JOINT BASE MYER – HENDERSON HALL
MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) PROGRAM PLAN

APPENDIX C.1

PCB TMDL ACTION PLAN

FOR

FORT MYER & HENDERSON HALL INSTALLATIONS
FORT MYER, VIRGINIA

Prepared in accordance with:

Virginia Stormwater Management Program (VSMP) General Permit No.: VAR04
General Permit for Discharges of Stormwater from Small MS4s

VSMP Registration Number VAR040068

Prepared by:
JBM-HH Directorate of Public Works, Environmental Management Division

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ACRONYMS

ANC	Arlington National Cemetery
ATSDR	Agency for Toxic Substances and Disease Registry
BMP	Best Management Practice
BRAC	Base Realignment and Closure
CDC	Child Development Center
DA	Department of the Army
DoD	Department of Defense
DPW	Directorate of Public Works
EPA	U.S. Environmental Protection Agency
FMMC	Fort Myer Military Community
JBM-HH	Joint Base Myer-Henderson Hall
JFHQ-NCR	Joint Force Headquarters-National Capital Region
LA	Load Allocation
MDW	Military District of Washington
MOS	Margin of Safety
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
OWS	Oil/water Separator
PCB	Polychlorinated Biphenyls
POC	Pollutants of Concern
ppm	parts per million
TMDL	Total Maximum Daily Load
USACE	U.S. Army Corps of Engineers
USMC	U.S. Marine Corps
VADEQ	Virginia Department of Environmental Quality
VDOT	Virginia Department of Transportation
VSMP	Virginia Stormwater Management Program
WLA	Wasteload Allocation
WQLS	Water Quality Limited Segments

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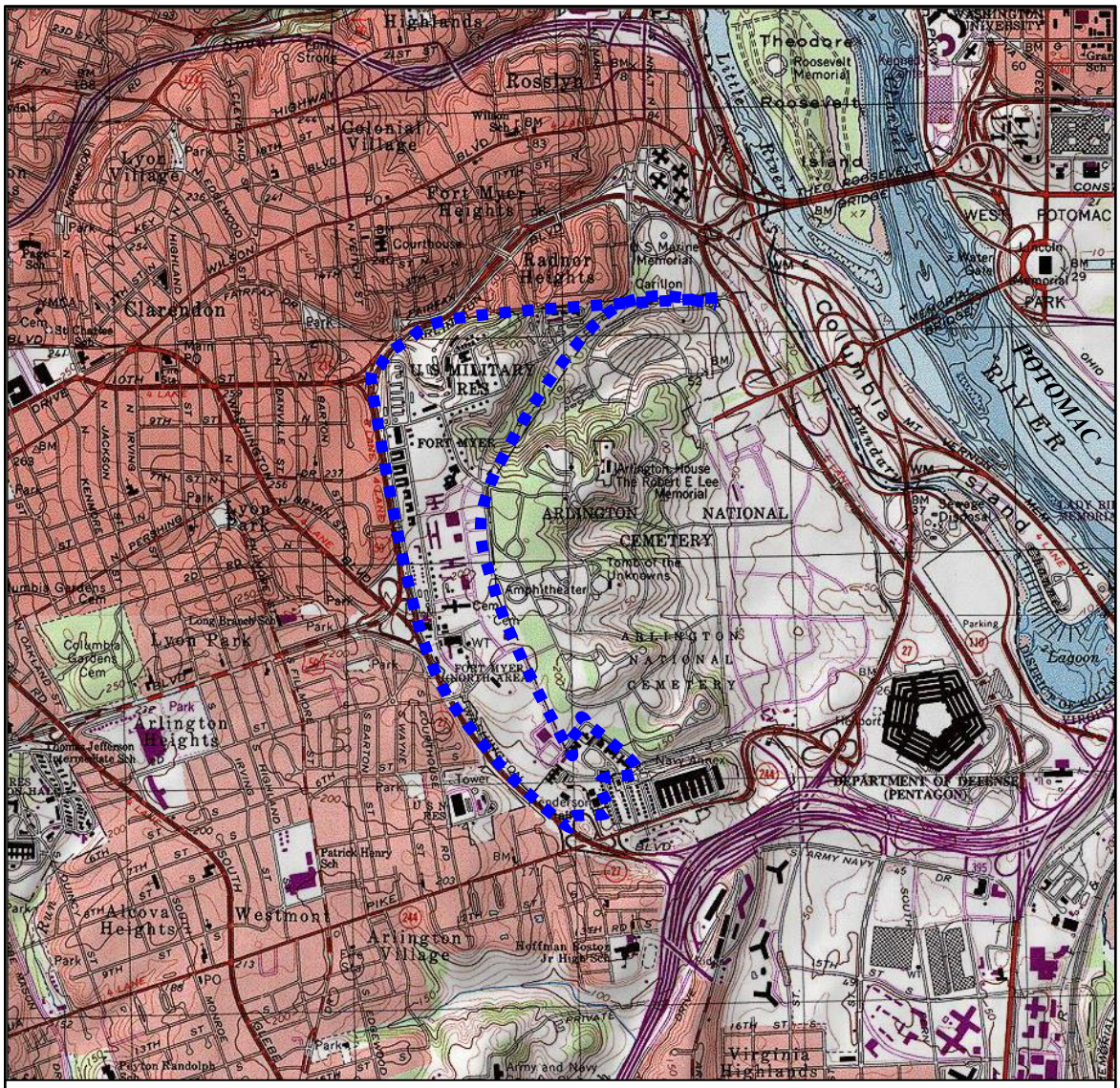
1.0 INTRODUCTION AND BACKGROUND

1.1 Installation Description and Organization

Joint Base Myer-Henderson Hall (JBM-HH) is located in the District of Columbia Metropolitan Area and was created from the administrative reorganization of the Fort Myer Military Community (Fort Myer and Fort McNair) and the Marine Corps installation at Henderson Hall as a result of Base Realignment and Closure (BRAC) 2005 recommendations. Fort Myer assumed Installation management responsibilities and integration of some functions and services between U.S. Army Installation Fort Myer (Fort Myer) and Marine Corps Headquarters Battalion Henderson Hall (Henderson Hall) to provide more efficient support of the on-Installation and regional populations. JBM-HH, which includes Fort McNair in Washington, D.C., serves as the Joint Force Headquarters-National Capital Region (JFHQ-NCR), and the Military District of Washington (MDW) base support of operations, providing a broad level of support for missions of homeland defense, defense support to civil authorities and world-class ceremonial, musical, and special event missions. JBM-HH is home to the 3rd U.S. Infantry Regiment (The Old Guard) and the U.S. Marine Corps (USMC) Headquarters Battalion structured within the Marine Corps National Capital Region Command.

Fort Myer and Henderson Hall, jointly referred to as 'the Installation' in this Plan, are located in Arlington, Virginia, directly across the Potomac River from Washington, DC. The Installation occupies approximately 270 acres and is bordered on the north by Arlington Boulevard (Virginia Route 50), to the south by Columbia Pike (Virginia Route 244), to the west by Washington Boulevard (Virginia Route 27), and to the east by Arlington National Cemetery (ANC). Stormwater from the Installation ultimately discharges to the Potomac River, which is the nearest open water body and is located approximately 0.9 mile to the east of the Installation. Stormwater discharges from the Installation flow either east to an unnamed intermittent stream that flows through ANC and discharges to the Potomac River via Boundary Channel, north to Arlington County storm drains within the Rocky Run watershed (and ultimately to the Potomac River), or west and south to Lower Long Branch Creek and Arlington County storm drains that drain to the Potomac River via Fourmile Run, a Potomac River tributary.

A site location map is provided as **Figure 1** below.



JBM-HH Property Boundary
Property size = approximately 269 acres

1.2 MS4 Permit

Discharges from municipal separate storm sewer systems (MS4s) in the Commonwealth of Virginia are regulated under the Virginia Stormwater Management Act, the Virginia Stormwater Management Program (VSMP) permit regulations, the National Pollutant Discharge Elimination System (NPDES), and the federal Clean Water Act. Stormwater discharges from Phase II (small) MS4s in Virginia are regulated under the General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems (General Permit) as published at 9 VAC 52-890-40. Small MS4s include storm sewer systems operated by cities, counties, towns, federal facilities such as military bases, Veteran's Affairs hospitals and research facilities, Department of Defense (DoD) facilities and parkways, and state facilities such as the Virginia Department of Transportation (VDOT), community colleges, and public universities. The Virginia MS4 General Permit issued to JBM-HH applies to Fort Myer and Henderson Hall.

The MS4 Permit requires permit holders to develop a Chesapeake Bay Total Maximum Daily Load (TMDL) Action Plan in order to meet required pollutant load reductions for nitrogen, phosphorus, and sediment. A TMDL is the maximum amount of a pollutant that a body of water can receive while still meeting water quality standards. Facilities located in a watershed that has a TMDL for a particular pollutant are often required to monitor outfall discharge for that pollutant and implement Best Management Practices (BMPs) to help control pollutants and prevent them from reaching the impaired waterways.

Section I.B of the MS4 General Permit contains special conditions regarding approved TMDLs other than the Chesapeake Bay TMDL. The permit requires MS4 operators to prepare and implement specific TMDL Action Plans for pollutants subject to a TMDL where the MS4 has been allocated a wasteload in an approved TMDL. The TMDL Actions Plans must identify the best management practices and other interim milestone activities to be implemented during the term of the MS4 General Permit.

