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REMEDIAL ACTION COMPLETION REPORT

FOR

OPERABLE UNIT 1
CALLAHAN MINE
SUPERFUND SITE

BROOKSVILLE, MAINE

SEPTEMBER 2013

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FOR

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SECTION 1
BACKGROUND

This Remedial Action (RA) Report describes the RA activities performed to implement the cleanup for Operable Unit 1 (OU1) at the Callahan Mine Superfund Site Brooksville, Hancock County, Maine. The RA has been conducted in accordance with the *OU1 Remedial Design/Final Basis of Design* (BOD) (MACTEC, 2010), the *OU1 Record of Decision* (ROD) (USEPA, 2009), and the *OU1 and OU3 Explanation of Significant Differences* (ESD) (USEPA, 2013). The OU1 RA was a state-lead fund financed cleanup that was implemented by the State of Maine Department of Environmental Protection (MDEP) pursuant to Cooperative Agreement V96140201 which was initially awarded by the United States Environmental Protection Agency (USEPA) in September 2010 and amended in July 2012, December 2012, and May 2013.

Section 1.1 Site Description

The 120-acre former Callahan Mine is located in the village of Harborside in the Town of Brooksville, Maine. Exploration of the site began in 1880 after an outcrop consisting of copper and zinc ore was discovered during low tide in Goose Pond. Approximately 10,000 tons of ore was mined from the site utilizing lateral mine shafts until 1887 when the mine was closed. Exploration and mining occurred at the site during the 1950's but ceased due to low metal prices. By 1964, the site had come to the attention of the Callahan Mining Corporation (Callahan) who acquired the site and determined that valuable ore still remained at the site, but that lateral mine shafts to access the ore were uneconomical. Callahan constructed a four million dollar ore processing facility in 1966 and began open pit mining for copper, zinc, and lead ore in 1968. Approximately 800,000 tons of ore bearing rock was recovered from the site until the mine closure in 1972.

The Callahan Mine Superfund Site (Site) includes the former Mine Operations Area, three Waste Rock Piles, a Tailings Impoundment, a Residential Use Area, Goose Pond (including the submerged former Mine Pit), and Goose Cove. The areas of the Site where the OU1 RA was implemented include the Residential Use Area, Ore Pad, Mine Operations Area, and Tailings Impoundment. The Site location is shown on a figure in **Appendix A**. The areas of the Site subject to the OU1 Remedial Action are show on a figure in **Appendix E**.

The Residential Use Area borders the northern portion of the Site and consists of four seasonal residences located on Old Mine Road and one seasonal residence located on Harborside Road adjacent to Goose Cove. High levels of arsenic, lead, and thallium exceeding background levels were identified in surface soils at the Residential Use Area. Waste rock from historic mining operations had been used as fill on these properties.

The Ore Pad is located in the central portion of the Site, and abuts the Mine Operations Area to the northwest. This portion of the Site encompasses approximately 2.1 acres, is unlined, and was utilized to store ore material prior to being processed through the

primary crusher. Ore and mineralized waste rock is visible at the surface and is believed to continue several feet below ground surface. The Ore Pad is believed to be the most significant threat to groundwater at the Site and is the likely source of the majority of cadmium and zinc load discharging to Dyer Cove.

The Mine Operations Area is located in the central portion of the Site, abutting the western boundary, and encompasses approximately 5.2 acres. This portion of the Site contained the former ore processing facility including a primary crusher, secondary-tertiary crusher, laboratory and assay office, mill, fine ore bin, shop, warehouse, and office. Structural remnants remain within the Mine Operations Area including foundations, a well house, and underground tanks and piping. As part of the *Remedial Investigation* (RI) (MACTEC, 2009), polychlorinated biphenyls (PCBs) were identified in surface soils. High levels of arsenic and lead were also identified in surface soils in the Mine Operations Area.

The Tailings Impoundment covers approximately 21 acres and contains an estimated 716,000 cubic yards of tailings and waste rock. Anecdotal information gathered during the OU1 *RI* indicates that the berm encompassing the Tailings Impoundment was constructed in multiple stages (i.e., lifts). The Tailings Impoundment seeps are a major source of cadmium, copper, and zinc that is being discharged to Goose Pond. In addition, the salt marsh adjacent to the Tailings Impoundment along with the portions of Goose Pond adjacent the Tailings Impoundment contain tailings with copper, lead, and zinc well above levels acceptable for ecological receptors. The Tailings Impoundment is an ongoing and historical source of the sediment contaminant in the salt marsh and Goose Pond. The geotechnical evaluations performed as part of the *RI* and *Feasibility Study* (FS) (MACTEC, 2009) concluded that the Tailings Impoundment did not meet typical geotechnical stability factor of safety (FOS) or the 1.5 long-term FOS required by State of Maine regulations for mine waste piles, including tailings impoundments. As a result, any remediation involving the Tailings Impoundment would require further evaluation of the stability of the Tailings Impoundment.

Section 1.2 Site Investigations and Enforcement History

In 2004, USEPA began the *RI/FS* at the Site. USEPA initially began the *RI/FS* as a fund lead activity. In 2005, USEPA signed an Administrative Order by Consent (AOC) to allow the State of Maine to complete the *RI/FS*. Prior to the issuance of a Proposed Plan for OU1 in July 2009, the OU1 *RI/FS* was completed. On September 30, 2009, USEPA signed the OU1 *ROD* selecting the cleanup remedy for OU1. At the time of the OU1 *ROD* in 2009, USEPA determined that additional investigation would be necessary to finalize a cleanup plan for the groundwater throughout the entire site and the waste/soil located outside of the OU1 defined source areas and created Operable Unit 2 (OU2). The OU2 *RI/FS* will continue until sufficient data is collected to develop a cleanup plan for those areas. The OU2 *RI/FS* is being performed by the State of Maine in accordance with the AOC.

In 2010, USEPA separated the OU1 *ROD* components into two operable units. The cleanup actions relating to the Residential Use Area soil and the PCB contamination in the Mine Operations Area along with any other associated activities remained as part of OU1. The remaining components of the OU1 *ROD* are to be performed as part of Operable Unit 3 (OU3).

In August 2010, USEPA entered into a Settlement Agreement with the State of Maine Department of Transportation (MDOT) for the implementation of the remedial design of OU1 and OU3. Under the AOC, the MDOT is also responsible for the completion of the OU2 *RI/FS*. The OU1 Remedial Design, documented in the *Final BOD,* was completed in September 2010. The OU3 Remedial Design is ongoing.

Also in August 2010, USEPA and the Maine Department of Environmental Protection (MDEP) entered into a State Superfund Contract for the OU1 selected remedy, including both the OU1 and OU3. In September 2010, USEPA entered into a Cooperative Agreement to allow MDEP to become the lead for the implementation of the OU1 Remedial Action. The Cooperative Agreement was amended in July 2012, December 2012, and May 2013 to provide additional funding for the OU1 Remedial Action.

The *RI* for the OU1 *ROD* documented the presence of contamination resulting from the mine extraction, processing, and waste disposal activities at the Site in the soil, sediment, groundwater, and surface water. The *RI,* along with the Human Health and Ecological Risk Assessments, documented the presence of contamination at the Site at concentrations that may present a threat to human health and the environment. The key findings of the *RI* are presented below:

- PCBs are present in soil in the former Mine Operations Area of the Site at levels that are unsafe for even occasional human contact;
- Lead and arsenic concentrations in soil within the Residential Use Area are above levels considered acceptable for long-term residential exposure;
- Lead and arsenic in the waste material (waste rock, ore, and tailings) would be unsafe for long-term human contact assuming future residential use;
- Elevated levels of contaminants were found in soil, sediment, surface water, groundwater, and biota (clams, fish, salt grass);
- Groundwater beneath a portion of the Site is unsuitable for human consumption;
- Sediments in certain areas of Goose Pond and Goose Cove contain very high levels of copper, lead, and zinc;
- Sediments in Southern Goose Pond that contain mine waste along with high levels of copper, lead, and zinc, were found to be acutely toxic to benthic organisms;
- Lead is accumulating in biota at the Site, including fish, crabs, clams, and salt grass;
- Surface water contains copper and zinc above levels that could adversely impact aquatic organisms;
- The extent of the sediment contamination is limited to Goose Pond and Goose Cove; and

- The extent of soil and waste material contamination is limited to the areas of former mining activity and a few areas along the Site access road.

Section 1.3 Record of Decision Summary

The following Remedial Action Objectives (RAOs) were developed for the Mine Operations Area and the Residential Use Area as part of OU1 ROD.

- Protect current and future recreational visitors by preventing direct contact and incidental ingestion of site soils and waste material containing PCBs that represent a non-cancer threat with a HQ greater than 1 and a cancer risk greater than $1x10^{-6}$ using the site-specific risk assessment assumptions for current and future recreational use.
- Protect current residents by preventing direct contact and incidental ingestion of site soils and waste material in the current Residential Use Area of the Site containing lead that would result in greater than 5 percent of the exposed population with a blood lead level above 10 ug/dl, or the Maine Solid Waste Lead Remediation Regulations, whichever is lower, using the site-specific risk assessment assumptions for current and future residential use.
- Protect current residents by preventing direct contact and incidental ingestion of site soils and waste material in the current Residential Use Area of the Site containing arsenic above background levels that represent a non-cancer threat with a HQ greater than 1 and a cancer risk greater than $1.4x10^{-5}$ using the site-specific risk assessment assumptions for current and future residential use.

Residential Use Area

The *ROD* established cleanup levels for arsenic, lead, and thallium in the Residential Use Area. The soil cleanup levels and the basis for determining these cleanup levels are summarized from the *ROD* in **Table 1-1**.

TABLE 1-1 RESIDENTIAL SOIL CLEANUP LEVELS

	Background (mg/kg)	Residential Soil Cleanup Level (mg/kg)	Basis
Arsenic	14	14	Background
Lead	37	375	Maine State Safe Lead level and site-specific IEUBK model output
Thallium	0.12	15	Site-specific risk basis for non-cancer exposure

Mine Operations Area

The *ROD* established cleanup levels for arsenic, lead, and PCBs in the Mine Operations Area. The soil cleanup levels and the basis for determining these cleanup levels are summarized from the *ROD* in **Table 1-2**.

TABLE 1-2 RECREATIONAL SOIL CLEANUP LEVELS

	Background (mg/kg)	Recreational Soil Cleanup Level (mg/kg)	Basis
Arsenic	14	30	Risk-management decision to accept $1x10^{-5}$ ELCR for Arsenic
Lead	37	700	Maine Remedial Action Guideline and site-specific IEUBK model output
PCBs	Not Applicable	1	TSCA and site-specific risk basis to allow for unrestricted future use

The OU1 Remedial Action was revised by the September 2013 *ESD*. The components of the OU1 *ROD* associated with the cleanup of the arsenic, lead, and thallium contamination in the Residential Use Area and the PCB contamination in the former Mine Operations Area remained part of the re-defined OU1. In addition, the removal of the waste rock from the Ore Pad Area was also included in OU1 because the run-off from this drains into the former Mine Operations Area. OU1 also includes the consolidation of the contaminated material that is removed from the Ore Pad, Mine Operations Area, and Residential Use Area to the Tailings Impoundment for placement under the Tailings Impoundment cover system. The remaining components of the OU1 *ROD* became OU3.

The revised OU1 includes the following major components:

- Pre-design investigations and studies;
- Excavation and off-site disposal of soil contaminated with PCBs exceeding site-specific PCB cleanup levels. PCBs with a concentration below 10 ppm may remain on-site and be placed beneath the cover system to be installed for the Tailings Impoundment;
- Excavation and off-site or on-site disposal of any petroleum-contaminated soil commingled with CERCLA waste (PCB-contaminated soil exceeding site-specific PCB cleanup levels);
- Excavation of soil containing arsenic, lead, and thallium exceeding site-specific cleanup levels in the Residential Use Area of the Site. The Residential Use Area of the Site is expanded to include one additional property. The excavated material may be placed at the Tailings Impoundment. The OU3 remedial design will determine whether the material will be placed beneath the Tailings Impoundment cover system or placed in the CAD cell;

- Excavation and consolidation of Ore Pad and Mine Operations waste material at the Tailings Impoundment. The OU3 remedial design will determine whether the material will be placed beneath the Tailings Impoundment cover system or placed in the CAD cell;
- Installation of monitoring wells, if necessary, to assess Residential Area cleanup;
- Long-term operation and maintenance and monitoring; and
- Five-year reviews.

The newly-created OU3 includes the following major components:

- Pre-design investigations and studies;
- Excavation and subaqueous disposal of Waste Rock Pile-3 and Mine Operations Area source material in a confined aquatic disposal (CAD) cell in the submerged former mine pit in Goose Pond;
- Construction of surface water diversions to reduce the amount of upslope runoff flowing onto and infiltrating the Tailings Impoundment;
- Installation of a low-permeability cover system to contain and isolate the Tailings Impoundment, including the PCB material beneath the temporary cover system (cover material to be quarried from on-site);
- Installation of a horizontal drain or other drainage methods (e.g., vertical wells or drains) to facilitate the dewatering of the Tailings Impoundment, and the collection and treatment of the discharge from the horizontal drain or other drainage methods (e.g., vertical wells or drains) in a constructed wetland. (It is possible that additional measures, including a toe shear key or buttress would be identified during design as a necessary component to stabilize the Tailings Impoundment);
- Dredging and subaqueous disposal of sediments exceeding the sediment cleanup levels from southern Goose Pond and the adjacent salt marsh into the CAD cell in the former mine pit;
- Mitigation, restoration, and compensation for wetland impacts, including the dredging and subaqueous disposal of Dyer Cove and Goose Cove sediments that contain mine waste in the CAD cell in the submerged former mine pit, along with other measures that may be identified in remedial design;
- Implementation of institutional controls to prevent disturbance to the components of the remedy and long-term monitoring of compliance with the restrictions;
- Installation of monitoring wells;
- Performance of long-term operation and maintenance and monitoring; and
- Performance of five-year reviews to continue to evaluate potential human-health and ecological risks due to exposure to contaminated waste material being permanently managed on-site.

Section 1.4 Remedial Design Summary

The OU1 Remedial Design was documented in the *Final BOD. The Final BOD* identified the following activities as part of OU1 remediation activities:

Residential Use Area

- Performing pre-excavation characterization of Residential Use Area soil to delineate contamination extent exceeding cleanup levels;
- Excavation of soil (including Old Mine Road) containing arsenic, lead, and thallium above cleanup levels in the Residential Use Area of the Site to a depth at which cleanup levels exceedances no longer occur and disposal of excavated material on Site at the Tailings Impoundment;
- Restoring excavated lawn areas by backfilling with clean borrow and topsoil, grading, fertilizing, and seeding;
- Restoring excavated garden and landscaped areas by backfilling with clean borrow and topsoil, grading, fertilizing, mulching, and installing plantings similar to those removed;
- Restoring excavated driveways and roadway by backfilling with clean gravel, grading, and compacting;
- Preparing for approval grading, cover, and drainage plans for stockpiling excavated Residential Use Area soil at the Tailings Impoundment;
- Covering stockpiled material in a manner to prevent erosion, route runoff away from the Tailings Impoundment and minimize infiltration to the Tailings Impoundment; and
- Implementing measures, as necessary, to ensure the stability of the Tailings Impoundment after the increase in loading from any material placed in a stockpile on the Tailings Impoundment.

Establishing Interim Stockpile Area

- Preparing for approval grading, cover, and drainage plans for stockpiling excavated Residential Use Area soil at the Tailings Impoundment;
- Covering stockpiled material in a manner to prevent erosion, route runoff away from the Tailings Impoundment, and minimize infiltration to the Tailings Impoundment; and
- Implementing measures, as necessary, to ensure the stability of the Tailings Impoundment after the increase in loading from any material placed in a stockpile on the Tailings Impoundment.

PCB-Contaminated Soil

- Performing pre-excavation characterization of PCB contaminated soil to refine estimates of PCB-contamination extent equal to or exceeding 50 parts per million (ppm);
- Excavating soil with PCB concentrations equal to or greater than 50 ppm for disposal in a hazardous waste landfill permitted for PCB disposal (or at a PCB disposal facility approved under 40 CFR Part 761);

- Excavating soil with PCB concentrations greater than 1 ppm but less than 50 ppm for disposal of at a facility permitted, licensed, or registered to manage municipal solid waste, non-municipal non-hazardous solid waste, or a permitted hazardous waste landfill or PCB disposal facility;
- Characterizing and shipping excavated PCB contaminated soil in accordance with the requirements of the disposal facility;
- Grading of excavated areas to blend excavation limits smoothly into surrounding grades, eliminating steep slopes, and providing proper drainage; and
- Grading of the Ore Pad Area, as necessary, to prevent discharge of surface water with high levels of metals into Dyer Cove.

Section 1.5 Amendments and Significant Differences

The United States Environmental Protection Agency (USEPA) issued an *ESD* in September 2013 to identify changes to the remedy that was set forth in the *ROD.* The *ESD* documents the following changes to the OU1 *ROD*:

- Separation of the OU1 *ROD* components into two operable units with the re-defined OU1 consisting of: arsenic, lead, and thallium cleanup of the Residential Use Area; waste rock removal from the Ore Pad and portions of the former Mine Operations Area; and cleanup of the PCB contamination within the former Callahan Mine property. OU3 consists of the remaining components of the OU1 *ROD*;
- Expansion of the OU1 Residential Use Area cleanup to include one additional property which was found to contain soil contaminated with arsenic, lead, and thallium above the site-specific cleanup levels;
- Excavation and off-site disposal of a greater quantity of soil contaminated with PCBs than anticipated in the OU1 *ROD*, and on-site consolidation of a portion of the PCB contaminated soil (soil with PCBs greater than 1 ppm but less than 10 ppm) into the Tailings Impoundment for placement under the Tailings Impoundment cover system;
- Consolidation of the Residential Use Area soil into the Tailings Impoundment for placement under the Tailings Impoundment cover system; and
- Excavation of the waste rock at the Mine Operations Area and Ore Pad, and consolidation of such excavated material into the Tailings Impoundment for placement under the Tailings Impoundment cover system.

SECTION 2
CONSTRUCTION ACTIVITIES

Section 2.1 Contracting Summary

Contract bid documents consisting of bidding requirements, contract requirements, design reports, technical specifications, and drawings were assembled based on the Maine Department of Transportation (MDOT) guidelines. An Invitation for Bid was advertised in November 2010. A pre-bid conference was held with interested contractors on-site and written answers to all submitted questions were prepared and posted on DOT's website. Six qualified bids were received and evaluated by MDEP, MDOT, and MDEP's Quality Assurance Consultant (CES, Inc.). The bid submitted by Charter Environmental (Charter) was selected as the lowest qualified bid. Prior to the start of the on-site cleanup activities, Charter was required to submit a *Remedial Action Work Plan*, *Health and Safety Plan*, and other submittals for review and approval. CES submitted a *Quality Assurance Project Plan (QAPP) Addendum* for review and approval prior to remediation activities.

Section 2.2 Pre-excavation Delineation

The initial in-situ delineation of the PCB and metals contamination was performed as part of the remedial investigation. To support the development of the Remedial Action work plans, a pre-excavation characterization was completed in November 2010 by USEPA, MDEP, and CES, Inc. to better delineate the contaminants of concern above cleanup goals within the Residential Use Area and the former Mine Operations Area. The sampling areas were chosen based on the results of the *RI* and recommendations of the *Final BOD*. The *RI* identified PCB contaminated soil along the western portion of the former Mine Operations Area, and metal contaminated soils at the Residential Use Area located to the east and west of Old Mine Road. Surface and subsurface samples were collected along the western portion of the former Mine Operations Area and analyzed by USEPA mobile laboratory for PCBs. During the in-situ pre-excavation characterization, an additional area of PCB contaminated soils was identified in the eastern portion of the former Mine Operations Area along the edge of Dyer Cove. Further sampling was completed in this area to determine the extent of the PCB contaminated soils. Surface soil samples were collected in the Residential Use Area and analyzed using an XRF to determine concentrations of arsenic, lead, and thallium. QA/QC samples were submitted to an off-site fixed laboratory to confirm the mobile laboratory and XRF results. An *Addendum to Final BOD* (CES, 2010) was prepared to document the pre-excavation characterization results.

Section 2.3 Remediation and Restoration of Residential Use Area

Charter began the remediation of five seasonal residences in 2011. The remediation included three properties located to the west of Old Mine Road (Lots A-C), one property to the east of Old Mine Road (Lot D), one property to north of Harborside Road (Lot E), as well as the remediation of Old Mine Road. Prior to and during the placement of the

metals contaminated soil, a stability analysis of the Tailings Impoundment was performed to evaluate the suitability of this area and to identify the optimal location for placement. Refer to the *2011 Supplemental Geotechnical Investigation Tailings Impoundment Area – OU1 Remedial Action* (Credere, 2012) for additional information on the geotechnical investigation and stability analysis completed at the Tailings Impoundment.

Section 2.3.1 Excavation and On-Site Placement of Metals Contaminated Soils

Metal contaminated soil above cleanup goals was excavated from the five properties located within the Residential Use Area and transported to the Tailings Impoundment for placement. Bedrock was encountered within the first six inches of excavation in most locations. Confirmation surface soil samples were collected from the bottom and sidewalls of excavations to confirm the extents of excavations. Confirmation samples were analyzed using an on-site XRF, and 10% of all confirmation samples were submitted to an off-site fixed laboratory to confirm the on-site XRF results in accordance with the QA/QC program. Confirmation sampling confirmed that the 95% upper confidence limit of the mean for each property within the Residential Use Area was below the residential cleanup levels for arsenic, lead, and thallium located in **Table 1-1**. Surveys of the Residential Use Area were completed pre- and post-excavation to calculate the volume of excavated soil. Refer to **Table 4-1** Residential Use Area excavation totals. See **Appendix E,** Figure 3 for the area where soil was excavated from the Residential Use Area. See **Appendix B** for the confirmation data to support that cleanup levels were achieved in the Residential Use Area. See **Appendix E,** Figure 4 for a figure showing the location of the cleanup confirmation samples for the Residential Use Area.

Section 2.3.2 Restoration of Residential Use Area

Restoration of the five properties within the Residential Use Area included the replacement of subsurface wastewater systems for all five properties and the boat ramp at Lot E because these features required removal to implement the cleanup activities. In addition, several drinking water wells required relocation to meet regulations relating to separation of drinking water wells and wastewater systems. The affected areas of the residential lots were repaired and restored. The driveways of the residential lots were restored with either asphalt pavement or crushed rock. Old Mine Road, which was previously a gravel road, was restored with asphalt pavement to eliminate dust from traffic associated with the cleanup activities. The remediation and restoration of the Residential Use Area was completed in the Summer of 2011. Additional punch list repairs were performed in 2012 and 2013. Refer to the Charter's *2011 OU1 Interim Remediation Report* (Charter, 2011), *2012 OU1 Interim Remediation Report* (Charter 2012), and *2013 OU1 Interim Remediation Report* (Charter, 2013) for a full description of construction activities, installation of on-site wastewater systems and disposal systems, installation of new drinking water wells, and the installation of the boat ramp on Lot E.

Section 2.4 Remediation of Ore Pad

Based on the *Final BOD* waste rock at the Ore Pad is considered a major source of groundwater contamination at the Site. High levels of arsenic and lead soil contamination exist at the Ore Pad due to the historic mine operations that included the stockpiling of ore material in this location prior to processing. The Ore Pad is upgradient of the Mine Operations Area and stormwater run-off from the Ore Pad discharges to the Mine Operations Area and eventually to Dyer Cove. Test pits were excavated in September 2011 to determine the depth of waste rock at the Ore Pad. Waste rock and highly oxidized soils were observed at the ground surface and up to a depth of ten feet below ground surface in some areas. Prior to and during the placement of metals contaminated soil, a stability analysis of the Tailings Impoundment was performed to evaluate the suitability of this area and to identify the optimal location for placement. Refer to the *Static Stability Report* for the geotechnical investigation and stability analysis of the Tailings Impoundment.

Section 2.4.1 Excavation and On-Site Placement of Metals Contaminated Soils

Charter began the excavation of the waste rock from the Ore Pad in September 2011. Visible waste rock and highly oxidized soils were excavated from the Ore Pad and transported to the tailings impoundment for placement. Excavation of metals contaminated soil was completed up to twelve feet below ground surface in some areas of the Ore Pad. The western portion of the Ore Pad had a typical depth of excavation of two to four feet whereas the eastern portion of the Ore Pad had excavation depths ranging from eight to twelve feet. All excavation activity was completed based on visual observations of waste rock and highly oxidized soils under the direction of the MDEP and CES. Excavation continued until native soils or bedrock was encountered. Confirmation surface soil samples were collected to confirm the extents of excavations. Confirmation samples were analyzed using the on-site mobile laboratory and off-site fixed laboratories. Confirmation sampling confirmed that the 95% upper confidence limit of the mean for surface soils at the Ore Pad were below the recreational cleanup levels for arsenic and lead which are listed in **Table 1-2**. Refer to Charter's *2011 OU1 Interim Remediation Report*, *2012 OU1 Interim Remediation Report*, and *2013 OU1 Interim Remediation Report* for a full description of excavation and on-site placement activities. Refer to Section 4.2 of this report for excavation totals. See **Appendix E,** Figure 7 for the area where soil was excavated and clean-up confirmation samples were collected from the Ore Pad area. See **Appendix C** for the confirmation data to support that cleanup levels were achieved in the Ore Pad Area.

Section 2.4.2 Restoration of Ore Pad

The short-term goal for the restoration of the Ore Pad was to create positive drainage and to eliminate soil transport to Dyer Cove. To accomplish this goal, a berm of material from Waste Rock Pile 2 was placed along the eastern and southern borders of the Ore Pad to hinder sediment and stormwater from being transported to the former Mine Operations

Area and Dyer Cove. Final restoration of the Ore Pad Area will occur as a component of the OU3 cleanup action.

Section 2.5 Remediation and Restoration of Former Mine Operations Area

Charter began excavation of the former Mine Operations Area in 2011. PCB contamination had been detected throughout the Mine Operations Area, including material that was used to backfill the foundations. The source of the PCB contamination is not known but the predominant aroclor detected was 1242. Prior to the placement of the PCB contaminated soils each year, the stability analyses of the Tailings Impoundment completed in 2011 was revisited to identify the optimal stockpiling location. Refer to the *2012 OU1 Interim Remediation Report* for further specific information on the construction of the lined PCB stockpiles at the Tailings Impoundment. Confirmation sampling confirmed that the 95% upper confidence limit of the mean for the Mine Operations Area was below the cleanup level for PCBs located in **Table 1-2**. See **Appendix E,** Figure 6 for the location of on-site and off-site samples that were used to confirm that the cleanup was achieved for the Mine Operations Area. **Appendix D** includes the on-site data and off-site fixed lab data for the Mine Operations Area.

