FINAL
Municipal Separate Storm Sewer System (MS4) Annual Report

JBLE–Langley Virginia

Permit Year 5: 01 July 2022 - 30 June 2023

JBLE–Langley
633 CES/CEIE
37 Sweeney Blvd
JBLE–Langley VA 23665

August 2023

Table of Contents

List of Acronyms and Abbreviations ii
Municipal Separate Storm Sewer System Program Plan Certification iii
Section 1: Introduction and MS4 Conveyance System Description 1
MS4 Conveyance System 1
Permit Holder 1
Facility Information 1
Mailing Address 1
System Description 2
Section 2: Water Quality Programs and Guidance 3
Local Programs and Guidance 3
Commonwealth Programs 3
Section 3: Minimum Control Measures Evaluation 5
MCM 1: Public Education and Outreach 5
MCM 2: Public Involvement/Participation 7
MCM 3: Illicit Discharge Detection and Elimination 9
MCM 4: Construction Site Stormwater Runoff Control 10
MCM 5: Post-Construction Stormwater Management in New Development and Development on Prior Developed Lands 12
MCM 6: Pollution Prevention / Good Housekeeping for Municipal Operations 14
Section 4: TMDL Action Plans 17
SC1: TMDL Special Conditions Compliance for the Chesapeake Bay TMDL 17
SC2: TMDL Special Conditions Compliance other than the Chesapeake Bay TMDL 17

List of Attachments

Attachment 1. MS4 Maps
Attachment 2. Illicit Discharge Investigation Details
Attachment 3. Stormwater Management Facility Inventory Tracking Spreadsheet
Attachment 4. Chesapeake Bay Total Maximum Daily Load Action Plan Implementation Status Memo
Attachment 5. Bacteria TMDL Action Plan Implementation Status Memo

List of Acronyms and Abbreviations

633 CES/CEIE	633d Civil Engineer Squadron/Environmental Element
BMP	Best Management Practice
GEM	Group Environmental Manager
GIS	Geographic Information System
IDDE	Illicit Discharge Detection and Elimination
JBLE–Langley	Joint Base Langley Eustis–Langley
LFH	Langley Family Housing
MCM	Minimum Control Measure
MS4	Municipal Separate Storm Sewer System
NMP	Nutrient Management Plan
O&M	Operation and Maintenance
PY	Permit Year
SMF	Stormwater Management Facility
SWPPP	Stormwater Pollution Prevention Plan
TMDL	Total Maximum Daily Load
UEC	Unit Environmental Coordinator
VDEQ	Virginia Department of Environmental Quality
VESCP	Virginia Erosion and Sediment Control Program
VSMP	Virginia Stormwater Management Program
WLA	Wasteload Allocation

Municipal Separate Storm Sewer System Program Plan Certification

As required by Part III.K.2. of General Permit No. VAR040140, all reports required by commonwealth permits and other information requested by the board shall be signed by a principal executive office or ranking elected official as described in Part III.K.1.c. or a duly authorized representative.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Type or print the following information:

Name: Ms. Brenda W. Cook

Area Code and Telephone No.: (757) 764-2025

Official Title: Deputy Base Civil Engineer

Signature: _____

Date Signed: _____

Permit Number: VAR040140

MS4 Name: JBLE–Langley

Section 1: Introduction and MS4 Conveyance System Description

Joint Base Langley Eustis–Langley (JBLE–Langley) Virginia, holds a General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4), General Permit No. VAR040140, issued by the Commonwealth of Virginia Department of Environmental Quality (VDEQ) on 01 November 2018. In accordance with provisions outlined in this permit, JBLE–Langley has developed and implemented a comprehensive stormwater management program designed to prevent or reduce the discharge of sediment and other pollutants into the base's stormwater conveyance system. General Permit No. VAR040140 Part I.D.2.e. requires JBLE–Langley to evaluate the MS4 program on an annual basis to assess program compliance, the appropriateness of the identified Best Management Practices (BMP) and progress towards achieving the identified measurable goals.

The JBLE–Langley MS4 Program implementation has been determined to be effective in ensuring permit compliance. The remaining sections of this report describe the progress and status of the individual program components, including an assessment of the program component effectiveness. This report describes the progress and status of JBLE–Langley's MS4 Program during Permit Year (PY) 5 from 01 July 2022 to 30 June 2023.

MS4 Conveyance System

The subsection below provides information about JBLE–Langley MS4 conveyance system, including the permit holder, facility information, mailing address, a short description of the stormwater drainage system and total maximum daily load (TMDL) allocations for the Chesapeake Bay and surrounding watersheds.

Permit Holder

Commander, 633d Air Base Wing
125 Mabry Ave
JBLE–Langley VA 23665

Facility Information

JBLE–Langley
Hampton VA
MS4 General Permit No. VAR040140

Mailing Address

Deputy Base Civil Engineer
37 Sweeney Boulevard
JBLE–Langley VA 23665

It should be noted that the base does not rely on another government entity to satisfy MS4 permit obligations. In addition, no program approvals are required as specified in Part I.C.5 of the MS4 permit.

