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Technical Memorandum:
Updated Conceptual Site Model

Pompton Lake Acid Brook Delta Area Project
DuPont Pompton Lakes Works
Pompton Lakes, New Jersey
EPA ID #NJD002173946, SRP PI#007411

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Prepared by:
ARCADIS
Anchor QEA, LLC
O'Brien & Gere

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1. Introduction

A conceptual site model (CSM) describing conditions in Pompton Lake resulting from releases of site-related constituents from the former operations of the DuPont Pompton Lakes Works (PLW) in Pompton Lakes, NJ was used in the development of remedial alternatives for addressing impacted sediment within the lake (ARCADIS et. al, September 2011). The CSM was based on existing data collected from 1997 to 2010 as part of environmental investigations conducted within and around the lake that consisted of the following: sediment sampling; surface water sampling; environmental biota sampling; benthic and methyl mercury flux chamber analysis; and laboratory ecosystem testing. These investigations were completed under direct oversight of the U.S. Environmental Protection Agency (USEPA) and the New Jersey Department of Environmental Protection (NJDEP).

USEPA requested additional sediment investigations to determine current conditions of the sediments within the Lake. A series of meetings were conducted with technical resources from the regulatory agencies and DuPont to discuss the scope of additional investigations. Following these meetings, a draft technical memorandum (draft CSM memo) was submitted to USEPA to provide additional information collected after the submission of the Corrective Measures Implementation Work Plan (CMI WP); identify areas of uncertainty within the CSM; and provide recommendations on additional sampling to address the data gaps (ARCADIS et al., June 2013). Subsequent discussions between DuPont and the regulatory agencies defined the specific tasks and details for the data collection efforts in resolving the identified data gaps. As a result, the *2013 Sediment Sampling Plan* (ARCADIS, July 2013) was developed to outline data collection efforts to address the areas of uncertainty. This document was reviewed by USEPA with modifications made based on their input, and the field efforts were performed from May to August 2013.

The purpose of this document is to review the three data uncertainties identified within the CSM and describe the field efforts and data evaluation performed to address two of these identified areas of uncertainty. In addition, data collection efforts and results for the uplands area within the Acid Brook creek bed downstream of Lakeside Avenue are also provided in this technical memorandum.

The following bullets summarize the principle elements of the CSM (see ARCADIS et al., June 2013 for additional details).

- History: Pompton Lake is an impoundment that was created by damming the Ramapo River. The dam was constructed in 1858 and was enlarged in 1908. When the dam was enlarged, an upland area that is now the delta was submerged. The enlargement of the dam coincided approximately with the start of DuPont operations in the Acid Brook Valley. The Acid Brook is the only historical transport pathway for site-related metals to the Acid Brook Delta (ABD) and Pompton Lake from the PLW site.

- Geology/Hydrogeology: Water depth in the delta area ranges from less than 1 foot near the mouth of Acid Brook to approximately 12 feet on the southwest shore, west of the Ramapo River channel. ABD sediments range in thickness from 0 to 5.2 feet with an average thickness of 1.5 feet. The underlying peat ranges in thickness from 0 to 4.3 feet with an average thickness of 1.9 feet.

- Media of Concern: The medium of concern for Pompton Lake is sediment in the ABD.

- Nature and Extent: Several site-related metals have been investigated as part of the delta investigations (lead, mercury, copper, selenium, barium, and zinc). Barium, copper, selenium, and zinc concentrations are below the current New Jersey Residential Direct Contact Soil Remediation Standards (NJRDCSRS). Lead and mercury are co-located. Copper, lead, mercury, and selenium are elevated relative to sediment screening values. All exhibit similar spatial distributions in that the highest concentrations are nearshore in the vicinity of Acid Brook discharge. Mercury from the Acid Brook spread out radially (at declining rates as distance increased) from the mouth of the brook and was deposited concurrently with other sediment as the sediment layer built up over the peat. Mercury is the sole chemical of potential concern (COPC) that methylates and has the potential for bioaccumulation. Methylmercury was identified as a COPC in preliminary studies; however, it was determined that methylmercury distribution was based primarily on location and not on the concentration of mercury in the sediment. Mercury is, therefore, the constituent driving the remediation both in areal extent and in depth and is the primary COPC. The highest mercury concentrations (greater than 100 mg/kg) were generally found in the delta near Acid Brook and delineation to 2 mg/kg was completed around the ABD Area. Mercury levels within the lower Ramapo River channel are primarily less than 2 mg/kg within the surface with deeper levels averaging 13.3 mg/kg. Other potential sources of mercury exist to the Ramapo River upstream of the ABD and Pompton Lake.

- Fate and Transport: ABD sediments are relatively stable with little physical transport or movement observed through bathymetry surveys performed over 15 years apart. A comparison of the earlier bathymetry to that measured in 2011 (covered a total of 80 acres) showed that about 75% of lake had no apparent change (i.e., was within the sensitivity of the survey), 5 to 10% had an apparent decrease in elevation (i.e., sediment was removed that area), and 15 to 20% had an apparent increase in elevation (i.e., sediment was deposited in area). As previously noted, channel mercury concentrations are generally less than 2 mg/kg at the surface, and average 13.3 mg/kg at depth. Sediment samples collected downstream of the Pompton Lake Dam in 2010 did not contain elevated levels of mercury. Biochemical processes of methylation and bioaccumulation have a greater potential to occur in ABD near shore sediments than out into the lake or channel.

- Potential Receptors and Pathways: Humans may have direct contact with surface water and sediment during recreational activities; however, recreational activities, including swimming and wading on the lake are restricted. There is also a state consumption advisory for fish due to mercury and other bioaccumulative constituents. Current and expected future uses of the lake include boating and fishing; however, potential exposure to sediment is minimal from these activities. Ecological receptors may be exposed to mercury through direct contact to surface water and sediment and dietary exposure pathways through the ingestion of biota. Ecological investigations conducted in the ABD indicated minimal risk to aquatic and sediment-dwelling receptors resulting from direct contact exposure surface water and sediment, respectively. The evaluation of dietary exposure pathways indicated that mercury concentrations in surface water, sediment, and biota do no present unacceptable risks to avian receptors foraging in the ABD.

2. Data Uncertainties and Collection Efforts

Three areas of uncertainty were identified for further investigation in the draft CSM memo (ARCADIS et al., June 2013).

1) The 2011 and 2007 bathymetry comparison showed that, within the Ramapo River channel, two general areas of apparent sediment surface elevation decreases are observed along with some larger areas of apparent sediment surface elevation increases. The 2011 survey did not extend down the lower Ramapo River channel to the dam, so potential changes in this area are unknown. Therefore, further investigation into these areas is necessary to evaluate hydrodynamic conditions and the potential for bed erosion for a range of flood flow conditions (i.e., evaluate sediment transport).

2) USEPA expressed concerns regarding the age and extent of data used to develop the CSM; and the ability of this sediment data to provide a comprehensive understanding of the nature and extent of mercury as it relates to defining the final remedy for sediments within the lake. While data used to construct the CSM has been collected over time, DuPont believes the data are sufficient to understand the distribution of mercury within the lake, the fate and transport of mercury and sediments, and the potential exposure pathways. In order to address this uncertainty , additional data collection activities were completed to meet the following objectives:

   - Historical Validation: Confirm the current understanding of mercury deposition within the lake – a subset of historical sediment sampling locations outside the 26-acre remedial area were sampled and analyzed for mercury to evaluate whether the historical data are still valid

   - Data Set Adequacy: Confirm that the extent of the mercury concentrations in sediment has been adequately defined – additional sediment sampling was conducted outside the 26-acre remedial area to verify that the extent of mercury is consistent (i.e., in the lower Ramapo River channel) and to confirm mercury concentrations in areas where the sediment surface elevation has changed

3) In order to confirm that mercury in sediment does not pose a significant threat to ecological receptors outside the proposed 26-acre remedial limit, an extensive data

collection effort was implemented in 2013 outside the CMI WP remedial limit to complete an ecological risk assessment.

Additional investigations were conducted in 2013 to address these data uncertainties. This document focuses on the investigations performed to address uncertainties #1 and #2 from Lakeside Avenue to the Pompton Lake Dam. Investigation efforts downstream of the Pompton Lake Dam to address data uncertainty #2 and ecological evaluations conducted to address data uncertainty #3 will be submitted under separate cover and are not discussed further herein. Table 2-1 summarizes the data uncertainty and the corresponding investigation included in this document.

Table 2-1: Data Uncertainty and Associated Investigation Efforts

Data Uncertainty	Objective	General Sampling Location	Monitoring or Sampling Approach
#1	Address data gap in the bathymetric survey coverage	Pompton Lake and lower Ramapo River channel (outside the 26-acre remedial area)	Conduct single beam and side scan sonar survey
#2	Historical validation: Verify whether concentrations have significantly changed (consider current and historical core data)	Pompton Lake and lower Ramapo River channel (outside the 26-acre remedial area)	Sediment coring and sampling at ~30% of historical locations for mercury analysis (target historical locations with higher mercury levels considering historical data results)
	Data set adequacy: Confirm extent of mercury in sediment is consistent with CSM and concentrations in areas where sediment surface elevation changed	Areas with similar to or increased surface sediment elevation	Sediment coring for mercury analysis (target locations based on bathymetric survey comparisons and areas with limited data coverage)
		Areas with decreased surface sediment elevation	
		Supplemental data within lower Ramapo River channel	

Data collection and sampling efforts were also performed in the uplands area within the Acid Brook creek bed downstream of Lakeside Avenue.

The remainder of this section outlines the investigation efforts and associated data.

2.1 Bathymetry Surveys and Side Scan Sonar (Uncertainty #1)

Comparison of the 2011 and 2007 bathymetry indicated apparent sediment surface decreases in elevation in two areas. In addition, a data gap was noted in the lower Ramapo River channel to the Pompton Lake Dam since no data for this stretch were available from 2011. To further evaluate the two areas of decreased sediment elevation and data gap, a single beam bathymetric survey and side scan sonar data collection were performed in May 2013 to obtain current bathymetry and river bed characterization data.

As described in the *2013 Sediment Sampling Plan* (ARCADIS, July 2013), the survey consisted of single beam bathymetry and side scan sonar from Lakeside Avenue Bridge to the Pompton Lake Dam (excluding the area west of the previously identified remedial action objective [RAO] line). Completion of the side scan sonar work also included the collection of 30 representative samples (top 4 inches) for analysis of grain size distribution to assess the physical properties of the bed material. The resulting bathymetric and side scan sonar data (and grain size sample locations) are provided on Figures 2-1 and 2-2. Figures 2-3 and 2-4 provide a comparison of the 2007/2013 and 2011/2013 bathymetry, respectively. The following observations have been noted based on the results of these comparisons.

- The 2013 bathymetry shows an area of deeper water just downstream of Lakeside Avenue Bridge, along with deeper water areas along the length of the lower Ramapo River channel.

- The 2013 side scan sonar results show areas of gravel/sand just downstream of Lakeside Avenue Bridge, a significant area with vegetation in the lake, and primarily sand along the western portion of the lower Ramapo River and silt along the eastern portion.

- The bathymetric comparisons (2007/2011 versus 2013) show that the area downstream of Lakeside Avenue Bridge has decreased sediment surface elevations with changes within the majority of the remainder of the lake within the accuracy of the surveys (or showing increased sediment surface elevations). The lower Ramapo River primarily shows areas of decreased surface elevations along the length of the center area, and areas of no change or increased surface elevations along the shorelines.

- In general, areas of decreased surface sediment elevation exhibited in the 2007/2011 comparison appear to have increased surface sediment elevation when considering differences between 2011/2013, thereby indicating these areas have filled in since 2011.

The results from the bathymetry comparisons were then used to guide selection of sample locations to address data uncertainty #2 and were used to inform the sediment evaluation efforts (see Sections 2.2 and 4.1). The bathymetric comparisons were also used to support a hydrodynamic modeling analysis to evaluate hydrodynamic conditions and the potential for bed erosion for a range of flood flow conditions (see Section 3) to address data uncertainty #1.

2.2 Historical Validation and Data Set Adequacy Sediment Coring (Uncertainty #2)

Sediment sampling efforts were conducted in August 2013 to validate historical data outside the 26-acre remedial area; obtain additional data in areas with potential profile changes; and supplement the existing data set within the lower Ramapo River channel. These sampling efforts are further described below. All sampling efforts were performed using vibracoring techniques in accordance with the *2013 Sediment Sampling Plan* (ARCADIS, July 2013) and follow-up discussion with USEPA. Table 2-2 summarizes the historical validation and data assessment coring efforts.

Table 2-2: Sediment Sampling Efforts to Address Data Uncertainty #2

Monitoring or Sampling Approach	Sampling Locations	Sample Intervals
Historical validation		
Sediment coring and sampling at ~30% of historical locations for mercury analysis (target historical locations with higher mercury levels considering historical data results)	55 locations (42 in Pompton Lake and 13 in lower Ramapo River channel)	• Mimic historical core collection/ sampling event intervals • Sample surface (0-0.5 ft) and subsurface (0.5 ft of bottom of sediment layer) intervals • Intermediate 0.5-ft sample if recovered core has sediment thickness more than 2 ft
Data set adequacy		
Areas with similar to or increased surface sediment elevation	• 18 locations • Sediment coring and sampling over a ~100 m by ~100 m grid (~300 ft by ~300 ft) for mercury analysis	0-6, 6-12, 12-30 inches, and every 18 inches thereafter to bottom of sediment (segments to be altered to accommodate stratification in recovered material) and segment below sediment archived

Monitoring or Sampling Approach	Sampling Locations	Sample Intervals
Areas with decreased surface sediment elevation	• 8 locations • Sediment coring and sampling over a ~50 m by ~50 m grid (~150 ft by ~150 ft) for mercury analysis	
Supplemental data within lower Ramapo River channel	• 28 locations • Sediment coring and sampling in a grouping of 5 in between historical transects for mercury analysis • 3 additional locations in the channel based on USEPA's request	

All cores were visually evaluated for material type and stratigraphic layers, and were then segmented 0-6, 6-12, 12-30 inches, and every 18 inches thereafter to the bottom of sediment to assess mercury levels at surface and at depth. The segmentation scheme was altered to accommodate stratification in recovered material layers. The segment below the sediment layer (up to 18 inches depending on the stratigraphy) was archived for potential future analysis.

In total, 109 sediment cores were collected during these sampling efforts, with 288 samples submitted for mercury analysis (including duplicate samples) and additional samples archived for potential future analysis. All samples were submitted to Lancaster Laboratories, a New Jersey certified laboratory, for total mercury analysis using Method 7471A. Results from the sediment cores collection efforts are provided Figures 2-5 through 2-7, and Table 2-3 provides a summary of the mercury and percent moisture data.

The quality assurance/quality control (QA/QC) sampling and procedures were performed consistent with past sampling events (Parsons, June 2010) and in accordance with the QA/QC methods described in the *2005 NJDEP Field Sampling Procedures Manual.* The electronic data submitted for this sampling event was reviewed via the DuPont Data Review (DDR) process. The DDR is an automated internal review process used by the ADQM group to determine if the data are usable. The data are processed through this automated program where a series of checks are performed. The data are evaluated against hold time criteria, checked for blank contamination, and assessed against matrix spike/matrix spike duplicate (MS/MSD) recoveries, relative percent differences (RPDs) between samples and laboratory replicates, laboratory control sample/control sample duplicate (LCS/LCSD) recoveries, and surrogate spike recoveries. The DDR applies the following data qualifiers to analysis results, as warranted.

Table 2-4: DDR Analytical Qualifiers

Qualifier	Definition
B	Not detected substantially above the level in the laboratory field blanks.
R	Unusable result. Analyte may or may not be present in the sample.
J	Analyte present. Reported value may not be accurate or precise.
UJ	Not detected. Reporting limit may not be accurate or precise.

All data reported in this document were reviewed using the DDR process described above to determine data usability. No data used for evaluation/interpretation in this report were qualified "R". It should be noted that inherent variability is anticipated due to the nature of the matrix and constituents and that differences may not be an indicator of data quality issues. The field notes and DDR from this effort are provided in Appendix A.

2.3 Additional Upland Data Collection

A separate work stream related to the uplands was also completed to assist in evaluating several data gaps identified during a comprehensive review of the information related to the overall remedy of the lake. Data collection and sampling efforts were performed in the uplands area within the Acid Brook creek bed downstream of Lakeside Avenue. These efforts were conducted to further characterize mercury concentrations in sediments and provide a greater level of detail to aid excavation efforts in the vicinity of two buried sewer lines during future remediation activities. Using soft-dig techniques, ten sediment locations were sampled at one or more depths. Similar to the sediment samples described in Section 2.2, all samples were submitted to Lancaster Laboratories for total mercury analysis using Method 7471A. These efforts and corresponding results are described in detail in Appendix B.

3. Hydrodynamic Modeling Analysis – Uncertainty #1

Hydrodynamic and sediment transport modeling, in conjunction with the results of data analyses, were used to evaluate bed stability and changes in sediment bed elevation patterns within the lake over a wide range of flow conditions, including the 100-year flood that occurred during Hurricane Irene in 2011. The results of these analyses were then used to enhance the understanding of sediment transport and bed stability as presented in Section 5.

3.1 Data Analysis

3.1.1 Bed Property Information and Data

Grain size distribution (GSD) and side-scan sonar data were used to develop an understanding of the spatial distribution of bed properties within the lake. The GSD data were collected during October 2007 and May 2013 (Figure 3-1). Based on the GSD data (i.e., clay, silt, sand content), each sample was classified as cohesive (muddy) or non-cohesive (sandy) sediment (Figure 3-2). The side-scan sonar data provided information on the spatial distribution of four classifications of sediment bed composition: 1) silt; 2) sand; 3) gravel/sand; and 4) vegetation (Figure 3-2). The GSD and side-scan sonar data were used to separate the lake into six broad areas, with each area being composed of specific characteristics and bed properties (Figure 3-3 and Table 3-1).

Table 3-1: Characteristics of Areas 1 to 6

Area	Bathymetry Difference Data	Bed Properties
1	2007 to 2011 2011 to 2013 2007 to 2013	Non-cohesive sediment
2	2007 to 2011 2011 to 2013 2007 to 2013	Vegetated bed, cohesive and non-cohesive sediment
3	2007 to 2011 2011 to 2013 2007 to 2013	Cohesive sediment
4	2007 to 2013	Cohesive sediment
5	2007 to 2013	Non-cohesive sediment
6	2007 to 2011	Cohesive sediment with significant vegetation, area with highest mercury bed concentrations

The bed property data indicate that Areas 2 and 6 are unique because of the presence of vegetation. Vegetation significantly increases the stability (i.e., resistance to erosion) of the sediment bed. In addition, vegetation can affect current velocities in the lake due to an increase in drag on the water column. It is likely that the extent and density of vegetation in Areas 2 and 6 varies seasonally and from year-to-year.

3.1.2 Lake Hydrology

Flow rate data have been collected at the U.S. Geological Survey (USGS) gauging station on the Ramapo River since 1922. Stage height (pool level) in Pompton Lake has been measured since October 2009. Temporal variations in river flow rate and stage height in the lake for the approximately 7-year period from January 2007 through July 2013 are shown on Figures 3-4 thorough 3-10.

As discussed in Section 2.1, bathymetry surveys were conducted during 2007, 2011 and 2013. Significant hydrologic characteristics during the periods between the bathymetry surveys are:

- Period between 2007 and 2011 bathymetry surveys:
  - 25-year flood, March 2010
  - 10- to 25-year floods, March 2011
  - Drawdown of lake pool elevation in preparation for Hurricane Irene
  - Hurricane Irene (100-year flood), August 2011
- Period between 2011 and 2013 bathymetry surveys:
  - No high-flow events
  - Two drawdowns of lake pool elevation in preparation for Hurricane Sandy, October-November 2012

3.1.3 Bathymetry Data

Bathymetry data collected during the 2007, 2011 and 2013 surveys were analyzed so as to develop an improved understanding of the effects of high-flow events on bed elevation change and bed stability within the lake. The bathymetry data were used to calculate bed elevation change for three time periods: 1) 2007 to 2011 (Figures 3-11 and 3-12); 2) 2011 to 2013 (Figures 3-13 and 3-14); and 3) 2007 to 2013 (Figures 3-15 and 3-16). The following observations were derived from an evaluation of the spatial distribution of bed elevation change for the three time periods:

- Period between 2007 and 2011 bathymetry surveys (Figure 3-17)
  - Area 1: non-cohesive bed with both increases and decreases in sediment bed elevation
  - Area 2: 96% of the bed area was apparently increasing in elevation or minimal change
  - Area 3: 65% of the bed area was apparently decreasing in elevation or minimal change
- Period between 2011 and 2013 bathymetry surveys
  - Area 1: non-cohesive bed may have been affected by slumping or other processes
  - Area 2: relatively minor changes
  - Area 3: relatively minor changes
- Period between 2007 and 2013 bathymetry surveys
  - Area 1: similar to 2007-2011 changes
  - Area 2: similar to 2007-2011 changes
  - Area 3: similar to 2007-2011 changes
  - Area 4: primarily net decreases in sediment bed elevation
  - Area 5: primarily net decreases in sediment bed elevation
  - Area 6: relatively minor changes

3.2 Bed Stability Analysis

A hydrodynamic model of Pompton Lake, which was previously developed and calibrated (Quantitative Environmental Analysis [QEA] 2007), was used to predict the spatial distributions of current velocity and bed shear stress for hydrologic conditions ranging from low to moderate flow rates to a rare flood (i.e., Hurricane Irene). The modeling results were used to develop insights about bed stability and deposition patterns within the lake, as well support a conceptual site model for sediment transport.

3.2.1 Bed Stability During Rare Floods

The peak flow rate during Hurricane Irene, which occurred on August 28, 2011, was 17,800 cubic feet per second (cfs). This peak flow rate is 4% lower than the flow rate for the 100-year flood (18,500 cfs). River flow rate and lake stage height data were collected during Hurricane Irene (Figure 3-18). These data were used to specify inputs to the hydrodynamic model for simulating Hurricane Irene. This approach incorporates the temporal variations in stage height (lake pool level) and flow rate into the model, which is the most accurate and realistic method for simulating Hurricane Irene.

The effects of the lake pool drawdown on August 26 were also simulated by the hydrodynamic model. Temporal variations in predicted current velocity at five locations in the lake were evaluated (Figures 3-19 and 3-20). The modeling results show that during the pool drawdown current velocities were relatively low within the Study Area (i.e., less than about 1 foot per second (ft/s)). Bed shear stresses during the drawdown (Figure 3-21) would have caused minimal surficial sediment bed decreases in elevation (i.e., 0.1 to 0.3 centimeters) in a few isolated areas. No changes in sediment bed elevation would have occurred in most of the lake.

The maximum current velocity and bed shear stress occurred during peak flow rate conditions on August 28, when the lake was at or above full pool level (Figure 3-20). The spatial distribution of predicted maximum bed shear stress during Hurricane Irene is shown on Figure 3-22. A comparison of the spatial distributions of maximum bed shear stress (Figure 3-22) to bed elevation changes between 2007 and 2011 (Figures 3-11 and 3-12) indicates that, generally, net sediment bed elevation decreases occurred in areas of higher bed shear stress.

The effects of vegetation were not included in the hydrodynamic model for the simulation discussed above. Significant vegetation exists in various areas of the lake, with the extent and density of vegetation being spatially variable. Observed vegetation in the lake during August 2007 is shown on Figure 3-23. Vegetation creates additional drag in the water column, which reduces current velocity and can affect hydrodynamic circulation. Thus, the Hurricane Irene simulation was repeated with the effects of vegetation incorporated into the hydrodynamic model.

The spatial distribution of maximum bed shear stress predicted by the model, with vegetation effects included, during Hurricane Irene is shown on Figure 3-24. Comparison of these results to the model predictions without vegetation effects (Figure 3-22) indicates that the impacts of vegetation on hydrodynamics in the lake are significant. Additionally, comparison of the predicted bed shear stress distribution on Figure 3-24 to bed elevation changes between 2007 and 2011 (Figures 3-11 and 3-12) suggests that including vegetation effects in the hydrodynamic model produces increased reliability in the predictions for Hurricane Irene.

The results of the Hurricane Irene simulation, without vegetation effects (Figure 3-22), can be compared to model predictions for 10-, 25- and 100-year floods shown on Figures 3-25, 3-26 and 3-27, respectively. The maximum bed shear stresses increases as peak flow rate during a flood increases. The spatial distribution of maximum bed shear stress during Hurricane Irene and the 100-year flood are very similar due to relatively small difference in peak flow rate during these two floods.

The following conclusions were developed from the analysis of bed stability during floods:

- Hydrodynamic model results can be used to evaluate spatial distributions of current velocity and bed shear stress during high-flow events, including Hurricane Irene and 100-year flood.

- Good qualitative correlation exists between predicted bed shear stress during Hurricane Irene and observed sediment bed elevation increases-decreases spatial patterns for the 2007-2011 time period.

- The hydrodynamic model was used as a diagnostic tool to evaluate the effects of pool drawdown before Hurricane Irene, which showed that pool drawdown had minimal impact on bed stability.

- Bathymetry data collected during 2007, 2011 and 2013 provide excellent empirical evidence of the effects of the 100-year flood on bed stability in the lake.

3.2.2 Bed Stability During Low to Moderate Flow Conditions

Erosion rate data collected during Sedflume testing of sediment cores can be used to estimate the critical bed shear stress for erosion of surficial sediment. Sedflume data are available from a wide range of contaminated sediment sites, including:

- San Jacinto River (Texas)
- Holston River (Tennessee)
- Lower Duwamish Waterway (Washington)
- Lower Willamette River (Oregon)
- Patrick Bayou (Texas)

The cumulative frequency distribution of critical bed shear stress values for surficial sediment from 55 Sedflume cores collected at these five sites is shown on Figure 3-28. Critical bed shear stress for these 55 cores ranges from 0.1 to 1.2 Pascal (Pa). Based on these data, a representative critical bed shear stress of 0.2 Pa was used in the analysis discussed below.

The objective of the following hydrodynamic model simulations was to determine the flow rate at which the critical bed shear stress (0.2 Pa) was initially exceeded in Areas 1 to 6. The hydrodynamic model, including the effects of vegetation, was used to predict bed shear stress within the lake and river channel for these low to moderate flow rates: 300, 700, 1,100, 1,500, 1,900, 2,300, 3,100, 3,500 and 3,900 cfs. The 2-year flood (4,500 cfs) was also simulated. This range of flow rates corresponds approximately to the 70 to 99.5 percentile values of historical flow rates (USGS flow rate data collected in the Ramapo River from 1922 to 2013), see Figure 3-29. Spatial distributions of predicted bed shear stress for flow rates of 1,500, 1,900, 2,700 and 3,100 cfs are presented on Figures 3-30 through 3-33.

A summary of the approximate flow rate for exceeding the critical bed shear stress at some location within Areas 1 to 6 is provided in Table 3-2. The minimum flow rate for exceeding the critical bed shear stress at some location in the Study Area is 1,900 cfs, which occurs in Area 2. The cumulative frequency distribution of historical flow rates was used to determine the relative amount of time the sediment bed elevation in an entire area is not changing during a multi-year period, see Figure 3-34 and Table 3-2.

These results indicate that flow conditions that could cause bed elevation decreases in some area of the lake and river channel occur less than 1% of the time over a multi-year period, with all portions of the Study Area showing sediment bed elevation increases for at least 99% of the time.

Table 3-2: Summary of Critical BED Shear Stress Analysis Within Areas 1 to 6

Area	Approximate Flow Rate for Exceeding Critical Bed Shear Stress at Some Location Within Area (cfs)	Relative Amount of Time Sediment Bed Elevation in an Entire Area is Not Decreasing During a Multi-Year Period (%)
1	2,300	99.2
2	1,900	99.0
3	3,100	99.6
4	3,100	99.6
5	3,500	99.9
6	>4,500 (2-year flood)	>99.9

3.3 Evaluation of Deposition During Low to Moderate Flow Conditions

The hydrodynamic model simulations discussed in Section 3.2.2 were extended to include simulation of sediment transport. The objective of this analysis was to evaluate sediment bed change patterns in the Study Area during low to moderate flow conditions (i.e., 300 to 3,900 cfs), which occur greater than 99% of the time over a multi-year period. The effects of vegetation were included in the hydrodynamic model for these simulations.

The sediment transport model (i.e., SEDZLJ, see QEA (2008) for general description) was used to simulate the transport and deposition of cohesive (i.e., clay and silt particles) sediment. A settling speed of 5 meters per day (m/day) was assumed for the cohesive sediment particles, which have a typical range of 1 to 10 m/day. The critical shear stress for deposition was set at 0.2 Pa, where the probability of deposition is zero for bed shear stress values greater than the critical shear stress (i.e., no deposition occurs in locations where the bed shear is greater than 0.2 Pa).

The incoming sediment load at the inflow to the lake (i.e., upstream boundary of the model) was specified using total suspended sediment (TSS) concentration collected by the USGS in the Ramapo River. The correlation between TSS concentration and flow rate (i.e., sediment rating curve) in the Ramapo River is presented on Figure 3-35. For the flow rate range considered in this analysis (i.e., 300 to 3,900 cfs), the data shown on Figure 3-35 indicate that a representative value of TSS concentration at the upstream boundary of the model is 20 mg/L, which was used in the simulations discussed below.

Predicted deposition patterns in the Study Area for flow rates of 700, 1,500, 2,700, 3,100, 3,500 and 3,900 cfs are presented on Figures 3-36 through 3-41. The predicted deposition rates are approximate due to uncertainty in incoming sediment load and assumed settling speed. However, model results can be used to develop insights about sediment transport processes in the lake and river channel. Deposition rate tends to increase as flow rate increases because incoming sediment load is increasing with flow rate. Deposition rate will reach a maximum value and then decrease with flow rate due to probability of deposition effects. These model results were used to develop components of the conceptual site model for sediment transport that is discussed in Section 5.

4. Data Evaluation and Statistical Assessment – Uncertainty #2

Historical validation and data set adequacy cores were used to perform detailed data evaluations and statistical analysis in accordance with the approach outlined in Appendix B of the *2013 Sediment Sampling Plan* (ARCADIS, July 2013). This includes evaluation of the "historical data sets" (i.e., 2003 through 2007 and 2010 data) and 2013 data set (i.e., samples collected in summer 2013). This section describes the analyses conducted and associated conclusions.

Throughout the discussion in this section, samples are referred to as "lake" and "river" samples. For the purpose of this assessment, lake samples represent locations from Lakeside Avenue to just south of where the Ramapo River narrows, and river samples represent the locations between that point and the Pompton Lake Dam (Figures 2-5 through 2-6 and Figure 2-7, respectively). In addition, surface sediment refers to samples typically obtained from the top 0.5 foot of sediment, and subsurface refers to samples obtained below the surface (i.e., greater than 0.5 feet). Specifically, subsurface samples include deep samples collected from the bottom 0.5 foot of the core, and in some cases intermediate samples collected from mid-core if the core had greater than 2 feet of recovery. If a location had more than one subsurface sample (samples taken from different depths), the maximum reported subsurface concentration was used in this comparison, unless otherwise noted.

The remainder of this section is organized by surface and subsurface data evaluations (Sections 4.1 and 4.2, respectively). Prior to reviewing the data and associated comparisons, it is important to note that sediment data, even at small distances, are heterogeneous, and variability is inherent. This potential heterogeneity can be even more profound in the vertical direction. When comparing data from differing time periods, the sampling protocols used may also influence results. Data for individual locations that may show changes in mercury concentration should not necessarily be immediately interpreted as indicating changes in the mercury distribution, but rather should be considered as part of the body of evidence in the overall evaluation. It should also be noted that in addition to the observed heterogeneity, the mercury concentrations evaluated in most cases were better characterized by log normal rather than normal distributions, and as a result nonparametric statistical methods were used in the statistical evaluations.

4.1 Surface Sediment Mercury Concentrations

4.1.1 Comparison of Mercury Concentrations from Locations Selected for Resampling to the Complete Historical Data Set

As described in Section 2.2, in 2013 a subset of sediment sample locations (total of 55 historical validation locations) were targeted from locations sampled historically. To determine how representative the selected subset was of the complete larger historical data set, a series of frequency plots were developed and statistical analyses were performed to compare the surface mercury concentrations in the lake and river sediment using nonparametric t-tests for unpaired (Mann-Whitney Rank Sum Test). The cumulative frequency plots are provided on Figure 4-1 and summary statistics are presented on Table 4-1. Observations and conclusions resulting from this comparison are provided below.

<u>Pompton Lake Surface Sediment</u>: The lake surface sediment samples were very representative of the larger historical data set. The mean and median mercury concentrations in locations resampled (5.3 and 3.4 mg/kg, respectively), compared well to the overall historical mean and median (4.3 and 3.3 mg/kg, respectively). There was no statistical difference observed between the two data sets as evidenced by Mann-Whitney Rank Sum Test (p=0.483).

<u>Ramapo River Surface Sediment</u>: Similar to the lake results, the subset of river surface sample locations selected for resampling were very representative of the larger historical data set, with no statistical differences observed between the original dataset and selected subset. The mean and median mercury concentrations in the subset (1.6 and 1.9 mg/kg, respectively), compared well to the historical mean and median (2.4 and 1.7 mg/kg, respectively). The differences observed in the standard deviation are due to the resampled location subset not including one historical location (537-608) that had an unusually high (relative to other historical river surface samples) mercury concentration (27 mg/kg). There was no statistical difference observed between the two data sets as evidenced by the Mann-Whitney Rank Sum Test (p=0.861).

<u>Conclusion</u>: The surface locations selected in both the lake and river portions for resampling are representative of mercury concentrations in the larger historical data set, and as a result the observed changes at these selected locations over time (i.e., between historical and 2013 sampling) should therefore be representative of changes experienced by the respective areas.

4.1.2 Comparison of Mercury Concentrations at Historical and 2013 Resampled Surface Locations

Comparisons of mercury concentrations at the historical and corresponding 2013 resampled locations were performed using nonparametric t-tests for both unpaired (Mann-Whitney Rank Sum Test) and paired (Wilcoxon Signed Rank Test), with separate analyses conducted for the lake and river surface sediment. The unpaired analysis views the population of samples as a whole, while the paired analysis more sharply focuses on changes at individual locations. The results of comparisons of 2013 data to historical data collected from the resampled locations are summarized below.

Pompton Lake Surface Sediment: The unpaired and paired comparisons of the historical and 2013 resampled lake surface sediment mercury concentrations showed similar results. The unpaired comparison frequency distribution plot and associated statistics are provided on Figure 4-2 and Table 4-2, respectively. The figure shows that the overall populations were very similar and there was no statistically significant difference between the historical and 2013 data sets at resampled locations. The historical lake surface sediment mercury mean and median concentrations were 5.3 and 3.4 mg/kg, respectively, while the 2013 values were 4.6 and 2.7 mg/kg, respectively.

Similarly, Figure 4-3 presents the paired comparison, directly comparing historical and 2013 mercury concentrations for each location. A majority of the lake surface sediment mercury concentrations data plot close to the 1:1 line, indicating no change in mercury concentration over time. Again, there was no statistical difference observed between the two paired lake surface sediment data sets. For the paired data, out of more than 30 surface sediment sample locations from the lake, only 4 locations exhibit notable differences between the 2013 mercury concentrations and previously reported results.

Specifically, 537-330 shows a higher 2013 surface sediment concentration than the historical result and 537-280, TR-6, and 537-342 show lower 2013 surface sediment mercury concentrations than the historical results. Location 537-330 falls within an area shown to have little to no change in bathymetry. This location was also resampled in September 2013 as part of the ecological investigation efforts, and the resulting surface mercury was 2.97 mg/kg (versus the 28.9 mg/kg from the August 2013 sampling) which is more consistent with the historical data result. Locations 537-280, TR-6, and 537-342 all fall within the western margin of the lake adjacent to the ABD in an area shown to have little to no change in bathymetry.

Ramapo River Surface Sediment: The unpaired comparison of the historical and 2013 resampled river surface sediment mercury concentrations is provided on Figure 4-2. While there was not a statistically significant difference between the overall populations observed when nonparametric comparison of the medians was tested (historical = 1.9 mg/kg and 2013 = 2.2 mg/kg), there was a statistically significant higher mean mercury concentration in 2013 versus the historical mean (4.3 mg/kg vs. 1.6 mg/kg). A large part of the increased variability at the upper end of the 2013 concentration distribution, and the corresponding increase in mean concentration, is driven by higher mercury concentrations reported at two locations (537-482 and 537-474) as discussed below.

The paired comparison of historical and 2013 data for river surface samples is provided on Figure 4-3, and shows that mercury concentrations at a majority of the locations did not change significantly and usually fall close to the 1:1 line, indicating little or no change in concentration over time. There are, however, three locations with notable changes in mercury concentration that show higher 2013 surface concentrations versus historical concentrations (537-482 [10.2 mg/kg versus 2.2 mg/kg], 537-474 [19.4 mg/kg versus 2.4 mg/kg], and to a lesser extent 537-480A [8.3 mg/kg versus 1.4 mg/kg]). Locations 537-480A and 437-482 are located around the island area and 537-474 is located just above the dam along the east shore. The mercury concentrations at 537-482 and 537-474 account for nearly half of the total contribution to the mean.

Conclusion: For the lake, considering the overall data set, there was very little net change in concentrations over time and most of the individual locations indicate little or no change in surface sediment mercury concentration. For the river, considering the overall data set, there was a change in the range and variability of concentrations leading to an increase in concentration over time. Most of the increase in surface sediment concentration can be traced to two samples.

4.1.3 Comparison of 2013 Surface Data Adequacy Samples

Fifty-four additional locations were sampled in 2013 to provide mercury concentration data in areas with previously limited sampling coverage or potentially elevated mercury concentrations that, based on bathymetric comparisons, experienced changes in bed surface elevation since the last sampling event. Eighteen locations were sampled from lake areas with apparent increases in sediment bed elevation, eight locations from lake areas with suspected decreases in sediment bed elevation, and 28 locations in the river targeting areas in between prior historical transects in the channel and the additional sampling locations requested by USEPA. Comparisons are made below by lake and river for the 2013 data adequacy to the 2013 resampled locations and the combined 2013 data set to the historical data.

Pompton Lake Surface Sediment: The 26 data adequacy lake surface sediment samples had statistically significant lower mercury concentrations (mean = 1.42 mg/kg and median = 0.81 mg/kg) than the lake surface samples at the 2013 resampled locations (mean = 4.6 mg/kg and median = 2.7 mg/kg). This is possibly due to the difference in the distribution of sampling locations between the two groups, with the lake adequacy locations frequently taken from the main channel rather than the channel fringe. The samples targeting areas with increased sediment bed elevations were slightly lower in concentration (mean = 1.22 mg/kg and median = 0.73 mg/kg), compared to those targeted from areas with decreased sediment bed elevations (mean = 1.93 mg/kg and median = 2.04 mg/kg).

When comparing the combined lake surface sediment mercury data collected in 2013 (resampled and data adequacy locations) to the historical data, there is a reduction in mercury concentrations with time (Figure 4-4 and Table 4-3). The mean and median concentrations had a statistically significant decrease from historical values of 4.3 mg/kg and 3.3 mg/kg, respectively, to values of 3.4 mg/kg and 1.9 mg/kg, respectively in 2013.

Ramapo River Surface Sediment: For the river area, surface sediment concentrations for both the 2013 data adequacy and resampled locations were similar (no statistically significant difference) – mean and median concentrations were 3.87 mg/kg and 2.16 mg/kg, respectively for data adequacy samples and 4.3 mg/kg and 2.2 mg/kg, respectively for the resampled locations.

The comparison of the 2013 combined data to the historical data shows that the most notable change is an increase in the variability of the overall population, as a much wider range of values was observed in the 2013 resampled and data adequacy location data than in the historical data (Figure 4-4). Given the general log-normal nature of the data, while the median concentrations (central tendency) are similar (1.7 mg/kg and 2.2 mg/kg, respectively), the increase in variability impacts the mean concentrations, which increased from 2.4 mg/kg to 4.0 mg/kg, respectively.

Conclusion: Mercury concentrations in lake surface data adequacy samples were lower than either the historical or 2013 resampled concentrations, indicating that the historical coverage provides a conservative estimate of mercury concentrations in the lake. For the river, the 2013 data adequacy and resampled data are very similar, but more variable and higher in concentration than the historical samples. There are no meaningful differences in the overall mercury concentrations for the lake or river surface sediment data that would indicate that historical data are not useable or that the CSM should be re-evaluated.

4.2 Subsurface Sediment Mercury Concentrations

4.2.1 Comparison of Mercury Concentrations from Locations Selected for Resampling to the Complete Historical Data Set

As described in Section 2.2, the locations selected for resampling in 2013 targeted a subset of locations that had been sampled historically to provide comparable mercury data. Consistent with the surface locations, a series of frequency plots were developed and statistical analyses were performed to compare the complete historical data and the resampled subset for subsurface mercury concentrations in the lake and river sediment using nonparametric t-tests for unpaired (Mann-Whitney Rank Sum Test). These were evaluated to determine how well the historical mercury data from the subset represented the larger data set as a whole. The cumulative frequency plots are provided on Figure 4-1 and summary statistics are presented on Table 4-1. Observations and conclusions resulting from this comparison are provided below.

Pompton Lake Subsurface Sediment: Based on comparison of the historical and 2013 subsurface sediment mercury data, the locations resampled were biased slightly toward those locations with higher mercury concentrations. Results of the Mann-Whitney Rank Sum Test indicated that the resampled locations had a significantly higher median than the overall historical dataset ($p=0.014$). The mean and median mercury concentrations in the locations resampled were 17.2 mg/kg and 14.0 mg/kg, respectively. The overall historical mean and median were 12.8 mg/kg and 8.0 mg/kg, respectively.

Ramapo River Subsurface Sediment: Consistent with the lake subsurface, the selected river subsurface locations showed a bias toward higher concentrations in the locations to be resampled (as was originally targeted during development of the sampling plan). Even though the Mann-Whitney Rank Sum Test provided a result of no statistical difference, this conclusion was based on $p=0.057$ which could still be cautiously interpreted as a significant difference considering the known population bias toward higher concentration areas. The mean and median river subsurface mercury concentrations in locations resampled were 21.1 mg/kg and 20.6 mg/kg, respectively, which are cautiously interpreted as statistically significantly greater than the historical mean and median of 14.1 mg/kg and 13.6 mg/kg, respectively. Since the statistical evaluation includes the locations selected for resampling in both data sets, this also confounds the statistical determination of a difference. If the sites selected for resampling are compared to those not selected, the difference becomes clearer and statistically significant ($p = 0.004$).

Conclusion: Both the lake and river locations resampled in 2013 were subsets of historical data with higher mercury concentrations than the overall average for the respective areas. Therefore, in subsequent evaluation of 2013 data collected at these resampled locations, it should be recognized that the data may not representative of the whole lake and river subsurface population, but possibly biased to the areas of apparent higher concentrations. As such, these locations would represent a conservative basis for evaluating changes over time.

4.2.2 Comparison of Mercury Concentrations at Historical and 2013 Resampled Subsurface Locations

Comparisons of the historical and 2013 mercury concentrations from resampled locations were performed using nonparametric t-tests for both unpaired (Mann-Whitney Rank Sum Test) and paired (Wilcoxon Signed Rank Test) data, with separate analyses conducted for the lake and river subsurface sediment (consistent with the surface sediment, see Section 4.1.2). The results of comparison of 2013 data to historical mercury concentration data collected from the resampled subsurface locations are summarized below.

Pompton Lake Subsurface Sediment: The unpaired and paired comparisons of the historical and 2013 resampled lake subsurface sample mercury results were confounded by the collection of multiple subsurface data at several coring locations. Many of the locations had only one associated subsurface sample taken for the bottom of the identified sediment profile; however, for this analysis, if there was more than one subsurface sample per core (i.e., bottom and intermediate sample if the recovered core was greater than 2 feet), the sample with the highest mercury concentration observed in the subsurface was used as the value for the core.

The unpaired cumulative frequency distribution plot and associated statistics are provided in Figure 4-2 and Table 4-2. This figure shows that the overall populations were generally similar and no significant statistical difference was observed between the historical and 2013 data sets at resampled locations when using the maximum subsurface mercury concentration data. The historical lake subsurface mercury mean and median were 17.2 mg/kg and 14 mg/kg, respectively, while the 2013 values were 15.8 mg/kg and 11.4 mg/kg, respectively – a minor net change.

Figure 4-3 presents the paired comparison of historical and 2013 subsurface mercury concentration recorded for each location. When viewed on a location specific basis, the subsurface mercury data demonstrate significantly more scatter than was observed in the corresponding surface data, both increasing and decreasing in 2013 compared to historical data with no specific overall pattern. Four locations exhibited a notable increase in mercury concentration while 11 showed a notable decrease.

If only the deepest sample is used instead of the maximum subsurface concentration for comparison, the 2013 data shows an overall reduction in mercury concentration for both the unpaired and paired data comparison. It should be again noted that for many locations there was only one subsurface sample obtained.

Ramapo River Subsurface Sediment: The unpaired and paired comparisons of the historical and 2013 resampled river subsurface mercury results exhibited some variability, but a generally similar overall population distribution. As with the lake subsamples, the maximum mercury concentration observed in the subsurface was used as the value for the respective cores. The unpaired cumulative frequency distribution plot and associated statistics is provided in Figure 4-2. The historical river subsurface mercury concentration mean and median were 21.1 mg/kg and 20.6 mg/kg, respectively, while the 2013 values were 17.3 mg/kg and 16.9 mg/kg, respectively. Figure 4-3 presents the paired comparison of historical and 2013 subsurface data recorded for each location. Two samples, 537-480 and 537-467, have notable decreases in mercury concentrations over time, while the others locations are generally well-centered around the 1:1 line.

Conclusion: There was minor net reduction in the overall lake subsurface mercury concentration between historical and 2013 resampled locations when comparisons are made on a maximum core concentration basis. Results at individual locations were more scattered with frequent difference both increasing and decreasing in concentration. The river subsurface historical and 2013 mercury data also had similar minor reductions over time, with scattered changes at individual locations.

4.2.3 Comparison of 2013 Subsurface Data Adequacy Samples

As described earlier (Section 2.2 and 4.1.3), 54 additional locations were sampled in 2013 to provide mercury concentration data in areas with previously limited sampling coverage or potentially elevated mercury concentrations that experienced changes in bed surface elevation based on bathymetric comparisons. Eighteen locations were sampled from lake areas with apparent increases in sediment bed elevation, eight locations from lake areas with suspected decreases in sediment bed elevation, and 28 locations in the river targeting areas in between prior historical transects in the channel and the additional sampling locations requested by USEPA. The comparisons made below by lake and river include 2013 data adequacy to the 2013 resampled locations and the combined 2013 data set to the historical data.

Pompton Lake Surface Sediment: For the 2013 lake subsurface sediment maximum mercury concentrations, the data adequacy samples were generally lower in mercury than the resampled locations resulting in a significant difference in the means (7.55 mg/kg vs.15.8 mg/kg) and medians (4.26 mg/kg vs.11.4 mg/kg). This difference may be an artifact of the intentional sampling of higher known mercury concentration areas in the resampled dataset while the data adequacy samples were more randomly assigned.

The historical and 2013 mercury concentrations for lake subsurface data show no statistical differences. The cumulative frequency distributions for both are similar (Figure 4-4), and the historical and 2013 mean mercury concentrations were both 12.8 mg/kg and the medians were 8.0 mg/kg and 8.7 mg/kg, respectively (Table 4-3).

Ramapo River Subsurface Sediment: For the 2013 river subsurface data, maximum concentrations of the data adequacy samples appear to be a mix of both the higher mercury concentration population from the resampled locations (which were biased towards higher concentration during the selection process) and a much lower (approximately two orders of magnitude lower concentration) population. This pattern is similar to the pattern observed in the overall historical river subsurface data set. The mean and median of the river subsurface data adequacy samples were 13.31 mg/kg and 12.7 mg/kg, respectively, while the resampled locations had a mean and median mercury concentration of 17.3 mg/kg and 16.9 mg/kg, respectively. There was no statistically significant difference between the data adequacy and resampled locations.

The historical and 2013 mercury concentrations for the river subsurface sediment are also very similar (Figure 4-4) and are not statistically different. The mean and median of the historical river subsurface data are 14.1 mg/kg and 13.6 mg/kg, respectively, while for the 2013 data are 14.3 mg/kg and 13.5 mg/kg, respectively.

Conclusion: Despite some variations in mercury concentrations noted at individual resampled locations, there are no meaningful differences in the overall mercury concentrations for subsurface data in either the lake or river that would indicate that historical data are not useable. The current data does not impact the existing CSM.

5. Overall Conclusions and CSM Assessment

A number of site investigations and corresponding data analyses were conducted to address the data uncertainties outlined in Section 2 and ultimately evaluate the CSM presented in Section 1. Sections 3 and 4 present the results of these analyses including the hydrodynamic modeling efforts and statistical evaluation performed on the mercury and bathymetric data. Based on these analyses, the bullets provided below can be added to the principle elements of the CSM listed in Section 1 (see also ARCADIS et al., June 2013 for additional details on the CSM).

- Sediment transport and bed stability: Most of the lake (Areas 1, 2 and 6) is depositional for flow rates up to the 2-year flood. Model simulations for flow rates greater than the 2-year flood were not conducted, but deposition is expected to occur within portions of Areas 1, 2 and 6 for higher flow rates. The non-vegetated channel in the central portion of the lake is depositional for flow rates below approximately 1,500 to 2,000 cfs, which occurs about 98% of the time for multi-year periods. The river channel (Areas 3, 4 and 5) is a depositional environment for flow rates less than about 3,000 cfs, which occurs about 99.5% of the time for multi-year periods. The sediment bed builds up (aggrades) during long periods of low to moderate flow rate that occur between episodic floods. Some decreases in bed elevation may occur with episodic flood events, however this material would be related to that sediment deposited during lower flow conditions.

- Mercury concentrations over time: The results of sediment sampling conducted in 2013 do not indicate major changes in mercury concentration in the Pompton Lake system as a result of hydrodynamic events that would either bring into question use of historical analytical data or cause fundamental reexamination of the CSM. The lake surface sediment mercury concentration exhibit very little change since 2007, and despite some location specific changes increasing and decreasing over time, overall sediment concentration in the lake and river are similar to historical levels.

6. References

ARCADIS. July 2013. *2013 Sediment Sampling Plan. Pompton Lake Acid Brook Delta Area Project. DuPont Pompton Lakes Works.*

ARCADIS. June 2013. *Draft Technical Memorandum: Conceptual Site Model. Pompton Lake Acid Brook Delta Area Project. DuPont Pompton Lakes Works.*

QEA. November 2007. *Evaluation of Pompton Lake Hydrodynamics and Transport Processes*.

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Tables

Table 2-3a: 2013 Sediment Core Sampling Mercury Results
Technical Memorandum: Updated Conceptual Site Model
Pompton Lake Acid Brook Delta Area Project
DuPont Pompton Lakes Works, Pompton Lakes, New Jersey

Field Sample ID	Location ID	Date Sampled	Report Result	Report Units	Lab Qualifier	Top Depth (in)	Bottom Depth (in)
SD081513-537-641-0004	537-641	8/15/2013	0.524	MG/KG		0	4
SD081313-537-642-0006	537-642	8/13/2013	2.59	MG/KG		0	6
SD081313-537-642-0612	537-642	8/13/2013	1.62	MG/KG		6	12
SD081313-537-642-1224	537-642	8/13/2013	1.39	MG/KG		12	24
SD081513-537-644-0006	537-644	8/15/2013	0.0685	MG/KG	J	0	6
SD081513-537-644-0612	537-644	8/15/2013	0.0171	MG/KG	J	6	12
SD081513-537-DUP-10-081513	537-645	8/15/2013	2.14	MG/KG		0	6
SD081513-537-645-0006	537-645	8/15/2013	2.04	MG/KG		0	6
SD081513-537-645-0612	537-645	8/15/2013	5.15	MG/KG		6	12
SD081513-537-645-1225	537-645	8/15/2013	11.2	MG/KG		12	25
SD081313-537-646-0002	537-646	8/13/2013	0.235	MG/KG		0	2
SD081313-537-647-0006	537-647	8/13/2013	2.6	MG/KG		0	6
SD081313-537-647-0612	537-647	8/13/2013	10.1	MG/KG		6	12
SD081313-537-647-1224	537-647	8/13/2013	15.7	MG/KG		12	24
SD081313-537-DUP-2-081313	537-647	8/13/2013	9.34	MG/KG		12	24
SD081613-537-648-0006	537-648	8/16/2013	5.42	MG/KG		0	6
SD081613-537-648-0611	537-648	8/16/2013	13.7	MG/KG		6	11
SD081513-537-649-0002	537-649	8/15/2013	0.271	MG/KG		0	2
SD081513-537-650-0006	537-650	8/15/2013	3	MG/KG		0	6
SD081513-537-650-0612	537-650	8/15/2013	1.92	MG/KG		6	12
SD081413-537-651-0006	537-651	8/14/2013	0.213	MG/KG	J	0	6
SD081413-537-651-0612	537-651	8/14/2013	0.423	MG/KG		6	12
SD081413-537-651-1226	537-651	8/14/2013	1.47	MG/KG		12	26
SD081513-537-652-0006	537-652	8/15/2013	0.136	MG/KG	J	0	6
SD081513-537-652-0612	537-652	8/15/2013	0.878	MG/KG		6	12
SD081513-537-652-1230	537-652	8/15/2013	4.26	MG/KG		12	30
SD081513-537-652-3035	537-652	8/15/2013	0.113	MG/KG	J	30	35
SD081413-537-653-0006	537-653	8/14/2013	0.637	MG/KG		0	6
SD081413-537-653-0612	537-653	8/14/2013	1.31	MG/KG		6	12
SD081413-537-653-1224	537-653	8/14/2013	3.09	MG/KG		12	24
SD081413-537-654-0006	537-654	8/14/2013	2.94	MG/KG		0	6
SD081413-537-654-0612	537-654	8/14/2013	3.43	MG/KG		6	12
SD081413-537-654-1230	537-654	8/14/2013	4.35	MG/KG		12	30
SD081413-537-654-3036	537-654	8/14/2013	23.9	MG/KG		30	36
SD081413-537-655-0006	537-655	8/14/2013	0.0964	MG/KG	J	0	6
SD081413-537-655-0612	537-655	8/14/2013	1.9	MG/KG		6	12
SD081413-537-655-1218	537-655	8/14/2013	0.46	MG/KG		12	18
SD081513-537-656-0006	537-656	8/15/2013	0.189	MG/KG		0	6
SD081513-537-657-0006	537-657	8/15/2013	4.44	MG/KG		0	6
SD081513-537-657-0612	537-657	8/15/2013	0.353	MG/KG		6	12
SD081513-537-657-1230	537-657	8/15/2013	0.0497	MG/KG	J	12	30
SD081513-537-657-3048	537-657	8/15/2013	0.0365	MG/KG	J	30	48
SD081513-537-658-0006	537-658	8/15/2013	0.0804	MG/KG	J	0	6
SD081513-537-658-0612	537-658	8/15/2013	0.777	MG/KG		6	12
SD081513-537-658-1230	537-658	8/15/2013	2.38	MG/KG		12	30
SD081513-537-659-0006	537-659	8/15/2013	0.547	MG/KG		0	6

Table 2-3a: 2013 Sediment Core Sampling Mercury Results
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Pompton Lake Acid Brook Delta Area Project
DuPont Pompton Lakes Works, Pompton Lakes, New Jersey

Field Sample ID	Location ID	Date Sampled	Report Result	Report Units	Lab Qualifier	Top Depth (in)	Bottom Depth (in)
SD081513-537-659-0612	537-659	8/15/2013	1.31	MG/KG		6	12
SD081513-537-DUP-7-081513	537-659	8/15/2013	2.18	MG/KG		12	30
SD081513-537-659-1230	537-659	8/15/2013	2.69	MG/KG		12	30
SD081513-537-659-3042	537-659	8/15/2013	0.0581	MG/KG	J	30	42
SD081513-537-660-0006	537-660	8/15/2013	1.61	MG/KG		0	6
SD081513-537-660-0612	537-660	8/15/2013	2.5	MG/KG		6	12
SD081513-537-660-1230	537-660	8/15/2013	7.32	MG/KG		12	30
SD081513-537-660-3048	537-660	8/15/2013	0.524	MG/KG		30	48
SD081513-537-661-0006	537-661	8/15/2013	1.07	MG/KG		0	6
SD081513-537-661-0612	537-661	8/15/2013	1.21	MG/KG		6	12
SD081513-537-661-1230	537-661	8/15/2013	3.34	MG/KG		12	30
SD081513-537-662-0006	537-662	8/15/2013	0.813	MG/KG		0	6
SD081513-537-DUP-9-081513	537-662	8/15/2013	0.872	MG/KG		0	6
SD081513-537-662-0612	537-662	8/15/2013	2.5	MG/KG		6	12
SD081513-537-662-1230	537-662	8/15/2013	9.45	MG/KG		12	30
SD081513-537-662-3048	537-662	8/15/2013	0.0541	MG/KG	J	30	48
SD081513-537-663-0006	537-663	8/15/2013	1.56	MG/KG		0	6
SD081513-537-663-0612	537-663	8/15/2013	14.6	MG/KG		6	12
SD081513-537-663-1230	537-663	8/15/2013	0.112	MG/KG	J	12	30
SD081513-537-664-0006	537-664	8/15/2013	1.46	MG/KG		0	6
SD081513-537-664-0612	537-664	8/15/2013	19.5	MG/KG		6	12
SD081513-537-664-1230	537-664	8/15/2013	0.0651	MG/KG	J	12	30
SD081513-537-665-0006	537-665	8/15/2013	0.453	MG/KG		0	6
SD081513-537-665-0612	537-665	8/15/2013	1.44	MG/KG		6	12
SD081513-537-665-1227	537-665	8/15/2013	8.04	MG/KG		12	27
SD081613-537-666-0006	537-666	8/16/2013	2.56	MG/KG		0	6
SD081613-537-666-0612	537-666	8/16/2013	3.12	MG/KG		6	12
SD081613-537-DUP-12-081613	537-666	8/16/2013	4.17	MG/KG		12	30
SD081613-537-666-1230	537-666	8/16/2013	3.82	MG/KG		12	30
SD081613-537-666-3050	537-666	8/16/2013	12.1	MG/KG		30	50
SD082113-537-667-0006	537-667	8/21/2013	0.0127	MG/KG	U	0	6
SD082113-537-667-0612	537-667	8/21/2013	0.0132	MG/KG	U	6	12
SD082113-537-DUP-16-082113	537-667	8/21/2013	0.0129	MG/KG	U	12	19
SD082113-537-667-1219	537-667	8/21/2013	0.0134	MG/KG	U	12	19
SD082113-537-668-0006	537-668	8/21/2013	3.63	MG/KG		0	6
SD082113-537-668-0610	537-668	8/21/2013	10.2	MG/KG		6	10
SD082113-537-669-0006	537-669	8/21/2013	15.3	MG/KG		0	6
SD082113-537-669-0612	537-669	8/21/2013	0.38	MG/KG		6	12
SD082113-537-669-1230	537-669	8/21/2013	0.0191	MG/KG	J	12	30
SD082113-537-DUP-14-082113	537-669	8/21/2013	0.0224	MG/KG	J	30	44
SD082113-537-669-3044	537-669	8/21/2013	0.023	MG/KG	J	30	44
SD082113-537-670-0006	537-670	8/21/2013	4.34	MG/KG		0	6
SD082113-537-670-0612	537-670	8/21/2013	2.81	MG/KG		6	12
SD082113-537-670-1224	537-670	8/21/2013	14.1	MG/KG		12	24
SD082113-537-671-0006	537-671	8/21/2013	0.278	MG/KG		0	6
SD082113-537-671-0612	537-671	8/21/2013	0.0392	MG/KG	J	6	12

Table 2-3a: 2013 Sediment Core Sampling Mercury Results
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Field Sample ID	Location ID	Date Sampled	Report Result	Report Units	Lab Qualifier	Top Depth (in)	Bottom Depth (in)
SD082113-537-671-1224	537-671	8/21/2013	0.039	MG/KG	J	12	24
SD082113-537-672-0003	537-672	8/21/2013	10.8	MG/KG		0	3
SD082113-537-673-0006	537-673	8/21/2013	12	MG/KG		0	6
SD082113-537-673-0612	537-673	8/21/2013	15	MG/KG		6	12
SD082113-537-673-1224	537-673	8/21/2013	0.062	MG/KG	J	12	24
SD082113-537-DUP-15-082113	537-673	8/21/2013	0.0391	MG/KG	J	12	24
SD082113-537-674-0006	537-674	8/21/2013	0.0128	MG/KG	U	0	6
SD082113-537-674-0611	537-674	8/21/2013	0.0544	MG/KG	J	6	11
SD082113-537-675-0006	537-675	8/21/2013	19.6	MG/KG		0	6
SD082113-537-675-0613	537-675	8/21/2013	25	MG/KG		6	13
SD082113-537-676-0007	537-676	8/21/2013	1.09	MG/KG		0	7
SD082113-537-677-0006	537-677	8/21/2013	2.76	MG/KG		0	6
SD082113-537-677-0612	537-677	8/21/2013	3.74	MG/KG		6	12
SD082113-537-677-1221	537-677	8/21/2013	8.67	MG/KG		12	21
SD082113-537-678-0006	537-678	8/21/2013	2.16	MG/KG		0	6
SD082113-537-678-0612	537-678	8/21/2013	4.75	MG/KG		6	12
SD082113-537-678-1230	537-678	8/21/2013	28.1	MG/KG		12	30
SD082113-537-679-0006	537-679	8/21/2013	2.15	MG/KG		0	6
SD082113-537-679-0612	537-679	8/21/2013	3.53	MG/KG		6	12
SD082113-537-679-1226	537-679	8/21/2013	13.5	MG/KG		12	26
SD082113-537-680-0006	537-680	8/21/2013	0.0601	MG/KG	J	0	6
SD082113-537-680-0612	537-680	8/21/2013	0.0341	MG/KG	J	6	12
SD082113-537-680-1230	537-680	8/21/2013	0.0298	MG/KG	J	12	30
SD082113-537-680-3048	537-680	8/21/2013	0.0296	MG/KG	J	30	48
SD082113-537-680-4859	537-680	8/21/2013	0.0216	MG/KG	J	48	59
SD082113-537-681-0006	537-681	8/21/2013	0.11	MG/KG	J	0	6
SD082113-537-681-0612	537-681	8/21/2013	0.104	MG/KG	J	6	12
SD082113-537-681-1230	537-681	8/21/2013	2.57	MG/KG		12	30
SD082113-537-681-3048	537-681	8/21/2013	13	MG/KG		30	48
SD082113-537-681-4852	537-681	8/21/2013	39.5	MG/KG		48	52
SD082113-537-682-0006	537-682	8/21/2013	0.624	MG/KG		0	6
SD082113-537-682-0612	537-682	8/21/2013	2.61	MG/KG		6	12
SD082113-537-682-1230	537-682	8/21/2013	5.16	MG/KG		12	30
SD082113-537-682-3046	537-682	8/21/2013	17.3	MG/KG		30	46
SD082113-537-683-0006	537-683	8/21/2013	0.971	MG/KG		0	6
SD082113-537-683-0612	537-683	8/21/2013	6.31	MG/KG		6	12
SD082113-537-DUP-13-082113	537-683	8/21/2013	2.47	MG/KG		12	32
SD082113-537-683-1232	537-683	8/21/2013	1.22	MG/KG		12	32
SD082213-537-684-0006	537-684	8/22/2013	2.66	MG/KG		0	6
SD082213-537-684-0612	537-684	8/22/2013	3	MG/KG		6	12
SD082213-537-684-1230	537-684	8/22/2013	12.7	MG/KG		12	30
SD082213-537-684-3036	537-684	8/22/2013	0.075	MG/KG	J	30	36
SD082113-537-685-0006	537-685	8/21/2013	4.21	MG/KG		0	6
SD082113-537-685-0612	537-685	8/21/2013	12.1	MG/KG		6	12
SD082113-537-685-1230	537-685	8/21/2013	5.43	MG/KG		12	30
SD082113-537-685-3048	537-685	8/21/2013	0.0194	MG/KG	U	30	48

Table 2-3a: 2013 Sediment Core Sampling Mercury Results
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Field Sample ID	Location ID	Date Sampled	Report Result	Report Units	Lab Qualifier	Top Depth (in)	Bottom Depth (in)
SD082113-537-685-4856	537-685	8/21/2013	0.0215	MG/KG	U	48	56
SD082113-537-686-0006	537-686	8/21/2013	0.0124	MG/KG	U	0	6
SD082113-537-686-0612	537-686	8/21/2013	0.0118	MG/KG	U	6	12
SD081313-537-687-0006	537-687	8/13/2013	2.12	MG/KG		0	6
SD081313-537-687-0612	537-687	8/13/2013	2.61	MG/KG		6	12
SD081313-537-687-1230	537-687	8/13/2013	13	MG/KG		12	30
SD081413-537-688-0004	537-688	8/14/2013	1.96	MG/KG		0	4
SD081413-537-689-0002	537-689	8/14/2013	0.938	MG/KG		0	2
SD081413-537-690-0003	537-690	8/14/2013	0.0319	MG/KG	J	0	3
SD081313-537-691-0006	537-691	8/13/2013	11.3	MG/KG		0	6
SD081313-537-691-0612	537-691	8/13/2013	20.1	MG/KG		6	12
SD082213-537-692-0006	537-692	8/22/2013	2.93	MG/KG		0	6
SD082213-537-692-0612	537-692	8/22/2013	7.34	MG/KG		6	12
SD082213-537-692-1223	537-692	8/22/2013	10.4	MG/KG		12	23
SD082213-537-DUP-17-082213	537-692	8/22/2013	6.64	MG/KG		12	23
SD082213-537-693-0006	537-693	8/22/2013	4.13	MG/KG		0	6
SD082213-537-693-0612	537-693	8/22/2013	43.4	MG/KG		6	12
SD082213-537-693-1223	537-693	8/22/2013	0.366	MG/KG		12	23
SD082213-537-694-0006	537-694	8/22/2013	2.19	MG/KG		0	6
SD082213-537-694-0614	537-694	8/22/2013	16.3	MG/KG		6	14
SD082213-537-694-1417	537-694	8/22/2013	0.0452	MG/KG	J	14	17
SD081313-537-240B-0006	537-240B	8/13/2013	10.6	MG/KG		0	6
SD081313-537-DUP-1-081313	537-240B	8/13/2013	11.7	MG/KG		0	6
SD081313-537-240B-0612	537-240B	8/13/2013	24.3	MG/KG		6	12
SD081513-537-249B-0006	537-249B	8/15/2013	9.05	MG/KG		0	6
SD081513-537-DUP-11-081513	537-249B	8/15/2013	7	MG/KG		6	12
SD081513-537-249B-0612	537-249B	8/15/2013	5.64	MG/KG		6	12
SD081313-537-253B-0006	537-253B	8/13/2013	14.7	MG/KG		0	6
SD081313-537-253B-1218	537-253B	8/13/2013	38.9	MG/KG		12	18
SD081413-537-278B-0006	537-278B	8/14/2013	7.68	MG/KG		0	6
SD081413-537-278B-1824	537-278B	8/14/2013	25.7	MG/KG		18	24
SD081313-537-280B-0006	537-280B	8/13/2013	3.58	MG/KG		0	6
SD081313-537-280B-1218	537-280B	8/13/2013	28.5	MG/KG		12	18
SD081413-537-282B-0006	537-282B	8/14/2013	7.75	MG/KG		0	6
SD081413-537-282B-1824	537-282B	8/14/2013	0.421	MG/KG		18	24
SD081413-537-291B-0006	537-291B	8/14/2013	5.47	MG/KG		0	6
SD081413-537-316B-0006	537-316B	8/14/2013	3.31	MG/KG		0	6
SD081413-537-316B-1521	537-316B	8/14/2013	7.3	MG/KG		15	21
SD081413-537-316B-3036	537-316B	8/14/2013	40.4	MG/KG		30	36
SD081413-537-318B-0006	537-318B	8/14/2013	4.33	MG/KG		0	6
SD081413-537-318B-1521	537-318B	8/14/2013	25.9	MG/KG		15	21
SD081413-537-318B-3036	537-318B	8/14/2013	3.99	MG/KG		30	36
SD081413-537-320B-0006	537-320B	8/14/2013	4.84	MG/KG		0	6
SD081413-537-320B-1218	537-320B	8/14/2013	17.9	MG/KG		12	18
SD081413-537-321B-0006	537-321B	8/14/2013	3.1	MG/KG		0	6
SD081513-537-325B-0006	537-325B	8/15/2013	10.1	MG/KG		0	6

Table 2-3a: 2013 Sediment Core Sampling Mercury Results
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Field Sample ID	Location ID	Date Sampled	Report Result	Report Units	Lab Qualifier	Top Depth (in)	Bottom Depth (in)
SD081513-537-325B-1016	537-325B	8/15/2013	1.08	MG/KG		10	16
SD081313-537-330B-0006	537-330B	8/13/2013	28.9	MG/KG		0	6
SD081313-537-330B-0814	537-330B	8/13/2013	1.94	MG/KG		8	14
SD081313-537-342B-0006	537-342B	8/13/2013	1.73	MG/KG		0	6
SD081313-537-342B-0612	537-342B	8/13/2013	0.153	MG/KG		6	12
SD081413-537-343B-0006	537-343B	8/14/2013	1.72	MG/KG		0	6
SD081413-537-343B-2127	537-343B	8/14/2013	7.72	MG/KG		21	27
SD081413-537-343B-3642	537-343B	8/14/2013	26.1	MG/KG		36	42
SD081413-537-344B-0006	537-344B	8/14/2013	0.695	MG/KG		0	6
SD081413-537-377B-1016	537-377B	8/14/2013	17.7	MG/KG		10	16
SD081613-537-404B-0006	537-404B	8/16/2013	8.59	MG/KG		0	6
SD081613-537-404B-1824	537-404B	8/16/2013	0.431	MG/KG		18	24
SD081513-537-405B-0006	537-405B	8/15/2013	1.25	MG/KG		0	6
SD081513-537-405B-2733	537-405B	8/15/2013	19.7	MG/KG		27	33
SD081513-537-405B-5460	537-405B	8/15/2013	0.0374	MG/KG	J	54	60
SD081513-537-427B-0006	537-427B	8/15/2013	0.84	MG/KG		0	6
SD081513-537-427B-2127	537-427B	8/15/2013	9.38	MG/KG		21	27
SD081513-537-427B-4248	537-427B	8/15/2013	0.042	MG/KG	J	42	48
SD081613-537-431B-0006	537-431B	8/16/2013	2.97	MG/KG		0	6
SD081613-537-431B-1925	537-431B	8/16/2013	0.244	MG/KG		19	25
SD081613-537-431B-3945	537-431B	8/16/2013	0.0173	MG/KG	J	39	45
SD081613-537-432B-0006	537-432B	8/16/2013	1.52	MG/KG		0	6
SD081613-537-432B-1824	537-432B	8/16/2013	38.6	MG/KG		18	24
SD081613-537-432B-3844	537-432B	8/16/2013	0.0125	MG/KG	U	38	44
SD081613-537-435B-0006	537-435B	8/16/2013	2.2	MG/KG		0	6
SD081613-537-435B-4652	537-435B	8/16/2013	1.97	MG/KG		46	52
SD081613-537-435B-9298	537-435B	8/16/2013	35	MG/KG		92	98
SD081313-537-437B-0006	537-437B	8/13/2013	0.013	MG/KG	U	0	6
SD081513-537-443B-0006	537-443B	8/15/2013	0.927	MG/KG		0	6
SD081513-537-443B-1521	537-443B	8/15/2013	1.04	MG/KG		15	21
SD081513-537-443B-3036	537-443B	8/15/2013	0.0289	MG/KG	J	30	36
SD081613-537-445B-0006	537-445B	8/16/2013	0.785	MG/KG		0	6
SD081613-537-445B-2430	537-445B	8/16/2013	11.4	MG/KG		24	30
SD081613-537-445B-4955	537-445B	8/16/2013	0.398	MG/KG		49	55
SD081313-537-449B-0006	537-449B	8/13/2013	7.56	MG/KG		0	6
SD081313-537-449B-1218	537-449B	8/13/2013	52.9	MG/KG		12	18
SD081613-537-451B-0006	537-451B	8/16/2013	2.48	MG/KG		0	6
SD081613-537-451B-2531	537-451B	8/16/2013	2.98	MG/KG		25	31
SD081613-537-451B-4854	537-451B	8/16/2013	20.9	MG/KG		48	54
SD081313-537-453B-0006	537-453B	8/13/2013	5.16	MG/KG		0	6
SD081313-537-453B-2127	537-453B	8/13/2013	5.21	MG/KG		21	27
SD081313-537-453B-4248	537-453B	8/13/2013	62	MG/KG		42	48
SD081613-537-454B-0006	537-454B	8/16/2013	1.95	MG/KG		0	6
SD081613-537-454B-2026	537-454B	8/16/2013	1.09	MG/KG		20	26
SD081613-537-454B-5056	537-454B	8/16/2013	0.0157	MG/KG	U	50	56
SD081513-537-457B-0006	537-457B	8/15/2013	1.82	MG/KG		0	6

Table 2-3a: 2013 Sediment Core Sampling Mercury Results
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Field Sample ID	Location ID	Date Sampled	Report Result	Report Units	Lab Qualifier	Top Depth (in)	Bottom Depth (in)
SD081513-537-457B-1521	537-457B	8/15/2013	19.2	MG/KG		15	21
SD081513-537-457B-3036	537-457B	8/15/2013	0.0683	MG/KG	J	30	36
SD081513-537-461B-0006	537-461B	8/15/2013	0.841	MG/KG		0	6
SD081513-537-461B-2228	537-461B	8/15/2013	1.45	MG/KG		22	28
SD081513-537-461B-4450	537-461B	8/15/2013	0.123	MG/KG	J	44	50
SD081513-537-462B-0006	537-462B	8/15/2013	2.67	MG/KG		0	6
SD081513-537-462B-1420	537-462B	8/15/2013	15.4	MG/KG		14	20
SD081513-537-462B-2834	537-462B	8/15/2013	0.0619	MG/KG	J	28	34
SD081513-537-DUP-8-081513	537-462B	8/15/2013	0.0775	MG/KG	J	28	34
SD081413-537-465B-0006	537-465B	8/14/2013	2.97	MG/KG		0	6
SD081413-537-465B-1824	537-465B	8/14/2013	11.4	MG/KG		18	24
SD081413-537-DUP-5-081413	537-465B	8/14/2013	3.6	MG/KG		18	24
SD082113-537-467B-0006	537-467B	8/21/2013	1.74	MG/KG		0	6
SD082113-537-467B-3036	537-467B	8/21/2013	3.26	MG/KG		30	36
SD082113-537-467B-5965	537-467B	8/21/2013	0.0217	MG/KG	J	59	65
SD081313-537-470B-0003	537-470B	8/13/2013	0.439	MG/KG		0	3
SD081413-537-472B-0006	537-472B	8/14/2013	1.42	MG/KG		0	6
SD081413-537-472B-2127	537-472B	8/14/2013	2.97	MG/KG		21	27
SD081413-537-472B-3642	537-472B	8/14/2013	17.6	MG/KG		36	42
SD081413-537-474B-0006	537-474B	8/14/2013	19.4	MG/KG		0	6
SD081413-537-DUP-6-081413	537-474B	8/14/2013	17.5	MG/KG		0	6
SD081413-537-475B-0006	537-475B	8/14/2013	0.492	MG/KG		0	6
SD081413-537-475B-1824	537-475B	8/14/2013	0.833	MG/KG		18	24
SD081413-537-DUP-4-081413	537-475B	8/14/2013	0.54	MG/KG		18	24
SD081413-537-476B-0006	537-476B	8/14/2013	1.27	MG/KG		0	6
SD081413-537-DUP-3-081413	537-476B	8/14/2013	4.08	MG/KG		6	12
SD081413-537-476B-0612	537-476B	8/14/2013	3.28	MG/KG		6	12
SD082213-537-478B-0006	537-478B	8/22/2013	5.07	MG/KG		0	6
SD082213-537-478B-1521	537-478B	8/22/2013	24.2	MG/KG		15	21
SD081313-537-480B-0006	537-480B	8/13/2013	8.31	MG/KG		0	6
SD081313-537-480B-0612	537-480B	8/13/2013	14	MG/KG		6	12
SD081313-537-482B-0006	537-482B	8/13/2013	10.2	MG/KG		0	6
SD081313-537-482B-0612	537-482B	8/13/2013	31.6	MG/KG		6	12
SD082213-537-484B-0006	537-484B	8/22/2013	2.16	MG/KG		0	6
SD082213-537-484B-1117	537-484B	8/22/2013	4.6	MG/KG		11	17
SD082213-537-484B-2127	537-484B	8/22/2013	16.2	MG/KG		21	27
SD081313-537-485B-0004	537-485B	8/13/2013	0.694	MG/KG		0	4
SD081313-537-487B-0006	537-487B	8/13/2013	0.166	MG/KG	J	0	6
SD081413-537-489B-0006	537-489B	8/14/2013	3.95	MG/KG		0	6
SD081413-537-489B-1824	537-489B	8/14/2013	19.9	MG/KG		18	24
SD081313-537-491B-0006	537-491B	8/13/2013	0.0175	MG/KG	J	0	6
SD081513-537-499B-0006	537-499B	8/15/2013	2	MG/KG		0	6
SD081513-537-499B-2430	537-499B	8/15/2013	0.111	MG/KG	J	24	30
SD081513-537-499B-4854	537-499B	8/15/2013	0.0618	MG/KG	J	48	54
SD081313-537-506B-0006	537-506B	8/13/2013	0.235	MG/KG	J	0	6
SD081313-537-506B-2733	537-506B	8/13/2013	0.175	MG/KG	J	27	33

Table 2-3a: 2013 Sediment Core Sampling Mercury Results
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Field Sample ID	Location ID	Date Sampled	Report Result	Report Units	Lab Qualifier	Top Depth (in)	Bottom Depth (in)
SD081313-537-506B-5460	537-506B	8/13/2013	3.1	MG/KG		54	60
SD081513-537-510B-0006	537-510B	8/15/2013	5.63	MG/KG		0	6
SD081513-537-510B-0612	537-510B	8/15/2013	1.34	MG/KG		6	12
SD081413-537-518B-0006	537-518B	8/14/2013	0.791	MG/KG		0	6
SD081413-537-518B-3642	537-518B	8/14/2013	1.74	MG/KG		36	42
SD081413-537-518B-7278	537-518B	8/14/2013	16.5	MG/KG		72	78
SD081313-537-527B-0006	537-527B	8/13/2013	6.57	MG/KG		0	6
SD081313-537-527B-2127	537-527B	8/13/2013	11	MG/KG		21	27
SD081313-537-527B-3642	537-527B	8/13/2013	0.0694	MG/KG	J	36	42
SD081513-537-531B-0005	537-531B	8/15/2013	0.365	MG/KG	J	0	5
SD081513-537-TR-6B-0006	537-TR-6B	8/15/2013	10.6	MG/KG		0	6
SD081513-537-TR-6B-1218	537-TR-6B	8/15/2013	3.89	MG/KG		12	18

Note:
1. A core was collected at 537-643, but the sample was archived as there was no overlying sediment (archived materials were classified as gravel, cobbles, and little fine sand.