The US Environmental Protection Agency (EPA) approved a TMDL for Polychlorinated Biphenyls (PCBs) for the Potomac River on October 31, 2007. Municipal stormwater discharges covered under NPDES permits are included in the TMDL stormwater Waste Load Allocations (WLAs). Therefore, small MS4s must develop and implement local TMDL Action Plans to reduce nonpoint source pollutant loads of pollutants of concern (POC) in order to meet the MS4's assigned WLA for PCBs.

To meet the permit requirements, this Action Plan describes the current and historic uses of PCBs on the installation, outlines a sampling and analysis plan to determine potential areas of concern, and recommends Best Management Practices (BMPs) to address potential PCB pollutant concerns.

1.3 MS4 Program and Legal Authorities

The provisions contained in the MS4 Permit and associated regulations will be enforced through JBM-HH policy memorandums and standardized procedures for project review and implementation. A draft Installation-wide stormwater policy was recently developed to address the Installation's compliance with the Virginia MS4 permit, the Virginia general industrial stormwater permit, and other stormwater regulations. The policy outlines proper protocols for minimizing stormwater pollution during activities that directly and indirectly impact stormwater. The policy is currently under review. Anticipate full implementation in calendar year 2016.

2.0 PCB CHARACTERISTICS AND FATE AND TRANSPORT

PCBs are a group of synthetic organic chemicals that were used for a variety of purposes from 1929 until 1979, when the U.S. banned manufacturing, processing, distribution, and use of PCBs. The molecular structure of PCBs include two benzene rings (known as biphenyl) and up to 10 chlorine atoms substituted on each of the benzene molecules, creating a total of 209 individual PCM compounds known as congeners.

There are no known naturally occurring sources of PCBs, so detections in air, water, or soil are related to the manufacture, use, or disposal of PCBs. At the height of their use, PCBs were found primarily in closed systems and heat transfer fluids, such as in transformers, capacitors, and fluorescent light ballasts. Historically, PCBs entered the environment from accidental spills and leaks during their transport and from leaks or fires in products containing PCBs. Currently, they can still be released from hazardous waste sites, illegal or improper disposal of industrial wastes and consumer products, leaks from old electrical transformers containing PCBs, and burning of some wastes in incinerators (ATSDR, 2014).

PCBs are highly resistive to chemical reaction. This stability means they remain in the environment for a long time without breaking down. The low vapor pressure of PCBs reduces their potential to volatilize.

PCBs are hydrophobic – meaning they are not easily dissolved in water – so the majority of PCBs will bind to organic particles and bottom sediments. PCBs bind strongly to soils and can enter surface water via contaminated soil particles in runoff. Therefore, limiting sediment transport from PCB sites would reduce the potential for PCB contributions to surface water.

PCBs can accumulate in leaves and other aboveground parts of plants and are also taken up by small organisms and fish. Consequently, ingesting fish may expose people to PCBs that have bioaccumulated in the fish tissue. Concerns over this bioaccumulation and exposure led to the development of PCB TMDLs for impaired water bodies.

3.0 POTOMAC WATERSHED PCB TMDL APPLICABILITY TO JBM-HH MS4 PERMIT

PCB TMDLs were established for 28 listed impaired water body segments in tidal portions of the Potomac and Anacostia Rivers in the District of Columbia, Maryland, and Virginia in 2007. The purpose of establishing the PCB TMDL was to ensure that fish tissue PCB concentrations do not exceed the impairment thresholds set for each jurisdiction, in order to protect human health with respect to fish consumption. The fish tissue impairment threshold for Virginia is 54 parts per billion (ppb). Section 303(d) of the Clean Water Act and EPA's implementing regulations require the states to identify impaired waters, called water quality limited segments (WQLS), where current pollutant controls are inadequate to achieve water quality standards and establish a TMDL for those WQLSs. Virginia has listed 19 tidal embayments of the Potomac River as impaired by PCB contamination. The impairment generally includes all tidal waters within each embayment, from the head-of-tide to the Potomac River mainstem.

A TMDL is the sum of the waste load allocations (WLAs), load allocations (LAs), and the margin of safety (MOS). The WLA portion consists of the permitted point sources that contribute to the total PCB load, such as waste water treatment plants, regulated stormwater, and combined sewer overflow. The LA portion consists of nonpoint source runoff, atmospheric deposition, tributaries, and identified contaminated sites. The MOS accounts for uncertainty in the load estimates.

The JBM-HH MS4 Permit is falls under the WLA portion of the TMDL, as regulated stormwater. While JBM-HH does not directly impact the impaired waterbodies listed for Virginia, stormwater discharges from the Installation eventually discharge to the Potomac River, including Fourmile Run, which is an impaired waterbody. Therefore, any PCB contamination discharged through the Installation's storm drain system has the potential to impact the Potomac River and contribute to the total PCB load. Covered

EPA allows pollutant loads attributed to NPDES-regulated stormwater outfalls to be expressed as a single stormwater WLA for each impaired waterbody (US EPA, 2002). Rather than assign numeric pollutant limits on discharges from NPDES-regulated municipal and small construction stormwater discharges, EPA recommends that "effluent limits be expressed as best management practices (BMPs) or other similar requirements, rather than as numeric effluent limits."

4.0 JBM-HH PCB TMDL ACTION PLAN FOR SMALL MS4 PERMIT

4.1 PCB TMDL Action Plan

This Action Plan complies with the MS4 Permit requirement for addressing the PCB TMDL for JBM-HH. The Plan consists of the following:

- Historic use inventory and analysis
- Summary of the historic PCB site analysis
- Recommendations for sites with potential PCB sources
- Evaluation of existing Best Management Practices (BMPs)
- Sampling and analysis plan.

4.2 PCB Historic Use Inventory Analysis

The PCB historic use inventory analysis of JBM-HH addresses transformers and other areas on the installation where PCBs currently exist, or have been stored, transported or spilled in the past. This information was compiled from available historical documents for the installation and transformer inspections performed as of May 2016.

Historically, transformers have been the main source of PCBs on the Installation. Information on current and historic transformers was requested from Dominion Virginia Power (Dominion), who has owned and maintained the transformers on the Installation since August 2007. Dominion states that since their contract started with JBM-HH in 2007, there have been no active transformers with over 50 ppm PCB content on the installation.

The transformer inventory, included as **Appendix A**, lists current and historic transformer, including locations, serial numbers, manufacturers, PCB content, and other information pertaining to the transformers. **Figure 2** shows the locations of the active transformers currently on the Installation. In May 2016, transformers currently located on the installation were inspected for signs of current or past oil staining or leaking. **Appendix B** lists locations where possible signs of PCB staining were noted near transformers during recent and past inspections, as well as locations where historical documents indicated PCB impacts were determined to exist based on samples and laboratory results. These sites are then evaluated for the potential for remaining PCBs to impact stormwater runoff. **Section 4.3** below details the site analysis. **Section 5.0** describes the sampling and analysis plan for two sites that were identified as having potential to impact stormwater.

Historical documentation for JBM-HH also indicates the previous use and disposal of PCB light ballasts. They were formerly stored in 90-day Hazardous Waste containers before disposal. PCB light ballasts are no longer used at JBM-HH and historical documentation did not reveal any incidents of PCB spills or impacts from light ballasts.

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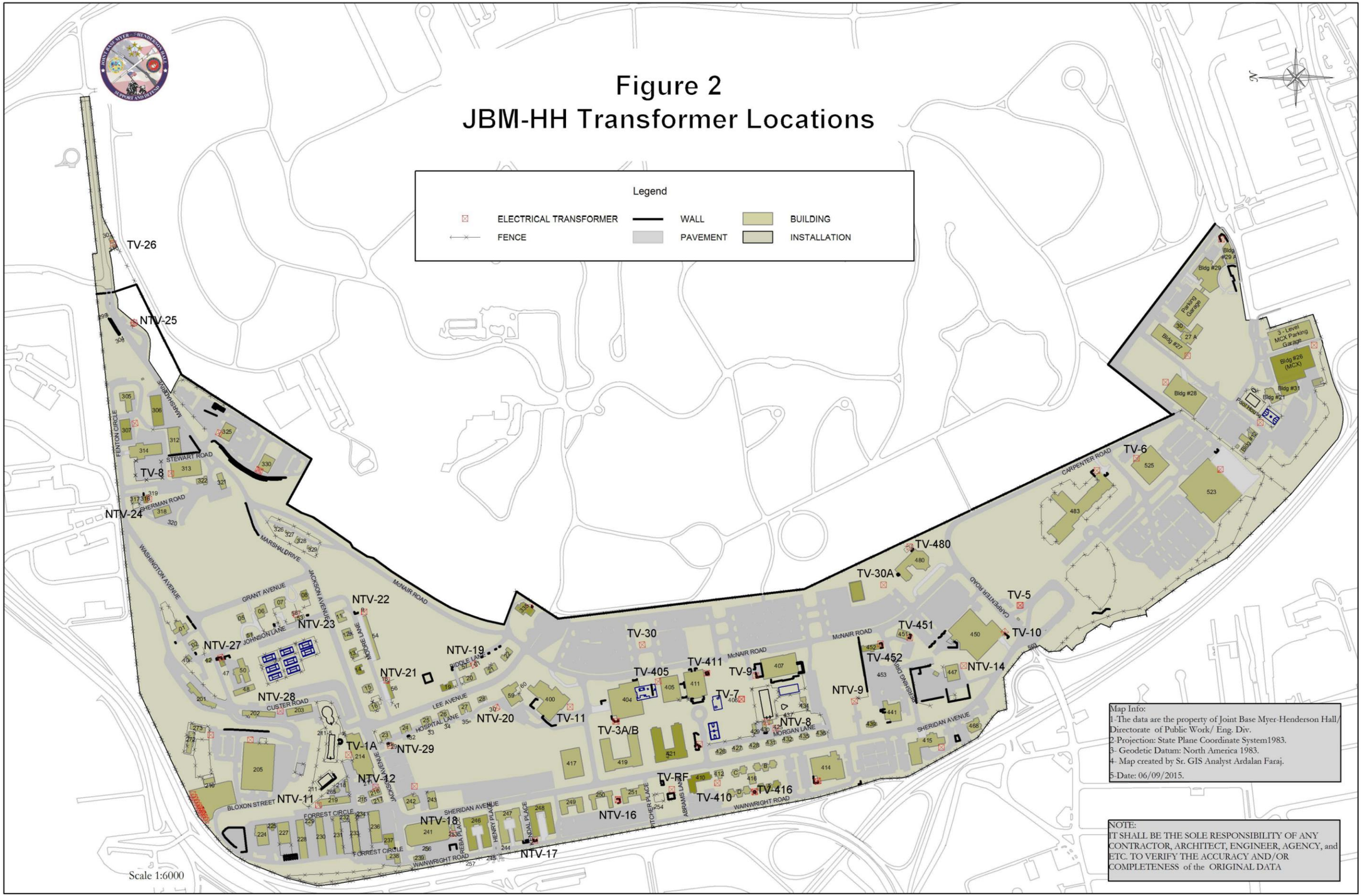
Figure 2
JBM-HH Transformer Locations