System Description

JBLE–Langley's stormwater conveyance system consists of sheet flow areas, swales, ditches and pipes in two geographically disjunct areas covered under the MS4 permit: the main JBLE–Langley installation and the Bethel Reservoir site which includes portions of Langley Family Housing (LFH). Maps include the stormwater system and structural stormwater management facilities (SMF) and are maintained using Geographic Information System (GIS).

JBLE–Langley has interconnections with three (3) MS4s: the NASA Langley Research Center MS4, Newport News, and Yorktown.

Section 2: Water Quality Programs and Guidance

This section discusses the local and commonwealth water quality programs implemented by JBLE–Langley or the commonwealth within the base boundaries.

Local Programs and Guidance

JBLE–Langley developed and implements local plans, programs and guidance to comply with the MS4 permit. These documents are listed below.

- JBLE–Langley Environmental Policy Statement (07 February 2022)
- JBLE–Langley MS4 Program Plan (January 2019)
    - Chesapeake Bay Total Maximum Daily Load (TMDL) Action Plan
    - Bacterial (Local Back River) TMDL Action Plan
    - Construction Erosion and Sediment Control and Stormwater Inspection and Compliance Procedures (January 2019)
    - Stormwater Management Facility (SMF) Inspection and Maintenance Procedures
    - Illicit Discharge Detection and Elimination (IDDE) Written Procedures
    - Good Housekeeping Procedures
    - Employee Training Plan
    - High-Priority Facility Stormwater Pollution Prevention Plan(s) (SWPPP)
    - Nutrient Management Plans
        - Eaglewood Golf Course
        - Langley Family Housing/Hunt Companies
        - Force Support Squadron – Athletic Fields
- VPDES Permit VAG750278 for Eagle Golf Course Cart Barn (Jan 2023)
    - Operations and Maintenance (O&M) Manual

Commonwealth Programs

In addition to the local programs that the base is implementing, there are commonwealth standards established by VDEQ being implemented. These are listed below.

- **Erosion and Sediment Control Program** – The Virginia Erosion and Sediment Control Law delegates the authority to administer a Virginia Erosion and Sediment Control Program (VESCP) to local municipalities. This is an optional requirement and JBLE–Langley has not developed VESCP standards and specifications, so all land disturbing activities 10,000 square feet or greater are inspected as defined in § 62.1-44.15:51 of the Code of Virginia.
- **Post Construction Stormwater Management** – The Virginia Stormwater Management Act delegates the authority to administer a Virginia Stormwater

Management Program (VSMP) to local municipalities. This is an optional requirement and JBLE–Langley has not developed VSMP standards and specifications, so instead implement a post-construction stormwater runoff control program through compliance with 9VAC25-870 and implementation of a maintenance and inspection program consistent with MS4 Permit Part I E 5 b.

- **Stormwater Permitting Program** – The VDEQ Water Division implements the stormwater permitting program to develop, plan and implement commonwealth-wide stormwater control policies, strategies and rules designed to protect the surface waters from the impacts of stormwater pollutants and runoff.

Section 3: Minimum Control Measures Evaluation

An evaluation of MS4 program effectiveness is assessed within each Minimum Control Measure (MCM) review in the subsequent sections.

- MCM 1: Public Education and Outreach
- MCM 2: Public Involvement and Participation
- MCM 3: Illicit Discharge Detection and Elimination
- MCM 4: Construction Site Stormwater Runoff Control
- MCM 5: Post-Construction Stormwater Management in New Development and Development on Prior Developed Lands
- MCM 6: Pollution Prevention and Good Housekeeping for Municipal Operations

MCM 1: Public Education and Outreach

Part I.E.1 of MS4 Permit No. VAR040140 requires JBLE–Langley to develop and implement a public education and outreach program with the objective to (1) increase the public's knowledge of how to reduce stormwater pollution, placing priority on reducing impacts to impaired water and other local water pollution concerns; (2) increase the public's knowledge of hazards associated with illegal discharges and improper disposal of waste, including pertinent legal implications and (3) implement a diverse program with strategies that are targeted toward individuals or groups most likely to have significant stormwater impacts.

The Public Education and Outreach Program effectively achieved permit compliance with Part I.E.1 in PY5. A summary of how JBLE–Langley achieved compliance is reported herein as required by Part I.E.1.g.

- Part I.E.1.g.(1) – High priority issues for public outreach and education were not changed for PY5. They are:
    - 1. Awareness of our receiving water and their impairments
    - 2. Clean Recreation
    - 3. Spill and illicit discharge reduction
- Part I.E.1.g.(2) – High priority issues were addressed using a minimum of two strategies (examples provided in Part I.E.1, Table 1 of the permit) and four activities for outreach (examples provided in Part I.E.1, Table 2 of the permit). These strategies and activities are described in the table below.

