ACTION MEMORANDUM FOR PARCEL 70 – BUILDING 551

FORT MONMOUTH, OCEANPORT, MONMOUTH COUNTY, NEW JERSEY

BRAC 05 Facility
Contract W912DY-09-D-0062
Task Order: 0012, Project No. 369857

Submitted To:

U.S. Army Corps of Engineers

New York District &

U.S. Army Engineering and Support Center

Huntsville, Alabama

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ACTION MEMORANDUM

PARCEL 70

FORT MONMOUTH, NEW JERSEY

APPROVAL

This Action Memorandum presents the selected removal action for contaminated soil at Parcel 70, located at Fort Monmouth in Oceanport, Monmouth County, New Jersey. The U.S. Army is the lead agency at Fort Monmouth under the Defense Environmental Restoration Program, 10 U.S.C. § 2701, and the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9601 et seq. (CERCLA), and developed this Action Memorandum consistent with CERCLA, as amended, and the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300. This memorandum will be incorporated into the Administrative Record file for Fort Monmouth, which is available for public review at the Eastern Branch of the Monmouth County Library, 1001 Route 35, Shrewsbury, New Jersey 07702. This document, presenting the results of a selected removal action with a present worth cost estimate of $11,500, is approved by the undersigned.

Thomas E. Lederle
Chief, BRAC Division
Department of the Army Assistant Chief of Staff Installation Management

8 Feb 2018
Date

1.0 STATEMENT OF BASIS AND PURPOSE

This Action Memorandum describes the selected time critical removal action (TCRA) performed at Parcel 70 in Fort Monmouth, New Jersey for the excavation and disposal of soil contaminated with polychlorinated biphenyls (PCBs). The purpose of this Action Memorandum is to document the U.S. Army's decision to undertake the TCRA.

This Action Memorandum was developed in accordance with: the Defense Environmental Restoration Program (DERP), 10 United States Code (U.S.C.) Section 2701; the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9601 et seq. (CERCLA); and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 Code of Federal Regulations (CFR) Part 300 (USEPA 1991).

2.0 SITE CONDITIONS AND BACKGROUND

Parcel 70 is described in Section 2.1. Previous investigations are summarized in Section 2.2; investigative results are summarized in Section 2.3.

2.1 Site Setting and History

Fort Monmouth was established in 1917 as Camp Little Silver. The name of the Camp was changed shortly thereafter to Camp Alfred Vail. The initial mission of the Camp was to train Signal Corps operators for service in World War I. After the war, Camp Alfred Vail was designated as the site of the Signal Corps School. In 1925, the facility became a permanent post, and its name was changed to Fort Monmouth (FTMM). The primary mission of FTMM was to provide command, administrative, and logistical support for Headquarters, U.S. Army Fort Monmouth Communications and Electronics Command (CECOM) (Shaw, 2012). CECOM is a major subordinate command of the U.S. Army Materiel Command (AMC). FTMM was the center for the development of Fort Monmouth's Command and Control Communications, Computers, Intelligence, Sensors and Reconnaissance (C4ISR) systems, formerly the primary tenants of the Fort. FTMM has a long history of research and development (R&D) activity, mostly related to communications and electronic equipment.

As shown on Figure 1, Parcel 70 is located in the central portion of the Main Post of FTMM. Building 551 is located in Parcel 70 and housed a classroom and photoprocessing operation. A Quonset hut was adjacent to Building 551 which was used for analytical work on photographic chemicals. The Quonset hut has been demolished.

On 15 September 2011, FTMM was closed under the 2005 Base Realignment and Closure (BRAC) process. Parcel 70 and Building 551 are currently unoccupied.

2.2 Summary of Investigation Activities

The potential for discharges related to previous operations within Parcel 70, including Building 551, was initially assessed in the BRAC Environmental Condition of Property (ECP) Report (U.S. Army BRAC, 2007), and further evaluated in the Site Investigation (SI) Report (U.S. Army BRAC, 2008). The SI included the collection of one surface soil sample (P70-SS1) (**Figure 2**) that was analyzed for Target Compound List

(TCL) analytes (including volatile organic compounds [VOCs], semi-volatile organic compounds [SVOCs], and PCBs without pesticides) plus tentatively identified compounds (+ TICs), and Target Analyte List (TAL) metals.

Additional field investigation work was performed in April 2016 under the Parcel 70 Work Plan Addendum (Parsons, 2016) with which the New Jersey Department of Environmental Protection (NJDEP, 2016) concurred. The objective of the additional field investigation was to characterize PCBs, specifically Aroclor 1260, in soil. Six soil borings (PAR-70-SB-01 to SB-06) were drilled and sampled within the courtyard of Building 551 at the locations shown on **Figure 2.** Soil samples from borings PAR-70-SB-05 and -06 were collected but were not needed for delineation, and therefore were not analyzed for PCBs.

2.3 Investigation Results

PCB results in soil samples collected during the 2008 and 2016 investigations are presented in **Table 1** and **Table 2**, respectively. The results of the 2008 investigation indicated that PCB concentrations did not exceed the then-current non-residential comparison criteria (U.S. Army BRAC, 2008) and the Army recommended that no further action be performed for soil; the NJDEP concurred (letter dated 28 October 2008). In 2012, NJDEP reviewed the analytical data associated with Parcel 70 and requested (letter dated 20 August 2012) that the Army address the Aroclor 1260 detected in surface soil sample P70-SS1 within the Building 551 courtyard at a concentration (0.86 mg/kg) that exceeded the current Residential Direct Contact Soil Remediation Standard (RDCSRS) for PCBs (0.2 mg/kg) (**Table 1**). Correspondence between the NJDEP and the Army related to Parcel 70 between 2008 and 2016 is provided in **Appendix A.**

Only one sample (from 0 to 0.5 ft bgs at boring PAR-70-SB-01) of the 8 samples collected and analyzed for Aroclor 1260 in 2016 had a concentration of Aroclor 1260 (0.33 mg/kg) that exceeded the RDCSRS for PCBs (0.2 mg/kg), which was also exceeded in the field duplicate (0.24 mg/kg). However, Aroclor 1260 was below the RDCSRS in the underlying 1-1.5 ft bgs sample and in the surrounding borings PAR-70-SB-02, -03, and -04 (**Table 2**). The results indicate that the Aroclor 1260 detection in PAR-70-SB-01 was delineated both horizontally and vertically within the courtyard area confined by the exterior walls of Building 551.

PCB analytical results of the confirmation soil sample collected after the excavation for the 2017 TCRA was completed are presented in **Table 3.** There were no exceedances of the RDCSRS for PCBs in the confirmation sample.

