



# **U.S. Army, Fort Belvoir, Virginia Municipal Separate Storm Sewer Systems (MS4) Program Plan**

**For**

**Virginia General Permit for Small Municipal  
Separate Storm Sewer Systems  
VPDES Permit #VAR040093**



*Photo credit: Wilamena Harback*

**September 2016**

**Regulated Small MS4:**

**Fort Belvoir Military Installation  
Fairfax County, Virginia**

**Regulated Small MS4 Operator:**

**U.S. Army Garrison,  
Fort Belvoir  
9820 Flagler Road  
Fort Belvoir, Virginia 22060**

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## List of Acronyms

BMP	Best Management Practices
BRAC	Base Realignment and Closure
CWA	Clean Water Act
DAAF	Davison Army Airfield
DEQ	Department of Environmental Quality
EPA	Environmental Protection Agency
FBNA	Fort Belvoir North Area
HECSA	Humphrey’s Engineering Center Support Activity
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
SSO	Sanitary Sewer Overflow
TMDL	Total Maximum Daily Load
USAG, FB	United States Army Garrison, Fort Belvoir
VADEQ	Virginia Department of Environmental Quality
VDOT	Virginia Department of Transportation
VPDES	Virginia Pollutant Discharge Elimination System
WLA	Waste Load Allocation

## 1. INTRODUCTION AND FACILITY BACKGROUND

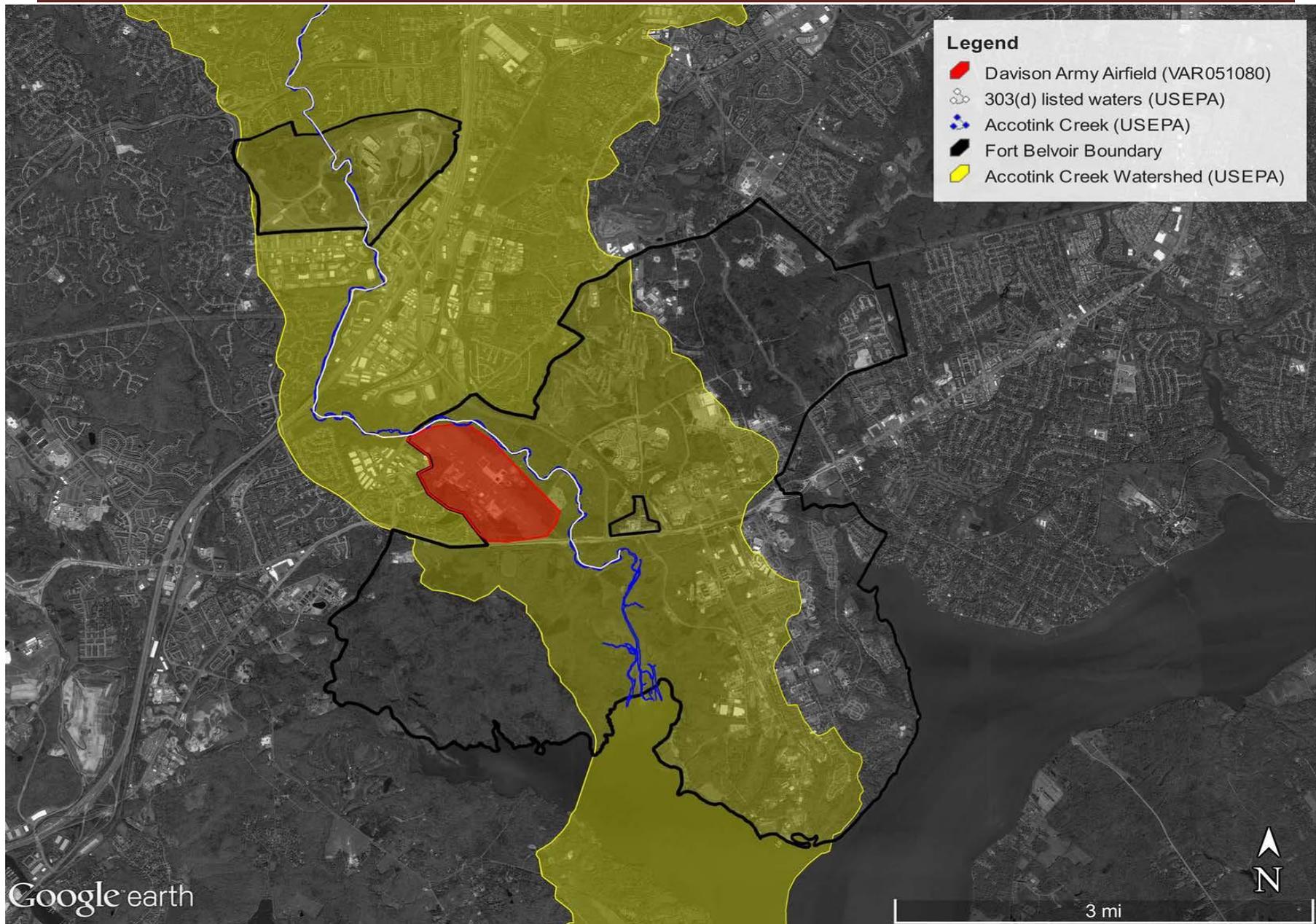
Fort Belvoir has held coverage under a General Virginia Pollutant Discharge Elimination System (VPDES) Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer System since 2003. This plan details the framework for a comprehensive program to minimize stormwater pollution by identifying the Best Management Practices (BMPs), measurable goals, and responsible parties for achieving compliance in accordance with 9VAC25-890-40, Section IIB of the General VPDES Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems. Unless specifically noted, the minimum control measures described within this stormwater program plan will be implemented on a regional scale at the properties owned and operated by the U.S. Army Garrison Fort Belvoir (USAG, FB) (Fort Belvoir Main Post, Fort Belvoir North Area).

The U.S. Army Garrison, Fort Belvoir (USAG, FB) is located in southeastern Fairfax County, Virginia, approximately 16 miles southwest of Washington D.C. and 80 miles north of Richmond, Virginia. Fort Belvoir's military history dates to the early 1900s, when the facility was known as Camp Belvoir and used as an Army rifle range and training camp. The post was re-named Fort Humphreys in 1922, and became Fort Belvoir in 1935. Since 1935, Fort Belvoir has supported major U.S. military operations throughout the world.

In recent years, Fort Belvoir has functioned primarily as an administrative and logistics support center for the Army and as a host to 150 mission partner organizations. The current population at Fort Belvoir includes approximately 49,000 military, civilians and contractor personnel and provides support services for approximately 68,000 military personnel, dependents and retirees in the region.

Fort Belvoir consists of approximately 8,500 acres and is divided into two separated land areas, as shown in Figure 1-1. The Fort Belvoir North Area (FBNA), located just northwest of I-95, encompasses roughly 800 acres; while the Main Post, located between I-95 and the Potomac River, accounts for the remaining acreage. U.S. Route 1 (Richmond Highway) further divides the Main Post into two distinct geographical areas, referred to as North Post and South Post (see Figures 1-2 and 1-3). All of Fort Belvoir, excluding Davison Army Airfield (DAAF), is covered under a General VPDES Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4), MS4 Permit #VAR040093.

# Fort Belvoir Municipal Separate Storm Sewer Systems (MS4) Program Plan



Produced using EPA's MyWATERS KMZ and WATERS Geospatial Tools (U.S. Environmental Protection Agency (EPA), 2016)

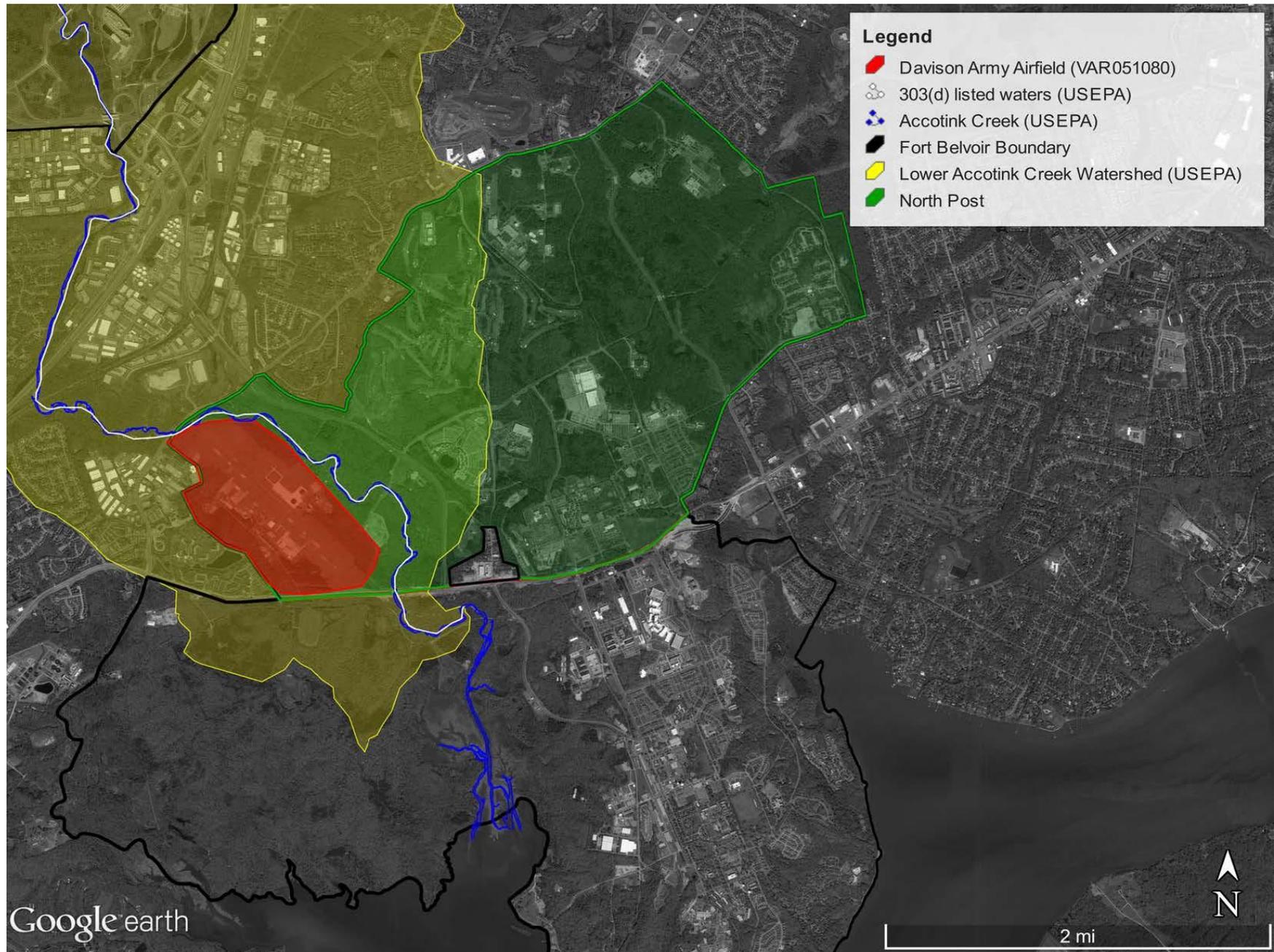


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**Figure 1-1: Main Post and Fort Belvoir North Area**