MCM 1: Public Education and Outreach		
Permit Ref.	**Part I.E.1 Public Education and Outreach**	
Strategy	**PY5 Action**	**High Priority Issue Addressed**
Traditional Written Material	Brochure: "Household Stormwater Pollution"	1, 3
	Brochure: "Nature Walk and Trail Informational Brochure"	1, 2
Signage	Storm drain medallions installed throughout the installation on stormwater inlets	1, 3
	Marina Shoreline Educational Sign placed at the Living Shoreline	1, 2
Alternate Materials	Pet waste bags/holders, reusable bags, water bottles, pens, notebooks, etc. given out during outreach events.	1, 3
Media Materials	Facebook posts about local waters, recreation, events, volunteer opportunities and illicit discharges/potential stormwater pollution concerns as well as the methods for reporting these observations. (https://www.facebook.com/jblelangleyenvironmental)	1, 2, 3
	633 CES/CEIE published event flyers for "International Coastal Cleanup", "Clean the Bay Week", and "Earth Week" on their Facebook page.	1, 2, 3
	633 CES/CEIE maintains a website that provides information to the public, including volunteer events, brochures, the MS4 Program Plan and the MS4 Annual Reports. https://www.jble.af.mil/About-Us/Units/Langley-AFB/Langley-Environmental/	1, 2, 3
Training Materials	Marina Boater Environmental Education: All new Marina Slip Agreements include a 2-page document covering local regulations, boat spill procedures, and boater environmental training.	1, 2, 3
	Stormwater training is provided to all base personnel (active duty, civilians and contractors). Training includes SWPPP and Illicit Discharge training through online and in-person events. More details are available in the MS4 Training Plan.	1, 2, 3
Training Materials	633 CES/CEIE conducted targeted monthly trainings for unit environmental coordinators (UECs) which discussed spill response and SWPPP training.	1, 2, 3

MCM 2: Public Involvement/Participation

Part I.E.2. of MS4 Permit No. VAR040140 requires JBLE–Langley to cultivate a public involvement and participation program and comply with Commonwealth and local public notice requirements.

The Public Involvement and Participation Program effectively achieved permit compliance with Part I.E.2. in PY5. A summary of how JBLE–Langley achieved compliance is reported herein as required by Part I.E.2.f.

- Part I.E.2.f.(1) – No public input directly related to the MS4 program plan or documents was received in PY5. General public response to outreach events were positive, with 13 individuals listed as reoccurring volunteers. No stormwater complaints were received.
- Part I.E.2.f (2) –
    - JBLE-Langley operates an environmental website for our MS4 program: https://www.jble.af.mil/About-Us/Units/Langley-AFB/Langley-Environmental/
    - JBLE operates a social media page for information and outreach: https://www.facebook.com/jblelangleyenvironmental
- Part I.E.1.f.(3-4) – Public involvement and outreach was conducted using a minimum of four activities from Part I.E.2, Table 2 of the permit. These activities and their metrics are described in the table below.
- Part I.E.f.(5) –The base does not rely on another government entity to satisfy MS4 permit obligations.

MCM 2: Public Involvement / Participation			
Permit Reference	**Part I.E.2 Public Involvement / Participation**		
Required Permit Activity	**Permit Reference**	**PY5 Activity**	**Activity Metrics and Evaluation**
Summarize a response of public input on the MS4 Program.	Part I.E.2.f. (1-2)	JBLE–Langley posted the PY4 MS4 Annual Report on the JBLE–Langley Environmental website for public review and comment. Contact information for 633 CES/CEIE is also posted to the website if there are further comments.	There were no comments received on the MS4 Program.
Maintain a website with the MS4 Program and stormwater information.	Part I.E.2.f. (1-2)	633 CES/CEIE maintains a website that provides information to the public, including the MS4 Program Plan and the MS4 Annual Reports.	The website is active and located here: (https://www.jble.af.mil/About-Us/Units/Langley-AFB/Langley-Environmental/)
Describe the volunteer opportunities designed to promote ongoing public participation.	Part I.E.2.f (3-4)	1. Earth Week events increased awareness and connection with environmental around JBLE–Langley. Volunteer events included: a) family housing cleanup b) nature trail preservation c) SWIFT (Sustainable Water Initiative for Tomorrow) Research Center Tour d) litter pick-up 2. International Coastal Cleanup – JBLE–Langley hosted two days of trash cleanup around the base. Fliers were distributed and posted around the base and on Facebook for volunteers to sign up. 3. Clean the Bay Week – Daily volunteer events were removing trash from the waterfront areas around the installation. All volunteers participated in discussions about how stormwater pollution on the installation affects the watersheds.	1. Earth Week activity metrics: a) Three (3) volunteers removed 150 lbs of trash from Bethel Housing. b) Eight (8) volunteers replaced 184 ft of boards and secured loose nails on the nature trail. c) 7 volunteers learned about replenishing aquifers and importance of not discarding chemicals into our water systems. d) 6 volunteers removed 150 lbs. of trash. 2. 47 total volunteers participated in the International Coastal Cleanup where 963 lbs. of trash was removed from a 2.8-mile section of coastline. 3. A total of 31 volunteers participated in Clean the Bay Week, collected over *775* lbs. of trash, and cleaned approximately 18 miles of shoreline.