Map Info:
1-The data are the property of Joint Base Myer-Henderson Hall/ Directorate of Public Work/ Eng. Div.
2-Projection: State Plane Coordinate System1983.
3- Geodetic Datum: North America 1983.
4- Map created by Sr. GIS Analyst Ardalan Faraj.
5-Date: 06/09/2015.

NOTE:
IT SHALL BE THE SOLE RESPONSIBILITY OF ANY CONTRACTOR, ARCHITECT, ENGINEER, AGENCY, and ETC. TO VERIFY THE ACCURACY AND/OR COMPLETENESS of the ORIGINAL DATA

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4.3 Summary of Site Analysis

Sites that could be a potential source of PCB impacts were evaluated through the review of historical records and in-person site inspections. The table in **Appendix B** lists the locations that were assessed, including sites with current and/or historic transformers and other locations where evidence of PCB leaks was recorded. This section describes the sites identified to be of potential concern and provides a detailed explanation of the reason these sites are not considered to be potential PCB sources or to explain why further sampling and characterization is recommended. The sites not described in this section were not identified as potential sources of PCBs because transformers have been removed or replaced, the buildings have been demolished, previous sampling determined there were no PCB-impacted materials, and/or site inspections determined there were no signs of staining other conditions to suggest potential PCB impacts.

Historically, the transformers on the installation were owned and operated by Fort Myer and Henderson Hall. However, in 2007, operation of the Installation's electrical distribution system including transformers was assumed by Dominion Virginia Power, who now operates and maintains the transformers. When this transfer of operation occurred, the Dominion's contract stated that all PCB transformers contained less than 50 ppm.

Building 301: Historic transformers were removed and replaced by a current transformer in December 2012. The inspection of the current transformer found that there was no indication of leaking. In 1988, a leak was detected from a historic transformer. It was determined that the transformer had been leaking for five years and that much of the soil surrounding it was PCB-impacted. In a 1990 site plan, a plan was outlined to test the pad and area for PCBs and remediate the area as needed. However, no documentation was found to confirm that this activity was completed. This area has also undergone construction over the years. It is unlikely this area is a current source of PCB impacts to surface water given the time since the leak occurred and the amount of soil disturbance that has occurred at the site. It is expected that even if this area was not remediated as planned, any impacted soil or materials that had existed would have been removed by construction activities.

Building 403: Three historic transformers were previously located in Building 403 on concrete surfaces. Previous wipe samples were collected in 1996. Remediation of this building was completed as of March 1993, but subsequent wipe samples showed that additional remediation was required. Documentation of this remediation was not found. However, the PCB impacts appear to have been limited to the concrete surfaces underlying the pad with no indication that underlying soils were impacted. The building has since been demolished and since the transformers were in the building and the building has been removed, there is no current source of PCBs at this site.

Building 406: Three historic transformers were previously located in Building 406 on concrete surfaces. Remediation of this building was completed as of March 1993, but subsequent wipe samples showed that additional remediation was required. Documentation of this remediation was not found. However, the PCB impacts appear to have been limited to the concrete surfaces underlying the pad with no indication that underlying soils were impacted. It was determined that two of the transformers were removed prior to 2007 and the third one was discovered in the basement of Building 406. This transformer was removed in 2009 and the building has since been demolished. Since the transformers were in the building and the building has been removed, there is no current source of PCBs at this site.

Building 410: There was a historic transformer in this building, which was replaced by a new transformer. The site inspection found no evidence of leaks from the new transformer.

Remediation was completed in the area around the historic transformer in 1993 presumably related to a transformer leak, but subsequent sample results indicated that additional remediation was required in one area. A sampling plan noted that this area would be remediated by removing one inch of the concrete floor, as well as the concrete curb adjacent to the transformer. No documentation was found to confirm that this was completed; however, the building has since been demolished and the impacted concrete removed. Since the transformers were in the building and the building has been removed, there is no current source of PCBs at this site.

Building 270/273: The transformer at Building 273 was listed as Building 270 Dog Kennels in the 1996 Inventory. The 2016 site inspection found some corrosion at the bottom of the transformer and some staining of indeterminate source. Since the nature and age of the staining could not be determined, this site could not be ruled out as a potential source of PCB impacts, stormwater runoff characterization is recommended. This site is included in the proposed sampling analysis plan.

Child Development Center and surrounding areas: The Child Development Center (CDC) (Building 483) is a new building that was constructed in the location of former burn areas at the Installation. These areas, known as the north and south burn areas, were historically used to burn waste materials such as wood and paper. Sampling conducted of these areas as part of remediation efforts found a maximum PCB concentration of 34 ppm, exceeding the USEPA PCB cleanup levels for non-restricted access areas (10 ppm).

The area to the north and northwest of Building 483 was formerly occupied by Building 501 and a playground area. The building and playground have been removed and these areas are currently grassy fields. The playground area was remediated in 1984-1985, when 200 cubic feet of PCB-impacted sand and soil were excavated and replaced with clean fill (clay and loose sand). The area northeast of Building 501 was a former sanitary landfill that contained PCB-impacted soils. Surface soil samples collected in 1984 found a concentration of 2.24 ppm, which is below the USEPA PCB cleanup levels for non-restricted access areas (10 ppm).

Soil samples were also previously collected from the area east of former Building 501 that is currently occupied by a parking lot for the Rader Health Clinic and ballfield area. None of these samples had PCB concentrations that exceeded the USEPA PCB cleanup levels for non-restricted access areas (10 ppm).

This area is not anticipated to be a significant source of PCBs in stormwater runoff given that PCB-impacted soils in these areas were either remediated or concentrations were found to be below EPA cleanup levels, and that a substantial amount of construction and demolition has occurred in these areas. However, given the large size of the area and the history of PCB impacts, stormwater runoff characterization is recommended and this site is included in the proposed sampling analysis plan.

4.4 Best Management Practices (BMPs) Analysis and Implementation Plan

Best management practices (BMPs) are control measures used to reduce pollution in stormwater and surface waters. BMPs can be temporary, such as silt fences used to control sediment pollution from active construction sites, or permanent, such as detention basins used to manage runoff from a parking lot.

BMPs can also be structural or nonstructural. Structural BMPs are physical controls designed to divert, contain, treat, reuse, or otherwise manage stormwater runoff to reduce pollutants in stormwater discharged from the site. Examples of structural BMPs include vegetation controls

(rain gardens, bioretention areas), infiltration systems, detention basins, retention basins, oil/water separators, and pervious surfaces (pavers, porous pavement).

Non-structural BMPs are operational practices intended to improve stormwater quality by minimizing or eliminating the potential contact of pollutants with runoff at or near their source. Examples of nonstructural BMPs include public education, good housekeeping practices, preventative maintenance, spill prevention and response procedures, and routine inspections.

4.4.1 BMP Evaluation

The structural control measures currently implemented at the Installation to control the discharge of pollutants primarily include oil/water separators (OWSs), stormwater detention ponds, sand filter systems, and bioretention systems. The current non-structural control measures primarily include good housekeeping, preventive maintenance, spill prevention and response, and visual inspections. **Table 1** below lists structural and non-structural BMPs implemented at the Installation and evaluates whether they address PCB concerns, and provides recommendations for addressing PCBs where applicable.

