8		
0.0093 mm.	4.7		
0.0067 mm.	2.9		
0.0033 mm.	2.2		
0.0014 mm.	1.0		

* (no specification provided)

Soil Description

Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 64.2%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 2.3635 D_{85}= 1.7556 D_{60}= 0.6011
D_{50}= 0.4570 D_{30}= 0.2722 D_{15}= 0.1481
D_{10}= 0.0613 C_u= 9.80 C_c= 2.01

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422 and D-2216

Source of Sample: T16E464 **Depth:** 64
Sample Number: SED-RR-TK-LMC 0.5-1. **Date:** 6/9/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/10/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E464
Depth: 65 **Sample Number:** SED-RR-TK-LB .5-1.0
Material Description: Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 25.1%
Date: 6/9/2016
Testing Remarks: Test Methods Used: ASTM D-421, D-422 and D-2216
Tested by: ef **Checked by:** gmr

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
144.15	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	145.58	141.33	97
		4.75 mm	160.91	141.33	83
		2.00 mm	165.81	141.33	66
		0.850 mm	169.27	141.33	47
		0.425 mm	162.98	141.33	32
		0.180 mm	159.42	141.33	20
		0.150 mm	143.59	141.33	18
		0.075 mm	146.06	141.33	15
		0.053 mm	142.89	141.33	14

Hydrometer Test Data

Hydrometer test uses material passing #4
Percent passing #4 based upon complete sample = 83
Weight of hydrometer sample =144.15
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.0	1.0060	1.0030	0.0136	5.0	15.0	0.0373	2.8
5.00	20.0	1.0060	1.0030	0.0136	5.0	15.0	0.0236	2.8
15.00	20.4	1.0060	1.0030	0.0136	5.0	15.0	0.0136	2.8
30.00	20.7	1.0060	1.0031	0.0135	5.0	15.0	0.0096	2.9
60.00	20.5	1.0060	1.0030	0.0136	5.0	15.0	0.0068	2.8
250.00	19.0	1.0050	1.0018	0.0138	4.0	15.2	0.0034	1.7
1440.00	19.0	1.0050	1.0018	0.0138	4.0	15.2	0.0014	1.7

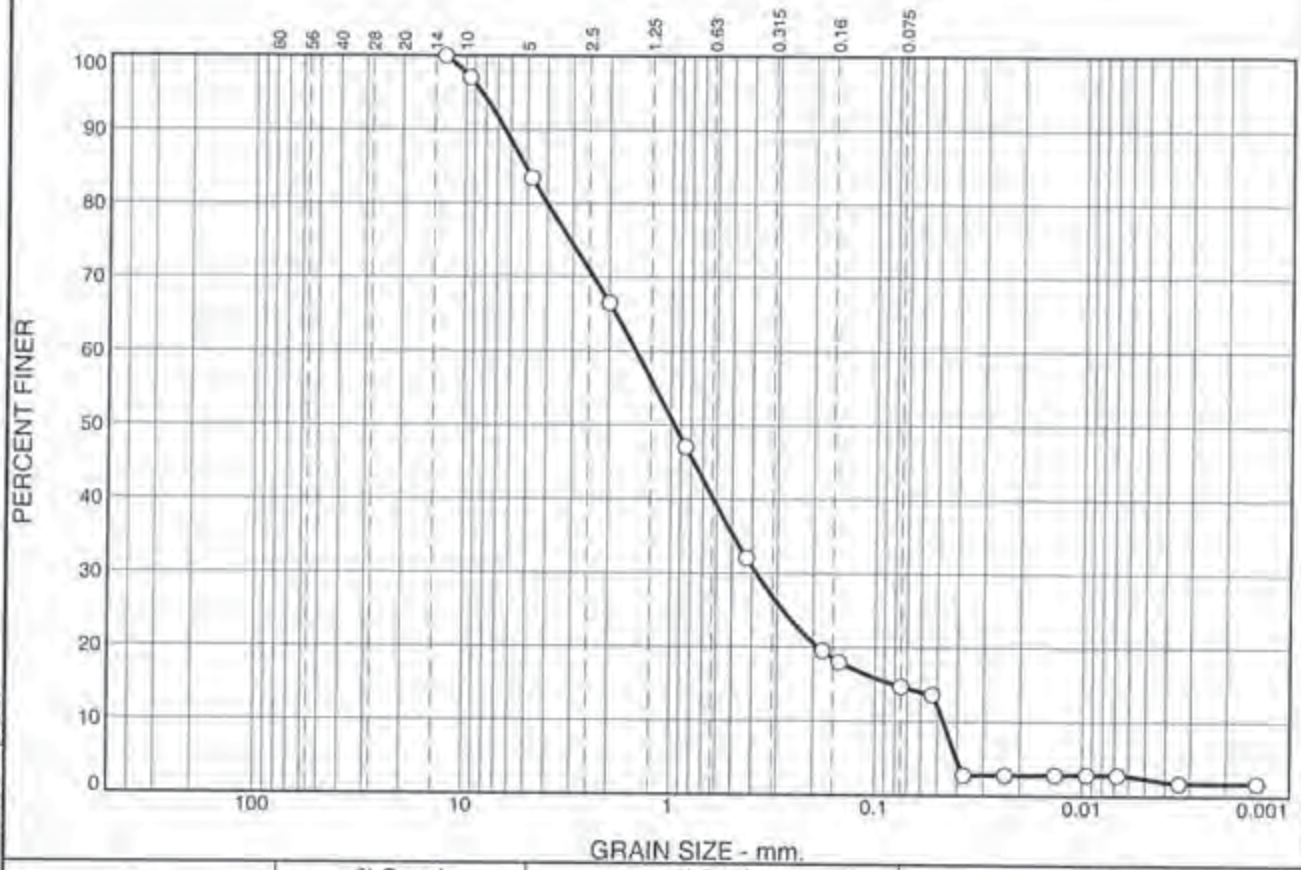
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	17	17	17	34	17	68	13	2	15

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0468	0.0815	0.1888	0.3802	0.9624	1.4828	4.0072	5.1034	6.4317	8.3164

Fineness Modulus	C_u	C_c
3.12	31.70	2.08

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	17	17	34	17	13	2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	97		
4.75 mm	83		
2.00 mm	66		
0.850 mm	47		
0.425 mm	32		
0.180 mm	20		
0.150 mm	18		
0.075 mm	15		
0.053 mm	14		
0.0373 mm.	2.8		
0.0236 mm.	2.8		
0.0136 mm.	2.8		
0.0096 mm.	2.9		
0.0068 mm.	2.8		
0.0034 mm.	1.7		
0.0014 mm.	1.7		

* (no specification provided)

Soil Description

Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 25.1%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 6.4317 D_{85}= 5.1034 D_{60}= 1.4828
D_{50}= 0.9624 D_{30}= 0.3802 D_{15}= 0.0815
D_{10}= 0.0468 C_u= 31.70 C_c= 2.08

