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LETTER AND THE REGARDING THE U S NAVY CURRENT PLAN REGARDING AREA A  
REMOVAL ACTION EXCAVATION APPROACH AT SITES 1, 2, AND 3 AND AREA A  
REMEDIAL INVESTIGATION/FEASIBILITY FORMER NAWC WARMINSTER PA  
08/25/1998  
TETRA TECH NUS INC



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August 25, 1998

Project 7603

Mr. Lonnie Monaco  
Naval Facilities Engineering Command (NAVFACENGCOM)  
Northern Division  
Environmental Contracts Branch, Mailstop #82  
10 Industrial Highway  
Lester, Pennsylvania 19113

Reference: CLEAN Contract No. N642472-90-D-1298  
Contract Task Order (CTO) No. 290

Subject: Area A Removal Action - Excavation Approach  
Area A Remedial Investigation/Feasibility Study (RI/FS)  
Former Naval Air Warfare Center (NAWC) Warminster, Pennsylvania

Dear Mr. Monaco:

As requested, Tetra Tech NUS (TtNUS) (formerly Brown & Root Environmental) has prepared this letter to clarify and summarize the Navy's current plan for addressing soils at Sites 1, 2, and 3 during the impending Area A removal action for soils. Maps of the excavation areas for these sites are attached, showing areas of preliminary remediation goals (PRG) exceedances.

**Overview**

The action proposed for Area A soils is excavation of contaminated soils followed by the placement of clean soil backfill and a vegetated soil cover. Excavated contaminated soils will be disposed with or without treatment at a municipal or hazardous waste landfill, depending on toxicity characteristic leaching procedure (TCLP) results. Excavating is a cost-effective alternative that will limit exposure risks for subsurface soils and minimize groundwater impacts. Vegetated soil cover will address the human health risks associated with direct contact and ingestion of surface soils. Future land use within Area A will be restricted to industrial uses, and the removal action is protective for these uses.

Verification sampling and analysis plans will be prepared to specify the requirements for collecting samples to demonstrate attainment of remediation goals following removal of contaminated soils from Area A. These plans will be implemented before clean soil backfill and cover operations begin at the areas excavated within Sites 1, 2, and 3. The sampling procedures, monitoring and observation techniques, quality assurance/quality control (QA/QC) guidelines, and associated reporting methods to complete the planned removal activities for Area A are provided in the Work Plan for Removal Activities at Area A Sites (Brown & Root Environmental, March 1998).

### **Site 1 Excavation Approach**

Approximately 1,600 cubic yards of subsurface material (2 to 10 feet below existing ground surface) will be excavated and disposed off-base. Two separate excavation areas are proposed for Site 1, Excavation 1a and Excavation 1b. Figure 1 shows the location of the two excavation areas. Approximately 1,000 cubic yards of soil and/or wastes are planned to be removed from Excavation 1a. About 600 cubic yards of soil and/or wastes will be taken from Excavation 1b.

The areas to be excavated at Site 1 contain soils with elevated contaminant levels of antimony, cadmium, chromium, and trichloroethene (TCE). These areas are associated with the presence of buried multi-colored silty clay materials. These materials appear to be located within the former estimated boundaries of two disposal features, based on aerial photographic interpretations (EPIC, 1994). Excavation 1a is generally aligned with an area of mounded material (i.e., EPIC feature MM 4), while Excavation 1b appears to match the general location of a burn pit (i.e., P1).

### **Site 2 Excavation Approach**

About 500 cubic yards of surface material (within 2 feet of the existing ground surface) will be excavated and disposed off-base in the vicinity of Site 2. Two separate excavation areas are proposed for Site 2, Excavation 2a and Excavation 2b. Figure 2 shows the location of the two excavation areas. Approximately 450 cubic yards of soil are planned to be removed from Excavation 2a. The eastern extent of this excavation between the existing fences will be better determined in the field, once the southernmost fence and overgrown vegetation are removed from this general location and the slope between the fences is evaluated.

In the vicinity of Excavation 2a, surface soils have been characterized to show soils containing unacceptable levels of antimony, cadmium, copper, lead, silver, zinc, benzo(g,h,i)perylene, and indeno(1,2,3-cd)pyrene. The area of elevated lead and other inorganic concentrations in surface soils along the northern fence line will be excavated to a depth of approximately 2 feet due to concerns regarding both human health and sediment protection. This general area appears to be aligned within a portion of the former estimated boundary of EPIC feature D1.