Table 1. Evaluation and Recommendation of Existing BMPs at JBM-HH

General BMP Description	Evaluations and Recommendations
Structural Controls	
Detention basins – treats stormwater from vehicle parking, exterior material storage, and fueling areas; helps to manage the quantity of runoff.	**Evaluation:** If located in an area downgradient from a potential PCB source, any BMP designed to promote settling and retention of sediment could help in limiting the transport of PCB-contaminated soil. **Recommendation:** None
Oil/water separators – most trench drains and floor drains are connected to the OWSs, which then discharge to the sanitary sewer system. One OWS treats runoff from a vehicle fueling station and discharges to a detention basin.	**Evaluation:** In general, this BMP does not apply to the PCB TMDL. **Recommendation:** None
Sand filter systems – treats stormwater from vehicle parking and exterior material storage areas; often connected to underground detention basins; filters out sediment, grease, and other vehicle fluids from the runoff.	**Evaluation:** If located in an area downgradient from a potential PCB source, any BMP designed to promote settling and retention of sediment could help in limiting the transport of PCB-contaminated soil. **Recommendation:** None
Roof cover – over fueling areas and equipment, limits stormwater exposure for potential pollutant sources.	**Evaluation:** This BMP does not apply to the PCB TMDL. **Recommendation:** None

Table 1. Evaluation and Recommendation of Existing BMPs at JBM-HH

General BMP Description	Evaluations and Recommendations
Bioretention systems (includes tree filter boxes) – treats stormwater primarily from roadway areas; filters out sediment, grease, and other vehicle fluids from the runoff	**Evaluation:** If located in an area downgradient from a potential PCB source, any BMP designed to promote settling and retention of sediment could help in limiting the transport of PCB-contaminated soil. **Recommendation:** None
Non-structural Controls	
Perform Illicit Discharge Detection and Elimination Procedures	**Evaluation:** Not likely to detect PCBs since procedures rely on visible indicators of pollutants; however, eliminating sources of sediment discharges detected by the program could help limit the transport of PCB-contaminated soil. **Recommendation:** None
Indoor vehicle maintenance activities and equipment/material storage – eliminates stormwater exposure for potential pollutant sources.	**Evaluation:** This BMP does not apply to the PCB TMDL. **Recommendation:** None
Regular inspections – helps to identify leaks, spills, and potential pollution sources to reduce the potential impact to stormwater; inspections of industrial areas are currently performed quarterly.	**Evaluation:** Regular inspections could identify releases of potentially PCB-containing materials. **Recommendation:** Train inspectors about potential PCB-specific sources (e.g., leaking transformer).
Spill kits available – located near vehicle maintenance and fueling areas; kits include booms and absorbent material.	**Evaluation:** Spill kits could help prevent future potential PCB contributions by ensuring timely containment and cleanup of future spills. **Recommendation:** None
Good housekeeping – performed throughout the installation; reduces possibility of accidental spills; includes routine sweeping and cleanup, use of drip pans and absorbent materials; regular waste disposal, and proper storage of materials.	**Evaluation:** Good housekeeping measures could aid in identifying PCB release or potential release, including the need to repair or remove potential sources (e.g., transformers). **Recommendation:** Train staff about potential PCB-specific sources (e.g., leaking transformer).
Use of water-tight dumpsters, waterproof storage cabinets/sheds for outdoor material storage – located throughout the installation; minimizes exposure stormwater exposure for potential pollutant sources.	**Evaluation:** This BMP does not apply to the PCB TMDL **Recommendation:** None

Table 1. Evaluation and Recommendation of Existing BMPs at JBM-HH

General BMP Description	Evaluations and Recommendations
Preventative Maintenance – includes the regular inspection and maintenance of stormwater control structures, equipment, and systems.	**Evaluation:** Regular maintenance of stormwater control measures that promote settling and retention of sediment could help in limiting the transport of PCB-impacted soil. **Recommendation:** None
Filling operations of USTs and ASTs are monitored by facility personnel – ensures that the tanks are filled properly and any spills are cleaned up immediately and appropriately.	**Evaluation:** This BMP does not apply to the PCB TMDL **Recommendation:** None
Public education and outreach programs regarding the protection of stormwater.	**Evaluation:** Public education and outreach programs regarding the protection of stormwater provide an opportunity to increase awareness of PCBs and the PCB TMDL at Fort Myer. **Recommendation:** Develop an information sheet that includes: basic facts about PCBs and the PCB TMDL, a summary of PCBs at the Installation, what has been done to eliminate PCB contamination, and what an individual should do if they observe a condition such as a leaking transformer that could be a source of PCBs.

4.4.2 Site Specific BMP Analysis

Although not specifically in place to address PCB issues, JBM-HH has a variety of structural stormwater and erosion control BMPs in place. Many of these, mostly those that are aimed at reducing the erosion and transport of sediment, may limit the transport of PCB-contaminated soil. These include natural vegetation, detention basins, sand filter systems, vegetated swales, and bioretention systems. Non-structural BMPs, such as regular inspections and maintenance of structural BMPs and good housekeeping measures throughout the installation, also may aid in reducing the potential for PCB release.

Stormwater discharges from the area surrounding Building 270/273 Dog Kennels transformer that was observed with unidentified staining is treated by structural stormwater BMPs. The transformer is surrounded by a well-vegetated, grassy area, which would limit the transport of any soil that may be or become contaminated by PCBs. This area drains to a dry detention basin, which promotes settling of sediments.

The CDC (Building 483), which is in the location of the former south and north burn areas, has a large building that occupies most of the former burn areas and is surrounded by vegetated and paved areas. The area to the east of the CDC is mostly occupied by a large parking lot. The area to the north of the parking lot is a maintained ballfield, and the area to the north of the CDC, the former Building 501 and playground, is a well-vegetated area. Buildings and paved

areas essentially act as a cap preventing soils from eroding. If well maintained, the vegetated, grassy areas should prevent erosion.

4.4.3 BMP Recommendations Summary and Implementation Plan

General BMPs recommended for implementation and the schedule for implementation and reporting are provided in **Table 2** below.

Table 2. BMP Implementation Plan

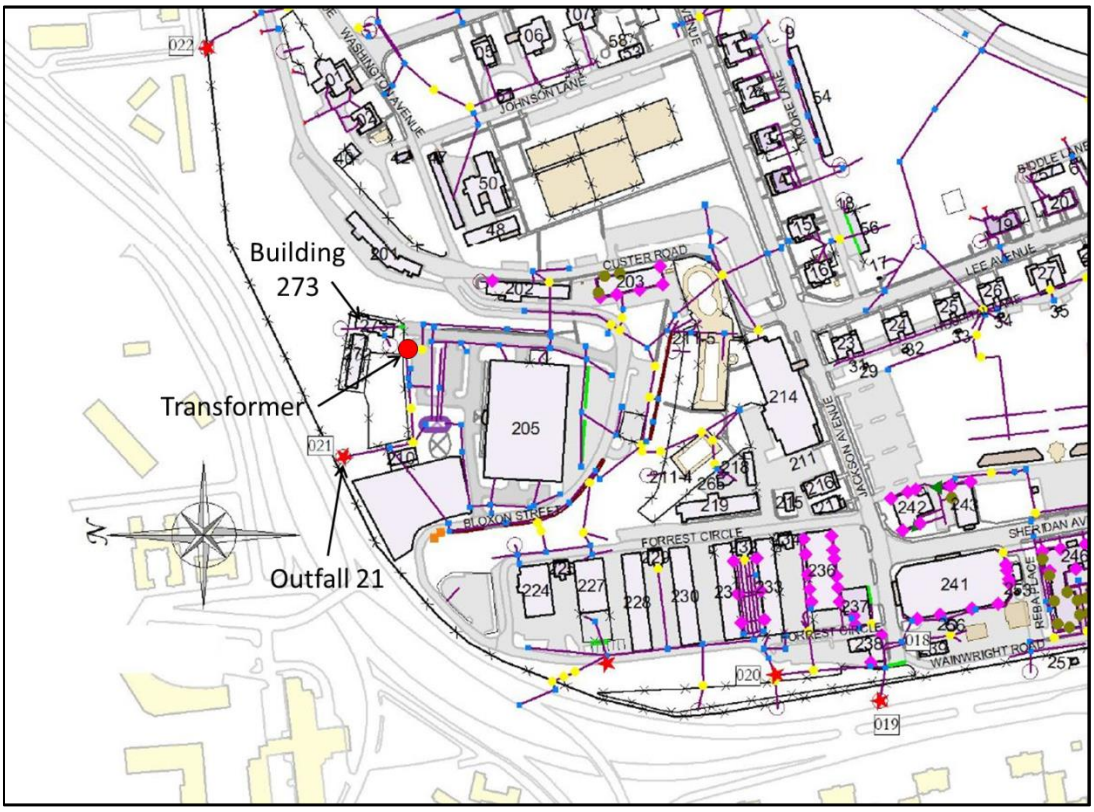
BMP Description	Implementation and Reporting Schedule
Develop a fact sheet that includes the following: • Basic facts about PCBs and the PCB TMDL • Summary of history of PCBs at Fort Myer • Steps taken to eliminate PCB contamination • Steps one should take if they observe oil leaking from a transformer Make fact sheet available through housing occupant orientation, annual training on the Stormwater Pollution Prevention Plan (SWPPP) installation operations and maintenance training materials.	Fact sheet development will begin during the 2016-2017 reporting cycle. The fact sheets will be available by then end of the 2016 calendar year. Status of development and implementation will be summarized in Annual Reports.
Continue to perform routine maintenance, as required, of BMPs that may help to control PCBs, such as detention basins.	To be augmented as needed to address potential PCB-impacted discharges. Routine maintenance performed will be summarized in Annual Reports.
Develop PCB sampling plan to comply with PCB TMDL requirements.	Completed and provided as part of this Action Plan. Results from sampling will be included in Annual Report.
Modify existing stormwater pollution prevention training materials for municipal operations to include a section on identifying and reporting potential PCB leaks.	New training language to be developed during the 2016-2017 reporting cycle. Implementation, meaning including PCB section in training materials, will occur early 2017. Status of development and implementation will be summarized in Annual Reports.