3.0 THREATS TO PUBLIC HEALTH, WELFARE, AND THE ENVIRONMENT

Soil concentrations of PCBs before and after soil removal were compared to U.S. Environmental Protection Agency (EPA) Residential Screening Levels (RSL) to evaluate the potential effects of PCBs on human health and the environment. The results of these comparisons were used to evaluate the need for soil removal and to identify the general effectiveness of the removal action performed in 2017.

3.1 Risk Assessment Evaluation

3.1.1 A screening evaluation was performed to evaluate the need for soil removal to reduce the threat to human health. Table 4 presents the maximum detected concentration of PCBs (specifically Aroclor 1260). This maximum concentration exceeded the USEPA Residential RSL, indicating a potential threat to human health.

3.1.2 Following soil removal, Aroclor 1260 was not detected in the confirmation sample of the soil remaining in-place. Another screening evaluation was performed to evaluate risks to future receptors (e.g., residents, workers, recreational users) from exposure to PCBs (specifically Aroclor 2160) in soil via incidental ingestion, dermal contact, and inhalation. The conclusion of the post-excavation screening evaluation was that that unacceptable risk to future receptors is not expected.

3.1.3 In summary, there were exceedances of the USEPA RSLs for Aroclor 1260 prior to soil removal that indicated a potential threat to human health. Following soil removal, the remaining concentrations were reduced to levels that no longer pose an unacceptable risk.

Table 4. Maximum Aroclor 1260 Concentration in Soil Prior to and After the TCRA

Contaminant	Pre-Soil Removal Maximum Concentration (mg/kg)	Post-Soil Removal Maximum Concentration (mg/kg)	USEPA RSL[1] (mg/kg)
Aroclor 1260	0.86	ND	0.24

1. USEPA RSLs for Residential Soil, based on target risk of 1E-06 and target hazard quotient of 0.1. Effective June 2017 (USEPA, 2017).

ND – not detected, at a reporting limit of 0.027 mg/kg

3.1.4 The Baseline Ecological Evaluation (BEE; Shaw, 2012) concluded that constituents at the Main Post of FTMM (including the area around Parcel 70) were unlikely to have a deleterious effect on sensitive ecological receptors or habitats, and additional ecological assessments were not warranted or recommended.

4.0 REGULATORY FRAMEWORK AND ENDANGERMENT DETERMINATION

This section summarizes the regulatory framework for the TCRA at Parcel 70 and presents the objectives of the removal action.

4.1 Regulatory Framework

CERCLA provides the President authority to respond to releases of hazardous substances, including removal actions (42 U.S.C. Section 9604(a)). Executive Order 12580 Section 2(d) delegates the President's authority under various CERCLA sections, including Section 9604(a), to the Secretary of the U.S. Department of Defense (DoD). Section 300.415 of the NCP further specifies the structure and requirements for removal actions. As the lead agency, the U.S. Army has chosen the proposed action in this TCRA for Parcel 70 in accordance with CERCLA and the NCP. The NJDEP acts as the state support agency.

4.1.1 Justification of the Time Critical Removal Action

A removal action is warranted pursuant to the NCP when the lead agency makes the determination considering several factors that there is a threat to public health or welfare or the environment (40 CFR 300.415(b)(1)). Of the listed factors in the NCP, the following two factors in Section 300.415(b)(2) of the NCP (40 CFR 300.415) were directly applicable to the site and were used in determining the appropriateness of a TCRA in reference to the contaminant concentrations in soil near Parcel 70:

Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants, or contaminants. (40 CFR 300.415(b)(2)(i)).

Aroclor 1260 was present in soil at Parcel 70 at concentrations that could pose a threat to human health (**Table 4**). The NCP also states:

If the lead agency determines that a removal action is appropriate, actions shall, as appropriate, begin as soon as possible to abate, prevent, minimize, stabilize, mitigate, or eliminate the threat to public health or welfare of the United States or the environment. (40 CFR 300.415(b)(3))

The U.S. Army determined that a TCRA was appropriate for Parcel 70 to remove the source of Aroclor 1260 contamination in soil.

4.1.2 Applicable or Relevant and Appropriate Requirements

The TCRA described in this Action Memorandum complied with ARARs. In accordance with the NCP (40 CFR 300.415(i)), onsite removal actions conducted under CERCLA are required to meet applicable or relevant and appropriate requirements (ARARs) "to the extent practicable." The New Jersey (NJ) RDCSRSs were applicable to this TCRA. The applicable NJ RDCSRS, which was reviewed by and coordinated with NJDEP, for Aroclor 1260 is 0.2 mg/kg.

The U.S. Army also complied with applicable requirements for offsite actions (i.e., Resource Conservation and Recovery Act [RCRA] hazardous waste transportation and offsite treatment requirements prior to land disposal as required by the RCRA land disposal restrictions).

4.2 Endangerment Determination

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this Action Memorandum, may have resulted in unacceptable exposures to contaminants and presented a threat to human health.

4.3 Removal Action Objectives

The removal action objective (RAO) for Parcel 70 was to remove PCB concentrations in soil that posed a threat to human health.

5.0 DESCRIPTION OF SELECTED ACTION

Two alternatives for Parcel 70 were evaluated using the effectiveness, implementability, and cost selection criteria established by the NCP. The relative performances of the alternatives were subsequently evaluated in a comparative analysis.

The alternatives considered for Parcel 70 were:

- Alternative 1 – No Action
- Alternative 2 – Soil Removal and Offsite Disposal.

Both alternatives were evaluated against CERCLA remedial criteria of effectiveness, implementability, and cost. Only Alternative 2 satisfied the threshold criteria of protecting human health and the environment and complied with ARARs and was effective and implementable; therefore, it was then assessed for cost. Based on the comparative analysis in terms of effectiveness, implementability, and cost, the U.S. Army's selected alternative was **Alternative 2 – Soil Removal and Offsite Disposal.** Protectiveness is achieved by the removal of contamination in subsurface soil and is more cost effective in the long term compared to institutional controls.

The selected removal action for the TCRA at Parcel 70 consisted of removing the contamination (Aroclor 1260) in subsurface soil. Removal action activities included site preparation, removal of contaminated soil, offsite transportation and disposal, and site restoration.

Site preparation included staking the excavation locations and identifying locations of utilities. Contaminated soil was removed and placed in roll-off boxes. Clean backfill was compacted in lifts and graded to maintain positive drainage. The excavation area was restored with grass seed and straw over the areas impacted during the removal action. Characterization, transportation, and offsite disposal of solid or hazardous waste complied with all appropriate Federal and state laws.

The general criteria for evaluating removal actions include effectiveness, implementability, and cost. The ability of the proposed action to meet these criteria is described below.