Section 2.5.1 Excavation and Off-Site Disposal of PCB Contaminated Soils

Charter began the excavation of PCB contaminated soils from the former Mine Operations Area in April 2011. Areas to be excavated were defined in the *ROD*, OU1 Remedial Design *Final BOD*, and Remedial action work plans, including the *Addendum to Final BOD.* The areas to be excavated were based on the in-situ pre-excavation delineation activities.

During the 2011, soils with PCB concentrations of 1 ppm-<50 ppm were sent off-site for disposal at the Crossroads Landfill in Norridgewock, Maine, and soils with PCB concentrations of ≥ 50 ppm were sent off-site for disposal at the Model City Landfill in Model City, New York. On-site stockpiling was completed during the 2011 excavation activities to stage material for off-site disposal. Charter stockpiled the PCB contaminated soils based on PCB concentrations. Stockpiles were lined and covered with plastic sheeting. Erosion control mix and hay bales were placed around the stockpiles to prevent contaminated soils from migrating in stormwater. Confirmation samples were collected at the base and along the sides of excavations to confirm the extents of excavation. Analysis of the confirmation samples were completed by the USEPA Mobile Laboratory while it was on-site. During the weeks that the EPA Mobile Laboratory was not on-site confirmation sample analysis was completed off-site at a fixed laboratory and, at a minimum, 10% of all samples analyzed on-site were submitted to a fixed laboratory to confirm the mobile laboratory results in accordance with the QA/QC program.

An EPA sampling team began a sampling program along the eastern edge of the former Mine Operations Area in September 2011, to determine if additional PCB contaminated soils existed beyond the areas previously delineated. Based on the results of the EPA sampling program, additional areas of PCB contaminated soils were identified along the

eastern edge of the former Mine Operations Area near Dyer Cove. Charter continued to excavate and stockpile the PCB contaminated soils and ship the stockpiled materials off-site for disposal. Excavation activities continued through November 2011 when all delineated PCB contaminated soils ≥50 ppm were stockpiled and ready for off-site disposal. The remainder of the delineated PCB contaminated soils with PCB concentrations of 1 ppm-<50 ppm were left in place and covered with tarps to protect them from erosion during the winter months. The off-site shipment of the stockpiled 1 ppm-<50 ppm material for disposal at Crossroads Landfill was completed for the construction year in December 2011. The off-site shipment of ≥50 ppm material for disposal at Model City Landfill was completed for the year in January 2012. Confirmation samples were collected by Charter from the stockpile areas to confirm that all stockpiled PCB contaminated soils had been removed from the stockpile locations. Refer to the *2011 OU1 Interim Remediation Report* for a full description of remedial acti1ities conducted in the former Mine Operations Area during 2011. **Table 2-1** depicts the PCB contaminated soil excavated and shipped off-site for disposal during 2011.

TABLE 2-1 SUMMARY OF 2011 OFF-SITE DISPOSAL OF PCB SOILS

PCB Concentration	Off-site Disposal Facility	Tons Shipped for Off-site Disposal in 2011
1 ppm - <50 ppm	Crossroads Landfill, Norridgewock, Maine	7, 490.03 tons
≥50 ppm	Model City Landfill, Model City, New York	2,896.05 tons
Total		**10,386.08 tons**

In April 2012, additional in-situ delineation sampling was completed by MDEP and CES to fully characterize the extent of the PCB contaminated soils along the eastern edge of the former Mine Operations Area and in other areas of the former Mine Operations Area not fully sampled during previous sampling programs. The sampling program included the sampling of surface and subsurface soils and the on-site analysis of these samples for PCBs by the USEPA Mobile Laboratory. Based on the results of this sampling program, PCB contaminated soils were found throughout the former Mine Operations Area. New delineation figures were created and a new approach to excavation and off-site disposal was created prior to the 2012 remedial work. The new approach divided the former Mine Operations Area up into four zones based on topography and stormwater flow. Zone 1 was located in the southern most portion of the former Mine Operations Area proceeding north to Zone 4 which was located in the northern end of the former Mine Operations Area. A new work approach was implemented that required the PCB contaminated soils from Zone 1 to be removed prior to completing work down gradient in Zone 2. Refer to **Appendix E,** Figure 5 for a figure of Zones 1-4 in the Mine Operations Area.

Charter began excavation of Zone 1 within the former Mine Operations Area in September 2012. During the 2012 excavation of PCB contaminated soils, soils with PCB concentrations of 1 ppm-<10 ppm were transported to the tailings impoundment for stockpiling, soils with PCB concentrations of 10 ppm-<50 ppm were sent off-site for disposal at the Crossroads Landfill in Norridgewock, Maine, and soils with PCB

concentrations of ≥ 50 ppm were sent off-site for disposal at the Model City Landfill in Model City, New York. The PCB stockpile at the tailings impoundment was located within the northern portion of the ore pad stockpile and fully surrounded with 12 oz. geotextile. All PCB contaminated soils with concentrations ≥10 ppm were direct loaded into trucks for off-site disposal. Confirmation samples were collected within all areas of Zone 1, Zone 2, and portions of Zone 3 and Zone 4 to confirm the extents of excavation. Analysis of the confirmation samples were completed by the USEPA Mobile Laboratory while it was on-site. During the weeks that the USEPA Mobile Laboratory was not on-site, immunoassay screening was completed by CES to identify areas that required additional excavation. All of the final samples that were subjected to immunoassay screening for each location were analyzed by the USEPA Mobile Laboratory upon return to the site. QA/QC samples were submitted to a fixed laboratory to confirm the mobile laboratory results. Excavation activities continued through October 2012 when all PCB contaminated soils had been removed from Zone 1, Zone 2, and portions of Zone 3 and Zone 4. The remaining PCB contaminated soil in Zone 3 and Zone 4 was left in place and excavated areas were covered to protect them from erosion during the winter months. The off-site shipment of ≥10 ppm material was completed for the construction year in October 2012. Refer to the *2012 OU1 Interim Remediation Report* for a full description of remedial activities conducted in the former Mine Operations Area during 2012. **Table 2-2** depicts the PCB contaminated soil excavated and shipped off-site for disposal or placed at the Tailings Impoundment during 2012.

TABLE 2-2 SUMMARY OF 2012 PLACEMENT/DISPOSAL OF PCB SOILS

PCB Concentration	Placement/Disposal Location	Tons Excavated for Placement/Disposal in 2012
1ppm - < 10 ppm	Tailings Impoundment	5,805 tons
10 ppm - <50 ppm	Crossroads Landfill, Norridgewock, Maine	1,807.26 tons
≥50 ppm	Model City Landfill, Model City, New York	1,249.54 tons
Total		**8,861.8 tons**

Charter began excavation of Zone 3 within the former Mine Operations Area in May 2013. During the 2013 excavation of PCB contaminated soils, soils with PCB concentrations of 1 ppm-<10ppm were transported to the tailings impoundment for stockpiling, soils with PCB concentrations of 10 ppm-<50 ppm were sent off-site for disposal at the Crossroads Landfill in Norridgewock, Maine, and soils with PCB concentrations of ≥ 50 ppm were sent off-site for disposal at the Model City Landfill in Model City, New York. A new PCB stockpile location was designed at the tailings impoundment to contain the 1 ppm-<10 ppm contaminated soil for the 2013 remedial work. This new stockpile was located within the northwestern portion of the ore pad stockpile and fully surrounded with 12 oz. geotextile. All PCB contaminated soils with concentrations ≥10 ppm were direct loaded into trucks for off-site disposal. Confirmation samples were collected within all areas of Zone 3 and Zone 4 to confirm the extents of excavation. Analysis of the confirmation samples were completed by the USEPA Mobile Laboratory while it was on-site. During the weeks that the USEPA

Mobile Laboratory was not on-site, soil samples were sent to an off-site laboratory for analysis. Excavation activities continued through August 2013 when all PCB contaminated soils had been removed from Zone 3 and Zone 4. The off-site shipment of all ≥10 ppm material was completed for the construction year in August 2013. Refer to the *2013 OU1 Interim Remediation Report* for a full description of remedial activities conducted in the former Mine Operations Area during 2013. **Table 2-3** depicts the PCB contaminated soil excavated and shipped off-site for disposal or placed at the Tailings Impoundment during 2013.

TABLE 2-3 SUMMARY OF 2013 PLACEMENT/DISPOSAL OF PCB SOILS

PCB Concentration	Placement/Disposal Location	Tons Excavated for Placement/Disposal in 2013
1 ppm - <10 ppm	Tailings Impoundment	9,292.5 tons
10 ppm - <50 ppm	Crossroads Landfill, Norridgewock, Maine	2,784 tons
≥50 ppm	Model City Landfill, Model City, New York	2,153.9 tons
Total		**14,230.4 tons**

Section 2.5.2 Excavation and On-Site Placement of PCB Contaminated Soils

During 2012 and 2013 remedial activities, PCB contaminated soils with concentrations of 1 ppm-<10 ppm were transported to the Tailings Impoundment for on-site placement into lined stockpiles located within the northern portion of the Ore Pad stockpile. The Ore Pad stockpile was completed in 2011 and was placed on the western portion of the Tailings Impoundment. During the 2013 remedial activities, concrete debris and large rocks excavated from Zone 3 and Zone 4 that were surrounded by PCB contaminated soil with 1 ppm-<10 ppm were transported to an area to the west of the Tailings Impoundment directly to the east of the Old Mine Road. The rock and concrete materials were located as a separate stockpile and covered with soil.

Section 2.5.3 Restoration of Former Mine Operations Area and Tailings Impoundment

The required restoration of the Former Mine Operations Area was completed in September 2013. The restoration activities generally included:

- Installation of permanent erosion and sedimentation (E&S) control and stormwater best management practices (BMPs) to comply with State and Federal ARARs such as site grading, loam, hydro-seeding, drainage ditches/culverts, stone check dams, stormwater retention/sedimentation basin with outlet structure;
- Repair and replacement of the Old Mine Road; and
- Addressing on-site safety issues such as filling in excavations, removing unstable slopes, removing metal rebar, placing cover over voids in remaining concrete structures, fencing and barriers surrounding PCB stockpile at the Tailings Impoundment.

Additional restoration activities such as wetland creation, grading, loam, and seed may be conducted in the future as part of OU2 or OU3 remedial activities.

Section 2.6 Institutional Controls

Institutional controls were not a component of the revised OU1 remedial action. The implementation of institutional controls to prevent disturbance to the components of the remedial activities and long-term monitoring of compliance with restrictions will be completed as part of OU3 remedial actions. Other institutional controls relating to site use will be implemented by the OU2 Early Action. Refer to the *ROD* for additional information on institutional controls.

Section 2.7 Significant Differences

See Section 1.4 of this report for information on the *ESD* issued by USEPA and MDEP in September 2013 for OU1 remedial activities.

SECTION 3
CHRONOLOGY OF EVENTS

The following tabular summary lists the major events for OU1 and the date associated with each event.

TABLE 3-1 SUMMARY OF EVENTS FOR THE REMEDIAL ACTIVITIES

Date	Event	Agency/Firm
July 2006 through July 2009	Remedial Investigation/Feasibility Study conducted	MDOT/MACTEC
September 30, 2009	ROD for OU1 signed	USEPA
September 23, 2010	OU1 Remedial Design and Final Basis of Design completed	MDOT/MACTEC
October 2010	Pre-excavation Characterization completed	MDEP/CES
November 21, 2010	Addendum to the Final Basis of Design completed	MDEP/CES
November 2010	OU1 Remedial Action Project Manual completed	MDEPCES
March 2011	OU1 Remedial Action Work Plan completed	MDEP/Charter
April 11, 2011	Contractor Mobilization to Site for OU1 activities	MDEP/Charter
January 11, 2012	Contractor Demobilization from Site	MDEP/Charter
April 26, 2012	Mobilize to Site for Delineation Sampling Program	MDEP/CES
May 3, 2012	Demobilize from Site	MDEP/CES
September 4, 2012	Contractor Mobilization to Site for continuation of OU1 Remedial Action activities	MDEP/Charter
November 9, 2012	Contractor Demobilization from Site	MDEP/Charter
May 6, 2013	Contractor Mobilization to Site for continuation of OU1 Remedial Action activities	MDEP/Charter
September 4, 2013	Joint USEPA and MDEP pre-final inspection	USEPA/MDEP
September 20,2013	Explanation of Significant Difference signed	USEPA
September 26, 2013	MDEP Final Inspection	USEPA/MDEP
September 26, 2013	Contractor Final Demobilization from Site	Charter

SECTION 4
PERFORMANCE STANDARDS AND CONSTRUCTION QUALITY CONTROL

Section 4.1 Excavation Remedies – Residential Use Area

The OU1 Remedial Action successfully removed the contaminated soil from the properties with the Residential Use Area. Confirmation surface soil samples were collected from the bottom and sidewalls of excavations to confirm the extent of excavations. Confirmation samples were analyzed using an on-site XRF, and 10% of all confirmation samples were submitted to an off-site fixed laboratory to confirm the on-site XRF results in accordance with the QA/QC program. Confirmation sampling confirmed that the 95% upper confidence limit of the mean for each property within the Residential Use Area was below the residential cleanup levels for arsenic, lead, and thallium. Surveys of the Residential Use Area were completed pre- and post-excavation to calculate the volume of excavated soil. Refer to **Table 4-1** for the Residential Use Area excavation totals. See **Appendix E,** Figure 3 for the area where soil was excavated from the Residential Use Area. See **Appendix B** for the confirmation data to support that cleanup levels were achieved in the Residential Use Area. See **Appendix E,** Figure 4 for a figure showing the location of the cleanup confirmation samples for the Residential Use Area.

Table 4-1 depicts the volume of soil excavated from the Residential Use Area and Old Mine Road. Excavated soil was transported to the western portion of the Tailings Impoundment for final disposal.

TABLE 4-1 RESIDENTIAL USE AREA EXCAVATION TOTALS

Excavated Area	Excavated Volume
Lot A	1070 cy
Lot B	13 cy
Lot C	768 cy
Lot D	1988 cy
Lot E	929 cy
Old Mine Road	41 cy
Total	**4809 cy**

The areas disturbed as part of the OU1 Residential Use Area cleanup have been restored to an acceptable condition as documented by Site inspections, including the pre-final and final inspections.

Section 4.2 Excavation Remedies – Ore Pad

The OU1 Remedial Action successfully removed the acid generating waste rock and contaminated soil above the site specific cleanup levels for the former Callahan Mine property. Surveys of the Tailings Impoundment were completed pre- and post-placement of the Ore Pad material to calculate the total volume of placed material. A total of 21,542 cy of metals contaminated material from the Ore Pad was placed at the Tailings Impoundment. Confirmation sampling confirmed that surface soils at the Ore Pad were

below the recreational cleanup levels for arsenic and lead which are listed in **Table 1-2**. See **Appendix E,** Figure 7 for a figure of the area where soil was excavated and clean-up confirmation samples were collected from the Ore Pad area. See **Appendix C** for the confirmation data to support that cleanup levels were achieved in the Ore Pad Area.

The areas disturbed as part of the OU1 Ore Pad have been restored to an acceptable condition as documented by Site inspections, including the pre-final and final inspections.

Section 4.3 Excavation Remedies – Former Mine Operations Area

The OU1 Remedial Action successfully removed the PCB contamination from the Mine Operation Area. All PCB delineation and confirmation was based on in-situ sampling. Pre-excavation delineation sampling occurred during the *RI* program and as part of the 2010 pre-excavation delineation. Additional delineation sampling was implemented in 2011 and 2012 to further refine the limits of the in-situ PCB contamination. To support the field excavation program, an on-site field lab was used to analyze samples for PCBs. Over 3,500 samples were processed by the field lab to support the excavation activities and provide preliminary confirmation that the 1 mg/kg cleanup level had been achieved. Once an area was determined to be cleanup according to the field sampling, samples were sent for analysis at a fixed lab. Two hundred and two samples were submitted to the fixed lab to provide formal confirmation that the cleanup levels have been achieved. The 95% UCL for the areas subject to the OU1 PCB cleanup is 0.315 mg/kg, which is well below the 1 mg/kg cleanup goal. See **Appendix E,** Figure 6 for the location of on-site and off-site samples that were used to confirm that the cleanup was achieved for Zones 1, 2, 3, and 4. **Appendix D** includes the on-site data and off-site fixed lab data for the Mine Operations Area.

Table 4-2 depicts the PCB contaminated soil excavated and shipped off-site or placed at the Tailings Impoundment between 2011 and 2013.

TABLE 4-2 MINE OPERATIONS AREA EXCAVATION TOTALS

PCB Concentration	Placement/Disposal Location	Tons Excavated for Placement/Disposal
1 ppm - <10 ppm	Tailings Impoundment	15,097.5 tons
1 ppm - <50 ppm	Crossroads Landfill, Norridgewock, Maine	12,081.24 tons
≥50 ppm	Model City Landfill, Model City, New York	6,299.49 tons
Total		**33,478.23 tons**

Portions of the soil sent for off-site disposal required on-site treatment due to leachable quantities of lead. Through the toxicity characteristic leaching procedure (TCLP) completed as part of the characterization profiles for each disposal facility; areas of PCB contaminated soils were found to exceed the allowable level of 5 mg/L for lead. The

areas requiring TCLP treatment were delineated on-site and treated with a granular phosphate buffer prior to shipment off-site**.**

The areas disturbed as part of the OU1 Mine Operations Area cleanup have been restored to an acceptable condition as documented by Site inspections, including the pre-final and final inspections.

Section 4.4 CQA/CQC

All sampling was implemented using EPA, ASTM, MDEP, or other standard practices. All construction quality and performance data was reviewed by MDEP and its quality assurance contractor as part of the oversight of the construction activities. USEPA performed periodic inspections, reviewed daily reports, and sample results. All construction quality control and quality assurance information is available at the EPA Region I Records Center in Boston, MA. The QA/QC program utilized throughout the construction program was sufficiently rigorous and was adequately complied with to enable USEPA and the MDEP to determine that the results reported are accurate to the degree needed to assure satisfactory execution of the OU1 Remedial Action.

Excavation activities were conducted in accordance with the approved *Project Manual* (CES, 2010), *Work Plan* (Charter, 2011), *Construction Quality Assurance Plan* (CQAP) (CES, 2011), and the *Quality Assurance and Project Plans and Sampling and Analysis Plan* (QAPP/SAP) (CES, 2010-2013). Refer to these documents for a full description of the approved construction quality assurance and construction quality control requirements. Daily Reports were prepared by the contractor and reviewed by MDEP. MDEP provided nearly full time oversight of the cleanup work. MDEP contractor, CES, provided quality assurance reviews and inspections of the OU1 Remedial Action. CES documented its oversight and inspections in daily reports. Pursuant to the approved QAPP, excavation activities were managed using an on-site analytical lab whenever possible. Final confirmation of the cleanup was documented with analytical results from the USEPA Region 1 laboratory in Chelmsford, MA. A *Final As-Built Survey* (CES, 2013) was performed in September 2013 to document the Site conditions at the end of the OU1 Remedial Action.

SECTION 5
FINAL INSPECTION AND CERTIFICATIONS

Section 5.1 Contract Inspections

Remediation and restoration of the Residential Use Area was completed in September 2011. Inspections of excavation activities and sampling data were completed on a weekly basis by CES. On June 29, 2012, CES completed a warranty inspection of the Residential Use Area. In accordance with the *Project Manual* (CES, 2010), the following restoration plantings required a 12 month inspection: trees; shrubs; vines; ornamental grasses; ground covers; biennials; perennials; other plants; and grass turf. At the time of the June 2012 warranty inspection, sparse grass growth was observed on portions of Lots A, B, D, and E. At the time of the warranty inspection, one Balsam tree located on the northern edge of Lot A had recently been replaced by Charter. Additional visits to the Site were made by CES throughout the Summer and Fall of 2012. During these Site visits, the Residential Use Area was inspected and all areas of sparse grass growth identified during the June 2012 warranty inspection were found to be satisfactory.

In accordance with the *Project Manual*, Charter was notified of warranty defects relating to the installation of the subsurface wastewater disposal system at Lot A and the construction of the boat ramp at Lot E. Repairs to the subsurface wastewater disposal system at Lot A were completed by Charter in May 2013. Repairs to the boat ramp at Lot E were completed by Charter in September 2013. Inspections of the repairs on Lot A and Lot E were completed by CES and were found to be satisfactory.

Remediation of the Ore Pad was completed in September 2011. Inspections of excavation activities were completed on a daily basis by CES.

Remediation of the Mine Operations Area was completed in September 2013. Inspections of excavation activities were completed on a part-time basis by CES in 2011, and were completed on a daily basis by CES in 2012 and 2013. MDEP also provided substantial oversight of the excavation activities from 2011 through 2013.

Periodic site inspections were implemented to identify areas where corrective actions may be necessary. All areas of the OU1 Remedial Action were subject to the pre-final inspection on September 4, 2013, and the final inspection on September 26, 2013. A Completion Checklist with punch list items was provided to Charter after a pre-final inspection for completion prior to demobilization from the Site in September 2013. All punch list items had been acceptably resolved by the September 26, 2013, final inspection. See **Appendix F** for a copy of the final Completion Checklist.

Section 5.2 Health and Safety Summary

All work completed as part of the remedial activities was carried out in accordance with the *Health and Safety Plans* (HASPs) (CES, 2010-2013, and Charter 2010-2013). The *HASPs* were revised to address new risks as contamination was identified and as the

remedial activities changed throughout the project. No injuries or violations were reported during the pre-excavation characterization, remediation, or restoration completed during the implementation of the OU1 Remedial Action.

Section 5.3 USEPA and State Joint Pre-Final and Final Inspections

A Pre-final Inspection was performed by MDEP, USEPA, Charter, and CES on September 4, 2013. A Pre-final construction punch list was developed and approved by all parties present. USEPA agreed that the punch list items were minor and that a joint USEPA-MDEP final inspection was not necessary.

A Final Inspection was performed by MDEP on September 26, 2013, to document that all punch list items had been completed and that the OU1 Remedial Action was operational and functional.

Section 5.4 Certification

MDEP and its contractors certify that the OU1 Remedial Action has been performed to meet the purpose and intent of the design specifications and that the OU1 Remedial Action was completed in accordance with the *ROD* as modified by the September 2013 *Explanation of Significant Differences*, the Remedial Design, and all approved work plans and specifications. The documentation to support this certification is contained in this Remedial Action Report and Charter's *2011 OU1 Interim Remediation Report*, *2012 OU1 Interim Remediation Report*, and *2013 OU1 Interim Remediation Report*.

SECTION 6
OPERATION & MAINTENANCE ACTIVITIES

The soil cleanup for the Residential Use Area is completed. No maintenance activities are anticipated for the Residential Use Area.

The cleanup of the Ore Pad and Mine Operations Area along with the disposal area in the Tailings Impoundment will require inspections and maintenance. MDEP will be responsible for periodic inspections to document that the sediment and erosion control measures are meeting best management practices. MDEP will also be responsible for periodic inspections of the disposal area for the soil containing PCB contamination greater than 1 ppm but less than 10 ppm. Inspections will be performed to document that the cover integrity has not been compromised. The MDEP will be responsible for prompt repairs to the cover system or sediment and erosion control measures.

SECTION 7
CONTACT INFORMATION

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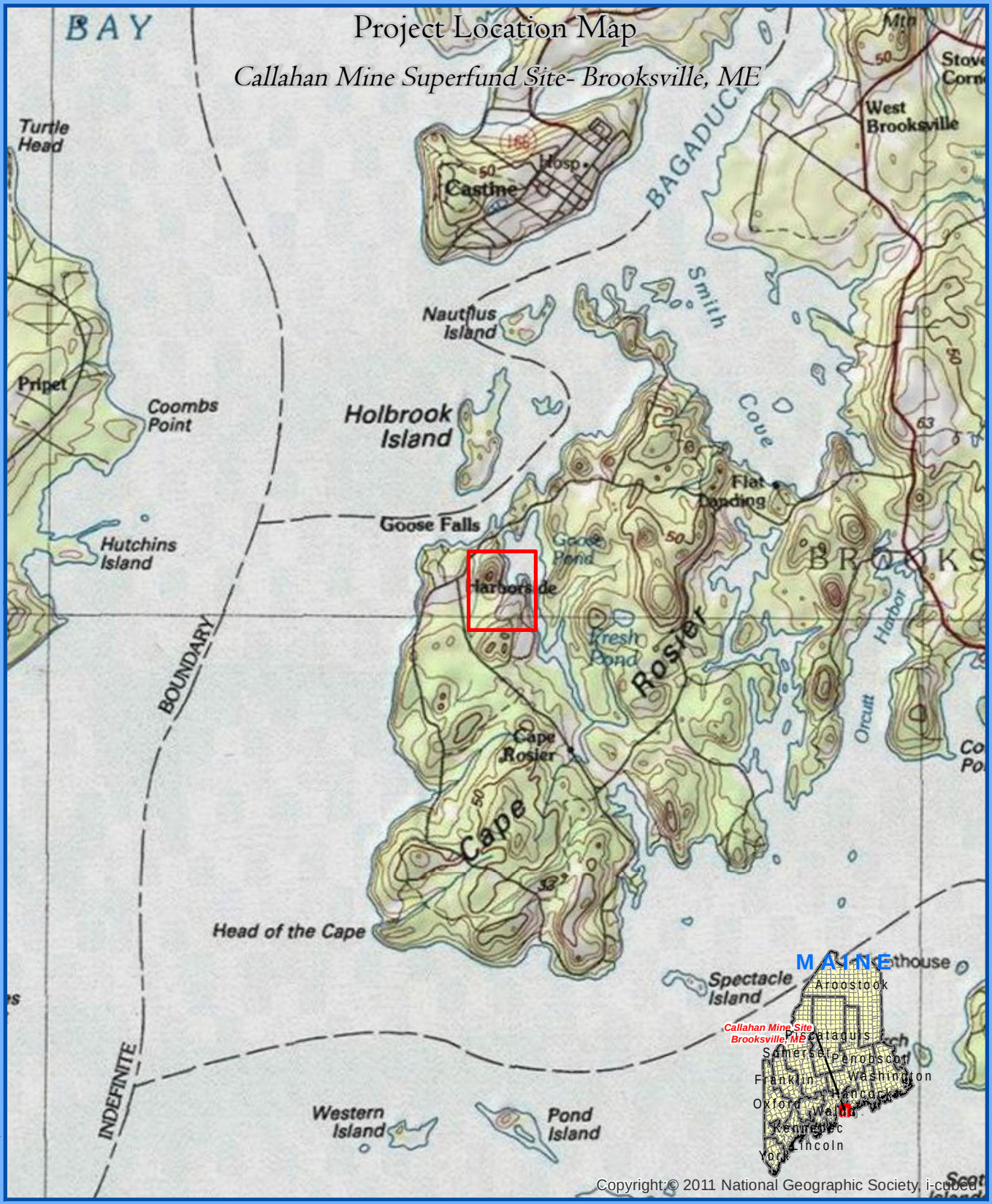
APPENDIX A

LOCATION MAP

Project Location Map

Callahan Mine Superfund Site- Brooksville, ME



MXD: Location Map 092613

MAP AUTHOR: Isaid

0.5 0.25 0 0.5

Miles

CES INC
ENGINEERING · SURVEYING · PLANNING · SCIENCES

Legend

Project Location

MAP NOTES:

1: SAMPLE LOCATIONS & CONTAMINATION AREAS COURTESY OF MAINE DEP, 2010-2013.