MCM 3: Illicit Discharge Detection and Elimination

Part I.E.3 of MS4 Permit No. VAR040140 requires JBLE–Langley to develop, implement and enforce a program to detect and eliminate illicit discharges into the MS4.

The Illicit Discharge Detection and Elimination Program was effectively implemented to achieved permit compliance with Part I.E.3. in PY5. A short summary of how JBLE–Langley achieved compliance is reported herein as required by Part I.E.3.e. The table below further summarizes how the base achieved compliance with an evaluation of each activity performed during PY5.

- Part I.E.3.e.(1) – The MS4 map and inventory for JBLE–Langley has been updated to reflect all changes from PY5 prior to 01 October 2023.
    - In PY2, VDEQ approved the reclassification of three industrial outfalls (024, 050 and 083) to MS4 outfalls. These outfalls have been added to the MS4 outfall inventory and were inspected in PY2, PY3, and PY4.
    - During PY5, a VDEQ audit initiated modifications to industrial outfalls and drainage areas. These modifications are ongoing and an updated MS4 map is expected during the next permit year.
    - The MS4 maps are included as Attachment 1.
- Part I.E.3.e.(2) – Fifty (50) of the 98 non-industrial outfalls were inspected during PY5. Details regarding the inspection findings are included on the outfall inspection forms and in the PY5 Dry Weather Outfall Monitoring Report. Copies of the outfall inspection forms are maintained by 633 CES/CEIE and will be made available upon request.
- Part I.E.3.e.(3) – A list of confirmed and potential illicit discharges to the MS4, including spills reaching the MS4, are included in Attachment 2.

MCM 4: Construction Site Stormwater Runoff Control

Part I.E.4 of MS4 Permit No. VAR040140 requires JBLE–Langley to comply with the Virginia Stormwater Management Program in order to maintain compliance with the Construction Site Runoff Controls.

JBLE–Langley has taken steps to implement the program BMPs and has effectively achieved permit compliance with Part I.E.4. in PY5, under the base's Construction Site Stormwater Runoff Control Program. A short summary of how JBLE–Langley achieved compliance is reported herein as required by Part I.E.4.d.

- Part I.E.4.d(1) – JBLE–Langley is not a VESCP authority.
- Part I.E.4.d(2) – A summary of the on-going and completed land-disturbing activities, inspections conducted and enforcement actions implemented for the projects are provided in the table below.
- Part I.E.4.d(3) – One major enforcement action related to the land disturbing activities occurred during PY5. Minor corrective actions issued by VDEQ and MS4 ESC inspections conducted by 633d CES/CEIE are maintained by the Water Program Manager and available upon request.

MCM 4: Construction Site Stormwater Runoff Control			
Permit Reference	**Part I.E.4 Construction Site Stormwater Runoff Control**		
Required Permit Activity	**Permit Reference**	**PY5 Construction Project**	**Inspections and Major Enforcement Actions**
Provide information on land-disturbing activities including, the total number of inspections conducted; and the total number and type of enforcement actions implemented and the type of enforcement actions.	Part I.E.4.d(2)-(3)	Hospital CAP (VAR10M314)	• MS4 ESC inspections: 21 • VDEQ inspections: 2 Enforcement Actions: None
	Part I.E.4.d(2)-(3)	Cyber Ops Facility (VAR10P168) Awaiting permit termination	• MS4 ESC inspections: 4 • VDEQ inspections: 0 Enforcement Actions: None

MCM 4: Construction Site Stormwater Runoff Control			
Permit Reference	**Part I.E.4 Construction Site Stormwater Runoff Control**		
Required Permit Activity	**Permit Reference**	**PY5 Construction Project**	**Inspections and Major Enforcement Actions**
Provide information on land-disturbing activities including, the total number of inspections conducted; and the total number and type of enforcement actions implemented and the type of enforcement actions.	Part I.E.4.d(2)-(3)	Hospital CAP (VAR10M314)	• MS4 ESC inspections: 21 • VDEQ inspections: 2 Enforcement Actions: None
	Part I.E.4.d(2)-(3)	JBLE-Sweeney Roundabout (VAR10P168) Completed	MS4 ESC inspections: 1 • VDEQ inspections: 0 Enforcement Actions: None
	Part I.E.4.d(2)-(3	Targeting Center (VAR10P929)	• MS4 ESC inspections: 21 • VDEQ inspections: 11 Enforcement Actions: None
	Part I.E.4.d(2)-(3)	Consolidated OPS Maintenance Hanger (VAR10R908)	• MS4 ESC inspections: 7 • VDEQ inspections: 1 Enforcement Actions: None
	Part I.E.4.d(2)-(3)	Low Observation Site (VAR10R596)	• MS4 ESC inspections: 12 • VDEQ inspections: 0 Enforcement Actions: None
	Part I.E.4.d(2)-(3)	Secondary Containment Refueler Parking Area (VAR10O918) Awaiting contractor request Notice of Termination.	• MS4 ESC inspections: 4 • VDEQ inspections 0 Enforcement Actions: None
	Part I.E.4.d(2)-(3)	Security Forces Storage (VAR10P168) Completed	• MS4 ESC Inspections 0 • VDEQ Inspections 1 Enforcement Actions: None