By: **SES  
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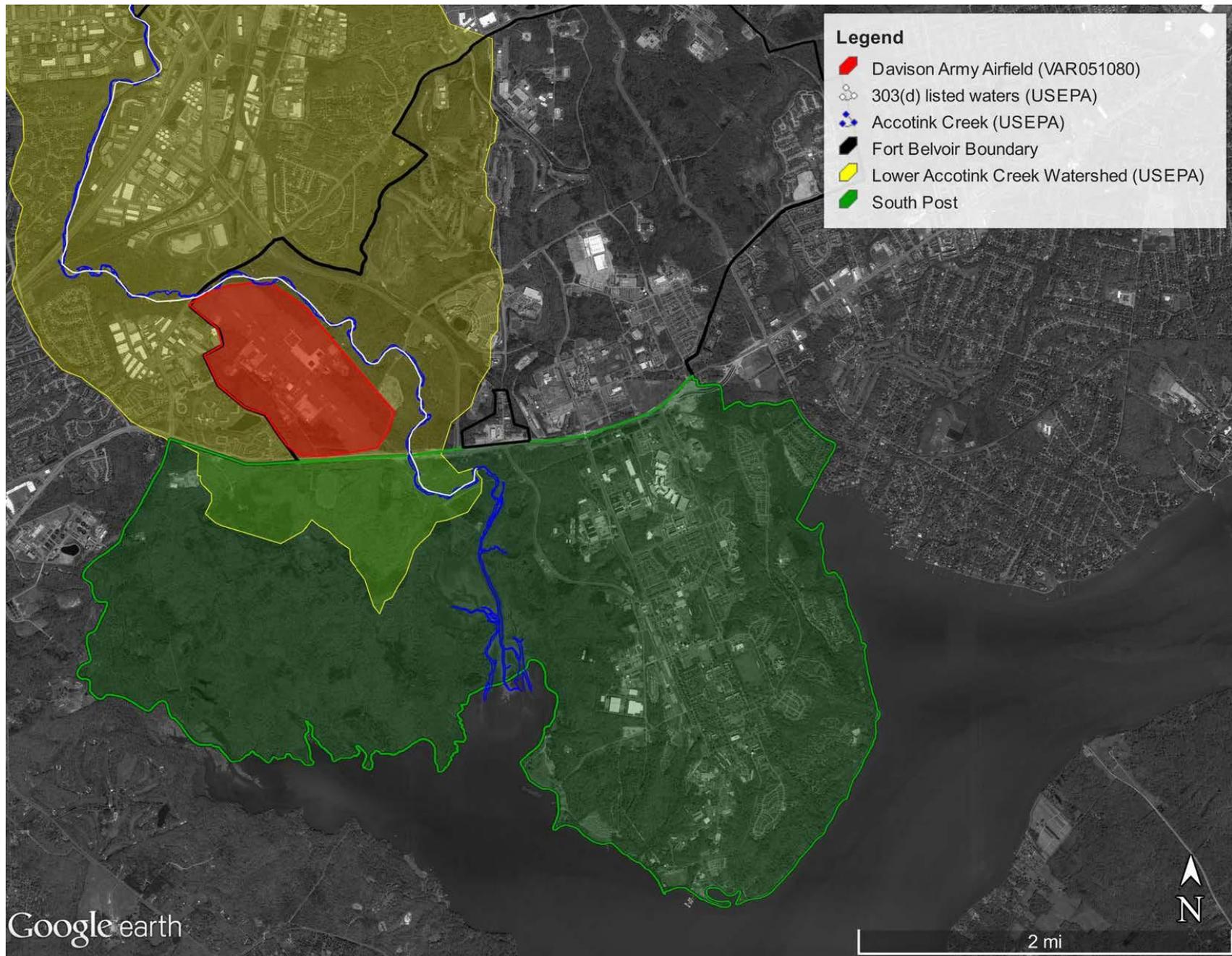


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**Figure 1-2: Fort Belvoir North Post**

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# Fort Belvoir Municipal Separate Storm Sewer Systems (MS4) Program Plan



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**Figure 1-3: Fort Belvoir South Post**

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## **2. PROPERTIES NOT COVERED UNDER THE FORT BELVOIR MS4 PERMIT**

### **2.1 Davison Army Airfield**

Davison Army Airfield (DAAF) covers about 455 acres of Fort Belvoir Main Post, with an operational area within the fence line of 350 acres. DAAF is covered entirely under a Virginia Pollutant Discharge Elimination System (VPDES) Industrial Stormwater General Permit (Permit #VAR051080). Therefore, DAAF is not included in the Fort Belvoir MS4 Permit because of coverage under another VPDES permit.

### **2.2 Rivanna Station**

Rivanna Station is located just north of Charlottesville, Virginia, and is owned by USAG, FB. As stated in 9VAC25-870-400, operators of MS4s are regulated if they operate a small MS4 located in an urbanized area as determined by the latest Decennial Census by the Bureau of Census. The 2010 Census Urbanized Area Reference Map for Charlottesville, Virginia shows that Rivanna Station is not located within an area designated as “Urbanized Area” or “Urban Cluster”. Therefore, USAG, FB is not required to obtain MS4 permit coverage for Rivanna Station under the Fort Belvoir MS4 permit.

### **2.3 Humprey’s Engineer Center**

Humprey’s Engineer Center Support Activity (HECSA) is located immediately adjacent to Fort Belvoir on the northeastern corner (approximately 585 acres) of Fort Belvoir’s property line and is owned and operated by U.S. Army Corps of Engineers and is not included in the Fort Belvoir MS4 permit. In past years, this property was covered under the Fort Belvoir MS4 permit. However, for the 2013 – 2018 MS4 permit registration, HECSA was deleted from coverage since Fort Belvoir does not have any legal control over this property.

### **3. LEGAL AUTHORITIES**

#### **3.1 33 U.S.C. §1251 et seq (1972) Clean Water Act (CWA)**

The basis of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act, but the Act was significantly amended in 1972 and became known as the Clean Water Act. Other significant amendments were made to the CWA in 1977 and 1987. The Clean Water Act established the basic structure for regulation discharges of pollutants into the waters of the United States. The basic objective was to restore and maintain the chemical, physical and biological integrity of the Nation's waters. Two major goals of the CWA were: (1) Eliminate the discharge of pollutants into navigable waters (2) achieve water quality that provides for recreation and protects fish, shellfish and wildlife.

Section 402 of the CWA established the National Pollutant Discharge Elimination System (NPDES) point source permits. This section outlined the requirements for the State Permit Programs.

#### **3.2 40 CFR 122 - U.S. Environmental Protection Agency (USEPA) Administered Permit Programs: The National Pollutant Discharge Elimination System**

This permitting program was established by USEPA to comply with Section 402 of the CWA. The NPDES program prohibits the discharge of pollutants through a point source into a water body of the U.S. unless and NPDES permit is obtained. The permit places limits on what can be discharged, includes monitoring and reporting requirements and other provisions to ensure that the discharge does not harm water quality or public health.

#### **3.3 Virginia State Water Control Law, Title 62.1, Chapter 3.1 (§ 62.1-44.2 et seq) of the Code of Virginia**

It is the policy of the Commonwealth of Virginia and the purpose of this law to: (1) protect existing high quality state waters and restore all other state waters to such condition of quality that any such waters will permit all reasonable public uses and will support the propagation and growth of all aquatic life, including game fish, which might reasonably be expected to inhabit them; (2) safeguard the clean waters of the Commonwealth from pollution; (3) prevent any increase in pollution; (4) reduce existing pollution; (5) promote and encourage the reclamation and reuse of wastewater in a manner protective of the environment and public health; and (6) promote water resource conservation, management and distribution, and encourage water consumption reduction in order to provide for the health, safety, and welfare of the present and future citizens of the Commonwealth.

**3.4 Virginia Stormwater Management Act, Title 62.1, Chapter 3.1, Article 2.3 (§62.1-44.15:24 through §62.1-44.15:50) of the Code of Virginia**

The Virginia Stormwater Management Law seeks to protect properties and aquatic resources from damages caused by increased volume, frequency and peak rate of stormwater runoff. Additionally, the law seek to protect those resources from increased non-point source pollution attributed to stormwater runoff.

**3.5 Virginia Stormwater Management Program (VSMP) Permit Regulations (9VAC25-870)**

VSMP permit regulations “*provide a framework for the administration, implementation and enforcement of the Virginia Stormwater Management Act and to delineate the procedures and requirements to be followed in connection with state permits issued by the board pursuant to the Clean Water Act and the Virginia Stormwater Management Act and permits issued by a VSMP authority, while at the same time providing flexibility for innovative solutions to stormwater management issues.*”

**3.6 Virginia Erosion and Sediment Control Law Title 62.1, Chapter 2.4 (§62.1-44.15:51 through §62.1-44.15:66) of the Code of Virginia**

The Erosion and Sediment Control Law requires that the State Water Control Board “*...shall develop a program and promulgate regulations for the effective control of soil erosion, sediment deposition and nonagricultural runoff that must be met in any control program to prevent the unreasonable degradation of properties, stream channels, waters and other natural resources...*”

**3.7 Virginia Erosion and Sediment Control Regulations (9VAC25-840)**

This regulation sets forth minimum standards for “*effective control of soil erosion, sediment deposition and nonagricultural runoff*” in erosion and sediment control plans and erosion and sediment control annual standards and specifications.