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422 and D-2216

Source of Sample: T16E464 **Depth:** 65
Sample Number: SED-RR-TK-LB .5-1.0

Date: 6/9/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/13/2016

Client: TRC Environmental Corps
Project: Lee Ecological Evaluation.
Project Number: 267642.0000.0000, phase Z
Location: T16E464
Depth: 66 **Sample Number:** SED-RR-TK-LB (DUP)
Material Description: Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 30.2%
Date: 6/9/2016
Testing Remarks: Test Methods Used: ASTM D-421, D-422 and D-2216
Tested by: ef **Checked by:** gmt

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
158.19	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	148.42	141.33	96
		4.75 mm	157.74	141.33	85
		2.00 mm	169.42	141.33	67
		0.850 mm	173.56	141.33	47
		0.425 mm	171.59	141.33	28
		0.180 mm	164.41	141.33	13
		0.150 mm	143.90	141.33	12
		0.075 mm	145.95	141.33	8.7
		0.053 mm	143.18	141.33	7.6

Hydrometer Test Data

Hydrometer test uses material passing #4
Percent passing #4 based upon complete sample = 85
Weight of hydrometer sample =158.19
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 15111
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x **Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	19.2	1.0120	1.0069	0.0138	11.0	13.4	0.0357	5.9
5.00	19.2	1.0110	1.0059	0.0138	10.0	13.6	0.0228	5.1
15.00	19.6	1.0110	1.0059	0.0137	10.0	13.6	0.0131	5.1
30.00	19.6	1.0080	1.0029	0.0137	7.0	14.4	0.0095	2.5
60.00	19.6	1.0080	1.0029	0.0137	7.0	14.4	0.0067	2.5
250.00	19.2	1.0060	1.0009	0.0138	5.0	15.0	0.0034	0.8
1440.00	18.8	1.0060	1.0008	0.0139	5.0	15.0	0.0014	0.7

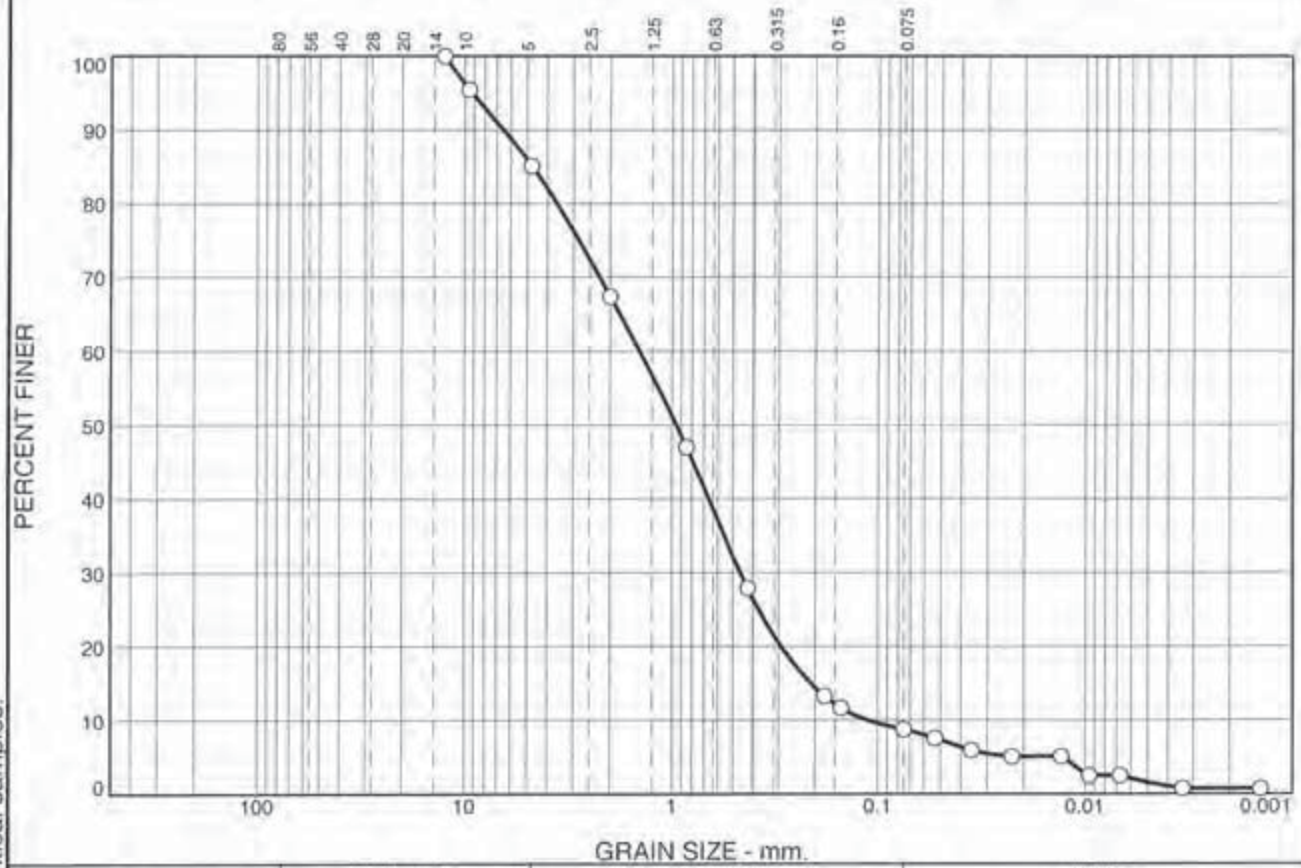
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	15	15	18	39	19	76	7	2	9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1115	0.2093	0.2921	0.4621	0.9515	1.4390	3.5960	4.7097	6.5103	9.1854

Fineness Modulus	C_u	C_c
3.24	12.91	1.33

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	15	18	39	19	7	2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	96		
4.75 mm	85		
2.00 mm	67		
0.850 mm	47		
0.425 mm	28		
0.180 mm	13		
0.150 mm	12		
0.075 mm	8.7		
0.053 mm	7.6		
0.0357 mm	5.9		
0.0228 mm	5.1		
0.0131 mm	5.1		
0.0095 mm	2.5		
0.0067 mm	2.5		
0.0034 mm	0.8		
0.0014 mm	0.7		

* (no specification provided)

Soil Description

Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 30.2%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 6.5103 D_{85}= 4.7097 D_{60}= 1.4390
D_{50}= 0.9515 D_{30}= 0.4621 D_{15}= 0.2093
D_{10}= 0.1115 C_u= 12.91 C_c= 1.33

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422 and D-2216

Source of Sample: T16E464 **Depth:** 66
Sample Number: SED-RR-TK-LB (DUP)

Date: 6/9/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/10/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E464
Depth: 67 **Sample Number:** SED-RR-TJ-LB
Material Description: Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 39.9%
Date: 6/9/2016
Testing Remarks: Test Methods Used: ASTM D-421, D-422 and D-2216
Tested by: ef **Checked by:** gmr

