**U.S. Army Corps of Engineers, New York District and Engineering and Support Center, Huntsville, Alabama, Worldwide Environmental Restoration Services**

# PROPOSED PLAN FOR SITES FTMM-28, FTMM-54, FTMM-55, FTMM-56, FTMM-61, AND FTMM-64

**Fort Monmouth, Oceanport, Monmouth County, New Jersey** **July 2020**

## INTRODUCTION

The U.S. Army is presenting this **Proposed Plan*** for the public to review and comment regarding **no further action (NFA)** proposed for six sites at Fort Monmouth (FTMM) in Monmouth County, New Jersey: FTMM-28, FTMM-54 FTMM-55, FTMM-56, FTMM-61, and FTMM-64. The U.S. Army (Army) is the lead agency for FTMM in accordance with the **Defense Environmental Restoration Program (DERP)** (10 U.S.C. §2701 et. seq.). New Jersey Department of Environmental Protection (NJDEP) is the state regulatory agency which administers the State's Site Remediation Program under the Technical Requirements for Site Remediation (**New Jersey Administrative Code (N.J.A.C.)** 7:26E). NJDEP, in consultation with the Army, will make the final selection of the response action for sites FTMM-28, FTMM-54 (south of FTMM-18), FTMM-55, FTMM-56, FTMM-61, and FTMM-64 after consideration of public input.

These sites are classified as **Petroleum, Oil, and Lubricant (POL)** Sites and therefore are exempt from the **Comprehensive Environmental Response, Compensation and Liability Act** of 1980 (**CERCLA**, 42 U.S.C. §§9601(14) and 9604(a)(2)) process. However, the Army's authority to investigate and remediate environmental contamination, as described in the DERP Manual (DoDM 4715.20, 9 March 2012), requires all such investigations and remedy selection processes be consistent with CERCLA. For POL sites, and other Resource Conservation and Recovery Act (RCRA) corrective action responses, the Department of Defense (DoD) interprets "consistent with" to mean public participation prior to remedy selection, as described in the **National Oil and Hazardous Substances Pollution Contingency Plan** (NCP 40 CFR Part 300). The Army presents this Proposed Plan, consistent with 40 CFR 300.430(f)(2), to present to the public the remedy selected by the NJDEP.

* Words or phrases shown in **BOLD** are defined in the glossary at the end of this document.

**Dates to Remember:**
**PLEASE MARK YOUR CALENDAR**

**PUBLIC COMMENT PERIOD:**
***August 10, 2020 – September 10, 2020***
The Army will accept written comments on the Proposed Plan during the public comment period. Written comments may be postmarked or emailed by **September 10, 2020** and sent to:

BRAC Environmental Coordinator
U.S. Army Fort Monmouth
Attn: Mr. William Colvin
P.O. Box 148
Oceanport, NJ 08641
or
william.r.colvin18.civ@mail.mil

The Proposed Plan can be viewed at www.fortmonmouthrecords.com or (subject to COVID-19 restrictions) at 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 07702
Phone: (732) 683-8980

FTMM-28 was also a pesticide storage site. However, the results of an environmental investigation indicated that pesticides were not **contaminants of concern (COCs)** under CERCLA and did not require additional action. CERCLA risk assessments were not performed for these sites, and NJDEP soil cleanup standards and **Ground Water Quality Standards (GWQS)** were used to evaluate the need for remediation of these six sites. The evaluation of these sites was based on previous environmental investigations which concluded that NFA is required based on NJDEP criteria and NJDEP has agreed.

A portion of FTMM-54 overlaps with FTMM-18, FTMM-18 is not included in this Proposed Plan.

The only FTMM-54 soil with COCs was located within the FTMM-18 site boundary, and will be addressed by the engineering and institutional controls implemented for the FTMM-18 landfill. Therefore, the portion of FTMM-54 included in this Proposed Plan is the portion south of the FTMM-18 boundary.

This Proposed Plan provides the rationale for the NFA determination and describes the public involvement process for sites FTMM-28, FTMM-54 (south of FTMM-18), FTMM-55, FTMM-56, FTMM-61, and FTMM-64.

# PUBLIC INVOLVEMENT PROCESS

As the lead agency for implementing the environmental response program at FTMM, the Army has prepared this Proposed Plan in accordance with CERCLA Section 117(a) and Section 300.430(f)(2) of the NCP to continue its community awareness efforts and to encourage public participation. This Proposed Plan is also consistent with the public outreach requirements of the N.J.A.C. 7:26C-1.7. After the public has the opportunity to review and comment on this Proposed Plan, the Army will respond to the comments received during the public comment period. Information on the public comment period is presented in the box on Page 1.

Local community members and other interested parties are encouraged to review this Proposed Plan and submit comments. The Army will carefully consider all comments received from the public and provide responses which will be compiled into a **Responsiveness Summary**. The decision on the appropriate action for sites FTMM-28, FTMM-54 (south of FTMM-18), FTMM-55, FTMM-56, FTMM-61, and FTMM-64 will be detailed in a **Record of Decision (ROD)**, which will include the Responsiveness Summary.

This Proposed Plan summarizes information that can be found in greater detail in the Underground Storage Tank (UST) Closure Reports, **Site Investigations (SIs), Remedial Investigations (RIs),** and other documents contained in the **Administrative Record** file for FTMM and on the website listed in the box on Page 1. The Army encourages the public to review these documents to gain a more comprehensive understanding of the sites and all associated activities.

# SITE BACKGROUND

FTMM is located in the central-eastern portion of New Jersey in Monmouth County, approximately 45 miles south of New York City, New York; 70 miles northeast of Philadelphia, Pennsylvania; and 40 miles east of Trenton, New Jersey. The Atlantic Ocean is approximately 3 miles to the east. FTMM was comprised of three areas: the Main Post (MP), the Charles Wood Area (CWA), (Figure 1), and the Evans Area (EA) (not shown). FTMM's MP and CWA were selected for closure by the Base Realignment and Closure (BRAC) Commission in 2005, and officially closed on September 15, 2011. The EA was closed under BRAC in 1998 and has since been transferred from FTMM.


**Figure 1: Fort Monmouth Location**

Numerous investigations were conducted at sites FTMM-28, FTMM-54, FTMM-55, FTMM-56, FTMM-61, and FTMM-64 over the past 35 years. The locations of five sites on the MP are shown on Figure 2, and FTMM-28 on the CWA is shown on Figure 3. Generally these investigations are summaized in the most recent RI or other summary report for each site.

# SITE CHARACTERIZATION

Major vegetation zones at FTMM consist of landscaped areas, wetlands, **riparian** areas, upland forests, and **old field habitats**. Much of the upland areas of the MP and CWA consist of extensive areas of regularly mowed lawns and landscaped areas. Detailed vegetation information can be found in the Baseline Ecological Evaluation Report (Shaw, 2012).

