REMEDIAL ACTION REPORT - Site Preparation Activities for the Groundwater Management of Migration (MOM) Remedy

Beede Waste Oil Superfund Site

Plaistow, New Hampshire

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1. INTRODUCTION

This Remedial Action Report (RA) has been developed by Woodard & Curran on behalf of the Beede Site Group (Group) for the Beede Waste Oil Superfund Site (Site) in Plaistow, New Hampshire. This RA is written in accordance with Section VI.A.10 of the Statement of Work (SOW) and EPA guidance on closeout procedures for National Priorities List Sites (EPA, 2011). Its purpose is to document that site preparation activities conducted to support the Groundwater Management of Migration (MOM) Remedial Action are complete and are operational and functional pursuant to the achievement of Performance Standards established by Section L.6, Part 2 of the Record of Decision (ROD). This report serves as an interim report to the Final Remedial Action (RA) Report that will be submitted once the comprehensive Performance Standards for the Site have been achieved.

1.1 REPORT ORGANIZATION

This MOM Site Preparation RA Report is organized into the following subsections:

Section 1 – Introduction: Outlines the organization and purpose for this report along with a description and history of the Site.

Section 2 – Summary of Construction Activities: Presents a detailed summary of Remedial Action (RA) activities implemented at the Site during the Site Preparation work. Also includes a chronology of these activities.

Section 3 – Site Restoration: Presents a summary of the site restoration activities conducted following completion of construction.

Section 4 – Performance Standards: Includes an assessment of the verification data and demonstrates compliance with the Sampling Plan for on-site Access Road Construction (Woodard & Curran, 2012).

Section 5 – Construction Quality Control: Includes an assessment of the materials utilized during construction compared to the requirements of the project specifications.

Section 6 – References: Includes a list of reference documents used in support of this report.

1.2 SITE BACKGROUND

The Site is located at 11 Kelley Road in Plaistow, New Hampshire. The Site is comprised of two parcels of approximately 41 aces within a predominantly residential zone. Access to the Site is through the driveway located at 221 Main Street. The property boundaries and surrounding features are shown on Figure 1.

Commercial operations at the Site began in 1926 with storage and distribution of fuel oil and recycling of used oil. From 1962 to 1994, Cash Energy, Inc., Beede Waste Oil (BWO), Industrial Fuels Corporation (IFC) and related subsidiaries and affiliates operated at the Site. Underground storage tanks (USTs), above ground storage tanks (ASTs), 55-gallon drum storage, and a 1 acre unlined lagoon were utilized on the Site at various times, with an estimated combined storage capacity of approximately 3 million gallons. In addition, 17 soil piles were on-site, with most originating from off-site petroleum UST removals and were intended for use in an on-site asphalt batching process, which operated for a short time in the early 1990's. During a compliance inspection by the New Hampshire Department of Environmental Services (NHDES) in 1988, elevated levels of polychlorinated biphenyls (PCBs) were detected in waste oil in several ASTs. Numerous notices and a Superior Court order to cease operations and perform investigation and remedial activities were issued between 1988 to 1992. Further details on the investigation activities, as well as the site history, are provided in the Remedial Investigation (RI) Report (SHA, 2001).

1.3 REGULATORY AUTHORITY

The United States Environmental Protection Agency (EPA) is the lead regulatory agency responsible for inspecting the completed project for compliance with the Consent Decree (CD), the ROD, the SOW, and the approved design and work plans. NHDES is a supporting agency to the EPA with respect to this project. EPA and NHDES are referred to collectively as the "Agencies" throughout this report.

1.4 REMEDY OVERVIEW

The overall site-wide remedy for the Site involves a series of remedial technologies to address current and potential future risks associated with the prior impacts to soil, sediment, groundwater, and surface water. The ROD specified remedy involves three main source control activities, including 1) the removal of impacted soil and sediment for off-site treatment or disposal, 2) the treatment of deeper soils through the use of SVE with potential thermal enhancements, and 3) management of migration activities involving extraction and on-site treatment of groundwater, with limited areas of natural attenuation. In addition to the institutional controls implemented at the Site, long-term monitoring of groundwater and surface water will be implemented to evaluate the effectiveness of the remedy.

This Remedial Action Report summarizes the initial site preparation activities that were conducted between August 2012 and April 2013 in support of the groundwater MOM remedy implementation. The primary components of the groundwater MOM remedy include construction of an extraction well field, rapid infiltration basins (RIBs), an injection well gallery (IWG), and a groundwater treatment system within a new building constructed on Parcel 2. Site preparation activities conducted in support of the GW MOM include the following: relocation of portions of soil and debris piles; excavation of impacted soils on Parcel 1 underlying the newly constructed temporary access driveway; offsite disposal of soils and debris; and construction of the temporary access driveway.

2. SUMMARY OF CONSTRUCTION ACTIVITIES

This section contains a summary of the activities that took place as part of the Site preparation work conducted in support of the groundwater MOM remedy implementation. This work was completed in accordance with the design Specifications and Drawings, applicable local, state, and federal codes and ordinances, and the final Health and Safety Plan (HASP) (Woodard & Curran, 2013). The work areas and major site features are presented on Figure 1-1.

2.1 CHRONOLOGY OF EVENTS

This section presents a chronology of events that took place at the Site as part of the MOM Site Preparation activities. Events are presented in chronological order beginning with the submittal of the Sampling Plan for on-site Access Road Construction in June 2012, as follows:

- January 9, 2004 – Record of Decision signed
- July 20, 2012 – Sampling Plan for on-site Access Road Completion Comment Response submitted to the EPA and NHDES.
- August 13, 2012 – Collected supplemental characterization samples from soils within the access road footprint.
- August 14, 2012 – Performed characterization of miscellaneous soil and debris piles.
- August 28, 2012 – Held on-site construction kick off meeting with representatives from ENPRO, Woodard & Curran, Cedarview, Beede Site Group, Sanborn, Head, and Associates (SHA), EPA, and NHDES.
- August 29, 2012 – Began clearing and grubbing for Site Preparation work.
- September 21 to October 5, 2012 – Designated portions of Piles 8 and 9 and the miscellaneous debris piles were relocated to the stockpile staging area.
- September 26, 2012 – Groundwater MOM 100% Final Design approved by EPA
- October 3, 2012 – Began collection of waste characterization samples from the relocated Piles 8 and 9.
- October 8, 2012 – Characterized the soil beneath the relocated portions of Piles 8 and 9.
- October 11, 2012 – Began the excavation of the driveway soil excavation areas.
- October 12, 2012 – Initiated construction of temporary gravel construction roads.
- October 16, 2012 – Discovered asphalt in Parcel 2.
- October 31, 2012 – Began excavation of the soils associated with the drain line encountered in the vicinity of Piles 8 and 9.
- November 12, 2012 – ENPRO replaced the cover on Pile 5A.
- November 26, 2012 – Excavation of the impacted soil within the access road was completed. Began filling and grading for the construction of the Site Access driveway.
- December 14, 2012 – Busby Construction Corp paved the Site Access driveway.
- January 14, 2013 – Collected waste characterization samples from the asphalt stockpile.
- February 25, 2013 to April 12, 2013 – ENPRO conducted off-site disposal of waste materials generated during the Site Preparation activities.
- April 12, 2013 – Completed Site Preparation activities.
- September 20, 2013 – Pre-final Site Inspection conducted
- June 9, 2014 – Final Site Inspection conducted

2.2 MOBILIZATION AND SITE WORK

On-site activities commenced on August 28, 2012 with a construction kick-off meeting attended by representatives from EPA, NHDES, SHA, the Beede Site Group, Cedarview Projects Inc. (the Construction Manager), ENPRO (the selected contractor), and Woodard & Curran (the Engineer). The meeting addressed project health and safety requirements, the dust monitoring program, construction sequencing and approach, quality control, and the traffic management plan.

The following work was conducted by ENPRO prior to the start of construction activities,

- Mobilization and staging of equipment and supplies;
- Survey layout;
- Installation of erosion controls including staked hay bales and silt fencing;
- Clearing and grubbing including: the removal of surficial vegetation; stockpiling of debris on the ground surface; chipping and spreading of wood in non-impacted areas of the site; and stockpiling of stumps for eventual delivery to an off-site recycling facility;
- Construction of the equipment decontamination pad;
- Construction of the vehicle tire scrub;
- Abandonment of monitoring wells SH-30S, SHMW-4, 9, 11 and 18;
- Construction of temporary gravel access roads to provide a “clean corridor” for vehicles;
- Installation of site perimeter fencing and new access gate at the Main Street Entrance; and
- Installation of interior site fencing.

The locations of the items listed above along with the excavation areas and significant site features are presented on Figure 1-1: Site Plan and Excavation Extent.

In parallel to the Site Preparation work, improvements were made to the Danville Road/Main Street intersection where the on-site access driveway enters the Site. This work included the installation of a new traffic signal as well as upgrades to the existing curbing and drainage. The intersection improvements were designed by Vanasse and Associates (VAI), constructed by Busby Construction of Atkinson, New Hampshire (Busby) and were completed under the oversight of NHDOT. The final site inspection was conducted by NHDOT on June 20, 2014.

2.3 CONTAINMENT AND CONTROLS

Physical containment and control techniques and devices were utilized throughout the project to prevent the spread of impacted materials outside the active work areas. A summary of the controls utilized is provided below.

- Decontamination Pad - An equipment decontamination pad (“decon pad”) was constructed to accommodate the largest anticipated vehicle or construction equipment that was to be used on site. The decon pad was constructed of an approximately six inch thick layer of four inch stone above a geotextile fabric and an impervious plastic liner. It was oriented to allow equipment and vehicles to move directly onto non-impacted areas when exiting the work zone. Equipment was decontaminated using an Alconox and water wash with a final diesel wipe applied to the excavator buckets. Decontaminated equipment was inspected by either the Engineer or the Construction Manager (CM) prior to leaving the site. A decontamination log is included as Appendix A. Wash waters, sludges, muds, and sediment generated during decontamination activities were contained and collected by a sump into 55-gallon drums and transported to the temporary waste storage

area for eventual off-site disposal. Refer to the Site Plan and Excavation Extent, included as Figure 1-1, for the location and approximate dimensions of the decon pad.

- Tire Scrub - A tire scrub was used for the dry removal of dirt, mud, and soils, from truck tires prior to exiting the Site. The tire scrub was constructed of a 12 inch thick layer of four inch stone above a non-woven geotextile fabric. Refer to the Site Plan and Excavation Extent, included as Figure 1-1, for the location and approximate dimensions of the tire scrub.
- Dust Controls and Monitoring - Throughout construction and excavation activities, ENPRO utilized a water truck to wet soils as necessary to minimize dust. In addition, ENPRO conducted daily perimeter and work zone dust monitoring throughout the Site Preparation work. The locations of the work zone dust monitoring stations varied based on the location of the work activities. The dust monitoring logs, as well as a figure depicting the locations of the perimeter dust monitoring locations, are provided in Appendix B.
- Erosion Control Inspections - Weekly inspections of the condition of the site erosion controls were conducted by ENPRO and/or the Engineer. Inspections were also conducted following any significant rain event as well as before, during and after any major storms. There were no storm events during the construction activities that resulted in the need for corrective measures. The silt fence and haybales remained intact and provided the desired erosion control. The inspection reports for each of these inspection events are included as Appendix C.

2.4 SAMPLING AND ANALYTICAL METHODS

Samples were collected in accordance with the Sampling Plan for on-site Access Road Construction sampling plan dated June 2012 (the "Sampling Plan"). Soils from each sample location were homogenized prior to being placed in laboratory-supplied glassware. Samples were placed on ice and transported via courier to the analytical laboratory under chain of custody documentation. Samples were analyzed, as specified in the Sampling Plan, for a subset of the following parameters: PCBs (via method 8082 with soxhlet extraction); total lead, arsenic, chromium and nickel (via method 6010B); total mercury (via method 7471B); C_{11} to C_{22} aromatic hydrocarbons (via MAEPH); benzo(a)pyrene and bis(2-ethylhexyl)phthalate (via method 8270); and VOCs (via method 8260B). The complete laboratory analytical reports are included in Appendix D. In addition to the laboratory data for benzo(a)pyrene, the *benzo(a)pyrene equivalent* was calculated to compare to the ROD clean-up level. This calculation included the sum of each of the seven carcinogenic PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo (k)flouranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene) multiplied by the respective relative potency factor. This value was then compared to the ROD clean-up level of 0.4 mg/kg for benzo(a)pyrene. For constituents that were not detected, half of the reported detection limit was utilized in the calculation. Refer to the respective tables referenced throughout this report for the *benzo(a)pyrene equivalent* values.

Samples were also collected for waste disposal characterization parameters from the relocated portions of Piles 8 and 9. Further details regarding the waste characterization sampling and off-site soil disposal are provided in Section 2.7. The complete laboratory analytical reports containing the waste characterization data are provided in Appendix E.

Upon receipt of the analytical data, a modified Tier II data validation was conducted. In addition, a data usability assessment was completed to confirm that the data obtained from the field and laboratory analyses are of adequate quality to satisfy the data quality objectives. The data validation summaries are included in Appendix D and usability assessments are included in Appendix F. The complete crystal reports are included as Appendix G.

2.5 RELOCATION OF DESIGNATED STOCKPILES

Select piles (or portions thereof) were temporarily relocated prior to off-site disposal due to their location within the footprint of the new temporary site driveway. The piles relocated included: designated portions of Piles 8 and 9; as

well as several miscellaneous soil, concrete, and debris piles that were located south of the new temporary site access drive. Waste characterization samples were collected from Piles 8 and 9 prior to relocation and off-site disposal. Results of the Pile 8 and 9 waste characterization sampling were presented in the Waste Characterization Summary – Relocated Portions of Soil Piles 8 and 9 submitted on November 2, 2012.

In addition, characterization samples were collected from the miscellaneous debris piles in accordance with the Sampling Plan for on-site Access Road Construction sampling plan dated June 2012. A total of twelve composite samples were collected from the miscellaneous debris piles and submitted for PCB analysis. Each composite sample consisted of up to four discrete samples collected from a minimum of six inches below the ground surface. Analytical results indicated that PCBs were non-detect (<0.110 mg/kg) in the samples collected. A summary of the waste characterization analytical results collected from the miscellaneous debris piles is presented on Table 2-1. The locations of these samples are shown on Figures 2-1 and 2-2.

Relocated materials were segregated by source (i.e., pile) and by media (to separate concrete, asphalt, and debris from soil) and placed into temporary stockpiles. Based on the results of PCB characterization sampling of the miscellaneous debris piles, soil and other potential fill materials were relocated to a portion of Parcel 1 on the eastern side of the planned access drive for potential on-site reuse (similar to the remaining soils from Pile 9). Concrete from all piles was segregated during relocation and consolidated into a single area. The locations of the temporary stockpile areas are presented on Figure 1-1.

Even though shallow soil in the temporary stockpile area will be excavated in the future as part of the site-wide remedy, based on the classification of Pile 8 and 9 materials as PCB remediation wastes, polysheeting was placed on the ground surface in the temporary stockpile areas prior to relocation. Following relocation, erosion controls consisting of polysheeting and hay bales were placed in and around the stockpiles to prevent erosion and/or sedimentation from occurring during rain events.

Following relocation, Pile 8 and 9 materials were sampled for waste disposal characterization purposes. A summary of the waste characterization procedures and sampling results is provided in Section 2.8 below.

2.6 ADDITIONAL CHARACTERIZATION

The following sections summarize the supplemental characterization activities conducted in preparation of the shallow soil excavation and driveway construction.

2.6.1 Characterization beneath Piles 8 and 9

Following the relocation of portions of Piles 8 and 9, the underlying asphalt, concrete, and soil were characterized in accordance with the Sampling Plan and in support of the overall site-wide shallow soil characterization program.

Concrete and asphalt samples were collected on October 5 and 8, 2012 on an approximate 40 ft sample grid with the locations modified to coincide with the selected underlying soil boring locations. A total of three concrete and nine asphalt samples were collected and submitted for PCB analysis. Refer to Figure 2-1 for the location of the samples and Table 2-2 for the analytical results. In summary:

- Concentrations of PCBs were detected in each of the nine asphalt samples collected. Total PCB concentrations in these samples ranged from 7.07 – 21.75 mg/kg.
- PCBs were non-detect in the three concrete samples (<0.1 mg/kg).

The analytical laboratory reports are provided in Appendix D.

Following sample collection, the asphalt and the portion of the concrete pad located within the footprint of the access road were removed and stockpiled in the designated stockpile staging area as shown on Figure 1-1.

On October 8, 2012, soil samples were collected from beneath the relocated portions of Piles 8 and 9 (and the removed concrete and asphalt). The locations specified in the June 2012 Sampling Plan were modified based on field observations as follows:

- Soil boring Q/15+20 was determined to be beneath the portion of Pile 8 scheduled to remain in place and was relocated to location R/17 to evaluate potential soil impacts between EX-2 and the drain line excavation area;
- Soil boring Y+20/19 was determined that it was not located beneath Pile 9 and was relocated to Y+20/18+20 to collect samples representative of the soil beneath the soil pile;
- Soil boring S/17+20 was relocated to R+25/17+30 in order to characterize the former drain line that was encountered in this area (an asphalt sample was collected from location S/17+20). This drain line and the associated excavation are discussed in further detail in Section 2.7.4;

Soil samples were collected in 2 ft increments from each boring and submitted for PCB and lead analysis. Refer to Figure 2-1 for the locations of the soil borings. A summary of the analytical results is presented on Table 2-3 and as follows:

- Concentrations of total PCBs were all below 0.5 mg/kg, with 36 of the 46 samples as non-detect.
- Lead was reported at concentrations less than 400 mg/kg in each soil sample with concentrations ranging from 1.9 to 80.5 mg/kg.

In addition, based on photoionization (PID) field screening results which were non-detect for total VOCs and the absence of visual staining and olfactory odors, samples collected from 0-2 ft bgs from each boring were also submitted for VOC, SVOC and EPH analysis. A summary of the analytical results is presented on Table 2-3. With the exception of one sample, concentrations of VOCs, SVOCs, and EPH were either not detected or detected at concentrations below the ROD clean-up levels and the NHDES S-1 standards. The complete analytical laboratory reports are provided in Appendix D. It is noted that this sample (SS2-R+25/17+30-SS027 (0-2)) with a detection of benzo(a)pyrene (and benzo(a)pyrene equivalent) that exceeded the ROD standard was removed during excavation activities. See Section 2.7 for further details.

2.6.2 Supplemental Characterization of Soils within the Driveway Footprint

Prior to excavation activities, supplemental characterization samples were collected to further delineate specific grid locations with elevated PCB and lead concentrations within the footprint of the new site driveway. The first round of samples were collected on August 13, 2012. Refer to Figure 2-2 for the sampling locations and Table 2-4 for a summary of the analytical results. This work was conducted in accordance with the June 2012 Sampling Plan. A summary of the initial sampling event is as follows:

- PCBs – samples were collected from four boring locations on a five ft radius surrounding grid point B+20/14. At each location, soil samples were collected from 0-1 and 1-2 ft bgs and submitted for PCB analysis. Analytical results indicated that PCBs ranged from non-detect (one sample) up to 5.45 mg/kg in soils from zero – 1 ft bgs. PCB analytical data from samples collected from 1-2 ft bgs ranged from non-detect (3 samples) up to 0. 621 mg/kg.
- Lead – samples were collected from 7 boring locations placed on a five ft radius from grid points D/14+30 (three borings) and G/15+20 (four borings). At each location, soil samples were collected from 0-1 and 1-2 ft bgs and submitted for lead analysis. Analytical results indicated that lead was present in soils from 0-1 ft bgs

at concentrations greater than 400 mg/kg in three of the four samples collected. Analytical results from sample collected from 1-2 ft bgs indicated that lead was below 400 mg/kg in all seven samples collected.

Based on the initial results, additional soil samples were collected in September 2012 to further delineate the lateral extent of lead impacts greater than 400 mg/kg in soils from 0-1 ft bgs. Nine additional samples were collected at increasing distances from the previously collected samples in excess of the ROD standard for lead of 400 mg/kg. Refer to Figure 2-2 for the location of these samples and Table 2-4 for a summary of results. The complete analytical laboratory reports for these supplemental characterization samples are provided in Appendix D.

2.7 EXCAVATION ACTIVITIES

The excavation component for the Site Preparation work included removal of shallow soils in excess of the ROD clean-up levels to provide a clean corridor to the new MOM treatment building on Parcel 2. Excavation activities were performed by ENPRO, the selected earthwork contractor. Excavation of the soils from within the driveway excavation areas began on October 11, 2012 and was completed on November 26, 2012. For discussion, identification, and sample labeling, the excavation areas were identified as EX-1, EX-2, EX-3, and the drain line area. Refer to Figure 1-1 for the location of each excavation area. EX-1 is located near Pile 10A, EX-2 is located to the east of the remaining portion of Pile 8, and the drain line excavation immediately abuts EX-2 to the north. EX-3 is the largest excavation area and located between grids A through L in the southeastern corner of Parcel 1. Each area was excavated to the depths specified in the design. In select locations, the extent of excavation expanded past the design based on the verification sampling results. After excavation, the soil from each excavation area were combined into one stockpile referred to as the 'driveway excavation soils' in the designated stockpile staging area (see Figure 1-1) prior to off-site transport and disposal. Following excavation, verification samples were collected in accordance with the Sampling Plan. As described in the Sampling Plan, verification samples collected from the base of the excavation were collected from 0 to 3 inches below the base of the excavation and labeled as BVS (base verification sample), while sidewall excavation samples were collected from exposed soils along the full height of the sidewall unless otherwise specified and labeled SVS (sidewall verification sample). It is noted that verification samples collected in excavations greater than 3 feet deep were collected from the bucket of the excavator to prevent personnel from entering the excavation.

Verification samples were submitted for laboratory analysis in accordance with the June 2012 Sampling Plan for the following analysis: total metals (lead, arsenic, chromium, mercury, and nickel); PCBs; VOCs, MA EPH, benzo(a)pyrene, and bis(2-ethylhexyl)phthalate. Verification sample results were compared to the ROD clean-up levels for the Site to determine if additional excavation was necessary.

Upon completion of the excavations, each area was backfilled in accordance with the project specifications. Specific information regarding the excavation of each area as well as the results of the verification sampling is discussed in the following sections.