**3.8 Virginia Erosion and Sediment Control and Stormwater Management Certification Regulations (9 VAC25-850)**

This regulation specifies requirements for certificates of competence for program administrator, plan reviewer, project inspector and combined administrator for both Erosion and Sediment Control and Stormwater Management

**3.9 General Virginia Pollutant Discharge Elimination System (VPDES) Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (9VAC25-890), Fort Belvoir MS4 Permit #VAR040093**

This state permit authorizes operators of small municipal separate storm sewer systems to discharge to surface waters within the boundaries of the Commonwealth of Virginia in accordance with Section I, II, and III of the permit. Operators are required to develop and implement the MS4 Program Plan and update in accordance with the schedule set forth in the permit conditions

**3.10 Fort Belvoir Policy Memorandum #28, Environmental Policy**

Section 4.a. of this policy states “Fort Belvoir is committed to the protection of the environment, within mission and funding constraints, and will be accountable for its decisions. In support of this environmental policy, Fort Belvoir will: Comply with legal and other requirements applicable to the conduct of Fort Belvoir’s mission while continually improving Fort Belvoir’s environmental performance.” This policy memorandum may be found in full at: <http://www.belvoir.army.mil/Belvoir/PL/PDF/TableofContentsPL.html>.

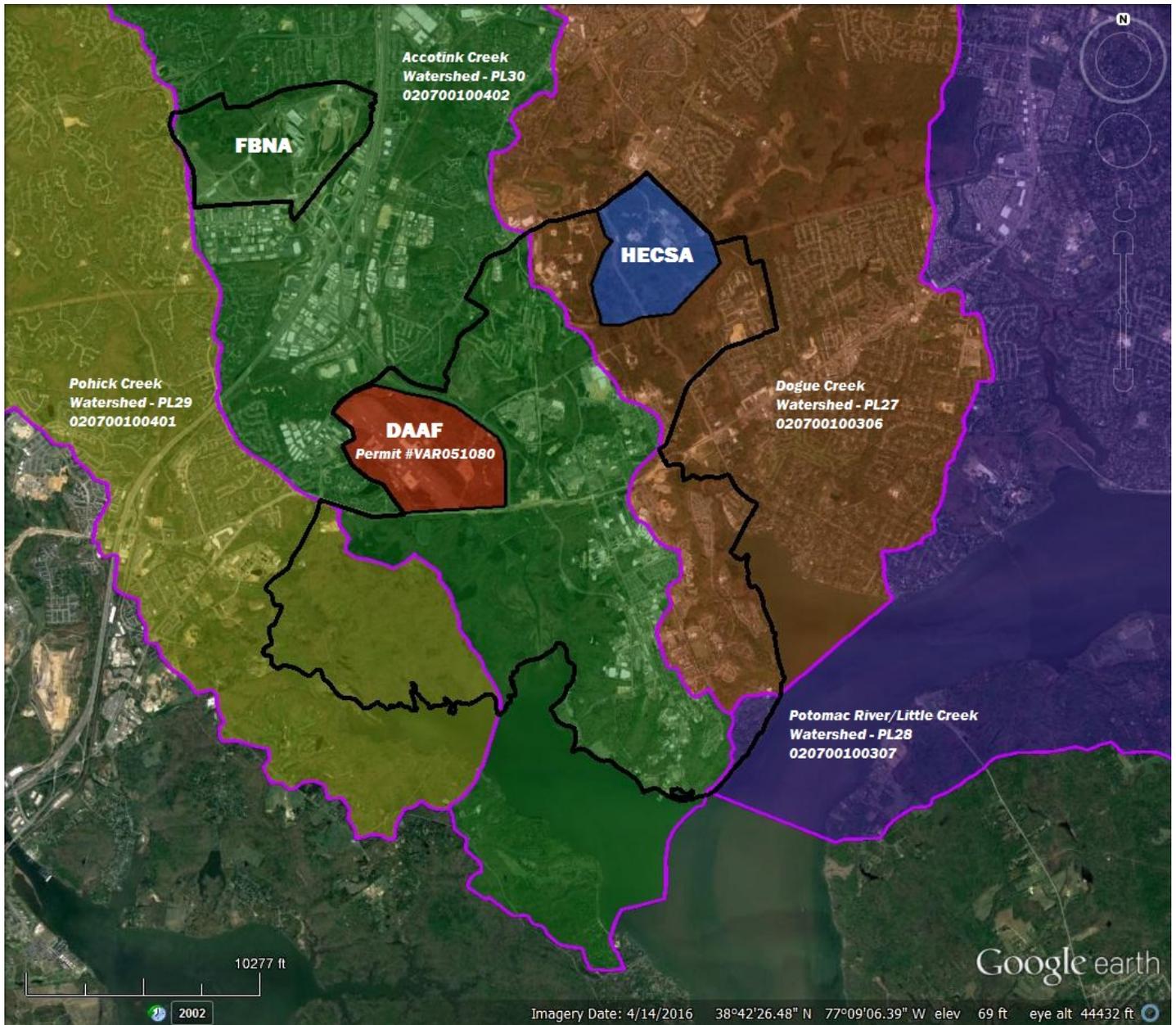
#### 4. HYDROLOGIC UNIT CODES

The Hydrologic Unit Codes (HUC) identified in the most recent version of Virginia's 6<sup>th</sup> Order National Watershed Boundary Dataset as receiving discharges or have the potential to receive discharges from the Fort Belvoir MS4 are as follows:

- PL27 (HUC12 = 020700100306) Dogue Creek
- PL28 (HUC12 = 020700100307) Potomac River – Little Hunting Creek
- PL29 (HUC12 = 020700100401) Pohick Creek
- PL30 (HUC12 = 020700100402) Accotink Creek

These areas were determined by using the Virginia Department of Conservation and Recreation (VADCR) Interactive Map of Virginia Hydrologic Units found at:  
<http://dswcapps.dcr.virginia.gov/htdocs/maps/HUExplorer.htm>.

Figure 4-1 shows Fort Belvoir properties in reference to these watersheds, all stormwater discharges from Fort Belvoir eventually enter the Potomac River.



Produced using EPA's MyWATERS KMZ and WATERS Geospatial Tools (U.S. Environmental Protection Agency (EPA), 2016)

Figure 4-1: Hydrologic Units and Watersheds



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### 5. ESTIMATED DRAINAGE AREA AND LAND USE

Fort Belvoir consists of approximately 8,500 acres and is divided into two broad land areas: Main Post and FBNA; with Main Post being located east of I-95 and FBNA being located west of I-95 (Figure 5-1. Location Map) **Note:** Davison Army Airfield (DAAF) is shaded in red and is not included in this MS4 Permit because it has coverage under a VPDES Industrial Stormwater General Permit (Permit #VAR051080). Humphrey’s Engineer Center Support Activity (HECSA) is shaded in blue and is not included in the MS4 permit because Fort Belvoir does not have operational control of these facilities.

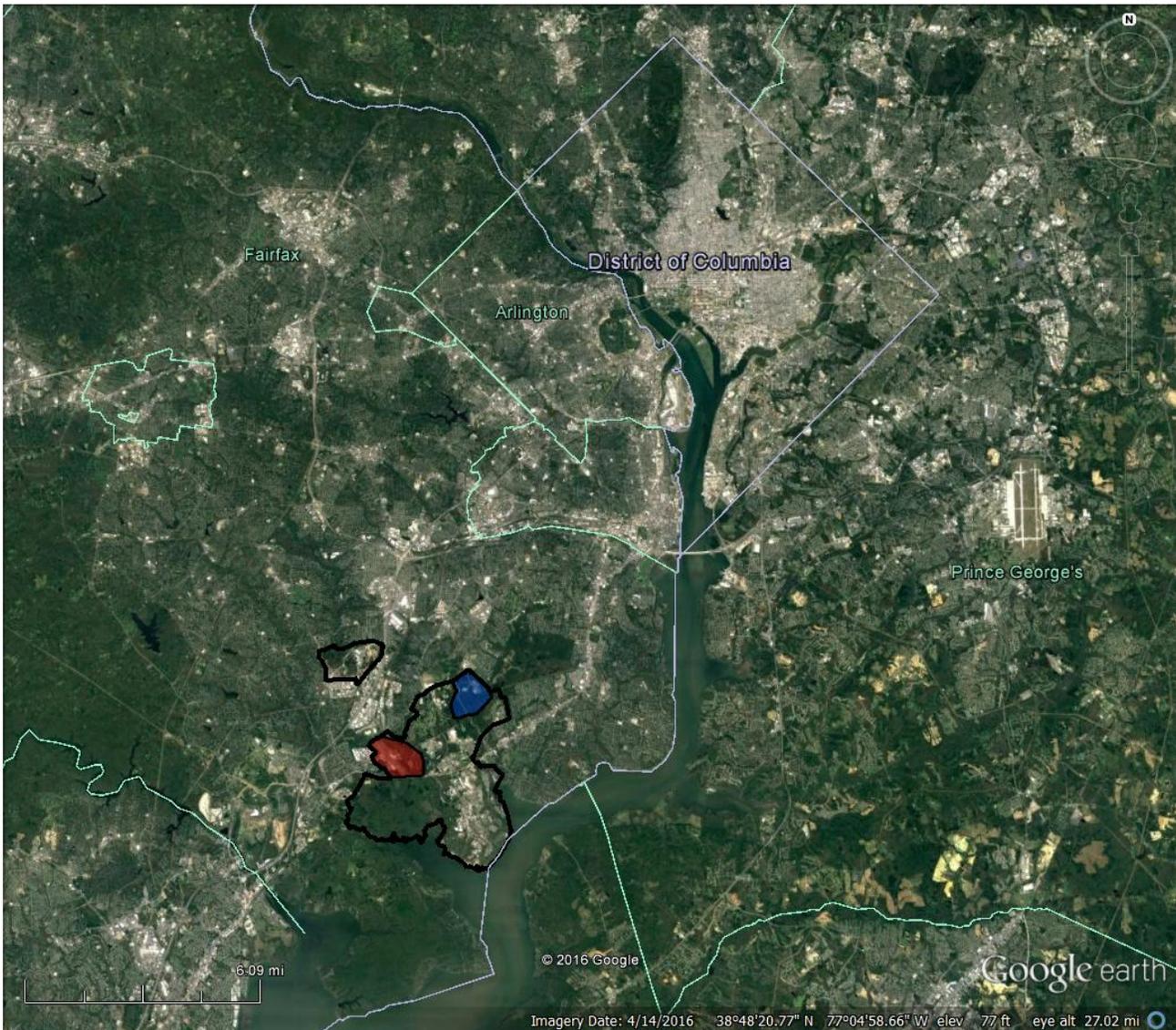


Figure 5-1: Location Map



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Based on the Fairfax County watershed mapping, Fort Belvoir only has three watersheds as delineated by Fairfax County. These watersheds include: Pohick Creek, Dogue Creek, and Accotink Creek. The portion southeastern tip of USAG, FB which is shown in figure 4-1 as being a part of the Potomac/Little Creek watershed is considered part of Dogue Creek Watershed in Fairfax County delineations. Fort Belvoir completed its own watershed delineation project in March 1999 which further subdivided these watersheds. For purposes of this plan, the Fairfax County watershed delineation will be utilized to describe drainage areas with associated land use below.