Future Annual Reports will include the status of PCB-focused BMPs, and the 2016-2017 Annual Report will include an assessment of the potential need for additional BMPs based on sampling analysis.

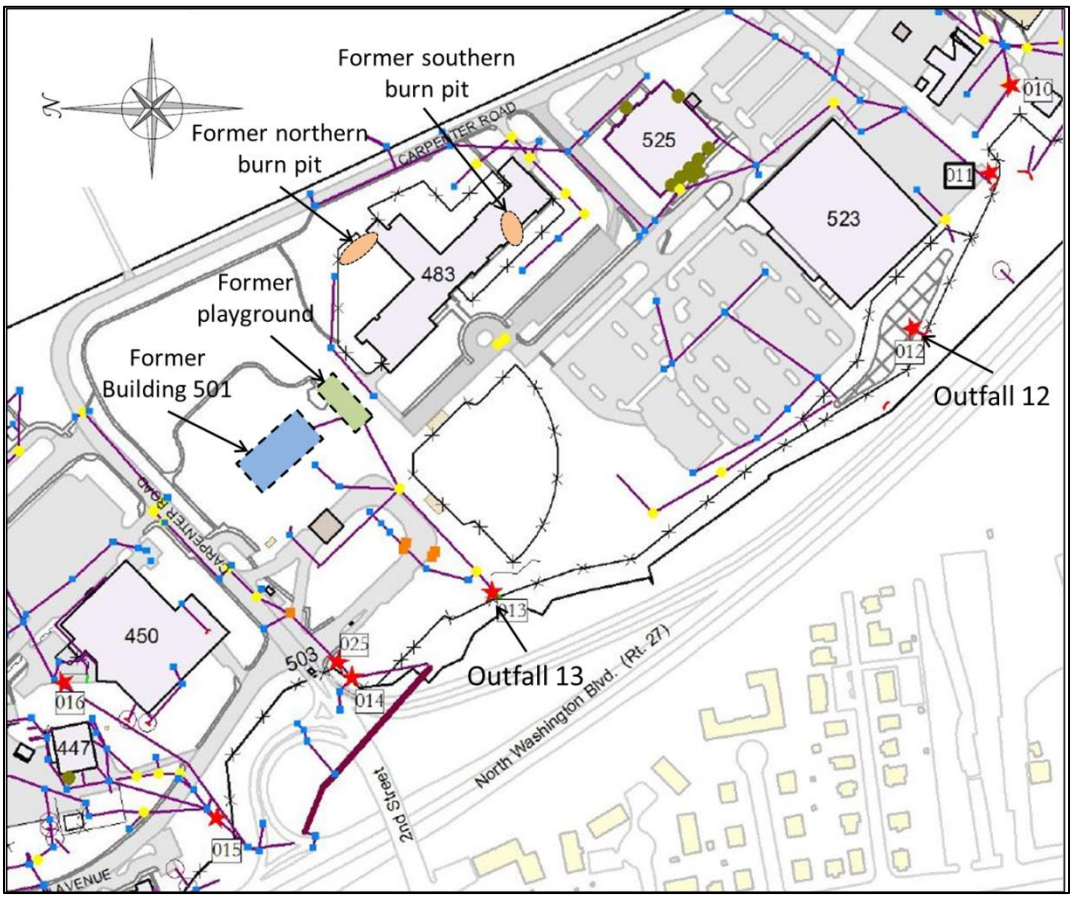
5.0 SAMPLING AND ANALYSIS PLAN

To comply with the MS4 permit, this plan documents the proposed sampling plan for stormwater runoff from areas surrounding the transformer by Building 270/273 as well as the area surrounding the CDC. Results from the planned sampling will be documented in the 2016-2017 Annual Report. The report will also provide details of any follow up actions.

Site access for sampling will be coordinated with facility staff. Stormwater runoff will be collected at stormwater Outfall 21 twice in one calendar year to assess the runoff from the area of the transformer at Building 270/273 (Dog Kennels). **Figure 3** below shows the transformer and Outfall 21 locations.



Stormwater runoff will also be collected from stormwater Outfalls 12 and 13 twice in one calendar year to assess the area surrounding the CDC. **Figure 4** below shows the locations of the former northern burn pit, southern burn pit, Building 501, and playground.



These locations will be sampled during two wet events. These events must occur at least 72 hours from the previously measured (>0.1 inch) storm event, and the storm event during which sampling occurs must yield at least 0.1 inch of precipitation. One grab sample will be collected from the outfalls during each sampling event. The samples must be collected during the first 30 minutes of discharge, or within the first hour if the first 30 minutes is impractical.

For each sample, a volume of at least 2 liters, but ideally 4 liters, of unfiltered water will be collected directly into one 4-liter amber glass jar. All sampling bottles will be laboratory supplied and must be certified pre-cleaned and PCB-free with Teflon lined caps. While collecting the sample, the cap will be temporarily placed in aluminum foil and immediately returned to the bottle once the sample is collected. As recommended by the VADEQ, duplicate samples and field blanks will be collected.

All sample bottles will be labeled and placed on ice in a hard sided shipping cooler and chill to <6°C. Sample bottles will be wrapped in bubble wrap and secured to prevent breakage or sample loss and shipped to the laboratory completing the analysis immediately following the sampling event. Coolers will be sufficiently packed with ice to ensure the temperature is maintained at < 6°C for shipment to the analytical laboratory.

All samples will be recorded on a laboratory provided Chain-of-Custody form, sealed in a waterproof bag (i.e., sealable freezer bag), and taped to the inside of the cooler lid. The coolers will be sealed and shipped to the laboratory for immediate analysis by EPA Method 1668B, which is capable of detecting low-level concentrations of all 209 PCB congeners. Individual congeners are summed to form total PCB. The samples will be analyzed by Phase Separation Science, a Virginia Environmental Laboratory Accreditation Program certified laboratory

included in the VADEQ list of laboratories, performing low level PCB congener analysis (EPA Method 1668B).

Method Number/Analysis	EPA Method 1668B/PCB
Preservatives	< 6°C immediately
Analytical Holding Time	365 days
Sample Volume Container	$\geq$ 2 liters $\leq$ 4 liters 1 4-liter Amber Glass Bottle

The Annual Report will include a characterization of the discharges and an estimate of annual PCB loading in stormwater discharges based on precipitation records and land uses and the quantity of PCBs. The report will also include recommendations for further characterization or remediation, if necessary.

6.0 CONCLUSIONS AND GENERAL PERMIT REISSUANCE

The transformer at Building 270/273 and the CDC and surrounding areas are the two sites selected for stormwater runoff sampling at this time. Based on historical records review, the removal or replacement of old transformers, and the 2016 site inspection results, the remaining historical PCB locations are unlikely sources of PCB contamination to surface water.

A Sampling and Analysis Plan for site stormwater runoff is provided in **Section 5.0** of this document. BMP recommendations are provided in **Section 4.0**. The 2016-2017Annual Report will include results and analysis from sampling and status updates on BMPs implemented on site.

If necessary, this Action Plan will be updated to reflect new or revised TMDL requirements that occur as a result of the reissuance of the general permit. Implementation of this Action Plan supports Fort Myer compliance with the PCB TMDL requirements applicable to MS4Permit # VAR040068.

7.0 REFERENCES

Agency for Toxic Substances and Disease Registry, 2014. Polychlorinated Biphenyls-ToxFAQs. Division of Toxicology and Human Health Sciences. July 2014. http://www.atsdr.cdc.gov/toxfaqs/tfacts17.pdf (Accessed May 2016).

Chandler, Colonel Charles E., Department of the Army, 1989. *Memorandum: Request Services of NIOSH for a Health Hazard Evaluation for Polychlorinated Biphenyls Contamination.* July 31, 1989.

DA Fort Myer Military Community, 1999. *Solicitation Contract, Substation Test CO.* September 22, 1999.

Dennis, Ron and Bove, Larry, 1990. *Preliminary Assessment Report for Fort Myers.* September 12, 1990.

Department of Environmental Health, 1993. Point Paper for the GC, Fort Myer. March 9, 1993.

FMMC Department of Public Works, 1995. After Action Report, Building 469 Fort Myer, Polychlorinated Biphenyl (PCB) Spill Cleanup Analytical Results. December 11, 1995.

Georg, Craig, 1996. General Physics FMMC PCB Remediation Revised Scope of Work. December 12, 1996.

General Physics Corporation, 1996, Transformer Inventory Reports, Fort Myer Military Community Directorate of Public Works, Environmental Division. December 1996.

General Physics Corporation, 1996. Transformer Inventory Reports Fort Myer Military Community Fort Myer, Virginia. December 6, 1996.