MCM 5: Post-Construction Stormwater Management in New Development and Development on Prior Developed Lands

Part I.E.5 of MS4 Permit No. VAR040140 requires JBLE–Langley to implement a Post-Construction Stormwater Management Program. The program addresses stormwater runoff related to new development and redevelopment projects throughout the service area, including a combination of structural and non-structural BMPs.

The Post-Construction Stormwater Program was effectively implemented to achieved permit compliance with Part I.E.5. in PY5. A short summary of how JBLE–Langley achieved compliance is reported herein as required by Part I.E.5.i.

- Part I.E.5.i(1)-(5) – See the table below for how the base achieved compliance with Part I.E.5.i(1)-(5). The Inventory, Annual Inspection and Management Plan for the privately owned SMFs provides a summary of the methods used to perform field assessments and provide operation and maintenance recommendations for the SMFs. The Stormwater Management Facility Inventory Tracking Spreadsheet is available in Attachment 3.

MCM 5: Post-Construction Stormwater Management		
Permit Reference	**Part I.E.5. Post-Construction Stormwater Management**	
Required Permit Activity	**Permit Reference**	**PY5 Activity**
Provide the number of privately owned stormwater management facility (SMF) inspections conducted and the total number of and type enforcement actions taken to ensure long-term maintenance of the SMFs.	Part I.E.5.i(1)(a)-(b)	JBLE-Langley is not a VSMP authority.
Provide the total number of inspections conducted on SMFs owned or operated by the permittee.	Part I.E.5.i(2)	Completed the annual inspections of the 84 SMFs on base.
Provide a description of the significant maintenance, repair, or retrofit activities performed on the stormwater management facilities owned or operated by the permittee.	Part I.E.5.i(3)	Working with pavements/heavy repair personnel on an updated maintenance plan to maintain BMPs.
Provide confirmation of VCSGP database submission	Part I.E.5.i(4)	No SMFs were reported during PY5 to the Virginia Construction Stormwater General Permit Database for any land disturbing activities for which the permittee was required to obtain coverage under the VAR10 CGP.
Provide confirmation of VDEQ BMP Warehouse Submission.	Part I.E.5.i(5)	The electronically reported BMPs were submitted to the VDEQ for inclusion in the BMP Warehouse in accordance with Part I.E.5.g in September 2022.

MCM 6: Pollution Prevention / Good Housekeeping for Municipal Operations

Part I.E.6 of MS4 Permit No. VAR040140 requires JBLE–Langley to implement a Pollution Prevention / Good Housekeeping Program, including a training program for base personnel and the community.

The Pollution Prevention / Good Housekeeping Program was effectively implemented to achieved permit compliance with Part I.E.6. in PY5. A short summary of how JBLE–Langley achieved compliance is reported herein as required by Part I.E.6.q. The table below further summarizes how the base achieved compliance with an evaluation of each activity performed during PY5.

MCM 6: Pollution Prevention / Good Housekeeping for Municipal Operations		
Permit Reference	**Part I.E.6 Pollution Prevention / Good Housekeeping for Municipal Operations**	
Required Permit Activity	**Permit Reference**	**PY5 Action**
Summarize any operational procedures developed or modified in accordance with Part I.E.6.a during the reporting period	Part I.E.6.q(1)	Existing written procedures have not been modified. Procedures were developed for Golf Cart washing O&M for new VPDES Permit VAG750278 for Eaglewood Golf Course in Jan 2023. Implementation continued in PY5.
Summarize any new SWPPPs developed in accordance with Part I.E.6. during the reporting period	Part I.E.6.q(2)	In PY3, one new SWPPP was developed for facilities 28/30 Vehicle Management and Wash Rack. Implementation continued in PY5.
Summarize any SWPPPs modified in accordance with Part I.E.6.f or the rationale of any high priority facilities delisted in accordance with Part I.E.6.h during the reporting period	Part I.E.6.q(3)	The Golf Course Maintenance Facility SWPPP was modified due to outdoor golf cart washing that required a separate permit, VAG750278. Implementation continued in PY5. Delisted the following high priority facilities during PY5: The Marina, due to no materials exposed outside. The Auto Hobby Shop, all repairs are completed inside no exposure to the environment, The commissary and AAFES BX/Shoppette, no major spills and no chemicals exposed or stored outside. Other existing high priority facility SWPPPs are routinely updated to reflect minor changes in procedure and potential pollutant exposures and updated annually.
Summarize any new turf and landscape nutrient management plans (NMP) developed	Part I.E.6.q(4)	Eaglewood Golf Course NMP: • 119.2 acres • Valid through 7 September 2027 Athletic Fields NMP: • 11.9 acres • Valid through 14 June 2025 LFH NMP: • 21.1 acres • Valid through 12 September 2025