### **5.1 Pohick Creek Watershed**

The Pohick Creek Watershed encompasses approximately 1,200 acres and includes Fort Belvoir's Pohick Creek and Pohick Bay watersheds. Land uses in this watershed include: a portion of the Accotink Bay Wildlife Refuge, undeveloped wooded areas and operational ranges for engineer/troop training.

### **5.2 Accotink Creek Watershed**

The Accotink Creek Watershed encompasses approximately 4,005 acres and includes Fort Belvoir North Area (FBNA) (approximately 800 acres). FBNA land uses include a campus for a major mission partner and associated support facilities with approximately 300 acres that are undeveloped. On Fort Belvoir Main Post, this watershed includes major mission partners requiring secure campuses, Davison Army Airfield (DAAF), one 36-hole golf courses, an elementary school, administration facilities and a clustering of community facilities (Post Exchange, commissary, convenience store, gas station, bank and chapel) and a portion of the Accotink Bay Wildlife Refuge.

### **5.3 Dogue Creek Watershed**

The Dogue Creek Watershed encompasses approximately 3,880 acres and includes Fort Belvoir's Dogue Creek, Accotink Bay, Potomac River and Gunston Cove watersheds. Land uses in this watershed include: Jackson Miles Abbott Wetland Refuge, and a family housing area to the north of U.S. Route 1, and family housing areas, administration facilities, medical services, education, research and development, community/recreational facilities, the T-17 Wildlife Refuge and a portion of the Accotink Bay Wildlife Refuge to the south of U.S. Route 1.

## 6. IMPAIRED WATERS

Section 303(d) of the Clean Water Act and the U.S. Environmental Protection Agency’s Water Quality Planning and Management Regulations (40 CFR Part 30) direct States to identify and list water bodies in which current required controls of a specified pollutant are inadequate to achieve water quality standards. For the Commonwealth of Virginia, impaired waters are outlined in the biennial Virginia Water Quality Assessment 305(b)/303(d) Integrated Report. Based on a review of the *Final 2014 305(b)/303(d) Water Quality Assessment Integrated Report*, Virginia Department of Environmental Quality, dated June 13, 2016, the Fort Belvoir MS4 discharges into the impaired receiving surface waters listed in Table 6-1.

**Table 6-1: Impaired Surface Waters Receiving Discharge from USAG, Fort Belvoir**

<b>Cause Group Code</b> <i>Impaired Use</i>	<b>Water Name</b> <i>Cause</i>	<b>Cause Category</b>	<b>Initial List Date</b>	<b>TMDL Development Date</b>	<b>EPA Approved Date</b>	<b>SWCB Approved Date</b>
<b>A15R-01-PCB</b> <i>Fish Consumption</i>	<b>Accotink Creek</b> <i>PCB in Fish Tissue</i>	5A	2010	2022		
<b>A15R-01-BEN</b> <i>Aquatic Life</i>	<b>Accotink Creek</b> <i>Benthic-Macroinvertebrate Bioassessments</i>	5A	1996	2016		
<b>A15R-01-BAC</b> <i>Recreation</i>	<b>Accotink Creek</b> <i>Escherichia coli</i>	4A	2004	2016	12/18/2008	4/28/2009
<b>A15E-01-PH</b> <i>Aquatic Life</i>	<b>Pohick Bay</b> <i>pH</i>	5A	2012	2024		
<b>A16E-01-BZOKFL</b> <i>Fish Consumption</i>	<b>Pohick Creek</b> <i>Benzo{k}fluoranthene</i>	5A	2002	2014		
<b>A16R-01-BAC</b> <i>Recreation</i>	<b>Pohick Creek</b> <i>Escherichia coli</i>	5A	2006	2018		
<b>A144R-02-BAC</b> <i>Recreation</i>	<b>Dogue Creek</b> <i>Escherichia coli</i>	5A	2014	2026		
<b>A12E-01-PCB</b> <i>Fish Consumption</i>	<b>Potomac River Embayments</b> <i>PCB in Fish Tissue, PCB in Water Column</i>	4A	2006	2007	10/31/2007	4/11/2008

## 7. TOTAL MAXIMUM DAILY LOAD (TMDLs) Waste Load Allocation (WLA)

Section 303(d) of the Clean Water Act and the U.S. Environmental Protection Agency's Water Quality Planning and Management Regulations (40 CFR Part 30) direct States to establish a Total Maximum Daily Load (TMDL) for water bodies that are exceeding water quality standards. TMDLs represent the total pollutant loading that a waterbody can receive without violating water quality standards. The TMDL process establishes the allowable loadings of pollutants (waste load allocation (WLA) needed to achieve and maintain water quality standards. Section (d)(1)(vii)(B) of 40 CFR §122.44 requires that all new or revised National Pollutant Discharge Elimination System (NPDES) permits to be consistent with assumptions and requirements of any applicable TMDL WLA. The Commonwealth of Virginia, Virginia Department of Environmental Quality (VADEQ) regulates the management of pollutants carried by stormwater runoff under the Virginia Pollutant Discharge Elimination System (VPDES) program. TMDL WLAs are specifically addressed through the iterative implementation of programmatic Best Management Practices (BMPs).

The special conditions found within the General VPDES Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems at 9VAC-25-890-40 Section I. B. are stated as follows:

*“B. Special conditions for approved total maximum daily loads (TMDL) other than the Chesapeake Bay TMDL. An approved TMDL may allocate an applicable wasteload to a small MS4 that identifies a pollutant or pollutants for which additional stormwater controls are necessary for the surface waters to meet water quality standards. The MS4 operator shall address the pollutants in accordance with this special condition where the MS4 has been allocated a wasteload in an approved TMDL.*

*The operator shall maintain an updated MS4 Program Plan that includes a specific TMDL Action Plan for pollutants allocated to the MS4 in approved TMDLs. TMDL Action Plans may be implemented in multiple phases over more than one state permit cycle using the adaptive iterative approach provided adequate progress to reduce the pollutant discharge in a manner consistent with the assumptions and requirements of the specific TMDL wasteload is demonstrated in accordance with subdivision 2 e. of this subsection. These TMDL Action Plans shall identify the best management practices and other interim milestone activities to be implemented during the remaining terms of this state permit.”*

Table 2 summarizes the TMDLs that have been issued and their applicability to Fort Belvoir MS4.

**Table 7-1: TMDLs Issued applicable to USAG, Fort Belvoir**

Name of document	Date Issued	Waste Load Allocation (WLA) for Regulated Stormwater (MS4)	Percent Reduction (%)
<i>Total Maximum Daily Loads of Polychlorinated Biphenyls (PCBs) for Tidal Portions of the Potomac and Anacostia Rivers in the District of Columbia, Maryland and Virginia</i>	September 28, 2007; revised October 31, 2007	Accotink Bay 0.0992 g PCBs/year Dogue Creek 20.2 g PCBs/year Gunston Cove 0.517 g PCBs/year Pohick Creek/Pohick Bay 13.5 g PCBs/year	92.0 65.7 87.1 61.2
<i>Bacteria TMDL for the Lower Accotink Creek Watershed</i>	September 2008	1.76E+12 cfu/year	97.00
<i>TMDL for Benthic Impairments in the Accotink Watershed (Fairfax County, City of Fairfax and Town of Vienna, Virginia)</i>	April 18, 2011	This TMDL established by the United States Environmental Protection Agency, Region III was overturned in the U.S. District Court on January 3, 2013 and is not applicable.	N/A
<i>*Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorous and Sediment</i>	December 29, 2010	N/A	N/A

\* Fort Belvoir was not assigned an individual WLA for the Chesapeake Bay TMDL.

### 7.1 Polychlorinated Biphenyls (PCB) TMDL:

A review of the Virginia Department of Environmental Quality (VADEQ) Approved and Draft Implementation Plans Listing found on the VADEQ website ([VADEQ - TMDL Implementation Plans](#)) was conducted. A PCB TMDL implementation plan was not listed on the VADEQ website.

The "Total Maximum Daily Loads of Polychlorinated Biphenyls (PCBs) for Tidal Portions of the Potomac and Anacostia Rivers in the District of Columbia, Maryland and Virginia" dated September 30, 2007 states under the section titled "Implementation Plan Development" that:

*"The WLA component of the TMDL is implemented through the NPDES permit program."*

The General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems, Permit #VAR040093 issued on July 1, 2013 requires that "TMDL Action Plans for applicable TMDLs approved between July 2008 and June 2013" are to be updated by 36 months after permit coverage. The Final Fort Belvoir PCB TMDL Action Plan was completed in March 2013. This plan was accepted on December 16, 2015 by Virginia Department of Environmental Quality (VADEQ) and will be revised by December 2016 to incorporate the two comments

provided by VADEQ. The TMDL Action Plan includes documentation for actions in Table 3 that have been annotated as completed. In addition, the Plan recommended BMPs that can be addressed under the MS4 permit to minimize discharge of PCBs as well as a sampling plan for outfalls that were identified in the ORI to characterize annual runoff. The complete PCB TMDL Action Plan is incorporated into the MS4 Program Plan by reference and is available upon request. The recommended BMPs from the final PCB Action Plan have been incorporated into the MS4 Program Plan below:

- **BMP PCB.1          Develop Information Sheet on PCBs**

Information to be included in information sheet are as follows: basic facts about PCBs and the PCB TMDL, summary of where PCBs were historically found at Fort Belvoir, what has been done to eliminate PCB contamination and what an individual should do if they encounter an old transformer.

- ✚ **Measurable Goal:** In permit year 3, develop an information sheet and make it available at Accotink Bay Wildlife Refuge Education Center, Fort Belvoir website, family housing resident guidelines, and other training avenues, as needed.
- ✚ **Reporting and Record Keeping:** In the annual report, provide a narrative on the progress of development and include copies of education materials that have been developed during the reporting period.
- ✚ **Responsible Party:** DPW ENRD will coordinate with various departments to insure widest dissemination of information to include (PAO, NEC, The Michaels' Group, etc.).