FTMM is situated on Coastal Plain deposits which are unconsolidated material that has not been

**Figure 2 - Main Post Locations**

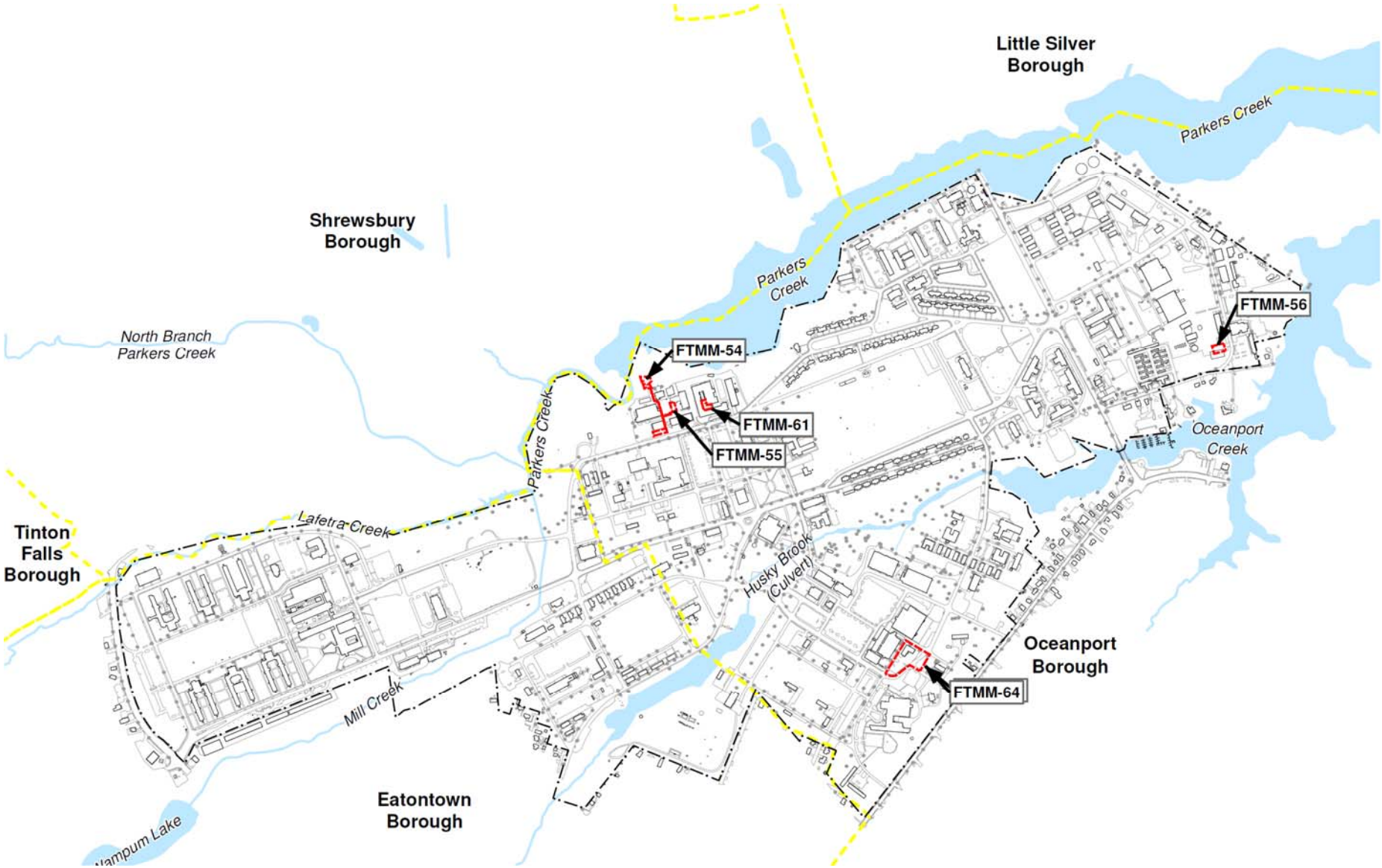
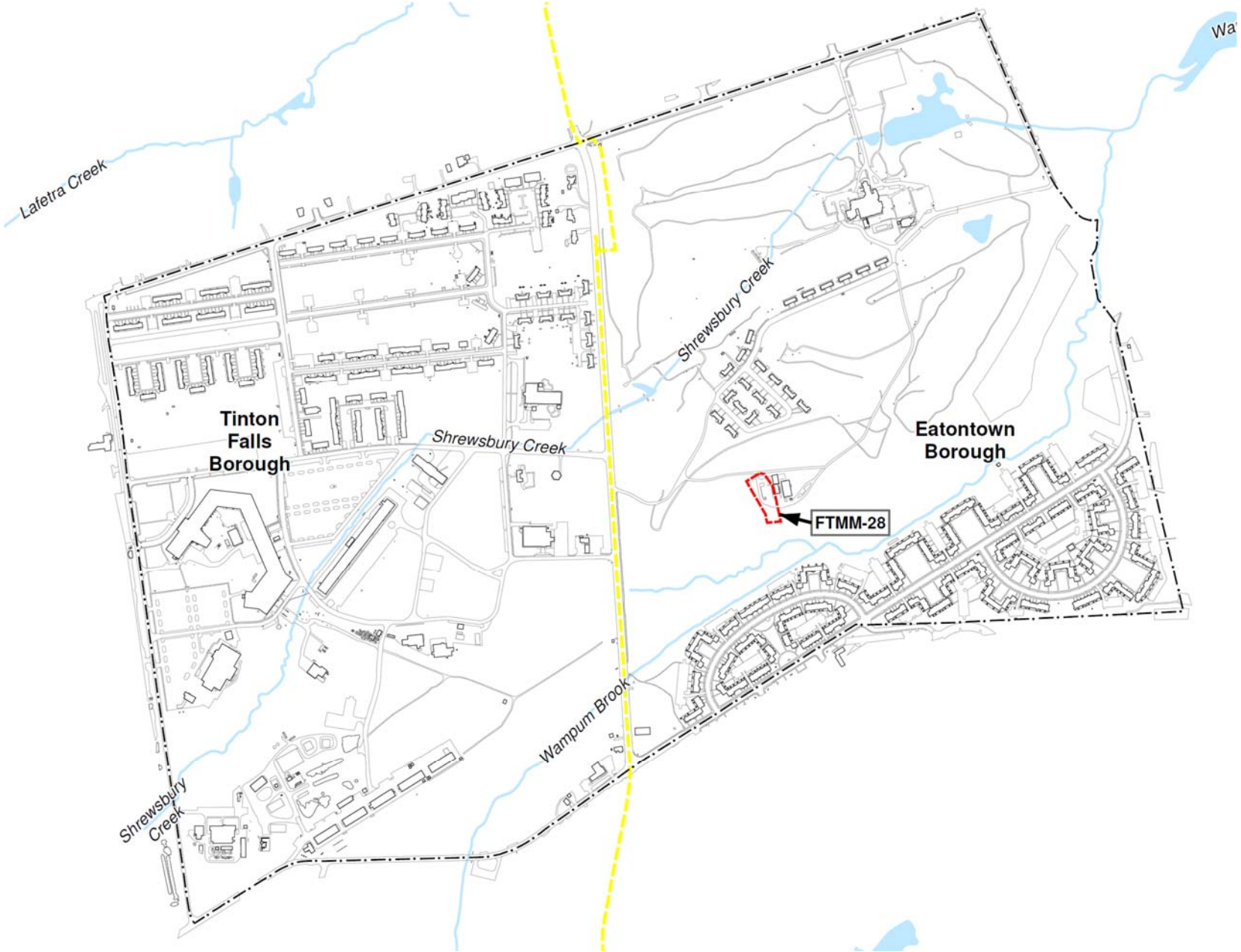