NJDEP has concurred with the Army's determination that no post-removal CERCLA action is necessary. Since hazardous substances will not remain at the site above an unrestricted use/unlimited exposure scenario, statutory 5-Year Reviews will not be necessary.

5.1 Effectiveness

The removal action for Parcel 70 has been effective at providing short- and long-term protection. This action is permanent because the source of the soil contamination has been removed. This alternative complies with ARARs as discussed in Section 4.1.2. The chemical concentrations in the soil at the site did not present an unacceptable risk to site workers during the removal action. Physical risks were addressed by implementing approved health and safety practices during the removal action.

5.2 Implementability

The removal action has been demonstrated to be both technically and administratively implementable. Soil excavation employed construction practices that are routinely implemented. All services and materials required were readily available. This alternative has already been accepted by the NJDEP because the soil removal and offsite disposal achieved the RAO.

5.3 Cost

The cost of the TCRA at Parcel 70 was $11,500. A breakdown of the costs is provided in **Table 5**. The costs include development of project-specific work plans, site preparation, soil excavation, transportation and disposal, site restoration, and reporting.

Table 5. Estimated Costs for Building 283 Alternative 2: Soil Removal and Offsite Disposal

Phase Name	Year 1
Work Plan	$1,500
Excavate and Remove Soil; Backfill	$5,000
Transportation and Disposal	$1,500
Waste Characterization	$1,000
Professional Labor	$2,500
Present Worth Total Cost:	$11,500

6.0 EXPECTED CHANGE IN THE SITUATION HAD THE ACTION BEEN DELAYED OR NOT TAKEN

Delaying the implementation of the proposed removal action or taking no action would have resulted in potential threats to human health and the environment as well as delays in the transfer of Parcel 70 from the U.S. Army to the Fort Monmouth Economic Revitalization Authority (FMERA).

7.0 PUBLIC INVOLVEMENT AND PARTICIPATION

This Action Memorandum will be made available for a 30-day public review and comment period from 29 January to 27 February 2018.

The TCRA will be posted on the Fort Monmouth IRP website (http://www.pica.army.mil/ftmonmouth/) and placed in the Fort Monmouth Environmental Restoration Public Information Repository (the Administrative Record) at the following location:

Monmouth County Library, Eastern Branch
1001 Route 35, Shrewsbury, NJ
Phone: (732) 683-8980
Hours: Mon-Thurs, 9am-9pm; Fri-Sat, 9am-5pm; and Sun, 1pm-5pm

Appendix B includes the public press release regarding the TCRA and the public notice requesting comments.

8.0 RECOMMENDATIONS

This Action Memorandum documents the action taken by the U.S. Army for the removal of contaminated soil at Parcel 70 at Fort Monmouth, New Jersey. The removal action was developed in accordance with CERCLA as amended and in a manner consistent with the NCP. This Action Memorandum provides

information related to the selection of the remedy and identifies actions taken to address the potential risks to human health and the environment.

The soil removal and backfill alternative selected as the final remedy consisted of the removal of the source of contamination in soil at Parcel 70. This remedy best met the RAO and NCP criteria because it:

- Was technically feasible based on commonly used construction techniques and demonstrated proven approaches
- Was administratively feasible and eliminated requirements to conduct CERCLA 5-Year Reviews
- Provided a high degree of long-term public health and environmental protection through the removal of the source of the contaminated soil
- Complied with chemical- and action-specific ARARs
- Imposed no restrictions on future use of the site
- Facilitated transfer of the property to the FMERA
- Served as a final action at the site.

The removal action meets the evaluation criteria of effectiveness, implementability, and cost.

9.0 REFERENCES

NJDEP, 2016. Letter to Army; Re: *Final ECP Parcel 70 Work Plan Addendum.* May 1.

Parsons, 2016. *Final ECP Parcel 70 Work Plan Addendum.* Submitted to U.S. Army Engineering and Support Center, Huntsville, AL. April 18.

Shaw, 2012. *Final Fort Monmouth Main Post and Charles Wood Area Baseline Ecological Evaluation Report, U.S. Army Garrison Fort Monmouth, Fort Monmouth, New Jersey.* Prepared for the Army Corps of Engineers, Baltimore District. Rev. 1.

United States (US) Army Base Realignment and Closure (BRAC), 2007. *Environmental Condition of Property Report – Fort Monmouth, Monmouth County, New Jersey.* Final. January 29.

US Army BRAC, 2008. *Site Investigation Report, Fort Monmouth.* Final. July 21.

USEPA, 2017. Regional Screening Levels Summary Table (based on target risk of 1E-06 and target hazard quotient of 0.1). June. Available at: https://semspub.epa.gov/work/03/2245071.pdf.

Figure 1

Main Post Layout

LEGEND:

- Parcel 70
- Municipal Boundary
- Installation Boundary
- Surface Water Feature

N

1 inch = 1,000 feet

0 500 1,000 2,000 Feet

Source: FTMM Supplied CAD, 2013; ESRI Data and Maps, 2011; USGS NHD, 2012.

PARSONS 401 Diamond Drive NW, Huntsville AL	Fort Monmouth New Jersey

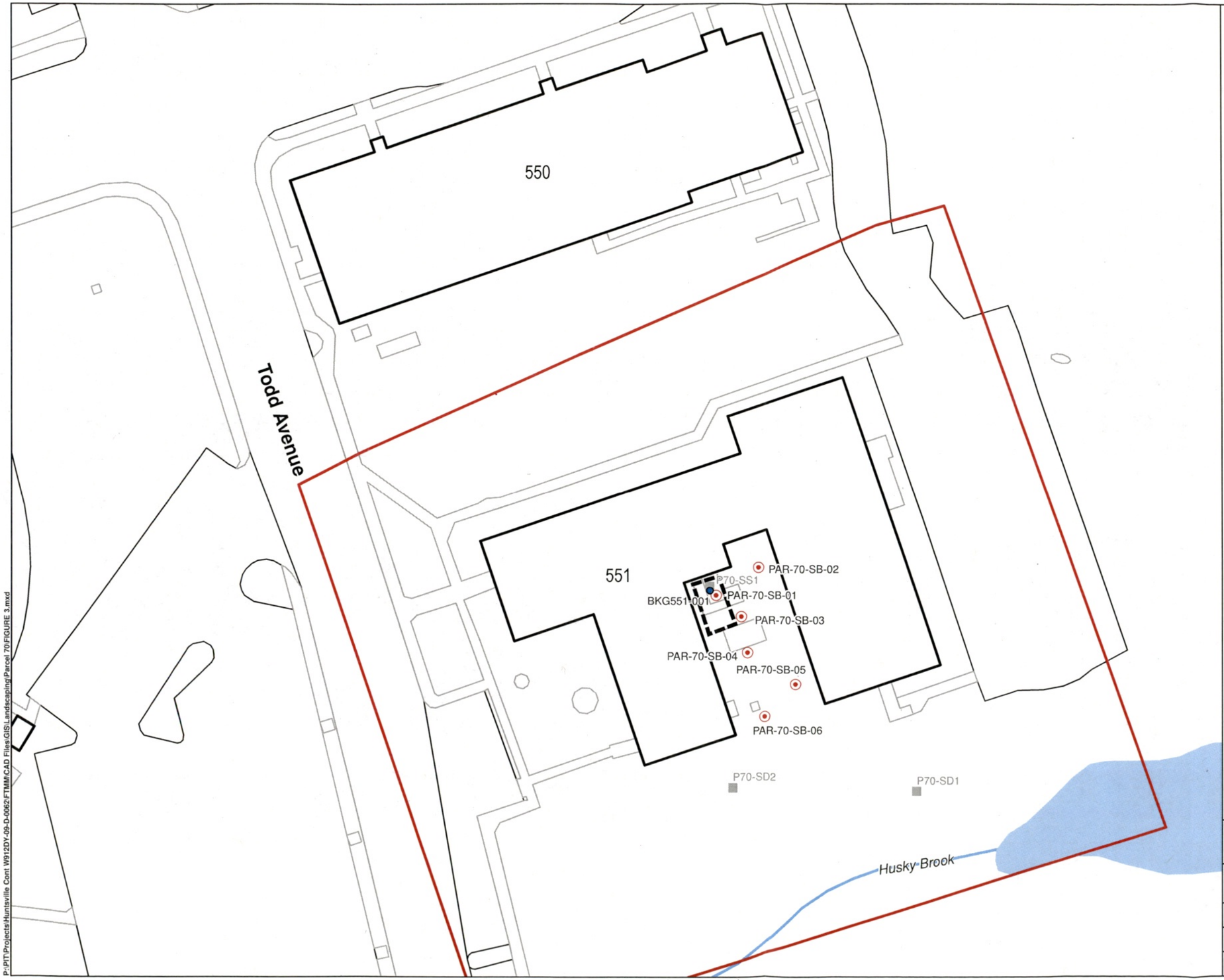
MAIN POST LAYOUT

CREATED BY:	REVIEWED BY:
RR	KF
DATE:	FIGURE NUMBER:
JUN. 2017	FIGURE 1
PROJECT NUMBER:	FILE:
748810-03000	FIGURE 1.mxd

Z:\Projects\Huntsville Cont W912DY-09-D-0062\FTMM\CAD Files\GIS\Parcel 70\NFA Request\FIGURE 1.mxd

Figure 2

Parcel 70 Building 551 Soil Results



LEGEND:

- Background Sample
- 2016 Soil Boring Location
- 2008 Sample Location
- Parcel 70 Boundary
- Surface Water Body
- W Water Line
- S Sanitary Sewer Line
- SW Storm Sewer Line
- G Gas Line
- Extent of Excavated Soil

N

1 inch = 40 feet

0 20 40 80 Feet

Source: FTMM Supplied CAD, 2013.

PARSONS 401 Diamond Drive NW, Huntsville AL	**Fort Monmouth** **New Jersey**

PARCEL 70 BUILDING 551
SOIL RESULTS

CREATED BY: RR	REVIEWED BY: KF
DATE: JUNE, 2017	FIGURE NUMBER: FIGURE 2
PROJECT NUMBER: 748810-06016	FILE: FIGURE 3.mxd

P:\PIT\Projects\Huntsville Cont W912DY-09-D-0062\FTMM\CAD Files\GIS\Landscaping\Parcel 70\FIGURE 3.mxd

Table 1

Fort Monmouth Phase II Site Investigation, Parcel 70 Summary of Analytical Parameters Detected in Soil (mg/kg)

Table 1
Fort Monmouth Phase II Site Investigation, Parcel 70
Summary of Analytical Parameters Detected in Soil (mg/kg)

			Analytical Results		
		Sample ID:	P70-SS1	P70-SD2	P70-SD2D
		Lab ID:	8000905	8000903	8000904
		Date Sampled:	01/08/2008	01/08/2008	01/08/2008
		Depth (ft. bgs):	0.0-0.5	0.0-0.5	1.0-1.5
Chemical	NRDCSCC[2]	IGWSCC[3]	Result	Result	Result
Semi-Volatiles					
Benzo[a]anthracene	4	500	1.100 U	**0.400 J**	4.500 U
Benzo[b]fluoranthene	4	50	1.100 U	**0.760 J**	4.500 U
Benzoic acid	NLE	NLE	1.100 U	3.200 U	4.500 U
bis(2-Ethylhexyl)phthalate	210	100	**0.300 J**	3.200 U	4.500 U
Chrysene	40	500	1.100 U	**0.620 J**	4.500 U
Di-n-butylphthalate	10000	100	**1.100 B**	**1.200 JB**	**6.000 B**
Fluoranthene	10000	100	1.100 U	**0.840 J**	4.500 U
Phenanthrene	NLE	NLE	1.100 U	**0.440 J**	4.500 U
Pyrene	10000	100	1.100 U	**1.200 J**	4.500 U
Aroclor 1260	2	50	**0.86**	0.0041 U	0.0041 U
Aluminum	NLE	NLE	**9420 B**	**44500 B**	**20400 B**
Arsenic	20	NLE	**4.13**	**26.3**	**11.0**
Barium	47000	NLE	**39.7 B**	**218 B**	**93.4 B**
Beryllium	140	NLE	**0.315**	**5.10**	**2.22**
Cadmium	100	NLE	**1.28**	**3.19**	**0.742**
Calcium	NLE	NLE	**917 B**	**3510 B**	**7440 B**
Chromium (Total)	NLE	NLE	**21.7**	**232**	**114**
Cobalt	NLE	NLE	**1.97**	**10.0**	**1.99**
Copper	45000	NLE	**87.9 B**	**54.2 B**	**22.1 B**
Iron	NLE	NLE	**17300**	**62000**	**25200**
Lead	800	NLE	**40.8**	**115**	**10.6**
Magnesium	NLE	NLE	**951**	**7670**	**3400**
Manganese	NLE	NLE	**84.9**	**107**	**87.7**
Nickel (Soluble Salts)	2400	NLE	**9.39**	**48.8**	**26.7**
Potassium	NLE	NLE	**1610**	**12200**	**6160**
Vanadium	7100	NLE	**30.5**	**162**	**79.4**
Zinc	1500	NLE	**136 B**	**328 B**	**180 B**

[1] NJDEP Residential Direct Contact Soil Cleanup Criteria per NJAC 7:26D, 1999. Beryllium, Copper and Lead criteria per NJAC 7:26D, 2008.