General Physics Corporation, 1997. Proposal to Perform: Remediation/Replacement of PCB Transformers and Remediation of PCB Contaminated Soil and Concrete, Ft. Myer, Virginia and Ft. McNair, Washington, DC. June 2, 1997.

Granger, R. Hugh, Environmental Incorporated, 1993. *Certificate of Analysis.* March 11, 1993.

Interstate Commission on the Potomac River Basin, 2007. Total Maximum Daily Loads of Polychlorinated Biphenyls (PCBs) for Tidal Portions of the Potomac and Anacostia Rivers in the Districs of Columbia, Maryland, and Virginia. September 28, 2007.

Military District of Washington Directorate of Engineering and Housing, 1993. PCB Sample Locations. March, 5 1993.

Oregon Department of Environmental Quality. 2003. Fact Sheet: Sources of Polychlorinated Biphenyls. August 2003. http://www.deq.state.or.us/lq/cu/nwr/PortlandHarbor/docs/SourcePCBs.pdf (Accessed May 2016).

Paquette, Robert J., Department of the Army, 1988. *Memorandum: Inspection of the PCB Transformers at Fort Myer.* March 25, 1988.

Schultz, Lieutenant Colonel Michael L., Department of the Army, 1995. *After Action Report, Building 469 Fort Myer, Polychlorinated Biphenyl (PCB) Spill Cleanup Analytical Results.* December 11, 1995.

The Ryan Co. Office Trailer, 1993. Ft. Myer Summary of Soil Core Results. April 7, 1993.

Turner, Richard B., Department of the Army, 1999. *PBC Transformer Registration.* June 29, 1998.

U.S. Environmental Protection Agency, 2014. Revisions to the November 22, 2002 Memorandum "Establishing Total maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs." November 26, 2014.

United States Army Corps of Engineers, 1990. *Maps of Military District of Washington (Ft. McNair, Cameron Station, Ft. Myer).* March 18, 1990.

United States Army Corps of Engineers, 1991. *Draft Field Investigation Report.* June 12, 1991.

United States Army Corps of Engineers, 1992. *Draft Interim Site Clearance Report: Proposed Commissary and Parking Lot Areas, Fort Myer, Arlington, VA.* June 1, 1992.

United States Army Corps of Engineers, 1992. *Field Investigation and Preliminary Site Assessment Report, Proposed Playground Area, Fort Myer, Virginia.* March 1992.

United States Army Corps of Engineers, 1992. *Preliminary Assessment Report Addendum for Fort Myer, VA.* March 1992.

United States Army Fort Myer Military Community, Directorate of Public Works, 1997. *A Field Investigation of PCB Concentrations at Buildings 404 and 448, Fort Myer.* May 23, 1997.

United States Army Fort Myer Military Community, Directorate of Public Works, 1998. *PCB Remediation Sampling and Industrial Hygiene Support for Five Sites at Ft. Myer and Ft. McNair.* July 24, 1998.

United States Environmental Protection Agency (USEPA), 2002. *Memorandum: Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs.* November 22, 2002.

United States Environmental Protection Agency (USEPA), 2005. *Polychlorinated Biphenyl (PCB) Site Revitalization Guidance Under the Toxic Substances Control Act (TSCA).* November 2005.

United States Environmental Protection Agency (USEPA), 2016. Learn About Polychlorinated Biphenyls. April 8, 2016. https://www.epa.gov/pcbs/learn-about-polychlorinated-biphenyls-pcbs (Accessed May 2016)

URS Group, 2005, Site Clearance Report Proposed Child Development Center (CDC) Fort Myer, Virginia. November 2005

US Army Garrison Fort Myer, 1999-2007. PCB Annual Document Log. January, 1 1999-2007.

USA Lights, 1998. Certificates of Recycling for PCB and Mercury Containing Lamps. April 1998.

Woodward-Clyde Federal Services, 1993. Final Site Clearance Report, Proposed Playground, Softball Field, Commissary and Parking Lot Areas. January 6, 1993.

Woodward-Clyde Federal Services, 1996. Site Clearance Report for Future Lodging Facility, Fort Myer, Arlington, Virginia. April 26, 1996.

Appendix A – Transformer Inventory

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Table A.1 –Transformers Currently In Use at JBM-HH

Location	Trans-former No.	ID Tag	Serial No.	Manufacturer	Oil Capacity (Gal.)	Size (kVA)	PCB Content
AC Pit (between Buildings 251 and 410)	TV-RF	C1018-AC46	DF10023164	Atlantic Power System	157	1000	None
AC Pit (between Buildings 251 and 410)	TV-RF	C1018- AC36	81309691846	ERMCO	-	1000	<50 ppm
Building 12 (Henderson Hall)	-	C1017-EK73	3466684614	Howard Industries	184	500	<50 ppm
Building 203	NTV-28	-	G-73522-1	Hevi-Duty	195	225	<50 ppm
Building 203	NTV-28	C1018-BH42	2286141512	Howard Industries	-	500	<1 ppm
Building 205	-	C1018-BH16	GF09295211	Atlantic Power System	270	750	None
Building 214	TV-1A	C1018-AG37	71109234656	ERMCO	-	750	<50 ppm
Building 216	NTV-12	C1C18-AG50	CP0750018190	-	-	300	<50 ppm
Building 219	NTV-11	C1018-AG38	A0808784833	ERMCO	208	750	7.4 ppm
Building 241	NTV-18	C1018-AF01	CP0750018187	Cooper	241	300	<50 ppm
Building 241	NTV-18	C1018-AF02	-	Cooper	241	750	<50 ppm
Building 241	-	C1018-AF00	11JC350850014	-	-	1000	<1 ppm
Building 242	-	C1018-AF55	-	ABB	-	300	<50 ppm
Building 248	NTV-17	C1018-XE62	A1109301611	ERMCO	208	750	<50 ppm
Building 25 (Henderson Hall)	-	C1017-FL63	-	-	-	-	<50 ppm
Building 251	NTV-16	C1018-AD32	3435413702	Howard Industries	-	500	<50 ppm
Building 26 (Henderson Hall)	-	C1017-FJ67	1480499090015	-	250	1500	<1 ppm
Building 270/273	-	C1018-BI21	GF09295212	Atlantic Power System	250	75	None
Building 28 (Henderson Hall)	-	C1017-FL26	-	-	250	-	<50 ppm
Building 280	-	C1018-AI11	CP1650000338	Cooper	-	-	<50 ppm
Building 280	-	C1018-AI12	CP1650000114	Cooper	-	-	<50 ppm
Building 280	-	C1018-AI22	CP1650000271	Cooper	-	-	<50 ppm
Building 280	-	C1018-AI20	CP165000270	Cooper	-	-	<50 ppm
Building 280	-	C1018-AI10	CP165000140	Cooper	-	-	<50 ppm
Building 280	-	C1018-AI42	CP165000167	Cooper	-	-	<50 ppm

Location	Trans-former No.	ID Tag	Serial No.	Manufacturer	Oil Capacity (Gal.)	Size (kVA)	PCB Content
Building 280	-	C1018-AI33	CP165000115	Cooper	-	-	<50 ppm
Building 280	-	C1018-AI23	CP165000361	Cooper	-	-	<50 ppm
Building 280	-	C1018-AI34	CP165000362	Cooper	-	-	<50 ppm
Building 280	-	C1018-AI53	CP165000168	Cooper	-	-	<50 ppm
Building 280	-	C1018-AI44	CP165000517	Cooper	-	-	<50 ppm
Building 280	-	C1018-AI40	CP165000471	Cooper	-	-	<50 ppm
Building 29 (Henderson Hall)	-	C1017-GL40	14JC499090014	-	-	1500	<1 ppm
Building 301	NTV-26	C1018-HS01	AB 00J986281	-	-	500	<50 ppm
Building 307	-	C1018-EI00	-	-	-	-	<50 ppm
Building 313	TV-8	C1018-EI35	DF09263160	Atlantic Power System	295	750	None
Building 316	NTV-24	C1018-EI27	75H292205	Westinghouse	-	300	5 ppm
Building 325	-	C1018-EH89	GF09295214	Atlantic Power System	230	150	None
Building 330	-	C1018-EH44	-	-	-	-	<50 ppm
Building 330	-	C1018-EH44	-	-	-	-	<50 ppm
Building 400	TV-11	C1018-BD56	RHK-0597	Standard	385	1500	<1 ppm
Building 404	TV-3B	C1018-B230	DF10013162	Standard	166	750	None
Building 404	TV-3A	C1018-B220	3313672107	Howard Industries	302	300	<50 ppm
Building 405	TV-405	C1018-BC76	PGB-0160	Alstom	130	300	<50 ppm
Building 407	TV-9	C1018-BB83	RBC6453	Standard	285	750	2 ppm
Building 407	TV-7	C1018-BB46	CP095009535	Cooper	300	-	<50 ppm
Building 410	TV-410	C1018-AB58	DF09123159	Atlantic Power System	165	225	None
Building 411	TV-411	C1018-BC80	DF0410010	Sunbelt Transformers	179	300	None
Building 414	-	C1018-AA57	PAD-0422	GEC Alsthom	250	500	None
Building 415	-	C1017-B001	6140987291	ERMCO	-	750	<50 ppm
Building 416	TV-416	C1018-AB44	75L099019	Westinghouse	-	500	10 ppm
Building 421	-	C1018-AC92	6100951402	ERMCO	-	750	<50 ppm
Building 425	NTV-8	C1018-BB11	21309590566	ERMCO	195	300	<50 ppm
Building 430 (SE corner near pool)	-	C1018-BB32	L-707760	General Electric	74	75	5 ppm
Building 447	NTV-14	C1017-BO91	51409856650	ERMCO	168	300	5 ppm
Building 450	TV-10	C1017-CN25	946001823	Cooper	330	750	None
Building 451	TV-451	C1017-CO27	POH-0399	Standard	147	75	<50 ppm
Building 452	TV-452	C1017-CP10	830208-1	Balleau	106	112.5	5 ppm