**Figure 3 - Charles Wood Area Location**



cemented or compacted. Soil encountered at FTMM is typically comprised of fine to coarse sand with fine gravel, and green/gray/black sandy silt and clay with varying amounts of sand and gravel.

**Groundwater** is typically encountered at the MP and in the surrounding areas at depths of 2 to 9 feet below ground surface (bgs), and at depths of approximately 7 to 14 feet bgs at the CWA. Groundwater elevations fluctuate in response to precipitation events, with some tidal influence in areas near creeks (such as FTMM-54 and FTMM-56). New Jersey GWQS classify groundwater at FTMM as Class II-A: **potable water** with secondary uses including agricultural and industrial (NJDEP, 2010).

A Baseline Ecological Evaluation was performed and many of the sites were determined not to have environmentally sensitive natural resources (Shaw, 2012). However, some of the sites were determined to require additional evaluation through the Baseline Ecological Evaluation process based on the potential for contamination migration and impacts to **ecological receptors**. Of the six sites in this Proposed Plan, only FTMM-28 and FTMM-61 were determined to have the potential for impacts to ecological receptors. They were both evaluated further in the Baseline Ecological Evaluation and it was concluded that potential ecological effects were negligible. Therefore, additional ecological assessments at FTMM-28 and FTMM-61 were not warranted or recommended.

There is no surface water or sediment within sites FTMM-28, FTMM-54, FTMM-55, FTMM-56, FTMM-61, and FTMM-64. Additionally, nearby surface water and sediment that were outside but near FTMM-28 and FTMM-61 were evaluated in the Baseline Ecological Evaluation and it was determined that no further action was appropriate for surface water and sediment. Therefore, no further action for surface water or sediment is required for any of the six sites.

To determine the nature and extent of contamination at each site, detected concentrations of potential contaminants were compared to State (NJDEP) residential, non-residential, and **Impact to Groundwater (IGW)** screening criteria as well as FTMM-specific background concentrations for metals (Weston, 1995). NJDEP comparison criteria included:

- Residential Direct Contact Soil Remediation Standards (RDCSRS), Non-Residential Direct Contact Soil Remediation Standards (NRDCSRS), and IGW screening levels (SLs) for soils; and
- GWQS for groundwater.

The above criteria were used to identify those chemicals that are COCs. As described below, any contaminants that were once identified as COCs for sites FTMM-28, FTMM-54, FTMM-55, FTMM-56, FTMM-61, and FTMM-64 have been further evaluated and/or remediated and determined to no longer be COCs, and NJDEP has agreed.

The following subsections describe site characterization activities for soil and groundwater for each of the six sites covered by this Proposed Plan.

## FTMM-28

FTMM-28 is in the south-central portion of the CWA in the vicinity of former Building T-2044 and has an area of approximately 0.6 acre. The site is located in the southwest section of the CWA golf course (Figures 3 and 4).

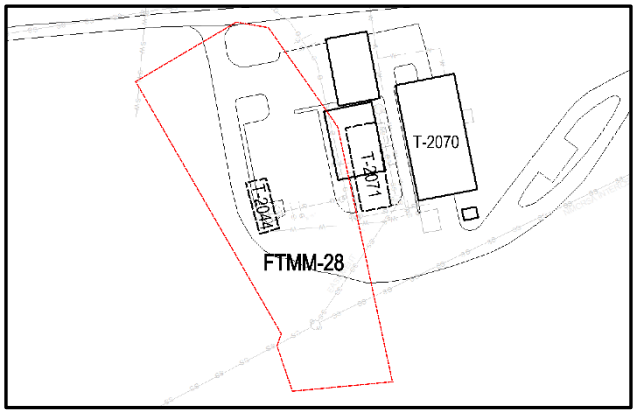



**Figure 4 – FTMM-28 Site Boundary and Layout**

FTMM-28, also known as CW-6, included former Building T-2044 that was historically used to store and mix pesticides and herbicides. Nearby Buildings T-2070 and T-2071 were used to store golf course maintenance and landscaping equipment such as tractors and mowers. Storage or mixing of pesticides or herbicides was discontinued at FTMM-28 prior to 1995. The anticipated future land use at FTMM-28 is open space with the surrounding area anticipated to remain a golf course. Previous investigations at FTMM-28 included an SI (Weston, 1995), UST Closure and SI Report (ATC, 2000a), a UST

Report Addendum (U.S. Army, 2002), an RI (Versar, 2005b), and an RI Report Addendum (Tetra Tech, 2010) as summarized below.

USTs

Three USTs (one for fuel oil, one diesel, and one gasoline) were removed in December 1993. The Army submitted a UST Closure and SI Report (ATC, 2000a) that included the results of UST-related soil sampling (described below). NJDEP (2003) agreed that all three USTs had been properly closed and that NFA was warranted.

Soils

In early 1994 post-excavation soil samples were collected at FTMM-28 to support closure of the USTs. The soil samples were analyzed for **total petroleum hydrocarbons (TPH)**, **volatile organic compounds (VOCs)**, and/or lead. No exceedances of applicable NJDEP comparison criteria were found in the soil samples.

Soil samples were collected from two borings near the pesticide storage area as part of the SI (Weston, 1995) and analyzed for VOCs, **semivolatile organic compounds (SVOCs)**, pesticides, **polychlorinated biphenyls (PCBs),** and **target analyte list (TAL) metals**. Detected analytes in soil were less than the applicable NJDEP comparison criteria and no COCs were identified in soils. NJDEP (1996) agreed with the SI recommendations, which included additional long-term groundwater monitoring (discussed below), but no additional measures for soils.