MCM 6: Pollution Prevention / Good Housekeeping for Municipal Operations		
Permit Reference	**Part I.E.6 Pollution Prevention / Good Housekeeping for Municipal Operations**	
Required Permit Activity	**Permit Reference**	**PY5 Action**
Provide a list of training events conducted in accordance with Part I.E.6.m	Part I.E.6.q(5)	JBLE–Langley training event times and objectives are described in the MS4 Training Plan Written Procedures Maintained by the Water Program Manager and are available upon request. Many trainings are self-driven online, and the following numbers represent number of people trained: SWPPP/Good housekeeping Training: 55 personnel GEM/UEC Training: 30 personnel *(Trainings marked "Complete" in the "GEM UEC Roster" spreadsheet occurring between 01 July 2022 and 30 June 2023 were counted.)*

Section 4: TMDL Action Plans

SC1: TMDL Special Conditions Compliance for the Chesapeake Bay TMDL

JBLE–Langley's Draft Phase II Chesapeake Bay TMDL Action Plan was developed and submitted with the MS4 Permit Registration Statement. The Action Plan presented a discussion of the compliance requirements for JBLE–Langley.

The Action Plan presents the JBLE–Langley estimated load contribution, required load reductions and pollutant reduction credits. The plan also reported progress made toward meeting the 40% cumulative pollutant reduction requirement for the first and second permit cycles.

The Chesapeake Bay TMDL Action Plan Implementation Status Memo summarizes the actions taken during PY5 and is included as Attachment 4.

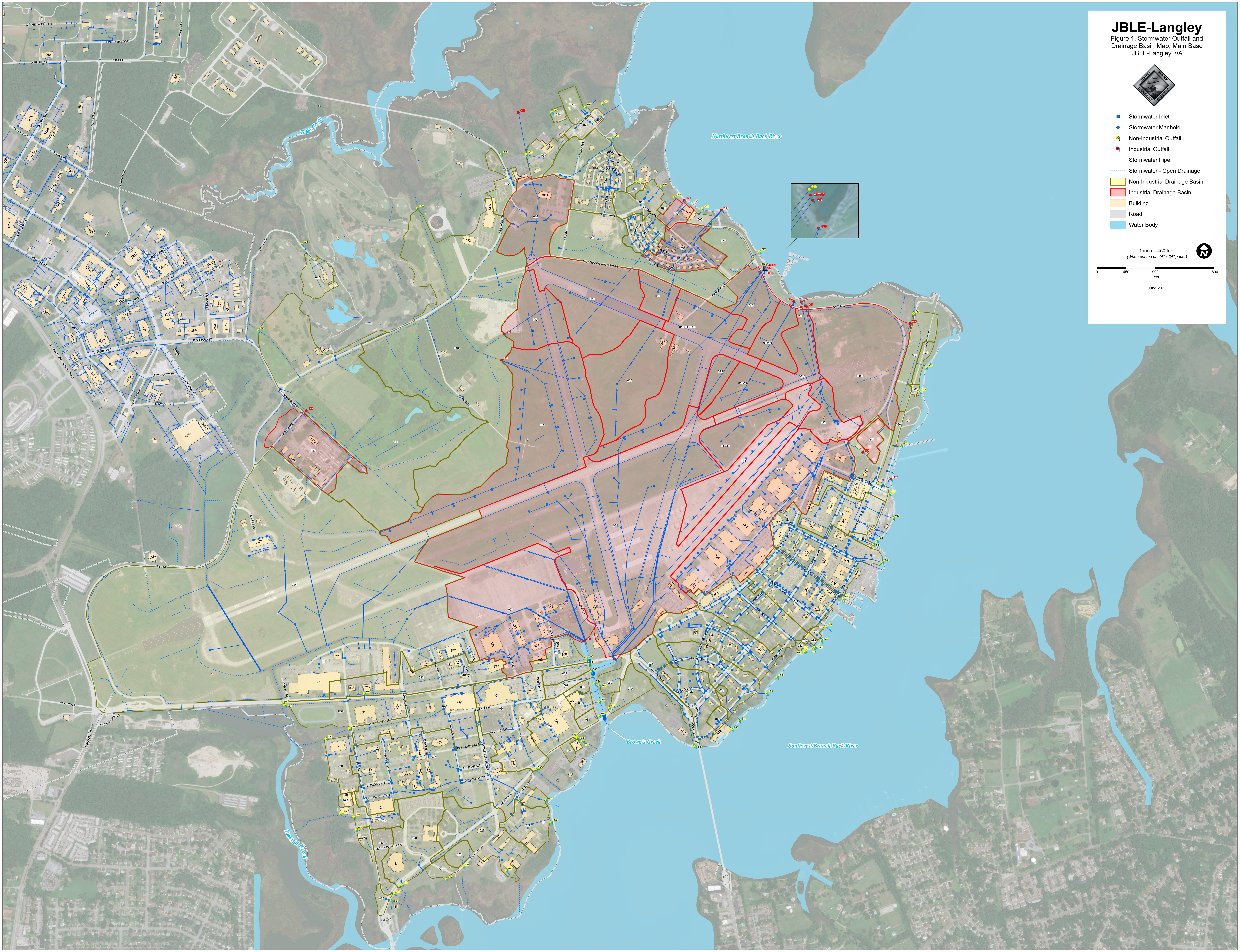
SC2: TMDL Special Conditions Compliance other than the Chesapeake Bay TMDL