- **BMP PCB.2          Maintain a GIS Data Layer**

- ✚ **Measurable Goal:** Annually update and maintain a GIS Data Layer that includes the locations of past and present PCB sites.
- ✚ **Reporting and Record Keeping:** In the annual report, provide a narrative on updates conducted during the reporting period.
- ✚ **Responsible Party:** DPW ENRD will coordinate with GIS department for maintenance of data layer.

- **BMP PCB.3          Develop and Implement PCB Sampling Plan**

- ✚ **Measurable Goal:** In permit year 1, develop a PCB sampling plan to comply with PCB TMDL requirements. In permit year 2, implement the sampling plan.
- ✚ **Reporting and Record Keeping:** In the annual report, provide a narrative on the progress of development and include sampling results and characterization of runoff.
- ✚ **Responsible Party:** DPW ENRD

- **BMP PCB.4      Incorporate PCB information into BMP 6.1 *Develop and Implement Written Training Plan***

- **Measurable Goal:** In permit year 2, incorporate materials into the training plan which specifically highlight transformer storage and reporting of possible PCB leaks. In permit years 3-5, implement training plan.

- **Reporting and Record Keeping:** In the annual report, provide a narrative on the progress of development and include copies of education materials that have been developed during the reporting period.

- **Responsible Party:** DPW ENRD

## **7.2      Bacteria TMDL – Lower Accotink Creek Watershed:**

A review of the VADEQ Approved and Draft Implementation Plans Listing found on the VADEQ website ([VADEQ - TMDL Implementation Plans](#)) was conducted. A Bacteria TMDL implementation plan has not been developed by the Commonwealth of Virginia.

The Bacteria TMDL for the Lower Accotink Creek Watershed was approved by U.S. EPA on December 18, 2008 and subsequently by the State Water Control Board on April 28, 2009. The *General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems, Permit #VAR040093* issued on July 1, 2013 requires that “TMDL Action Plans for applicable TMDLs approved between July 2008 and June 2013” are to be updated by 36 months after permit coverage. A Fort Belvoir Bacteria TMDL Action Plan was submitted to VADEQ for review and approval on September 30, 2016. The recommended BMPs from the Final Bacteria TMDL Action Plan will be incorporated into the MS4 Program Plan once it receives VADEQ approval.

## **7.3      Chesapeake Bay TMDL for Nitrogen, Phosphorous and Sediment:**

The *Chesapeake Bay TMDL for Nitrogen, Phosphorous and Sediment* dated December 29, 2010 did not assign an individual WLA to Fort Belvoir. In response to this TMDL, the U.S. Environmental Protection Agency required the individual States to submit Watershed Implementation Plans. The Commonwealth of Virginia developed and submitted the following watershed implementation plans (WIP) to address the Chesapeake Bay TMDL:

- Phase I Chesapeake Bay TMDL Watershed Implementation Plan , November 29, 2010
- Phase II Chesapeake Bay TMDL Watershed Implementation Plan, March 30, 2012

The Phase II WIP identified strategies for federal facilities which included:

- In accordance with Executive Order (EO) 13514, Section 438 of Energy Independence and Security Act (EISA) and EO 13508, all federal facilities are to demonstrate leadership

and commitment to controlling pollution, leveraging expertise and resources to contribute significantly to improving the health of the Chesapeake Bay.

- Virginia, Department of Defense and other federal agencies will jointly develop a Memorandum of Understanding to formalize commitment to leading by example in meeting Chesapeake Bay water quality goals and achieving the necessary reductions.
- Virginia will utilize MS4 permits to ensure that BMP implementation on existing developed regulated federal lands achieves nutrient and sediment reductions equivalent to Level 2 scoping run reductions by 2025. Level 2 (L2) implementation equates to an average reduction of 9 percent of nitrogen loads, 16 percent phosphorous loads and 20 percent of sediment loads from impervious regulated acres and 6 percent of nitrogen loads, 7.25 percent of phosphorous loads and 8.75 percent sediment loads beyond 2009 progress loads for pervious regulated acreage.
- Federal MS4 operators will be given three full permit cycles (15 years) to implement the necessary reductions to meet the L2 implementation levels.

The *General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems, Permit #VAR040093* issued on July 1, 2013 requires that “the operator shall develop and submit to the department for its review and acceptance an approvable Chesapeake Bay TMDL Action Plan by 24 months after permit coverage”.

The Chesapeake Bay TMDL Action Plan was submitted to VADEQ for review and approval on September 30, 2015 and was approved by VADEQ on March 22, 2016. The TMDL Action Plan concludes that approximately 30,600 pounds of Total Nitrogen (TN), 2,200 pounds of Total Phosphorous (TP) and 1.45 million pounds of Total Suspended Solids (TSS) are loaded into the waterways from Fort Belvoir annually, based on 2009 land use data. Fort Belvoir must reduce nutrient loads by approximately 2,500 pounds of TN, 236 pounds of TP and 265,800 pounds of TSS by the end of the third MS4 permit cycle. Fort Belvoir met pollutant load reductions by street sweeping, stream and shoreline restoration and land use change Best Management Practices (BMPs). Implementation of the TMDL Action Plan will result in the following annual reduction of pollutants of concern in the Potomac River Basin:

<b>Pollutant of Concern</b>	<b>Annual Load Reduction (lb/yr)</b>	<b>Percentage of L2 Reduction Achieved After Implementation</b>
Total Nitrogen	2,664.79	109%
Total Phosphorous	681.53	289%
Total Suspended Solids	969,828	365%

The completed/implemented projects far exceed the L2 reduction requirements for TN, TP and TSS. Therefore, no additional BMPs were identified that are required to be implemented to meet Level 2 scoping run pollutant load reductions by 2025. Stream and shoreline restoration and land use change Best Management Practices (BMPs) were completed. The only BMP that is required to be conducted annually to maintain the annual load reduction credit is street sweeping. The Fort Belvoir Operations and Maintenance contractor conducts a monthly street sweeping program to keep roads and parking lots clear of sediment and debris. The contract specifies that 6,168,127 square yards (1,274 acres) of roadway and 6,832,433 square yards (1,412 acres) of parking lots are swept monthly under this program.

The Chesapeake Bay TMDL Action Plan is incorporated into the MS4 Program Plan by reference and is available upon request. The BMPs for implementation of the Action Plan have been incorporated into the MS4 Program Plan below:

- **BMP CHESBAY.1 Chesapeake Bay TMDL Action Plan Implementation**

- ✚ **Measurable Goal:** In permit years 4 and 5, implement Action Plan. In permit year 5, review and revise, as necessary, the Action Plan for submission with the MS4 Permit Registration Statement.
- ✚ **Reporting and Record Keeping:** In the annual report, provide a narrative on the progress of implementation.
- ✚ **Responsible Party:** DPW ENRD, DPW Operations and Maintenance

- **BMP CHESBAY.2 Conduct Street Sweeping Program**

- ✚ **Measurable Goal:** In permit years 4 and 5, conduct a street sweeping program to sweep 2,686 acres per year to meet 2,068.22 lbs/yr of total nitrogen reduction, 322.32 lbs/yr of total phosphorous reduction and 872,950 lbs/yr of total suspended solids reduction. In permit year 5, review and revise, as necessary, the Action Plan for submission with the MS4 Permit Registration Statement.
- ✚ **Reporting and Record Keeping:** In the annual report, provide a narrative on the progress of implementation.
- ✚ **Responsible Party:** DPW Operations and Maintenance, DPW ENRD

## 8. MINIMUM CONTROL MEASURES

The General VPDES Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems' requirement found in 9VAC25-890-40 Section II.A states:

*"The operator of a small MS4 must develop, implement, and enforce a MS4 Program designed to reduce the discharge of pollutants from the small MS4 to the maximum extent practicable (MEP), to protect water quality, to ensure compliance by the operator with water quality standards, and to satisfy the appropriate water quality requirements of the Clean Water Act and its attendant regulations. The MS4 Program must include the minimum control measures described in paragraph B of this section. Implementation of best management practices consistent with the provisions of an iterative MS4 Program required pursuant to this section constitutes compliance with the standard of reducing pollutants to the "maximum extent practicable", protects water quality in the absence of a TMDL wasteload allocation, ensures compliance by the operator with water quality standards, and satisfies the appropriate water quality requirements of the Clean Water Act and regulations in the absence of a TMDL WLA."*

The six minimum control measures described in 9VAC25-890-40 Section II.B are:

- Public education and outreach on stormwater impacts
- Public involvement and participation
- Illicit discharge detection and elimination
- Construction site stormwater runoff control
- Post-construction stormwater management in new development or redevelopment
- Pollution prevention/good housekeeping for military operations

## 8.1 Minimum Control Measure #1: Public Education and Outreach on Stormwater Impacts

The educational materials and/or public outreach program(s) implemented will inform staff, residents and contractors about the steps that can be taken to reduce stormwater pollution to the maximum extent practicable (MEP). BMP 1.1 will be executed to satisfy the public education and outreach requirements set forth by Section II.B.1 of the General Permit (VAR04) found in 9VAC25-890-40.

- **BMP 1.1 Develop and Implement a Public Education and Outreach Plan**

- ✚ **Measurable Goal:** In permit year 1, develop a Public Outreach Plan in accordance with the conditions set forth in 9VAC25-890-40 Section II, B.1. In permit years 2 - 5, in accordance with the Public Education and Outreach plan, annually conduct sufficient education and outreach activities designed to reach an equivalent of 20% of each high-priority issue target audience. In permit years 2 – 5 annually review the Public Education and Outreach Plan and revise, as needed.
- ✚ **Reporting and Record Keeping:** In the annual report, include a list of the education and outreach activities conducted during the reporting period for each high priority water quality issue, the estimated number of people reached and an estimated percentage of the target audience or audiences that will be reached. Also provide a summary of any revisions that were made to the Public Education and Outreach Plan.
- ✚ **Responsible Party:** DPW ENRD

## 8.2 Minimum Control Measure #2: Public Involvement/Participation

The BMPs identified in this plan as BMP 2.1 through BMP 2.3 will be executed to satisfy the public education and outreach requirements set forth set forth by Section II.B.1 of the General Permit (VAR04) found in 9VAC25-890-40.

- **BMP 2.1 Public Participation**

-  **Measureable Goal:** In permit years 1 -5, participate, through promotion, sponsorship or other involvement, in a minimum of four local activities annually. Examples of possible activities include: Potomac River Cleanup, Richmond Highway (Route 1) Cleanup, community service projects with scout groups, hazardous waste cleanup days, etc. Involve tenant agencies, schools, community partners and other members of the public with the goal of increasing public participation to reduce stormwater pollutant loads, improve water quality and support local restoration and clean-up projects, programs, groups, meetings or other opportunities for public involvement.