2.7.1 Excavation Area EX-1

The excavation of area EX-1 was conducted on October 15, 2012. The excavation consisted of a wedge shaped area adjacent to Pile 10A to a depth of 2 ft bgs. Following the excavation, three verification samples were collected in accordance with the June 2012 Sampling Plan including two samples from the sidewall of the excavation and one sample from the base of the excavation. Verification sampling results are summarized on Table 2-5. The final extent of the excavation in area EX-1, including the locations of the verification samples, is shown on Figure 2-3.

Analytical results from the three verification samples were below the ROD clean-up levels. Following receipt of the analytical results, the area was approved for backfill and restoration.

2.7.2 Excavation Area EX-2

The excavation of area EX-2 was also conducted on October 15, 2012. This excavation area was approximately 50 by 50 ft to a depth of 2 ft bgs. Portions of this excavation were located beneath the relocated portion of Pile 8 and asphalt area encountered during the soil pile relocation. Following excavation, five verification samples, including four sidewall verification samples and one base verification sample, were collected in accordance with the June 2012 Sampling Plan. Verification sampling results are summarized on Table 2-5. The final extent of the excavation in area EX-2, including the locations of the verification samples, is shown on Figure 2-3. Analytical results from the five verification samples were below the ROD clean-up levels. Following receipt of the analytical results, the area was approved for backfill and restoration.

2.7.3 Excavation Area EX-3

The excavation of area EX-3 began on October 11, 2012 and was completed on November 26, 2012. This was the largest of the three excavation areas and is located in the southeast corner of the Site near the 221 Main Street entrance. The extent of area EX-3 included a 2 ft cut throughout the length of the excavation area along with a 20-ft-by-20-ft area around grid point E/14 designated to be excavated to 4 ft bgs. During the excavation process, subsurface materials (including debris, stumps, and an asphalt berm) were encountered. Additional excavation was conducted to remove these areas. A summary of the additional excavation for each is provided in Sections 2.7.3.1 through 2.7.3.3.

Following excavation to a depth of 2 ft bgs across the majority of the area, verification samples were collected in accordance with the June 2012 Sampling Plan, including nine side wall and three base verification samples. Analytical results from these initial verification samples met the ROD clean-up levels. Therefore, the lateral extent of the EX-3 excavation was established and for the majority of the EX-3 area, no additional excavation was required.

As described in the June 2012 Sampling Plan, a portion of the excavation area, consisting of a 20 ft square around grid point E/14 required excavation to a depth of 4 ft bgs. During the excavation of this area, visible staining was observed in the sidewall materials and the excavation was extended approximately 10 feet to the northwest of grid point E/14, to the boundary of the EX-3 excavation area, and approximately 10 feet to the southeast of grid point E/14 to remove any visible staining. Due to the expansion of the excavation area, the verification samples proposed in the Sampling Plan were relocated to accommodate the expanded excavation as follows:

- Sidewall Samples – Two sidewall verification samples were collected from gird points E/14+20 and E+10/14+5; and
- Base Sample – One base verification sample was collected from grid point E/14 (the center of the excavation).

The June 2012 Sampling Plan specified a sidewall verification sample be collected from the northwestern sidewall of the 4 ft excavation. A verification sample was not collected from this sidewall, since the additional excavation of this area extended the northwestern limits of work all the way to the area to be included in the site wide soil excavation to be conducted as part of the larger site wide remedy.

Analytical results from the verification base sample and one of the sidewall samples exceeded one or more of the applicable soil standards as follows:

- Base verification sample EX3-E/14-BVS004 (2-4) contained concentrations of PCBs (1.339 mg/kg), C_{11}-C_{22} aromatics (2,200 mg/kg) and bis(2-ethylhexyl)phthalate (134 mg/kg) exceeding the ROD clean-up levels, and;
- The concentration of total PCBs (1.111 mg/kg) in sidewall verification sample EX3-E+10/14+5-SVS007 (2-4) exceeded the ROD clean-up level.

Based on these results, the *lateral extent* of the excavation was expanded an additional five feet to the northeast. The subsequent sidewall verification sampling results (from sample EX3-E+15/14+5-SVS019 (2-4)) indicated that the ROD clean-up levels were still exceeded in the remaining soil and a third round of excavation was conducted to remove an additional five feet of soil from the sidewall of the excavation. Following this third round of excavation, the subsequent verification sample (EX3-E+20/14+5-SVS020 (2-4)) indicated that the ROD clean-up levels were met.

To address the elevated concentrations at the *base* of the four ft cut, an additional two feet of soil was excavated from the bottom of the excavation. Analytical results from the follow-up base verification sample indicated that the ROD clean-up levels were met; however, visible staining was observed at the base of the south/southwest sidewall in the vicinity of grid location D+30/14+10. To remove the stained soil, the excavation was expanded toward the southwest following the visibly stained soil for approximately 25 feet to D+5/14+10 and to a depth of approximately 10 ft bgs at this location, confirming removal of visibly impacted soil.

Following the expanded excavation, one sidewall and one base verification sample were collected. Analytical results indicated that the concentrations of C_{11}-C_{22} aromatics and bis(2-ethylhexyl)phthalate exceeded the ROD clean-up levels.

On November 26, 2012, additional excavation was conducted in this area. A PID was utilized to guide the excavation, which consisted of removing an approximate additional 20-ft-by-20-ft area to the southwest of grid location D/14+10 and to a depth of approximately 17 ft bgs. In addition, the excavation around grid location D+5/14+10 was expanded to about 20 feet on each side and to a depth of approximately 15 ft bgs.

Following the excavation, additional verification samples, including one base sample and four sidewall samples were collected and submitted for laboratory analysis. Analytical results from the sidewall samples were below the ROD clean-up levels. Analytical results from the base sample (EX3-D+5/14+10-BVS019 (15)) indicated that concentrations of PCBs, C11-C22 aromatics, and bis(2-ethylhexyl)phthalate were above the ROD shallow soil clean-up levels (0 to 10 ft bgs). However, based on the depth of the sample, which was below the depth required for a land use restriction (10 ft bgs), there was no additional excavation.

The extent of the excavation area, including the locations of the final verification samples collected, are shown on Figure 2-4. A summary of the analytical results is included on Table 2-6. It is noted that two verification samples for excavation area EX-3 have a calculated *benzo(a)pyrene equivalent* concentration above the ROD clean-up level of 0.4 mg/kg. This calculated result is based solely on the use of half of the detection limit for these other PAHs. In fact, the laboratory reported concentration of benzo(a)pyrene in both of these samples was below the ROD clean-up level (0.203 and 0.114 mg/kg) and *none* of the other six PAHs used in the calculation were detected in either sample. Further, these individual (non-detect) PAHs were below the NHDES S-1 standards. It was concluded that since the laboratory reported benzo(a)pyrene concentration was below the ROD clean-up level AND the other constituents are non-detect (and below the NHDES S-1 standards), no further action was warranted and the material would remain in place.

2.7.3.1 Debris

During the excavation of the initial 2 feet within EX-3, debris was encountered in the vicinity of grid point A+20/13+10. This area is consistent with the location of debris identified in the RI as TP-1. Metal piping, engine pieces, and other debris were removed from the subsurface within this area. There were no visible staining or odors associated with the encountered debris.

Following the initial 2 ft excavation across the area and the removal of the debris, a verification sample (EX3-B+20/13+30-BVS001) was collected at the base of the debris area footprint (from 2 to 2.25 ft bgs). Analytical results indicated that PCBs were present at concentrations above the ROD clean-up level of 0.5 mg/kg. Based on these results, an additional 1 ft of soil was removed from this area (which included soils from the base of the excavation

from the southwestern limits of the excavation to a point approximately 20 feet to the north of the verification sample). Following this additional excavation, a follow-up verification sample (EX3-B+20/13+10-BVS012 from 3 – 3.25 ft bgs) was collected from the base of the overall excavation and submitted for analysis of the full suite of analytes. Analytical results were below the ROD clean-up levels.

The extent of the excavation area, including the locations of the final verification samples collected, are shown on Figure 2-4. A summary of the analytical results is included on Table 2-6.

2.7.3.2 Stump Pit Area

While excavating the initial two foot cut within the western portion of excavation area EX-3, tree stumps and organic material were encountered in the vicinity of grid location C/14. Upon further inspection and additional exploratory excavation, it was determined that this 'stump pit' covered an approximately 55 by 60 ft area within EX-3 (refer to Figure 2-4). In addition, a majority of the stump pit was located within the footprint of the new driveway and extended down to 15 ft bgs.

Two excavation base verification samples were collected from within the vicinity of the stump pit following the initial two ft excavation in accordance with the Sampling Plan. Analytical results from the two samples indicated that PCBs were present at concentrations of 1.37 and 0.984 mg/kg. Based on these results, the excavation was extended an additional 1 ft in depth within the stump pit area.

Following the additional excavation, follow-up verification samples were collected from the same grid points. Analytical results from one of the two follow up samples indicated that bis(2-ethylhexyl)phthalate (17.3 mg/kg) and C_{11}-C_{22} aromatics (233 mg/kg) were present at concentrations above the ROD clean-up levels, but below the NHDES S-1 Standards.

As outlined in the June 2012 Sampling Plan, should concentrations be detected above the ROD clean-up level but below the NHDES S-1 Standard AND the calculated 95% UCL be below the ROD clean up level, then the material could remain in place. The calculated 95% UCL for these compounds within EX-3 was below the ROD clean-up level. As such, additional excavation was not conducted in this area. A copy of the calculation used for the 95% UCL determination is provided in Appendix H. A complete summary of the verification sampling results from EX-3 is provided in Table 2-6. The laboratory analytical reports are included in Appendix D.

Because of the nature of the stumps and organic matter making up the stump pit area, this material was not recognized as suitable fill for beneath the access driveway; however, due to the size of the area, it was determined to be impractical to remove the material. To provide the necessary support for the temporary access drive, a geogrid was installed over the remaining materials within the stump pit area. The geogrid layer consisted of approximately 12 inches of common borrow material beneath a layer of TX-140 Geogrid. This was followed by another approximately 12 inch thick layer of common borrow which was overlain by a second layer of Geogrid and finally covered with approximately six inches of fill to reach the desired grade. The extent of the geogrid area is shown on Figure 1-1.

2.7.3.3 Cold Patch Berm Area

During the EX-3 excavation, a line of asphalt material was encountered from approximately grid line E+20 to the grid line K+10. This material appeared to coincide with a former cold patch berm identified in the historic drawings of the Site. The berm was approximately 10 ft wide and ran nearly 250 ft along the northern boundary of the EX-3 excavation area. Following the initial 2 ft excavation of this area, two verification samples were collected from the remaining materials in this area (at the grid locations specified in the June 2012 Sampling Plan). Analytical results indicated that concentrations of C_{11} to C_{22} aromatic hydrocarbons, bis(2-ethylhexyl)phthalate, and/or benzo(a)pyrene exceeded the ROD clean-up levels in the samples. As such, additional excavation was warranted.

The removal of the cold patch berm was conducted between November 6, and 8, 2012. In some areas, the berm was found to be up to seven feet thick with decreasing thickness along the west/southwestern edge. Following the removal of the cold patch material, verification samples were collected from the same locations (at depth) and submitted for analysis. Analytical results from the two samples were below the ROD clean-up levels. Following receipt of the analytical results, the area was approved for backfill/ restoration.

Verification sampling results are summarized on Table 2-6. The final extent of the excavation in area EX-3, including the locations of the verification samples, is shown on Figure 2-4.

2.7.4 Drain Line Excavation Area

During the removal of the asphalt encountered in the vicinity of Piles 8 and 9, a former drain line, consisting of an approximately six inch diameter plastic, slotted, corrugated pipe surrounded by crushed stone and covered with geotextile fabric was encountered. The drain line was located at the edge of the asphalt along the tree line at the southeastern boundary of the driveway area. The drain line led to a dry well comprised of crushed stone at grid point R+25/17+30. Upon uncovering the dry well, a boring was advanced at this location and soil samples were collected from 0-2 and 2-4 ft bgs.

Analytical results from the samples indicated that the concentrations of benzo(a)pyrene exceeded the ROD clean-up level within the top two feet of soil with a concentration of 0.506 mg/kg. Refer to Table 2-3 for a summary of the analytical results.

Based on the results of the characterization sampling, the drain line, dry well, and soil to a depth of 2 ft bgs underlying the entire drain line (i.e., not just those at the soil boring location) were removed for off-site disposal. Following the excavation, two verification sidewall samples and one verification base sample were collected from the excavation and submitted for analysis in accordance with the June 2012 Sampling Plan. A summary of the results of the verification samples collected during the drain line excavation are presented in Table 2-7. The locations of the verification samples are shown on Figure 2-3. Analytical results from the verification samples indicated that benzo(a)pyrene was present in one of the sidewall samples collected at concentrations exceeding the ROD clean-up level (0.4 mg/kg) with a reported concentration of 0.895 mg/kg.

Based on these results, the lateral extent of the excavation area was extended an additional 1 ft to the northern sidewall of the excavation. Following the additional excavation, two verification sidewall samples were collected and submitted for analysis. Analytical results from the two samples were below the ROD clean-up levels. Based on these results, the area was approved for backfill and restoration.

2.8 PARCEL 2 AREAS

In addition to the materials described above, two asphalt pads were discovered on Parcel 2. The first was located in the vicinity of the planned construction support area and was approximately 3 feet below the ground surface. The pad, shown on Figure 1-1, was approximately 50 feet long by 30 feet wide and consisted of approximately two inches of weathered, brittle asphalt. The second pad was located in the vicinity of the planned RIBs was and was approximately 45 feet long by 25 feet wide and approximately three inches thick. Both asphalt pads were removed and stockpiled in the designated asphalt stockpile. Following removal, two characterization samples were collected from the soil located directly beneath each of the asphalt piles at a depth of 0-1 ft bgs and submitted for site related contaminants.

The verification sampling results indicated no exceedances of the ROD clean-up levels for the Site or the NHDES S-1 Standards with the exception of total chromium in one of the samples collected from beneath the asphalt pad in the planned construction support area (P2-SS02-SS002). Total chromium was reported at a concentration of 22.8 mg/kg. The sample was re-analyzed for hexavalent chromium with a result of 0.16 mg/kg, which was below the Site clean-up

criteria and the NHDES S-1 standard. Based on the results of the characterization sampling of the soil beneath the asphalt on Parcel 2, no excavation was required in these areas.

In addition to the asphalt piles, a small pile of soil and woody debris was encountered in the vicinity of the planned groundwater treatment plant building. One composite sample, consisting of eight discrete samples collected from a minimum of 12 inches below the top of the pile was collected. Analytical results indicated no exceedances of the ROD clean-up levels for the Site or the NHDES S-1 Standards. However, similar to the discussion for the EX-3 area, the calculated *benzo(a)pyrene equivalent* concentration was above the ROD clean-up level of 0.4 mg/kg. This calculated result is based solely on the use of half of the detection limit for these other PAHs. In fact, the laboratory reported concentration of benzo(a)pyrene in this sample was below the ROD clean-up level (0.375 mg/kg) and *none* of the other six PAHs used in the calculation were detected in the sample (or any of the other samples collected in this Parcel 2 asphalt area). Further, these individual (non-detect) PAHs were below the NHDES S-1 standards. It was concluded that since the laboratory reported benzo(a)pyrene concentration was below the ROD clean-up level and the other constituents are non-detect (and below the NHDES S-1 standards), no further action was warranted.

A complete summary of the analytical results are presented in Table 2-8. The locations of the asphalt pads and the soil/woody debris pile are presented on Figure 1-1.

2.9 SOIL TRANSPORTATION & WASTE DISPOSAL

During construction activities, soils were segregated based on pre-characterization data. Refer to Figure 1-1 for the locations of the temporary stockpiling areas for each of the various waste streams sent off-site for disposal, including: Pile 8, Pile 9, miscellaneous piles (from south of the access road), asphalt, and the soil removed from the driveway excavation. All stockpiles in the stockpile staging area were placed on and covered by a minimum of 6 millimeter polyethylene sheeting and surrounded by hay bales or other erosion control barriers while awaiting disposal. The following outlines the waste characterization, loading and off-site disposal of these materials.

2.9.1 Waste Characterization Sampling and Profiling

Upon completion of the construction activities, four different soil stockpiles had been generated including relocated Pile 8, relocated Pile 9, excavated soil, and asphalt. As documented in the *Waste Characterization Summary – Relocated Portions of Soil Piles 8 and 9 Memorandum* by Woodard & Curran dated November 2, 2012, waste characterization samples were collected from Piles 8 and 9 between October 3 and 4, 2012 at a frequency of at least one sample for every 500 tons of soil. This consisted of a total of 12 samples submitted for analysis from Pile 8 and 14 samples from Pile 9. Each of these samples was composited from 3 to 5 grab samples and was analyzed for VOCs, SVOCs, TPH DRO/GRO, RCRA 8 metals, pesticides, herbicides, ignitability, flashpoint, pH, and reactive cyanide and sulfide. Pile 8 was sampled by dividing the pile into a grid with two lifts (0 – 10 ft and 10 – 20 ft). Samples were collected from each of the grid locations at multiple depths throughout the soil pile to obtain a representative data set. Samples were collected from Pile 9 as it was being relocated to make sure a representative data set was obtained. As described in the November 2012 memo, because this sampling frequency did not meet the requirements of NHDES (one sample per 200 tons, up to 2,000 tons, then 1 sample per 500 tons thereafter), historical data collected from Piles 8 and 9 were included in the total number of waste characterization samples for each pile.

The soils stockpiled from the driveway excavation were characterized using the NHDES sample frequency requirements of at least one sample for every 200 tons of soil up to 2,000 tons, then one sample for every 500 additional tons. This included 20 waste characterization samples collected from the soil stockpile as it was generated to obtain a representative data set. In accordance with the NHDES regulations, each sample consisted of a composite of 5 to 8 grab samples and was submitted for laboratory analysis of VOCs, SVOCs, TPH DRO/GRO, RCRA 8 metals, pesticides, herbicides, ignitability, flashpoint, pH, and reactive cyanide and sulfide. In addition, samples with concentrations exceeding 20 times the levels of characteristic hazardous waste were subsequently

analyzed for TCLP. To supplement this data, pre-characterization data collected from within the excavation areas as part of the site-wide soil investigation work (beginning in August 2008) was also utilized to generate the waste profile for this material.

Following the asphalt removal and temporary relocation, two asphalt stockpiles had been created consisting of asphalt with soil mixed in. On January 14, 2013, two waste characterization samples, one from the asphalt and one from the soil, were collected from each of the asphalt stockpiles. These samples were analyzed for VOCs, SVOCs, TPH DRO/GRO, RCRA 8 metals, pesticides, herbicides, ignitability, flashpoint, pH, and reactive cyanide and sulfide. These results were supplemented with the data collected from the asphalt in October 2012 during the characterization of the soils beneath Piles 8 and 9 (discussed above in Section 2.6.1).

The complete laboratory analytical reports for the waste characterization results are included in Appendix E.

These waste characterization sampling results were submitted to Waste Management for approval for reuse/disposal of the waste materials at their Turnkey Facility in Rochester, New Hampshire under Profiles NH488529 (Pile 8), NH488530 (Pile 9), NH488537 (driveway excavated soil), and NH488543 (asphalt). These profiles, including any amendments, as well as the approvals from Waste Management are included in Appendix I.

2.9.2 Stockpile Load Out

Stockpile load out was conducted by ENPRO beginning on February 25, 2013. The four waste streams were removed for off-site disposal to Waste Management's Turnkey facility in Rochester, New Hampshire (Turnkey) as non-hazardous PCB remediation waste. The following summarizes the volume of soil disposed at the Turnkey facility:

- Relocated Pile 8: 4,084.53 tons in 147 loads
- Relocated Pile 9: 5,973.48 tons in 203 loads
- Driveway Excavation Soils: 4,931.76 tons of soil in 185 loads and 70.11 tons of stumps in 6 loads
- Asphalt: 447.49 tons in 19 loads

Copies of the waste manifests and weight slips are included in Appendix I.

2.9.3 Drum Removal

Wash waters, sludges, muds, and sediment generated during decontamination activities were contained and collected by a sump into 55-gallon drums and transported to the temporary waste storage area pending off-site disposal. Following waste characterization sampling, the drums were transported by ENPRO to Clean Harbors Environmental Services facility in South Portland, Maine. The waste disposal documentation, including the waste characterization sampling results, profile and waste manifests, are included in Appendix I.

3. SITE RESTORATION

The Site Preparation activities included construction of the new site driveway, a new drainage culvert beneath the driveway and the construction staging area to the west of the new treatment building area, and placement of a new cover on the remaining portion of Pile 8, as well as a new cover on Pile 5A. The following sections summarize the post-excavation restoration activities completed as part of the Site Preparation scope of work.

3.1 EXCAVATION BACKFILL AND DRIVEWAY CONSTRUCTION

Once excavation activities within the footprint of the new Site driveway were complete on November 26, 2012, backfilling of the excavation and construction of the new driveway began. For the western sidewall area that abutted soil with concentrations in excess of the ROD clean-up levels that will be excavated in the future as part of the site-wide excavation, geotextile material was placed on the face of the sidewall to demarcate where the driveway excavation work ended. Common borrow was used by ENPRO to backfill the excavation areas and create the base of the roadway. Following the initial grading of the road by ENPRO, Busby installed the road subgrade, which consisted of a NHDOT approved fine crushed gravel, and asphalt. The final paving of the access road was completed on December 14, 2012. Additional details on the fill materials and geotextile are provided in Section 5.

During the construction of the new Site driveway, ENPRO installed a drainage culvert and electrical conduit beneath the road between Pile 10A and the construction staging area as shown in the design drawings. The final locations of these features, including final inverts are provided in the Site Plan and Excavation Extent included as Figure 1-1.

3.2 CONSTRUCTION STAGING AREA

A construction staging area was built on Parcel 2 during the Site Preparation activities in anticipation of the construction of the treatment building and installation of the treatment system. To construct the staging area, ENPRO cleared and re-graded the area. During the grading of this area, a small asphalt pad was encountered, as previously discussed in Section 2-8. Once the area was graded, a geotextile fabric was laid over the entire area followed by approximately 12 inches of crushed stone.

3.3 REMAINING ACTIVITIES

After completion of site restoration activities described above, a new cover was placed on the remaining portion of Pile 8, as well as a new cover on Pile 5A. There are no further activities pending as part of the Site Preparation work. While no additional operation and maintenance is required per the Sampling Plan for on-site Access Road Construction (Woodard & Curran, 2012a), site control and maintenance measures will continue at the Site along with the future site-wide soil excavation work.

3.4 SITE INSPECTION

The Pre-Final Site Inspection was completed on September 20, 2013. Remaining punch list items at that time focused on general site restoration and maintenance, and completion of the electric slide gate access (completed as part of the MOM installation work). The Final Inspection was completed for the driveway as part of the June 9, 2014 Final Site Inspection for the MOM system. No further action items are remaining; however, site control and maintenance measures will continue at the Site.

4. PERFORMANCE STANDARDS

Verification sample data were compared to the ROD clean-up levels for shallow soils from zero to 10 ft bgs, as outlined in the Sampling Plan for on-site Access Road Construction (Woodard & Curran, 2012a). In total, the results of 13 base verification samples and 22 sidewall verification samples were analyzed to confirm that no additional excavation was required. These results are summarized in Tables 2-5 and 2-6. Of the 35 total verification samples, 9 base verification samples and 16 sidewall verification samples were collected from areas excavated to 2 or 3 ft bgs while 4 base and 6 sidewall verification samples were collected from the areas excavated to a depth of 4 ft bgs or greater. A minimum of 26 total verification samples were specified in the Sampling Plan; however, due to the additional excavation required for the stump pit, cold patch berm, and within the 4 ft cut area, supplementary sampling was performed. These additional areas of excavation are discussed in detail in Section 2 of this report.

As discussed in Section 2, all final verification samples contained reported concentrations less than the ROD clean-up levels with one exception. Sample EX3-D/13+10-BVS013 was collected from the base of the excavation within the material associated with the stump pit. The sample contained concentrations of bis(2-ethylhexyl)phthalate and C_{11}-C_{22} aromatics above the ROD clean-up levels but below the NHDES S-1 Standards. As outlined in the Sampling Plan, this scenario allowed for the 95% UCL of the sample to be calculated. This calculation (included in Appendix H) resulted in a 95% UCL that was less than the ROD clean-up level and therefore did not require any additional excavation.

All of the data collected during the Site Preparation activities were validated in accordance with the Sampling and Analysis Plan Including Quality Assurance Project Plan and Field Sampling Plan (Woodard & Curran, 2012). The QA/QC documentation and data validation details of these results are included in Appendix D and the data usability assessment is included as Appendix F.

5. CONSTRUCTION QUALITY CONTROL

Construction quality control was performed by the contractor (ENPRO), Engineer, or CM as specified in Table 4-1 of the Construction Quality Assurance Project Plan (CQAPP) (Woodard & Curran, 2012b). Table 5-1 herein includes the applicable activities from CQAPP Table 4-1 required as part of the Site Preparation work and the status of the requirement. EPA oversight was performed by SHA under a cooperative agreement. At the request of EPA and NHDES, SHA reviewed and provided comments on RD documents; attended the pre-construction meetings for the access road; and was present on-site during portions of the soil excavation of the access road (split soil samples were collected for analytical laboratory analysis). Geotechnical laboratory and field testing was performed on imported materials at the specified intervals based on the guidance set forth in the project specifications and in the CQAPP (Woodard & Curran, 2012b). The following sections provide a summary of the geotechnical testing requirements, test methods, and results for the materials used on this project.

Copies of all project submittals, including geotechnical data, issued by ENPRO and Busby and approved by Woodard & Curran are included as Appendix J. Cut sheets from other materials used during construction are included in Appendix K.

5.1 FILL MATERIALS

As described above, common borrow was used to backfill the excavation areas to achieve the specified elevations prior to the installation of the road sub-base. The specifications required that the common borrow be six inch minus (100% of the material passing the six inch sieve), with the material free from plastic, clay, vegetation, perishable rubble, peat and other unsuitable materials. Common borrow was also used to create the gravel access roads through the Site where it was placed on an approved non-woven geotextile fabric which was utilized as a separation layer. At any locations where common borrow was used, the material was placed in maximum of 12 inch lifts and was compacted to a minimum of 92% of the maximum allowable density. In addition, the crushed stone was used as backfill material around the drainage culvert and electrical conduit installed beneath the Access Road in the vicinity of Soil Pile 10A.

The source of the fill material was Brox Industries, Inc. in Hudson, New Hampshire. The total volume of imported common borrow was approximately of 4,600 cubic yards. Table 5-2 summarizes the testing requirements and frequency detailed in the project specifications. In addition to source geotechnical testing, laboratory analytical results for the ROD specified contaminants of concern (including PCBs, VOCs, TPH, total RCRA 8 metals, PAHs, and bis(2-ethylhexyl) phthalate) were required for approval to use the material on-site. The results of the laboratory analytical data indicated that no concentrations were reported above ROD clean-up levels. The results of the analytical and geotechnical testing are included with the submittals in Appendix J.

Table 5-2: Common Borrow – Testing Summary

Test	Methodology	Frequency	Number of Tests Required	Number of Tests Performed
Source Testing				
ROD COC Analytes	N/A	1 per 5,000 cy	1	1
Sieve Analysis	ASTM D422	1 per 5,000 cy	1	1
Moisture Content	ASTM D2216	1 per 5,000 cy	1	1
Moisture/Density (Standard Proctor)	ASTM D698	1 per 5,000 cy	1	0
In-Place Testing				
Field Moisture/Density	ASTM D6938	1 per 2,000 square feet per lift	15	13

It is noted that moisture content tests were not an element of the material source testing. However, based on the results from the in-place field moisture/density testing (13 test locations), the common borrow material exceeded the in-place compaction requirements and was within the required range for optimum moisture content. Refer to Appendix L for Miller Engineering & Testing, Inc.'s (Miller) Field Density test reports, which include the geotechnical test locations and results.

5.2 SUBGRADE

Prior to paving the Site Access Road, a subgrade layer was installed by Busby. The subgrade layer was constructed of fine crushed stone in accordance with NH DOT regulation 304.4. The source testing results, including the sieve analysis, moisture content and proctor testing, are included in Appendix J.

5.3 CRUSHED STONE

Crushed stone was used for the construction staging area in Parcel 2 as specified in the project specifications. The staging area was constructed of a minimum of 12 inches of 1-1 ½-inch stone.

5.4 RIP RAP

Riprap stone was utilized in the construction of the tire scrub at the entrance to the gravel access roads as well as in the construction of the riprap apron at the outlet of the drainage culvert. The stone was approved for use on-site prior to installation as described in the submittal provided by ENPRO and included in Appendix J.

5.5 GEOTEXTILE

A layer of 16-oz. Mirafi non-woven geotextile fabric was utilized throughout the construction activities. The non-woven geotextile fabric met the project specifications and was approved for use on-site. Refer to Appendix K for more information. This geotextile fabric was utilized as follows during construction activities:

- As a demarcation layer and placed against the sidewall of any excavation areas abutting areas of the Site that have not yet been remediated;
- As a demarcation layer during the building of the gravel construction roads;

- Beneath riprap as part of the construction of the tire scrub, with the ends of the fabric overlapping a minimum of 12 inches; and;
- As a separation layer between the native material and the stone in the construction staging area in Parcel 2.

5.6 SEED

Grass seed was used to stabilize the open faces of the portions of Piles 8 and 9 that were left in place. In addition, grass seed was spread along the disturbed areas along the completed Site driveway. ENPRO utilized Vigoro Sun Shade Grass Seed Mixture, which meets the requirements outlined in the project specifications. Refer to Appendix K for further information pertaining to the seed mixture.

6. REFERENCES

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EPA, 2006. RD/RA Statement of Work: Consent Decree, Appendix B. November.

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SHA, 2001. Remedial Investigation Final, February 26.

Woodard & Curran, 2012a. Sampling Plan for on-site Access Road Construction. June.

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Woodard & Curran, 2013. Final Health and Safety Plan, Groundwater Management of Migration System, April.

TABLES

Table 2-1: Summary of Miscellaneous Debris Piles Characterization Sampling Results

Table 2-2: Summary of Concrete and Asphalt Characterization Sampling Results – Beneath Soil Piles 8 and 9

Table 2-3: Summary of Soil Characterization Sampling Results – Beneath Soil Piles 8 and 9

Table 2-4: Summary of Supplemental Soil Characterization Sampling Results – Within the Access Road Footprint

Table 2-5: Summary of Verification Sampling Results – EX-1 and EX-2

Table 2-6: Summary of Verification Sampling Results – EX-3

Table 2-7: Summary of Verification Sampling Results – Drain Line Excavation

Table 2-8: Summary of Soil Sampling Results – Parcel 2 Asphalt and Soil Pile Areas

Table 5-1: Summary of Construction Quality Assurance Inspection & Testing for Site Preparation Work

Table 5-2: Common Borrow/Structural Fill – Testing Summary (embedded)

TABLE 2-1
SUMMARY OF MISCELLANEOUS DEBRIS PILES CHARACTERIZATION SAMPLING RESULTS
Beede Waste Oil Superfund Site, Plaistow, New Hampshire

Debris Pile	Pile Layer (ft)	Sample ID	Date	Total PCBs (mg/kg)	Description
A	0-5	SPA-A1-SS001 (0-5)	8/14/2012	<0.110	Sandy/gravelly soil with large rocks. Significant asphalt/concrete debris. Plastic sheeting in poor condition throughout.
	0-5	SPA-A2-SS002 (0-5)	8/14/2012	<0.110	
B	0-5	SPB-B1-SS003 (0-5)	8/14/2012	<0.110	"Humps" of rocky, sandy soil with pieces of asphalt and metal.
C	0-5	SPC-C1-SS004 (0-5)	8/14/2012	<0.110	Sandy/gravelly soil with pieces of asphalt and concrete. Very sandy in interior of pile.
	5-10	SPC-C2-SS005 (5-10)	8/14/2012	<0.110	
	0-5	SPC-C3-SS006 (0-5)	8/14/2012	<0.110	
	0-5	SPC-C4-SS007 (0-5)	8/14/2012	<0.110	
D	0-5	SPD-D1-SS008 (0-5)	8/14/2012	<0.120	Significant boulders, rocks, concrete, asphalt, brick, wood, rebar, and other debris. Also PVC well material and battered poly sheeting.
	5-10	SPD-D2-SS009 (5-10)	8/14/2012	<0.110	
	0-5	SPD-D3-SS010 (0-5)	8/14/2012	<0.110	
	0-5	SPD-D4-SS011 (0-5)	8/14/2012	<0.120	
E	0-5	SPE-E1-SS012 (0-5)	8/14/2012	<0.110	Sandy/gravelly soils, loamy at surface, rock fragments.
F	Not Sampled				Concrete, rebar, metal under plastic tarps.
G	Not Sampled				Concrete slabs/pieces of varying size and condition.

TABLE 2-2
SUMMARY OF CONCRETE AND ASPHALT CHARACTERIZATION SAMPLING RESULTS – BENEATH SOIL PILES 8 AND 9
Beede Waste Oil Superfund Site, Plaistow, New Hampshire

Site ID	ROD Clean-up Level	NHDES Risk Characterization and Management Policy Method 1 S-1	P_17	Q_16_20	R_16_20	R_17	S_16_25	S_17_20	T_16_35	T_17_20	U_17_20	U_20_16_20	V_17_20	W_17_20
Sample ID			SS2-P/17-AS007	SS2-Q/16+20-AS006	SS2-R/16+20-CS003	SS2-R/17-AS003	SS2-S/16+25-CS002	SS2-S/17+20-AS002	SS2-T/16+35-CS001	SS2-T/17+20-AS001	SS2-U/17+20-AS004	SS2-U+20/16+20-AS005	SS2-V/17+20-AS009	SS2-W/17+20-AS008
Sample Media			Asphalt	Asphalt	Concrete	Asphalt	Concrete	Asphalt	Concrete	Asphalt	Asphalt	Asphalt	Asphalt	Asphalt
Sample Date			10/5/2012	10/5/2012	10/5/2012	10/5/2012	10/5/2012	10/5/2012	10/5/2012	10/5/2012	10/5/2012	10/5/2012	10/8/2012	10/8/2012
PCBs (mg/kg)														
Aroclor 1242	NA	NA	**6.97**	**14.9**	<0.1	<0.1	<0.1	**11.4**	<0.1	**12.3**	**12.7**	<0.1	**3.86JH**	**7.8JH**
Aroclor 1248	NA	NA	<0.1	<0.1	<0.1	**6.03**	<0.1	<0.1	<0.1	<0.11	<0.11	**8.51**	**8.93**	**12.3**
Aroclor 1254	NA	NA	**1.69JH**	**3.48JH**	<0.1	**0.925JH**	<0.1	**2.89JH**	<0.1	**2.86JH**	**3.63JH**	**1.93JH**	**1.29JH**	**1.39JH**
Aroclor 1260	NA	NA	**0.166JH**	**0.25JH**	<0.1	**0.115JH**	<0.1	**0.227JH**	<0.1	**0.269JH**	**0.244JH**	**0.229JH**	**0.175JH**	**0.255JH**
Total PCBs	0.5	1	**8.83**	**18.63**	ND	**7.07**	ND	**14.52**	ND	**15.43**	**16.57**	**10.67**	**14.26**	**21.75**

Notes:
ND = concentration not detected above the laboratory reporting limit
J = analytical result estimated based on data validation
Bias, as determined during data validation - H (high), L (low), K (indeterminate)

Bolding indicates a detection.
Shading indicates an exceedance of the ROD clean-up criteria.

TABLE 2-3
SUMMARY OF SOIL CHARACTERIZATION SAMPLING RESULTS – BENEATH SOIL PILES 8 AND 9
Beede Waste Oil Superfund Site, Plaistow, New Hampshire

Site ID	ROD Clean-up Level	NHDES RCMP Method 1 S-1	P_16	P_16	P_16	P_16	P_16	P_17	P_17	P_17	P_17
Sample ID			SS2-P/16-SS035 (0-2)	SS2-P/16-SS036 (2-4)	SS2-P/16-SS037 (4-6)	SS2-P/16-SS038 (6-8)	SS2-P/16-SS039 (8-10)	SS2-P/17-SS050 (0-2)	SS2-P/17-SS051 (2-4)	SS2-P/17-SS052 (4-6)	SS2-P/17-SS053 (6-8)
Sample Date			10/8/2012	10/8/2012	10/8/2012	10/8/2012	10/8/2012	10/8/2012	10/8/2012	10/8/2012	10/8/2012
Sample Depth			0-2	2-4	4-6	6-8	8-10	0-2	2-4	4-6	6-8
Volatile Organic Compounds (mg/kg)											
1,2,4-Trimethylbenzene	NA	130	**0.0203**	---	---	---	---	<0.21	---	---	---
1,2-Dichlorobenzene	NA	88	**0.0086**	---	---	---	---	<0.086	---	---	---
Acetone	NA	75	<0.19	---	---	---	---	<0.21	---	---	---
Ethylbenzene	20 [1]	120	**0.0096JK**	---	---	---	---	<0.086	---	---	---
Naphthalene (8260)	4 [1]	5	**0.0175JK**	---	---	---	---	<0.21	---	---	---
Tetrachloroethene	0.5 [1]	2	**0.0667JK**	---	---	---	---	<0.086	---	---	---
Toluene	NA	100	**0.0325JK**	---	---	---	---	<0.21	---	---	---
Xylene (total)	NA	500	**0.0521JK**	---	---	---	---	<0.086	---	---	---
Metals (mg/kg)											
Lead	400	400	**68**	**2.1**	**1.9**	**4.5**	**2.2**	**2.4**	**4.5**	**2.7**	**2.8**
Semi-Volatile Organic Compounds (mg/kg)											
Benzo(a)anthracene	NA	1	<0.44	---	---	---	---	<0.44	---	---	---
Benzo(a)pyrene	0.4	0.7	<0.44	---	---	---	---	<0.44	---	---	---
Benzo(b)fluoranthene	NA	1	<0.44	---	---	---	---	<0.44	---	---	---
Benzo(k)fluoranthene	NA	12	<0.44	---	---	---	---	<0.44	---	---	---
Chrysene	NA	120	<0.44	---	---	---	---	<0.44	---	---	---
Dibenz(a,h)anthracene	NA	0.7	<0.44	---	---	---	---	<0.44	---	---	---
Phenanthrene	NA	NA	<0.44	---	---	---	---	<0.44	---	---	---
Pyrene	NA	720	<0.44	---	---	---	---	<0.44	---	---	---
Benzo(a)pyrene Equivalent[2]	0.4	NA	<0.508	---	---	---	---	<0.508	---	---	---
PCBs (mg/kg)											
Aroclor 1242	NA	NA	<0.1	<0.097	<0.1	<0.1	<0.1	<0.099	<0.1	<0.099	<0.098
Aroclor 1248	NA	NA	<0.1	<0.097	<0.1	<0.1	<0.1	<0.099	<0.1	<0.099	<0.098
Aroclor 1254	NA	NA	<0.1	<0.097	<0.1	<0.1	<0.1	<0.099	<0.1	<0.099	<0.098
Aroclor 1260	NA	NA	**0.0234JK**	<0.097	<0.1	<0.1	<0.1	<0.099	<0.1	<0.099	<0.098
Total PCBs	0.5	1	**0.0234**	ND	ND	ND	ND	ND	ND	ND	ND
EPH parameters (mg/kg)											
C11-C22 Aromatics	170	10,000 (TPH)	**73.9**	---	---	---	---	<18	---	---	---
C19-C36 Aliphatics	NA	10,000 (TPH)	**92.6**	---	---	---	---	<8.8	---	---	---
C9-C18 Aliphatics	NA	10,000 (TPH)	**0.012**	---	---	---	---	<0.0088	---	---	---

Notes:
ND = concentration not detected above the laboratory reporting limit
J = analytical result estimated based on data validation
Bias, as determined during data validation - H (high), L (low), K (indeterminate)
Bolding indicates a detection.
Shading indicates an exceedance of the ROD clean-up criteria.
Sample depths reported in feet below groundsurface at time of sample collection.
Hatching corresponds with samples removed during excavation.
[1] The ROD clean-up level listed for this compound is the preliminary remediation goal for the protection of groundwater.
[2] Benzo(a)pyrene equivalent calculated based on the sum of the Relative Potency Factor (RPF) converted concentrations for the seven carcinogenic polycyclic aromatic hydrocarbons.
Half the detection limit utilized in the calculation if the constituent was non-detect.

TABLE 2-3
SUMMARY OF SOIL CHARACTERIZATION SAMPLING RESULTS – BENEATH SOIL PILES 8 AND 9
Beede Waste Oil Superfund Site, Plaistow, New Hampshire

Site ID	ROD Clean-up Level	NHDES RCMP Method 1 S-1	P_17	Q_16_20	Q_16_20	Q_16_20	R_16_20	R_16_20	R_16_20	R_16_20
Sample ID			SS2-P/17-SS054 (8-10)	SS2-Q/16+20-SS032 (0-2)	SS2-Q/16+20-SS033 (2-4)	SS2-Q/16+20-SS034 (4-6)	SS2-R/16+20-SS040 (0-2)	SS2-R/16+20-SS041 (2-4)	SS2-R/16+20-SS042 (4-6)	SS2-R/16+20-SS043 (6-8)
Sample Date			10/8/2012	10/8/2012	10/8/2012	10/8/2012	10/8/2012	10/8/2012	10/8/2012	10/8/2012
Sample Depth			8-10	0-2	2-4	4-6	0-2	2-4	4-6	6-8
Volatile Organic Compounds (mg/kg)										
1,2,4-Trimethylbenzene	NA	130	---	<0.17	---	---	<0.2	---	---	---
1,2-Dichlorobenzene	NA	88	---	<0.068	---	---	<0.078	---	---	---
Acetone	NA	75	---	<0.17	---	---	<0.2	---	---	---
Ethylbenzene	20 [1]	120	---	<0.068	---	---	<0.078	---	---	---
Naphthalene (8260)	4 [1]	5	---	<0.17	---	---	<0.2	---	---	---
Tetrachloroethene	0.5 [1]	2	---	<0.068	---	---	<0.078	---	---	---
Toluene	NA	100	---	<0.17	---	---	<0.2	---	---	---
Xylene (total)	NA	500	---	<0.068	---	---	<0.078	---	---	---
Metals (mg/kg)										
Lead	400	400	**2.7**	**5**	**2.4**	**2.3**	**2.3**	**3.6**	**2.8**	**4.2**
Semi-Volatile Organic Compounds (mg/kg)										
Benzo(a)anthracene	NA	1	---	<0.45	---	---	<0.45	---	---	---
Benzo(a)pyrene	0.4	0.7	---	<0.45	---	---	<0.45	---	---	---
Benzo(b)fluoranthene	NA	1	---	<0.45	---	---	<0.45	---	---	---
Benzo(k)fluoranthene	NA	12	---	<0.45	---	---	<0.45	---	---	---
Chrysene	NA	120	---	<0.45	---	---	<0.45	---	---	---
Dibenz(a,h)anthracene	NA	0.7	---	<0.45	---	---	<0.45	---	---	---
Phenanthrene	NA	NA	---	<0.45	---	---	<0.45	---	---	---
Pyrene	NA	720	---	<0.45	---	---	<0.45	---	---	---
Benzo(a)pyrene Equivalent[2]	0.4	NA	---	<0.520	---	---	<0.520	---	---	---
PCBs (mg/kg)										
Aroclor 1242	NA	NA	<0.1	**0.027**	<0.099	<0.098	<0.1	<0.098	<0.096	<0.1
Aroclor 1248	NA	NA	<0.1	<0.1	<0.099	<0.098	<0.1	<0.098	<0.096	<0.1
Aroclor 1254	NA	NA	<0.1	<0.1	<0.099	<0.098	<0.1	<0.098	<0.096	<0.1
Aroclor 1260	NA	NA	<0.1	<0.1	<0.099	<0.098	<0.1	<0.098	<0.096	<0.1
Total PCBs	0.5	1	ND	**0.027**	ND	ND	ND	ND	ND	ND
EPH parameters (mg/kg)										
C11-C22 Aromatics	170	10,000 (TPH)	---	**23**	---	---	<18	---	---	---
C19-C36 Aliphatics	NA	10,000 (TPH)	---	**49.8**	---	---	<9.1	---	---	---
C9-C18 Aliphatics	NA	10,000 (TPH)	---	**0.00919**	---	---	<0.0091	---	---	---

Notes:
ND = concentration not detected above the laboratory reporting limit
J = analytical result estimated based on data validation
Bias, as determined during data validation - H (high), L (low), K (indeterminate)
Bolding indicates a detection.
Shading indicates an exceedance of the ROD clean-up criteria.
Sample depths reported in feet below groundsurface at time of sample collection.
Hatching corresponds with samples removed during excavation.
[1] The ROD clean-up level listed for this compound is the preliminary remediation goal for the protection of groundwater.
[2] Benzo(a)pyrene equivalent calculated based on the sum of the Relative Potency Factor (RPF) converted concentrations for the seven carcinogenic polycyclic aromatic hydrocarbons.
Half the detection limit utilized in the calculation if the constituent was non-detect.

TABLE 2-3
SUMMARY OF SOIL CHARACTERIZATION SAMPLING RESULTS – BENEATH SOIL PILES 8 AND 9
Beede Waste Oil Superfund Site, Plaistow, New Hampshire

Site ID	ROD Clean-up Level	NHDES RCMP Method 1 S-1	R_16_20	R_17	R_17	R_25_17_30	R_25_17_30	S_16_25	S_16_25	S_16_25
Sample ID			SS2-R/16+20-SS044 (8-10)	SS2-R/17-SS029 (0-2)	SS2-R/17-SS030 (2-4)	SS2-R+25/17+30-SS027 (0-2)	SS2-R+25/17+30-SS028 (2-4)	SS2-S/16+25-SS045 (0-2)	SS2-S/16+25-SS046 (2-4)	SS2-S/16+25-SS047 (4-6)
Sample Date			10/8/2012	10/8/2012	10/8/2012	10/8/2012	10/8/2012	10/8/2012	10/8/2012	10/8/2012
Sample Depth			8-10	0-2	2-4	0-2	2-4	0-2	2-4	4-6
Volatile Organic Compounds (mg/kg)										
1,2,4-Trimethylbenzene	NA	130	---	<0.24	---	<0.28	---	<0.2	---	---
1,2-Dichlorobenzene	NA	88	---	<0.097	---	<0.11	---	<0.08	---	---
Acetone	NA	75	---	<0.24	---	**3.85**	---	<0.2	---	---
Ethylbenzene	20 [1]	120	---	**0.0575JK**	---	**0.0407JK**	---	<0.08	---	---
Naphthalene (8260)	4 [1]	5	---	<0.24	---	<0.28	---	<0.2	---	---
Tetrachloroethene	0.5 [1]	2	---	<0.097	---	<0.11	---	<0.08	---	---
Toluene	NA	100	---	<0.24	---	<0.28	---	<0.2	---	---
Xylene (total)	NA	500	---	**0.176**	---	**0.138**	---	<0.08	---	---
Metals (mg/kg)										
Lead	400	400	**3.7**	**10.7**	**3.8**	**71**	**7.3**	**5.1**	**4.1**	**2.4**
Semi-Volatile Organic Compounds (mg/kg)										
Benzo(a)anthracene	NA	1	---	<0.48	---	**0.557JH**	---	<0.45	---	---
Benzo(a)pyrene	0.4	0.7	---	<0.48	---	**0.506JH**	---	<0.45	---	---
Benzo(b)fluoranthene	NA	1	---	<0.48	---	**0.511JH**	---	<0.45	---	---
Benzo(k)fluoranthene	NA	12	---	<0.48	---	**0.474JH**	---	<0.45	---	---
Chrysene	NA	120	---	<0.48	---	**0.612JH**	---	<0.45	---	---
Dibenz(a,h)anthracene	NA	0.7	---	<0.48	---	**0.495JH**	---	<0.45	---	---
Phenanthrene	NA	NA	---	<0.48	---	**0.579JH**	---	<0.45	---	---
Pyrene	NA	720	---	<0.48	---	**0.832JH**	---	<0.45	---	---
Benzo(a)pyrene Equivalent[2]	0.4	NA	---	<0.555	---	**1.14**	---	<0.520	---	---
PCBs (mg/kg)										
Aroclor 1242	NA	NA	<0.1	<0.11	<0.1	<0.11	**0.0419**	<0.1	<0.1	<0.1
Aroclor 1248	NA	NA	<0.1	**0.0389**	<0.1	**0.275**	<0.11	<0.1	<0.1	<0.1
Aroclor 1254	NA	NA	<0.1	<0.11	<0.1	**0.171JH**	**0.0295JH**	<0.1	<0.1	<0.1
Aroclor 1260	NA	NA	<0.1	<0.11	<0.1	**0.0435JH**	<0.11	<0.1	<0.1	<0.1
Total PCBs	0.5	1	ND	**0.0389**	ND	**0.489**	**0.0714**	ND	ND	ND
EPH parameters (mg/kg)										
C11-C22 Aromatics	170	10,000 (TPH)	---	<19	---	**75.7JH**	---	<18	---	---
C19-C36 Aliphatics	NA	10,000 (TPH)	---	**23**	---	**93.5**	---	<8.9	---	---
C9-C18 Aliphatics	NA	10,000 (TPH)	---	<0.0097	---	**0.018**	---	<0.0089	---	---

Notes:
ND = concentration not detected above the laboratory reporting limit
J = analytical result estimated based on data validation
Bias, as determined during data validation - H (high), L (low), K (indeterminate)
Bolding indicates a detection.
Shading indicates an exceedance of the ROD clean-up criteria.
Sample depths reported in feet below groundsurface at time of sample collection.
Hatching corresponds with samples removed during excavation.
[1] The ROD clean-up level listed for this compound is the preliminary remediation goal for the protection of groundwater.
[2] Benzo(a)pyrene equivalent calculated based on the sum of the Relative Potency Factor (RPF) converted concentrations for the seven carcinogenic polycyclic aromatic hydrocarbons.
Half the detection limit utilized in the calculation if the constituent was non-detect.

TABLE 2-3
SUMMARY OF SOIL CHARACTERIZATION SAMPLING RESULTS – BENEATH SOIL PILES 8 AND 9
Beede Waste Oil Superfund Site, Plaistow, New Hampshire

Site ID	ROD Clean-up Level	NHDES RCMP Method 1 S-1	S_16_25	S_16_25	T_16_35	T_16_35	T_16_35	T_16_35	T_16_35	T_17_20
Sample ID			SS2-S/16+25-SS048 (6-8)	SS2-S/16+25-SS049 (8-10)	SS2-T/16+35-SS023 (0-2)	SS2-T/16+35-SS024 (2-4)	SS2-T/16+35-SS025 (4-6)	SS2-T/16+35-SS026 (6-8)	SS2-T/16+35-SS027 (8-10)	SS2-T/17+20-SS020 (0-2)
Sample Date			10/8/2012	10/8/2012	10/8/2012	10/8/2012	10/8/2012	10/8/2012	10/8/2012	10/8/2012
Sample Depth			6-8	8-10	0-2	2-4	4-6	6-8	8-10	0-2
Volatile Organic Compounds (mg/kg)										
1,2,4-Trimethylbenzene	NA	130	---	---	<0.21	---	---	---	---	<0.22
1,2-Dichlorobenzene	NA	88	---	---	<0.084	---	---	---	---	<0.086
Acetone	NA	75	---	---	<0.21	---	---	---	---	<0.22
Ethylbenzene	20 [1]	120	---	---	<0.084	---	---	---	---	<0.086
Naphthalene (8260)	4 [1]	5	---	---	<0.21	---	---	---	---	<0.22
Tetrachloroethene	0.5 [1]	2	---	---	<0.084	---	---	---	---	<0.086
Toluene	NA	100	---	---	<0.21	---	---	---	---	<0.22
Xylene (total)	NA	500	---	---	<0.084	---	---	---	---	<0.086
Metals (mg/kg)										
Lead	400	400	**2.3**	**3.8**	**3.8**	**4.1**	**3.8**	**4.3**	**3.2**	**6.4**
Semi-Volatile Organic Compounds (mg/kg)										
Benzo(a)anthracene	NA	1	---	---	<0.45	---	---	---	---	<0.45
Benzo(a)pyrene	0.4	0.7	---	---	<0.45	---	---	---	---	<0.45
Benzo(b)fluoranthene	NA	1	---	---	<0.45	---	---	---	---	<0.45
Benzo(k)fluoranthene	NA	12	---	---	<0.45	---	---	---	---	<0.45
Chrysene	NA	120	---	---	<0.45	---	---	---	---	<0.45
Dibenz(a,h)anthracene	NA	0.7	---	---	<0.45	---	---	---	---	<0.45
Phenanthrene	NA	NA	---	---	<0.45	---	---	---	---	<0.45
Pyrene	NA	720	---	---	<0.45	---	---	---	---	<0.45
Benzo(a)pyrene Equivalent[2]	0.4	NA	---	---	<0.520	---	---	---	---	<0.520
PCBs (mg/kg)										
Aroclor 1242	NA	NA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	NA	NA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	NA	NA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	NA	NA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total PCBs	0.5	1	ND	ND	ND	ND	ND	ND	ND	ND
EPH parameters (mg/kg)										
C11-C22 Aromatics	170	10,000 (TPH)	---	---	<18	---	---	---	---	<18
C19-C36 Aliphatics	NA	10,000 (TPH)	---	---	<8.9	---	---	---	---	**22.1**
C9-C18 Aliphatics	NA	10,000 (TPH)	---	---	<0.0089	---	---	---	---	<0.0089

Notes:
ND = concentration not detected above the laboratory reporting limit
J = analytical result estimated based on data validation
Bias, as determined during data validation - H (high), L (low), K (indeterminate)
Bolding indicates a detection.
Shading indicates an exceedance of the ROD clean-up criteria.
Sample depths reported in feet below groundsurface at time of sample collection.
Hatching corresponds with samples removed during excavation.
[1] The ROD clean-up level listed for this compound is the preliminary remediation goal for the protection of groundwater.
[2] Benzo(a)pyrene equivalent calculated based on the sum of the Relative Potency Factor (RPF) converted concentrations for the seven carcinogenic polycyclic aromatic hydrocarbons.
Half the detection limit utilized in the calculation if the constituent was non-detect.

TABLE 2-3
SUMMARY OF SOIL CHARACTERIZATION SAMPLING RESULTS – BENEATH SOIL PILES 8 AND 9
Beede Waste Oil Superfund Site, Plaistow, New Hampshire

Site ID	ROD Clean-up Level	NHDES RCMP Method 1 S-1	T_17_20	U_17_20	U_17_20	V_17_20	V_17_20	W_17_20	W_17_20	W_20_18_20
Sample ID			SS2-T/17+20-SS021 (2-4)	SS2-U/17+20-SS017 (0-2)	SS2-U/17+20-SS018 (2-4)	SS2-V/17+20-SS014 (0-2)	SS2-V/17+20-SS015 (2-4)	SS2-W/17+20-SS011 (0-2)	SS2-W/17+20-SS012 (2-4)	SS2-W+20/18+20-SS008 (0-2)
Sample Date			10/8/2012	10/8/2012	10/8/2012	10/8/2012	10/8/2012	10/8/2012	10/8/2012	10/8/2012
Sample Depth			2-4	0-2	2-4	0-2	2-4	0-2	2-4	0-2
Volatile Organic Compounds (mg/kg)										
1,2,4-Trimethylbenzene	NA	130	---	<0.21	---	<0.16	---	<0.24	---	<0.3
1,2-Dichlorobenzene	NA	88	---	<0.083	---	<0.065	---	<0.095	---	<0.12
Acetone	NA	75	---	<0.21	---	<0.16	---	<0.24	---	<0.3
Ethylbenzene	20 [1]	120	---	<0.083	---	<0.065	---	<0.095	---	<0.12
Naphthalene (8260)	4 [1]	5	---	<0.21	---	<0.16	---	<0.24	---	<0.3
Tetrachloroethene	0.5 [1]	2	---	<0.083	---	<0.065	---	<0.095	---	<0.12
Toluene	NA	100	---	<0.21	---	<0.16	---	<0.24	---	<0.3
Xylene (total)	NA	500	---	<0.083	---	<0.065	---	<0.095	---	<0.12
Metals (mg/kg)										
Lead	400	400	**3.1**	**4.3**	**3.7**	**3.6**	**3.1**	**30**	**80.5**	**15.2**
Semi-Volatile Organic Compounds (mg/kg)										
Benzo(a)anthracene	NA	1	---	<0.46	---	<0.46	---	<0.46	---	<0.46
Benzo(a)pyrene	0.4	0.7	---	<0.46	---	<0.46	---	<0.46	---	<0.46
Benzo(b)fluoranthene	NA	1	---	<0.46	---	<0.46	---	<0.46	---	<0.46
Benzo(k)fluoranthene	NA	12	---	<0.46	---	<0.46	---	<0.46	---	<0.46
Chrysene	NA	120	---	<0.46	---	<0.46	---	<0.46	---	<0.46
Dibenz(a,h)anthracene	NA	0.7	---	<0.46	---	<0.46	---	<0.46	---	<0.46
Phenanthrene	NA	NA	---	<0.46	---	<0.46	---	<0.46	---	<0.46
Pyrene	NA	720	---	<0.46	---	<0.46	---	<0.46	---	<0.46
Benzo(a)pyrene Equivalent[2]	0.4	NA	---	<0.532	---	<0.532	---	<0.532	---	<0.532
PCBs (mg/kg)										
Aroclor 1242	NA	NA	<0.099	<0.1	<0.1	<0.1	<0.097	<0.099	<0.1	<0.11
Aroclor 1248	NA	NA	<0.099	<0.1	<0.1	<0.1	<0.097	**0.0702**	**0.166**	**0.0205**
Aroclor 1254	NA	NA	<0.099	<0.1	<0.1	<0.1	<0.097	**0.0486JH**	**0.124JH**	<0.11
Aroclor 1260	NA	NA	<0.099	<0.1	<0.1	<0.1	<0.097	<0.099	<0.1	<0.11
Total PCBs	0.5	1	ND	ND	ND	ND	ND	**0.119**	**0.29**	**0.0205**
EPH parameters (mg/kg)										
C11-C22 Aromatics	170	10,000 (TPH)	---	<18	---	<18	---	**29.2**	---	**37.3**
C19-C36 Aliphatics	NA	10,000 (TPH)	---	<9.2	---	<9.1	---	**100**	---	**101**
C9-C18 Aliphatics	NA	10,000 (TPH)	---	<0.0092	---	<0.0091	---	<0.0093	---	**0.032**

Notes:
ND = concentration not detected above the laboratory reporting limit
J = analytical result estimated based on data validation
Bias, as determined during data validation - H (high), L (low), K (indeterminate)
Bolding indicates a detection.
Shading indicates an exceedance of the ROD clean-up criteria.
Sample depths reported in feet below groundsurface at time of sample collection.
Hatching corresponds with samples removed during excavation.
[1] The ROD clean-up level listed for this compound is the preliminary remediation goal for the protection of groundwater.
[2] Benzo(a)pyrene equivalent calculated based on the sum of the Relative Potency Factor (RPF) converted concentrations for the seven carcinogenic polycyclic aromatic hydrocarbons.
Half the detection limit utilized in the calculation if the constituent was non-detect.

TABLE 2-3
SUMMARY OF SOIL CHARACTERIZATION SAMPLING RESULTS – BENEATH SOIL PILES 8 AND 9
Beede Waste Oil Superfund Site, Plaistow, New Hampshire

Site ID	ROD Clean-up Level	NHDES RCMP Method 1 S-1	W_20_18_20	X_20_18_20	X_20_18_20	Y_20_18_20	Y_20_18_20
Sample ID			SS2-W+20/18+20-SS009 (2-4)	SS2-X+20/18+20-SS006 (0-2)	SS2-X+20/18+20-SS007 (2-4)	SS2-Y+20/18+20-SS001 (0-2)	SS2-Y+20/18+20-SS002 (2-4)
Sample Date			10/8/2012	10/8/2012	10/8/2012	10/8/2012	10/8/2012
Sample Depth			2-4	0-2	2-4	0-2	2-4
Volatile Organic Compounds (mg/kg)							
1,2,4-Trimethylbenzene	NA	130	---	<0.19	---	<0.32	---
1,2-Dichlorobenzene	NA	88	---	<0.075	---	<0.13	---
Acetone	NA	75	---	<0.19	---	<0.32	---
Ethylbenzene	20 [1]	120	---	<0.075	---	<0.13	---
Naphthalene (8260)	4 [1]	5	---	<0.19	---	<0.32	---
Tetrachloroethene	0.5 [1]	2	---	<0.075	---	<0.13	---
Toluene	NA	100	---	<0.19	---	<0.32	---
Xylene (total)	NA	500	---	<0.075	---	<0.13	---
Metals (mg/kg)							
Lead	400	400	**9.6**	**14.5**	**6.3**	**17.6**	**3.8**
Semi-Volatile Organic Compounds (mg/kg)							
Benzo(a)anthracene	NA	1	---	<0.48	---	<0.49	---
Benzo(a)pyrene	0.4	0.7	---	<0.48	---	<0.49	---
Benzo(b)fluoranthene	NA	1	---	<0.48	---	<0.49	---
Benzo(k)fluoranthene	NA	12	---	<0.48	---	<0.49	---
Chrysene	NA	120	---	<0.48	---	<0.49	---
Dibenz(a,h)anthracene	NA	0.7	---	<0.48	---	<0.49	---
Phenanthrene	NA	NA	---	<0.48	---	<0.49	---
Pyrene	NA	720	---	<0.48	---	<0.49	---
Benzo(a)pyrene Equivalent[2]	0.4	NA	---	<0.555	---	<0.566	---
PCBs (mg/kg)							
Aroclor 1242	NA	NA	<0.11	<0.1	<0.1	<0.11	<0.11
Aroclor 1248	NA	NA	<0.11	**0.0281**	<0.1	**0.0308**	<0.11
Aroclor 1254	NA	NA	<0.11	<0.1	<0.1	**0.0263JH**	<0.11
Aroclor 1260	NA	NA	<0.11	<0.1	<0.1	<0.11	<0.11
Total PCBs	0.5	1	ND	**0.0281**	ND	**0.0571**	ND
EPH parameters (mg/kg)							
C11-C22 Aromatics	170	10,000 (TPH)	---	<19	---	<19	---
C19-C36 Aliphatics	NA	10,000 (TPH)	---	**35.3**	---	**15.1**	---
C9-C18 Aliphatics	NA	10,000 (TPH)	---	**0.0099**	---	<0.0097	---

Notes:
ND = concentration not detected above the laboratory reporting limit
J = analytical result estimated based on data validation
Bias, as determined during data validation - H (high), L (low), K (indeterminate)
Bolding indicates a detection.
Shading indicates an exceedance of the ROD clean-up criteria.
Sample depths reported in feet below groundsurface at time of sample collection.
Hatching corresponds with samples removed during excavation.
[1] The ROD clean-up level listed for this compound is the preliminary remediation goal for the protection of groundwater.
[2] Benzo(a)pyrene equivalent calculated based on the sum of the Relative Potency Factor (RPF) converted concentrations for the seven carcinogenic polycyclic aromatic hydrocarbons.
Half the detection limit utilized in the calculation if the constituent was non-detect.

TABLE 2-4
SUMMARY OF SUPPLEMENTAL SOIL CHARACTERIZATION SAMPLING RESULTS – WITHIN THE ACCESS ROAD FOOTPRINT
Beede Waste Oil Superfund Site, Plaistow, New Hampshire

Site ID	ROD Clean-up Level	NHDES Risk Characterization and Management Policy Method 1 S-1	B_15_14	B_15_14	B_20_13_35	B_20_13_35	B_20_14_5	B_20_14_5
Sample ID			SS1-B+15/14-SS003 (0-1)	SS1-B+15/14-SS004 (1-2)	SS1-B+20/13+35-SS007 (0-1)	SS1-B+20/13+35-SS008 (1-2)	SS1-B+20/14+5-SS005 (0-1)	SS1-B+20/14+5-SS006 (1-2)
Sample Date			8/13/2012	8/13/2012	8/13/2012	8/13/2012	8/13/2012	8/13/2012
Sample Depth (ft)			0-1	1-2	0-1	1-2	0-1	1-2
Polychlorinated Biphenyls (mg/kg)								
Aroclor 1248	NA	NA	**2.39JK**	<0.1	**5.45**	**0.621**	<0.1	<0.1
Aroclor 1254	NA	NA	<0.11	<0.1	<0.11	<0.1	<0.1	<0.1
Total PCBs	0.5	1	**2.39**	ND	**5.45**	**0.621**	ND	ND
Metals (mg/kg)								
Lead	400	400	---	---	---	---	---	---

Notes:
ND = concentrations not reported above the laboratory reporting limit
J = analytical result estimated based on data validation
Bias, as determined during data validation - H (high), L (low), K (indeterminate)
Bolding indicates a detection.
Shading indicates an exceedance of the ROD clean-up criteria.

TABLE 2-4
SUMMARY OF SUPPLEMENTAL SOIL CHARACTERIZATION SAMPLING RESULTS – WITHIN THE ACCESS ROAD FOOTPRINT
Beede Waste Oil Superfund Site, Plaistow, New Hampshire

Site ID	ROD Clean-up Level	NHDES Risk Characterization and Management Policy Method 1 S-1	B_25_14	B_25_14	C_10_14	C_10_14_20	C_20_14_10	C_20_14_10	C_20_14_30
Sample ID			SS1-B+25/14-SS001 (0-1)	SS1-B+25/14-SS002 (1-2)	SS1-C+10/14-SS030 (0-1)	SS1-C+10/14+20-SS028 (0-1)	SS1-C+20/14+10-SS022 (0-1)	SS1-C+20/14+10-SS027 (1-2)	SS1-C+20/14+30-SS023 (0-1)
Sample Date			8/13/2012	8/13/2012	9/28/2012	9/28/2012	9/18/2012	9/28/2012	9/18/2012
Sample Depth (ft)			0-1	1-2	0-1	0-1	0-1	1-2	0-1
Polychlorinated Biphenyls (mg/kg)									
Aroclor 1248	NA	NA	**0.332**	<0.11	---	---	---	---	---
Aroclor 1254	NA	NA	**0.174JH**	<0.11	---	---	---	---	---
Total PCBs	0.5	1	**0.506**	ND					
Metals (mg/kg)									
Lead	400	400	---	---	**138JK**	**275JK**	**433**	**215JK**	**104**

Notes:
ND = concentrations not reported above the laboratory reporting limit
J = analytical result estimated based on data validation
Bias, as determined during data validation - H (high), L (low), K (indeterminate)
Bolding indicates a detection.
Shading indicates an exceedance of the ROD clean-up criteria.

TABLE 2-4
SUMMARY OF SUPPLEMENTAL SOIL CHARACTERIZATION SAMPLING RESULTS – WITHIN THE ACCESS ROAD FOOTPRINT
Beede Waste Oil Superfund Site, Plaistow, New Hampshire

Site ID	ROD Clean-up Level	NHDES Risk Characterization and Management Policy Method 1 S-1	C_30_14	C_30_14_20	D_10_14_20	D_10_14_20	D_10_15	D_10_15	D_20_14_10
Sample ID			SS1-C+30/14-SS031 (0-1)	SS1-C+30/14+20-SS013 (0-1)	SS1-D+10/14+20-SS011 (0-1)	SS1-D+10/14+20-SS012 (1-2)	SS1-D+10/15-SS009 (0-1)	SS1-D+10/15-SS010 (1-2)	SS1-D+20/14+10-SS024 (0-1)
Sample Date			9/28/2012	8/13/2012	8/13/2012	8/13/2012	8/13/2012	8/13/2012	9/18/2012
Sample Depth (ft)			0-1	0-1	0-1	1-2	0-1	1-2	0-1
Polychlorinated Biphenyls (mg/kg)									
Aroclor 1248	NA	NA	---	---	---	---	---	---	---
Aroclor 1254	NA	NA	---	---	---	---	---	---	---
Total PCBs	0.5	1							
Metals (mg/kg)									
Lead	400	400	**395JK**	**539**	**525**	**77.2**	**357**	**5.3**	**259**

Notes:
ND = concentrations not reported above the laboratory reporting limit
J = analytical result estimated based on data validation
Bias, as determined during data validation - H (high), L (low), K (indeterminate)
Bolding indicates a detection.
Shading indicates an exceedance of the ROD clean-up criteria.

TABLE 2-4
SUMMARY OF SUPPLEMENTAL SOIL CHARACTERIZATION SAMPLING RESULTS – WITHIN THE ACCESS ROAD FOOTPRINT
Beede Waste Oil Superfund Site, Plaistow, New Hampshire

Site ID	ROD Clean-up Level	NHDES Risk Characterization and Management Policy Method 1 S-1	D_20_14_30	F_20_15_20	F_30_15_20	F_30_15_20	G_10_15_20	G_10_15_20
Sample ID			SS1-D+20/14+30-SS025 (0-1)	SS1-F+20/15+20-SS026 (0-1)	SS1-F+30/15+20-SS016 (0-1)	SS1-F+30/15+20-SS017 (1-2)	SS1-G+10/15+20-SS014 (0-1)	SS1-G+10/15+20-SS015 (1-2)
Sample Date			9/18/2012	9/18/2012	8/13/2012	8/13/2012	8/13/2012	8/13/2012
Sample Depth (ft)			0-1	0-1	0-1	1-2	0-1	1-2
Polychlorinated Biphenyls (mg/kg)								
Aroclor 1248	NA	NA	---	---	---	---	---	---
Aroclor 1254	NA	NA	---	---	---	---	---	---
Total PCBs	0.5	1						
Metals (mg/kg)								
Lead	400	400	**166**	**212**	**462**	**5.5**	**134**	**3.4**

Notes:
ND = concentrations not reported above the laboratory reporting limit
J = analytical result estimated based on data validation
Bias, as determined during data validation - H (high), L (low), K (indeterminate)
Bolding indicates a detection.
Shading indicates an exceedance of the ROD clean-up criteria.

TABLE 2-4
SUMMARY OF SUPPLEMENTAL SOIL CHARACTERIZATION SAMPLING RESULTS – WITHIN THE ACCESS ROAD FOOTPRINT
Beede Waste Oil Superfund Site, Plaistow, New Hampshire

Site ID	ROD Clean-up Level	NHDES Risk Characterization and Management Policy Method 1 S-1	G_15_10	G_15_10	G_15_30	G_15_30
Sample ID			SS1-G/15+10-SS018 (0-1)	SS1-G/15+10-SS019 (1-2)	SS1-G/15+30-SS020 (0-1)	SS1-G/15+30-SS021 (1-2)
Sample Date			8/13/2012	8/13/2012	8/13/2012	8/13/2012
Sample Depth (ft)			0-1	1-2	0-1	1-2
Polychlorinated Biphenyls (mg/kg)						
Aroclor 1248	NA	NA	---	---	---	---
Aroclor 1254	NA	NA	---	---	---	---
Total PCBs	0.5	1				
Metals (mg/kg)						
Lead	400	400	**11.7**	**2.8**	**156**	**4.3**

Notes:
ND = concentrations not reported above the laboratory reporting limit
J = analytical result estimated based on data validation
Bias, as determined during data validation - H (high), L (low), K (indeterminate)
Bolding indicates a detection.
Shading indicates an exceedance of the ROD clean-up criteria.

TABLE 2-5
SUMMARY OF VERIFICATION SAMPLING RESULTS – EX-1 AND EX-2
Beede Waste Oil Superfund Site, Plaistow, New Hampshire

Site ID	ROD Clean-up Level	NHDES Risk Characterization and Management Policy Method 1 S-1	EX1-X_17_30	EX1-Y_10_17_30	EX1-Z_18	EX2-P_20_17	EX2-P_30_17_30	EX2-Q_10_17	EX2-R_17	EX2-S_20_17_20
Sample ID			EX1-X/17+30-SVS008	EX1-Y+10/17+30-BVS006	EX1-Z/18-SVS009	EX2-P+20/17-SVS013	EX2-P+30/17+30-SVS012	EX2-Q+10/17-BVS007	EX2-R/17-SVS010	EX2-S+20/17+20-SVS011
Sample Date			10/15/2012	10/15/2012	10/15/2012	10/15/2012	10/15/2012	10/15/2012	10/15/2012	10/15/2012
Sample Status			Verfication	Verfication	Verfication	Verfication	Verfication	Verfication	Verfication	Verfication
Polychlorinated Biphenyls (mg/kg)										
Aroclor 1242	NA	NA	<0.1	<0.1	<0.1	**0.0858JK**	<0.11	<0.099	**0.111**	<0.1
Aroclor 1254	NA	NA	**0.0361JK**	<0.1	<0.1	<0.1	<0.11	<0.099	**0.0310JH**	**0.0246JK**
Total PCBs	0.5	1	**0.0361**	ND	ND	**0.0858**	ND	ND	**0.142**	**0.0246**
Metals (mg/kg)										
Arsenic	11 [1]	11	**7.2**	**9.3**	**7.2**	**5.9**	**6.8**	**3**	**3.7**	**5.5**
Chromium	21 [1]	130 (hex)	**19.1**	**13.1**	**11.4**	**7.4**	**12.5**	**3.4**	**5**	**16.3**
Lead	21 [1]	400	**36.7**	**4.6**	**8.1**	**7.2**	**6.7**	**1.6**	**7.4**	**4.6**
Mercury	0.59	7	**0.049**	<0.033	**0.017JK**	**0.018JK**	**0.028JK**	<0.034	<0.032	<0.032
Nickel	43	400	**13.3**	**9.2**	**7.6**	**5.5**	**8.7**	**3.4JK**	**5**	**12.6**
Volatile Organic Compounds (mg/kg)										
1,2,4-Trimethylbenzene	NA	130	<0.0034	<0.0037	<0.0033	<0.0040	<0.0036	<0.0033	**0.0013JH**	<0.0047
1,3,5-Trimethylbenzene	NA	96	<0.0034	<0.0037	<0.0033	<0.0040	<0.0036	<0.0033	**0.0022JH**	<0.0047
2-Butanone (MEK)	NA	51	**0.0029JH**	<0.0037	<0.0033	<0.0040	**0.0054**	<0.0033	<0.0036	<0.0047
Acetone	NA	75	**0.0308**	**0.0213**	**0.114**	**0.0362**	**0.0952**	**0.0088**	**0.0152JH**	**0.0148**
Benzene	0.1 [2]	0.3	<0.00034	<0.00037	<0.00033	<0.00040	<0.00036	<0.00033	**0.00028JH**	<0.00047
cis-1,2-Dichloroethene	2 [2]	2	**0.00040JK**	<0.0015	<0.0013	<0.0016	<0.0015	<0.0013	**0.0011JH**	<0.0019
Ethylbenzene	20 [2]	120	**0.00018JK**	<0.0015	<0.0013	<0.0016	<0.0015	<0.0013	<0.0015	<0.0019
n-Butylbenzene	NA	110	<0.0034	<0.0037	<0.0033	<0.0040	<0.0036	<0.0033	**0.00094JH**	<0.0047
p-Isopropyltoluene	NA	NA	<0.0034	<0.0037	<0.0033	<0.0040	<0.0036	<0.0033	**0.0010JH**	<0.0047
sec-Butylbenzene	NA	130	<0.0034	<0.0037	<0.0033	<0.0040	<0.0036	<0.0033	**0.00034JH**	<0.0047
Tetrachloroethene	0.5 [2]	2	**0.003**	<0.0015	<0.0013	**0.0013JK**	<0.0015	<0.0013	**0.00066JH**	<0.0019
Trichloroethene	0.2 [2]	0.8	**0.0025**	<0.0015	<0.0013	<0.0016	<0.0015	<0.0013	<0.0015	<0.0019
Xylene (total)	NA	500	**0.00080JK**	<0.0015	**0.00075JK**	<0.0016	<0.0015	<0.0013	**0.0013JH**	<0.0019
Semi-Volatiles (mg/kg)										
bis(2-Ethylhexyl) phthalate	10	72	**0.247JK**	<0.26	<0.26	**0.639**	<0.27	<0.25	**3.33**	<0.25
C11-C22 Aromatics	170	10,000 (TPH)	**25.1**	<18	<18	<19	<19	<18	**21.4**	<18
C19-C36 Aliphatics	NA	10,000 (TPH)	**35.4JK**	<8.8	<9.2	**22.4**	<10	<8.8	**35.4**	<8.9
Benzo(a)pyrene (8270)	0.4	0.7	<0.11	<0.1	<0.1	**0.0306JK**	<0.11	<0.099	**0.0576JK**	<0.1
Benzo(a)pyrene - Equivalent[3]	0.4	NA	<0.369	<0.338	<0.352	**0.339**	<0.363	<0.338	**0.353**	<0.345

Notes:
ND = concentration not detected above the laboratory reporting limit
J = indicates the sample result is estimated
Bias, as determined during data validation - H (high), L (low), K (indeterminate)
Bolding indicates a detection.
[1] The ROD clean-up level listed for this compound is the lower of the NHDES or Site specific background preliminary remediation goal listed on Table 2-2 of the Feasibility Study.
[2] The ROD clean-up level listed for this compound is the preliminary remediation goal for the protection of groundwater.
[3] Benzo(a)pyrene equivalent calculated based on the sum of the Relative Potency Factor (RPF) converted concentrations for the seven carcinogenic polycyclic aromatic hydrocarbons. Half the detection limit utilized in the calculation if the constituent was non-detect.
Sample depths are as follows: sidewall verification samples (SVS) from 0-2 ft bgs, base verification samples (BVS) from 2-2.25 ft bgs.

TABLE 2-6
SUMMARY OF VERIFICATION SAMPLING RESULTS – EX-3
Beede Waste Oil Superfund Site, Plaistow, New Hampshire

Site ID	ROD Clean-up Level	NHDES Risk Characterization and Management Policy Method 1 S-1	EX3-A_13_20	EX3-B_20_13_10	EX3-B_20_13_30	EX3-B_20_14_10	EX3-C_20_14_10	EX3-C_30_14_10	EX3-C_30_15	EX3-C_35_14	EX3-C_35_14_20	EX3-D_13_10	EX3-D_13_10	EX3-D_14_10	EX3-D_14_30
Sample ID			EX3-A/13+20-SVS001	EX3-B+20/13+10-BVS012 (3)	EX3-B+20/13+30-BVS001	EX3-B+20/14+10-SVS002	EX3-C+20/14+10-SVS024 (6-8)	EX3-C+30/14+10-BVS020 (17)	EX3-C+30/15-SVS003	EX3-C+35/14-SVS022 (6-8)	EX3-C+35/14+20-SVS023 (6-8)	EX3-D/13+10-BVS003	EX3-D/13+10-BVS013 (3	EX3-D/14+10-SVS021 (8-10)	EX3-D/14+30-BVS002
Date Collected			10/11/2012	10/25/2012	10/11/2012	10/11/2012	11/26/2012	11/26/2012	10/11/2012	11/26/2012	11/26/2012	10/11/2012	10/26/2012	11/9/2012	10/11/2012
Sample Status			Verification	Verification	Removed	Verification	Verification	Verification	Verification	Verification	Verification	Removed	Verification	Removed	Removed
Sample Depth			0-2	3-3.25	2-2.25	0-2	6-8	17-17.25	0-2	6-8	6-8	2-2.25	3-3.25	8-10	2-2.25
Polychlorinated Biphenyls (mg/kg)															
Aroclor 1242	NA	NA	<0.11	<0.1	<0.099	<0.1	**0.02**	<0.02	**0.0612JK**	<0.02	<0.02	<0.11	<0.12	**0.268**	<0.1
Aroclor 1248	NA	NA	**0.0904JK**	<0.1	**0.916**	<0.1	<0.02	<0.02	<0.11	<0.02	<0.02	**0.962**	**0.288**	<0.11	**0.639**
Aroclor 1254	NA	NA	<0.11	<0.1	**0.122JH**	<0.1	<0.02	<0.02	<0.11	<0.02	**0.029**	**0.366JH**	**0.0691JH**	**0.1JH**	**0.294JH**
Aroclor 1260	NA	NA	<0.11	<0.1	**0.0217JH**	<0.1	<0.02	<0.02	<0.11	<0.02	<0.02	**0.0421JH**	<0.12	**0.0255JH**	**0.0508JH**
Total PCBs	0.5	1	**0.0904**	ND	**1.06**	ND	**0.02**	ND	**0.0612**	ND	**0.029**	**1.37**	**0.357**	**0.394**	**0.984**
Metals (mg/kg)															
Arsenic	11 [1]	11	**5.6**	**3.8**	**4**	**4.5**	---	---	**4.5**	---	---	**5**	**5**	**4.8**	**4**
Cadmium	NA	33	**0.099JK**	---	**0.071JK**	**0.042JK**	---	---	---	---	---	---	---	---	---
Chromium	21 [1]	130 (hex)	---	**9.6**	---	---	---	---	**11.3**	---	---	**10.1**	**15.4**	**9.5**	**9.9**
Lead	400	400	**7.3**	**3.2**	**40.7**	**4.4**	---	---	**10.2**	---	---	**27.7**	**38.5**	**17.6**	**16.4**
Mercury	0.59	7	**0.021JK**	<0.033	**0.027JK**	**0.012JK**	---	---	**0.031JK**	---	---	**0.028JK**	**0.039**	**0.021JK**	**0.019JK**
Nickel	43	400	**5.8**	**7.3**	**8.8**	**7.9**	---	---	**7.2**	---	---	**5.9**	**8.4**	**5.7**	**6.4**
Volatile Organic Compounds (mg/kg)															
1,1,2,2-Tetrachloroethane	NA	4	<0.0014	<0.0015	<0.0014	**0.00056JK**	<0.06	<0.05	<0.0014	<0.05	<0.06	<0.0015	<0.13	<0.2	<0.0013
1,2,4-Trimethylbenzene	NA	130	<0.0036	<0.0038	<0.0035	**0.00023JK**	**0.12**	<0.05	<0.0035	<0.05	<0.06	**0.0014JK**	**0.242JK**	**29.2**	<0.0032
1,2-Dichlorobenzene	NA	88	<0.0014	<0.0015	<0.0014	<0.0015	<0.06	<0.05	<0.0014JL	<0.05	<0.06	<0.0015	<0.13	<0.2	<0.0013
1,3,5-Trimethylbenzene	NA	96	<0.0036	<0.0038	<0.0035	<0.0037	<0.06	<0.05	<0.0035	<0.05	<0.06	**0.0026JK**	**0.114JK**	**8.22**	<0.0032
2-Butanone (MEK)	NA	51	**0.0048JH**	<0.0038	<0.0035	<0.0037	<0.6	<0.5	<0.0035	<0.5	<0.6	<0.0039	<0.31	<0.5	<0.0032
Acetone	NA	75	**0.108JH**	**0.0152**	**0.0281JH**	**0.0614JH**	<2	<2	**0.0911**	<2	<2	**0.0337**	<0.31	<0.5	**0.0911JH**
Benzene	0.1 [2]	0.3	<0.00036	<0.00038	<0.00035	<0.00037	<0.06	<0.05	<0.00035	<0.05	<0.06	<0.00039	<0.031	<0.05	<0.00032
Ethylbenzene	20 [2]	120	<0.0014	<0.0015JL	<0.0014	<0.0015	<0.06	<0.05	<0.0014	<0.05	<0.06	<0.0015	**0.0463JK**	**3.36**	<0.0013
Isopropylbenzene	NA	330	<0.0036	<0.0038	<0.0035	<0.0037	<0.06	<0.05	<0.0035	<0.05	<0.06	<0.0039	<0.31	**1.15**	<0.0032
m&p-Xylene	NA	---	---	---	---	---	**0.06**	<0.05	---	<0.05	<0.06	---	---	---	---
Methylene chloride	NA	3	<0.0014	<0.0015	<0.0014	<0.0015	<0.1	<0.1	<0.0014	<0.1	<0.1	<0.0015	<0.13	<0.2	<0.0013
Naphthalene (8260)	4 [2]	5	<0.0036	<0.0038	<0.0035	<0.0037	<0.1	<0.1	<0.0035JL	<0.1	<0.1	**0.0051**	**0.123JK**	**11.2**	<0.0032
Naphthalene (MADEP EPH)	4 [2]	5	<0.48JL	<0.45	<0.46	<0.47	<0.2	<0.2	<0.51	<0.2	<0.2	<0.49	**0.244JK**	<0.48	<0.47
n-Butylbenzene	NA	110	<0.0036	<0.0038JL	<0.0035	<0.0037	<0.06	<0.05	<0.0035JL	<0.05	<0.06	**0.0011JK**	**0.0773JK**	**4.91**	<0.0032
n-Propylbenzene	NA	85	<0.0036	<0.0038	<0.0035	<0.0037	<0.06	<0.05	<0.0035	<0.05	<0.06	<0.0039	<0.31	**4.26**	<0.0032
o-Xylene	NA	---	---	---	---	---	<0.06	<0.05	---	<0.05	<0.06	---	---	---	---
p-Isopropyltoluene	NA	NA	**0.00060JH**	<0.0038	<0.0035	**0.0094**	<0.06	<0.05	<0.0035	<0.05	<0.06	**0.0036JK**	**0.0729JK**	**8.62**	<0.0032
sec-Butylbenzene	NA	130	<0.0036	<0.0038	<0.0035	**0.00027JK**	<0.06	<0.05	<0.0035	<0.05	<0.06	**0.0010JK**	**0.0280JK**	**1.41**	<0.0032
Tetrachloroethene	0.5 [2]	2	<0.0014	<0.0015	<0.0014	<0.0015	<0.06	<0.05	<0.0014	<0.05	<0.06	<0.0015	<0.13	<0.2	<0.0013
Toluene	NA	100	<0.0036	<0.0038	<0.0035	<0.0037	<0.06	<0.05	<0.0035	<0.05	<0.06	<0.0039	<0.31	<0.5	<0.0032
Trichloroethene	0.2 [2]	0.8	<0.0014	<0.0015	<0.0014	<0.0015	<0.06	<0.05	<0.0014	<0.05	<0.06	<0.0015	<0.13	<0.2	<0.0013
Xylene (total)	NA	500	<0.0014	<0.0015	<0.0014	<0.0015	---	---	<0.0014	---	---	<0.0015	**0.193**	**16.4**	<0.0013
Semi Volatiles (mg/kg)															
2-Methylnaphthalene	NA	NA	<0.48	<0.45	<0.46	<0.47	<0.2	<0.2	<0.51	<0.2	<0.2	<0.49	**1.51**	**7.26**	<0.47
Acenaphthene	NA	340	<0.48	<0.45	<0.46	<0.47	<0.2	<0.2	<0.51	<0.2	<0.2	<0.49	<0.52	**0.889**	<0.47
Acenaphthylene	NA	490	<0.48	<0.45	<0.46	<0.47	<0.2	<0.2	<0.51	<0.2	<0.2	<0.49	<0.52	<0.48	<0.47
Benzo(a)pyrene (8270)	0.4	0.7	<0.11	<0.1	<0.1	<0.11	---	---	<0.11	---	---	<0.11	**0.0534JK**	<0.11	**0.0209JK**
Benzo(a)pyrene - Equivalent[3]	0.4	NA	<0.370	<0.345	<0.352	<0.363	<0.231	<0.231	<0.390	<0.231	<0.231	<0.376	**0.394**	<0.370	**0.329**
Benzo(a)pyrene (MADEP EPH)	0.4	0.7	<0.48	<0.45	<0.46	<0.47	<0.2	<0.2	<0.51	<0.2	<0.2	<0.49	<0.52	<0.48	<0.47
Benzo(b)fluoranthene	NA	12	<0.48	<0.45	<0.46	<0.47	<0.2	<0.2	<0.51	<0.2	<0.2	<0.49	<0.52	<0.48	<0.47
Benzo(g,h,i)perylene	NA	NA	<0.48	<0.45	<0.46	<0.47	<0.2	<0.2	<0.51	<0.2	<0.2	<0.49	<0.52	<0.48	<0.47
bis(2-Ethylhexyl) phthalate	10	72	**0.0198JK**	<0.0218U	**0.648**	**0.0266JK**	**0.51**	**0.77**	**0.0428JK**	<0.4	<0.4	**1.88**	**17.3**	**38.8**	**5.32**
C11-C22 Aromatics	170	10,000 (TPH)	<19	<18	<19	<19	<20	<20	<20	<20	<20	**32.4**	**233**	**1050**	**40.9**
C11-C22 Aromatics (unadjusted)	NA	10,000 (TPH)	<19	<18	<19	<19	<20	<20	<20	<20	<20	**32.4**	**235**	**1050**	**40.9**
C19-C36 Aliphatics	NA	10,000 (TPH)	<10	<9.1	**39.3**	<10	**26**	<20	<10	**39**	**25**	**75.2**	**487**	**3880**	**131**
C9-C18 Aliphatics	NA	10,000 (TPH)	<10JK	<9.1	**10.3**	<10	<20	<20	<10	<20	<20	**37.4**	**201JK**	**768**	**22.9**
Fluoranthene	NA	960	<0.48	<0.45	<0.46	<0.47	<0.2	<0.2	<0.51	<0.2	<0.2	<0.49	<0.52	<0.48	<0.47
Fluorene	NA	77	<0.48	<0.45	<0.46	<0.47	<0.2	<0.2	<0.51	<0.2	<0.2	<0.49	<0.52	**0.954**	<0.47
Phenanthrene	NA	NA	<0.48	<0.45	<0.46	<0.47	<0.2	<0.2	<0.51	<0.2	<0.2	<0.49	<0.52	<0.48	<0.47
Pyrene	NA	720	<0.48	<0.45	<0.46	<0.47	<0.2	<0.2	<0.51	<0.2	<0.2	<0.49	<0.52	<0.48	<0.47

Notes:
ND = concentration not reported above the laboratory reporting limit
J = analytical result estimated based on data validation
Bias, as determined during data validation - H (high), L (low), K (indeterminate)
Sample depths reported in feet below ground surface at time of sample collection.
"Verification" sample status indicates that the sample was collected and used for final verification purposes.
"Removed" sample status and hatching indicates that the sample was collected from soil that was subsequently excavated based on this result and therefore the sample result was not used for final verification purposes.
Bolding indicates a detection.
Shading of an individual result indicates an exceedance of the ROD clean-up criteria.

[1] The ROD clean-up level listed for this compound is the lower of the NHDES or Site specific background preliminary remediation goal listed on Table 2-2 of the Feasibility Study.
[2] The ROD clean-up level listed for this compound is the preliminary remediation goal for the protection of groundwater.
[3] Benzo(a)pyrene equivalent calculated based on the sum of the Relative Potency Factor (RPF) converted concentrations for the seven carcinogenic polycyclic aromatic hydrocarbons. Half the detection limit utilized in the calculation if the constituent was non-detect.

[4] See discussion on benzo(a)pyrene equivalent calculation in text (Sections 2.4 and 2.7.3). The detection of benzo(a)pyrene is below 0.4 mg/kg and the other 6 PAHs in the benzo(a)pyrene calculation are non-detect and below the NHDES S-1 standard.

TABLE 2-6
SUMMARY OF VERIFICATION SAMPLING RESULTS – EX-3
Beede Waste Oil Superfund Site, Plaistow, New Hampshire

Site ID	ROD Clean-up Level	NHDES Risk Characterization and Management Policy Method 1 S-1	EX3-D_14_30	EX3-D_30_15_10	EX3-D_5_14_10	EX3-D_5_14_10	EX3-E_10_14_20	EX3-E_10_14_5	EX3-E_14	EX3-E_14	EX3-E_14_20	EX3-E_15_14_5	EX3-E_20_14_5	EX3-E_30_15_10
Sample ID			EX3-D/14+30-BVS014 (3)	EX3-D+30/15+10-SVS004	EX3-D+5/14+10-BVS018 (10)	EX3-D+5/14+10-BVS019 (15)	EX3-E+10/14+20-BVS005	EX3-E+10/14+5-SVS007 (2-4)	EX3-E/14-BVS004 (2-4)	EX3-E/14-BVS017 (6)	EX3-E/14+20-SVS005 (2-4)	EX3-E+15/14+5-SVS019 (2-4)	EX3-E+20/14+5-SVS020 (2-4)	EX3-E+30/15+10-SVS006
Date Collected			10/30/2012	10/11/2012	11/9/2012	11/26/2012	10/12/2012	10/12/2012	10/23/2012	11/9/2012	10/12/2012	10/26/2012	11/9/2012	10/12/2012
Sample Status			Verification	Verification	Removed	Verification	Verification	Removed	Removed	Verification	Verification	Removed	Verification	Verification
Sample Depth			3-3.25	0-2	10-10.25	15-15.25	2-2.25	2-4	2-4	6-6.25	2-4	2-4	2-4	0-2
Polychlorinated Biphenyls (mg/kg)														
Aroclor 1242	NA	NA	<0.11	<0.11	**0.721**	**0.92**	<0.1	<0.11	**1.11EB**	<0.1JK	<0.12	**0.422JH**	<0.11	<0.11
Aroclor 1248	NA	NA	<0.11	**0.172**	<0.11	<0.02	**0.0634JK**	**0.862**	<0.11	<0.1JK	**0.0491JK**	**0.547**	**0.0564JH**	<0.11
Aroclor 1254	NA	NA	<0.11	**0.123JH**	<0.11	<0.02	**0.0265JH**	**0.223JH**	**0.229JH**	<0.1JK	<0.12	**0.142JH**	**0.0658JK**	<0.11
Aroclor 1260	NA	NA	<0.11	<0.11	**0.0769JK**	<0.02	<0.1	**0.0263JH**	<0.11	<0.1JK	<0.12	**0.0642JH**	**0.0185JH**	<0.11
Total PCBs	0.5	1	ND	**0.295**	**0.798**	**0.92**	**0.09**	**1.11**	**1.339**	ND	**0.0491**	**1.175**	**0.141**	ND
Metals (mg/kg)														
Arsenic	11 [1]	11	**4.7**	**6.2**	**3.6**	---	**4.9**	**5**	**4.5**	**4.3**	**5.4**	**5.1**	**5**	**6.8**
Cadmium	NA	33	---	---	---	---	---	---	---	---	---	---	---	---
Chromium	21 [1]	130 (hex)	**10.8**	**15**	**11.2**	---	**7.1**	**13.6**	**9.7EB**	**12.6**	**12**	**12.1**	**7.9**	**14.4**
Lead	400	400	**3.1**	**18.1**	**9.4**	---	**6.7**	**54**	**173**	**6**	**8.9**	**155**	**13.1**	**6.2**
Mercury	0.59	7	<0.033	**0.038**	<0.034	---	**0.012JK**	**0.021JK**	**0.055**	<0.033	<0.039	**0.041**	<0.033	**0.018JK**
Nickel	43	400	**6.2**	**8.1**	**4.8**	---	**5.3**	**7.3**	**6.2**	**7.5**	**9.3**	**8.1**	**6.1**	**8.2**
Volatile Organic Compounds (mg/kg)														
1,1,2,2-Tetrachloroethane	NA	4	<0.0012	<0.095	<0.17	<0.06	<0.0016	<0.0015	<0.075	<0.0014	<0.0016	<0.17	<0.0020	<0.0019
1,2,4-Trimethylbenzene	NA	130	<0.0031	**0.0341JK**	**14.9**	**0.06**	**0.109**	**0.0154JH**	**4.64**	<0.0035	**0.011**	<0.42	**0.0023JK**	**0.0071**
1,2-Dichlorobenzene	NA	88	<0.0012	<0.095	<0.17	<0.06	**0.0014JK**	<0.0015	<0.075	<0.0014	<0.0016	<0.17	<0.0020	<0.0019
1,3,5-Trimethylbenzene	NA	96	<0.0031	**0.0142JK**	**4.31**	**5.8**	**0.031**	**0.0052JH**	**4.65**	<0.0035	**0.0041**	<0.42	**0.00083JK**	<0.0048
2-Butanone (MEK)	NA	51	<0.0031	<0.24	<0.42	<0.6	<0.0040	<0.0039	<0.19	<0.0035	<0.0040	<0.42	<0.0050	<0.0048
Acetone	NA	75	**0.0119**	<0.24	<0.42	<2	**0.0337**	**0.0416JH**	<0.19	<0.0035	**0.0862**	<0.42	<0.0050	**0.104JK**
Benzene	0.1 [2]	0.3	<0.00031	<0.024	<0.042	<0.06	**0.0049**	<0.00039	<0.019	<0.00035	<0.00040	<0.042	<0.00050	<0.00048
Ethylbenzene	20 [2]	120	<0.0012	<0.095	**1.08**	<0.06	**0.0659**	**0.0021JH**	**0.0317JK**	<0.0014	**0.0042**	<0.17	<0.0020	**0.0021**
Isopropylbenzene	NA	330	<0.0031	<0.24	**0.435**	<0.06	**0.005**	**0.00064JH**	**0.0606JK**	<0.0035	<0.0040	<0.42	<0.0050	<0.0048
m&p-Xylene	NA	---	---	---	---	<0.06	---	---	---	---	---	---	---	---
Methylene chloride	NA	3	<0.0012	<0.095	<0.17	<0.1	**0.0025**	<0.0015	<0.075	<0.0014	<0.0016	<0.17	<0.0020	<0.0019
Naphthalene (8260)	4 [2]	5	<0.0031	<0.24	**7.4**	<0.1	**0.0727**	**0.0075JH**	**2.1**	<0.0035	<0.0040	<0.42	**0.0072**	**0.0346JK**
Naphthalene (MADEP EPH)	4 [2]	5	<0.49JK	<0.49	**13**	<0.2	<0.46	<0.48	**3.12**	<0.46	<0.53	<0.47	<0.47	<0.45
n-Butylbenzene	NA	110	<0.0031	<0.24	**2.89**	**2**	**0.0022JK**	<0.0039	**2.37**	<0.0035	<0.0040	<0.42	**0.00068JK**	<0.0048
n-Propylbenzene	NA	85	<0.0031	<0.24	**1.74**	<0.06	**0.0130JH**	**0.0018JK**	**0.108JK**	<0.0035	<0.0040	<0.42	<0.0050	<0.0048
o-Xylene	NA	---	---	---	---	**1.3**	---	---	---	---	---	---	---	---
p-Isopropyltoluene	NA	NA	**0.0022JK**	<0.24	**0.974**	**2.2**	**0.0021JK**	**0.00077JH**	**2.31**	<0.0035	<0.0040	<0.42	<0.0050	<0.0048
sec-Butylbenzene	NA	130	**0.0012JK**	<0.24	**0.748**	**0.68**	**0.0020JK**	**0.00053JH**	**0.559**	<0.0035	<0.0040	<0.42	<0.0050	<0.0048
Tetrachloroethene	0.5 [2]	2	<0.0012	<0.095	<0.17	<0.06	<0.0016	<0.0015	<0.075	<0.0014	<0.0016	<0.17	<0.0020	<0.0019
Toluene	NA	100	<0.0031	<0.24	<0.42	<0.06	**0.0511**	<0.0039	<0.19	<0.0035	<0.0040	<0.42	<0.0050	<0.0048
Trichloroethene	0.2 [2]	0.8	<0.0012	<0.095	<0.17	<0.06	<0.0016	<0.0015	<0.075	<0.0014	<0.0016	<0.17	<0.0020	<0.0019
Xylene (total)	NA	500	<0.0012	<0.095	**4.77**	---	**0.398**	**0.0127JH**	**2.86**	<0.0014	**0.0216**	<0.17	**0.0011JK**	**0.0124JK**
Semi Volatiles (mg/kg)														
2-Methylnaphthalene	NA	NA	<0.49JK	<0.49	**22.5**	**1.2**	<0.46	<0.48	**9.6**	<0.46	<0.53	<0.47	<0.47	<0.45
Acenaphthene	NA	340	<0.49JK	<0.49	**1.32**	**0.37**	<0.46	<0.48	<0.46	<0.46	<0.53	<0.47	<0.47	<0.45
Acenaphthylene	NA	490	<0.49JK	<0.49	<0.5	<0.2	<0.46	<0.48	<0.46	<0.46	<0.53	**2.78**	<0.47	<0.45
Benzo(a)pyrene (8270)	0.4	0.7	<0.11	**0.0385JK**	<0.54	---	<0.1	<0.52	**0.232JK**	<0.1	<0.12	**0.204JK**	**0.203**	<0.11
Benzo(a)pyrene - Equivalent[3]	0.4	NA	<0.376	**0.36**	<0.578	<0.231	<0.352	<0.555	**0.534**	<0.352	<0.407	**0.512**	**0.511** [4]	<0.350
Benzo(a)pyrene (MADEP EPH)	0.4	0.7	<0.49JK	<0.49	<0.5	<0.2	<0.46	<0.48	<0.46	<0.46	<0.53	<0.47	<0.47	<0.45
Benzo(b)fluoranthene	NA	12	<0.49JK	<0.49	<0.5	<0.2	<0.46	<0.48	<0.46	<0.46	<0.53	<0.47	<0.47	<0.45
Benzo(g,h,i)perylene	NA	NA	<0.49JK	<0.49	<0.5	<0.2	<0.46	<0.48	<0.46	<0.46	<0.53	<0.47	<0.47	<0.45
bis(2-Ethylhexyl) phthalate	10	72	**0.189JK**	**0.198JK**	**52.1**	**35**	**0.377**	<1.3	**134EB**	**0.304**	<0.3	**123**	**0.543**	<0.27
C11-C22 Aromatics	170	10,000 (TPH)	<20JK	**26**	**1570**	**730**	<18	**48.7**	**2200**	<18	<21	**2300**	**40**	<18
C11-C22 Aromatics (unadjusted)	NA	10,000 (TPH)	<20JK	**26**	**1620**	**730**	<18	**48.7**	**2210**	<18	<21	**2300**	**40**	<18
C19-C36 Aliphatics	NA	10,000 (TPH)	<10JK	**67.9**	**3800**	**2000**	**24.1**	**120**	**8380**	**35.3JK**	**37.6**	**6630**	**137**	<9
C9-C18 Aliphatics	NA	10,000 (TPH)	<10JK	**76.5**	**1230**	**770**	<9.2	**19.7**	**2040**	<9.2JK	<11	**1710**	<9.4	<9
Fluoranthene	NA	960	<0.49JK	<0.49	<0.5	**0.25**	<0.46	<0.48	<0.46	<0.46	<0.53	<0.47	<0.47	<0.45
Fluorene	NA	77	<0.49JK	<0.49	**2.82**	**0.84**	<0.46	<0.48	<0.46	<0.46	<0.53	<0.47	<0.47	<0.45
Phenanthrene	NA	NA	<0.49JK	<0.49	**3.37**	**1.5**	<0.46	<0.48	**2.48**	<0.46	<0.53	<0.47	<0.47	<0.45
Pyrene	NA	720	<0.49JK	<0.49	<0.5	**0.46**	<0.46	<0.48	<0.46	<0.46	<0.53	<0.47	<0.47	<0.45

Notes:
ND = concentration not reported above the laboratory reporting limit
J = analytical result estimated based on data validation
Bias, as determined during data validation - H (high), L (low), K (indeterminate)
Sample depths reported in feet below ground surface at time of sample collection.
"Verification" sample status indicates that the sample was collected and used for final verification purposes.
"Removed" sample status and hatching indicates that the sample was collected from soil that was subsequently excavated based on this result and therefore the sample result was not used for final verification purposes.
Bolding indicates a detection.
Shading of an individual result indicates an exceedance of the ROD clean-up criteria.

[1] The ROD clean-up level listed for this compound is the lower of the NHDES or Site specific background preliminary remediation goal listed on Table 2-2 of the Feasibility Study.
[2] The ROD clean-up level listed for this compound is the preliminary remediation goal for the protection of groundwater.
[3] Benzo(a)pyrene equivalent calculated based on the sum of the Relative Potency Factor (RPF) converted concentrations for the seven carcinogenic polycyclic aromatic hydrocarbons. Half the detection limit utilized in the calculation if the constituent was non-detect.

[4] See discussion on benzo(a)pyrene equivalent calculation in text (Sections 2.4 and 2.7.3). The detection of benzo(a)pyrene is below 0.4 mg/kg and the other 6 PAHs in the benzo(a)pyrene calculation are non-detect and below the NHDES S-1 standard.

TABLE 2-6
SUMMARY OF VERIFICATION SAMPLING RESULTS – EX-3
Beede Waste Oil Superfund Site, Plaistow, New Hampshire

Site ID	ROD Clean-up Level	NHDES Risk Characterization and Management Policy Method 1 S-1	EX3-G_15_20	EX3-G_16	EX3-H_10_15	EX3-H_30_15	EX3-H_30_16_10	EX3-I_16	EX3-J_16_10	EX3-K_15_10	EX3-K_15_30	EX3-K_20_16_10	EX3-L_10_15_30
Sample ID			EX3-G/15+20-BVS011	EX3-G/16-SVS018	EX3-H+10/15-BVS016	EX3-H+30/15-BVS010	EX3-H+30/16+10-SVS017	EX3-I/16-BVS009	EX3-J/16+10-SVS016	EX3-K/15+10-BVS015	EX3-K/15+30-BVS008	EX3-K+20/16+10-SVS015	EX3-L+10/15+30-SVS014
Date Collected			10/16/2012	10/16/2012	11/7/2012	10/23/2012	10/16/2012	10/16/2012	10/16/2012	11/6/2012	10/23/2012	10/16/2012	10/16/2012
Sample Status			Verification	Verification	Verification	Removed	Verification	Verification	Verification	Verification	Removed	Verification	Verification
Sample Depth			2-2.25	0-2	6-6.25	2-2.25	0-2	2-2.25	0-2	2-2.25	2-2.25	0-2	0-2
Polychlorinated Biphenyls (mg/kg)													
Aroclor 1242	NA	NA	**0.0728JK**	**0.0266JH**	<0.1	<0.11	<0.1	**0.0335JK**	**0.0445JK**	<0.099	**0.682EB**	<0.1	<0.11
Aroclor 1248	NA	NA	<0.1	<0.11	<0.1	**1.41**	**0.0667JK**	<0.1	<0.1	<0.099	<0.1	<0.1	<0.11
Aroclor 1254	NA	NA	<0.1	**0.0667JK**	<0.1	**0.418JH**	<0.1	<0.1	**0.0276JH**	<0.099	**0.202JH**	<0.1	<0.11
Aroclor 1260	NA	NA	<0.1	**0.0500JH**	<0.1	**0.112JH**	<0.1	<0.1	<0.1	<0.099	**0.0867JH**	<0.1	<0.11
Total PCBs	0.5	1	**0.0728**	**0.143**	ND	**1.94**	**0.0667**	**0.0335**	**0.0721**	ND	**0.971**	ND	ND
Metals (mg/kg)													
Arsenic	11 [1]	11	**6.7**	**9.3**	**3.9**	**7.4**	**4.2**	**4.3**	**8.7**	**2.6**	**10.5**	**4.4**	**4.8**
Cadmium	NA	33	---	---	---	---	---	---	---	---	---	---	---
Chromium	21 [1]	130 (hex)	**9.5**	**13.7**	**6.3**	**16.2EB**	**12.1**	**12.1**	**20.4**	**10.1**	**11.5EB**	**9.5**	**10.6**
Lead	400	400	**7.8**	**17.2**	**13**	**173**	**18.4**	**12.3**	**32.8**	**4.4**	**108**	**2.7**	**11.3**
Mercury	0.59	7	**0.036**	**0.053**	<0.033	**0.39**	**0.013JK**	**0.013JK**	**0.021JK**	<0.032	**0.21**	**0.017JK**	**0.028JK**
Nickel	43	400	**8.3**	**10**	**5.3**	**13.1**	**8.6**	**8.5**	**13.2**	**5.5**	**11.7**	**6.8**	**6.3**
Volatile Organic Compounds (mg/kg)													
1,1,2,2-Tetrachloroethane	NA	4	<0.0018	<0.0017	<0.0021	<0.0016	<0.0019	<0.0016	<0.0016	<0.0015	<0.075	<0.0018	<0.0020
1,2,4-Trimethylbenzene	NA	130	<0.0046	**0.00061JH**	<0.0053	<0.0041	<0.0047	<0.0040	<0.0040	<0.0037	**0.531**	<0.0046	<0.0050
1,2-Dichlorobenzene	NA	88	<0.0018	<0.0017	<0.0021	<0.0016	<0.0019	<0.0016	<0.0016	<0.0015	<0.075	<0.0018	<0.0020
1,3,5-Trimethylbenzene	NA	96	<0.0046	<0.0043	<0.0053	<0.0041	<0.0047	<0.0040	<0.0040	<0.0037	**1.19JL**	<0.0046	<0.0050
2-Butanone (MEK)	NA	51	<0.0046	**0.0091JH**	**0.0267**	<0.0041	**0.005**	<0.0040	**0.006**	<0.0037	<0.19	<0.0046	<0.0050
Acetone	NA	75	**0.036**	**0.123JH**	<0.0053	**0.0136**	**0.0854**	**0.0429**	**0.111**	**0.0056**	<0.19	**0.0386**	**0.0993JH**
Benzene	0.1 [2]	0.3	<0.00046	**0.0012JH**	<0.00053	<0.00041	<0.00047	<0.00040	<0.00040	<0.00037	**0.14**	<0.00046	<0.00050
Ethylbenzene	20 [2]	120	<0.0018	<0.0017	<0.0021	<0.0016	<0.0019	<0.0016	<0.0016	<0.0015	**0.251**	<0.0018	<0.0020
Isopropylbenzene	NA	330	<0.0046	<0.0043	<0.0053	<0.0041	<0.0047	<0.0040	<0.0040	<0.0037	**0.0399JK**	<0.0046	<0.0050
m&p-Xylene	NA	---	---	---	---	---	---	---	---	---	---	---	---
Methylene chloride	NA	3	<0.0018	<0.0017	<0.0021	<0.0016	<0.0019	<0.0016	<0.0016	<0.0015	<0.075	<0.0018	<0.0020
Naphthalene (8260)	4 [2]	5	<0.0046	<0.0043	<0.0053	<0.0041	<0.0047	<0.0040	<0.0040	<0.0037	**0.32**	<0.0046	<0.0050
Naphthalene (MADEP EPH)	4 [2]	5	<0.47	<0.48	<0.45	<2.4	<0.47	<0.46	<0.47	<0.46	<2.4	<0.46	<0.5
n-Butylbenzene	NA	110	<0.0046	<0.0043	<0.0053	<0.0041	<0.0047	<0.0040	<0.0040	<0.0037	**0.18JK**	<0.0046	<0.0050
n-Propylbenzene	NA	85	<0.0046	<0.0043	<0.0053	<0.0041	<0.0047	<0.0040	<0.0040	<0.0037	**0.123JK**	<0.0046	<0.0050
o-Xylene	NA	---	---	---	---	---	---	---	---	---	---	---	---
p-Isopropyltoluene	NA	NA	<0.0046	<0.0043	<0.0053	<0.0041	<0.0047	<0.0040	**0.00098JK**	<0.0037	**0.112JK**	<0.0046	<0.0050
sec-Butylbenzene	NA	130	<0.0046	<0.0043	<0.0053	<0.0041	<0.0047	<0.0040	<0.0040	<0.0037	**0.0695JK**	<0.0046	<0.0050
Tetrachloroethene	0.5 [2]	2	<0.0018	**0.00055JH**	**0.0018JK**	<0.0016	<0.0019	<0.0016	<0.0016	<0.0015	<0.075	<0.0018	<0.0020
Toluene	NA	100	<0.0046	**0.0012JH**	<0.0053	<0.0041	<0.0047	<0.0040	<0.0040	<0.0037	**0.211**	<0.0046	<0.0050
Trichloroethene	0.2 [2]	0.8	<0.0018	**0.00051JH**	<0.0021	<0.0016	<0.0019	<0.0016	<0.0016	<0.0015	<0.075	<0.0018	<0.0020
Xylene (total)	NA	500	<0.0018	**0.0018JH**	<0.0021	<0.0016	<0.0019	<0.0016	<0.0016	<0.0015	**1.79**	<0.0018	<0.0020
Semi Volatiles (mg/kg)													
2-Methylnaphthalene	NA	NA	<0.47	<0.48	<0.45	<2.4	<0.47	<0.46	<0.47	<0.46	<2.4	<0.46	<0.5
Acenaphthene	NA	340	<0.47	<0.48	<0.45	<2.4	<0.47	<0.46	<0.47	<0.46	<2.4	<0.46	<0.5
Acenaphthylene	NA	490	<0.47	<0.48	<0.45	<2.4	<0.47	<0.46	<0.47	<0.46	<2.4	<0.46	<0.5
Benzo(a)pyrene (8270)	0.4	0.7	<0.1	**0.0495JK**	<0.1	**0.964JK**	**0.114**	<0.1	<0.1	<0.1	<5.1	<0.11	<0.11
Benzo(a)pyrene - Equivalent[3]	0.4	NA	<0.358	**0.364**	<0.345	**3.69**	**0.422** [4]	<0.352	<0.358	<0.352	<2.77	<0.357	<0.383
Benzo(a)pyrene (MADEP EPH)	0.4	0.7	<0.47	<0.48	<0.45	**2.03JK**	<0.47	<0.46	<0.47	<0.46	<2.4	<0.46	<0.5
Benzo(b)fluoranthene	NA	12	<0.47	<0.48	<0.45	**2.08JK**	<0.47	<0.46	<0.47	<0.46	<2.4	<0.46	<0.5
Benzo(g,h,i)perylene	NA	NA	<0.47	<0.48	<0.45	**2.63**	<0.47	<0.46	<0.47	<0.46	<2.4	<0.46	<0.5
bis(2-Ethylhexyl) phthalate	10	72	**0.0184JK**	**0.0482JK**	<0.26	**1.22JKE**	**0.0548JK**	**0.527**	**0.108JK**	<0.0275U	**13.7EB**	**0.0192JK**	**0.721**
C11-C22 Aromatics	170	10,000 (TPH)	<19	<19	**70.9**	**461**	<19	<18	<19	<18	**698**	<18	<20
C11-C22 Aromatics (unadjusted)	NA	10,000 (TPH)	<19	<19	**70.9**	**474**	<19	<18	<19	<18	**699**	<18	<20
C19-C36 Aliphatics	NA	10,000 (TPH)	**13.6**	**12.3**	**126**	**433**	**17.3**	**10**	**17.3**	<9.2	**882**	<9.2	<10
C9-C18 Aliphatics	NA	10,000 (TPH)	<10	<10	**11.4**	<47	<9.4	<9.2	<9.4	<9.2	**170**	<9.2	<10
Fluoranthene	NA	960	<0.47	<0.48	<0.45	<2.4	<0.47	<0.46	<0.47	<0.46	<2.4	<0.46	<0.5
Fluorene	NA	77	<0.47	<0.48	<0.45	<2.4	<0.47	<0.46	<0.47	<0.46	<2.4	<0.46	<0.5
Phenanthrene	NA	NA	<0.47	<0.48	<0.45	<2.4	<0.47	<0.46	<0.47	<0.46	<2.4	<0.46	<0.5
Pyrene	NA	720	<0.47	<0.48	<0.45	<2.4	<0.47	<0.46	<0.47	<0.46	<2.4	<0.46	<0.5

Notes:
ND = concentration not reported above the laboratory reporting limit
J = analytical result estimated based on data validation
Bias, as determined during data validation - H (high), L (low), K (indeterminate)
Sample depths reported in feet below ground surface at time of sample collection.
"Verification" sample status indicates that the sample was collected and used for final verification purposes.
"Removed" sample status and hatching indicates that the sample was collected from soil that was subsequently excavated based on this result and therefore the sample result was not used for final verification purposes.
Bolding indicates a detection.
Shading of an individual result indicates an exceedance of the ROD clean-up criteria.

[1] The ROD clean-up level listed for this compound is the lower of the NHDES or Site specific background preliminary remediation goal listed on Table 2-2 of the Feasibility Study.
[2] The ROD clean-up level listed for this compound is the preliminary remediation goal for the protection of groundwater.
[3] Benzo(a)pyrene equivalent calculated based on the sum of the Relative Potency Factor (RPF) converted concentrations for the seven carcinogenic polycyclic aromatic hydrocarbons. Half the detection limit utilized in the calculation if the constituent was non-detect.

[4] See discussion on benzo(a)pyrene equivalent calculation in text (Sections 2.4 and 2.7.3). The detection of benzo(a)pyrene is below 0.4 mg/kg and the other 6 PAHs in the benzo(a)pyrene calculation are non-detect and below the NHDES S-1 standard.

TABLE 2-7
SUMMARY OF VERIFICATION SAMPLING RESULTS – DRAIN LINE EXCAVATION
Beede Waste Oil Superfund Site, Plaistow, New Hampshire

Site ID	ROD Clean-Up Level	NHDES Risk Characterization and Management Policy Method 1 S-1	DE-R_25_16_39	DE-R_25_17	DE-R_25_17_30	DE-R_25_18	DE-R_31_17_15
Sample ID			DE-R+25/16+39-SVS005	DE-R+25/17-SVS002	DE-R+25/17+30-BVS001	DE-R+25/18-SVS001	DE-R+31/17+15-SVS003
Sample Date			11/12/2012	10/31/2012	10/31/2012	10/31/2012	11/12/2012
Sample Status			Verification	Removed	Verification	Verification	Verification
Polychlorinated Biphenyls (PCBs) (mg/kg)							
Aroclor 1248	NA	NA	---	**0.0984JK**	<0.1	<0.098	---
Aroclor 1254	NA	NA	---	**0.0494JH**	<0.1	<0.098	---
Total PCBs	0.5	1	---	**0.148**	ND	ND	---
Semi-Volatiles (mg/kg)							
Benzo(a)pyrene	0.4	0.7	<0.53	**0.895**	<0.1	<0.1	**0.0317JK**
Benzo(a)pyrene - Equivalent[1]	0.4	NA	<0.265	**0.895**	<0.05	<0.05	**0.0317**

Notes:
ND = concentration not detected above the laboratory reporting limit
J = analytical result estimated based on data validation
Bias, as determined during data validation - H (high), L (low), K (indeterminate)
Bolding indicates a detection.
Shading indicates an exceedance of the ROD clean-up criteria.
Hatching corresponds with samples removed during excavation.
[1] Benzo(a)pyrene equivalent calculated based on the sum of the Relative Potency Factor (RPF) converted concentrations for the seven carcinogenic polycyclic aromatic hydrocarbons. Half the detection limit utilized in the calculation if the constituent was non-detect.

TABLE 2-8
SUMMARY OF SOIL SAMPLING RESULTS – PARCEL 2 ASPHALT AND SOIL PILE AREAS
Beede Waste Oil Superfund Site, Plaistow, New Hampshire

Pile	ROD Clean-Up Level	NHDES Risk Characterization and Management Policy Method 1 S-1	Construction Support Area Asphalt Pile		RIB Area Asphalt Pile		GW Treatment Plant Soil/Debris Pile
Site ID			P2	P2	P2	P2	P2
Sample ID			P2-SS01-SS001	P2-SS02-SS002	P2-SS03-SS003 (0-1)	P2-SS04-SS004 (0-1)	P2-SP01-SS001
Sample Date			10/16/2012	10/16/2012	4/5/2013	4/5/2013	10/16/2012
Sample Depth (ft)			0-1	0-1	0-1	0-1	0
Metals							
Arsenic	11 [1]	11	**5.3**	**7.9**	---	---	**6.6**
Chromium	21 [1]	1,000	**11.8**	**22.8**	---	---	**12.4**
Chromium (hexavalent)	21 [1]	130	---	**0.16JK**	---	---	---
Lead	400	400	**3.2**	**3.6**	**3.8**	**2.8**	**11.2**
Mercury	0.59	7	<0.036	**0.016JK**	---	---	**0.030JK**
Nickel	43	400	**6.7**	**10.6**	---	---	**7.4**
Volatile Organic Compounds (mg/kg)							
1,2,4-Trimethylbenzene	NA	130	<0.0040	<0.0038	<0.0050	<0.0050	<0.0063
2-Butanone (MEK)	NA	51	<0.0040	<0.0038	<0.0050	<0.0050	**0.0195**
Acetone	NA	75	**0.0054**	**0.02**	**0.0328**	<0.0050	**0.359**
Benzene	0.1 [2]	0.3	<0.00040	<0.00038	<0.00050	<0.00050	<0.00063
Isopropylbenzene	NA	330	<0.0040	<0.0038	<0.0050	<0.0050	**0.0753**
Naphthalene (8260)	4 [2]	5	**0.0048**	<0.0038	<0.0050	<0.0050	<0.0063
p-Isopropyltoluene	NA	NA	<0.0040	<0.0038	<0.0050	<0.0050	**0.0117**
Tetrachloroethene	0.5 [2]	2	<0.0016	<0.0015	<0.0020	<0.0020	<0.0025
Toluene	NA	100	<0.0040	<0.0038	<0.0050	<0.0050	**0.0014JK**
Trichloroethene	0.2 [2]	0.8	<0.0016	<0.0015	<0.0020	<0.0020	<0.0025
Xylene (total)	NA	500	<0.0016	<0.0015	<0.0020	<0.0020	<0.0025
Semi-Volatiles (mg/kg)							
C11-C22 Aromatics	170	10,000 (TPH)	<19	<20	**19.3**	<18	**21.3**
C19-C36 Aliphatics	NA	10,000 (TPH)	**11.8**	**12.9**	<9.2JK	<9.2	**14**
C9-C18 Aliphatics	NA	10,000 (TPH)	<10	<10	<9.2	<9.2	**15.2**
bis(2-Ethylhexyl) phthalate	10	72	<0.27	<0.28	---	---	**0.0244JK**
Benzo(a)pyrene (8270)	0.4	0.7	**0.0331JK**	**0.0464JK**	---	---	**0.375**
Benzo(a)pyrene Equivalent[3]	0.4	NA	0.348	0.374	<0.532	<0.532	**0.689** [4]
Total PCBs (mg/kg)	0.5	1	< 0.110	< 0.110	< 0.100	< 0.100	< 0.110
FIELD							
pH	--	---	---	**4.7**	---	---	---
ORP (mV)	--	---	---	**486**	---	---	---

Notes:
J = analytical result estimated based on data validation
Bias, as determined during data validation - H (high), L (low), K (indeterminate)
Bolding indicates a detection.
Shading indicates an exceedance of the ROD clean-up criteria.
[1] The ROD clean-up level listed for this compound is the lower of the NHDES or Site specific background preliminary remediation goal listed on Table 2-2 of the Feasibility Study.
[2] The ROD clean-up level listed for this compound is the preliminary remediation goal for the protection of groundwater.
[3] Benzo(a)pyrene equivalent calculated based on the sum of the Relative Potency Factor (RPF) converted concentrations for the seven carcinogenic polycyclic aromatic hydrocarbons. Half the detection limit utilized in the calculation if the constituent was non-detect.
[4] See discussion on benzo(a)pyrene equivalent calculation in text (Sections 2.4 and 2.8). The detection of benzo(a)pyrene is below 0.4 mg/kg and the other 6 PAHs in the benzo(a)pyrene calculation are non-detect and below the NHDES S-1 standard.

TABLE 5-1
SUMMARY OF CONSTRUCTION QUALITY ASSURANCE INSPECTION & TESTING FOR SITE PREPARATION WORK
Beede Waste Oil Superfund Site, Plaistow, New Hampshire

Specification Section	Specification Title	Subject	Action Required	Responsible Party	Requirements	Status **
02 81 00	Transportation and Disposal	Waste Disposal	Laboratory Testing	Engineer	Waste characterization sampling and laboratory analysis shall be conducted as required by the selected disposal facility in accordance with Federal, State, and local regulations prior to transport from the Site.	Complete
02 81 00	Transportation and Disposal	Waste Disposal	Inspection	Transporter/ Contractor	Inspect material in the transport container prior to taking possession and signing the manifests.	Complete. Refer to Appendix I
31 13 00	Decontamination	Equipment and Vehicle Decontamination	Inspection	Contractor	Inspect equipment and vehicles following decontamination to determine if process was adequate.	Complete. Refer to Appendix A
31 14 13.16	Soil Stockpiling	Stockpile Placement	Inspection	Engineer	Approve temporary stockpile locations proposed by the Contractor	Completed by CM
31 14 13.16	Soil Stockpiling	Stockpile Maintenance	Inspection	Contractor	Inspect stockpiles at a frequency sufficient to confirm that stockpiles remain covered with a minimum of 6-mil polyethylene sheeting at all times except during active loading or removal, and that the erosion barriers / containment ring is intact.	Complete
31 23 00	Excavation, Trenching, and Fill	Compaction / In-Place Density	Quality Assurance	Contractor	Contractor will coordinate with a testing subcontractor to perform in-place density tests as directed by the Engineer to measure the required degree of compaction as outlined in the specifications.	Completed by Miller Testing and Engineering, Inc. Refer to Appendix L
31 23 00	Excavation, Trenching, and Fill	Source Material Testing	Quality Assurance	Contractor	Contractor will coordinate with a testing subcontractor to perform source material testing as outlined in the specifications.	Complete. Refer to Appendix J
31 23 00	Excavation, Trenching, and Fill	Source Material Testing and Inspection	Quality Assurance	Engineer	The off-site source of materials may be inspected and additional tests may be conducted to verify material compliance with the specifications.	Completed by Engineer/CM. Refer to Appendix J.
31 23 00	Excavation, Trenching, and Fill	Backfill Soil Materials	Quality Assurance	Engineer	The approved materials delivered to the site will be inspected prior to backfill.	Completed by CM
31 23 00	Excavation, Trenching, and Fill	Material Inspection	Inspection	Engineer	Engineer shall distinguish, at the time of the excavation, if the soil to be excavated is to be managed as Waste or Native Fill.	Completed by Engineer/CM
31 23 00	Excavation, Trenching, and Fill	Limits of Excavation	Inspection	Engineer	Excavation of additional materials may be directed by Engineer based on confirmatory testing of perimeter and/or base soils, or upon visual inspection of subgrade conditions at the limits of Work. Limits of excavation and trenching are to be inspected prior to backfill or restoration.	Complete
31 23 00	Excavation, Trenching, and Fill	Stability of Excavations and Trenches	Inspection	Contractor	Contractor shall provide a Competent Person per OSHA requirements to inspect stability of excavations and/or trenches as needed	Complete
31 25 00	Erosion and Sedimentation Control	Erosion Control Areas	Inspection	Contractor AND Engineer	Disturbed soil areas, material storage areas exposed to precipitation, and in-place erosion control measures will be inspected by both parties at a minimum of once every 7 days, within 24 hours after any storm event greater than 0.25 inches of rainfall, and at least once daily during prolonged rainfall or snowmelt.	Completed by Contractor/CM
31 65 00	Dust Control	Dust	Inspection	Engineer	Engineer shall determine by visual cues whether additional dust control measures or monitoring is required.	Completed by Engineer/CM
31 69 00	Air Monitoring	Analytical Testing	Testing	Contractor	Analytical testing of air samples as required to comply with specifications and applicable Federal, State, and local regulations.	Complete
31 69 00	Air Monitoring	Monitoring Locations	Inspection	Engineer	Engineer shall approve monitoring locations proposed by the Contractor.	Completed by Engineer/CM
31 69 00	Air Monitoring	Air Monitoring Data Collection	Testing	Contractor	Work area perimeter, site perimeter, and personal air monitoring shall be conducted as required by the specifications.	Complete. Refer to Appendix B
32 12 16	Hot Mix Asphalt	Pavement Preparation	Testing	Contractor	Confirm ambient air temperature prior to paving, and take measures as directed by specifications.	Complete
32 12 16	Hot Mix Asphalt	Compaction	Testing	Contractor	Confirmed compacted thickness of asphalt per specifications.	Complete
32 31 13	Chainlink Fences and Gates	Material Testing	Quality Assurance	Engineer	Engineer reserves the option to inspect and test any materials or their fabrication at any time during construction in the mill, shop or field.	Completed by CM
32 91 19.13	Topsoil Placement and Grading, Seeding, and Mulch	Topsoil Tests	Quality Assurance	Contractor	Topsoil must be tested for nutrient levels, pH, organic mater content, grain size, and recommendations for lime and fertilizer application rates as outlined in the specifications.	Complete
32 91 19.13	Topsoil Placement and Grading, Seeding, and Mulch	Seeding	Quality Assurance	Engineer	Seeding work must be inspected prior to acceptance. Seeding work may be inspected in parts, provided all work offered for inspection is complete, including maintenance.	Completed by CM

** Unless otherwise noted, the results of the CQA tests/ inspections were adequate.

FIGURES

Figure 1-1: Site Plan and Excavation Extent

Figure 2-1: Characterization Sampling Locations – Soil Piles 8 and 9 Area Ground Surface

Figure 2-2: Summary of Supplemental Soil Characterization Sampling Results – Access Road Footprint

Figure 2-3: Excavation Areas – EX-1 and EX-2

Figure 2-4: Excavation Area – EX-3

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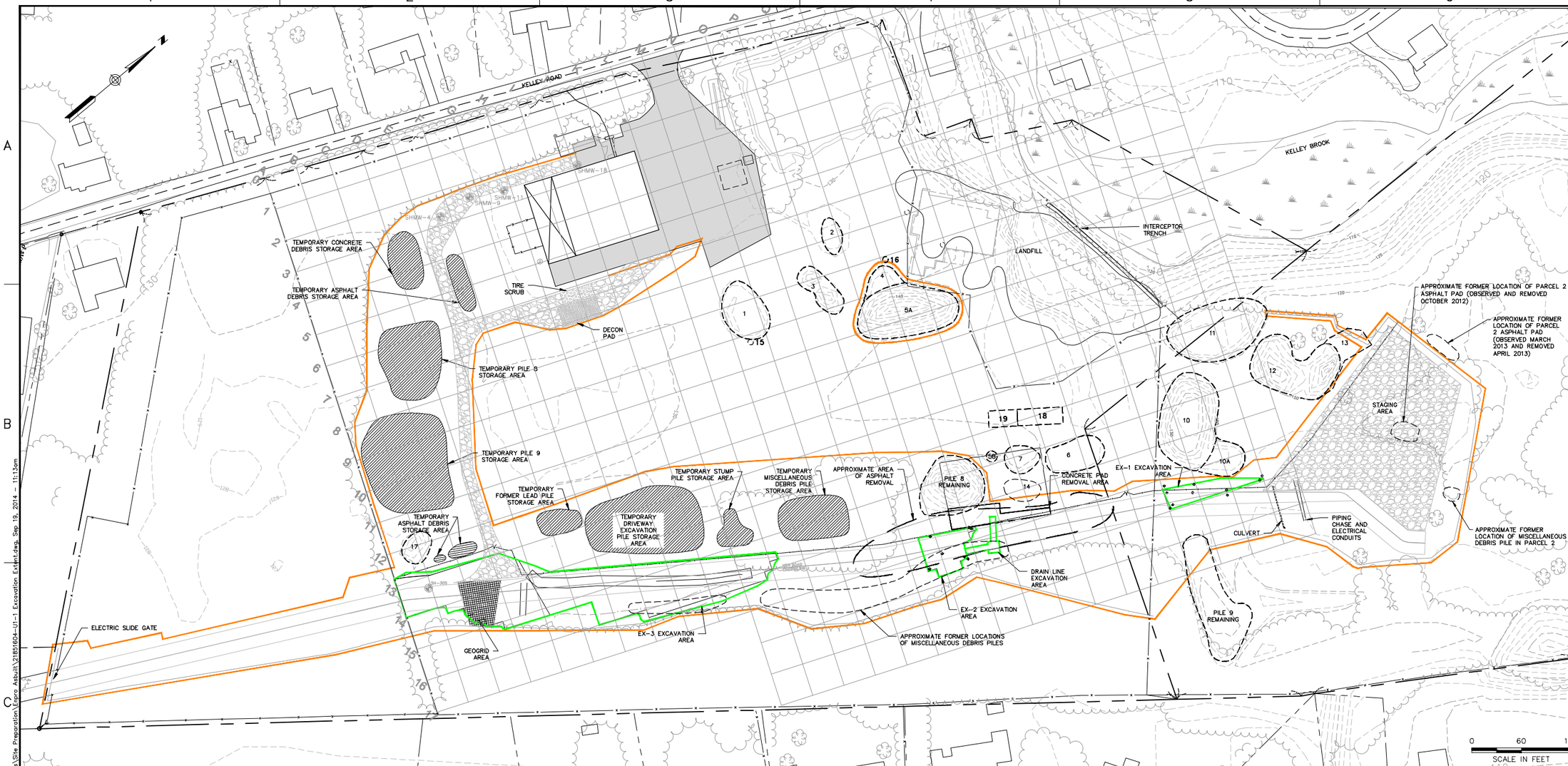
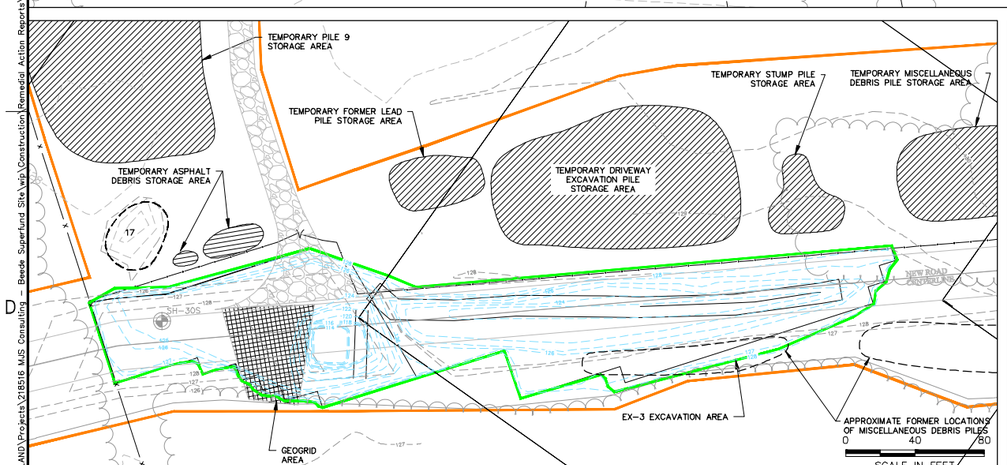
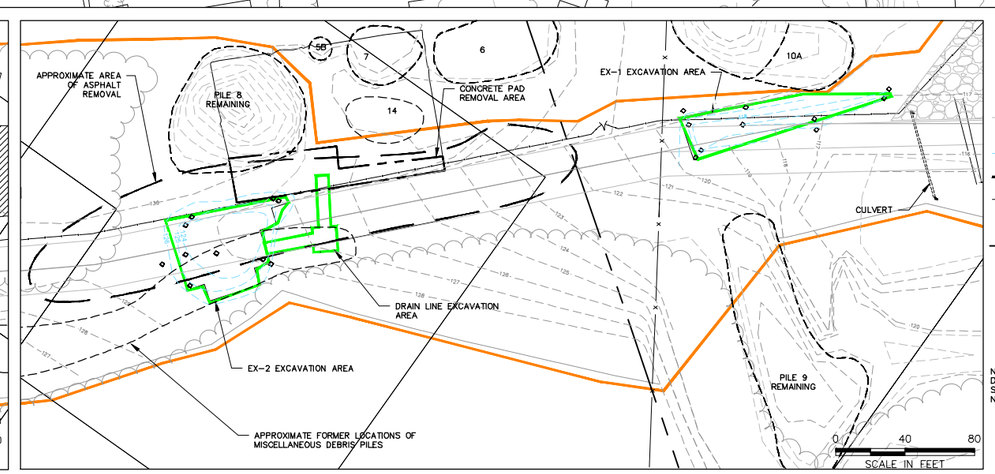
1:1



EXCAVATION AREA EX-3



EXCAVATION AREA EX-1, EX-2, AND DRAIN LINE EXCAVATION



LEGEND:

- EXISTING TOPOGRAPHIC CONTOUR
- EXCAVATION CONTOUR INTERVAL
- SOIL PILE
- CHAIN LINK FENCE
- PAVEMENT
- PROPERTY LINE
- LIMIT OF WORK
- AREA OF EXCAVATION
- WELLS DECOMMISSION DURING SITE PREPARATION ACTIVITIES

NOTE: TOPOGRAPHIC CONTOURS SHOWN ALONG NEW DRIVEWAY AND BY PILES 8 AND 9 AREA BASED ON SPOT ELEVATIONS DURING CONSTRUCTION AND HAVE NOT BEEN FULLY SURVEYED.

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REV	DESCRIPTION	DATE

DESIGNED BY: SMO
DRAWN BY: PF
CHECKED BY: CJF
2185160A-U1-1 EXCAVATION EXTENT.DWG

SITE PLAN AND EXCAVATION EXTENT

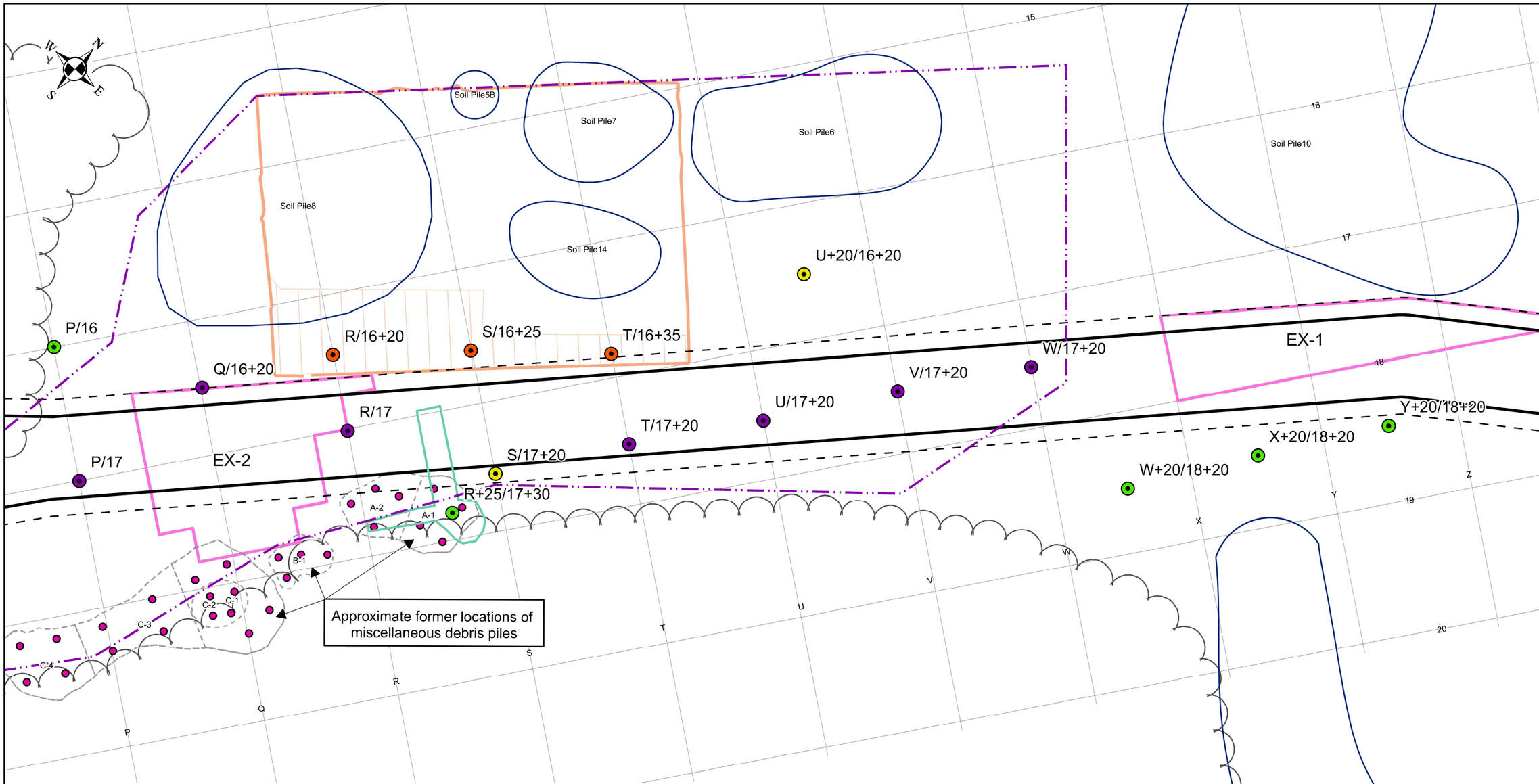
BEEDE WASTE OIL SITE
PLAISTOW, NEW HAMPSHIRE

SITE PREPARATION
REMEDIAL ACTION REPORT

JOB NO.: 218516.05
DATE: SEPTEMBER 2014
SCALE: AS NOTED
SHEET: 1 OF 1

FIGURE 1-1

\\PORTLAND\Projects\218516 MJS Consulting - Beede Superfund Site\wip\Construction Remedial Action Reports\Site Preparation\Cover Asbuilt\2185160A-U1-1 Excavation Extent.dwg, Sep 19, 2014 - 11:13am



Legend

- Pre-Design Investigation Grid
- Access Driveway
- Extent of 5 ft Roadway Buffer Area
- Concrete Pad
- Approximate Former Locations of Miscellaneous Debris Piles
- Soil Piles
- Approximate Extent of Asphalt
- Approximate Extent of Excavation of Soils Associated with Former Drain Line
- Portion of Concrete Pad Removed
- Limits of Excavation
- Discrete Sample Locations from Miscellaneous Debris Piles

October 2012 Sample Locations

- Asphalt Sample
- Soil Boring
- Soil Boring & Asphalt Sample
- Soil Boring & Concrete Sample

Notes:
1. Base map and major site features from Figures 4 through 6 of the February 2001 RI Report by Sanborn Head & Associates, Inc.
2. Sample grid layout from Figures 1 and 2 of the Pre-Design Soil and Sediment Investigation Work Plan by Woodard & Curran dated July 14, 2008.
3. Extents of Soil Piles 8 and 9 updated based on recent survey. Site-wide topography layer has not yet been updated to reflect the survey of these piles.
4. Sample locations depicted within former miscellaneous debris piles represent discrete samples composited for laboratory submittal. Further information regarding the collection of these samples is provided in Section 2.5.

0 15 30 60
Feet

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Characterization Sampling Locations - Soil Pile 8 and 9 Area Ground Surface

BEEDE WASTE OIL SITE
PLAISTOW, NEW HAMPSHIRE

Site Preparation
Remedial Action Report

JOB NO: 218516

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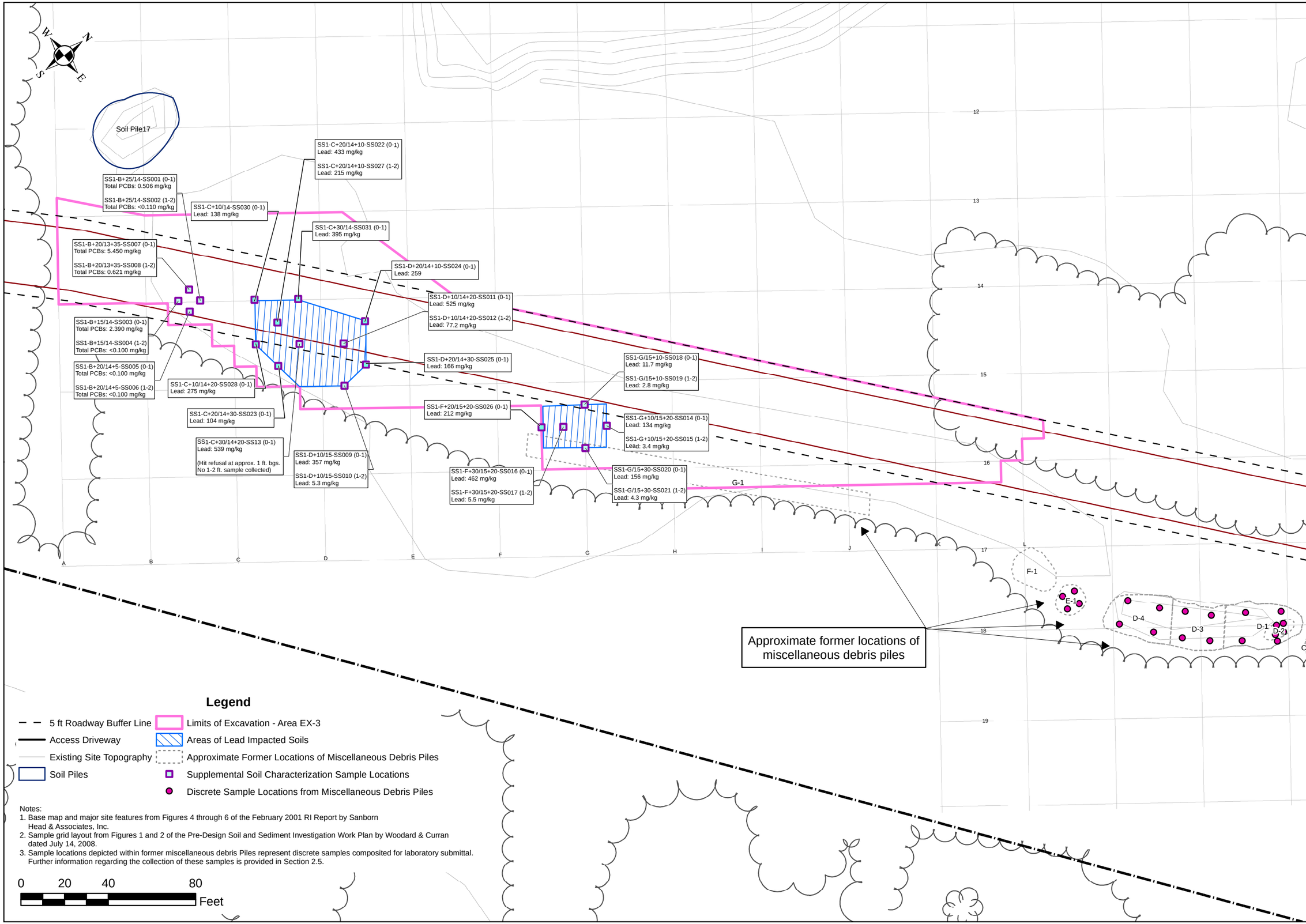
DATE: September 2014

Figure 2-1



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Summary of Supplemental Soil Characterization Results - Access Road Footprint

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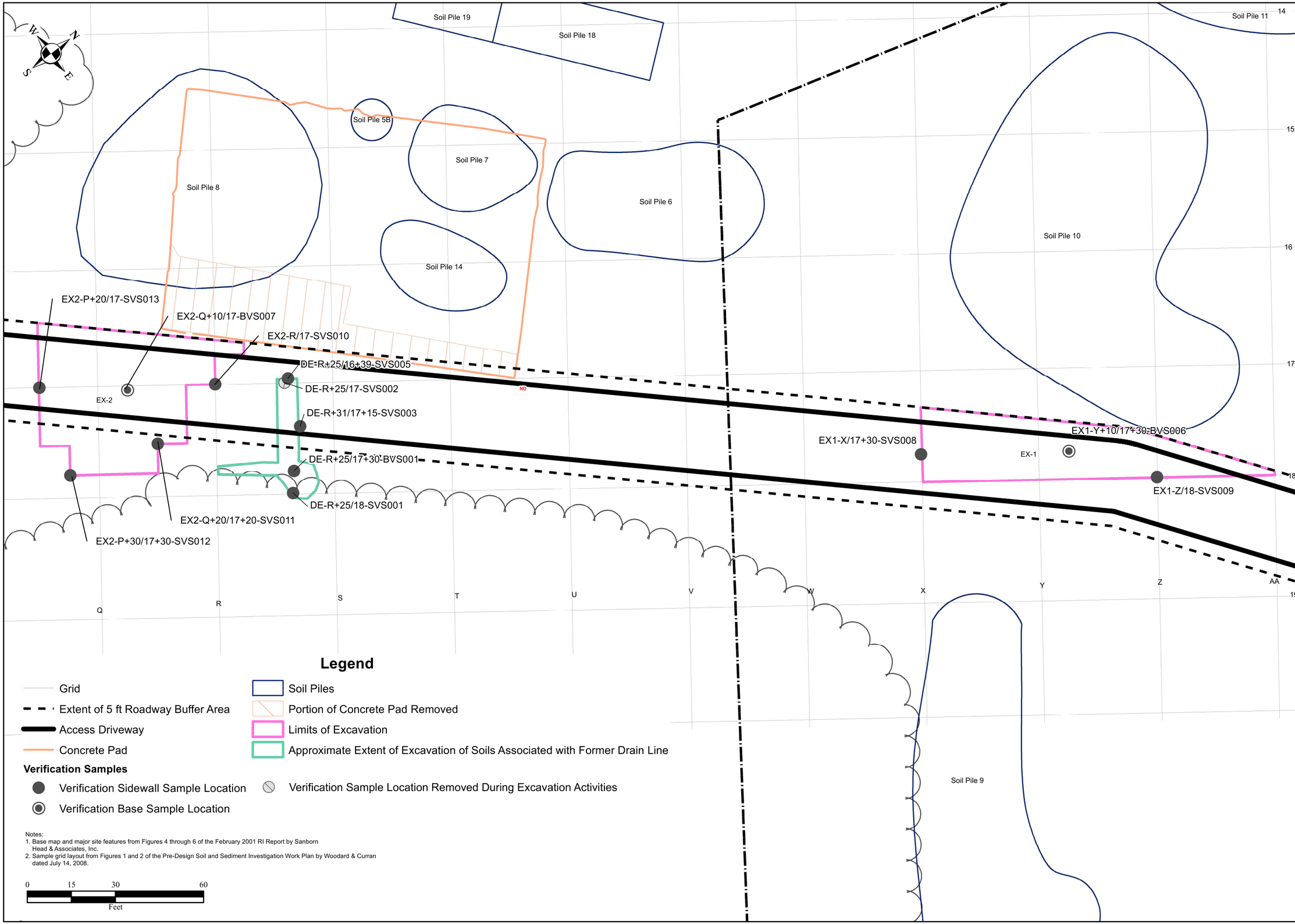
Figure 2-2



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2. Sample grid layout from Figures 1 and 2 of the Pre-Design Soil and Sediment Investigation Work Plan by Woodard & Curran dated July 14, 2008.

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Extent of Excavation and Verification Sampling Results - EX-1 and EX-2

BEEDE WASTE OIL SITE
PLAISTOW, NEW HAMPSHIRE

Site Preparation
Remedial Action Report

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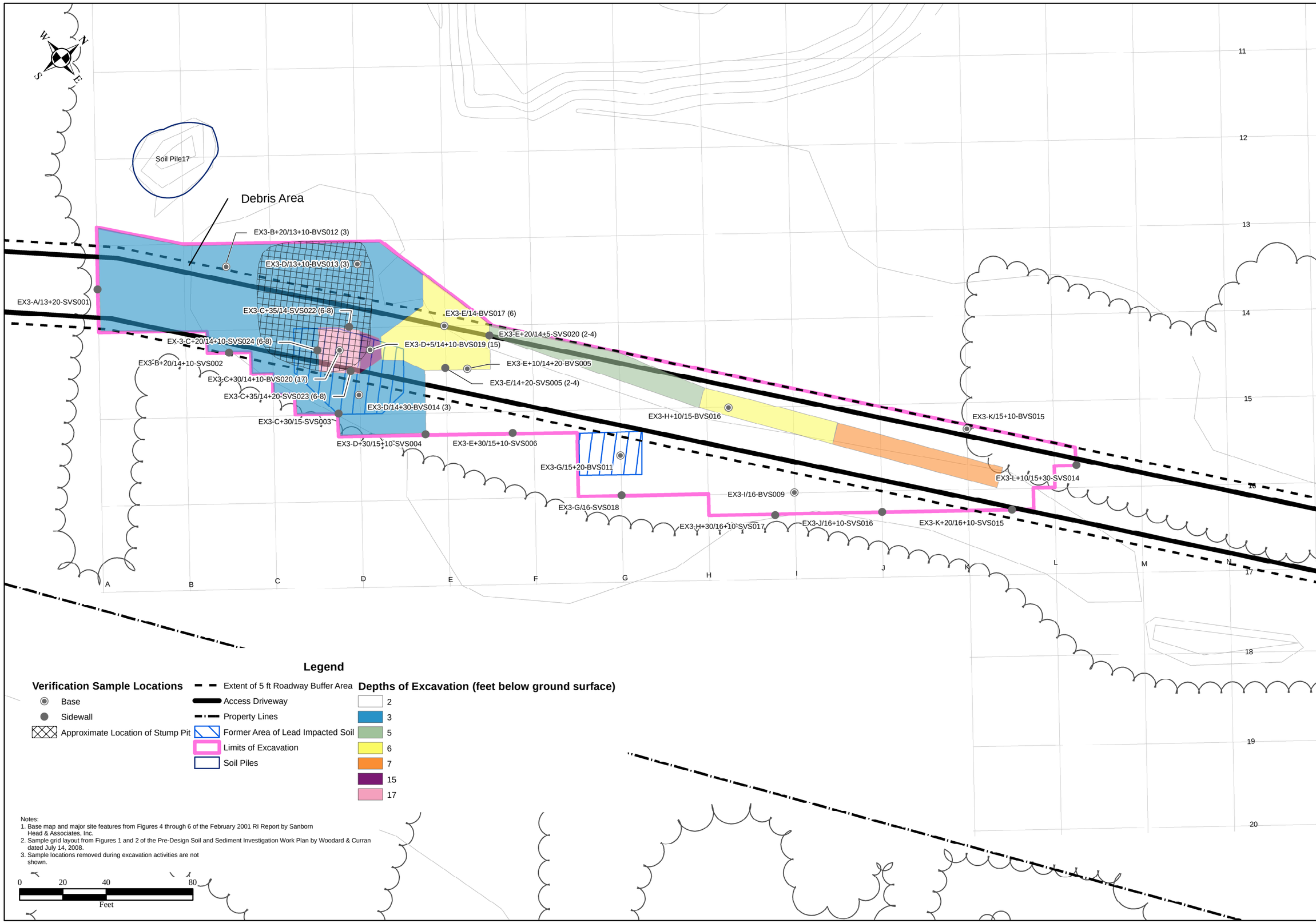
Figure 2-3



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Excavation Area - EX-3

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Figure 2-4