Part II.B. of MS4 Permit No. VAR040140 requires the base to maintain an updated MS4 Program Plan that includes a specific TMDL Action Plan for pollutants allocated to the MS4 in an approved TMDL.

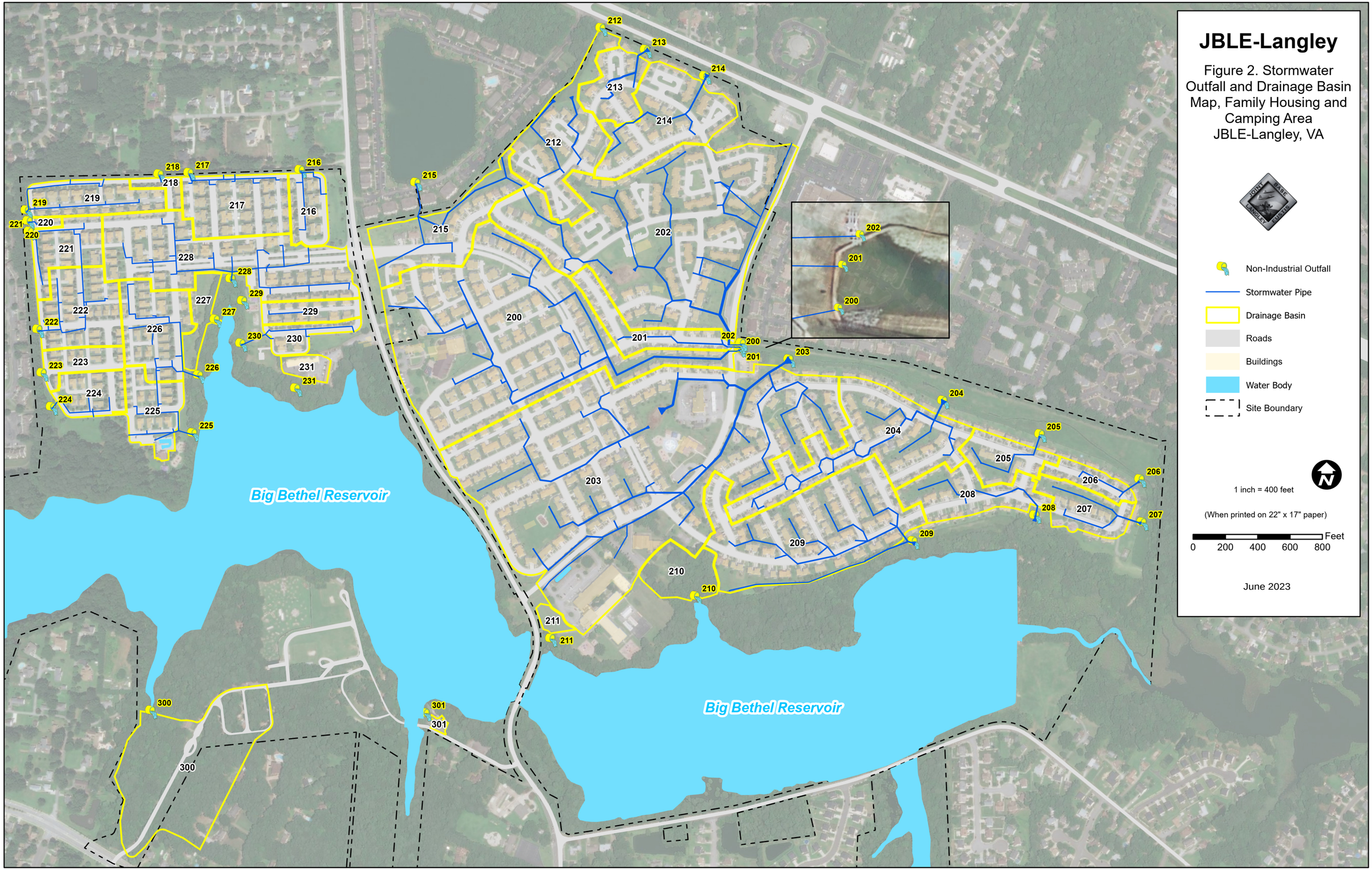
As part of maintaining its MS4 Program Plan, JBLE–Langley has developed the Bacteria TMDL Action Plan to address bacteria impairment in those waterbodies. The MS4 Program Plan currently has incorporated the TMDL Action Plans that identify the BMPs and other interim milestone activities. The 2017 TMDLs, which became final on 09 February 2018, include updated information on the listing status of assessment units according to the 2014 305(b)/303(d) Water Quality Assessment Integration Report and assign a waste load allocation (WLA) for bacteria to JBLE–Langley. The WLA is a portion of the TMDL and represents the allowable load a permittee may discharge to the waterbody and still meet water quality standards.