-  **Reporting and Record Keeping:** In the annual report, include information on the event to include date the activity was held, any photographs taken, and approximate number of participants.

-  **Responsible Party:** DPW ENRD

- **BMP 2.2 Publish the MS4 Program Plan and Annual Reports on the Fort Belvoir Website**

-  **Measureable Goal:** Update the MS4 Program Plan at a minimum once per year by 30 June. Post copies of the MS4 Program Plan on the Fort Belvoir webpage at a minimum of once a year and within 30 days of submittal of the annual report to the Virginia Department of Environmental Quality (VADEQ). Post copies of each annual report on the Fort Belvoir webpage within 30 days of submittal to the VADEQ and retain copies of annual reports online for the duration of the MS4 permit.

-  **Reporting and Record Keeping:** In the annual report, provide the web link to the MS4 Program Plan and annual reports.

-  **Responsible Party:** DPW ENRD will coordinate with the PAO and the NEC to make revisions to the website.

- **BMP 2.3 Provide for Public Notification and Receipt of Comments on the MS4 Program Plan**

- ✚ **Measurable Goal:** In permit year 5, prior to submittal of the registration statement, provide for a public notification of a 30-day review and comment period of the MS4 Program Plan which may include a notice in the Belvoir Eagle and/or posting of the notice on the Fort Belvoir Facebook site and/or posting of the notice on the Fort Belvoir website.

- ✚ **Reporting and Record Keeping:** As part of the reapplication, address how comments received were considered in the development of the MS4 Program Plan.

- ✚ **Responsible Party:** DPW ENRD will coordinate with the PAO and/or the NEC to post notices.

### 8.3 Minimum Control Measure #3: Illicit Discharge Detection and Elimination

The BMPs identified in this plan as BMP 3.1 through BMP 3.7 will be executed to satisfy the Illicit discharge detection and elimination requirements set forth by Section II.B.1 of the General Permit (VAR04) found in 9VAC25-890-40.

- **BMP 3.1 Develop, Implement, Update and Support Geospatial Information System (GIS) layers**

Fort Belvoir manages GIS data for all watersheds and sub-watersheds including storm sewer utilities and stormwater best management practices. The GIS aids Fort Belvoir in determining the spatial location of stormwater system components and enhances Fort Belvoir's ability to locate the receiving waters of a particular stormwater system in the event that a spill or an illicit discharge is identified.

- **Measurable Goal:** In permit year 1, review existing GIS data layers to determine if existing layers need to be updated and identify additional data layers needed, if any. In permit years 2 -5, develop, implement, update and support GIS data layers containing stormwater systems (to include outfalls and stormwater management facilities), watershed/sub-watershed boundaries, utility data and other information pertinent to stormwater management to reflect changes or new information.
  - **Reporting and Record Keeping:** In the annual report, provide a narrative on what GIS data layers were updated or added. Maintain GIS Stormwater Mapbook for reference.
  - **Responsible Party:** The Directorate of Public Works, Environmental and Natural Resources Division will coordinate with The Directorate of Public Works, GIS office.
- **BMP 3.2 Implement and Update the U.S. Army, Fort Belvoir, Virginia Illicit Discharge Detection and Elimination (IDDE) Plan**

The IDDE Plan documents standardized procedures to conduct outfall reconnaissance inventories (dry weather outfall screening), IDDE source tracking and illicit discharge sampling, as needed.

- **Measurable Goal:** In permit years 1 – 5, annually update the IDDE Plan, as needed, and implement the plan.
- **Reporting and Record Keeping:** Document activities conducted and in the annual report, provide a summary of activities that were conducted to implement the plan.
- **Responsible Party:** DPW ENRD

- **BMP 3.3 Develop a Plan for Operations That May Affect Stormwater**

- ✚ **Measurable Goal:** In permit year 1, develop an assessment plan to identify and evaluate other routine operations such as waterline flushing, golf course irrigation, basement drains and condensation drains which may have an impact on stormwater quality

- ✚ **Reporting and Record Keeping.** In the annual report, provide narrative on progress of the development of the assessment plan.

- ✚ **Responsible Party:** DPW ENRD

- **BMP 3.4 Perform Routine Operation Assessments and Develop BMPs**

- ✚ **Measureable Goal:** By the end of permit year 4, implement the assessment plan (developed for BMP 3.6) to identify potential impacts to stormwater quality from various routine operations. Develop BMPs or engineering controls to address identified non-stormwater discharges. Incorporate engineering controls or implement BMPs to address identified non-stormwater discharges that impact stormwater quality. In permit year 5, perform inspections and necessary maintenance on engineering controls or BMPs to ensure functionality.

- ✚ **Reporting and Record Keeping:** In the annual report, provide narrative on implementation of assessment plan to include identification of any impacts to stormwater quality from various routine operations, identification of any BMPs or engineering controls that were developed to address identified non-stormwater discharges that impact stormwater quality and a summary of the number of inspections and associated maintenance that were performed.

- ✚ **Responsible Party:** DPW ENRD

- **BMP 3.5 Evaluate Potential Combined Sewer Overflow Connections.**

- ✚ **Measurable Goal:** Conduct and/or evaluate studies of potential combined sewer overflow connections and develop recommendations and/or mitigation actions.

- ✚ **Reporting and Record Keeping:** In the annual report, provide narrative on any combined sewer overflow connections that were identified and recommendations and/or mitigation actions that were made to correct deficiencies noted.

- ✚ **Responsible Party:** DPW ENRD and Operations and Maintenance (O&M) Division will coordinate with American Water, the privatized water/wastewater provider, to collect data on combined sewer overflow connections.

#### 8.4 Minimum Control Measure #4: Construction Site Stormwater Runoff Control

The BMPs identified in this plan as BMP 4.1 through BMP 4.7 will be executed to satisfy the construction site runoff control requirements set forth by Section II.B.1 of the General Permit (VAR04) found in 9VAC25-890-40.

- **BMP 4.1 Establish a Construction Project Review Procedure**

DPW ENRD staff issues a Land Disturbance Letter to construction applicants only after stormwater management plans and/or erosion and sediment control plans have been reviewed and approved.

- **Measurable Goal:** Annually review and revise, as needed the *Fort Belvoir Directorate of Public Works, Municipal Separate Storm Sewer System (MS4) Program Bulletin #1: Stormwater Management (SWM) and Erosion and Sediment Control (ESC) Design, Review and Plan Approval Procedures and SWM and ESC Compliance Procedures during Construction*. Review 100% of construction projects 2,500 square feet or greater.

- **Reporting and Record Keeping:** In the annual report, provide a spreadsheet of all construction projects greater than 2,500 square feet under design review and a copy of the written procedure.

- **Responsible Party:** DPW ENRD

- **BMP 4.2 Communicate the Requirements of the Stormwater Program**

DPW ENRD staff has a checklist that details requirements for stormwater and erosion and sediment control measures and provides the checklist and a copy of the MS4 permit to all design engineers prior to the 35% design submittal.

- **Measurable Goal:** Distribute MS4 permit requirements to designers during initial planning phases of construction projects. All construction contract packages (including designs and specifications) shall incorporate a requirement to conform to the conditions of the MS4 Permit and Program Plan and Virginia Erosion and Sediment Control and Stormwater Management regulations.

- **Reporting and Record Keeping:** In the annual report, provide a distribution log tracking recipients of MS4 permit requirements and a copy of materials distributed.

- **Responsible Party:** DPW ENRD

- **BMP 4.3 Develop a Tracking System**

All construction packages are required to reference the MS4 Permit on the plans and in the specifications. References are checked before plans are approved and signed by the DPW. The DPW uses the Excavation Permit to track all major and minor construction

projects on the installation. Each project is assigned a tracking number and the project description and acreage are recorded in the database.

-  **Measurable Goal:** Establish a tracking system to ensure review comments are adequately addressed; include number and acreage of disturbed land. Develop in conjunction with National and Environmental Policy Act (NEPA) and Environmental Management System (EMS) regulation and policies.
  -  **Reporting and Record Keeping:** In the annual report, provide a copy of the tracking spreadsheet.
  -  **Responsible Party:** DPW ENRD
- **BMP 4.4 Obtain Registration under the General VPDES Permit for Discharges of Stormwater from Construction Activities (CGP) for Construction Projects**

All construction projects are required to obtain a project-specific CGP from VADEQ prior to construction. DPW ENRD will issue a Land Disturbance Letter to the construction contractor upon receipt of the registration statement/VADEQ letter, the stormwater pollution prevention plan, payment verification and mailing receipt, and Responsible Land Disturber certification.

  -  **Measurable Goal:** Construction projects that disturb an acre or greater of land must obtain permit registration under the CGPs and must comply with the requirements of the permit. DPW ENRD will incorporate a procedure under the utility clearance permit process to determine CGP applicability and verify existence of required erosion control plans prior to utility clearance permit approval.
  -  **Reporting and Record Keeping:** In the annual report, provide a list of all of the registration statements.
  -  **Responsible Party:** DPW ENRD
- **BMP 4.5 Conduct Erosion and Sediment Control Site Inspections.**

DPW ENRD staff maintains certification as Virginia Erosion and Sediment Control Inspectors and inspects active construction sites that possess a VADEQ CGP once every two weeks and within 48 hours of a storm event producing a 1/2 (.50) inch of rain or greater. Large construction projects may be supported by contract staff that submits reports to DPW ENRD and the project construction supervisor.

  -  **Measurable Goal:** Establish Erosion and Sediment Control inspection procedures to determine adherence to the approved Erosion and Sediment Control plan and the CGP and to evaluate performance of BMPs and/or engineering controls. Require site inspectors to be Virginia Certified Erosion and Sediment Control Inspectors. Any deficiencies identified during the inspection

shall be rectified immediately. In the event that the same deficiency is noted during re-inspections an immediate report shall be filed with the Virginia Department of Environmental Quality and site operations shall cease until the deficiency is corrected. Perform site inspections of 100% of construction projects.

✚ **Reporting and Record Keeping:** In the annual report, submit a copy of the inspection form used and the number of inspections conducted.

✚ **Responsible Party:** DPW ENRD

- **BMP 4.6 Evaluate Emerging Technologies**

Fort Belvoir continues to evaluate new technology for both erosion and sediment control and stormwater management. The installation is a proponent for Low Impact Development (LID) and advocates for including LID technology in all new developments.