Additional soil samples were collected from the former UST area in August 2010 and analyzed for VOCs plus 10 **tentatively identified compounds (TICs)** and lead, which had not been consistently sampled during post-excavation sampling in 1994. Based on the results of this and previous sampling, NJDEP (2012) determined that unrestricted use and NFA was appropriate for FTMM-28.

Groundwater

Three monitoring wells were installed in 1994. Benzene, methylene chloride, arsenic, and lead were detected in the groundwater at levels greater than their applicable NJDEP comparison criteria.

A fourth monitoring well was installed in 1995, and groundwater samples were collected and analyzed for VOCs, SVOCs, pesticides, and PCBs. Benzene was the only analyte detected at concentrations greater than the NJDEP GWQS and the Army implemented a long-term monitoring program (Weston, 1995).

An RI Report was prepared in 2005 that presented the results of the first 18 rounds of quarterly groundwater sampling at FTMM-28. These samples were analyzed for VOCs, SVOCs, pesticides, PCBs, and TAL metals. Two additional rounds of low-flow sampling were also conducted for TAL metals analysis. No COCs were identified in the 2005 RI.

An RI Report Addendum was prepared in 2010 that presented the results of 38 additional rounds of quarterly groundwater sampling collected from May 2001 through July 2010. Again, no COCs were identified in the groundwater at FTMM-28. Based on the results of this and previous sampling, NJDEP (2012) determined that unrestricted use and NFA was appropriate for FTMM-28.

## FTMM-54 (south of FTMM-18)

FTMM-54, a former gasoline and diesel fuel distribution facility, is located in the central portion of the MP, north of Sherrill Avenue and south of Parkers Creek (Figures 2 and 5).

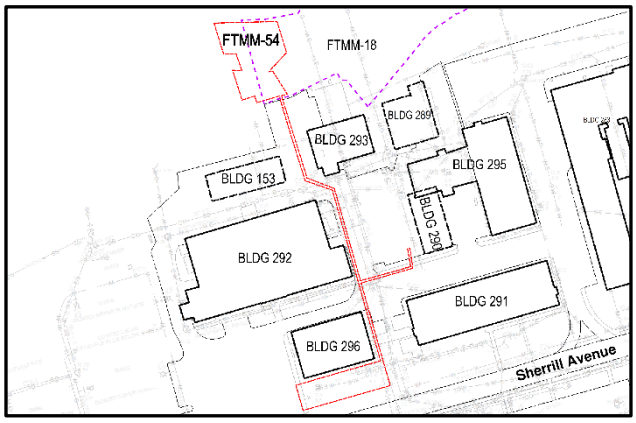



**Figure 5 – FTMM-54 Site Boundary and Layout**

FTMM-54 is associated with nearby Building 296, and has also been referred to historically as Building 296 or Site 296. Building 296 is near existing Buildings 145, 283, 288, 291, 292, 293, and 295, referred to collectively as the "Squier Hall Complex." The anticipated future land use at FTMM-54 is offices and research and development (R&D). Previous investigations at FTMM-54 included UST Closure and Site Investigation Reports (Smith, 1996; Versar, 2001a), a Summary RI Report (U.S. Army, 2015), and additional delineation sampling as summarized below.

USTs

Twelve UST closures have been completed at FTMM-54. In 1993 nine gasoline and two diesel USTs were discovered in one area south of Building 296 and removed. Excavation of stained soil was conducted during removal of the USTs and the area was backfilled and graded. In addition, excavation of associated fuel distribution piping was completed between November 1993 and January 1994; this piping extended about 0.5 mile from the UST area north to the FTMM-18 landfill. The Army submitted a UST Closure and SI Report to NJDEP (Versar, 2001a) that included the results of UST and piping-related soil sampling (described below). NJDEP (2003) agreed that all 11 USTs and associated piping had been properly closed and that no further action was warranted.

One fuel oil UST associated with Building 296 was also removed in 1993. NJDEP (2016a) agreed that this UST was properly closed and that no further action was warranted.

Soils

Between November 1993 and January 1994, post-excavation soil samples were collected from locations along the base of the excavation where the USTs and associated piping were removed. These samples were analyzed for VOCs, TPH, and lead, and any detections were less than the applicable NJDEP cleanup criteria. These soil sample results provided the basis for the NFA determinations discussed above for the nine gasoline, two diesel, and one fuel oil USTs at FTMM-54.

The Army (2015) recommended no further action for soil for the portion of FTMM-54 located south of the FTMM-18 site boundary and NJDEP (2016a) agreed with this recommendation.

Additional soil samples were collected in 2016 and 2017 to delineate naphthalene detections in the portion of FTMM-54 north of the FTMM-18 site boundary. The soil was adequately delineated (U.S. Army, 2017d). The only FTMM-54 soil with COCs was located within the FTMM-18 site boundary, and will be addressed by the engineering and institutional controls implemented for the FTMM-18 landfill.

Groundwater

Quarterly groundwater monitoring occurred at FTMM-54 from June 1994 to August 2011 using a network of up to seven monitoring wells. The Army (2014) recommended no further action for FTMM-54 groundwater, excluding benzene in well 296MW06 which exceeded the NJDEP GWQS for benzene and is located within the FTMM-18 landfill, and so will be addressed within the FTMM-18 landfill remedy. NJDEP (2015a) agreed with this recommendation.

## FTMM-55

FTMM-55 is located in the north-central portion of the MP, north of Sherrill Avenue and south of Parkers Creek. FTMM-55 is associated with former Building 290 (Figures 2 and 6), which was near existing Buildings 145, 283, 288, 291, 292, 293, 295 and 296, referred to collectively as the "Squier Hall Complex." The anticipated future land use is offices and R&D. FTMM-55 is immediately south of the FTMM-18 landfill (not included in this Proposed Plan). FTMM-55 is unoccupied and consists of landscaped vegetation and lawn area.