Approximately 45 cubic yards of soil are planned to be removed from Excavation 2b. The estimated dimensions of Excavation 2b are 30 feet long by 20 feet wide. At this location, surface soils containing elevated levels of polycyclic aromatic hydrocarbons (PAHs) in surface soil near the intersection of the paved base access road and caretaker site office (CSO) trailer complex access road will be removed to a depth of 2 feet due to sediment protection concerns. The PAHs of concern include benz(a)anthracene and indeno(1,2,3-cd)pyrene. This area may also be located within a portion of EPIC feature D1.

Several areas originally proposed to be part of the Area A removal action (refer to the Draft Removal Site Evaluation Report for Area A Soils, B&R Environmental, April 1998) will not be addressed by the Navy at this time. Based on further evaluation, two areas where levels of inorganics were detected in surface soils at concentrations above sediment protection criteria (but not human health criteria) will not be excavated since they are located south of the CSO trailer complex access road, at a lower elevation than the road (sample points SS-SDA-09 and SS-02-02). Based on the relative elevations, the road serves as a barrier to overland runoff from these sample locations to the stream, thus there is no pathway for the contaminants to migrate to the stream sediments.

Two areas near the intersection of the paved base access road and CSO trailer complex access road where volatile organics were detected in subsurface soils at levels above the soil to groundwater protection levels (but not human health criteria) will not be excavated (sample points SB-02-09, SB-02-12, and SB-02-39). Two of the three contaminants detected (methylene chloride and trans-1,3-dichloropropene) have not been detected in Area A groundwater to date, and the third compound (bromomethane) has only been detected one time in one well, at a concentration below the tap water RBC concentration for this compound (there is no MCL for bromomethane). In addition, groundwater in the area will be captured by the Area A extraction system. Based on these factors, the Navy feels that soil removal in these areas is not necessary to protect groundwater.

An area near the guardhouse where levels of PAHs above sediment protection criteria were detected (around samples SS-02-05/SS-02-07 and SS-02-06) will not be excavated during this removal action. Sample SS-02-06 was collected from beneath the existing paving, thus erosion and soil to sediment migration of contaminants from this location is not a current concern. Samples SS-02-05 and SS-02-07 were collected from a drainage swale on the south side of the paved access road, thus there is no direct pathway from this area to the stream. The need for any response actions at these sample locations will be addressed later along with the stream bank directly north of Sites 2 and 3.

### **Site 3 Excavation Approach**

Approximately 115 cubic yards of surface material (within 2 feet of the existing ground surface) will be excavated and disposed off-base for Site 3. Figure 3 shows the location of the excavation area. The estimated dimensions of this excavation are 35 feet wide by 45 feet long.

The area to be excavated at Site 3 has elevated levels of anthracene, benz(a)anthracene, benzo(a)pyrene, and fluoranthene in surface soils, above sediment protection criteria. This area will be excavated to a depth of approximately 2 feet.

As with Site 2, one area originally proposed to be part of the Area A removal action will not be addressed by the Navy at this time. One potential area of concern (near sample location SB-03-10/10A) contained methylene chloride in subsurface soil at a concentration above the soil-to-groundwater protection level. Recent sampling near this location has not revealed the presence of any methylene chloride, suggesting that the original detection may have been laboratory-related (methylene chloride is a common lab artifact). In addition, methylene chloride has not been detected in any Area A monitoring wells to date, indicating that there is no significant groundwater-related problem related to this compound.

### **Other Issues**

Paving has not been selected as a component of any remedial action. The primary impetus for considering paving was to address concerns regarding the potential leaching of metals to groundwater, then groundwater discharge to the nearby stream thus impacting the sediments and biota. Recent sampling results for Area A wells that underwent metal analysis indicated that there were no metals in groundwater at concentrations above Maximum Contaminant Levels (MCLs); therefore, Area A soils do not appear to be impacting groundwater through releases of inorganics and there is no need to implement actions designed to protect against such occurrences.

Bank stabilization activities adjacent to Sites 2 and 3 will not be performed as part of this removal action. The bank area appears to be stable at this time due to the vegetation cover, thus short-

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term concerns regarding bank erosion are minimal. The course of action for the stream area will be determined later after additional evaluation of this area and input from EPA Region III's Biological Technical Assistance Group (BTAG).

Please contact Jeff Orient or me if you have any questions or comments.

Sincerely,

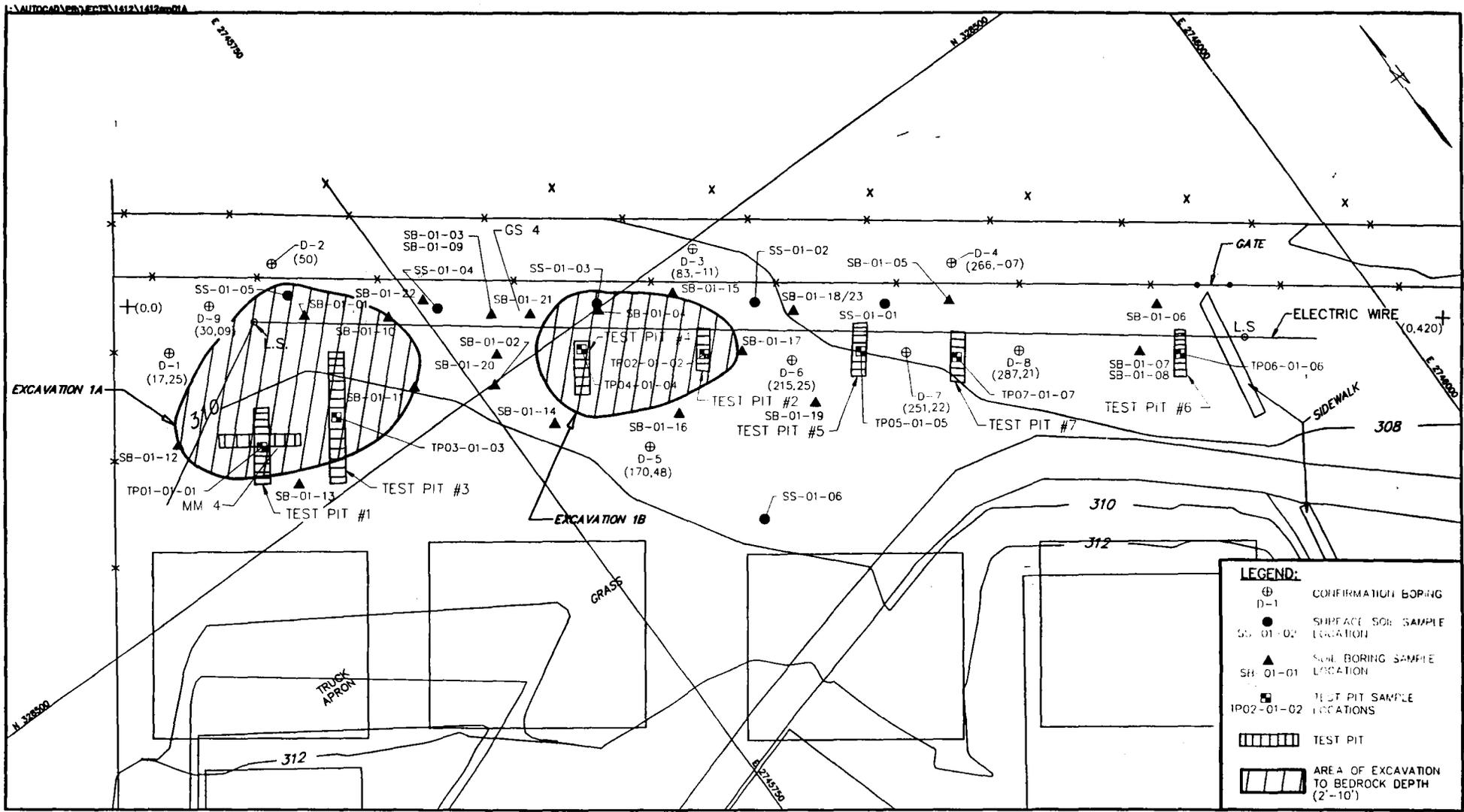


Neil Teamerson  
Project Coordinator

ANT/ejc

Enclosures

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Jeffrey Orient (TtNUS)  
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John Magee (Foster Wheeler)  
Anthony Sauder (Pennoni)  
David Fennimore (Earth Data)



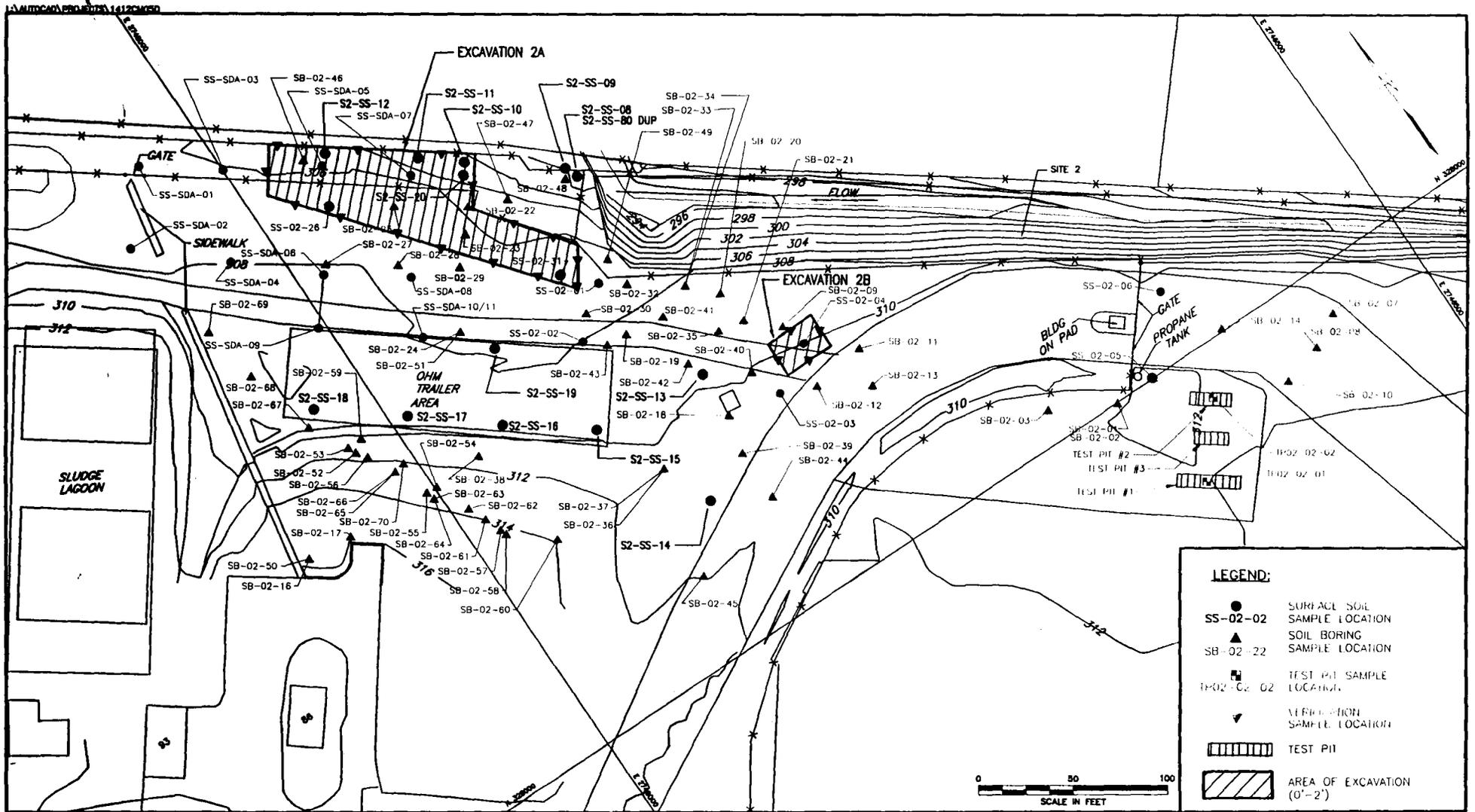
**LEGEND:**

- ⊕ D-1 CONFIRMATION BORING
- D-1 SURFACE SOB SAMPLE LOCATION
- SS-01-01 SURFACE SOB SAMPLE LOCATION
- ▲ SB-01-01 SOIL BORING SAMPLE LOCATION
- ▣ TP02-01-02 TEST PIT SAMPLE LOCATIONS
- ▤ TEST PIT
- ▨ AREA OF EXCAVATION TO BEDROCK DEPTH (2'-10')

AREA OF EXCAVATION  
 AREA A - SITE 1  
 NAWC, WARMINSTER, PA



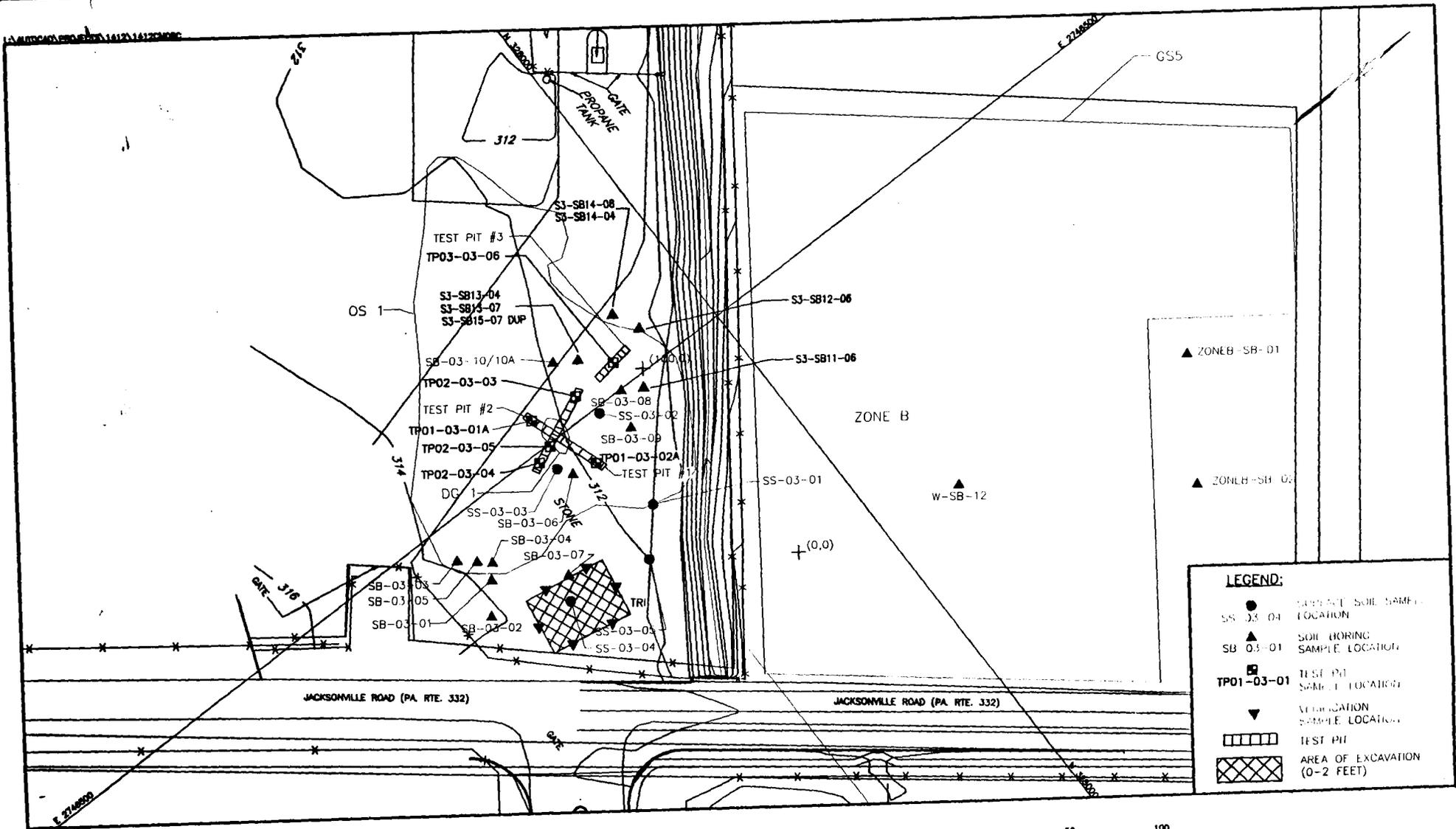
FIGURE 1



AREA OF EXCAVATION  
 AREA A - SITE 2

FIGURE 2





AREA OF EXCAVATION  
 AREA A - SITE 3  
 NAWC, WARMINSTER, PA

FIGURE 3