✚ **Measurable Goal:** Review or evaluate one new product or engineering control designed to reduce soil erosion, consider possibility of use and potential effectiveness.

✚ **Reporting and Record Keeping:** In the annual report, submit photographs of any LID projects implemented and a list of new technologies evaluated and/or implemented.

✚ **Responsible Party:** DPW ENRD

- **BMP 4.7 Progressive Compliance and Enforcement Strategy**

Fort Belvoir implements the following compliance and enforcement strategy, as shown in Table 8-1, to ensure that contractors are conducting land disturbance responsibly and in accordance with Virginia Department of Environmental Quality (VADEQ) stormwater (SWM) and erosion and sediment control (ESC) regulations. This strategy is published in the *Fort Belvoir Directorate of Public Works, Municipal Separate Storm Sewer System (MS4) Program Bulletin #1: Stormwater Management (SWM) and Erosion and Sediment Control (ESC) Design, Review and Plan Approval Procedures and SWM and ESC Compliance Procedures during Construction.*

✚ **Measurable Goal:** Implement the compliance and enforcement strategy when construction contractors have repeated non-compliance findings on bi-weekly erosion and sediment control inspections on an active construction site.

✚ **Reporting and Record Keeping:** In the annual report, provide a summary of enforcement actions taken to include the total number and type of enforcement action.

✚ **Responsible Party:** DPW ENRD, Garrison Commander (as needed)

**Table 8-1: USAG, Fort Belvoir's Compliance and Enforcement Strategy**

Non-Compliance Item	DPW ENRD Response
Failure to obtain a Construction General Permit (CGP) and/or an approved SWM and/or ESC plan from VADEQ prior to start of construction;	Email notice of Non-Compliance sent to the Contracting Officer (CO); VADEQ Northern Regional Office notified via telephone within 24 hours of discovery.
Failure to provide copies of approved SWM and/or ESC plans, CGP authorization letter, SWPPP and/ or Responsible Land Disturber certification to DPW ENRD;	Email notice of Non-Compliance sent to the Contracting Officer's Representative (COR); Land Disturbance letter not issued by DPW until approved plans, permits, SWPPP and Responsible Land Disturber certification are received by DPW ENRD.
Non-compliance with ESC minimum standards (9VAC25-840-40), failure to update SWPPP, failure to install ESC measures as a first step before any land disturbance;	<p><u>1<sup>st</sup> violation:</u> DPW ENRD Inspector notes on ESC inspection report and contractor is expected to correct;</p> <p><u>2<sup>nd</sup> violation:</u> Email warning notice sent to the Contract Representative from the MS4 Stormwater Program Manager;</p> <p><u>3<sup>rd</sup> violation:</u> Warning Letter sent to the Contract Representative signed by the Director of Public Works;</p> <p><u>4<sup>th</sup> violation:</u> Notice of Non-Compliance sent to the Contract Representative signed by the Garrison Commander;</p> <p><u>5<sup>th</sup> repeat violation:</u> Referred to VADEQ for compliance assistance.</p>
Release of any substance causing a reportable spill (including concrete wash out, paint runoff, or excess sediment).	DPW director notified and email warning notice sent to the Contract Representative.

## 8.5 Minimum Control Measure #5: Post-Construction Runoff Control

The BMPs identified in this plan as BMP 5.1 through BMP 5.9 will be executed to satisfy the post-construction runoff control requirements set forth by Section II.B.1 of the General Permit (VAR04) found in 9VAC25-890-40.

- **BMP 5.1 Establish a Construction Project Review Procedure**

-  **Measurable Goal:** Annually review and revise, as needed the *Fort Belvoir Directorate of Public Works, Municipal Separate Storm Sewer System (MS4) Program Bulletin #1: Stormwater Management (SWM) and Erosion and Sediment Control (ESC) Design, Review and Plan Approval Procedures and SWM and ESC Compliance Procedures during Construction*. Review 100% of construction projects 2,500 square feet or greater.

-  **Reporting and Record Keeping:** In the annual report, provide a spreadsheet of all construction projects greater than 2,500 square feet under design review and a copy of the written procedure.

-  **Responsible Party:** DPW ENRD

- **BMP 5.2 Develop a Stormwater Management Facility Tracking System**

The DPW uses the installation GIS and an associated EXCEL spreadsheet to track all permanent stormwater management facilities/BMPs on the installation. Each facility/BMP is assigned a unique identification number and the project description and drainage area are recorded in the database.

-  **Measurable Goal:** Establish a tracking system to include information regarding the type of facility/BMP, the latitude and longitude, the total number of acres treated by the facility/BMP to include a breakdown of pervious and impervious acres, the date the facility was brought online, the sixth order hydrologic unit (HUC) code and the name of any impaired water segments within each HUC listed, inspection and maintenance dates/information.

-  **Reporting and Record Keeping:** In the annual report, submit a spreadsheet of new stormwater management facilities brought online during the reporting period.

-  **Responsible Party:** DPW ENRD

- **BMP 5.3 Conduct Periodic Stormwater Management Site Inspections**

Fort Belvoir staff is Virginia provisionally-certified Stormwater Inspectors and inspects active construction sites with a VADEQ CGP once every two weeks. Large construction

projects may be supported by contract staff and they submit reports to ENRD and the project construction supervisor.

-  **Measurable Goal:** Establish periodic inspection procedures to determine adherence to the approved design plans and to observe status of the stormwater management facility/BMP. In permit years 1 and 2, Fort Belvoir staff will complete training required for Virginia Certified Stormwater Inspectors. DPW ENRD Virginia Certified Stormwater Inspectors conduct post-construction inspections to evaluate the adequacy of new stormwater management facilities. Perform site inspections of 100% of active construction projects with a VADEQ CGP and 10% of post-construction projects (annually).
  -  **Reporting and Record Keeping:** In the annual report, submit a copy of the inspection form used and the total number of inspections completed.
  -  **Responsible Party:** DPW ENRD
  
- **BMP 5.4 Provide Information on the Fort Belvoir DPW ENRD Website about Low Impact Development (LID)**

Fort Belvoir continues to evaluate new technology for both erosion and sediment control and stormwater management. The installation is a proponent for LID and advocates for including LID technology in all new developments.

  -  **Measurable Goal:** Develop and maintain information on Low Impact Development on the Fort Belvoir DPW ENRD website that focuses on designing for low impact and sustainable development.
  -  **Reporting and Record Keeping:** In the annual report, include a copy of the website address and content.
  -  **Responsible Party:** DPW ENRD will coordinate with the Public Affairs Office (PAO) and the Network Enterprise Center (NEC) to make revisions to the website.
  
- **BMP 5.5 Audits of Existing Stream Conditions**

Fort Belvoir DPW ENRD staff inspects existing conditions of stream channels annually. Changes are noted and the GIS database is updated.

  -  **Measurable Goal:** Perform an audit of the existing conditions of stream channels and banks, outfalls, etc. to include a visual inspection and collection of photographic documentation to allow visual comparisons of existing and future conditions.
  -  **Reporting and Record Keeping:** In the annual report, provide a narrative of what inspections were conducted and changes made to the GIS database.
  -  **Responsible Party:** DPW ENRD

- **BMP 5.6 Corrections of Existing Watersheds**

Fort Belvoir has identified watershed problems and detailed them in a watershed study. The installation has coordinated with the Army Corps of Engineers Waterways Experiment Station for prescriptive fixes to common problems. Funding shortfalls limited repairs, but requests will be made each year of the permit cycle.

- ✚ **Measureable Goal:** Systematically correct watershed damages caused by existing conditions, poor design of control structures, or inadequate maintenance of control structures. Program and implement an investment program where 10% of identified requirements are executed each year.

- ✚ **Reporting and Record Keeping:** In the annual report, provide a narrative description on work that was accomplished for the reporting period. Update EXCEL database of stormwater management facility inventory to reflect work conducted.

- ✚ **Responsible Party:** DPW ENRD

- **BMP 5.7 Implement Periodic Inspections and Clean Out of Storm Drains**

- ✚ **Measureable Goal:** Develop inspection and maintenance standards for cleaning of storm drains (curb inlets, yard inlets, storm pipes and concrete ditches) and disposal of collected waste material. Evaluate 25% of the maintenance activities for effectiveness.

- ✚ **Reporting and Record Keeping:** In the annual report, provide a copy of the inspection and maintenance standards, maintenance log and a map depicting locations.

- ✚ **Responsible Party:** DPW ENRD will work with the O&M Division to develop and control the base operations contract for reporting documents.

- **BMP 5.8 Ensure Functionality of Existing Storm Water Management Structures**

An inventory of stormwater structures was completed in January 2012 which prioritizes deficient stormwater structures.

- ✚ **Measurable Goal:** Develop an inspection and maintenance plan to ensure functionality of existing stormwater best management practices (BMPs) to include: detention, retention, bioretention, filtration, infiltration and manufactured treatment devices using inspection schedules to identify routine, preventative and special maintenance requirements. Inspect 20% of stormwater BMPs annually to ensure they are functioning as designed.

- ✚ **Reporting and Record Keeping:** In the annual report, provide a copy of the inspection and maintenance plan, inspection and maintenance logs and a map depicting BMP locations.

-  **Responsible Party:** DPW ENRD and O&M Division.
  
- **BMP 5.9 Support Stream Restoration**
  -  **Measureable Goal:** Support one stream restoration project during the 5 year permit cycle, either on the installation or in partnership with the surrounding community for shared receiving water; advertise activity on the website or within the Belvoir Eagle to encourage public participation.
  -  **Reporting and Record Keeping:** In the annual report, provide a narrative and photographs of the project.
  -  **Responsible Party:** DPW ENRD

## 8.6 Minimum Control Measure #6: Pollution Prevention/Good Housekeeping for Municipal Operations

The BMPs identified in this plan as BMP 6.1 through BMP 6.7 will be executed to satisfy the pollution prevention/good housekeeping for municipal operations requirements set forth by Section II.B.1 of the General Permit (VAR04) found in 9VAC25-890-40.

- **BMP 6.1 Develop and Implement Written Training Plan**
  - ✚ **Measurable Goal:** In permit year 2, develop a written training plan in accordance with 9VAC25-890-40, Section II, B.6.d. In permit years 3 - 5, implement the training plan for installation staff, support contractors and tenant commands.
  - ✚ **Reporting and Record Keeping:** In the annual report, submit a summary to include a list of training events, the training date, the number of employees attending training and the objective of the training.
  - ✚ **Responsible Party:** DPW ENRD
- **BMP 6.2 Support Recycling and HAZMAT Programs.**

Support of these programs through periodic publication of educational materials facilitates appropriate waste management.