Table 2-3b: 2013 Sediment Core Sampling Percent Moisture Results
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Field Sample ID	Location ID	Date Sampled	Report Result	Report Units	Top Depth (in)	Bottom Depth (in)
SD081513-537-641-0004	537-641	8/15/2013	39.8	%	0	4
SD081313-537-642-0006	537-642	8/13/2013	75	%	0	6
SD081313-537-642-0612	537-642	8/13/2013	71.4	%	6	12
SD081313-537-642-1224	537-642	8/13/2013	67	%	12	24
SD081513-537-644-0006	537-644	8/15/2013	51.2	%	0	6
SD081513-537-644-0612	537-644	8/15/2013	29.4	%	6	12
SD081513-537-DUP-10-081513	537-645	8/15/2013	67.6	%	0	6
SD081513-537-645-0006	537-645	8/15/2013	67.4	%	0	6
SD081513-537-645-0612	537-645	8/15/2013	66.9	%	6	12
SD081513-537-645-1225	537-645	8/15/2013	62.5	%	12	25
SD081313-537-646-0002	537-646	8/13/2013	22.1	%	0	2
SD081313-537-647-0006	537-647	8/13/2013	66.6	%	0	6
SD081313-537-647-0612	537-647	8/13/2013	70.6	%	6	12
SD081313-537-647-1224	537-647	8/13/2013	66	%	12	24
SD081313-537-DUP-2-081313	537-647	8/13/2013	58.3	%	12	24
SD081613-537-648-0006	537-648	8/16/2013	57.2	%	0	6
SD081613-537-648-0611	537-648	8/16/2013	65.5	%	6	11
SD081513-537-649-0002	537-649	8/15/2013	14.9	%	0	2
SD081513-537-650-0006	537-650	8/15/2013	71.7	%	0	6
SD081513-537-650-0612	537-650	8/15/2013	60.9	%	6	12
SD081413-537-651-0006	537-651	8/14/2013	66.2	%	0	6
SD081413-537-651-0612	537-651	8/14/2013	67.7	%	6	12
SD081413-537-651-1226	537-651	8/14/2013	53.6	%	12	26
SD081513-537-652-0006	537-652	8/15/2013	51.1	%	0	6
SD081513-537-652-0612	537-652	8/15/2013	61.1	%	6	12
SD081513-537-652-1230	537-652	8/15/2013	62.8	%	12	30
SD081513-537-652-3035	537-652	8/15/2013	33.9	%	30	35
SD081413-537-653-0006	537-653	8/14/2013	50.7	%	0	6
SD081413-537-653-0612	537-653	8/14/2013	57.7	%	6	12
SD081413-537-653-1224	537-653	8/14/2013	67.2	%	12	24
SD081413-537-654-0006	537-654	8/14/2013	70.5	%	0	6
SD081413-537-654-0612	537-654	8/14/2013	66.4	%	6	12
SD081413-537-654-1230	537-654	8/14/2013	63.6	%	12	30
SD081413-537-654-3036	537-654	8/14/2013	71.3	%	30	36
SD081413-537-655-0006	537-655	8/14/2013	38.4	%	0	6
SD081413-537-655-0612	537-655	8/14/2013	60.8	%	6	12
SD081413-537-655-1218	537-655	8/14/2013	51.6	%	12	18
SD081513-537-656-0006	537-656	8/15/2013	32.7	%	0	6
SD081513-537-657-0006	537-657	8/15/2013	65.8	%	0	6
SD081513-537-657-0612	537-657	8/15/2013	64.4	%	6	12
SD081513-537-657-1230	537-657	8/15/2013	29.7	%	12	30
SD081513-537-657-3048	537-657	8/15/2013	27.1	%	30	48

Table 2-3b: 2013 Sediment Core Sampling Percent Moisture Results
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Field Sample ID	Location ID	Date Sampled	Report Result	Report Units	Top Depth (in)	Bottom Depth (in)
SD081513-537-658-0006	537-658	8/15/2013	43.7	%	0	6
SD081513-537-658-0612	537-658	8/15/2013	59.6	%	6	12
SD081513-537-658-1230	537-658	8/15/2013	57.5	%	12	30
SD081513-537-659-0006	537-659	8/15/2013	67.4	%	0	6
SD081513-537-659-0612	537-659	8/15/2013	70.5	%	6	12
SD081513-537-659-1230	537-659	8/15/2013	57.4	%	12	30
SD081513-537-DUP-7-081513	537-659	8/15/2013	59.8	%	12	30
SD081513-537-659-3042	537-659	8/15/2013	37.2	%	30	42
SD081513-537-660-0006	537-660	8/15/2013	69.3	%	0	6
SD081513-537-660-0612	537-660	8/15/2013	63.3	%	6	12
SD081513-537-660-1230	537-660	8/15/2013	63	%	12	30
SD081513-537-660-3048	537-660	8/15/2013	61.2	%	30	48
SD081513-537-661-0006	537-661	8/15/2013	58.6	%	0	6
SD081513-537-661-0612	537-661	8/15/2013	60.1	%	6	12
SD081513-537-661-1230	537-661	8/15/2013	61.8	%	12	30
SD081513-537-662-0006	537-662	8/15/2013	64.4	%	0	6
SD081513-537-DUP-9-081513	537-662	8/15/2013	64.3	%	0	6
SD081513-537-662-0612	537-662	8/15/2013	63.9	%	6	12
SD081513-537-662-1230	537-662	8/15/2013	66.1	%	12	30
SD081513-537-662-3048	537-662	8/15/2013	41	%	30	48
SD081513-537-663-0006	537-663	8/15/2013	56.8	%	0	6
SD081513-537-663-0612	537-663	8/15/2013	71	%	6	12
SD081513-537-663-1230	537-663	8/15/2013	53	%	12	30
SD081513-537-664-0006	537-664	8/15/2013	66.5	%	0	6
SD081513-537-664-0612	537-664	8/15/2013	73.5	%	6	12
SD081513-537-664-1230	537-664	8/15/2013	33.5	%	12	30
SD081513-537-665-0006	537-665	8/15/2013	47	%	0	6
SD081513-537-665-0612	537-665	8/15/2013	57.9	%	6	12
SD081513-537-665-1227	537-665	8/15/2013	66.3	%	12	27
SD081613-537-666-0006	537-666	8/16/2013	61.5	%	0	6
SD081613-537-666-0612	537-666	8/16/2013	56	%	6	12
SD081613-537-DUP-12-081613	537-666	8/16/2013	58.8	%	12	30
SD081613-537-666-1230	537-666	8/16/2013	55.4	%	12	30
SD081613-537-666-3050	537-666	8/16/2013	62.7	%	30	50
SD082113-537-667-0006	537-667	8/21/2013	21.5	%	0	6
SD082113-537-667-0612	537-667	8/21/2013	25	%	6	12
SD082113-537-DUP-16-082113	537-667	8/21/2013	24	%	12	19
SD082113-537-667-1219	537-667	8/21/2013	28.3	%	12	19
SD082113-537-668-0006	537-668	8/21/2013	65.4	%	0	6
SD082113-537-668-0610	537-668	8/21/2013	63	%	6	10
SD082113-537-669-0006	537-669	8/21/2013	60.5	%	0	6
SD082113-537-669-0612	537-669	8/21/2013	44.5	%	6	12

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SD082113-537-669-1230	537-669	8/21/2013	33.2	%	12	30
SD082113-537-DUP-14-082113	537-669	8/21/2013	32.5	%	30	44
SD082113-537-669-3044	537-669	8/21/2013	32.5	%	30	44
SD082113-537-670-0006	537-670	8/21/2013	71.4	%	0	6
SD082113-537-670-0612	537-670	8/21/2013	65.5	%	6	12
SD082113-537-670-1224	537-670	8/21/2013	67	%	12	24
SD082113-537-671-0006	537-671	8/21/2013	48.3	%	0	6
SD082113-537-671-0612	537-671	8/21/2013	23.3	%	6	12
SD082113-537-671-1224	537-671	8/21/2013	30.2	%	12	24
SD082113-537-672-0003	537-672	8/21/2013	71	%	0	3
SD082113-537-673-0006	537-673	8/21/2013	69.8	%	0	6
SD082113-537-673-0612	537-673	8/21/2013	71.6	%	6	12
SD082113-537-673-1224	537-673	8/21/2013	25.1	%	12	24
SD082113-537-DUP-15-082113	537-673	8/21/2013	21.3	%	12	24
SD082113-537-674-0006	537-674	8/21/2013	24.9	%	0	6
SD082113-537-674-0611	537-674	8/21/2013	24.9	%	6	11
SD082113-537-675-0006	537-675	8/21/2013	74.5	%	0	6
SD082113-537-675-0613	537-675	8/21/2013	61.5	%	6	13
SD082113-537-676-0007	537-676	8/21/2013	39.3	%	0	7
SD082113-537-677-0006	537-677	8/21/2013	69.2	%	0	6
SD082113-537-677-0612	537-677	8/21/2013	65.2	%	6	12
SD082113-537-677-1221	537-677	8/21/2013	67.7	%	12	21
SD082113-537-678-0006	537-678	8/21/2013	71.2	%	0	6
SD082113-537-678-0612	537-678	8/21/2013	69.9	%	6	12
SD082113-537-678-1230	537-678	8/21/2013	73.9	%	12	30
SD082113-537-679-0006	537-679	8/21/2013	73.1	%	0	6
SD082113-537-679-0612	537-679	8/21/2013	67.9	%	6	12
SD082113-537-679-1226	537-679	8/21/2013	61.9	%	12	26
SD082113-537-680-0006	537-680	8/21/2013	39.7	%	0	6
SD082113-537-680-0612	537-680	8/21/2013	31.4	%	6	12
SD082113-537-680-1230	537-680	8/21/2013	27.1	%	12	30
SD082113-537-680-3048	537-680	8/21/2013	24.7	%	30	48
SD082113-537-680-4859	537-680	8/21/2013	31.8	%	48	59
SD082113-537-681-0006	537-681	8/21/2013	19.5	%	0	6
SD082113-537-681-0612	537-681	8/21/2013	16.3	%	6	12
SD082113-537-681-1230	537-681	8/21/2013	62.4	%	12	30
SD082113-537-681-3048	537-681	8/21/2013	70.3	%	30	48
SD082113-537-681-4852	537-681	8/21/2013	61.8	%	48	52
SD082113-537-682-0006	537-682	8/21/2013	40.6	%	0	6
SD082113-537-682-0612	537-682	8/21/2013	64	%	6	12
SD082113-537-682-1230	537-682	8/21/2013	64.5	%	12	30
SD082113-537-682-3046	537-682	8/21/2013	65.3	%	30	46

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SD082113-537-683-0006	537-683	8/21/2013	72.1	%	0	6
SD082113-537-683-0612	537-683	8/21/2013	60.6	%	6	12
SD082113-537-683-1232	537-683	8/21/2013	37	%	12	32
SD082113-537-DUP-13-082113	537-683	8/21/2013	33.3	%	12	32
SD082213-537-684-0006	537-684	8/22/2013	68.4	%	0	6
SD082213-537-684-0612	537-684	8/22/2013	62.5	%	6	12
SD082213-537-684-1230	537-684	8/22/2013	56	%	12	30
SD082213-537-684-3036	537-684	8/22/2013	54.6	%	30	36
SD082113-537-685-0006	537-685	8/21/2013	71.7	%	0	6
SD082113-537-685-0612	537-685	8/21/2013	71.9	%	6	12
SD082113-537-685-1230	537-685	8/21/2013	50.5	%	12	30
SD082113-537-685-3048	537-685	8/21/2013	50.8	%	30	48
SD082113-537-685-4856	537-685	8/21/2013	56.6	%	48	56
SD082113-537-686-0006	537-686	8/21/2013	24.4	%	0	6
SD082113-537-686-0612	537-686	8/21/2013	18.4	%	6	12
SD081313-537-687-0006	537-687	8/13/2013	71.5	%	0	6
SD081313-537-687-0612	537-687	8/13/2013	72	%	6	12
SD081313-537-687-1230	537-687	8/13/2013	66.8	%	12	30
SD081413-537-688-0004	537-688	8/14/2013	43.8	%	0	4
SD081413-537-689-0002	537-689	8/14/2013	15	%	0	2
SD081413-537-690-0003	537-690	8/14/2013	25.4	%	0	3
SD081313-537-691-0006	537-691	8/13/2013	76	%	0	6
SD081313-537-691-0612	537-691	8/13/2013	71.9	%	6	12
SD082213-537-692-0006	537-692	8/22/2013	86.7	%	0	6
SD082213-537-692-0612	537-692	8/22/2013	82.4	%	6	12
SD082213-537-692-1223	537-692	8/22/2013	80	%	12	23
SD082213-537-DUP-17-082213	537-692	8/22/2013	76.9	%	12	23
SD082213-537-693-0006	537-693	8/22/2013	67.8	%	0	6
SD082213-537-693-0612	537-693	8/22/2013	77	%	6	12
SD082213-537-693-1223	537-693	8/22/2013	27.5	%	12	23
SD082213-537-694-0006	537-694	8/22/2013	67.3	%	0	6
SD082213-537-694-0614	537-694	8/22/2013	71.6	%	6	14
SD082213-537-694-1417	537-694	8/22/2013	32.2	%	14	17
SD081313-537-240B-0006	537-240B	8/13/2013	74.4	%	0	6
SD081313-537-DUP-1-081313	537-240B	8/13/2013	72.1	%	0	6
SD081313-537-240B-0612	537-240B	8/13/2013	69.9	%	6	12
SD081513-537-249B-0006	537-249B	8/15/2013	70.2	%	0	6
SD081513-537-DUP-11-081513	537-249B	8/15/2013	63.8	%	6	12
SD081513-537-249B-0612	537-249B	8/15/2013	60.7	%	6	12
SD081313-537-253B-0006	537-253B	8/13/2013	72.2	%	0	6
SD081313-537-253B-1218	537-253B	8/13/2013	74.8	%	12	18
SD081413-537-278B-0006	537-278B	8/14/2013	71.4	%	0	6

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SD081413-537-278B-1824	537-278B	8/14/2013	71.8	%	18	24
SD081313-537-280B-0006	537-280B	8/13/2013	69.5	%	0	6
SD081313-537-280B-1218	537-280B	8/13/2013	72.3	%	12	18
SD081413-537-282B-0006	537-282B	8/14/2013	71.6	%	0	6
SD081413-537-282B-1824	537-282B	8/14/2013	63.4	%	18	24
SD081413-537-291B-0006	537-291B	8/14/2013	68	%	0	6
SD081413-537-316B-0006	537-316B	8/14/2013	77.8	%	0	6
SD081413-537-316B-1521	537-316B	8/14/2013	63.5	%	15	21
SD081413-537-316B-3036	537-316B	8/14/2013	73.4	%	30	36
SD081413-537-318B-0006	537-318B	8/14/2013	68.4	%	0	6
SD081413-537-318B-1521	537-318B	8/14/2013	72.1	%	15	21
SD081413-537-318B-3036	537-318B	8/14/2013	56.9	%	30	36
SD081413-537-320B-0006	537-320B	8/14/2013	70.3	%	0	6
SD081413-537-320B-1218	537-320B	8/14/2013	75.2	%	12	18
SD081413-537-321B-0006	537-321B	8/14/2013	59.7	%	0	6
SD081513-537-325B-0006	537-325B	8/15/2013	68.9	%	0	6
SD081513-537-325B-1016	537-325B	8/15/2013	52.2	%	10	16
SD081313-537-330B-0006	537-330B	8/13/2013	69.5	%	0	6
SD081313-537-330B-0814	537-330B	8/13/2013	69.4	%	8	14
SD081313-537-342B-0006	537-342B	8/13/2013	64.4	%	0	6
SD081313-537-342B-0612	537-342B	8/13/2013	31.7	%	6	12
SD081413-537-343B-0006	537-343B	8/14/2013	75.4	%	0	6
SD081413-537-343B-2127	537-343B	8/14/2013	64.5	%	21	27
SD081413-537-343B-3642	537-343B	8/14/2013	70.2	%	36	42
SD081413-537-344B-0006	537-344B	8/14/2013	54.4	%	0	6
SD081413-537-377B-1016	537-377B	8/14/2013	68.4	%	10	16
SD081613-537-404B-0006	537-404B	8/16/2013	71.7	%	0	6
SD081613-537-404B-1824	537-404B	8/16/2013	29	%	18	24
SD081513-537-405B-0006	537-405B	8/15/2013	66	%	0	6
SD081513-537-405B-2733	537-405B	8/15/2013	69.5	%	27	33
SD081513-537-405B-5460	537-405B	8/15/2013	28.5	%	54	60
SD081513-537-427B-0006	537-427B	8/15/2013	55.1	%	0	6
SD081513-537-427B-2127	537-427B	8/15/2013	66.3	%	21	27
SD081513-537-427B-4248	537-427B	8/15/2013	27.6	%	42	48
SD081613-537-431B-0006	537-431B	8/16/2013	61.3	%	0	6
SD081613-537-431B-1925	537-431B	8/16/2013	50.2	%	19	25
SD081613-537-431B-3945	537-431B	8/16/2013	32.3	%	39	45
SD081613-537-432B-0006	537-432B	8/16/2013	62.7	%	0	6
SD081613-537-432B-1824	537-432B	8/16/2013	69.7	%	18	24
SD081613-537-432B-3844	537-432B	8/16/2013	21.1	%	38	44
SD081613-537-435B-0006	537-435B	8/16/2013	72.4	%	0	6
SD081613-537-435B-4652	537-435B	8/16/2013	56.1	%	46	52

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SD081613-537-435B-9298	537-435B	8/16/2013	66.3	%	92	98
SD081313-537-437B-0006	537-437B	8/13/2013	24.5	%	0	6
SD081513-537-443B-0006	537-443B	8/15/2013	56	%	0	6
SD081513-537-443B-1521	537-443B	8/15/2013	56.4	%	15	21
SD081513-537-443B-3036	537-443B	8/15/2013	26.6	%	30	36
SD081613-537-445B-0006	537-445B	8/16/2013	62.7	%	0	6
SD081613-537-445B-2430	537-445B	8/16/2013	68.9	%	24	30
SD081613-537-445B-4955	537-445B	8/16/2013	56	%	49	55
SD081313-537-449B-0006	537-449B	8/13/2013	66.4	%	0	6
SD081313-537-449B-1218	537-449B	8/13/2013	64.8	%	12	18
SD081613-537-451B-0006	537-451B	8/16/2013	72.6	%	0	6
SD081613-537-451B-2531	537-451B	8/16/2013	59	%	25	31
SD081613-537-451B-4854	537-451B	8/16/2013	66.1	%	48	54
SD081313-537-453B-0006	537-453B	8/13/2013	72.9	%	0	6
SD081313-537-453B-2127	537-453B	8/13/2013	63.7	%	21	27
SD081313-537-453B-4248	537-453B	8/13/2013	64.5	%	42	48
SD081613-537-454B-0006	537-454B	8/16/2013	64.9	%	0	6
SD081613-537-454B-2026	537-454B	8/16/2013	45.9	%	20	26
SD081613-537-454B-5056	537-454B	8/16/2013	39.6	%	50	56
SD081513-537-457B-0006	537-457B	8/15/2013	66.4	%	0	6
SD081513-537-457B-1521	537-457B	8/15/2013	68.7	%	15	21
SD081513-537-457B-3036	537-457B	8/15/2013	30	%	30	36
SD081513-537-461B-0006	537-461B	8/15/2013	84.1	%	0	6
SD081513-537-461B-2228	537-461B	8/15/2013	56.2	%	22	28
SD081513-537-461B-4450	537-461B	8/15/2013	52.1	%	44	50
SD081513-537-462B-0006	537-462B	8/15/2013	80.1	%	0	6
SD081513-537-462B-1420	537-462B	8/15/2013	71.3	%	14	20
SD081513-537-462B-2834	537-462B	8/15/2013	60.4	%	28	34
SD081513-537-DUP-8-081513	537-462B	8/15/2013	62.6	%	28	34
SD081413-537-465B-0006	537-465B	8/14/2013	65.5	%	0	6
SD081413-537-465B-1824	537-465B	8/14/2013	52.5	%	18	24
SD081413-537-DUP-5-081413	537-465B	8/14/2013	40.3	%	18	24
SD082113-537-467B-0006	537-467B	8/21/2013	71.7	%	0	6
SD082113-537-467B-3036	537-467B	8/21/2013	66.3	%	30	36
SD082113-537-467B-5965	537-467B	8/21/2013	22.8	%	59	65
SD081313-537-470B-0003	537-470B	8/13/2013	42.2	%	0	3
SD081413-537-472B-0006	537-472B	8/14/2013	63.1	%	0	6
SD081413-537-472B-2127	537-472B	8/14/2013	65.8	%	21	27
SD081413-537-472B-3642	537-472B	8/14/2013	64.1	%	36	42
SD081413-537-474B-0006	537-474B	8/14/2013	73.3	%	0	6
SD081413-537-DUP-6-081413	537-474B	8/14/2013	72	%	0	6
SD081413-537-475B-0006	537-475B	8/14/2013	52.9	%	0	6

Table 2-3b: 2013 Sediment Core Sampling Percent Moisture Results
Technical Memorandum: Updated Conceptual Site Model
Pompton Lake Acid Brook Delta Area Project
DuPont Pompton Lakes Works, Pompton Lakes, New Jersey

Field Sample ID	Location ID	Date Sampled	Report Result	Report Units	Top Depth (in)	Bottom Depth (in)
SD081413-537-475B-1824	537-475B	8/14/2013	53.9	%	18	24
SD081413-537-DUP-4-081413	537-475B	8/14/2013	52.9	%	18	24
SD081413-537-476B-0006	537-476B	8/14/2013	53.9	%	0	6
SD081413-537-DUP-3-081413	537-476B	8/14/2013	67	%	6	12
SD081413-537-476B-0612	537-476B	8/14/2013	61.3	%	6	12
SD082213-537-478B-0006	537-478B	8/22/2013	66.6	%	0	6
SD082213-537-478B-1521	537-478B	8/22/2013	62.7	%	15	21
SD081313-537-480B-0006	537-480B	8/13/2013	81.5	%	0	6
SD081313-537-480B-0612	537-480B	8/13/2013	73	%	6	12
SD081313-537-482B-0006	537-482B	8/13/2013	80.5	%	0	6
SD081313-537-482B-0612	537-482B	8/13/2013	75.1	%	6	12
SD082213-537-484B-0006	537-484B	8/22/2013	60.8	%	0	6
SD082213-537-484B-1117	537-484B	8/22/2013	75.2	%	11	17
SD082213-537-484B-2127	537-484B	8/22/2013	78.7	%	21	27
SD081313-537-485B-0004	537-485B	8/13/2013	39.1	%	0	4
SD081313-537-487B-0006	537-487B	8/13/2013	55.2	%	0	6
SD081413-537-489B-0006	537-489B	8/14/2013	67.9	%	0	6
SD081413-537-489B-1824	537-489B	8/14/2013	70.6	%	18	24
SD081313-537-491B-0006	537-491B	8/13/2013	17.9	%	0	6
SD081513-537-499B-0006	537-499B	8/15/2013	81.7	%	0	6
SD081513-537-499B-2430	537-499B	8/15/2013	63.3	%	24	30
SD081513-537-499B-4854	537-499B	8/15/2013	49	%	48	54
SD081313-537-506B-0006	537-506B	8/13/2013	65	%	0	6
SD081313-537-506B-2733	537-506B	8/13/2013	55.9	%	27	33
SD081313-537-506B-5460	537-506B	8/13/2013	54.9	%	54	60
SD081513-537-510B-0006	537-510B	8/15/2013	74.1	%	0	6
SD081513-537-510B-0612	537-510B	8/15/2013	57.4	%	6	12
SD081413-537-518B-0006	537-518B	8/14/2013	71	%	0	6
SD081413-537-518B-3642	537-518B	8/14/2013	59.7	%	36	42
SD081413-537-518B-7278	537-518B	8/14/2013	64.8	%	72	78
SD081313-537-527B-0006	537-527B	8/13/2013	63.3	%	0	6
SD081313-537-527B-2127	537-527B	8/13/2013	70	%	21	27
SD081313-537-527B-3642	537-527B	8/13/2013	34.7	%	36	42
SD081513-537-531B-0005	537-531B	8/15/2013	79.3	%	0	5
SD081513-537-TR-6B-0006	537-TR-6B	8/15/2013	73.6	%	0	6
SD081513-537-TR-6B-1218	537-TR-6B	8/15/2013	68.2	%	12	18

Note:

1. A core was collected at 537-643, but the sample was archived as there was no overlying sediment (archived materials were classified as gravel, cobbles, and little fine sand.

Table 4-1: Statistical Summary of Mercury Concentrations in All Historical Samples and Historical Locations Selected for Resampling
Technical Memorandum: Updated Conceptual Site Model
Pompton Lake Acid Brook Delta Area Project
DuPont Pompton Lakes Works, Pompton Lakes, New Jersey

Parameter	Pompton Lake		Ramapo River		Pompton Lake		Ramapo River	
	Historical All Surface	Historical Resampled Surface	Historical All Surface	Historical Resampled Surface	Historical All Subsurface	Historical Resampled Subsurface	Historical All Subsurfac e	Historical Resampled Subsurface
n	107	34	32	13	126	36	32	13
Mean	4.3	5.3	2.4	1.6	12.8	17.2	14.1	21.1
Median	3.3	3.4	1.7	1.9	8	14	13.6	20.6
Standard Deviation	4.1	5.3	4.6	0.68	13.8	14.7	13.3	13.8
25%	1.7	1.8	0.91	1.1	4.4	8.2	0.99	18.3
75%	4.8	6.4	2.3	2.2	15.8	20.1	20.8	23.6
Minimum	0.13	0.2	0.36	0.49	0	0.053	0	0.73
Maximum	21.2	21.2	27.1	2.6	74.8	74.8	58.5	58.5
Geomean	1	1	0.62	0.62	1.4	1.6	1.3	1.6
Standard Deviation of the Ln value	1.1	1.3	0.82	0.51	1.4	1.2	2.4	1.3
t-test result	No Statistical Difference		No Statistical Difference		Resampled > Historic (p=0.014)		No Statistical Difference	

Notes:
1. Historical data sets" include sampling conducted from 2003 through 2007 and 2010, and the 2013 data set includes samples collected in summer 2013
2. Surface refers to samples typically obtained from the top 0.5 foot of sediment, and subsurface refers to samples obtained below the surface (i.e., greater than 0.5 feet).
3. Lake samples represent locations from Lakeside Avenue to just south of where the Ramapo River narrows, and river samples represent the locations between that point and the Pompton Lake Dam.
4. Statistical testing performed using nonparametric t-tests for unpaired (Mann-Whitney Rank Sum Test).
5. All mercury concentrations provided in milligrams per kilogram (mg/kg).

Table 4-2: Statistical Summary of Mercury Concentrations in Resampled Historical Locations and 2013 Resampled Locations
Technical Memorandum: Updated Conceptual Site Model
Pompton Lake Acid Brook Delta Area Project
DuPont Pompton Lakes Works, Pompton Lakes, New Jersey

Parameter	Pompton Lake		Ramapo River		Pompton Lake		Ramapo River	
	Historical Resampled Surface	2013 Resampled Surface	Historical Resampled Surface	2013 Resampled Surface	Historical Resampled Subsurface	2013 Resampled Subsurface	Historical Resampled Subsurfac e	2013 Resampled Subsurface
n	34	41	13	13	36	37	13	8
Mean	5.3	4.6	1.6	4.3	17.2	15.8	21.1	17.3
Median	3.4	2.7	1.9	2.2	14	11.4	20.6	16.9
Standard Deviation	5.3	5.3	0.68	5.5	14.7	16.2	13.8	8.5
25%	1.8	1.3	1.1	0.69	8.2	1.3	18.3	13.4
75%	6.4	6.6	2.2	5.1	20.1	25.7	23.6	21
Minimum	0.2	0.013	0.49	0.018	0.053	0.11	0.73	3.3
Maximum	21.2	28.9	2.6	19.4	74.8	62	58.5	31.6
Geomean	1	0.94	0.62	0.69	1.6	1.3	1.6	1.6
Standard Deviation of the Ln value	1.3	1.4	0.51	1.9	1.2	1.8	1.3	0.69
t-test result	No Statistical Difference		No Statistical Difference		No Statistical Difference		No Statistical Difference	
paired t-test result	No Statistical Difference		No Statistical Difference		No Statistical Difference		No Statistical Difference	

Notes:
1. Historical data sets" include sampling conducted from 2003 through 2007 and 2010, and the 2013 data set includes samples collected in summer 2013
2. Surface refers to samples typically obtained from the top 0.5 foot of sediment, and subsurface refers to samples obtained below the surface (i.e., greater than 0.5 feet).
3. Lake samples represent locations from Lakeside Avenue to just south of where the Ramapo River narrows, and river samples represent the locations between that point and the Pompton Lake Dam.
4. Statistical testing performed using nonparametric t-tests for both unpaired (Mann-Whitney Rank Sum Test) and paired (Wilcoxon Signed Rank Test).
5. All mercury concentrations provided in milligrams per kilogram (mg/kg).

Table 4-3: Statistical Summary of Mercury Concentrations in All Historical Samples and All 2013 Samples
Technical Memorandum: Updated Conceptual Site Model
Pompton Lake Acid Brook Delta Area Project
DuPont Pompton Lakes Works, Pompton Lakes, New Jersey

Parameter	Pompton Lake		Ramapo River		Pompton Lake		Ramapo River	
	Historical All Surface	2013 All Surface	Historical All Surface	2013 All Surface	Historical All Subsurface	2013 All Subsurface	Historical All Subsurface	2013 All Subsurface
n	107	66	32	41	126	58	32	31
Mean	4.3	3.4	2.4	4	12.8	12.8	14.1	14.3
Median	3.3	1.9	1.7	2.2	8	8.7	13.6	13.5
Standard Deviation	4.1	4.5	4.6	5.2	13.8	14.1	13.3	11.2
25%	1.7	0.72	0.91	0.62	4.4	1.7	0.99	7.5
75%	4.8	4.4	2.3	4.2	15.8	19.4	20.8	18.8
Minimum	0.13	0.013	0.36	0.012	0	0.017	0	0.012
Maximum	21.2	28.9	27.1	19.6	74.8	62	58.5	43.4
Geomean	1	0.65	0.62	0.45	1.4	1.3	1.3	1.3
Standard Deviation of the Ln value	1.1	1.5	0.82	2.1	1.4	1.7	2.4	2.5
t-test result	Historical > 2013 (p=0.009)		No Statistical Difference		No Statistical Difference		No Statistical Difference	

Notes:
1. Historical data sets” include sampling conducted from 2003 through 2007 and 2010, and the 2013 data set includes samples collected in summer 2013.
2. Surface refers to samples typically obtained from the top 0.5 foot of sediment, and subsurface refers to samples obtained below the surface (i.e., greater than 0.5 feet).
3. Lake samples represent locations from Lakeside Avenue to just south of where the Ramapo River narrows, and river samples represent the locations between that point and the Pompton Lake Dam.
4. Statistical testing performed using nonparametric t-tests for both unpaired (Mann-Whitney Rank Sum Test) and paired (Wilcoxon Signed Rank Test).
5. All mercury concentrations provided in milligrams per kilogram (mg/kg).

ARCADIS

Figures

City: SYR Div/Group: SWG Created By: K. Ives Last Saved By: kives
Project (B0042322.0003.00002)
Q:\Dupont\PomptonLake\BathymetryComparison_2013\mxd\2013_Bathymetry_v3.mxd 2/7/2014 4:44:13 PM

NOTES:

1. THE BASE MAP WAS PREPARED BY R.C.C DESIGN, INC. AND IS BASED UPON ACTUAL FIELD SURVEY AND AERIAL PHOTOGRAPHY PERFORMED ON DECEMBER 28, 2007, AND REPRESENTS THE CONDITIONS FOUND EXCEPT SUCH EASEMENTS OF IMPROVEMENTS, IF ANY, BELOW THE SURFACE LANDS AND NOT VISIBLE. THE APPROXIMATE WATER SURFACE ELEVATION SHOWN HEREIN WAS MEASURED AT TIME OF AERIAL SURVEY, AND MAY VARY BASED ON CURRENT SITE CONDITIONS. HORIZONTAL AND VERTICAL DATUMS ARE BASED ON NAD 83 AND NAVD 88, RESPECTIVELY.

2. THE 2013 BATHYMETRIC SURVEY WAS PERFORMED BY AQUA SURVEY, INC. ON MAY 13, 2013. THE SURVEY IS A SINGLE BEAM AND SINGLE FREQUENCY SURVEY.

LEGEND

2013 BATHYMETRY (FT)

- 168.46 - 170
- 170 - 172
- 172 - 174
- 174 - 176
- 176 - 178
- 178 - 180
- 180 - 182
- 182 - 184
- 184 - 186
- 186 - 188
- 188 - 190
- 190 - 192
- 192 - 194
- 194 - 196
- 196 - 198
- 198 - 200

- 2011 CMI WP REMOVAL AREA LIMIT
- BATHYMETRIC CONTOUR

DUPONT POMPTON LAKES WORKS
POMPTON LAKES, NEW JERSEY

2013 BATHYMETRY

ARCADIS

FIGURE
2-1

City: SYR Div/Group: SWG Created By: K. Ives Last Saved By: kives
Project (B0042322.0003.00002)
Q:\Dupont\PomptonLake\BathymetryComparison_2013\mxd\SideScanSonar_withSedClass_v2.mxd 2/7/2014 4:54:12 PM

NOTE:

1. THE BASE MAP WAS PREPARED BY R.C.C DESIGN,INC. AND IS BASED UPON ACTUAL FIELD SURVEY AND AERIAL PHOTOGRAPHY PERFORMED ON DECEMBER 28, 2007, AND REPRESENTS THE CONDITIONS FOUND EXCEPT SUCH EASEMENTS OF IMPROVEMENTS, IF ANY, BELOW THE SURFACE LANDS AND NOT VISIBLE. THE APPROXIMATE WATER SURFACE ELEVATION SHOWN HEREIN WAS MEASURED AT TIME OF AERIAL SURVEY, AND MAY VARY BASED ON CURRENT SITE CONDITIONS. HORIZONTAL AND VERTICAL DATUMS ARE BASED ON NAD 83 AND NAVD 88, RESPECTIVELY.

2. THE SIDE SCAN SONAR SURVEY EVENT, INCLUDING COLLECTION OF GRAB SAMPLES, WAS PERFORMED BY AQUA SURVEY, INC. ON MAY 14-15, 2013.

LEGEND

- GRAB SAMPLE LOCATION
- 2011 CMI WP REMOVAL AREA LIMIT

SEDIMENT CLASSIFICATION

- GRAVEL/SAND
- SAND
- SILT
- VEGETATION

DUPONT POMPTON LAKES WORKS
POMPTON LAKES, NEW JERSEY

2013 SIDE SCAN SONAR, SEDIMENT CLASSIFICATIONS AND GRAB SAMPLE LOCATIONS

ARCADIS

FIGURE
2-2

City: SYR Div/Group: SWG Created By: K. Ives Last Saved By: kives
Project (B0042322.0003.00002)
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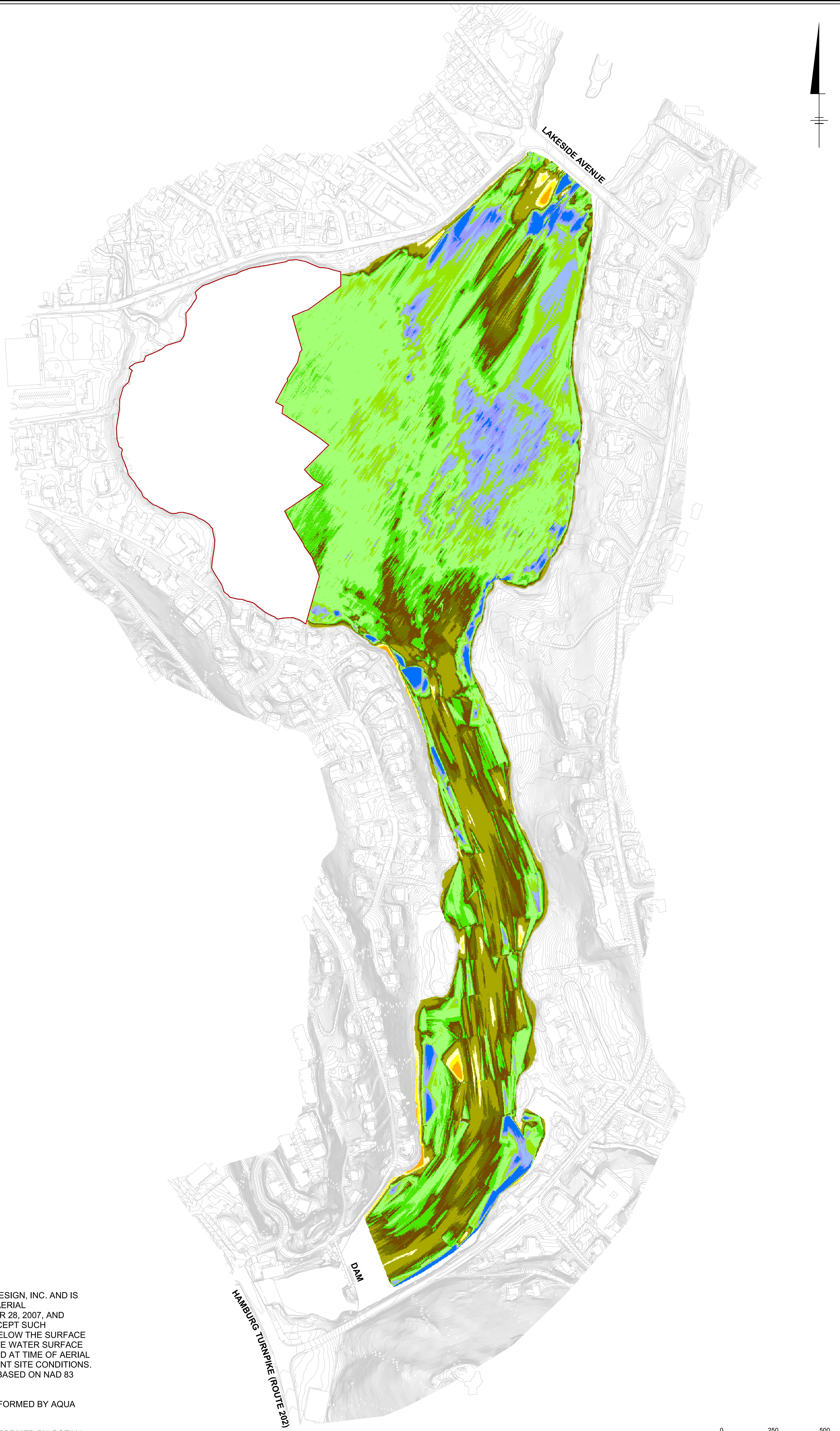

NOTES:

1. THE BASE MAP WAS PREPARED BY R.C.C DESIGN, INC. AND IS BASED UPON ACTUAL FIELD SURVEY AND AERIAL PHOTOGRAPHY PERFORMED ON DECEMBER 28, 2007, AND REPRESENTS THE CONDITIONS FOUND EXCEPT SUCH EASEMENTS OF IMPROVEMENTS, IF ANY, BELOW THE SURFACE LANDS AND NOT VISIBLE. THE APPROXIMATE WATER SURFACE ELEVATION SHOWN HEREIN WAS MEASURED AT TIME OF AERIAL SURVEY, AND MAY VARY BASED ON CURRENT SITE CONDITIONS. HORIZONTAL AND VERTICAL DATUMS ARE BASED ON NAD 83 AND NAVD 88, RESPECTIVELY.
2. THE 2013 BATHYMETRIC SURVEY WAS PERFORMED BY AQUA SURVEY, INC. ON MAY 13, 2013.
3. THE 2007 BATHYMETRIC SURVEY WAS PERFORMED BY OCEAN SURVEYS, INC. IN APRIL/MAY 2007.

LEGEND

2013 AND 2007 BATHYMETRY COMPARISON RESULTS (FT):

APPARENT EROSION
- > -8.18 AND ≤ -4
- > -4 AND ≤ -3
- > -3 AND ≤ -2
- > -2 AND ≤ -1
- > -1 AND ≤ -0.75
- > -0.75 AND ≤ -0.5

CHANGE WITHIN THE ACCURACY OF SURVEY
- > -0.5 AND ≤ -0.25
- > -0.25 AND ≤ 0.25
- > 0.25 AND ≤ 0.5

APPARENT DEPOSITION
- > 0.5 AND ≤ 0.75
- > 0.75 AND ≤ 1
- > 1 AND ≤ 6.5

2011 CMI WP REMOVAL AREA LIMIT

DUPONT POMPTON LAKES WORKS
POMPTON LAKES, NEW JERSEY

BATHYMETRY COMPARISON RESULTS: 2007 AND 2013

ARCADIS

FIGURE
2-3

City: SYR Div/Group: SWG Created By: K. Ives Last Saved By: kives
Project (B0042322.0003.00002)
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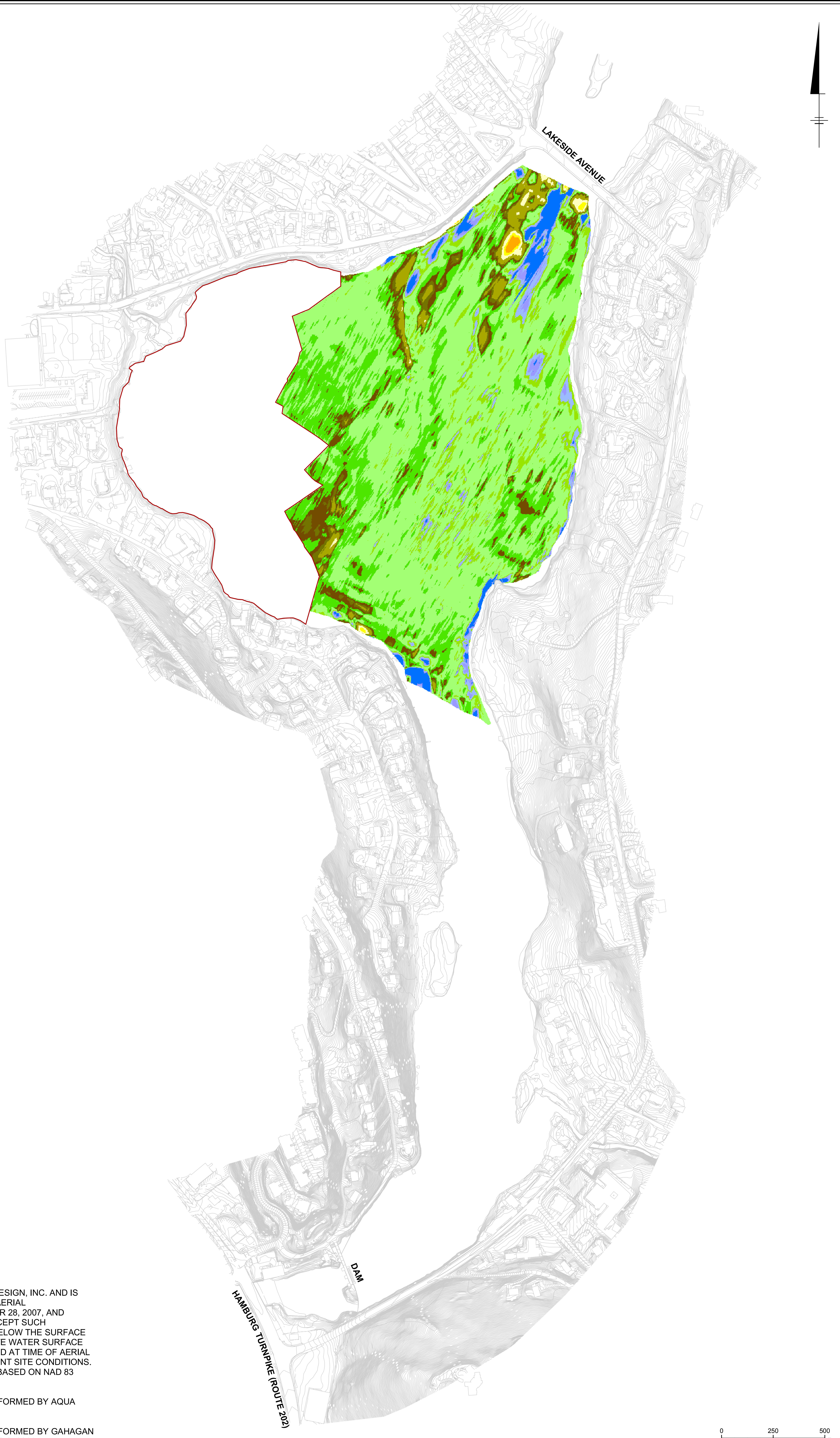


NOTES:

1. THE BASE MAP WAS PREPARED BY R.C.C DESIGN, INC. AND IS BASED UPON ACTUAL FIELD SURVEY AND AERIAL PHOTOGRAPHY PERFORMED ON DECEMBER 28, 2007, AND REPRESENTS THE CONDITIONS FOUND EXCEPT SUCH EASEMENTS OF IMPROVEMENTS, IF ANY, BELOW THE SURFACE LANDS AND NOT VISIBLE. THE APPROXIMATE WATER SURFACE ELEVATION SHOWN HEREIN WAS MEASURED AT TIME OF AERIAL SURVEY, AND MAY VARY BASED ON CURRENT SITE CONDITIONS. HORIZONTAL AND VERTICAL DATUMS ARE BASED ON NAD 83 AND NAVD 88, RESPECTIVELY.
2. THE 2013 BATHYMETRIC SURVEY WAS PERFORMED BY AQUA SURVEY, INC. ON MAY 13, 2013.
3. THE 2011 BATHYMETRIC SURVEY WAS PERFORMED BY GAHAGAN & BRYANT ASSOCIATES, INC. ON NOVEMBER 3, 2011.

LEGEND

2013 AND 2011 BATHYMETRY COMPARISON RESULTS (FT):

APPARENT EROSION
- > -5.94 AND ≤ -4
- > -4 AND ≤ -3
- > -3 AND ≤ -2
- > -2 AND ≤ -1
- > -1 AND ≤ -0.75
- > -0.75 AND ≤ -0.5

CHANGE WITHIN THE ACCURACY OF SURVEY
- > -0.5 AND ≤ -0.25
- > -0.25 AND ≤ 0.25
- > 0.25 AND ≤ 0.5

APPARENT DEPOSITION
- > 0.5 AND ≤ 0.75
- > 0.75 AND ≤ 1
- > 1 AND ≤ 7.5

2011 CMI WP REMOVAL AREA LIMIT

DUPONT POMPTON LAKES WORKS
POMPTON LAKES, NEW JERSEY

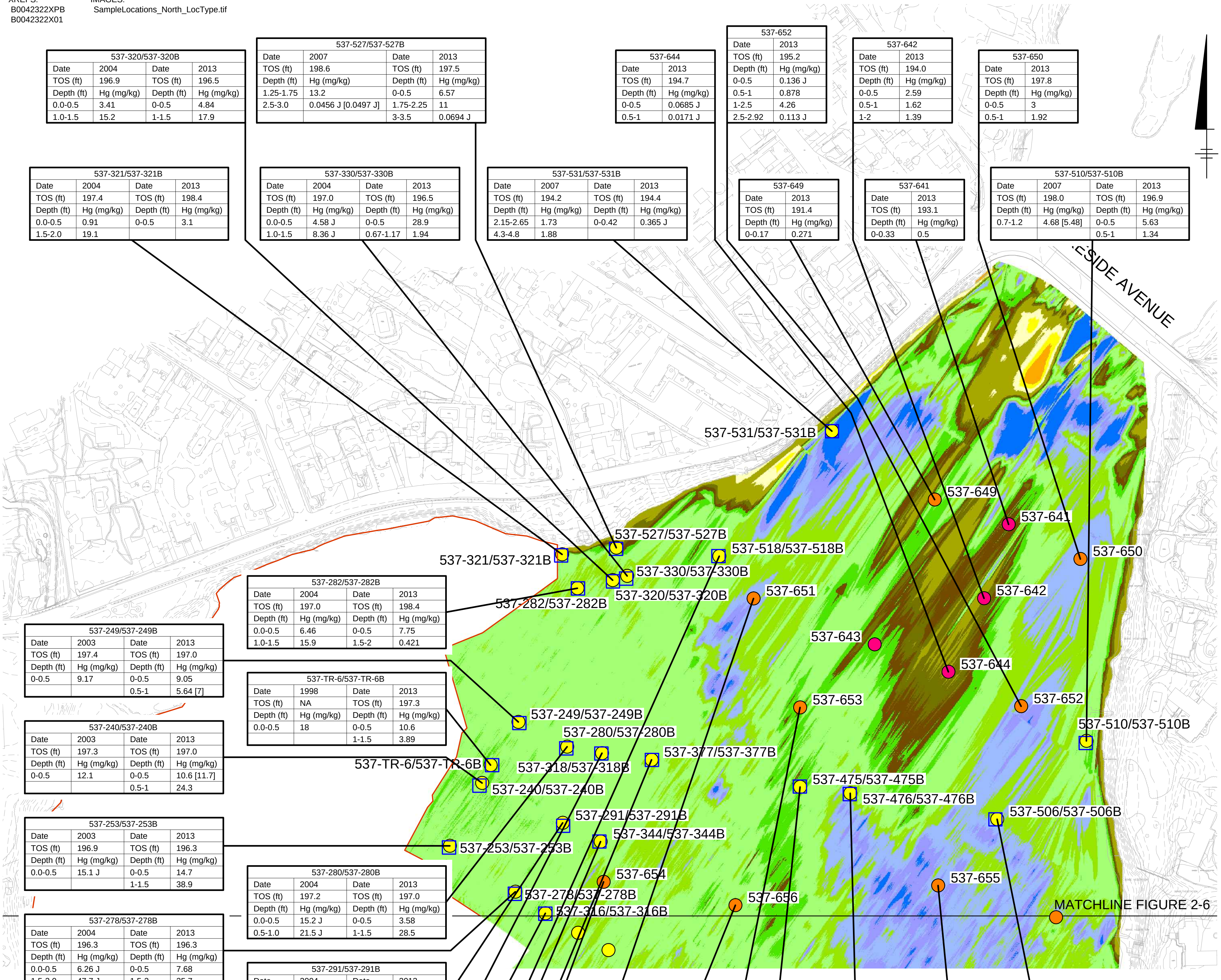
BATHYMETRY COMPARISON RESULTS: 2011 AND 2013

ARCADIS

FIGURE
2-4

CITY:SYRACUSE DIV/GROUP:IMDV-CAD DB:R.PETRI
G:\ENVCAD\SYRACUSE\ACT\B0042322\0003\00006\DWG\MAP-2014\B0042322B_2-5.dwg PLOTTED: 2/7/2014 1:02 PM BY: SARTORI, KATHERINE

XREFS: B0042322XPB B0042322X01
IMAGES: SampleLocations_North_LocType.tif



537-320/537-320B			
Date	2004	Date	2013
TOS (ft)	196.9	TOS (ft)	196.5
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	3.41	0-0.5	4.84
1.0-1.5	15.2	1-1.5	17.9

537-527/537-527B			
Date	2007	Date	2013
TOS (ft)	198.6	TOS (ft)	197.5
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
1.25-1.75	13.2	0-0.5	6.57
2.5-3.0	0.0456 J [0.0497 J]	1.75-2.25	11
		3-3.5	0.0694 J

537-644	
Date	2013
TOS (ft)	194.7
Depth (ft)	Hg (mg/kg)
0-0.5	0.0685 J
0.5-1	0.0171 J

537-652	
Date	2013
TOS (ft)	195.2
Depth (ft)	Hg (mg/kg)
0-0.5	0.136 J
0.5-1	0.878
1-2.5	4.26
2.5-2.92	0.113 J

537-642	
Date	2013
TOS (ft)	194.0
Depth (ft)	Hg (mg/kg)
0-0.5	2.59
0.5-1	1.62
1-2	1.39

537-650	
Date	2013
TOS (ft)	197.8
Depth (ft)	Hg (mg/kg)
0-0.5	3
0.5-1	1.92

537-321/537-321B			
Date	2004	Date	2013
TOS (ft)	197.4	TOS (ft)	198.4
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	0.91	0-0.5	3.1
1.5-2.0	19.1		

537-330/537-330B			
Date	2004	Date	2013
TOS (ft)	197.0	TOS (ft)	196.5
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	4.58 J	0-0.5	28.9
1.0-1.5	8.36 J	0.67-1.17	1.94

537-531/537-531B			
Date	2007	Date	2013
TOS (ft)	194.2	TOS (ft)	194.4
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
2.15-2.65	1.73	0-0.42	0.365 J
4.3-4.8	1.88		

537-649	
Date	2013
TOS (ft)	191.4
Depth (ft)	Hg (mg/kg)
0-0.17	0.271

537-641	
Date	2013
TOS (ft)	193.1
Depth (ft)	Hg (mg/kg)
0-0.33	0.5

537-510/537-510B			
Date	2007	Date	2013
TOS (ft)	198.0	TOS (ft)	196.9
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.7-1.2	4.68 [5.48]	0-0.5	5.63
		0.5-1	1.34

537-282/537-282B			
Date	2004	Date	2013
TOS (ft)	197.0	TOS (ft)	198.4
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	6.46	0-0.5	7.75
1.0-1.5	15.9	1.5-2	0.421

537-249/537-249B			
Date	2003	Date	2013
TOS (ft)	197.4	TOS (ft)	197.0
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0-0.5	9.17	0-0.5	9.05
		0.5-1	5.64 [7]

537-TR-6/537-TR-6B			
Date	1998	Date	2013
TOS (ft)	NA	TOS (ft)	197.3
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	18	0-0.5	10.6
		1-1.5	3.89

537-240/537-240B			
Date	2003	Date	2013
TOS (ft)	197.3	TOS (ft)	197.0
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0-0.5	12.1	0-0.5	10.6 [11.7]
		0.5-1	24.3

537-253/537-253B			
Date	2003	Date	2013
TOS (ft)	196.9	TOS (ft)	196.3
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	15.1 J	0-0.5	14.7
		1-1.5	38.9

537-280/537-280B			
Date	2004	Date	2013
TOS (ft)	197.2	TOS (ft)	197.0
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	15.2 J	0-0.5	3.58
0.5-1.0	21.5 J	1-1.5	28.5

537-278/537-278B			
Date	2004	Date	2013
TOS (ft)	196.3	TOS (ft)	196.3
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	6.26 J	0-0.5	7.68
1.5-2.0	47.7 J	1.5-2	25.7

537-291/537-291B			
Date	2004	Date	2013
TOS (ft)	197.1	TOS (ft)	197.4
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	4.75 J	0-0.5	5.47
1.0-1.5	28.5 J		

537-318/537-318B			
Date	2004	Date	2013
TOS (ft)	197.0	TOS (ft)	194.6
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	3.42	0-0.5	4.33
1.5-2.0	35.8	1.25-1.75	25.9
		2.5-3	3.99

537-316/537-316B			
Date	2004	Date	2013
TOS (ft)	195.8	TOS (ft)	195.7
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	4.54	0-0.5	3.31
1.0-1.5	34.4	1.25-1.75	7.3
		2.5-3	40.4

537-518/537-518B			
Date	2007	Date	2013
TOS (ft)	193.9	TOS (ft)	192.7
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
2.0-2.5	1.86	0-0.5	0.791
4.0-4.5	2.16	3-3.5	1.74
		6-6.5	16.5

537-344/537-344B			
Date	2005	Date	2013
TOS (ft)	197.4	TOS (ft)	196.8
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	3.39 J	0-0.5	0.695

537-377/537-377B			
Date	2005	Date	2013
TOS (ft)	196.4	TOS (ft)	196.7
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	3.28	0.83-1.33	17.7
0.75-1.25	13.2		

537-654	
Date	2013
TOS (ft)	195.6
Depth (ft)	Hg (mg/kg)
0-0.5	2.94
0.5-1	3.43
1-2.5	4.35
2.5-3	23.9

537-651	
Date	2013
TOS (ft)	195.5
Depth (ft)	Hg (mg/kg)
0-0.5	0.213 J
0.5-1	0.423
1-2.17	1.47

537-653	
Date	2013
TOS (ft)	192.0
Depth (ft)	Hg (mg/kg)
0-0.5	0.637
0.5-1	1.31
1-2	3.09

537-476/537-476B			
Date	2007	Date	2013
TOS (ft)	192.8	TOS (ft)	193.5
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	0.281 J	0-0.5	1.27
1.5-2.0	0.0525 J	0.5-1	3.28 [4.08]

537-506/537-506B			
Date	2007	Date	2013
TOS (ft)	194.5	TOS (ft)	194.4
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
1.1-1.6	1.45	0-0.5	0.235 J
2.2-2.7	5.05	2.25-2.75	0.175 J
		4.5-5	3.1

537-656	
Date	2013
TOS (ft)	193.6
Depth (ft)	Hg (mg/kg)
0-0.5	0.189

537-475/537-475B			
Date	2007	Date	2013
TOS (ft)	192.1	TOS (ft)	191.7
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	0.229 J	0-0.5	0.492
1.2-1.7	2.88	1.5-2	0.833 [0.54]

537-655	
Date	2013
TOS (ft)	194.6
Depth (ft)	Hg (mg/kg)
0-0.5	0.0964 J
0.5-1	1.9
1-1.5	0.46

NOTES:

1. THE BASE MAP WAS PREPARED BY R.C.C DESIGN, INC. AND IS BASED UPON ACTUAL FIELD SURVEY AND AERIAL PHOTOGRAPHY PERFORMED ON DECEMBER 28, 2007, AND REPRESENTS THE CONDITIONS FOUND EXCEPT SUCH EASEMENTS OF IMPROVEMENTS, IF ANY, BELOW THE SURFACE LANDS AND NOT VISIBLE.
2. THE 2013 BATHYMETRIC SURVEY WAS PERFORMED BY AQUA SURVEY, INC. ON MAY 13, 2013.
3. THE 2007 BATHYMETRIC SURVEY WAS PERFORMED BY OCEAN SURVEYS, INC. IN APRIL/MAY 2007.
4. THE SAMPLE MATERIAL COLLECTED FROM LOCATION 537-643 WAS NOT ANALYZED, AS ONLY GRAVEL WAS RECOVERED. THE MATERIAL COLLECTED WAS ARCHIVED.
5. TOS = TOP OF SEDIMENT ELEVATION (NAVD88); J = ESTIMATED VALUE; [ ] = DUPLICATE SAMPLE RESULT; NA = NOT AVAILABLE.

0 250' 500'
GRAPHIC SCALE

LEGEND

CORE LOCATIONS:

- **2013 DATA ADEQUACY - AREAS WITH DECREASED SURFACE SEDIMENT ELEVATION**
- **2013 DATA ADEQUACY - AREAS WITH SIMILAR TO/INCREASED SURFACE SEDIMENT ELEVATION**
- **2013 HISTORIC VALIDATION**
- **HISTORIC (ONLY 2013 RESAMPLED LOCATIONS)**

2007 AND 2011 BATHYMETRY COMPARISON RESULTS (FT):

APPARENT EROSION
- > -6.14 AND ≤ -4
- > -4 AND ≤ -3
- > -3 AND ≤ -2
- > -2 AND ≤ -1
- > -1 AND ≤ -0.75
- > -0.75 AND ≤ -0.5

CHANGE WITHIN THE ACCURACY OF SURV
- > -0.5 AND ≤ -0.25
- > -0.25 AND ≤ 0.25
- > 0.25 AND ≤ 0.5

APPARENT DEPOSITION
- > 0.5 AND ≤ 0.75
- > 0.75 AND ≤ 1
- > 1 AND ≤ 6
- 2011 CMI WP REMOVAL AREA LIMIT

DUPONT POMPTON LAKES WORKS
POMPTON LAKES, NEW JERSEY

POMPTON LAKE AND RAMAPO RIVER 2013 SEDIMENT SAMPLING LOCATIONS AND RESULTS

ARCADIS

FIGURE
2-5

CITY:SYRACUSE DIV/GROUP:IMDV-CAD DB:R.PETRI
G:\ENVCAD\SYRACUSE\ACT\B0042322\0003\00006\DWG\MAP-2014\B0042322B_2-6.dwg PLOTTED: 2/7/2014 1:41 PM BY: SARTORI, KATHERINE
XREFS: B0042322XPB B0042322X01 IMAGES: SampleLocations_North_LocType.tif

537-443/537-443B

Date	2006	Date	2013
TOS (ft)	193.5	TOS (ft)	187.9
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
1.3-1.8	7.77	0-0.5	0.927
		1.25-1.75	1.04
		2.5-3	0.0289 J

537-662

Date	2013
TOS (ft)	192.8
Depth (ft)	Hg (mg/kg)
0-0.5	0.813 [0.872]
0.5-1	2.5
1-2.5	9.45
2.5-4	0.0541 J

537-658

Date	2013
TOS (ft)	194.4
Depth (ft)	Hg (mg/kg)
0-0.5	0.0804 J
0.5-1	0.777
1-2.5	2.38

537-437/537-437B

Date	2006	Date	2013
TOS (ft)	192.4	TOS (ft)	192.7
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
1.4-1.9	8.54	0-0.5	0.013 U

537-661

Date	2013
TOS (ft)	191.7
Depth (ft)	Hg (mg/kg)
0-0.5	1.07
0.5-1	1.21
1-2.5	3.34

537-659

Date	2013
TOS (ft)	195.3
Depth (ft)	Hg (mg/kg)
0-0.5	0.547
0.5-1	1.31
1-2.5	2.69 [2.18]
2.5-3.5	0.0581 J

537-427/537-427B

Date	2006	Date	2013
TOS (ft)	194.3	TOS (ft)	194.9
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.95-1.55	2.11	0-0.5	0.84
2.0-2.5	12.9	1.75-2.25	9.38
		3.5-4	0.042 J

537-405/537-405B

Date	2005	Date	2013
TOS (ft)	194.7	TOS (ft)	194.8
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	2.09	0-0.5	1.25
0.8-1.3	4.06	2.25-2.75	19.7
1.8-2.3	14	4.5-5	0.0374 J

537-462/537-462B

Date	2007	Date	2013
TOS (ft)	194.9	TOS (ft)	194.6
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.9-1.4	2.89	0-0.5	2.67
1.7-2.2	13.9	1.17-1.67	15.4
		2.33-2.83	0.0619 J [0.0775 J]

537-343/537-343B

Date	2005	Date	2013
TOS (ft)	195.1	TOS (ft)	194.6
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	3.14 J	0-0.5	1.72
1.25-1.75	4.9 J	1.75-2.25	7.72
2.25-2.75	23.3 J	3-3.5	26.1

537-499/537-499B

Date	2007	Date	2013
TOS (ft)	196.0	TOS (ft)	194.8
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	1.77	0-0.5	2
1.3-1.8	3.03	2-2.5	0.111 J
2.5-3.0	12.9	4-4.5	0.0618 J

537-663

Date	2013
TOS (ft)	192.5
Depth (ft)	Hg (mg/kg)
0-0.5	1.56
0.5-1	14.6
1-2.5	0.112 J

537-660

Date	2013
TOS (ft)	193.7
Depth (ft)	Hg (mg/kg)
0-0.5	1.61
0.5-1	2.5
1-2.5	7.32
2.5-4	0.524

537-657

Date	2013
TOS (ft)	194.9
Depth (ft)	Hg (mg/kg)
0-0.5	4.44
0.5-1	0.353
1-2.5	0.0497 J
2.5-4	0.0365 J

537-342/537-342B

Date	2005	Date	2013
TOS (ft)	196.8	TOS (ft)	196.4
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	21.2 J	0-0.5	1.73
		0.5-1	0.153

537-325/537-325B

Date	2004	Date	2013
TOS (ft)	196.2	TOS (ft)	196.2
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	6.36 J	0-0.5	10.1
1.0-1.5	19.6 J	0.83-1.33	1.08

537-432/537-432B

Date	2006	Date	2013
TOS (ft)	192.7	TOS (ft)	192.8
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	1.92	0-0.5	1.52
1.0-1.5	7.54	1.5-2	38.6
		3.17-3.67	0.0125 U

537-431/537-431B

Date	2006	Date	2013
TOS (ft)	192.8	TOS (ft)	193.1
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	2.56 [2.57]	0-0.5	2.97
1.2-1.7	13	1.58-2.08	0.244
		3.25-3.75	0.0173 J

537-435/537-435B

Date	2006	Date	2013
TOS (ft)	191.8	TOS (ft)	191.9
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	3.4	0-0.5	2.2
1.975-2.475	2.77 [3]	3.83-4.33	1.97
4.0-4.5	14.5	7.67-8.17	35

537-404/537-404B

Date	2005	Date	2013
TOS (ft)	196.3	TOS (ft)	195.6
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	7.07	0-0.5	8.59
0.9-1.4	41.1	1.5-2	0.431

537-454/537-454B

Date	2007	Date	2013
TOS (ft)	191.3	TOS (ft)	190.7
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	0.609	0-0.5	1.95
1.4-1.9	15	1.67-2.17	1.09
		4.17-4.67	0.0157 U

537-666

Date	2013
TOS (ft)	190.9
Depth (ft)	Hg (mg/kg)
0-0.5	2.56
0.5-1	3.12
1-2.5	3.82 [4.17]
2.5-4.17	12.1

537-451/537-451B

Date	2007	Date	2013
TOS (ft)	188.4	TOS (ft)	188.2
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	1.57 J	0-0.5	2.48
1.25-1.75	2.6 J	2.08-2.58	2.98
2.5-3.0	12.6 J	4-4.5	20.9

537-453/537-453A/537-453B

Date	2007	Date	2010	Date	2013
TOS (ft)	188.2	TOS (ft)	188.3	TOS (ft)	188.1
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	5.92 J	0.0-0.5	3.27	0-0.5	5.16
1.35-1.85	3.64 J	0.5-1.0	4.44	1.75-2.25	5.21
2.7-3.2	68.3 J	1.0-1.5	5.77	3.5-4	62
		1.5-2.0	3.85		
		2.0-2.5	4.72		
		2.5-3.0	13.9		
		3.1-3.6	74.8		
		3.6-3.8	10.2		

537-461/537-461B

Date	2007	Date	2013
TOS (ft)	197.6	TOS (ft)	198.1
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	0.2 J	0-0.5	0.841
1.2-1.7	6.02 [11.3]	1.83-2.33	1.45
2.4-2.9	22.5	3.67-4.17	0.123 J

537-445/537-445B

Date	2006	Date	2013
TOS (ft)	193.5	TOS (ft)	193.9
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
1.0-1.5	1.89	0-0.5	0.785
2.0-2.5	11.8	2-2.5	11.4
		4.08-4.58	0.398

537-665

Date	2013
TOS (ft)	192.5
Depth (ft)	Hg (mg/kg)
0-0.5	0.453
0.5-1	1.44
1-2.25	8.04

537-664

Date	2013
TOS (ft)	192.6
Depth (ft)	Hg (mg/kg)
0-0.5	1.46
0.5-1	19.5
1-2.5	0.0651 J

537-646

Date	2013
TOS (ft)	186.8
Depth (ft)	Hg (mg/kg)
0-0.17	0.235

537-449/537-449B

Date	2007	Date	2013
TOS (ft)	192.5	TOS (ft)	191.7
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	6.32 J	0-0.5	7.56
1.05-1.55	14.1	1-1.5	52.9
2.1-2.6	2.92		

537-648

Date	2013
TOS (ft)	187.6
Depth (ft)	Hg (mg/kg)
0-0.5	5.42
0.5-0.92	13.7

537-647

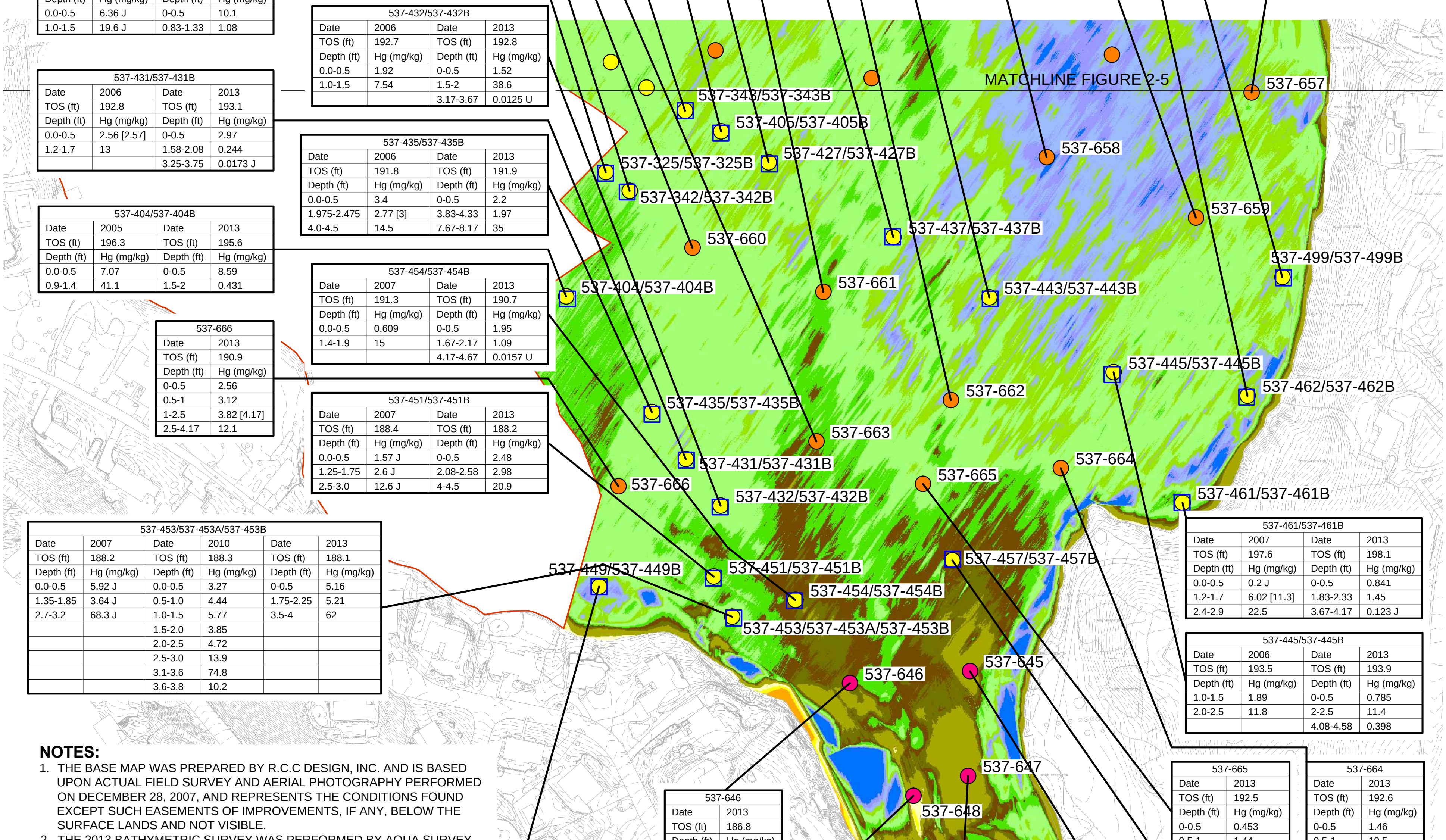
Date	2013
TOS (ft)	187.3
Depth (ft)	Hg (mg/kg)
0-0.5	2.6
0.5-1	10.1
1-2	15.7 [9.34]

537-645

Date	2013
TOS (ft)	189.3
Depth (ft)	Hg (mg/kg)
0-0.5	2.04 [2.14]
0.5-1	5.15
1-2.08	11.2

537-457/537-457B

Date	2007	Date	2013
TOS (ft)	192.0	TOS (ft)	192.6
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	0.456 J	0-0.5	1.82
1.1-1.5	5.82 J	1.25-1.75	19.2
		2.5-3	0.0683 J



NOTES:

1. THE BASE MAP WAS PREPARED BY R.C.C DESIGN, INC. AND IS BASED UPON ACTUAL FIELD SURVEY AND AERIAL PHOTOGRAPHY PERFORMED ON DECEMBER 28, 2007, AND REPRESENTS THE CONDITIONS FOUND EXCEPT SUCH EASEMENTS OF IMPROVEMENTS, IF ANY, BELOW THE SURFACE LANDS AND NOT VISIBLE.
2. THE 2013 BATHYMETRIC SURVEY WAS PERFORMED BY AQUA SURVEY, INC. ON MAY 13, 2013.
3. THE 2007 BATHYMETRIC SURVEY WAS PERFORMED BY OCEAN SURVEYS, INC. IN APRIL/MAY 2007.
4. TOS = TOP OF SEDIMENT ELEVATION (NAVD88); J = ESTIMATED VALUE; [ ] = DUPLICATE SAMPLE RESULT; U = ANALYTE NOT DETECTED (NUMBER PRESENTED IS DETECTION LIMIT).

0 250' 500'

GRAPHIC SCALE

LEGEND

CORE LOCATIONS:

- **2013 DATA ADEQUACY - AREAS WITH DECREASED SURFACE SEDIMENT ELEVATION**
- **2013 DATA ADEQUACY - AREAS WITH SIMILAR TO/INCREASED SURFACE SEDIMENT ELEVATION**
- **2013 HISTORIC VALIDATION**
- **HISTORIC (ONLY 2013 RESAMPLED LOCATIONS)**

2007 AND 2013 BATHYMETRY COMPARISON RESULTS (FT):

APPARENT EROSION
- > -6.14 AND < -4
- > -4 AND < -3
- > -3 AND < -2
- > -2 AND < -1
- > -1 AND < -0.75
- > -0.75 AND < -0.5

CHANGE WITHIN THE ACCURACY OF SURVEY
- > -0.5 AND < -0.25
- > -0.25 AND < 0.25
- > 0.25 AND < 0.5

APPARENT DEPOSITION
- > 0.5 AND < 0.75
- > 0.75 AND < 1
- > 1 AND < 6

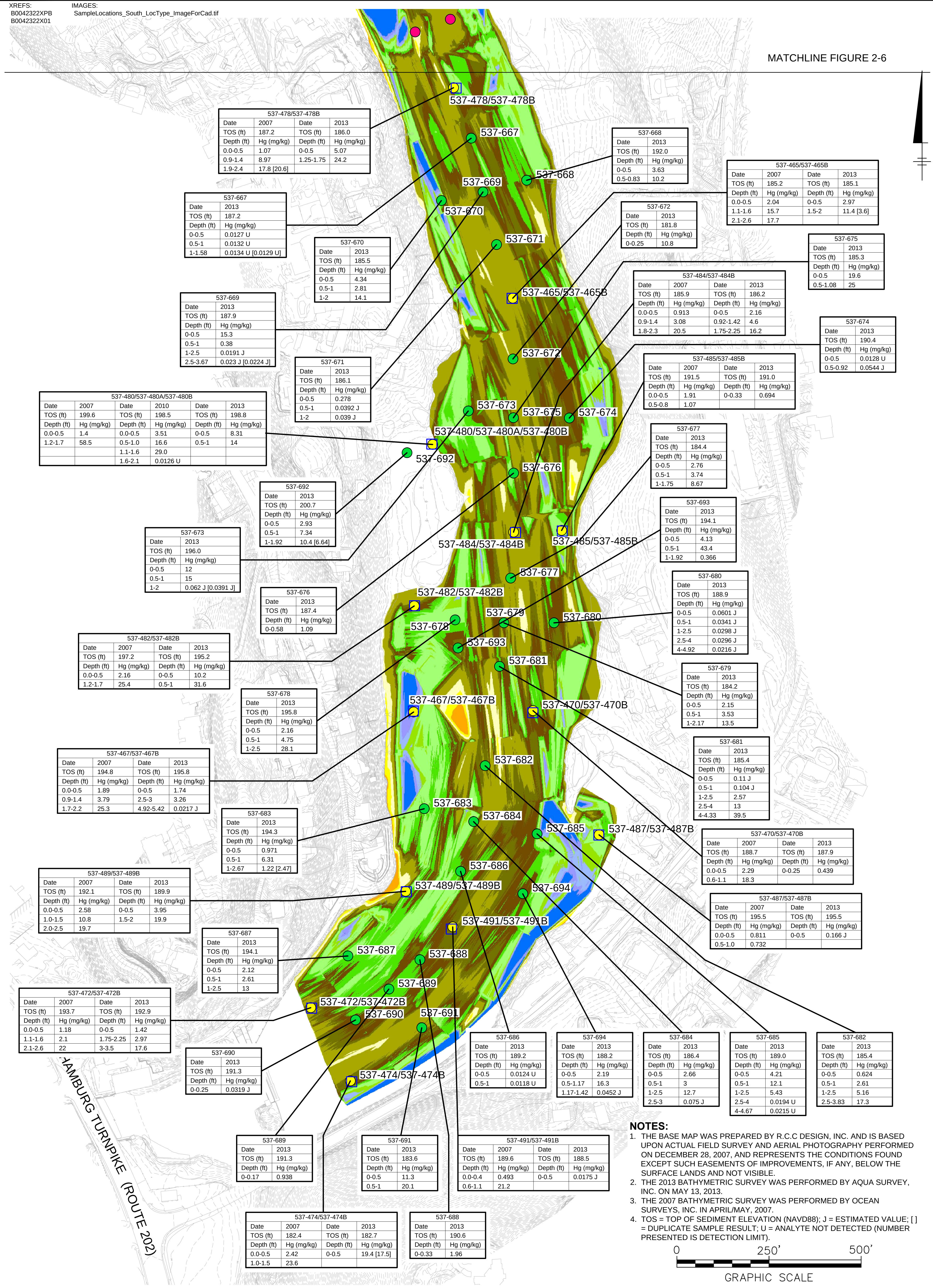
DUPONT POMPTON LAKES WORKS
POMPTON LAKES, NEW JERSEY

POMPTON LAKE AND RAMAPO RIVER 2013 SEDIMENT SAMPLING LOCATIONS AND RESULTS

ARCADIS

FIGURE **2-6**

XREFS: B0042322XPB B0042322X01
IMAGES: SampleLocations_South_LocType_ImageForCad.tif



537-478/537-478B

Date	2007	Date	2013
TOS (ft)	187.2	TOS (ft)	186.0
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	1.07	0-0.5	5.07
0.9-1.4	8.97	1.25-1.75	24.2
1.9-2.4	17.8 [20.6]		

537-668

Date	2013
TOS (ft)	192.0
Depth (ft)	Hg (mg/kg)
0-0.5	3.63
0.5-0.83	10.2

537-465/537-465B

Date	2007	Date	2013
TOS (ft)	185.2	TOS (ft)	185.1
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	2.04	0-0.5	2.97
1.1-1.6	15.7	1.5-2	11.4 [3.6]
2.1-2.6	17.7		

537-667

Date	2013
TOS (ft)	187.2
Depth (ft)	Hg (mg/kg)
0-0.5	0.0127 U
0.5-1	0.0132 U
1-1.58	0.0134 U [0.0129 U]

537-672

Date	2013
TOS (ft)	181.8
Depth (ft)	Hg (mg/kg)
0-0.25	10.8

537-675

Date	2013
TOS (ft)	185.3
Depth (ft)	Hg (mg/kg)
0-0.5	19.6
0.5-1.08	25

537-670

Date	2013
TOS (ft)	185.5
Depth (ft)	Hg (mg/kg)
0-0.5	4.34
0.5-1	2.81
1-2	14.1

537-484/537-484B

Date	2007	Date	2013
TOS (ft)	185.9	TOS (ft)	186.2
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	0.913	0-0.5	2.16
0.9-1.4	3.08	0.92-1.42	4.6
1.8-2.3	20.5	1.75-2.25	16.2

537-669

Date	2013
TOS (ft)	187.9
Depth (ft)	Hg (mg/kg)
0-0.5	15.3
0.5-1	0.38
1-2.5	0.0191 J
2.5-3.67	0.023 J [0.0224 J]

537-674

Date	2013
TOS (ft)	190.4
Depth (ft)	Hg (mg/kg)
0-0.5	0.0128 U
0.5-0.92	0.0544 J

537-485/537-485B

Date	2007	Date	2013
TOS (ft)	191.5	TOS (ft)	191.0
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	1.91	0-0.33	0.694
0.5-0.8	1.07		

537-671

Date	2013
TOS (ft)	186.1
Depth (ft)	Hg (mg/kg)
0-0.5	0.278
0.5-1	0.0392 J
1-2	0.039 J

537-480/537-480A/537-480B

Date	2007	Date	2010	Date	2013
TOS (ft)	199.6	TOS (ft)	198.5	TOS (ft)	198.8
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	1.4	0.0-0.5	3.51	0-0.5	8.31
1.2-1.7	58.5	0.5-1.0	16.6	0.5-1	14
		1.1-1.6	29.0		
		1.6-2.1	0.0126 U		

537-677

Date	2013
TOS (ft)	184.4
Depth (ft)	Hg (mg/kg)
0-0.5	2.76
0.5-1	3.74
1-1.75	8.67

537-692

Date	2013
TOS (ft)	200.7
Depth (ft)	Hg (mg/kg)
0-0.5	2.93
0.5-1	7.34
1-1.92	10.4 [6.64]

537-693

Date	2013
TOS (ft)	194.1
Depth (ft)	Hg (mg/kg)
0-0.5	4.13
0.5-1	43.4
1-1.92	0.366

537-673

Date	2013
TOS (ft)	196.0
Depth (ft)	Hg (mg/kg)
0-0.5	12
0.5-1	15
1-2	0.062 J [0.0391 J]

537-680

Date	2013
TOS (ft)	188.9
Depth (ft)	Hg (mg/kg)
0-0.5	0.0601 J
0.5-1	0.0341 J
1-2.5	0.0298 J
2.5-4	0.0296 J
4-4.92	0.0216 J

537-676

Date	2013
TOS (ft)	187.4
Depth (ft)	Hg (mg/kg)
0-0.58	1.09

537-482/537-482B

Date	2007	Date	2013
TOS (ft)	197.2	TOS (ft)	195.2
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	2.16	0-0.5	10.2
1.2-1.7	25.4	0.5-1	31.6

537-679

Date	2013
TOS (ft)	184.2
Depth (ft)	Hg (mg/kg)
0-0.5	2.15
0.5-1	3.53
1-2.17	13.5

537-678

Date	2013
TOS (ft)	195.8
Depth (ft)	Hg (mg/kg)
0-0.5	2.16
0.5-1	4.75
1-2.5	28.1

537-681

Date	2013
TOS (ft)	185.4
Depth (ft)	Hg (mg/kg)
0-0.5	0.11 J
0.5-1	0.104 J
1-2.5	2.57
2.5-4	13
4-4.33	39.5

537-467/537-467B

Date	2007	Date	2013
TOS (ft)	194.8	TOS (ft)	195.8
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	1.89	0-0.5	1.74
0.9-1.4	3.79	2.5-3	3.26
1.7-2.2	25.3	4.92-5.42	0.0217 J

537-683

Date	2013
TOS (ft)	194.3
Depth (ft)	Hg (mg/kg)
0-0.5	0.971
0.5-1	6.31
1-2.67	1.22 [2.47]

537-470/537-470B

Date	2007	Date	2013
TOS (ft)	188.7	TOS (ft)	187.9
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	2.29	0-0.25	0.439
0.6-1.1	18.3		

537-489/537-489B

Date	2007	Date	2013
TOS (ft)	192.1	TOS (ft)	189.9
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	2.58	0-0.5	3.95
1.0-1.5	10.8	1.5-2	19.9
2.0-2.5	19.7		

537-487/537-487B

Date	2007	Date	2013
TOS (ft)	195.5	TOS (ft)	195.5
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	0.811	0-0.5	0.166 J
0.5-1.0	0.732		

537-687

Date	2013
TOS (ft)	194.1
Depth (ft)	Hg (mg/kg)
0-0.5	2.12
0.5-1	2.61
1-2.5	13

537-472/537-472B

Date	2007	Date	2013
TOS (ft)	193.7	TOS (ft)	192.9
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	1.18	0-0.5	1.42
1.1-1.6	2.1	1.75-2.25	2.97
2.1-2.6	22	3-3.5	17.6

537-686

Date	2013
TOS (ft)	189.2
Depth (ft)	Hg (mg/kg)
0-0.5	0.0124 U
0.5-1	0.0118 U

537-694

Date	2013
TOS (ft)	188.2
Depth (ft)	Hg (mg/kg)
0-0.5	2.19
0.5-1.17	16.3
1.17-1.42	0.0452 J

537-684

Date	2013
TOS (ft)	186.4
Depth (ft)	Hg (mg/kg)
0-0.5	2.66
0.5-1	3
1-2.5	12.7
2.5-3	0.075 J

537-685

Date	2013
TOS (ft)	189.0
Depth (ft)	Hg (mg/kg)
0-0.5	4.21
0.5-1	12.1
1-2.5	5.43
2.5-4	0.0194 U
4-4.67	0.0215 U

537-682

Date	2013
TOS (ft)	185.4
Depth (ft)	Hg (mg/kg)
0-0.5	0.624
0.5-1	2.61
1-2.5	5.16
2.5-3.83	17.3

537-690

Date	2013
TOS (ft)	191.3
Depth (ft)	Hg (mg/kg)
0-0.25	0.0319 J

537-689

Date	2013
TOS (ft)	191.3
Depth (ft)	Hg (mg/kg)
0-0.17	0.938

537-691

Date	2013
TOS (ft)	183.6
Depth (ft)	Hg (mg/kg)
0-0.5	11.3
0.5-1	20.1

537-491/537-491B

Date	2007	Date	2013
TOS (ft)	189.6	TOS (ft)	188.5
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.4	0.493	0-0.5	0.0175 J
0.6-1.1	21.2		

537-474/537-474B

Date	2007	Date	2013
TOS (ft)	182.4	TOS (ft)	182.7
Depth (ft)	Hg (mg/kg)	Depth (ft)	Hg (mg/kg)
0.0-0.5	2.42	0-0.5	19.4 [17.5]
1.0-1.5	23.6		

537-688

Date	2013
TOS (ft)	190.6
Depth (ft)	Hg (mg/kg)
0-0.33	1.96

NOTES:

1. THE BASE MAP WAS PREPARED BY R.C.C DESIGN, INC. AND IS BASED UPON ACTUAL FIELD SURVEY AND AERIAL PHOTOGRAPHY PERFORMED ON DECEMBER 28, 2007, AND REPRESENTS THE CONDITIONS FOUND EXCEPT SUCH EASEMENTS OF IMPROVEMENTS, IF ANY, BELOW THE SURFACE LANDS AND NOT VISIBLE.
2. THE 2013 BATHYMETRIC SURVEY WAS PERFORMED BY AQUA SURVEY, INC. ON MAY 13, 2013.
3. THE 2007 BATHYMETRIC SURVEY WAS PERFORMED BY OCEAN SURVEYS, INC. IN APRIL/MAY, 2007.
4. TOS = TOP OF SEDIMENT ELEVATION (NAVD88); J = ESTIMATED VALUE; [ ] = DUPLICATE SAMPLE RESULT; U = ANALYTE NOT DETECTED (NUMBER PRESENTED IS DETECTION LIMIT).