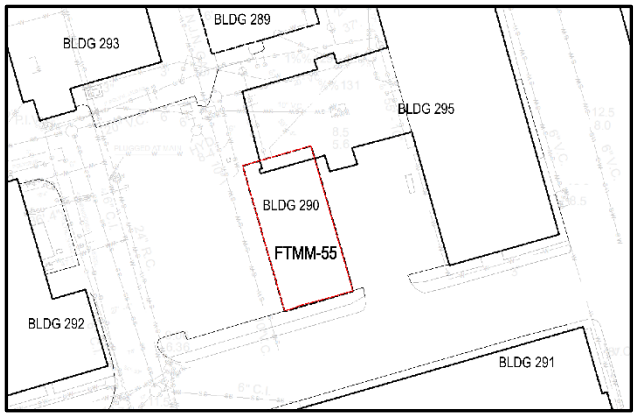



**Figure 6 – FTMM-55 Site Boundary and Layout**

FTMM-55 (Building 290) was a former military vehicle repair and maintenance facility that included four USTs and a gasoline dispenser island. The site formerly served as a military motor pool. Building 290 was demolished in 2000. Three UST Closure and Site Investigation Reports (each for a different UST) were prepared in 1993, 2000, and 2001 (Weston, 1993; ATC, 2000b; Versar, 2001b). An SI/RI Report was prepared in 1999 (SMC, 1999). Previous investigations were summarized in a Final Summary RI Addendum Report submitted to NJDEP (U.S. Army, 2016).

USTs

Four UST closures have been completed at FTMM-55: one waste oil UST, one diesel UST, and two gasoline USTs associated with Building

290. These four USTs and a gasoline dispenser island were removed between 1991 and 1994 and the excavations have been backfilled and graded. Soil and groundwater investigations were performed, and NJDEP (2000b, 2003, 2015b) agreed that all four USTs were properly closed and that NFA was warranted.

Soil

Soil samples were collected from 1991 to 1994 as part of the UST investigations and analyzed for TPH (with some samples analyzed for lead, VOCs, priority pollutants, and TICs). Soil samples were also collected in 2016 in the area of the diesel UST and sampled for **extractable petroleum hydrocarbons (EPH)**. Based on these sample results, soil concentrations at this UST were less than the applicable NJDEP comparison criterion, and NJDEP (2016c) agreed with the Army's recommendation of NFA.

Groundwater

Two groundwater wells were initially installed at FTMM-55 in 1994 after the removal of the four USTs. Initially the wells were sampled quarterly for VOCs, SVOCs, pesticides, PCBs, and metals. Starting in 2005 only VOCs and metals were sampled because SVOCs, pesticides, and PCBs were determined not to be COCs based on the 1997 through 2004 sampling results. Exceedances of applicable NJDEP GWQS for lead and arsenic in groundwater were attributed to background concentrations. VOCs were not detected in the last four rounds of sampling from November 2010 to August 2011. NJDEP (2016c) agreed with the Army's recommendation to discontinue groundwater sampling after August 2013 and with the recommendation of NFA for groundwater.

## FTMM-56

FTMM-56 is in the eastern portion of the MP approximately 500 feet northwest of Oceanport Creek. The site is located north of Riverside Avenue and south of Building 166, and was also known as Site 80/166 because of the association with the former fuel oil USTs for Building T-80 (which has been demolished) and existing Building 166 (Figures 2 and 7).

FTMM-56 is comprised of the former fuel oil tanks UST 166 and UST 80, and the associated groundwater monitoring wells. Prior to 2018 the site was used as a maintenance yard for FTMM. The anticipated future land use at FTMM-56 is open space. Previous investigations at FTMM-56 are summarized below, and include UST Closure and SI Reports (ATC, 1998 and 2000c), an RI report prepared for Site 80/166 (Versar, 2005a) and a Summary RI Addendum Report (U.S. Army, 2017a).

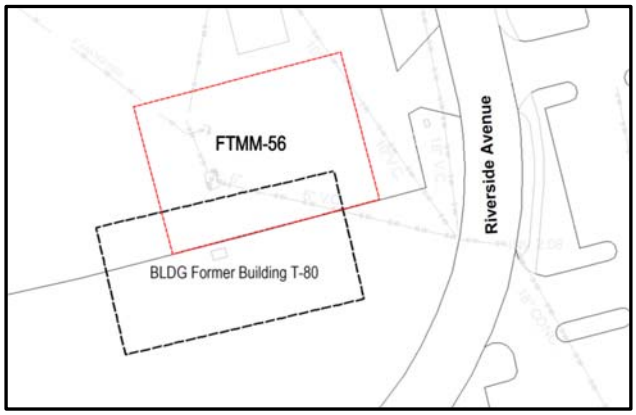



**Figure 7 – FTMM-56 Site Boundary and Layout**

USTs

The two FTMM-56 fuel oil USTs were removed in 1994 during an FTMM program to upgrade heating oil tanks with natural gas. Stained soils were observed, and potentially contaminated soil was removed from both UST excavation locations. Confirmation soil samples were collected at both UST excavations during tank closure. The Army submitted two UST closure reports, and NJDEP (2000a) agreed with the Army's recommendation of NFA.

Soils

Post-excavation soil samples were collected in 1994 after the tanks and associated piping were removed. The samples were analyzed for TPH, which was not detected at concentrations greater than applicable NJDEP cleanup criteria. Additional soil samples were collected as reported in the 2005 RI and analyzed for VOCs and 15 TICs; detections were less than applicable NJDEP cleanup criteria. NFA for FTMM-56 soils was approved by NJDEP (2008) based on the 2005 RI Report, and NFA for the entire FTMM-56 site was determined to be warranted by NJDEP (2017b) based on the findings of the Summary RI (U.S. Army, 2017a).

Groundwater

Following removal of the fuel oil tanks, two groundwater monitoring wells were installed and two rounds of sampling for VOCs and SVOCs were performed in 1995. One well did not have any detections exceeding the NJDEP GWQS.

Benzene was the only analyte detected in well 80MW01 at concentrations exceeding the NJDEP GWQS. In July 2000 four additional groundwater monitoring wells were installed and analyzed for VOCs, SVOCs, pesticides, PCBs, and TAL metals (Versar, 2005a).

The analytical results for the groundwater samples collected between April 1997 and January 2001 indicated that a-chlordane, g-chlordane, arsenic and lead exceeded the NJDEP GWQS at Site 80/166 and were considered COCs (benzene was detected at concentrations less than the NJDEP GWQS and so was no longer a COC). From November 2004 to August 2011, the six wells were sampled quarterly for pesticides and metals only, as agreed to by NJDEP (2004).

Samples collected from March 2011 through 2015 were used in the Summary RI Addendum Report (U.S. Army, 2017a) which demonstrated that lead, cadmium, and pesticide concentrations were less than their respective NJDEP GWQS. Although arsenic (at 3.7 micrograms per liter [µg/L]) was detected at a concentration slightly greater than the NJDEP GWQS of 3 µg/L at 80MW05, it was attributed to naturally occurring background conditions related to glauconitic soils present at FTMM, and not related to the former fuel oil USTs. NJDEP (2017b) agreed with the findings of the Summary RI Addendum and that NFA was warranted for FTMM-57.

## FTMM-61

FTMM-61 is located on the northern side of the central portion of the MP at FTMM at the intersection of Sherrill Avenue and Brewers Avenue, and approximately 200 feet south of Parkers Creek (Figures 2 and 8).