  - ✚ **Measurable Goal:** Provide relevant information to the public through monthly periodicals such as the *Belvoir Eagle* or Fort Belvoir website.
  - ✚ **Reporting and Record Keeping:** In the annual report, provide copies of published materials and web postings.
  - ✚ **Responsible Party:** DPW ENRD
- **BMP 6.3 Maintain Spill Response Vehicle/Trailer**

Fort Belvoir has a spill response plan and maintains a spill response trailer at the Davison Army Airfield and at the main Fire Station.

  - ✚ **Measureable Goal:** Maintain a minimum of one spill response trailer equipped with appropriate equipment and absorbents; ensure appropriate training of spill response staff.
  - ✚ **Reporting and Record Keeping:** In the annual report, provide a copy of the training materials and a manifest of materials kept in the trailer.
  - ✚ **Responsible Party:** DPW ENRD and the Fire Department.
- **BMP 6.4 Support "Self Help" Programs**
  - ✚ **Measureable Goal:** Fort Belvoir provides access to facilities at which tenants perform crafts or auto repair or accept chemicals and equipment for lawn

maintenance. Prior to participating in such programs, individuals must understand proper use of the facility and provided materials. Insert information about these programs into stormwater pamphlets and include information about "Self Help" programs on the Fort Belvoir website.

- ✚ **Reporting and Record Keeping:** In the annual report, provide copies of the pamphlets and the web postings.
  - ✚ **Responsible Party:** DPW ENRD and Directorate of Family, Morale Welfare and Recreation.
- **BMP 6.5 Develop and Implement Nutrient Management Plans**
    - ✚ **Measureable Goal:** In permit year 1, identify all applicable lands where nutrients are applied to a contiguous area of more than one acre. In permit year 2, 15% of all identified acres will be covered by nutrient management plans. In permit year 3, 40% of identified acres will be covered by nutrient management plans. In permit year 4, 75% of identified acres will be covered by nutrient management plans. In permit year 5, 100% of identified acres will be covered by nutrient management plans.
    - ✚ **Reporting and Record Keeping:** In the annual report, provide a summary that includes: location (latitude and longitude) of each piece of land requiring a nutrient management plan, total acreage of lands where turf and landscape nutrient management plans are required and acreage of lands upon which turf and landscape nutrient management plans have been implemented.
    - ✚ **Responsible Party:** DPW ENRD
  - **BMP 6.6 Develop and Implement Stormwater Pollution Prevention Plans (SWPPP)**
    - ✚ **Measureable Goal:** In permit year 1, identify all municipal high priority facilities to include: composting facilities, equipment storage and maintenance facilities, materials storage yards, pesticide storage facilities, public works yards, recycling facilities, salt storage facilities, solid waste handling and transfer facilities and vehicle storage and maintenance yards. In permit year 2, develop and implement SWPPPs for all high-priority facilities identified in permit year 1.
    - ✚ **Reporting and Record Keeping:** In the annual report for permit year 1, provide types of high priority facilities identified and locations (latitude and longitude) of each facility requiring a SWPPP. In the annual report for permit year 2, provide a summary of the development and implementation of required SWPPPs. In the annual report for permit years 3 - 5, provide a summary of the implementation of required SWPPPs.
    - ✚ **Responsible Party:** DPW ENRD, Facility Operators

**9. Stormwater Activities to be Undertaken During July 1, 2016 – June 30, 2017 Reporting Cycle**

BMP#	BMP Description	2016-2017 Planned Activities
BMP 1.1	Develop and Implement a Public Education and Outreach Plan	<ul style="list-style-type: none"> <li>• Support one educational activity at the Accotink Bay Wildlife Refuge Center;</li> <li>• Revised information presented on the Fort Belvoir website, as needed.</li> <li>• Support Fort Belvoir Elementary School’s Career Day;</li> <li>• Publish one article in the Fort Belvoir Eagle quarterly; (one article on Bacteria TMDL, one article on salt storage, one article on Chesapeake Bay TMDL, once article on Stormwater Pollution Prevention/Illicit Discharges;</li> <li>• Review Fort Belvoir Responsibility Guide for new housing residents and revise fact sheets, as needed;</li> <li>• Post stormwater facts and advertise public participation event on the Fort Belvoir DPW Stormwater Page;</li> <li>• Complete revision of the Public Education and Outreach Plan by December 2016;</li> <li>• Monitor concerns reported on DPW Stormwater Facebook Page and provide responses to individuals raising questions or concerns;</li> <li>• Monitor concerns received via DPW ENRD Stormwater email and provide responses to individuals raising questions or concerns;</li> </ul>
BMP 2.1	Public Participation	Participate in four local activities.
BMP 2.2	Publish the MS4 Program Plan and Annual Reports on the Fort Belvoir Website	Update Fort Belvoir website to publish copies of the 2015/2016 annual report.
BMP 2.3	Provide for Public Notification and Receipt of Comments on the MS4 Program Plan	No action until permit year 5.
BMP 3.1	Develop, Implement, Update and Support GIS layers	Review existing GIS data layers to determine if existing layers are updated and identify additional data layers needed, if any and update existing layers, as needed.

Fort Belvoir Municipal Separate Storm Sewer Systems (MS4) Program Plan

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BMP#	BMP Description	2016-2017 Planned Activities
BMP 3.2	Implement and Update the IDDE plan.	<ul style="list-style-type: none"> <li>• Perform outfall reconnaissance inventory of 50 outfalls;</li> <li>• Review five facilities for potential illicit discharges;</li>   <li>• Publish one article in the Fort Belvoir Eagle specifically on illicit discharge identification and notification procedures;</li> </ul>
BMP 3.3	Develop a Plan for Operations that May Affect Stormwater	Assessment plan will be part of the SWPPP Plan. Complete Master SWPPP by June 30, 2017.
BMP 3.4	Perform Routine Operation Assessments and Develop BMPs	Assessment plan will be part of the SWPPP Plan. Complete Master SWPPP by June 30, 2017.
BMP 3.5	Evaluate Potential Combined Sewer Overflow Connections	As needed.
BMP 4.1	Establish a Construction Project Review Procedures	Review existing procedures and update as necessary.
BMP 4.2	Communicate the Requirements of the Stormwater Program	Update Bulletin 1: Stormwater Design, Review and Plan Approval Procedures and Erosion and Sediment Control (ESC) Compliance Procedures During Construction.
BMP 4.3	Develop a Tracking System	Update project status tracking spreadsheet monthly.
BMP 4.4	Obtain Registration under Virginia Stormwater Management Permit (VSMP) for Construction Projects	Require construction projects with land disturbance of an acre or greater to obtain a Construction General Permit (CGP) from VADEQ.
BMP 4.5	Conduct Periodic Site Inspections	Conduct Erosion and Sediment Control inspections with Virginia-certified Erosion and Sediment Control Inspectors on construction projects with CGP.
BMP 4.6	Evaluate Emerging Technologies.	Review or evaluate one new erosion product or engineering control.
BMP 4.7	Progressive Compliance Enforcement Strategy	Review strategy and revise, as necessary. Track number of enforcement actions.
BMP 5.1	Establish a Construction Project Review Procedure	Review existing procedures and update as necessary.

Fort Belvoir Municipal Separate Storm Sewer Systems (MS4) Program Plan

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BMP#	BMP Description	2016-2017 Planned Activities
BMP 5.2	Develop a Stormwater Management Facility Tracking System	Maintain existing EXCEL database/ACCESS database and associated GIS layer for Stormwater Management Facilities.
BMP 5.3	Conduct Periodic Site Inspections	Continue inspection procedures of newly constructed stormwater management facilities prior to facility being turned over to Fort Belvoir for use and possession. Continue to obtain certifications for Virginia Stormwater Management Inspector and Plan Reviewer.
BMP 5.4	Provide Training Component on the Fort Belvoir DPW ENRD website on Low Impact Development (LID)	Continue development of information on Low Impact Development on the Fort Belvoir website.
BMP 5.5	Audits of Existing Stream Conditions	Continue to perform an audit on existing stream conditions.
BMP 5.6	Corrections to Existing Watershed	Continue to utilize the audits of existing streams and the stormwater management facility inventory to identify projects to correct existing watersheds.
BMP 5.7	Implement Periodic Inspections and Clean Out of Storm Drains	Follow inspection and maintenance standards for cleaning of storm drains and disposal of collected material.
BMP 5.8	Ensure Functionality of Existing Stormwater Management Structures	Conduct inspections as outlined in the <i>General Plan for Stormwater Management Facility Inspection and Maintenance</i> .
BMP 5.9	Support Stream Restoration	No action required this year because goal was met in January 2016.
BMP 6.1	Develop and Implement Written Training Plan	Review draft SWPPP and complete SWPPP by June 30, 2017. Continue to implement required training.
BMP 6.2	Support Recycling and HAZMAT Programs	Continue support.
BMP 6.3	Maintain Spill Response Vehicle/Trailer	Continue to maintain existing resources for spill response and cleanup.
BMP 6.4	Support "Self Help" Programs	Evaluate "Self Help" programs to determine which programs are still being implemented.

Fort Belvoir Municipal Separate Storm Sewer Systems (MS4) Program Plan

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BMP#	BMP Description	2016-2017 Planned Activities
BMP 6.5	Develop and Implement Nutrient Management Plans	Complete required Nutrient Management Plans needed to meet permit year #4 goal of coverage of 75% of identified acreage.
BMP 6.6	Develop and Implement Stormwater Pollution Prevention Plans (SWPPPs)	Finalize draft SWPPP and begin implementation.
BMP PCB.1	Develop Information Sheet on PCBs	Review and revise information sheet as needed.
BMP PCB.2	Maintain a GIS Data Layer	Coordinate with GIS on maintenance of PCB data layer.
BMP PCB.3	Develop and Implement Sampling Plan	Review sampling results and other site data available and determine course of action.
BMP PCB.4	Incorporate PCB information into "BMP 6.1 Develop and Implement Written Training Plan	Review and revise, as needed.
	Bacteria TMDL Action Plan	Incorporate recommended BMPs into MS4 Program Plan once VADEQ approval is received.
BMP CHESBAY.1	Review and Revise Chesapeake Bay TMDL Action Plan	No action required this year. Review and revision to be conducted in Permit Year 5.
BMP CHESBAY.2	Conduct Street Sweeping Program	Conduct street sweeping of 2,686 acres per year.