LEGEND

CORE LOCATIONS:

- 2013 DATA ADEQUACY - AREAS WITH DECREASED SURFACE SEDIMENT ELEVATION
- 2013 DATA ADEQUACY - SUPPLEMENTAL
- 2013 HISTORIC VALIDATION
- HISTORIC (ONLY 2013 RESAMPLED LOCATIONS)

2007 AND 2013 BATHYMETRY COMPARISON RESULTS (FT):

APPARENT EROSION
- > -6.14 AND ≤ -4
- > -4 AND ≤ -3
- > -3 AND ≤ -2
- > -2 AND ≤ -1
- > -1 AND ≤ -0.75
- > -0.75 AND ≤ -0.5

CHANGE WITHIN THE ACCURACY OF SURVEY
- > -0.5 AND ≤ -0.25
- > -0.25 AND ≤ 0.25
- > 0.25 AND ≤ 0.5

APPARENT DEPOSITION
- > 0.5 AND ≤ 0.75
- > 0.75 AND ≤ 1
- > 1 AND ≤ 6

DUPONT POMPTON LAKES WORKS
POMPTON LAKES, NEW JERSEY

POMPTON LAKE AND RAMAPO RIVER 2013 SEDIMENT SAMPLING LOCATIONS AND RESULTS

ARCADIS

FIGURE
2-7

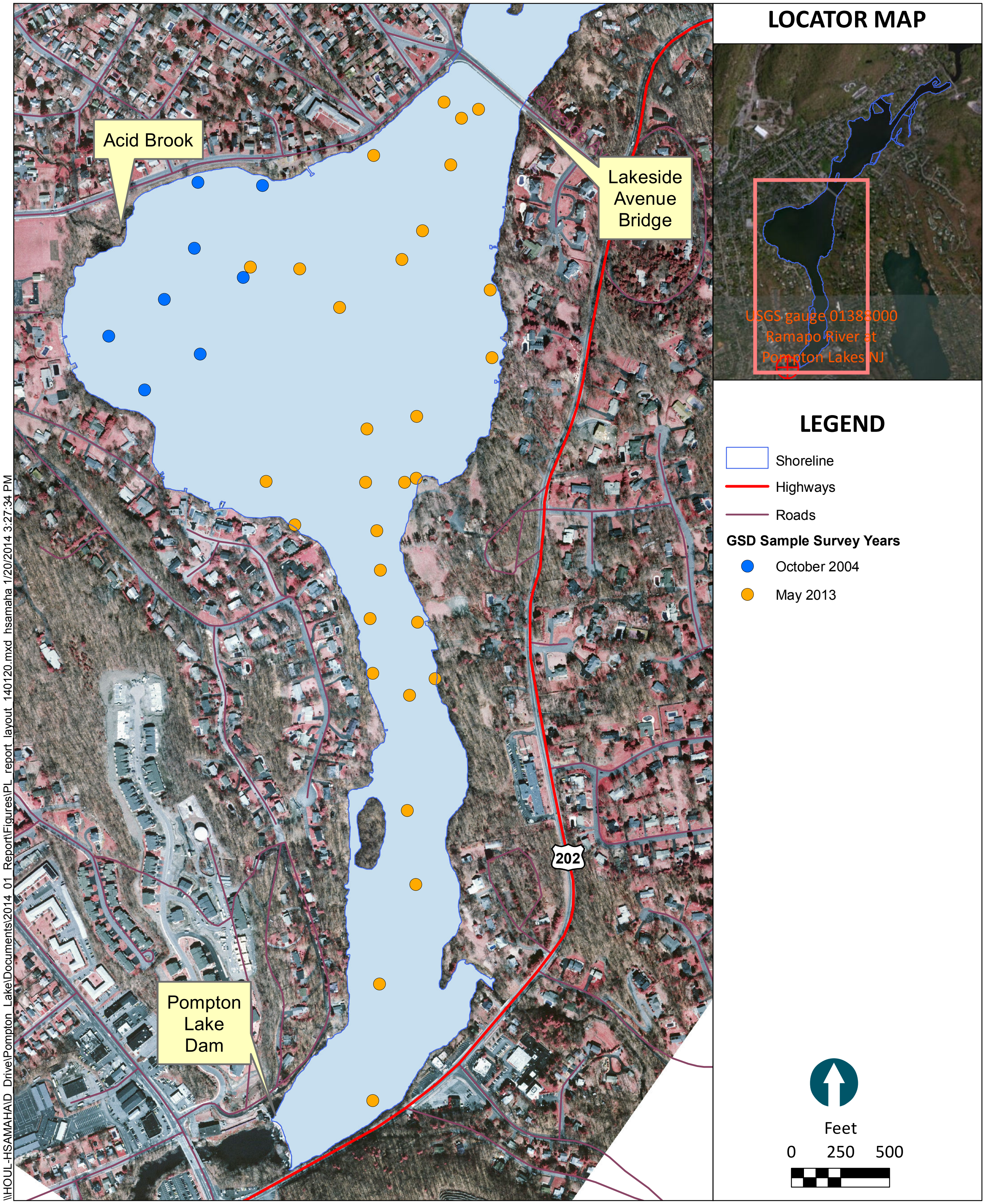


Figure 3-1
Grain Size Distribution Sample Locations
Pompton Lake Study Area

ANCHOR QEA

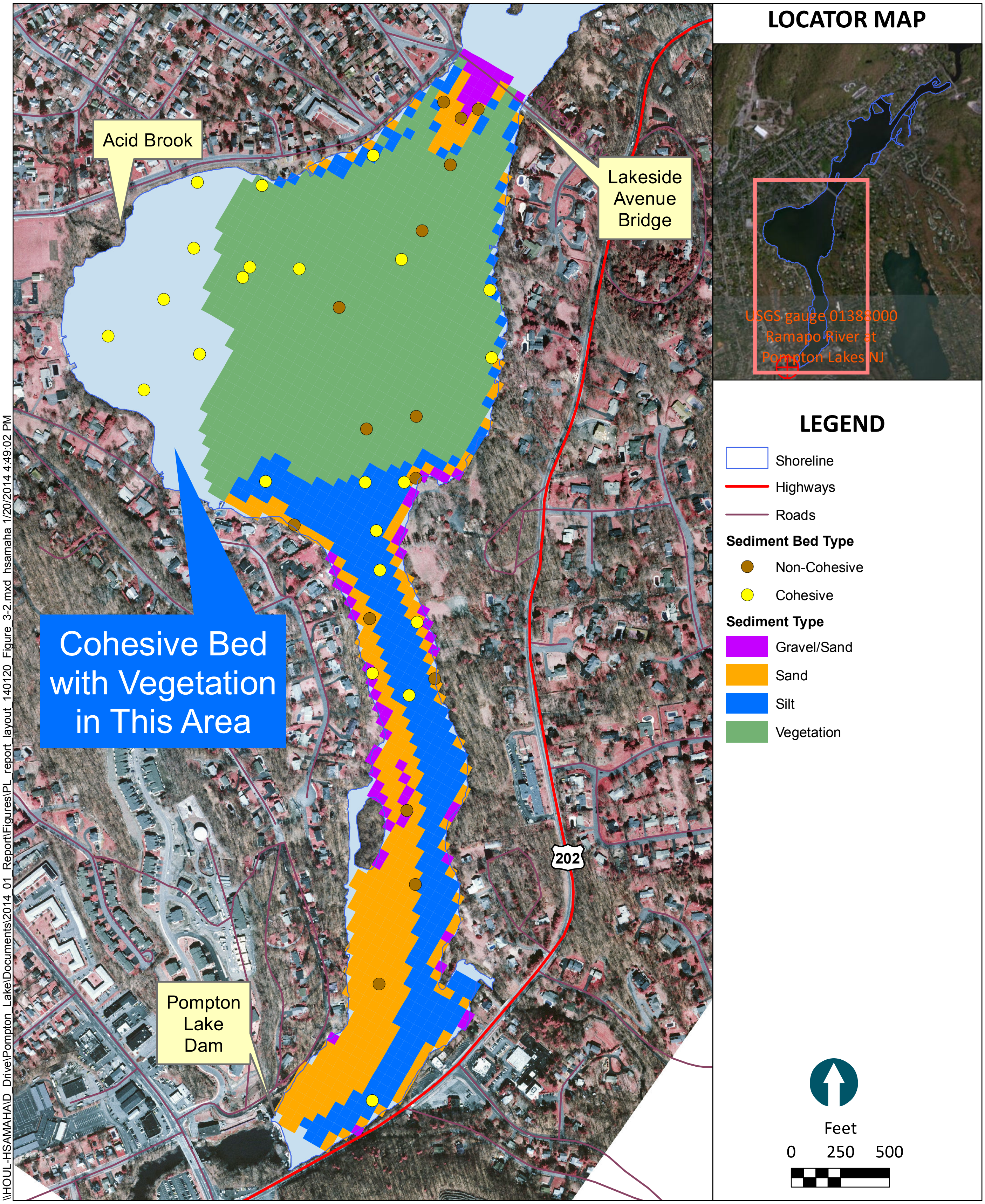


Figure 3-2
Bed Type Based on Grain Size Distribution and Side-Scan Sonar Data
Pompton Lake Study Area

ANCHOR QEA

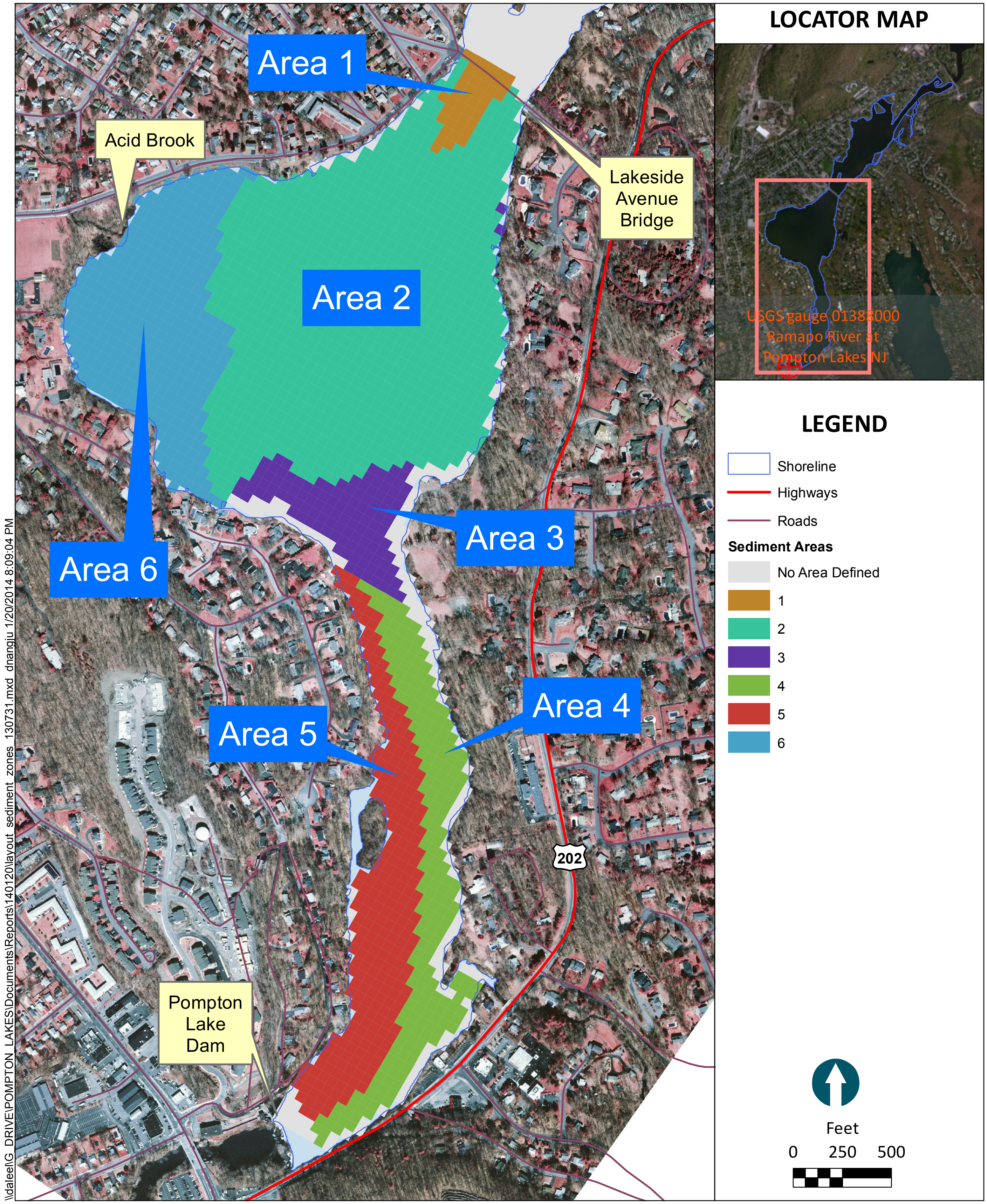


Figure 3-3
Delineation of Areas 1 to 6
Pompton Lake Study Area

ANCHOR QEA

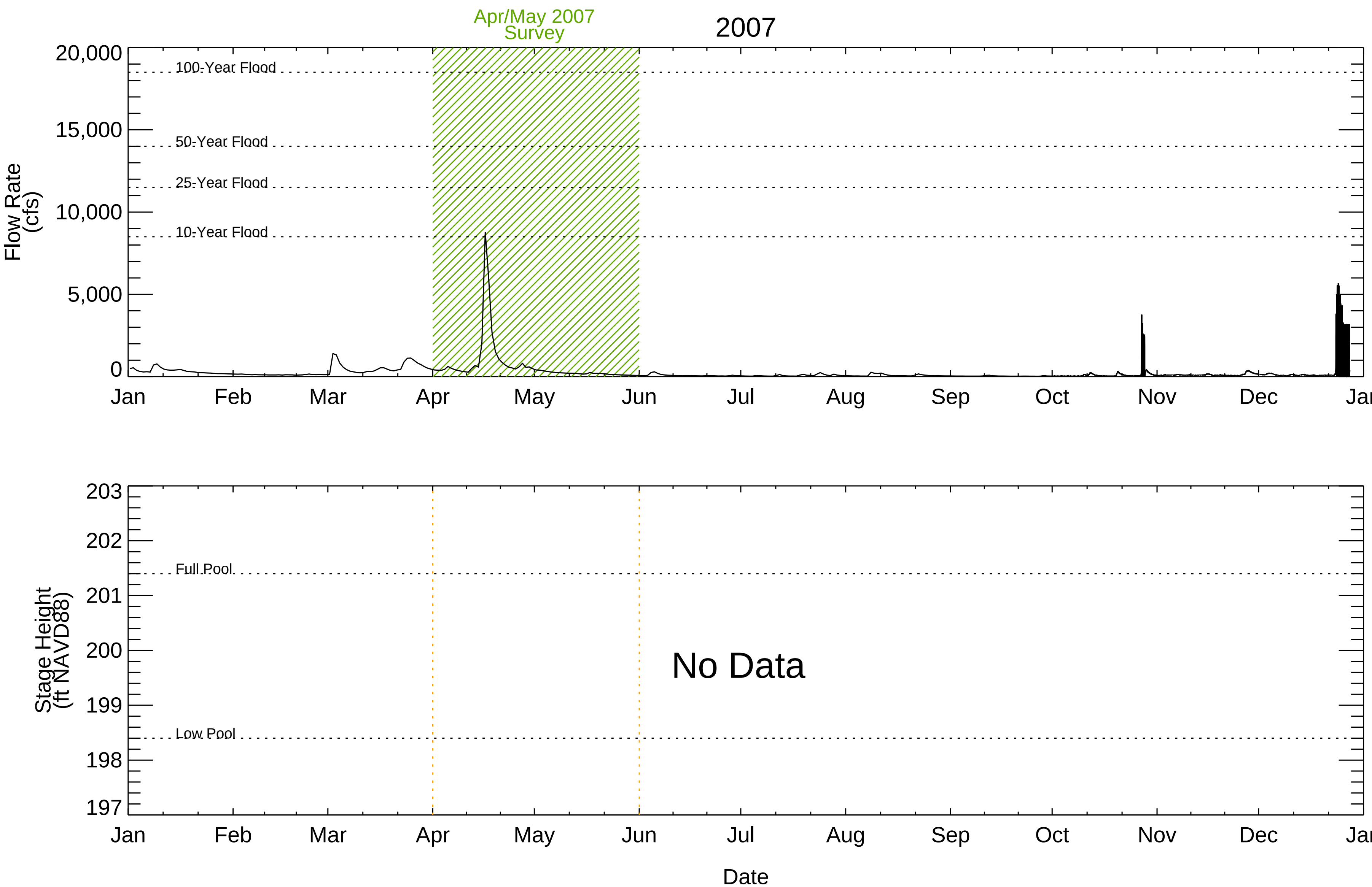


Figure 3-4

River Flow Rate and Lake Stage Height: 2007
Pompton Lake Study Area

ANCHOR QEA

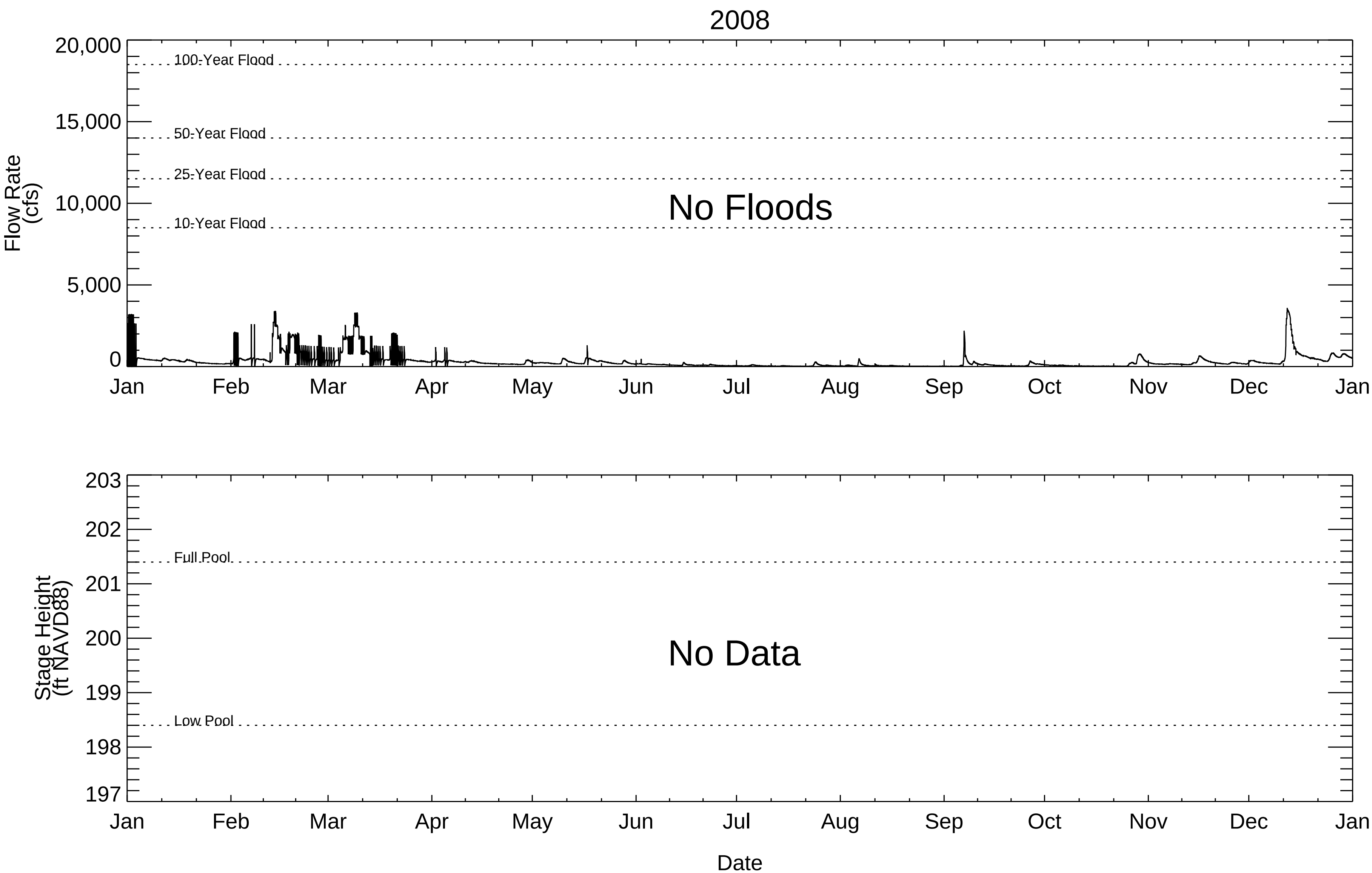


Figure 3-5
River Flow Rate and Lake Stage Height: 2008
Pompton Lake Study Area

ANCHOR QEA

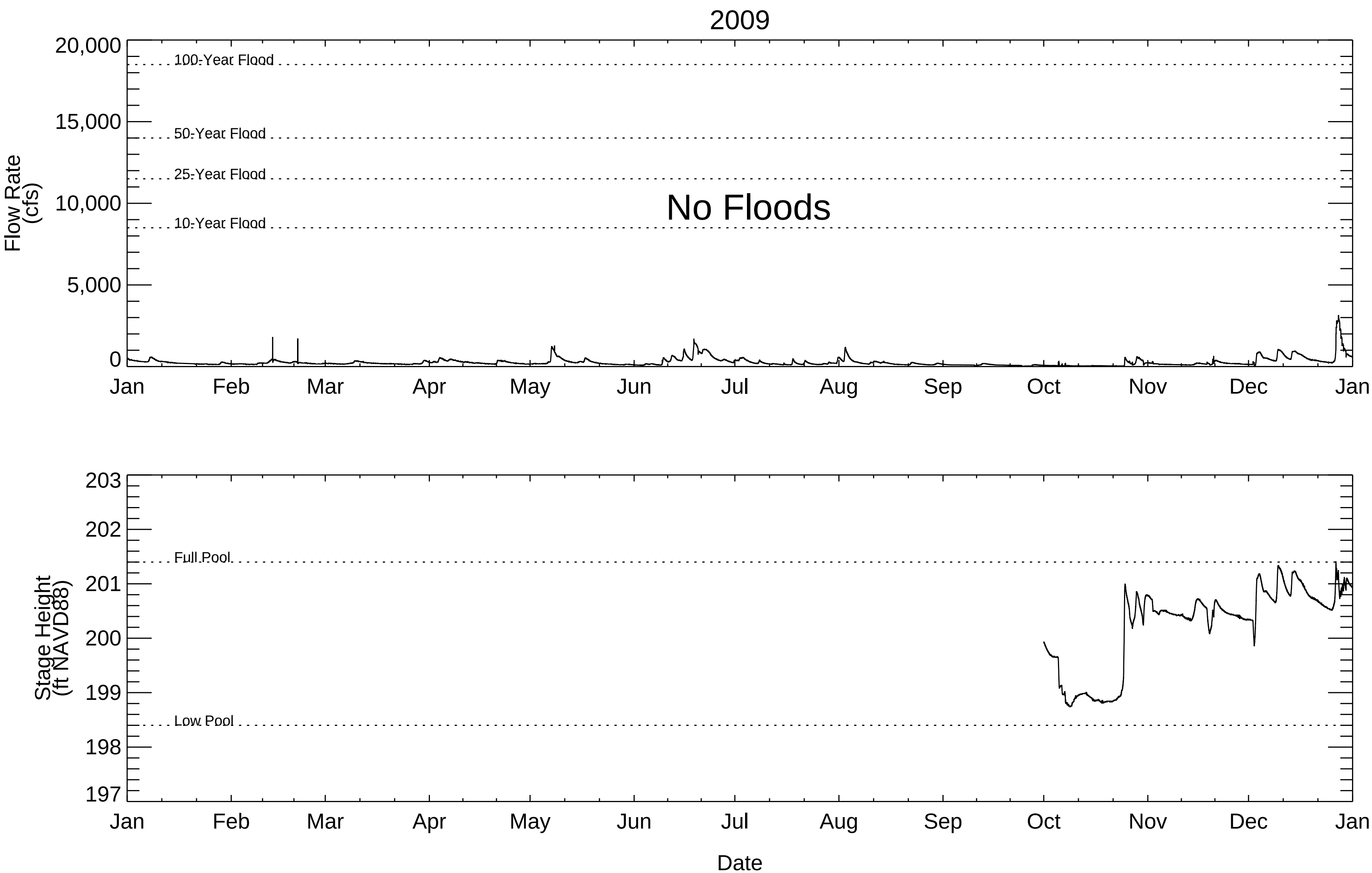


Figure 3-6

River Flow Rate and Lake Stage Height: 2009
Pompton Lake Study Area

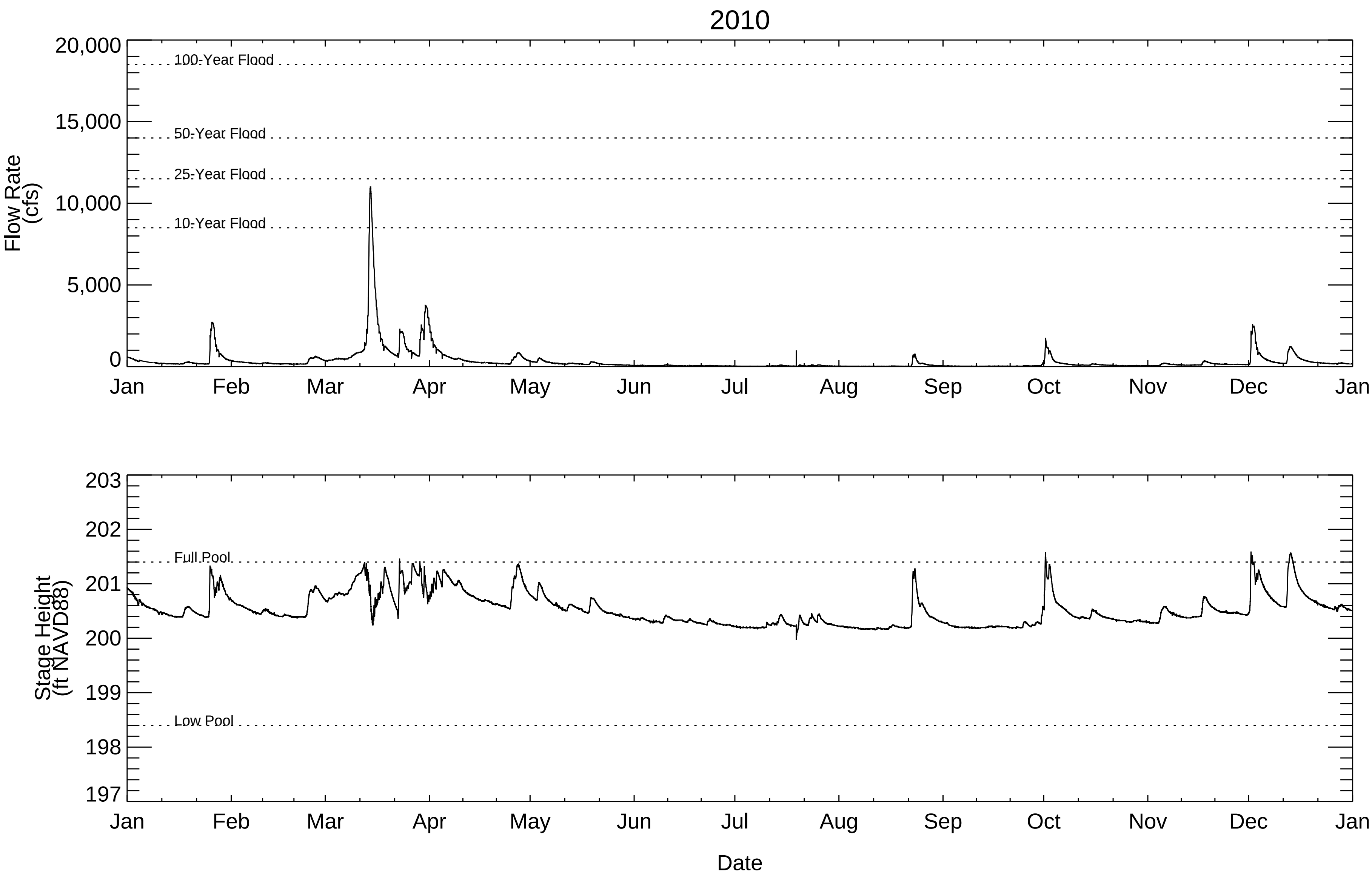


Figure 3-7
River Flow Rate and Lake Stage Height: 2010
Pompton Lake Study Area

ANCHOR QEA

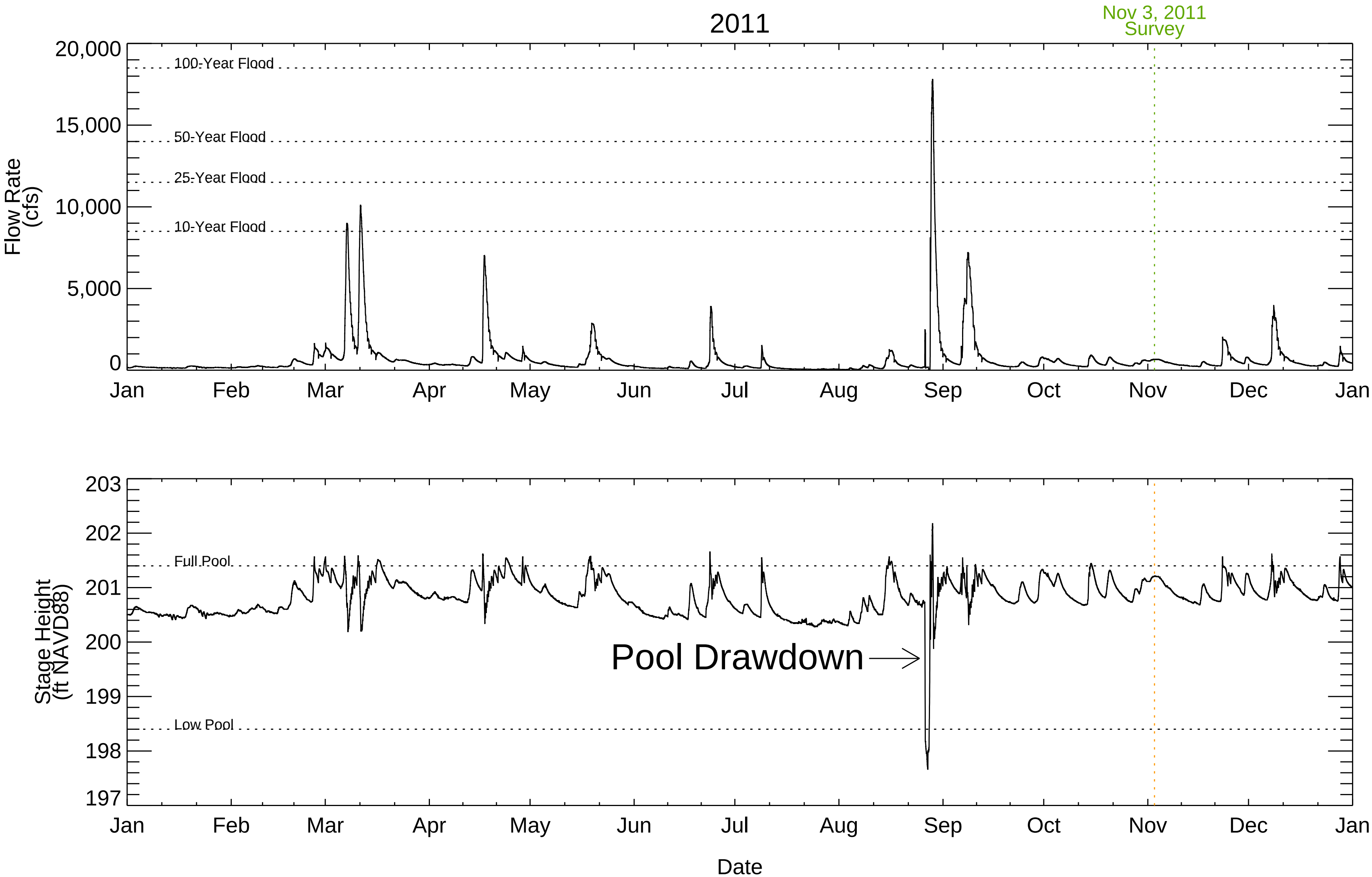


Figure 3-8

River Flow Rate and Lake Stage Height: 2011
Pompton Lake Study Area

ANCHOR QEA

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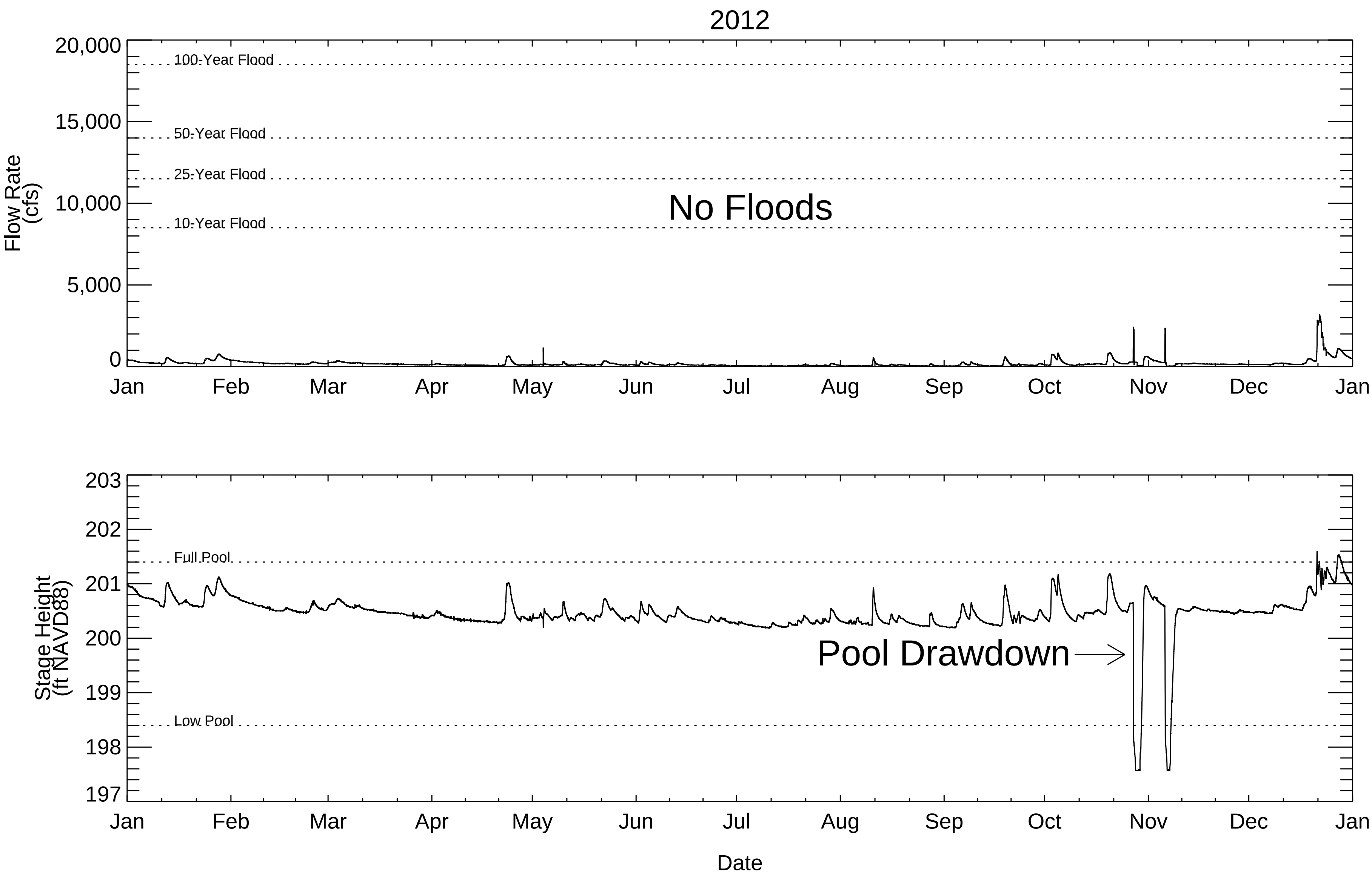


Figure 3-9

River Flow Rate and Lake Stage Height: 2012
Pompton Lake Study Area

ANCHOR QEA

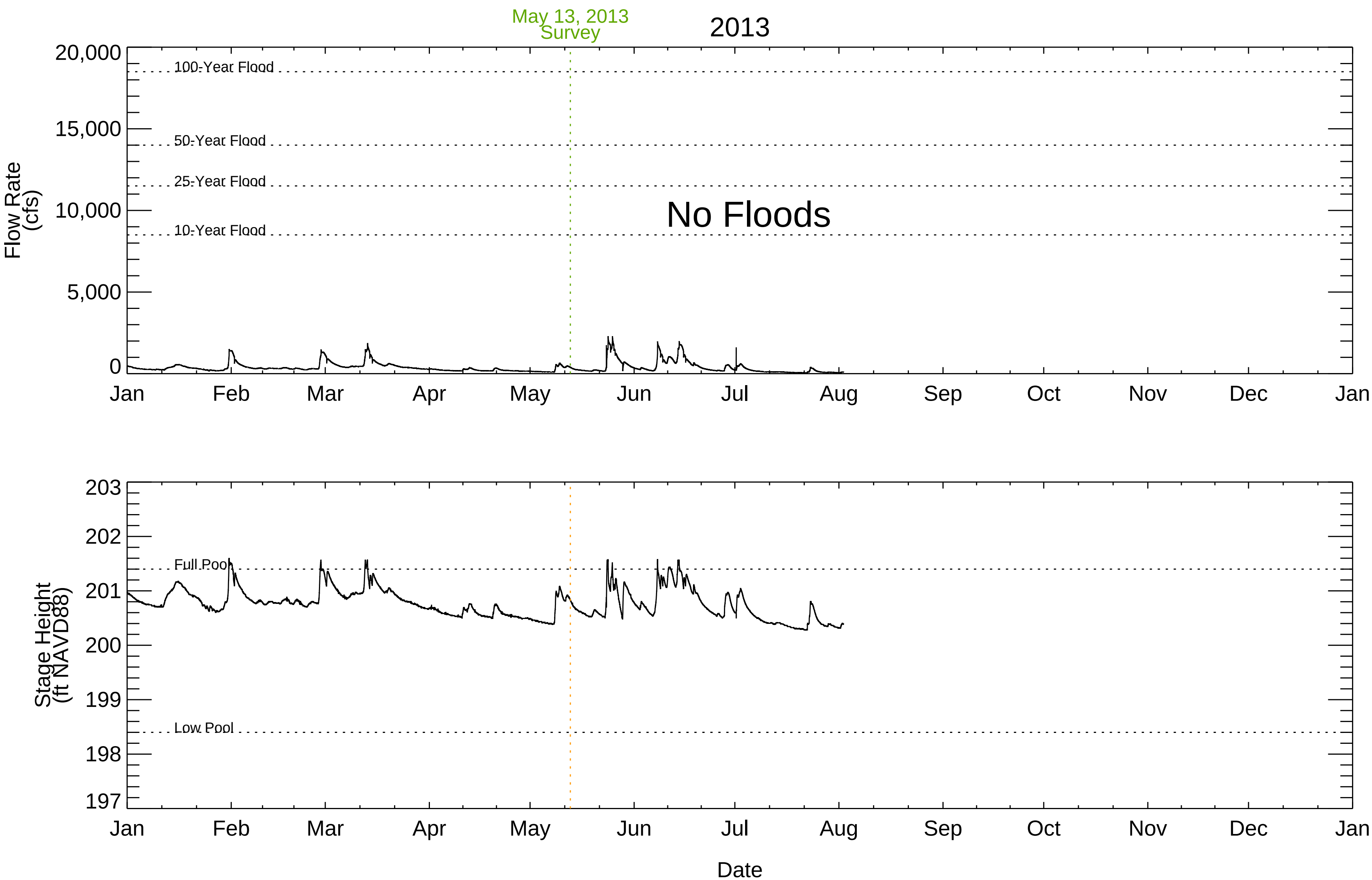


Figure 3-10

River Flow Rate and Lake Stage Height: 2013
Pompton Lake Study Area

ANCHOR QEA

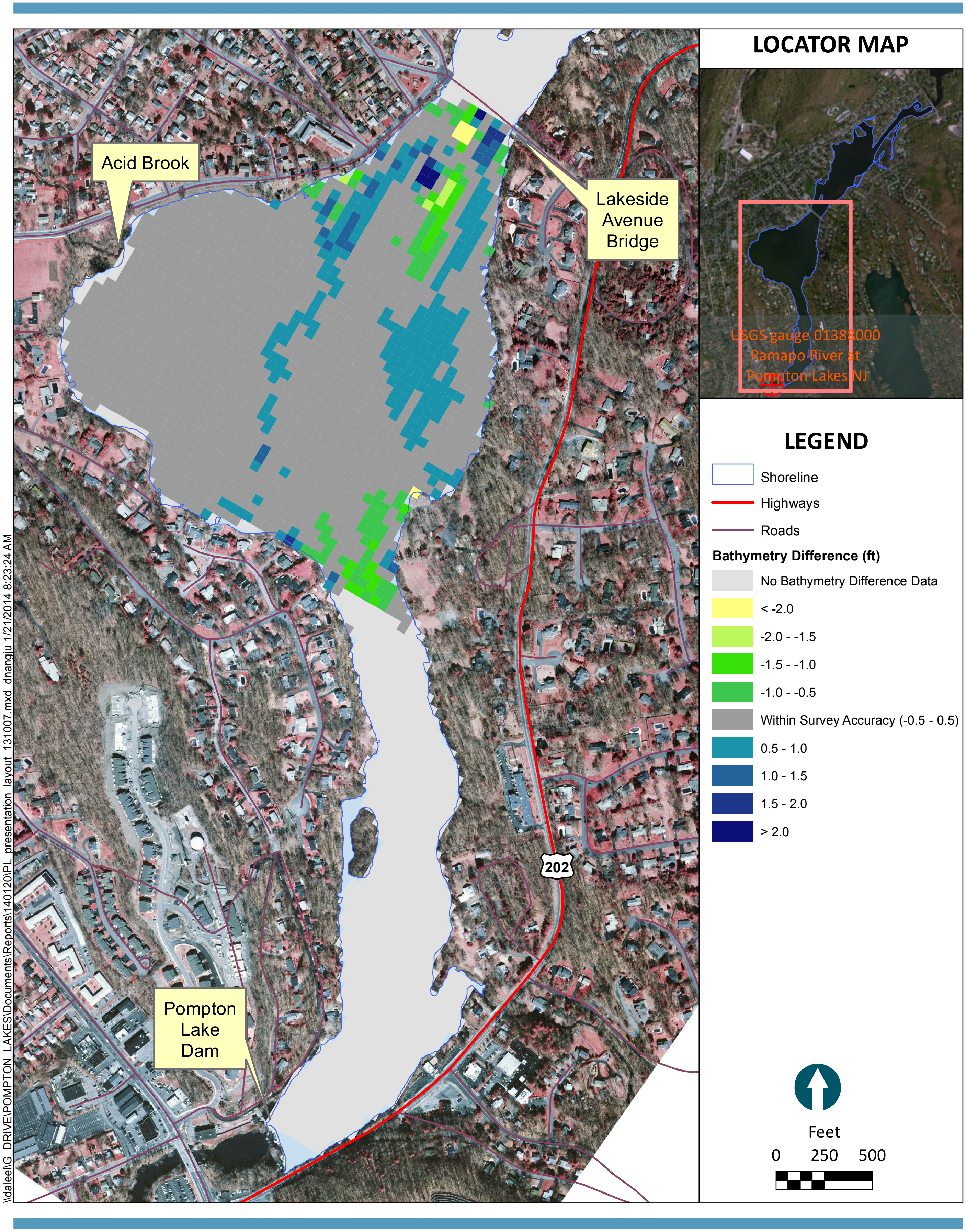


Figure 3-11
Bed Elevation Change
Based on Bathymetry Data Collected
During 2007 and 2011
Pompton Lake Study Area

ANCHOR QEA

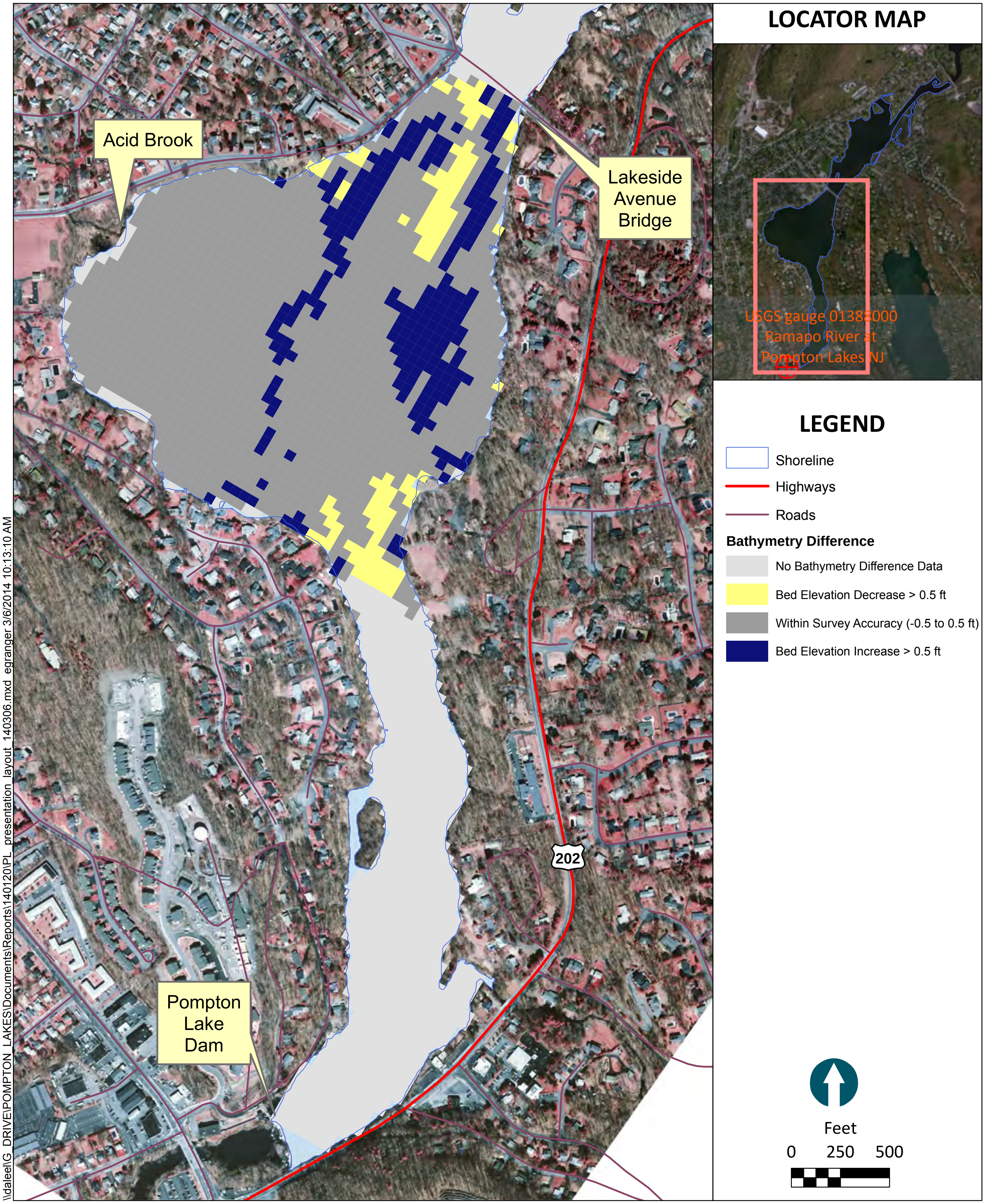


Figure 3-12
Areas of Sediment Bed Elevation Increase and Decrease
Based on Bathymetry Data Collected
During 2007 and 2011
Pompton Lake Study Area

ANCHOR QEA

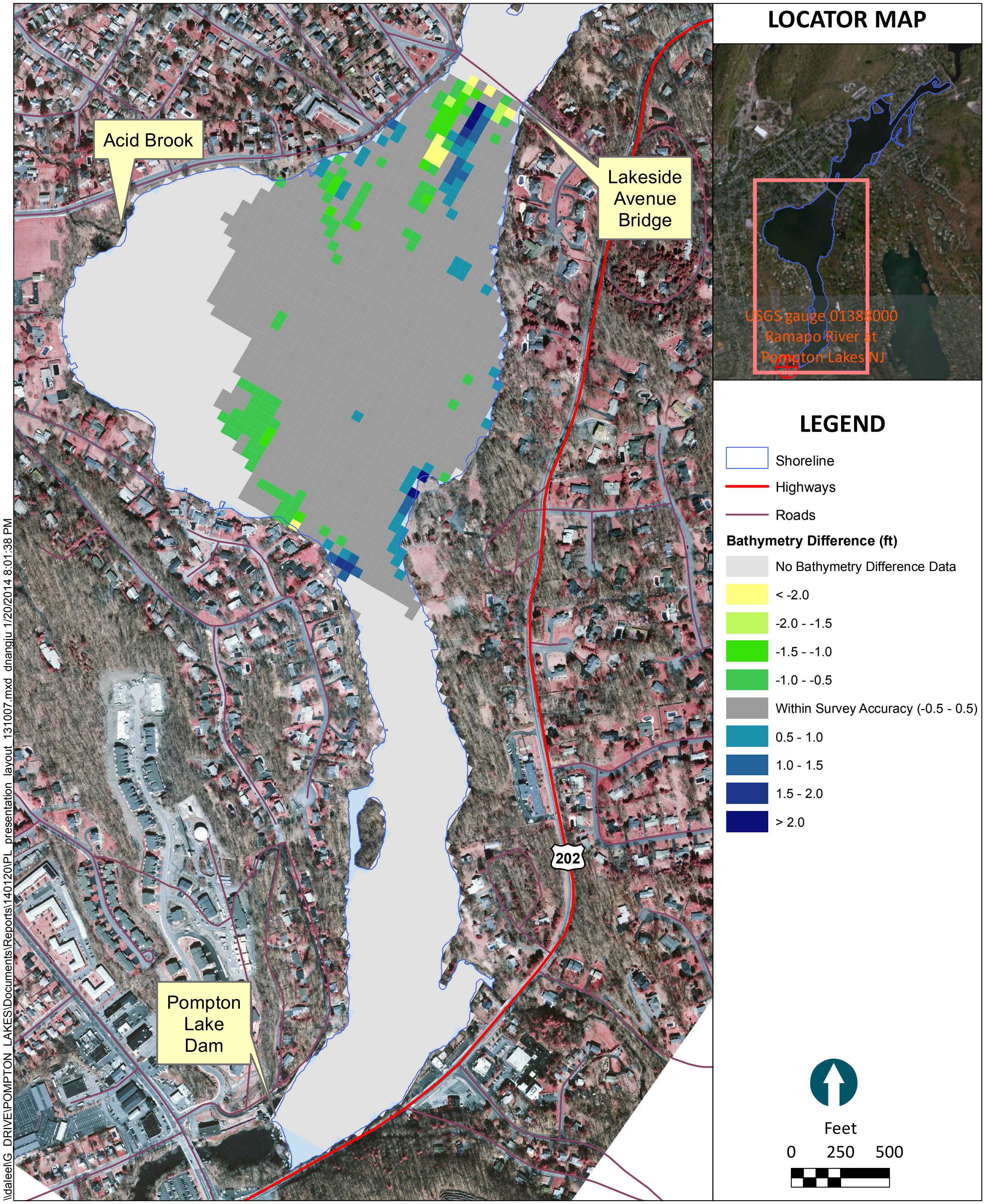


Figure 3-13
Bed Elevation Change
Based on Bathymetry Data Collected
During 2011 and 2013
Pompton Lake Study Area

ANCHOR QEA

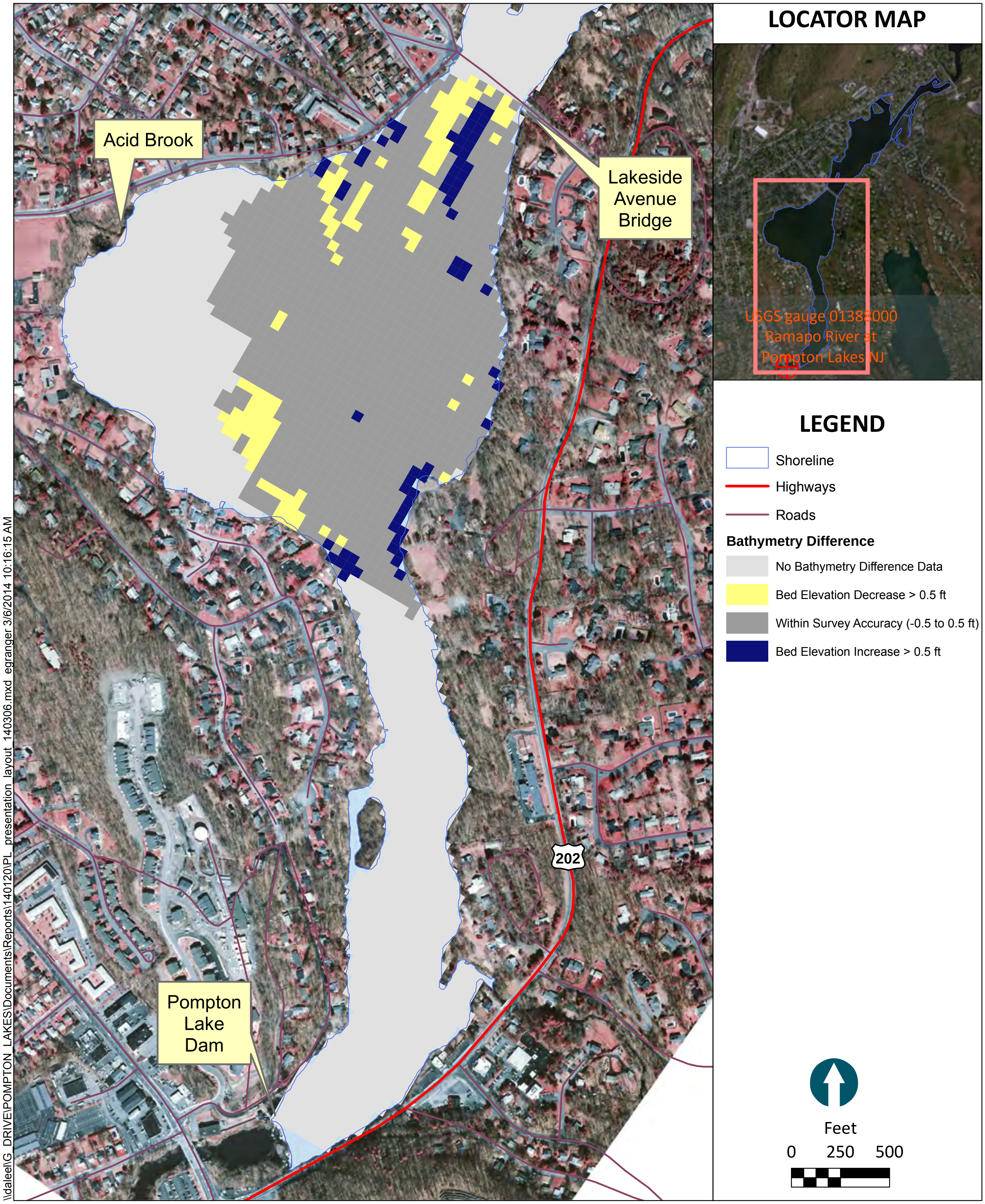


Figure 3-14
Areas of Sediment Bed Elevation Increase and Decrease
Based on Bathymetry Data Collected
During 2011 and 2013
Pompton Lake Study Area

ANCHOR QEA

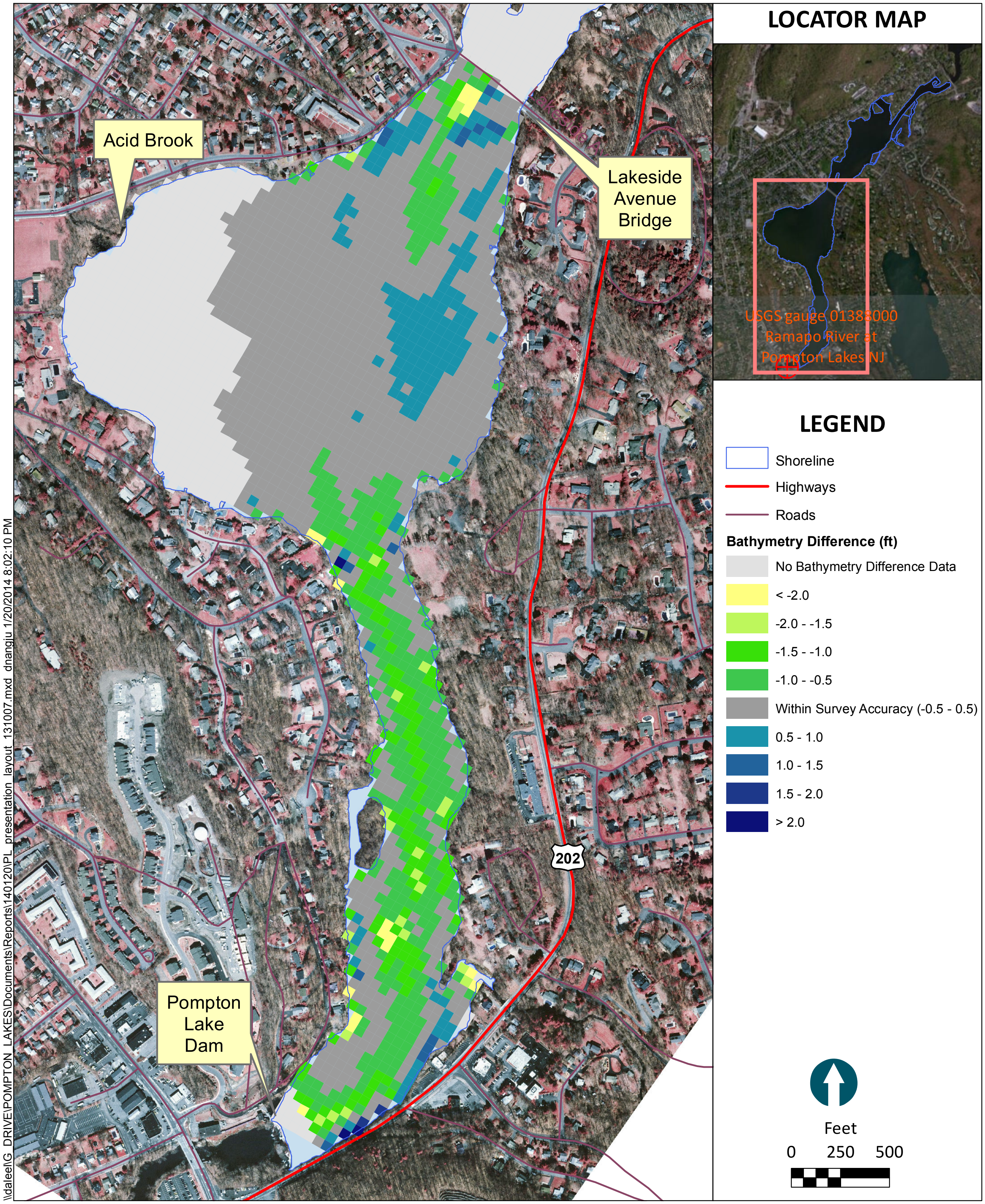


Figure 3-15
Bed Elevation Change Based on Bathymetry Data Collected During 2007 and 2013
Pompton Lake Study Area

ANCHOR QEA

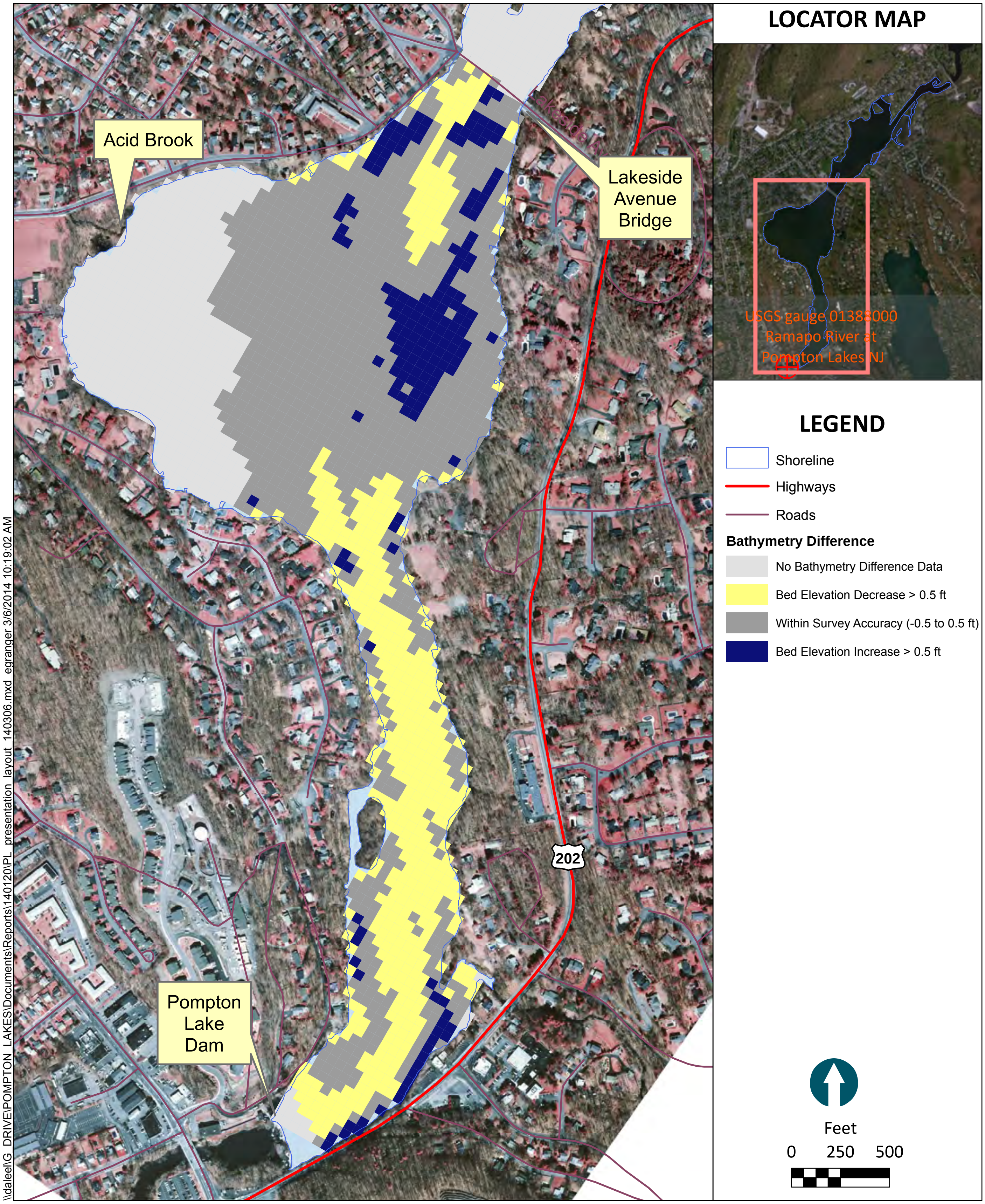
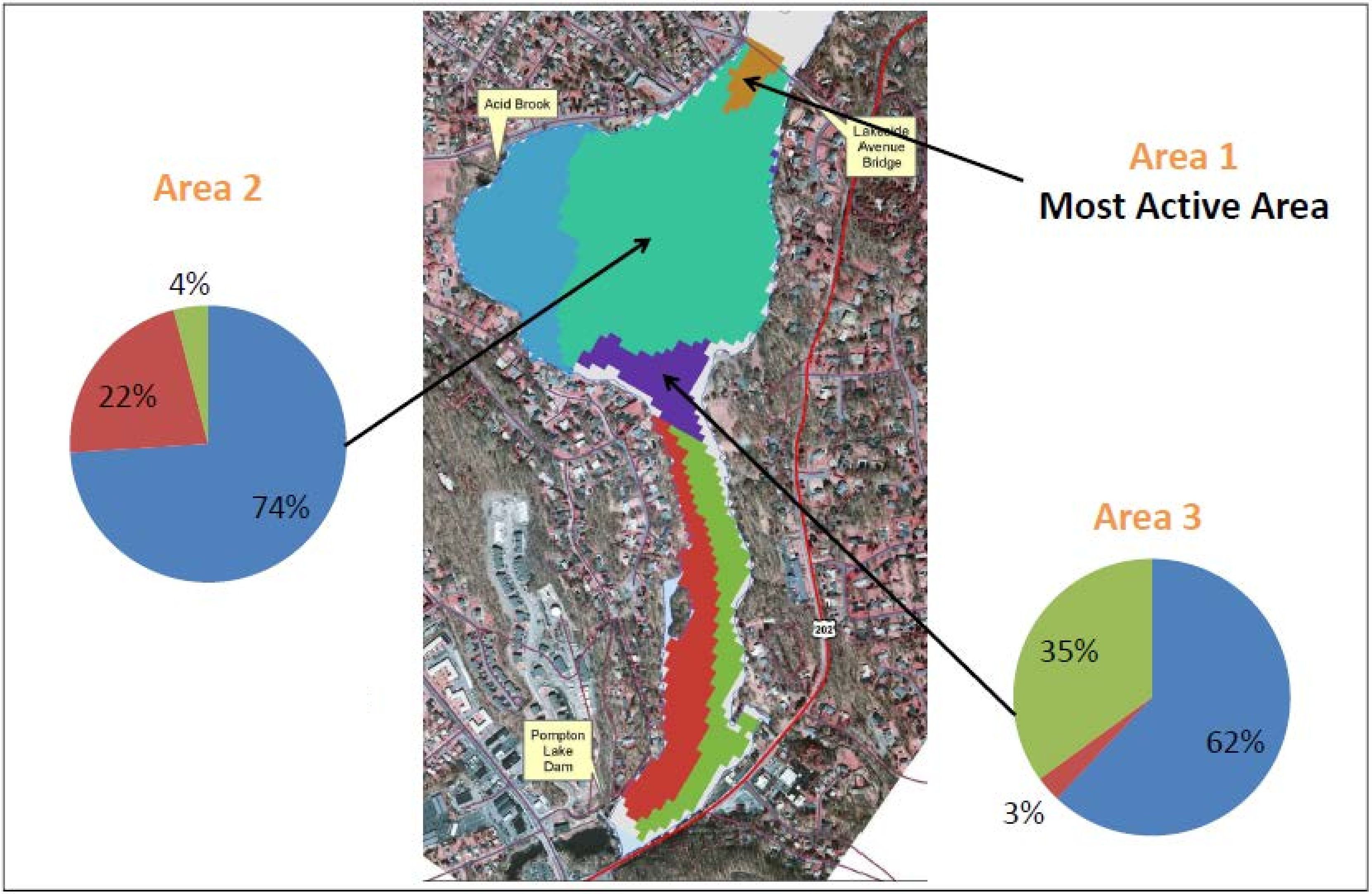


Figure 3-16
Areas of Sediment Bed Elevation Increase and Decrease
Based on Bathymetry Data Collected
During 2007 and 2013
Pompton Lake Study Area

ANCHOR QEA



Minimal Bed Elevation Increase

Bed Elevation Increase

Bed Elevation Decrease

Figure 3-17
Insights Based on Bed Elevation Change in Areas 1, 2 and 3 for 2007 to 2011
Pompton Lake Study Area

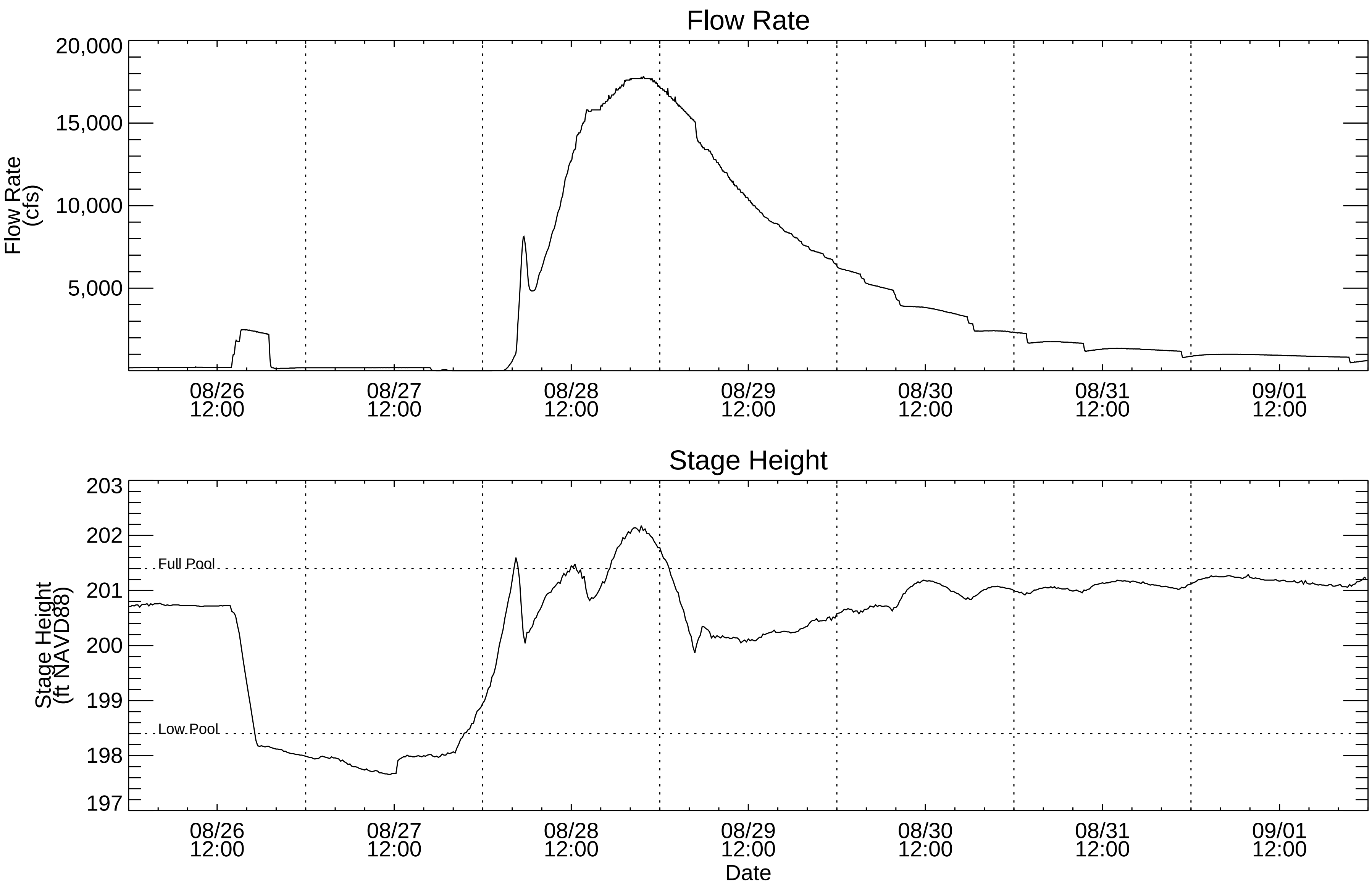


Figure 3-18

River Flow Rate and Lake Stage Height:
Hurricane Irene, August-September 2011
Pompton Lake Study Area

ANCHOR QEA

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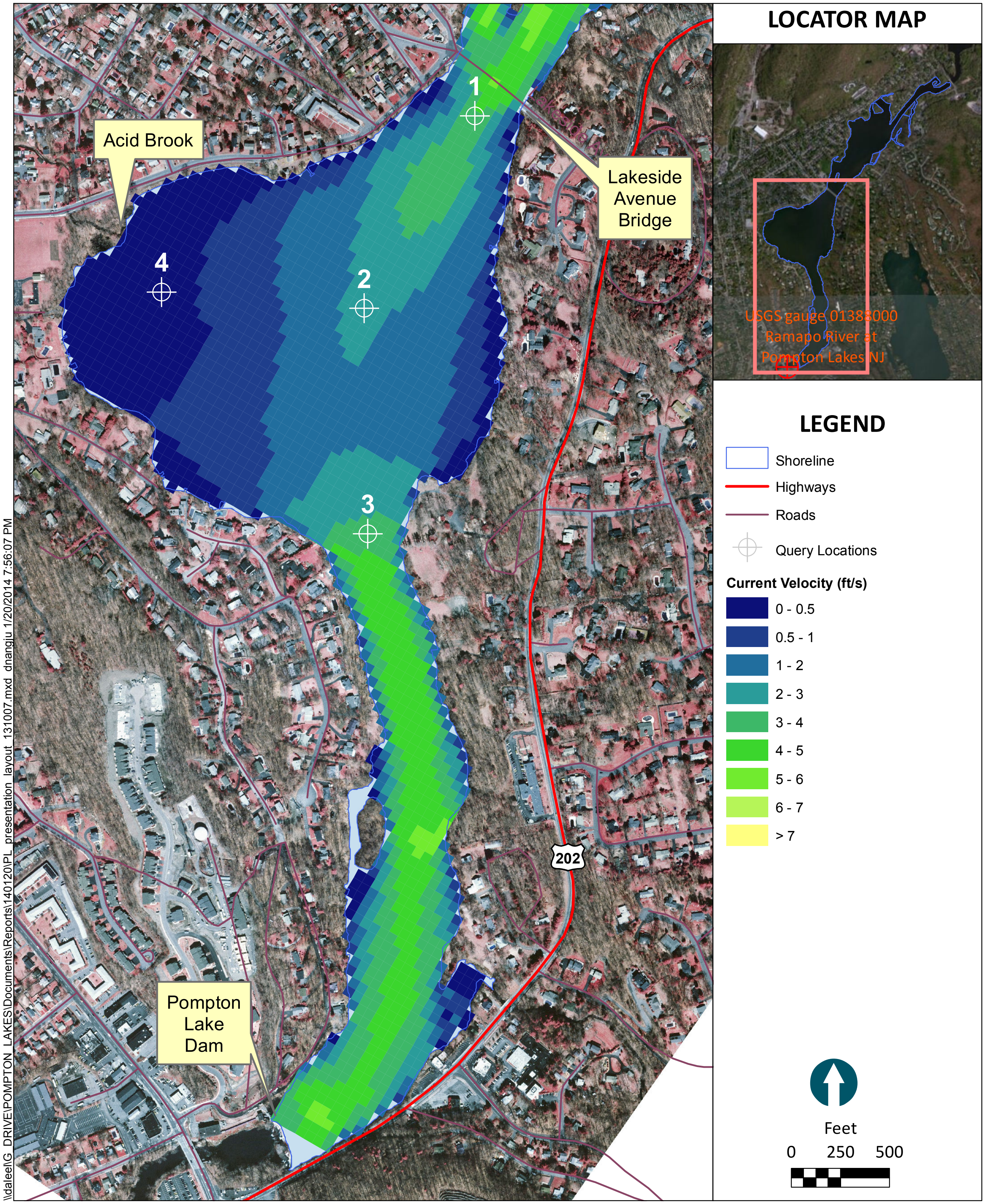

Figure 3-19
Locations of Time Series of Predicted Current Velocity During Hurricane Irene
Pompton Lake Study Area

ANCHOR QEA

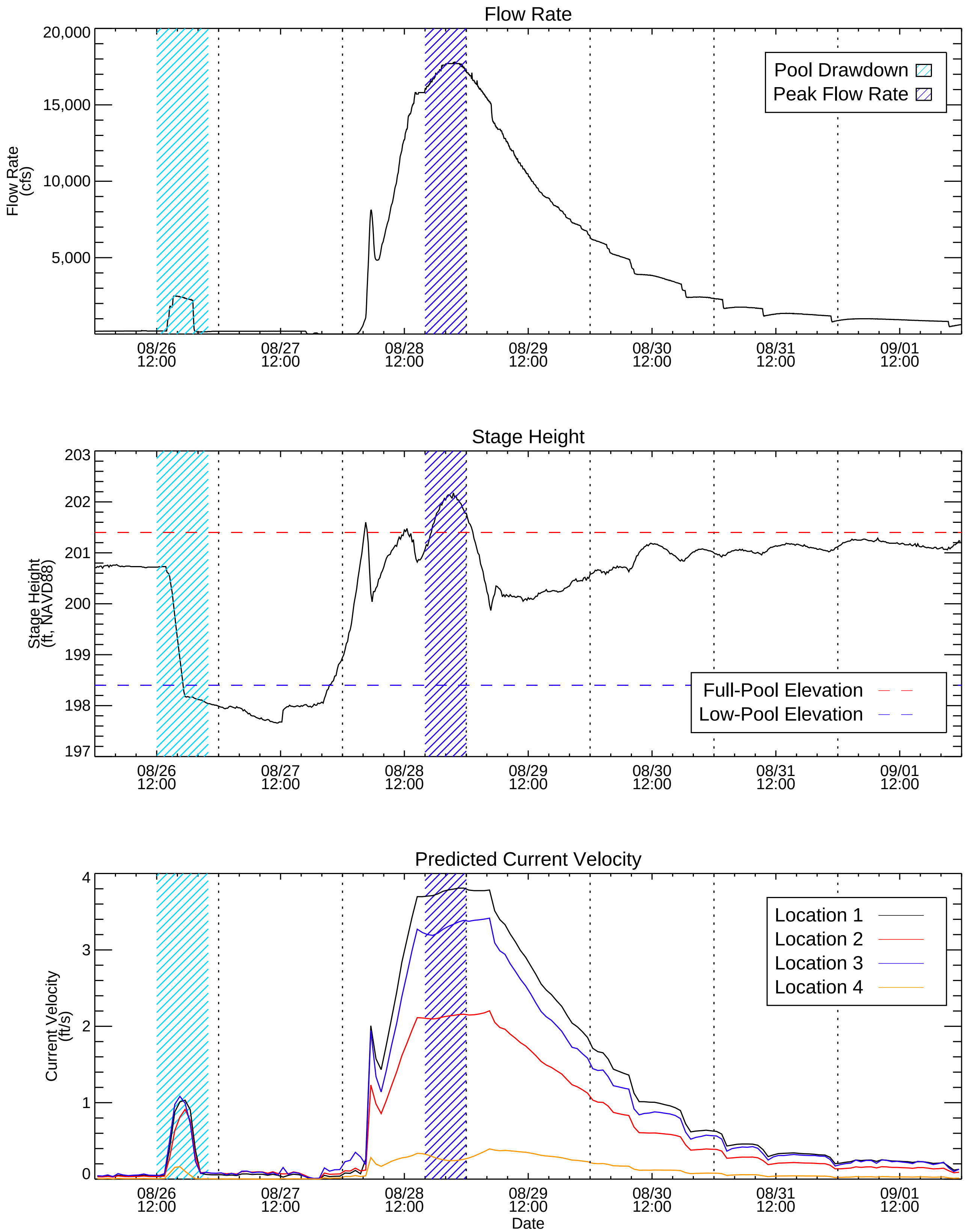

Figure 3-20

Time Series of Predicted Current Velocity at 4 Locations in the Lake During Hurricane Irene

Pompton Lake Study Area

ANCHOR QEA

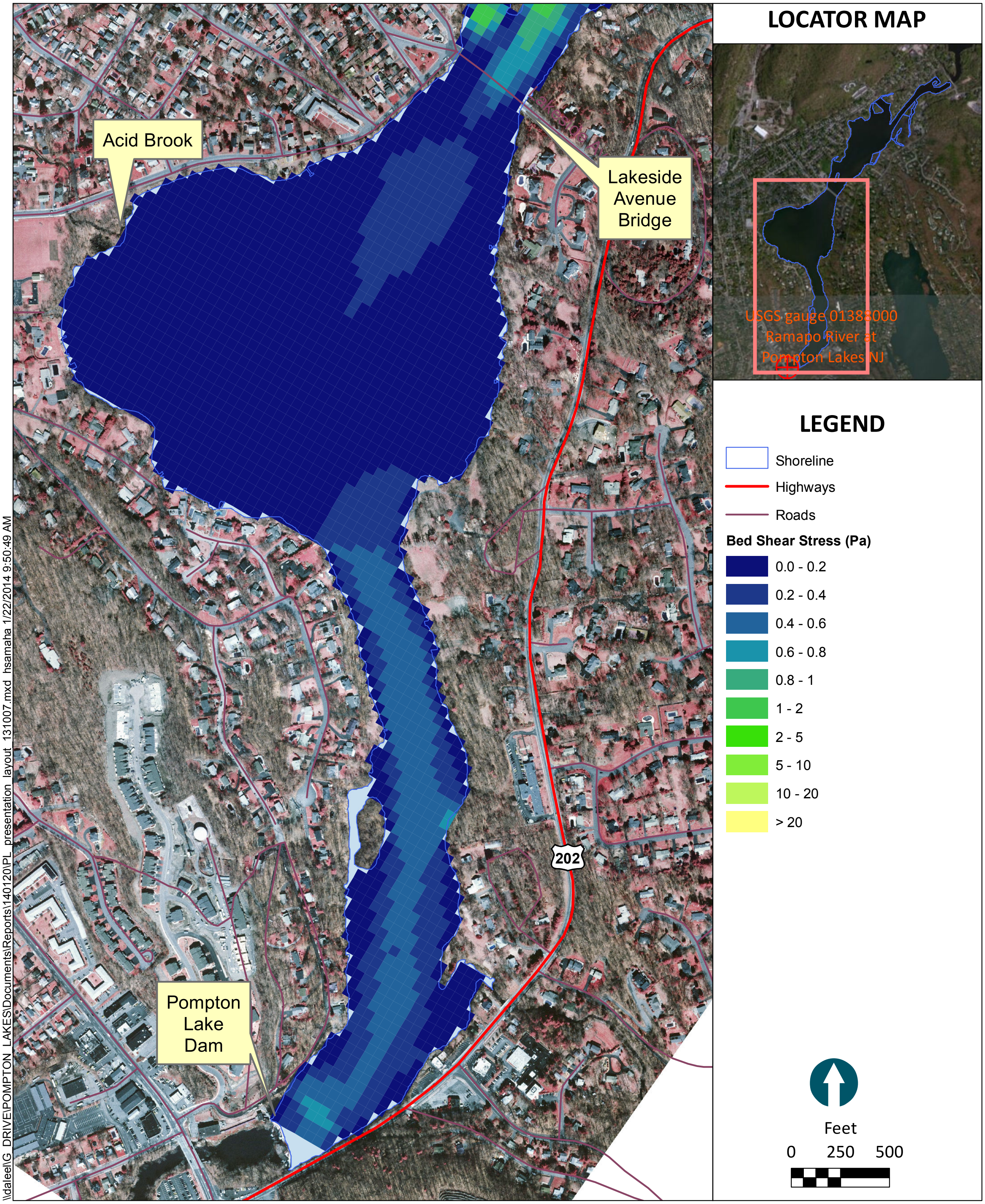

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Figure 3-21
Maximum Predicted Bed Shear Stress
During Pool Drawdown
Before Hurricane Irene
Pompton Lake Study Area

ANCHOR QEA

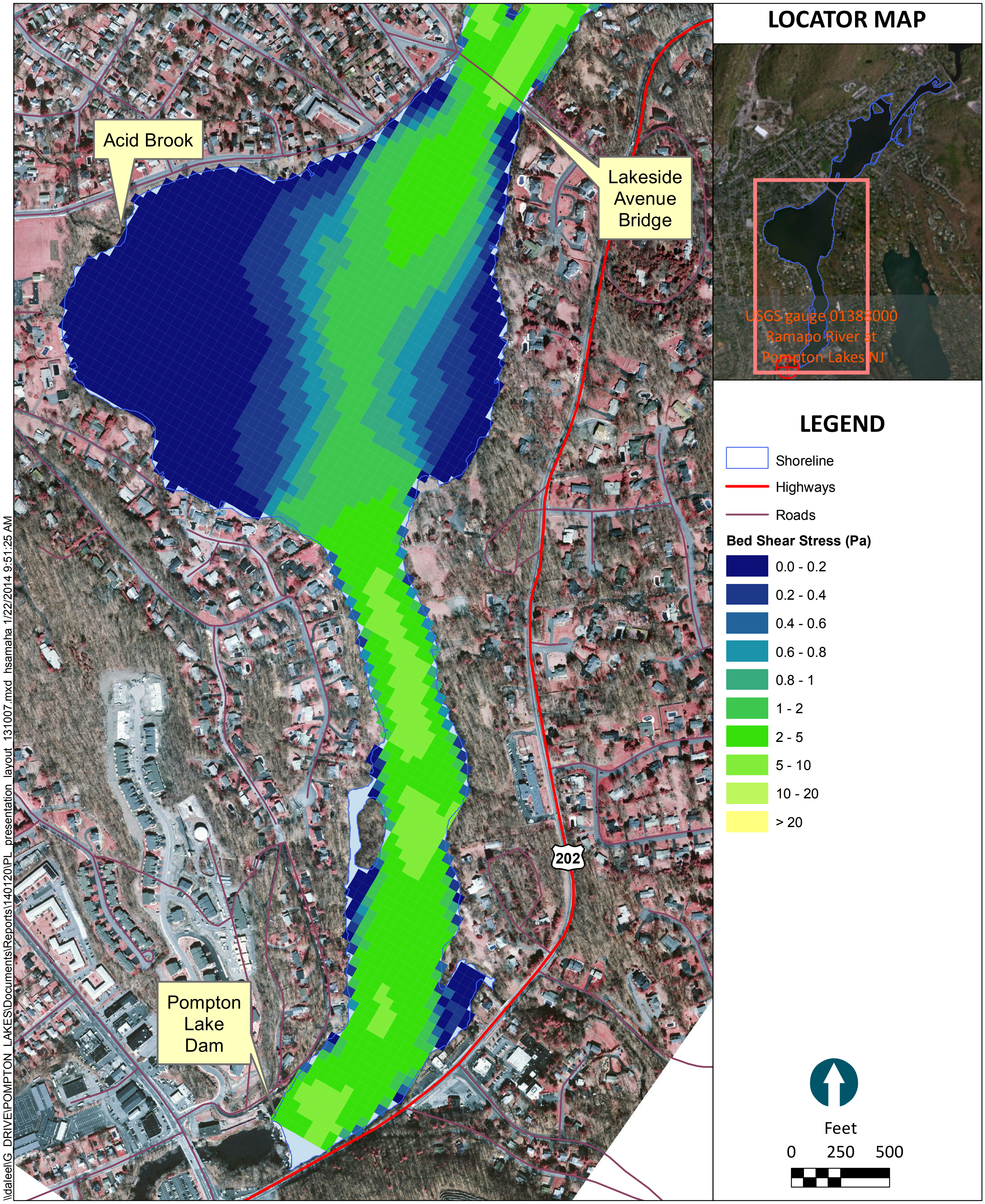

Figure 3-22
Maximum Predicted Bed Shear Stress
During Hurricane Irene with No Vegetation Effects
Included in Hydrodynamic Model
Pompton Lake Study Area

ANCHOR QEA

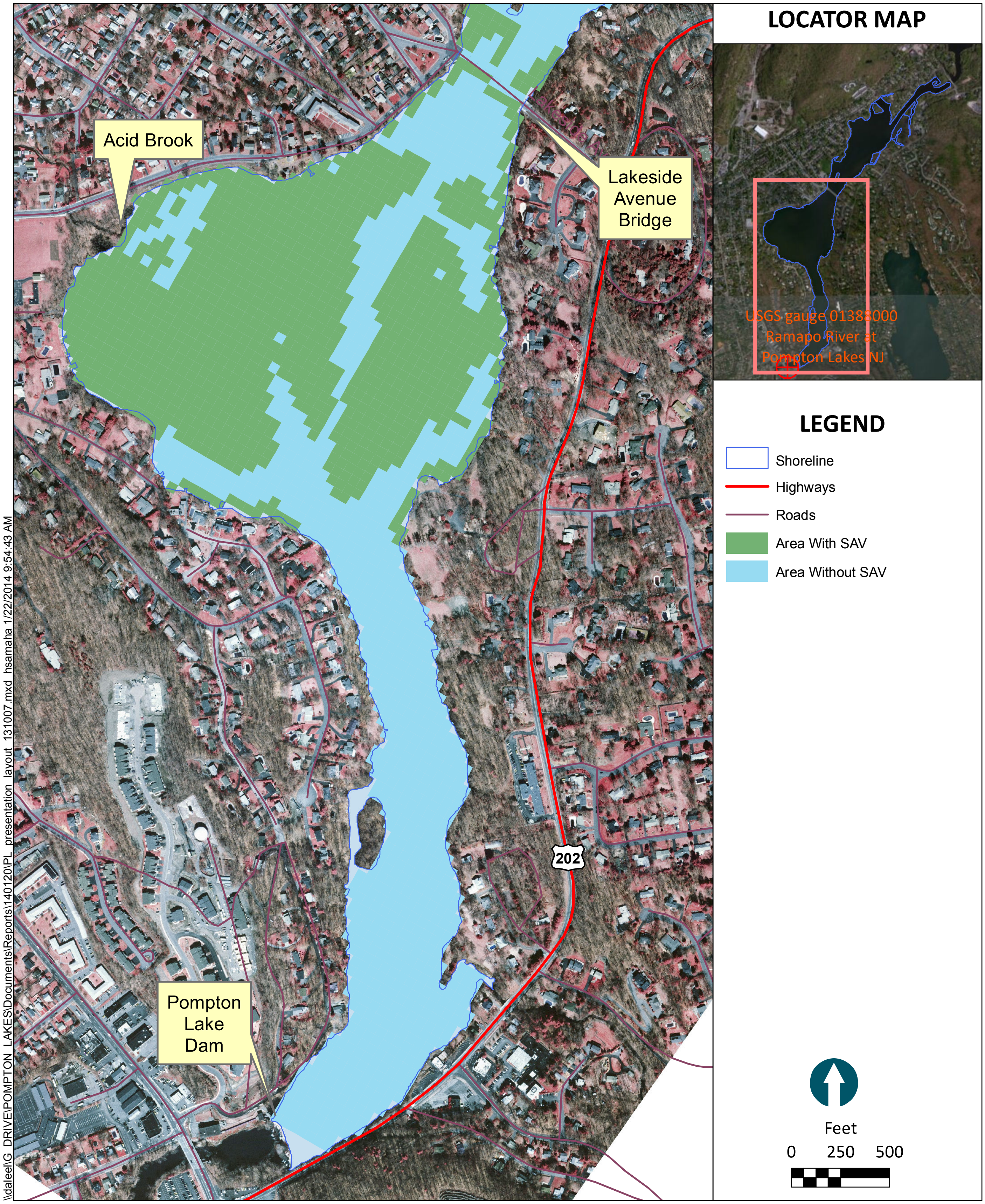

Figure 3-23
Observed Vegetation
in the Lake During
August 2007 Survey
Pompton Lake Study Area