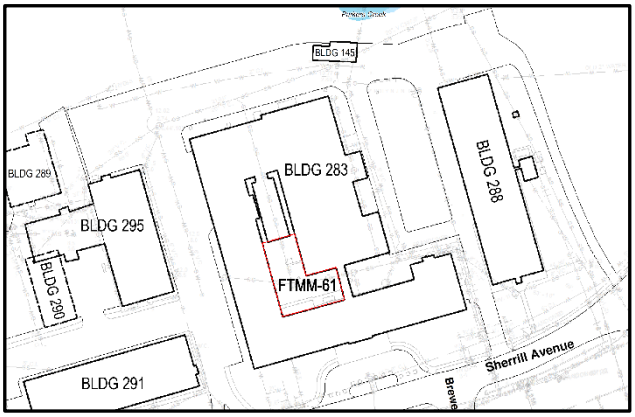



**Figure 8 – FTMM-61 Site Boundary and Layout**

FTMM-61 is associated with Building 283 Squier Hall, and has also been referred to historically as Site 283. Building 283 is near existing Buildings 145, 288, 291, 292, 293, 295 and 296, referred to collectively as the "Squier Hall Complex." The anticipated future land use is offices and R&D. Building 283 functioned as the Squier Laboratory from 1934 to 1954 and then as administrative offices until FTMM closure in 2011. Previous investigations at FTMM-61 included UST Closure and Site Investigation reports (SMC, 1998; Versar, 2000), an RI/**Remedial Action Workplan (RAWP)** (Versar, 2005c), and a Summary RI Report (U.S. Army, 2017c) as summarized below.

### USTs

A total of three USTs were removed from FTMM-61, including two fuel oil USTs (UST 283A and 283B) and one gasoline UST from the Building 283 courtyard area (UST 283C). There were no indications of releases from the two fuel oil USTs, which received approval for NFA from the NJDEP in February 2000 (NJDEP, 2000a) and May 2017 (NJDEP, 2017c).

A release from the gasoline UST 283C was initially reported in 1997 following removal of the tank. Stained soils were observed and approximately 400 cubic yards of potentially contaminated soil were removed from the UST excavation, followed by collection of confirmation soil samples. The Army submitted a UST closure report in 2000, and NJDEP (2003) agreed with the Army's recommendation of NFA. Groundwater contamination was addressed further through installation of monitoring wells, implementation of the 2005 RI/RAWP, and several rounds of **Oxygen Release Compound (ORC)** Advanced™ injections as described further below.

### Soil

Post-excavation soil samples were collected in 1997 from the UST 283B excavation and from below piping associated with the UST. TPH was detected at concentrations less than the applicable NJDEP cleanup criteria.

Post-excavation samples collected in 1997 from the initial UST 283C excavation were analyzed for TPH, lead, and VOCs, which indicated petroleum contamination was remaining in site soils. Approximately 400 cubic yards of additional soil was removed, and analysis of the

final post-excavation samples indicated that all soil constituents were less than the applicable NJDEP cleanup criteria.

UST 283A was removed in 1990. Soil samples were collected in August 2016 and analyzed for EPH. EPH was not detected at concentrations greater than the applicable NJDEP cleanup criteria and NJDEP (2017c) agreed with the recommendation of NFA for soil.

Additionally, the potential for **vapor intrusion (VI)** at Building 283 was investigated and the NJDEP (2013) agreed that no further VI action was needed for Building 283.

Groundwater

Groundwater at FTMM-61 was evaluated through quarterly groundwater monitoring from September 1999 through February 2004, as reported in the 2005 RI/RAWP. The RI/RAWP identified benzene, ethylbenzene, total xylenes, and lead as COCs at Site 283 (FTMM-61), and recommended continued groundwater monitoring and sampling, the installation of additional monitoring wells, and an ORC Advanced™ injection program to reduce the concentrations of VOCs in groundwater. The injection program was implemented from 2009 to 2011.

Subsequent groundwater monitoring occurred at FTMM-61 in August 2013 (VOCs and lead) and October 2014 (VOCs only). Benzene and lead concentrations decreased to non-detectable levels and the Army recommended the discontinuation of groundwater sampling at FTMM-61. NJDEP (2016b) subsequently concurred with this recommendation and agreed that NFA for FTMM-61 groundwater was warranted (NJDEP, 2017c).

## FTMM-64

FTMM-64, also known as Building 812 or Site 812, is approximately 2.75 acres and is located in the south-central portion of the Main Post. The site is bordered to the southeast by Stephenson Avenue, and to the north and west by Lane Avenue (Figures 2 and 9).

Building 812 formerly served as the Army Community Center and was also a reported location of a former gas station. The anticipated future land use at FTMM-64 is low density residential. Previous investigations at FTMM-64 include an RI/RAWP (Versar, 2001c), a pipeline excavation in 2010, and a Supplement to the RI Report (U.S. Army, 2018) as summarized below.

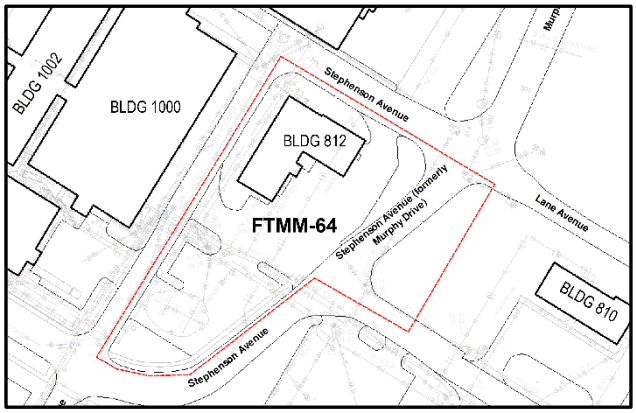



**Figure 9 – FTMM-64 Site Boundary and Layout**

Soil

An extensive soil investigation was conducted at FTMM-64 in 1999 and 2000 as part of the RI/RAWP. Soil samples were collected and analyzed for VOCs, SVOCs, pesticides, PCBs, TPH, and TAL metals, as discussed further below.

In 2010, the Army excavated an old pipeline that was historically used to convey fuel to dispensers located at FTMM-64. The entire pipeline except the portion directly beneath Building 812 was removed. Soil samples were collected along the pipeline excavation and analyzed for VOCs, TPH, and lead. Naphthalene was detected at concentrations greater than the applicable NJDEP cleanup criteria at two locations. Both locations were excavated further and post-excavation samples were collected. All post-excavation sample results were less than the applicable NJDEP cleanup criteria, indicating that soil contamination was removed. The excavations were backfilled with sand and stone.