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
65.15	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	141.92	141.33	99
		2.00 mm	144.64	141.33	94
		0.850 mm	146.84	141.33	86
		0.425 mm	147.00	141.33	77
		0.180 mm	147.88	141.33	67
		0.150 mm	143.01	141.33	64
		0.075 mm	146.41	141.33	56
		0.053 mm	143.54	141.33	53

Hydrometer Test Data

Hydrometer test uses material passing #4
Percent passing #4 based upon complete sample = 99
Weight of hydrometer sample =65.15
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	19.4	1.0110	1.0079	0.0137	10.0	13.6	0.0359	19.3
5.00	19.0	1.0110	1.0078	0.0138	10.0	13.6	0.0228	19.2
15.00	19.8	1.0110	1.0079	0.0137	10.0	13.6	0.0130	19.4
30.00	19.7	1.0110	1.0079	0.0137	10.0	13.6	0.0092	19.4
60.00	19.7	1.0100	1.0069	0.0137	9.0	13.9	0.0066	16.9
250.00	19.0	1.0090	1.0058	0.0138	8.0	14.2	0.0033	14.3
1440.00	19.0	1.0080	1.0048	0.0138	7.0	14.4	0.0014	11.8

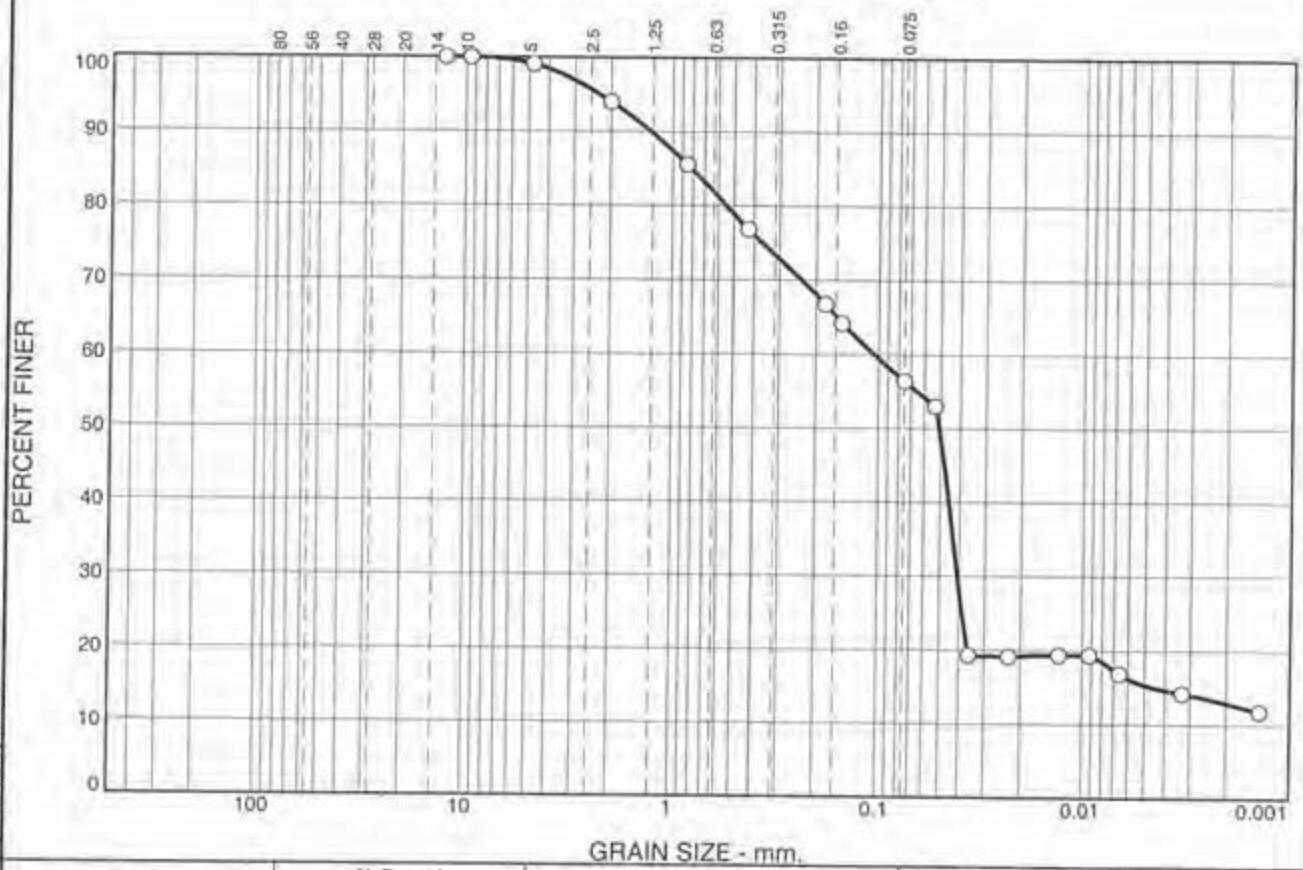
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	1	1	5	17	21	43	41	15	56

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0045	0.0363	0.0410	0.0506	0.1046	0.5466	0.8116	1.2781	2.2697

Fineness Modulus
0.98

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	5	17	21	41	15

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	99		
2.00 mm	94		
0.850 mm	86		
0.425 mm	77		
0.180 mm	67		
0.150 mm	64		
0.075 mm	56		
0.053 mm	53		
0.0359 mm.	19		
0.0228 mm.	19		
0.0130 mm.	19		
0.0092 mm.	19		
0.0066 mm.	17		
0.0033 mm.	14		
0.0014 mm.	12		

* (no specification provided)

Soil Description

Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 39.9%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 1.2781 D_{85}= 0.8116 D_{60}= 0.1046
D_{50}= 0.0506 D_{30}= 0.0410 D_{15}= 0.0045
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422 and D-2216

Source of Sample: T16E464 **Depth:** 67
Sample Number: SED-RR-TJ-LB

Date: 6/9/2016

TRACE

Client: TRC Environmental Corps
Project: Lee Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/13/2016

Client: TRC Environmental Corps
Project: Lee Ecological Evaluation.
Project Number: 267642.0000.0000, phase Z
Location: T16E464
Depth: 68 **Sample Number:** SED-RR-TJ-RB
Material Description: Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 53.6%
Date: 6/9/2016
Testing Remarks: Test Methods Used: ASTM D-421, D-422 and D-2216
Tested by: cf **Checked by:** gm

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
91.01	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	141.95	141.33	99
		2.00 mm	144.84	141.33	95
		0.850 mm	145.97	141.33	90
		0.425 mm	146.39	141.33	85
		0.180 mm	148.25	141.33	77
		0.150 mm	143.17	141.33	75
		0.075 mm	145.94	141.33	70
		0.053 mm	144.11	141.33	67

Hydrometer Test Data

Hydrometer test uses material passing #4
Percent passing #4 based upon complete sample = 99
Weight of hydrometer sample =91.01
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	19.5	1.0490	1.0429	0.0137	48.0	3.6	0.0184	75.2
5.00	19.8	1.0450	1.0389	0.0137	44.0	4.7	0.0132	68.3
15.00	20.0	1.0380	1.0320	0.0136	37.0	6.5	0.0090	56.0
30.00	20.6	1.0345	1.0286	0.0135	33.5	7.4	0.0067	50.0
60.00	20.9	1.0290	1.0231	0.0135	28.0	8.9	0.0052	40.5
250.00	18.9	1.0245	1.0183	0.0138	23.5	10.1	0.0028	32.1
1440.00	18.8	1.0190	1.0128	0.0139	18.0	11.5	0.0012	22.5

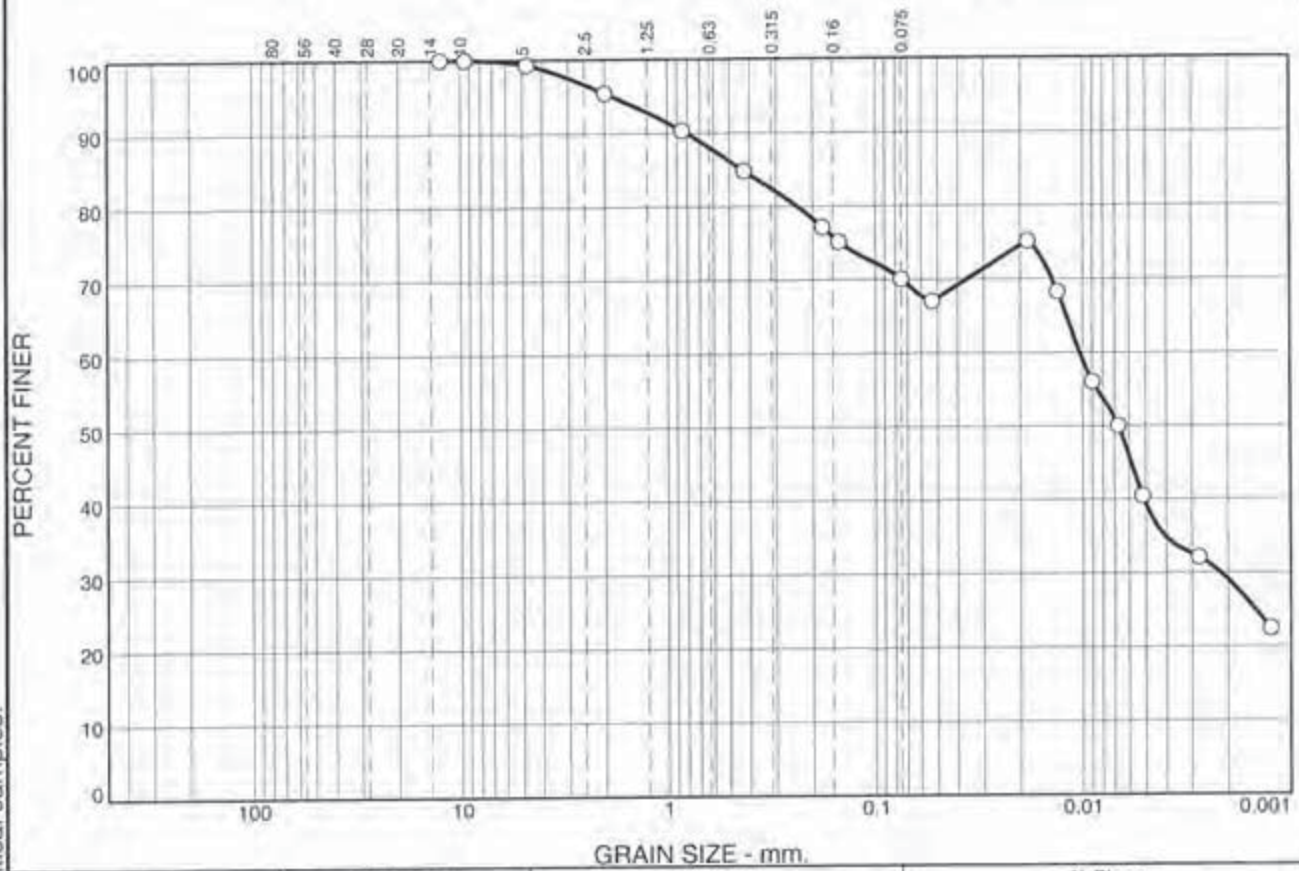
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	1	1	4	10	15	29	31	39	70

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0022	0.0067	0.0103	0.2374	0.4354	0.8088	1.8349

Fineness Modulus
0.67

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	4	10	15	31	39

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	99		
2.00 mm	95		
0.850 mm	90		
0.425 mm	85		
0.180 mm	77		
0.150 mm	75		
0.075 mm	70		
0.053 mm	67		
0.0184 mm	75		
0.0132 mm	68		
0.0090 mm	56		
0.0067 mm	50		
0.0052 mm	40		
0.0028 mm	32		
0.0012 mm	22		

* (no specification provided)

Soil Description

Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 53.6%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.8088 D_{85}= 0.4354 D_{60}= 0.0103
D_{50}= 0.0067 D_{30}= 0.0022 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422 and D-2216

Source of Sample: T16E464 **Depth:** 68
Sample Number: SED-RR-TJ-RB

Date: 6/9/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/13/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E464
Depth: 69 **Sample Number:** SED-RR-TJ-RMC
Material Description: Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 21.5%.
Date: 6/9/2016
Testing Remarks: Test Methods Used: ASTM D-421, D-422 and D-2216
Tested by: ef **Checked by:** gmr

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
152.56	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	0.00	0.00	100
		4.75 mm	144.92	141.33	98
		2.00 mm	153.86	141.33	89
		0.850 mm	160.64	141.33	77
		0.425 mm	176.12	141.33	54
		0.180 mm	198.99	141.33	16
		0.150 mm	145.35	141.33	14
		0.075 mm	147.10	141.33	9.8
		0.053 mm	142.90	141.33	8.7

Hydrometer Test Data

Hydrometer test uses material passing #4
Percent passing #4 based upon complete sample = 98
Weight of hydrometer sample =152.56
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.0	1.0100	1.0040	0.0136	9.0	13.9	0.0360	4.1
5.00	20.6	1.0090	1.0031	0.0135	8.0	14.2	0.0228	3.1
15.00	20.2	1.0085	1.0025	0.0136	7.5	14.3	0.0133	2.6
30.00	20.8	1.0080	1.0021	0.0135	7.0	14.4	0.0094	2.1
60.00	21.3	1.0075	1.0016	0.0134	6.5	14.6	0.0066	1.7
250.00	19.0	1.0070	1.0008	0.0138	6.0	14.7	0.0034	0.9
1440.00	18.9	1.0065	1.0003	0.0138	5.5	14.8	0.0014	0.3