ANCHOR QEA

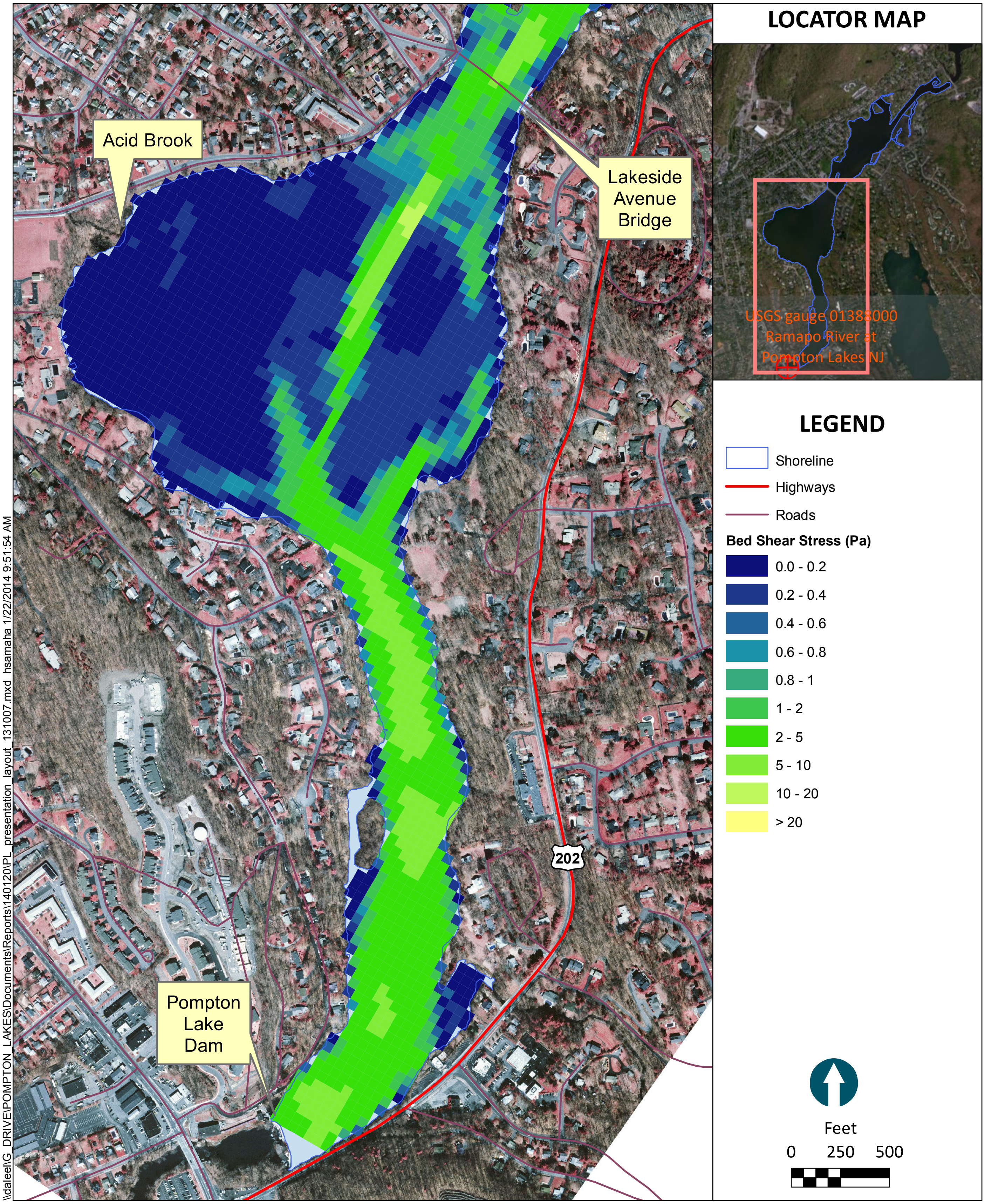

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Figure 3-24
Maximum Predicted Bed Shear Stress
During Hurricane Irene with Vegetation
Effects Included in Hydrodynamic Model
Pompton Lake Study Area

ANCHOR QEA

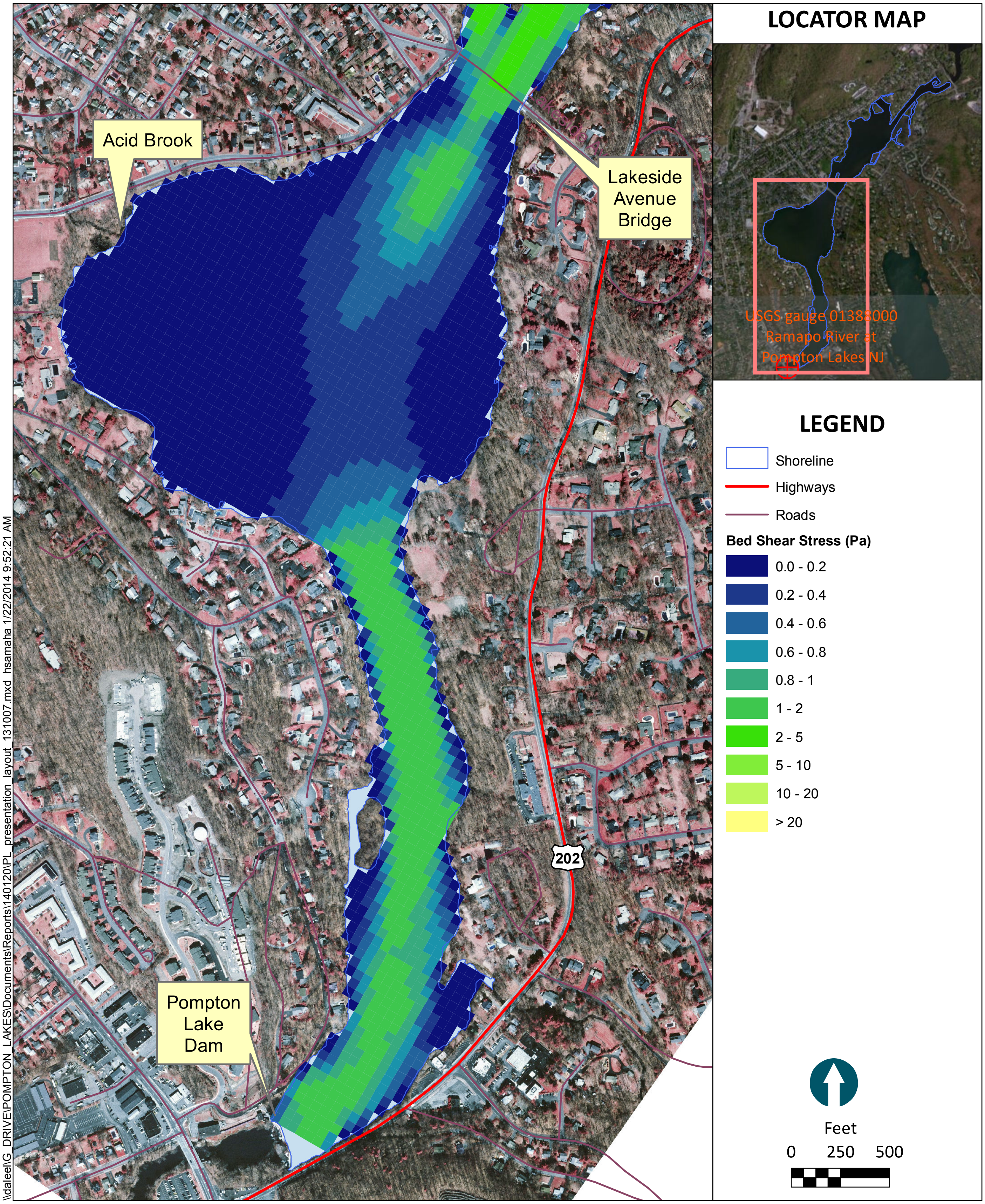

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Figure 3-25
Maximum Predicted Bed Shear Stress
During 10-Year Flood (March 2011) with No Vegetation Effects
Included in Hydrodynamic Model
Pompton Lake Study Area

ANCHOR QEA

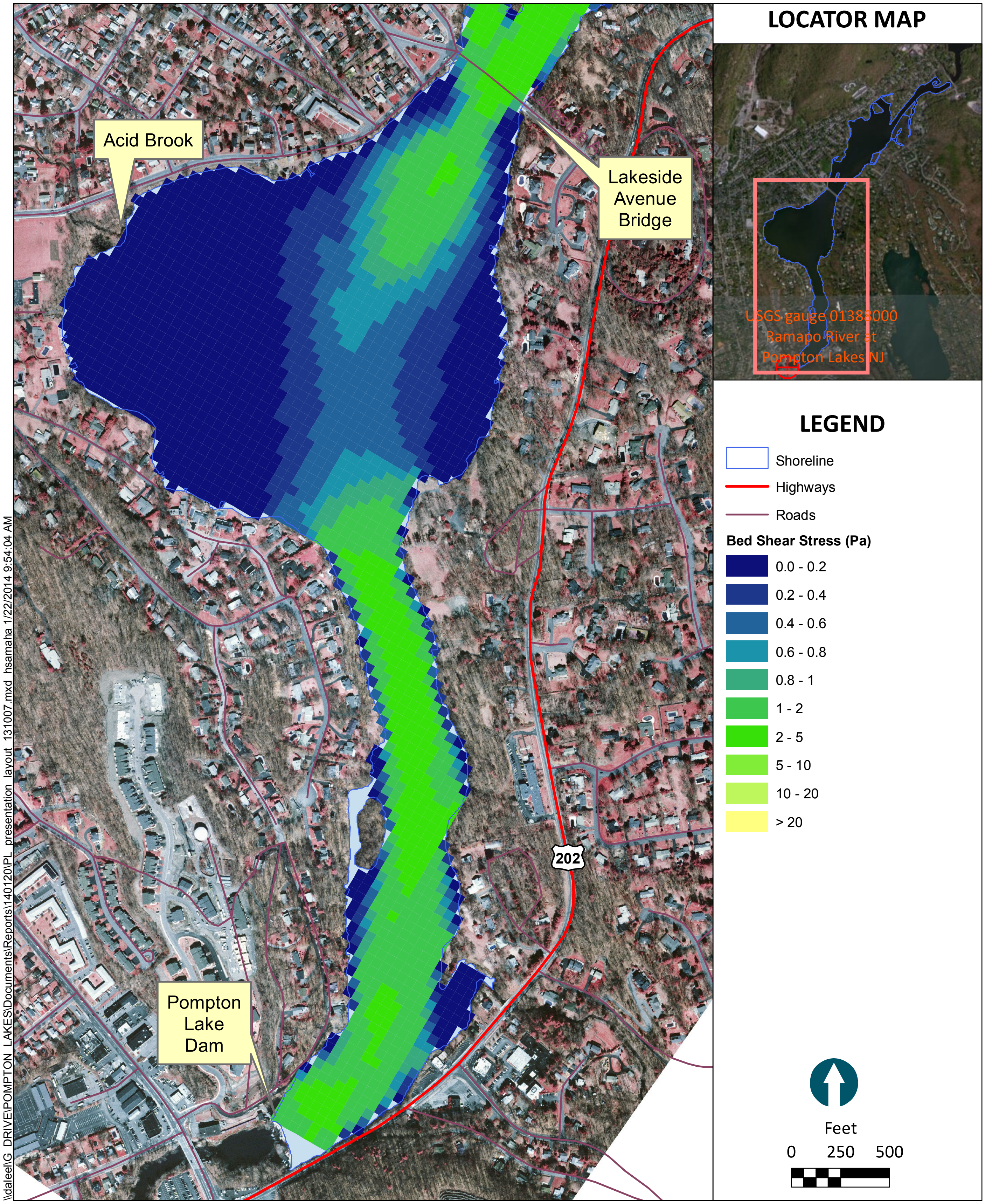

Figure 3-26
Maximum Predicted Bed Shear Stress
During 25-Year Flood (March 2010) with No Vegetation Effects
Included in Hydrodynamic Model
Pompton Lake Study Area

ANCHOR QEA

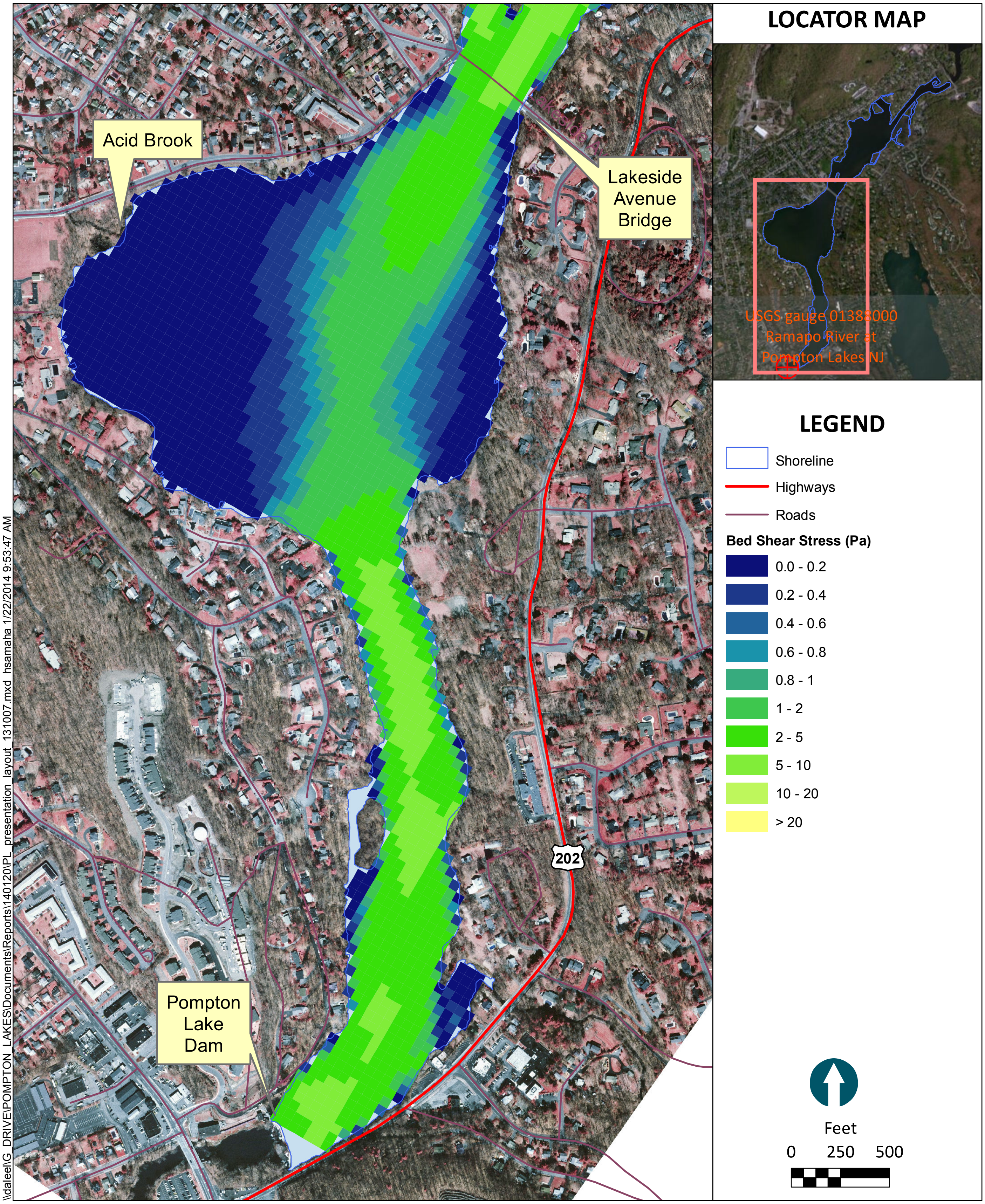

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Figure 3-27
Maximum Predicted Bed Shear Stress
During 100-Year Flood with No Vegetation Effects
Included in Hydrodynamic Model
Pompton Lake Study Area

ANCHOR QEA

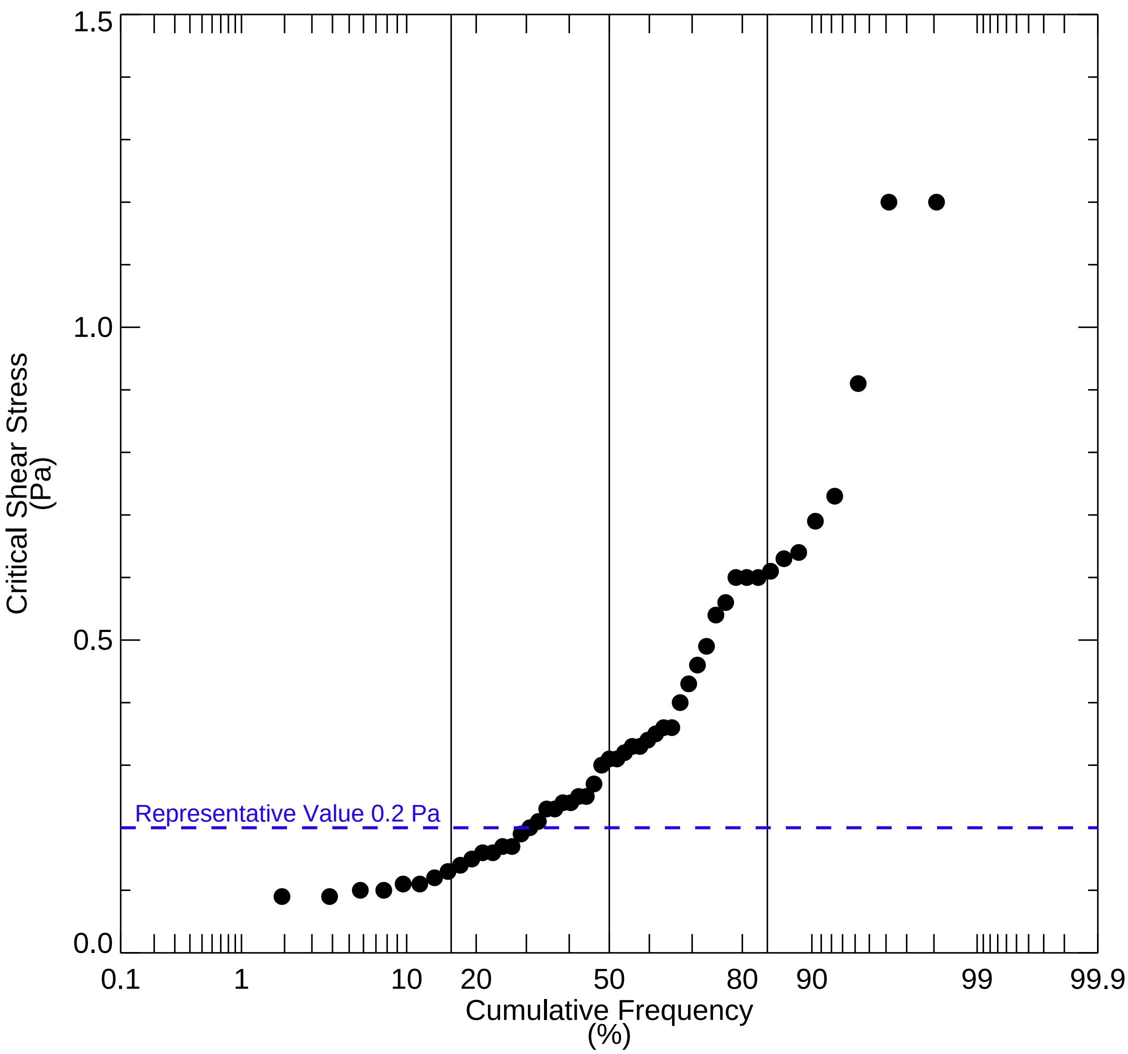

Figure 3-28

Cumulative Frequency Distribution for Critical Shear Stress
Based on Sedflume Data Collected at 5 Contaminated Sediment Sites
Pompton Lakes Study Area

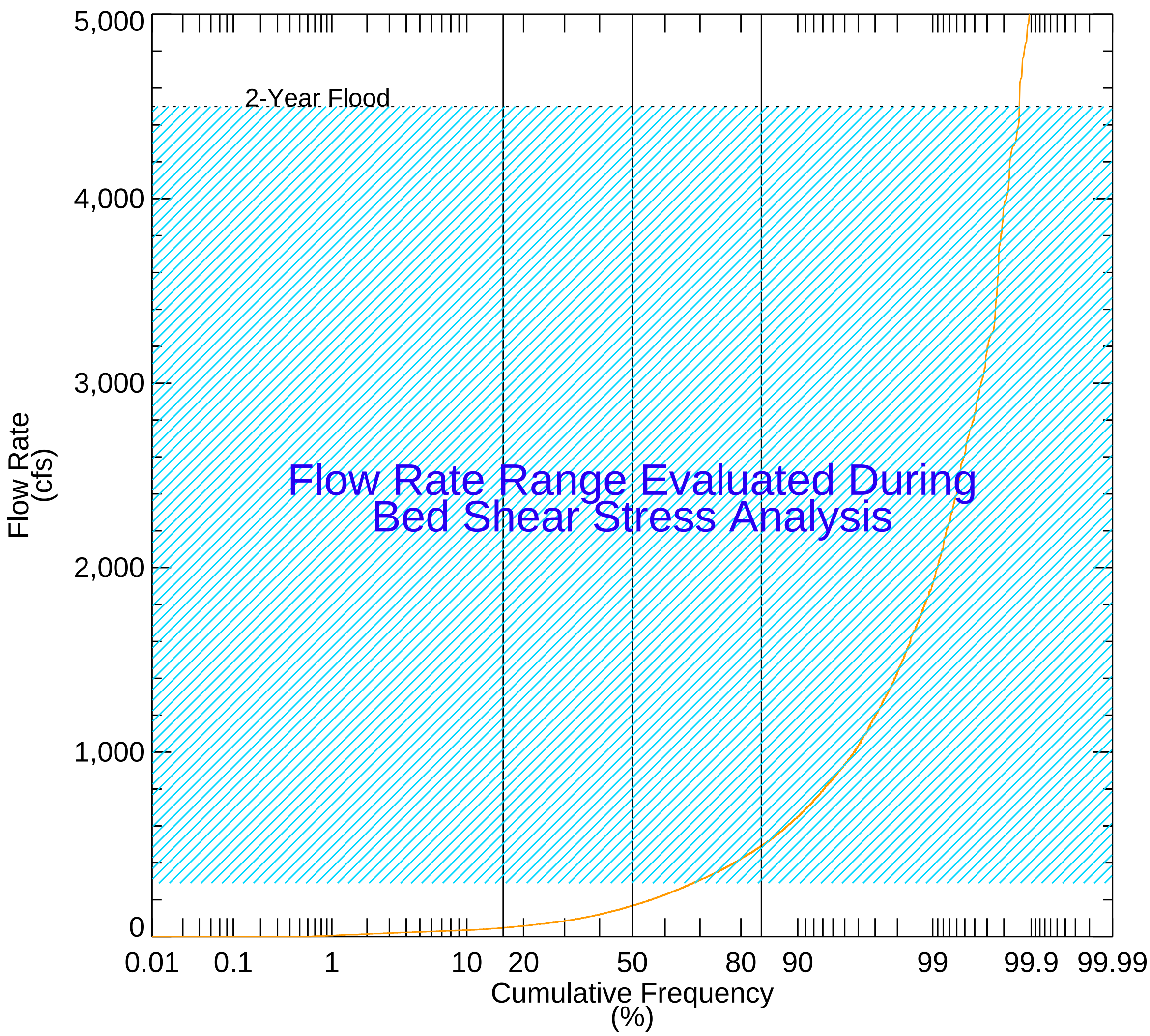

Figure 3-29

Cumulative Frequency Distribution of Historical
Flow Rate Data (1922-2013) and Flow Rate Range Evaluated
During Bed Shear Stress Analysis
Pompton Lakes Study Area

ANCHOR QEA

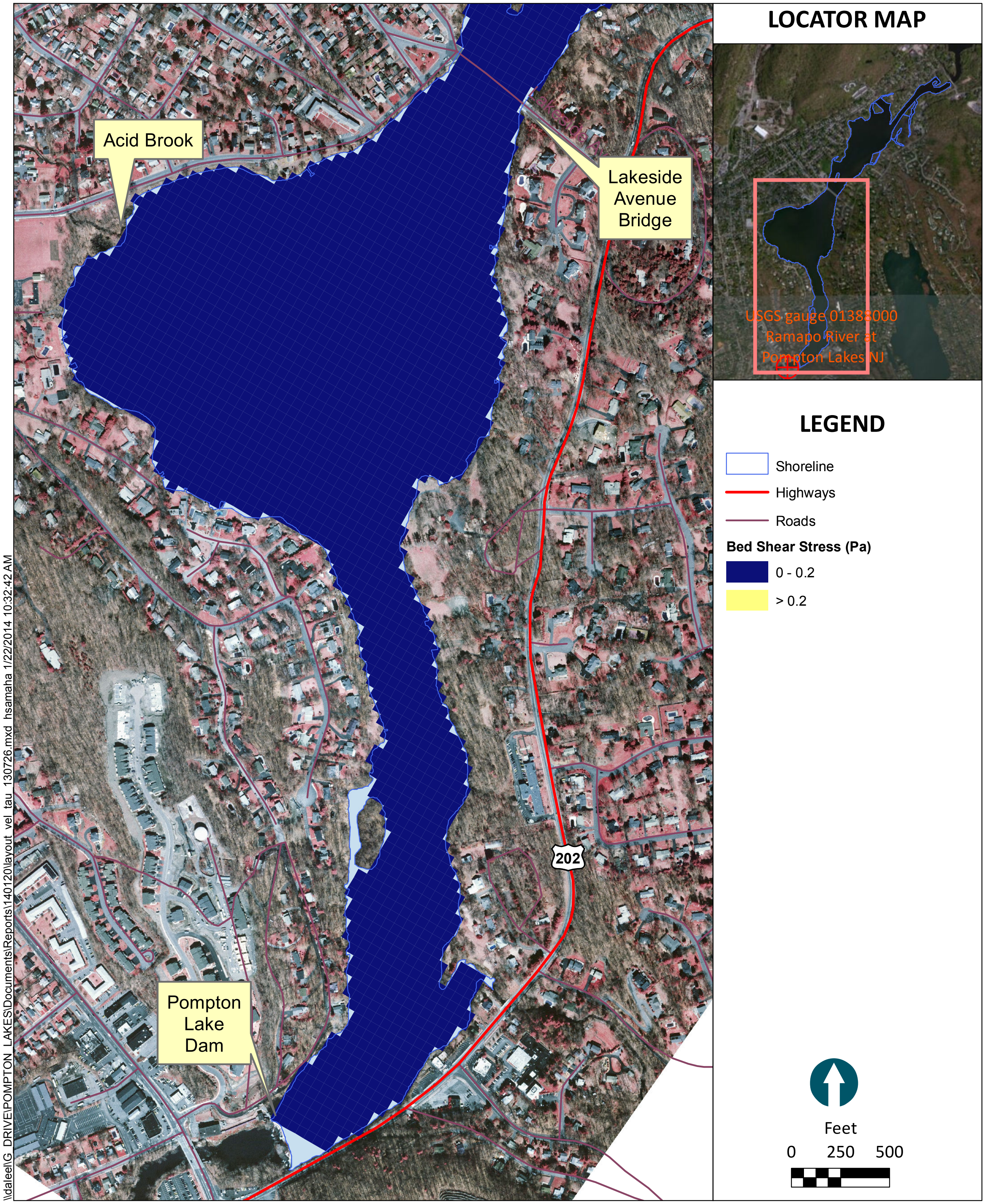

Figure 3-30
Predicted Bed Shear Stress and Areas of
Critical Shear Stress Exceedance: 1,500 cfs Flow Rate
Pompton Lake Study Area

ANCHOR QEA

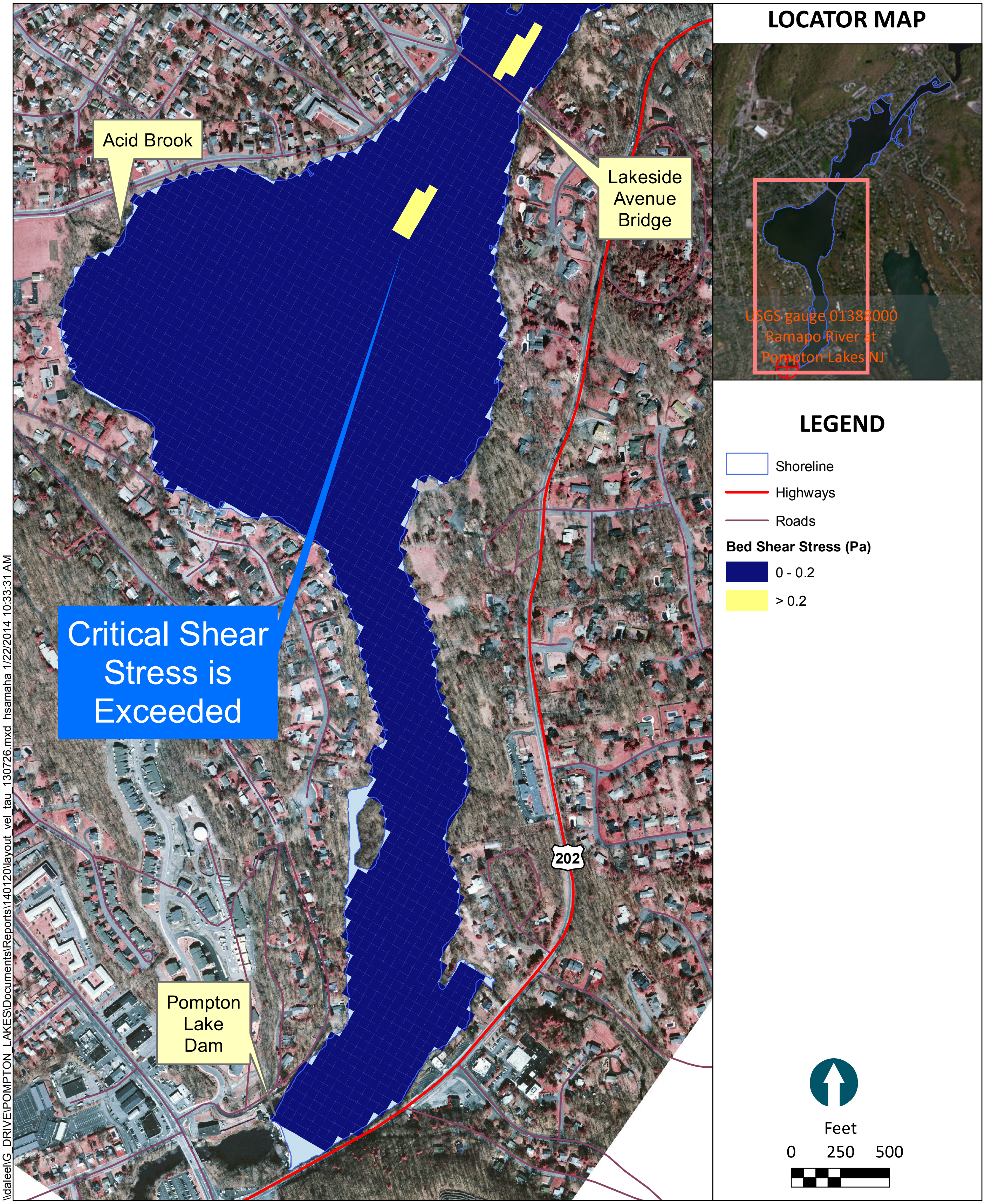

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Figure 3-31
Predicted Bed Shear Stress and Areas of
Critical Shear Stress Exceedance: 1,900 cfs Flow Rate
Pompton Lake Study Area

ANCHOR QEA

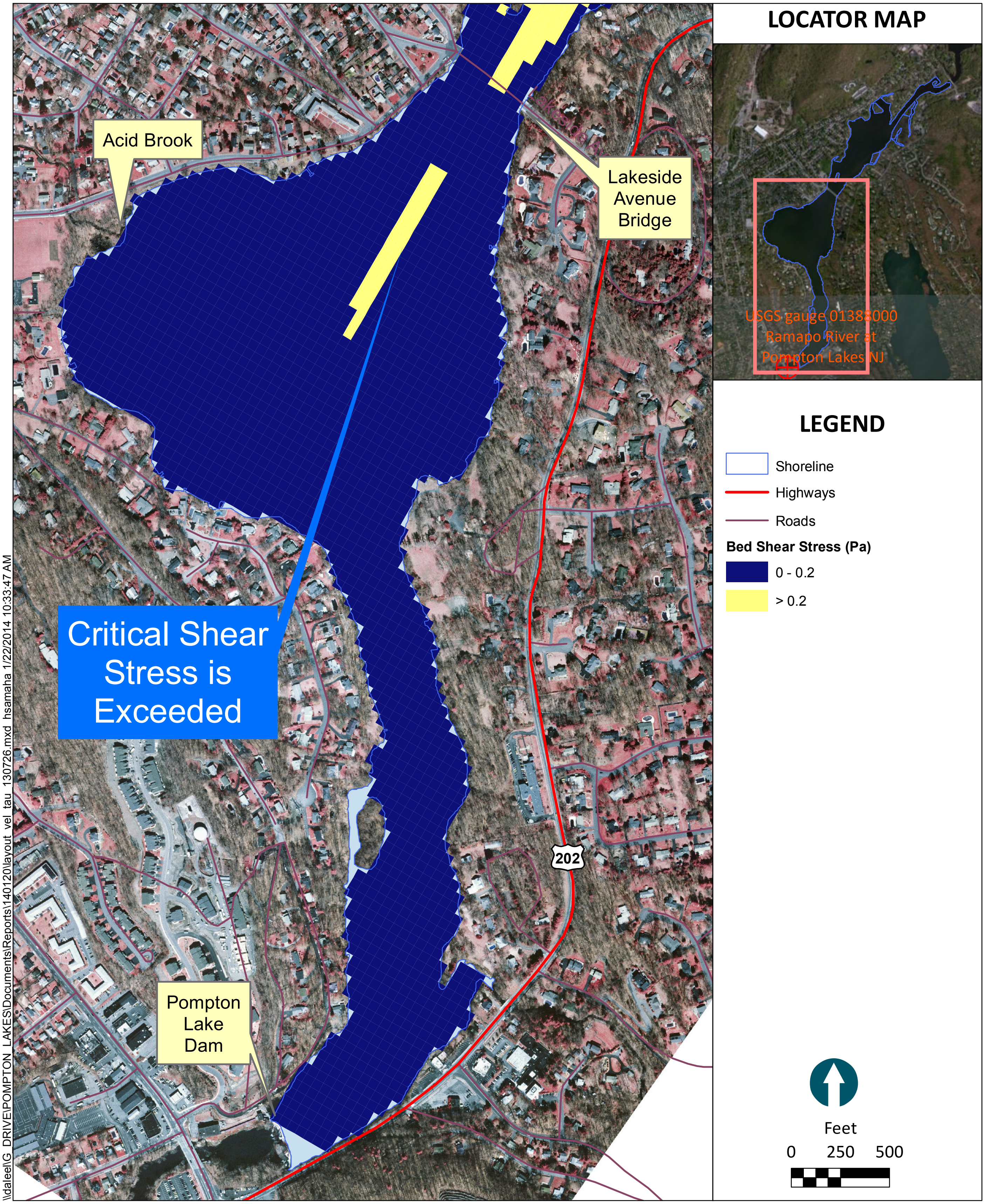

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Figure 3-32
Predicted Bed Shear Stress and Areas of
Critical Shear Stress Exceedance: 2,700 cfs Flow Rate
Pompton Lake Study Area

ANCHOR QEA

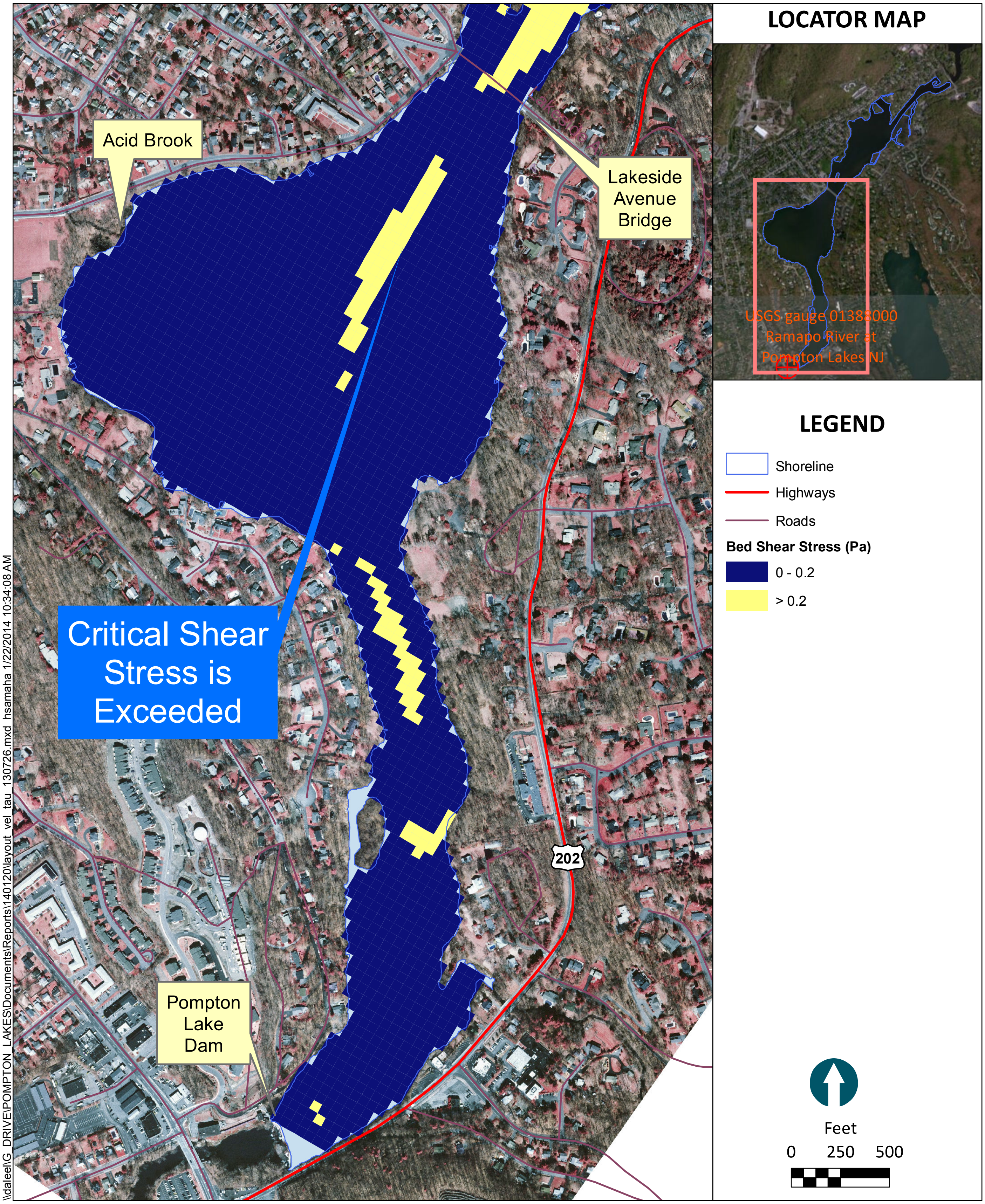


Figure 3-33
Predicted Bed Shear Stress and Areas of
Critical Shear Stress Exceedance: 3,100 cfs Flow Rate
Pompton Lake Study Area

ANCHOR QEA

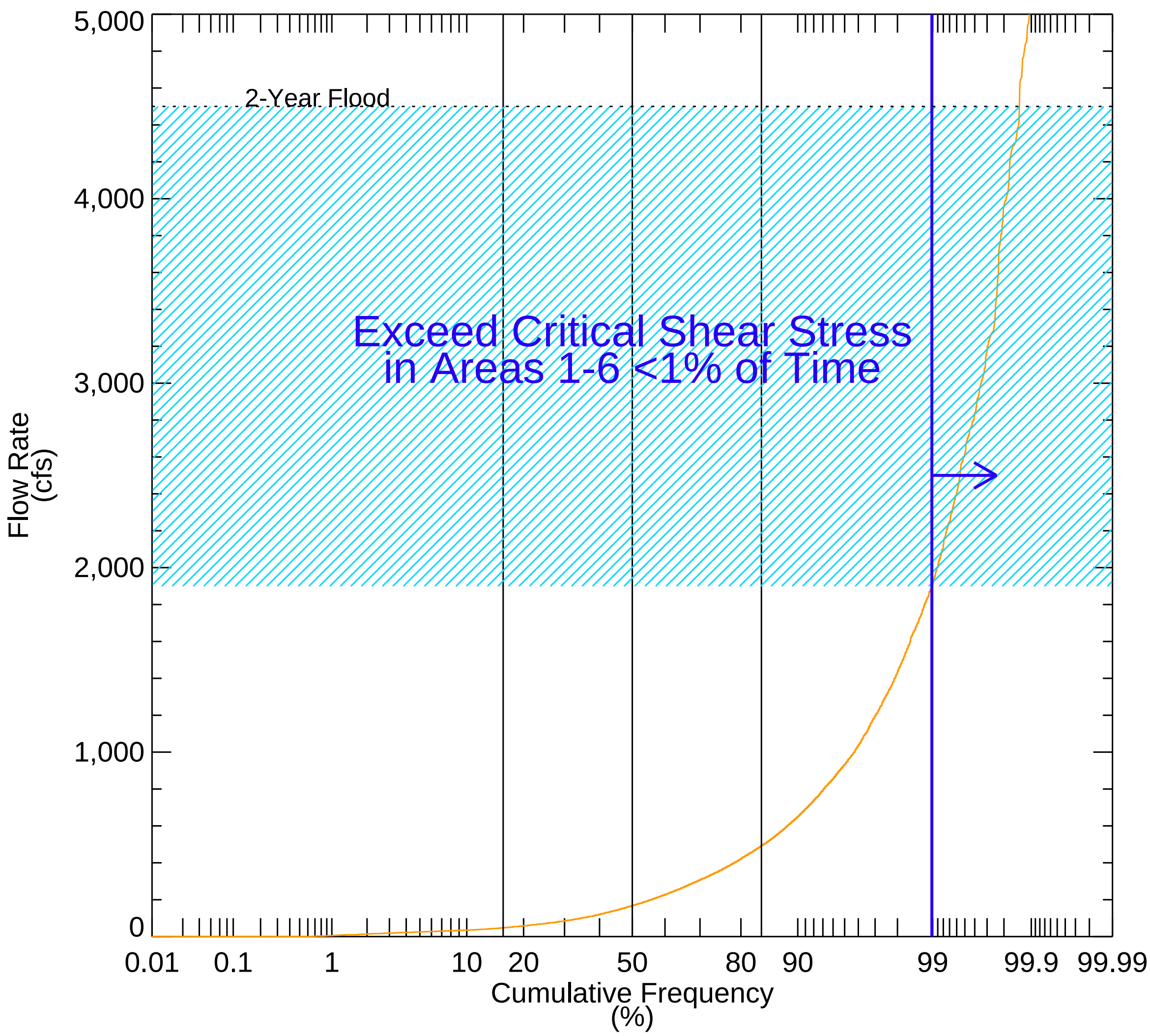


Figure 3-34

Cumulative Frequency Distribution of Historical Flow Rate Data (1922-2013) and Flow Rate Range When Critical Bed Shear Stress is Exceeded in Areas 1 to 6
Pompton Lakes Study Area

ANCHOR QEA

DN - \\daleel\G_DRIVE\POMPTON_LAKES\Documents\Reports\140120\flood_freq_131113.pro Wed Jan 22 10:25:08 2014

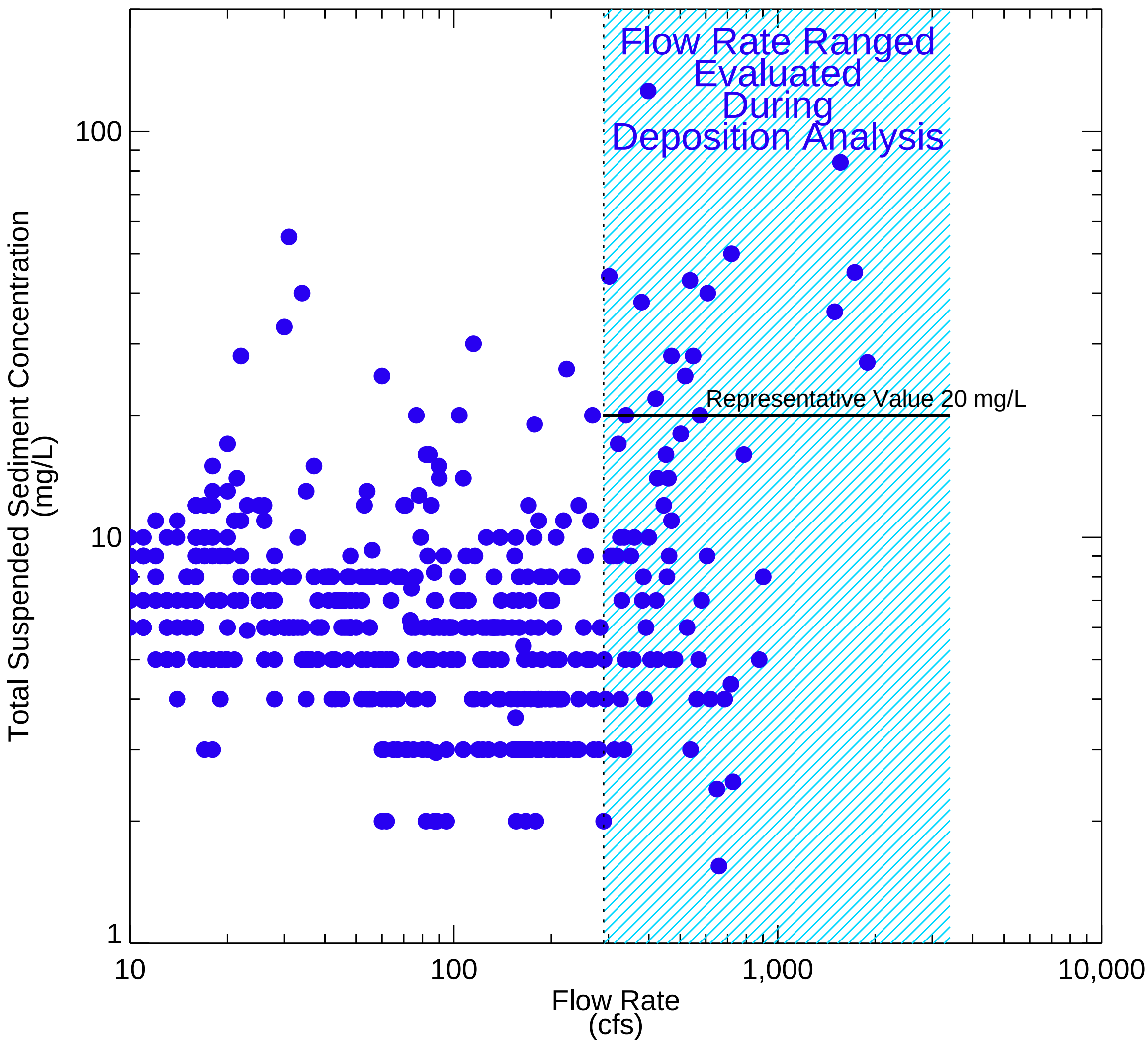


Figure 3-35

Relationship Between Total Suspended Sediment Concentration and Flow Rate in Ramapo River
Pompton Lakes Study Area

ANCHOR QEA

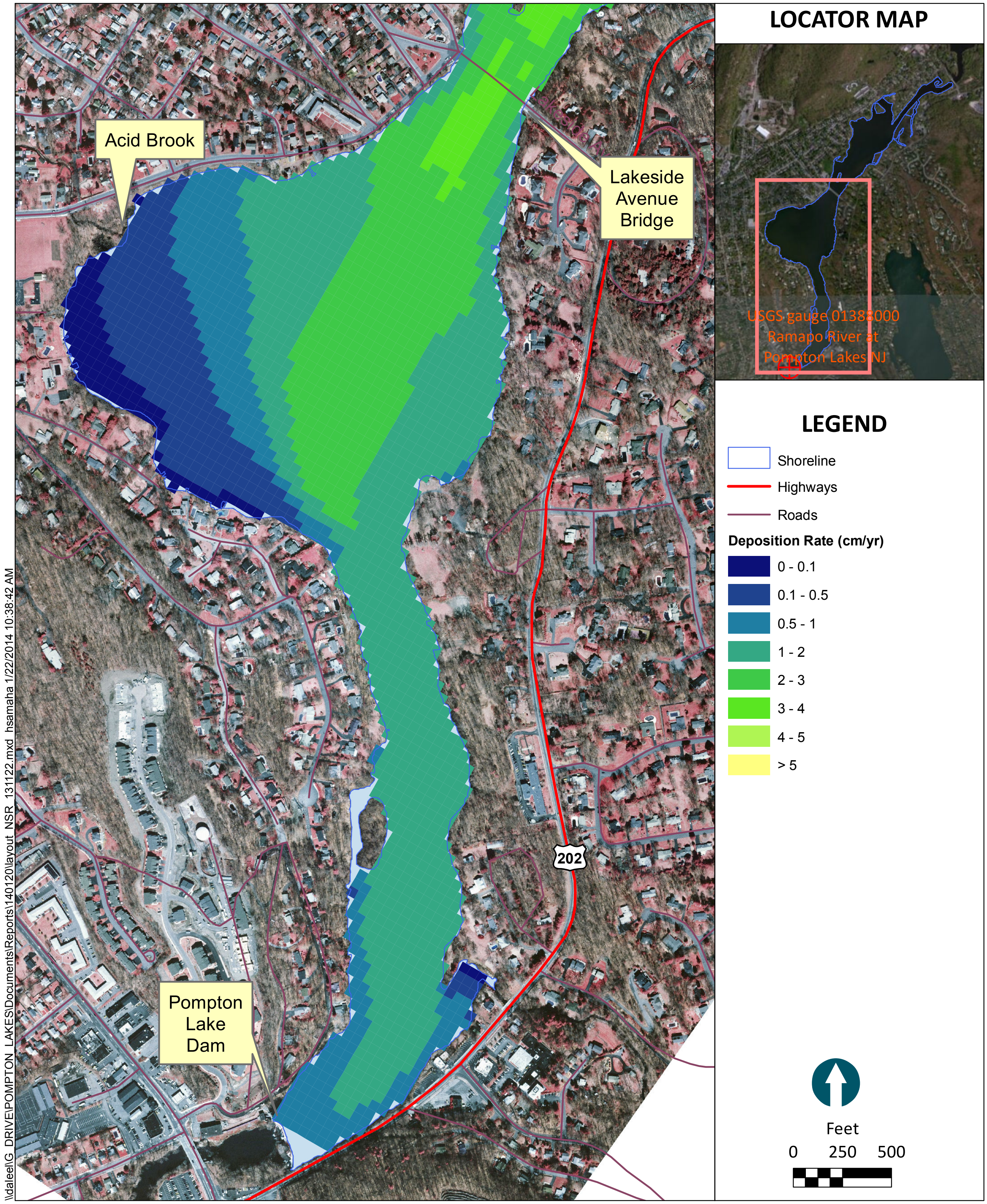
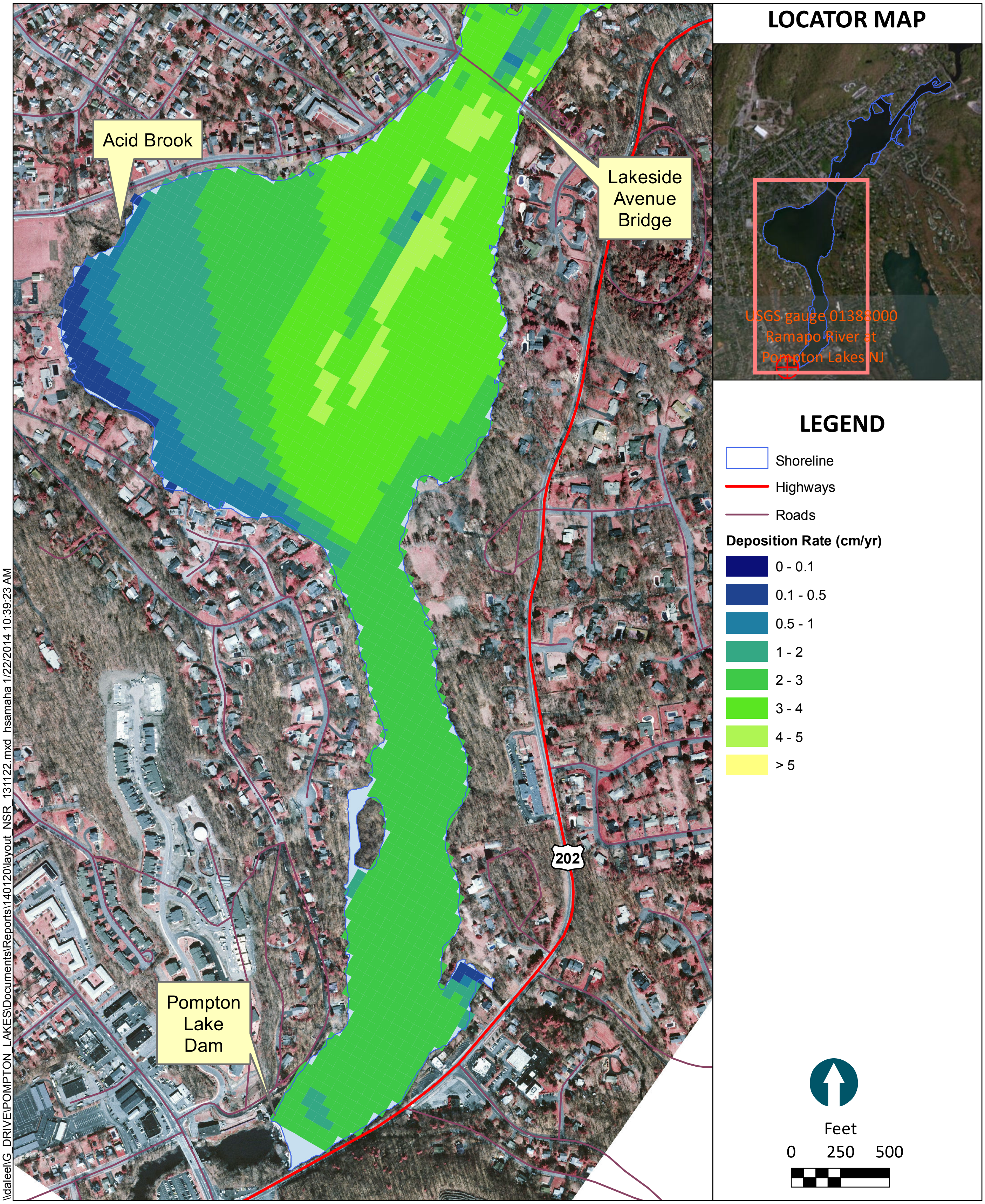


Figure 3-36
Predicted Deposition Pattern in the Lake
During Low-Moderate Flow Conditions: 700 cfs
Pompton Lake Study Area

ANCHOR QEA



\\daleel\G_DRIVE\POMPTON_LAKES\Documents\Reports\140120\layout_NSR_131122.mxd hsamaha 1/22/2014 10:39:23 AM

Figure 3-37
Predicted Deposition Pattern in the Lake
During Low-Moderate Flow Conditions: 1,500 cfs
Pompton Lake Study Area

ANCHOR QEA

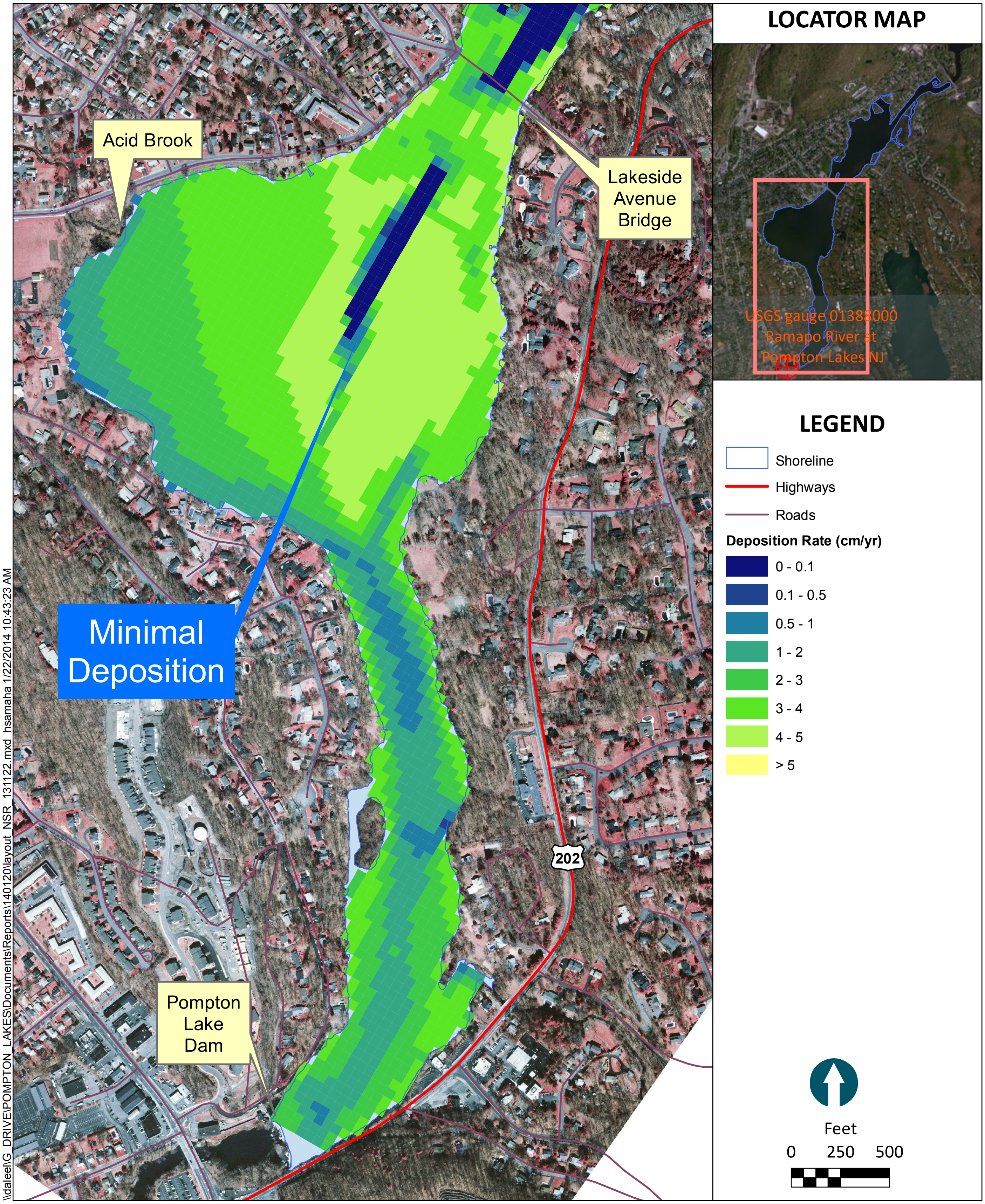
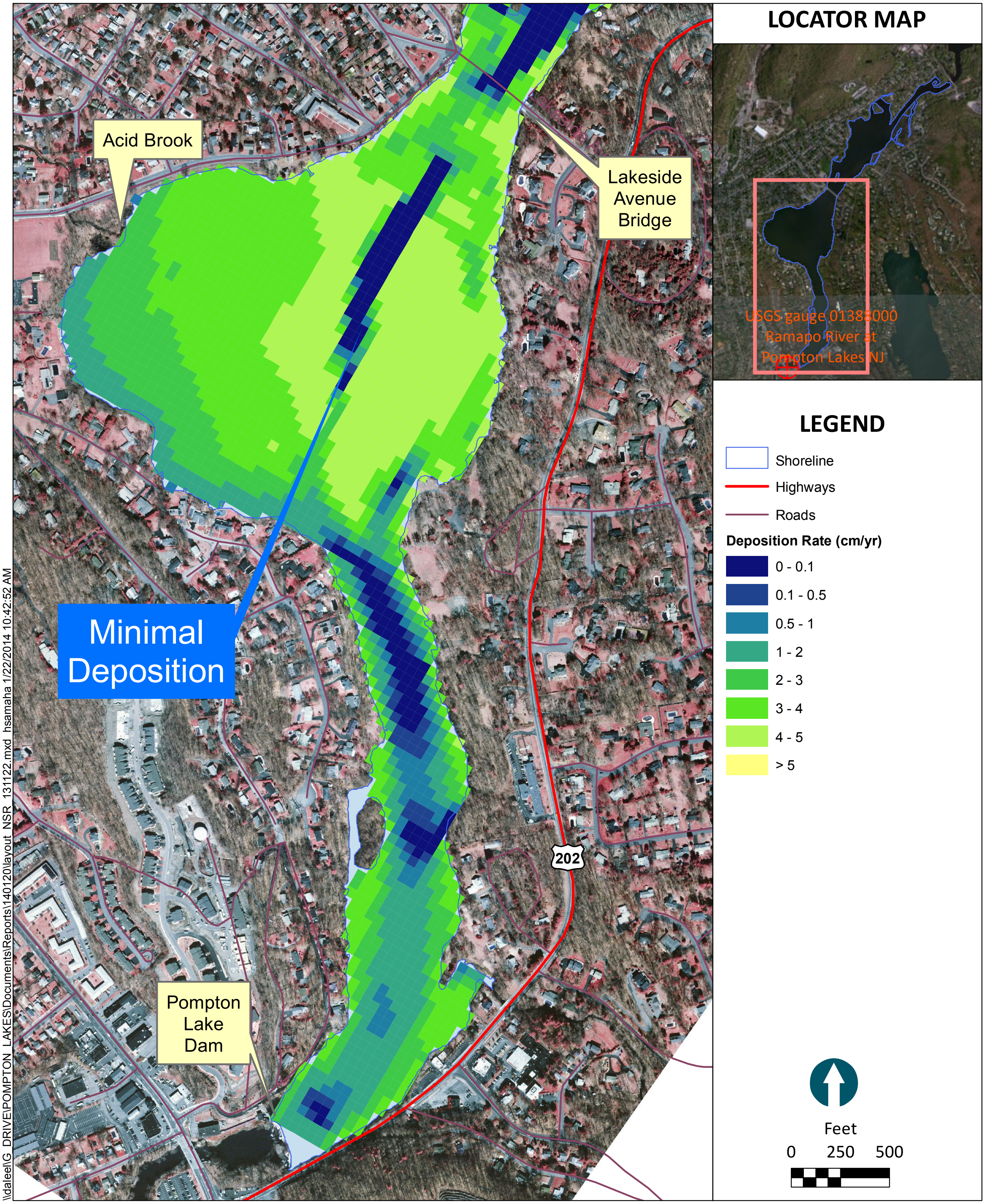


Figure 3-38
Predicted Deposition Pattern in the Lake
During Low-Moderate Flow Conditions: 2,700 cfs
Pompton Lake Study Area

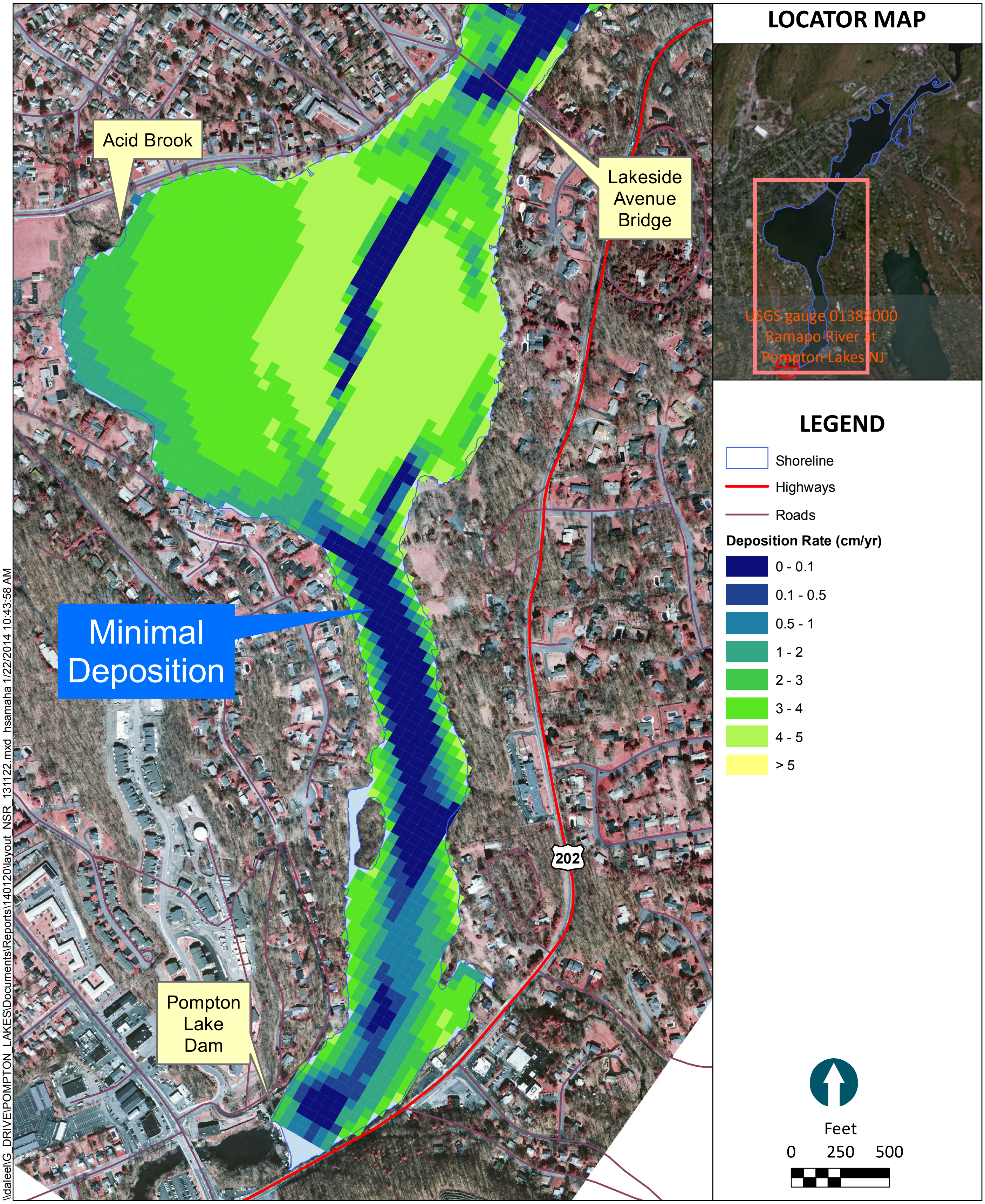
ANCHOR QEA



\\daleel\G DRIVE\POMPTON LAKES\Documents\Reports\140120\layout NSR 131122.mxd hsamaha 1/22/2014 10:42:52 AM

Figure 3-39
Predicted Deposition Pattern in the Lake
During Low-Moderate Flow Conditions: 3,100 cfs
Pompton Lake Study Area

ANCHOR QEA



\\daleel\G_DRIVE\POMPTON_LAKES\Documents\Reports\140120\layout_NSR_131122.mxd hsamaha 1/22/2014 10:43:58 AM

Figure 3-40
Predicted Deposition Pattern in the Lake
During Low-Moderate Flow Conditions: 3,500 cfs
Pompton Lake Study Area

ANCHOR QEA

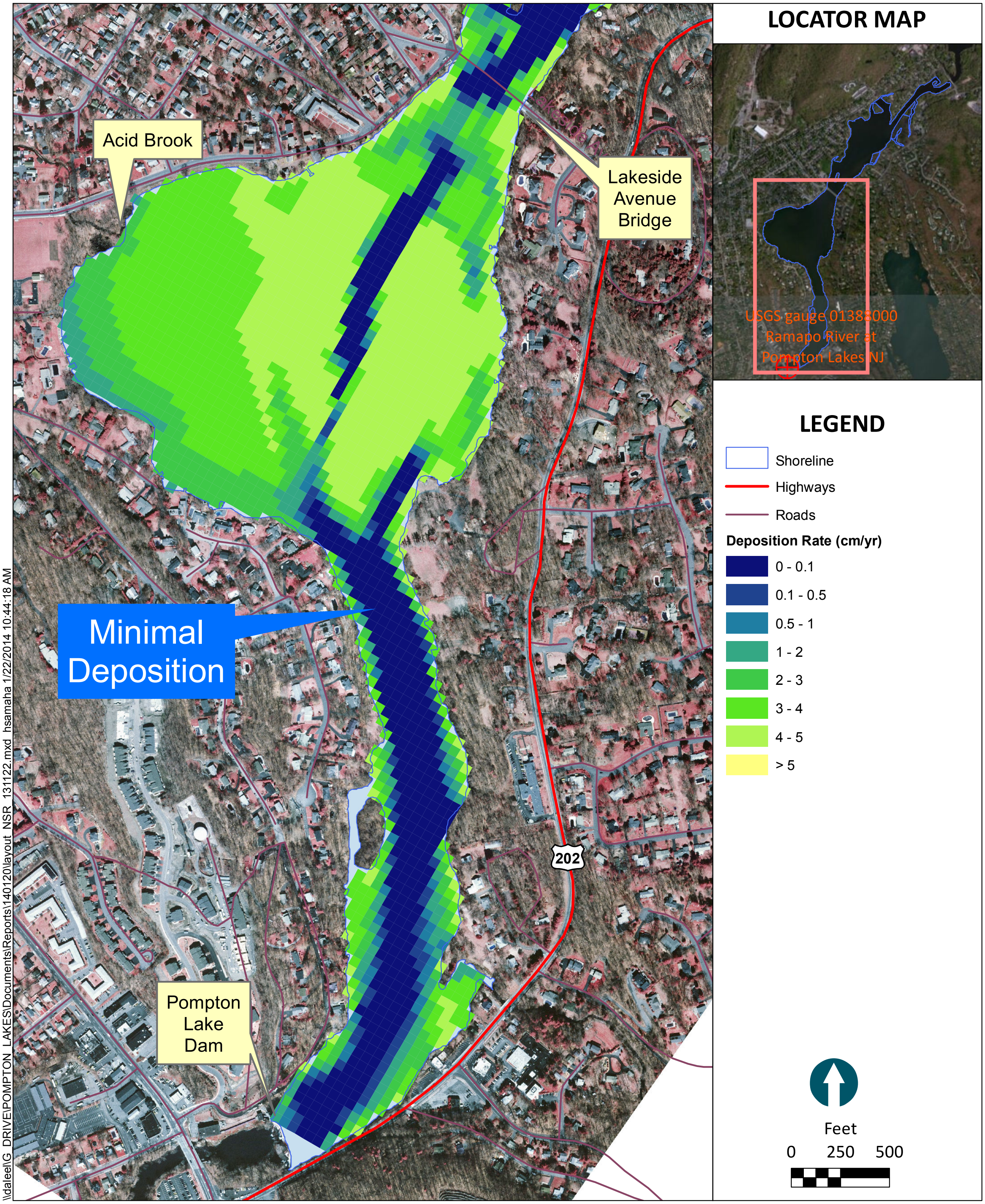


Figure 3-41
Predicted Deposition Pattern in the Lake
During Low-Moderate Flow Conditions: 3,900 cfs
Pompton Lake Study Area

ANCHOR QEA

Figure 4-1: Cumulative Frequency Curves for Mercury Concentration in all Historical Data and Historical Data from Locations Selected for Resampling

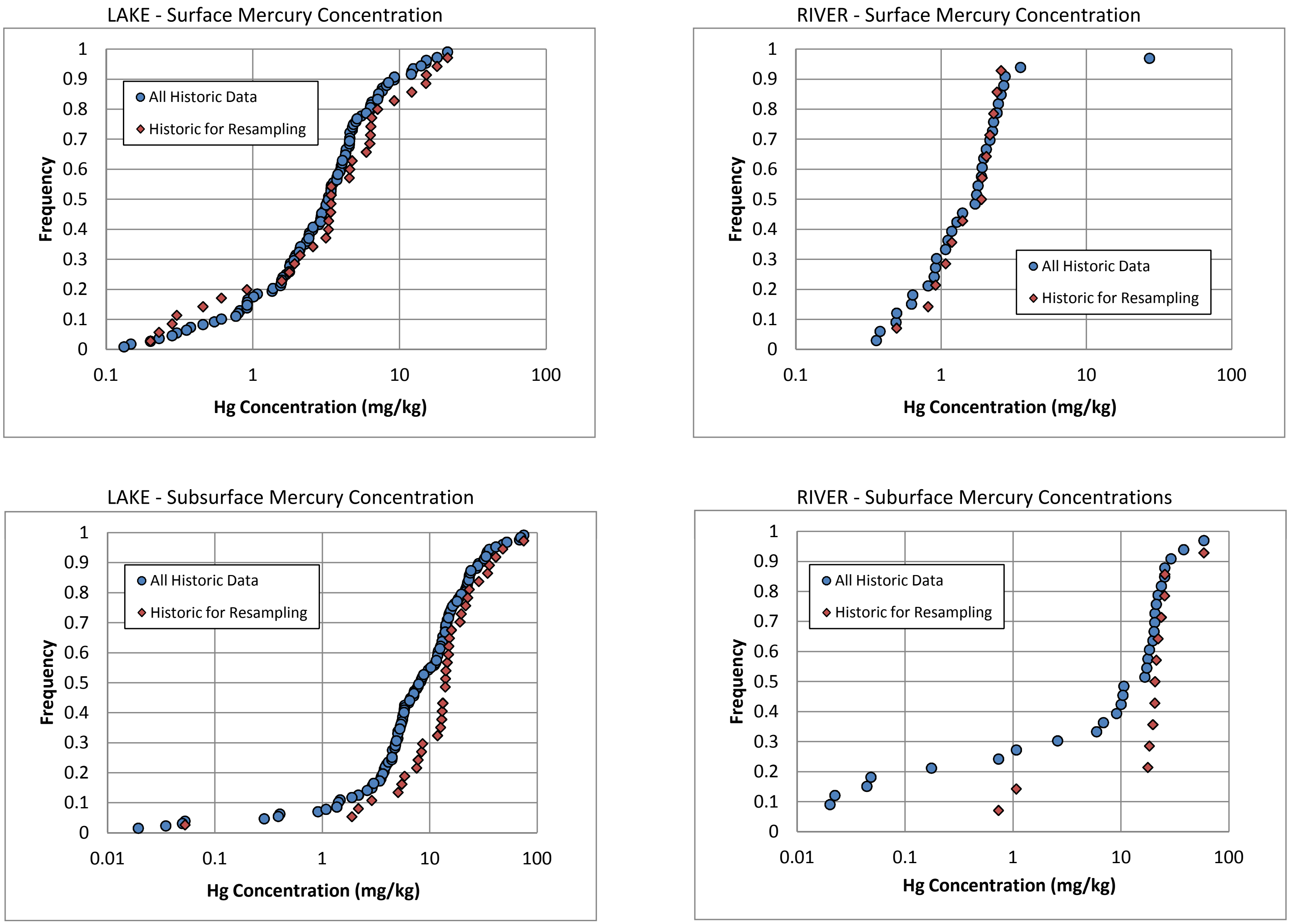


Figure 4-2: Cumulative Frequency Curves for Mercury Concentration at Resampled Locations
Historical vs. 2013

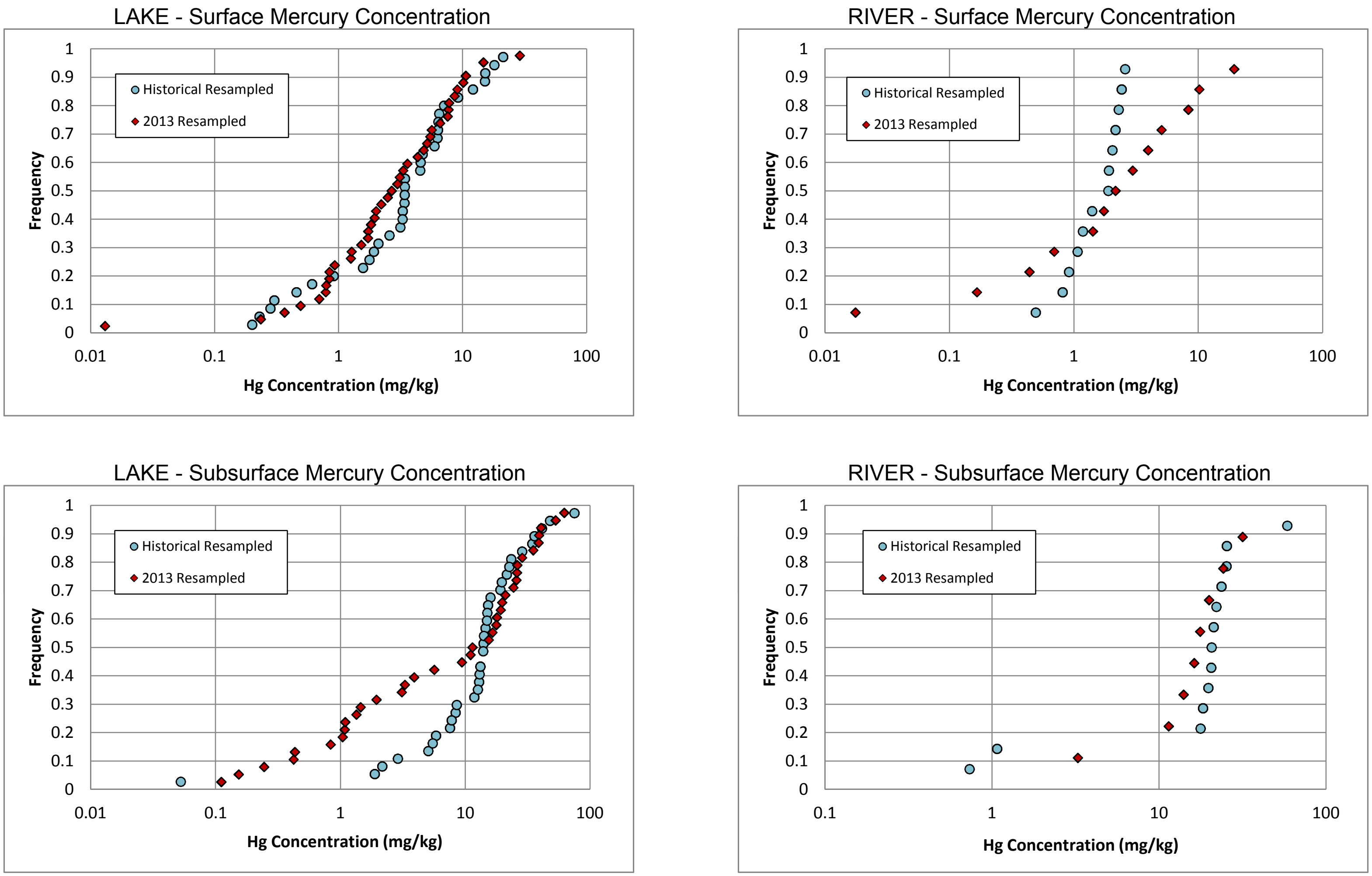


Figure 4-3: Comparison of Historical and 2013 Mercury Concentrations at Resampled Locations

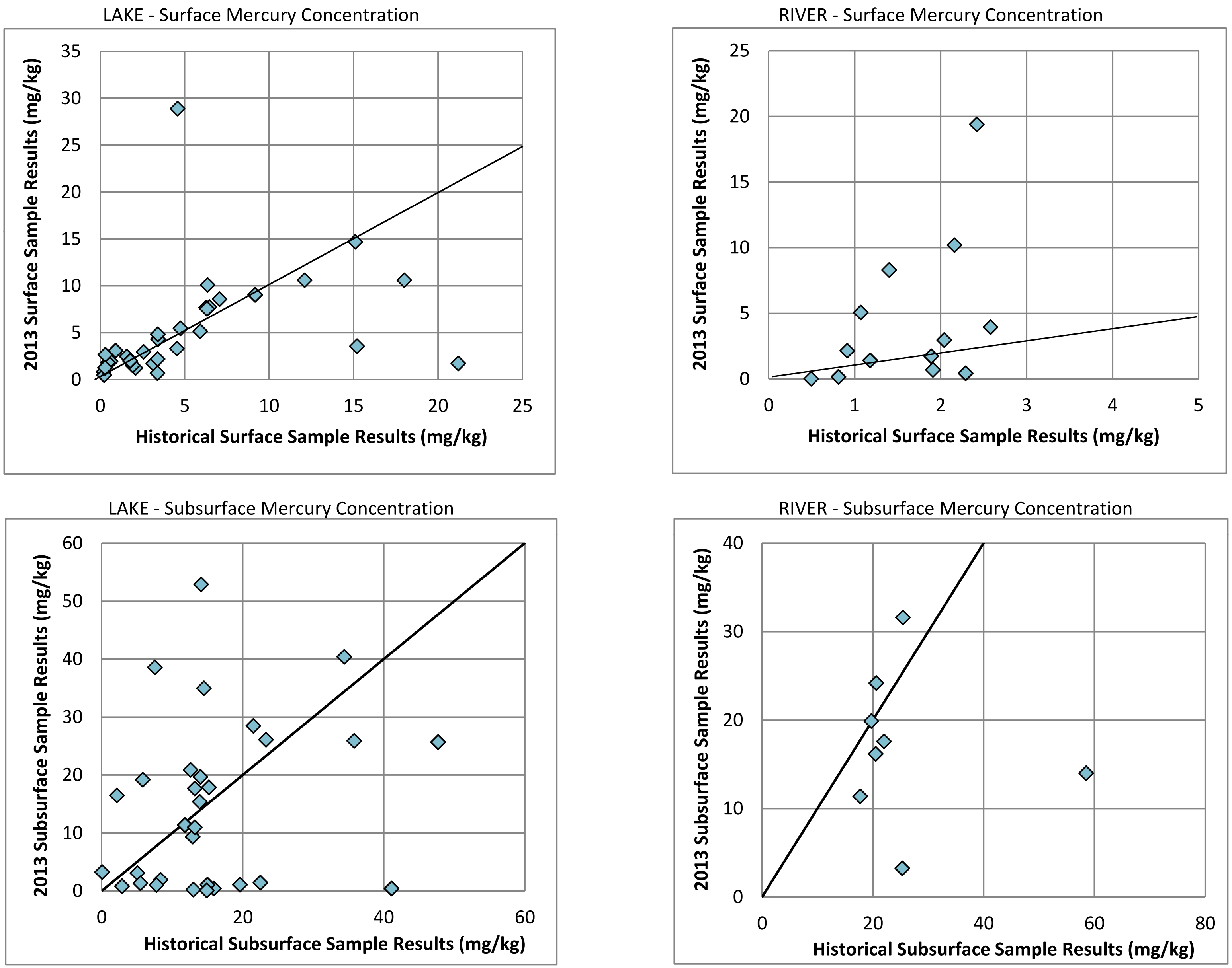
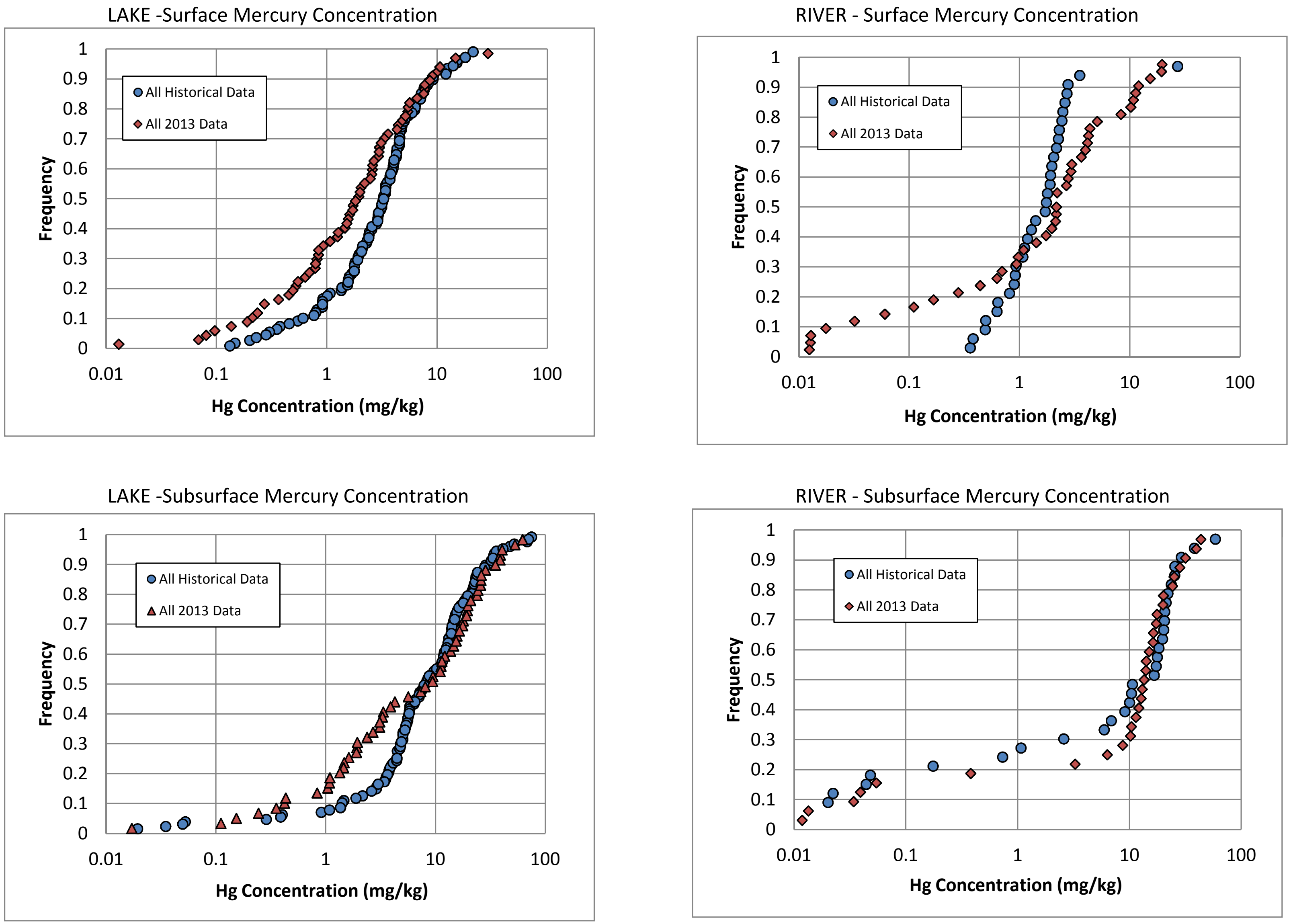


Figure 4-4: Cumulative Frequency Curve for Mercury Concentrations in All Historical and All 2013 Data



Appendices

ARCADIS

Appendix A

Summer 2013 Sediment Core Field Notes, Photos, and DuPont Data Review Report (included on CD)

DuPont Pompton Lake Vibracore Sediment Sampling

August 13, 2013

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Summer 2013 Pompton Lake

Sampling Date: 8/13/2013

Project #: B0042322.0003

Field Personnel: NMM, MWE

Sample Matrix: 3" ALUMINUM CORE

Weather: Cloudy, Raining

Sampling Method: VIBRACORE

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081313-537-280B	8:30	5.5	80	72	5.5

Description:
0"-18" GREY/BROWN SILT LITTLE ORGANICS, ROOTS
18"-24" BROWN PEAT LITTLE ORGANICS ROOTS LEAVES
24"-72" GREY BROWN FINE SAND, LITTLE FINE GRAVEL, TRACE ORGANICS AND ROOTS

Sample IDs:

SD081313-537-280B-0006
SD081313-537-280B-1218

Photos:

Analysis:
Hg, MOISTURE

Additional Notes: ONLY A SAMPLE PHOTOGRAPH WAS TAKEN.


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537-280B
(0-6") (6-12") (12-18")

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Summer 2013 Pompton Lake

Sampling Date: 8/13/2013

Project #: B0042322.0003

Field Personnel: NMM, MWE

Sample Matrix: 3" ALUMINUM CORE

Weather: Cloudy, Raining

Sampling Method: VIBRACORE

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081313-537-449B	9:15	8.5	48	45	3.5

Description:
0"-18" DARK GREY FINE SILT, LITTLE ORGANICS, ROOTS
18"-37" BROWN PEAT, LITTLE SILT, ORGANICS, ROOTS, WOOD DEBRIS
37"-45" DARK GREY/BROWN FINE, MED., COARSE SAND

Sample IDs:
SD081313-537-449B-0006
SD081313-537-449B-1218

Photos:

Analysis:
Hg, moisture

Additional Notes: ONLY A SAMPLE PHOTOGRAPH WAS TAKEN.


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537-449B
(0-6) (6-12) (12-18)
0-6
6-12
12-18

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Summer 2013 Pompton Lake

Sampling Date: 8/13/2013

Project #: B0042322.0003

Field Personnel: NMM, MWE

Sample Matrix: 3" ALUMINUM CORE

Weather: Cloudy, Raining

Sampling Method: VIBRACORE

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081313-537-437B	9:40	7.8	41	40	3.5

Description:
0"-6" GREY BROWN FINE SAND, TRACE ORGANICS, ROOTS, STICKS
6"-12" BROWN PEAT, LITTLE ORGANICS, ROOTS
12"-30" GREY FINE SAND, TRACE ORGANICS, ROOTS
30"-40" BROWN FINE, MED, COARSE GRAVEL, FINE MED. SAND

Sample IDs:
SD081313-537-437B-0006

Photos:

Analysis:
Hg, MOISTURE

Additional Notes: ONLY A SAMPLE PHOTOGRAPH WAS TAKEN.


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537-437B
(0-6) (6-12) (12-30) (30-40)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Summer 2013 Pompton Lake

Sampling Date: 8/13/2013

Project #: B0042322.0003

Field Personnel: NMM, MWE

Sample Matrix: 3" ALUMINUM CORE

Weather: Cloudy, Raining

Sampling Method: VIBRACORE

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081313-537-342B	8:50	4	31	29	4.2

Description:
0"-12" GREY SILT
12'-18" BROWN SAND, FINE, MED GRAVEL
18'-29" BROWN FINE, MED GRAVEL, LITTLE FINE SAND

Sample IDs:
SD081313-537-342B-0006
SD081313-537-342B-0612

Photos:

Analysis:
Hg, MOISTURE

Additional Notes: ONLY A SAMPLE PHOTOGRAPH WAS TAKEN.


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537-342B
(0-6) (6-12) (12-29)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Summer 2013 Pompton Lake

Sampling Date: 8/13/2013

Project #: B0042322.0003

Field Personnel: NMM, MWE

Sample Matrix: 3" ALUMINUM CORE

Weather: SUNNY

Sampling Method: VIBRACORE

Sample Location	Time	Water Depth (ft.)	Penetration Depth (ft.)	Recovery Depth (ft.)	Probe Depth (ft.)
SD081313-537-687	12:40	6.4	84	77	4.7

Description:

0"-30" DARK BROWN/GREY SILT, ORGANICS, ROOTS
30"-60" GREY/BROWN FINE SAND AND SILT, TRACE ORGANICS, ROOTS
60"-77" BROWN FINE, MED. SAND

Sample IDs:
SD081313-537-687-0006
SD081313-537-687-0612
SD081313-537-687-1230
SD081313-537-687-3048 HOLD

Photos:

Analysis:
Hg, MOISTURE

Additional Notes: ONLY A SAMPLE PHOTOGRAPH WAS TAKEN.


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537-687
(0-6) (6-12) (12-30)
687 (0-6)
687 (6-12)
687 (12-30)


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537-687
(30-48) (48-64) (64-77)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Summer 2013 Pompton Lake

Sampling Date: 8/13/2013

Project #: B0042322.0003

Field Personnel: NMM, MWE

Sample Matrix: 3" ALUMINUM CORE

Weather: SUNNY

Sampling Method: VIBRACORE

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081313-537-253B	10:50	4	64	60	2.8

Description:

0"-18" DARK BROWN/GREY SILT, ORGANICS, ROOTS
18"-36" BROWN FINE SAND, ORGANIC ROOTS, TRACE GRAVEL
36"-60" DARK GREY/BORWN FINE, MED., AND COARSE GRAVEL, SAND

Sample IDs:
SD081313-537-253B-0006
SD081313-537-253B-1218

Photos:

Analysis:
Hg, MOISTURE

Additional Notes: ONLY A SAMPLE PHOTOGRAPH WAS TAKEN.


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537-253B
(0-6) (6-12) (12-18)
6-12
12-18

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Summer 2013 Pompton Lake

Sampling Date: 8/13/2013

Project #: B0042322.0003

Field Personnel: NMM, MWE

Sample Matrix: 3" ALUMINUM CORE

Weather: SUNNY

Sampling Method: VIBRACORE

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081313-537-487B	12:00	4.8	68	61	3.4

Description:

0"-6" DARK GREY/BROWN SILT
6"-24" DARK GREY/ BROWN FINE, MED. COARSE SAND, LITTLE FINE, MED. GRAVEL
24"-61" BROWN PEAT, LITTLE SILT, ORGANICS, ROOTS

Sample IDs:

SD081313-537-487B-0006

Photos:

Analysis:
Hg, MOISTURE

Additional Notes: ONLY A SAMPLE PHOTOGRAPH WAS TAKEN.

Pompton Lakes, NJ
Sediment Sampling
8/13/13
537-487B
(0-6) (6-12) (12-24)
487B
487 6-12
487 12-24

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Summer 2013 Pompton Lake

Sampling Date: 8/13/2013

Project #: B0042322.0003

Field Personnel: NMM, MWE

Sample Matrix: 3" ALUMINUM CORE

Weather: SUNNY

Sampling Method: VIBRACORE

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081313-537-691	13:55	16.9	36	30	1.7

Description:

0"-12" DARK GREY SILT, TRACE ORGANICS, ROOTS
12"-30" GREY/BROWN FINE, MED. SAND, LITTLE SILT, AND FINE, MED. GRAVEL

Sample IDs:
SD081313-537-691-0006
SD081313-537-691-0612
SD081313-537-691-1230 hold

Photos:

Analysis:

Hg, MOISTURE

Additional Notes: ONLY A SAMPLE PHOTOGRAPH WAS TAKEN.


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537-691
(0-6) (6-12) (12-30)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/13/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081313-537-506B	14:35	6.1	84	80	6.5

Depth: Top	Bottom	Description
0"	60"	DARK GREY/BROWN SILT, LITTLE ORGANICS, TRACE FINE SAND
60"	79"	GREY/BROWN FINE SAND, LITTLE SILT, TRACE ORGANICS, ROOTS (BOTTOM OF SEDIMENT)
79"	80"	SAND AND COBBLE

Samples

ID	Depth	Time
SD081313-537-506B-0006	6"	14:35
SD081313-537-506B-3642	33"	14:35
SD081313-537-506B-7379	79"	14:35

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes: ONLY A SAMPLE PHOTOGRAPH WAS TAKEN.

DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537 - 506B
(0-6) (36-42) (73-79)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/13/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081313-537-453B	17:05	12.4	72	66	4

Depth: Top	Bottom	Description
0"	48"	DARK GREY SILT, LITTLE ORGANIC ROOTS
48"	66"	GREY SILT SOME CLAY, TRACE FINE SAND

Samples

ID	Depth	Time
SD081313-537-453B-0006	6"	17:05
SD081313-537-453B-2127	27"	17:05
SD081313-537-453B-4248	48"	17:05

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes: THE MATERIAL AT TOP OF CORE WAS VERY LOOSE/WATERY AND RAN UP THE TUBE WHEN LAID DOWN FOR PROCESSING.


Pompton Lakes, NJ
Sediment Sampling
8/13/13
537-453B

DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537-453B


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537 - 453B
(0-6) (21-27) (42-48)
453B 0-6
453B 21-27
453B 42-48'

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling
Sampling Date: 8/13/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM
Sample Matrix: 3" Aluminum Core

Weather: Sunny
Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081313-537-642	14:20	6.5	60	54	4.3

Depth: Top	Bottom	Description
0"	24"	GREY/BROWN SILT, TRACE ORGANICS, ROOTS, LEAVES
24"	49"	GREY/BROWN FINE MED. SAND, LITTLE FINE, MED. GRAVEL
49"	54"	GREY/BROWN FINE, MED. COARSE GRAVEL, FINE MED. SAND

Samples

ID	Depth	Time
SD081313-537-642-0006	6"	14:20
SD081313-537-642-0612	12"	14:20
SD081313-537-642-1224	24"	14:20
SD081313-537-642-2442	42"	14:20 hold

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes: THE 24"-42" SAMPLE WAS NOT PHOTOGRAPHED. THE MEASURING TAPE HAS BEEN SHIFTED IN THE PHOTOGRAPH, THE DEPTHS NOTED IN THE DESCRIPTIONS ABOVE ARE CORRECT.


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537 - 642


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537 - 642


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537-642
(0-6) (6-12) (12-24)
641 6-12
641 12-24

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling **Sampling Date:** 8/13/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM **Sample Matrix:** 3" Aluminum Core

Weather: Sunny **Sampling Method:** Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081313-537-527B	14:05	3	70	66	4.1

Depth: Top	Bottom	Description
0"	42"	DARK GREY/BROWN SILT, LITTLE ORGANICS, ROOTS
42"	66"	GREY/BROWN FINE, MED. SAND, LITTLE ORGANICS, ROOTS, TRACE SILT

Samples

ID	Depth	Time
SD081313-537-527B-0006	6"	14:05
SD081313-537-527B-2127	27"	14:05
SD081313-537-527B-3642	42"	14:05

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537 - 527B


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537 - 527B


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537 - 527B
(0-6) (21-27) (36-42)
527B 0-6
527B 21-27
527B 36-42

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/13/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081313-537-482B	16:00	5.4	57	56	2

Depth: Top	Bottom	Description
0"	12"	DARK GREY BROWN SILT, LITTLE ORGANICS, ROOTS, LEAVES
12"	56"	GREY/BROWN FINE SAND, LITTLE ORGANICS, ROOTS, LEAVES, LITTLE SILT

Samples

ID	Depth	Time
SD081313-537-482B-0006	6"	16:00
SD081313-537-482B-0612	12"	16:00

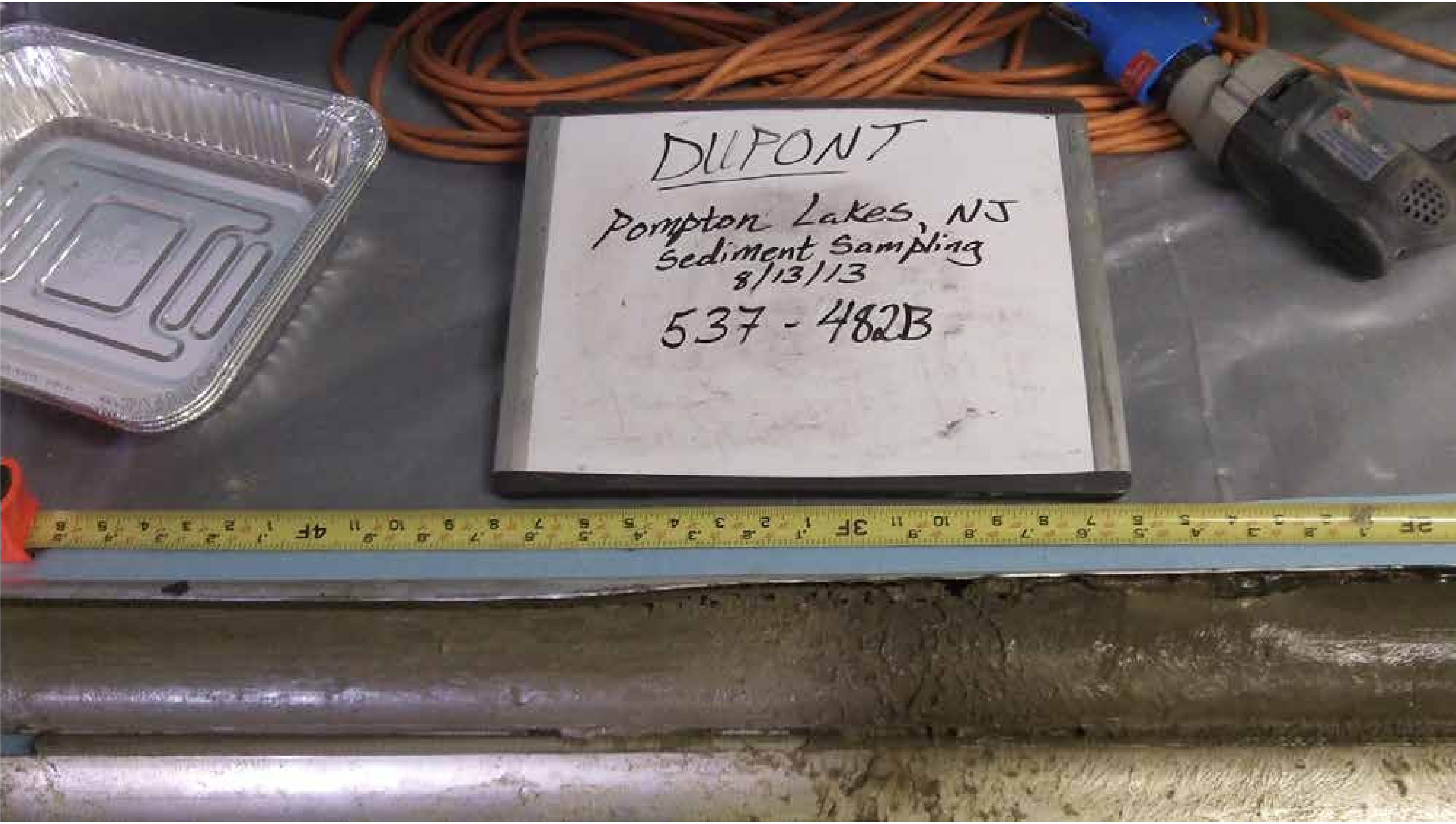
Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537 - 482B


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537 - 482B


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537 - 482B
(0-6) (6-12)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/13/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081313-537-485B	15:45	7.5	48	42	1.3

Depth: Top	Bottom	Description
0"	4"	DARK GREY BROWN SILT, TRACE ORGANICS ROOTS
4"	24"	GREY FINE SAND, SOME FINE MED. GRAVEL LITTLE SILT
24"	42"	BROWN SILTY CLAY

Samples

ID	Depth	Time
SD081313-537-485B-0004	4"	15:45

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes: CORE PHOTOGRAPH WAS TAKEN AFTER THE TOP 4" OF SEDIMENT WAS SAMPLED. THE MEASURING TAPE HAS BEEN SHIFTED IN THE PHOTOGRAPH, THE DEPTHS NOTED IN THE DESCRIPTIONS ABOVE ARE CORRECT.


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537 - 485B


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537 - 485B


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537 - 485B
(0-4")

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/13/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081313-537-470B	16:50	12.6	48	41	2.6

Depth: Top	Bottom	Description
0"	3"	DARK GREY BROWN SILT, LITTLE ORGANIC ROOTS, LEAVES
3"	41"	GREY SILTY SAND, LITTLE ORGANICS ROOTS

Samples

ID	Depth	Time
SD081313-537-470B-0003	3"	16:50

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537 - 470B


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537 - 470B
(0-3")

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Summer 2013 Pompton Lake

Sampling Date: 8/13/2013

Project #: B0042322.0003

Field Personnel: NMM, MWE

Sample Matrix: 3" ALUMINUM CORE

Weather: Cloudy, Raining

Sampling Method: VIBRACORE

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081313-537-280B	8:30	5.5	80	72	5.5

Description:
0"-18" GREY/BROWN SILT LITTLE ORGANICS, ROOTS
18"-24" BROWN PEAT LITTLE ORGANICS ROOTS LEAVES
24"-72" GREY BROWN FINE SAND, LITTLE FINE GRAVEL, TRACE ORGANICS AND ROOTS

Sample IDs:

SD081313-537-280B-0006
SD081313-537-280B-1218

Photos:

Analysis:
Hg, MOISTURE

Additional Notes: THE MEASURING TAPE HAS BEEN SHIFTED IN THE PHOTOGRAPH, THE DEPTHS NOTED IN THE DESCRIPTIONS ABOVE ARE CORRECT.


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537 - 240B


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537 - 240B
(0-6) (6-12)

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling
Sampling Date: 8/13/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM
Sample Matrix: 3" Aluminum Core

Weather: Sunny
Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (ft.)	Recovery Depth (ft.)	Probe Depth (ft.)
SD081313-537-647	15:20	13.3	48	42	4

Depth: Top	Bottom	Description
0"	24"	DARK GREY SILT, LITTLE ORGANICS, ROOTS
24"	42"	GREY FINE, MED. SAND, TRACE FINE AND GRAVEL

Samples

ID	Depth	Time
SD081313-537-647-0006	6"	15:20
SD081313-537-647-0612	12"	15:20
SD081313-537-647-1224	24"	15:20 DUP-2/MS/MSD
SD081313-537-647-2442	42"	15:20 HOLD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes: THE MEASURING TAPE HAS BEEN SHIFTED IN THE PHOTOGRAPH, THE DEPTHS NOTED IN THE DESCRIPTIONS ABOVE ARE CORRECT.


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537 · 647
(0-6) (6-12) (12-24) (24-42)


DUPONT
Pompton Lakes, NJ
Sediment Sampling

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/13/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081313-537-330B	17:30	4.1	56	33	2.1

Depth: Top	Bottom	Description
0"	14"	DARK GREY SILT, LITTLE ORGANIC, ROOTS
14"	33"	GREY FINE SAND, TRACE FINE MED. GRAVEL

Samples

ID	Depth	Time
SD081313-537-330B-0006	6"	17:30
SD081313-537-330B-0814	14"	17:30

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes: ONLY A CORE PHOTOGRAPH WAS TAKEN


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537 - 330B

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/13/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081313-537-646	15:00	13.7	18	12	2.2

Depth: Top	Bottom	Description
0"	2"	GREY/BROWN FINE SAND
2"	12"	GREY/BROWN FINE, MED., COARSE GRAVEL, FINE, MED. SAND

Samples

ID	Depth	Time	
SD081313-537-646-0002	2"	15:00	
SD081313-537-646-0212	12"	15:00	HOLD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes: ONLY A SAMPLE PHOTOGRAPH WAS TAKEN


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537.646
(0-2) (2-12)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling
Sampling Date: 8/13/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM
Sample Matrix: 3" Aluminum Core

Weather: Sunny
Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081313-537-480B	11:45	1.8	38	27	1.2

Depth: Top	Bottom	Description
0"	12"	DARK GREY SILT, LITTLE ORGANICS ROOTS
12"	27"	BROWN FINE SAND, SOME FINE, MED. GRAVEL, LITTLE ORGANICS, ROOTS, TRACE COBBLES

Samples

ID	Depth	Time
SD081313-537-480B-0006	6"	11:45
SD081313-537-480B-0612	12"	11:45

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


Pompton Lakes, NJ
Sediment Sampling
8/13/13
537 - 480B


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537 - 480B
(0-6) (6-12)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/13/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081313-537-491B	16:35	12	18	15	18

Depth: Top	Bottom	Description
0"	6"	GREY/BROWN FINE SAND
6"	15"	GREY/BROWN FINE, MED. COARSE SAND, AND FINE, MED. COARSE GRAVEL, TRACE COBBLES

Samples

ID	Depth	Time
SD081313-537-491B-0006	6"	16:35

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes: ONLY A CORE PHOTOGRAPH WAS TAKEN. THE MEASURING TAPE HAS BEEN SHIFTED IN THE PHOTOGRAPH, THE DEPTHS NOTED IN THE DESCRIPTIONS ABOVE ARE CORRECT.


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/13/13
537 - 491B
(0-6)

DuPont Pompton Lake
Vibracore Sediment Sampling

August 14, 2013

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/14/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081413-537-320B	12:25	3.8	54	51	3.3

Depth: Top	Bottom	Description
0"	30"	DARK GREY SILT, LITTLE ORGANICS, ROOTS
30"	44"	GREY/BROWN FINE SAND, LITTLE FINE, MED. GRAVEL
44"	51"	GREY/BROWN FINE, MED COARSE SAND AND GRAVEL

Samples

ID	Depth	Time
SD081413-537-320B-0006	6"	12:25
SD081413-537-320B-1218	18"	12:25
SD081413-537-320B-2430	30"	12:25

Photos: *See ID

Analysis:
Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-320B


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-320B
(0-6) (12-18) (24-30)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling
Sampling Date: 8/14/2013
Project #: B0042322.0003
Field Personnel: MWE, NMM
Sample Matrix: 3" Aluminum Core
Weather: Sunny
Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081413-537-476B	11:50	7.1	62	59	4.5

Depth: Top	Bottom	Description
0"	12"	DARK GREY SILT, LITTLE ORGANICS, ROOTS
12"	48"	GREY/BROWN FINE SAND, LITTLE ORGANICS, ROOTS, LITTLE FINE, MED. GRAVEL
48"	59"	GREY/BROWN FINE, MED. COARSE GRAVEL AND SAND, LITTLE COBBLES

Samples

ID	Depth	Time	
SD081413-537-476B-0006	6"	11:50	
SD081413-537-476B-0612	12"	11:50	DUP-3, MS/MSD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-476B


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-476B
(0-6) (6-12)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling
Sampling Date: 8/14/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM
Sample Matrix: 3" Aluminum Core

Weather: Sunny
Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081413-537-655	12:05	6	72	66	4.2

Depth: Top	Bottom	Description
0"	18"	DARK GREY SILT, TRACE ORGANICs, ROOTS
18"	36"	GREY/BROWN FINE SAND, LITTLE FINE GRAVEL
36"	66"	GREY BROWN FINE, MED. COARSE SAND, LITTLE FINE, MED. GRAVEL

Samples

ID	Depth	Time
SD081413-537-655-0006	6"	12:05
SD081413-537-655-0612	12"	12:05
SD081413-537-655-1218	18"	12:05
SD081413-537-655-1836	36"	12:05 HOLD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-655

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling
Sampling Date: 8/14/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM
Sample Matrix: 3" Aluminum Core

Weather: Sunny
Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081413-537-651	10:40	5.2	84	78	7.8

Depth: Top	Bottom	Description
0"	26"	DARK GREY SILT, LITTLE SAND, SOME ORGANICS, ROOTS
26"	30"	GREY/BROWN PEAT, ORGANICS, ROOTS, LEAVES
30"	78"	GREY/BROWN FINE, MED. SAND, LITTLE FINE, MED. GRAVEL

Samples

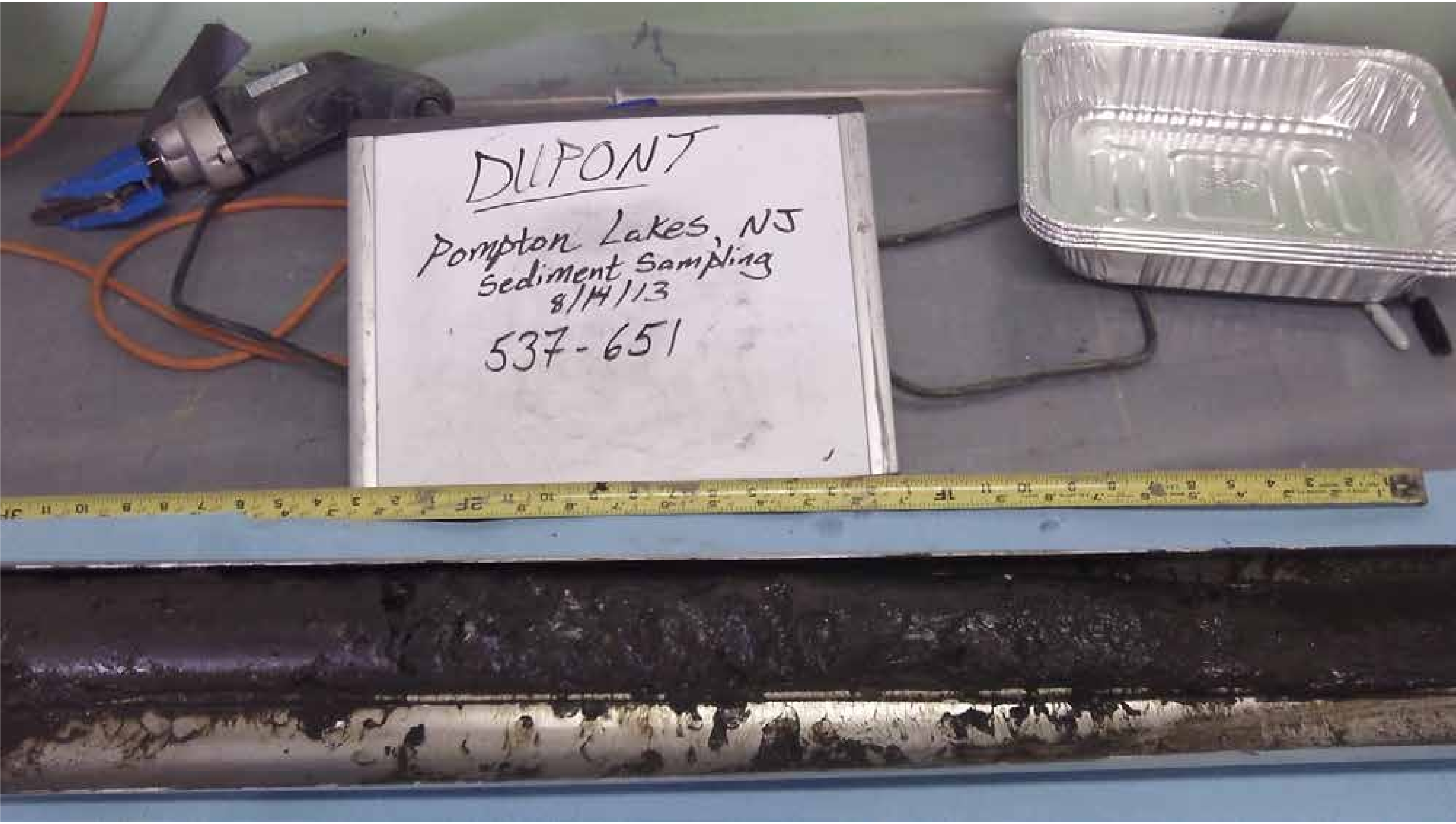
ID	Depth	Time
SD081413-537-651-0006	6"	10:40
SD081413-537-651-0612	12"	10:40
SD081413-537-651-1226	26"	10:40
SD081413-537-651-2630	30"	10:40 HOLD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-651


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-651


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-651
(0-6) (6-12) (12-26) (26-30)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/14/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081413-537-654	8:50	5.2	94	91	6.9

Depth: Top	Bottom	Description
0"	36"	DARK GREY SILT, LITTLE ORGANICS, LEAVES, ROOTS
36"	44"	BROWN SILT, LEAF LITTER, TRACE FINE SAND
44"	54"	GREY SILTY CLAY, TRACE ORGANICS, ROOTS
54"	91"	GREY BROWN FINE, MED. SAND, LITTLE FINE, MED. GRAVEL
		* 36-54" segment composited for potential sampling based on visual observation

Samples

ID	Depth	Time
SD081413-537-654-0006	6"	8:50
SD081413-537-654-0612	12"	8:50
SD081413-537-654-1230	30"	8:50
SD081413-537-654-3036	36"	8:50
SD081413-537-654-3654	54"	8:50 HOLD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-654
36-91"


DUPONT
Pompton Lakes, N
Sediment Sampling
8/14/13
537-654
36-91"


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-654
(0-6)(6-12)(12-30)


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-654
(30-36) (36-54)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/14/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081413-537-475B	11:15	9	84	79	5.5

Depth: Top	Bottom	Description
0"	24"	DARK GREY SILT, LITTLE ORGANICS ROOTS, LEAVES
24"	79"	GREY FINE SAND, LEAVE LITTER, LITTLE SILT

Samples

ID	Depth	Time	
SD081413-537-475B-0006	6"	11:15	
SD081413-537-475B-1824	24"	11:15	DUP-4, MS/MSD

Photos: *See ID

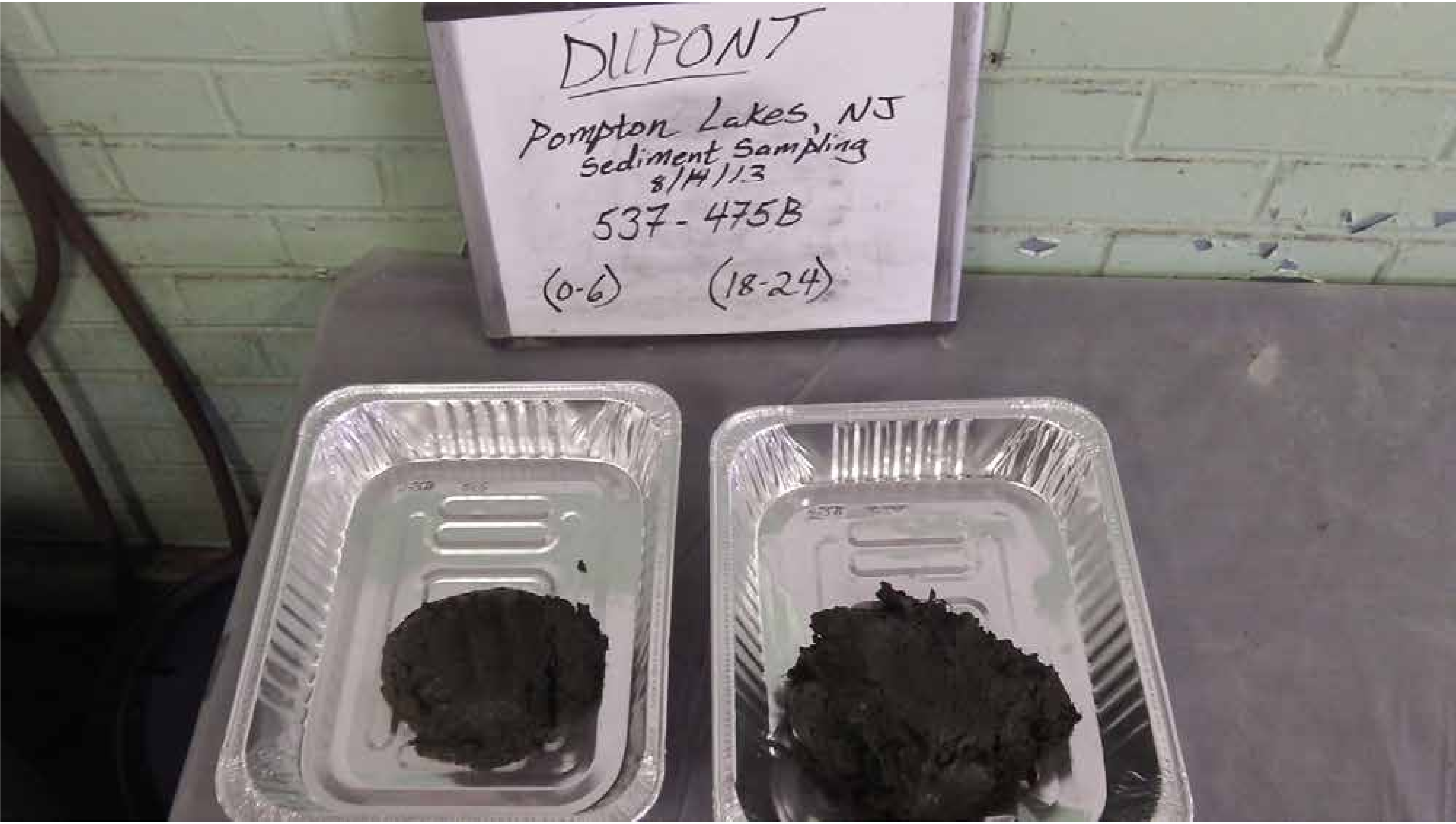
Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-475B
(0-6)
(18-24)


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-475B
(0-6) (18-24)


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-475B
(0-6)
(18-24)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/14/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081413-537-518B	10:25	7.9	84	81	7.1

Depth: Top	Bottom	Description
0"	78"	DARK GREY SILT, LITTLE ORGANICS, ROOTS
78"	81"	GREY BROWN COBBLES, FINE, MED. GRAVEL AND SAND

Samples

ID	Depth	Time
SD081413-537-518B-0006	6"	10:25
SD081413-537-518B-3642	42"	10:25
SD081413-537-518B-7278	78"	10:25

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-5188


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-518B
(0-6) (36-42) (72-78)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/14/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081413-537-282B	10:00	4	70	66	2.6

Depth: Top	Bottom	Description
0"	24"	DARK GREY SILT, SOME ORGANICS, ROOTS
24"	66"	GREY FINE, MED. SAND, LITTLE FINE, MED. GRAVEL

Samples

ID	Depth	Time
SD081413-537-282B-0006	6"	10:00
SD081413-537-282B-1824	24"	10:00

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes: ONLY A CORE PHOTOGRAPH WAS TAKEN


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-282B

DUPONT
POMPTON LAKES, NJ
SEDIMENT SAMPLING
8/14/13
537-282B

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/14/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081413-537-653	11:00	8.8	60	54	4.8

Depth: Top	Bottom	Description
0"	24"	DARK GREY SILT, LITTLE ORGANICS, ROOTS, LEAVES
24"	54"	FINE, MED. SAND, LITTLE FINE, MED. GRAVEL

Samples

ID	Depth	Time
SD081413-537-653-0006	6"	11:00
SD081413-537-653-0612	12"	11:00
SD081413-537-653-1224	24"	11:00
SD081413-537-653-2442	42"	11:00 HOLD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-653


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-653


DUPONT
Pompton Lakes, NJ
Sediment Sampling
537 - 653
(0-6) (6-12) (12-24) (24-42)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/14/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081413-537-318B	9:35	3.8	66	60	4.4

Depth: Top	Bottom	Description
0"	36"	DARK GREY SILT, LITTLE ORGANICS, ROOTS, LEAVES
36"	60"	DARK GREY FINE, MED. COARSE GRAVEL, LITTLE SILT, TRACE FINE SAND

Samples

ID	Depth	Time
SD081413-537-318B-0006	6"	9:35
SD081413-537-318B-1521	21"	9:35
SD081413-537-318B-3036	36"	9:35

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes: DURING DISCRIPTION COLLECTING THE 36"-38" SEGMENT WAS MOVED DOWNWARDS INTO 39
AS SHOW IN THE PHOTOGRAPH.


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-318B


DUPONT
Pompton Lakes
Sediment Samp
8/14/13
537-318B


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-318B
(0-6) (15-21) (30-36)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling
Sampling Date: 8/14/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM
Sample Matrix: 3" Aluminum Core

Weather: Sunny
Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081413-537-316B	8:35	5.1	64	58	4.3

Depth: Top	Bottom	Description
0"	36"	DARK GREY SILT, LITTLE ORGANICS, ROOTS
36"	58"	GREY BROWN FINE SAND, LITTLE FINE, MED. GRAVEL, TRACE COBBLES AT END

Samples

ID	Depth	Time
SD081413-537-316B-0006	6"	8:35
SD081413-537-316B-1521	21"	8:35
SD081413-537-316B-3036	36"	8:35

Photos: *See ID

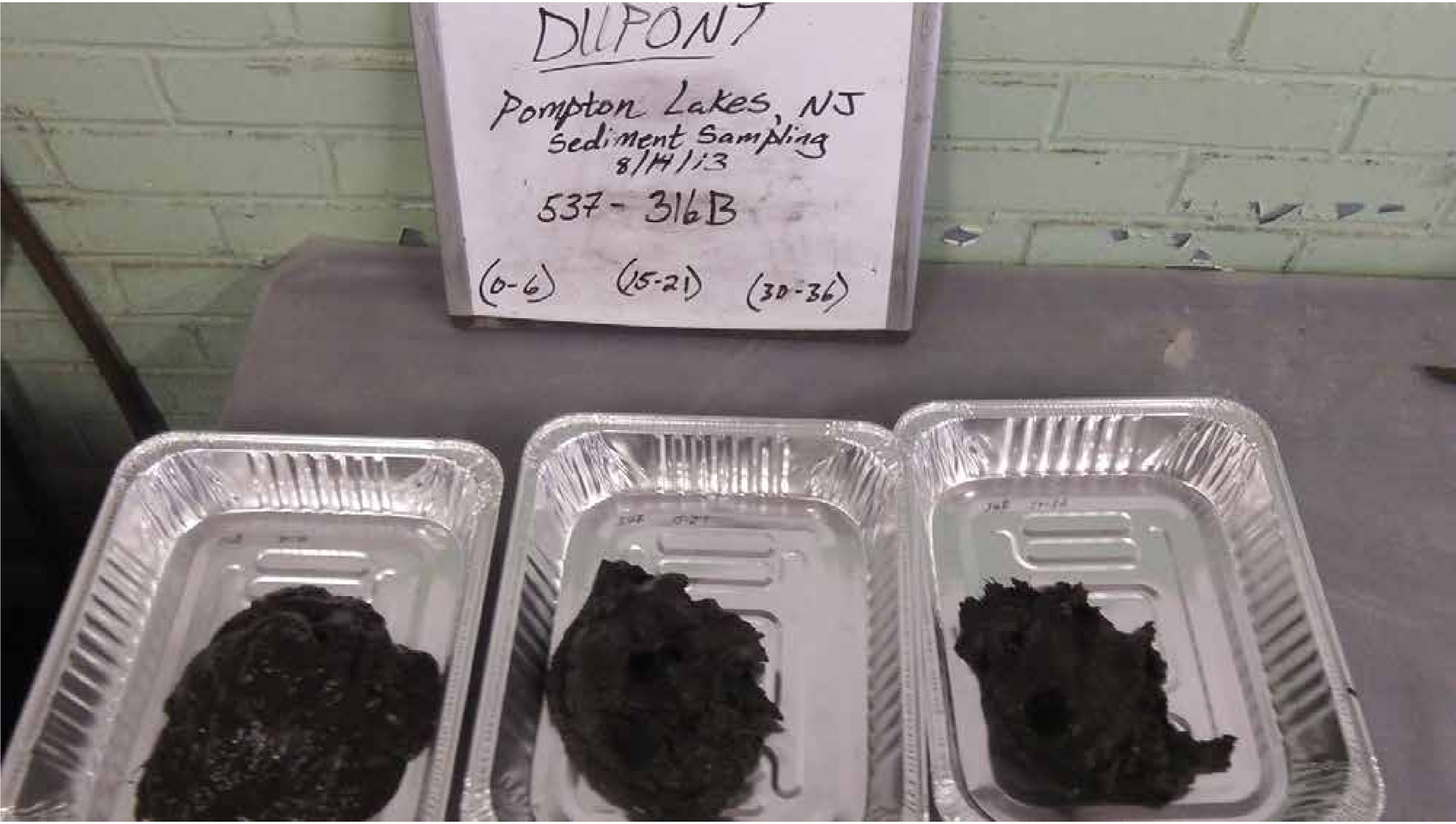
Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-316B
(0-6)
(15-21)
(30-36)


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537 - 316B
(0-6)
(15-21)
(30-36)
25'


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537 - 316B
(0-6)
(15-21)
(30-36)

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling
Sampling Date: 8/14/2013
Project #: B0042322.0003
Field Personnel: MWE, NMM
Sample Matrix: 3" Aluminum Core
Weather: Sunny
Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081413-537-278B	8:20	4.2	70	67	4.1

Depth: Top	Bottom	Description
0"	24"	DARK GREY SILT, LITTLE ORGANIC, ROOTS, LEAVES
24"	48"	DARK GREY FINE SAND, LITTLE ORGANICS, ROOTS, LEAVES, LITTLE SILT, TRACE CLAY
48"	67"	GREY/BROWN CLAY

Samples

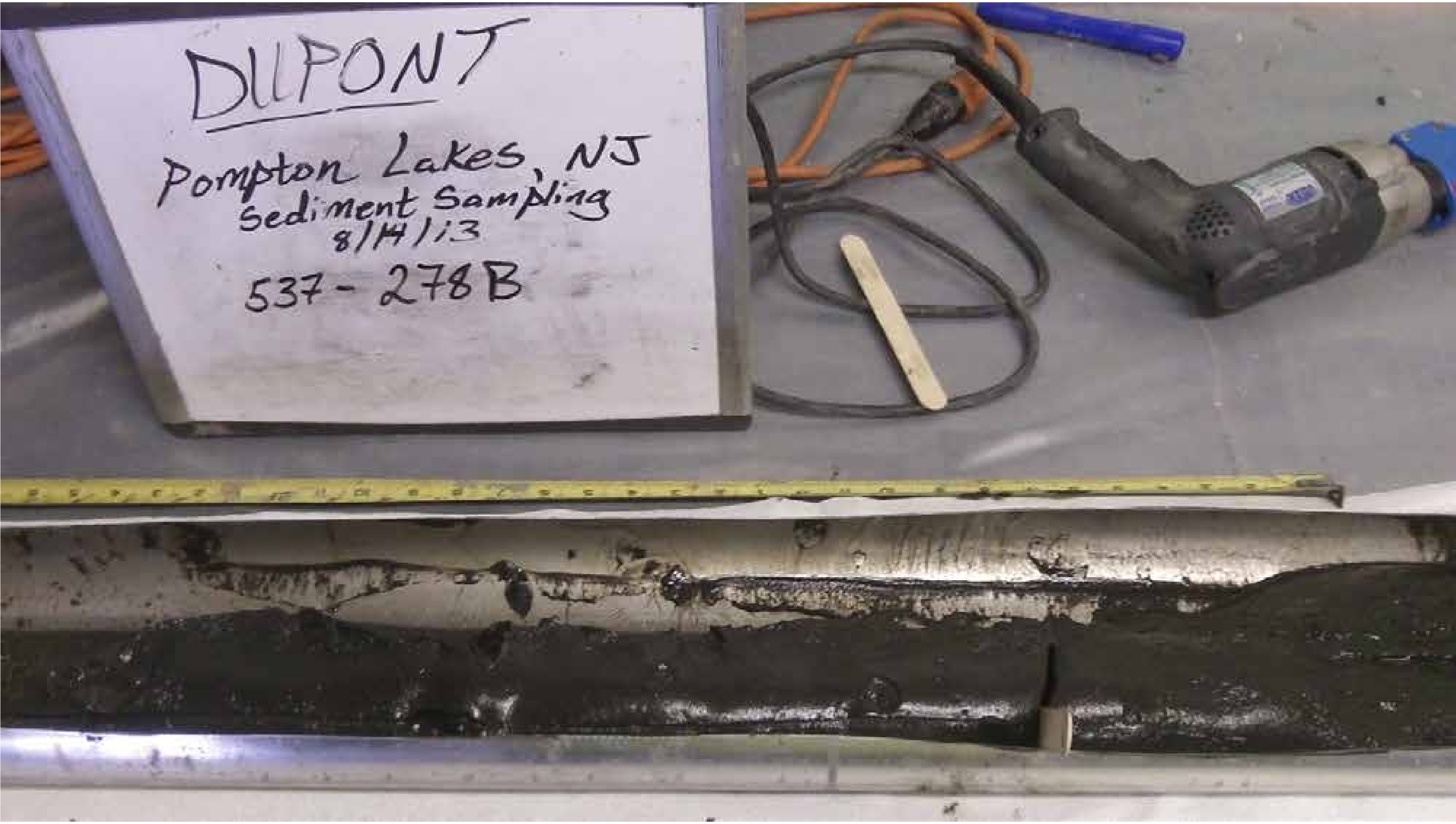
ID	Depth	Time
SD081413-537-278B-0006	6"	8:20
SD081413-537-278B-1824	24"	8:20

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes: ONLY A CORE PHOTOGRAPH WAS TAKEN.


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-278B


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-278B
25'

SAMPLE COLLECTION FIELD LOG

ARCADIS

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/14/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081413-537-291B	9:25	3.4	60	54	3.2

Depth: Top	Bottom	Description
0"	6"	DARK GREY SILT, LITTLE ORGANICS, ROOTS, LEAVES
6"	54"	GREY BROWN FINE, MED. SAND, LITTLE FINE, MED. GRAVEL

Samples

ID	Depth	Time
SD081413-537-291B-0006	6"	9:25

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes: ONLY A CORE PHOTOGRAPH WAS TAKEN. THE 0"-6" SAMPLE WAS COLLECTED PRIOR TO THE CORE PHOTOGRAPH.


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537 - 291B
(0-6)


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-291B
(0-6)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/14/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081413-537-377B	9:45	4.1	60	58	4.3

Depth: Top	Bottom	Description
0"	16"	DARK GREY SILT, LITTLE ORGANICS, ROOTS, LEAVES
16"	42"	GREY/BROWN FINE SAND, LITTLE SILT, ORGANICS, ROOTS
42"	58"	GREY FINE, MED., COARSE GRAVEL AND SAND, LITTLE COBBLES

Samples

ID	Depth	Time
SD081413-537-291B-0006	6"	9:25
SD081413-537-291B-1016	16"	9:25

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537 - 377B
(0-6) (10-16)


DUPON
Pompton Lakes
Sediment Samp
8/14/13
537 - 377B
(0-6) (10-16)


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537 - 377B
(0-6) (10-16)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/14/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081413-537-344B	9:10	3.9	49	46	2.4

Depth: Top	Bottom	Description
0"	6"	GREY/BROWN SILT, LITTLE ORGANICS, ROOTS, LEAVES
6"	46"	GREY FINE, MED. SAND, LITTLE FINE, MED. GRAVEL

Samples

ID	Depth	Time
SD081413-537-344B-0006	6"	9:10

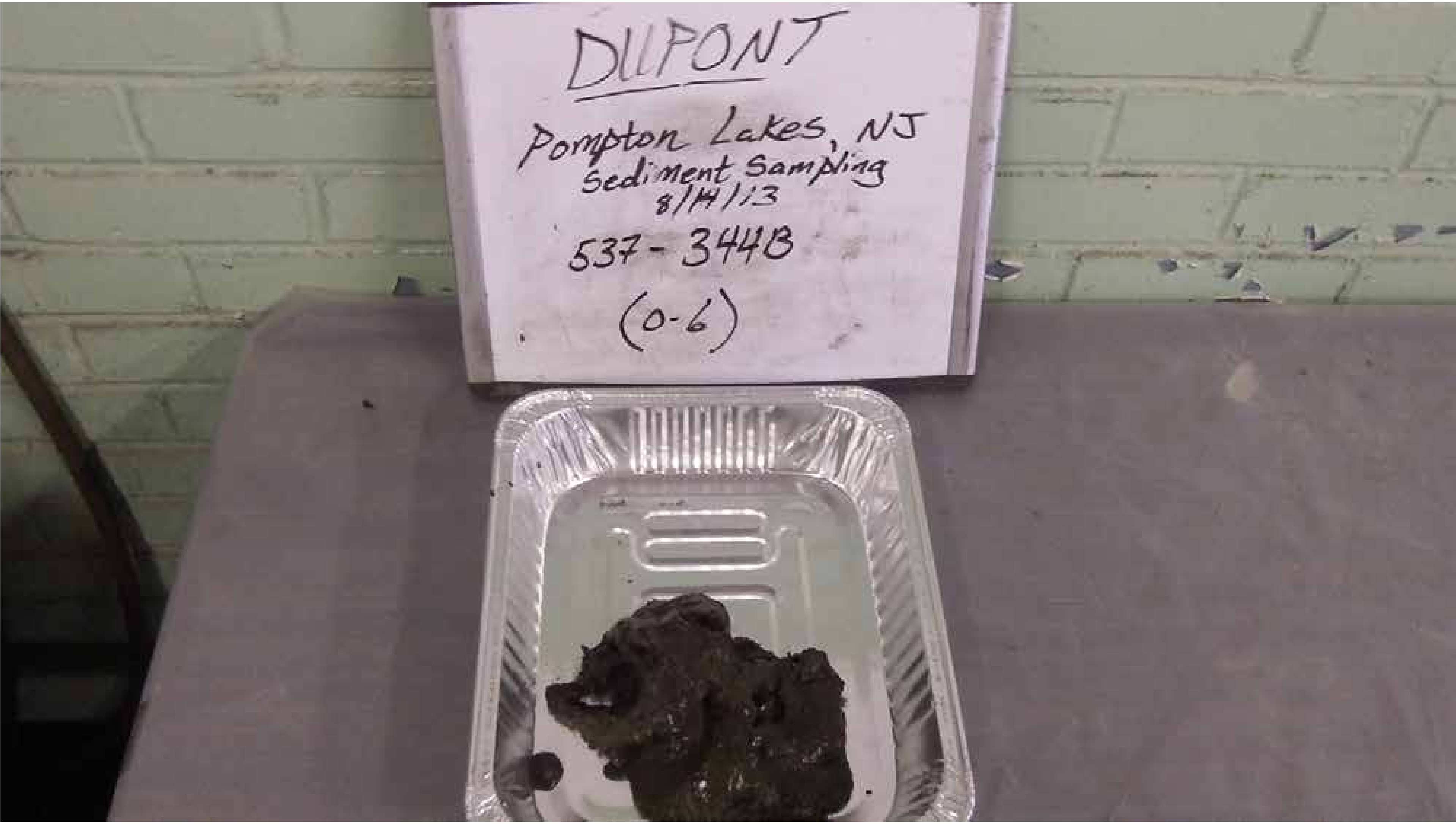
Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-3448


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-344B
(0-6)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling
Sampling Date: 8/14/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM
Sample Matrix: 3" Aluminum Core

Weather: Sunny
Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081413-537-321B	10:10	2.3	24	16	0.3

Depth: Top	Bottom	Description
0"	6"	DARK GREY SILT, LITTLE ORGANICS, ROOTS, LEAVES
6"	16"	DARK GREY COBBLES, FINE, MED. COARSE GRAVEL, LITTLE SAND

Samples

ID	Depth	Time
SD081413-537-321B-0006	6"	10:10

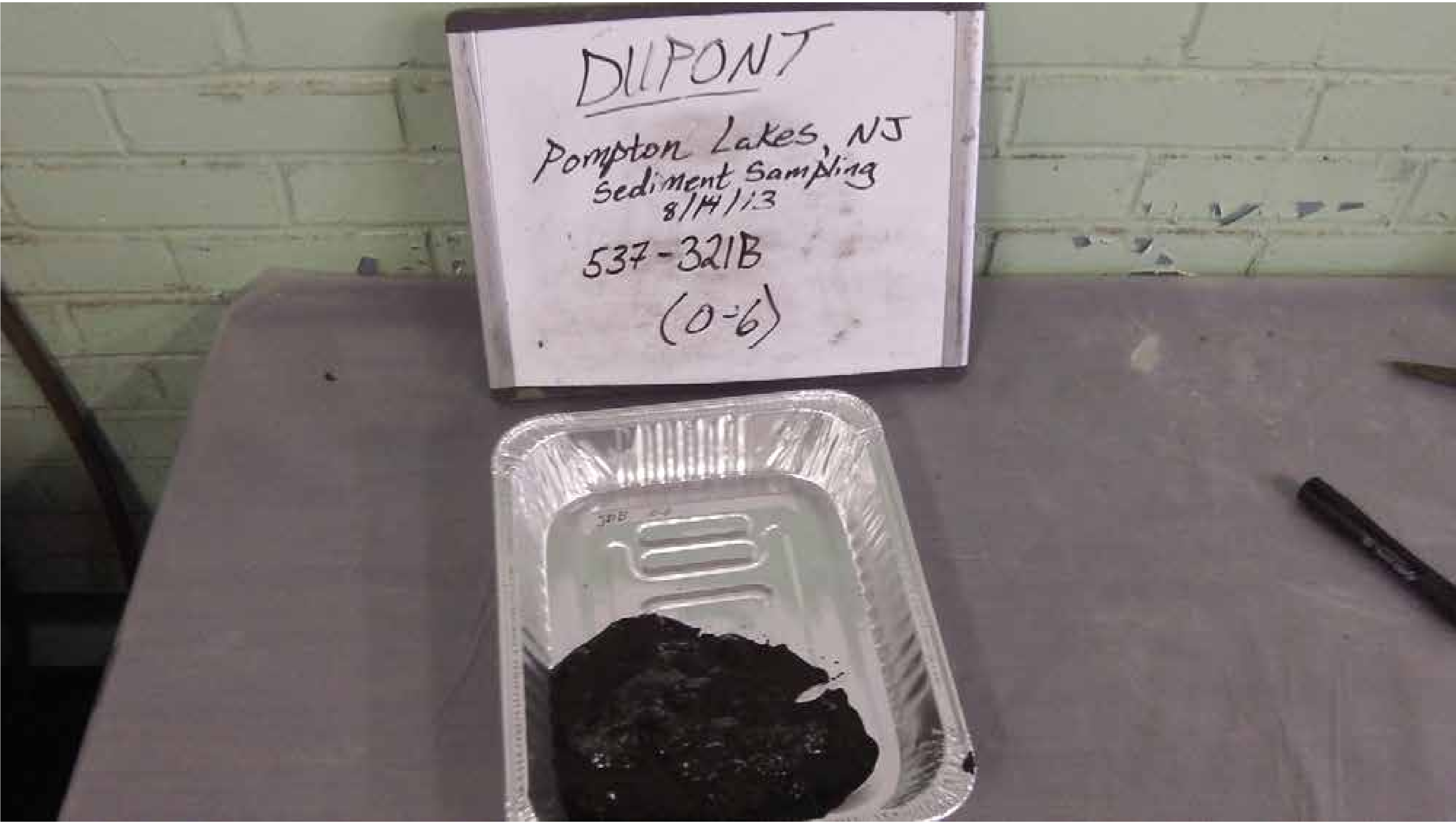
Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes: THE MEASURING TAPE HAS BEEN SHIFTED IN THE PHOTOGRAPH, THE DEPTHS NOTED IN THE DESCRIPTIONS ABOVE ARE CORRECT.


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-321B


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-321B
(0-6)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling **Sampling Date:** 8/14/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM **Sample Matrix:** 3" Aluminum Core

Weather: Sunny **Sampling Method:** Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081413-537-472B	15:05	4.5	72	69	6.5

Depth: Top	Bottom	Description
0"	42"	DARK GREY SILT, LITTLE ORGANICS, ROOTS
42"	69"	GREY/BROWN FINE SAND, LITTLE FINE, MED. COARSE GRAVEL, TRACE COBBLES

Samples

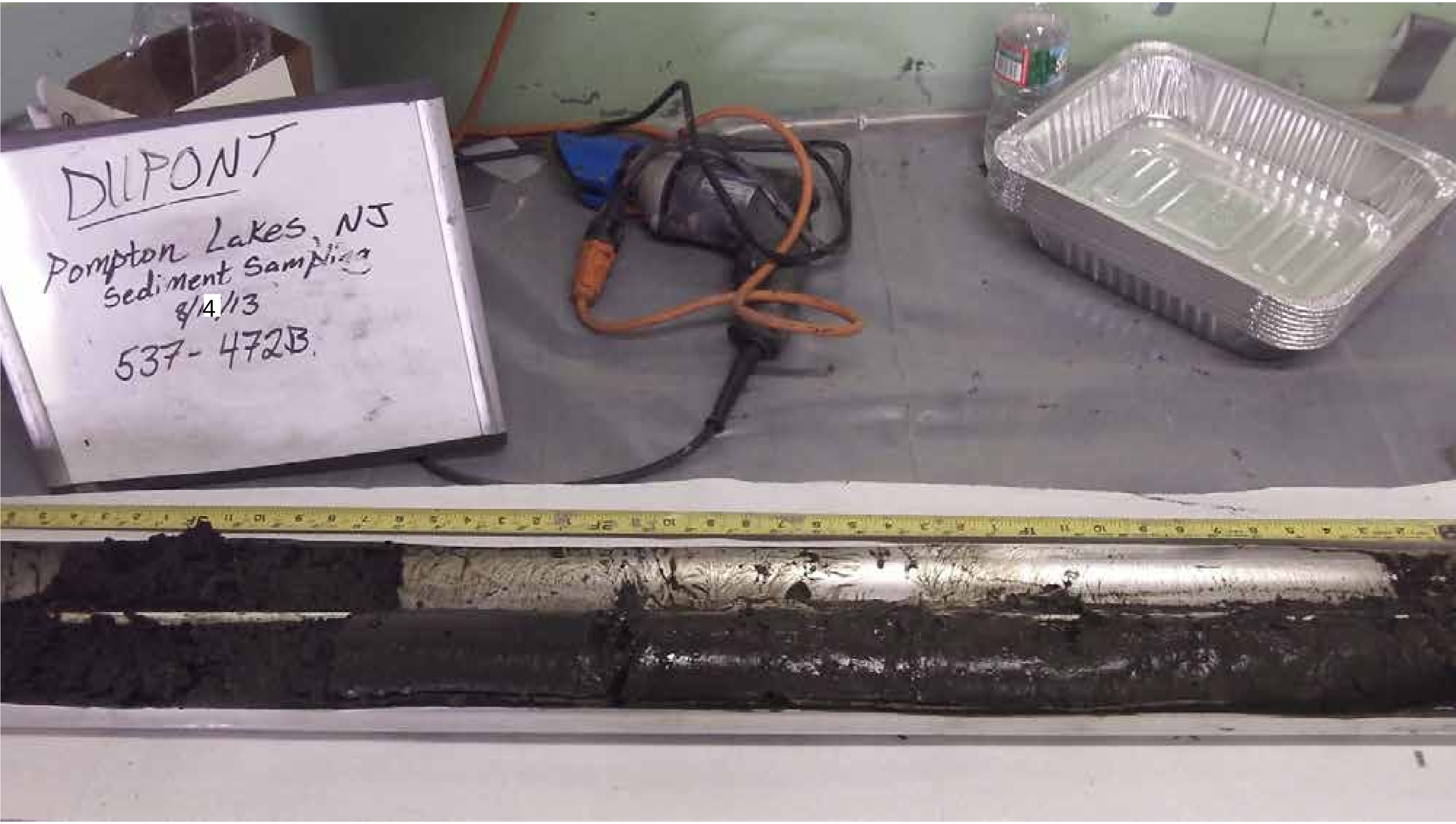
ID	Depth	Time
SD081413-537-472B-0006	6"	15:05
SD081413-537-472B-2127	27"	15:05
SD081413-537-472B-3642	42"	15:05

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes: THE 36"-42" SAMPLE WAS COLLECTED PRIOR TO THE CORE PHOTOGRAPH.
THE MEASURING TAPE HAS BEEN SHIFTED IN THE PHOTOGRAPH, THE DEPTHS NOTED IN THE DESCRIPTIONS ABOVE ARE CORRECT.


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-472B


DUPONT
Pompton Lakes, NJ
Sediment Sampling
537-472B
25'


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-472B
(0-6) (21-27) (36-42)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling **Sampling Date:** 8/14/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM **Sample Matrix:** 3" Aluminum Core

Weather: Sunny **Sampling Method:** Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (ft.)	Recovery Depth (ft.)	Probe Depth (ft.)
SD081413-537-343B	13:55	5.9	96	95	7

Depth: Top	Bottom	Description
0"	42"	DARK GREY SILT, LITTLE ORGANICS, ROOTS
42"	72"	GREY/BROWN SILTY FINE SAND, LITTLE ORGANICS, LEAVE LITTER
72"	95"	GREY/BROWN FINE, MED. SAND LITTLE ORGANICS, ROOTS, WOOD DEBRIS, LITTLE COBBLES

Samples

ID	Depth	Time
SD081413-537-343B-0006	6"	13:55
SD081413-537-343B-2127	27"	13:55
SD081413-537-343B-3642	42"	13:55

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes, NJ
Sediment Sampling
537-343B


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537- 343B


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-343B
(0-6) (21-27) (36-42)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/14/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (ft.)	Recovery Depth (ft.)	Probe Depth (ft.)
SD081413-537-688	16:30	10.2	39	36	2.5

Depth: Top	Bottom	Description
0"	4"	DARK GREY SILT, LITTLE ORGANICS, ROOTS, WEEDS
4"	36"	RED BROWN FINE, MED. SAND, LITTLE FINE, MED. GRAVEL

Samples

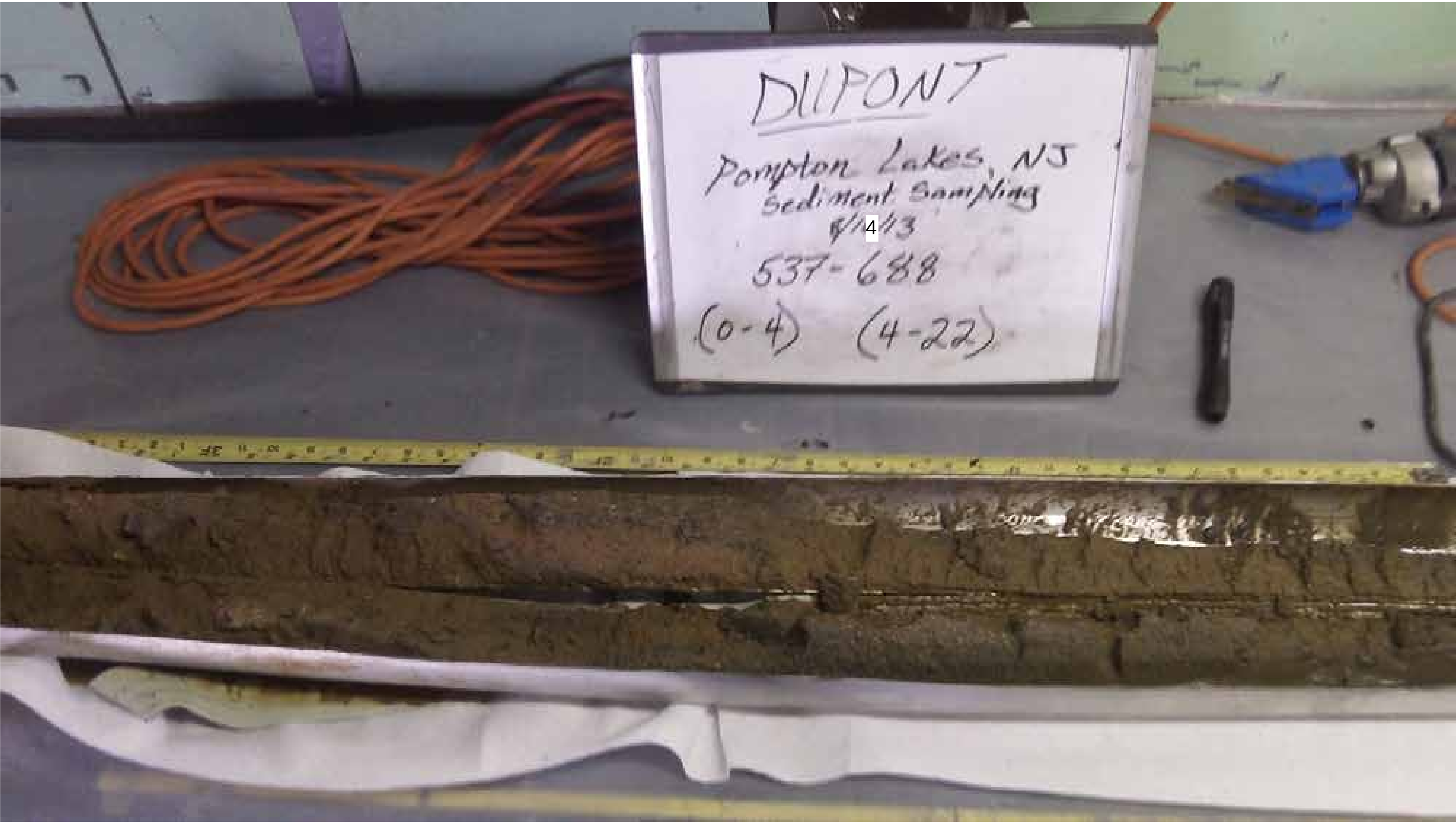
ID	Depth	Time
SD081413-537-688-0004	4"	16:30
SD081413-537-688-0422	22"	16:30 HOLD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-688
(0-4) (4-22)


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-688
(0-4) (4-22)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/14/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081413-537-489B	14:45	9.1	44	38	2.9

Depth: Top	Bottom	Description
0"	24"	DARK GREY SILT, LITTLE ORGANICS, ROOTS, WEEDS
24"	38"	GREY/BROWN FINE SAND, LITTLE FINE, MED. COARSE GRAVEL, TRACE SILT

Samples

ID	Depth	Time
SD081413-537-489B-0006	6"	14:45
SD081413-537-489B-1824	24"	14:45

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes: ONLY A CORE PHOTPGRAPH WAS TAKEN.


DUPONT
Pompton Lakes, NJ
Sediment Sampling
537-489B

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/14/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (ft.)	Recovery Depth (ft.)	Probe Depth (ft.)
SD081413-537-690	15:55	9.4	46	40	4

Depth: Top	Bottom	Description
0"	3"	BROWN SILT, SOME FINE SAND
3"	36"	BROWN FINE, MED. SAND, LITTLE FINE, MED. GRAVEL
36"	40"	GREY/BROWN FINE, MED., COARSE SAND

Samples

ID	Depth	Time
SD081413-537-690-0003	3"	15:55
SD081413-537-690-0321	21"	15:55 HOLD

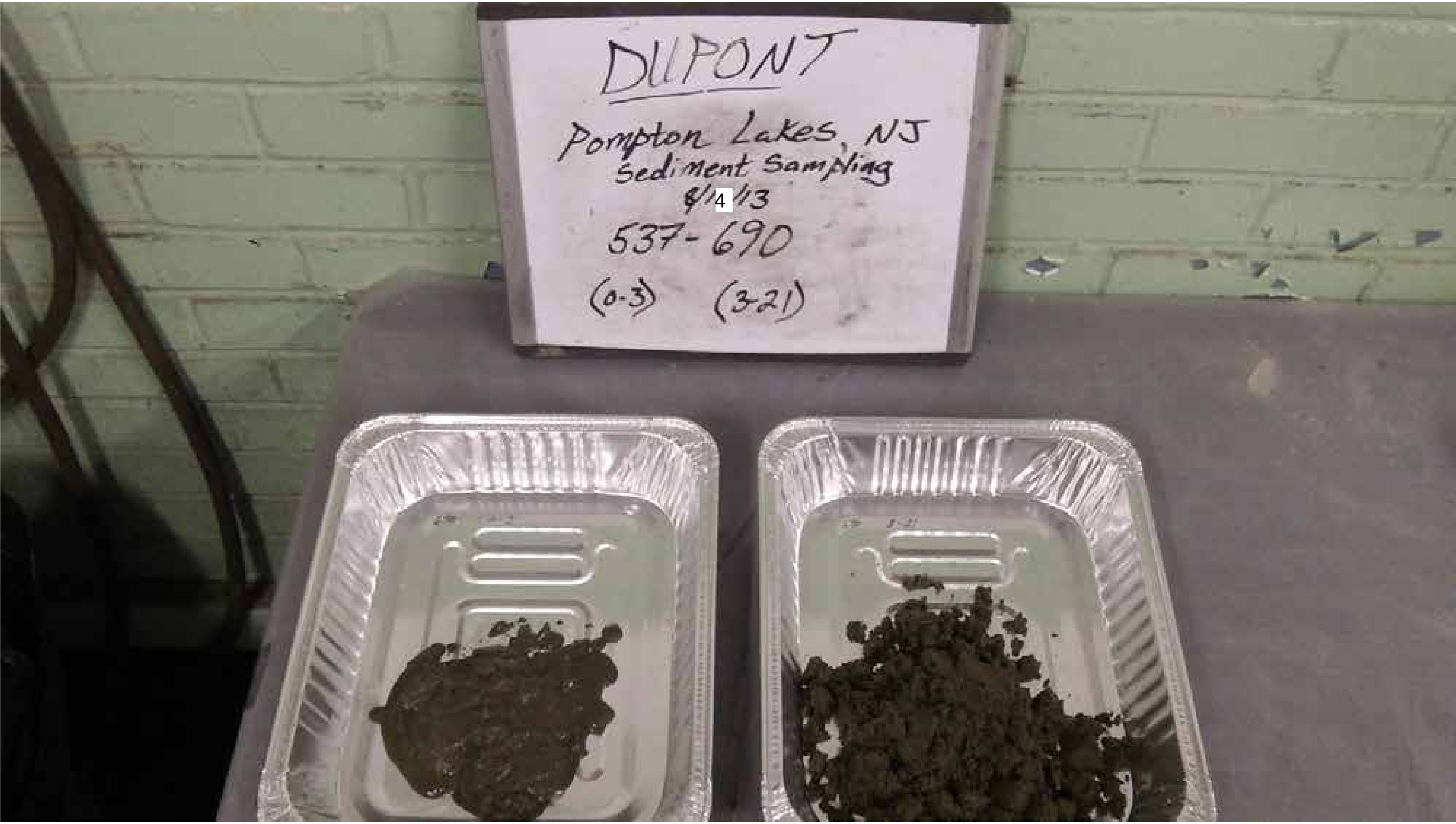
Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-690



4

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/14/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081413-537-689	16:15	9.4	48	43	2.7

Depth: Top	Bottom	Description
0"	2"	BROWN SILT, LITTLE FINE SAND, TRACE ORGANICS, ROOTS
2"	43"	BROWN FINE, MED. SAND, LITTLE FINE, MED. GRAVEL

Samples

ID	Depth	Time
SD081413-537-689-0002	2"	16:15
SD081413-537-689-0220	20"	16:15 HOLD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-689
(0-2) (2-20)


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-689
(0-2) (2-20)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/14/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081413-537-465B	14:25	15.5	36	30	3.2

Depth: Top	Bottom	Description
0"	24"	DARK GREY SILT, LITTLE ORGANICS, LEAF LITTER
24"	30"	GREY BROWN FINE SAND, LITTLE ORGANICS, LEAF LITTER, LITTLE FINE, MED. GRAVEL

Samples

ID	Depth	Time	
SD081413-537-465B-0006	6"	14:25	
SD081413-537-465B-1824	24"	14:25	DUP-5, MS/MSD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes: THE MEASURING TAPE HAS BEEN SHIFTED IN THE PHOTOGRAPH, THE DEPTHS NOTED IN THE DESCRIPTIONS ABOVE ARE CORRECT.


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-465B


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/14/13
537-465B
(0-6) (18-24)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling
Sampling Date: 8/14/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM
Sample Matrix: 3" Aluminum Core

Weather: Sunny
Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081413-537-474B	15:20	NA	6	6	0.5

Depth: Top	Bottom	Description
0"	6"	GREY SILT, LITTLE ORGANICS, ROOTS

Samples

ID	Depth	Time	
SD081413-537-474B-0006	6"	15:20	DUP-6, MS/MSD

Photos: NO PHOTO

Analysis:

Hg, MOISTURE

Additional Notes: 3 ATTEMPTS MADE WITH VIBRACORE BUT NO RECOVERY; USED PONAR SAMPLER TO OBTAIN SAMPLE

DuPont Pompton Lake Vibracore Sediment Sampling

August 15, 2013

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/15/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081513-537-510B	9:25	3.9	66	62	4

Depth: Top	Bottom	Description
0"	12"	DARK GREY SILT, LITTLE ORGANICS, ROOTS, LEAVES
12"	62"	BROWN FINE SAND, SOME FINE, MED COARSE GRAVEL, LITTLE SILT, TRACE CLAY

Samples

ID	Depth	Time
SD081513-537-510B-0006	6"	9:25
SD081513-537-510B-0612	12"	9:25

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/15/13
537- 510B


Pompton Lakes, NJ
Sediment Sampling
8/15/13
537-510B
25'


DUPONT
Pompton Lakes, NJ
Sediment Sampling
6/13/13
537-510B
(0-6) (6-12)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/15/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081513-537-641	8:45	7.5	48	46	3.7

Depth: Top	Bottom	Description
0"	4"	DARK GREY SILT, LITTLE ORGANICS, ROOTS, LEAVES
4"	46"	GREY/BROWN FINE, MED. SAND, LITTLE FINE, MED. GRAVEL

Samples

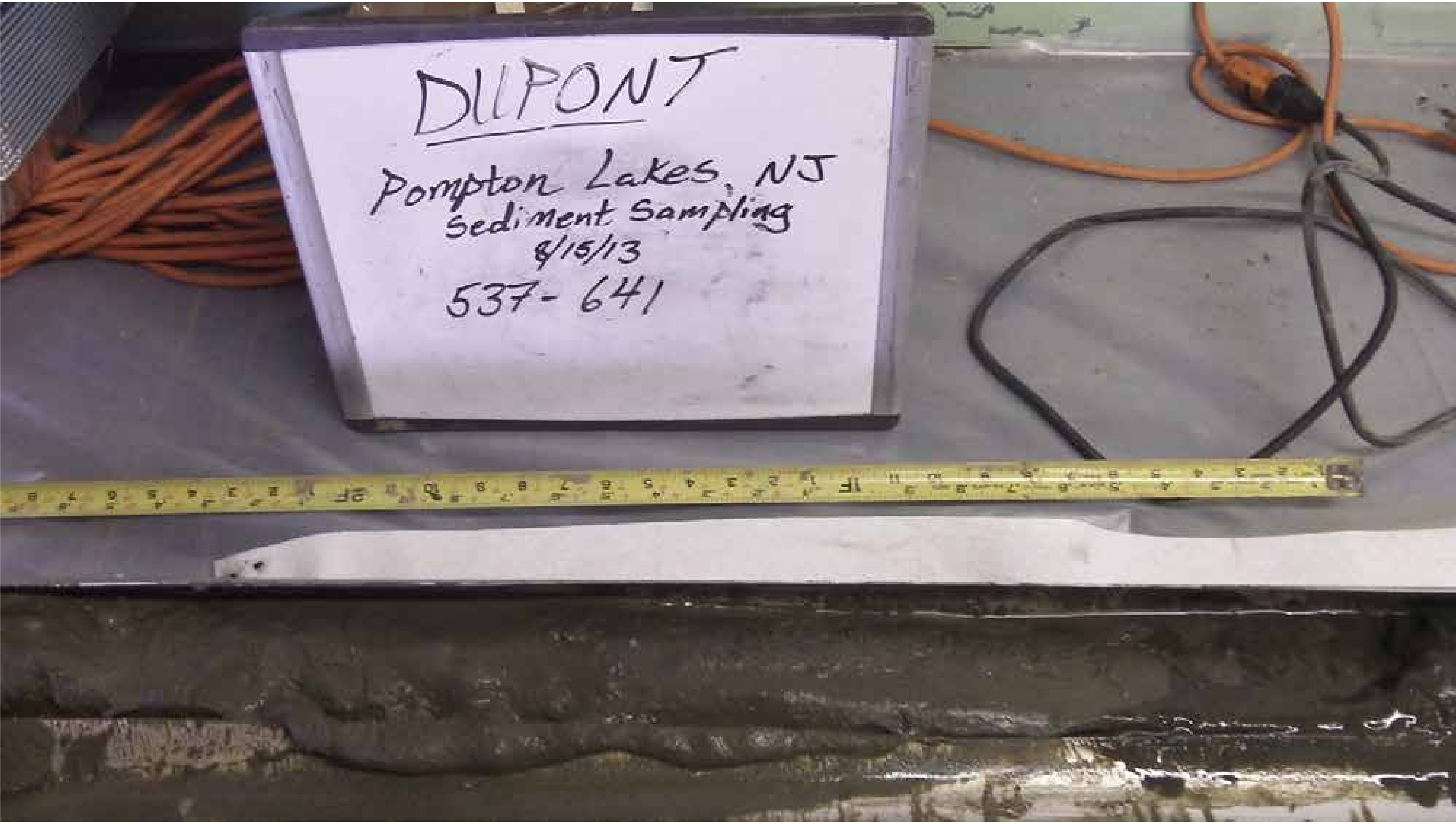
ID	Depth	Time
SD081513-537-641-0004	4"	8:45
SD081513-537-641-0422	22"	8:45 HOLD

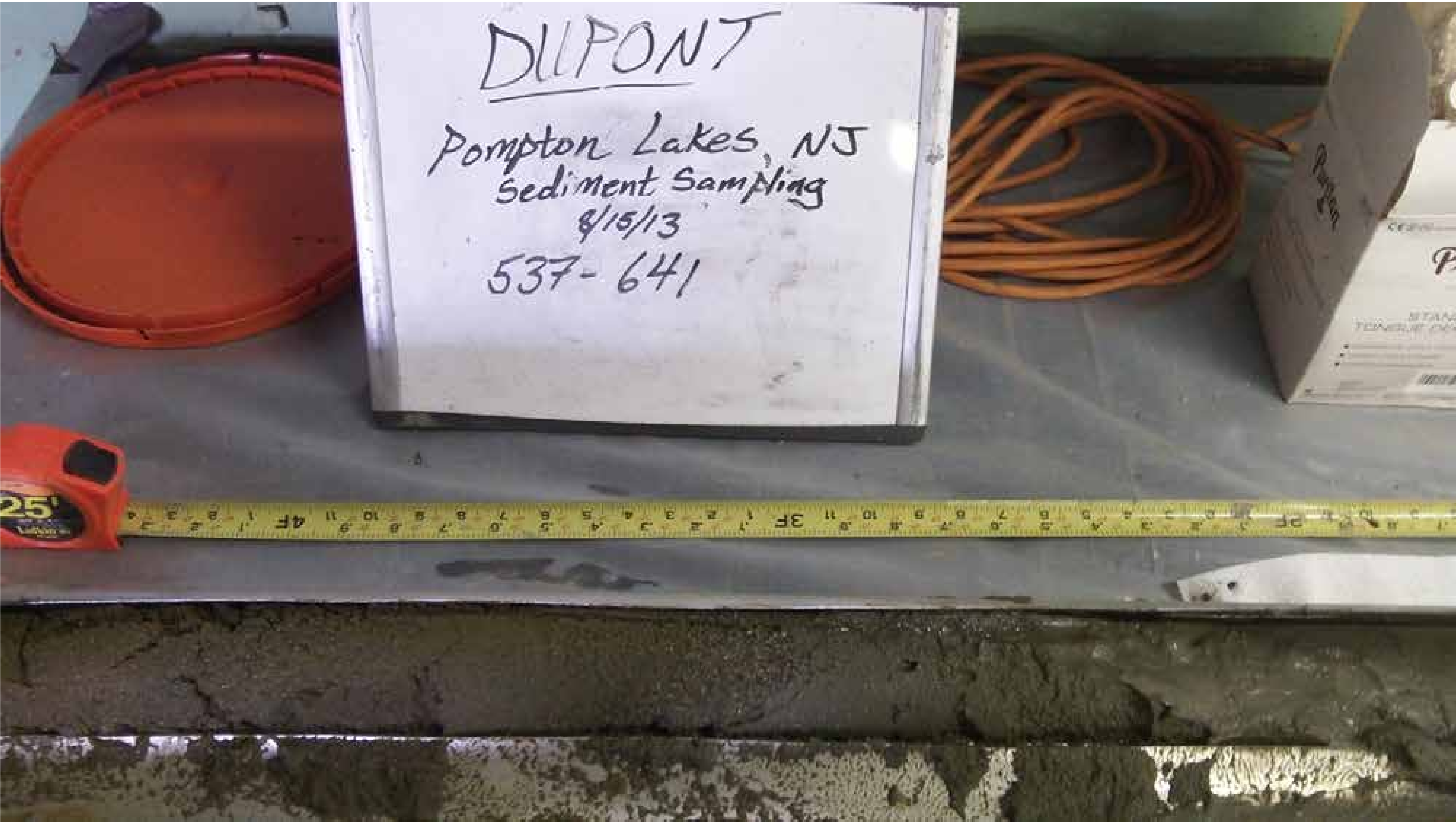
Photos: *See ID

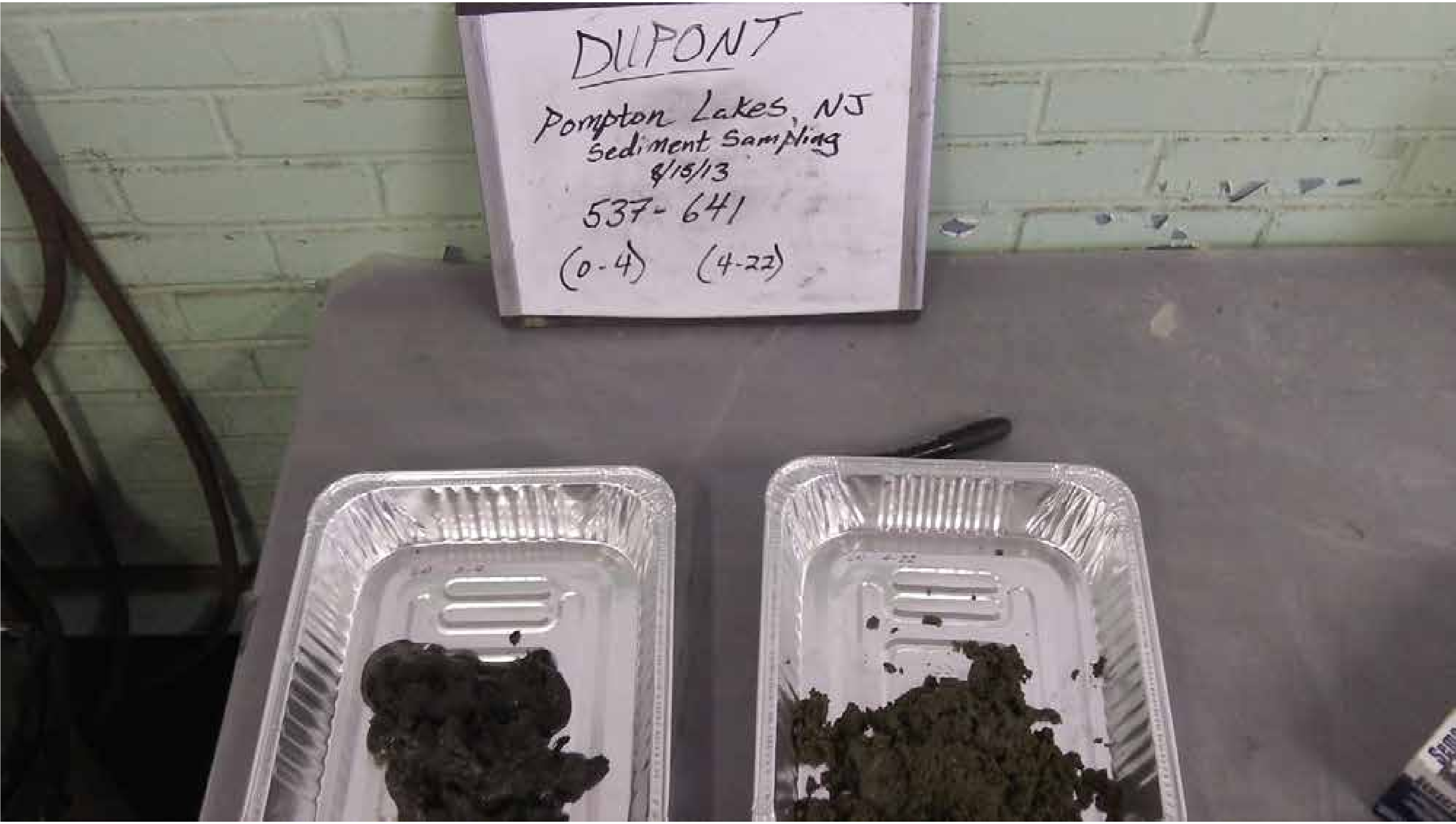
Analysis:

Hg, MOISTURE

Additional Notes: THE MEASURING TAPE IN THE PHOTOGRAPH WAS PLACED INCORRECTLY, IT SHOULD HAVE BEEN PLACED AT THE BOTTOM OF THE CORE.


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/15/13
537- 641


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/15/13
537-641


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/15/13
537-641
(0-4) (4-22)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling
Sampling Date: 8/15/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM
Sample Matrix: 3" Aluminum Core

Weather: Sunny
Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081513-537-531B	8:15	6.2	72	67	7.5

Depth: Top	Bottom	Description
0"	5"	DARK GREY SILT, LITTLE ORGANICS, ROOTS
5"	36"	DARK GREY FINE, MED. COARSE SAND, AND GRAVEL, LITTLE ORGANIC ROOTS
36"	60"	BROWN FINE SAND AND SILT, LITTLE ORGANICS, LEAF LITTER
60"	67"	COBBLES

Samples

ID	Depth	Time
SD081513-537-531B-0005	5"	8:15

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/15/13
537- 531B


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/15/13
537-531B


DUPONT
Pompton Lakes, NJ
Sediment Sampling
537- 531B
(0-5)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/15/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081513-537-650	9:00	2.7	36	36	6.3

Depth: Top	Bottom	Description
0"	12"	DARK GREY SILT
12"	36"	GREY/BROWN FINE, MED. COARSE GRAVEL

Samples

ID	Depth	Time
SD081513-537-650-0006	6"	9:00
SD081513-537-650-0612	12"	9:00
SD081513-537-650-1230	30"	9:00 HOLD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes: 4 ATTEMPTS


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/15/13
537-650
(0-6) (6-12) (12-30)


DUPONT
Pompton Lakes, NJ
Sediment Sampling
4/15/13
537-650
(0-6) (6-12) (12-30)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling
Sampling Date: 8/15/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM
Sample Matrix: 3" Aluminum Core

Weather: Sunny
Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081513-537-461B	11:25	2.5	108	99	9

Depth: Top	Bottom	Description
0"	38"	DARK GREY SILT, SOME ORGANICS, LEAF LITTER, ROOTS, (
38"	50"	BROWN SILT AND SAND, SOME LEAF LITTER (BOTTOM OF SEDIMENT)
50"	56"	BROWN PEAT
56"	64"	BROWN SILT AND SAND, SOME ORGANICS, ROOTS, LEAF LITTER
64"	78"	GREY BROWN SILTY CLAY
78"	99"	GREY/BROWN FINE SAND, LITTLE SILT

Samples

ID	Depth	Time
SD081513-537-461B-0006	6"	11:25
SD081513-537-461B-2228	28"	11:25
SD081513-537-461B-4450	50"	11:25

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes: A PART OF A RED COMB WAS FOUND IN THE CORE, AND IS SHOWN IN THE PHOTOGRAPH. THE MEASURING TAPE HAS BEEN SHIFTED IN THE PHOTOGRAPH, THE DEPTHS NOTED IN THE DESCRIPTIONS ABOVE ARE CORRECT.


DUPONT
Pompton Lakes, NJ
Sediment Sampling
8/15/13
537-649
(0-2) (2-16)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/15/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081513-537-461B	11:25	2.5	108	99	9

Depth: Top	Bottom	Description
0"	38"	DARK GREY SILT, SOME ORGANICS, LEAF LITTER, ROOTS
38"	50"	BROWN SILT AND SAND, SOME LEAF LITTER (BOTTOM OF SEDIMENT)
50"	56"	BROWN PEAT
56"	64"	BROWN SILT AND SAND, SOME ORGANICS, ROOTS, LEAF LITTER
64"	78"	GREY BROWN SILTY CLAY
78"	99"	GREY/BROWN FINE SAND, LITTLE SILT

Samples

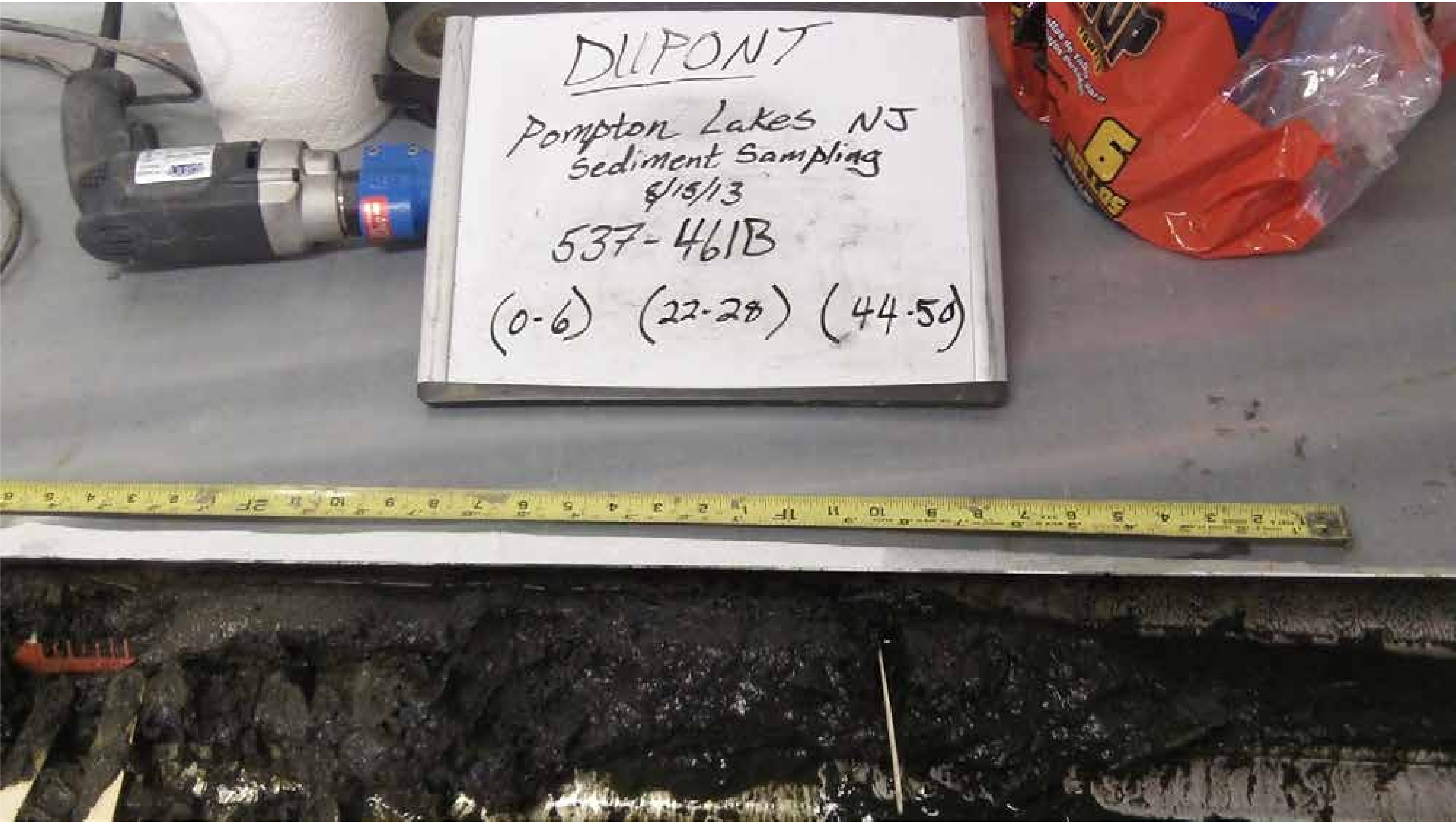
ID	Depth	Time
SD081513-537-461B-0006	6"	11:25
SD081513-537-461B-2228	28"	11:25
SD081513-537-461B-4450	50"	11:25

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes: AT 23" A PART OF A RED COMB WAS FOUND IN THE CORE, AND IS SHOWN IN THE PHOTOGRAPH.


DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/13
537-461B
(0-6) (22-28) (44-50)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/13
537-461B
(0-6) (22-28) (44-50)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/13
537-461B
(0-6) (22-28) (44-50)
25'


DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/13
537-461B
(0-6) (22-28) (44-50)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/15/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081513-537-659	10:45	5.1	84	77	5.7

Depth: Top	Bottom	Description
0"	42"	GREY SILT, LITTLE ORGANICS, ROOTS, LEAVES (LEAF LITTER 24-30)
42"	64"	GREY FINE SAND, LITTLE SILT
64"	72"	BROWN FINE SAND, LITTLE SILT
72"	77"	BROWN FINE, MED., COARSE GRAVEL AND SAND

Samples

ID	Depth	Time
SD081513-537-659-0006	6"	10:45
SD081513-537-659-0612	12"	10:45
SD081513-537-659-1230	30"	10:45 DUP-7, MS/MSD
SD081513-537-659-3042	42"	10:45
SD081513-537-659-4260	60"	10:45 HOLD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes: THE MEASURING TAPE HAS BEEN SHIFTED IN THE PHOTOGRAPH, THE DEPTHS NOTED IN THE DESCRIPTIONS ABOVE ARE CORRECT.


DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/13
537-659


DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/13
537-659


DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/13
537-659
25'


DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/13
537-659
(0-6) (6-12) (12-30)


DUPONT
Pompton Lakes NJ
Sediment Sampling

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/15/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081513-537-652	10:20	5.3	84	77	8.9

Depth: Top	Bottom	Description
0"	35"	DARK GREY SILT, LITTLE ORGANICS, LEAF LITTER, ROOTS
35"	48"	GREY/BROWN SAND, TRACE SILT, AND ORGANICS
48"	77"	DARK GREY FINE SAND AND SILT, LITTLE ORGANICS, ROOTS, WOOD DEBRIS

Samples

ID	Depth	Time
SD081513-537-652-0006	6"	10:20
SD081513-537-652-0612	12"	10:20
SD081513-537-652-1230	30"	10:20
SD081513-537-652-3035	35"	10:20
SD081513-537-652-3548	48"	10:20 HOLD

Photos: *See ID

Analysis:

Hg, MOISTURE

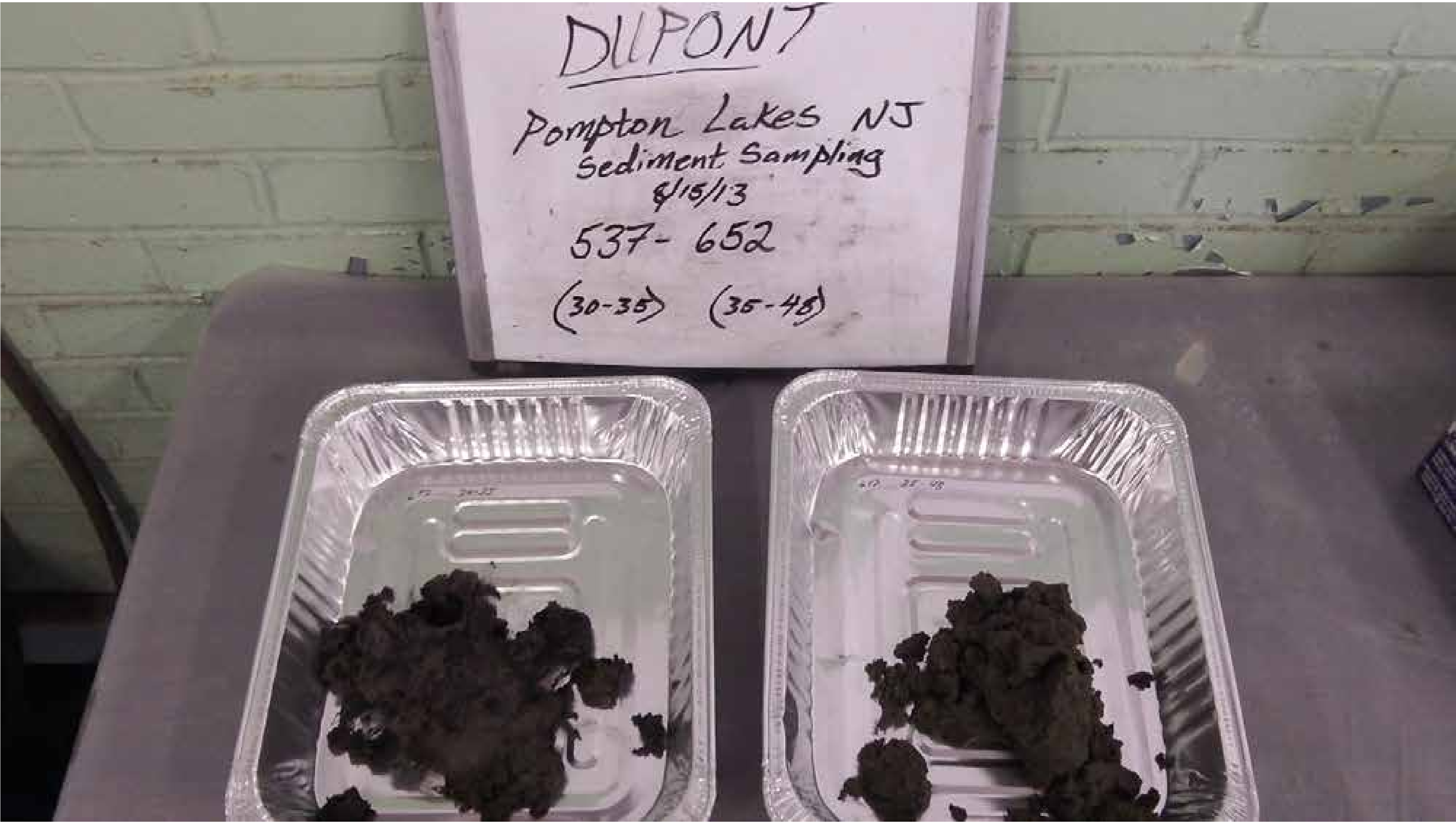
Additional Notes: THE MEASURING TAPE HAS BEEN SHIFTED IN THE PHOTOGRAPH, THE DEPTHS NOTED IN THE DESCRIPTIONS ABOVE ARE CORRECT.


DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/13
537- 652


DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/13
537- 652


DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/13
537- 652


DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/13
537- 652
(0-6) (6-12) (12-30)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/13
537- 652
(30-35) (35-48)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/15/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081513-537-657	10:35	5.6	64	58	4.9

Depth: Top	Bottom	Description
0"	48"	DARK GREY SILT, LITTLE ORGANICS, LEAF LITTER, ROOTS, TRACE FINE SAND
48"	58"	GREY BROWN FINE, MED SAND AND GRAVEL

Samples

ID	Depth	Time
SD081513-537-657-0006	6"	10:35
SD081513-537-657-0612	12"	10:35
SD081513-537-657-1230	30"	10:35
SD081513-537-657-3048	48"	10:35
SD081513-537-657-4858	58"	10:35 HOLD

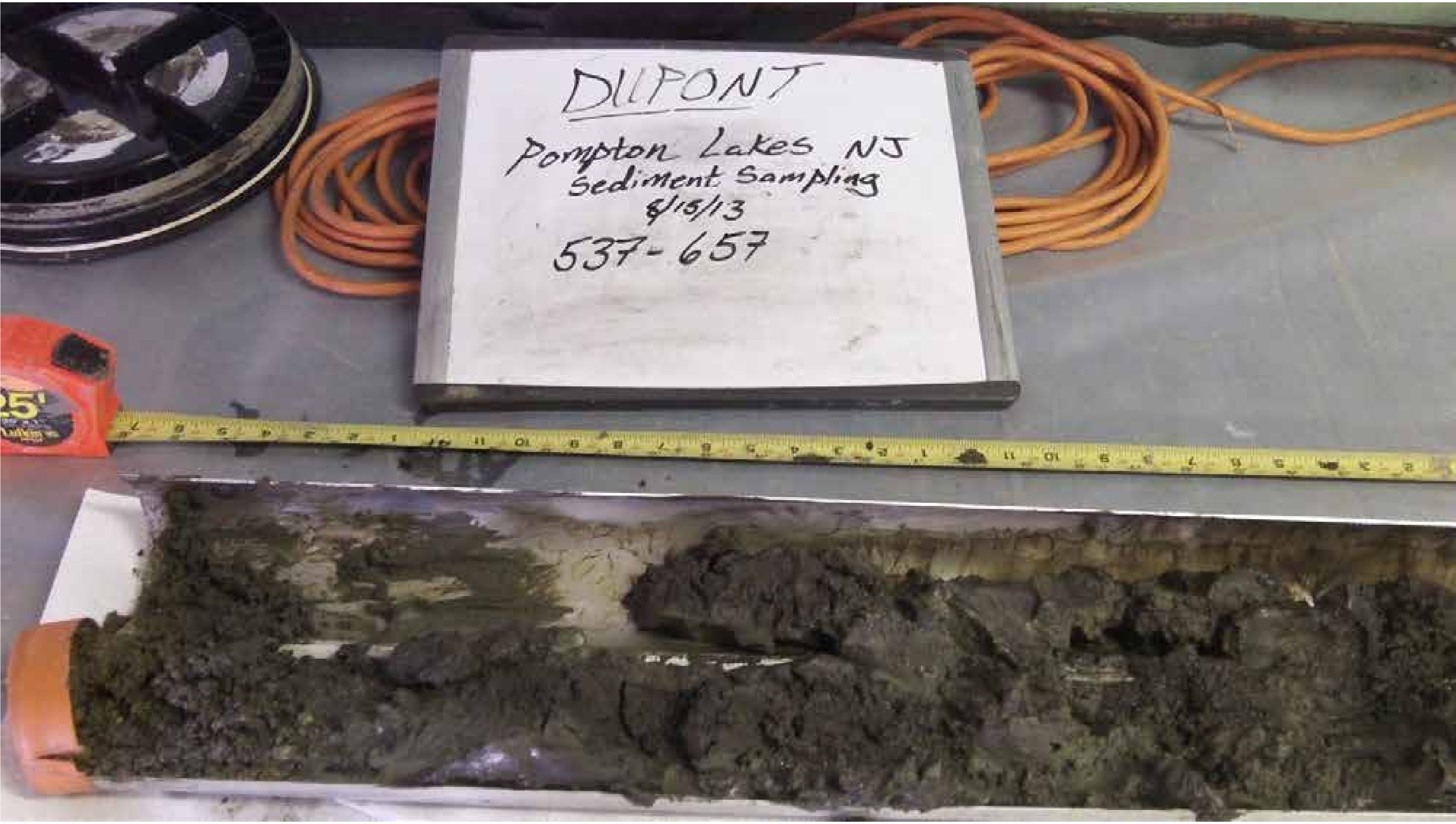
Photos: *See ID

Analysis:

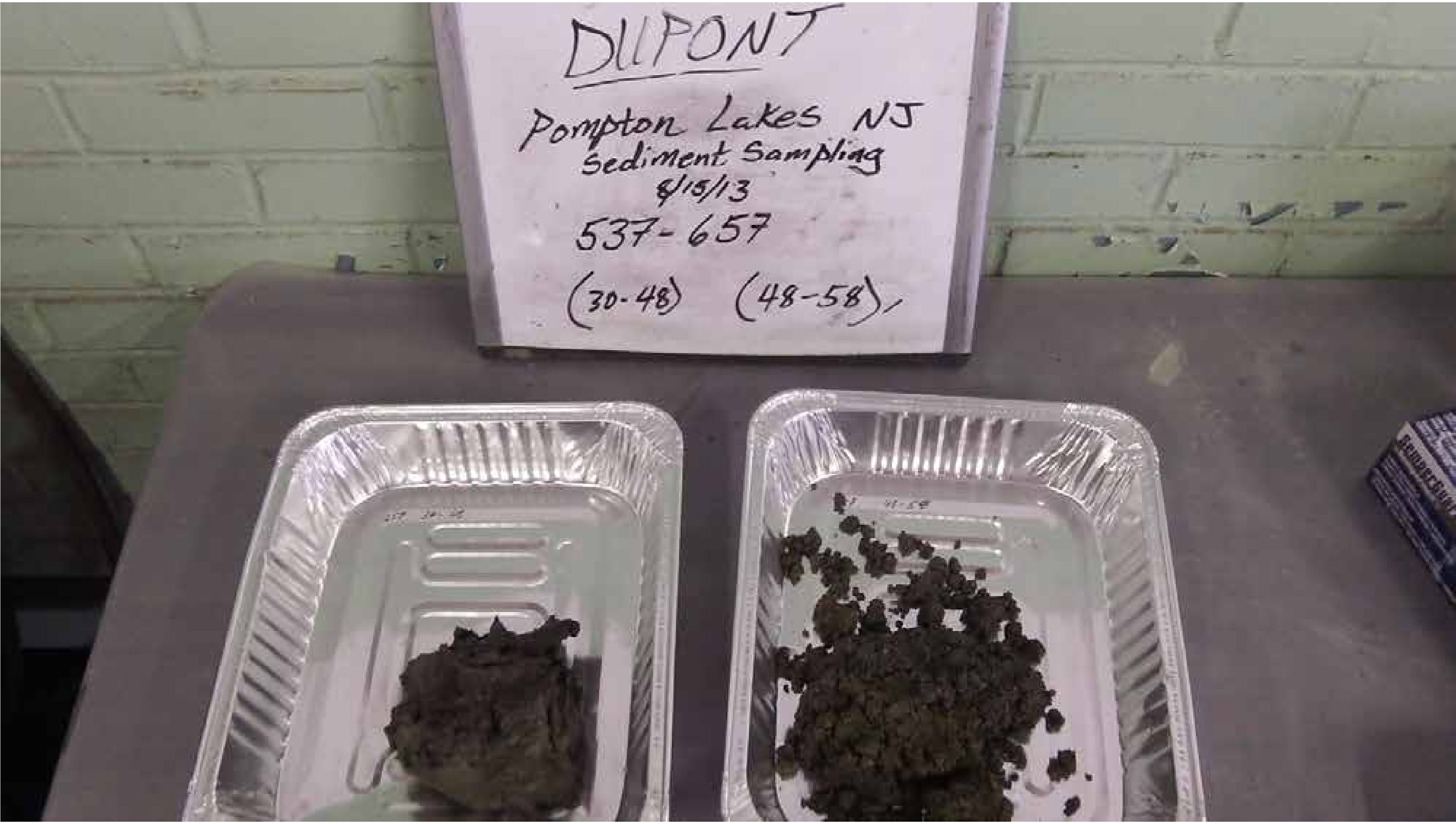
Hg, MOISTURE

Additional Notes: THE MEASURING TAPE HAS BEEN SHIFTED IN THE PHOTOGRAPH, THE DEPTHS NOTED IN THE DESCRIPTIONS ABOVE ARE CORRECT.


DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/13
537-657


DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/13
537-657


DUPONT
Pompton Lakes NJ
Sediment Sampling
6/15/13
537-657
(0-6) (6-12) (12-30)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/13
537-657
(30-48) (48-58)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/15/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081513-537-643	9:50	7.9	48	44	1.4

Depth: Top	Bottom	Description
0"	24"	GREY BROWN FINE, MED COARSE GRAVEL, SOME COBBLES, LITTLE FINE SAND
24"	44"	GREY/BROWN FINE SAND AND SILT, LITTLE ORGANICS ROOTS, LEAVES

Samples

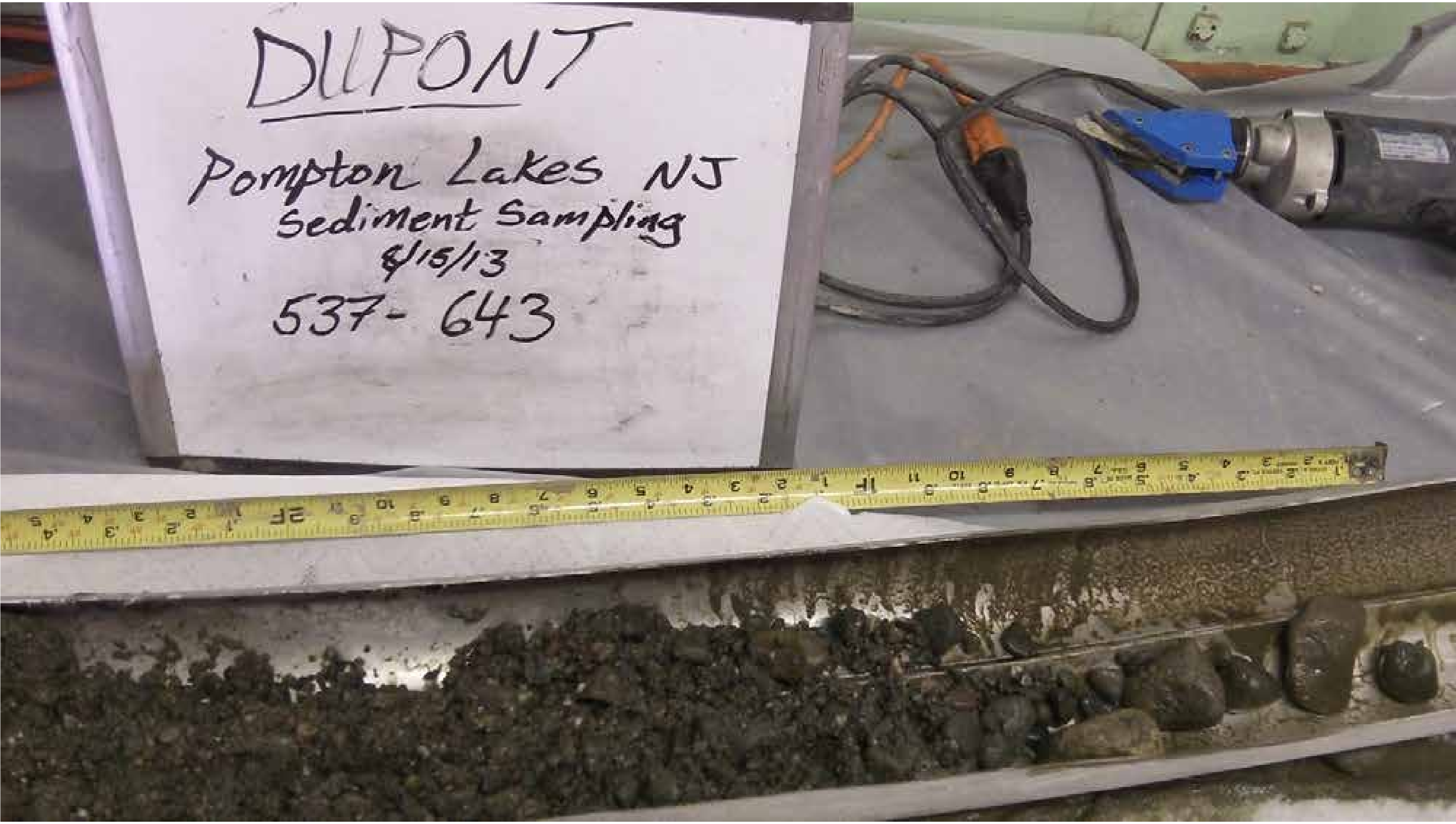
ID	Depth	Time	
SD081513-537-643-0018	18"	9:50	HOLD

Photos: *See ID

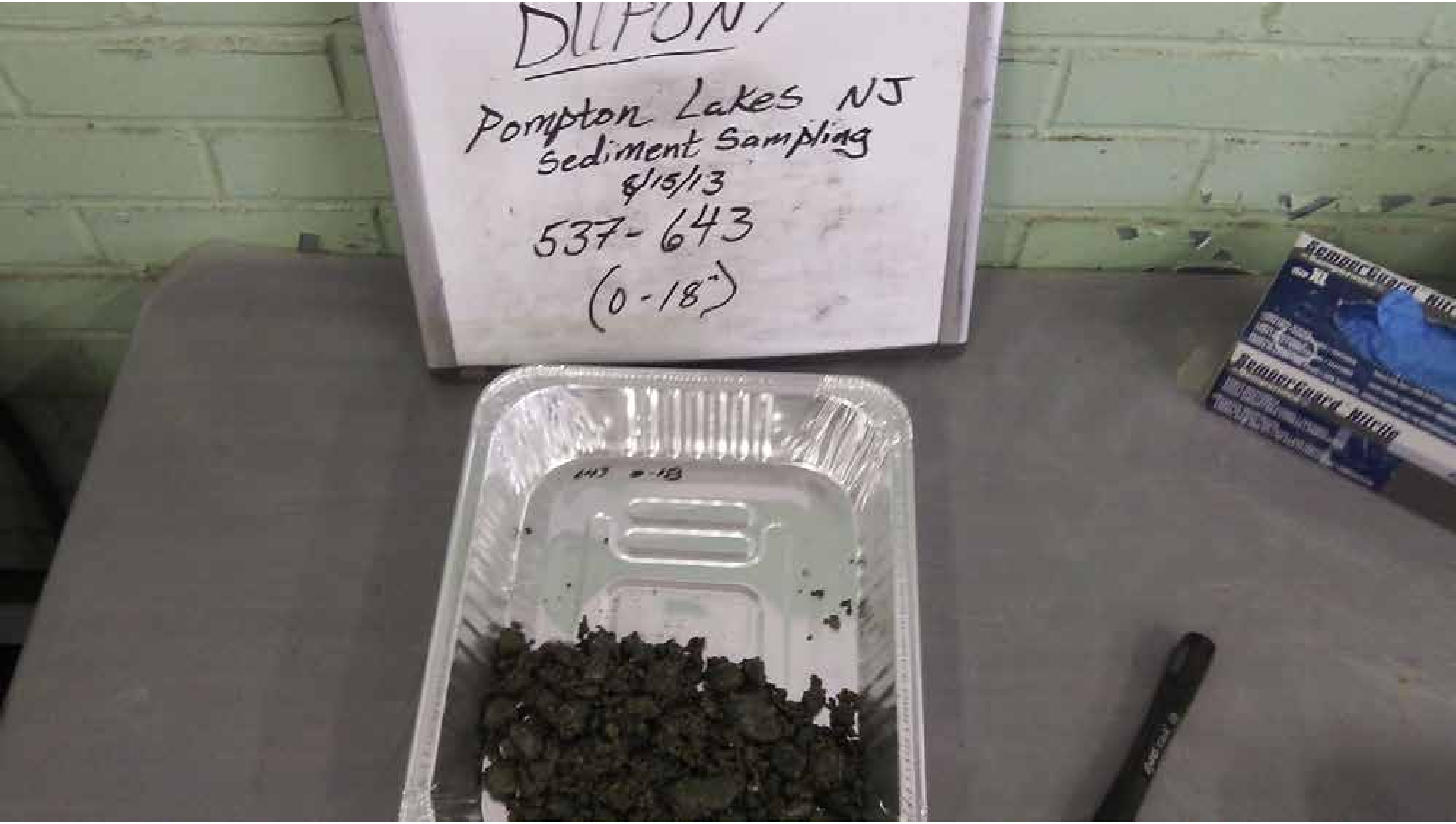
Analysis:

Hg, MOISTURE

Additional Notes: THE MEASURING TAPE HAS BEEN SHIFTED IN THE PHOTOGRAPH, THE DEPTHS NOTED IN THE DESCRIPTIONS ABOVE ARE CORRECT.


DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/13
537- 643


DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/13
537- 643


DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/13
537-643
(0-18")

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/15/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081513-537-644	10:00	6	48	40	4

Depth: Top	Bottom	Description
0"	12"	DARK GREY SILT, LITTLE FINE, MED GRAVEL
12"	40"	GREY/BROWN FINE, MED SAND, LITTLE FINE, MED. GRAVEL

Samples

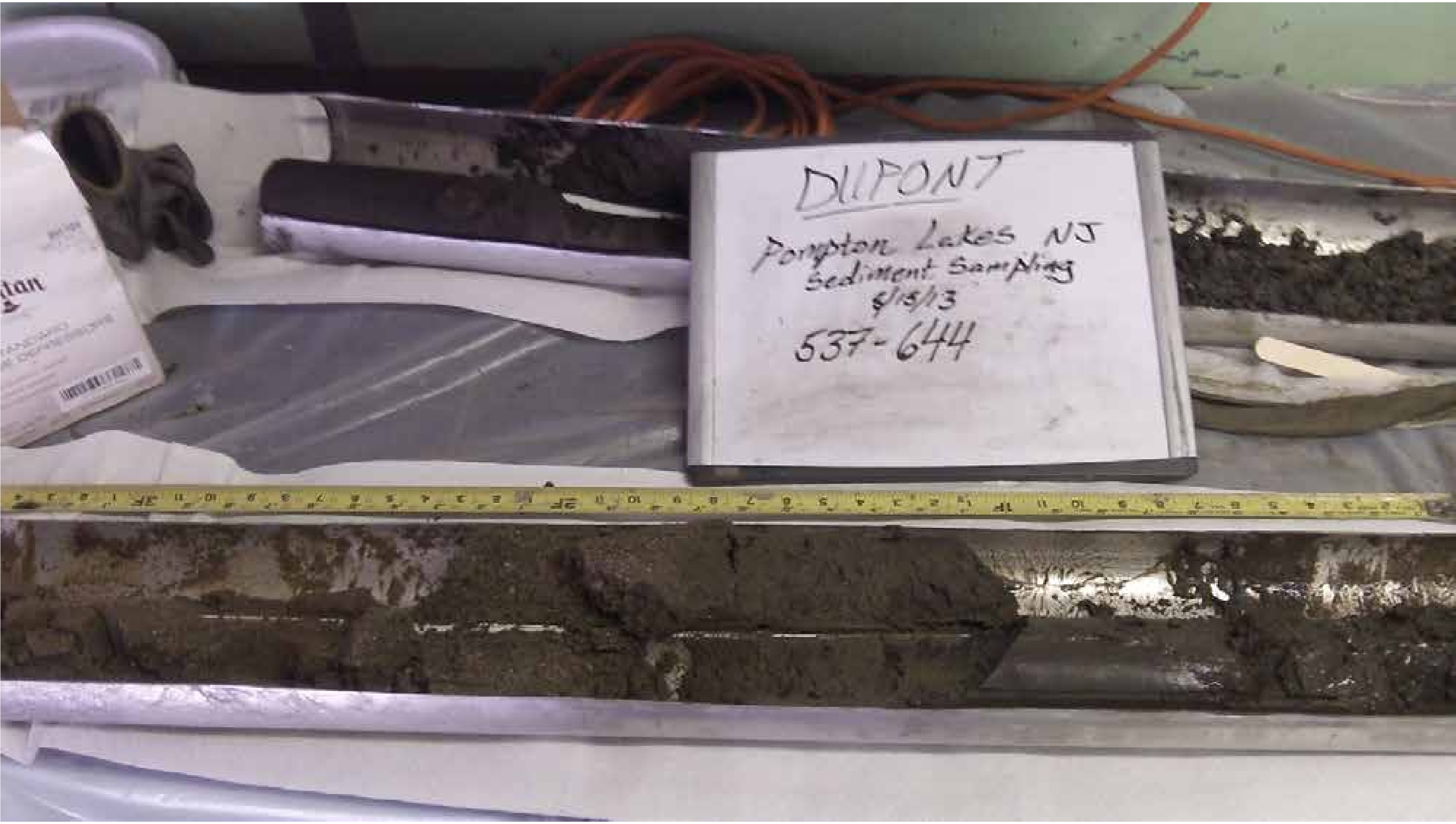
ID	Depth	Time
SD081513-537-644-0006	6"	10:00
SD081513-537-644-0612	12"	10:00
SD081513-537-644-1230	30"	10:00 HOLD

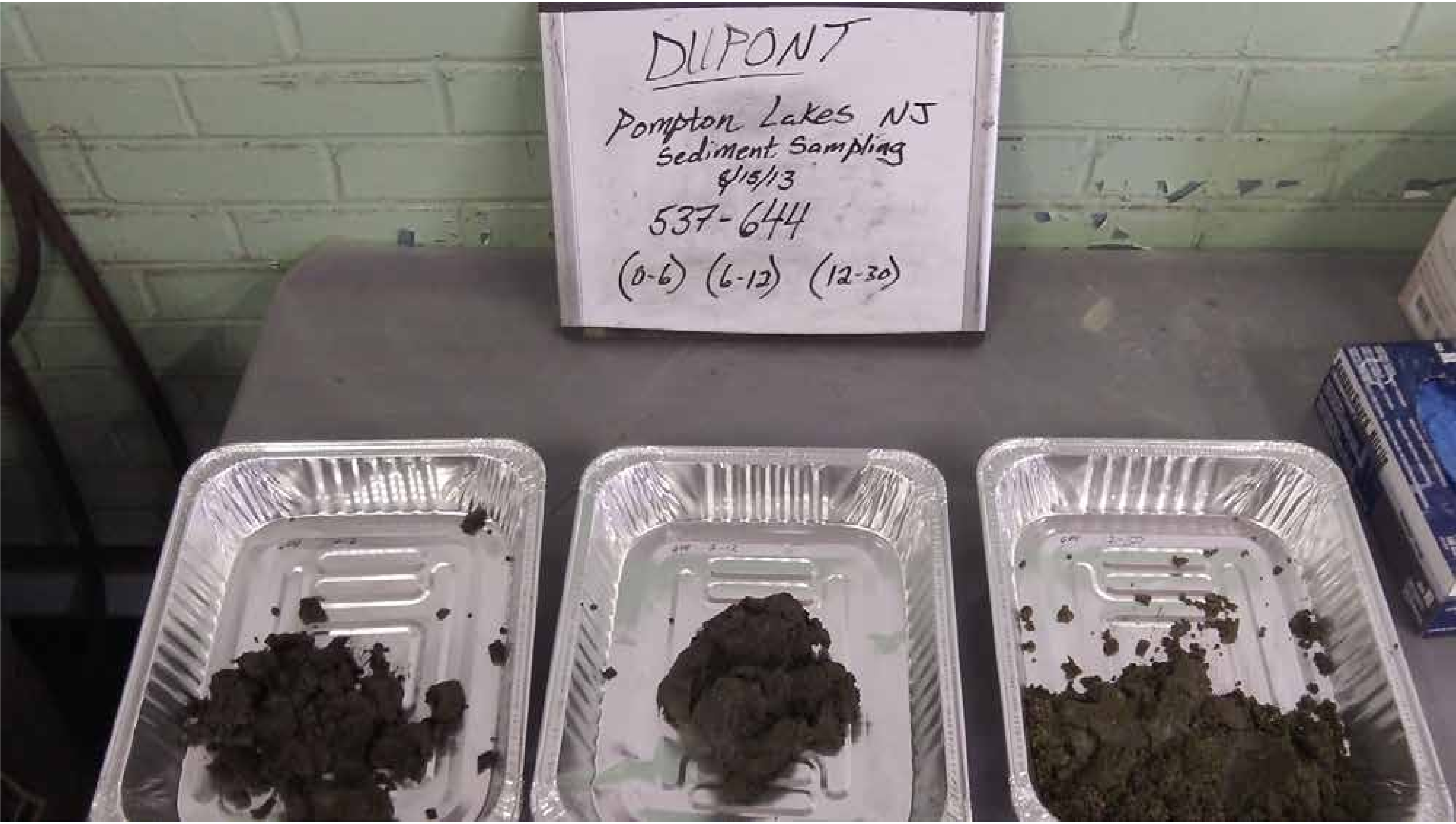
Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
6/13/13
537-644



DUPONT
Pompton Lakes NJ
Sediment Sampling
4/15/13
537-644
(0-6) (6-12) (12-30)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/15/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081513-537-499B	10:55	5.8	64	54	5.2

Depth: Top	Bottom	Description
0"	24"	DARK GREY SILT, LITTLE ORGANICS ROOTS
24"	54"	GREY/BROWN SILT, INCREASED ORGANICS WITH DEPTH (BOTTOM OF SEDIMENT)

Samples

ID	Depth	Time
SD081513-537-499B-0006	6"	10:55
SD081513-537-499B-2430	30"	10:55
SD081513-537-499B-4854	54"	10:55

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
537- 499B


DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/13
537- 499B


DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/13
537-499B
(0-6) (24-30) (48-54)
SemperGuard Nitrile

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/15/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081513-537-462B	11:05	5.9	54	44	4.2

Depth: Top	Bottom	Description
0"	34"	GREY/BROWN SILT, LITTLE ORGANICS, ROOTS, LEAVES (ORGANICS INCREASE WITH DEPTH)
34"	44"	GREY/BROWN FINE SAND, LITTLE FINE, MED. GRAVEL, TRACE SILT, AND ORGANICS

Samples

ID	Depth	Time
SD081513-537-462B-0006	6"	11:05
SD081513-537-462B-1420	20"	11:05
SD081513-537-462B-2834	34"	11:05

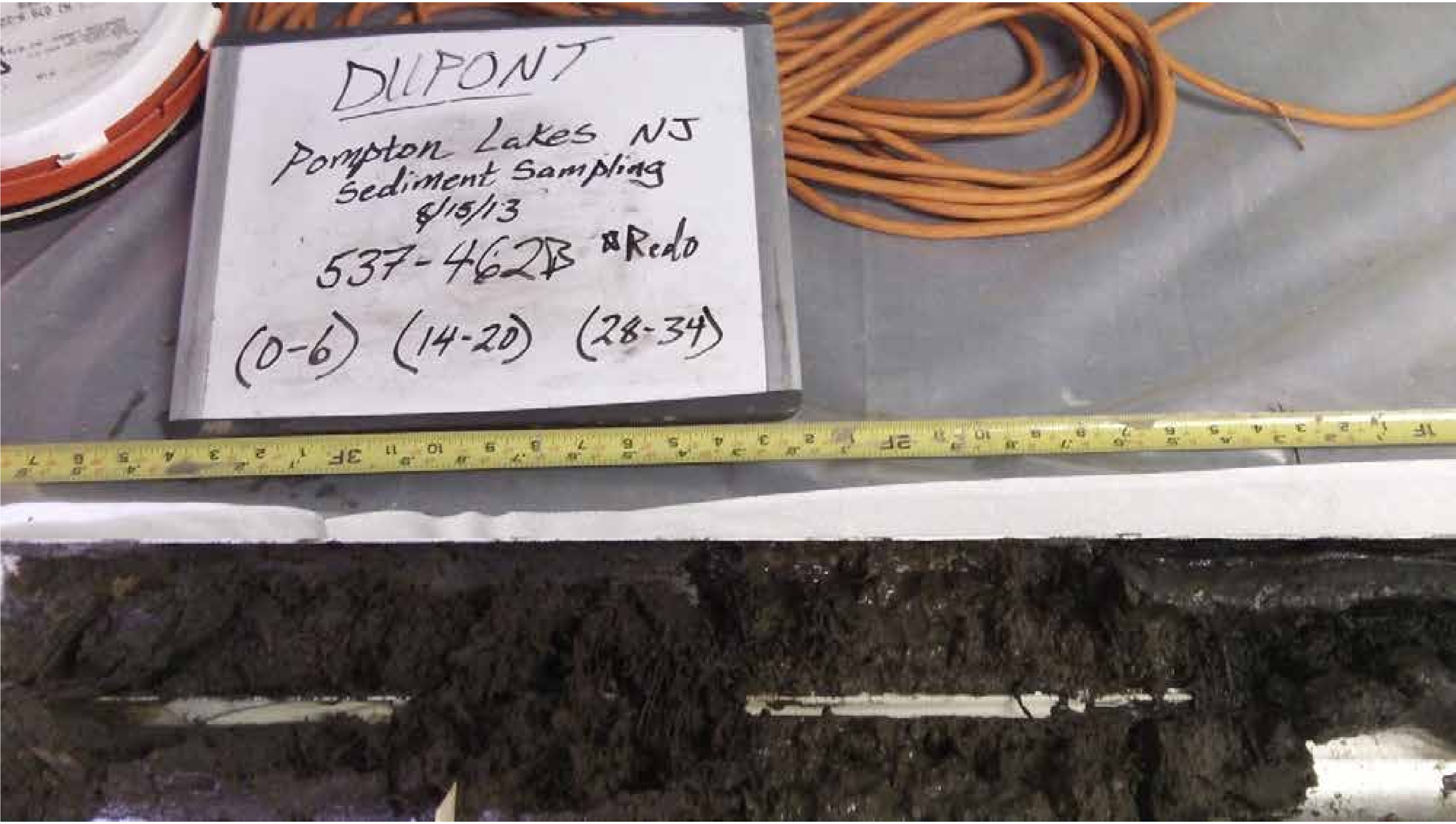
Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/13
537-462B *Redo
(0-6) (14-20) (28-34)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/13
537-462B *Redo
(0-6) (14-20) (28-34)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/13
537-462B *Redo
(0-6) (14-20) (28-34)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/15/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft)
SD081513-537-427B	13:00	5.7	84	74	8.8

Depth: Top	Bottom	Description
0"	48"	DARK GREY SILT, LITTLE ORGANICS, ROOTS
48"	72"	GREY FINE SAND, LITTLE FINE GRAVEL
72"	74"	GREY FINE, MED. COARSE SAND AND GRAVEL

Samples

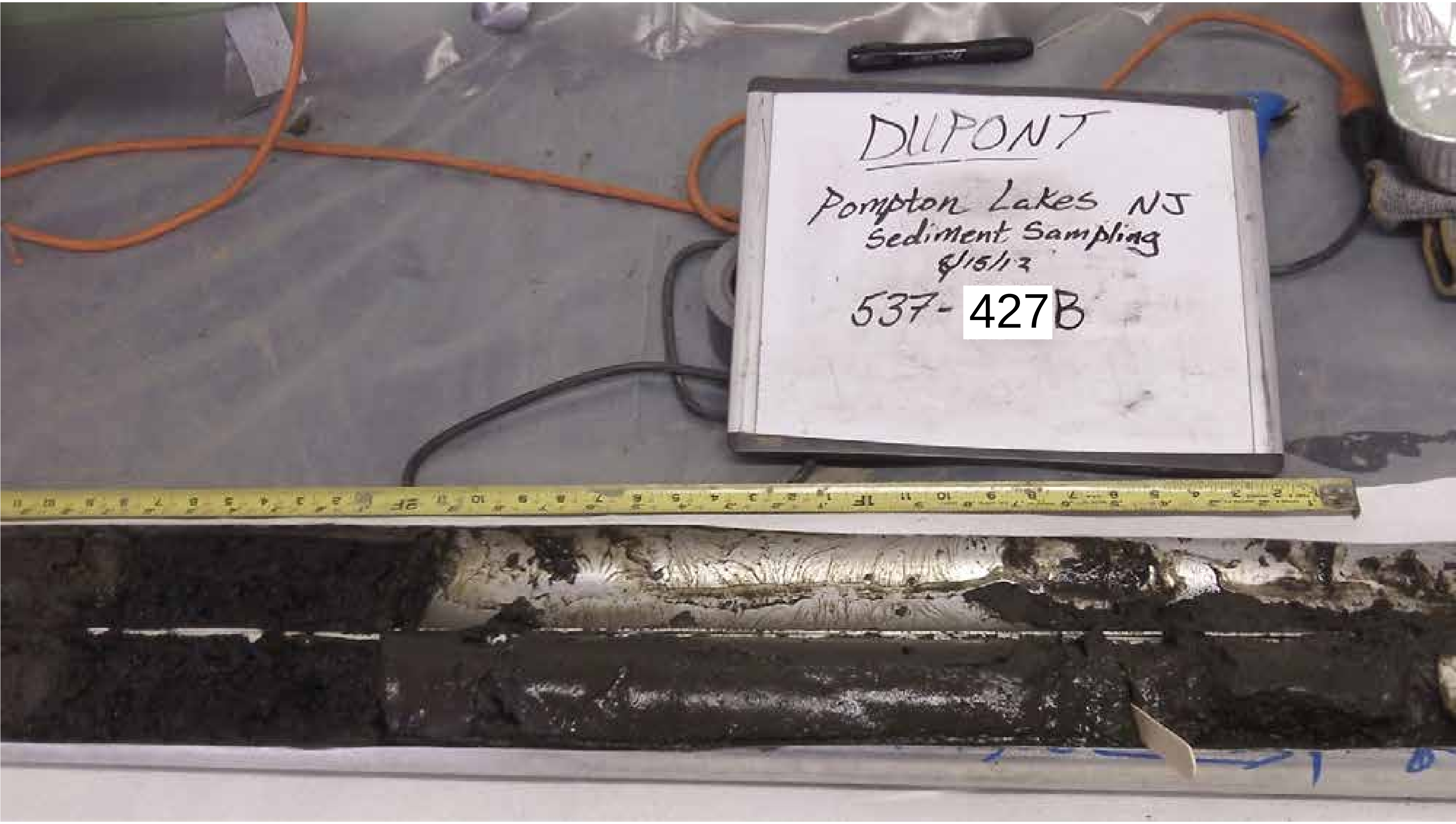
ID	Depth	Time
SD081513-537-427B-0006	6"	13:00
SD081513-537-427B-2127	27"	13:00
SD081513-537-427B-4248	48"	13:00

Photos: *See ID

Analysis:

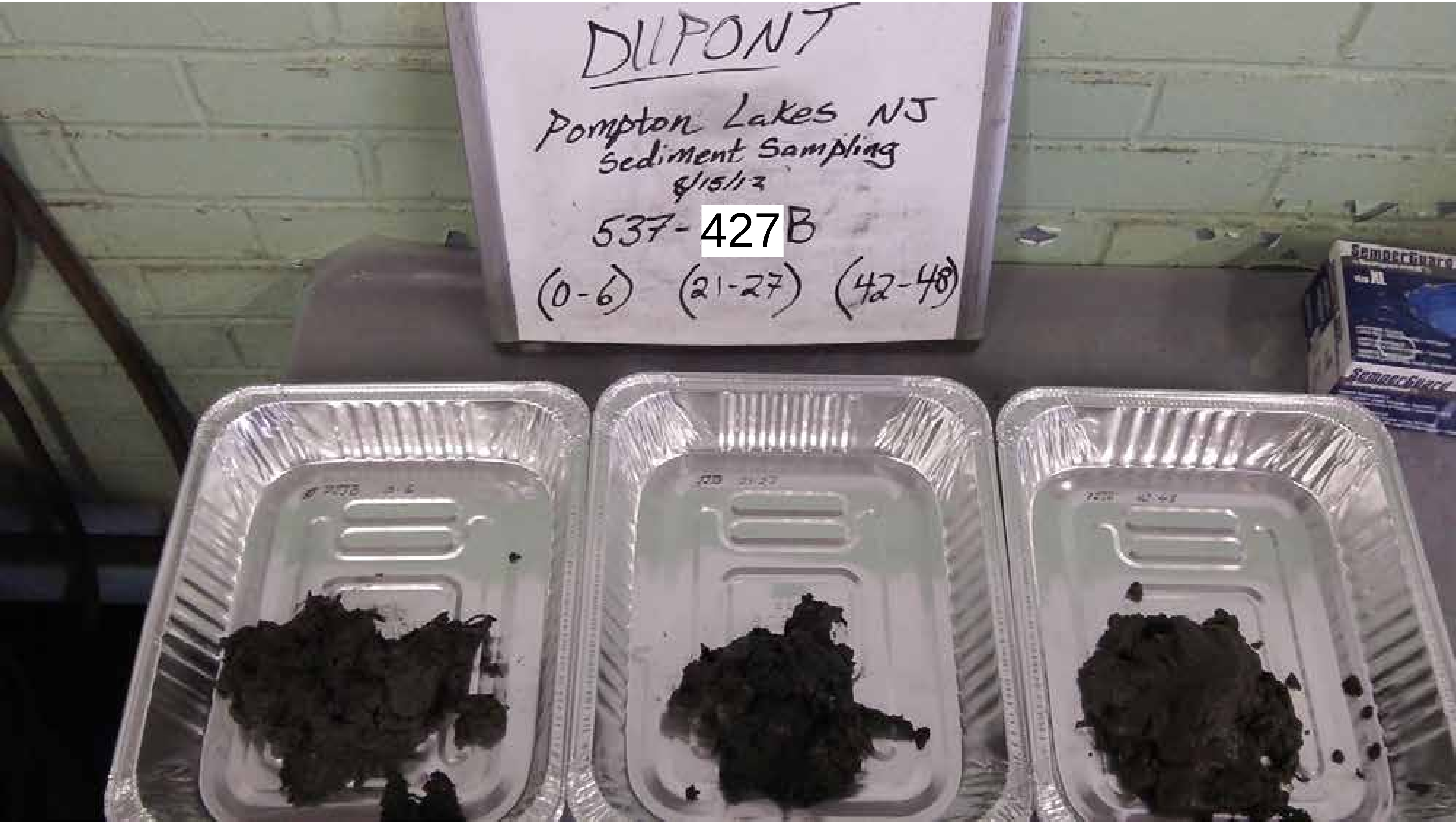
Hg, MOISTURE

Additional Notes:



DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/12
537- 427B


DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/13
537- 427B


DUPONT
Pompton Lakes NJ
Sediment Sampling
537-427B
(0-6) (21-27) (42-48)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/15/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft)
SD081513-537-405B	13:15	5.8	100	95	7.8

Depth: Top	Bottom	Description
0"	60"	GREY/BROWN SILT, LITTLE ORGANICS, ROOTS, TRACE FINE SAND
60"	88"	GREY FINE SAND, TRACE FINE GRAVEL
88"	95"	GREY FINE, MED. COARSE SAND AND GRAVEL

Samples

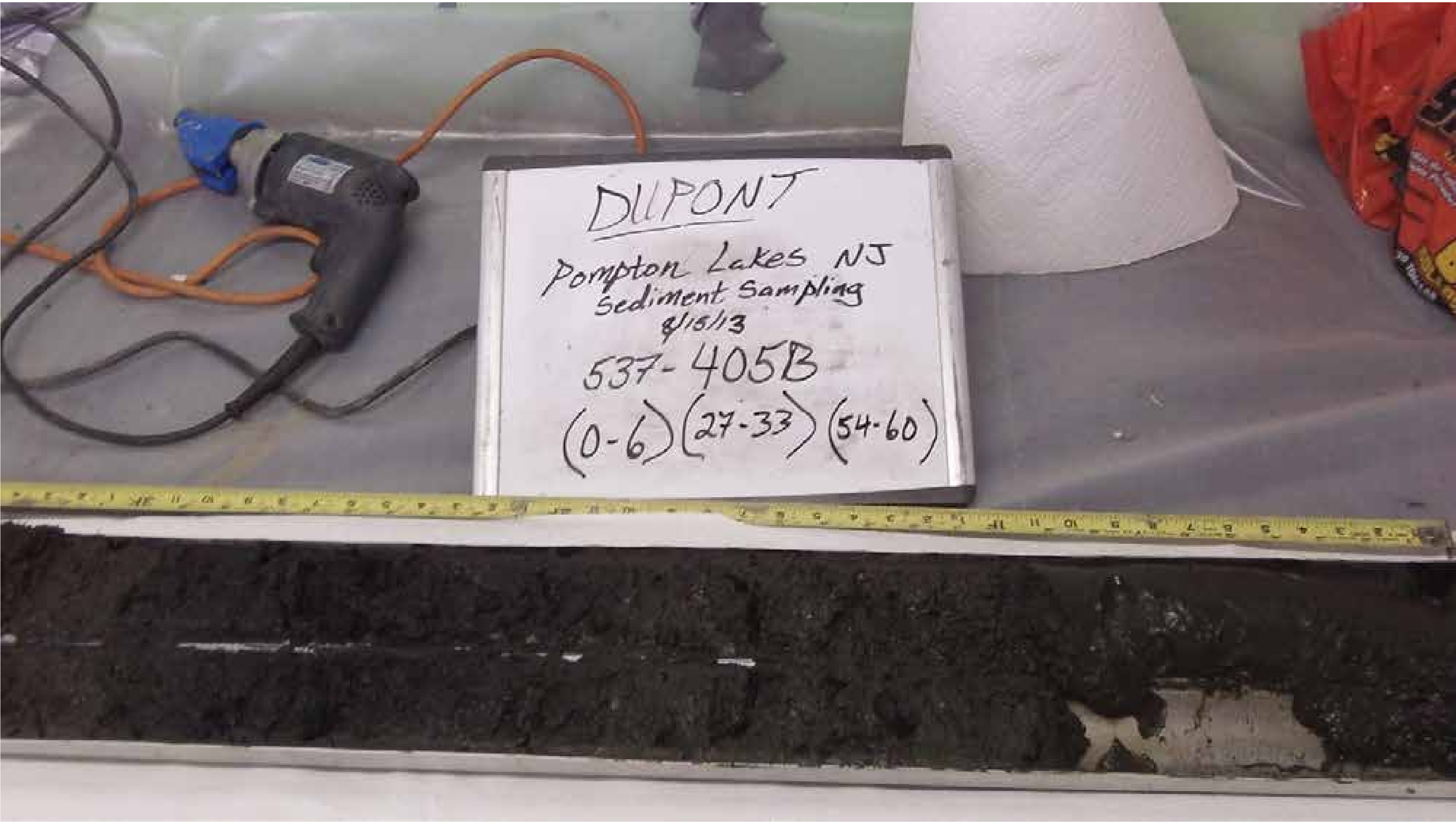
ID	Depth	Time
SD081513-537-405B-0006	6"	13:15
SD081513-537-405B-2733	33"	13:15
SD081513-537-405B-5460	60"	13:15

Photos: *See ID

Analysis:

Hg, MOISTURE

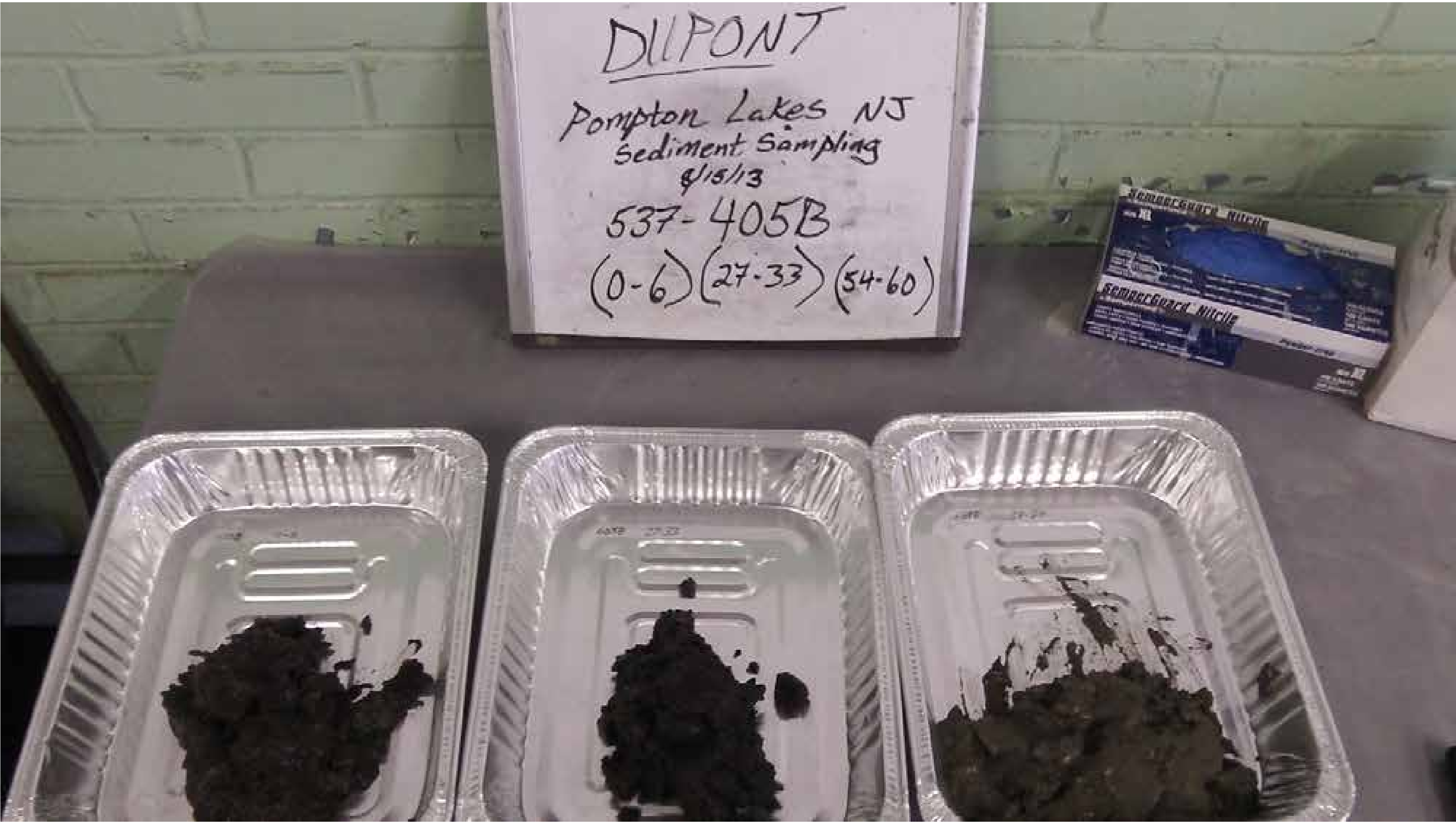
Additional Notes:



DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/13
537-405B
(0-6) (27-33) (54-60)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/13
537-405B
(0-6) (27-33) (54-60)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8/15/13
537-405B
(0-6) (27-33) (54-60)


DUPONT
Pompton Lakes NJ
Sediment Sampling
537-405B
(0-6) (27-33) (54-60)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/15/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081513-537-665	16:15	8	108	101	7.5

Depth: Top	Bottom	Description
0"	27"	DARK GREY SILT, LITTLE ORGANICS ROOTS,
27"	52"	GREY FINE, MED. SAND, LITTLE ORGANICS, WOOD DEBRIS
52"	84"	BROWN SANDY SILT, LITTLE ORGANICS ROOTS, LEAF LITTER
84"	101"	GREY/BROWN COARSE MED SAND AND GRAVEL

Samples

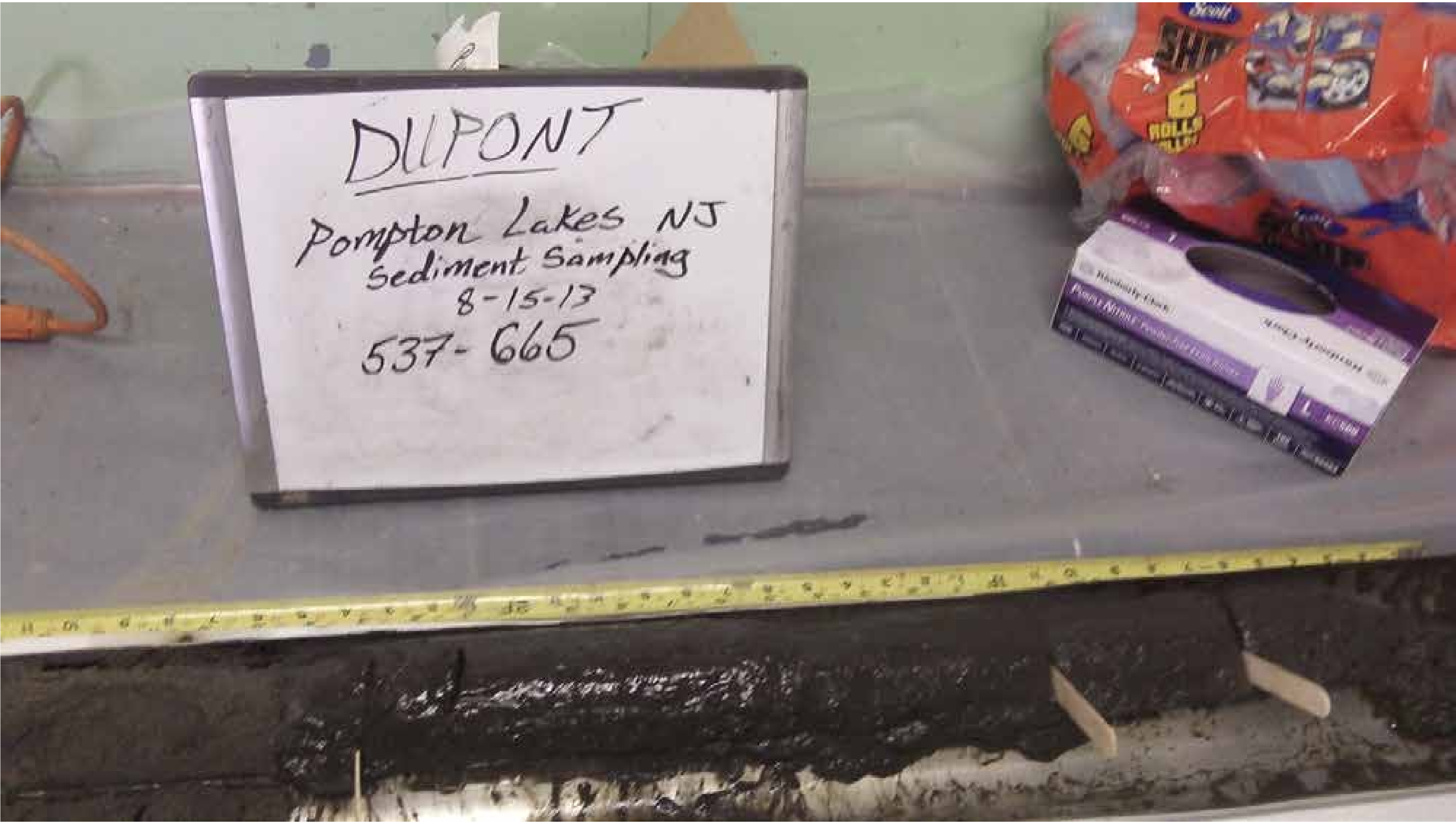
ID	Depth	Time
SD081513-537-665-0006	6"	16:15
SD081513-537-665-0612	12"	16:15
SD081513-537-665-1227	27"	16:15
SD081513-537-665-2745	45"	16:15 HOLD

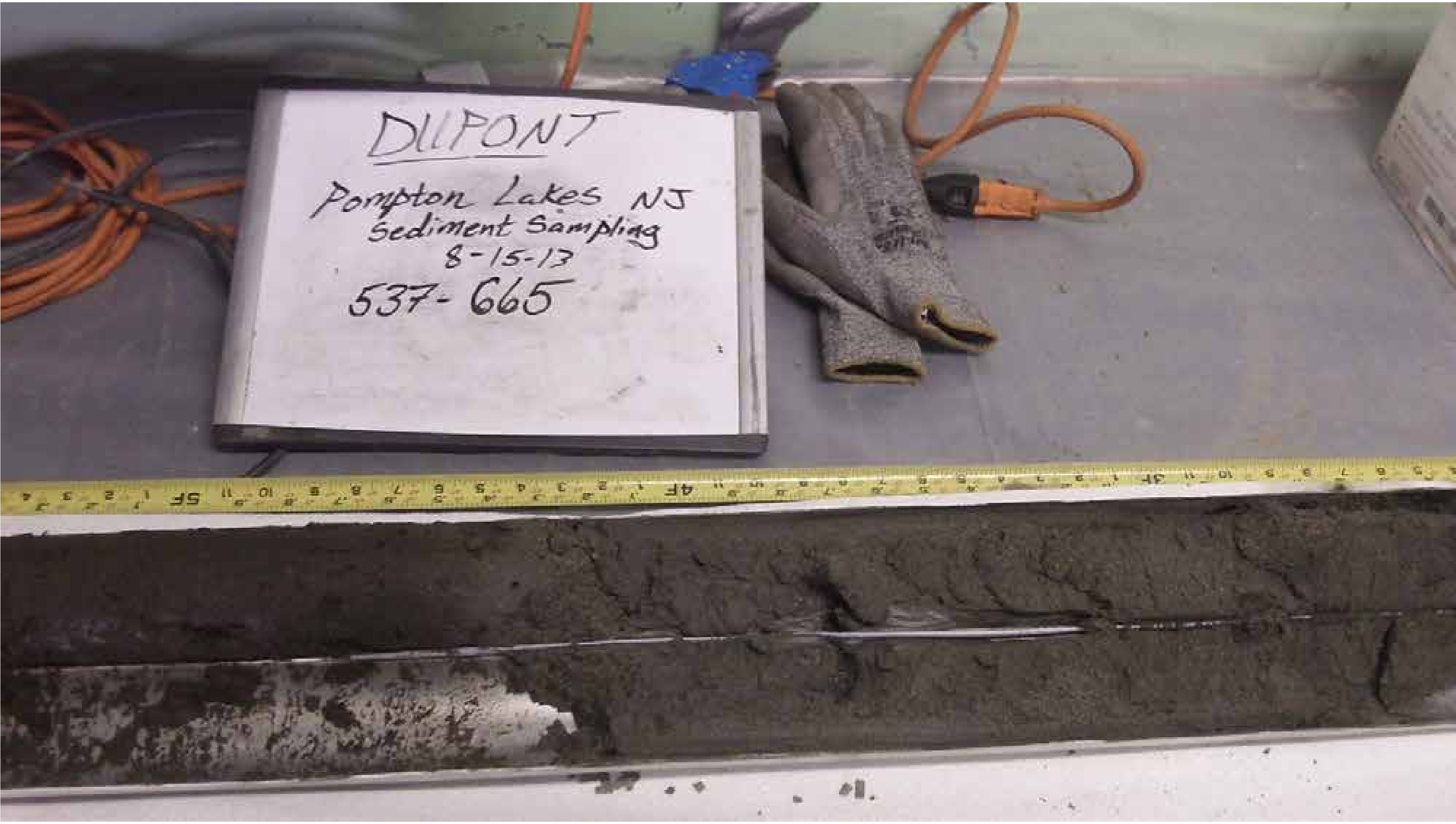
Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-665


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-665


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-665


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-665
(0-6) (6-12) (12-27) (27-45)

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/15/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (ft.)	Recovery Depth (ft.)	Probe Depth (ft.)
SD081513-537-658	14:00	6.2	84	83	5.3

Depth: Top	Bottom	Description
0"	30"	GREY/BROWN SILT, LITTLE SAND, ORGANICS, LEAF LITTER, ROOTS
30"	54"	GREY/BROWN FINE SAND
54"	83"	GREYBROWN FINE, MED COARSE SAND, GRAVEL

Samples

ID	Depth	Time
SD081513-537-658-0006	6"	14:00
SD081513-537-658-0612	12"	14:00
SD081513-537-658-1230	30"	14:00
SD081513-537-658-3048	48"	14:00 HOLD

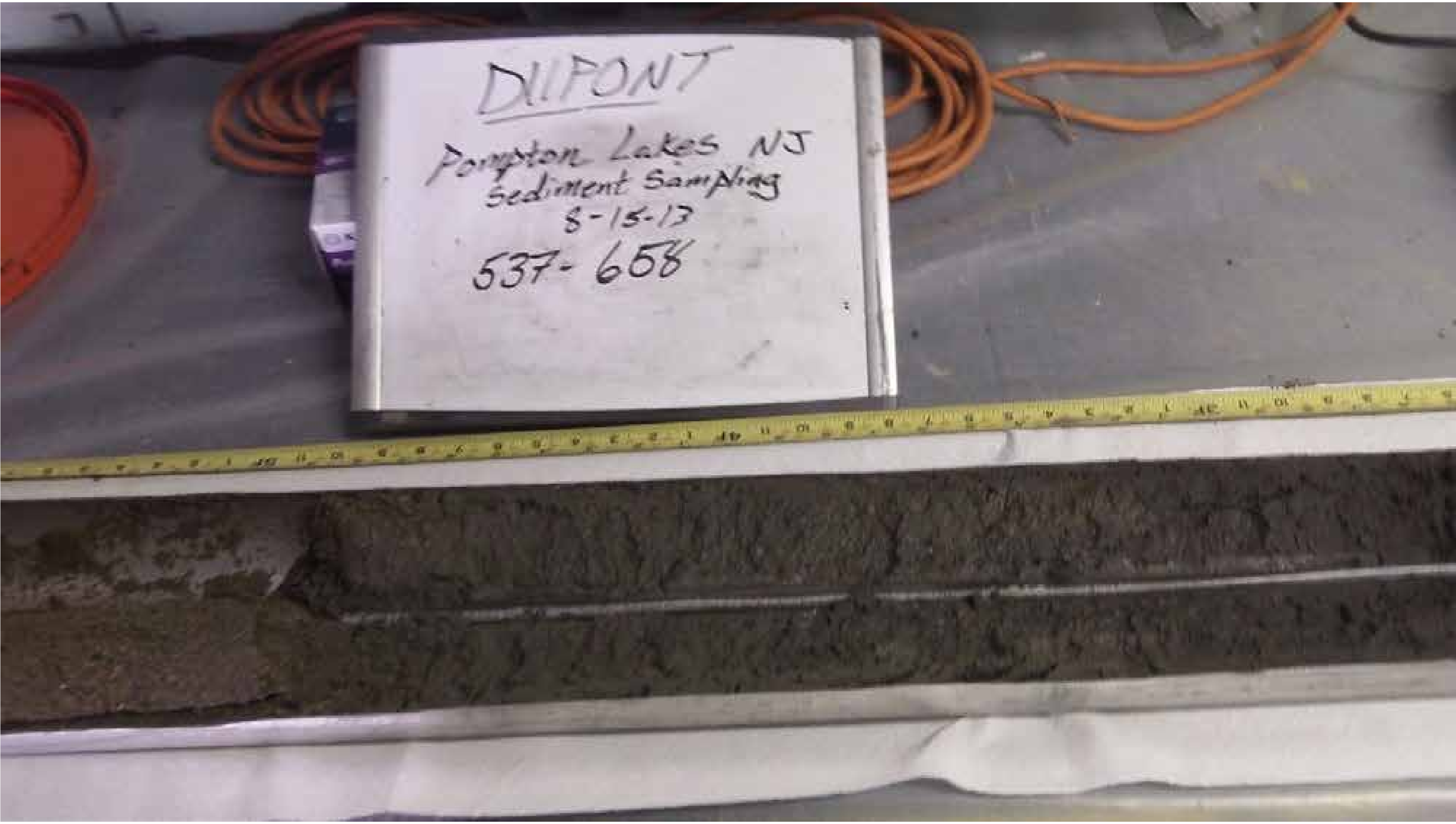
Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:

Pompton Lakes NJ
Sediment Sampling
8-15-13
537-658


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-658


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-658
(0-6)(6-12)(12-30)(30-48)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/15/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081513-537-663	15:30	8	72	67	6

Depth: Top	Bottom	Description
0"	30"	GREY/BROWN SILT, LITTLE ORGANICS, ROOTS
30"	60"	GREY/BROWN FINE, MED. SAND, TRACE FINE GRAVEL
60"	67"	DARK BROWN FINE, MED COARSE SAND AND GRAVEL

Samples

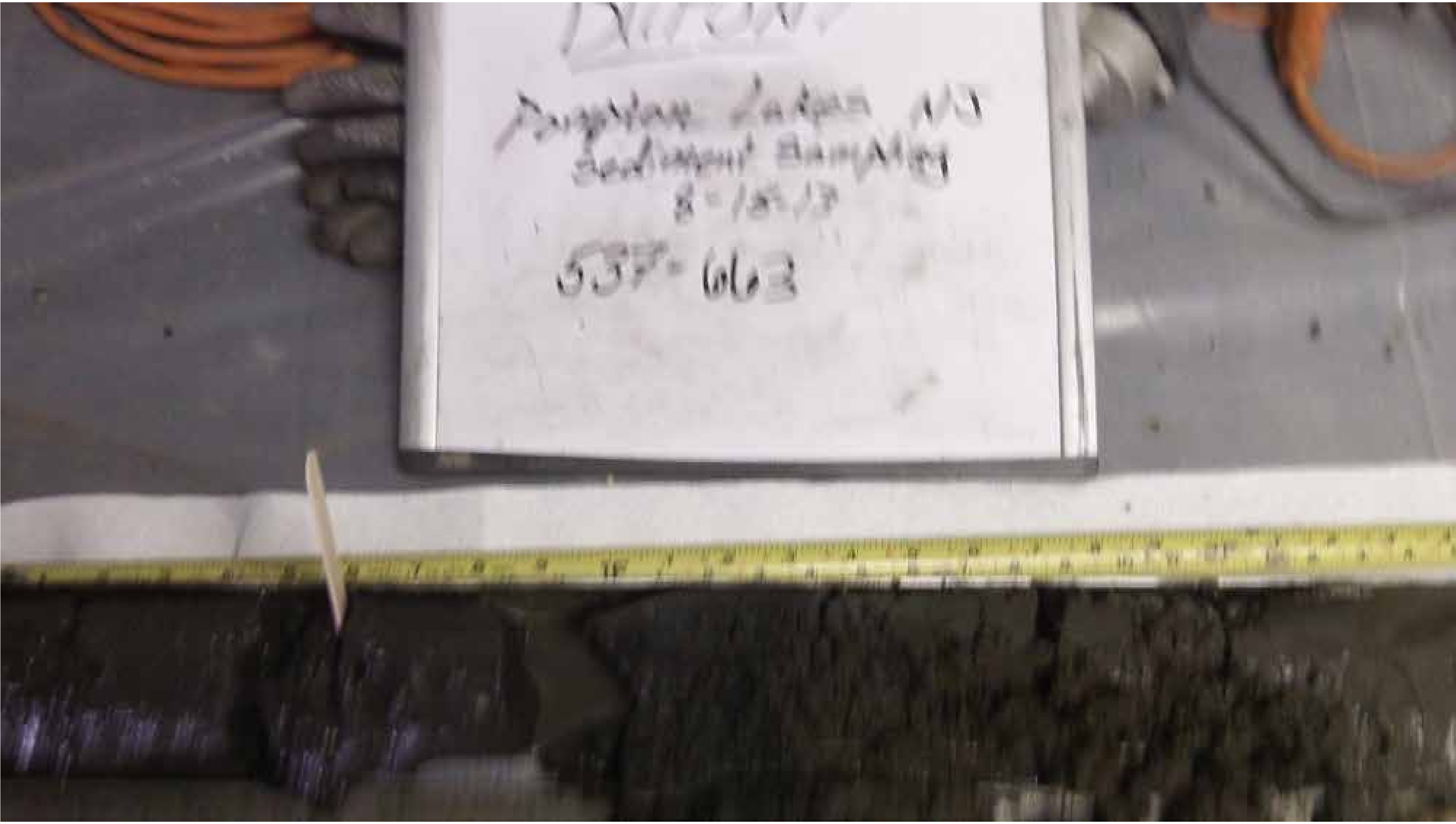
ID	Depth	Time
SD081513-537-663-0006	6"	15:30
SD081513-537-663-0612	12"	15:30
SD081513-537-663-1230	30"	15:30
SD081513-537-663-3048	48"	15:30 HOLD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


Sediment Sampling
8-15-13


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-17
537-663


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-663
(0-6)(6-12)(12-30)(30-48)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/15/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081513-537-660	12:50	6.8	77	74	6

Depth: Top	Bottom	Description
0"	48"	GREY/BROWN SILT, LITTLE ORGANICS, ROOTS, LEAF LITTER
48"	60"	GREY/BROWN FINE SAND
60"	74"	GREY/BROWN FINE, MED. COARSE SAND AND GRAVEL

Samples

ID	Depth	Time
SD081513-537-660-0006	6"	12:50
SD081513-537-660-0612	12"	12:50
SD081513-537-660-1230	30"	12:50
SD081513-537-660-3048	48"	12:50
SD081513-537-660-4860	60"	12:50 HOLD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-660


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-17
5.37-6.60


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-660
(0-6) (6-12) (12-30) (30-48) (48-60)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling
Sampling Date: 8/15/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM
Sample Matrix: 3" Aluminum Core

Weather: Sunny
Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081513-537-457B	16:30	7.9	72	67	6.8

Depth: Top	Bottom	Description
0"	36"	DARK GREY BROWN SILT, LITTLE ORGANICS (INCREASE WITH DEPTH)
36"	67"	GREY FINE, MED SAND, TRACE FINE GRAVEL

Samples

ID	Depth	Time
SD081513-537-457B-0006	6"	16:30
SD081513-537-457B-1521	21"	16:30
SD081513-537-457B-3036	36"	16:30

Photos: *See ID

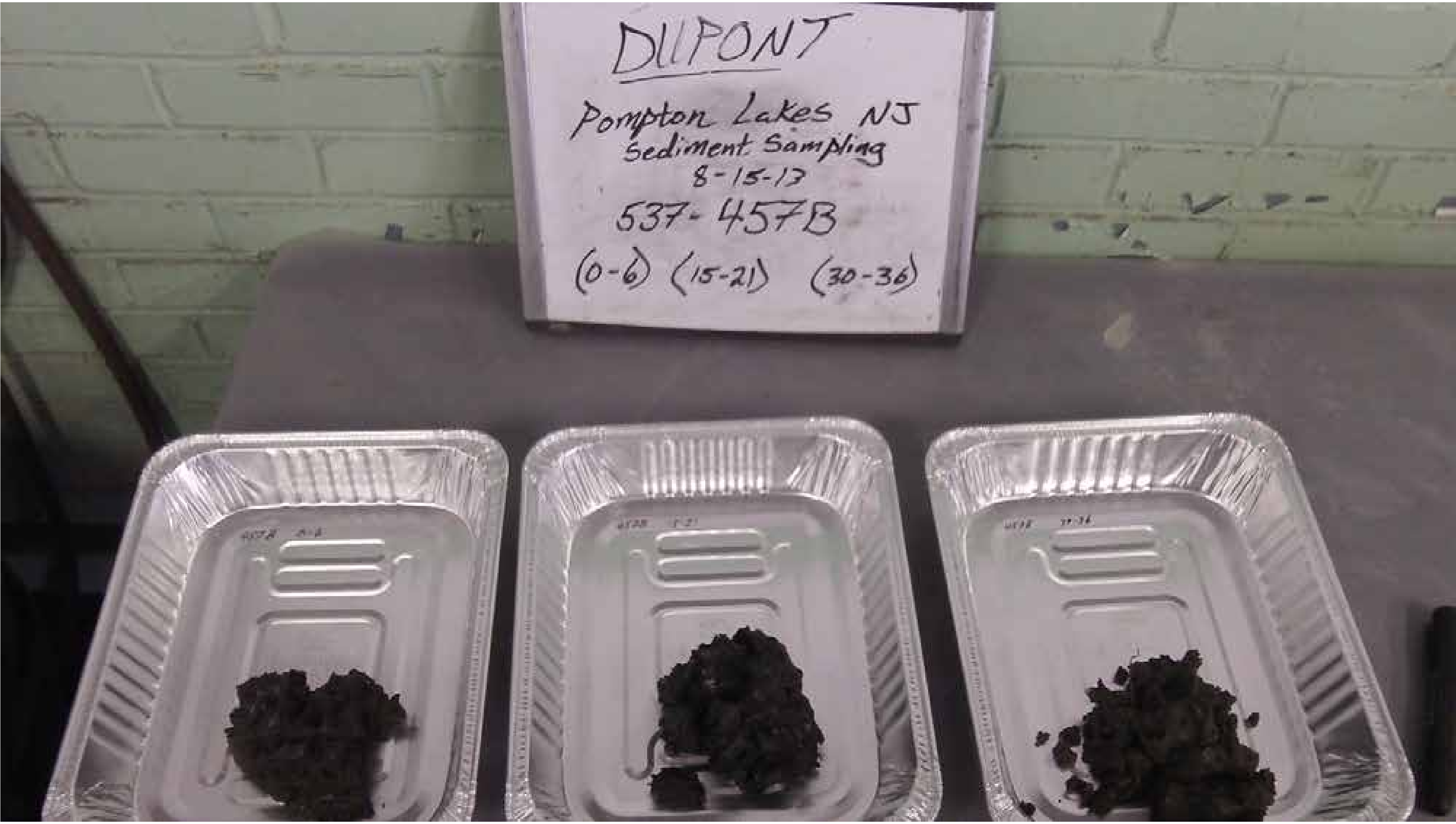
Analysis:

Hg, MOISTURE

Additional Notes:

DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-457B
(0-6) (15-21) (30-36)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-457B
(0-6) (15-21) (30-36)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-457B
(0-6) (15-21) (30-36)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling **Sampling Date:** 8/15/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM **Sample Matrix:** 3" Aluminum Core

Weather: Sunny **Sampling Method:** Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081513-537-662	17:00	7.7	60	54	5.4

Depth: Top	Bottom	Description
0"	48"	DARK GREY BROWN SILT, LITTLE ORGANIC, LEAF LITTER, TRACE FINE SAND
48"	54"	GREY/BROWN FINE, MED. SAND, AND FINE, MED. GRAVEL

Samples

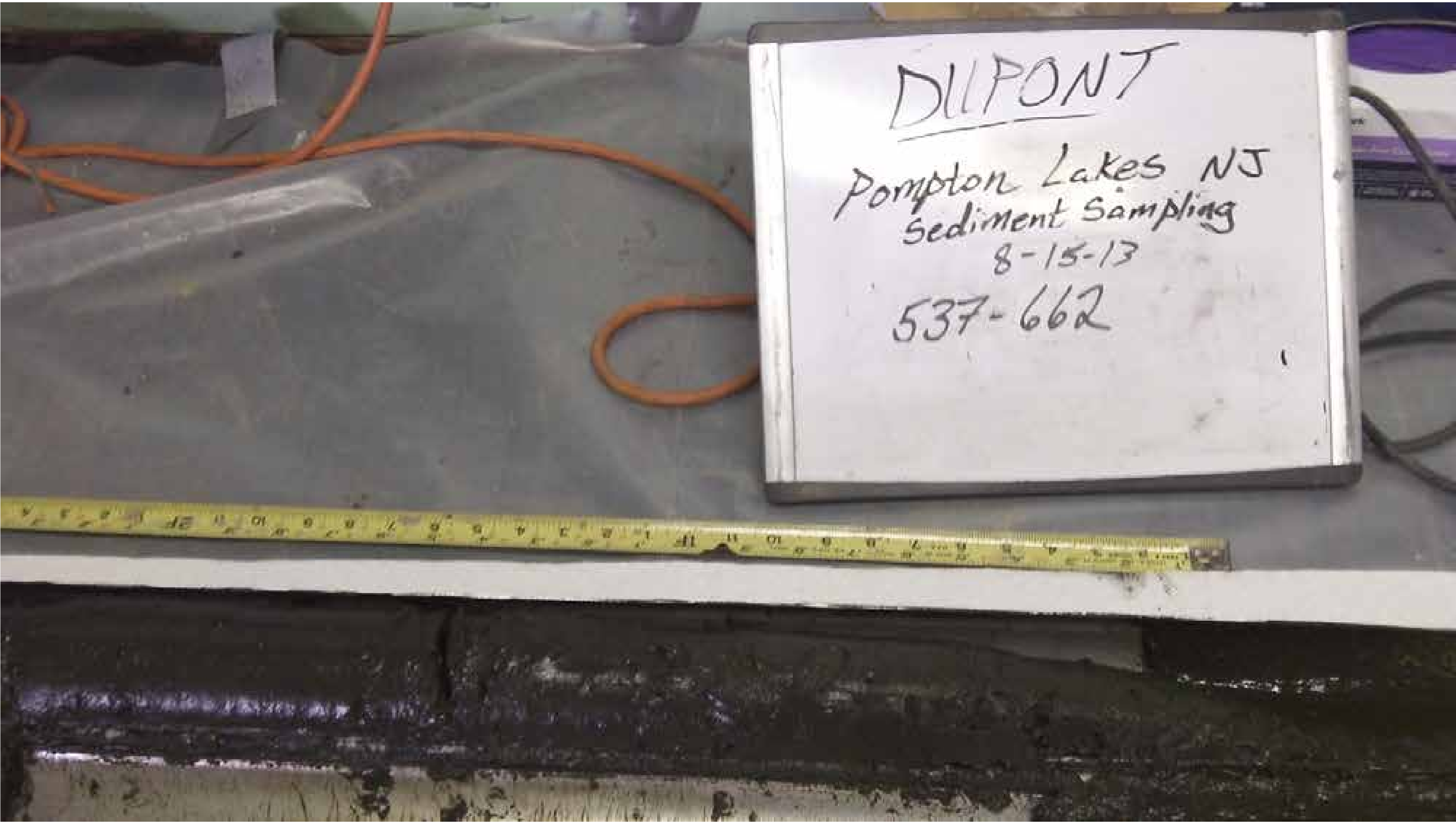
ID	Depth	Time	
SD081513-537-662-0006	6"	16:00	MS/MSD; DUP-9
SD081513-537-662-0612	12"	16:00	
SD081513-537-662-1230	30"	16:00	
SD081513-537-662-3048	48"	16:00	
SD081513-537-662-4854	54"	16:00	HOLD

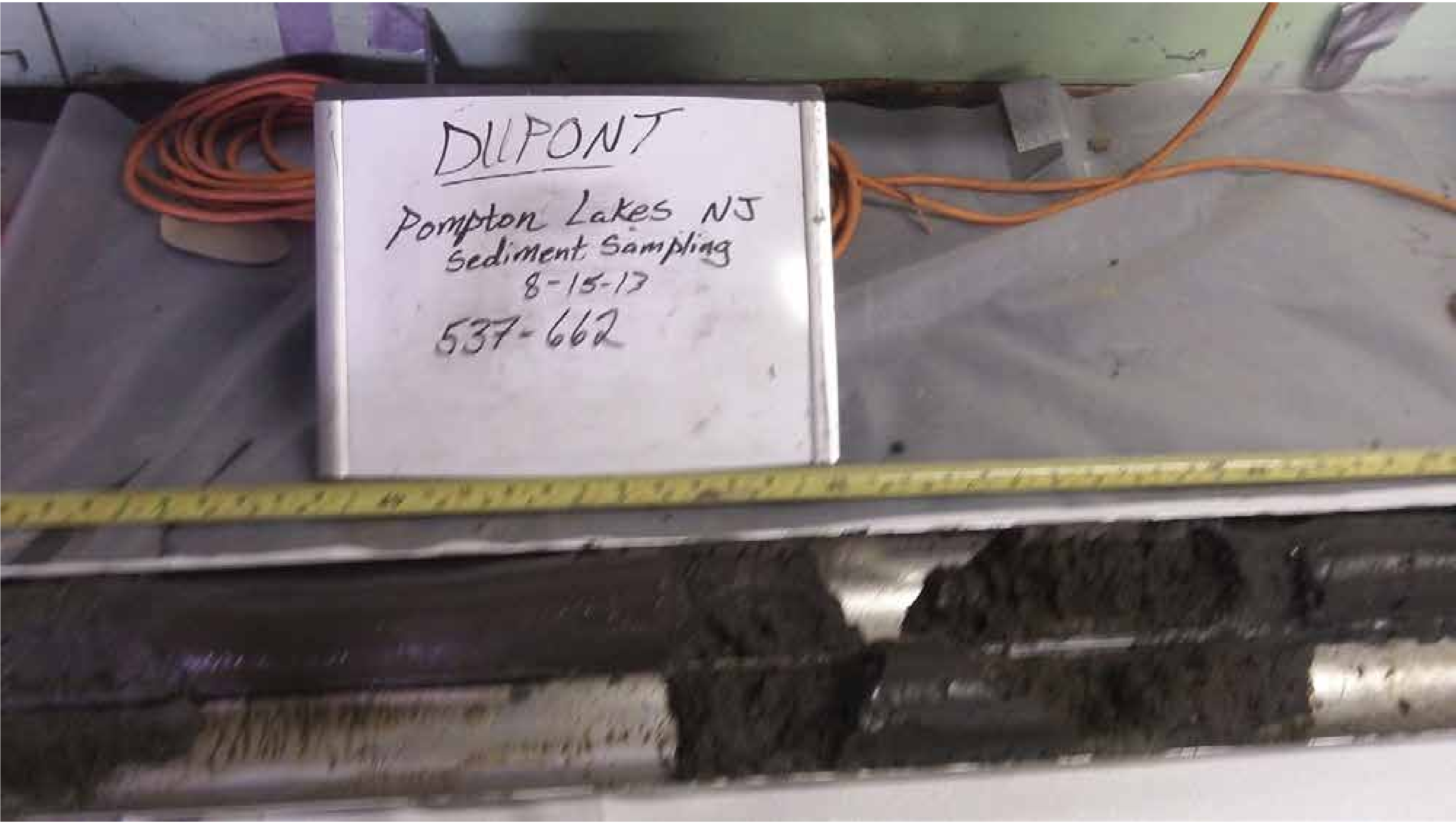
Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-662


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-17
537-662


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-662
(0-6) (6-12) (12-30)

DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-662
(30-48) (48-54)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/15/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081513-537-664	16:00	7.9	54	50	3.5

Depth: Top	Depth: Bottom	Description
0"	30"	GREY/BROWN SILT, LITTLE ORGANICS, ROOTS
30"	50"	BROWN FINE, MED. SAND

Samples

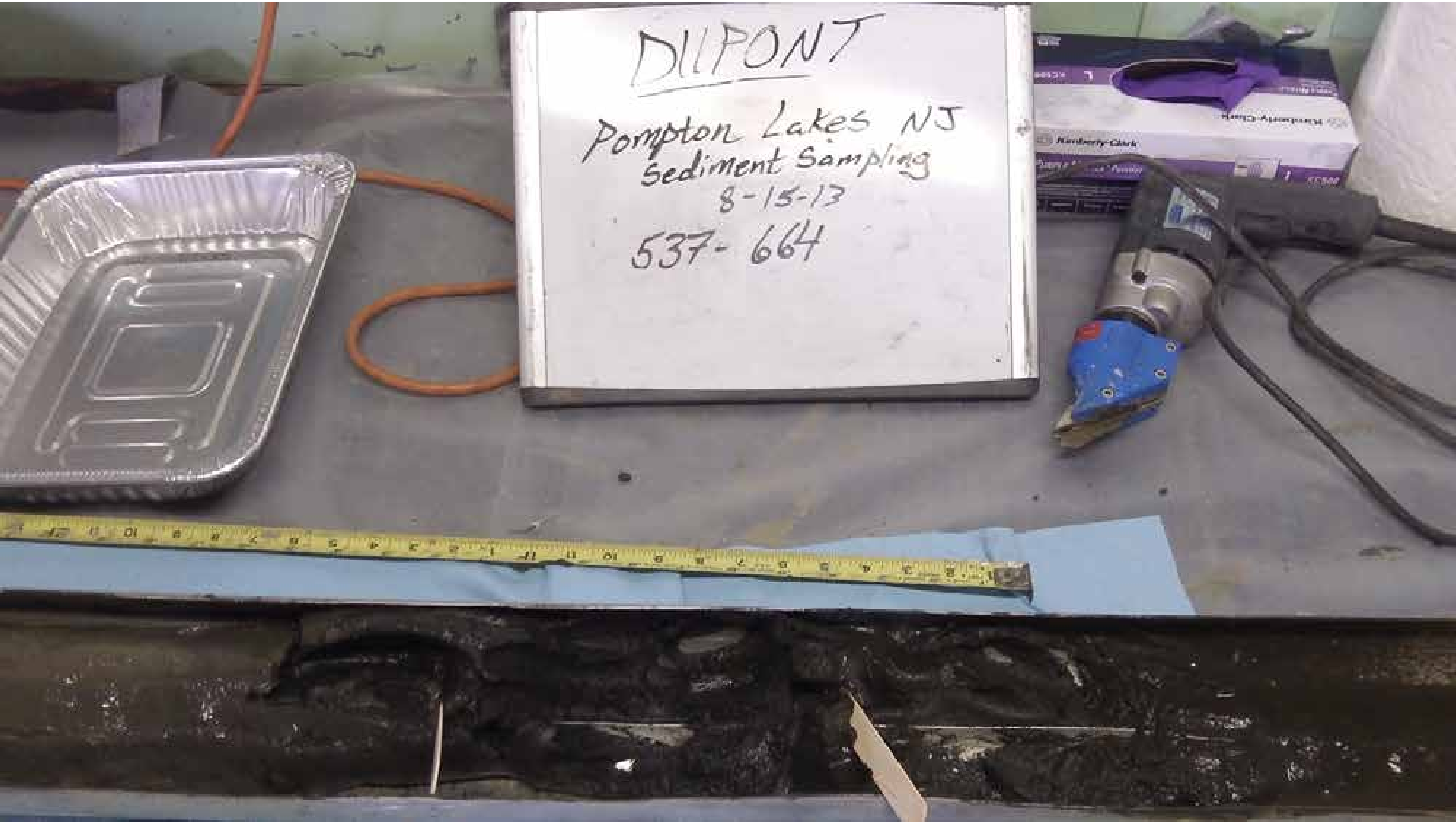
ID	Depth	Time	
SD081513-537-664-0006	6"	16:00	
SD081513-537-664-0612	12"	16:00	
SD081513-537-664-1230	30"	16:00	
SD081513-537-664-3048	48"	16:00	HOLD

Photos: *See ID

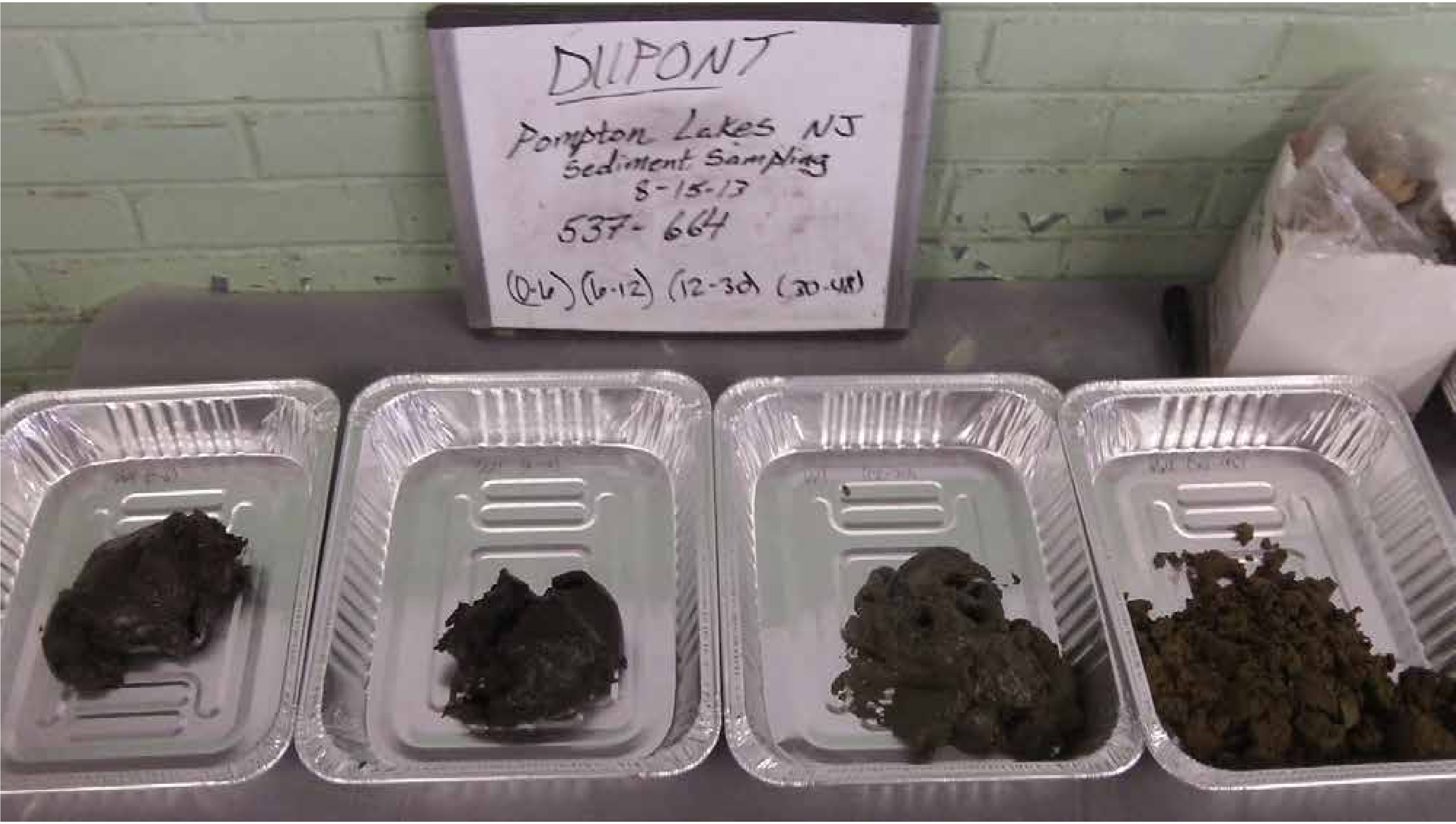
Analysis:

Hg, MOISTURE

Additional Notes: THE MEASURING TAPE HAS BEEN SHIFTED IN THE PHOTOGRAPH, THE DEPTHS NOTED IN THE DESCRIPTIONS ABOVE ARE CORRECT.


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-664
Kimberly-Clark


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-664


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-664
(0-6) (6-12) (12-30) (30-48)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/15/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (ft.)	Recovery Depth (ft.)	Probe Depth (ft.)
SD081513-537-443B	15:45	7.5	60	52	4.5

Depth: Top	Bottom	Description
0"	36"	GREY/BROWN SILT, LITTLE ORGANIC, ROOTS, WOOD DEBRIS, TWIGS
36"	42"	GREY FINE SAND
42"	52"	RED BROWN FINE, MED COARSE SAND AND GRAVEL

Samples

ID	Depth	Time
SD081513-537-443B-0006	6"	15:45
SD081513-537-443B-1521	21"	15:45
SD081513-537-443B-3036	36"	15:45

Photos: *See ID

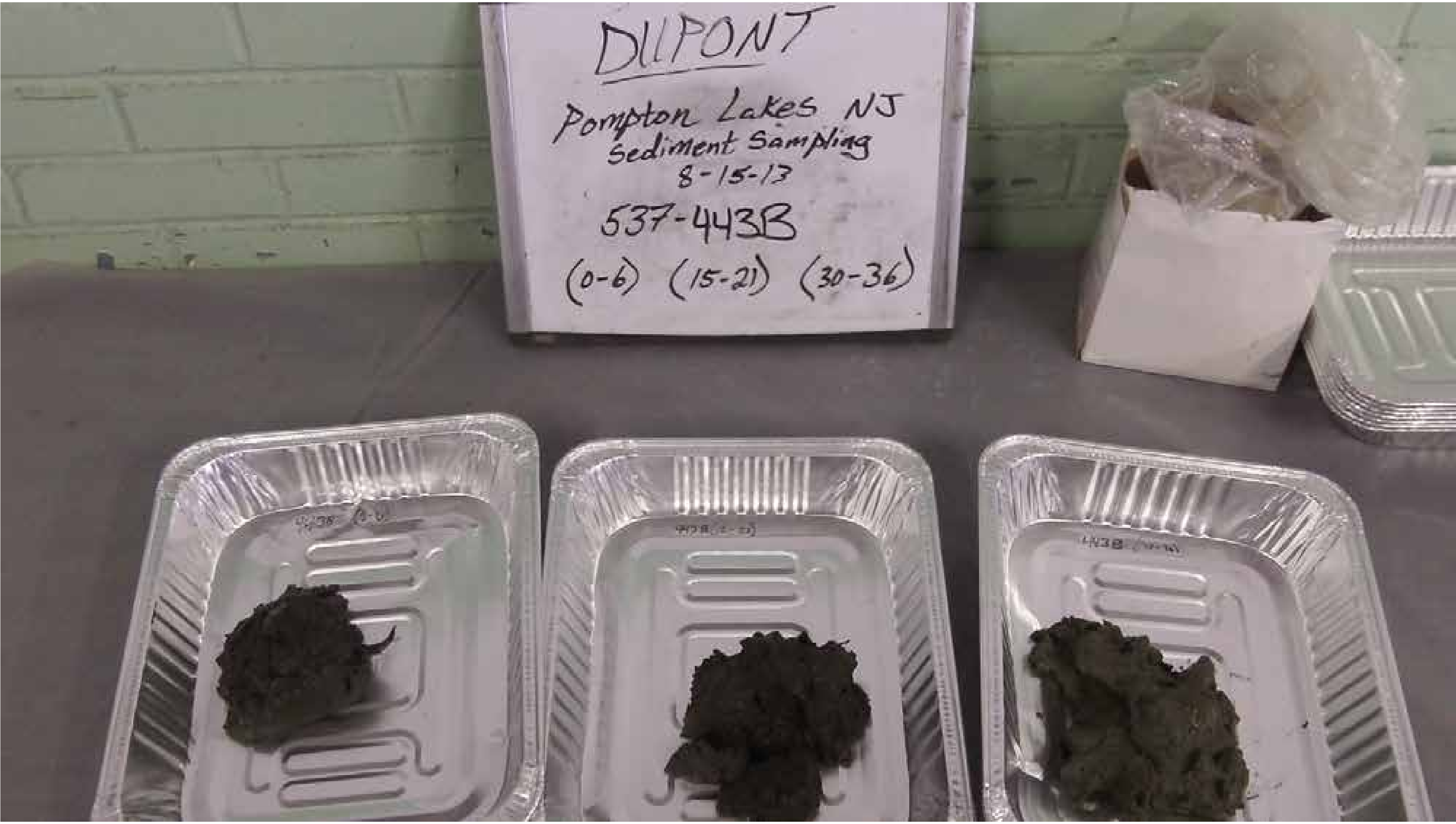
Analysis:

Hg, MOISTURE

Additional Notes: THE MEASURING TAPE HAS BEEN SHIFTED IN THE PHOTOGRAPH, THE DEPTHS NOTED IN THE DESCRIPTIONS ABOVE ARE CORRECT.


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-443B

DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-443B


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-443B
(0-6) (15-21) (30-36)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/15/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081513-537-661	14:50	8.9	54	44	4.8

Depth: Top	Bottom	Description
0"	30"	GREY SILT, LITTLE ORGANICS, ROOTS, LEAF LITTER
30"	44"	GREY/BROWN FINE, MED. COARSE SAND AND GRAVEL, SOME COBBLES

Samples

ID	Depth	Time
SD081513-537-661-0006	6"	14:50
SD081513-537-661-0612	12"	14:50
SD081513-537-661-1230	30"	14:50
SD081513-537-661-3044	44"	14:50 HOLD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-661

DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-661


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-661
(0-6) (6-12) (12-30) (30-44)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling
Sampling Date: 8/15/2013
Project #: B0042322.0003
Field Personnel: MWE, NMM
Sample Matrix: 3" Aluminum Core
Weather: Sunny
Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (ft.)	Recovery Depth (ft.)	Probe Depth (ft.)
SD081513-537-TR-6B	12:25	3.3	48	45	3.7

Depth: Top	Bottom	Description
0"	18"	DARK GREY SILT, LITTLE ORGANICS, ROOTS
18"	36"	BROWN SAND AND SILT, LITTLE FINE, MED. GRAVEL
36"	45"	BROWN FINE, MED. COARSE SAND AND GRAVEL

Samples

ID	Depth	Time
SD081513-537-TR-6B-0006	6"	12:25
SD081513-537-TR-6B-1218	18"	12:25

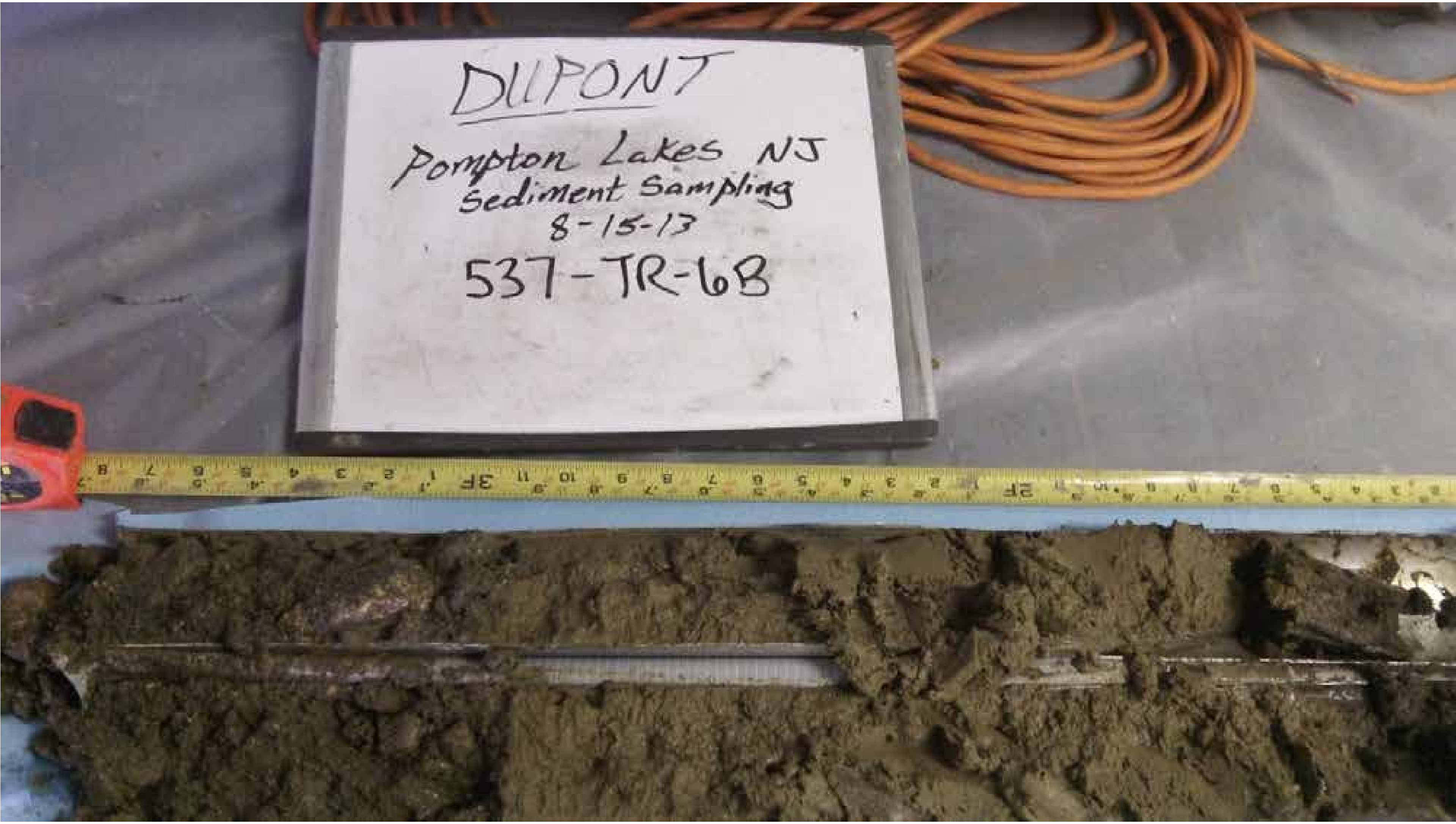
Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-TR-6B


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-TR-6B


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-TR-6B

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/15/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (ft.)	Recovery Depth (ft.)	Probe Depth (ft.)
SD081513-537-325B	12:45	4.3	36	32	3.5

Depth: Top	Bottom	Description
0"	16"	DARK GREY SILT, LITTLE ORGANICS, ROOTS
16"	24"	BROWN FINE SAND, LITTLE SILT, AND FINE GRAVEL
24"	32"	BROWN FINE, MED. COARSE SAND AND GRAVEL

Samples

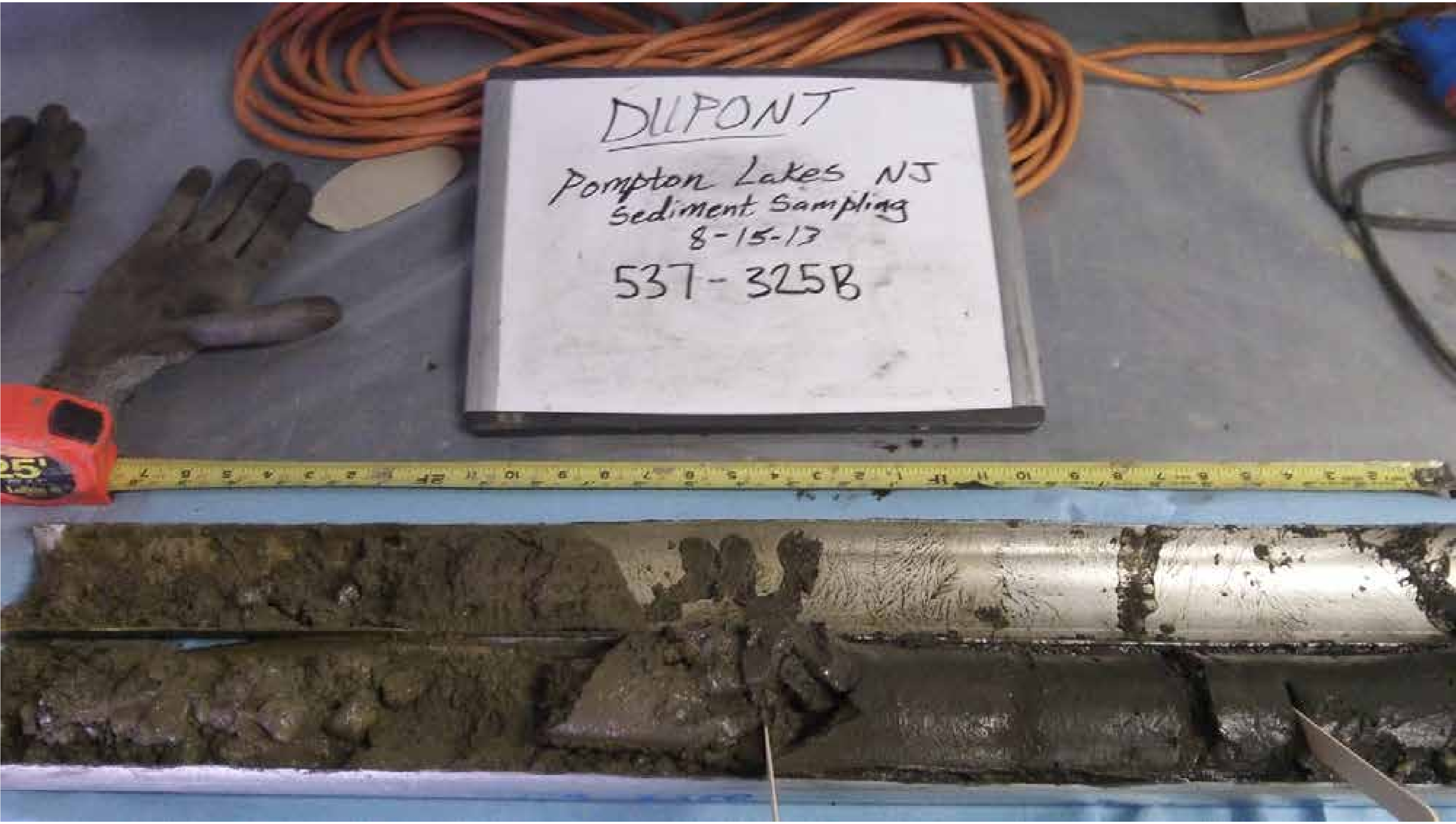
ID	Depth	Time
SD081513-537-325B-0006	6"	12:45
SD081513-537-325B-1016	16"	12:45

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-325B

Pompton Lakes NJ
Sediment Sampling
8-15-13
537-325B
(0-6) (10-16)
325B 0-6
325B 10-16
SemperGuard Nitrile

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/15/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (ft.)	Recovery Depth (ft.)	Probe Depth (ft.)
SD081513-537-645	16:45	11.1	48	42	4.3

Depth: Top	Bottom	Description
0"	25"	DARK GREY SILT, LITTLE ORGANICS, ROOTS
25"	42"	GREY FINE, MED. SAND, FINE, MED. GRAVEL

Samples

ID	Depth	Time	
SD081513-537-645-0006	6"	16:45	DUP-10, MS/MSD
SD081513-537-645-0612	12"	16:45	
SD081513-537-645-1225	25"	16:45	
SD081513-537-645-2542	42"	16:45	HOLD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-645


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-645
(0-6) (6-12) (12-25) (25-42)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/15/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081513-537-249B	12:15	3.5	40	36	2.9

Depth: Top	Bottom	Description
0"	12"	GREY SILT, LITTLE ORGANICS ROOTS
12"	36"	BROWN FINE, MED. SAND, COARSE SAND (LAST INCH)

Samples

ID	Depth	Time	
SD081513-537-249B-0006	6"	12:15	
SD081513-537-249B-0612	12"	12:15	DUP-11, MS/MSD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-249B


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-249B
(0-6) (6-12)
249 B 0-6
249 B 6-12

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/15/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081513-537-656	13:35	7	18	16	4.5

Depth: Top	Bottom	Description
0"	6"	GREY/BROWN SILT, FINE SAND, LITTLE ORGANIC ROOTS
6"	16"	GREY/BROWN FINE, MED. COARSE SAND AND GRAVEL

Samples

ID	Depth	Time
SD081513-537-656-0006	6"	13:35
SD081513-537-656-0616	16"	13:35 HOLD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes: 4 ATTEMPTS


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537-656


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-15-13
537.656
(0-6) (6-16)

DuPont Pompton Lake Vibracore Sediment Sampling

August 16, 2013

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling
Sampling Date: 8/16/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM
Sample Matrix: 3" Aluminum Core

Weather: Sunny
Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081613-537-451B	9:05	12.1	72	65	6.8

Depth: Top	Bottom	Description
0"	54"	DARK GREY SILT, SOME ORGANICS, ROOTS,
54"	65"	DARK BROWN FINE, MED. SAND AND GRAVEL

Samples

ID	Depth	Time
SD081613-537-451B-0006	6"	9:05
SD081613-537-451B-2531	31"	9:05
SD081613-537-451B-4854	54"	9:05

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-16-13
537-451B


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-16-13
537-451B


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-16-13
537-451B
(0-6) (25-31) (48-54)

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/16/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081613-537-435B	8:15	8.5	108	104	9

Depth: Top	Bottom	Description
0"	98"	DARK GREY SILT, ORGANICS, LEAF LITTER, ROOTS
98"	102"	BROWN COARSE SAND AND GRAVEL
102"	104"	BROWN FINE SAND

Samples

ID	Depth	Time
SD081613-537-435B-0006	6"	8:15
SD081613-537-435B-4652	52"	8:15
SD081613-537-435B-9298	98"	8:15

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes: THE MEASURING TAPE HAS BEEN SHIFTED IN THE PHOTOGRAPH, THE DEPTHS NOTED IN DESCRIPTIONS ABOVE ARE CORRECT.


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-16-13
537-435B
(0-6) (46-52) (92-98)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-16-13
537-435B
(0-6) (46-52) (92-98)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-16-13
537-435B
(0-6) (46-52) (92-98)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-16-13
537-435B
(0-6) (46-52) (92-98)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/16/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081613-573-648	9:45	12.6	36	22	3.1

Depth: Top	Bottom	Description
0"	11"	DARK GREY SILT, TRACE ORGANICS, ROOTS
11"	22"	DARK GREY COBBLES, SILT, SAND

Samples

ID	Depth	Time	
SD081613-573-648-0006	6"	9:45	
SD081613-573-648-0611	11"	9:45	
SD081613-573-648-1122	22"	9:45	HOLD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-16-13
537-648
(0-6) (6-11) (11-22)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-16-13
537-648
(0-6) (6-11) (11-22)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/16/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081613-537-666	9:35	5.9	60	50	9.2

Depth: Top	Bottom	Description
0"	50"	DARK GREY SILT, LITTLE ORGANICS, ROOTS, LEAF LITTER

Samples

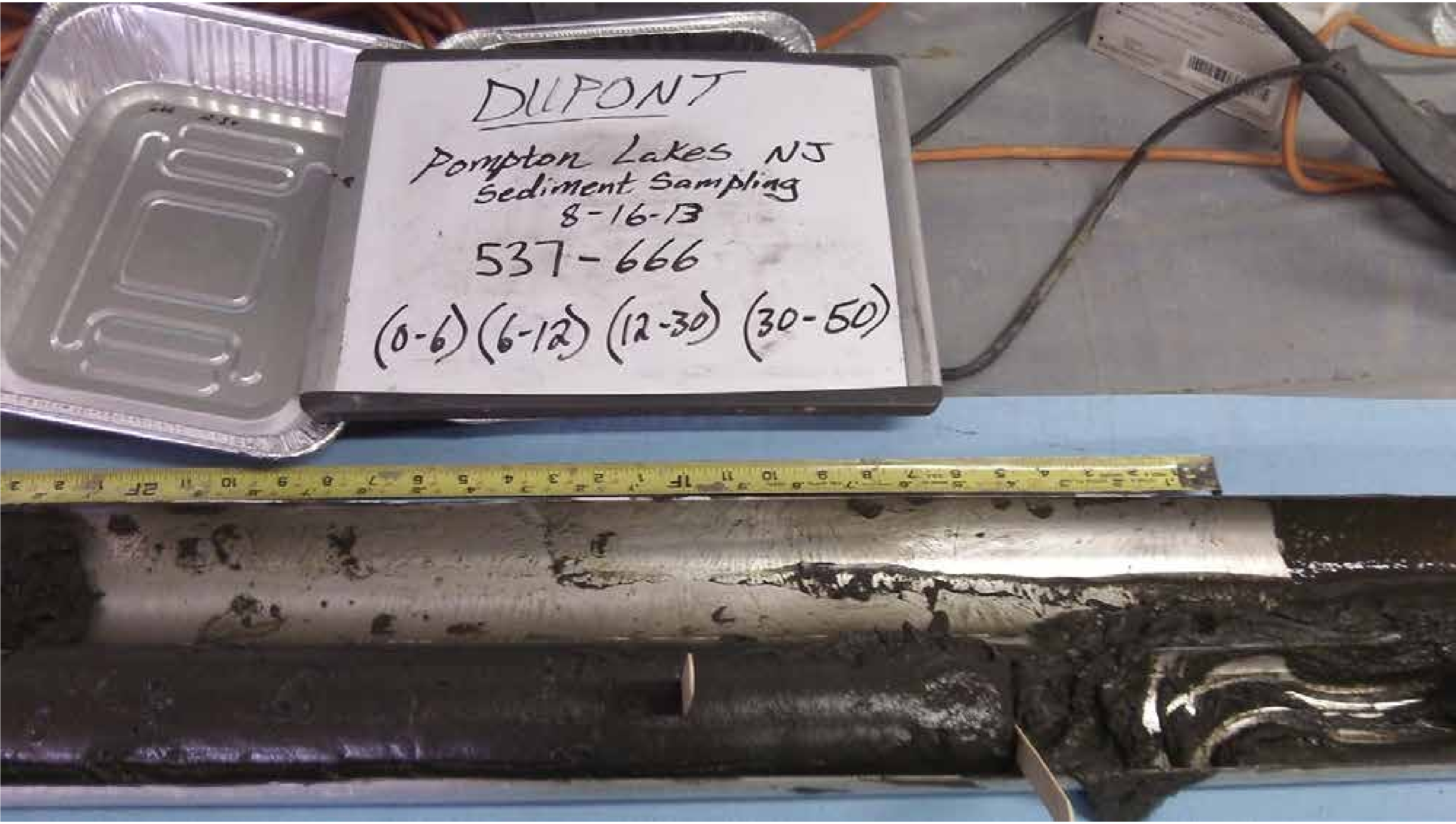
ID	Depth	Time	
SD081613-537-666-0006	6"	9:35	
SD081613-537-666-0612	12"	9:35	
SD081613-537-666-1230	30"	9:35	DUP-12, MS/MSD
SD081613-537-666-3050	50"	9:35	

Photos: *See ID

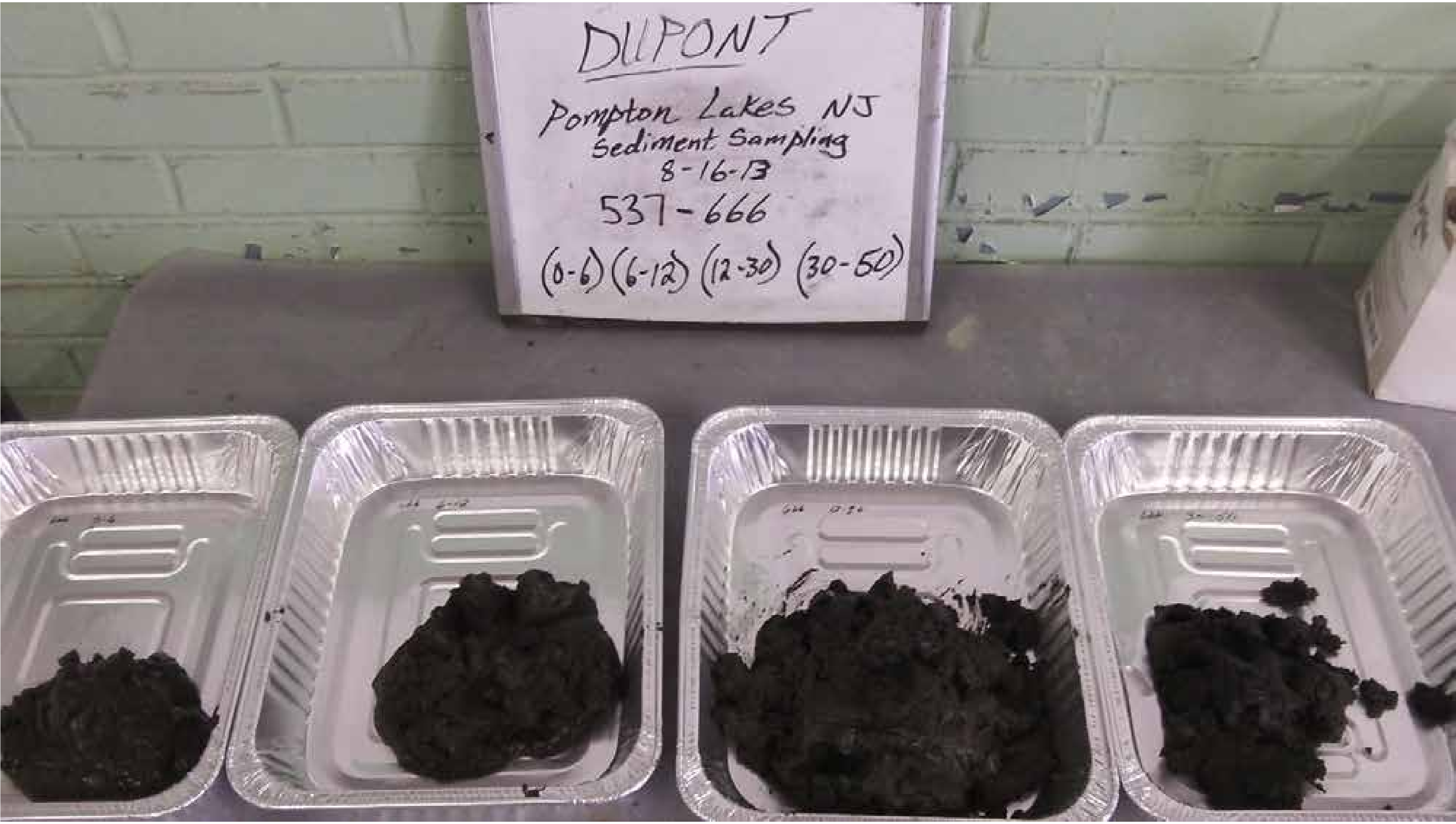
Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-16-13
537-666
(0-6) (6-12) (12-30) (30-50)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-16-13
537-666
(0-6) (6-12) (12-30) (30-50)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-16-13
537-666
(0-6) (6-12) (12-30) (30-50)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/16/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081613-537-445B	10:00	6.6	60	55	5.6

Depth: Top	Bottom	Description
0"	55"	DARK GREY SILT, LITTLE ORGANICS, ROOTS, LEAF LITTER

Samples

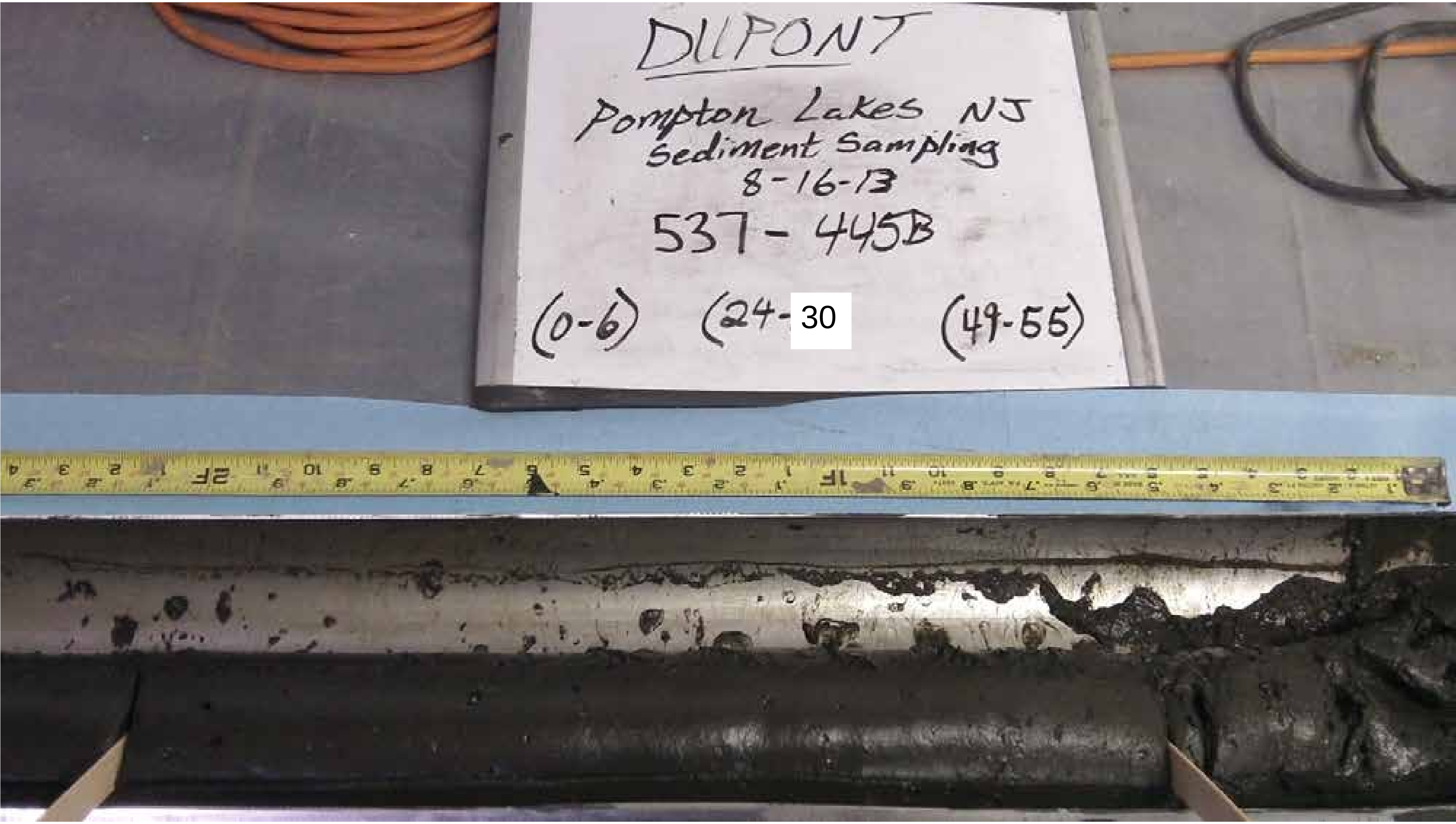
ID	Depth	Time
SD081613-537-445B-0006	6"	10:00
SD081613-537-445B-2430	30"	10:00
SD081613-537-445B-4955	55"	10:00

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-16-13
537-445B
(0-6) (24-30 (49-55)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-16-13
537-445B
(0-6) (24- (49-55)

30


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-16-13
537 - 445B
(0-6) (24-30 (49-55)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/16/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081613-537-454B	9:20	9.6	64	56	4.9

Depth: Top	Bottom	Description
0"	18"	DARK GREY/BROWN SILT, LITTLE ORGANICS, LEAF LITTER, ROOTS
18"	23"	DARK GREY MED. SILTY SAND, TRACE ORGANICS ROOTS
23"	30"	DARK GREY/BROWN SILT, LITTLE ORGANICS, LEAF LITTER, ROOTS
30"	39"	DARK GREY MED. SILTY SAND, TRACE ORGANICS ROOTS
39"	56"	DARK GREY/BROWN SILT, LITTLE ORGANICS, LEAF LITTER, ROOTS (END OF SEDIMENT)

Samples

ID	Depth	Time
SD081613-537-454B-0006	6"	9:20
SD081613-537-454B-2026	26"	9:20
SD081613-537-454B-5056	56"	9:20

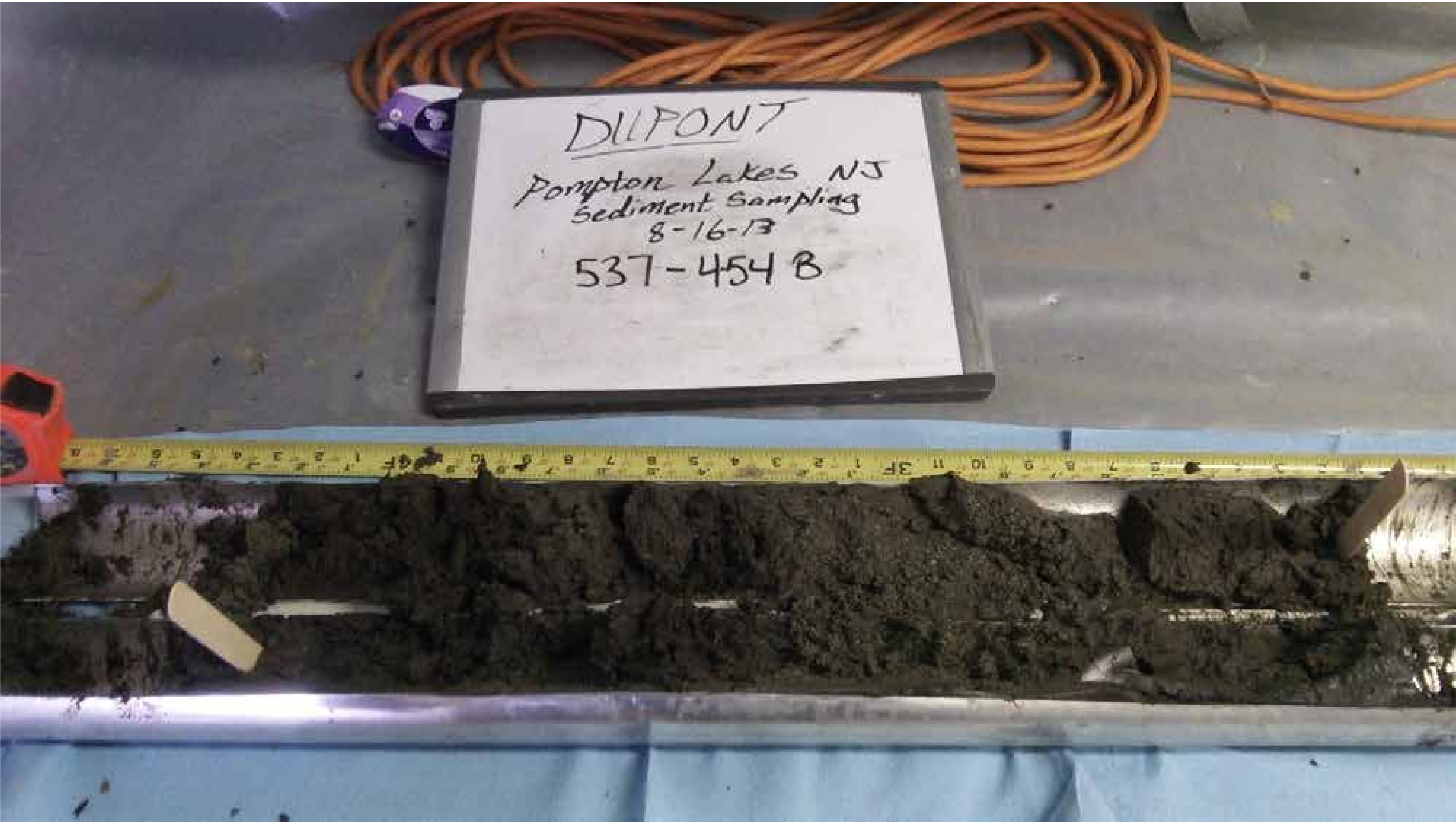
Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-16-13
537-454 B


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-16-13
537-454 B


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-16-13
537-454 B
(0-6) (20-26) (50-56)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling
Sampling Date: 8/16/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM
Sample Matrix: 3" Aluminum Core

Weather: Sunny
Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081613-537-431B	8:35	7.3	60	54	5.7

Depth: Top	Bottom	Description
0"	24"	DARK GREY SILT, LITTLE ORGANICS, ROOTS, LEAF LITTER
24"	45"	DARK GREY/BROWN SILTY SAND, TRACE ORGANICS, ROOTS (BOTTOM OF SEDIMENT)
45"	54"	BROWN COARSE SAND AND GRAVEL

Samples

ID	Depth	Time
SD081613-537-431B-0006	6"	8:35
SD081613-537-431B-1925	25"	8:35
SD081613-537-431B-3945	45"	8:35

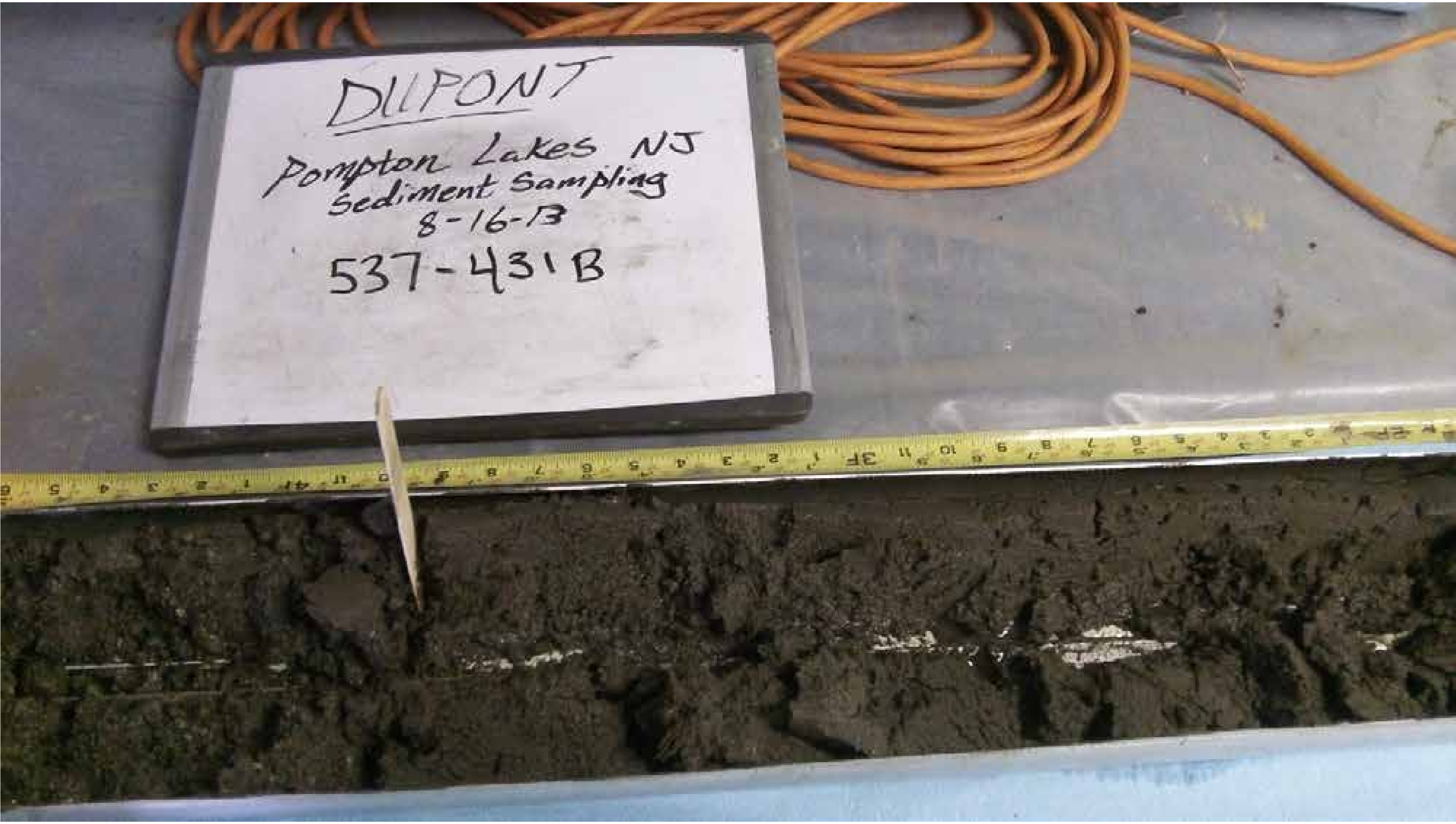
Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-16-13
537-431B


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-16-13
537-431B


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-16-13
537-431B
(0-6) (19-25) (39-45)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/16/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081613-537-432B	8:50	7.6	60	50	5.9

Depth: Top	Bottom	Description
0"	44"	DARK GREY SILT, LITTLE ORGANICS, ROOTS, WEEDS
44"	50"	GREY BROWN COARSE SAND, TRACE GRAVEL

Samples

ID	Depth	Time
SD081613-537-432B-0006	6"	8:50
SD081613-537-432B-1824	24"	8:50
SD081613-537-432B-3844	44"	8:50

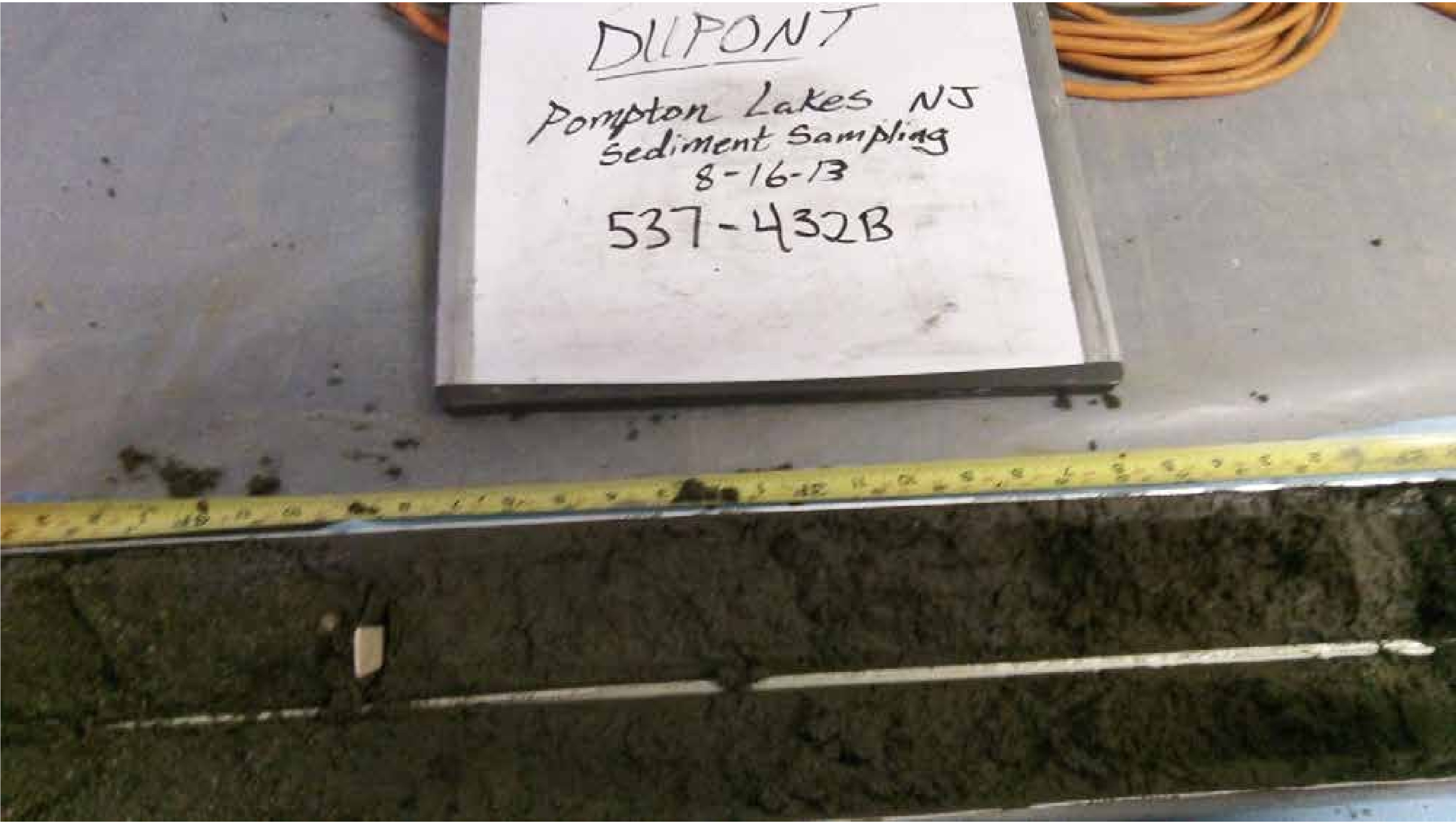
Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-16-13
537-432B


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-16-13
537-432B


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-16-13
537-432B
(0-6) (18-24) (38-44)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/16/2013

Project #: B0042322.0003

Field Personnel: MWE, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD081613-537-404B	8:00	7.4	60	49	3.7

Depth: Top	Bottom	Description
0"	24"	DARK GREY SILT, LITTLE ORGANICS, ROOTS,
24"	49"	LIGHT BROWN MED. COARSE SAND, SOME FINE MED GRAVEL

Samples

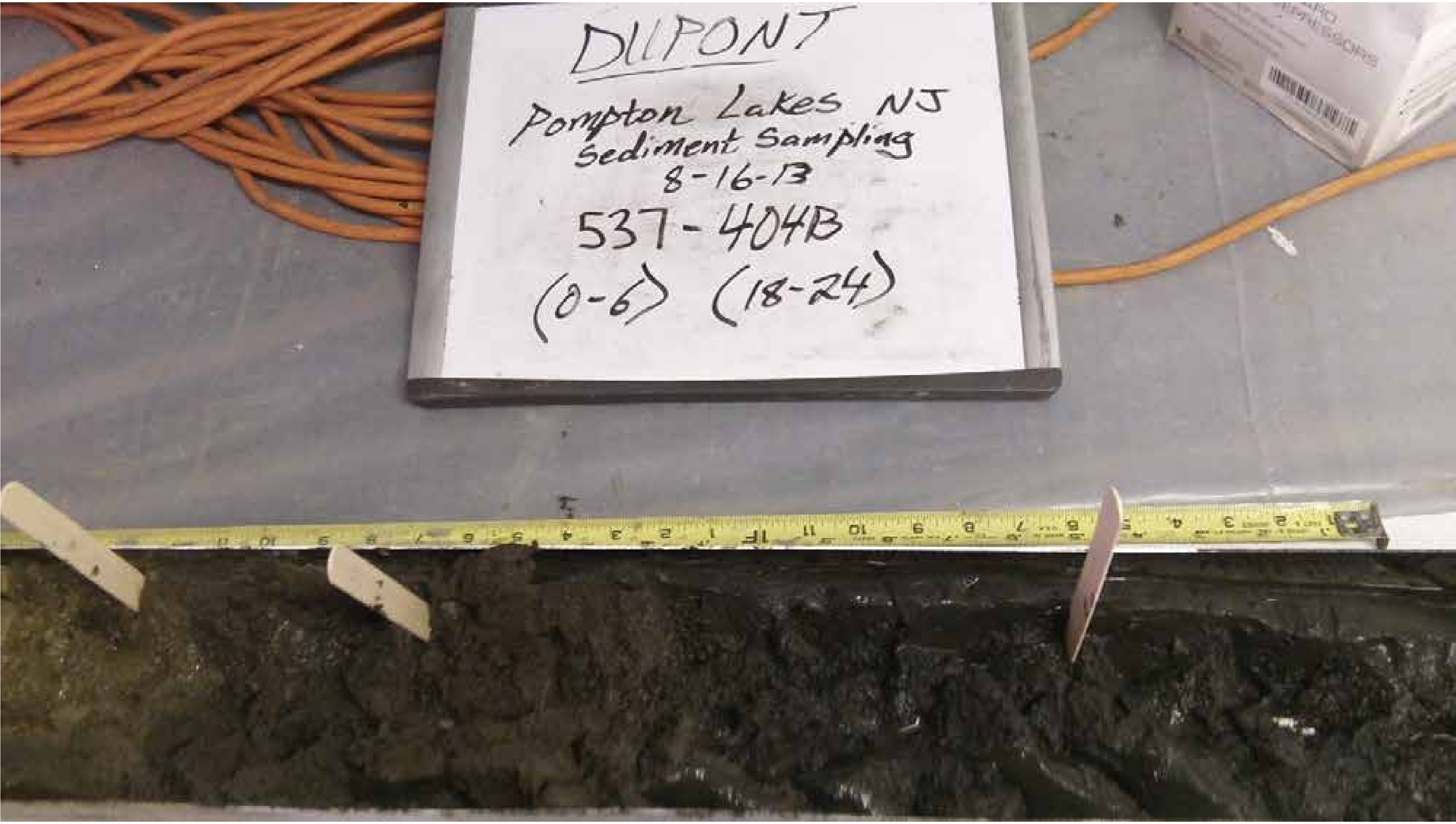
ID	Depth	Time
SD081513-537-404B-0006	6"	8:00
SD081513-537-404B-1824	24"	8:00

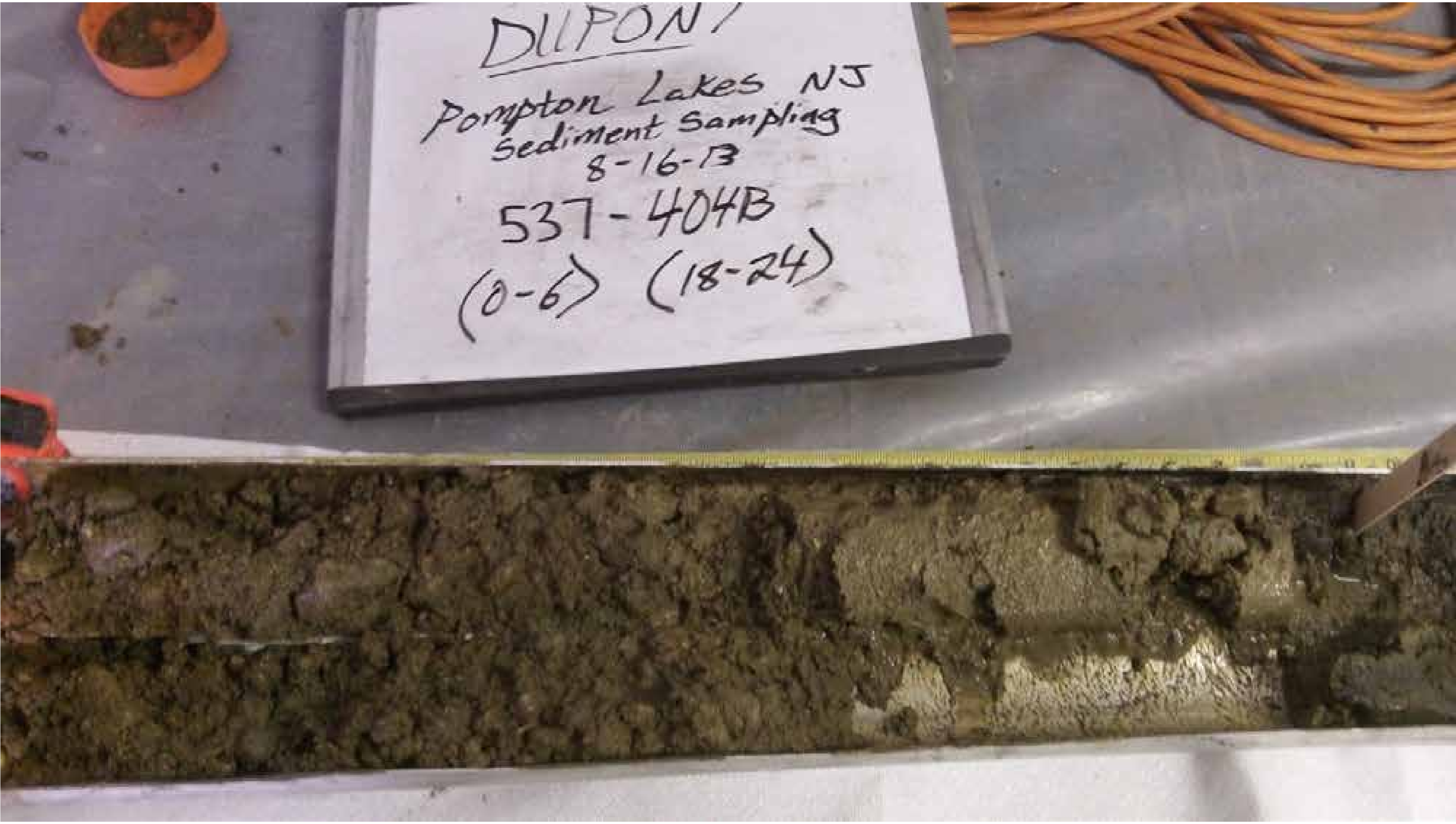
Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-16-13
537-404B
(0-6) (18-24)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-16-13
537-404B
(0-6) (18-24)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-16-13
537-404B
(0-6) (18-24)

DuPont Pompton Lake Vibracore Sediment Sampling

August 21, 2013

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling **Sampling Date:** 8/21/2013

Project #: B00042322.0003

Field Personnel: AEP, NMM **Sample Matrix:** 3" Aluminum Core

Weather: Sunny **Sampling Method:** Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD082113-537-685	11:08	11.4	84	68	7

Depth: Top	Bottom	Description
0"	56"	DARK GREY SILT, LITTLE ORGANICS, ROOTS, LEAF LITTER, TRACE FINE GRAVEL
56"	68"	DARK GREY COARSE SAND AND GRAVEL, SOME COBBLE

Samples

ID	Depth	Time
SD082113-537-685-0006	6"	11:08
SD082113-537-685-0612	12"	11:08
SD082113-537-685-1230	30"	11:08
SD082113-537-685-3048	48"	11:08
SD082113-537-685-4856	56"	11:08
SD082113-537-685-5668	68"	11:08 HOLD

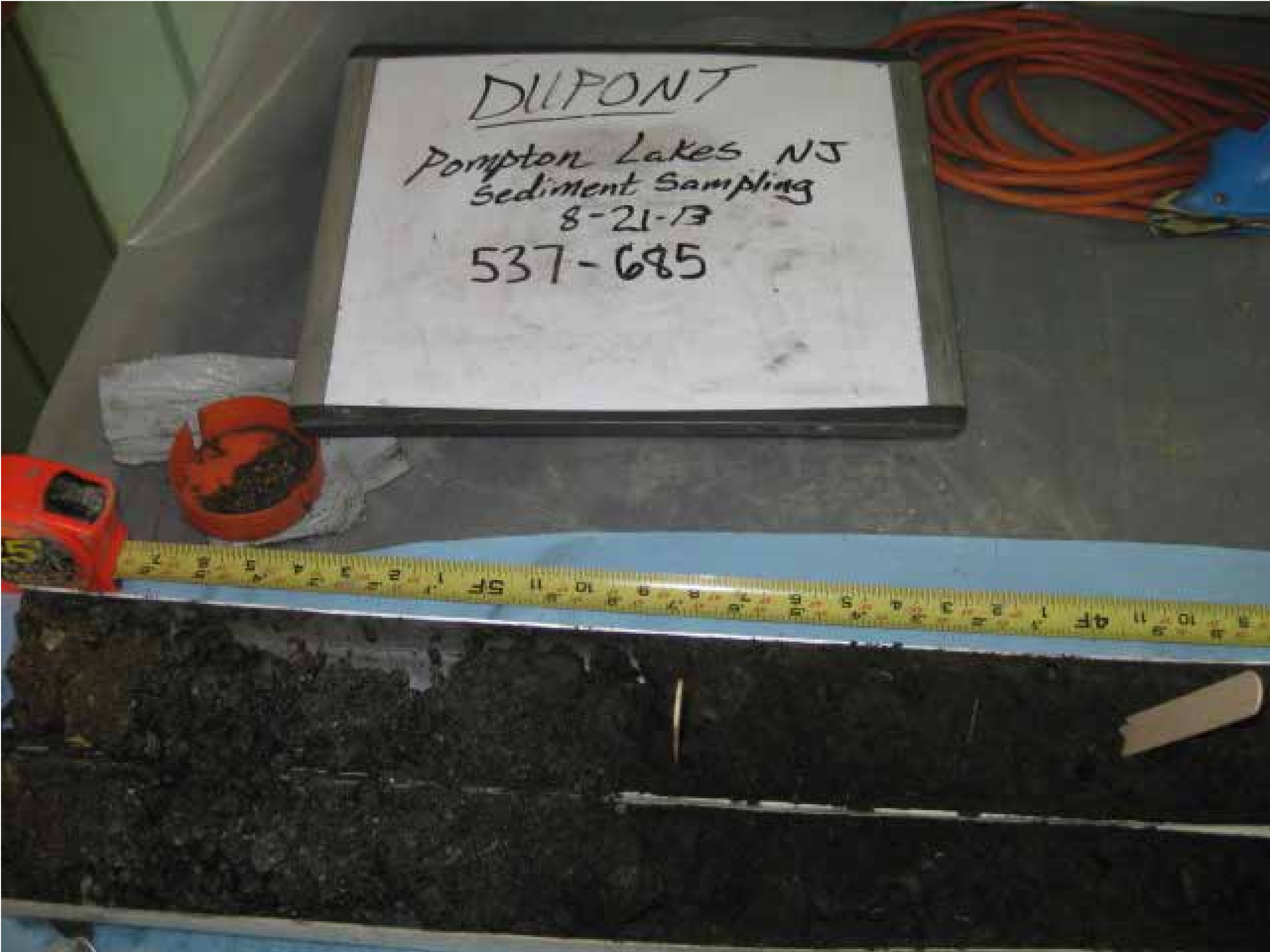
Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-685


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-685


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-685


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-685
(0-6)(6-12)(12-30)(30-48)
0-6
6-12
12-18


DUPONT
Pompton Lakes NJ
Sediment Sampling
537-685
12-30
30-48
48-56
56-68

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling
Sampling Date: 8/21/2013

Project #: B0042322.0003

Field Personnel: AEP, NMM
Sample Matrix: 3" Aluminum Core

Weather: Sunny
Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD082113-537-467B	11:37	4.6	72	68	5.7

Depth: Top	Bottom	Description
0"	65"	DARK GREY/BROWN SILT, LITTLE ORGANICS, ROOTS, TRACE FINE GRAVEL
65"	68"	BROWN MED. COARSE GRAVEL AND SOME FINE SAND

Samples

ID	Depth	Time
SD082113-537-467B-0006	6"	11:37
SD082113-537-467B-3036	37"	11:37
SD082113-537-467B-5965	68"	11:37

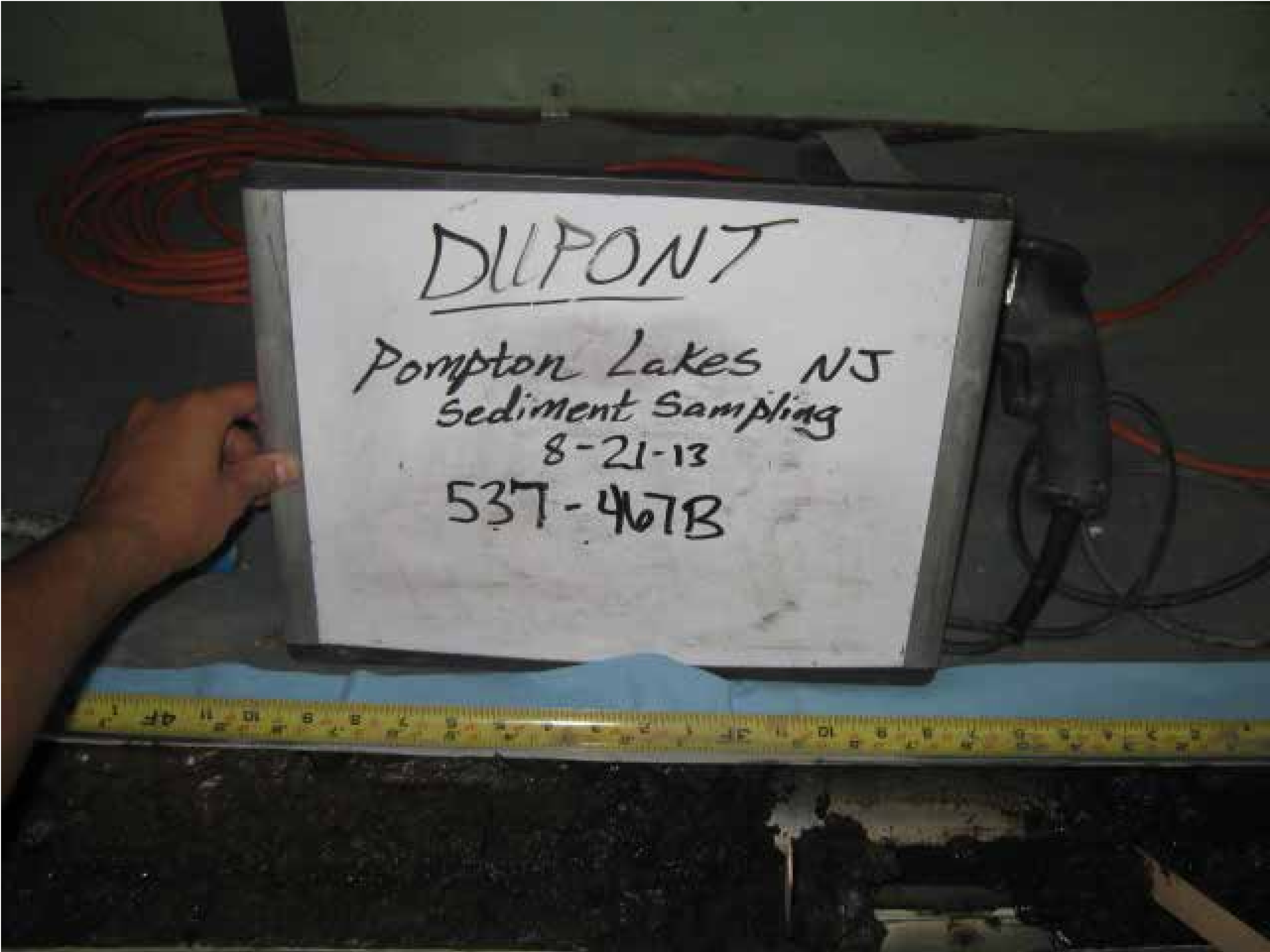
Photos: *See ID

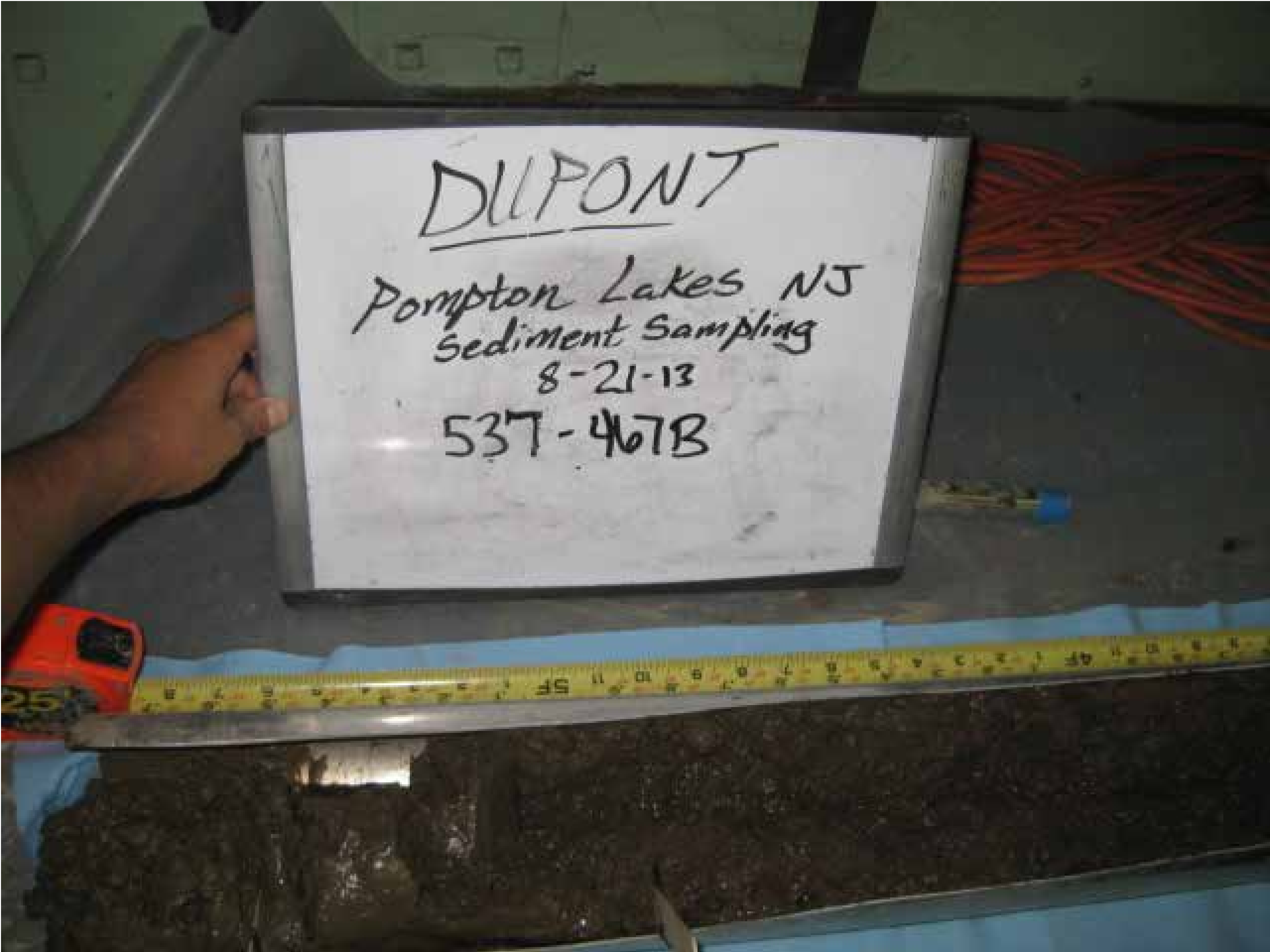
Analysis:

Hg, MOISTURE

Additional Notes: SAMPLE 30"-36" WAS COLLECTED PRIOR TO THE CORE PHOTOGRAPH BEING TAKEN


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-467B


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-467B



DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-467B


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-467B
(0-6) (30-36) (59-65)

SAMPLE COLLECTION FIELD LOG

ARCADIS

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/21/2013

Project #: B0042322.0003

Field Personnel: AEP, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD082113-537-682	11:20	15	72	55	6

Depth: Top	Depth: Bottom	Description
0"	46"	DARK GREY/BROWN SILT, LITTLE ORGANICS, ROOTS, LEAF LITTER
46"	55"	BROWN FINE SAND, TRACE FINE GRAVEL

Samples

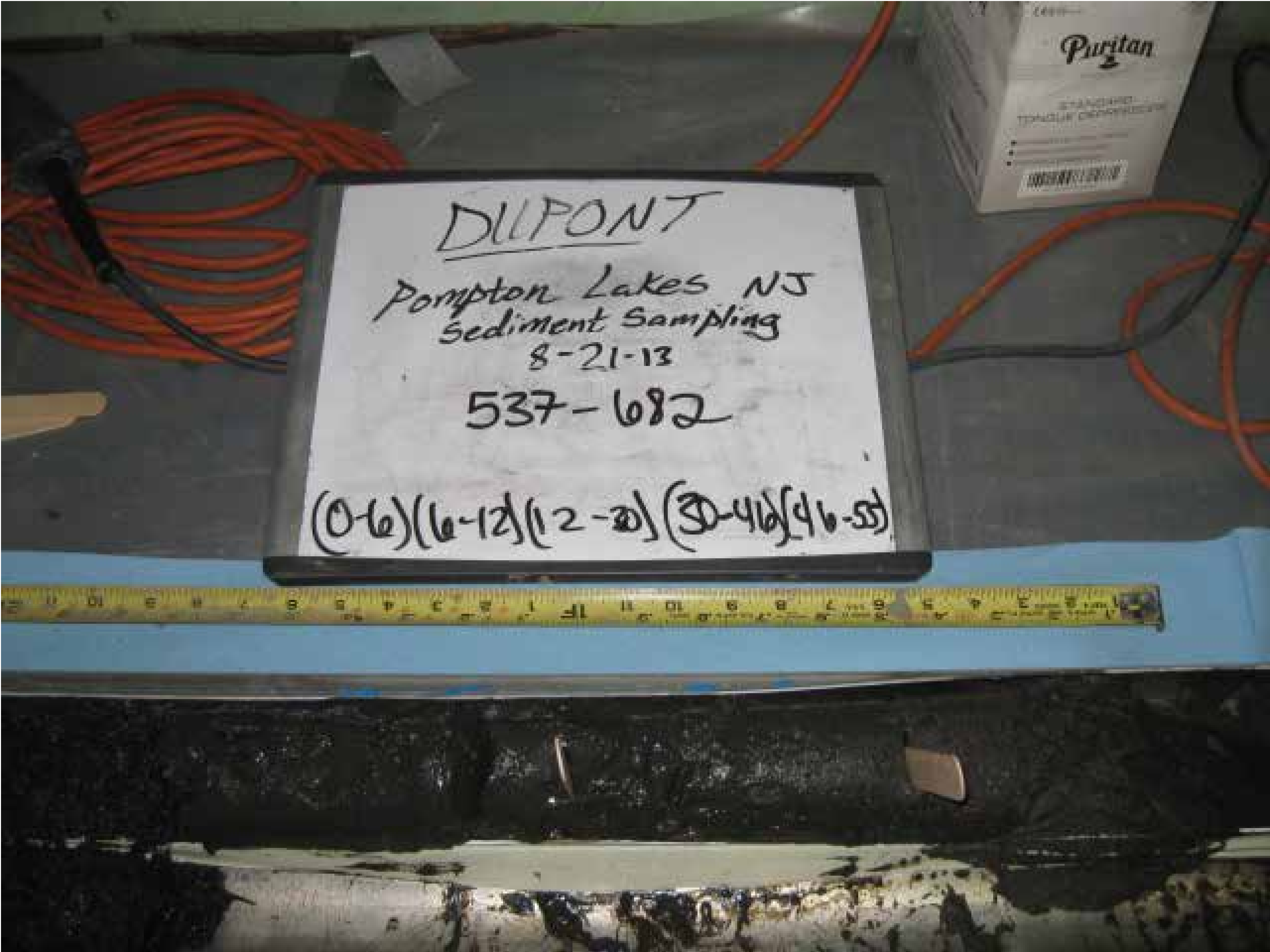
ID	Depth	Time
SD082113-537-682-0006	6"	11:20
SD082113-537-682-0612	12"	11:20
SD082113-537-682-1230	30"	11:20
SD082113-537-682-3046	46"	11:20
SD082113-537-682-4655	55"	11:20 HOLD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