Of the 1999 and 2000 soil samples, one sample result for lead and one sample result for TPH exceeded the applicable NJDEP cleanup criteria. Therefore, all the soil sample results associated with FTMM-64 were re-evaluated in February 2018. **Compliance averaging** was applied to determine whether the current residential remedial goals for lead and EPH (which is comparable to TPH) had been achieved at FTMM-64. Consistent with NJDEP guidance on compliance averaging, **functional areas** were created. The average lead and TPH concentrations for each functional area were less than the applicable NJDEP cleanup criteria.

Therefore, the Army recommended NFA for soils at FTMM-64 and NJDEP (2018) agreed.

Groundwater

To evaluate groundwater conditions at FTMM-64, 14 groundwater monitoring wells were installed during April and May 2000. The 2001 RI/RAWP identified VOCs as COCs in groundwater and proposed implementation of a **Hydrogen Release Compound (HRC®)** injection program to address the groundwater contamination. The initial injections of HRC were performed between June and August 2001. The injections successfully reduced the concentrations of tetrachloroethene (PCE) and other VOCs over the first 12 months following the initial injections. To further reduce concentrations, four more rounds of injections were performed during October/November 2002, September 2003, November/December 2004, and January/March 2005. The injections and the decreasing VOC trends were documented in three Remedial Action Progress Reports in 2003, 2005, and 2010.

Long-term groundwater monitoring continued through July of 2011. PCE was successfully reduced to non-detectable levels through HRC and enhanced natural attenuation, and by 2008 only benzene and vinyl chloride remained at concentrations exceeding the NJDEP GWQS in only one monitoring well (812MW04). The final detection of benzene exceeding the NJDEP GWQS was detected in October 2008. Vinyl chloride concentrations continued to decline, but still exceeded the NJDEP GWQS in 2011.

Groundwater sampling and analysis for VOCs was conducted annually from 2013 through 2016. Metals were attributable to background concentrations and, with NJDEP concurrence, were removed from the sampling program after 2013. VOCs were not detected in 2013; however, based on the historical VOC exceedances, annual groundwater monitoring for VOCs continued at 812MW04. The results of 2015 and 2016 groundwater samples confirmed that VOCs had been reduced to concentrations less than the NJDEP GWQS. An NFA determination for groundwater (U.S. Army, 2017b) was agreed to by NJDEP (2017a), and subsequently for all of FTMM-64 (NJDEP, 2018).

# SCOPE AND ROLE OF RESPONSE ACTION

No further action is appropriate for sites FTMM-28, FTMM-54 (south of FTMM-18), FTMM-55, FTMM-56, FTMM-61, and FTMM-64. Unrestricted land use (as represented by NJDEP residential criteria) allows for full use without restrictions.

# SUMMARY OF SITE RISKS

Any contaminants that were once identified as COCs for sites FTMM-28, FTMM-54 (south of FTMM-18), FTMM-55, FTMM-56, FTMM-61, and FTMM-64 have been evaluated and/or remediated and determined to no longer be COCs. Therefore, soil and groundwater (there is no potentially impacted surface water or sediment) do not pose an unacceptable risk to human health and the environment for current and future intended land use.

# SUMMARY OF PREFERRED ALTERNATIVE

Based on the results of multiple environmental investigations and reports, no remedial actions are required for sites FTMM-28, FTMM-54 (south of FTMM-18), FTMM-55, FTMM-56, FTMM-61, and FTMM-64. Further investigation is not warranted for the following reasons: (1) the nature and extent of contaminants detected in soil and groundwater at the sites has been characterized; (2) no COCs posing risks to human health were ever identified at the sites, or if identified are no longer COCs either through remediation or natural degradation; and (3) no further investigation or action is recommended by the Army and agreed to by NJDEP. Therefore, NFA is required at sites FTMM-28, FTMM-54 (south of FTMM-18), FTMM-55, FTMM-56, FTMM-61, and FTMM-64 and unrestricted land use is appropriate for these sites.

# COMMUNITY PARTICIPATION

Public participation is an important component of remedy selection. The Army is soliciting input from the community on the preferred “no further action” alternative identified for these sites. The comment period includes advertisement of this Proposed Plan and a public comment period. Written comments will be accepted during this

public comment period. The Army and the NJDEP encourage the public to gain a more comprehensive understanding of the sites and the remedial activities that have been conducted at the sites. The dates for the public comment period and the location of the Administrative Record files are provided on the front page of this Proposed Plan.

Comments made by the public will be addressed in a Responsiveness Summary. A copy of the Responsiveness Summary will be included in the Record of Decision and will be added to the FTMM Administrative Record file and information repositories.

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# ACRONYMS AND ABBREVIATIONS

| ACRONYM | DEFINITION |
|---|---|
| µg/L | microgram(s) per liter |
| Army | U.S. Army |
| bgs | below ground surface |
| BRAC | Base Realignment and Closure |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| COC | contaminant of concern |
| CWA | Charles Wood Area |
| DERP | Defense Environmental Restoration Program |
| DoD | Department of Defense |
| EA | Evans Area |
| EPH | extractable petroleum hydrocarbons |
| FTMM | Fort Monmouth |
| GWQS | Ground Water Quality Standard(s) |
| HRC | Hydrogen Release Compound |
| IGW | impact to groundwater |
| MP | Main Post |
| NCP | National Oil and Hazardous Substances Pollution Contingency Plan |
| NFA | no further action |
| N.J.A.C. | New Jersey Administrative Code |
| NJDEP | New Jersey Department of Environmental Protection |
| NRDCSRS | Non-Residential Direct Contact Soil Remediation Standard |
| ORC | Oxygen Release Compound |
| PCB | polychlorinated biphenyl |
| PCE | tetrachloroethene |
| POL | Petroleum, Oil, and Lubricant |
| RAWP | Remedial Action Workplan |
| RCRA | Resource Conservation and Recovery Act |
| R&D | research and development |
| RDCSRS | Residential Direct Contact Soil Remediation Standard |
| RI | Remedial Investigation |
| ROD | Record of Decision |
| SI | Site Investigation |
| SL | screening level |
| SVOC | semivolatile organic compound |
| TAL | target analyte list |
| TIC | tentatively identified compound |
| TPH | total petroleum hydrocarbons |
| UST | underground storage tank |
| VI | vapor intrusion |
| VOC | volatile organic compound |

# GLOSSARY OF TERMS

**Administrative Record** – A file that contains all information used by the lead agency to make its decision on the selection of a response action under CERCLA. A copy of this file is to be available for public review at or near the site, usually at the information repository.

**compliance averaging** – The average contaminant concentration in an area of concern may be used to determine compliance with remediation standards or soil cleanup criteria rather than the contaminant concentration of individual samples.

**Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, otherwise known as Superfund)** – A federal law that addresses the funding for and remediation of abandoned or uncontrolled hazardous waste sites. This law also establishes criteria for the creation of key documents such as the Remedial Investigation, Proposed Plan, and Record of Decision.

**contaminant of concern (COC)** – A chemical that is present at sufficient concentrations to exceed NJDEP cleanup standards and so may pose a risk to human health or the environment.

**Defense Environmental Restoration Program (DERP)** - Under DERP, DoD conducts cleanup at active installations, Formerly Used Defense Sites, and BRAC locations. The Army manages the cleanup programs at their active installations and BRAC locations.

**ecological receptor** - a plant, animal, or habitat exposed to an adverse condition.

**extractable petroleum hydrocarbon (EPH)** – Collective fractions of hydrocarbon compounds. EPH is comprised of C9 through C18 Aliphatic Hydrocarbons, C19 through C36 Aliphatic Hydrocarbons, and C11 through C22 Aromatic Hydrocarbons.

**functional area** – A specified area used in compliance averaging. Usually 0.25 acres representing the size of a residential lot.

**groundwater** – Water found beneath the earth's surface that fills pores between materials such as sand, soil, or gravel. In aquifers, groundwater occurs in sufficient quantities that it may be used for drinking water, irrigation, and other purposes.

**Ground Water Quality Standards (GWQS)** – NJDEP GWQS, N.J.A.C 7:9C, establish the designated uses of the State's groundwater and specify the water quality (criteria) necessary to attain those designated uses. The ground water quality criteria are numerical values assigned to each constituent (pollutant) discharged to groundwater of the State. The GWQS also contain technical and general policies to ensure that the designated uses can be adequately protected. Groundwater is classified according to its hydrogeologic characteristics and designated uses.

**Hydrogen Release Compound (HRC®)** – A proprietary technology from Regenesis Bioremediation Products, Inc. HRC is a chemical which, upon hydration, undergoes chemical reactions to ultimately generate hydrogen, which is used by microorganisms to degrade chlorinated compounds in groundwater.

**impact to groundwater (IGW)** – A NJDEP soil cleanup standard that is applied in soil above the groundwater table that is designed to be protective of groundwater quality.

**National Oil and Hazardous Substances Pollution Contingency Plan (NCP)** – National Oil and Hazardous Substances Pollution Contingency Plan, "National Contingency Plan" (40 CFR 300). Provides the organizational structure and procedures for preparing for and responding to discharges of oil and releases of hazardous substances, pollutants, and contaminants.

**New Jersey Administrative Code (N.J.A.C.)** – The collection of all rules and regulations made by the executive branch agencies of the State of New Jersey.

**no further action (NFA)** – the culmination of a property's environmental remediation, or determination of no need for environmental remediation.

**old field habitats** – Old field habitats include formerly mowed areas where the vegetation includes grasses, forbes and often immature trees. Old field habitats at the MP include grasses, many forbes

including Queen Ann's lace (*Daucus carota*), pokeweed (*Phytolacca americana*), goldenrod (*Solidago sp.*), milkweed (Asclepias syriaca), and sparse saplings of tree species including eastern red cedar (*Juniperus virginiana*) and winged sumac (*Rhus copallinum*).

**Oxygen Release Compound (ORC) -** A proprietary technology from Regenesis Bioremediation Products, Inc. ORC Advanced® is an engineered, oxygen release compound designed specifically for enhanced bioremediation of petroleum hydrocarbons in groundwater and saturated soils.

**Petroleum, Oil, and Lubricant (POL)** – A broad term that includes all petroleum and associated products used by the Armed Forces.

**polychlorinated biphenyls (PCB)** – A group of persistent chemicals used in transformers and capacitors for insulating purposes and in gas pipeline systems as a lubricant.

**potable water** – Water of a quality suitable for drinking.

**Proposed Plan** – A plan that identifies the preferred remedial alternative(s) for a site, and is made available to the public for comment.

**Record of Decision (ROD)** - A public document that explains which cleanup alternative(s) will be used at a site.

**Remedial Action Workplan (RAWP)** – A work plan that includes a site summary, a summary of cleanup goals, and information required for the implementation of remedial action.

**Remedial Investigation (RI)** – Exploratory inspection conducted at a site to define the nature and extent of contamination present, and to assess potential related hazards and risks.

**Responsiveness Summary** – A component of the Record of Decision that summarizes information about the comments and views of the public and support agency regarding both the remedial alternatives and general concerns about the site submitted during the public comment period. It also documents in the record how public comments were integrated into the decision-making process.

**riparian** – Riparian areas are ecosystems adjacent to a river or waterway that, in an undisturbed state, provide habitat for wildlife and help improve water quality. Riparian areas are usually transitional zones between wetland and upland areas and are generally comprised of grasses, shrubs, trees, or a mix of vegetation types that exist within a variety of landscapes (e.g., natural, agricultural, forested, suburban, and urban).

**semivolatile organic compounds (SVOC)** – An organic compound which has a boiling point higher than water and which may vaporize when exposed to temperatures above room temperature.

**Site Investigation (SI) -** Exploratory inspection conducted at a site to determine absence or presence of contamination.

**target analyte list (TAL) Metals** - A list of 23 inorganic target analytes: aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc.

**tentatively identified compound (TIC)** – A compound that can be seen by the analytical testing method, but its identity and concentration cannot be confirmed without further analytical investigation.

**total petroleum hydrocarbons (TPH)** - a large family of several hundred chemical compounds that originally come from crude oil. Crude oil is used to make petroleum products. Because there are so many different chemicals in crude oil and in other petroleum products, it is not practical to measure each one separately. However, it is useful to measure the total amount of TPH at a site

**vapor intrusion (VI)** – The migration of released volatile chemicals from the subsurface into overlying buildings.

**volatile organic compound (VOC)** – Organic chemical compound whose composition makes it possible for it to evaporate under normal indoor atmospheric conditions of temperature and pressure.

## USE THIS SPACE TO WRITE YOUR COMMENTS

Your input on the Proposed Plan for FTMM-28, FTMM-54 (south of FTMM-18), FTMM-55, FTMM-56, FTMM-61, and FTMM-64 is important to the Army. Comments provided by the public are valuable in helping the Army select a remedy for these sites.

You may use the space below to write your comments. Comments must be postmarked by September 21, 2020. Mailed comments should be sent to Mr. William Colvin at the address listed on Page 1. Comments may also be emailed to Mr. Colvin by September 21, 2020 via the following e-mail address: william.r.colvin18.civ@mail.mil. If you have any questions about the comment period, please contact Mr. Colvin at: william.r.colvin18.civ@mail.mil.

Name: _____

Address: _____

City: _____

State and Zip: _____

## Comments: