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CONTRACTOR WORK PLAN INTERIM MEASURES DRMO STORAGE LOT REMEDIATION

NSA CRANE IN

01/01/2015

TTL ASSOCIATES INC

CONTRACTOR WORK PLAN

INTERIM MEASURES
DRMO STORAGE LOT REMEDIATION
NSA CRANE, IN

EMAC CONTRACT NO. N40083-11-D-0031
TASK ORDER 0006

FOR

Naval Facilities Engineering Command Midwest
NAVFAC MIDWEST
Naval Support Activity Crane
300 Highway 361, Building 2516 NSA Crane
Crane, IN 47522

JANUARY, 2015

TTL PROJECT NO. 12139.01

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APPENDICES

1.0 INTRODUCTION

TTL Associates, Inc. (TTL) is pleased to provide this Contractor Work Plan (Work Plan) to perform Interim Measures (IM) at the Defense Reutilization Marketing Office (DRMO) Storage Lot at Naval Support Activity (NSA) Crane, located in Crane, Indiana under the Environmental Multiple Award Contract (EMAC) No. N40083-11-D-0031, Task Order (TO) 0006 with the Naval Facilities Engineering Command (NAVFAC) Midwest. The DRMO Storage Lot is also known as Solid Waste Management Unit (SWMU) 21. The IM are planned to remediate SWMU 21 soil and sediment that is contaminated with polychlorinated biphenyls (PCBs), lead, and polycyclic aromatic hydrocarbons (PAHs).

This Work Plan is for the implementation of the Final Interim Measures Work Plan (IMWP) for SWMU 21 - DRMO Storage Lot, Naval Support Activity Crane, Indiana. Tetra Tech, October 2014 under their Contract: N62470-08-D-1008; Task Order: F272. The Site Background information is from the IMWP.

1.1 Site Background

NSA Crane is located in a rural, sparsely populated region of south-central Indiana, approximately 75 miles southwest of Indianapolis, 60 miles northwest of Louisville, Kentucky, and immediately east of Burns City and Crane Village, Indiana. A location map of the NSA Crane facility is provided on Figure 1-1. NSA Crane encompasses approximately 62,463 acres or approximately 98 square miles of the northern portion of Martin County; and smaller portions of Greene, Davies, and Lawrence Counties.

The DRMO Storage Lot is an active material processing and recycling facility located in the central part of NSA Crane (Figure 1-1); its southern boundary is approximately 600 feet wide, and lies along the northern side of Route H-58. The north-south oriented site area extends approximately 1,700 feet north from the southern boundary, is triangular in shape, and covers approximately 20 acres in a wooded area, as shown on Figure 1-2. The DRMO Storage Lot (site) has been in operation since the late 1940s as a material processing center. Materials processed at the site include scrap metal, wood, cardboard, and paper. The exact startup date of activities at the site is unknown, but it appears to have been shortly after startup of the NSA Crane facility in the 1940s.

The active area of the DRMO yard is surrounded by a chain link fence; the only entrances are two locking gates at the south end. On-site structures include four occupied buildings: an office and restroom building (Building 2703), two processing buildings (Buildings 3248 and 3249), and two truck/railroad scales and a scale house (Building 2943), as shown on Figure 1-3. One unoccupied abandoned paper baler building (Building 2704), and an inactive oil/water separator [OWS (Structure 3058)] are located in the central part of the site. The OWS is a 10-foot by 15-foot concrete vault approximately 6 feet deep. It currently holds approximately 3 feet of water, and there is no visible evidence of oil on the water. The OWS was originally designed to collect liquids from: the former Old Metals Baler (2705); and runoff from the northern end of the site, the northern Paved Storage Yard, and the southern portion of the site.

There are two concrete-paved storage areas at the site: one northwest of the OWS, and the other in the southwestern corner of the site. Most of the rest of the site is unpaved and covered with

gravel. Gravel has been and continues to be added to the site over the years of operation to maintain a level surface. Because of this effort, the thickness of the gravel ranges from less than 1 foot to 4.5 feet below ground surface (bgs). The area of the site containing the gravel is referred to as the gravel pad.

SWMU 21 is bounded on the east by Haynes Branch, and to the west by a set of railroad tracks (both are outside of the fenced area). Farther east of Haynes Branch is a wooded area. Farther west of the railroad tracks, and farther north of the site are wooded hillsides. To the south and across Road H-58 is a small (less than 1 acre) storage yard and gravel parking area, which are outside of the SWMU 21 boundary and are not part of SWMU 21.

The nearest residences are approximately 3.5 miles southeast in the small town of Indian Springs, Indiana, and the next nearest residences are approximately 4 miles west-southwest in Burns City, Indiana. The NSA Crane facility was a rural, forested, and farmed area when it was commissioned as a Navy facility in 1941; the site has been part of the Navy facility since that time. There are no known historical or cultural concerns (such as Native American burial grounds or historic landmarks) on or in the vicinity of the site. There are no land use controls associated with the site.

1.2 Work Plan Organization

This Work Plan is structured to systematically present the means and methods for accomplishing each task required under the SOW. The Work Plan consists of the following sections.

- ***Section 2.0, Project Activities*** – Presents the methods and procedures TTL proposes to use in the implementation of the SOW.
- ***Section 3.0, Administrative and Managerial Requirements***–Discusses the project team assigned to the TO and presents various project management topics, such as project schedule, recordkeeping and reporting, and other contract deliverables.
- ***Section 4.0, Excavation and Handling Plan*** - Discusses the excavation operations that will be performed under this TO.
- ***Section 5.0, Waste Management Plan*** - The plan addresses potential regulated hazardous waste, non-hazardous waste and non-soil construction debris. Additionally, the plan addresses items such as equipment decontamination, and decon water collection, filtering and disposal.
- ***Section 6.0, Environmental Protection Plan*** - Addresses items such as fuel storage and refueling procedures, spill response and mitigation procedures, dust control and cultural & natural resource protection procedures.
- ***Section 7.0, Erosion and Sediment Control Plan*** - Discusses the actions that will be taken to control erosion during the course of the TO execution.
- ***Section 8.0, Stormwater Pollution Prevention Plan*** - Discusses the measures that will be taken to control any spills or discharges that may occur.
- ***Section 9.0, Sampling Plan*** – Discusses the collection of characterization samples required for off-site disposal of excavated surface soils and for the collection, storage, characterization, and discharge of wastewater.
- ***Section 10.0, Transportation and Disposal Plan*** - Focuses on such issues as onsite and off-site transportation and off-site disposal of excavated materials and liquids.

1.3 Correspondence

The following points of contact (POC) are provided:

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2.0 PROJECT ACTIVITIES

This section presents our technical approach to this project with the goal of meeting or exceeding the SOW objectives, regulatory requirements, in a safe, organized and effective manner. This approach capitalizes on specialized resources and timing of concurrent IMs at the DRMO. TTL has developed a schedule and identified personnel, equipment, materials and subcontractor resources to produce an effective schedule and budget for the project.

Contaminated soil will be removed from 15 general areas (5 PCB areas, 8 lead areas, and 2 PAH areas) at SWMU 21 which have been contaminated by materials that were temporarily managed, staged, or placed at the DRMO storage lot at NSA Crane. IM includes the restoration of these general excavations. Removal of the soils from these areas will reduce site-wide exposure risks for PCB, lead, and PAHs. Three discrete stream segments of Haynes Branch will have the river materials removed to address four identified sediment locations with lead contamination as well as other metals. **Appendix A** contains figures from the IMWP.

The interim measures for SWMU 21 are the excavation and off-site disposal of soil and river material having concentrations of PCBs, lead, and PAH compounds (expressed as BaP equivalents) above specific risk levels; these measures will reduce average site-wide risks to more acceptable levels. Contaminated soil will be removed from 15 general areas (5 PCB areas, 8 lead areas, and 2 PAH areas) at SWMU 21 which have been contaminated by materials that were temporarily managed, staged, or placed at the DRMO storage lot at NSA Crane.

The removal of contaminated soil from SWMU 21 will impact various infrastructure elements at the DRMO. Many of the discrete areas identified for removal of soil or river materials will require the removal of the DRMO fence to either access work areas outside the fence or to allow removal of soil that straddles the fence line. Temporary movable fencing will be needed to maintain perimeter security and restrict access to the DRMO facility during the implementation of the IM at SWMU 21. At the conclusion of the IM project, and after designated areas have been remediated and restored, the DRMO perimeter fence will need to be reinstalled to match pre-disturbance conditions.

An unused railroad spur runs the full length of eastern side of DRMO fence line, approximately 30 feet west (inside) the fence line. There will be specific track lengths that will need to be removed in order to remove the underlying contaminated soil materials. In excavated areas the rail line will not be replaced. If the railroad rails are to be recycled, then they will be wiped down with kerosene/mineral oil, prior to recycling if the track was removed from a PCB area.

Underground utilities are present throughout the length of the DRMO property. Additional DRMO area infrastructure that will be encountered during the soil removal includes multiple subsurface pipelines (e.g., storm water pipelines) and other underground utilities. Various storm water drainage pipes were observed outside the fence line throughout the length of the DRMO.

An unused oil/water separator (OWS) constructed of one-foot-thick concrete walls is present along the DRMO fence line in areas identified for excavation. This OWS will not be removed, but the contaminated soil surrounding the unit will be removed up to the OWS exterior wall. Any pipelines encountered during soil excavations will be left in place or restored. A similar situation exists for a concrete pad on the ground surface for one of the PAH soil removal areas. The PAH-

contaminated soils will be excavated, up to the perimeter of the concrete pad, but not beneath the pad.

Approximately 750 feet of concrete-lined open V-ditch is just outside and parallel to the DRMO fence line on the eastern perimeter. This V-ditch discharges into the unused OWS which discharges to the adjacent segment of Haynes Branch. Approximately 130 feet of this concrete-lined V-ditch will require removal to access the contaminated soil below. The section of concrete ditch outside the fence removed as part of the IM will not be replaced. The area will be restored and graded to allow for natural drainage.

Miscellaneous metal scrap debris is present within the earthen berm north of the DRMO fence line (to be removed), scattered across the DRMO area, observed within the soil and stream bank materials along Haynes Branch, and also present within the streambed of Haynes Branch. TTL will be required to dispose of recovered scrap debris.

The lead-contaminated materials to be removed from Haynes Branch include sediments, rocks, gravel, and cobbles up to 6-inches in diameter. The materials removed from the river bed will be placed on a dewatering pad and allowed to dewater by gravity drainage. The liquids from the dewatering process will be directly discharged back to Haynes Branch. In order for personnel and equipment to access Haynes Branch, the riparian vegetation (primarily trees and brush) along the western river bank and floodplains will need to be removed.

2.1 Project Plans and Permits

Project Plans for this project include the Excavation and Handling Plan, Waste Management Plan, Environmental Protection Plan, Erosion and Sediment Control Plan, Stormwater Pollution Prevention Plan, Sampling Plan, and Transportation and Disposal Plan. These plans are presented as Sections to this WP. Other plans include the Site Specific Health and Safety Plan (SSHSP) and Activity Hazard Analysis, Project Quality Control Plan, and an Environmental Conditions Report. These other plans are submitted under separate cover. The Project Plans are submitted in draft to the project team for review. Any review comments are addressed prior to submission of the final Project Plans.

Prior to mobilization, TTL will initiate coordination with NSA Crane staff to obtain local permits. These permits include:

- Safety and Building Availability Permit (ESO 8020/11);
- Digging Permit;
- Flame Tool / Hot Work Permit (NWSCC 11320);
- IDEM Storm Water General Permit;
- IDEM - CWA Section 401 Water Quality Certification;
- USACE - CWA Section 404 Dredge/Fill (for Haynes Branch to address sediment dredging and floodplain excavation);
- Utility Clearance.

TTL understands that NSA Crane requires project and daily activity specific permits to be issued prior to work activities being initiated. Several of these permits have minimum notification periods

such as the Dig Permit (7 days). TTL will comply with these timeframes and will not perform work until these permits are obtained from the appropriate authority.

2.2 Mobilization and Preparatory Work

Upon receiving the notice to proceed and approval of pre-project submittals, TTL and our subcontractor, Summit, will mobilize personnel and company-owned equipment from their office based in Indianapolis, Indiana. Additional construction equipment, if necessary, will be delivered from their Evansville location. Administrative support, exclusion zones, and material staging areas will be identified and established. Security Clearance will be obtained for personnel and transporters as needed. At the outset, Summit will establish the project perimeter and install temporary fencing, or barricades as necessary to secure the site. Additionally, barricades will be used throughout the active work zones to establish active work zones and support areas.

2.2.1 Site Preparation

Site preparation consists of site security, parking lot and road maintenance, clearing, survey/waste characterization, construction of stockpile areas and decontamination equipment pad/truck tire wash area.

Site Security - TTL will mobilize the necessary personnel, equipment, and materials to initiate this project. At the outset, we will establish the project perimeter and install temporary fencing, or barricades as necessary to secure the site. Additionally, barricades will be used throughout the active work zones to establish active work zones and support areas. A temporary 6-foot tall chain link fence will be constructed between the excavation areas and the DRMO operations area. **Appendix B, Figure 1-3** from the IMWP shows the proposed location of the temporary fence.

Parking Lot and Road Maintenance - Although TTL will maintain strict site controls, some residual fines and dust will likely enter the roadway periodically. As such, TTL will plan for periodic road sweeping as is necessary to keep residual material from accumulating on roadways.

Clearing - Because the areas of soil impacts are located in wooded areas to the North and East of the DRMO Storage Lot, some selective clearing will be necessary to access the impacted material. As such, Summit will utilize the excavation equipment to remove trees to allow access to these areas. In accordance with IMWP, Summit will cut the trees and woody vegetation to within 1-foot of the ground surface. Vegetation remaining within 1-foot of the existing surface will be handled with the impacted soil. Summit will relocate the cleared vegetation to a location on or near the DRMO Storage Lot at the direction of Officer in Charge of Construction.

Survey / Waste Characterization – TTL will subcontract an Indiana licensed surveyor to lay out each excavation area prior to initiating source removal activities. Additionally, Summit will utilize GPS enabled machine and/or rover control systems to maintain strict tolerance of the excavations both laterally and vertically. After the excavations have been clearly staked, and the locations recorded, TTL will meet with the approvals departments of both Advanced Waste Disposal and Heritage Group to determine the final waste characterization approach. Sample locations and depths will be finalized during this phase of the project.

Data generated from the characterization samples and the pre-existing analytical data will be used to identify areas of impacted soil that may be direct loaded as non-hazardous waste and transported to Advanced Waste Disposal in Winslow, Indiana. Areas that exhibit characteristics of lead contamination higher than the allowable 5 ppm will be clearly staked and recorded. All waste characterization sample locations will be surveyed and provided to NSA crane as part of a final as-built drawing.

Stockpile Areas – TTL will construct a temporary staging area in the approximate center of the DRMO lot. This area will be divided into 3 mixing bays divided by concrete bin blocks and/or standard jersey barriers. Although the exact amount of material requiring stabilization treatment is not known at this time, Summit proposes a general layout/design for consideration. Field adjustments will be made with regard to location and size as necessary. In general, the basic layout will include:

- Perimeter berms constructed of straw bales and/or clean overburden
- Concrete blocks to provide multiple mixing/loading bays
- 60-mil 80 mil plastic barrier underlain with a 3-inch sand layer.
- Silt fence, straw bales, and other erosion control measures to ensure sediment does not migrate off of the mixing pad.

Decontamination Equipment Pad/Truck Tire Wash – A portable dry decontamination pad will be used for the decontamination of heavy equipment, trucks, and associated equipment that contact PCB, PAH and lead impacted soil during the course of this project. A 20-foot by 40-foot (approximate) decontamination pad constructed of 60-mil PVC plastic, berms, and crane mats (or other acceptable decking) will be used on-site. PCB decon will require wipe/scrubbing with diesel fuel soaked rags once contaminated dirt is removed through scraping and brushing. Removed dirt will be added to the corresponding waste stream for landfill disposal.

2.2.2 Erosion and Sediment Control

Before excavation activities begin, erosion and sediment controls will be established to prevent impacts to surface water down gradient of the disturbance areas, namely Haynes Branch, Turkey Creek, and Boggs Creek per the IMWP Section 4.0 during excavation, backfilling, and restoration operations and until stabilization is achieved.

2.3 Soil Excavation

Contaminated soil will be removed from 15 general areas (5 PCB areas, 8 lead areas, and 2 PAH areas) at SWMU 21 as summarized in the following subsections. The IMWP Table 3-3 which shows the different excavation areas and subareas at SWMU 21 has been modified to include tonnage from each of the subareas for tracking purposes and is presented as **Table 1**.

2.3.1 PCB-Soil Excavation/Removal

Soil in the five general PCB-contaminated soil excavation areas (Areas 1, 2, 3, 4, and 5; which are further divided into nine subareas) will generally be excavated separately from other contamination. The PCB-contaminated soil areas contain variable concentrations of PCBs. There were two isolated locations outside the DRMO fence line where soil PCB concentrations were

above 50 parts per million (ppm) within PCB Area 3A and PCB Area 3B; these soil volumes will be managed, excavated, and disposed in accordance with the requirements specified under the Toxic Substances Control Act (TSCA) for materials with PCB concentrations over 50 ppm. Individual samples from PCB Subareas 1A and 1B all had PCB concentrations less than 50 ppm; therefore, PCB Subareas 1A and 1B will be managed in accordance with the soil lead concentration requirements associated with these same soil volumes. PCB Excavation Subareas 2, 3C, 4A, 4B, and 5 also had detected PCB concentrations below 50 ppm; therefore, these soil volumes may be disposed as non-hazardous waste. TTL will be responsible for collecting soil samples, as necessary, to characterize soil for storage and offsite disposal. Unless otherwise stated for specific excavation areas, direct loading of the trucks from the excavation is the preferred approach.

2.3.2 Lead-Soil Excavation/Removal

Soil in the eight general lead-contaminated soil excavation areas (Areas 1, 2, 3, 4, 5, 6, 7, and 8; which are further divided into 9 subareas) will generally be excavated separately from other contamination. The IMWP Table 3-3 presents the different excavation areas and subareas at SWMU 21. The lead-contaminated soil areas contain variable concentrations of lead. There were multiple soil lead detections inside the DRMO fence line above the industrial exposure standard of 800 ppm, and several soil lead detections outside the DRMO fence line above the residential exposure standard of 400 ppm. The soil volumes for subareas with detections above 800 ppm are presumed to require management as hazardous waste, because these lead-contaminated soils are not expected to pass the TCLP test for lead (5 mg/L). All lead-contaminated soil areas will require analysis by TCLP to support the selection of proper management and disposal procedures. For discussion purposes, it was assumed that soil volumes with a limited number of soil lead concentrations below 800 ppm could potentially pass the TCLP test for lead.

However, that assumption is based on the past results of lead-contaminated soils from other sites at NSA Crane. It should be understood the that a soil with a lead concentration of 400 mg/kg or less might still fail the TCLP test for lead if the soil lead was not tightly bound to the soil particles or was somehow more easily leachable than other previously tested soil samples. Soil volumes that fail the TCLP test for lead will either need to be managed, excavated, and disposed in accordance with the hazardous waste requirements specified under RCRA or require physical/chemical stabilization through the addition of chemical additives to modify the characteristics of the soil and reduce lead leachability. As noted in the IMWP Section 3.2.1, PCB Subareas 1A and 1B (which are the same subareas as those designated as Lead Subareas 1A and 1B) will be managed in accordance with the soil lead concentration requirements associated with these soil volumes.

Soils that fail the waste characterization TCLP will be managed in the following manner:

- During the waste characterization phase, Summit will segregate the identified impacted areas into grids segments approximately 25’ x 25’ (or as approved by the designated waste disposal facilities).
- Segments that require additional TCLP analysis (per the selected disposal facilities) will be

sampled and submitted to Pace Analytical in Indianapolis, Indiana.

- Segments that exhibit TCLP lead values greater than 5 mg/l will be designated for additional treatment.
- Soils requiring stabilization media will be mixed In-Situ to the extent possible to limit the potential for cross-contamination on the site.
- Deep soils (>4-feet), and soils in inaccessible areas (creek banks, heavily wooded) will be excavated and restaged in a designated mixing area in the north central portion of the DRMO lot.
- Stockpiles will be sized to approximately 300 cubic yards (or less).
- The soil amendment will be mixed with the high lead soils with use of a mixing attachment on a hydraulic excavator and/or standard bucket mixing with a hydraulic excavator.
- Within 48 hours, mixed soils will be re-analyzed to confirm TCLP lead values are less than 5 mg/l.
- Should soils fail the TCLP after mixing, Summit will evaluate if additional mixing will be conducted, or soils will be loaded for disposal at a Subtitle C disposal facility.

Stabilization media will be a lead stabilizing product, likely phosphate based. It is proposed to conduct bench scale testing with some samples to determine which reagent will work best in this situation. Potential reagents will be identified in the Waste Characterization Plan, to be submitted at a later date. The Waste Characterization Plan will be reviewed and approved by the Navy before implementation.

Lead Excavation Subareas 1B, 2, 3, 4, 5, 6, and 7 all have at least one detected soil lead concentration above 800 ppm; therefore, based on pre-excavation information, those soil volumes may require disposal as hazardous waste. Lead Excavation Subareas 1A and 8 have detected soil lead concentrations below 800 ppm; therefore, based on pre-excavation information, those soil volumes may be disposed as nonhazardous waste. TTL will be responsible for collecting soil samples, as necessary, to characterize soil for treatment, storage, and offsite disposal. TTL will be responsible for proper management of the lead-contaminated soil from each of the excavation areas.

If the lead contaminated soils are carefully excavated and segregated, then TTL could manage, transport, and dispose a portion of the soils with lower lead concentrations as non- hazardous waste; and higher concentration lead-contaminated soil could be managed, transported and disposed as hazardous waste. The areas with lower concentrations of lead will also need to be tested via TCLP since, theoretically, even the 400 ppm analytical results could potentially fail TCLP.

TTL could also choose to stabilize the more lead-contaminated soil while still onsite and prior to transportation, so that it might pass the TCLP test for lead. If verification sampling demonstrates that the treated and stabilized soil passes the TCLP test for lead, then the stabilized lead contaminated soil could be managed as non-hazardous waste.

The approximate soil volumes to be excavated were determined by multiplying the total excavation area of all lead-contaminated soil [as estimated by geographic information systems (GIS) data], by the average required depth of excavation (in feet) for each subarea. The SWMU 21 IMs for the lead subareas will consist of excavating and removing soil lead with lead concentrations greater

than 400 mg/kg in the soil outside the DRMO and immediately adjacent to the DRMO fence line and 800 mg/kg for interior soils of the DRMO, as shown on Figures 3-2A, 3-3A, and 3-4A.

The analysis of Haynes Branch sediment samples for metals indicated high metals concentrations, primarily lead, in distinct segments (IMWP Figure 3-6A). Because lead is the primary contaminant and other metals are co-located with lead, removal of contaminated materials with lead concentrations above 400 mg/kg lead also addresses the other co-located metals. Haynes Branch is a rock-filled stream with visible exposures of bedrock. Lead-contaminated stream material consists of fine sediment, sand, and small rocks up to six inches in length. Three distinct stream segments (Northern, Central, and Southern) were identified along Haynes Branch and require material removal. Uncontaminated sediment samples are located both upstream and downstream of the detected lead "hot spots" in the Haynes Branch sediments. As shown on the IMWP Figure 3-6A, the Northern Lead Sediment stream segment is approximately 290 feet in length with an average width of 27.5 feet, the Central Lead Sediment stream segment is approximately 160 feet in length with an average width of 27.5 feet, and the Southern Lead Sediment stream segment is approximately 150 feet in length with an average width of 27.5 feet. Most sediment samples were collected from the surface of the stream bottom to a depth of 0.5 feet (6 inches). Assuming a total of 600 linear feet of Haynes Branch will be excavated and the river width is approximately 27.5 feet wide, then the total area to be excavated will measure 16,500 square feet. It is further assumed that the lead-contaminated river material in Haynes Branch (when present) will be excavated and removed down to the bedrock surface, producing an estimated material volume of 306 cy. The area of lead-contaminated river bed materials from Haynes Branch proposed to be removed by this interim measures removal action at SWMU 21 to address unacceptable exposure risks caused by lead covers 600 linear feet of Haynes Branch, has an estimated volume of 306 cubic yards, and will weigh an estimated 500 tons (following dewatering).

2.3.3 PAHs as BaP Equivalents Excavation/Removal

The two SWMU 21 areas where excavations will be conducted to address elevated PAH concentrations (as BaP Equivalents) cover approximately 0.05 acres (2,113 square feet) (Table 3-3). The approximate soil volumes to be excavated were determined by multiplying the total excavation area of the two PAH-contaminated soil subareas (as estimated by GIS data), by the required depth of excavation for each subarea in feet (the vertical soil removal limit for each subarea). The IMs for the two BaP subareas will consist of excavating and removing soil with BaP equivalents concentrations greater than 2.1 ppm, as shown on the IMWP Figures 3-4B and 3-5.

2.3 Dewatering

If required, a temporary dewatering pad will be set up to dewater excavated soil that is exposed to heavy precipitation events. Although the need to dewater any excavated soil is not anticipated, should excavated soil require dewatering prior to off-site disposal, wet soil will be stockpiled on a dewatering pad which will be located within the construction area. The dewatering pads will be sized to accommodate excavated soil and loading equipment, as necessary. The dewatering pad will be constructed in such a manner that will retain all materials while allowing the water to drain by gravity from the soil and be collected in a sump. The water will then be filtered to remove any

remaining soil. After the water is filtered, it will be sampled for characterization and staged for eventual off-site disposal. In addition, the dewatering pad will be constructed to allow for the loading of dewatered soil material into trucks for transport to the NSA Crane-approved off-site disposal facility. The direct loading of the trucks from the excavation is the preferred approach, and no stockpiling of contaminated soil (except for those soil volumes when dewatering is required and for lead stabilization) will be authorized.

The volume of water collected through dewatering is not expected to be large, unless soil excavation/removal is performed during periods of heavy precipitation. TTL will make every effort to prevent or minimize the excavation of soil requiring dewatering. Excavation activities will cease during heavy rain events, and excavations will be covered with tarps or plastic sheeting (as temporary barriers and anchored with clean fill) to keep contaminated soil from becoming saturated in the excavations and to prevent water contact, thus resulting in the need to sample the water for off-site disposal.

The dewatering of lead-contaminated river bed materials from Haynes Branch is anticipated to generate excess water. As noted in the IMWP Section 3.1, the materials excavated from the river bed will be placed on a dewatering pad and allowed to dewater by gravity drainage. The liquids from the dewatering process will be directly discharged back to Haynes Branch.

2.4 Backfilling

The immediate backfilling following excavation of an individual area of contaminated soil is the preferred method with the excavated area backfilled, compacted, and regraded to the general level of surrounding grades (IMWP Figure 1-2). However, immediate backfilling cannot occur where confirmation sampling of excavation wall or floors is required. Consequently, we will be required to protect open excavations from accumulation of precipitation. To prevent contact with soil in excavation areas, and to control the potential for accumulation of precipitation in excavation areas, tarps or plastic sheeting will be employed as temporary barriers (secured with clean fill) to keep contaminated soil from becoming saturated in the excavations. When the laboratory excavation soil sampling data confirms that the contaminants are not at levels of concern in the excavation walls or floor, then the excavation will be authorized for backfilling and restoration.

The backfilling of excavation areas inside the DRMO fence line requires placement of at least 6-inches of gravel at the surface which is underlain by a geotextile fabric to promote drainage and maintain the integrity of the gravel cover on the ground surface. Surface and subsurface soil excavation and impacted areas in level areas will be backfilled to approximate pre-construction conditions using continuous backfilling techniques. The backfill materials obtained from an off-site borrow source will have properties similar to the native SWMU 21 surface/subsurface soil. This soil will be subject to analytical testing under this TO to ensure that the material satisfies the following requirements:

- TAL metals (results <IDEM RCGs or Crane background).
- SVOCs (results <IDEM RCGs).
- Sum of benzene, toluene, ethylbenzene, and xylenes, USEPA SW-846 5030 / 8021 - less than 1 ppm.
- Total PCB, USEPA SW-846 8082 - less than 1 ppm.

Additionally, the backfill material shall meet the physical characteristics described below for each of the 15 primary excavation areas. The backfilled areas will be restored to pre-construction conditions using permanent stabilization practices by covering them with gravel, and (where appropriate) vegetation featuring a variety of habitat enhancement plant species.

Surface/Subsurface Soil Excavation Backfill (to within 9-inches below the ground surface elevation) – Backfill soil for the surface/subsurface soil excavation area will be placed in 1-foot thick lifts, and compacted by track-walking across the backfilled area with track-type equipment. When necessary, deeper excavations may be compacted using a clean excavator bucket.

Surface/Subsurface Soil Excavation Topsoil/Gravel (top 9-inches) – The existing surfaces in the surface/subsurface soil excavation areas are covered with either gravel or grass. The top 6 inches of backfill in gravel areas will be American Association of State Highway and Transportation Officials (AASHTO) No. 7 stone compacted using a smooth drum roller or equivalent which will be underlain with geotextile fabric. The top 9 inches of backfill in vegetated areas will be un-compacted topsoil

3.0 ADMINISTRATIVE AND MANAGERIAL REQUIRMENTS

Effective administration and management of the TO is enhanced by defined lines of communication throughout the project organization, a well thought-out project schedule, a thorough set of site plans and specifications, and effective project documentation and follow-up reporting.

3.1 Project Organization

The TTL project organization chart illustrates the lines of communication between the project team, our subcontractors, and our client. TTL has selected individuals from our company who can provide the experience and capability necessary to successfully complete a project of this type. The TTL project organization chart is provided in **Figure 1.**

3.2 Key Project Specific Personnel

Our project manager, **Mr. Robert Beckwith, PG,** has over 29 years of environmental contracting and consulting experience with the Navy, Air Force, and Corps of Engineers. Our proposed personnel for this Task Order are presented in the following Personnel Table.

Table 1: Roles and Responsibilities

Position Description	
Position	Responsibility
Robert S. Ruse, Ph.D., P.E. Program Manager	Management of overall contract; ensures consistency with program requirements
Robert Beckwith, PG Project Manager	Management of Task Order; ensures all aspects in the SOW are followed; Task Order invoicing, coordination with subcontractors, NAVFAC Task Order manager
Rich Barcum, CIH, CSP, CHMM Corporate Health and Safety Officer	Ensures Task Order complies with corporate Health and Safety program and the SOW health and safety requirements
Paul Hotz Program QA/QC Officer	Ensures Task Order complies with corporate QA/QC program and the SOW QA/QC requirements
Terry Knecht Site Superintendent	Has responsibility and authority to direct work performed. The Site Superintendent is responsible for the management and execution of all site activities in accordance with the IMWP, approved Work Plan, and all Federal, State, and local laws and regulations.
Jammie Quick Project QC Manager/Site S&H Specialist	Assist and represent the QC Program Manager in continued implementation and enforcement of the approved Project QC Plan. Assist and represent the H&S Manager in continued implementation and enforcement of the approved SSHSP. The SHSS has the on-site responsibility and authority to modify and stop work, or remove personnel from the site if working conditions change that may affect on-site and off-site health and safety.

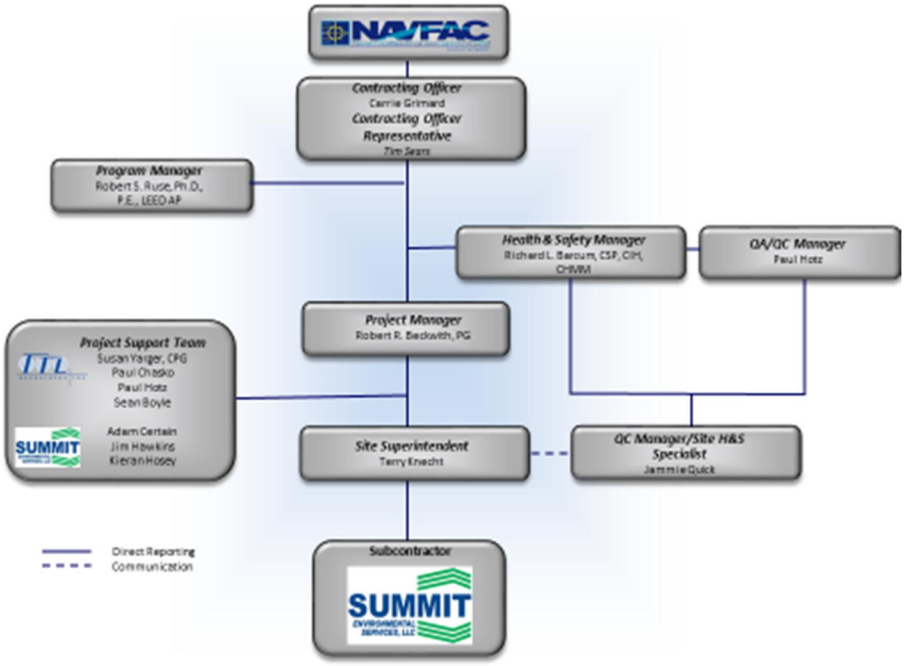
3.3 Key Subcontractors

Our key subcontractor is Summit Contracting, LLC. (Summit). Summit will be responsible for the removal of contaminated soil and sediments, transportation and disposal of the soil, and site restoration.

3.4 Chain of Command and Communications Chain

Our organization chart is presented in Figure 1, whereas the Program Manager has the authority for the management of the overall contract and ensures consistency with program requirements. The Project Manager has the authority to manage the Task Order and ensures all aspects in the SOW are followed. The Site Supervisor oversees the work performed by our key subcontractor.

Figure 1: Organizational Chart



Our Team and Key Personnel roles and responsibilities are clearly defined, providing NAVFAC Midwest with a turnkey team that maximizes best value, minimizes risk, and ensures overall client satisfaction.

3.5 Field Work Reports and Submittals

TTL will furnish items identified in the Basic Contract, NSA Crane Contractor's Operations Manual, and the Supplemental Specifications provided in Appendix C of the IMWP. In addition to the Quality Control (QC) submittals and Safety and Health submittals required by the NSA Crane Contractor's Operations Manual and the Basic Contract, TTL will submit the following to the Navy:

- Fieldwork reports in accordance with Part 6.4 Section C of the Basic Contract.
- Contractor 29 Code of Federal Regulation (CFR) 1910.120 Employee Training Certificates for all Contractor employees scheduled to be on-site.
- Erosion and Sediment (E&S) Control installation and inspection logs.
- Copies of NSA Crane specific permits.
- Certification and sampling results for backfill material and topsoil. The need for backfill should be kept to a minimum, especially for raised areas that were already higher than the surrounding grade. A minimum of one sample per borrow source is required.
- Waste transportation subcontractor name, address, contact name, telephone number, and United States Department of Transportation (USDOT) number.
- Hazardous waste disposal facility name, address, contact name, telephone number, and United States Environmental Protection Agency (USEPA) and State identification numbers, if required.
- Solid waste disposal facility name, address, contact name, telephone number, USEPA and State identification numbers.
- Copies of Treatment/Disposal Facility Permits.
- Waste profiles, complete waste characterization results, and any waste disposal facility pre-approval or approval documentation.
- Work Site Decontamination Certificates (verification that all vehicles equipment and containers were properly decontaminated prior to leaving the work site).
- Disposal Site Decontamination Certificates (verification that vehicles and containers were decontaminated prior to leaving the disposal facility).
- Shipment Manifests (manifests and other documents required to ship waste).
- Delivery Certificates (verification that waste was received at identified waste disposal facility).
- Treatment and Disposal Certificates (verification that waste was successfully received and disposed).
- Decontamination Log.

3.6 CTO Closure Report

Upon completion of the scheduled activities, a final CTO Closure Report will be prepared to include the information listed in Section 3.5 above. The report will include a brief summary of the activities performed. In addition, the report will include appendices containing Fieldwork reports, contractor training records, Erosion and Sediment Control installation and inspection logs, copies of NSA Permits, backfill source sampling results, waste transporter information, waste disposal

facility information, waste characterization information, vehicle and container decontamination documentation, waste manifests, and decontamination logs. The final report will be prepared no later than 30 days following project completion.

3.7 Baseline Project Schedule

TTL's proposed baseline schedule for the project is provided in **Appendix C**, Proposed Project Schedule. This schedule is based upon working five days per week (Monday through Friday), 10 hours per day. Requests for working extended hours or days will be submitted to the Contracting Officer Representative (COR) for approval prior to initiating any additional work activity.

3.7.1 Schedule Management Procedures

TTL will use Microsoft Project Scheduling software to develop and track the project schedule. As the project progresses, the schedule will be reviewed to identify potential variances in the actual versus baseline schedule, resource balancing, timing of supplies and material deliveries and timing of work item initiation and completions.

3.8 Supervision and Management

The Project Manager and Site Superintendent will be responsible for organizing the work, scheduling each activity, and monitoring project progress. The Site Superintendent will prepare the Contractor Production Report to document the work activities. These reports will be submitted to the NSA Crane Project Manager, and the TTL Project Manager within 24 hours.

3.8.1 Meetings

Meetings will be conducted on a weekly basis with NSA Crane Project Manager, Site Superintendents, and TTL Project Manager either via teleconferences or in person. The Site Superintendent prepare the meeting minutes. The objective is to assure timely communication of the projects progress and the status of all project issues. These minutes will be distributed to the NSA Crane Base and TTL.

3.8.2 Regulatory and Permit Issues

The principal organization involved in permitting during the project is NSA Crane. Any required permits will be discussed at the pre-construction meeting. Prior to mobilization, TTL will initiate coordination with NSA Crane staff to obtain local permits. These permits include:

- Safety and Building Availability Permit (ESO 8020/11);
- Digging Permit;
- Flame Tool / Hot Work Permit (NWSCC 11320);
- IDEM Storm Water General Permit;
- IDEM - CWA Section 401 Water Quality Certification;
- USACE - CWA Section 404 Dredge/Fill (for Haynes Branch to address sediment dredging and floodplain excavation);
- Utility Clearance.

TTL understands that NSA Crane requires project and daily activity specific permits to be issued prior to work activities being initiated. Several of these permits have minimum notification periods

such as the Dig Permit (7 days). TTL will comply with these timeframes and will not perform work until these permits are obtained from the appropriate authority.

4.0 EXCAVATION AND SOIL HANDLING PLAN

This WP incorporates an Excavation and Soil Handling Plan that identifies personnel and equipment resources and sequence of excavation and site restoration activities. Figure 1-3 in Appendix B shows the proposed location of the field office and storage location, equipment parking, etc.). Erosion controls locations will be identified in the SWPPP.

4.1 Personnel and Equipment Resources

A long reach excavator capable of reaching shallow soils up to 50-feet away will be utilized. If necessary, a secondary, smaller, excavator will be utilized to access areas soils too far away for the long-reach machine to access. In each case, it is our intent to minimize the amount of tracking of equipment inside of the excavation areas. In the 15 excavation areas, TTL anticipates utilization of the following resources:

Personnel	Equipment
Site Superintendent	CAT 329 Long Reach Excavator
PQC/SSHP	Hitachi 200 Excavator (if necessary)
H&S Officer / Waste Coordinator	CAT 270 Track Skid Steer (or equivalent)
(1-2) Equipment Operator	Support Trucks
(1-2) Laborer	Pickup Trucks

4.2 Sequence of Excavation

The generalized sequence of excavation activities is presented below. This sequence is subject to change based on the approval of this WP.

1) Hold a pre-IMWP implementation meeting with the NSA Crane OICC, Contracting Officer, TTL, and Tetra Tech representative, at a minimum.
2) Inspect and photograph SWMU 21 to verify existing site conditions, confirm all utility locations, and obtain all required permits.
3) Trees will be cleared in the northern earthen berm area and in the northeast excavation areas. This work needs to be finished by March 31, 2015.
4) Install perimeter controls per the Erosion and Sediment Control Plan. Maintain all perimeter controls during excavation and restoration activities.
5) Clear areas for support features including, but not limited to, the decontamination pad, materials storage area, and potential dewatering pad. Construct the support features as needed in work areas.
6) Remove sections of the fence surrounding the DRMO property in order to access contaminated soil and river material excavation areas outside the DRMO fence and to facilitate the excavation of soil contamination along the actual fence structure. During the performance of the soil excavation activities, the contractor will be required to provide a

secure temporary fence at the DRMO. Following the completion of soil and river material excavations for the SWMU 21 IM, the contractor will reinstall the DRMO security fence, which will meet the original fence material specifications.

7) Excavate PCB-contaminated soil areas from SWMU 21. The PCB-contaminated soil will be loaded for off-site disposal. Continuous backfilling shall be employed during soil excavation as much as is practical to reduce the amount of open excavations. Load and transport soil to the NSA Crane-approved off-site disposal facility. Following the excavation and removal of PCB-contaminated soil, restore the disturbed areas as required.

8) Excavate the lead-contaminated soil areas from SWMU 21. The lead-contaminated soil will be loaded for off-site disposal. Continuous backfilling shall be employed during soil excavation as much as is practical to reduce the amount of open excavations. Load and transport soil to the NSA Crane-approved off-site disposal facility. Following the excavation and removal of lead-contaminated soil, restore the disturbed areas as required.

9) Excavate the PAH-contaminated soil areas from SWMU 21. The PAH-contaminated soil will be loaded for off-site disposal. Continuous backfilling shall be employed during soil excavation as much as is practical to reduce the amount of open excavations. Load and transport soil to the NSA Crane-approved off-site disposal facility. Following the excavation and removal of PAH-contaminated soil, restore the disturbed areas as required.

10) Excavate the lead-contaminated river material areas from Haynes Branch that are adjacent to SWMU 21. The lead-contaminated river material will require dewatering. Finer sediments may require stabilization prior to loading to support management/disposal as non-hazardous waste. TTL is responsible for pre-disposal river material characterization to support identification of proper management/off-site river material disposal requirements. Load and transport river material to the NSA Crane-approved off-site disposal facility

11) Following transportation and disposal of all excavated surface/subsurface soil and river material, remove the dewatering pad, and decontamination pad. Tetra Tech will collect verification samples from within the footprint of the support features. All costs associated with remediation of any contamination found in the support areas will be borne by TTL. Following verification that the ground beneath these support features was not impacted by construction activities, regrade as necessary and establish permanent stabilization.

12) Following permanent stabilization of all disturbed areas, and with the approval of the OICC, remove all remaining perimeter controls, and immediately stabilize all remaining disturbed areas.

4.3 Approaches for Contaminated Soils

The overall soil removal, handling, and stabilizing approach for each excavation phase (1A, 1B, and 2) will be generally as follows:

4.3.1 SCA Source Removal

In areas identified in the IMWP as containing PCBs in excess of 50 ppm, Summit will excavate and direct load material into lined, end dump tractor-trailers for transportation and disposal at Heritage Roachdale Landfill Subtitle C facility. Confirmation Sampling will be conducted after

the excavations reach the limits outlined in the IMWP. TTL anticipates a nominal 48 hour turn-around-time on the PCB samples (collected and analyzed by others), but results may not be in hand until approximately four working days. During this time, the excavations will be lined with 6 mil visqueen plastic weighted in place with sand bags or clean earthen material. Additional TSCA material will be excavated as determined by the confirmation sample results. Confirmatory samples collected by others.

4.3.2 Lead Impacted Excavations

Lead Excavation Areas will be segregated into smaller areas or grids for waste characterization sampling purposes. Samples will be collected in these established areas and analyzed using the Toxicity Characteristic Leaching Procedure (TCLP). Samples that contain a lead at levels higher than 5 parts per million (ppm) will be considered hazardous in nature and will require additional treatment or special handling. If the lead contaminated soils are carefully excavated and segregated, then TTL could manage, transport, and dispose a portion of the soils with lower lead concentrations as non- hazardous waste; and higher concentration lead-contaminated soil could be managed, transported and disposed as hazardous waste. The areas with lower concentrations of lead will also need to be tested via TCLP since, theoretically, even the 400 ppm analytical results could potentially fail TCLP.

TTL could also choose to stabilize the more lead-contaminated soil while still onsite and prior to transportation, so that it might pass the TCLP test for lead. If verification sampling demonstrates that the treated and stabilized soil passes the TCLP test for lead, then the stabilized lead contaminated soil could be managed as non-hazardous waste.

Lead impacted areas will be managed to allow site crews to direct load non-hazardous material for transportation/disposal to Advanced Waste Disposal's Blackfoot Facility, a Subtitle D landfill. Lead contamination that do not meet the acceptance criteria will be stabilized/mixed to meet acceptance criteria for Advanced Waste Disposal. Areas designated for additional stabilization will be loaded into on-site trucks and transported to the mixing pad. Soil approved by Advanced Waste Disposal will be direct loaded into tri-axle dump trucks and transported to the Blackfoot Facility (Subtitle D). Soil requiring additional treatment will be transported to the stabilization pad and staged in approximate 200 cubic yard stockpiles. Stockpiled material will be mixed thoroughly with stabilization media and re-sampled in accordance with waste characterization guidelines. Waste Characterization Guidelines are the waste characterization sampling protocol that is agreed upon by TTL, Summit, Crane, & the Disposal Facilities. Section 2.3.2.2 lists the procedures.

Once it has been verified that the leachate potential of the stockpiled soil has been reduced to a level below the RCRA standard, Summit will load the material into tri-axle dump trucks for transportation and disposal at Advanced Waste Blackfoot Landfill in Winslow, IN. Lead excavation areas will be sampled (by others) to confirm the remaining soil is below the acceptable concentration set forth in the IMWP (800 ppm inside the fence area, and 400 ppm outside of the fence area). Additional material will be excavated as necessary.

4.3.3 Non-TSCA Excavations

Non-TSCA material (as determined by the existing analytical data provided in the IMWP), will be direct loaded (where feasible) into tri-axle dump trucks and transported to Advanced Waste Blackfoot Landfill in Winslow, IN. However, some of the non-TSCA areas will need confirmation sampling.

4.3.4 PAH Excavations

It is anticipated that PAH Excavation Areas 1 and 2, will be direct loaded. The soil to be removed from BaP Subarea 1 will require confirmation sampling be conducted on the excavation walls of the northwestern and southeastern perimeters to verify that PAH-contaminated soils (expressed as BaP equivalents) with unacceptable exposure risks have been successfully removed from this excavation subarea. The soil to be removed from BaP Subarea 2 will require a floor sample from the bottom of the excavation to be collected to confirm that PAH-contaminated soils with unacceptable exposure risks have been successfully removed. Due to a data gap in the delineation sampling, there is also a need for confirmation sampling in the in the northwestern wall of the excavation for BaP Subarea 2.

4.4 Site Restoration Approach

At each of the excavation areas, TTL will identify (prior to excavation) whether the preparation of gravel or vegetation surfaces will be required for restoration, and will perform the appropriate restoration activities as necessary.

Limited stream restoration will be needed for the excavation areas in Haynes Branch because the removal action is focused on the removal of lead-contaminated river material. Rocks and cobbles greater than six inches along an axis will be returned to the streambed following material removals. Sediments and small rocks from clean upstream reaches of the stream will naturally replace the removed river material over time. A stream restoration plan will be prepared by the contractor for the IM restoration activities performed in and around Haynes Branch to meet regulatory requirements.

Once an excavation area has been completed (and upon approval from the on-site Owner Representative), Summit will initiate backfill activities. Summit will continuously backfill excavations to minimize the amount of water collection in these areas. Prior to backfill, it is anticipated that the finished excavation will be surveyed to allow for a surveyed volume of total material removed from the excavation to be calculated. Once the survey work has been completed, Summit will place clean fill in the excavated areas.

- Summit will utilize excavation equipment to track in the certified clean fill material to within 9-inches of existing grade.
- The last 9-inches of the excavation areas will be finished with either topsoil OR Indiana No. 7 stone.
- After backfill operations have been completed, Summit will restore the topsoil areas with an approved hydroseed/mulch mixture. Sloped areas will be additionally stabilized with straw matting and staples.

5.0 WASTE MANAGEMENT PLAN

This Hazardous/Waste Management Plan briefly summarizes the previous site work, identifies the contaminants and identifies the waste disposal locations. The plan addresses potential regulated hazardous waste, non-hazardous waste and non-soil construction debris. Additionally, the plan addresses items such as equipment decontamination, and decon water collection, filtering and disposal.

5.1 Previous Site Work

Tetra Tech conducted a RCRA Facility Investigation (RFI) and delineation activities at SWMU 21 in September 2010, April 2011 and March 2014. During the RFI and delineation activities, over 300 soil borings were installed to depths ranging from 2 feet bgs to 16 feet bgs. The soil samples collected from these borings showed that the surface sediments were generally a dry to moist, brown, silty clay. The deepest boring, 21SB41 encountered a 1-foot thick gravel layer and dry brown silty clay from 1 foot bgs, to the top of bedrock at 16 feet bgs. Bedrock was described as reddish brown mottled sandstone. A black ash layer was encountered in several borings. The black ash layer from 1-foot to 2-feet bgs in SB19 was analyzed and contained PAHs that exceeded the PSLs. A soil sample collected immediately below the ash layer was analyzed, and no PAH exceedances were detected.

The RFI resulted in the generation of an IMWP, Tetra Tech, 2014. Contaminated soil is to be removed from 15 general areas (5 PCB areas, 8 lead areas, and 2 PAH areas) at SWMU 21 which have been contaminated by materials that were temporarily managed, staged, or placed at the DRMO storage lot at NSA Crane. In addition, this IMWP specifies the restoration of these general excavations. Removal of the soils from these areas will reduce site-wide exposure risks for PCB, lead, and PAHs. Three discrete stream segments of Haynes Branch will have the river materials removed to address four identified sediment locations with lead contamination as well as other metals.

5.2 Waste Disposal Locations

In areas identified in the IMWP as containing PCBs in excess of 50 ppm, the soils will be direct loaded into lined, end dump tractor-trailers for transportation and disposal.

- Disposal Facility:
  Heritage Subtitle C Landfill
  4370 W County Road 1275 N, Roachdale, IN
  Dan Handschu, 317-486-2946
- EPA ID No. IND 980 503 890

Non-TSCA material and lead-impacted soil approved by Advanced Waste will be direct loaded into tri-axle dump trucks and for transportation and disposal.

- Disposal Facility:
  Advanced Disposal Subtitle D Blackfoot Landfill
  3726 E. State Route 64, Winslow, IN
- Derrick McVaigh, 812-868-1100

- Trucking Company - Youngs

5.3 Potential Regulated Hazardous Waste

Potential hazardous wastes (TSCA) include areas identified in the IMWP as containing PCBs in excess of 50 ppm.

Impacted soil with levels of TCLP lead concentrations higher than 5 ppm will be considered hazardous in nature and will require additional treatment or special handling.

5.4 Non-Hazardous Waste and Non-Soil Construction Debris

Impacted soil with levels of TCLP lead concentrations less than 5 ppm will be considered non-hazardous in nature and will require no additional treatment or sampling. These areas will be removed in conjunction with the PAH soils as special waste.

Non-TSCA material (as determined by the existing analytical data provided in the IMWP), will also be considered non-hazardous.

Miscellaneous metal scrap debris is present within the earthen berm north of the DRMO fence line (to be removed), scattered across the DRMO area, observed within the soil and stream bank materials along Haynes Branch, and also present within the streambed of Haynes Branch. TTL will dispose of recovered scrap debris.

5.5 Equipment Decontamination

A portable dry decontamination pad will be used for the decontamination of heavy equipment, trucks, and associated equipment that contact PCB, PAH and lead impacted soil during the course of this project. A 20-foot by 40-foot (approximate) decontamination pad constructed of 60-mil PVC plastic, berms, and crane mats (or other acceptable decking) will be used on-site. PCB decon will require wipe/scrubbing with diesel fuel soaked rags once contaminated dirt is removed through scraping and brushing. Removed dirt will be added to the corresponding waste stream for landfill disposal.

5.6 Personal Protection Equipment Disposal

Used personal protection equipment and other wastes, such as litter and household garbage, will be collected and containerized and transported to the Blackfoot Landfill. Acceptable containers will be sealed boxes or plastic garbage bags.

6.0 ENVIRONMENTAL PROTECTION PLAN

This Work Plan includes an Environmental Protection Plan that addresses items such as fuel storage and refueling procedures, spill response and mitigation procedures, dust control and cultural & natural resource protection procedures.

6.1 Fuel Storage and Refueling Procedures

All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled. Off-road heavy equipment will be fueled using truck refuelers. Proper spill containment and clean-up materials will be present during refueling operations.

There will be no storage of fuel or other petroleum products on the project site unless specifically authorized in writing by NSA Crane. If storage is not allowed, then fuel must be brought to the project site each day that work is performed for which fuel is needed. The fueling and lubricating of equipment and motor vehicles will be conducted in a manner that protects against spills and evaporation. All used oil generated on site will be managed in accordance with 40 CFR 279.

The following generic requirements and conditions apply to refueling operations:

- All fuel will be stored within secondary containment having 110 percent capacity.
- All fuel spills will be immediately reported.
- Appropriate spill response equipment will be located adjacent to refueling operations. Spill containment will be located to provide protection of the ground surface at the tank nozzle and the fill port.
- If possible, locate all refueling operations on a paved surface and away from storm drainage structures.
- Ensure a competent person is at the dispensing nozzle during all filling operations. The dispensing nozzle will be listed as self-closing without a hold-open clip.
- No smoking within 25 feet of refueling operations.
- Tank vehicles delivering fuel to the site shall comply with all applicable local, state, and federal regulations. All tank vehicles and dispensing containers will be grounded against static electricity. All deliveries will be made in adequately lighted areas during normal business hours, if possible.
- The tank vehicles will have flashing lights in operation while dispensing. Each tank being filled will have adequate expansion space.
- A serviceable and unobstructed extinguisher will be in place.
- Proper safety distance will be maintained between fuel trucks, vehicles, and buildings.
- All refueling operations must be halted during electrical storms within 5 miles.
- Free falling fuel is prohibited.
- Secure the area within 25 feet of the refueling facility with rope/tape and post "NO SMOKING" signs.

An inventory of all materials, equipment, tanks, containers, vehicles, activities that either containing or involve oils as defined in 40 CFR 112 will be prepared and submitted.

6.2 Spill Response and Mitigation Procedures

This Plan includes the procedures, instructions, and reports to be used in the event of an unforeseen spill of a substance regulated by 40 CFR 68, 40 CFR 302, 40 CFR 355, and/or as regulated under state or local laws and regulations. With our commitment to having skilled people on our management team, we will implement a Best Management Practices (BMP) procedure along with our subcontractors and add this practice into our Preparatory Meeting as well as our regular progress meetings.

6.2.1 Spill Notification Procedures

TTL will comply with all regulatory guidelines regarding emergency spill notification for reportable quantities and, if necessary, can respond to the situation with our own personnel to expedite recovery and cleanup. The SSHS will report any spills or hazardous substance releases to NSA Crane so that they can contact all appropriate regulatory agencies and will follow up with complete documentation. The Health & Safety Manager will immediately notify the Contracting Officer, Contracting Officer Representative, NSA Crane Fire Department and Environmental Office if a reportable quantity is released to the environment. The base environmental manager will notify the legally required Federal, State, and local reporting channels (including the National Response Center 1 800 424 8802) if a reportable quantity is released to the environment.

The EPA has issued regulations that define what reportable quantity levels are for oil and hazardous substances. These regulations are found at 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302. If there is a reportable quantity release during the construction period, then the following steps must be taken:

- Notify NSA Crane Fire Department and Environmental so that they can contact all appropriate regulatory agencies.
- Within 14 days, submit a written description of the release to the EPA Regional office providing the date and circumstances of the release and the steps to be taken to prevent another release.

Spill cleanup, remediation, damage to the environment and other related incurred expenses resulting from TTL actions will be the responsibility of the TTL.

6.3 Spill Response Materials

Spill kits will be available on-site as required and dictated by the potential hazard. The following list of materials and equipment will be immediately available at the job site, tailored to cleanup work of the potential hazard(s) identified:

Pigskins	Containment booms
Sand	Plastic
Duct Tape	Kitty Litter
Shop Vacuum for HAZ-MAT use only	Brooms and Shovels
Metal Drums	Proper Fuel Containers

6.4 Spill Prevention and Control Plan

In addition to the good housekeeping and material management practices, the following practices will be followed for spill prevention and cleanup:

- Daily inspection of heavy equipment to include, but not limited to, hydraulic and fuel lines.
- Manufacturers' recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage area onsite. Equipment and materials are listed in Section 6.3
- Insuring that subcontractors have performed preventive maintenance on all tanks, valves, pumps, pipes and other equipment as needed
- Providing appropriate signage in hazardous materials storage areas

6.4.1 Spill Control and Response

All spills will be cleaned up immediately after discovery. The methods and procedures to be used for expeditious contaminant cleanup include:

- Providing appropriate signage and barricade
- Stopping the source of the spill immediately
- Containing the liquid until proper disposal can be arranged
- Covering the spill with an absorbent material such as kitty litter or sawdust
- Recovering the spilled materials
- Disposing of the cleanup materials properly
- Contain area with berms or sorbent socks
- Limit area spreading to drains
- Use sand and or kitty litter to stop material from migrating
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- Regardless of the size, spills of toxic or hazardous material will be reported to the base environmental office. NAVFAC EV will report spills to the appropriate agencies.
- The spill prevention plan section will be adjusted to include measures to prevent this type of spill from recurring and how to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures will also be included.

Should a spill occur the first step will be to stop the spillage of material if it can be done safely by

plugging the container or if small enough placing in a larger container. The direction of flow will be determined and berms will be created to contain the spill and prevent the flow of the substance into storm drains, sensitive areas, wetlands, water ways, creeks, rivers etc. To the extent that it doesn't compromise clean-up activities, spills will be covered and protected from storm water run-on during rainfall. The contaminated area will be cleaned using absorbent pads, or if spill occurred on soil by removing the soil until uncontaminated soil is reached. The removed soil will be placed in drums or stockpiled on visqueen and covered until appropriate disposal method is determined. Used clean up materials, contaminated materials, and recovered spill material will be stored and disposed of in accordance with all applicable laws and regulations. Water that is used for cleaning and decontamination of a spill, will not be allowed to enter storm drain inlets or watercourses, and will be collected and disposed of properly in accordance with all applicable laws and regulations. Spill cleanup kits will be kept in areas where any materials are used and stored.

6.5 Dirt and Dust Control

The purpose of this dirt and dust control is to reduce respiratory problems, minimize low visibility conditions caused by airborne dust, and minimize deposition of dust and wind transported soils into water bodies and roadways throughout NSA Crane. TTL will inform the operator of each vehicle to inspect the tires of the vehicle to ensure that there is not an excessive amount of dirt or dust on them. Excessive dirt and dust will removed from tires before construction vehicles travel on NSA Crane roadways located outside of the construction zone.

6.6 Cultural & Natural Resource Protection Procedures

TTL will make every effort to preserve the integrity of the natural resources of the project area throughout the excavation activities. This includes ensuring the surrounding area is not environmentally damaged in any way by preventing the release of hazardous substances into the surrounding air, land, or water.

6.6.1 Protection of Cultural Resources

There are no known historical or cultural concerns (such as Native American burial grounds or historic landmarks) on or in the vicinity of the site. There are no land use controls associated with the site.

6.6.2 Threatened and endangered species

Threatened and endangered species or species of special concern protected under Indiana or federal regulations exist or may exist at SWMU 21, and will be protected. Protected bird species that may use SWMU 21 as part of their home range include the bald eagle, osprey, sharp-shinned hawk, red shouldered hawk, broad-winged hawk, black and white warbler, hooded warbler, and the worm-eating warbler (B&RE, 1997). Also, the Indiana bat, a federally endangered species, is known to forage at NSA Crane. During the spring and summer, Indiana bats roost in trees and forage for insects primarily in riparian and upland forests. The most important characteristic of roost trees is thought to be structural exfoliating bark with space for bats to roost between the bark and the bole

of the tree. To a limited extent, tree cavities and crevices are also used for roosting. Although extensive tree removal is not anticipated, there may be some limited vegetation removal required to access the northernmost and westernmost soil removal areas to address lead and PAH contamination, respectively. When vegetation removals are necessary, TTL will comply with the requirements presented here.

In 1997, NSA Crane received a letter from the United States Fish and Wildlife Services (USFWS) stating that, in their opinion, NSA Crane had an abundance of Indiana bat habitat, and that any activity that would result in the clearing of woody vegetation may affect the Indiana bat and would require consultation under the Endangered Species Act (ESA). The USFWS recommended interim guidelines for protecting Indiana bats and their habitat from silvicultural activities, and these recommendations were immediately implemented by NSA Crane under the timber management program. Because of the Indiana bat and its potential habitat, the cutting of trees at NSA Crane is restricted to certain times during the year. A summary of Indiana bat-related restrictions prepared by the NSA Crane Natural Resources Office (i.e., "bat primer") is as follows:

- Woody vegetation that is 5 inches in diameter or greater at 4.5 feet above the ground surface may not be removed from April 1 through September 30.
- Standing dead trees may not be removed from April 1 through September 30.
- Timber harvesting may occur after September 30 and before April 1 without a case-by-case consultation, provided the interim guidelines for silvicultural treatment issued to the NSA Crane Natural Resources Office by the USFWS are followed.
- During emergency situations, necessary and prudent tree removal is allowed at all times without consultation. However, the contractor will still need to seek the approval of the NAVFAC Crane Natural Resources Office.
- Brush clearing of woody vegetation less than 3 inches in diameter at 4.5 feet above the ground may occur at any time of the year without consultation.
- All other tree removal or clearing projects not covered above must be submitted to the USFWS via the Crane Natural Resources Office for informal consultation on a case-by-case basis.

6.6.3 Land Resources

Excavation activities will be completed without un-necessary disturbance of any land resources located at NSA Crane. If the need to disturb land resources arises, no action will be taken to do so unless authorized by the Contracting Officer (CO).

6.6.4 Tree Protection

Because the areas of soil impacts are located in wooded areas to the North and East of the DRMO Storage Lot, some selective clearing will be necessary to access the impacted material. As such, excavation equipment will be used to remove trees to allow access to these areas. In accordance with IMWP, he trees and woody vegetation will be cut to within 1-foot of the ground surface. Vegetation remaining within 1-foot of the existing surface will be handled with the impacted soil. Cleared vegetation will be moved to a location on or near the DRMO Storage Lot at the direction

of Officer in Charge of Construction.

6.6.5 Stream Protection

Three discrete stream segments of Haynes Branch will have the river materials removed to address four identified sediment locations with lead contamination as well as other metals. Limited stream restoration will be needed for the excavation areas in Haynes Branch because the removal action is focused on the removal of lead-contaminated river material. Rocks and cobbles greater than six inches along an axis will be returned to the streambed following material removals. Sediments and small rocks from clean upstream reaches of the stream will naturally replace the removed river material over time. A stream restoration plan will be prepared for the IM restoration activities performed in and around Haynes Branch to meet regulatory requirements under a separate cover.

Temporary Dam Details:

- Earthen Dam constructed of clean soils and aggregate material
- Dam will be removed and re-installed as work progresses downstream
- The dam construction will be in compliance with IDEM and Army Corps of Engineers guidance
- The dam and pump around system will be inspected prior to each shift, and after any significant rain event
- Work will be conducted in a downstream manner such that, in the event of a significant rainfall and breach of the dam clean areas will not be re-contaminated with upstream impacts
- The dam and pump around system will not be sized to handle high water or flooding events. Should these events occur during work activities, Summit will move equipment and personnel out of the creek area until the high water has subsided.

6.6.6 Fish and Wildlife Resources

TTL does not anticipate contact with fish or wildlife resources while completing excavation activities at NSA Crane. A temporary dam will be established upstream of the four identified sediment locations while operations are underway.

6.6.7 Wetlands

Wetlands have been identified and mapped, although in the SWMU 21 IMWP discussion of local ecology (Section 2.8), there is a statement at the end of the fourth paragraph on page 2-4, 'There are no lakes, ponds, or wetlands at SWMU 21.' **Appendix D** contains the maps delineating the wetlands.

7.0 EROSION AND SEDIMENT CONTROL PLAN

An Erosion and Sediment Control Plan (ESCP) describes the work sequence, identifies the erosion control measures planned (e.g., silt fencing, rip-rap locations, etc.), for each step and identifies the location of controls. The plan includes a site restoration section discussing backfill and topsoil placement, the seeding and fertilizing process and maintenance activity to include temporary protection (hydro-mulch) and watering necessary to reestablish the ground cover. The ESCP will be part of the IDEM Stormwater General Permit to be submitted under separate cover.

8.0 STORMWATER POLLUTION PREVENTION PLAN

This Work Plan includes a Stormwater Pollution Prevention Plan (SWPPP) including run on & runoff controls, hazardous waste/materials management (e.g., fuel storage, drip pans, etc.) construction entrances, etc. Excessive erosion caused by excavation is dependent on climate and site conditions. The frequency, intensity, and duration of rainfall are fundamental factors in determining the amount of erosion created. Erosion control measures will be implemented to control maximum possible sediment and/or debris from entering surrounding waterways. Continuously throughout the construction of the project, the erosion control measures will be inspected and repaired, if required, after each storm event at minimum and whenever failure occurs. The SWPPP will be part of the IDEM Stormwater General Permit to be submitted under separate cover

8.1 Protection of Erodible Soils

Existing ground cover will only be disturbed as necessary to perform the construction activities. Additional ground cover removal will not be permitted in order to maintain minimal exposure of erodible soils. Excavations will remain open long enough to perform the required work and then will be backfilled and compacted to final grade.

8.2 Temporary Measures

Use of the following methods to prevent erosion and control sedimentation will be established and maintained throughout construction. Sequencing of installation will be per the drawings and include but not limited to the following areas; installation of silt fences, installation of storm drain and culvert inlet protection, installation of permanent erosion control net, installation of jute mesh, construction of diversion dikes, and seeding.

8.2.1 Silt Fence

Silt fences will be installed before construction begins at the site and around stockpiles. Silt fences will be installed in segments as indicated on the drawings. Silt fences will be installed by excavating a 4-inch-deep trench along the line of proposed installation. Posts supporting the silt fence will be spaced no more than 6 feet apart and driven securely into the ground. The silt fence will be fastened securely to the posts with wire ties or staples. The bottom edge of the silt fence will extend across the bottom of the trench and the trench will be backfilled and compacted to prevent stormwater and sediment from discharging underneath the silt fence. Silt fences will be inspected weekly and immediately after storm events to ensure it is intact and that there are no gaps where the fence meets the ground or tears along the length of the fence. If gaps or tears are found during the inspection, the fabric will be repaired or replaced immediately. Accumulated sediment will be removed from the fence base if it reaches one-third the height of the silt fence and hauled off-site for disposal at the Blackfoot Landfill. If accumulated sediment is creating noticeable strain on the fabric and the fence might fail from a sudden storm event, the sediment will be removed more frequently. Before the fence is removed from the project area, the sediment will be removed.

8.2.2 Mechanical Retardation and Control of Runoff

So that excavation operations progress successfully, the construction site will be drained of excess water following large periods of rainfall. As necessary, TTL will establish/construct storm drainage features (ponds/basins) at the earliest stages of site development, and throughout construction to grade the construction area(s) in order to provide positive surface water runoff away from the construction activity and/or provide temporary ditches, dikes, swales, and other drainage features and equipment as required to maintain dry soils, prevent erosion and undermining of foundations. When unsuitable working platforms for equipment operation and unsuitable soil support for subsequent construction features develop, TTL will remove unsuitable material and provide new soil material to the extent required. Excavated slopes and backfill surfaces will be protected to prevent erosion and sloughing. Excavation will be performed so that the site, the area immediately surrounding the site, and the area affecting operations at the site shall be continually and effectively drained.

8.2.3 Vegetation and Mulch

Erosion protection will be provided on sides and back slopes as soon as rough grading is completed or sufficient soil is exposed to require erosion protection. Slopes will be protected by accelerated growth of permanent vegetation, temporary vegetation, mulching, and/or netting. Slopes will be stabilized by covering with anchored erosion netting, and other methods necessary for effective erosion control.

9.0 SAMPLING PLAN

This Sampling Plan is for the collection of characterization samples required for off-site disposal of excavated surface soils and for the collection, storage, characterization, and discharge of wastewater to the NSA Crane approved stabilized drainage channel or storm drain. This Sampling Plan also include sampling to characterize backfill materials.

At the completion of this IM and following removal of the support facilities (e.g., dewatering pad, decontamination pad, and material storage area, etc.), support area verification samples will be collected by Tetra Tech from the surface soil below the decontamination pad and dewatering pad (if this item is installed). If it is determined that the lining system under any of the support facilities failed during implementation of this IM, potentially resulting in the contamination of the soil below the support facilities, TTL will be required to remove that contamination at their expense. TTL has the option of pre-installation sampling of surface soils.

9.1 Sampling and Analysis

Summit will subcontract an Indiana licensed surveyor to lay out each excavation area prior to initiating source removal activities. Additionally, Summit will utilize GPS enabled machine and/or rover control systems to maintain strict tolerance of the excavations both laterally and vertically.

After the excavations have been clearly staked, and the locations recorded, Summit will meet with the approvals departments of both Advanced Waste Disposal and Heritage Group to determine the final waste characterization approach. Sample locations and depths will be finalized during this phase of the project.

We are currently working with the approved waste disposal facilities to design a sampling approach that will meet with their approval criteria. Once a final sampling protocol has been established, Summit will submit a final Waste Characterization Sampling Plan for approval. The Waste Characterization Sampling Plan will be reviewed and approved by the Navy before implementation.

The basis for the final plan will be the following:

- Existing PAH analytical results are sufficient for approval to Advanced Waste Disposal.
- Some additional PCB sampling may be required to better define TSCA areas
- Lead soil areas demonstrating totals values in excess of 100 PPM will be segregated into segments or “grids” (approximately 25’ x 25’) and analyzed for TCLP values.
- Sampling locations, depths, and “grids” will be surveyed and included in the Waste Characterization Sampling Plan.

Once approved, Summit will mobilize a track-mounted geoprobe and Indiana licensed well driller to collect the characterization samples.

Data generated from the characterization samples AND the pre-existing analytical data will be used to identify areas of impacted soil that may be direct loaded as non-hazardous waste and

transported to the Advanced Waste Disposal, Blackfoot Landfill in Winslow, Indiana, Hazardous and TSCA waste will be direct loaded and transported to the Heritage Roachdale Landfill in Roachdale, Indiana. TTL will prepare the waste profile for signature by a representative from the NAVFAC EV office.

Areas that exhibit characteristics of lead contamination higher than the allowable 5 ppm will be clearly staked and recorded.

All waste characterization sample locations will be surveyed and provided to NSA crane as part of a final as-built drawing.

9.2 Sampling to Characterize Backfill Materials

The backfill materials obtained from an off-site borrow source will have properties similar to the native SWMU 21 surface/subsurface soil. This soil will be subject to analytical testing to ensure that the material satisfies the following requirements:

- TAL metals (results <IDEM RCGs or Crane background).
- SVOCs (results <IDEM RCGs).
- Sum of benzene, toluene, ethylbenzene, and xylenes, USEPA SW-846 5030 / 8021 - less than 1 ppm.
- Total PCB, USEPA SW-846 8082 - less than 1 ppm.

Additionally, the backfill material shall meet the physical characteristics described below for each of the 15 primary excavation areas.

9.3 Collection, Storage, Characterization, and Discharge of Wastewater

The dewatering of lead-contaminated river bed materials from Haynes Branch is anticipated to generate excess water. As noted in the IMWP Section 3.1, the materials excavated from the river bed will be placed on a dewatering pad and allowed to dewater by gravity drainage. The liquids from the dewatering process will be directly discharged back to Haynes Branch.

10.0 TRANSPORTATION AND DISPOSAL PLAN

This Work Plan incorporates a Transportation and Disposal Plan with information including disposal landfills and waste transporter identification, transport routes and manifest preparation procedures. The plan describes the documentation process and the document flow from initiation to final disposal.

10.1 Transportation and Disposal of Soil

Soil designated for excavation will be sampled by TTL for waste disposal characterization purposes in accordance with the waste disposal facility requirements, using the methods required by the NAVFAC-approved waste disposal facility. TTL will be responsible for satisfying all disposal requirements of the selected disposal facility. Table 3-3 of the IMWP presents the quantities of soil to be excavated from each subarea. TTL will be responsible for verifying the classification of off-site disposal material (i.e., hazardous waste disposal vs. non-hazardous material disposal) by conducting characterization sampling and analysis, and satisfying the waste disposal facility requirements.

In conjunction with the site excavation, characterization, and staging activities, transportation of soil and sediment from the excavation areas OR the staging/treatment areas to approved disposal facilities will be coordinated. Soil will be transported to either:

- Blackfoot Landfill – Advanced Waste Disposal
  - Subtitle D for non-hazardous wastes
- Roachdale Landfill - Heritage
  - Subtitle C for TSCA hazardous wastes

10.2 Waste Transporter Identification

Youngs's Transportation will be subcontracted to haul non-hazardous wastes to the Blackfoot Landfill, and Heritage will be subcontracted to haul the hazardous wastes to their Roachdale Landfill.

10.3 Transport Routes

Access to NSA Crane is via four gates: the Main Gate referred to as the Bloomington Gate (Gate House No. 1) in the north; Burns City Gate (Gate House No. 2) in the west; Bedford Gate (Gate House No. 3) in the east; and Crane Gate (Gate House No. 4) in the northwest. NSA Crane will be accessed by TTL only through the Crane Gate. All vehicles will pass through the Crane Gate via the traffic routing plan shown on the IMWP Figure 3-11 (**Appendix E**). TTL is not permitted to travel within restricted areas of the facility. All waste hauling vehicles will be weighed upon arrival and at time of departure using the certified weight scale located at the DRMO.

Strict adherence to legal road weight limits is required. Drivers will not be given a signed manifest if the truck exceeds the weight limits. All manifests (hazardous and non-hazardous) will be signed by an authorized Navy representative.

From the DRMO, follow HWY 58 to the west to HWY 45. Proceed north on HWY 45 to HWY 5. Follow HWY 5 west to the Crane Gate.

10.4 Manifest Preparation Procedures

TTL will work with the approvals department of each facility to facilitate a profiling, and approval for each facility based upon the laboratory sampling results from the waste characterization sampling. Pre-printed manifests from each facility will be on-hand and will be executed by the on-site TTL disposal coordinator and the on-site NSA Crane representative to document the disposal of specified soil as hazardous waste soil and other soil as non-hazardous waste soil.

TABLE

TABLE 1

PROPOSED IM SOIL REMOVAL AREAS TO MITIGATE SOIL CONTAMINATION RISKS

SWMU 21 - DRMO STORAGE LOT NSA CRANE, CRANE, INDIANA

Subarea Designation	Excavation Phase (IA, IB, or II) & Subarea No.	IMWP Figure #	Area (square feet)	Depth of Contam. (ft.)	Estimated Volume for Excavation (yd3)	% of Soil Requiring Treatment	Total Volume Requiring Treatment	Tons Requiring Treatment	Total Volume for Direct Load	Tons for Direct Load	Backfill Volume Reduction	Clean Fill Required	Total Surface Cover	Topsoil	No. 7 Stone	Comments
Phase 1A																
Lead Area 1A	IA - 1	3-2A	1,228	7	178	0%	0	0	178	290	60%	37.09	34.11	34.11		Entire 6 ft. berm to be removed to -1 ft. below grade - berm volume is calculated. Material in Lead Area 1A ***is not significantly*** lead contaminated.
Lead Area 1B	IA - 1	3-2A	1,105	7	196	100%	196	319	0	0	60%	47.71	30.69	30.69		Entire 6 ft. berm to be removed to -1 ft. below grade - berm volume is calculated.Three samples with >800 ppm Lead (may fail TCLP for lead)
Lead Area 2	IA- 2	3-2A	4,765	4	706	50%	353	575	353	575	15%	467.74	132.36	66.18	66.18	Wall confirmation samples required on north (A & B) & south (C) to verify conditions at excavation boundary. Five samples >800 ppm Lead (may fail TCLP)
Lead Area 3	IA - 3	3-2A/3-3A	2,740	4	406	50%	203	331	203	331	15%	268.99	76.11	53.28	22.83	Wall confirmation samples required on north (D) & northwest (E) to verify conditions at excavation boundary.Three samples >800 ppm Lead
Lead Area 4	IA - 4	3-3A	3,523	4	522	50%	261	425	261	425	15%	345.84	97.86	48.93	48.93	Wall confirmation samples required on north (F), west (G) & south (H) to verify conditions at excavation boundary.One sample >800 ppm Lead
PCB Area 3A	IA - 5	3-3	1,230	4	182	0%	0	0	182	297	15%	120.53	34.17	23.92	10.25	Wall confirmation samples required on west (I) to verify conditions at excavation boundary.Excavation soil sample >50 ppm PCBs (TSCA Waste). Soil PCB
						Totals	**1013**		**1177**			**1288**	**405**	**257**	**148**	
					TOTAL TONS Multiplier	1.63	**1651**	**1651**	**1919**	**1919**		**1932**	**608**	**386**	**222**	
Subarea Designation	**Excavation Phase (IA, IB, or II) & Subarea No.**	**IMWP Figure #**	**Area (square feet)**	**Depth of Contam. (ft.)**	**Estimated Volume for Excavation (yd3)**	**% of Soil Requiring Treatment**	**Total Volume Requiring Treatment**	**Tons Requiring Treatment**	**Total Volume for Direct Load**	**Tons for Direct Load**	**Backfill Volume Reduction**	**Clean Fill Required**	**Total Surface Cover**	**Topsoil**	**No. 7 Stone**	**Comments**
Phase 1B																
PCB Area 3C	IB - 1	3-3	6,177	4	915	0%	0	0	915	1491	15%	606.17	171.58	68.63	102.95	Wall confirmation samples required on north (H) and west central (J) perimeter to verify conditions at excavation boundary. Excavation area contains soil samples <50 ppm
PCB Area 3B	IB - 2	3-3	703	4	104	0%	0	0	104	170	15%	68.87	19.53	5.86	13.67	Excavation contains one soil sample >50 ppm PCBs (TSCA Waste). PCB not vertically bounded in PCB Area 3B (deepest soil sample contaminated).
PCB Area 4A	IB - 3	3-3	1,948	5	361	0%	0	0	361	588	0%	306.89	54.11	5.41	48.70	Excavation area contains soil samples <25 ppm PCBs (non-TSCA). Northern and eastern perimeters will require confirmation sampling at depth to verify PCB
Lead Area 6	IB - 4	3-3A/3-4A	1,019	6	226	75%	20	33	206	336	15%	163.79	28.31	14.15	14.15	Two samples >800 ppm Lead
PCB Area 4B	IB - 5	3-4	5,305	6	1,179	0%	0	0	1179	1922	0%	1031.64	147.36	117.89	29.47	Wall confirmation samples required on southwest (N) and south (O) to verify conditions at excavation boundary. Excavation area contains soil samples <25 ppm PCBs (non-
Lead Area 8	IB - 6	3-4A	487	2	36	0%	0	0	36	59	0%	22.47	13.53	13.53	0.00	Proposed excavation area entirely outside DRMO fenceline and adjacent to PCB Area 5. Will address co-located PCB soil contamination (< 25ppm) outside the fenceline
PCB Area 5	IB - 7	3-4	462	2	34	0%	0	0	34	55	0%	21.17	12.83	12.83	0.00	Proposed excavation area outside DRMO fenceline and adjacent to Lead Area 8. Excavation area contains soil samples <25 ppm PCBs (non-TSCA).
Haynes Branch Sed.	IB - 8	3-6A	16,500	1	306	50%	153	249	153	249	90%	30.60	0.00	0.00	0.00	Lead contamination at 4 sediment locations in excess of human health risk levels to be removed: 600 stream feet, avg. stream width = 27.5 feet.
						Totals	**173**		**2988**			**2252**	**447**	**238**	**209**	
					TOTAL TONS Multiplier	1.63	**282**	**282**	**4870**	**4870**		**3377**	**671**	**357**	**313**	
Subarea Designation	**Excavation Phase (IA, IB, or II) & Subarea No.**	**IMWP Figure #**	**Area (square feet)**	**Depth of Contam. (ft.)**	**Estimated Volume for Excavation (yd3)**	**% of Soil Requiring Treatment**	**Total Volume Requiring Treatment**	**Tons Requiring Treatment**	**Total Volume for Direct Load**	**Tons for Direct Load**	**Backfill Volume Reduction**	**Clean Fill Required**	**Total Surface Cover**	**Topsoil**	**No. 7 Stone**	**Comments**
Phase 2																
Lead Area 5	II - 2	3-3A	3,241	6	720	100%	720	1174	0	0	0%	629.97	90.03	0	90	Wall confirmation samples required on northeast (K) to verify conditions at excavation boundary. Proposed excavation area entirely inside DRMO fenceline
BaP Area 1	II - 3	3-4B	627	6	139	0%	0	0	139	227	0%	121.58	17.42	0	17	Wall confirmation samples required on northwest (W) to verify conditions at excavation boundary. Proposed excavation area inside DRMO fenceline/adjacent to Lead area 7A
Lead Area 7	II - 4	3-4A	1,033	7	268	100%	268	437	0	0	0%	239.31	28.69	0	29	Proposed excavation area inside DRMO fenceline and adjacent to BaP Area 1. Soil contamination >800 ppm Lead (likely to fail TCLP)
PCB Area 2	II	3-3	1361	4	202	0%	0	0	202	329	0%	164.19	37.81	0	38	Proposed excavation area outside DRMO fenceline and adjacent to Lead Area 8. Excavation area contains soil samples <25 ppm PCBs (non-TSCA).
BaP Area 2	II - 5	3-5	1,486	8	440	0%	0	0	440	717	0%	398.72	41.28	0	41	BaP Area 2 immediately southwest of Building 3249. Vertical extent not delineated-Floor sample needed to confirm BaP removal/risk reduction attained.
						Totals	**988**		**781**			**1554**	**215**	**0**	**215**	
					TOTAL TONS Multiplier	1.63	**1610**	**1610**	**1273**	**1273**		**2331**	**323**	**0**	**323**	
(Phase II Total) =			7,748		1,769		0		1769							
(IM Soil/Sed. Total) =			54,939		7,120		0		7120							Average Soil Density for SWMU 21 = 1.63 tons per cubic yard (see Table 3-4). 7,120 cubic yards X 1.63 tons per cubic yard = 11,606 tons.

**Lead Areas 1A and 1B and PCB Areas 1A and 1B are the same northern earthen berm and PCB levels are < 50ppm. Soil management/disposal likely is nonhazardous for Lead/PCB Area 1A. Soil management/disposal likely is hazardous for lead in Lead/PCB Area 1B

Known or suspected hazardous waste soil subareas are indicated in bold red font.

APPENDIX A

IMWP Figures

PGH P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU21_HAYNESBRANCH_LEAD_SW.MXD 06/20/14 JN

Symbol for Lead Maps	Lead Concentration in DRMO Storage Lot (ppm)
●	< 400
●	400 - 800
●	> 800
○	Laboratory is analyzing sample; result is not available at this time

N

21SD/SW01
21SD23
21SD24
21SD/SW02
Northern Lead Sediment Area
21SD28
21SD/SW06
21SD29
21SD/SW03
21SD/SW07
Central Lead Sediment Area
21SD31
21SD/SW08
21SD/SW09
21SD/SW10
21SD/SW04
Southern Lead Sediment Area
21SD/SW11
21SD/SW05
2704
2703
3248
3249
2943

Legend
- Lead Sample < 400 ppm
- Lead Sample > 800 ppm
- Fence Line
- Demolished Building
- Building
- Roads
- SWMU 21
- Water

200 0 200 Feet

DRAWN BY / DATE	J. NOVAK 06/20/14
CHECKED BY / DATE	R. BARRINGER 06/20/14
REVISED BY / DATE	___ ___
SCALE	AS NOTED

NAVFAC

HAYNES BRANCH
LEAD SEDIMENT EXCAVATION AREAS
SWMU 21 - DRMO STORAGE LOT
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER	6018
CTO NUMBER	F272
APPROVED BY / DATE	___ ___
APPROVED BY / DATE	___ ___
FIGURE NO.	3-6A
REV	0

PGH P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU21_NORTHERN_PCB_EXC.MXD 07/09/14 SP

Symbol for PCB Maps	PCB Concentration in DRMO Storage Lot (ppm)
●	< 1 ppm
●	≥ 1 - <25 ppm
●	≥ 25 - <50 ppm
●	≥ 50 ppm
○	Laboratory is analyzing sample; result is not available at this time

N

PCB Area 1A
1,228 sq ft
(Contains same excavation value for Lead)

PCB Area 1B
1,105 sq ft
(Contains same excavation value for Lead)

Approximate Location of Earthen Berm

Approximate Location of Earthen Berm

21SD/SW01
21SB329
21SB331
21SB217
21SB328
21SB218
21SB226
21SB221
21SB230
21SB219
21SD23
21SB231
21SB222
21SB220
21SB225
21SB229
21SB223
21SB232
21SB228
21SB233
21SB224
21SB234
21SB227
21SB235
21SB236
21SB237
21SB238
21SB239
21SB30
21SB240
21SB242
21SB29
21SB243
21SB244

Legend

- Sample from 0-0.5 foot depth
- Sample from 0.5-1 foot depth
- Sample from 0-2 foot depth
- Sample from 1-2 foot depth
- Sample from 2-4 foot depth
- Sample from 4-6 foot depth
- Sample from 6-8 foot depth
- Sample from 8-10 foot depth
- Excavation Area (Perimeter dashed where approximate)
- SWMU Boundary
- Fence Line
- Stream
- Surface Water
- Roads

30 0 30 Feet

Figure 2
Figure 3

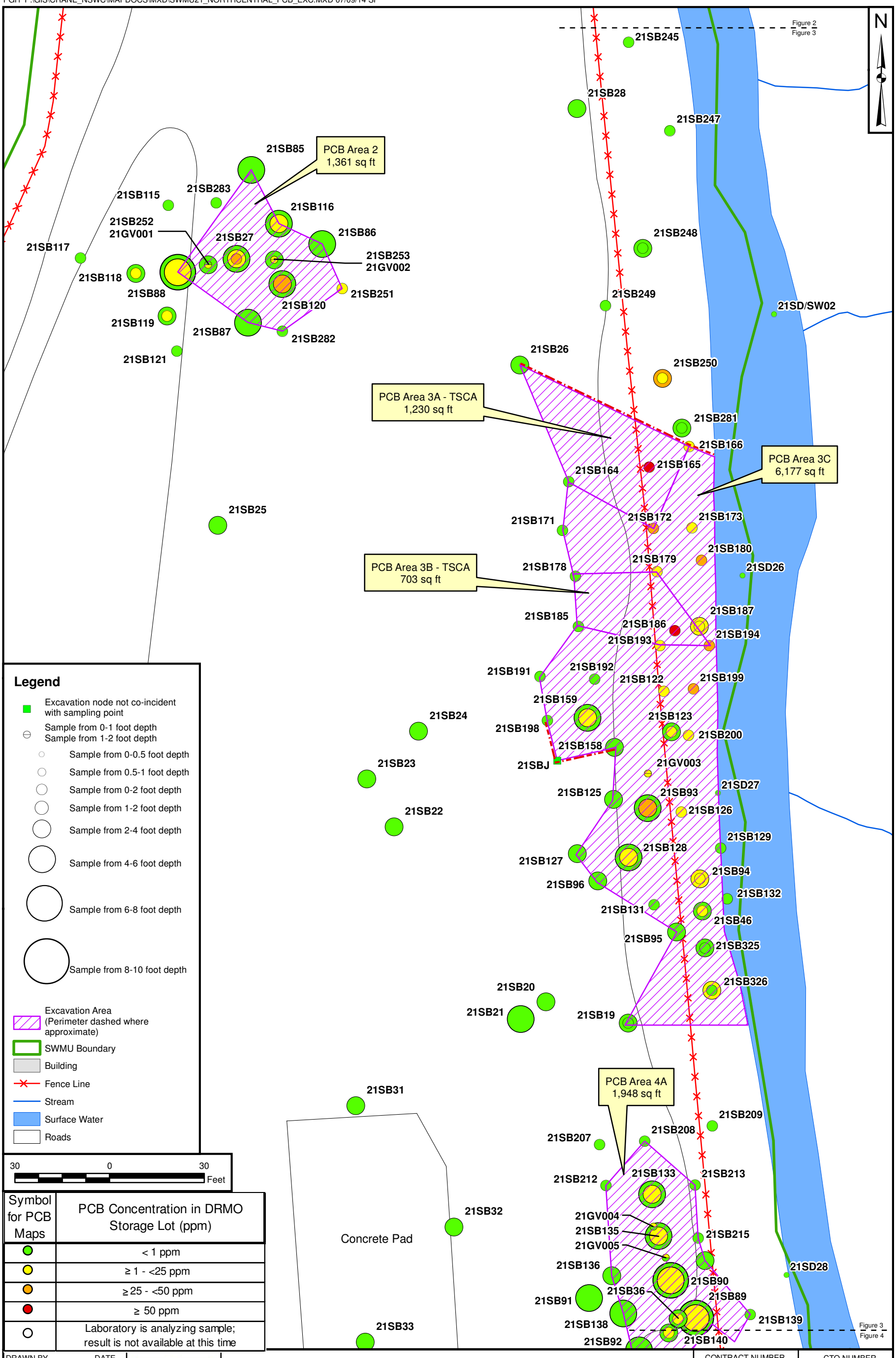
DRAWN BY	DATE
J. ENGLISH	12/04/12
CHECKED BY	DATE
R. BARRINGER	07/09/14
REVISED BY	DATE
S. PAXTON	07/09/14
SCALE	
AS NOTED	

NAVFAC

NORTH AREA
PCB EXCAVATION AREAS
SWMU 21 - DRMO STORAGE LOT
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER	CTO NUMBER
6018	F272
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO. 3-2	REV 0

PGH P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU21_NORTHCENTRAL_PCB_EXC.MXD 07/09/14 SP



Symbol for PCB Maps	PCB Concentration in DRMO Storage Lot (ppm)
	< 1 ppm
	≥ 1 - <25 ppm
	≥ 25 - <50 ppm
	≥ 50 ppm
	Laboratory is analyzing sample; result is not available at this time

DRAWN BY	DATE
J. ENGLISH	12/05/12
CHECKED BY	DATE
R. BARRINGER	07/09/14
REVISED BY	DATE
S. PAXTON	07/09/14
SCALE	
AS NOTED	

NAVFAC

NORTH CENTRAL AREA
PCB EXCAVATION AREAS
SWMU 21 - DRMO STORAGE LOT
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER	CTO NUMBER
6018	F272
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE NO.	REV
3-3	0

PGH P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU21_SOUTHCENTRAL_PCB_EXC.MXD 07/09/14 SP

N

21SB33
21SB38
21SB37
Former Old Metal Baler
21SB18
21SB39
21SB17
21SB16
21SB92
21SB140
21SB35
21SB74
21SB77
21SB261
Oil / Water Separator
21SB34
21SB55
21SB75
21SB262
21SB141
21SB76
21SB47
21SB143
21SB109
21SB107
21SB263
21SB145
21SB146
21SB144
21SB108
21SB148
21SB149
21SB147
21SB300
21SB265
21SB264
21SB150
21SBN
21SB302
21SB301
21SB303
21SB304
21SB305
21SBO
21SB15
21SB82
21SB309
21SB315
Lead Area 8 Excavation (See Figure 3-4A)
21SB266
21SB316
21SB81
21SB83
21SB267
21SB48
21SB306
21SB307
21SB268
21SB310
21SB312
21SB84
21SB44
21SB14
21SB12
21SD/SW03
21SD30
PCB Area 4B 5,305 sq ft
PCB Area 5 462 sq ft
(PCB area left over from Lead excavation)
3058
3248
3249
Figure 3
Figure 4
Figure 4
Figure 5

Legend

- Excavation node not co-incident with sampling point
- Sample from 0-0.5 foot depth
- Sample from 0.5-1 foot depth
- Sample from 0-2 foot depth
- Sample from 1-2 foot depth
- Sample from 2-4 foot depth
- Sample from 4-6 foot depth
- Sample from 6-8 foot depth
- Sample from 8-10 foot depth
- Excavation Area (Perimeter dashed where approximate)
- SWMU Boundary
- Building
- Fence Line
- Stream
- Surface Water
- Roads

30 0 30 Feet

Symbol for PCB Maps	PCB Concentration in DRMO Storage Lot (ppm)
	< 1 ppm
	≥ 1 - < 25 ppm
	≥ 25 - < 50 ppm
	≥ 50 ppm
	Laboratory is analyzing sample; result is not available at this time

DRAWN BY	J. ENGLISH
DATE	12/05/12
CHECKED BY	R. BARRINGER
DATE	07/09/14
REVISED BY	S. PAXTON
DATE	07/09/14
SCALE	AS NOTED

NAVFAC

CENTRAL AREA
PCB EXCAVATION AREAS
AND PROPOSED SEDIMENT LOCATION
SWMU 21 - DRMO STORAGE LOT
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER	6018
CTO NUMBER	F272
APPROVED BY	____
DATE	____
APPROVED BY	____
DATE	____
FIGURE NO.	3-4
REV	0

PGH P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU21_NORTHERN_LEAD_EXC_REV.MXD 07/09/14 SP

Symbol for Lead Maps	Lead Concentration in DRMO Storage Lot (ppm)
●	< 400
●	≥ 400 - < 800
●	≥ 800
○	Laboratory is analyzing sample; result is not available at this time

N

21SD/SW01

Lead/PCB Area 1A
1,228 sq ft

Approximate Location of Earthen Berm

Lead/PCB Area 1B
1,105 sq ft

Approximate Location of Earthen Berm

Lead Area 2
4,765 sq ft

Lead Area 3
2,740 sq ft

21SB329
21SB217
21SB331
21SB218
21SB328
21SB221
21SB230
21SB219
21SD23
21SB231
21SB222
21SB220
21SB229
21SB223
21SB232
21SB228
21SB233
21SB234
21SB227
21SB235
21SB236
21SD24
21SBA
21SBB
21SB237
21SB56
21SB238
21SB239
21SB280
21SB30
21SB59
21SB240
21SB57
21SB241
21SB242
21SB58
21SBC
21SB29
21SBD
21SBE
21SB244
21SB289
21SB60
21SB245

Figure 2A
Figure 3A

Legend

- Excavation node not co-incident with sampling point
- Sample from 0-0.5 foot depth
- Sample from 0-2 foot depth
- Sample from 2-4 foot depth
- Sample from 4-6 foot depth
- Sample from 6-8 foot depth
- Sample from 8-10 foot depth

Excavation Areas

- Lead
- Perimeter dashed where approximate
- Fence Line
- SWMU Boundary
- Roads
- Building
- Concrete Lined Ditch
- Surface Water
- Stream

30 0 30 Feet

DRAWN BY: J. NOVAK	DATE: 6/20/14
CHECKED BY: R. BARRINGER	DATE: 07/09/14
REVISED BY: S. PAXTON	DATE: 07/09/14
SCALE: AS NOTED	

NAVFAC

NORTH AREA
EXCAVATION NODES
SWMU 21 - DRMO STORAGE LOT
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER: 6018	CTO NUMBER: F272
APPROVED BY: —	DATE: —
APPROVED BY: —	DATE: —
FIGURE NO.: 3-2A	REV: 0

PGH P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU21_NORTHCENTRAL_LEAD_EXC.MXD 07/09/14 SP

Symbol for Lead Maps	Lead Concentration in DRMO Storage Lot (ppm)
●	< 400
●	≥ 400 - < 800
●	≥ 800
○	Laboratory is analyzing sample; result is not available at this time

21SB60 21SB289 21SB245 21SB61 21SB290 21SB63 21SB28 21SB291 21SB292 21SB62

Figure 2A
Figure 3A

Lead Area 3
2,740 sq ft

21SBF 21SBG 21SB248 21SB249 21SB26 21SB250 21SBI 21SB281 21SBH

Lead Area 4
3,523 sq ft

21SB27 21SB25 21SB24 21SB23 21SB64 21SB65 21SB22 21SB67A 21SB67 21SB293 21SB257 21SB294 21SB68A 21SBK 21SB66 21SB295 21SB258 21SB259 21SB68 21SB298 21SB297 21SB66A 21SB20 21SB69 21SB21 21SB19 21SB71 21SB260 21SB299 21SB70 21SB31 21SB70A 21SB32 21SB72B 21SB72A 21SB36 21SB72 21SB33

Lead Area 5
3,241 sq ft

21SD/SW02 21SB46 21SD28 21SD/SW06 21SD29

Concrete Pad

Figure 3A
Figure 4A

N

Legend

- Excavation node not co-incident with sampling point
- Sample from 0-0.5 foot depth
- Sample from 0-2 foot depth
- Sample from 2-4 foot depth
- Sample from 4-6 foot depth
- Sample from 6-8 foot depth
- Sample from 8-10 foot depth
- Excavation Area (Perimeter dashed where approximate)
- SWMU Boundary
- Fence Line
- Stream
- Surface Water
- Roads

30 0 30 Feet

DRAWN BY	DATE
J. ENGLISH	12/05/12
CHECKED BY	DATE
R. BARRINGER	07/09/14
REVISED BY	DATE
S. PAXTON	07/09/14
SCALE	
AS NOTED	

NAVFAC

NORTH CENTRAL AREA
LEAD EXCAVATION AREAS
SWMU 21 - DRMO STORAGE LOT
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER	CTO NUMBER
6018	F272
APPROVED BY	DATE
____	____
APPROVED BY	DATE
____	____
FIGURE NO.	REV
3-3A	0

PGH P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU21_SOUTHCENTRAL_LEAD_EXC.MXD 07/09/14 SP

N

21SB33

Oil / Water Separator

21SB36 21SB72 Figure 3A Figure 4A

21SB35

21SB320

21SB332

21SD/SW03

21SB73

21SB77

Lead Area 6
1,019 sq ft

21SB261

21SB38

21SB75

21SB34

21SB37

21SB262

21SB311

21SB74

21SB78

21SB55

Former Old Metal Baler

21SB76

21SB47

21SB317

21SB18

21SB39

21SB318

21SBL

Lead Area 7
1033 sq ft

21SB80

21SB79

21SD/SW07

21SB17

21SB79A

21SB16

21SBM

21SB79B

21SD31

21SB15

21SD/SW08

21SB82

Lead Area 8
487 sq ft

21SB266

21SB267

21SB81

21SB83

21SB48

21SB268

21SB44

21SB84

21SD/SW09

3248

21SB14

21SB12

3249

Figure 4A Figure 5

30 0 30 Feet

Legend

- Excavation node not co-incident with sampling point
- Sample from 0-0.5 foot depth
- Sample from 0-2 foot depth
- Sample from 2-4 foot depth
- Sample from 4-6 foot depth
- Sample from 6-8 foot depth
- Sample from 8-10 foot depth
- Excavation Area (Perimeter dashed where approximate)
- SWMU Boundary
- Building
- Fence Line
- Stream
- Surface Water
- Roads

Symbol for Lead Maps	Lead Concentration in DRMO Storage Lot (ppm)
●	< 400
●	≥ 400 - < 800
●	≥ 800
○	Laboratory is analyzing sample; result is not available at this time

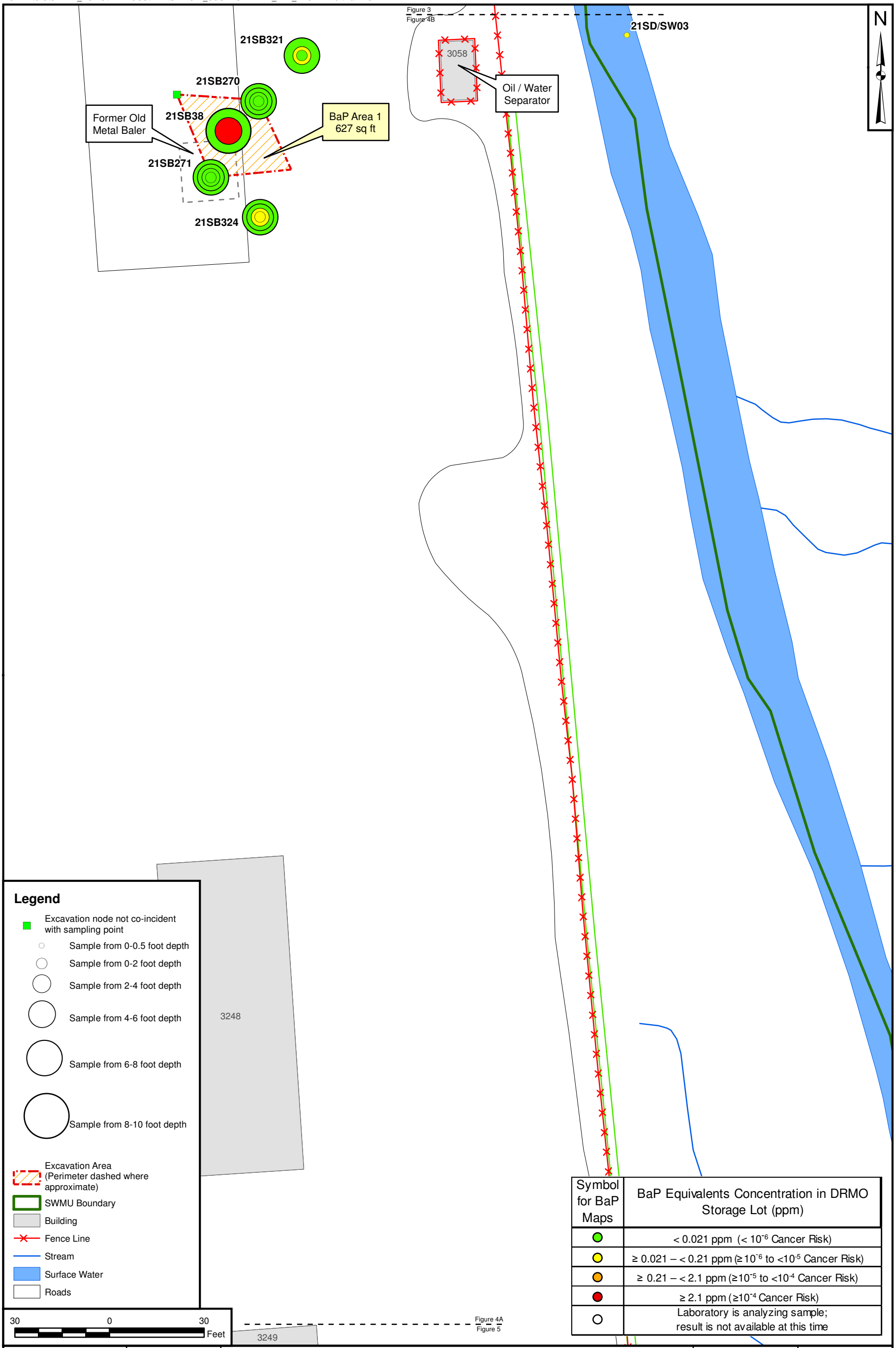
DRAWN BY	J. ENGLISH
DATE	12/05/12
CHECKED BY	R. BARRINGER
DATE	07/09/14
REVISED BY	S. PAXTON
DATE	07/09/14
SCALE	AS NOTED

NAVFAC

CENTRAL AREA
LEAD EXCAVATION AREAS
SWMU 21 - DRMO STORAGE LOT
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER	6018
CTO NUMBER	F272
APPROVED BY	____
DATE	____
APPROVED BY	____
DATE	____
FIGURE NO.	3-4A
REV	0

PGH P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU21_SOUTHCENTRAL_BAP_EXC.MXD 07/10/14 SP



Symbol for BaP Maps	BaP Equivalents Concentration in DRMO Storage Lot (ppm)
●	< 0.021 ppm (< 10^{-6} Cancer Risk)
●	≥ 0.021 – < 0.21 ppm (≥ 10^{-6} to <10^{-5} Cancer Risk)
●	≥ 0.21 – < 2.1 ppm (≥10^{-5} to <10^{-4} Cancer Risk)
●	≥ 2.1 ppm (≥10^{-4} Cancer Risk)
○	Laboratory is analyzing sample; result is not available at this time

DRAWN BY / DATE	J. ENGLISH / 10/04/12
CHECKED BY / DATE	R. BARRINGER / 07/10/14
REVISED BY / DATE	S. PAXTON / 07/10/14
SCALE	AS NOTED

NAVFAC

CENTRAL AREA
BaP EXCAVATION AREA
SWMU 21 - DRMO STORAGE LOT
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER	6018
CTO NUMBER	F272
APPROVED BY / DATE	____ / ____
APPROVED BY / DATE	____ / ____
FIGURE NO.	3-4B
REV	0

PGH P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU21_SOUTHWEST_BAP_EXC.MXD 07/09/14 SP

Figure 4
Figure 5

N

3249

BaP Area 2
1,486 sq ft

21SB272
21SB105
21SB275
21SB273
21SB274
21SB322
21SB276
21SB53
21SB277
21SB278
21SB279

Scale House

2943

Legend

- Sample from 0-0.5 foot depth
- Sample from 0-2 foot depth
- Sample from 2-4 foot depth
- Sample from 4-6 foot depth
- Sample from 6-8 foot depth
- Sample from 8-10 foot depth
- Excavation Area
- Building
- Demolished Building
- Fence Line
- Stream
- Roads

30 0 30 Feet

Symbol for BaP Maps	BaP Equivalents Concentration in DRMO Storage Lot (ppm)
●	< 0.021 ppm (< 10^{-6} Cancer Risk)
●	≥ 0.021 – < 0.21 ppm (≥10^{-6} to <10^{-5} Cancer Risk)
●	≥ 0.21 - < 2.1 ppm (≥10^{-5} to <10^{-4} Cancer Risk)
●	≥ 2.1 ppm (≥10^{-4} Cancer Risk)
○	Laboratory is analyzing sample; result is not available at this time

DRAWN BY / DATE	J. ENGLISH / 12/06/12
CHECKED BY / DATE	R. BARRINGER / 07/09/14
REVISED BY / DATE	S. PAXTON / 07/09/14
SCALE	AS NOTED

NAVFAC

SOUTHWEST AREA
BaP EXCAVATION AREAS
SWMU 21 - DRMO STORAGE LOT
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER	6018
CTO NUMBER	F272
APPROVED BY / DATE	___ / ___
APPROVED BY / DATE	____ / ____
FIGURE NO.	3-5
REV	0

APPENDIX B

Temporary Fence & Trailer Locations

PGH P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU21_TOPO_MAP.MXD 06/20/14 JN

N

Soil Stockpile area

Gravel Pad

Original Metals Baler

Paved Storage Area

3058 Oil/Water Separator

SUMMIT Proposed Temporary Fence Location
Gates will be added as necessary.

2705 Former Old Metals Baler

2704 Paper Baler

Former Lead Storage Pad

0863

2703 Office & Restroom

3248 Processing

Leach Field

3249 Processing

Concrete Drainage Ditch

1940 Scales

2918 Former Metals Baler

Haynes Branch

SWMU 21 Boundary

0864

Paved Storage Area

2943 Scale House 8 Scale J

Route 58/158

Field Office Trailer & Storage Location

Legend

- Road
- Railroad
- Fence Line
- Concrete Lined Ditch
- SWMU Boundary
- Building
- Surface Water
- Topographic Contour (10-ft) (Elevation in feet above MSL)

150 0 150 Feet

DRAWN BY / DATE	K. MOORE 5/29/09
CHECKED BY / DATE	R. BARRINGER 06/20/14
REVISED BY / DATE	J. NOVAK 06/20/14
SCALE	AS NOTED

NAVFAC

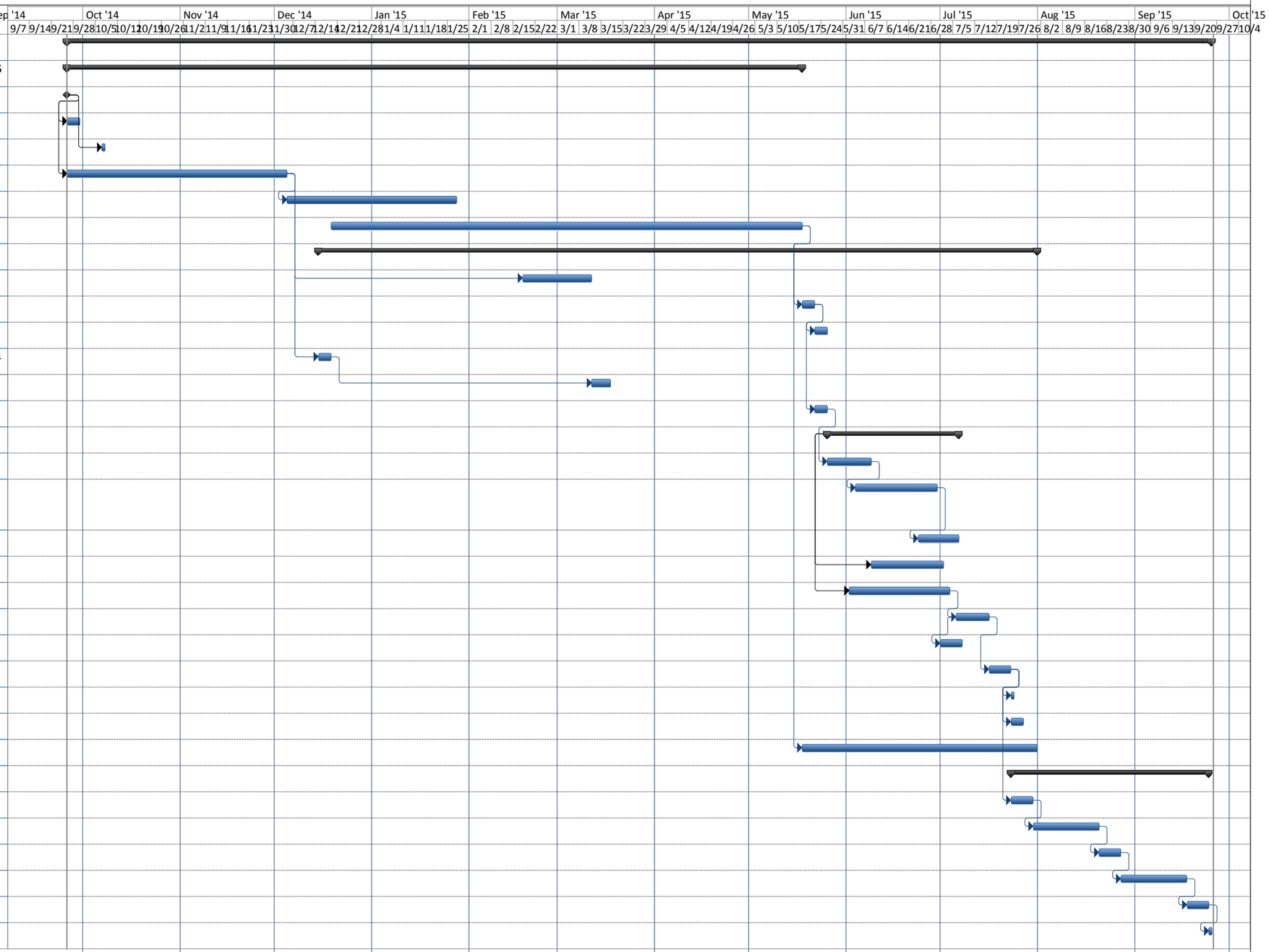
SITE LAYOUT - ELEVATION CONTOUR MAP
SWMU 21 - DRMO STORAGE LOT
NSWC CRANE
CRANE, INDIANA

CONTRACT NUMBER	CTO NUMBER F274
APPROVED BY / DATE	— / —
APPROVED BY / DATE	— / —
FIGURE NO.	1-3
REV	0

APPENDIX C

Schedule

ID	Task Name	Duration	Start	Finish
1	**TO Duration Work Days**	**260.5 days**	**Fri 9/26/14**	**Fri 9/25/15**
2	**Award to Beginning On Site Work**	**166 days**	**Fri 9/26/14**	**Mon 5/18/15**
3	Award/Bonds	0 days	Fri 9/26/14	Fri 9/26/14
4	Subcontractor Procurement	2 days	Fri 9/26/14	Mon 9/29/14
5	Pre-IMWP Implentation Meeting	1 day	Tue 10/7/14	Tue 10/7/14
6	Pre-IMWP Implentation Submittals	70 edays	Fri 9/26/14	Fri 12/5/14
7	NAVFAC Review	54 edays	Fri 12/5/14	Wed 1/28/15
8	Permits & Approvals	150 edays	Fri 12/19/14	Mon 5/18/15
9	**IMWP Impelemenataion**	**165 days**	**Mon 12/15/14**	**Fri 7/31/15**
10	Waste Characterization	16 days	Wed 2/18/15	Wed 3/11/15
11	Mobilization	4 days	Mon 5/18/15	Thu 5/21/15
12	Erosion & Sediment Controls	2 days	Fri 5/22/15	Mon 5/25/15
13	Fence Removal	4 days	Mon 12/15/14	Thu 12/18/14
14	Clearing	4 days	Thu 3/12/15	Tue 3/17/15
15	Excavation Layout	2 days	Fri 5/22/15	Mon 5/25/15
16	**Impacted Soils Excavation**	**30 days**	**Tue 5/26/15**	**Mon 7/6/15**
17	Phase 1A-Lead 1A,1B,2,3,4 &PCB 3A	10 days	Tue 5/26/15	Mon 6/8/15
18	Phase 1B- Lead 6, 8, PCB 3B, 3C, 4A, 4B, 5 & Sediment	18 days	Thu 6/4/15	Mon 6/29/15
19	Phase 2 Lead 5, 7, PCB 2, BaP 1 & 2	9 days	Wed 6/24/15	Mon 7/6/15
20	Lead Stabilization	17 days	Tue 6/9/15	Wed 7/1/15
21	Backfill/Compaction	24 days	Tue 6/2/15	Fri 7/3/15
22	Site Restoration	8.5 days	Mon 7/6/15	Thu 7/16/15
23	Fence Replacement	5 days	Wed 7/1/15	Tue 7/7/15
24	Final Inspection	5 days	Thu 7/16/15	Thu 7/23/15
25	Punch List Items	1 day	Thu 7/23/15	Fri 7/24/15
26	Demobilization	2 days	Thu 7/23/15	Mon 7/27/15
27	Daily Field Work Reports/Submittals	55 days	Mon 5/18/15	Fri 7/31/15
28	**TCO Report**	**45 days**	**Thu 7/23/15**	**Thu 9/24/15**
29	Draft TCO Report	5 days	Thu 7/23/15	Thu 7/30/15
30	Navy Review/Comments	15 days	Thu 7/30/15	Thu 8/20/15
31	TTL Response to Comments	5 days	Thu 8/20/15	Thu 8/27/15
32	Navy Review	15 days	Thu 8/27/15	Thu 9/17/15
33	Final TCO Report	5 days	Thu 9/17/15	Thu 9/24/15
34	Close Out	1 day	Thu 9/24/15	Fri 9/25/15



Project: Project Schedule 201406
Date: Tue 1/27/15

Task
Split
Milestone
Summary
Project Summary
External Tasks
External Milestone
Inactive Task
Inactive Milestone
Inactive Summary
Manual Task
Duration-only
Manual Summary Rollup
Manual Summary
Start-only
Finish-only
Deadline
Progress

APPENDIX D

Wetlands

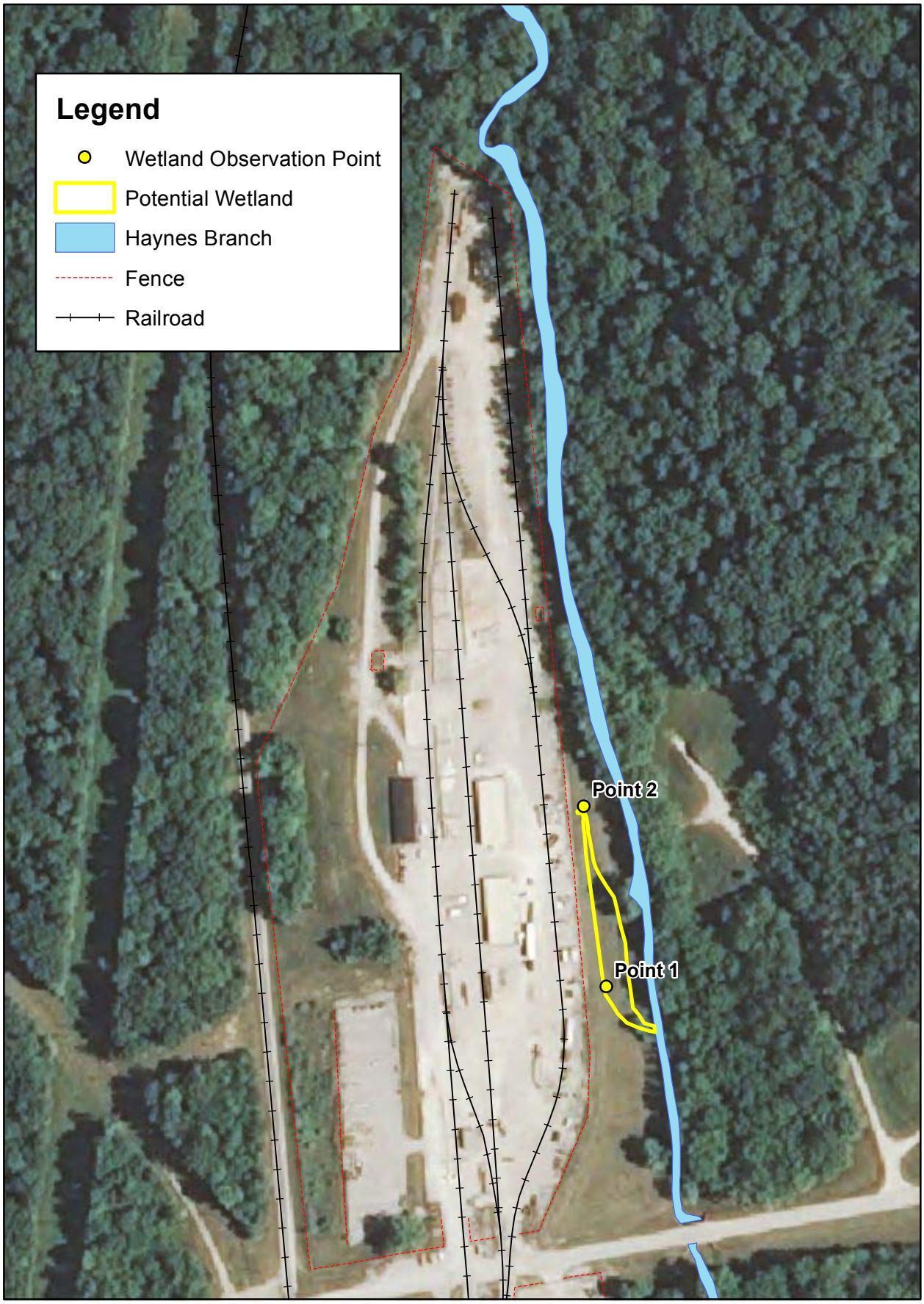
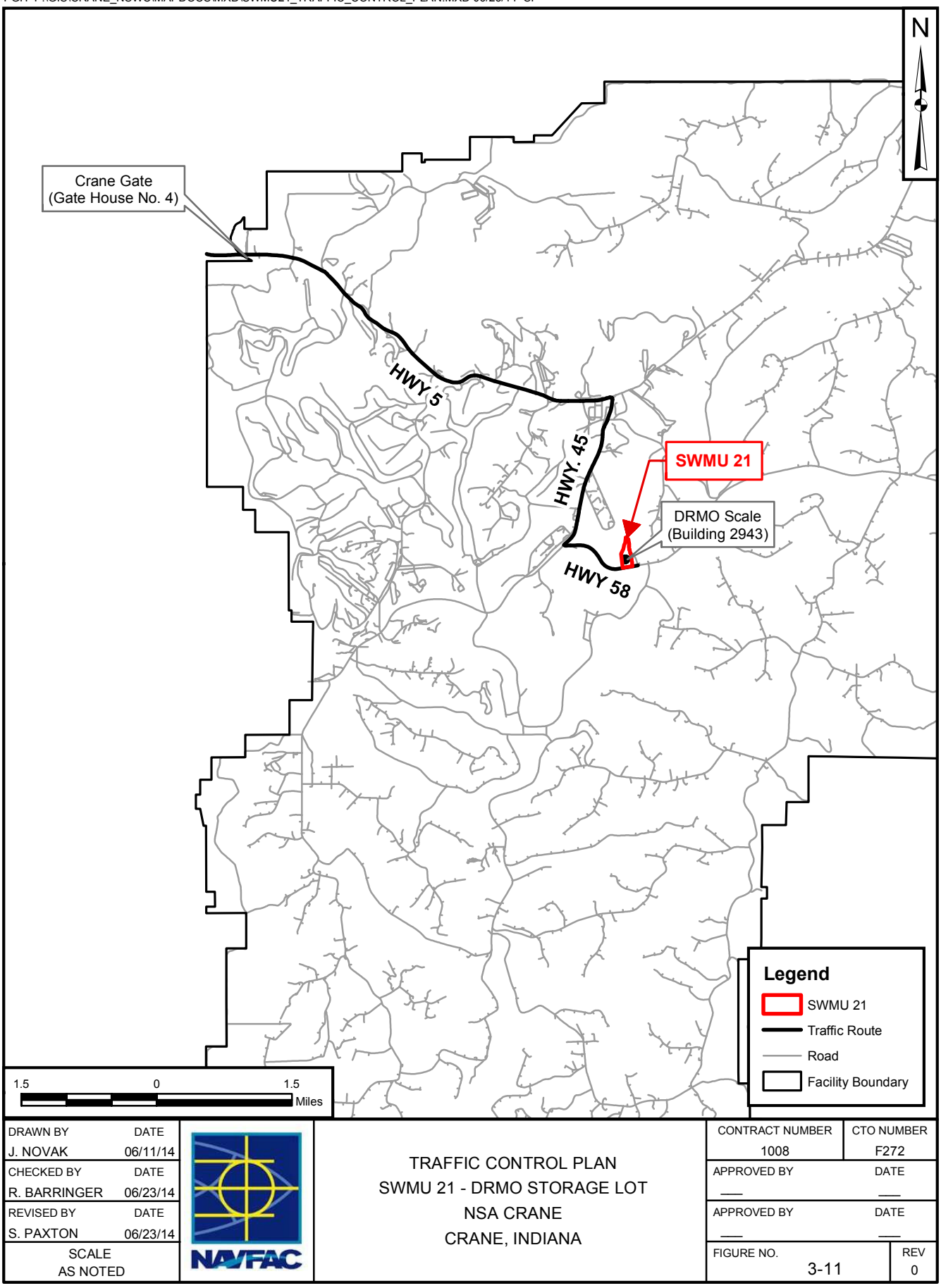


Figure 2. Approximate Location of Delineated Wetlands at SWMU 21 DRMO, NSA Crane

APPENDIX E

Transportation Route

PGH P:\GIS\CRANE_NSWC\MAPDOCS\MXD\SWMU21_TRAFFIC_CONTROL_PLAN.MXD 06/23/14 SP



DRAWN BY	DATE
J. NOVAK	06/11/14
CHECKED BY	DATE
R. BARRINGER	06/23/14
REVISED BY	DATE
S. PAXTON	06/23/14
SCALE	
AS NOTED	

NAVFAC

TRAFFIC CONTROL PLAN
SWMU 21 - DRMO STORAGE LOT
NSA CRANE
CRANE, INDIANA

CONTRACT NUMBER	CTO NUMBER
1008	F272
APPROVED BY	DATE
—	—
APPROVED BY	DATE
—	—
FIGURE NO.	REV
3-11	0