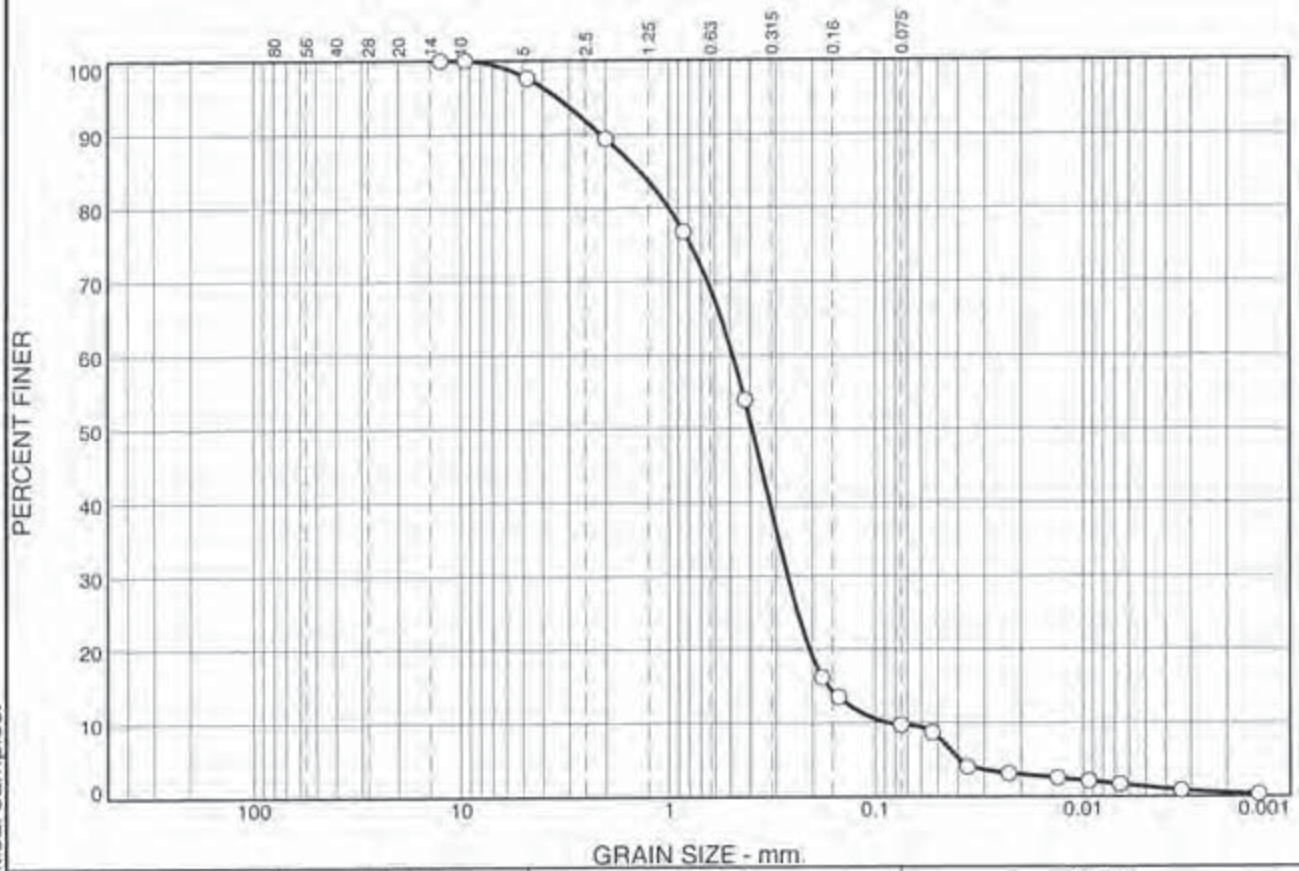
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	2	2	9	35	44	88	9	1	10

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0853	0.1687	0.2067	0.2632	0.3910	0.4890	0.9976	1.3754	2.1050	3.4104

Fineness Modulus	C_u	C_c
2.11	5.73	1.66

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	9	35	44	9	1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	100		
4.75 mm	98		
2.00 mm	89		
0.850 mm	77		
0.425 mm	54		
0.180 mm	16		
0.150 mm	14		
0.075 mm	9.8		
0.053 mm	8.7		
0.0360 mm	4.1		
0.0228 mm	3.1		
0.0133 mm	2.6		
0.0094 mm	2.1		
0.0066 mm	1.7		
0.0034 mm	0.9		
0.0014 mm	0.3		

* (no specification provided)

Soil Description

Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 21.5%.

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 2.1050 D_{85}= 1.3754 D_{60}= 0.4890
D_{50}= 0.3910 D_{30}= 0.2632 D_{15}= 0.1687
D_{10}= 0.0853 C_u= 5.73 C_c= 1.66

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422 and D-2216

Source of Sample: T16E464 **Depth:** 69
Sample Number: SED-RR-TJ-RMC

Date: 6/9/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation.
Project No: 267642.0000.0000. **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/10/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E464
Depth: 70 **Sample Number:** SED-RR-TJ-MC
Material Description: Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 25.9%
Date: 6/9/2016
Testing Remarks: Test Methods Used: ASTM D-421, D-422 and D-2216
Tested by: cf **Checked by:** gmr

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
152.34	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	143.92	141.33	98
		4.75 mm	145.47	141.33	96
		2.00 mm	159.16	141.33	84
		0.850 mm	167.90	141.33	66
		0.425 mm	172.97	141.33	46
		0.180 mm	181.93	141.33	19
		0.150 mm	146.83	141.33	15
		0.075 mm	148.75	141.33	11
		0.053 mm	143.43	141.33	9.2

Hydrometer Test Data

Hydrometer test uses material passing #4
Percent passing #4 based upon complete sample = 96
Weight of hydrometer sample =152.34
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	19.1	1.0160	1.0099	0.0138	15.0	12.3	0.0343	9.9
5.00	19.2	1.0145	1.0084	0.0138	13.5	12.7	0.0220	8.4
15.00	19.2	1.0140	1.0079	0.0138	13.0	12.9	0.0128	7.9
30.00	19.3	1.0120	1.0059	0.0138	11.0	13.4	0.0092	5.9
60.00	19.3	1.0110	1.0049	0.0138	10.0	13.6	0.0066	4.9
250.00	18.9	1.0100	1.0038	0.0138	9.0	13.9	0.0033	3.9
1440.00	18.7	1.0095	1.0033	0.0139	8.5	14.0	0.0014	3.3

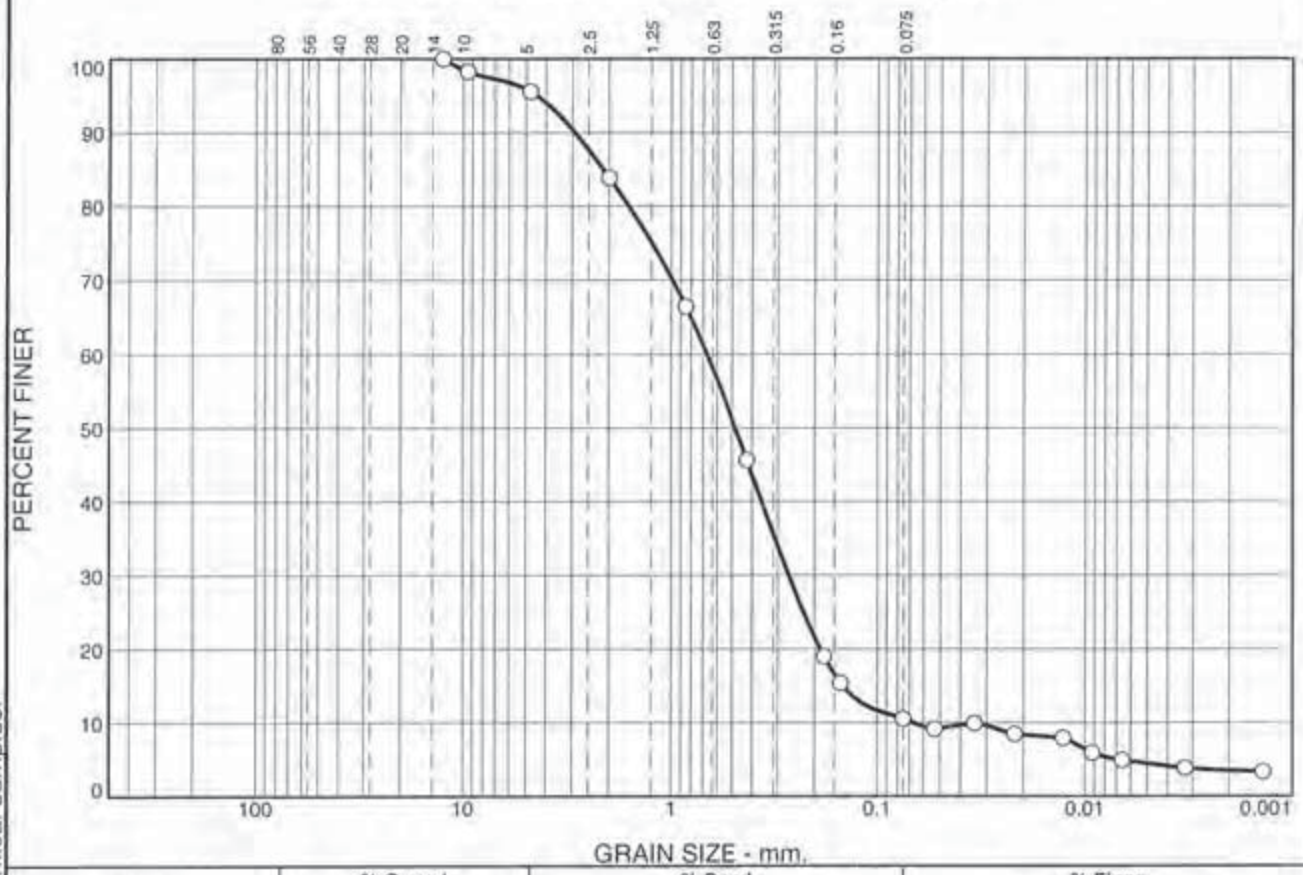
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	4	4	12	38	35	85	7	4	11

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0673	0.1461	0.1876	0.2662	0.4847	0.6708	1.6071	2.1347	2.9098	4.4105

Fineness Modulus	C_U	C_C
2.39	9.97	1.57

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	4	12	38	35	7	4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	98		
4.75 mm	96		
2.00 mm	84		
0.850 mm	66		
0.425 mm	46		
0.180 mm	19		
0.150 mm	15		
0.075 mm	11		
0.053 mm	9.2		
0.0343 mm.	9.9		
0.0220 mm.	8.4		
0.0128 mm.	7.9		
0.0092 mm.	5.9		
0.0066 mm.	4.9		
0.0033 mm.	3.9		
0.0014 mm.	3.3		

* (no specification provided)

Soil Description

Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 25.9%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 2.9098 D_{85}= 2.1347 D_{60}= 0.6708
D_{50}= 0.4847 D_{30}= 0.2662 D_{15}= 0.1461
D_{10}= 0.0673 C_u= 9.97 C_c= 1.57

Classification

USCS= AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422 and D-2216

Source of Sample: T16E464 **Depth:** 70
Sample Number: SED-RR-TJ-MC

Date: 6/9/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

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GRAIN SIZE DISTRIBUTION TEST DATA

6/10/2016

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project Number: 267642.0000.0000, phase Z
Location: T16E464
Depth: 71 **Sample Number:** SED-RR-TJ-LMC
Material Description: Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 31.1%
Date: 6/9/2016
USCS Classification: SP
Testing Remarks: Test Methods Used: ASTM D-421, D-422 and D-2216
Tested by: ef **Checked by:** gmr

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
156.93	0.00	12.5 mm	0.00	0.00	100
		9.5 mm	142.91	141.33	99
		4.75 mm	143.22	141.33	98
		2.00 mm	152.80	141.33	90
		0.850 mm	178.80	141.33	67
		0.425 mm	196.65	141.33	31
		0.180 mm	178.53	141.33	8
		0.150 mm	143.67	141.33	6
		0.075 mm	145.14	141.33	3.7
		0.053 mm	143.92	141.33	2.1

Hydrometer Test Data

Hydrometer test uses material passing #4
Percent passing #4 based upon complete sample = 98
Weight of hydrometer sample =156.93
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -6
Meniscus correction only = -1.0
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 - 0.2645 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	19.2	1.0110	1.0049	0.0138	10.0	13.6	0.0360	4.9
5.00	19.3	1.0090	1.0029	0.0138	8.0	14.2	0.0232	2.9
15.00	19.2	1.0085	1.0024	0.0138	7.5	14.3	0.0135	2.4
30.00	19.2	1.0075	1.0014	0.0138	6.5	14.6	0.0096	1.4
60.00	19.3	1.0070	1.0009	0.0138	6.0	14.7	0.0068	0.9
250.00	20.0	1.0070	1.0010	0.0136	6.0	14.7	0.0033	1.0
1440.00	18.6	1.0065	1.0003	0.0139	5.5	14.8	0.0014	0.3

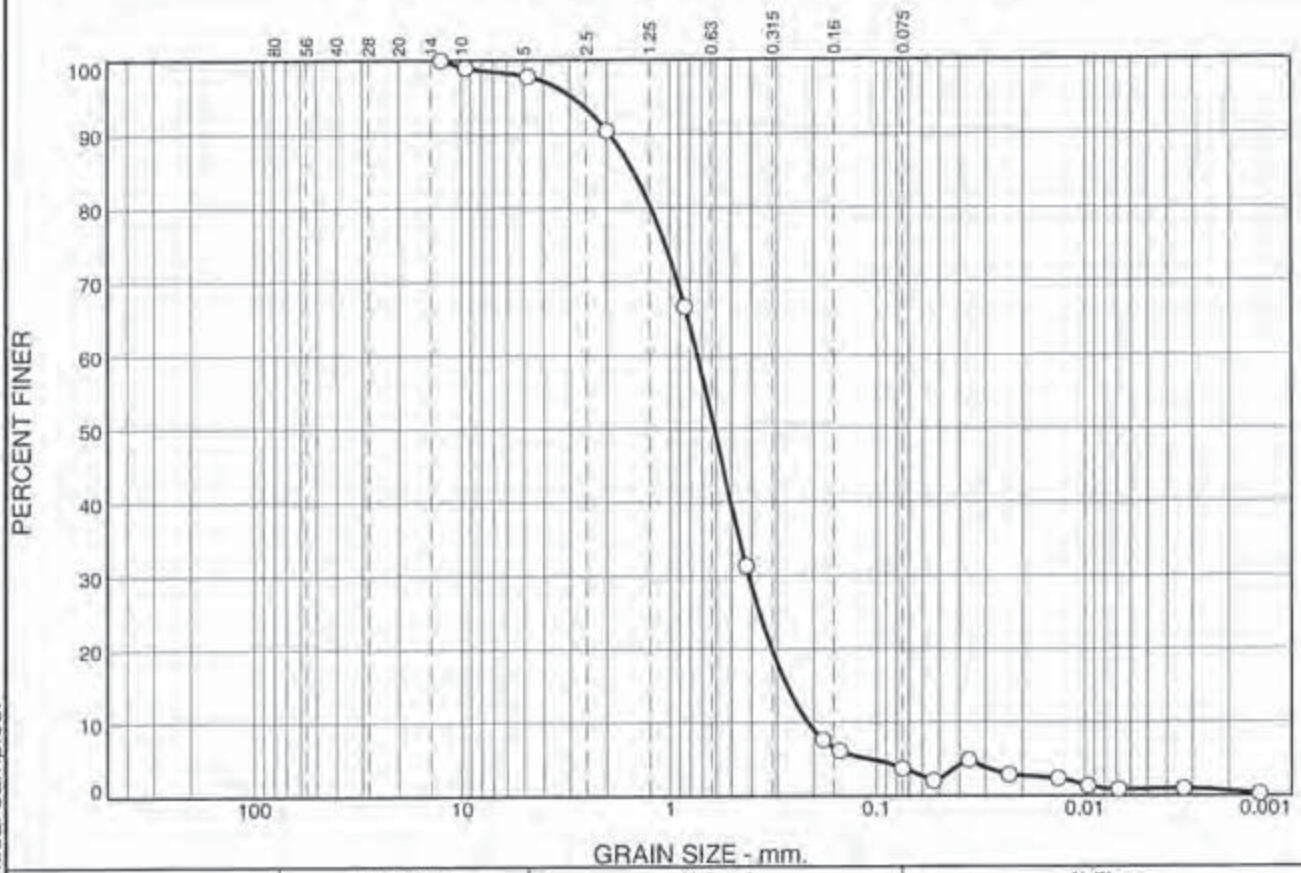
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0	0	2	2	8	59	27	94	3	1	4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.2131	0.2689	0.3185	0.4125	0.6115	0.7402	1.2274	1.4918	1.9397	2.9119

Fineness Modulus	C_u	C_c
2.58	3.47	1.08

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	8	59	27	3	1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
12.5 mm	100		
9.5 mm	99		
4.75 mm	98		
2.00 mm	90		
0.850 mm	67		
0.425 mm	31		
0.180 mm	8		
0.150 mm	6		
0.075 mm	3.7		
0.053 mm	2.1		
0.0360 mm.	4.9		
0.0232 mm.	2.9		
0.0135 mm.	2.4		
0.0096 mm.	1.4		
0.0068 mm.	0.9		
0.0033 mm.	1.0		
0.0014 mm.	0.3		

* (no specification provided)

Soil Description

Appears to be mostly sand with a few smaller rocks.
Moisture Content Received= 31.1%

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 1.9397 D_{85}= 1.4918 D_{60}= 0.7402
D_{50}= 0.6115 D_{30}= 0.4125 D_{15}= 0.2689
D_{10}= 0.2131 C_u= 3.47 C_c= 1.08

Classification

USCS= SP AASHTO=

Remarks

Test Methods Used: ASTM D-421, D-422 and D-2216

Source of Sample: T16E464 **Depth:** 71
Sample Number: SED-RR-TJ-LMC

Date: 6/9/2016

TRACE

Client: TRC Environmental Corps
Project: Lec Ecological Evaluation,
Project No: 267642.0000.0000, **Plate**

Tested By: ef **Checked By:** gmr

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

Laboratory Data Quality Review Notes

Project Name: LE Carpenter - Wharton, NJ

Project Number: 248642.0000.0000.000002

Lab Report: T16F037 Trace Analytical Laboratories
Samples analyzed for DEHP

Chain of Custody, Sample Temperature, Sample Preservation: Chains of custody (CoCs) signed; sample temperature <6 ^{o}C upon arrival at the laboratory; samples were preserved properly.

Hold Time: Samples analyzed within hold time.

Surrogates: Recoveries were within QC limits.

Method Blanks: The method blank associated with QC batch T061629 had a DEHP detection of 1.01 ug/L. **A "u" flag is assigned to DEHP in SW-RR-TD-RB (F) because it has concentrations comparable to this associated method blank.**

Trip Blank, Field Blank, Equipment Rinse Blank: Trip, field, and rinsate blanks were not collected with these samples.

LCS/LCSD: LCS recoveries are within QC Limits. LCSD analyses were not performed.

MS/MSD: SW-RR-TB-LB, SW-RR-TB-LB (F), and SED-RR-TA-RB (0.0-0.5) were used for MS/MSD analyses of DEHP. MS/MSD recoveries and RPDs were within QC limits.

Duplicates: A filtered and unfiltered field duplicate was collected at location SW-RR-TB-RB. A field duplicate was also collected at location SED-RR-TD-LB (0.0-0.5). DEHP was not detected in the parent or duplicate of surface water filtered and unfiltered samples, nor was DEHP detected in the sediment parent and duplicate samples. RPDs were not calculable because there were no detections of DEHP.

A laboratory duplicate for percent solids using sample SED-RR-TA-RB (0.0-0.5) had an RPD within control limits.

Other: Filtered sample SW-RR-TB-MC (F) has a DEHP detection of 1.3 ug/L while its unfiltered analog (SW-RR-TB-MC) does not have a DEHP detection. **A "u" qualifier is assigned to DEHP detected in SW-RR-TB-MC (F).**

The laboratory report cover page has a project number with phase = Z. The phase is "2", not "Z".

Data review performed by: Terry Hertz; TRC Environmental Corp. ; 7/11/2016

Laboratory Data Quality Review Notes

Project Name: LE Carpenter - Wharton, NJ

Project Number: 248642.0000.0000.000002

Lab Report: T16E496 Trace Analytical Laboratories
Samples analyzed for DEHP

Chain of Custody, Sample Temperature, Sample Preservation: Chains of custody (CoCs) signed; sample temperature <6 ^{o}C upon arrival at the laboratory; samples were preserved properly.

Hold Time: Samples analyzed within hold time.

Surrogates: Recoveries were within QC limits.

Method Blank(s): The method blank associated with QC batch T061545 had a DEHP detection of 22.2 ug/L. **A "u" flag is assigned to DEHP in SW-RR-TG-RB and SW-RR-TG-LB (DUP) (F) because they have concentrations comparable to this associated method blank.**

Trip Blank, Field Blank, Equipment Rinse Blank: Trip, field, and rinsate blanks were not collected with these samples.

LCS/LCSD: LCS recoveries are within QC Limits. LCSD analyses were not performed.

MS/MSD: SW-RR-TG-LMC, SW-RR-TG-LMC (F), and SED-RR-TG-LB (0.0-0.5) were used for MS/MSD analyses of DEHP. MS/MSD recoveries and RPDs were within QC limits.

Duplicates: A filtered and unfiltered field duplicate was collected at location SW-RR-TG-LB. A field duplicate was also collected at location SED-RR-TG-LMC (0.0-0.5). DEHP was not detected in the parent or duplicate of unfiltered surface water samples, nor in the filtered parent sample; therefore, RPDs were not calculable.

The RPD for DEHP detections in the SED-RR-TG-LMC (0.0-0.5) duplicate pair is 135%. **A "j" qualifier is assigned to SED-RR-TG-LMC (0.0-0.5) and SED-RR-TG-LMC (0.0-0.5)(DUP).**

A laboratory duplicate for percent solids using sample SED-RR-TG-LB (0.0-0.5) had an RPD within control limits.

Other: Filtered sample duplicate SW-RR-TG-LB (DUP)(F) has a DEHP detection of 1.6 ug/L while its unfiltered analog {SW-RR-TB-LB (DUP)} does not have a DEHP detection. Parent samples SW-RR-TG-LB and SW-RR-TG-LB (F) do not have DEHP detections. **A "u" qualifier is assigned to DEHP detected in SW-RR-TG-LB (DUP)(F).**

The laboratory report cover page has a project number with phase = Z. The phase is “2”, not “Z”.

Data review performed by: Terry Hertz; TRC Environmental Corp. ; 7/11/2016

Laboratory Data Quality Review Notes

Project Name: LE Carpenter - Wharton, NJ

Project Number: 248642.0000.0000.000002

Lab Report: T16E480 Trace Analytical Laboratories
Samples analyzed for DEHP

Chain of Custody, Sample Temperature, Sample Preservation: Chains of custody (CoCs) signed; sample temperature <6 ^{o}C : Trip, field, and rinsate blanks were not collected with these samples.

Hold Time: Samples analyzed within hold time.

Surrogates: For most samples, recoveries were within QC limits or else were not reported because of extract dilution prior to analysis. Undiluted sample SED-D-3 (0.0-0.5) has a recovery for one base-neutral surrogate below the lower QC limit. No qualifier is assigned.

Method Blanks: DEHP was not detected in the method blanks. The method blank associated with QC batch T061514 has three surrogate recoveries <10%. The samples associated with this method blank did not have DEHP detections. No qualifiers were assigned.

Trip Blank, Field Blank, Equipment Rinse Blank: Trip, field, and rinsate blanks were not collected with these samples.

LCS/LCSD: LCS recoveries are within QC Limits. LCSD analyses were not performed.

MS/MSD: SED-RR-TI-LMC (0.0-0.5) was used for MS/MSD analyses of DEHP. MS/MSD recoveries and RPDs were within QC limits.

Duplicates: A filtered and unfiltered field duplicate was collected at location SW-RR-TH-LB. A field duplicate was also collected at location SED-RR-TH-LB (0.0-0.5). DEHP was not detected in the parent or duplicate of filtered and unfiltered samples; therefore, RPDs were not calculable.

The RPD for DEHP detections in the SED-RR-TH-LB (0.0-0.5) duplicate pair is 135%. **A "j" qualifier is assigned to SED-RR-TH-LB (0.0-0.5) and SED-RR-TH-LB (0.0-0.5) (DUP).**

A laboratory duplicate for percent solids using sample SED-D-1 (0.0-0.5) has an RPD within control limits.

Other: The laboratory report cover page has a project number with phase = Z. The phase is "2", not "Z".

Data review performed by: Terry Hertz; TRC Environmental Corp. ; 7/11/2016

Laboratory Data Quality Review Notes

Project Name: LE Carpenter - Wharton, NJ

Project Number: 248642.0000.0000.000002

Lab Report: T16E464 Trace Analytical Laboratories
Samples analyzed for DEHP and BTEX

Chain of Custody, Sample Temperature, Sample Preservation: Chains of custody (CoCs) signed; sample temperature upon arrival at the laboratory were not documented in the report; samples were preserved properly.

Hold Time: Samples were analyzed within hold time.

Surrogates: Recoveries were within QC limits.

Method Blanks: Method blanks have no detections of targeted analytes.

Trip Blank: Trip Blank had no detections of targeted analytes.

Field Blank: A field blank was not collected with these samples.

Equipment Rinse Blank: A rinsate blank was not collected with these samples.

LCS/LCSD: LCS recoveries are within QC Limits. LCSD analyses were not performed.

MS/MSD: SW-RR-TJ-RB, SW-RR-TJ-RB (F), and SED-RR-TJ-LB were used for MS/MSD analyses of DEHP. MS/MSD recoveries and RPDs were within QC limits.

Duplicates: A filtered and unfiltered field duplicate was collected at location SW-RR-TK-RB. Total DEHP was not detected in the parent or field duplicate samples. Dissolved DEHP was not detected in SW-RR-TK-RB (F). Dissolved DEHP was detected in the field duplicate {SW-RR-TK-RB (DUP)} at 1.5 g/L. **The DEHP detection in the filtered duplicate sample is suspect because DEHP was not detected in the unfiltered parent and field duplicate samples. A "u" qualifier is assigned to DEHP in SW-RR-TK-RB (DUP).** Because there were no verified detections of DEHP in these samples, it was not possible to calculate RPDs.

A field duplicate {SED-RR-TK-LB (DUP)} was collected on sample SED-RR-TK-LB (0.5-1.0). The parent samples contains DEHP at 58 ug/kg while the duplicate contains <47 ug/kg of DEHP. An RPD cannot be calculated because of the non-detect result in the field duplicate. The detection in the parent sample is approximately 30% above the reporting limit. No qualifier was assigned.

A laboratory duplicate for percent solids using sample SED-RR-TJ-LB had an RPD within control limits.

Data review performed by: Terry Hertz; TRC Environmental Corp. ; 7/11/2016