Puritan
STANDARD TONGUE DEPRESSORS
DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-682
(0-6)(6-12)(12-30)(30-46)(46-55)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-682
(0-6)(6-12)(12-20)(30-46)(46-55)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-682
(0-6)(6-12)(12-20)(30-46)(46-55)


DUPONT
Pompton Lakes NJ
Sediment Sampling
537-682


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-682
(0-6)(6-12)(12-20)(30-46)(46-55)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/21/2013

Project #: B0042322.0003

Field Personnel: AEP, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD082113-537-683	10:50	6.1	60	48	6.1

Depth: Top	Bottom	Description
0"	32"	DARK GREY SILT, LITTLE ORGANICS, ROOTS, LEAF LITTER
32"	48"	BROWN MED COARSE SAND, AND MED COARSE GRAVEL

Samples

ID	Depth	Time	
SD082113-537-683-0006	6"	10:50	
SD082113-537-683-0612	12"	10:50	
SD082113-537-683-1232	32"	10:50	DUP-13, MS/MSD
SD082113-537-683-3248	48"	10:50	HOLD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-683


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-683


DUPONT
Pompton Lakes NJ
Sediment Sampling
5-21-18
537-683
(0-6)(6-12)(12-32)(32-48)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/21/2013

Project #: B0042322.0003

Field Personnel: AEP, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD082113-537-686	10:12	11.2	42	36	4.2

Depth: Top	Bottom	Description
0"	12"	DARK GREY SILT, SOME FINE SAND, TRACE ORGANICS, ROOTS
12"	36"	GREY MED. COARSE SAND, AND FINE, MED GRAVEL

Samples

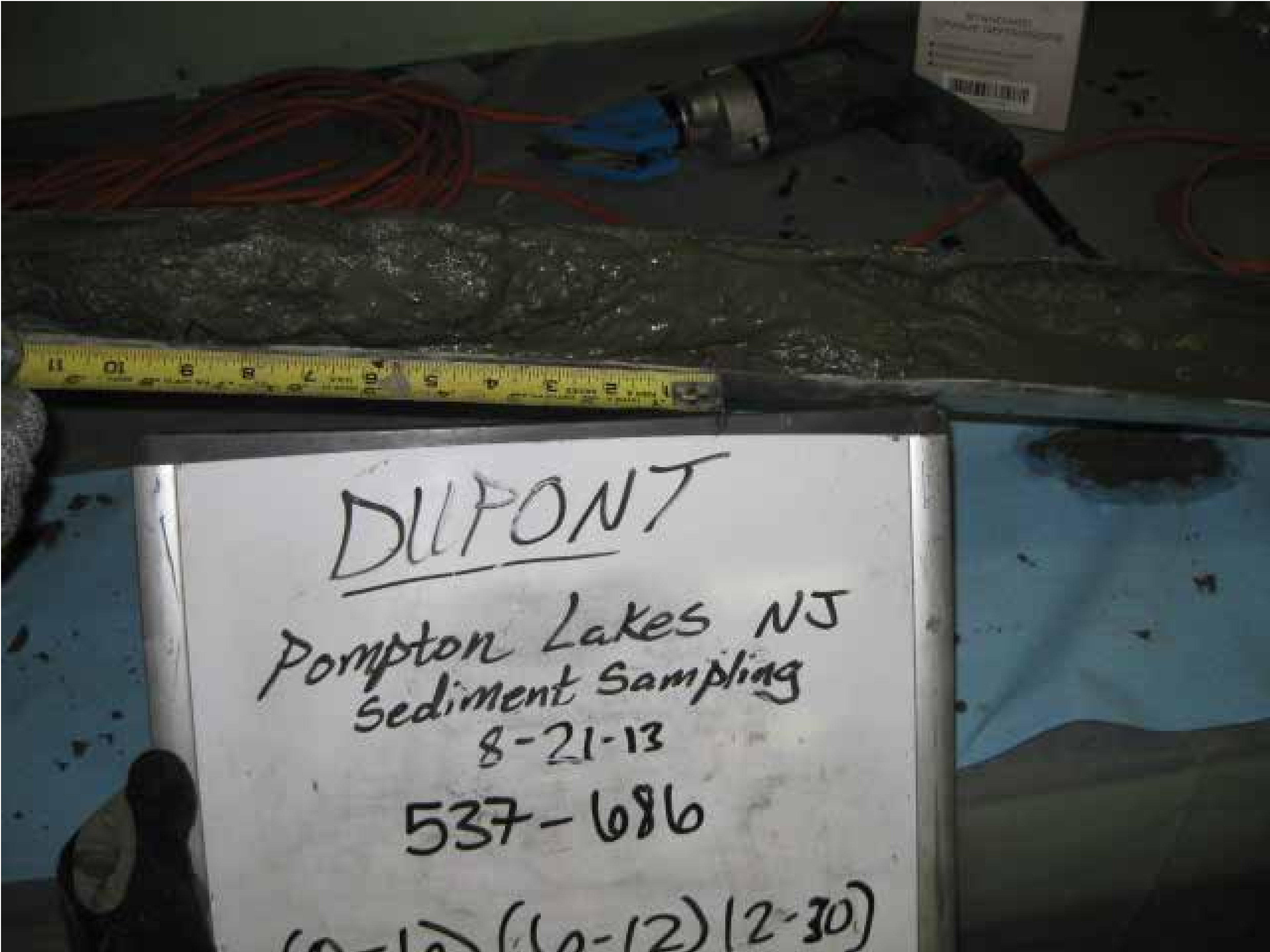
ID	Depth	Time
SD082113-537-686-0006	6"	10:12
SD082113-537-686-0612	12"	10:12
SD082113-537-686-1230	30"	10:12 HOLD

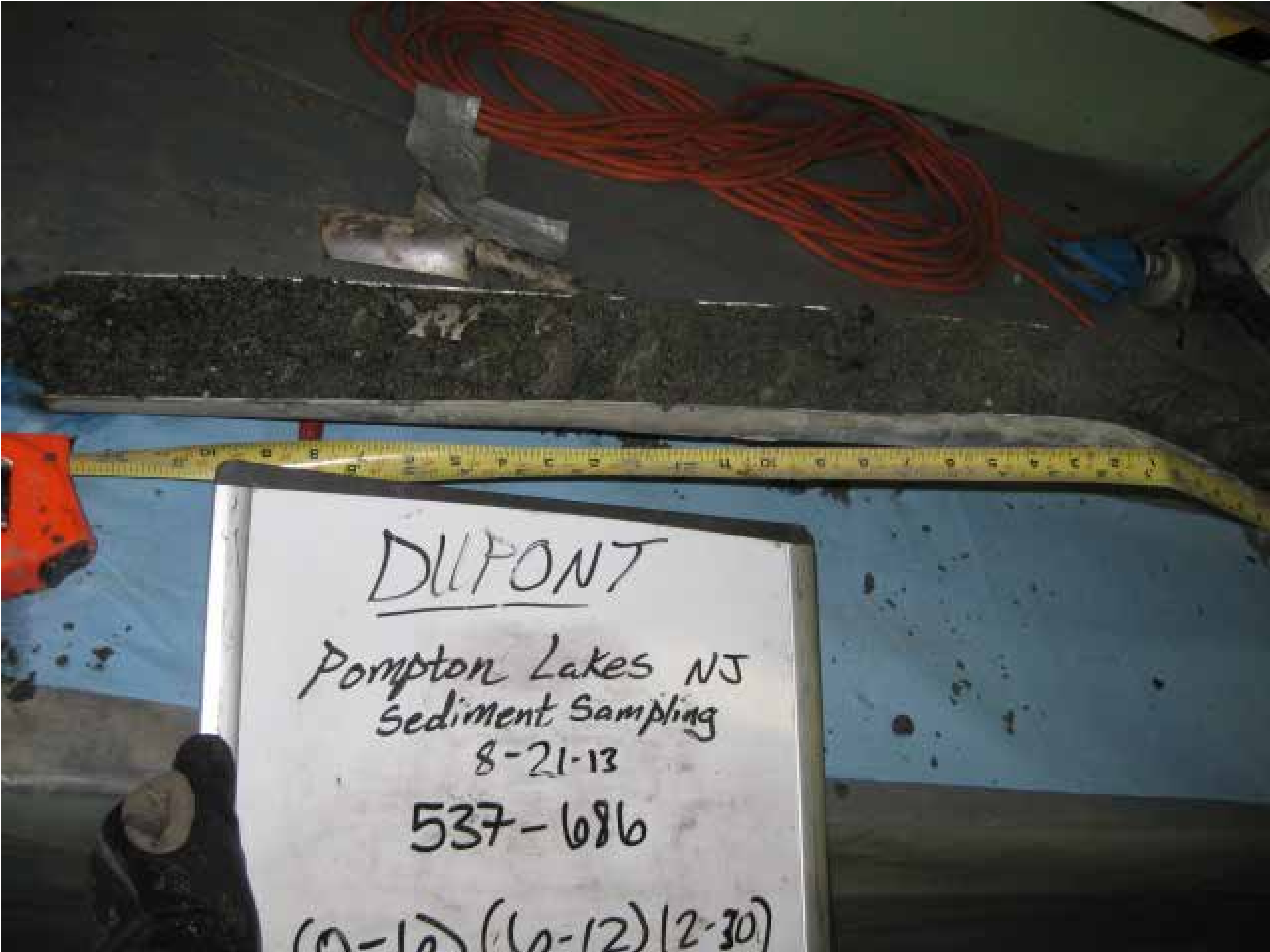
Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-686
(6-12) (2-30)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-686
(0-12) (6-12) (2-30)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-686
(0-6)(6-12)12-30)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling
Sampling Date: 8/21/2013

Project #: B0042322.0003

Field Personnel: AEP, NMM
Sample Matrix: 3" Aluminum Core

Weather: Sunny
Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD082113-537-680	13:45	11.5	72	72	4

Depth: Top	Bottom	Description
0"	54"	DARK GREY/BROWN SILT, SOME FINE SAND, LITTLE ORGANICS, ROOTS
54"	59"	MED. FINE GREY SAND, TRACE FINE GRAVEL (BOTTOM OF SEDIMENT)
59"	72"	BROWN COARSE SAND, AND FINE, MED. GRAVEL

Samples

ID	Depth	Time
SD082113-537-680-0006	6"	13:45
SD082113-537-680-0612	12"	13:45
SD082113-537-680-1230	30"	13:45
SD082113-537-680-3048	48"	13:45
SD082113-537-680-4859	59"	13:45
SD082113-537-680-5972	72"	13:45 HOLD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-680


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-680


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-680


DUPONT
Pompton Lakes NJ
Sediment Sampling
537-680
0-6
6-12
12-30
30-48


DUPONT
Pompton Lakes NJ
Sediment Sampling
12-30
30-48
48-59
59-72


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-669
Puritan


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-669


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-669
(0-6) (6-12) (12-30) (30-44)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling
Sampling Date: 8/21/2013

Project #: B0042322.0003

Field Personnel: AEP, NMM
Sample Matrix: 3" Aluminum Core

Weather: Sunny
Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD082113-537-676	14:00	13	72	12	6

Depth: Top	Bottom	Description
0"	7"	DARK GREY SILT, FINE, MED. SAND, LITTLE ORGANICS, WOOD DEBRIS,
7"	12"	GREY/BROWN FINE, MED. SAND, AND FINE, MED GRAVEL

Samples

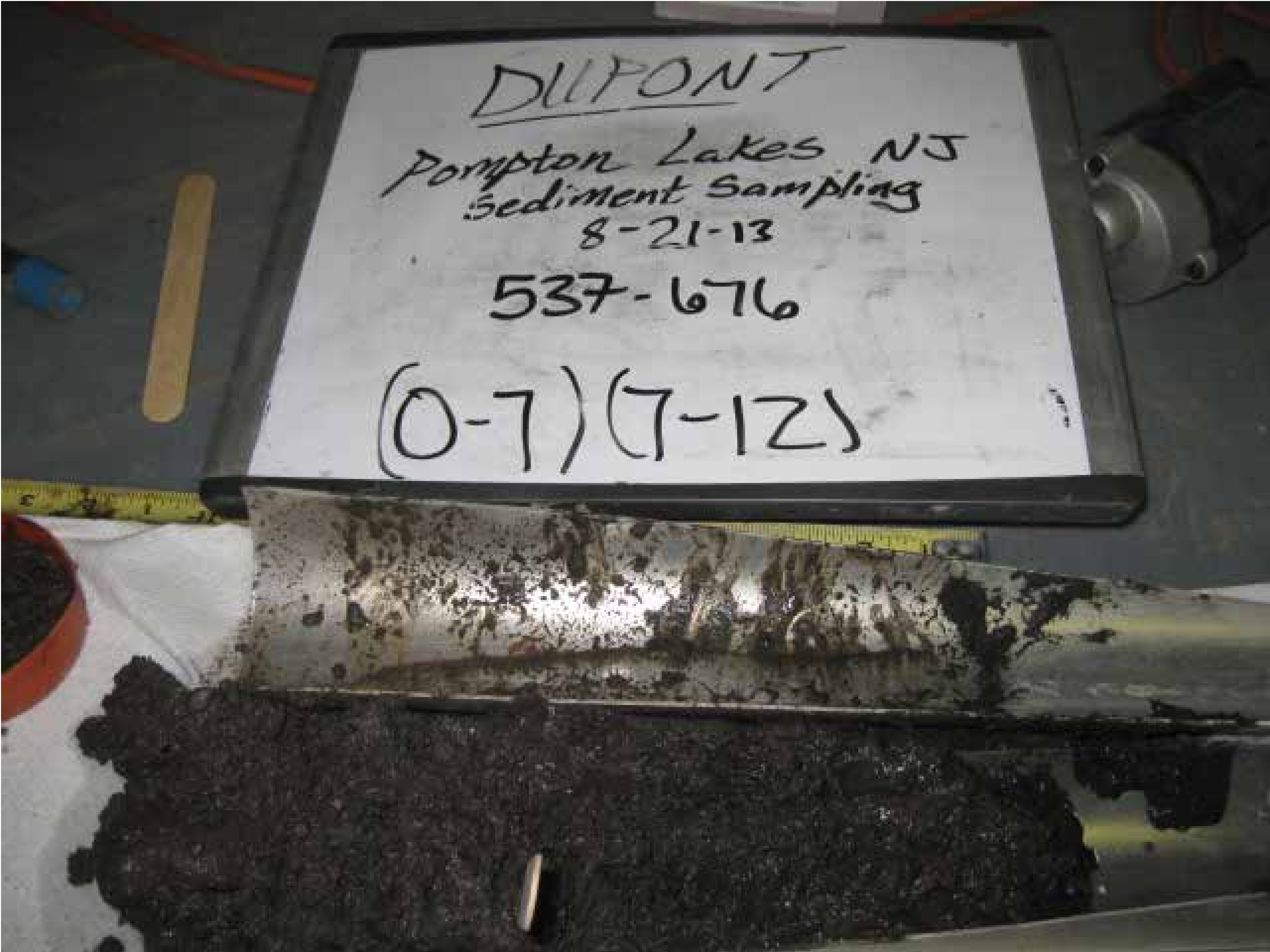
ID	Depth	Time	
SD082113-537-676-0007	7"	14:00	
SD082113-537-676-0712	12"	14:00	HOLD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes: 3 ATTEMPTS


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-676
(0-7)(7-12)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-676
(0-7)(7-12)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/21/2013

Project #: B0042322.0003

Field Personnel: AEP, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD082113-537-681	13:12	15	78	66	7

Depth: Top	Bottom	Description
0"	13"	DARK GREY FINE, MED. SAND
13"	52"	DARK GREY SILT, LITTLE ORGANICS, ROOTS, WOOD DEBRIS, LEAF LITTER
52"	66"	DARK GREY COARSE SAND

Samples

ID	Depth	Time
SD082113-537-681-0006	**6"**	**13:12**
SD082113-537-681-0612	12"	**13:12**
SD082113-537-681-1230	30"	**13:12**
SD082113-537-681-3048	48"	**13:12**
SD082113-537-681-4852	52"	**13:12**
SD082113-537-681-5266	66"	**13:12** HOLD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-081
(0-6)(6-12)(12-30)(30-48)(48-52)
(52-60)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-681
(0-6)(6-12)(12-30)(30-48)(48-52)
(52-


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-081
0-6
6-12
12-18


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-681
30-48
48-52
52-66

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/21/2013

Project #: B0042322.0003

Field Personnel: AEP, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD082113-537-670	16:00	14.9	36	24	3

Depth: Top	Bottom	Description
0"	24"	DARK GREY/BROWN SILT, LITTLE ORGANICS, WOOD DEBRIS, ROOTS

Samples

ID	Depth	Time
SD082113-537-670-0006	6"	16:00
SD082113-537-670-0612	12"	16:00
SD082113-537-670-1224	24"	16:00

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-670


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-670
(0-6) (6-12) (12-24)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/21/2013

Project #: B0042322.0003

Field Personnel: AEP, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD082113-537-677	13:23	6	84	60	7

Depth: Top	Bottom	Description
0"	21"	DARK GREY/BROWN SILT
21"	42"	GREY/BROWN COARSE SAND
42"	60"	GREY/BROWN COARSE SAND AND GRAVEL

Samples

ID	Depth	Time
SD082113-537-677-0006	6"	13:23
SD082113-537-677-0612	12"	13:23
SD082113-537-677-1221	21"	13:23
SD082113-537-677-2139	39"	13:23 HOLD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-077
(0-6) (6-12) (12-21) (21-39)
Puritan
STANDARD
TONGUE DEPRESSORS


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-077
(0-6) (6-12) (12-21) (21-39)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-677
(0-6)(6-12)(12-21)(21-39)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-18
537-677
(0-6) (6-12) (12-21) (21-39)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/21/2013

Project #: B00042322.0003

Field Personnel: AEP, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD082113-537-678	13:55	4.6	72	48	3.3

Depth: Top	Bottom	Description
0"	30"	DARK GREY SILT, LITTLE ORGANICS, ROOTS, LEAF LITTER, TRACE MED SAND AND GRAVEL
30"	48"	BROWN COARSE SAND, TRACE MED GRAVEL, COBBLES

Samples

ID	Depth	Time
SD082113-537-678-0006	6"	13:55
SD082113-537-678-0612	12"	13:55
SD082113-537-678-1230	30"	13:55
SD082113-537-678-3048	48"	13:55 HOLD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-678


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-678
25'


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-678
(0-6)(6-12)(12-30)(30-48)

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/21/2013

Project #: B0042322.0003

Field Personnel: AEP, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD082113-537-679	13:19	16.2	78	66	7

Depth: Top	Bottom	Description
0"	26"	DARK GREY SILT, TRACE ORGANICS, ROOTS
26"	50"	GREY/BROWN, COARSE SAND
50"	66"	GREY MED., COARSE SAND

Samples

ID	Depth	Time
SD082113-537-679-0006	**6"**	**13:19**
SD082113-537-679-0612	12"	**13:19**
SD082113-537-679-1226	26"	**13:19**
SD082113-537-679-2644	44"	**13:19** HOLD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-679


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-679


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-679


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-679
(0-6)(6-12)(12-26)(26-44)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/21/2013

Project #: B0042322.0003

Field Personnel: AEP, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD082113-537-673	14:45	4.4	24	24	2

Depth: Top	Bottom	Description
0"	12"	DARK GREY/BROWN SILT, LITTLE ORGANICS, ROOTS
12"	24"	BROWN SILT, SOME FINE SAND, LITTLE ORGANICS, ROOTS (BOTTOM OF SEDIMENT)

Samples

ID	Depth	Time
SD082113-537-673-0006	6"	14:45
SD082113-537-673-0612	12"	14:45
SD082113-537-673-1224	24"	14:45 DUP-15, MS/MSD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-673


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-073
(0-6) (6-12) (12-24)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/21/2013

Project #: B0042322.0003

Field Personnel: AEP, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD082113-537-671	15:55	14.3	36	24	4

Depth: Top	Bottom	Description
0"	24"	DARK GREY SILT, LITTLE ORGANICS, SOME FINE SAND

Samples

ID	Depth	Time
SD082113-537-671-0006	6"	15:55
SD082113-537-671-0612	12"	15:55
SD082113-537-671-1224	24"	15:55

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-671


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-671
(0-6)(6-12)(12-24)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/21/2013

Project #: B0042322.0003

Field Personnel: AEP, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD082113-537-672	14:35	18.6	24	18	2

Depth: Top	Bottom	Description
0"	3"	DARK GREY SILT
3"	18"	GREY COARSE SAND AND GRAVEL

Samples

ID	Depth	Time
SD082113-537-672-0003	3"	14:35
SD082113-537-672-0318	18"	14:35 HOLD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes: THE SAMPLE 0"-3" WAS COLLECTED PRIOR TO THE CORE PHOTOGRAPH. THE MEASURING TAPE HAS BEEN SHIFTED IN THE PHOTOGRAPH, THE DEPTHS NOTED IN THE DESCRIPTIONS ABOVE ARE CORRECT.


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-072
(0-3)(3-18)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-672
(0-3)(3-18)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/21/2013

Project #: B0042322.0003

Field Personnel: AEP, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD082113-537-668	15:20	8.4	12	10	1.8

Depth: Top	Bottom	Description
0"	10"	DARK GREY SILT, LITTLE ORGANICS, TRACE ROOTS

Samples

ID	Depth	Time
SD082113-537-668-0006	**6"**	**15:20**
SD082113-537-668-0610	10"	15:20

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-068
(0-6) (6-10)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-668
(0-6) (6-10)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/21/2013

Project #: B0042322.0003

Field Personnel: AEP, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD082113-537-674	15:00	10	24	20	1.8

Depth: Top	Bottom	Description
0"	11"	GREY/BROWN SILT, SOME CLAY, AND FINE SAND, TRACE ORGANICS ROOTS
11"	20"	DENSE PLASTIC BROWN CLAY

Samples

ID	Depth	Time
SD082113-537-674-0006	6"	15:00
SD082113-537-674-0611	11"	15:00
SD082113-537-674-1120	20"	15:00 HOLD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-674
(0-6)(6-11) (11-20)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-674
(0-6) (6-11) (11-20)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/21/2013

Project #: B0042322.0003

Field Personnel: AEP, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD082113-537-675	13:20	15	24	13	2

Depth: Top	Depth: Bottom	Description
0"	13"	DARK GREY SILT, LITTLE ORGANICS, ROOTS

Samples

ID	Depth	Time
SD082113-537-675-0006	6"	13:20
SD082113-537-675-0613	13"	13:20

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes: 3 ATTEMPTS


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-675


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-675
(0-6)(6-13)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/21/2013

Project #: B0042322.0003

Field Personnel: AEP, NMM

Sample Matrix: 3" Aluminum Core

Weather: Sunny

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD082113-537-667	15:30	13.2	24	19	1.8

Depth: Top	Bottom	Description
0"	19"	GREY FINE SAND, SOME SILT

Samples

ID	Depth	Time	
SD082113-537-667-0006	6"	15:30	
SD082113-537-667-0612	12"	15:30	
SD082113-537-667-1219	19"	15:30	DUP-16,MS/MSD

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-667
(0-6) (6-12) (12-19)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-21-13
537-667
(0-6) (6-12) (12-19)

DuPont Pompton Lake
Vibracore Sediment Sampling

August 22, 2013

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/22/2013

Project #: B0042322.0003

Field Personnel: AEP, NMM

Sample Matrix: 3" Aluminum Core

Weather: RAINING, CLOUDY

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD082213-537-484B	9:15	14	54	46	5

Depth: Top	Bottom	Description
0"	27"	DARK GREY SILT, SOME ORGANICS, ROOTS, LEAF LITTER
27"	44"	GREY MED COARSE SAND
44"	46"	BROWN SILT, AND FINE SAND

Samples

ID	Depth	Time
SD082213-537-484B-0006	6"	9:15
SD082213-537-484B-1117	17"	9:15
SD082213-537-484B-2127	27"	9:15

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes: THE MEASURING TAPE HAS BEEN SHIFTED IN THE PHOTOGRAPH, THE DEPTHS NOTED IN THE DESCRIPTIONS ABOVE ARE CORRECT.


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-22-13
537-484B
(0-6)(6-12)(12-23)(23-32)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-22-13
537-484 B
(0-6)(6-12)(12-23)(23-32)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-22-13
537-484B
(0-6) (11-17) (21-27)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/22/2013

Project #: B0042322.0003

Field Personnel: AEP, NMM

Sample Matrix: 3" Aluminum Core

Weather: RAINING, CLOUDY

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD082213-537-692	9:30	0.4	36	36	3

Depth: Top	Bottom	Description
0"	23"	GREY SILT, TRACE ORGANICS, ROOTS, LEAF LITTER
23"	32"	BROWN CLAY, SOME FINE, MED, COARSE SAND
32"	36"	BROWN FINE SAND, SOME SILT, TRACE FINE GRAVEL

Samples

ID	Depth	Time	
SD082213-537-692-0006	6"	9:30	
SD082213-537-692-0612	12"	9:30	
SD082213-537-692-1223	23"	9:30	DUP-17, MS/MSD
SD082213-537-692-2332	32"	9:30	HOLD

Photos: *See ID

Analysis:

Hg, Moisture

Additional Notes: ONLY A SAMPLE PHOTOGRAPH WAS TAKEN


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-22-13
537-6092
(0-6) (6-12) (12-23) (23-38)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/22/2013

Project #: B0042322.0003

Field Personnel: AEP, NMM

Sample Matrix: 3" Aluminum Core

Weather: RAINING, CLOUDY

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD082213-537-478B	10:00	14.2	24	21	3

Depth: Top	Depth: Bottom	Description
0"	21"	DARK GREY SILT, TRACE ORGANICS, ROOTS

Samples

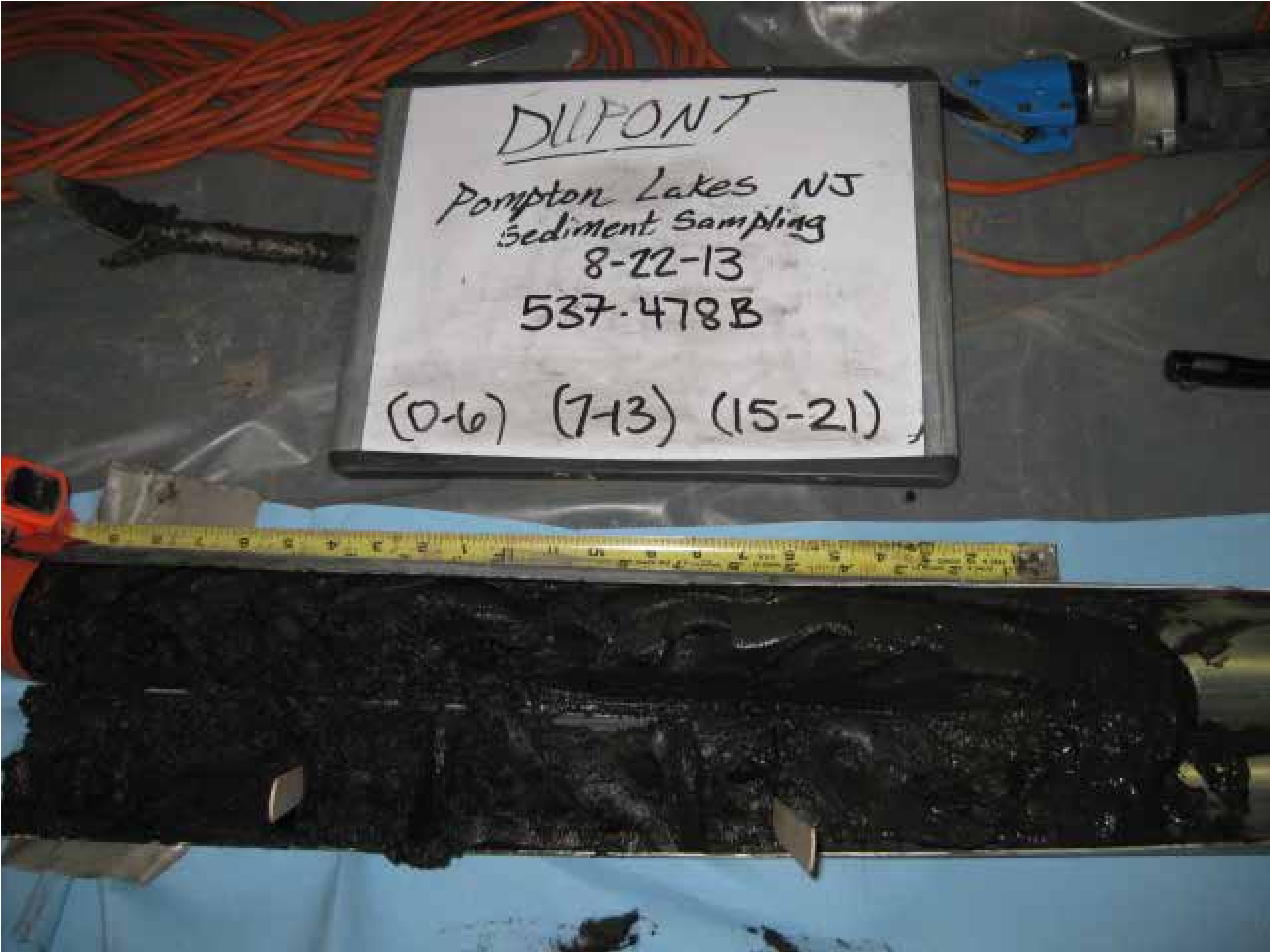
ID	Depth	Time	
SD082213-537-478B-0006	6"	10:00	
SD082213-537-478B-0713	13"	10:00	DISCARD
SD082213-537-478B-1521	21"	10:00	

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-22-13
537-478B
(0-6) (7-13) (15-21)


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-22-13
(0-6) (7-13) (15-21)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/22/2013

Project #: B0042322.0003

Field Personnel: AEP, NMM

Sample Matrix: 3" Aluminum Core

Weather: RAINING, CLOUDY

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD082213-537-694	8:35	12	17	17	1.4

Depth: Top	Bottom	Description
0"	14"	DARK GREY SILT, LITTLE ORGANICS, WOOD DEBRIS, ROOTS
14"	17"	DARK GREY SILT, AND FINE, MED. COARSE SAND, LITTLE ORGANICS, ROOTS, WOOD DEBRIS (BOTTOM OF SEDIMENT)

Samples

ID	Depth	Time
SD082213-537-694-0006	6"	8:35
SD082213-537-694-0614	14"	8:35
SD082213-537-694-1417	17"	8:35

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-22-13
537-694


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-22-13
537-G94
(0-6) (6-14) (14-17)

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/22/2013

Project #: B0042322.0003

Field Personnel: AEP, NMM

Sample Matrix: 3" Aluminum Core

Weather: RAINING, CLOUDY

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD082213-537-684	8:50	13.8	48	36	4

Depth: Top	Bottom	Description
0"	36"	DARK GREY SILT, LITTLE ORGANICS, ROOTS, WOOD DEBRIS, LEAF LITTER, TRACE FINE SAND

Samples

ID	Depth	Time
SD082213-537-684-0006	6"	8:50
SD082213-537-684-0612	12"	8:50
SD082213-537-684-1230	30"	8:50
SD082213-537-684-3036	36"	8:50

Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-22-13
537-684


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-22-13
537-C084
(0-6)(6-12)(12-30)(30-36)

ARCADIS

SAMPLE COLLECTION FIELD LOG

Project Title: Pompton Lakes Sediment Core Sampling

Sampling Date: 8/22/2013

Project #: B0042322.0003

Field Personnel: AEP, NMM

Sample Matrix: 3" Aluminum Core

Weather: RAINING, CLOUDY

Sampling Method: Vibracore

Sample Location	Time	Water Depth (ft.)	Penetration Depth (in)	Recovery Depth (in)	Probe Depth (ft.)
SD082213-537-693	9:05	6.1	42	36	3.5

Depth: Top	Bottom	Description
0"	12"	DARK GREY/BROWN SILT, LITTLE ORGANICS, ROOTS
12"	23"	BROWN SILT, FINE SAND, TRACE GRAVEL, LITTLE ORGANICS ROOTS (BOTTOM OF SEDIMENT)
23"	36"	BROWN COARSE SAND AND GRAVEL, TRACE COBBLE, TRACE ROOTS

Samples

ID	Depth	Time
SD082213-537-693-0006	6"	9:05
SD082213-537-693-0612	12"	9:05
SD082213-537-693-1223	23"	9:05
SD082213-537-693-2336	36"	9:05 HOLD

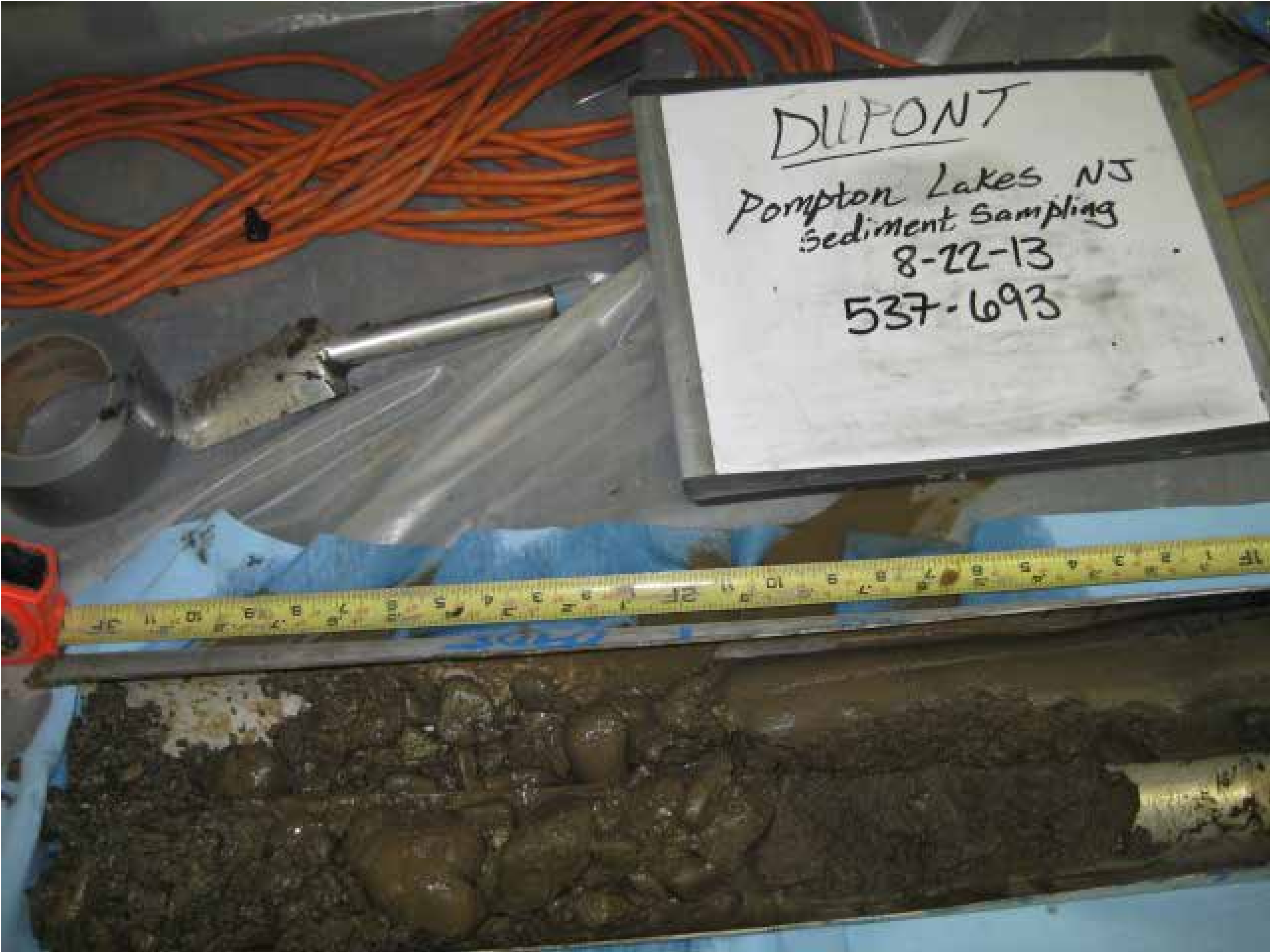
Photos: *See ID

Analysis:

Hg, MOISTURE

Additional Notes:


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-22-13
537-693



DUPONT
Pompton Lakes NJ
Sediment Sampling
8-22-13
537-693


DUPONT
Pompton Lakes NJ
Sediment Sampling
8-22-13
537-693
(0-6)(6-12)(12-23)(23-36)

ADQM DATA REVIEW
NARRATIVE

Site	**POM – Pompton Lakes Works**
Project	**Delta Summer 2013**
Project Reviewer	**Candia Carle**
Sampling Date	**August 13 – 16, 21 - 22, 2013**

Analytical Protocol

Laboratory	Analytical Method	Parameter(s)
Lancaster	SW 846 7470A/7471A	Mercury
Lancaster	SM 2540 G	Moisture

Sample Receipt

The following items are noted for this data set:

- All samples were received in satisfactory condition and within EPA temperature guidelines on August 15 – 16, and 23, 2013 with the following exceptions:
  Samples received at the lab on August 16, 2013 and logged into lab lots 1412131, 1412132, 1412133 and 1412134 had elevated cooler temperatures. The temperature is not expected to impact the data quality for mercury analyses.

- Samples labeled as 537-641 (in Lancaster lot 1411786) were labeled in the field incorrectly. A revised chain was sent to the lab to reflect the correct field sample ID of 537-642. A revised report was issued and the field sample ID and location were corrected in the database.

- Sample labeled as 537-291B-1016 (in Lancaster lot 1412132) was labeled in the field incorrectly. The error was discovered after the data was reported. A revised chain was sent to the lab to reflect the correct field sample ID of 537-777B-1016. A revised report was issued and the field sample ID and location were corrected in the database.

- The samples for 537-282B were incorrectly logged in by the laboratory as 537-262B (in Lancaster lot 1412132). The error was discovered after the data was reported. A revised report was issued and the field sample IDs and location were corrected in the database.

- The sample for 537-672 was incorrectly logged in by the laboratory as 537-627 (in Lancaster lot 1413944). The error was discovered after the data was reported. A revised report was issued and the field sample ID and location were corrected in the database.

- The field sample IDs were not in a standard format for the DuPont CRG database. The depths were included in the field sample ID in the format of 1218, for example, instead of the usual 1.0-1.5. These depths were originally interpreted as being part of the location. For example, 537-280B-1218 was put in the database as the location. The locations were corrected to remove the depth reference; in this example, the correct location is 537-280B, with a top and bottom depth of 1.0 and 1.5 feet.

- Not all labels matched the chain of custodies. The lab logged per the chain of custody.

- Not all number of containers on the chain of custodies matched what was received by the lab.

- Times were not recorded on the chain for the two equipment blanks labeled EB-081413. The lab logged with a collection time of 00:00.

- Samples in Lancaster lot 1411785 had –D erroneously included in the field sample IDs on the chain. The lab was instructed to remove the –D from the IDs at log-in.

- Sample 537-691-1230 in Lancaster lot 1411785 and 537-646-0212 in Lancaster lot 1411787 were originally listed on the chain to analyze. The project team instructed the lab to put the samples on HOLD.

- Select samples were placed on HOLD pending review of data from associated samples. Not all HOLD samples were analyzed. The lab was asked to continue to hold all remaining sample volume until notified otherwise.

Data Review

The electronic data submitted for this project was reviewed via the automated DuPont Data Review (DDR) process via the EIM Data Validation Module (DVM). Overall the data is acceptable for use without qualification, except as noted below:

- Some of the analytical results have been qualified in the database. See the DuPont Data Review (DDR) Narrative Report for which samples were qualified, the specific reasons for qualification, and potential bias in reported results.

- Field duplicates were submitted as blind duplicates. The sample collection times were not always recorded on the chain and therefore the lab could not identify which was the parent sample. Therefore, the field duplicate and its parent sample were not always in same lot. Samples not in the same lot were not associated and therefore not evaluated by the DVM. The table below is the list of field sample parents and their associated duplicates.

Parent Field Sample ID	Field Duplicate Number
SD081313-537-240B-0006	1
SD081313-537-647-1224	2
SD081413-537-476B-0612	3
SD081413-537-475B-1824	4
SD081413-537-465B-1824	5
SD081413-537-474B-0006	6
SD081513-537-659-1230	7
SD081513-537-462B-2834	8
SD081513-537-662-0006	9
SD081513-537-645-0006	10
SD081513-537-249B-0612	11
SD081613-537-666-1230	12
SD082113-537-683-1232	13
SD082113-537-669-3044	14
SD082113-537-673-1224	15

Parent Field Sample ID	Field Duplicate Number
SD082113-537-667-1219	16
SD082213-537-692-1223	17

Attachments

The DDR Narrative report and Lancaster Labs summary level report are attached. The full deliverables provided by the lab, due to the large file size, are not attached but are stored on the server in the project folder.

DDR Narrative Report

Site: Pompton Lakes Works **Sampling Program:** Delta Summer 2013 **Validation Options:** LABSTATS

Validation Reason Code: Contamination detected in Method Blank(s). Sample result does not differ significantly from the analyte concentration detected in the associated method blank(s).

Field Sample ID	Date Sampled	Lab Sample ID	Analyte	Result	Units	Type	MDL	PQL	Validation Qualifier	Analytical Method	Pre-prep	Prep
SD082113-537-671-0612	08/21/2013	7173033	MERCURY	0.0392	MG/KG	MDL	0.0127	0.127	B	7471A		7471A MOD.
SD082113-537-671-1224	08/21/2013	7173034	MERCURY	0.0390	MG/KG	MDL	0.0142	0.142	B	7471A		7471A MOD.
SD082113-537-673-1224	08/21/2013	7173027	MERCURY	0.0620	MG/KG	MDL	0.0126	0.126	B	7471A		7471A MOD.
SD082113-537-DUP-15-082113	08/21/2013	7173031	MERCURY	0.0391	MG/KG	MDL	0.0124	0.124	B	7471A		7471A MOD.

Site: Pompton Lakes Works **Sampling Program:** Delta Summer 2013 **Validation Options:** LABSTATS

Validation Reason Code: Associated MS and/or MSD analysis had relative percent recovery (RPR) values higher than the upper control limit. The reported result may be biased high.

Field Sample ID	Date Sampled	Lab Sample ID	Analyte	Result	Units	Type	MDL	PQL	Validation Qualifier	Analytical Method	Pre-prep	Prep
SD081413-537-DUP-4-081413	08/14/2013	7162660	MERCURY	0.540	MG/KG	MDL	0.0205	0.205	J	7471A		7471A MOD.
SD081313-537-253B-0006	08/13/2013	7162528	MERCURY	14.7	MG/KG	MDL	0.717	7.17	J	7471A		7471A MOD.
SD081313-537-253B-1218	08/13/2013	7162529	MERCURY	38.9	MG/KG	MDL	0.758	7.58	J	7471A		7471A MOD.
SD081313-537-280B-0006	08/13/2013	7162518	MERCURY	3.58	MG/KG	MDL	0.164	1.64	J	7471A		7471A MOD.
SD081313-537-280B-1218	08/13/2013	7162519	MERCURY	28.5	MG/KG	MDL	0.705	7.05	J	7471A		7471A MOD.
SD081313-537-342B-0006	08/13/2013	7162523	MERCURY	1.73	MG/KG	MDL	0.0268	0.268	J	7471A		7471A MOD.
SD081313-537-342B-0612	08/13/2013	7162524	MERCURY	0.153	MG/KG	MDL	0.0140	0.140	J	7471A		7471A MOD.
SD081313-537-449B-0006	08/13/2013	7162520	MERCURY	7.56	MG/KG	MDL	0.286	2.86	J	7471A		7471A MOD.
SD081313-537-449B-1218	08/13/2013	7162521	MERCURY	52.9	MG/KG	MDL	1.35	13.5	J	7471A		7471A MOD.
SD081313-537-687-0006	08/13/2013	7162525	MERCURY	2.12	MG/KG	MDL	0.0330	0.330	J	7471A		7471A MOD.
SD081313-537-687-0612	08/13/2013	7162526	MERCURY	2.61	MG/KG	MDL	0.0350	0.350	J	7471A		7471A MOD.
SD081313-537-687-1230	08/13/2013	7162527	MERCURY	13.0	MG/KG	MDL	0.584	5.84	J	7471A		7471A MOD.
SD081313-537-691-0006	08/13/2013	7162531	MERCURY	11.3	MG/KG	MDL	0.403	4.03	J	7471A		7471A MOD.
SD081313-537-691-0612	08/13/2013	7162532	MERCURY	20.1	MG/KG	MDL	0.696	6.96	J	7471A		7471A MOD.
SD081413-537-475B-1824	08/14/2013	7162656	MERCURY	0.833	MG/KG	MDL	0.0212	0.212	J	7471A		7471A MOD.
SD082113-537-668-0610	08/21/2013	7173037	MERCURY	10.2	MG/KG	MDL	0.268	2.68	J	7471A		7471A MOD.
SD082113-537-675-0006	08/21/2013	7173040	MERCURY	19.6	MG/KG	MDL	0.765	7.65	J	7471A		7471A MOD.
SD082113-537-675-0613	08/21/2013	7173041	MERCURY	25.0	MG/KG	MDL	1.21	12.1	J	7471A		7471A MOD.
SD082113-537-674-0611	08/21/2013	7173039	MERCURY	0.0544	MG/KG	MDL	0.0130	0.130	J	7471A		7471A MOD.
SD081313-537-487B-0006	08/13/2013	7162530	MERCURY	0.166	MG/KG	MDL	0.0214	0.214	J	7471A		7471A MOD.

Site: Pompton Lakes Works **Sampling Program:** Delta Summer 2013 **Validation Options:** LABSTATS

Validation Reason Code: High relative percent difference (RPD) observed between field duplicate and parent sample. The reported result may be imprecise.

Field Sample ID	Date Sampled	Lab Sample ID	Analyte	Result	Units	Type	MDL	PQL	Validation Qualifier	Analytical Method	Pre-prep	Prep
SD082113-537-683-1232	08/21/2013	7172821	MERCURY	1.22	MG/KG	MDL	0.0395	0.395	J	7471A		7471A MOD.
SD082113-537-DUP-13-082113	08/21/2013	7172825	MERCURY	2.47	MG/KG	MDL	0.0704	0.704	J	7471A		7471A MOD.

Site: Pompton Lakes Works **Sampling Program:** Delta Summer 2013 **Validation Options:** LABSTATS

Validation Reason Code: High relative percent difference (RPD) observed between REP (laboratory replicate) and parent sample. The reported result may be imprecise.

Field Sample ID	Date Sampled	Lab Sample ID	Analyte	Result	Units	Type	MDL	PQL	Validation Qualifier	Analytical Method	Pre-prep	Prep
SD081413-537-653-0006	08/14/2013	7164247	PERCENT MOISTURE	50.7	%	MDL	0.50	0.50	J	2540 G-1997		
SD081413-537-653-0612	08/14/2013	7164248	PERCENT MOISTURE	57.7	%	MDL	0.50	0.50	J	2540 G-1997		
SD081413-537-653-1224	08/14/2013	7164249	PERCENT MOISTURE	67.2	%	MDL	0.50	0.50	J	2540 G-1997		
SD081413-537-688-0004	08/14/2013	7164271	PERCENT MOISTURE	43.8	%	MDL	0.50	0.50	J	2540 G-1997		
SD081413-537-689-0002	08/14/2013	7164273	PERCENT MOISTURE	15.0	%	MDL	0.50	0.50	J	2540 G-1997		
SD081413-537-690-0003	08/14/2013	7164272	PERCENT MOISTURE	25.4	%	MDL	0.50	0.50	J	2540 G-1997		
SD081413-537-DUP-5-081413	08/14/2013	7164275	PERCENT MOISTURE	40.3	%	MDL	0.50	0.50	J	2540 G-1997		
SD081313-537-330B-0006	08/13/2013	7162555	MERCURY	28.9	MG/KG	MDL	0.628	6.28	J	7471A		7471A MOD.
SD081313-537-330B-0814	08/13/2013	7162559	MERCURY	1.94	MG/KG	MDL	0.0326	0.326	J	7471A		7471A MOD.
SD081313-537-480B-0006	08/13/2013	7162561	MERCURY	8.31	MG/KG	MDL	0.522	5.22	J	7471A		7471A MOD.
SD081313-537-480B-0612	08/13/2013	7162562	MERCURY	14.0	MG/KG	MDL	0.370	3.70	J	7471A		7471A MOD.
SD081313-537-646-0002	08/13/2013	7162560	MERCURY	0.235	MG/KG	MDL	0.0120	0.120	J	7471A		7471A MOD.
SD081413-537-282B-0006	08/14/2013	7164245	PERCENT MOISTURE	71.6	%	MDL	0.50	0.50	J	2540 G-1997		
SD081413-537-282B-1824	08/14/2013	7164246	PERCENT MOISTURE	63.4	%	MDL	0.50	0.50	J	2540 G-1997		
SD081413-537-318B-0006	08/14/2013	7164250	PERCENT MOISTURE	68.4	%	MDL	0.50	0.50	J	2540 G-1997		
SD081413-537-318B-1521	08/14/2013	7164251	PERCENT MOISTURE	72.1	%	MDL	0.50	0.50	J	2540 G-1997		
SD081413-537-320B-0006	08/14/2013	7162564	MERCURY	4.84	MG/KG	MDL	0.165	1.65	J	7471A		7471A MOD.
SD081413-537-320B-1218	08/14/2013	7162565	MERCURY	17.9	MG/KG	MDL	0.787	7.87	J	7471A		7471A MOD.
SD081413-537-321B-0006	08/14/2013	7164266	PERCENT MOISTURE	59.7	%	MDL	0.50	0.50	J	2540 G-1997		
SD081413-537-343B-3642	08/14/2013	7164270	PERCENT MOISTURE	70.2	%	MDL	0.50	0.50	J	2540 G-1997		
SD081413-537-465B-0006	08/14/2013	7164274	PERCENT MOISTURE	65.5	%	MDL	0.50	0.50	J	2540 G-1997		
SD081413-537-472B-0006	08/14/2013	7164267	PERCENT MOISTURE	63.1	%	MDL	0.50	0.50	J	2540 G-1997		
SD081413-537-472B-2127	08/14/2013	7164268	PERCENT MOISTURE	65.8	%	MDL	0.50	0.50	J	2540 G-1997		

Site: Pompton Lakes Works **Sampling Program:** Delta Summer 2013 **Validation Options:** LABSTATS

Validation Reason Code: High relative percent difference (RPD) observed between REP (laboratory replicate) and parent sample. The reported result may be imprecise.

Field Sample ID	Date Sampled	Lab Sample ID	Analyte	Result	Units	Type	MDL	PQL	Validation Qualifier	Analytical Method	Pre-prep	Prep
SD081413-537-472B-3642	08/14/2013	7164269	PERCENT MOISTURE	64.1	%	MDL	0.50	0.50	J	2540 G-1997		
SD081413-537-518B-0006	08/14/2013	7164242	PERCENT MOISTURE	71.0	%	MDL	0.50	0.50	J	2540 G-1997		
SD081413-537-518B-7278	08/14/2013	7164244	PERCENT MOISTURE	64.8	%	MDL	0.50	0.50	J	2540 G-1997		
SD081513-537-249B-0612	08/15/2013	7165187	MERCURY	5.64	MG/KG	MDL	0.121	1.21	J	7471A		7471A MOD.
SD081513-537-656-0006	08/15/2013	7165192	MERCURY	0.189	MG/KG	MDL	0.0148	0.148	J	7471A		7471A MOD.
SD081513-537-DUP-11-081513	08/15/2013	7165191	MERCURY	7.00	MG/KG	MDL	0.131	1.31	J	7471A		7471A MOD.
SD082113-537-467B-5965	08/21/2013	7172814	PERCENT MOISTURE	22.8	%	MDL	0.50	0.50	J	2540 G-1997		
SD082113-537-667-0006	08/21/2013	7173042	PERCENT MOISTURE	21.5	%	MDL	0.50	0.50	J	2540 G-1997		
SD082113-537-667-0612	08/21/2013	7173043	PERCENT MOISTURE	25.0	%	MDL	0.50	0.50	J	2540 G-1997		
SD082113-537-667-1219	08/21/2013	7173044	PERCENT MOISTURE	28.3	%	MDL	0.50	0.50	J	2540 G-1997		
SD082113-537-668-0610	08/21/2013	7173037	PERCENT MOISTURE	63.0	%	MDL	0.50	0.50	J	2540 G-1997		
SD082113-537-DUP-16-082113	08/21/2013	7173048	PERCENT MOISTURE	24.0	%	MDL	0.50	0.50	J	2540 G-1997		
SD082213-537-484B-0006	08/22/2013	7173050	PERCENT MOISTURE	60.8	%	MDL	0.50	0.50	J	2540 G-1997		
SD082213-537-484B-1117	08/22/2013	7173051	PERCENT MOISTURE	75.2	%	MDL	0.50	0.50	J	2540 G-1997		
SD082213-537-684-0006	08/22/2013	7173066	PERCENT MOISTURE	68.4	%	MDL	0.50	0.50	J	2540 G-1997		
SD082213-537-684-0612	08/22/2013	7173067	PERCENT MOISTURE	62.5	%	MDL	0.50	0.50	J	2540 G-1997		
SD082213-537-684-1230	08/22/2013	7173068	PERCENT MOISTURE	56.0	%	MDL	0.50	0.50	J	2540 G-1997		
SD082113-537-680-0006	08/21/2013	7172829	PERCENT MOISTURE	39.7	%	MDL	0.50	0.50	J	2540 G-1997		
SD082213-537-684-3036	08/22/2013	7173069	PERCENT MOISTURE	54.6	%	MDL	0.50	0.50	J	2540 G-1997		
SD082213-537-693-0006	08/22/2013	7173070	PERCENT MOISTURE	67.8	%	MDL	0.50	0.50	J	2540 G-1997		
SD082213-537-693-0612	08/22/2013	7173071	PERCENT MOISTURE	77.0	%	MDL	0.50	0.50	J	2540 G-1997		
SD082213-537-693-1223	08/22/2013	7173072	PERCENT MOISTURE	27.5	%	MDL	0.50	0.50	J	2540 G-1997		
SD082213-537-694-0614	08/22/2013	7173064	PERCENT MOISTURE	71.6	%	MDL	0.50	0.50	J	2540 G-1997		

Site: Pompton Lakes Works **Sampling Program:** Delta Summer 2013 **Validation Options:** LABSTATS

Validation Reason Code: High relative percent difference (RPD) observed between REP (laboratory replicate) and parent sample. The reported result may be imprecise.

Field Sample ID	Date Sampled	Lab Sample ID	Analyte	Result	Units	Type	MDL	PQL	Validation Qualifier	Analytical Method	Pre-prep	Prep
SD082113-537-674-0006	08/21/2013	7173038	PERCENT MOISTURE	24.9	%	MDL	0.50	0.50	J	2540 G-1997		
SD082113-537-674-0611	08/21/2013	7173039	PERCENT MOISTURE	24.9	%	MDL	0.50	0.50	J	2540 G-1997		
SD082113-537-675-0006	08/21/2013	7173040	PERCENT MOISTURE	74.5	%	MDL	0.50	0.50	J	2540 G-1997		
SD082113-537-675-0613	08/21/2013	7173041	PERCENT MOISTURE	61.5	%	MDL	0.50	0.50	J	2540 G-1997		
SD082113-537-682-0006	08/21/2013	7172815	PERCENT MOISTURE	40.6	%	MDL	0.50	0.50	J	2540 G-1997		
SD082113-537-682-0612	08/21/2013	7172816	PERCENT MOISTURE	64.0	%	MDL	0.50	0.50	J	2540 G-1997		
SD082113-537-682-1230	08/21/2013	7172817	PERCENT MOISTURE	64.5	%	MDL	0.50	0.50	J	2540 G-1997		
SD082113-537-682-3046	08/21/2013	7172818	PERCENT MOISTURE	65.3	%	MDL	0.50	0.50	J	2540 G-1997		
SD082113-537-683-0006	08/21/2013	7172819	PERCENT MOISTURE	72.1	%	MDL	0.50	0.50	J	2540 G-1997		
SD082113-537-683-0612	08/21/2013	7172820	PERCENT MOISTURE	60.6	%	MDL	0.50	0.50	J	2540 G-1997		
SD082113-537-683-1232	08/21/2013	7172821	PERCENT MOISTURE	37.0	%	MDL	0.50	0.50	J	2540 G-1997		
SD082113-537-686-0006	08/21/2013	7172826	PERCENT MOISTURE	24.4	%	MDL	0.50	0.50	J	2540 G-1997		
SD082113-537-686-0612	08/21/2013	7172827	PERCENT MOISTURE	18.4	%	MDL	0.50	0.50	J	2540 G-1997		
SD082113-537-DUP-13-082113	08/21/2013	7172825	PERCENT MOISTURE	33.3	%	MDL	0.50	0.50	J	2540 G-1997		
SD082213-537-694-1417	08/22/2013	7173065	PERCENT MOISTURE	32.2	%	MDL	0.50	0.50	J	2540 G-1997		
SD081313-537-491B-0006	08/13/2013	7162563	MERCURY	0.0175	MG/KG	MDL	0.0117	0.117	J	7471A		7471A MOD.

Site: Pompton Lakes Works **Sampling Program:** Delta Summer 2013 **Validation Options:** LABSTATS

Validation Reason Code: The result is estimated since the concentration is between the method detection limit and practical quantitation limit.

Field Sample ID	Date Sampled	Lab Sample ID	Analyte	Result	Units	Type	MDL	PQL	Validation Qualifier	Analytical Method	Pre-prep	Prep
SD082113-537-DUP-14-082113	08/21/2013	7173007	MERCURY	0.0224	MG/KG	MDL	0.0144	0.144	J	7471A		7471A MOD.
SD082113-537-680-0006	08/21/2013	7172829	MERCURY	0.0601	MG/KG	MDL	0.0158	0.158	J	7471A		7471A MOD.
SD082213-537-694-1417	08/22/2013	7173065	MERCURY	0.0452	MG/KG	MDL	0.0144	0.144	J	7471A		7471A MOD.
SD082113-537-680-0612	08/21/2013	7172996	MERCURY	0.0341	MG/KG	MDL	0.0139	0.139	J	7471A		7471A MOD.
SD082113-537-680-1230	08/21/2013	7172997	MERCURY	0.0298	MG/KG	MDL	0.0137	0.137	J	7471A		7471A MOD.
SD082113-537-680-3048	08/21/2013	7172998	MERCURY	0.0296	MG/KG	MDL	0.0123	0.123	J	7471A		7471A MOD.
SD082113-537-680-4859	08/21/2013	7172999	MERCURY	0.0216	MG/KG	MDL	0.0144	0.144	J	7471A		7471A MOD.
SD082113-537-681-0006	08/21/2013	7173009	MERCURY	0.110	MG/KG	MDL	0.0121	0.121	J	7471A		7471A MOD.
SD082113-537-681-0612	08/21/2013	7173010	MERCURY	0.104	MG/KG	MDL	0.0112	0.112	J	7471A		7471A MOD.
SD082213-537-684-3036	08/22/2013	7173069	MERCURY	0.0750	MG/KG	MDL	0.0211	0.211	J	7471A		7471A MOD.
SD082113-537-669-1230	08/21/2013	7173002	MERCURY	0.0191	MG/KG	MDL	0.0143	0.143	J	7471A		7471A MOD.
SD082113-537-669-3044	08/21/2013	7173003	MERCURY	0.0230	MG/KG	MDL	0.0141	0.141	J	7471A		7471A MOD.
SD081613-537-431B-3945	08/16/2013	7165218	MERCURY	0.0173	MG/KG	MDL	0.0143	0.143	J	7471A		7471A MOD.
SD082113-537-467B-5965	08/21/2013	7172814	MERCURY	0.0217	MG/KG	MDL	0.0121	0.121	J	7471A		7471A MOD.
SD081513-537-457B-3036	08/15/2013	7165157	MERCURY	0.0683	MG/KG	MDL	0.0139	0.139	J	7471A		7471A MOD.
SD081413-537-651-0006	08/14/2013	7162648	MERCURY	0.213	MG/KG	MDL	0.0294	0.294	J	7471A		7471A MOD.
SD081313-537-506B-0006	08/13/2013	7162533	MERCURY	0.235	MG/KG	MDL	0.0273	0.273	J	7471A		7471A MOD.
SD081313-537-506B-2733	08/13/2013	7162635	MERCURY	0.175	MG/KG	MDL	0.0224	0.224	J	7471A		7471A MOD.
SD081313-537-527B-3642	08/13/2013	7162638	MERCURY	0.0694	MG/KG	MDL	0.0147	0.147	J	7471A		7471A MOD.
SD081513-537-405B-5460	08/15/2013	7165141	MERCURY	0.0374	MG/KG	MDL	0.0136	0.136	J	7471A		7471A MOD.
SD081513-537-427B-4248	08/15/2013	7165138	MERCURY	0.0420	MG/KG	MDL	0.0137	0.137	J	7471A		7471A MOD.
SD081513-537-443B-3036	08/15/2013	7165171	MERCURY	0.0289	MG/KG	MDL	0.0134	0.134	J	7471A		7471A MOD.
SD081513-537-461B-4450	08/15/2013	7164291	MERCURY	0.123	MG/KG	MDL	0.0203	0.203	J	7471A		7471A MOD.

Site: Pompton Lakes Works **Sampling Program:** Delta Summer 2013 **Validation Options:** LABSTATS

Validation Reason Code: The result is estimated since the concentration is between the method detection limit and practical quantitation limit.

Field Sample ID	Date Sampled	Lab Sample ID	Analyte	Result	Units	Type	MDL	PQL	Validation Qualifier	Analytical Method	Pre-prep	Prep
SD081513-537-462B-2834	08/15/2013	7164238	MERCURY	0.0619	MG/KG	MDL	0.0245	0.245	J	7471A		7471A MOD.
SD081513-537-499B-2430	08/15/2013	7164311	MERCURY	0.111	MG/KG	MDL	0.0262	0.262	J	7471A		7471A MOD.
SD081513-537-499B-4854	08/15/2013	7164312	MERCURY	0.0618	MG/KG	MDL	0.0193	0.193	J	7471A		7471A MOD.
SD081513-537-531B-0005	08/15/2013	7164284	MERCURY	0.365	MG/KG	MDL	0.0467	0.467	J	7471A		7471A MOD.
SD081513-537-644-0006	08/15/2013	7164308	MERCURY	0.0685	MG/KG	MDL	0.0203	0.203	J	7471A		7471A MOD.
SD081513-537-644-0612	08/15/2013	7164309	MERCURY	0.0171	MG/KG	MDL	0.0136	0.136	J	7471A		7471A MOD.
SD081513-537-652-0006	08/15/2013	7164300	MERCURY	0.136	MG/KG	MDL	0.0199	0.199	J	7471A		7471A MOD.
SD081513-537-652-3035	08/15/2013	7164303	MERCURY	0.113	MG/KG	MDL	0.0145	0.145	J	7471A		7471A MOD.
SD081513-537-657-1230	08/15/2013	7164306	MERCURY	0.0497	MG/KG	MDL	0.0138	0.138	J	7471A		7471A MOD.
SD081513-537-657-3048	08/15/2013	7164307	MERCURY	0.0365	MG/KG	MDL	0.0130	0.130	J	7471A		7471A MOD.
SD081513-537-658-0006	08/15/2013	7165145	MERCURY	0.0804	MG/KG	MDL	0.0169	0.169	J	7471A		7471A MOD.
SD081513-537-659-3042	08/15/2013	7164298	MERCURY	0.0581	MG/KG	MDL	0.0155	0.155	J	7471A		7471A MOD.
SD081513-537-662-3048	08/15/2013	7165164	MERCURY	0.0541	MG/KG	MDL	0.0163	0.163	J	7471A		7471A MOD.
SD081513-537-663-1230	08/15/2013	7165150	MERCURY	0.112	MG/KG	MDL	0.0202	0.202	J	7471A		7471A MOD.
SD081513-537-664-1230	08/15/2013	7165168	MERCURY	0.0651	MG/KG	MDL	0.0143	0.143	J	7471A		7471A MOD.
SD081513-537-DUP-8-081513	08/15/2013	7164313	MERCURY	0.0775	MG/KG	MDL	0.0257	0.257	J	7471A		7471A MOD.
SD081413-537-690-0003	08/14/2013	7164272	MERCURY	0.0319	MG/KG	MDL	0.0133	0.133	J	7471A		7471A MOD.
SD081413-537-655-0006	08/14/2013	7162645	MERCURY	0.0964	MG/KG	MDL	0.0159	0.159	J	7471A		7471A MOD.

DuPont In-House Review (DDR)

The DDR is an internal review process used by the ADQM group to assist with the determination of data usability. The electronic data deliverables received from the laboratory are loaded into the Locus EIM™ database and processed through a series of data quality checks, which are a combination of software (Locus EIM™ database Data Validation Module (DVM)) and manual reviewer evaluations. The data is evaluated against the following data usability checks:

- Field and laboratory blank contamination
- US EPA hold time criteria
- Missing Quality Control (QC) samples
- Matrix spike(MS)/matrix spike duplicate (MSD) recoveries and the relative percent differences (RPDs) between these spikes
- Laboratory control sample(LCS)/control sample duplicate (LCSD) recoveries and the RPD between these spikes
- Surrogate spike recoveries for organic analyses
- RPD between field duplicate sample pairs
- RPD between laboratory replicates for inorganic analyses
- Difference / percent difference between total and dissolved sample pairs.

The DDR applies the following data evaluation qualifiers to analysis results, as warranted:

Qualifier	**Definition**
B	Not detected substantially above the level reported in the laboratory or field blanks.
R	Unusable result. Analyte may or may not be present in the sample.
J	Analyte present. Reported value may not be accurate or precise.
UJ	Not detected. Reporting limit may not be accurate or precise.

Please refer to the laboratory report for a description of the lab qualifiers.

ARCADIS

Appendix B

Additional Upland Data Collection
(November 2013)

Additional Upland Data Collection, November 2013

Introduction

A conceptual site model (CSM) describing conditions in Pompton Lake resulting from releases of site-related constituents from the former operations of the DuPont Pompton Lakes Works (PLW) in Pompton Lakes, NJ was used in the development of remedial alternatives for addressing impacted sediment within the lake and in portions of the uplands area of Acid Brook downstream of Lakeside Avenue (ARCADIS et. al, September 2011). The Corrective Measures Implementation Work Plan (CMI WP) proposes soil and sediment removal in the uplands area in order to achieve project Remedial Action Objectives (RAOs). Soil and sediment removal would be followed by restoration activities as detailed in the CMI WP. Based on historical data collected in the uplands area, remedial activities require excavation adjacent to two buried municipal sewer lines. In response to concerns regarding the protection of these sewer lines during remedial activities, additional samples were collected in November 2013 to further characterize contaminant of concern (COC) concentrations in sediments and provide a greater level of detail to aid excavation efforts.

Background and Objectives

Background

Based on historical soil and sediment samples collected between 1990 and 2010, the remedial activities proposed in the CMI WP target removal of mercury, selenium and lead in the creek bed and surrounding soil. Only mercury at a single location near Lakeside Avenue (approximately 5 feet [ft] south of the Lakeside Avenue Bridge) however, was identified for removal in the vicinity of the buried sewer lines. Other COCs (selenium and lead) targeted for removal near the sewer lines are located approximately 75 ft downstream of Lakeside Avenue.

Objectives

This objective of this sampling effort was to:

- Collect additional sediment data for mercury in the vicinity of the buried sewer lines,
- Collect additional sediment data for mercury in between the sewer lines and downstream locations targeted for removal of selenium and lead (as well as mercury), and
- Identify if smaller, targeted excavations can be used during remedial activities in the uplands area in order to mitigate risk of damage to the buried sewer lines.

Data Collection Efforts and Results

Data Collection

Data collection and sampling efforts were performed in the uplands area within the Acid Brook creek bed downstream of Lakeside Avenue in November 2013. Using soft-dig techniques (hand auger and spade), twelve sediment locations were sampled at one or more depths during a period when the creek bed was mostly dry. Target depths were 0-0.5 feet below grade (ft bg), 1.5-2.0 ft bg, and 3.0-3.5 ft bg. Depths were adjusted in the field during collection based on the cobble substrate present in the creek bed (refusal) while maintaining each sample's objective. Some locations (536-370 in particular) had limited/adjusted depths due to repeated refusal at target depths. A total of 34 samples were collected. Of the 34 samples collected, 21 samples were considered primary samples based on the depths and locations of historical samples. The remaining 13 samples were held pending the results of the primary samples. The New Jersey Department of Environmental Protection (NJDEP) Residential Direct Contact Soil Remediation Standard (RDCSRS) for mercury (23 mg/kg) was the benchmark for determining which secondary samples would be analyzed, if any. Samples locations and target depths are shown in Table B-1 below. All samples were submitted to Lancaster Laboratories, a New Jersey certified laboratory, for total mercury analysis using Method 7471A.

Table B-1: November 2013 Sediment Samples

<table>
<tr><th>Sampling Location</th><th>Target Depths</th><th>Sample Purpose</th></tr>
<tr><td>536-359</td><td rowspan="4">0.0-0.5, 1.5-2.0, 3.0-3.5 feet below ground</td><td rowspan="4">further characterize mercury in sediments between lead and selenium driven excavation area and buried sewer lines</td></tr>
<tr><td>536-360</td></tr>
<tr><td>536-361</td></tr>
<tr><td>536-362</td></tr>
<tr><td>536-363</td><td rowspan="4">0.0-0.5, 1.5-2.0, 3.0-3.5 feet below ground, as needed</td><td>further characterize mercury in sediments between lead and selenium driven excavation area and buried sewer lines IF adjacent samples exceeded NJRDCSRS</td></tr>
<tr><td>536-364</td><td>further characterize mercury in sediments between lead and selenium driven excavation area and buried sewer lines</td></tr>
<tr><td>536-365</td><td>further characterize mercury in sediments between lead and selenium driven excavation area and buried sewer lines IF adjacent samples exceeded NJRDCSRS</td></tr>
<tr><td>536-366</td><td rowspan="5">further characterize mercury in sediments in the vicinity of buried sewer lines</td></tr>
<tr><td>536-367</td><td>0.0-0.5, 1.5-2.0, 3.0-3.5 feet below ground</td></tr>
<tr><td>536-368</td><td rowspan="3">0.0-0.5, 1.5-2.0, 3.0-3.5 feet below ground, as needed</td></tr>
<tr><td>536-369</td></tr>
<tr><td>536-370</td></tr>
</table>

Quality Assurance/Quality Control

The quality assurance/quality control (QA/QC) sampling and procedures were performed consistent with past sampling events (Parsons, June 2010) and in accordance with the QA/QC methods described in the *2005 NJDEP Field Sampling Procedures Manual.* The electronic data submitted for this sampling event was reviewed via the DuPont Data Review (DDR) process. The DDR is an automated internal review process used by the ADQM group to determine if the data are usable. The data are processed through this automated program where a series of checks are performed. The data are evaluated against hold time criteria, checked for blank contamination, and assessed against matrix spike/matrix spike duplicate (MS/MSD) recoveries, relative percent differences (RPDs) between samples and laboratory replicates, laboratory control sample/control sample duplicate (LCS/LCSD) recoveries, and surrogate spike recoveries. The DDR applies the following data qualifiers to analysis results, as warranted.

Table B-2: DDR Analytical Qualifiers

Qualifier	Definition
B	Not detected substantially above the level in the laboratory field blanks.
R	Unusable result. Analyte may or may not be present in the sample.
J	Analyte present. Reported value may not be accurate or precise.
UJ	Not detected. Reporting limit may not be accurate or precise.

All data reported in this document were reviewed using the DDR process described above to determine data usability. No data used for evaluation/interpretation in this report were qualified "R". It should be noted that inherent variability is anticipated due to the nature of the matrix and constituents and that differences may not be an indicator of data quality issues.

Results

The results of all primary samples were below the NJDCSRS for mercury. Based on this, no secondary samples were analyzed. Figure 1 shows the historical sample locations within the creek bed and along the boundary of the creek as grey "chem"-boxes and the results of sediment mercury samples collected in November 2013 (shown as white "chem"-boxes). For ease of viewing, Figure 1 does not show historical sample location results outside the creek bed and periphery. Table B-3 shows the mercury results for all samples analyzed.

Table B-3: November 2013 Sediment Sample Results (Mercury, mg/kg)

Location ID	536-359			536-360			536-361			536-362		
Depth (ft bg)	0.0-0.5	1.5-2.0	2.5-3.0	0.0-0.5	1.5-2.0	3.0-3.5	0.0-0.5	0.0-0.5-D	1.5-2.0	0.0-0.5	0.0-0.5-D	1.5-2.0
Date Sampled	11/13/2013	11/13/2013	11/13/2013	11/13/2013	11/13/2013	11/13/2013	11/13/2013	11/13/2013	11/13/2013	11/13/2013	11/13/2013	11/13/2013
Report Result	3.95	15.3	8.04	2.23	0.339	0.0117 U	5.2	4.63	10.5	4.7	3.36	0.0739J

Location ID	536-364		536-366		536-367			536-368		536-369	536-370	
Depth	0.0-0.5	1.5-2.0	0.0-0.5	1.5-2.0	0.0-0.5	1.5-2.0	3.0-3.5	0.0-0.5	1.5-2.0	0.0-0.5	0.0-0.5	1.5-2.0
Date Sampled	11/13/2013	11/14/2013	11/13/2013	11/14/2013	11/13/2013	11/14/2013	11/14/2013	11/13/2013	11/14/2013	11/13/2013	11/13/2013	11/13/2013
Report Result	3.31	0.373	1.16	4.08	2.21	3.3	12.7	0.71	15.5	0.82	0.428	7.02

Conclusions and Recommendations

The objectives of these sampling activities were achieved. Additional mercury data in the vicinity of the buried storm sewers, as well as downstream were collected and analyzed. These data serve to further characterize mercury in the uplands sediment of Acid Brook and will aid the planning and execution of remedial activities in the uplands area. In general, both historical and recent mercury samples in the vicinity of the buried sewer lines are below the NJDCSRS for mercury. In addition, all recent samples collected south of the buried sewer lines are below the NJDCSRS for mercury.

Recommendations include an adjustment to the excavation size and volume in the vicinity of the buried sewer lines in order to address municipality concerns and mitigate any potential damage to the buried sewer lines. A small, targeted excavation just south of Lakeside Avenue to approximately 2.5 ft bg is anticipated to not impact the buried sewer lines. In addition, the extent of the downstream excavation may be adjusted based on these data results, resulting in a smaller excavation area.

Location Id	536-367	536-367	536-367
Depth	0.0-0.5	1.5-2.0	3.0-3.5
Date	11/13/2013	11/14/2013	11/14/2013
Parameter			
Copper	NA	NA	NA
Mercury	2.21	3.3	12.7
Selenium	NA	NA	NA

Location Id	536-370	536-370
Depth	0.0-0.5	1.5-2
Date	11/13/2013	11/13/2013
Parameter		
Copper	NA	NA
Mercury	0.428	7.02
Selenium	NA	NA

Location Id	536-369
Depth	0.0-0.5
Date	11/13/2013
Parameter	
Copper	NA
Mercury	0.82
Selenium	NA

Location Id	536-368	536-368
Depth	0.0-0.5	1.5-2.0
Date	11/13/2013	11/14/2013
Parameter		
Copper	NA	NA
Mercury	0.71	15.5
Selenium	NA	NA

Location Id	536-106	536-106	536-106	536-106	536-106	536-106	536-106
Depth	0-0.5	1-1.5	3-3.5	5-5.5	6-6.5	8-8.5	9.5-10
Date	04/28/1993	04/28/1993	04/28/1993	04/28/1993	04/28/1993	04/28/1993	04/28/1993
Parameter							
Copper	38.7	26.8	8.94	13.5	6.36	6.12	6.52
Mercury	4.66	8.94	1.7	1.8	1.6	1.6	1.6
Selenium	1.083	1.064	1.136	1.112	1.106	1.204	1.028

Location Id	536-36	536-36
Depth	0-0.5	1.5-2
Date	09/13/1990	09/13/1990
Parameter		
Copper	52.2	83
Mercury	**23.9**	**27.6**
Selenium	1	1.1

Location Id	536-366	536-366
Depth	0.0-0.5	1.5-2.0
Date	11/13/2013	11/14/2013
Parameter		
Copper	NA	NA
Mercury	1.16	4.08
Selenium	NA	NA

Location Id	536N-36D
Depth	2-2.5
Date	12/21/2009
Parameter	
Copper	NA
Mercury	4.7
Selenium	NA

Location Id	536-103	536-103	536-103	536-103
Depth	0-0.5	1.5-2	3-3.5	5-5.5
Date	12/02/1991	12/02/1991	12/02/1991	12/02/1991
Parameter				
Copper	36.3	29.8	25.2	32.8
Mercury	0.11	0.11	1.5	0.11
Selenium	0.22	0.21	0.21	0.21

Location Id	536-37
Depth	0-0.5
Date	09/13/1990
Parameter	
Copper	16.5
Mercury	0.33
Selenium	1

Location Id	536-14	536-14	536-14	536-14
Depth	0-0.5	1.5-2	3-3.5	5-5.5
Date	09/07/1990	09/07/1990	09/07/1990	09/07/1990
Parameter				
Copper	88.6	43.1	123	154
Mercury	8	1.9	3.4	6.2
Selenium	2.7	1.1	2	2.9

Location Id	536N-273	536N-273
Depth	0-0.5	1.5-2
Date	12/03/2009	12/03/2009
Parameter		
Copper	NA	NA
Mercury	3.51	2.83
Selenium	2.4	NA

Location Id	536-10	536-10	536-10
Depth	0-0.5	1.5-2	3-3.5
Date	06/05/1990	06/05/1990	06/05/1990
Parameter			
Copper	228	449	186
Mercury	**24.1**	**34.3**	11.3
Selenium	5.6	7	2.2

Location Id	536-11	536-11 DUP
Depth	0-0.5	0-0.5
Date	06/05/1990	06/05/1990
Parameter		
Copper	29.3	34
Mercury	0.53	0.41
Selenium	1.1	1.1

Location Id	536-24
Depth	0-0.5
Date	09/07/1990
Parameter	
Copper	25.9
Mercury	0.47
Selenium	1.1

Location Id	536-16
Depth	0-0.5
Date	09/07/1990
Parameter	
Copper	38.2
Mercury	1
Selenium	1.1

Location Id	536-12
Depth	0-0.5
Date	06/05/1990
Parameter	
Copper	19.5
Mercury	0.17
Selenium	1.1

Location Id	536-17
Depth	0-0.5
Date	09/07/1990
Parameter	
Copper	33.9
Mercury	0.82
Selenium	1.2

Location Id	536-359	536-359	536-359
Depth	0.0-0.5	1.5-2.0	2.5-3.0
Date	11/13/2013	11/13/2013	11/13/2013
Parameter			
Copper	NA	NA	NA
Mercury	3.95	15.3	8.04
Selenium	NA	NA	NA

Location Id	536-15
Depth	0-0.5
Date	09/07/1990
Parameter	
Copper	317
Mercury	**25.7**
Selenium	4.3

Location Id	536N-274
Depth	1.5-2
Date	12/03/2009
Parameter	
Copper	NA
Mercury	0.0510 J
Selenium	NA

Location Id	536-104	536-104	536-104 DUP	536-104	536-104	536-104	536-104	536-104
Depth	0-0.5	1-1.5	1-1.5	3-3.5	5-5.5	6-6.5	8-8.5	9.5-10
Date	04/28/1993	04/28/1993	04/28/1993	04/28/1993	04/28/1993	04/28/1993	04/28/1993	04/28/1993
Parameter								
Copper	78.9	32.1	44.8	8.02	8.43	8.81	8.99	8.88
Mercury	8.27	1.18	1.3	1.7	1.5	1.5	1.3	1.7
Selenium	0.991	0.954	1.067	1.088	1.13	0.966	0.991	1.075

Location Id	536-364	536-364
Depth	0.0-0.5	1.5-2.0
Date	11/13/2013	11/14/2013
Parameter		
Copper	NA	NA
Mercury	3.31	0.373
Selenium	NA	NA

Location Id	536-109
Depth	0-0.5
Date	04/22/1993
Parameter	
Copper	17.8
Mercury	1.1
Selenium	1.074

Location Id	536-361	536-361 DUP	536-361
Depth	0.0-0.5	0.0-0.5	1.5-2.0
Date	11/13/2013	11/13/2013	11/13/2013
Parameter			
Copper	NA	NA	NA
Mercury	5.2	4.63	10.5
Selenium	NA	NA	NA

Location Id	536-38	536-38	536-38	536-38
Depth	0-0.5	1.5-2	3-3.5	5-5.5
Date	09/12/1990	09/12/1990	09/12/1990	09/12/1990
Parameter				
Copper	19.5	14.6	14.7	10.1
Mercury	1	0.66	0.14	0.15
Selenium	1.1	1.2	1.3	1.3

Location Id	536-360	536-360	536-360
Depth	0.0-0.5	1.5-2.0	3.0-3.5
Date	11/13/2013	11/13/2013	11/13/2013
Parameter			
Copper	NA	NA	NA
Mercury	2.23	0.339	0.117
Selenium	NA	NA	NA

Location Id	536-7	536-7	536-7
Depth	0-0.5	1.5-2	3-3.5
Date	06/04/1990	06/04/1990	06/04/1990
Parameter			
Copper	31.5	29.2	13.5
Mercury	0.7	0.61	0.45
Selenium	1.1	0.55	0.57

Location Id	536-9
Depth	0-0.5
Date	06/04/1990
Parameter	
Copper	70.6
Mercury	9.8
Selenium	2.1

Location Id	536-39
Depth	0-0.5
Date	09/12/1990
Parameter	
Copper	17.1
Mercury	0.83
Selenium	1.1

Location Id	536N-277
Depth	1.5-2
Date	12/22/2009
Parameter	
Copper	NA
Mercury	4.17
Selenium	NA

Location Id	536-362	536-362 DUP	536-362
Depth	0.0-0.5	0.0-0.5	1.5-2.0
Date	11/13/2013	11/13/2013	11/13/2013
Parameter			
Copper	NA	NA	NA
Mercury	4.7	3.36	0.0739 J
Selenium	NA	NA	NA

LEGEND

- Sample Boring, 2013
- Investigation Boring, 1990-1996
- Sample(s) Above Criteria
- Delineation Boring 2009-2010
- 8" VCP Gravity Line
- 8" Force Main, assumed parallel to Gravity Line
- 212.8 Water Level Measurement

Name	NJ RDCSRS
Copper	3,100
Mercury	23
Selenium	390

Notes:
1. Highlighted and bold indicate exceedance of the standard.
2. All concentrations are in milligrams per kilogram.
3. NA = not analyzed
4. NJ RDCSRS = New Jersey Residential Direct Contact Soil Remediation Standard.
5. Sample Depth is in feet below the ground surface.
6. Basemap information provided from Parsons.
7. 2013 sample locations were survey by a New Jersey licensed surveyor.
8. Topography contour lines, streambed, storm and sanitary sewer CAD files provided by URS

DUPONT
POMPTON LAKES WORKS
POMPTON LAKES, NEW JERSEY

0 5 10 20 30 40
Feet
1 inch = 8 feet

ACID BROOK DELTA UPLANDS SEDIMENT SAMPLE RESULTS (FOR SELECT LOCATIONS)

FILE NO.
50548
DATE
JANUARY 21, 2014

FIGURE 1

O'BRIEN & GERE