2: IMAGERY COURTESY OF GOOGLE. ACQUIRED FEB. 5, 2013, VIA GEOTIFF EXPORT 1:6000 SCALE TILES. GOOGLE AND ITS AFFILIATES MAINTAIN NO ASSOCIATION OR RESPONSIBILITY FOR THE CONTENT OR IMAGERY DEPICTED IN THIS MAP. THE IMAGERY DISPLAYED HEREIN IS BEING DISPLAYED UNALTERED AND INDEPENDENTLY OF THE VECTOR DATA BEING OVERLAIN ON THE IMAGERY. NEITHER GOOGLE NOR ITS AFFILIATES WERE INVOLVED WITH THE DEVELOPMENT THESE WORKS.

3: CES, INC. DEVELOPED THIS MAP FOR GENERAL REFERENCE PURPOSES ONLY. ANY USE OF THIS MAP AND/OR IMAGERY AND/OR THE THEMES THEY REPRESENT FOR ANY OTHER PURPOSE IS NOT RECOMMENDED AND WOULD CONSTRAIN MAP INTEGRITY.

4: MAP IS PROJECTED TO MAINE STATE PLANE COORDINATES, EAST ZONE (FIPS 1801), U.S. SURVEY FOOT AND REFERENCES THE NORTH AMERICAN DATUM OF 1983 (NAD83).

5: NORTH ARROW IS REFERENCED TO GRID NORTH.

APPENDIX B

RESIDENTIAL AREA
CONFIRMATION SAMPLE RESULT TABLES

Callahan Mine Superfund Site, Brooksville Maine

Operable Unit 1 Remediation Sampling and Analysis

Lot A Remediation - Confirmation Samples

Residential Lot	Confirmation Sample ID	Date	As Result (ppm)	Pb Result (ppm)	Comment
A	B23	5/25/2011	0	0	Excavated to bedrock
A	B24	5/25/2011	0	0	Excavated to bedrock
A	B25	5/25/2011	0	0	Excavated to bedrock
A	B26	5/25/2011	ND<7	20	
A	B27	5/25/2011	ND<7	26	
A	B28	5/25/2011	ND<7	12	
A	B29	5/25/2011	0	0	Excavated to bedrock
A	S22	5/25/2011	13	74	
A	S23	5/25/2011	13	73	
A	S24	5/25/2011	0	0	Excavated to foundation
A	S25	5/25/2011	0	0	Excavated to foundation
A	S26	5/25/2011	ND<8	25	
A	S27	5/25/2011	ND<8	26	
A	S28	5/25/2011	ND<7	22	
A	S29	5/25/2011	ND<7	15	
A	S30	5/25/2011	ND<7	10	
A	S31	5/25/2011	13	16	
A	S32	5/25/2011	0	0	Excavated to bedrock
A	S33	5/25/2011	ND<12	63	
A	S34	5/25/2011	ND<10	42	
A	S35	6/6/2011	0	0	Excavated to Bedrock
A	S36	6/6/2011	ND<9	38	
A	S37	6/6/2011	ND<10	65	
A	S38	6/6/2011	ND<8	37	Root mat on top of Bedrock
A	S39	6/6/2011	ND<8	33	

NOTE: This confirmation sample data was provided by Charter in their *2011 Interim Remediation Report* .

Callahan Mine Superfund Site, Brooksville Maine

Operable Unit 1 Remediation Sampling and Analysis

Lot B&C Remediation - Confirmation Samples

Residential Lot	Confirmation Sample ID	Date	As Result (ppm)	Pb Result (ppm)	Comment
B	B1	5/18/2011	ND<9	26	
B	B2	5/18/2011	ND<9	29	
B	B3	5/18/2011	12	22	
B	B4	5/18/2011	0	0	Excavated to Bedrock
B	B5	5/18/2011	ND<11	86	
B	B6	5/18/2011	ND<11	70	
B	B7	5/18/2011	0	0	Excavated to Bedrock
B	B8	5/18/2011	ND<12	102	
B	B9	5/18/2011	ND<9	30	
B	B10	5/18/2011	14	20	
B	B11	5/18/2011	0	0	Excavated to Bedrock
B	B12	5/18/2011	ND<9	17	
B	B13	5/18/2011	9	16	
B	B17	5/25/2011	0	0	Excavated to Bedrock
B	B18	5/25/2011	ND<8	25	
B	B19	5/25/2011	0	0	Excavated to Bedrock
B	B20	5/25/2011	0	0	Excavated to Bedrock
B	B21	5/25/2011	9	38	
B	B22	5/25/2011	ND<9	47	
B	S1	5/18/2011	0	0	Excavated to bedrock.
B	S2	5/18/2011	11	20	
B	S3	5/18/2011	9	30	
B	S4	5/18/2011	12	29	
B	S5	5/18/2011	ND<8	22	
B	S6	5/18/2011	ND<9	30	
B	S7	5/18/2011	ND<14	144	
B	S8	5/18/2011	ND<10	60	
B	S9	5/18/2011	0	0	Excavated to Bedrock
B	S10	5/18/2011	ND<11	70	
B	S11	5/18/2011	ND<8	29	
B	S12	5/18/2011	ND<11	80	
B	S13	5/18/2011	0	0	Excavated to edge of property.
B	S14	5/18/2011	11	33	
B	S15	5/18/2011	13	24	
B	S16	5/18/2011	14	52	
B	S17	5/25/2011	ND<11	73	
B	S18	5/25/2011	ND<8	16	
B	S19	5/25/2011	ND<10	66	
B	S20	5/25/2011	11	39	
B	S21	5/25/2011	ND<9	55	

NOTE: This confirmation sample data was provided by Charter in their *2011 Interim Remediation Report* .

Callahan Mine Superfund Site, Brooksville Maine

Operable Unit 1 Remediation Sampling and Analysis

Lot D Remediation - Confirmation Samples

Residential Lot	Confirmation Sample ID	Date	As Result (ppm)	Pb Result (ppm)	Comment
D	B14	5/25/2011	ND<13	63	
D	B15	6/6/2011	ND<15	97	
D	B16	5/25/2011	12	119	
D	B30	6/6/2011	14	23	
D	B31	6/6/2011	ND<8	12	
D	B32	6/6/2011	9	23	
D	B33	6/6/2011	ND<13	89	
D	B34	6/6/2011	0	0	Excavated to Bedrock
D	B35	6/6/2011	ND<8	19	
D	B36	6/6/2011	ND<9	30	
D	B37	6/6/2011	ND<10	38	
D	B38	6/6/2011	ND<12	59	
D	B39	6/6/2011	0	0	Excavated to Bedrock
D	B40	6/6/2011	0	0	Excavated to Bedrock
D	B41	6/6/2011	0	0	Excavated to Bedrock
D	B42	6/6/2011	10	16	
D	B43	6/6/2011	0	0	Excavated to Bedrock
D	B44	6/6/2011	ND<8	22	
D	B45	6/6/2011	ND<11	59	
D	B46	6/6/2011	ND<12	98	
D	B48	6/13/2011	10	30	
D	B49	6/13/2011	13	28	
D	B50	6/13/2011	10	32	
D	B51	6/13/2011	13	74	
D	B52	6/13/2011	ND<9	29	
D	B53	6/13/2011	ND<14	126	
D	B54	6/13/2011	ND<14	121	
D	B55	6/13/2011	ND<12	82	
D	B56	6/13/2011	11	25	
D	B57	6/13/2011	11	59	
D	B58	6/13/2011	12	14	
D	B59	6/13/2011	10	19	
D	B60	6/13/2011	12	20	
D	B61	6/13/2011	0	0	Excavated to Bedrock
D	B61	6/13/2011	0	0	Excavated to Bedrock
D	B62	6/13/2011	13	23	
D	B63	6/13/2011	12	19	
D	B64	6/13/2011	ND<16	155	
D	B65	6/13/2011	0	0	Excavated to Bedrock
D	B66	6/13/2011	0	0	Excavated to Bedrock
D	S40	6/6/2011	0	0	Excavated to Bedrock
D	S41	6/13/2011	14	26	

Callahan Mine Superfund Site, Brooksville Maine

Operable Unit 1 Remediation Sampling and Analysis

Lot D Remediation - Confirmation Samples

Residential Lot	Confirmation Sample ID	Date	As Result (ppm)	Pb Result (ppm)	Comment
D	S42	6/6/2011	15	75	
D	S43	6/6/2011	ND<12	86	
D	S44	6/6/2011	ND<9	33	
D	S45	6/6/2011	14	55	
D	S46	6/6/2011	ND<11	57	
D	S47	6/6/2011	ND<10	46	
D	S48	6/6/2011	10	20	
D	S49	6/6/2011	ND<7	18	
D	S50	6/6/2011	14	25	
D	S51	6/6/2011	ND<11	46	
D	S52	6/6/2011	12	49	
D	S53	6/6/2011	ND<27	510	
D	S54	6/6/2011	ND<15	168	
D	S55	6/6/2011	ND<10	54	
D	S56	6/6/2011	17	146	
D	S57	6/6/2011	12	15	
D	S58	6/6/2011	ND<16	153	
D	S59	6/6/2011	ND<16	171	
D	S60	6/6/2011	ND<12	82	
D	S61	6/6/2011	ND<13	99	
D	S62	6/6/2011	ND<31	686	
D	S63	6/13/2011	0	0	Excavated to Bedrock
D	S64	6/13/2012	15	147	
D	S65	6/13/2011	ND<13	98	
D	S66	6/13/2011	12	35	
D	S67	6/13/2011	ND<17	183	Excavated to edge of Goose Pond
D	S68	6/13/2011	0	0	Excavated to edge of property
D	S69	6/13/2011	0	0	Excavated to edge of property
D	S70	6/13/2011	0	0	Excavated to edge of property
D	S71	6/13/2011	0	0	Excavated to edge of property
D	S72	6/13/2011	0	0	Excavated to edge of property
D	S73	6/13/2011	0	0	Excavated to edge of property
D	S74	6/13/2011	13	25	
D	S75	6/13/2011	ND<11	35	
D	S76	6/13/2011	0	0	Excavated to edge of property
D	S77	6/13/2011	0	0	Excavated to edge of property
D	S78	6/13/2011	0	0	Excavated to edge of property
D	S79	6/13/2011	0	0	Excavated to edge of property
D	S80	6/13/2011	0	0	Excavated to edge of property
D	S81	6/13/2011	0	0	Excavated to edge of property

NOTE: This confirmation sample data was provided by Charter in their *2011 Interim Remediation Report* .

Callahan Mine Superfund Site, Brooksville Maine

Operable Unit 1 Remediation Sampling and Analysis

Lot E Remediation - Confirmation Samples and Statistical Analysis

Statistical Analaysis for As		Statistical Analysis for Pb	
Number of results (n)	29.00	Number of results (n)	29.00
Mean (μ)	9.79	Mean (μ)	48.59
Standard deviation (s)	7.79	Standard deviation (s)	107.03
Standard Error (s_μ)	1.45	Standard Error (s_μ)	19.87
Degrees of Freedom (n-1)	28.00	Degrees of Freedom (n-1)	28.00
t value (α = 0.05, one tailed)	1.70	t value (α = 0.05, one tailed)	1.70
95% Upper Confidence Level (UCL)	12.25	95% Upper Confidence Level (UCL)	82.40

Residential Lot	Confirmation Sample ID	Date	As Result (ppm)	Pb Result (ppm)	Comment
E	B67	7/21/2011	20.00	29	
E	B68	7/21/2011	11.00	17	
E	B69	7/21/2011	13.00	17	
E	B70	7/21/2011	11.00	20	
E	B71	7/21/2011	0.00	0	Excavated to bedrock
E	B72	7/21/2011	18.00	12	
E	B73	7/21/2011	0.00	546	Excavated to bedrock
E	B74	7/21/2011	0.00	258	Excavated to bedrock
E	B75	7/27/2011	13.00	57	
E	B76	7/21/2011	14.00	25	
E	B77	7/21/2011	18.00	29	
E	B78	7/21/2011	6.00	82	
E	B79	7/21/2011	12.00	29	
E	B80	7/21/2011	0.00	29	
E	B81	8/1/2011	14.00	19	
E	B82	7/27/2011	18.00	25	
E	B83	7/27/2011	20.00	14	
E	B84	7/27/2011	0.00	0	Low Tide Water Line
E	B85	7/27/2011	18.00	54	
E	B86	8/3/2011	0.00	0	Excavated to bedrock
E	B87	7/27/2011	0.00	0	Excavated to Bedrock
E	B88	8/1/2011	17.00	46	
E	B89	8/1/2011	0.00	0	Excavated to Bedrock
E	B90	8/1/2011	17.00	11	
E	B91	8/1/2012	17.00	20	
E	B92	8/2/2011	13.00	24	
E	B93	8/2/2011	0.00	0	Excavated to Bedrock
E	B94	8/2/2011	0.00	0	Excavated to Bedrock
E	S81	7/27/2011	14.00	46	

NOTE: This confirmation sample data was provided by Charter in their 2011 Interim Remediation Report.

APPENDIX C

ORE PAD
CONFIRMATION SAMPLE RESULT TABLES

Callahan Mine Superfund Site, Brooksville Maine

Operable Unit 1 Remediation Sampling and Analysis

Ore Pad Remediation - Confirmation Samples and Statistical Analysis

Statistical Analaysis for Pb		Statistical Analysis for As	
Number of results (n)	206.00	Number of results (n)	206.00
Mean (μ)	109.33	Mean (μ)	12.24
Standard deviation (s)	201.23	Standard deviation (s)	10.12
Standard Error (s_μ)	14.02	Standard Error (s_μ)	0.70
Degrees of Freedom (n-1)	205.00	Degrees of Freedom (n-1)	205.00
t value (α = 0.05, one tailed)	1.65	t value (α = 0.05, one tailed)	1.65
95% Upper Confidence Level (UCL)	132.50	95% Upper Confidence Level (UCL)	13.40

Ore Pad Metals Sample ID	Surface Samples		
	Date Analyzed	Results Pb (mg/Kg)	Results As (mg/Kg)
OPRM01	11/2/2011	63	8
OPRM02	11/2/2011	126	<9
OPRM03	11/2/2011	48	10
OPRM04	11/2/2011	33	7
OPRM05	11/2/2011	18	8
OPRM06	11/2/2011	24	18
OPRM07	11/2/2011	42	28
OPRM08	11/2/2011	39	11
OPRM09	11/2/2011	158	16
OPRM10	11/2/2011	75	14
OPRM11	11/2/2011	29	<5
OPRM12	11/2/2011	37	7
OPRM13	11/2/2011	141	13
OPRM14	11/2/2011	43	10
OPRM15	11/2/2011	19	9
OPRM16	11/2/2011	20	11
OPRM17	11/2/2011	17	9
OPRM18	11/2/2011	23	8
OPRM19	11/2/2011	45	10
OPRM20	11/2/2011	24	8
OPRM21	11/3/2011	38	8
OPRM22	11/3/2011	32	9
OPRM23	11/3/2011	44	<6
OPRM24	11/3/2011	26	6
OPRM25	11/3/2011	68	<7
OPRM26	11/3/2011	21	6
OPRM27	11/3/2011	35	11
OPRM28	11/3/2011	38	15
OPRM29	11/3/2011	21	8
OPRM30	11/3/2011	14	6

Callahan Mine Superfund Site, Brooksville Maine

Operable Unit 1 Remediation Sampling and Analysis

Ore Pad Remediation - Confirmation Samples and Statistical Analysis

Statistical Analaysis for Pb		Statistical Analysis for As	
Number of results (n)	206.00	Number of results (n)	206.00
Mean (μ)	109.33	Mean (μ)	12.24
Standard deviation (s)	201.23	Standard deviation (s)	10.12
Standard Error (s_μ)	14.02	Standard Error (s_μ)	0.70
Degrees of Freedom (n-1)	205.00	Degrees of Freedom (n-1)	205.00
t value (α = 0.05, one tailed)	1.65	t value (α = 0.05, one tailed)	1.65
95% Upper Confidence Level (UCL)	132.50	95% Upper Confidence Level (UCL)	13.40

Ore Pad Metals Sample ID	Surface Samples		
	Date Analyzed	Results Pb (mg/Kg)	Results As (mg/Kg)
OPRM31	11/3/2011	23	7
OPRM32	11/3/2011	12	7
OPRM33	11/3/2011	19	8
OPRM34	11/3/2011	51	<7
OPRM35	11/3/2011	21	8
OPRM36	11/3/2011	23	9
OPRM37	11/3/2011	35	13
OPRM38	11/3/2011	27	<5
OPRM39	11/3/2011	32	8
OPRM40	11/3/2011	27	<6
OPRM41	11/3/2011	27	8
OPRM42	11/3/2011	15	7
OPRM43	11/3/2011	22	8
OPRM44	11/4/2011	41	7
OPRM45	11/3/2011	32	11
OPRM46	11/3/2011	36	9
OPRM47	11/3/2011	34	10
OPRM48	11/3/2011	59	7
OPRM49	11/3/2011	29	8
OPRM50	11/3/2011	20	7
OPRM51	11/4/2011	41	7
OPRM52	11/4/2011	28	6
OPRM53	11/4/2011	204	42
OPRM54	11/4/2011	22	6
OPRM55	11/4/2011	37	7
OPRM56	11/4/2011	43	9
OPRM57	11/4/2011	24	<5
OPRM58	11/4/2011	29	6
OPRM59	11/4/2011	26	8
OPRM60	11/4/2011	102	<8

Callahan Mine Superfund Site, Brooksville Maine

Operable Unit 1 Remediation Sampling and Analysis

Ore Pad Remediation - Confirmation Samples and Statistical Analysis

Statistical Analaysis for Pb		Statistical Analysis for As	
Number of results (n)	206.00	Number of results (n)	206.00
Mean (μ)	109.33	Mean (μ)	12.24
Standard deviation (s)	201.23	Standard deviation (s)	10.12
Standard Error (s_μ)	14.02	Standard Error (s_μ)	0.70
Degrees of Freedom (n-1)	205.00	Degrees of Freedom (n-1)	205.00
t value (α = 0.05, one tailed)	1.65	t value (α = 0.05, one tailed)	1.65
95% Upper Confidence Level (UCL)	132.50	95% Upper Confidence Level (UCL)	13.40

Ore Pad Metals Sample ID	Surface Samples		
	Date Analyzed	Results Pb (mg/Kg)	Results As (mg/Kg)
OPRM61	11/4/2011	35	6
OPRM62	11/4/2011	42	6
OPRM63	11/4/2011	85	11
OPRM64	11/4/2011	120	21
OPRM65	11/4/2011	153	11
OPRM66	11/4/2011	28	10
OPRM67	11/4/2011	36	6
OPRM68	11/4/2011	28	8
OPRM69	11/4/2011	49	7
OPRM70	11/4/2011	45	7
OPRM71	11/4/2011	88	<8
OPRM72	11/4/2011	40	8
OPRM73	11/4/2011	46	<6
OPRM74	11/4/2011	31	<5
OPRM75	11/4/2011	22	7
OPRM76	11/4/2011	14	10
OPRM77	11/4/2011	17	<5
OPRM78	11/4/2011	16	<5
OPRM79	11/4/2011	73	<7
OPRM80	11/4/2011	47	<7
OPRM81	11/7/2011	43	10
OPRM82	11/7/2011	68	9
OPRM83	11/7/2011	18	10
OPRM84	11/7/2011	52	<7
OPRM85	11/7/2011	191	<11
OPRM86	11/7/2011	16	19
OPRM87	11/7/2011	20	7
OPRM88	11/7/2011	82	11
OPRM89	11/7/2011	20	7
OPRM90	11/7/2011	151	11

Callahan Mine Superfund Site, Brooksville Maine

Operable Unit 1 Remediation Sampling and Analysis

Ore Pad Remediation - Confirmation Samples and Statistical Analysis

Statistical Analaysis for Pb		Statistical Analysis for As	
Number of results (n)	206.00	Number of results (n)	206.00
Mean (μ)	109.33	Mean (μ)	12.24
Standard deviation (s)	201.23	Standard deviation (s)	10.12
Standard Error (s_μ)	14.02	Standard Error (s_μ)	0.70
Degrees of Freedom (n-1)	205.00	Degrees of Freedom (n-1)	205.00
t value (α = 0.05, one tailed)	1.65	t value (α = 0.05, one tailed)	1.65
95% Upper Confidence Level (UCL)	132.50	95% Upper Confidence Level (UCL)	13.40

Ore Pad Metals Sample ID	Surface Samples		
	Date Analyzed	Results Pb (mg/Kg)	Results As (mg/Kg)
OPRM91	11/7/2011	162	12
OPRM92	11/7/2011	37	11
OPRM93	11/7/2011	23	<5
OPRM94	11/7/2011	14	5
OPRM95	11/7/2011	21	<5
OPRM96	11/7/2011	21	<5
OPRM97	11/7/2011	23	11
OPRM98	11/7/2011	120	<9
OPRM99	11/7/2011	48	8
OPRM100	11/7/2011	28	8
OPRM101	11/7/2011	182	<11
OPRM102	11/7/2011	38	<6
OPRM103	11/7/2011	69	23
OPRM104	11/7/2011	115	12
OPRM105	11/7/2011	48	<6
OPRM106	11/7/2011	97	8
OPRM107	11/7/2011	95	<8
OPRM108	11/7/2011	137	15
OPRM109	11/7/2011	344	<16
OPRM110	11/7/2011	160	<11
OPRM111	11/4/2011	270	<13
OPRM112	11/4/2011	37	9
OPRM113	11/4/2011	182	<11
OPRM114	11/4/2011	30	6
OPRM115	11/4/2011	69	<7
OPRM116	11/4/2011	82	11
OPRM117	11/4/2011	53	11
OPRM118	11/4/2011	285	<14
OPRM119	11/4/2011	20	13
OPRM120	5/22/2013	110	9

Callahan Mine Superfund Site, Brooksville Maine

Operable Unit 1 Remediation Sampling and Analysis

Ore Pad Remediation - Confirmation Samples and Statistical Analysis

Statistical Analaysis for Pb		Statistical Analysis for As	
Number of results (n)	206.00	Number of results (n)	206.00
Mean (μ)	109.33	Mean (μ)	12.24
Standard deviation (s)	201.23	Standard deviation (s)	10.12
Standard Error (s_μ)	14.02	Standard Error (s_μ)	0.70
Degrees of Freedom (n-1)	205.00	Degrees of Freedom (n-1)	205.00
t value (α = 0.05, one tailed)	1.65	t value (α = 0.05, one tailed)	1.65
95% Upper Confidence Level (UCL)	132.50	95% Upper Confidence Level (UCL)	13.40

Ore Pad Metals Sample ID	Surface Samples		
	Date Analyzed	Results Pb (mg/Kg)	Results As (mg/Kg)
OPRM121	5/22/2013	59	8
OPRM122	5/22/2013	117	<10
OPRM123	5/22/2013	141	19
OPRM124	5/22/2013	84	12
OPRM125	5/22/2013	43	<7
OPRM126	5/22/2013	135	12
OPRM127	5/22/2013	248	28
OPRM128	5/22/2013	116	<10
OPRM129	5/22/2013	232	20
OPRM130	5/22/2013	530	<7
OPRM131	5/22/2013	195	<12
OPRM132	5/22/2013	877	28
OPRM133	5/22/2013	20	10
OPRM134	5/22/2013	820	50
OPRM135	5/29/2013	836	35
OPRM136	5/29/2013	202	13
OPRM137	5/29/2013	77	<9
OPRM138	5/29/2013	277	23
OPRM139	5/29/2013	16	9
OPRM140	5/29/2013	18	10
OPRM141	5/29/2013	22	9
OPRM142	5/29/2013	24	10
OPRM143	5/29/2013	20	10
OPRM144	5/29/2013	32	7
OPRM145	5/29/2013	47	<7
OPRM146	5/29/2013	33	11
OPRM147	5/29/2013	53	<7
OPRM148	5/29/2013	18	<5
OPRM149	5/29/2013	22	8
OPRM150	5/29/2013	34	9

Callahan Mine Superfund Site, Brooksville Maine

Operable Unit 1 Remediation Sampling and Analysis

Ore Pad Remediation - Confirmation Samples and Statistical Analysis

Statistical Analaysis for Pb		Statistical Analysis for As	
Number of results (n)	206.00	Number of results (n)	206.00
Mean (μ)	109.33	Mean (μ)	12.24
Standard deviation (s)	201.23	Standard deviation (s)	10.12
Standard Error (s_μ)	14.02	Standard Error (s_μ)	0.70
Degrees of Freedom (n-1)	205.00	Degrees of Freedom (n-1)	205.00
t value (α = 0.05, one tailed)	1.65	t value (α = 0.05, one tailed)	1.65
95% Upper Confidence Level (UCL)	132.50	95% Upper Confidence Level (UCL)	13.40

Ore Pad Metals Sample ID	Surface Samples		
	Date Analyzed	Results Pb (mg/Kg)	Results As (mg/Kg)
OPRM151	5/29/2013	158	15
OPRM152	5/29/2013	25	9
OPRM153	5/29/2013	44	8
OPRM154	5/29/2013	22	10
OPRM155	5/29/2013	68	<6
OPRM156	5/29/2013	31	8
OPRM157	5/29/2013	19	7
OPRM158	5/29/2013	27	14
OPRM159	5/29/2013	77	10
OPRM160	5/29/2013	33	<6
OPRM161	5/29/2013	27	7
OPRM162	5/29/2013	51	8
OPRM163	5/29/2013	187	<12
OPRM164	5/29/2013	61	9
OPRM165	5/29/2013	37	<6
OPRM166	5/29/2013	69	13
OPRM167	5/29/2013	165	<12
OPRM168	5/29/2013	38	9
OPRM169	5/29/2013	110	11
OPRM170	5/29/2013	189	<12
OPRM171	5/29/2013	52	8
OPRM172	5/29/2013	158	12
OPRM173	5/29/2013	93	<9
OPRM174	5/29/2013	129	<11
OPRM175	5/29/2013	35	11
OPRM176	5/22/2013	89	12
OPRM177	5/22/2013	62	10
OPRM178	5/22/2013	62	10
OPRM179	5/22/2013	41	7
OPRM180	5/22/2013	23	<6

Callahan Mine Superfund Site, Brooksville Maine

Operable Unit 1 Remediation Sampling and Analysis

Ore Pad Remediation - Confirmation Samples and Statistical Analysis

Statistical Analaysis for Pb		Statistical Analysis for As	
Number of results (n)	**206.00**	**Number of results (n)**	**206.00**
Mean (μ)	**109.33**	**Mean (μ)**	**12.24**
Standard deviation (s)	**201.23**	**Standard deviation (s)**	**10.12**
Standard Error (s_μ)	**14.02**	**Standard Error (s_μ)**	**0.70**
Degrees of Freedom (n-1)	**205.00**	**Degrees of Freedom (n-1)**	**205.00**
t value (α = 0.05, one tailed)	**1.65**	**t value (α = 0.05, one tailed)**	**1.65**
95% Upper Confidence Level (UCL)	**132.50**	**95% Upper Confidence Level (UCL)**	**13.40**

Ore Pad Metals Sample ID	Surface Samples		
	Date Analyzed	Results Pb (mg/Kg)	Results As (mg/Kg)
OPRM181	5/22/2013	581	<21
OPRM182	5/22/2013	1605	<39
OPRM183	5/22/2013	584	54
OPRM184	5/22/2013	582	32
OPRM185	5/22/2013	43	11
OPRM186	5/22/2013	133	15
OPRM187	5/22/2013	216	14
OPRM188	5/22/2013	218	<13
OPRM189	5/22/2013	451	21
OPRM190	5/29/2013	79	<8
OPRM191	5/29/2013	228	<14
OPRM192	5/29/2013	76	<9
OPRM193	5/29/2013	164	15
OPRM194	5/29/2013	426	24
OPRM195	5/29/2013	525	29
OPRM196	5/29/2013	1557	93
OPRM197	5/29/2013	42	10
OPRM198	5/29/2013	24	10
OPRM199	5/29/2013	35	8
OPRM 200	5/29/2013	18	10
OPRM201	5/29/2013	14	5
OPRM202	5/29/2013	67	10
OPRM203	5/29/2013	79	<9
OPRM204	5/29/2013	72	<8
OPRM205	5/29/2013	27	9
OPRM 206	5/29/2013	48	11

APPENDIX D

MINE OPERATIONS
CONFIRMATION SAMPLE RESULT TABLES

Callahan Mine Superfund Site, Brooksville Maine

Operable Unit 1

2012-2013 Zone 1-4 Confirmation Sampling Results

Confirmation Sample ID	Surface Sample		
	Date	Total PCB Result (mg/kg)	Dup. Total PCB Result (mg/kg)
cr1001	9/19/12	<2	
cs1002	9/24/12	ND	
cs1003	9/24/12	0.80	
cs1-1004	7/25/13	<0.3	
cs1005	9/24/12	ND	
cs1006	9/24/12	ND	
cs1007	9/24/12	0.50	
cs1008	9/24/12	0.20	
cs1009	9/24/12	0.50	
cr2-1010	10/4/12	ND	
cs1011	9/26/12	ND	
cr1-1012	10/4/12	0.70	
cr1-1013	10/2/12	ND	
cs1014	9/28/12	ND	
cs1015	9/26/12	ND	
cs1016	9/26/12	ND	
cs1-1017	7/25/13	<0.3	
cr1-1018	9/27/12	0.20	
cs1019	9/24/12	0.10	
cs1020	9/24/12	0.80	
cs1021	9/28/12	0.20	
cs1022	9/28/12	0.90	1.00
cr3-1023	10/2/12	ND	
cs1024	9/24/12	ND	
cr1-1025	9/27/12	ND	
cs1026	9/28/12	0.50	
cr1-1027	10/2/12	ND	
cr1-1028	9/28/12	0.70	
cs1029	9/24/12	ND	
cr3-1030	10/4/12	0.10	0.20
cr1-1031	10/4/12	0.60	
cr3-1032	10/3/12	ND	
cr1-1033	9/27/12	0.50	
cs1-1034	7/25/13	<0.3	
cr1-1035	9/27/12	0.30	
cr1-1036	9/27/12	0.10	
cs1-1037	7/25/13	<0.3	

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2012-2013 Zone 1-4 Confirmation Sampling Results

Confirmation Sample ID	Surface Sample		
	Date	Total PCB Result (mg/kg)	Dup. Total PCB Result (mg/kg)
cr1-1038	10/2/12	0.10	
cr1-1039	10/4/12	0.20	
cs1-1040	7/25/13	<0.3	
cr2-1041	10/4/12	0.30	
cr1-1042	10/4/12	ND	
cr2-1043	10/4/12	0.60	
cr3-1044	10/4/12	0.60	
cr5-1045	10/4/12	0.20	
cr1046	9/26/12	ND	
cr1-1047	9/27/12	ND	
cr1-1048	9/27/12	ND	
cr1-1049	9/27/12	0.50	
cr2-1050	10/2/12	ND	
cr1051	9/28/12	ND	
cr1-1052	9/27/12	ND	
cr1-1053	10/2/12	0.40	
cr1-1054	10/2/12	ND	
cr4-1055	10/4/12	0.70	
cr1-1056	10/4/12	0.70	
cr2-1057	10/4/12	ND	
cr1-1058	10/2/12	0.50	0.40
cr1-1059	10/2/12	0.80	
cs1060	9/26/12	0.80	
cs1-1061	7/25/13	<0.3	
cr1-1062	10/2/12	0.30	
cs1063	9/26/12	ND	
cr1-1064	10/2/12	0.40	
cr2-1065	10/2/12	0.40	
cr1-1066	10/4/12	0.10	
cr1-1067	10/4/12	0.60	
cr1-1068	10/4/12	0.50	
cs1069	9/28/12	0.20	
cs1-1070	7/25/13	0.20	
cr1-1071	9/27/12	ND	
cs1072	9/25/12	0.20	
cr1-1073	9/28/12	ND	
cr1-1074	9/27/12	ND	

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2012-2013 Zone 1-4 Confirmation Sampling Results

Confirmation Sample ID	Surface Sample		
	Date	Total PCB Result (mg/kg)	Dup. Total PCB Result (mg/kg)
cr1-1075	10/4/12	0.40	
cs1-1076	7/25/13	0.30	
cr2-1077	10/2/12	ND	
cr2-1078	10/4/12	0.20	
cr1-1079	10/2/12	0.30	
cr1-1080	10/2/12	0.10	
cr2-1081	10/4/12	0.20	
cr1-1082	10/4/12	ND	
cr3-1083	10/4/12	ND	
cr2-1084	10/2/12	0.90	
cr1-1085	10/2/12	0.50	
cr2-1086	10/2/12	ND	
cr2-1087	10/2/12	ND	
cr3-1088	10/2/12	0.50	
cr2-1089	10/2/12	0.30	
cr1-1090	10/2/12	ND	
cs1-1091	7/25/13	2.70	
cr1-1092	10/2/12	ND	
cr1-1093	9/27/12	0.50	
cr1-1094	10/4/12	0.40	
cr1-1095	9/27/12	0.30	0.40
cr3-1096	10/4/12	0.20	
cs1097	9/26/12	0.10	
cr1-1098	10/2/12	1.00	
cr2-1099	10/4/12	0.40	
cs1-1100	7/25/13	0.10	
cr1-1101	10/2/12	0.50	
cs1102	10/2/12	ND	
cs1103	10/2/12	0.80	
cs1104	10/2/12	0.40	
cs1105	9/28/12	0.20	
cs1-1106	7/25/13	0.40	
cr2-1107	10/2/12	0.40	
cr2-1108	10/2/12	ND	
cr1-1109	9/27/12	0.40	
cr1-1110	9/27/12	0.70	
cs1111	9/27/12	ND	

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Confirmation Sample ID	Surface Sample		
	Date	Total PCB Result (mg/kg)	Dup. Total PCB Result (mg/kg)
cs1-1112	7/25/13	<0.3	
cr1-1113	9/27/12	0.60	
cr2-1114	10/2/12	ND	
cr1-1115	9/27/12	ND	
cr2-1116	10/2/12	0.40	
cs1117	10/2/12	0.40	
cs1119	10/2/12	1.00	
cs1120	10/2/12	ND	
cs1121	10/2/12	0.20	
cr2-1122	10/3/12	0.30	
cs1-1123	7/25/13	0.80	
cr2-1124	10/2/12	0.20	
cr2-1125	10/2/12	0.20	
cr1-1126	9/27/12	ND	
cr1-1127	9/27/12	0.50	
CS1-1127	7/25/13	-	
cr1-1128	9/27/12	0.20	
cs1129	9/27/12	ND	
cr1-1130	9/27/12	ND	
cr1-1131	9/27/12	0.10	
cs1-1132	7/25/13	1.30	
cs1133	9/27/12	0.30	
cs1134	9/27/12	0.20	
cr1-1135	10/2/12	0.20	
cr1-1136	10/3/12	0.50	
cr1-1137	10/3/12	ND	
cs1-1138	7/25/13	0.20	
cs1139	9/27/12	0.20	
cs1140	9/27/12	0.60	
cr1-1141	9/27/12	ND	
cs1142	9/28/12	0.80	
cr1-1142	9/27/12	0.10	
cs1-1143	7/25/13	0.60	
cs1-1144	7/25/13	<0.3	
cs1145	9/27/12	0.20	
cs1146	9/27/12	0.20	
cs1147	10/3/12	ND	

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Confirmation Sample ID	Surface Sample		
	Date	Total PCB Result (mg/kg)	Dup. Total PCB Result (mg/kg)
cs1-1148	7/25/13	0.30	
cs1149	10/3/12	0.80	
cs1150	9/26/12	0.20	
cr1-1151	10/4/12	0.30	
cr1-1152	10/3/12	0.10	
cs1153	9/26/12	0.70	
cs1-1154	7/25/13	<0.3	
cs1155	9/26/12	0.20	0.20
cs1156	9/26/12	0.10	
cs1-1157	7/25/13	<0.3	<0.3
cs1158	9/26/12	0.40	
cs1159	10/4/12	ND	
cr5-2001	11/1/12	0.40	
cs1-2002	7/25/13	<0.3	
cs2003	10/23/12	ND	
cs2004	10/23/12	ND	
cs2005	10/23/12	ND	
cs2006	10/23/12	ND	
cs1-2007	7/25/13	0.60	
cs2008	10/24/12	ND	ND
cs2009	10/25/12	ND	
cs2010	10/24/12	ND	
cs2011	10/24/12	ND	
cs2012	10/23/12	0.30	
cs2013	10/25/12	0.40	
cs2014	10/24/12	ND	
cs2015	10/24/12	ND	
cs2016	10/24/12	0.20	
cs2017	10/24/12	ND	
cs2018	10/24/12	ND	
cs2019	10/24/12	0.30	
cs1-2020	7/25/13	0.30	
cs2021	10/24/12	0.40	
cs2022	10/26/12	1.70	
cs2023	10/24/12	ND	
cs2024	10/24/12	ND	
cs1-2025	7/25/13	<0.3	

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Confirmation Sample ID	Surface Sample		
	Date	Total PCB Result (mg/kg)	Dup. Total PCB Result (mg/kg)
cs2026	10/24/12	0.90	
cr1-2027	10/30/12	ND	
cr1-2028	10/30/12	0.50	
cs2029	10/24/12	1.00	
cr1-2030	10/30/12	ND	
cs2031	10/25/12	ND	
cs2032	10/24/12	0.20	
cr1-2033	10/30/12	ND	
cr2-2034	10/31/12	0.30	
cr1-2035	10/22/12	ND	
cr1-2036	10/30/12	ND	
cr1-2037	10/22/12	0.40	
cs2038	10/25/12	ND	
cr6-2039	11/1/12	ND	
cs2040	10/25/12	ND	
cs2041	10/25/12	ND	
cs2042	10/25/12	0.50	
cs2043	10/25/12	0.50	
cs2044	10/25/12	0.20	
cr1-2045	10/30/12	ND	ND
cr2-2046	10/31/12	0.40	
cs2047	10/23/12	ND	
cs2048	10/24/12	ND	
cr1-2049	10/31/12	ND	
cr1-2050	10/30/12	0.90	
cs2051	10/25/12	0.40	
cr1-2052	10/30/12	0.70	
cs1-2053	7/25/13	0.20	
cr4-2054	11/1/12	ND	
cs2055	10/23/12	ND	
cs2056	10/22/12	ND	
cs2057	10/22/12	ND	
cs2058	10/22/12	ND	
cs2059	10/22/12	ND	
cs2060	10/22/12	ND	
cs2061	10/22/12	ND	
cs2062	10/22/12	ND	

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Confirmation Sample ID	Surface Sample		
	Date	Total PCB Result (mg/kg)	Dup. Total PCB Result (mg/kg)
cs1-2063	7/25/13	<0.3	
cs2064	10/23/12	0.20	
cs2065	10/23/12	ND	
cs2066	10/23/12	ND	ND
cs2067	10/23/12	ND	
cs1-2068	7/25/13	<0.3	
cs2069	10/23/12	ND	
cs2070	10/23/12	ND	
cs2071	10/23/12	ND	
cs1-2072	7/25/13	0.30	
cs2073	10/22/12	ND	
cs2074	10/22/12	ND	
cs1-2075	7/25/13	<0.3	
cs2076	10/23/12	ND	
cs2077	10/23/12	ND	
cs2078	10/23/12	ND	
cs2079	10/15/12	ND	
cs2080	10/23/12	ND	
cs2081	10/15/12	ND	
cs2082	10/23/12	ND	ND
cs2083	10/15/12	ND	
cs2084	10/23/12	ND	
cs2085	10/23/12	0.70	
cs2086	10/23/12	1.00	
cr1-2087	10/30/12	0.60	
cs2088	10/23/12	0.70	
cs2089	10/15/12	ND	
cr1-2090	10/30/12	ND	
cs2091	10/23/12	ND	
cr1-2092	10/23/12	ND	
cs2093	10/15/12	ND	
cs2094	10/23/12	0.90	
cs2095	10/23/12	ND	
cs2096	10/23/12	ND	
cs2097	10/23/12	ND	
cs2098	10/15/12	ND	
cr1-2099	10/30/12	ND	ND

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Confirmation Sample ID	Surface Sample		
	Date	Total PCB Result (mg/kg)	Dup. Total PCB Result (mg/kg)
cr1-2100	10/30/12	0.20	
cr1-2101	10/30/12	ND	
cr2-2102	10/30/12	ND	
cs2103	10/24/12	ND	
cs2104	10/24/12	1.00	
cr1-2105	10/30/12	ND	
cr1-2106	10/30/12	1.00	
cs2107	10/24/12	0.20	
cs2108	10/15/12	ND	
cs1-2109	7/25/13	<0.3	
cr1-2110	10/30/12	ND	
cr1-2111	10/30/12	ND	
cr1-2112	10/30/12	ND	
cr1-2113	10/30/12	ND	
cr1-2114	10/30/12	ND	
cs2115	10/15/12	ND	
cs2116	10/24/12	ND	
cs2117	10/24/12	ND	
cs2118	10/24/12	0.20	
cs2119	10/24/12	ND	
cs1-2120	7/25/13	<0.3	
cr1-2121	10/30/12	ND	
cr1-2122	10/30/12	0.70	
cs2123	10/24/12	0.30	
cs2124	10/24/12	0.70	
cs2125	10/24/12	0.20	ND
cs2126	10/24/12	ND	
cs1-2127	7/25/13	<0.3	
cs2128	10/23/12	ND	
cr1-2129	10/22/12	ND	ND
cs2130	10/22/12	ND	
cs2131	10/22/12	0.80	
cs2132	10/22/12	ND	
cs2133	10/23/12	0.50	0.70
cs2134	10/23/12	0.80	
cs1-2135	7/25/13	<0.3	
cs2136	10/23/12	ND	

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Confirmation Sample ID	Surface Sample		
	Date	Total PCB Result (mg/kg)	Dup. Total PCB Result (mg/kg)
cs2137	10/23/12	ND	
cr1-2138	10/23/12	0.30	
cs2139	10/23/12	ND	
cs2140	10/23/12	ND	
cs2141	10/23/12	ND	ND
cs2142	10/24/12	0.80	
cs2143	10/24/12	ND	
cs1-2144	7/25/13	<0.3	
cs2145	10/24/12	ND	
cs2146	10/24/12	ND	ND
cs2147	10/24/12	ND	
cs2148	10/24/12	ND	
cs1-2149	7/25/13	0.70	
cs2150	10/23/12	ND	
cs1-2151	7/25/13	<0.3	
cs2152	10/24/12	ND	
cs2153	10/24/12	0.20	
cs2154	10/23/12	ND	
cs1-2155	7/25/13	0.30	
cs2156	10/23/12	0.20	
cs2157	10/22/12	ND	
cs1-2158	7/25/13	5.70	
cr2-2159	10/23/12	0.60	
cs2160	10/22/12	0.30	
cs2161	10/22/12	0.30	
cs1-2162	7/25/13	<0.3	<0.3
cr1-2163	10/23/12	ND	
cs2164	10/22/12	0.40	
cs2165	10/22/12	0.20	
cr1-2167	10/23/12	ND	
cr3-2168	10/30/12	ND	
cr4-2169	10/31/12	0.90	
cs1-2170	7/25/13	1.10	
cs2171	10/22/12	0.60	
cr5-3001	-	Bedrock	
cr4-3002	7/30/13	0.18	
cr2-3003	7/30/13	0.08	

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Confirmation Sample ID	Surface Sample		
	Date	Total PCB Result (mg/kg)	Dup. Total PCB Result (mg/kg)
cs3004	-	Bedrock	
cs3005	-	Bedrock	
cs3006	6/28/13	0.15	
cr2-3007	7/25/13	0.90	
cr2-3008	7/30/13	0.42	
cr1-3009	-	Bedrock	
cr1-3010	7/24/13	0.20	
cr1-3011	7/24/13	<0.3	
cr4-3012	7/30/13	0.09	
cr1-3013	7/25/13	0.20	
cr6-3014	7/30/13	0.08	
cr2-3015	7/23/13	0.20	
cr8-3016	8/2/13	0.09	
cr6-3017	7/30/13	0.51	
cr5-3018	7/30/13	0.07	
cr5-3019	7/30/13	0.08	
cr5-3020	7/24/13	<0.7	
cr6-3021	7/24/13	<0.3	
cr2-3022	7/25/13	<0.6	
cr5-3023	7/16/13	<0.3	
cr8-3024	7/24/13	0.20	
cr6-3025	7/30/13	0.23	
cr4-3026	7/23/13	0.70	
cs3027	-	Bedrock	
cr1-3028	-	Bedrock	
cr1-3029	6/20/13	0.30	0.60
cr2-3030	6/25/13	0.20	
cr1-3031	6/20/13	0.10	
cr3-3032	6/4/13	0.60	
cr2-3033	-	Bedrock	
cr2-3034	6/26/13	<0.1	
cr2-3035	6/12/13	4.70	
cr3-3036	6/17/13	0.50	
cr4-3037	7/16/13	<0.4	
cr4-3038	-	Bedrock	
cr4-3039	-	Bedrock	
cs-3040	-	Bedrock	

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2012-2013 Zone 1-4 Confirmation Sampling Results

Confirmation Sample ID	Surface Sample		
	Date	Total PCB Result (mg/kg)	Dup. Total PCB Result (mg/kg)
cr3-3041	-	Bedrock	
cr4-3042	-	Bedrock	
cr4-3043	-	Bedrock	
cr2-3044	7/16/13	<0.3	
cr4-3045	7/2/13	0.60	
cr1-3046	6/26/13	0.20	
cr1-3047	6/26/13	0.20	
cr1-3048	6/26/13	1.00	
cr1-3049	-	Bedrock	
cr1-3050	6/25/13	<0.1	
cr2-3051	6/4/13	9.40	
cr2-3052	-	Bedrock	
cr2-3053	-	Bedrock	
cr3-3054	6/11/13	0.90	
cr1-3055	6/11/13	0.60	
cr2-3056	-	Bedrock	
cr2-3057	-	Bedrock	
cs3058	-	Bedrock	
cr3-3059	-	Bedrock	
cr1-3060	-	Bedrock	
cr1-3061	-	Bedrock	
cr2-3062	-	Bedrock	
cr6-3063	7/18/13	<0.3	
cr9-3064	7/25/13	<0.3	
cr7-3065	-	Bedrock	
cr3-3066	-	Bedrock	
cr2-3067	-	Bedrock	
cr4-3068	-	Bedrock	
cr4-3069	-	Bedrock	
cr5-3070	7/23/13	<0.3	
cr1-3071	7/17/13	0.20	
cr5-3072	7/23/13	0.30	
cr4-3073	7/17/13	0.60	
cr5-3074	7/18/13	1.00	
cr5-3075	-	Bedrock	
cr1-3076	-	Bedrock	
cr2-3077	-	Bedrock	

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Confirmation Sample ID	Surface Sample		
	Date	Total PCB Result (mg/kg)	Dup. Total PCB Result (mg/kg)
cr2-3078	6/11/13	2.40	
cr1-3079	-	Bedrock	
cr3-3080	-	Bedrock	
cs3081	-	Bedrock	
cr2-3082	6/27/13	0.36	
cr2-3083	-	Bedrock	
cr1-3084	-	Bedrock	
cr1-3085	-	Bedrock	
cr3-3086	7/16/13	0.50	
cr2-3087	7/16/13	<0.3	
cr2-3088	7/16/13	0.80	0.80
cr3-3089	7/17/13	0.30	0.20
cr4-3090	7/18/13	0.60	
cr8-3091	7/17/13	<0.3	
cr5-3092	-	Bedrock	
cr3-3093	7/2/13	0.74	
cr1-3094	6/26/13	0.40	
cr2-3095	7/16/13	<0.3	
cr4-3096	7/23/13	0.90	
cr5-3097	7/25/13	<0.3	
cr7-3098	-	Bedrock	
cr3-3099	-	Bedrock	
cs3100	6/27/13	0.48	
cr1-3101	7/17/13	<0.3	
cs3102	6/27/13	0.17	
cr4-3103	7/23/13	0.70	
cs3104	7/10/13	0.40	
cs3105	7/2/13	<0.1	
cr1-3106	7/2/13	0.46	
cr3-3107	7/16/13	0.60	
cr6-3108	-	Bedrock	
cs3109	-	Bedrock	
cr1-3110	7/18/13	0.80	
cr1-3111	7/18/13	0.40	
cr1-3112	7/22/13	0.50	
cr1-3113	7/18/13	0.10	
cr13114	7/17/13	<0.3	

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2012-2013 Zone 1-4 Confirmation Sampling Results

Confirmation Sample ID	Surface Sample		
	Date	Total PCB Result (mg/kg)	Dup. Total PCB Result (mg/kg)
cr1-3115	7/17/13	<0.3	
cr1-3116	7/11/13	<0.3	
cr1-3117	7/11/13	0.20	
cr2-3118	7/18/13	0.40	
cr5-3119	-	Bedrock	
cr1-3120	7/11/13	0.70	0.60
cr2-3121	7/18/13	0.30	
cr3-3122	7/23/13	0.40	
cr1-3123	7/11/13	0.80	
cr1-3124	7/11/13	<0.3	
cs3125	5/29/13	0.40	
cs3126	6/27/13	0.69	
cr1-3127	7/11/13	0.60	
cr1-3128	7/11/13	1.00	
cs3129	6/27/13	<0.1	
cs3130	6/27/13	3.30	
cr1-3131	-	Bedrock	
cs4001	6/4/13	<0.3	
cs4002	8/21/13	0.33	
cr1-4003	8/29/13	0.08	
cs4004	8/21/13	0.11	
cs4005	5/28/13	0.90	
cs4006	-	Bedrock	
cs3-4007	-	Bedrock	
cs4008	-	Bedrock	
cs4009	-	Bedrock	
cs4010	6/28/13	<0.1	
cs4011	-	Bedrock	
cs4012	-	Bedrock	
cs4013	8/7/13	0.93	
cr1-4014	8/9/13	0.34	
cs4015	7/11/13	1.80	1.70
cr1-4016	6/5/13	<0.5	
cr1-4017	6/5/13	0.20	
cr1-4018	6/4/13	0.20	
cr1-4019	6/5/13	<0.5	
cr1-4020	6/5/13	<0.3	

Callahan Mine Superfund Site, Brooksville Maine

Operable Unit 1

2012-2013 Zone 1-4 Confirmation Sampling Results

Confirmation Sample ID	Surface Sample		
	Date	Total PCB Result (mg/kg)	Dup. Total PCB Result (mg/kg)
cr1-4021	6/5/13	<0.3	
cr2-4022	8/7/13	0.09	
cr1-4023	-	Bedrock	
cr2-4024	-	Bedrock	
cs4025	8/21/13	<0.1	
cr2-4026	8/7/13	0.10	
cs4027	6/4/13	0.50	
cs4028	5/29/13	0.60	
cs4029	5/28/13	0.90	
cr1-4030	-	Slab	
cs4031	5/29/13	0.60	
cr2-4032	6/17/13	0.50	
cr2-4033	7/30/13	0.28	
cr1-4034	6/5/13	0.70	
cr2-4035	6/5/13	<0.3	
cr2-4036	7/31/13	0.70	
cr2-4037	-	Bedrock	
cr3-4038	8/13/13	0.90	
cr2-4039	-	Bedrock	
cr3-4040	-	Bedrock	
cr1-4041	6/5/13	<0.3	
cr1-4042	6/5/13	0.60	
cr1-4043	6/5/13	0.50	
cr3-4044	8/9/13	0.08	
cr5-4045	-	Bedrock	
cr5-4046	-	Bedrock	
cr3-4047	8/13/13	0.40	
cr3-4048	8/7/13	0.09	
cr2-4049	7/31/13	0.43	
cr1-4050	6/5/13	0.50	
cr2-4051	7/30/13	0.10	
cr2-4052	7/30/13	0.09	
cs4053	-	Slab	
cs4054	-	Slab	
cr1-4055	6/4/13	0.60	
cr1-4056	6/4/13	<0.3	
cr4-4057	-	Bedrock	

Callahan Mine Superfund Site, Brooksville Maine

Operable Unit 1

2012-2013 Zone 1-4 Confirmation Sampling Results

Confirmation Sample ID	Surface Sample		
	Date	Total PCB Result (mg/kg)	Dup. Total PCB Result (mg/kg)
cr2-4058	6/4/13	<0.3	
cr1-4059	6/4/13	<0.3	
cr1-4060	6/4/13	<0.3	
cr2-4061	8/9/13	0.57	
cr1-4062	6/5/13	0.20	
cr2-4063	6/5/13	0.50	
cr1-4064	6/4/13	1.00	
cs4065	11/7/12	<1	
cr2-4066	6/4/13	<0.3	
cr1-4067	6/4/13	<0.3	
cr2-4068	7/30/13	0.54	
cr1-4069	6/4/13	0.20	
cr1-4070	6/4/13	0.90	
cr3-4071	8/13/13	0.70	
cr3-4072	8/13/13	0.90	
cr1-4073	8/7/13	0.89	
cs4074	5/20/13	<0.5	
cr2-4075	-	Bedrock	
cr3-4076	-	Bedrock	
cr4-4077	-	Bedrock	
cs4078	-	Bedrock	
cr2-4079	-	Bedrock	
cs4080	-	Bedrock	
cr3-4082	8/15/13	0.20	
cr2-4083	6/4/13	0.20	
cr2-4084	6/4/13	0.70	
cr5-4085	-	Bedrock	
cr6-4086	-	Bedrock	
cs4087	6/28/13	0.56	
cr4-4088	8/13/13	0.40	
cr6-4089	-	Bedrock	
cr6-4090	-	Bedrock	
cr2-4091	6/17/13	0.10	
cr2-4092	6/4/13	1.40	
cr2-4093	6/4/13	<0.3	
cr2-4094	6/4/13	0.20	
cs4095	-	Bedrock	

Callahan Mine Superfund Site, Brooksville Maine

Operable Unit 1

2012-2013 Zone 1-4 Confirmation Sampling Results

Confirmation Sample ID	Surface Sample		
	Date	Total PCB Result (mg/kg)	Dup. Total PCB Result (mg/kg)
cr2-4096	-	Bedrock	
cr4-4097	-	Bedrock	
cr3-4098	-	Bedrock	
cr3-4099	-	Bedrock	
cr1-4100	8/13/13	0.70	
cr1-4101	8/13/13	<0.3	
cr5-4102	-	Bedrock	
cs4103	7/10/13	0.50	
cr5-4104	-	Bedrock	
cr5-4105	-	Bedrock	
cr3-4106	6/28/13	0.28	
cr2-4107	-	Bedrock	
cr1-4108	5/22/13	0.40	
cr1-4109	5/22/13	<0.5	
cr5-4110	-	Bedrock	
cr7-4111	-	Bedrock	
cr6-4112	-	Bedrock	
cr2-4113	7/11/13	<0.3	
cr2-4114	8/9/13	0.14	
cr2-4115	8/13/13	0.40	
cr3-4116	8/9/13	0.09	
cr4-4117	8/15/13	<0.3	
cr4-4118	7/15/13	<0.3	
cr4-4119	8/13/13	1.00	
cr3-4120	-	Bedrock	
cr2-4121	8/13/13	<0.3	
cr2-4122	8/13/13	0.50	0.60
cr1-4123	-	Bedrock	
cr4-4124	6/28/13	0.10	
cr3-4125	-	Bedrock	
cr5-4126	-	Bedrock	
cr3-4127	-	Bedrock	
cr3-4128	-	Bedrock	
cr1-4129	-	Bedrock	
cr7-4130	-	Bedrock	
cr4-4131	-	Bedrock	
cr2-4132	8/9/13	<0.1	

Callahan Mine Superfund Site, Brooksville Maine

Operable Unit 1

2012-2013 Zone 1-4 Confirmation Sampling Results

Confirmation Sample ID	Surface Sample		
	Date	Total PCB Result (mg/kg)	Dup. Total PCB Result (mg/kg)
cr1-4133	-	Slab	
cr3-4134	8/15/13	0.20	
cr1-4135	5/22/13	0.10	
cr2-4136	8/1/13	0.27	
cr3-4137	8/9/13	0.08	
cr3-4138	8/13/13	<0.3	
cr2-4139	8/1/13	<0.1	
cr2-4140	8/13/13	1.70	
cr2-4141	8/13/13	<0.3	
cs4142	5/20/13	<0.3	
cs4143	5/20/13	0.70	
cr5-4144	8/15/13	<0.3	
cr1-4145	-	Slab	
cr1-4146	-	Slab	
cr3-4147	8/2/13	<0.1	
cr2-4148	7/11/13	0.50	
cs4149	7/10/13	0.70	0.80
cr2-4150	8/15/13	1.00	
cs4151	8/9/13	0.09	
cr3-4152	8/9/13	0.08	
cs4153	8/2/13	0.15	
cr3-4154	8/15/13	<0.3	
cs4155	7/31/13	0.86	
cr1-4156	5/22/13	<0.5	
cs4157	5/16/13	0.30	
cs4158	5/20/13	<0.3	
cr1-4159	6/4/13	<0.5	
cr1-4160	8/1/13	0.50	
cs4161	6/19/13	<0.3	
cs4162	6/19/13	8.90	
cs4163	6/19/13	0.80	
cr3-4164	7/10/13	<0.3	
cr1-4165	6/17/13	0.20	
cs4166	5/15/13	<0.3	
cs4167	5/15/13	<0.3	
cr6-4168	8/15/13	<0.3	
cr1-4169	7/9/13	0.80	

Callahan Mine Superfund Site, Brooksville Maine

Operable Unit 1

2012-2013 Zone 1-4 Confirmation Sampling Results

Confirmation Sample ID	Surface Sample		
	Date	Total PCB Result (mg/kg)	Dup. Total PCB Result (mg/kg)
cs4170	6/19/13	0.50	
cr2-4171	8/15/13	<0.3	
cs4172	8/2/13	0.15	
cs4173	8/7/13	0.54	
cs4174	7/11/13	0.90	
cs4175	7/11/13	0.20	
cs4176	7/11/13	0.10	
cs4177	6/12/13	0.60	
cs4178	7/11/13	0.80	
cr4-4179	8/15/13	0.50	

ND: Non-Detect

Bedrock indicates that no final sample was taken at this location because it was remediated to bedrock.

Slab indicates that no final sample was taken at this location because it was remediated to a concrete slab.

Callahan Mine Superfund Site, Brooksville Maine
Operable Unit 1
Mine Operations Area Off-Site Sample Results

Confirmation Sample ID	Surface Sample												
	Date	Aroclor 1242 (mg/kg)	Aroclor 1016 (mg/kg)	Aroclor 1221 (mg/kg)	Aroclor 1232 (mg/kg)	Aroclor 1248 (mg/kg)	Aroclor 1254 (mg/kg)	Aroclor 1260 (mg/kg)	Aroclor 1262 (mg/kg)	Aroclor 1268 (mg/kg)	Dup Total PCB Result (mg/kg)	Aroclor 1248 Dup Result (mg/kg)	Aroclor 1242 Dup Result (mg/kg)
cs1-1004	7/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cr1-1012	10/4/12	0.31	ND	ND	ND	ND	ND	ND	ND	ND			
cs1014	9/28/12	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs1-1017	7/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs1021	9/28/12	0.37	ND	ND	ND	ND	ND	ND	ND	ND			
cs1022	9/28/12	1.1	ND	ND	ND	ND	ND	ND	ND	ND			1.3
cs1-1025	7/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs1-1027	7/25/13	ND	ND	ND	ND	0.08	ND	ND	ND	ND			
cr1-1031	10/4/12	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs1-1034	7/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs1-1037	7/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs1-1039	7/25/13	ND	ND	ND	ND	0.12	ND	ND	ND	ND			
cs1-1040	7/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs1-1041	7/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
cs1-1043	7/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cr1051	9/28/12	0.37	ND	ND	ND	ND	ND	ND	ND	ND			
cs1-1055	7/25/13	ND	ND	ND	ND	0.19	ND	ND	ND	ND			
cs1-1057	7/25/13	ND	ND	ND	ND	0.18	ND	ND	ND	ND			
cs1-1061	7/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs1068	9/28/12	0.44	ND	ND	ND	ND	ND	ND	ND	ND			
cr1-1068	10/4/12	0.71	ND	ND	ND	ND	ND	ND	ND	ND			
cs1-1070	7/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs1-1076	7/25/13	ND	ND	ND	ND	0.21	ND	ND	ND	ND			
cs1-1079	7/25/13	ND	ND	ND	ND	0.14	ND	ND	ND	ND			
cr3-1083	10/4/12	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs1-1089	7/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
cs1-1091	7/25/13	ND	ND	ND	ND	0.95	ND	ND	ND	ND			
cr1-1094	10/4/12	0.22	ND	ND	ND	ND	ND	ND	ND	ND			
cs1-1097	7/25/13	ND	ND	ND	ND	0.45	ND	ND	ND	ND			
cs1-1100	7/25/13	ND	ND	ND	ND	0.08	ND	ND	ND	ND			
cs1-1103	7/25/13	ND	ND	ND	ND	0.18	ND	ND	ND	ND			
cs1105	9/28/12	0.16	ND	ND	ND	ND	ND	ND	ND	ND			
cs1-1106	7/25/13	ND	ND	ND	ND	0.23	ND	ND	ND	ND			
cs1-1108	7/25/13	ND	ND	ND	ND	0.21	ND	ND	ND	ND			
cs1-1112	7/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs1-1123	7/25/13	ND	ND	ND	ND	0.5	ND	ND	ND	ND			
CS1-1127	7/25/13	ND	ND	ND	ND	0.44	ND	ND	ND	ND			
cs1-1132	7/25/13	ND	ND	ND	ND	0.56	ND	ND	ND	ND			
cs1-1138	7/25/13	0.16	ND	ND	ND	ND	ND	ND	ND	ND			
cs1142	9/28/12	0.52	ND	ND	ND	ND	ND	ND	ND	ND			
cs1-1143	7/25/13	ND	ND	ND	ND	0.19	ND	ND	ND	ND		0.29	
cs1-1144	7/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cr1-1151	10/4/12	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs1-1154	7/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			

Callahan Mine Superfund Site, Brooksville Maine
Operable Unit 1
Mine Operations Area Off-Site Sample Results

Confirmation Sample ID	Surface Sample												
	Date	Aroclor 1242 (mg/kg)	Aroclor 1016 (mg/kg)	Aroclor 1221 (mg/kg)	Aroclor 1232 (mg/kg)	Aroclor 1248 (mg/kg)	Aroclor 1254 (mg/kg)	Aroclor 1260 (mg/kg)	Aroclor 1262 (mg/kg)	Aroclor 1268 (mg/kg)	Dup Total PCB Result (mg/kg)	Aroclor 1248 Dup Result (mg/kg)	Aroclor 1242 Dup Result (mg/kg)
cs1-1157	7/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs1159	10/4/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
cs1-2002	7/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs2005	7/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs1-2007	7/25/13	ND	ND	ND	ND	0.19	ND	ND	ND	ND			
cs2018	10/24/12	0.12	ND	ND	ND	ND	ND	ND	ND	ND			
cs1-2020	7/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs1-2025	7/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cr1-2037	10/22/12	0.29	ND	ND	ND	ND	ND	ND	ND	ND			
cr1-2045	10/30/12	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs2047	10/23/12	0.12	ND	ND	ND	ND	ND	ND	ND	ND			
cs1-2053	7/25/13	ND	ND	ND	ND	0.19	ND	ND	ND	ND			
cs1-2063	7/25/13	ND	ND	ND	ND	0.12	ND	ND	ND	ND			
cs1-2068	7/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs1-2072	7/25/13	ND	ND	ND	ND	0.1	ND	ND	ND	ND			
cs1-2075	7/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs2076	10/23/12	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs2085	10/23/12	0.34	ND	ND	ND	ND	ND	ND	ND	ND			
cs2094	10/23/12	0.33	ND	ND	ND	ND	ND	ND	ND	ND			0.33
cs1-2109	7/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
cr1-2114	10/30/12	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs1-2120	7/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs1-2127	7/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs1-2135	7/25/13	ND	ND	ND	ND	0.09	ND	ND	ND	ND			
cs1-2144	7/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs1-2149	7/25/13	ND	ND	ND	ND	0.37	ND	ND	ND	ND			
cs1-2151	7/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs1-2155	7/25/13	ND	ND	ND	ND	0.18	ND	ND	ND	ND			
cs2156	10/23/12	2.9	ND	ND	ND	ND	ND	ND	ND	ND			
cs1-2158	7/25/13	ND	ND	ND	ND	2.1	ND	ND	ND	ND			
cs2160	10/22/12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
cs1-2162	7/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs2165	10/22/12	0.2	ND	ND	ND	ND	ND	ND	ND	ND			
cs1-2170	7/25/13	ND	ND	ND	ND	0.5	ND	ND	ND	ND			
cs3006	6/28/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cr1-3010	7/24/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cr4-3012	7/30/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cr8-3016	8/2/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cr5-3023	7/16/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cr1-3029	6/20/13	0.33	ND	ND	ND	ND	ND	ND	ND	ND			
cr2-3030	6/25/13	ND	ND	ND	ND	0.32	ND	ND	ND	ND			
cr1-3031	6/20/13	0.28	ND	ND	ND	ND	ND	ND	ND	ND			
cr3-3036	6/17/13	0.48	ND	ND	ND	ND	ND	ND	ND	ND			
cr4-3045	7/2/13	ND	ND	ND	ND	0.69	ND	ND	ND	ND			

Callahan Mine Superfund Site, Brooksville Maine
Operable Unit 1
Mine Operations Area Off-Site Sample Results

Confirmation Sample ID	Surface Sample												
	Date	Aroclor 1242 (mg/kg)	Aroclor 1016 (mg/kg)	Aroclor 1221 (mg/kg)	Aroclor 1232 (mg/kg)	Aroclor 1248 (mg/kg)	Aroclor 1254 (mg/kg)	Aroclor 1260 (mg/kg)	Aroclor 1262 (mg/kg)	Aroclor 1268 (mg/kg)	Dup Total PCB Result (mg/kg)	Aroclor 1248 Dup Result (mg/kg)	Aroclor 1242 Dup Result (mg/kg)
cr1-3048	6/26/13	ND	ND	ND	ND	1	ND	ND	ND	ND			
cr1-3050	6/25/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cr1-3055	6/11/13	ND	ND	ND	ND	0.38	ND	ND	ND	ND			
cr1-3071	7/17/13	ND	ND	ND	ND	0.13	ND	ND	ND	ND			
cr5-3072	7/23/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cr3-3086	7/16/13	0.34	ND	ND	ND	ND	ND	ND	ND	ND			
cr2-3087	7/16/13	ND	ND	ND	ND	0.47	ND	ND	ND	ND			
cr2-3088	7/16/13	0.49	ND	ND	ND	ND	ND	ND	ND	ND			
cr3-3093	7/2/13	2	ND	ND	ND	ND	ND	ND	ND	ND			
cr1-3094	6/26/13	ND	ND	ND	ND	0.14	ND	ND	ND	ND			
cs3100	6/27/13	ND	ND	ND	ND	0.41	ND	ND	ND	ND			
cs3102	6/27/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs3104	7/10/13	0.19	ND	ND	ND	ND	ND	ND	ND	ND			
cr3-3107	7/16/13	0.97	ND	ND	ND	ND	ND	ND	ND	ND			
cr1-3110	7/18/13	0.2	ND	ND	ND	ND	ND	ND	ND	ND			
cr13114	7/17/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cr1-3116	7/11/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cr1-3117	7/11/13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
cr2-3118	7/18/13	0.09	ND	ND	ND	ND	ND	ND	ND	ND			
cr1-3120	7/11/13	ND	ND	ND	ND	0.26	ND	ND	ND	ND			
cr2-3121	7/18/13	ND	ND	ND	ND	0.84	ND	ND	ND	ND			
cr1-3123	7/11/13	ND	ND	ND	ND	0.24	ND	ND	ND	ND			
cs3126	6/27/13	ND	ND	ND	ND	0.47	ND	ND	ND	ND			
cr1-3127	7/11/13	ND	ND	ND	ND	0.36	ND	ND	ND	ND			
cs3129	6/27/13	ND	ND	ND	ND	0.2	ND	ND	ND	ND			
cs4002	8/21/13	1.2	ND	ND	ND	ND	ND	ND					
cs4004	8/21/13	0.35	ND	ND	ND	ND	ND	ND					
cr2-4022	8/7/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cr2-4032	6/17/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cr2-4033	7/30/13	ND	ND	ND	ND	0.1	ND	ND	ND	ND			
cr3-4048	8/7/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cr2-4052	7/30/13	ND	ND	ND	ND	ND	ND	ND	ND				
cr1-4062	6/5/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cr1-4069	6/4/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs4074	5/20/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cr2-4084	6/4/13	ND	ND	ND	ND	0.2	ND	ND	ND	ND			
cs4087	6/28/13	ND	ND	ND	ND	0.42	ND	ND	ND	ND			
cr1-4101	8/13/13	0.23	ND	ND	ND	ND	ND	ND					
cr3-4106	6/28/13	ND	ND	ND	ND	0.18	ND	ND	ND	ND			
cr1-4109	5/22/13	0.66	ND	ND	ND	ND	ND	ND	ND	ND			
cr2-4114	8/9/13	ND	ND	ND	ND	0.04	ND	ND	ND	ND		0.26	
cr2-4121	8/13/13	ND	ND	ND	ND	ND	ND	ND					
cr4-4124	6/28/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cr2-4132	8/9/13	ND	ND	ND	ND	1.2	ND	ND	ND	ND			

Callahan Mine Superfund Site, Brooksville Maine
Operable Unit 1
Mine Operations Area Off-Site Sample Results

Confirmation Sample ID	Surface Sample												
	Date	Aroclor 1242 (mg/kg)	Aroclor 1016 (mg/kg)	Aroclor 1221 (mg/kg)	Aroclor 1232 (mg/kg)	Aroclor 1248 (mg/kg)	Aroclor 1254 (mg/kg)	Aroclor 1260 (mg/kg)	Aroclor 1262 (mg/kg)	Aroclor 1268 (mg/kg)	Dup Total PCB Result (mg/kg)	Aroclor 1248 Dup Result (mg/kg)	Aroclor 1242 Dup Result (mg/kg)
cr3-4137	8/9/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cr2-4141	8/13/13	0.21	ND	ND	ND	ND	ND	ND					
cr3-4152	8/9/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cr1-4156	5/22/13	ND	ND	ND	ND	0.15	ND	ND	ND	ND		0.08	
cr1-4159	6/4/13	ND	ND	ND	ND	0.47	ND	ND	ND	ND		0.46	
cr1-4165	6/17/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs4170	6/19/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cr2-4171	8/15/13	ND	ND	ND	ND	ND	ND	ND					
cs4172	8/2/13	ND	ND	ND	ND	ND	ND	ND	ND	ND			
cs4177	6/12/13	ND	ND	ND	ND	0.22	ND	ND	ND	ND			
CB1	4/26/2011	0.51											
CB2	4/26/2011	1.08											
CS4	4/26/2011	1.03											
DB10a	5/12/2011	0.21											
DB1a	5/12/2011	ND											
DB4a	5/12/2011	0.15											
DB5a	5/12/2011	ND											
DB7a	5/12/2011	ND											
DB8a	5/12/2011	0.10											
DS8a	5/12/2011	0.25											
DS9d	5/12/2011	ND											
EB1	4/25/2011	0.49											
EB2	4/25/2011	ND											
EB3	4/25/2011	ND											
EB4	4/25/2011	0.84											
ES1	4/25/2011	0.67											
ES7	4/25/2011	0.48											
ES8	4/25/2011	ND											
HB13LC	5/9/2011	ND											
HB15LC	5/9/2011	0.30											
HB21a	5/12/2011	0.70											
HB27LC	5/9/2011	0.73											
HB29a	5/12/2011	ND											
HB2a	5/12/2011	0.06											
HB3a	5/12/2011	ND											
HS16a	5/12/2011	ND											
HS21	5/31/2011	0.03											
HS22	5/31/2011	0.75											
HS6ALC	5/10/2011	0.95											
IB10	5/11/2011	0.12											
IB11	5/11/2011	0.11											
IB12	5/11/2011	0.08											
IB13	5/11/2011	0.08											
IB14	5/11/2011	0.65											

Callahan Mine Superfund Site, Brooksville Maine
Operable Unit 1
Mine Operations Area Off-Site Sample Results

Confirmation Sample ID	Surface Sample												
	Date	Aroclor 1242 (mg/kg)	Aroclor 1016 (mg/kg)	Aroclor 1221 (mg/kg)	Aroclor 1232 (mg/kg)	Aroclor 1248 (mg/kg)	Aroclor 1254 (mg/kg)	Aroclor 1260 (mg/kg)	Aroclor 1262 (mg/kg)	Aroclor 1268 (mg/kg)	Dup Total PCB Result (mg/kg)	Aroclor 1248 Dup Result (mg/kg)	Aroclor 1242 Dup Result (mg/kg)
IB15	5/11/2011	0.12											
IB16	5/11/2011	0.57											
IB18	5/11/2011	0.20											
IB1LC	5/9/2011	0.65											
IB21	5/11/2011	0.38											
IB22	5/11/2011	0.20											
IB23	5/11/2011	ND											
IB24	5/11/2011	0.12											
IB25	5/11/2011	0.04											
IB26	5/11/2011	0.08											
IB27	5/11/2011	0.07											
IB28	5/11/2011	ND											
IB29	5/11/2011	0.34											
IB2LC	5/9/2011	0.23											
IB30	5/11/2011	0.04											
IB31	5/11/2011	0.08											
IB32	5/11/2011	0.03											
IB33	5/12/2011	0.08											
IB3LC	5/9/2011	0.32											
IS12LC	5/9/2011	0.61											
IS18LC	5/9/2011	0.48											
IS19LC	5/9/2011	0.64											
IS2LC	5/9/2011	0.20											
IS3LC	5/9/2011	0.40											
IS4LC	5/9/2011	0.52											
IS5LC	5/9/2011	0.27											

ND: Non-Detect

CS and CR samples were collected during 2012 and 2013 during the remediation of Zones 1-4. All other sample identifiers were collected by Charter Environmental during the 2011 remedial activities within the Mine Operations Area. Off-site samples from Charter's work during 2011 that were located in areas remediated during the 2012 and 2013 remedial activities were not included in this final off-site sample list.
This list includes only off-site sample results that are associated with the final sample taken for each location.

Callahan Mine Superfund Site, Brooksville Maine

Operable Unit 1

Mine Operations Area Off-Site Sample Statistical Analysis

Statistical Analysis	
Number of results (n)	**202**
Mean (μ)	**0.272**
Standard deviation (s)	**0.372**
Standard Error (s_μ)	**0.026**
Degrees of Freedom (n-1)	**201**
t value (α = 0.05, one tailed)	**1.652**
95% Upper Confidence Level (UCL)	**0.315**

Confirmation Sample ID	Total PCB Result (mg/kg)	MDL for ND (mg/kg)	MDL for Dup ND (mg/kg)	Total PCB Result Utilized for Statistical Analysis (mg/kg)
cs1-1004	ND	0.10		0.05
cr1-1012	0.31			0.31
cs1014	ND	0.09		0.05
cs1-1017	ND	0.10		0.05
cs1021	0.37			0.37
cs1022	1.20			1.20
cs1-1025	ND	0.10		0.05
cs1-1027	0.08			0.08
cr1-1031	ND	0.09		0.05
cs1-1034	ND	0.11		0.06
cs1-1037	ND	0.12		0.06
cs1-1039	0.12			0.12
cs1-1040	ND	0.11		0.06
cs1-1041	ND	0.10	0.09	0.05
cs1-1043	ND	0.10		0.05
cr1051	0.37			0.37
cs1-1055	0.19			0.19
cs1-1057	0.18			0.18
cs1-1061	ND	0.10		0.05
cs1068	0.44			0.44
cr1-1068	0.71			0.71
cs1-1070	ND	0.07		0.04
cs1-1076	0.21			0.21
cs1-1079	0.14			0.14
cr3-1083	ND	0.10		0.05
cs1-1089	ND	0.09	0.10	0.05
cs1-1091	0.95			0.95
cr1-1094	0.22			0.22

Callahan Mine Superfund Site, Brooksville Maine

Operable Unit 1

Mine Operations Area Off-Site Sample Statistical Analysis

Statistical Analysis	
Number of results (n)	**202**
Mean (μ)	**0.272**
Standard deviation (s)	**0.372**
Standard Error (s_μ)	**0.026**
Degrees of Freedom (n-1)	**201**
t value (α = 0.05, one tailed)	**1.652**
95% Upper Confidence Level (UCL)	**0.315**

Confirmation Sample ID	Total PCB Result (mg/kg)	MDL for ND (mg/kg)	MDL for Dup ND (mg/kg)	Total PCB Result Utilized for Statistical Analysis (mg/kg)
cs1-1097	0.45			0.45
cs1-1100	0.08			0.08
cs1-1103	0.18			0.18
cs1105	0.16			0.16
cs1-1106	0.23			0.23
cs1-1108	0.21			0.21
cs1-1112	ND	0.11		0.06
cs1-1123	0.50			0.50
CS1-1127	0.44			0.44
cs1-1132	0.56			0.56
cs1-1138	0.16			0.16
cs1142	0.52			0.52
cs1-1143	0.24			0.24
cs1-1144	ND	0.11		0.06
cr1-1151	ND	0.09		0.05
cs1-1154	ND	0.10		0.05
cs1-1157	ND	0.10		0.05
cs1159	ND	0.08	0.10	0.05
cs1-2002	ND	0.09		0.05
cs2005	ND	0.06		0.03
cs1-2007	0.19			0.19
cs2018	0.12			0.12
cs1-2020	ND	0.08		0.04
cs1-2025	ND	0.09		0.05
cr1-2037	0.29			0.29
cr1-2045	ND	0.10		0.05
cs2047	0.12			0.12
cs1-2053	0.19			0.19

Callahan Mine Superfund Site, Brooksville Maine

Operable Unit 1

Mine Operations Area Off-Site Sample Statistical Analysis

Statistical Analysis	
Number of results (n)	**202**
Mean (μ)	**0.272**
Standard deviation (s)	**0.372**
Standard Error (s_μ)	**0.026**
Degrees of Freedom (n-1)	**201**
t value (α = 0.05, one tailed)	**1.652**
95% Upper Confidence Level (UCL)	**0.315**

Confirmation Sample ID	Total PCB Result (mg/kg)	MDL for ND (mg/kg)	MDL for Dup ND (mg/kg)	Total PCB Result Utilized for Statistical Analysis (mg/kg)
cs1-2063	0.12			0.12
cs1-2068	ND	0.10		0.05
cs1-2072	0.10			0.10
cs1-2075	ND	0.11		0.06
cs2076	ND	0.10		0.05
cs2085	0.34			0.34
cs2094	0.33			0.33
cs1-2109	ND	0.10	0.10	0.05
cr1-2114	ND	0.09		0.05
cs1-2120	ND	0.07		0.04
cs1-2127	ND	0.11		0.06
cs1-2135	0.09			0.09
cs1-2144	ND	0.09		0.05
cs1-2149	0.37			0.37
cs1-2151	ND	0.09		0.05
cs1-2155	0.18			0.18
cs2156	2.90			2.90
cs1-2158	2.10			2.10
cs2160	ND	0.10	0.08	0.05
cs1-2162	ND	0.10		0.05
cs2165	0.20			0.20
cs1-2170	0.50			0.50
cs3006	ND	0.10		0.05
cr1-3010	ND	0.10		0.05
cr4-3012	ND	0.14		0.07
cr8-3016	ND	0.10		0.05
cr5-3023	ND	0.10		0.05
cr1-3029	0.33			0.33

Callahan Mine Superfund Site, Brooksville Maine

Operable Unit 1

Mine Operations Area Off-Site Sample Statistical Analysis

Statistical Analysis	
Number of results (n)	**202**
Mean (μ)	**0.272**
Standard deviation (s)	**0.372**
Standard Error (s_μ)	**0.026**
Degrees of Freedom (n-1)	**201**
t value (α = 0.05, one tailed)	**1.652**
95% Upper Confidence Level (UCL)	**0.315**

Confirmation Sample ID	Total PCB Result (mg/kg)	MDL for ND (mg/kg)	MDL for Dup ND (mg/kg)	Total PCB Result Utilized for Statistical Analysis (mg/kg)
cr2-3030	0.32			0.32
cr1-3031	0.28			0.28
cr3-3036	0.48			0.48
cr4-3045	0.69			0.69
cr1-3048	1.00			1.00
cr1-3050	ND	0.09		0.05
cr1-3055	0.38			0.38
cr1-3071	0.13			0.13
cr5-3072	ND	0.09		0.05
cr3-3086	0.34			0.34
cr2-3087	0.47			0.47
cr2-3088	0.49			0.49
cr3-3093	2.00			2.00
cr1-3094	0.14			0.14
cs3100	0.41			0.41
cs3102	ND	0.09		0.05
cs3104	0.19			0.19
cr3-3107	0.97			0.97
cr1-3110	0.20			0.20
cr13114	ND	0.10		0.05
cr1-3116	ND	0.11		0.06
cr1-3117	ND	0.10	0.10	0.05
cr2-3118	0.09			0.09
cr1-3120	0.26			0.26
cr2-3121	0.84			0.84
cr1-3123	0.24			0.24
cs3126	0.47			0.47
cr1-3127	0.36			0.36

Callahan Mine Superfund Site, Brooksville Maine

Operable Unit 1

Mine Operations Area Off-Site Sample Statistical Analysis

Statistical Analysis	
Number of results (n)	**202**
Mean (μ)	**0.272**
Standard deviation (s)	**0.372**
Standard Error (s_μ)	**0.026**
Degrees of Freedom (n-1)	**201**
t value (α = 0.05, one tailed)	**1.652**
95% Upper Confidence Level (UCL)	**0.315**

Confirmation Sample ID	Total PCB Result (mg/kg)	MDL for ND (mg/kg)	MDL for Dup ND (mg/kg)	Total PCB Result Utilized for Statistical Analysis (mg/kg)
cs3129	0.20			0.20
cs4002	1.20			1.20
cs4004	0.35			0.35
cr2-4022	ND	0.11		0.06
cr2-4032	ND	0.10		0.05
cr2-4033	0.10			0.10
cr3-4048	ND	0.11		0.06
cr2-4052	ND	0.11		0.06
cr1-4062	ND	0.10		0.05
cr1-4069	ND	0.09		0.05
cs4074	ND	0.08		0.04
cr2-4084	0.20			0.20
cs4087	0.42			0.42
cr1-4101	0.23			0.23
cr3-4106	0.18			0.18
cr1-4109	0.66			0.66
cr2-4114	0.04			0.04
cr2-4121	ND	0.07		0.03
cr4-4124	ND	0.11		0.06
cr2-4132	1.20			1.20
cr3-4137	ND	0.10		0.05
cr2-4141	0.21			0.21
cr3-4152	ND	0.11		0.06
cr1-4156	0.12			0.12
cr1-4159	0.47			0.12
cr1-4165	ND	0.09		0.05
cs4170	ND	0.09		0.05
cr2-4171	ND	0.06		0.03

Callahan Mine Superfund Site, Brooksville Maine

Operable Unit 1

Mine Operations Area Off-Site Sample Statistical Analysis

Statistical Analysis	
Number of results (n)	**202**
Mean (μ)	**0.272**
Standard deviation (s)	**0.372**
Standard Error (s_μ)	**0.026**
Degrees of Freedom (n-1)	**201**
t value (α = 0.05, one tailed)	**1.652**
95% Upper Confidence Level (UCL)	**0.315**

Confirmation Sample ID	Total PCB Result (mg/kg)	MDL for ND (mg/kg)	MDL for Dup ND (mg/kg)	Total PCB Result Utilized for Statistical Analysis (mg/kg)
cs4172	ND	0.10		0.05
cs4177	0.22			0.22
CB1	0.51			0.51
CB2	1.08			1.08
CS4	1.03			1.03
DB10a	0.21			0.21
DB1a	ND	0.04		0.02
DB4a	0.15			0.15
DB5a	ND	0.04		0.02
DB7a	ND	0.04		0.02
DB8a	0.10			0.10
DS8a	0.25			0.25
DS9d	ND	0.04		0.02
EB1	0.49			0.49
EB2	ND	0.04		0.02
EB3	ND	0.04		0.02
EB4	0.84			0.84
ES1	0.67			0.67
ES7	0.48			0.48
ES8	ND	0.03		0.02
HB13LC	ND	0.04		0.02
HB15LC	0.30			0.30
HB21a	0.70			0.70
HB27LC	0.73			0.73
HB29a	ND	0.04		0.02
HB2a	0.06			0.06
HB3a	ND	0.04		0.02
HS16a	ND	0.04		0.02

Callahan Mine Superfund Site, Brooksville Maine

Operable Unit 1

Mine Operations Area Off-Site Sample Statistical Analysis

Statistical Analysis	
Number of results (n)	**202**
Mean (μ)	**0.272**
Standard deviation (s)	**0.372**
Standard Error (s_μ)	**0.026**
Degrees of Freedom (n-1)	**201**
t value (α = 0.05, one tailed)	**1.652**
95% Upper Confidence Level (UCL)	**0.315**

Confirmation Sample ID	Total PCB Result (mg/kg)	MDL for ND (mg/kg)	MDL for Dup ND (mg/kg)	Total PCB Result Utilized for Statistical Analysis (mg/kg)
HS21	0.03			0.03
HS22	0.75			0.75
HS6ALC	0.95			0.95
IB10	0.12			0.12
IB11	0.11			0.11
IB12	0.08			0.08
IB13	0.08			0.08
IB14	0.65			0.65
IB15	0.12			0.12
IB16	0.57			0.57
IB18	0.20			0.20
IB1LC	0.65			0.65
IB21	0.38			0.38
IB22	0.20			0.20
IB23	ND	0.04		0.02
IB24	0.12			0.12
IB25	0.04			0.04
IB26	0.08			0.08
IB27	0.07			0.07
IB28	ND	0.04		0.02
IB29	0.34			0.34
IB2LC	0.23			0.23
IB30	0.04			0.04
IB31	0.08			0.08
IB32	0.03			0.03
IB33	0.08			0.82
IB3LC	0.32			0.32
IS12LC	0.61			0.61

Callahan Mine Superfund Site, Brooksville Maine

Operable Unit 1

Mine Operations Area Off-Site Sample Statistical Analysis

Statistical Analysis	
Number of results (n)	**202**
Mean (μ)	**0.272**
Standard deviation (s)	**0.372**
Standard Error (s_μ)	**0.026**
Degrees of Freedom (n-1)	**201**
t value (α = 0.05, one tailed)	**1.652**
95% Upper Confidence Level (UCL)	**0.315**

Confirmation Sample ID	Total PCB Result (mg/kg)	MDL for ND (mg/kg)	MDL for Dup ND (mg/kg)	Total PCB Result Utilized for Statistical Analysis (mg/kg)
IS18LC	0.48			0.48
IS19LC	0.64			0.64
IS2LC	0.20			0.20
IS3LC	0.40			0.40
IS4LC	0.52			0.52
IS5LC	0.27			0.27

ND: Non-Detect

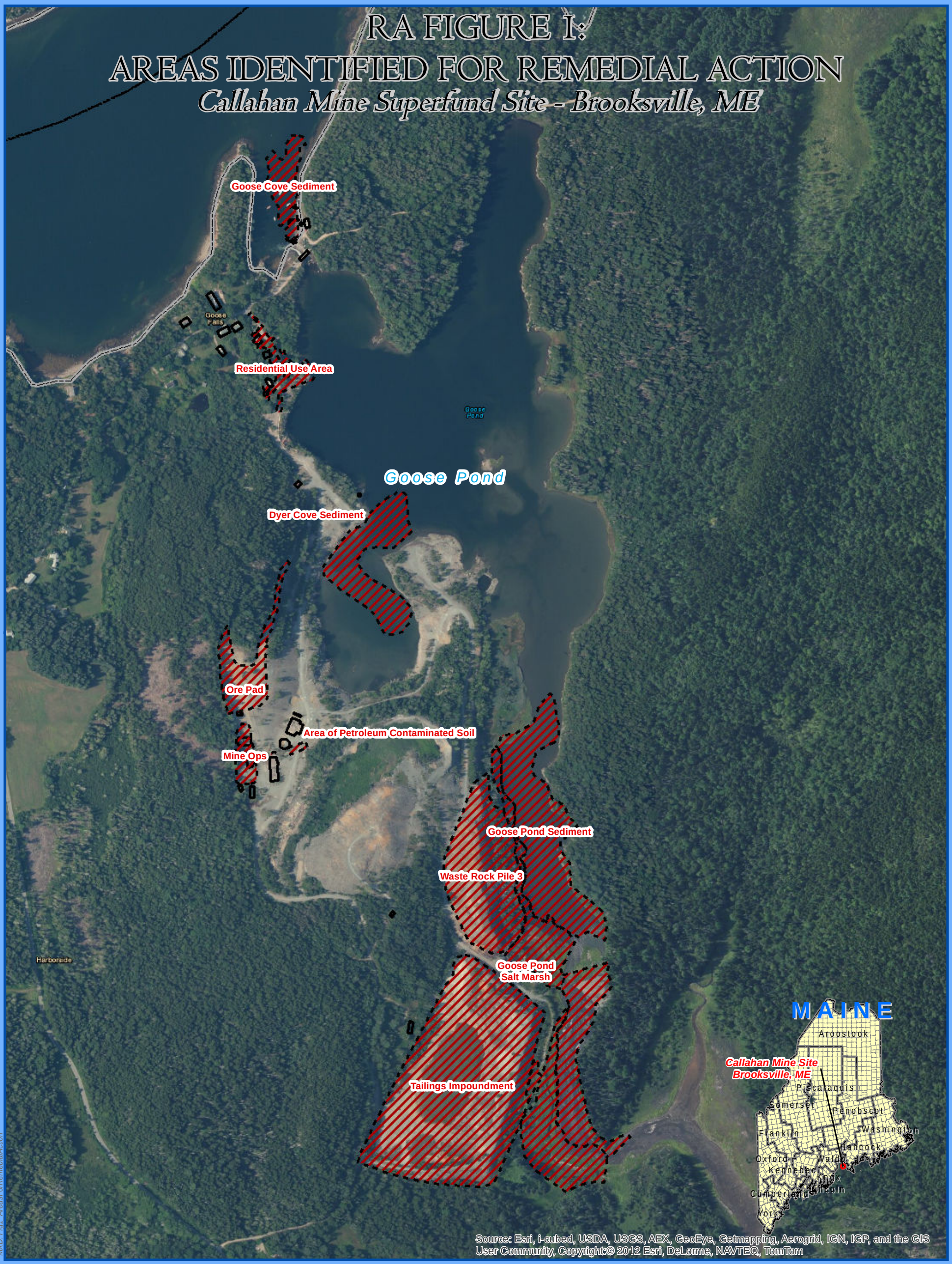
CS and CR samples were collected during 2012 and 2013 during the remediation of Zones 1-4. All other sample identifiers were collected by Charter Environmental during the 2011 remedial activities within the Mine Operations Area. Off-site samples from Charter's work during 2011 that were located in areas remediated during the 2012 and 2013 remedial activities were not included in this final off-site sample list.

This list includes only off-site sample results that are associated with the final sample taken for each location.

APPENDIX E

FIGURES

RA FIGURE 1:
AREAS IDENTIFIED FOR REMEDIAL ACTION
Callahan Mine Superfund Site - Brooksville, ME



MXD: Fig1_AreasForRemedialAction

MAP AUTHOR: lladd

N

500 250 0 500

Feet

Legend

Areas Identified for Remedial Action at Callahan Mine Superfund Site in 2009 OU1 ROD

Structures

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

MAP NOTES:

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2: IMAGERY COURTESY OF GOOGLE. ACQUIRED FEB. 5, 2013, VIA GEOTIFF EXPORT 1:6000 SCALE TILES. GOOGLE AND ITS AFFILIATES MAINTAIN NO ASSOCIATION OR RESPONSIBILITY FOR THE CONTENT OR IMAGERY DEPICTED IN THIS MAP. THE IMAGERY DISPLAYED HEREIN IS BEING DISPLAYED UNALTERED AND INDEPENDENTLY OF THE VECTOR DATA BEING OVERLAIN ON THE IMAGERY. NEITHER GOOGLE NOR ITS AFFILIATES WERE INVOLVED WITH THE DEVELOPMENT THESE WORKS.

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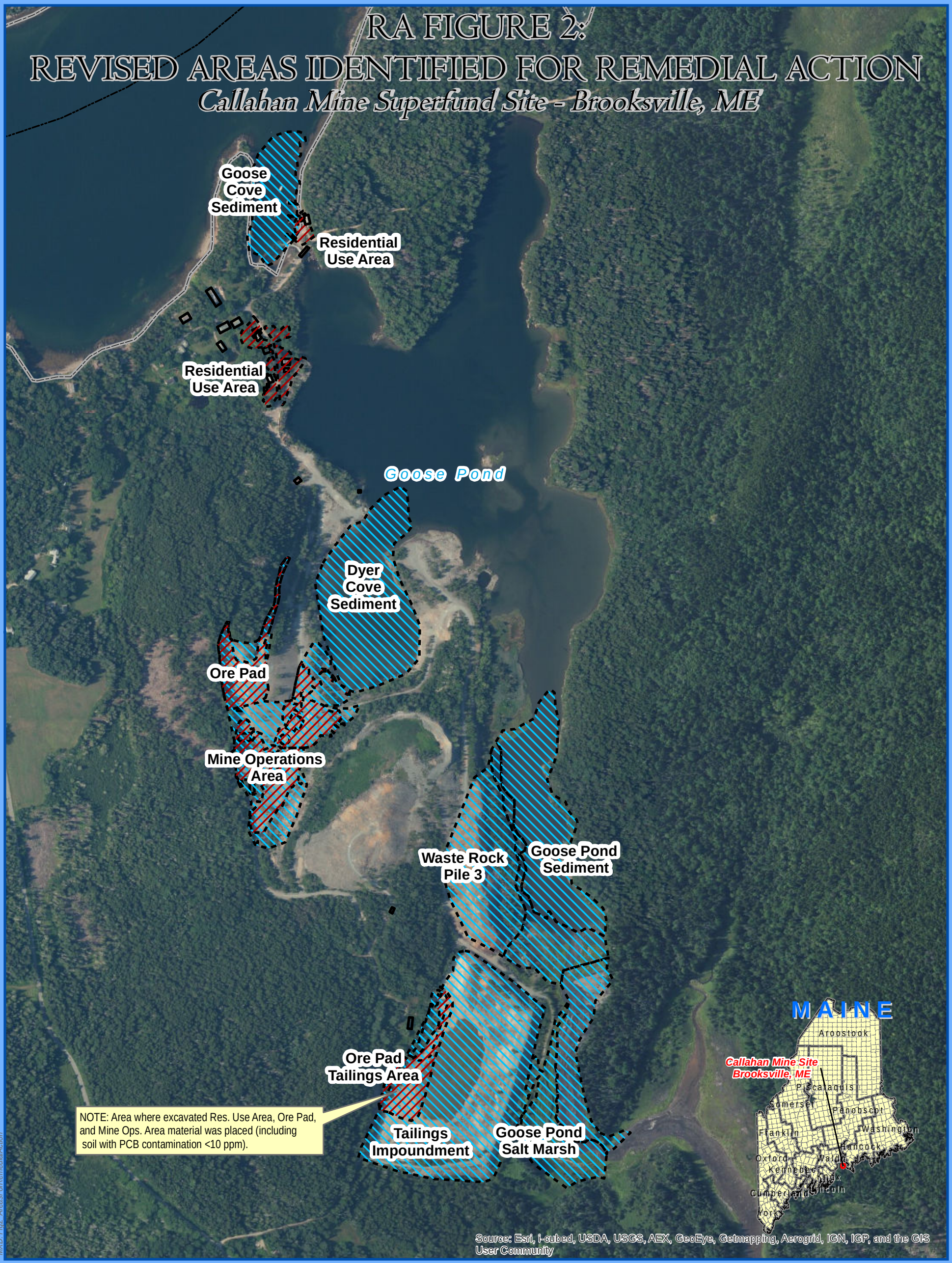
4: MAP IS PROJECTED TO MAINE STATE PLANE COORDINATES, EAST ZONE (FIPS 1801), U.S. SURVEY FOOT AND REFERENCES THE NORTH AMERICAN DATUM OF 1983 (NAD83).

5: NORTH ARROW IS REFERENCED TO GRID NORTH.

RA FIGURE 2:
REVISED AREAS IDENTIFIED FOR REMEDIAL ACTION
Callahan Mine Superfund Site - Brooksville, ME



MXD: Fig2_AreasForRemedialAction

MAP AUTHOR: lladd

Legend

- Revised Areas for OU1 Remedial Action
- Revised Areas for OU3 Remedial Action
- Structures

500 250 0 500

Feet

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5: NORTH ARROW IS REFERENCED TO GRID NORTH.

RA FIGURE 3:
ORIGINAL AND REVISED RESIDENTIAL USE AREAS
Callahan Mine - Brooksville, ME

Goose Pond

MAINE
Aroostook
Callahan Mine Site
Brooksville, ME
Piscataquis
Somerset
Penobscot
Franklin
Washington
Hancock
Oxford
Waldo
Kennebec
Knox
Cumberland
Lincoln
York

Source: Esri, i-cubed, USDA, USGS, AEX, GeoEye, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community, Copyright:© 2012 Esri, DeLorme, NAVTEQ, TomTom

MXD: Fig3_OriginalandRevisedRUAs

N

100 50 0 100
Feet

Legend

- OU1 Residential Use Area (2009)
- Revised OU1 Residential Use Area
- Structures

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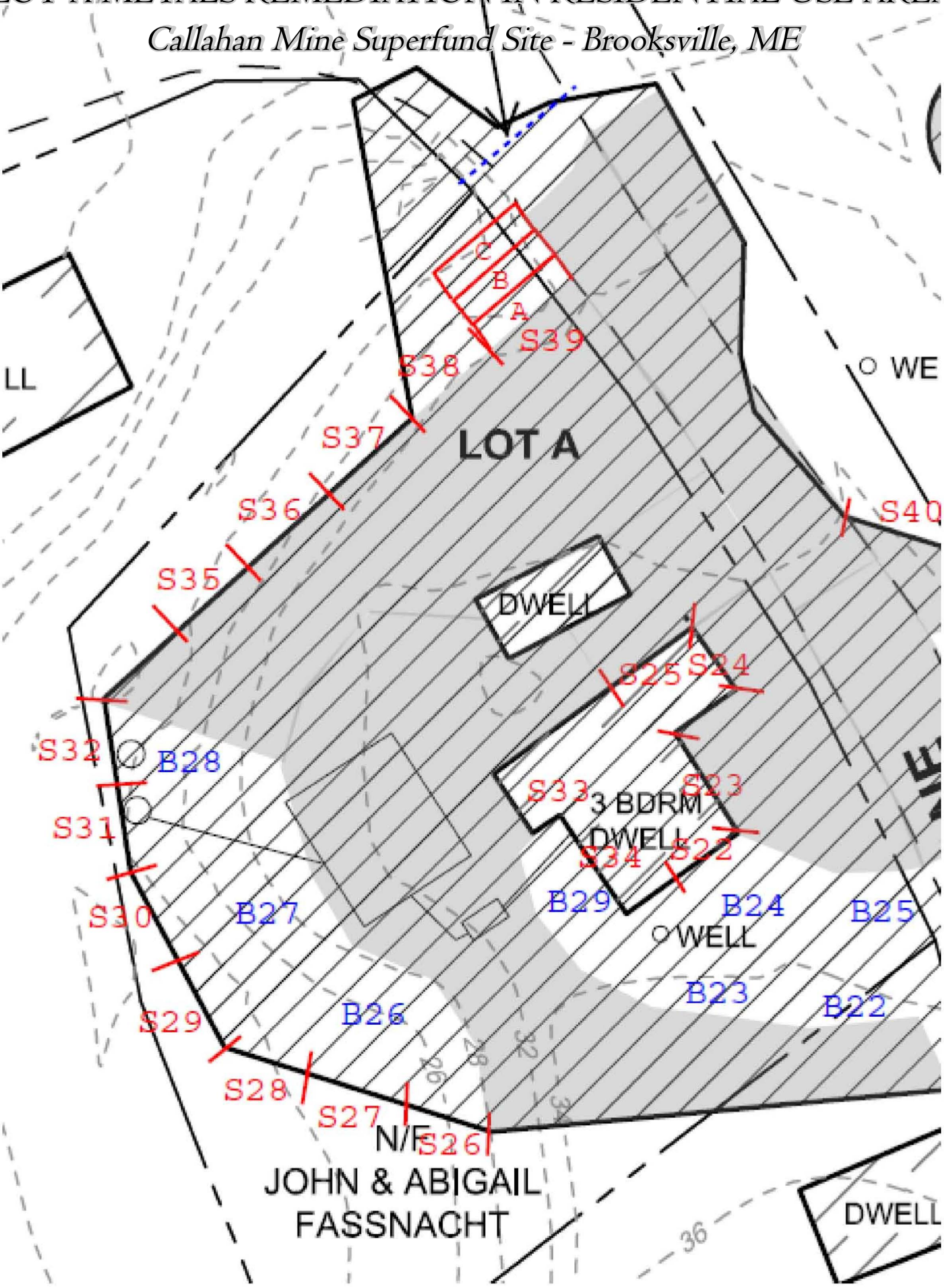
5: NORTH ARROW IS REFERENCED TO GRID NORTH.

MAP AUTHOR: lladd

RA FIGURE 4.1:
LOT A METALS REMEDIATION IN RESIDENTIAL USE AREA

Callahan Mine Superfund Site - Brooksville, ME



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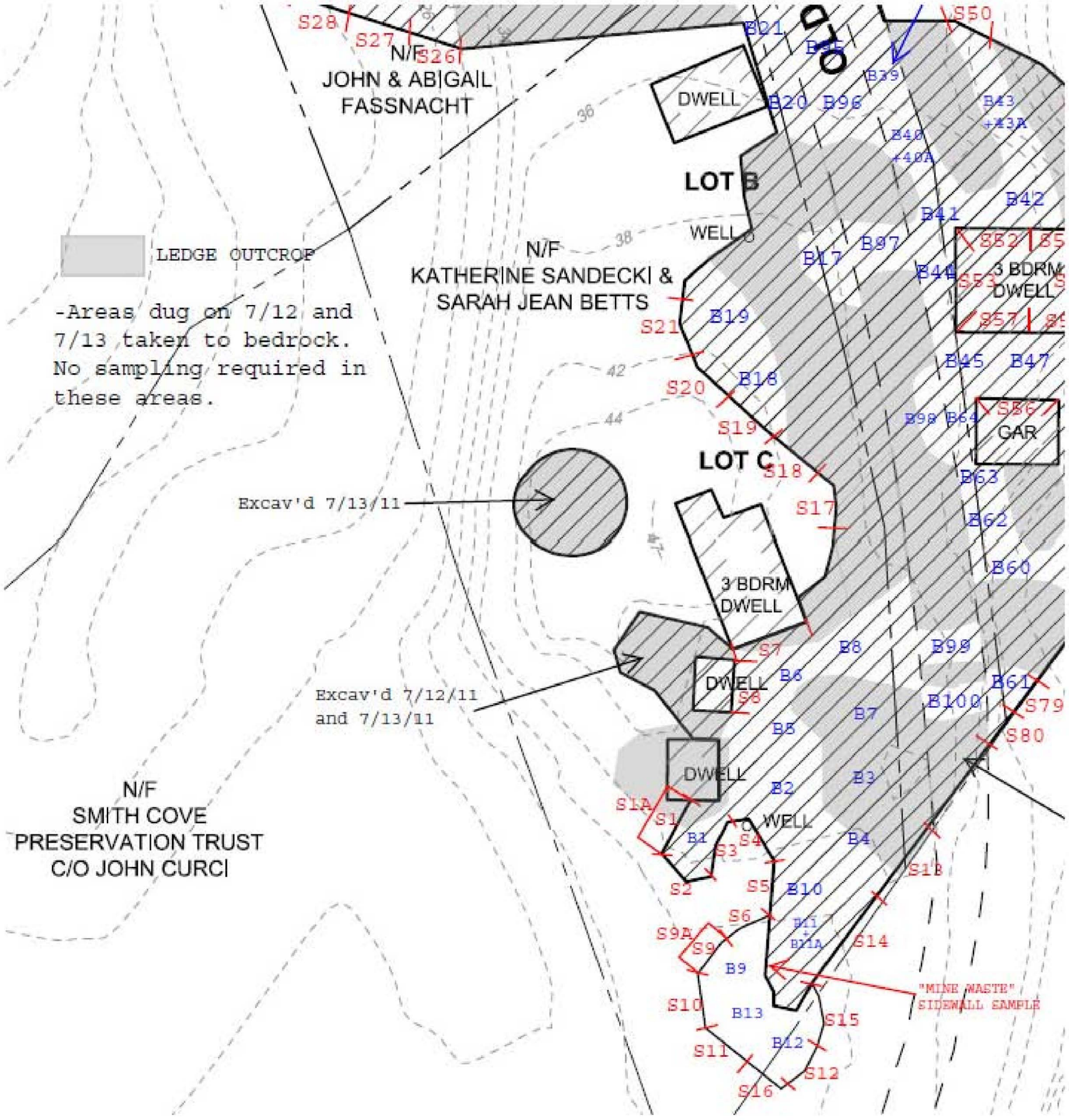
5: NORTH ARROW IS REFERENCED TO GRID NORTH.