Location	Trans-former No.	ID Tag	Serial No.	Manufacturer	Oil Capacity (Gal.)	Size (kVA)	PCB Content
Building 469 (former CDC)	NTV-9	C1018-BA53	G-73520	Hevi-Duty	162	112.5	-
Building 47	NTV-27	C1018-BH89	21209347861	ERMCO	208	750	<50 ppm
Building 480	TV-480	C1017-D038	41009034820	ERMCO	208	300	<50 ppm
Building 482	TV-30A	C1017-CP70	-	-	-	225	<50 ppm
Building 483	-	C1017-EM24	4707923907	Sunbelt Transformers	-	-	<50 ppm
Building 523	-	C1017-EK29	10JC328500009	-	-	1500	<1 ppm
Building 525	TV-6	C1017-EL50	4829634107	Howard Industries	-	750	<50 ppm
Building 59	NTV-20	C1018-BE28	2589593314	Howard Industries	67	1500	<50 ppm
Hatfield Gate VCP	TV-5	C1017-CN72	V-290019	Sunbelt Transformers	301	750	<50 ppm
Parking lot E of Building 405	TV-30	C1018-CC27	CP0750018189	Cooper	-	300	<50 ppm
Quarters 11	NTV-22	C1018-CG71	1534660903	Howard Industries	195	300	<50 ppm
Quarters 15	NTV-21	C1018-BF88	AB11JC329320019	-	-	300	<1 ppm
Quarters 19&21	NTV-19	C1018-CE09	-	ERMCO	-	300	<50 ppm
Quarters 23	NTV-29	C1018-BF08	AB085016040	ERMCO	208	300	<50 ppm
Quarters 7&8	NTV-23	C1018-CG70	2738532702	Howard Industries	-	-	<50 ppm
Wright Gate VCP	NTV-25	C0108-GI20	G-10735-2	Hevi-Duty	164	150	10 ppm

Table A.2 – Former Transformers (Decommissioned)

Location	Trans-former No.	ID Tag	Serial No.	Manufacturer	Oil Capacity (Gal.)	Size (kVA)	PCB Content
AC Pit (between Buildings 251 and 410)	TV-RF	-	44261	Square D	240	1000	>50%
Ball Field	-	-	MB1-2895	Standard	72	100	5 ppm
Ball Field	-	-	MB1-2896	Standard	72	100	<2 ppm
Building 203	NTV-28	C1018-BH42	86J0664265	Westinghouse	-	500	<1 ppm
Building 214	TV-1	-	8437177	Esco	378	700	1,000,000 ppm
Building 216	NTV-12	-	G-10694-2	Hevi-Duty	195	225	65 ppm
Building 219	NTV-11	C1018-AG37	7022552	Westinghouse	208	750	7.4 ppm
Building 219	NTV-11	-	7022552	Westinghouse	-	-	-
Building 241	NTV-18	-	G-73523-2	Hevi-Duty	211	300	5 ppm
Building 241	NTV-18	-	959001611	Cooper	241	500	None
Building 241	NTV-18	-	72L35001	Westinghouse	-	500	5 ppm
Building 248	NTV-17	C1018-XE62	G-10695-2	Hevi-Duty	211	300	25 ppm
Building 25 (Henderson Hall)	-	C1017-FL62	-	-	-	-	-
Building 251	NTV-16	-	G-10694-8	Hevi-Duty	195	225	55 ppm
Building 280	-	C1018-AI52/ CO1018-AI3200	-	-	-	-	-
Building 301	NTV-26	-	G-73523-1	Hevi-Duty	211	300	45 ppm
Building 301	NTV-25A/26	-	G-73529	Hevi-Duty	221	300	330 ppm
Building 301	NTV-26A	C0108-HJ10/11	2.089E+09	Square D	-	300	None
Building 301	NTV-26	-	70V5102	Vantran	-	37.5	10 ppm
Building 301	NTV-26	-	C-4549904	McGraw-Ed.	-	37.5	10 ppm
Building 301	NTV-26	-	C-622210	McGraw-Ed.	-	37.5	5 ppm
Building 313	-	-	70V2138	Vantran	-	167	>50%
Building 313	-	-	70V2136	Vantran	-	167	>50%
Building 313	-	-	70V2137	Vantran	-	167	>50%
Building 323	-	-	-	-	-	-	-
Building 325 (N parking lot)	-	-	-	-	255	300	-
Building 402	TV-2	-	F-958965	General Electric	74	300	>50%
Building 402	TV-2	-	F-958966	General Electric	99	500	>50%
Building 402	TV-2	-	DF10013161	Atlantic Power	204	500	None

Location	Trans-former No.	ID Tag	Serial No.	Manufacturer	Oil Capacity (Gal.)	Size (kVA)	PCB Content
				System			
Building 403	TV-4	-	177348	Standard	125	300	>50%
Building 403	TV-4	-	DF10033163	Atlantic Power System	196	750	None
Building 403	TV-4	-	177302	Standard	216	750	>50%
Building 404	TV-3C	-	176251	Standard	109	300	>50%
Building 404	TV-3B	C1018-BD31	DF10013162	Atlantic Power System	166	300	None
Building 404	TV-3A	C1018-BD21	PMF-0705	Standard	302	750	<2 ppm
Building 404	TV-3C	C1018-BD10	-	-	-	-	-
Building 405	TV-8	-	181691	Standard	140	300	-
Building 406	TV-7	-	F-963883	General Electric	90	300	>50%
Building 406	TV-7	-	F-963884	General Electric	160	750	>50%
Building 406	TV-7	-	DF10033165	Atlantic Power System	301	750	None
Building 410	-		20346-AO1	ITE	100	225	>50%
Building 414	-	C1018-AA32	-	-	-	-	-
Building 415	-	C1017-AO94	-	-	-	300	-
Building 423 (former Commissary)	NTV-15	-	G-72356	Hevi-Duty	195	750	75 ppm
Building 447	NTV-14	-	G-10695-3	Hevi-Duty	211	300	7,210 ppm
Building 448	NTV-10	-	G-10735-1	Hevi-Duty	164	150	<2 ppm
Building 448	NTV-10	-	G-73530	Hevi-Duty	273	500	>50%
Building 450	TV-10	C1017-CN25	796007456	Square D	465	750	-
Building 468	NTV-13	C1017-BO11	G-106095-1	Hevi-Duty	211	300	35 ppm
Building 469 (former CDC)	NTV-9B	-	81JK574032	Westinghouse	-	300	<2 ppm
Building 469 (former CDC)	NTV-9A	-	-	-	-	-	135 ppm
Building 47	NTV-27A	C1018-CH19	G-73521	Hevi-Duty	164	150	26 ppm
Building 47	NTV-27B	C1018-CH18	G-73523-1	Hevi-Duty	211	300	None
Building 47	NTV-27C	C1018-CH20	-	-	-	-	-
Building 480	TV-480	C1017-D038	F-49142	Delta-Star	195	225	10 ppm
Building 480	TV-480A	C1017-D037	-	-	-	-	-
Building 483	-	C1017-FM13	-	-	-	-	-
Building 501	NTV-8	-	G-10694-7	Hevi-Duty	195	225	30 ppm
Building 525	TV-6	-	8639526	ESCO	374	750	<2 ppm

Location	Trans-former No.	ID Tag	Serial No.	Manufacturer	Oil Capacity (Gal.)	Size (kVA)	PCB Content
Building 525	TV-6	C1017-EL39	-	-	-	-	-
Building 59	NTV-20	C1018-BE36	830414	Square D	239	500	<2 ppm
Building 59	NTV-20	-	G-73528	Hevi-Duty	273	500	80 ppm
Building 406	TV-7	-	F-963884	General Electric	160	750	>50%
Field	NTV-15	-	G-73526	Hevi-Duty	346	750	<0.65 ppm
Hatfield Gate VCP	TV-5	C1018-CN63	V-290019	Delta-Star	301	750	-
Parking lot E of Building 405	TV-30	-	-	-	-	37.5	-
Quarters 11	NTV-22	C1018-CG71	G-10694-4	Hevi-Duty	195	225	45 ppm
Quarters 15	NTV-21	C1018-BF99	-	Hevi-Duty	-	225	90 ppm
Quarters 19&21	NTV-19	C1018-CE08	G-10694-6	Hevi-Duty	195	225	35 ppm
Quarters 23	NTV-29	C1018-BF08	G-10694-1	Hevi-Duty	195	300	60 ppm
Quarters 7&8	NTV-23	-	G-10694-3	Hevi-Duty	195	225	660ppm
Street Light	-	-	8639525	ESCO	-	37.5	10 ppm
Street Light	-	-	RBE-7144	Standard	-	25	<2 ppm
Wright Gate VCP	NTV-25	C0108-GI19	-	-	-	-	-