[2] NJDEP Non-Residential Direct Contact Soil Cleanup Criteria per NJAC 7:26D, 1999. Beryllium, Copper and Lead criteria per NJAC 7:26D, 2008.

[3] NJDEP Impact to Groundwater Soil Cleanup Criteria per NJAC 7:26D, 1999.

DUP = Duplicate Sample.

ft. bgs = Feet below ground surface.

B = The compound was found in the associated method blank as well as in the sample.

D = Sample was diluted.

E = The compound's concentration exceeds the calibration range of the instrument for that specific analysis.

J = Mass spec and retention time data indicate the presence of a compound however the result is less than the MDL but greater than zero.

U = The compound was analyzed for but not detected.

NT = Not tested.

NLE = No limit established.

mg/kg = milligram per kilogram.

Bold = Analyte was detected.

Shaded = Concentration exceeds level of concern.
(Surface soil compared to NRDCSCC. Subsurface soil compared to IGWSCC when available, otherwise compared to NRDCSCC).

Table 1
Fort Monmouth Phase II Site Investigation, Parcel 70
Summary of Analytical Parameters Detected in Sediment (mg/kg)

			Analytical Results	
		Sample ID:	P70-SD1	P70-SD1D
		Lab ID:	8000901	8000902
		Date Sampled:	01/08/2008	01/08/2008
		Depth (ft. bgs):	0.0-0.5	1.0-1.5
Chemical	ER-L[1]	ER-M[2]	Result	Result
Semi-Volatiles				
Benzoic acid	NLE	NLE	**3.100**	1.400 U
bis(2-Ethylhexyl)phthalate	NLE	NLE	**0.170 J**	1.400 U
Chrysene	0.384	2.8	**0.120 J**	1.400 U
Di-n-butylphthalate	NLE	NLE	**1.500 B**	**1.600 B**
Fluoranthene	0.600	5.1	**0.120 J**	1.400 U
Pyrene	0.665	2.6	**0.170 J**	1.400 U
Metals				
Aluminum	NLE	NLE	**4140 B**	**6640 B**
Arsenic	8.2	70	**3.43**	**3.17**
Barium	NLE	NLE	**12.4 B**	**28.2 B**
Beryllium	NLE	NLE	**0.432**	**0.591**
Cadmium	1.2	9.6	**0.197**	**0.184**
Calcium	NLE	NLE	**861 B**	**1110 B**
Chromium (Total)	81	370	**43.9**	**51.2**
Cobalt	NLE	NLE	**0.472**	0.394 U
Copper	34	270	**15.9 B**	**11.3 B**
Iron	NLE	NLE	**13200**	**11000**
Lead	47	218	**14.8**	**8.92**
Magnesium	NLE	NLE	**1460**	**1590**
Manganese	NLE	NLE	**33.5**	**24.2**
Nickel (Soluble Salts)	21	52	**4.26**	**4.25**
Potassium	NLE	NLE	**3000**	**3170**
Vanadium	NLE	NLE	**29.0**	**31.4**
Zinc	150	410	**76.4 B**	**100 B**

[1] NJDEP Marine/Estuarine Sediment Screening Guidelines, Effects Range - Low, 1998.

[2] NJDEP Marine/Estuarine Sediment Screening Guidelines, Effects Range - Medium, 1998.

DUP = Duplicate Sample.

ft. bgs = Feet below ground surface.

B = The compound was found in the associated method blank as well as in the sample.

D = Sample was diluted.

E = The compound's concentration exceeds the calibration range of the instrument for that specific analysis.

J = Mass spec and retention time data indicate the presence of a compound however the result is less than the MDL but greater than zero.

U = The compound was analyzed for but not detected.

NT = Not tested.

NLE = No limit established.

mg/kg = milligram per kilogram.

Bold = Analyte detected.

Shaded = Concentration exceeds ER-L.

Table 2

Detected Soil Sampling Results -Comparison to NJDEP Soil Remediation Standards Parcel 70 Fort Monmouth, New Jersey

TABLE 2
DETECTED SOIL SAMPLING RESULTS - COMPARISON TO NJDEP SOIL REMEDIATION STANDARDS
PARCEL 70
FORT MONMOUTH, NEW JERSEY

Loc ID	NJ Residential Direct Contact SRS	NJ Non-Residential Direct Contact SRS	NJ Impact to GW Soil Screening Level	SB01			SB02		SB03		SB04			SB05
Sample ID				PAR-70-SB-01-0-0.5	PAR-70-SB-101-0-0.5	PAR-70-SB-01-1-1.5	PAR-70-SB-02-0-0.5	PAR-70-SB-02-1-1.5	PAR-70-SB-03-0-0.5	PAR-70-SB-03-1-1.5	PAR-70-SB-04-0-0.5	PAR-70-SB-04-1-1.5	PAR-70-SB-04-4.5-5	PAR-70-SB-05-4.5-5
Sample Date				4/25/2016	4/25/2016	4/25/2016	4/25/2016	4/25/2016	4/25/2016	4/25/2016	4/25/2016	4/25/2016	4/25/2016	4/25/2016
Extractable/Volatile Petroleum Hydrocarbons (mg/kg)														
Total EPH	5,100	54,000	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1,200**	**250**
PCBs (mg/kg)														
Aroclor-1260	0.2	1	NLE	**0.33**	**0.24**	**0.056**	< 0.019	< 0.019	**0.023 J**	< 0.02	< 0.02	**0.033 J**	NA	NA

Footnotes:

NLE = no limit established.

Chemical detections are bolded.
Chemical result qualifiers are assigned by the laboratory and are evaluated and modified (if necessary) during the data validation.

J = estimated detected value due to a concetration below the reporting limit or due to discrepancies in meeting certain analyte-specific quality control.

U = non-detect, i.e. not detected at or above this value.

The NJ Residential and Non-Residential Direct Contact Soil Remediation Standards refer to the NJDEP's May 7, 2012 Remediation Standards, http://www.nj.gov/dep/rules/rules/njac7_26d.pdf.

The NJ Impact to GW Soil Screening Level criteria refers to the Development of Site Specific Impact to Ground Water Soil Remediation Standards - Nov 2013 revised, http://www.nj.gov/dep/srp/guidance/rs/partition_equation.pdf.

For EPH, the Protocol for Addressing Extractable Petroleum Hydrocarbons, (Version 5.0, August 9, 2010) was used to determine the applicable standards. Based on the protocol, Parcel 70 EPH results are considered category 1, therefore the calculated EPH Human Health values for Residential and Non-Residential soils are provided in the protocol.

Cell Shade values represent a result that is above the NJ Residential and/or Non-Residential Direct Contact Soil Remediation Standard.

Cell Shade values represent a result that is above the NJ Impact to GW Soil Screening Level.

Cell Shade values represent a result that is above both the NJ Residential, Non-Residential, AND NJ Impact to GW Soil Screening Level Direct Contact Soil Remediation Standard.

Table 3

2017 Background Soil Sample Results and Comparison to Soil Remediation Standards Parcel 70 Fort Monmouth, New Jersey

TABLE 3
2017 BACKGROUND SOIL SAMPLE RESULTS AND COMPARISON TO SOIL REMEDIATION STANDARDS
PARCEL 70
FORT MONMOUTH, NEW JERSEY

							CLIENT ID:	BKG-551-001	
							LAB ID:	AC98118-006	
							COLLECTION DATE:	5/25/2017	
							SAMPLE MATRIX:	Soil	
							SAMPLE UNITS:	mg/Kg	
TestCode	CAS#	Analyte	NJ Residential Direct Contact SRS mg/Kg	NJ Non-Residential Direct Contact SRS mg/Kg	NJ Impact to GW Soil Screening Level mg/Kg	USEPA RSLs for Residential Soil mg/Kg		Result	RL
		PCBs							
PCB-8082	1336-36-3	Aroclor (Total)	0.2	1	0.2	0.23		ND	0.027
PCB-8082	12674-11-2	Aroclor-1016	0.2	1	0.2	0.41		ND	0.027
PCB-8082	11104-28-2	Aroclor-1221	0.2	1	0.2	0.2		ND	0.027
PCB-8082	11141-16-5	Aroclor-1232	0.2	1	0.2	0.17		ND	0.027
PCB-8082	53469-21-9	Aroclor-1242	0.2	1	0.2	0.23		ND	0.027
PCB-8082	12672-29-6	Aroclor-1248	0.2	1	0.2	0.23		ND	0.027
PCB-8082	11097-69-1	Aroclor-1254	0.2	1	0.2	0.12		ND	0.027
PCB-8082	11096-82-5	Aroclor-1260	0.2	1	0.2	0.24		ND	0.027
PCB-8082	37324-23-5	Aroclor-1262	NA	NA	NA	NA		ND	0.027
PCB-8082	11100-14-4	Aroclor-1268	NA	NA	NA	NA		ND	0.027
		TPH							
8015-EPHCAT2	EPHC9C40	C9-C40	NA	NA	NA	NA		ND	64
		Wet Chemistry							
%SOLIDS	PERSOL	% Solids	NA	NA	NA	NA		94(Percent)	

Result exceeds at least one criterion (none for these samples)
Bold Positive result detected below all criteria (none for these sample)

NJ Soil Remediation Standards
Note 1) Residential and Non-residential critieria from the NJDEP June 2, 2008 Soil Remediation Standards
Note 2) Dec 2008 DEP guidance document for the development of site-specific IGW soil remediation standards using the soil-water partition equation.
Note 3) The USEPA Regional Screening Levels (RSLs) for Residential Soil refers to the June 2017 RSLs based on target risk = 1E-06 and target hazard quotient =0.1. Available at: https://semspub.epa.gov/work/03/2245071.pdf
NA No criterion derived for this contaminant.

Appendix A

Correspondence Between NJDEP and the Army Related to Parcel 70 Between 2008 and 2016

Combined excerpts of NJDEP and Army correspondence on Parcel 70

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION
PUBLICLY FUNDED REMEDIATION ELEMENT
P.O. BOX 413
TRENTON, NJ 08625-0413

JON S. CORZINE
Governor

LISA P. JACKSON
Commissioner

October 28, 2008

Mr. Joseph Fallon, CHMM
Directorate of Public Works
ATTN: IMNE-MON-PWE
167 Riverside Ave.
Fort Monmouth, NJ 07703

RE: Draft Site Investigation Report
Fort Monmouth, NJ

Dear Mr. Fallon:

The NJDEP Division of Remediation Management & Response (DRMR) has reviewed the Draft Site Investigation Report dated July 21, 2008 by Shaw Environmental, Inc., which was prepared under Phase II of the Environmental Condition of Property (ECP) assessment of Fort Monmouth. Our comments are attached.

You or your staff may contact me at 609-633-0766 with any questions on the enclosed comments, or any other site remediation matters at Fort Monmouth.

Sincerely,

Larry Quinn

Larry Quinn, P.E., CHMM, Site Manager
Bureau of Design and Construction

Attachment

Parcel 69 - Building 900 Former Vehicle Repair/Motor Pool

1. The proposed NFA for soil is not acceptable. Sample analysis at this AOC should have included analysis for PCBs, due to the former waste oil tank, as stated in previous NJDEP comments. Soil samples must be re-collected and analyzed for PCBs.

2. All sediment samples collected adjacent to Parcel 69 must include PCB analysis.

3. NJDEP concurs with the recommendations to further evaluate ground water. Pursuant to N.J.A.C. 7:26E-4.4, a remedial investigation of ground water is required. An investigation workplan must be submitted for NJDEP review and approval.

Parcel 70 – Building 551 – Former Photoprocessing

1. NJDEP concurs with the recommendations for no further action (NFA).

Parcel 76 – 200 Area, 300 Area – Former Barracks

1. See General Comment #1 above.

Parcel 79 – 400 Area Former Barracks

1. See General Comment #1 above.

Parcel 80 – Former Buildings 105 and 106 – Photoprocessing

1. The footprint of the former building 105 and 106 should be shown on Figure 3.20-1. On the current Figure, it cannot be determined where the former buildings were located in relation to the Geoprobe borings, so NFA for soil can't be approved.

2. The NJDEP concurs with the recommendation for further evaluation of ground water. Pursuant to N.J.A.C. 7:26E-4.4, a remedial investigation of ground water is required. An RI workplan must be submitted for NJDEP review and approval.

Parcel 83 - Northeast MP

1. Former structures, buildings and other areas of concern are discussed in the text and in the tables but are not indicated on the Figure 3.21-1. All areas of concern, whether existing or former structures, must be depicted on the site figures.

DEPARTMENT OF THE ARMY

OFFICE OF ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT
U.S. ARMY FORT MONMOUTH
P.O. 148
OCEANPORT, NEW JERSEY 07757

March 16, 2012

Ms. Linda Range
New Jersey Department of Environmental Protection
Case Manager
Bureau of Southern Field Operations
401 East State Street, 5th Floor
PO Box 407
Trenton, NJ 08625

Re: Army's Response to NJDEP correspondence (Dated October 28, 2008), Draft Site Investigation
Fort Monmouth, NJ

Attachments:

A. Letter from NJDEP dated October 28, 2008, regarding the Draft Site Investigation Report.
B. Letter from Army dated April 28, 2009, regarding the initial response to the NJDEP letter dated October 28, 2008.
C. Letter from the Army dated November 16, 2011, regarding the Army's response to NJDEP's comments for Parcel 15.
D. Unregulated Heat Oil Tank Brief Summary and Closure Reports for Parcels 14, 28, 51, 76, and 79.
E. Letters from NJDEP, regarding UST Closure Approval/NFA, dated July 23, 1993; September 21, 1995; July 10, 1998; February 24, 2000; August 20, 2000; April 20, 2001; and January 10, 2003.
F. Parcel 28 Map – Septic Tank
G. Site Plan depicting from buildings 105 and 106 off of Riverside Drive.
H. Parcel 83 former Structures Map.

Dear Ms. Range:

The U.S. Army Fort Monmouth has reviewed the subject comments as submitted by the NJDEP on 28 October 2008, in regards to the Draft Site Investigation Report dated July 21, 2008 by Shaw Environmental Inc. Referenced below is a line by line response in bold print, to each comment and request for an "No Further Action" (NFA) determination where appropriate.

General Comments

1. USTs at Parcels 14, 28, 51, 76, and 79. The recommendation of no further action (NFA) for the suspected underground storage tanks (USTs) is not acceptable to the NJDEP. The suspected USTs are subject to New Jersey regulations N.J.A.C. 7:26E *Technical*

Parcel 69 - Building 900 Former Vehicle Repair/Motor Pool

1. The proposed NFA for soil is not acceptable. Sample analysis at this AOC should have included analysis for PCBs, due to the former waste oil tank, as stated in previous NJDEP comments. Soil samples must be re-collected and analyzed for PCBs.

Historical operations at Building 900 (tactical motor pool/vehicle repair) did not involve usage of PCB-containing products and PCBs are not suspected to have been disposed of in the former waste oil above-ground storage tank (AST) at Building 900. Thus, the Army did not analyze for PCBs in the soil samples that were collected. In addition, there is no evidence that a historical release occurred from the waste oil AST at Building 900. Thus, the Army does not plan to collect additional soil samples for PCB analysis.

2. All sediment samples collected adjacent to Parcel 69 must include PCB analysis.

The nearest surface water body to Parcel 69 is Oceanport Creek, which is 250 feet to the north of Building 900. As part of the Baseline Ecological Evaluation (BEE) report prepared by Shaw Environmental, Inc. and submitted to NJDEP on May 2011, one surface water sample was collected from Oceanport Creek and analyzed for PCBs, plus additional parameters. PCB concentrations were non-detect in the surface water sample. The findings of the BEE indicated that PCBs were not a Contaminant of Potential Ecological Concern (COPEC) at Parcel 69/Building 900. Historical operations at Building 900 did not involve usage of PCB-containing products and PCBs are not suspected to have been disposed of in the former waste oil AST at Building 900. Thus, the Army does not plan to collect additional sediment samples from Oceanport Creek for PCB analysis.

3. NJDEP concurs with the recommendations to further evaluate ground water. Pursuant to N.J.A.C. 7:26E-4.4, a remedial investigation of ground water is required. An investigation work plan must be submitted for NJDEP review and approval.

Based on PCE concentrations detected in excess of the NJDEP GWQS (1.0 µg/L) in ground water samples collected from temporary well point P69GW-1 (1.02 µg/L) during the Shaw SI, the Army plans re-sample ground water at the location of temporary well point P69GW-1. Results of the temporary well point re-sampling will be provided to the NJDEP in a future letter report.

Parcel 70 – Building 551 - Former Photoprocessing

1. NJDEP concurs with the recommendations for no further action (NFA).

The Army acknowledges the NJDEP's approval of NFA for Parcel 70 (Building 551).

Parcel 76 - 200 Area, 300 Area - Former Barracks

1. See General Comment #1 above.

State of New Jersey

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Case Management
401 East State Street
P.O. Box 420/Mail Code 401-05F
Trenton, NJ 08625-0028
Phone #: 609-633-1455
Fax #: 609-633-1439

BOB MARTIN
Commissioner

July 10, 2012

Wanda Green
BRAC Environmental Coordinator
OACSIM – U.S. Army Fort Monmouth
PO Box 148
Oceanport, NJ 07757

Re: March 2012 Army Response to NJDEP Correspondence Letter Dated October 28, 2008
Fort Monmouth, NJ
PI G000000032

Dear Ms. Green:

A review of the above referenced report, received March 27, 2012 and submitted in response to the Department's comments regarding the Draft Site investigation Report of July 21, 2008 by Shaw Environmental, Inc., has been completed by this office. Many of the parcel comments involved suspected USTs; in addition to that information provided in this submittal and the July 2008 SI, a review and comparison of Appendix G, Appendix O, and Figures 15 and 16 of the January 2007 ECP Report was conducted by this office in an attempt to ascertain the location and status of all tanks located within the parcels. Unless otherwise noted, comments and questions are provided only for each parcel referenced in the submittal and are generally presented by parcel.

Parcel 13 – Former Barracks (Buildings 2004-2016)
Geophysical surveys were performed, and sampling was conducted throughout that area at which USTs were known to or may have been present. No USTs were found; all soils analytical results were below cleanup criteria applicable to the site; no additional action for the parcel is necessary.

Parcel 14 – Former Buildings and Housing Area Northwest Portion of CWA
As indicated in the Department's correspondence of May 30, 2012, the geophysical surveys performed and sampling conducted throughout that area at which USTs were or may have been present were sufficient to adequately characterize the area. No USTs were found; all soils analytical results collected were below cleanup criteria applicable to the site. The parcel was re-categorized from Category 2 to Category 1.

Two USTs were previously noted as within the parcel. UST 900-142 was granted Closure Approval Letter/NFA on July 10, 1998, while documentation for closure approval or NFA is not available for confirmation on the following UST:

UST 900-141 Reported NJDEP UST Closure Approval Date 7/10/98

Parcel 70 – Building 551 – Former Photoprocessing
The October 28, 2008 Departmental correspondence concurred with the recommendation for no further action. As a note however, we do not have a copy of the Appendix G referenced 8/29/00 Closure Approval Letter for UST 551-80

Parcel 76 – 200 Area, 300 Area – Former Barracks
A geophysical survey was performed throughout Parcel 76, with suspect USTs noted in the western portion of the parcel. Although sampling conducted within that western portion of the parcel indicated no exceedences of the applicable cleanup criteria, additional investigation was required regarding the possible USTs.

Additional evaluation was documented in the June 2011 Remedial Investigation and Closure Report, which references Incident #s 09-11-04-1553-32, 10-04-28-1333-57, 10-04-13-1710-23, 09-11-19-1710-57 and 10-01-06-1342-44 and the removal of UHOTs 544, 543, 542, 541, 540, 539 and 538. Affected soils were reported removed to below the 1000 ppm contingency analytical threshold; a ground water investigation was performed via the installation of four monitor wells as ground water was encountered in the excavations.

The adequacy of the investigations/remedial actions presented in the report submittal cannot be determined, as insufficient information has been provided. No information was contained in Appendices A through E, nor were any Figures included (this information was missing in many of the Attachment D reports, some of which was obtainable through previous submittals and information, some not). No comparison could be made of UST locations against geophysical anomalies, sample locations, or monitor well locations. A review of Table 2/Summary of Laboratory Analyses as a stand-alone document (without sampling location/result maps, further association between sample ID and tank) is insufficient to allow for documentation of soils removal to below the above stated 1000 ppm contingency analytical threshold, or even the 5100 ppm EPH standard at each tank, or to determine if the ground water investigation (placement of monitor wells) was adequate.

Additionally, although it is agreed no USTs appear to remain in the eastern portion of Parcel 76, no remedial documentation was submitted for those former tank locations as noted on Appendix O and Figure 15 of the January 2007 ECP Report in the eastern portion of Parcel 76, as follows:

UST-261-45	UST-262-46	UST-263-47	UST-264-48	UST-265-49
UST-266-50	UST-267-51	UST-268-52	UST-269-53(contamination per Appendix G)	

As previously discussed, a designation of no further action for these USTs cannot be issued without an investigation in accordance with the Technical Requirements for Site Remediation.

DEPARTMENT OF THE ARMY

OFFICE OF ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT
U.S. ARMY FORT MONMOUTH
P.O. 148
OCEANPORT, NEW JERSEY 07757

July 26, 2012

Ms. Linda Range
New Jersey Department of Environmental Protection
Case Manager
Bureau of Southern Field Operations
401 East State Street, 5th Floor
PO Box 407
Trenton, NJ 08625

Re: August 29, 2000 Closure Approval Letter for UST #551-80 at Building 551 (Parcel 70) – Former Photoprocessing - Main Post, Fort Monmouth, N.J.

Attachments:

A. Correspondence Letter from NJDEP dated July 10, 2012
B. Closure Approval Letter for UST #551-80 from NJDEP dated August 29, 2000

Dear Ms. Range:

In accordance with the NJDEP's July 10, 2012 correspondence letter (provided in Attachment A), enclosed in Attachment B is a copy of the UST Closure Approval/NFA letter for UST #551-80, dated August 29, 2000.

Should you have any questions or require additional information, please contact me at (732) 380-7064 or by email at wanda.s.green2.civ@mail.mil.

Sincerely,

Wanda Green

Wanda Green
BRAC Environmental Coordinator

Enclosures

State of New Jersey

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Case Management
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P.O. Box 420/Mail Code 401-05F
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BOB MARTIN
Commissioner

August 20, 2012

Wanda Green
BRAC Environmental Coordinator
OACSIM – U.S. Army Fort Monmouth
PO Box 148
Oceanport, NJ 07757

Re: Parcel 70 – UST #551-80 at Building 551 August 28, 2000 Closure Approval Letter;
PCBs at Sample Location P70-SS1; Arsenic at Sample Location P70-SD2
Fort Monmouth, New Jersey
PI G000000032

Dear Ms. Green:

The New Jersey Department of Environmental Protection (Department) acknowledges receipt of the referenced Closure Approval Letter, which confirms no additional action is necessary for the former tank at Building 551.

As I indicated in a recent phone conversation with Calibre's Joe Pearson, however, a review of the analytical data previously generated for Parcel 70 indicates the presence of constituents above criteria in soil at two locations, which require additional information, characterization, and/or action. Arsenic was reported at 26.3 ppm at sample location P70-SD2 (characterized as a soil sample, rather than sediment, per page 3-255 of the July 2008 Site Investigation Report). It is understood the Army may contend the arsenic is representative of background conditions, however, that determination has not yet been agreed upon. Please submit additional information in support of same, if the Army choses to pursue this position regarding the arsenic.

Additionally, PCBs of 0.86 ppm were reported at sample location P70-SS1, which is above the current Residential Direct Contact Soil Remediation Standard (0.2 ppm), as well as the Residential Direct Contact Soil Cleanup Criteria (0.49 ppm) applicable at the time of sampling. Remedial efforts to address same are required.

Please contact this office if you have any questions.

Sincerely,

Linda S. Range
Bureau of Case Management

Appendix B

Public Press Release

PUBLIC NOTICE

U.S. Army Corps of Engineers, NY District, **ACTION MEMORANDUM FOR PARCEL 70 at Fort Monmouth, NJ**

The U.S. Army Corps of Engineers New York District and the U.S. Army Engineering and Support Center, Huntsville (USAESCH), has prepared an *Action Memorandum* for Parcel 70 (Building 551) at Fort Monmouth (FTMM) in Oceanport, Monmouth County, New Jersey. The U.S. Army is the lead agency for FTMM in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Executive Order 12580. New Jersey Department of Environmental Protection (NJDEP) is the state support agency under the National Contingency Plan for FTMM.

The purpose of the Action Memorandum is to document the U.S. Army's decision to undertake the Time Critical Removal Action (TCRA) at Parcel 70 where polychlorinated biphenyl (PCB) contaminated soil was identified in soil around Building 551. This Action Memorandum describes the TCRA selected for and performed at Parcel 70. The New Jersey Department of Environmental Protection has concurred with the Army's No Further Action determination for Parcel 70.

The *Action Memorandum,* the associated reports, and the full public record for the Site, are available for review at the Monmouth County Library, Eastern Branch, 1001 Route 35, Shrewsbury NJ 07702. The *Action Memorandum* is also posted on the FTMM Environmental website (http://www.pica.army.mil/ftmonmouth/).

The New York District invites public comment on the *Action Memorandum.* Written comments will be accepted during a 30-day comment period starting February 15, 2018 and ending March 16, 2018. All comments must be postmarked by March 16, 2018, and mailed to the address below (or emailed by March 16, 2018 to william.r.colvin18.civ@mail.mil):

BRAC Environmental Coordinator
OACSIM - U.S. Army Fort Monmouth
Attn: Mr. William Colvin
P.O. Box 148, Oceanport, NJ 07757
(732) 380-7064