MXD: Fig41_MetalsRemediationRUA_LotA_092613

MAP AUTHOR: lladd

RA FIGURE 4.2:
LOT B & C METALS REMEDIATION IN RESIDENTIAL USE AREA
Callahan Mine Superfund Site - Brooksville, ME



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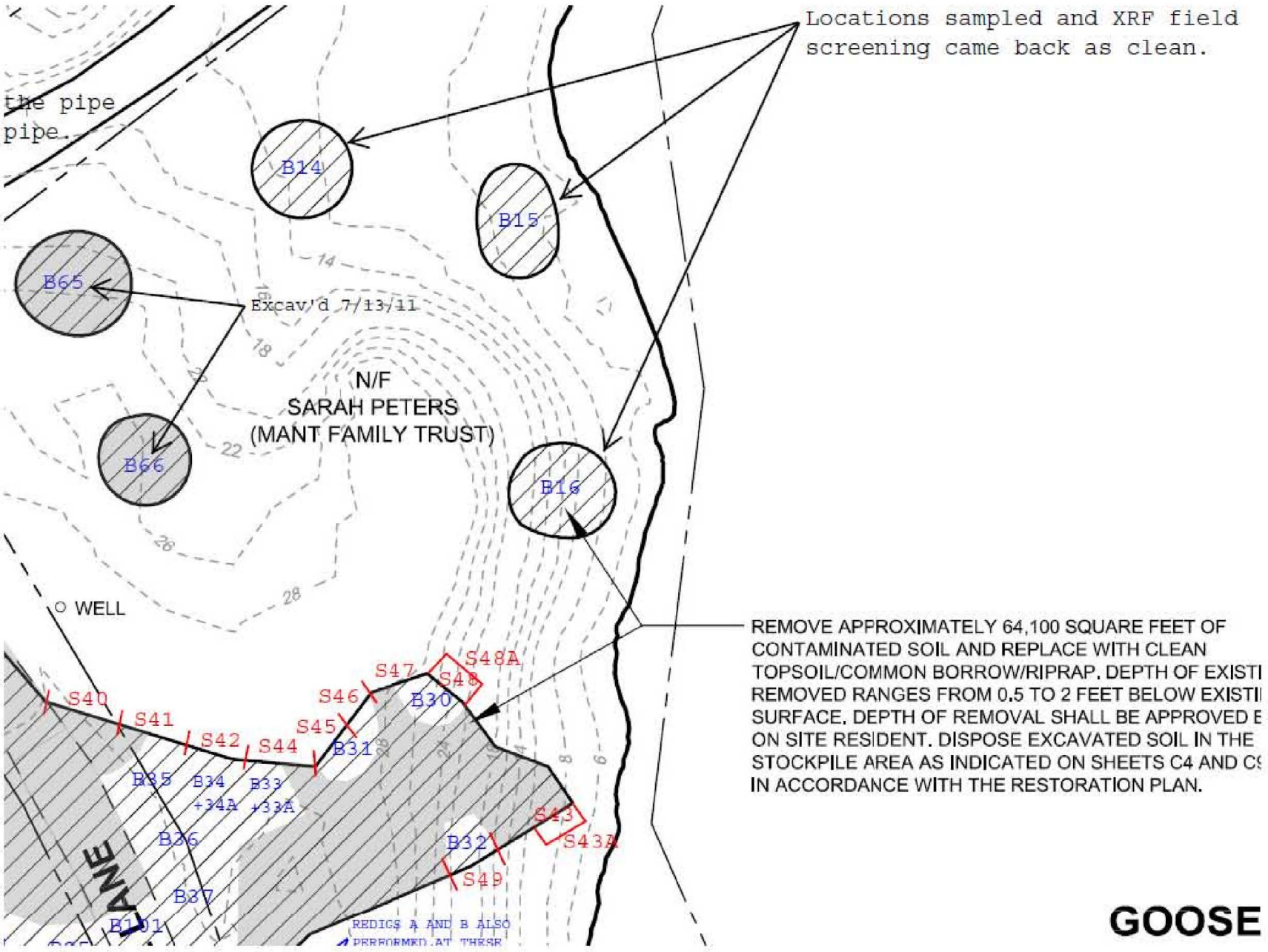
5: NORTH ARROW IS REFERENCED TO GRID NORTH.

MXD: Fig42_MetalsRemediationRUA_LotBC_092613

MAP AUTHOR: lladd

RA FIGURE 4.3:
LOT D (North) METALS REMEDIATION IN RESIDENTIAL USE AREA

Callahan Mine Superfund Site - Brooksville, ME



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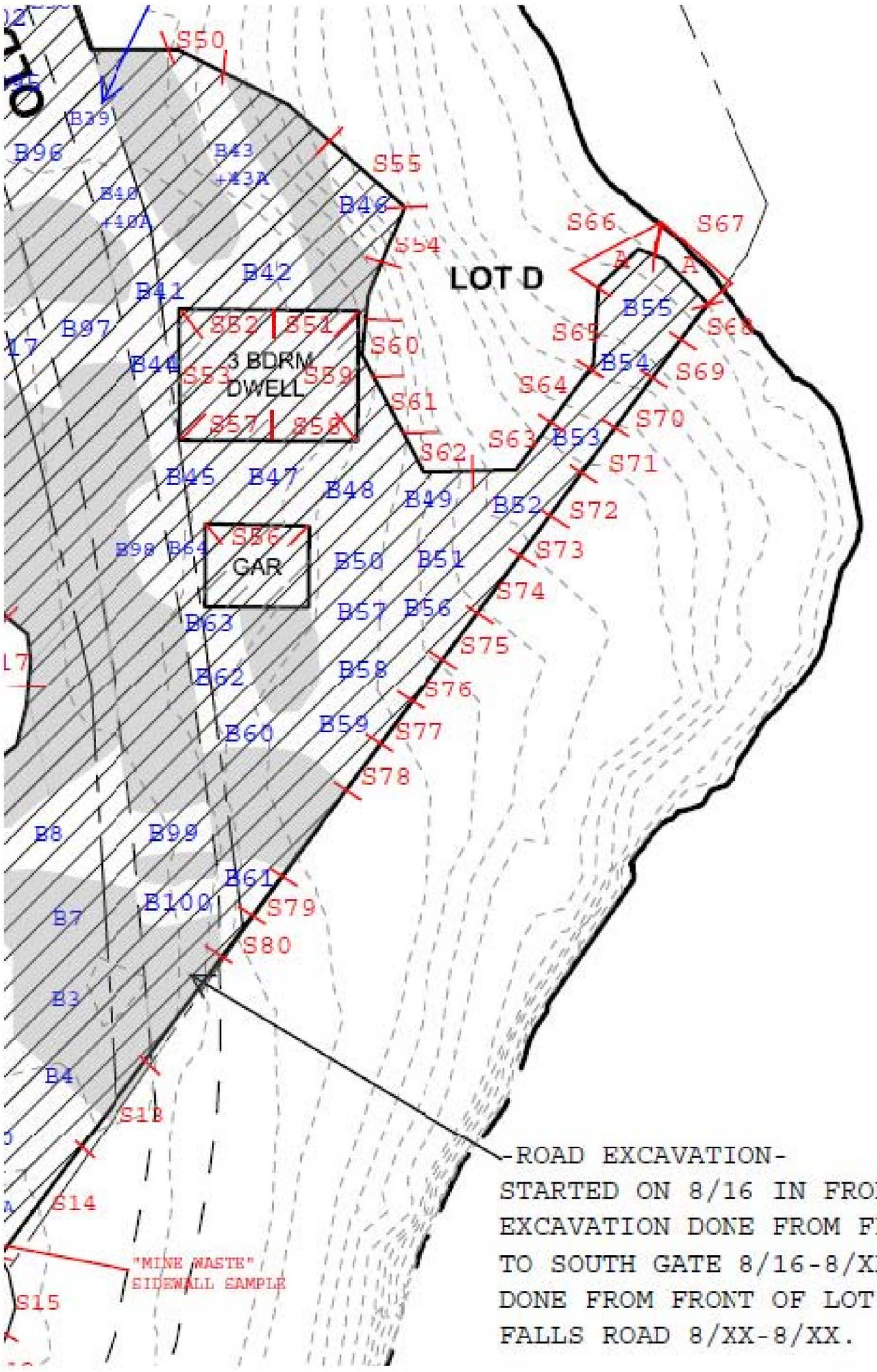
5: NORTH ARROW IS REFERENCED TO GRID NORTH.

MXD: Fig43_MetalsRemediationRUA_LotD-n_092613

MAP AUTHOR: lladd

RA FIGURE 4.4:
LOT D (South) METALS REMEDIATION IN RESIDENTIAL USE AREA

Callahan Mine Superfund Site - Brooksville, ME



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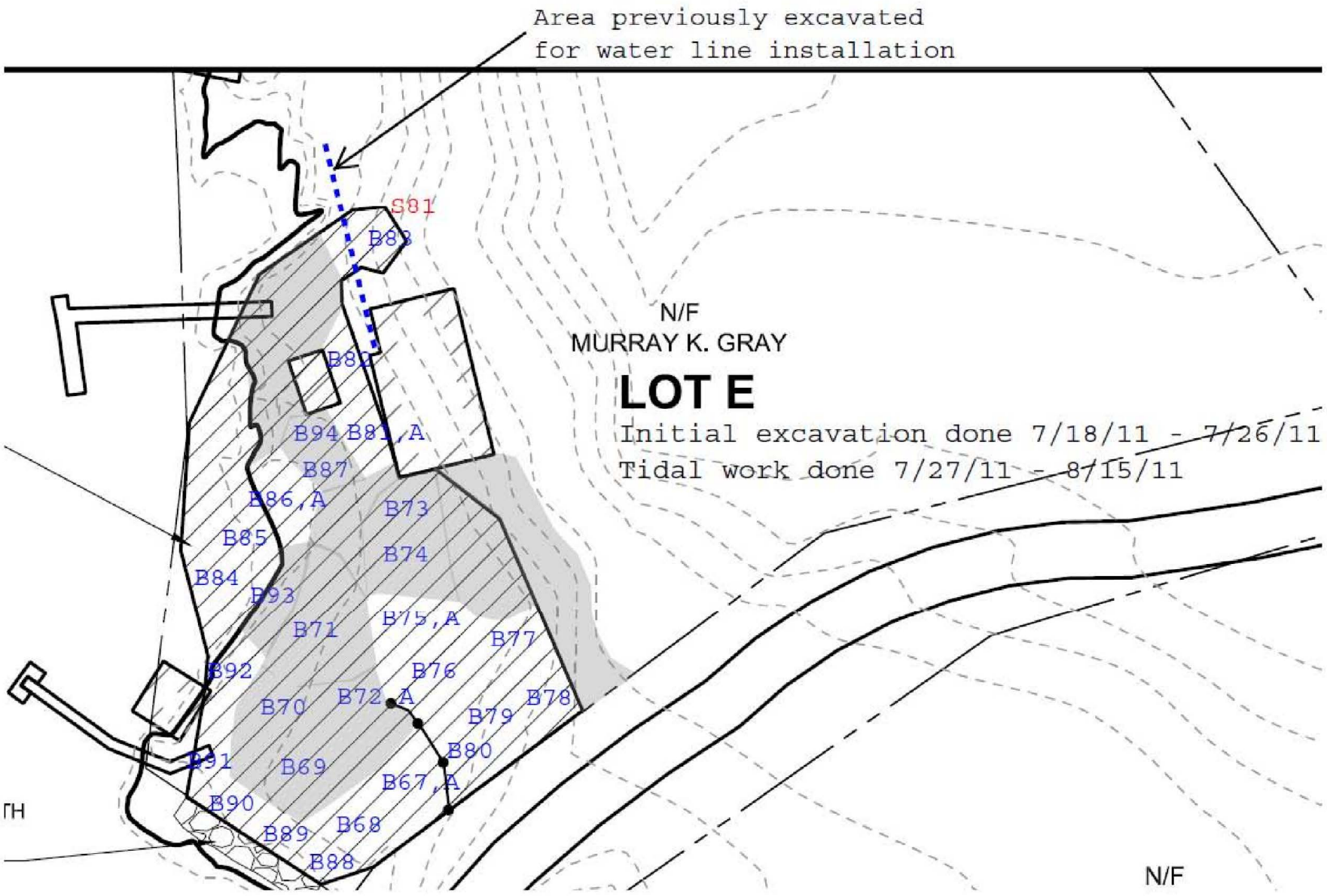
5: NORTH ARROW IS REFERENCED TO GRID NORTH.

MXD: Fig44_MetalsRemediationRUA_LotD_s_092613

MAP AUTHOR: lladd

RA FIGURE 4.5:
LOT E METALS REMEDIATION IN RESIDENTIAL USE AREA

Callahan Mine Superfund Site - Brooksville, ME



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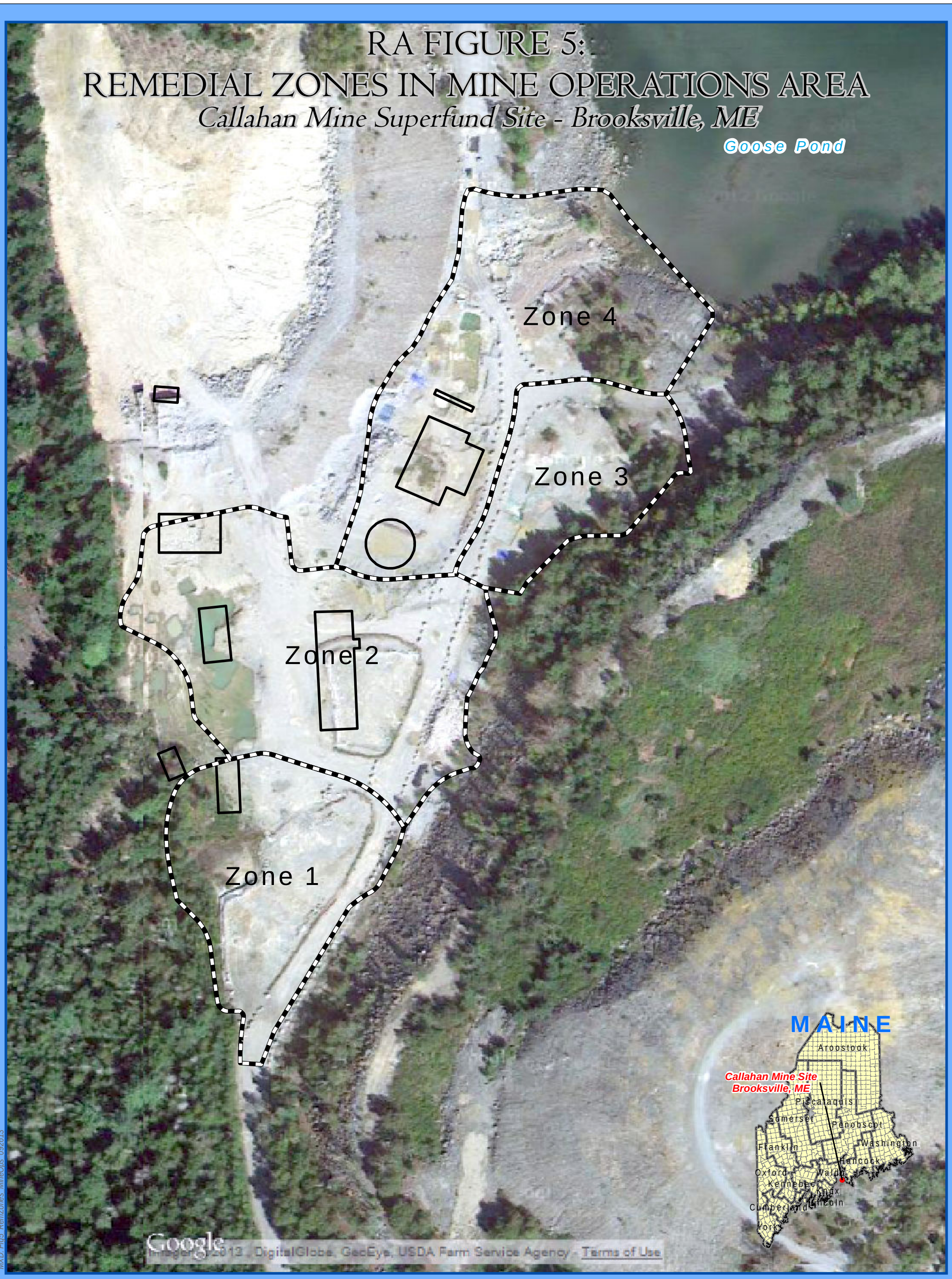
5: NORTH ARROW IS REFERENCED TO GRID NORTH.

MXD: Fig45_MetalsRemediationRUA_LotE_092613

MAP AUTHOR: lladd

RA FIGURE 5:
REMEDIAL ZONES IN MINE OPERATIONS AREA

Callahan Mine Superfund Site - Brooksville, ME



MXD: Fig5_RemZones_MineOps_092613

MAP AUTHOR: lladd

N

100 50 0 100

Feet

Legend

- Remediation Zones
- Historic Structures (removed from site)

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5: NORTH ARROW IS REFERENCED TO GRID NORTH.

RA FIGURE 6.1:

Zone 1 PCB Excavation Area

Callahan Mine Superfund Site- Brooksville, ME

Zone 1

INSET: ZONE 1

Zone 1

cs1001

See ZONE 1 INSET

MAINE

Aroostook

Callahan Mine Site
Brooksville, ME

Piscataquis

Somerset

Penobscot

Franklin

Washington

Hancock

Oxford

Waldo

Kennebec

Knox

Lincoln

Cumberland

York

Legend

On-site Conf. Samples	Off-Site Conf. Samples
0.0 - 0.9 PPM	0.0 - 0.9 PPM
1.0 - 10.0 PPM	1.0 - 10.0 PPM

- Bedrock Locations
- Slab Locations
- PCB Remediation Zones
- PCB Excavation Area
- Structures

25 12.5 0 25

Feet

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MAP AUTHOR: lladd

MXD: Fig61_Z1_PCB_Remediation_&_Sample_Locs_09262013

RA FIGURE 6.2:

Zone 2 (East) PCB Excavation Area

Callahan Mine Superfund Site- Brooksville, ME

Zone 2

MAINE

Callahan Mine Site
Brooksville, ME

Aroostook
Piscataquis
Somerset
Penobscot
Franklin
Washington
Hancock
Oxford
Waldo
Kennebec
Knox
Lincoln
Cumberland
York

Legend

On-site Conf. Samples
- 0.0 - 0.9 PPM
- 1.0 - 10.0 PPM

Off-Site Conf. Samples
- 0.0 - 0.9 PPM
- 1.0 - 10.0 PPM

- Bedrock Locations
- Slab Locations
- PCB Remediation Zones
- PCB Excavation Area
- Structures

25 12.5 0 25
Feet

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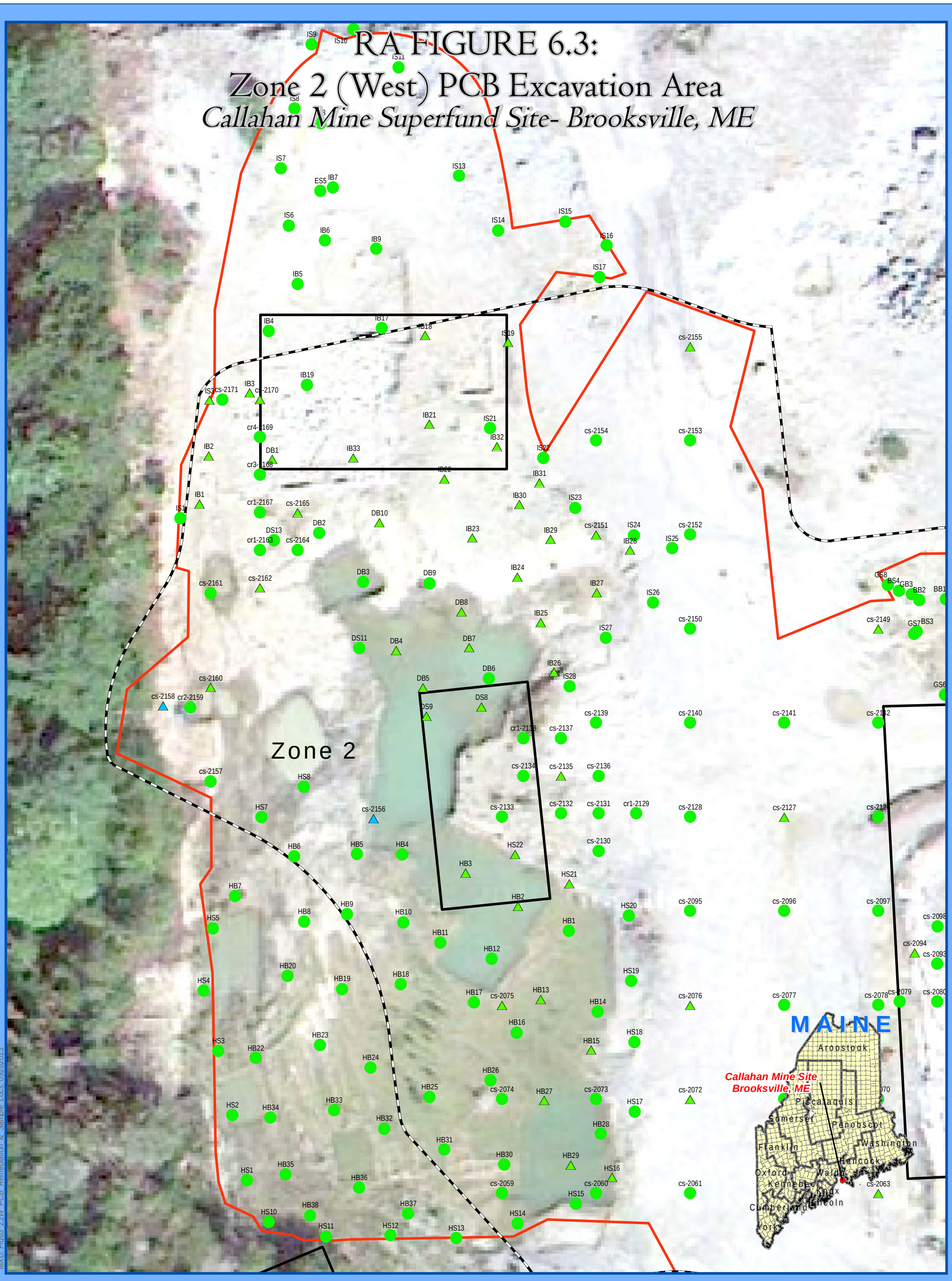
MXD: Fig62_Z2E_PCB Remediation_& Sample Locs 09262013

MAP AUTHOR: lladd

RA FIGURE 6.3:

Zone 2 (West) PCB Excavation Area

Callahan Mine Superfund Site- Brooksville, ME



MXD: Fig63_Z2W_PCB_Remediation_&_Sample_Locs_09262013

MAP AUTHOR: lladd

Legend

On-site Conf. Samples	Off-Site Conf. Samples
0.0 - 0.9 PPM	0.0 - 0.9 PPM
1.0 - 10.0 PPM	1.0 - 10.0 PPM
	Bedrock Locations
	Slab Locations
	PCB Remediation Zones
	PCB Excavation Area
	Structures

N

25 12.5 0 25

Feet

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5: NORTH ARROW IS REFERENCED TO GRID NORTH.

RA FIGURE 6.4:

Zone 3 PCB Excavation Area

Callahan Mine Superfund Site- Brooksville, ME

Zone 3

cs-3006 cs-3005 cs-3131 cs-3130 cs-3129 cr1-3128 cs-3127 cs-3126 cs-3120 cs-3121 cr3-3122 cs-3123 cr1-3124 cs-3125 cs-3119 cs-3118 cs-3117 cs-3116 cs-3109 cs-3110 cr1-3111 cr1-3112 cr1-3113 cs-3114 cr1-3115 cs-3108 cs-3107 cr1-3106 cs-3105 cs-3104 cr4-3103 cs-3102 cr1-3101 cs-3093 cs-3094 cr2-3095 cr4-3096 cr5-3097 cs-3098 cs-3099 cs-3100 cs-3092 cr8-3091 cr4-3090 cr3-3089 cs-3088 cs-3087 cs-3086 cs-3085 cs-3084 cs-3083 cs-3004 cs-3071 cr5-3074 cs-3075 cs-3079 cs-3080 cs-3067 cs-3068 cs-3069 cr5-3070 cs-3072 cr4-3073 cs-3076 cs-3077 cr2-3078 cs-3081 cr2-3082 cs-3062 cs-3059 cs-3058 cs-3057 cs-3056 cs-3066 cs-3065 cr9-3064 cr6-3063 cs-3061 cs-3060 cs-3055 cs-3041 cs-3042 cs-3043 cr1-3047 cr2-3051 cs-3052 cs-3053 cr3-3054 cs-3040 cr2-3044 cs-3045 cr1-3046 cs-3048 cs-3049 cs-3050 cs-3038 cr4-3037 cs-3036 cr3-3032 cs-3039 cr2-3035 cr2-3034 cs-3033 cs-3023 cr8-3024 cr6-3025 cr4-3026 cs-3029 cr2-3022 cs-3027 cs-3028 cr5-3019 cr5-3020 cr6-3021 cs-3030 cs-3031 cr5-3018 cr6-3017 cs-3016 cr2-3003 cr1-3013 cr6-3014 cr2-3015 cr4-3002 cs-3012 cs-3001 cr2-3008 cs-3010 cr1-3011 cr2-3007 cs-3009

MAINE

Aroostook

Callahan Mine Site
Brooksville, ME

Piscataquis

Somerset

Penobscot

Franklin

Washington

Hancock

Oxford

Waldo

Kennebec

Knox

Cumberland

Lincoln

York

MXD: Fig64_Z3_PCB_Remediation_&_Sample_Locs_09262013

MAP AUTHOR: lladd

Legend

On-site Conf. Samples
- 0.0 - 0.9 PPM
- 1.0 - 10.0 PPM

Off-Site Conf. Samples
- 0.0 - 0.9 PPM
- 1.0 - 10.0 PPM
- Bedrock Locations
- Slab Locations
- PCB Remediation Zones
- PCB Excavation Area
- Structures

25 12.5 0 25

Feet

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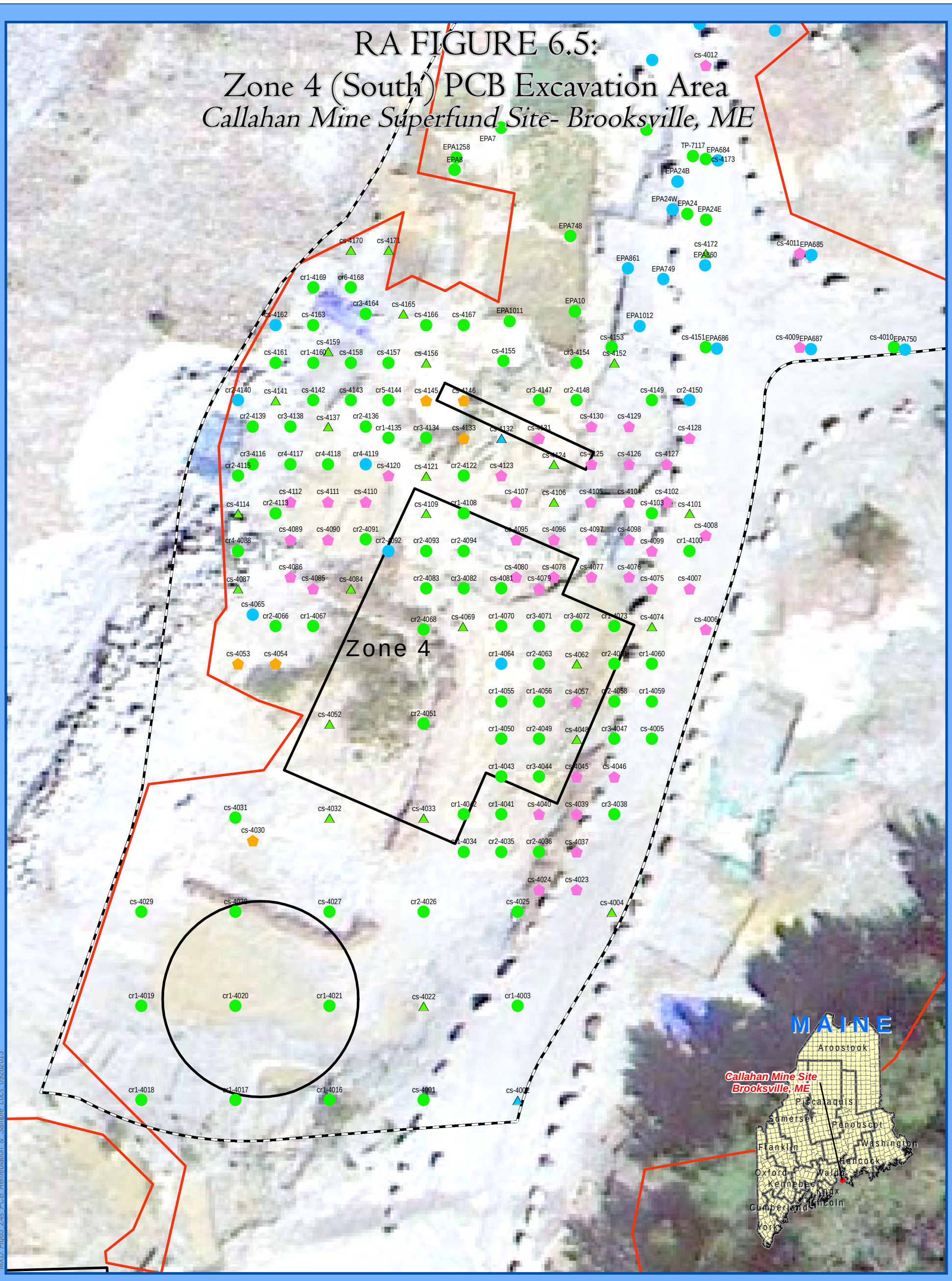
5: NORTH ARROW IS REFERENCED TO GRID NORTH.

RA FIGURE 6.5:
Zone 4 (South) PCB Excavation Area
Callahan Mine Superfund Site- Brooksville, ME



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On-site Conf. Samples
- 0.0 - 0.9 PPM
- 1.0 - 10.0 PPM

Off-Site Conf. Samples
- 0.0 - 0.9 PPM
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25 12.5 0 25
Feet

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5: NORTH ARROW IS REFERENCED TO GRID NORTH.

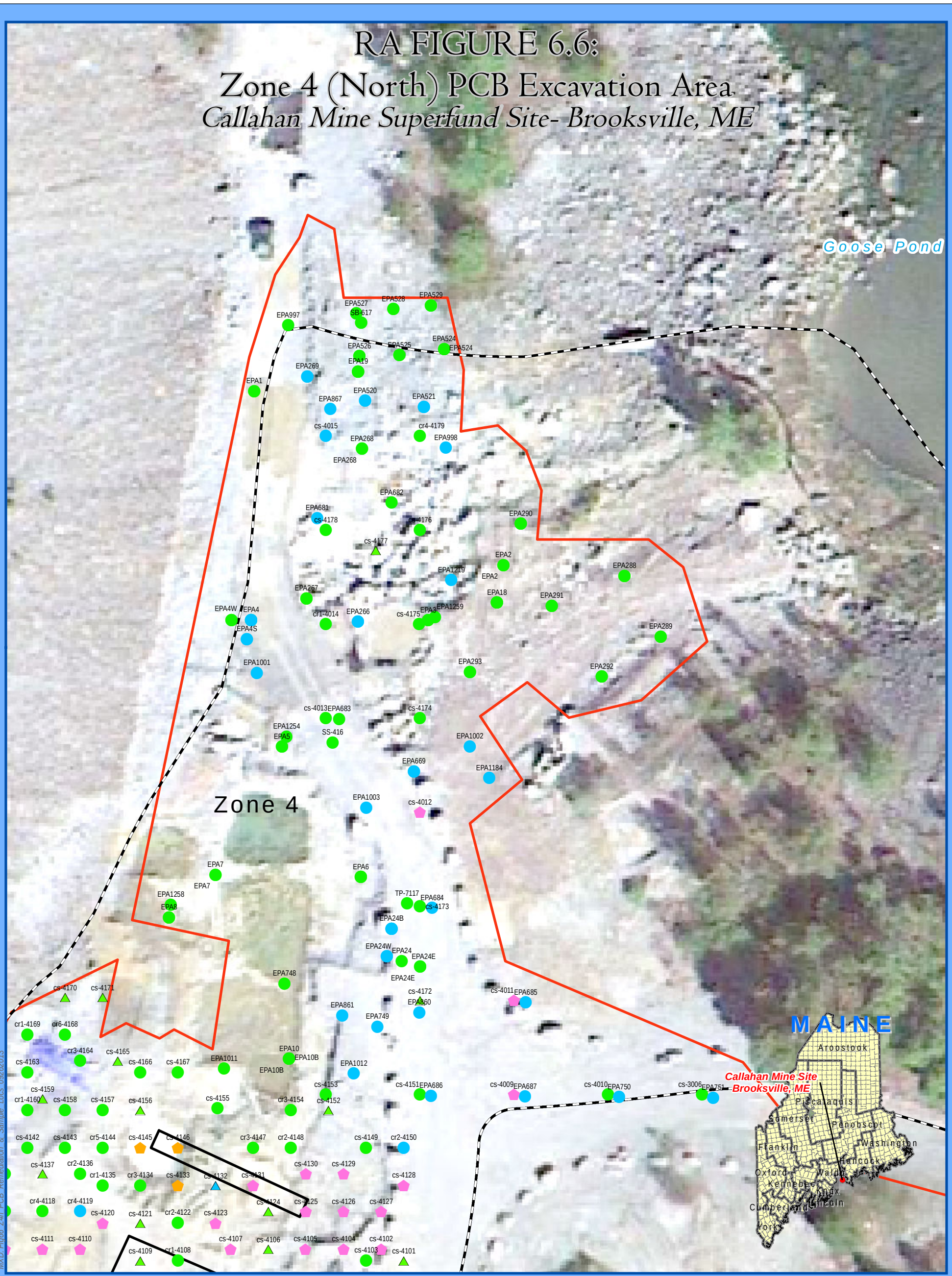
MXD: Fig65_Z4s_PCB_Remediation_&_Sample_Locs_09262013

MAP AUTHOR: lladd

RA FIGURE 6.6:

Zone 4 (North) PCB Excavation Area

Callahan Mine Superfund Site- Brooksville, ME



Legend

On-site Conf. Samples	Off-Site Conf. Samples
0.0 - 0.9 PPM	0.0 - 0.9 PPM
1.0 - 10.0 PPM	1.0 - 10.0 PPM
	Bedrock Locations
	Slab Locations
	PCB Remediation Zones
	PCB Excavation Area
	Structures

25 12.5 0 25

Feet

MAP NOTES:

1: SAMPLE LOCATIONS & CONTAMINATION AREAS COURTESY OF MAINE DEP, 2010-2013.

2: IMAGERY COURTESY OF GOOGLE. ACQUIRED FEB. 5, 2013, VIA GEOTIFF EXPORT 1:6000 SCALE TILES. GOOGLE AND ITS AFFILIATES MAINTAIN NO ASSOCIATION OR RESPONSIBILITY FOR THE CONTENT OR IMAGERY DEPICTED IN THIS MAP. THE IMAGERY DISPLAYED HEREIN IS BEING DISPLAYED UNALTERED AND INDEPENDENTLY OF THE VECTOR DATA BEING OVERLAIN ON THE IMAGERY. NEITHER GOOGLE NOR ITS AFFILIATES WERE INVOLVED WITH THE DEVELOPMENT THESE WORKS.

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4: MAP IS PROJECTED TO MAINE STATE PLANE COORDINATES, EAST ZONE (FIPS 1801), U.S. SURVEY FOOT AND REFERENCES THE NORTH AMERICAN DATUM OF 1983 (NAD83).

5: NORTH ARROW IS REFERENCED TO GRID NORTH.

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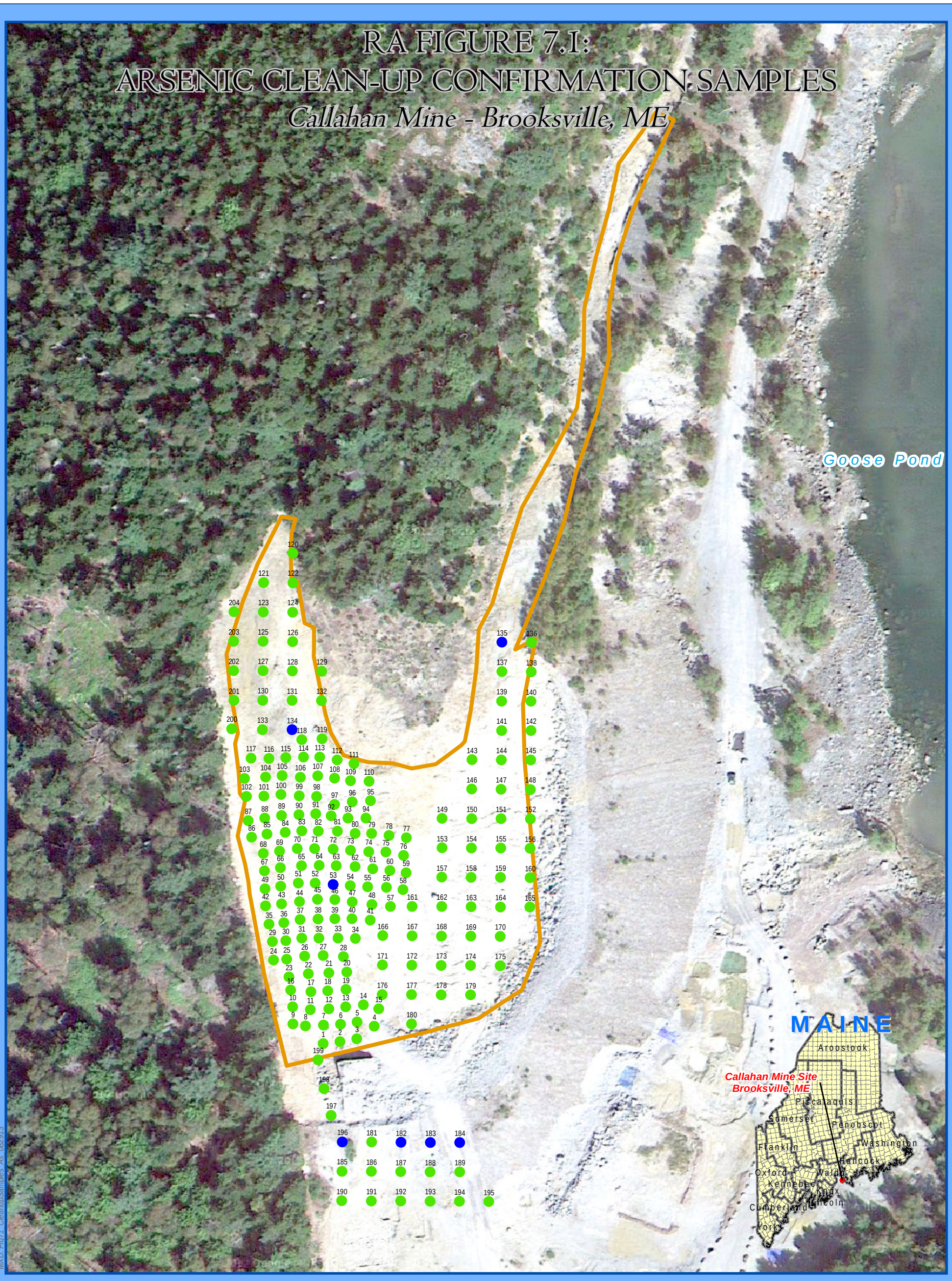
MXD: Fig66_Z4n_PCB_Remediation_&_Sample_Locs_09262013

MAP AUTHOR: lladd

RA FIGURE 7.1:
ARSENIC CLEAN-UP CONFIRMATION SAMPLES
Callahan Mine - Brooksville, ME



MXD: Fig71_CleanupSamples_As_082913

MAP AUTHOR: lladd

Legend

- As < 30 mg/kg
- As ≥ 30 mg/kg
- Ore Pad Remediation Area

80 60 40 20 0 80

Feet

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MAP NOTES:

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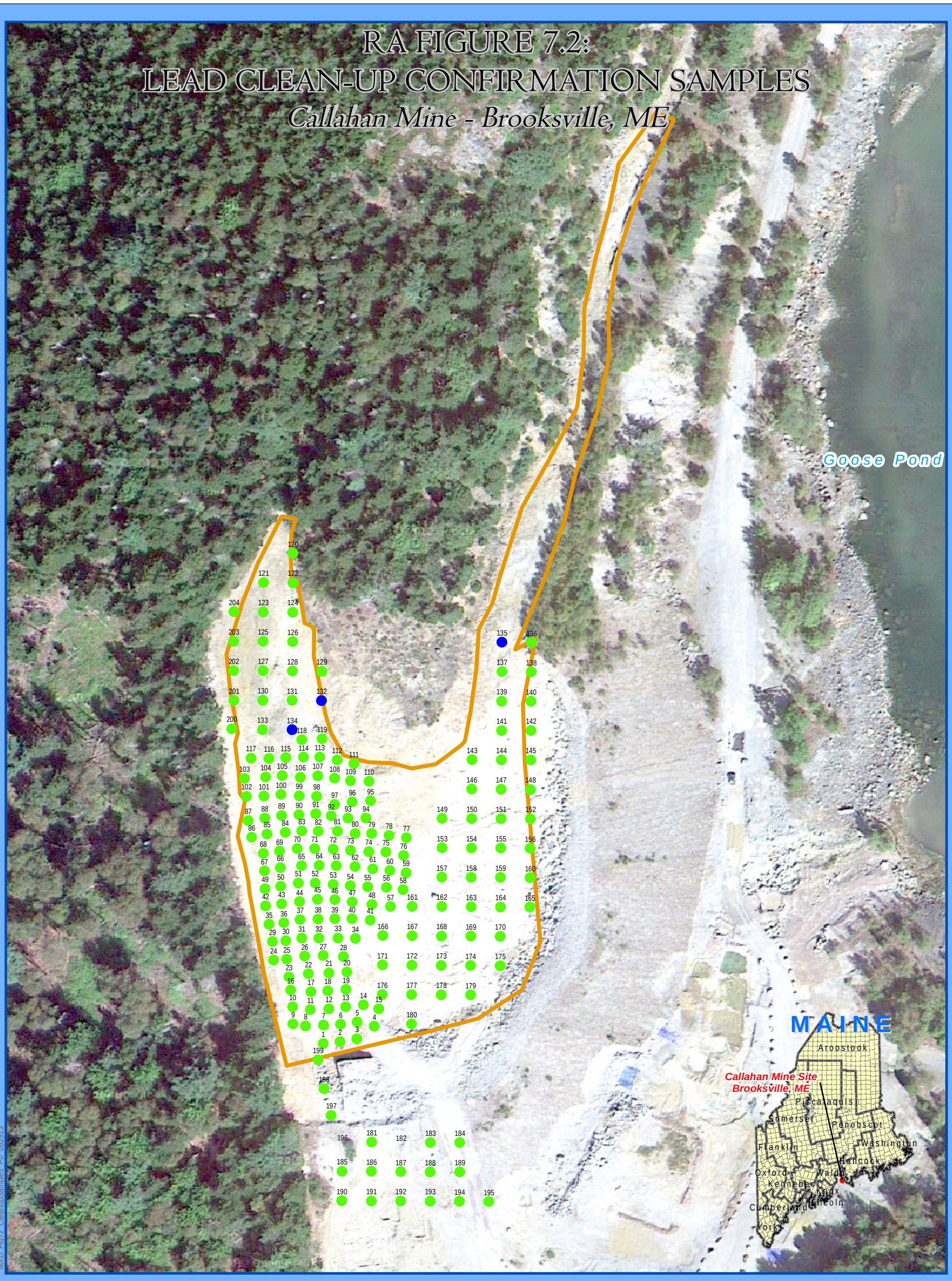
5: NORTH ARROW IS REFERENCED TO GRID NORTH.

RA FIGURE 7.2:
LEAD CLEAN-UP CONFIRMATION SAMPLES
Callahan Mine - Brooksville, ME



Legend

- Pb < 700 mg/kg
- Pb ≥ 700 mg/kg
- Ore Pad Remediation Area

80 60 40 20 0 80

Feet

MAP NOTES:

1: CONTAMINATION AREAS COURTESY OF MAINE DEP, 2010-2013.

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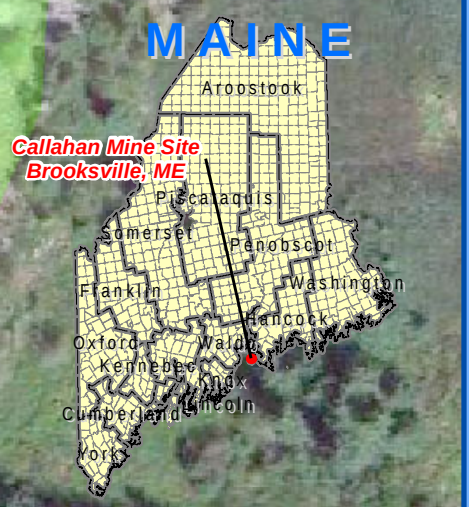
MXD: Fig72_CleanupSamples_Pb_082913

MAP AUTHOR: lladd

RA FIGURE 8:
TAILINGS IMPOUNDMENT PCB CONTAMINATED SOIL
Callahan Mine Superfund Site - Brooksville, ME

Goose Pond

Goose Pond



MXD: Fig8_ThqsContaminatedSoil

MAP AUTHOR: lladd

N

100 50 0 100

Feet

Legend

- General Location of Soils with PCB Concentraion <10 ppm that have been placed below Temporary Cover System
- General Location of Material from Ore Pad, Residential Use Area, & Mine Ops Area (not including PCB contaminated Soil)
- Tailings Impoundment (OU1 ROD)

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APPENDIX F

COMPLETION CHECKLIST

CES INC

COMPLETION CHECKLIST
AS OF 09/26/13

	Punch List Item	Item Description	Actual Completion Date	Comments	Initials
1	Mine Ops Area	Break up exposed concrete in way of site grading and use it to fill holes. Render any remaining concrete safe (exposed re-bar) and cover with 12" minimum of soil during regrading.	08/28/13		NG
2	Mine Ops Area	Re-establish road in alternate location west of mine ops monitoring wells.	08/29/13		NG
		• Install leftover geogrid and geotextile fabric in 'soft' areas along main road alignment (generally south of monitoring wells adjacent to road).	09/17/13		DB
		• Install 12" of clean gravel. Clean gravel to be purchased from off-site source at contract price.	09/19/13		AQ
3	Mine Ops Area	Raise access road elevation in the area of Naji canyon with fill material from WRP-2	09/10/13		NG
		• Install 12" of clean gravel. Clean gravel to be purchased from off-site source at contract price.	09/19/13		AQ
4	Mine Ops Area	Re-establish road from main site road to Dyer Cove Road.	09/19/13		AQ
		• Install 6" of clean gravel for travel surface. Clean gravel to be purchased from off-site source at contract price.	09/19/13		AQ
5	Mine Ops Area	Grade concrete from secondary crusher area (can use it to fill holes).	09/04/13		NG
6	Mine Ops Area	Regrade and cover area around secondary crusher building.	09/04/13		NG
7	Mine Ops Area	Place stink cove sediment over areas east of new access road location.	09/12/13		NG
		• Hydro-seed area.	09/19/13		AQ
8	Mine Ops Area	Rough grade Zone 4 for drainage to wet pond. Ensure finer materials at surface so that flow will make it to culvert/wet pond.	09/16/13		AQ
		• Place geomembrane, fabric, and stone at culvert inlet. Protect any areas of concentrated flow.	09/16/13		AQ
		• Place geomembrane, fabric, and stone at culvert outlet.	09/16/13		AQ
		• Cover all exposed bedrock with at least 12" of material <u>except</u> rock cleaned with vactor truck to a very clean level (DEP will provide field guidance on this issue).	08/29/13		NG
9	Mine Ops Area	Place stink cove sediment over areas west of new access road location as directed by DEP.	09/18/13	STARTED 9/16	AQ
		• Hydro-seed area.	09/19/13		AQ

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COMPLETION CHECKLIST
AS OF 09/26/13

	Punch List Item	Item Description	Actual Completion Date	Comments	Initials
10	Mine Ops Area	Hydro-seed area along east side of the wet pond in Zone 3.	09/19/13		AQ
11	Mine Ops Area	Complete wet pond:	09/23/13		DB
		• Boot repair (leak on south side of riser and outlet pipe boot)	09/09/13		NG
		• Extrudate in riser rib	09/09/13		NG
		• Re-bar across the riser top	09/19/13		AQ
		• Remove sediment in fore bay area	09/23/13		DB
		• Repair tear, hole, and dimple	09/23/13		DB
12	Mine Ops Area	Re-grade berm area on the north side of Naji canyon area for safety and E&SC control.	09/10/13	ADDITIONAL GRADING ON SOUTH	NG
		• Place bark mulch by CES trailer in remaining bottom area of Naji canyon for sediment filtration.	09/18/13		AQ
13	Mine Ops Area	Re-grade the side of WRP-2 for safety where steep slopes currently exist.	09/16/13		AQ
14	Mine Ops Area	Hydro-seed disturbed slope of WRP-2.	09/19/13		AQ
15	Mine Ops Area	Shape the ore pad in areas excavated for fill material.	09/16/13		AQ
16	Mine Ops Area	After use, grade stink cove sediment area for safety.	09/19/13		AQ
17	Mine Ops Area	Clean-up remaining oil contaminated soil along Dyer Cove road and take it to tailings.	09/17/13		DB
18	Mine Ops Area	Place a few rocks in the area where the CES trailer is to ‘guide’ people to the main access road through mine ops.	09/10/13		NG
19	Mine Ops Area	Shape ditch, seed, and install ECB and check dams along the hill area of the south road entrance to mine ops.	09/19/13	Started 9/18	AQ
20	Mine Ops Area	Crown road at south road entrance to mine ops area.	09/23/13		DB
21	Mine Ops Area	Place boulder over catch basin cover at Zone 2/3 interface.	09/16/13		AQ
22	Mine Ops Area	Cover open catch basin in Zone 1.	09/11/13		NG
23	Mine Ops Area	Grade area east of access road in Zone 2 between access road and drainage ditch.	09/16/13		AQ
24	Mine Ops Area	Repair 12” HDPE culvert under access road between Zone 3 and 4.	09/10/13		NG

CES INC

COMPLETION CHECKLIST
AS OF 09/26/13

	Punch List Item	Item Description	Actual Completion Date	Comments	Initials
25	Tailings	Grade and shape PCB Contaminated Soil Stockpile in Tailings.	09/04/13		NG
		• Place 12" of cover (use existing stockpiled material plus additional as needed from the area adjacent to the zone 2 wetland area) over stockpile.	09/09/13		NG
		• Place 6" of stink cove sediment over stockpile.	09/11/13		NG
		• Hydro-seed stockpile.	09/19/13		AQ
		• Install ECB on all 3:1 slopes. Install ECB 10' out from toe on the easterly slope.	09/26/13		NA
26	Tailings	Grade and shape swale and west slope of swale at Tailings.	09/11/13		NG
		• Place 6" of stink cove sediment swale and west slope.	09/12/13		NG
		• Hydro-seed swale and west slope.	09/19/13		AQ
		• Install ECB in swale and on all 3:1 slopes.	09/26/13		NA
27	Tailings	Install erosion control measures as proposed by CES over 2012 PCB Contaminated Soil Stockpile between toe of 2013 PCB Contaminated Soil Stockpile and edge of berm.	09/11/13		DB
28	Tailings	Provide large rocks for placement across two entrance points to the tailings area.	09/23/13		DB
		• Fence to be installed around PCB storage area under separate contract and rocks will be placed as part of the separate contract. PCB signs to be attached to this fence.	09/26/13		NA
29	Tailings	Cover the soil and concrete contaminated area of the rock pile at Tailings. Area to have 12" of soil over the top at completion and slope to be graded at 3:1.	09/09/13		NG
		• Hydro-seed slope.	09/19/13		AQ
		• Install ECB on 3:1 slope.	09/26/13		NA
30	Tailings	Remove geotextile and debris from the area of the rock pile at Tailings that will remain exposed.	09/19/13		AQ
31	Tailings	Clean up or replace the rocks in the tailings area swale where the rock truck crosses the swale.	09/11/13		NG
32	Tailings	Place a large rock over the underground tank access port for the tank near tailings.	09/06/13		NG

CES INC

COMPLETION CHECKLIST
AS OF 09/26/13

	Punch List Item	Item Description	Actual Completion Date	Comments	Initials
33	General Site	General site cleanup.	09/26/13		NA
34	General Site	Place a couple of large rocks in area used by EPA mobile lab for site safety along pit edge.	09/16/13		AQ
35	General Site	Remove stone apron at southern entrance road to site. Repair road in coordination with adjacent property owner. Pre-construction width of access road at edge of pavement was approximately 35'. Pre-construction width of access road 25' from edge of pavement was approximately 12'.	09/26/13		NA
36	General Site	Place 2-3 sections of the large rock cores in areas determined by the DEP.	09/11/13		NG
37	General Site	Take old E&SC devices (silt fence in particular) down where currently up. Areas noted include zone 1, Dyer cove (top and bottom of slope), old laydown area at north end of site.	09/25/13		DB
38	General Site	Adjust gate at north entrance. Gates to remain until adequate grass growth in Zone 3 and 4.	09/24/13		DB
39	Lot E	Murray Gray property issues:	09/25/13		DB
		• Riprap at end of boat ramp	09/24/13		DB
		• Electrical conduit for septic system	09/25/13		DB

APPENDIX G

REFERENCES

REFERENCES

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