Appendix B – Historic Site Analysis

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Location	Trans-former Number	ID Tag	Description	Evaluation
Building 214 (Historic)	TV-1	-	An inspection performed in 1988 noted leaks at this transformer location. The transformer was removed in 2000.	This transformer was replaced. No signs of leaks were observed during the 2016 inspection.
Building 216 (Historic)	NTV-12	-	An inspection performed in 1988 noted leaks at this transformer location, though any contamination of soil could not be visibly determined at that time.	This transformer was replaced. No signs of leaks were observed during the 2016 inspection.
Building 219 (Historic)	NTV-11	C1018-AG37	Oil staining on the transformer case and pad and old saturated absorbent was observed during the 2009 inspection.	This transformer was replaced. No signs of leaks were observed during the 2016 inspection.
Building 248 (Historic)	NTV-17	C1018-XE62	An inspection performed in 1988 noted leaks from this transformer.	This transformer was removed.
Building 251 (Historic)	NTV-16	-	An inspection performed in 1988 noted leaks from this transformer.	This transformer was removed and replaced with a new transformer. No signs of leaks were detected from this transformer during the 2016 inspection.
Building 270/273	-	C1018-BI21	1996 inventory lists this transformer at Building 270 Dog Kennels. Replacement transformer.	The inspection revealed some corrosion, organic material staining, and possible leakage. This site is included in the sampling analysis plan.
Building 3	-	-	In 1990, a PCB transformer at leaked a small quantity of transformer oil.	The leak was contained inside the building and remediated. The building was eventually demolished.
Building 301 (Historic)	NTV-25/26	-	The transformer was leaking at the time of an inspection in 1988 and reportedly had been leaking for five years. The soil in the area had been contaminated.	Site plans dated 1990 for testing and decontaminated were available but closure documentation could not be located. This transformer was removed and replaced with a new transformer. No signs of leaks were detected from this transformer during the 2016 inspection.
Building 313 (Historic)	-	-	An inspection performed in 1988 noted leaks from two of the three transformers in the storage rooms. The surrounding area was not found to be contaminated.	The leaks were contained inside the building and remediated in 1990. These transformers appear to have been removed and only one transformer is located at this building. No signs of recent leaks

Location	Trans-former Number	ID Tag	Description	Evaluation
				were observed on this transformer at the time of the 2016 inspection.
Building 316 (Current)	NTV-24	C1018-EI27	An inspection performed in 2009 noted oil staining on the transformer pad.	The concrete pad appeared to be replaced and no signs of leaking were observed during the 2016 inspection.
Building 323 (Historic)	-	-	In 1990, a transformer leaked a small quantity of transformer oil and contaminated the soil down to approximately 6 inches.	The soil was reportedly removed. Site investigation and inspection revealed that this building was demolished and the transformer was removed.
Building 330 (Current)	-	C1018-EH44	An inspection performed in 2009 noted possible oil staining on the transformer pad and corrosion at the base of the transformer.	No signs of leaks were observed during the 2016 inspection.
Building 330 (Current)	-	C1018-EH45	An inspection performed in 2009 noted possible oil staining on the transformer pad.	No signs of leaks were observed during the 2016 inspection.
Building 403 (Historic)	TV-4	-	A remediation contract was completed as of March 1993, but sample results afterwards showed that additional remediation was required and the transformer would have to be cleaned.	This transformer was removed and Building 406 was demolished.
Building 404 (Historic)	TV-3	-	An inspection performed in 1988 noted leaks from this transformer, which extended to the soil area. The area remained contaminated until 1998, when the PCB-contaminated soil was excavated.	Lab results from 8 soil samples indicated that the PCB concentration levels were below remediation goal levels. No signs of leaks were observed from the transformers at this location during the 2016 inspection.
Building 406 (Historic)	TV-7	-	A remediation contract was completed as of March 1993, but sample results afterwards showed that additional remediation was required and the transformer would have to be cleaned.	This transformer was removed and Building 406 was demolished in 2009.

Location	Trans-former Number	ID Tag	Description	Evaluation
Building 410	-	-	A remediation contract was completed as of March 1993, but sample results afterwards showed that additional remediation was required and the transformer would have to be cleaned. Wipe samples indicated some elevated levels of PCBs and an area was designated for remediation.	The remediation in this building could not be confirmed, but the building has since been demolished.
Building 411 (Current)	TV-411	C1018-BC80	Potential oil staining around the pipe leading from case to baffles and minor rust/corrosion was noted at this transformer 2009.	No signs of leaks were observed during the 2016 inspection.
Building 423 (Historic)	NTV-15	-	At the time of an inspection in 1988, a leak was detected and absorbents were in use. The transformer had been leaking since 1979 and the entire area was contaminated.	PCB remediation was completed as of March 1993. Sample results indicated that no additional remediation was required. The transformer has been removed and the building was demolished.
Building 447 (Historic)	NTV-14	-	An inspection performed in 1988 noted leaks from this transformer.	This transformer has been removed.
Building 447 (Current)	NTV-14	C1017-BO91	Any possible signs of leaking were unable to be seen due to heavily oxidized paint and leaves/organic debris covering pad and surrounding ground during a 2009 inspection.	No signs of leaks were observed during the 2016 inspection.
Building 448	NTV-10	-	In 1996, wipe samples taken from the transformer vault indicated PCB concentrations exceeding the cleanup standard of 10 µg/cm^3.	In 1998, the concrete pad was double washed and rinsed. Results from two wipe samples taken after the cleaning were below the cleanup standard. Additionally, the building has been demolished.
Building 450	TV-10	C1017-CN25	In 1990, the PCB transformer leaked a small amount of transformer oil onto asphalt.	The asphalt was double washed and the transformer was replaced.

Location	Trans-former Number	ID Tag	Description	Evaluation
Building 468 (Historic)	NTV-13	C1017-BO11	An inspection performed in 1988 noted leaks from this transformer. Potential oil staining on the transformer case (possibly paint oxidation) was also noted in a 2009 inspection.	This transformer has been removed.
Building 469 (former CDC)	NTV-9	-	In 1995, there was a PCB spill of approximately 5 gallons at the former CDC.	The transformer pad and transformer were cleaned and decontaminated within a few weeks of the spill. The final soil samples indicated the levels were below the regulatory limits.
Building 47 (Historic)	NTV-27A	C1018-CH19	A leak was detected during a 1988 inspection.	Inspection notes state that the leak never contaminated the soil and that the unit was retrofilled with non-PCB fluid. This transformer was replaced by NTV-27. No signs of leaks were observed during the 2016 inspection.
Building 480 (Historic)	TV-480	C1017-D038	A leak was detected during a 1988 inspection. Possible oil staining on the outside of the case near the base of the transformer was observed during a 2009 inspection.	This transformer was replaced. No signs of leaks were observed during the 2016 inspection.
Field (Historic)	NTV-15	-	During an inspection in 1995, the transformer was disconnected and there was visible staining on the pad and the ground.	Wipe samples detected no PCBs in the area.
Quarters 11 (Historic)	NTV-22	C1018-CG71	Oil staining was observed on the north side of the transformer case and on the north side of the transformer pad during a 2009 inspection. Old saturated absorbent pads were also observed underneath the case during the inspection.	This transformer was replaced. No signs of leaks were observed during the 2016 inspection.
Quarters 19&21 (Historic)	NTV-19	C1018-CE08	Oil staining on the transformer case and old absorbent material was observed around the exterior pipes during the 2009 inspection.	This transformer was replaced. There were no signs of leaks at the time of the 2016 inspection.

Location	Trans-former Number	ID Tag	Description	Evaluation
Quarters 23 (Historic)	NTV-29	C1018-BF08	Possible oil staining was observed during a 2009 inspection.	This transformer was replaced. There were no signs of leaks at the time of the 2016 inspection.
Wright Gate VCP (Historic)	NTV-25	C0108-GI19	A leak was detected during a 1988 inspection. Possible oil staining was observed on the west side of the transformer pad during a 2009 inspection.	This transformer was removed. The transformer now located at NTV-25 looked new and there were no signs of leaks at the time of the 2016 inspection.
AC Pit (grassy area between Buildings 251 and 410	TV-RF	-	Samples were collected from the AC Pit in 1993. Results indicated the presence of PCB contamination. Samples collected in 1996 confirmed that PCB contamination remained in the area.	In 1998, the concrete pad was double washed and rinsed. Two wipe samples were collected; lab results were below the remediation goal levels.
Area surrounding Child Development Center (CDC)	-	-	In the mid 1980s, approximately 200 cubic feet of PCB-contaminated soil was excavated from the site. Contamination was estimated to cover four acres. Samples were previously collected from the area where the current CDC building, grassy areas to the north and northeast, and current parking area to the east.	Most soil samples collected had concentrations below the USEPA PCB cleanup levels for non-restricted access areas (10 ppm). The maximum concentration in soil at the former north burn pit, currently a courtyard area on the north side of the CDC, was 34 ppm. The former playground area (to the northeast of the CDC) was remediated in 1984-1985, with 200 cubic feet of PCB-contaminated soil was excavated, taken offsite for disposal, and replaced with clean fill. This area is included in the sampling analysis plan.