JBLE–Langley is required to implement an approved TMDL Action Plan for bacteria impairment. The Bacteria TMDL Action Plan Implementation Status Memo summarizes the actions taken during PY5 is included as Attachment 5.

Attachment 1:
MS4 Maps



JBLE-Langley
Figure 1. Stormwater Outfall and Drainage Basin Map, Main Base JBLE-Langley, VA
JOINT BASE LANGLEY EUSTIS
Stormwater Inlet
Stormwater Manhole
Non-Industrial Outfall
Industrial Outfall
Stormwater Pipe
Stormwater - Open Drainage
Non-Industrial Drainage Basin
Industrial Drainage Basin
Building
Road
Water Body
1 inch = 450 feet
(When printed on 44" x 34" paper)
0 450 900 1800
Feet
June 2023
Northwest Branch Back River
Southwest Branch Back River
Tabbs Creek
Brown's Creek
Tide Mill Creek


JBLE-Langley
Figure 2. Stormwater Outfall and Drainage Basin Map, Family Housing and Camping Area
JBLE-Langley, VA
Non-Industrial Outfall
Stormwater Pipe
Drainage Basin
Roads
Buildings
Water Body
Site Boundary
1 inch = 400 feet
(When printed on 22" x 17" paper)
Feet
0 200 400 600 800
June 2023
Big Bethel Reservoir
Big Bethel Reservoir

Attachment 2:
Illicit Discharge Investigation Details

Illicit Discharge Tracking Record, JBLE–Langley

	Section 1. Detection					Section 2. Investigation				Section 3. Elimination		Section 4. Follow-Up	
Outfall ID	**Date Reported or Identified**	**Reported / Identified by:**	**Location of Discharge**	**Description of Discharge**	**Additional Investigation Required?**	**Date(s) of Investigation**	**Results of Investigation**	**Corrective Action to be Taken**	**Scheduled Date of Corrective Action**	**Description of Corrective Action Taken**	**Date Corrected**	**Date of Verification**	**Additional Notes**
	Enter date discharge was reported or identified	Provide name and contact number of reporting personnel	Provide address, Outfall ID, nearby landmark, etc.	Provide description of the potential illicit discharge (e.g. dumping, wash water, suds, oil, etc.). Include characterization from Section 6 of the outfall inspection form if applicable.	(Yes/No)	Enter date of investigation	Describe investigation results. Was the source found? Was this an illicit discharge? What is the source? What is the frequency of the discharge (continuous, intermittent, or transitory)?	Specify what will be done to eliminate the illicit discharge and by whom	Enter the estimated date for completion of corrective actions	How was the illicit discharge resolved?	Enter date of resolution	Enter date of follow-up investigation to verify illicit discharge has been eliminated	
001	1/7/2023	Jeffrey R. Saunders (757) 764-1141	West ramp of JBLE-Langley Flight Line, near Building 373	Strong odor of fuel near Building 373	Yes	Continuous efforts 7-14 January 2023	A jet fuel leak was identified to have discharged to the stormwater system. Jet fuel discharged to Outfall 001 and Brown's Creek.	Containment measures, verification of source/leak, removal of contaminant	TBD	Containment measures were immediately placed along Brown's Creek. Pressure tests were conducted on 7 Jan and 10 Jan which indicated no underground fuel lines were leaking. Stormwater lines were flushed and the effluent was contained. Coast Guard was onsite from 9-14 January to provie assistance and was satisfied with measures taken.	1/14/2023	NA	Additional corrective action will be taken to ensure all flight line personnel have illicit discharge and pollution prevention training.

Attachment 3:
Stormwater Management Facility Inventory Tracking Spreadsheet

Stormwater Management Facility Inventory, JBLE-Langley

Year_Installed	Practice_Name	Practice_Description	Total Acres	IMP_Acres	Runoff_Treated	Measurement_Unit	Report_Applied_Amount	Latitude	Longitude	HUC 6	HUC12	Facility_Name	Inspect_Date	Maint_Date	Contact_Name	Agency_Name	Year_Funded	SCM_Cost
2007	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 1	7.92	2.08	0.166	Systems	1	37.098044	-76.355630	208010	20801080102	JBLE-Langley	12/10/2020	-	Jeff Saunders	Dept of Defense	2007	$337.87
2007	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 2	0.38	0.36	0.029	Systems	1	37.095267	-76.358796	208010	020801080102	JBLE-Langley	12/8/2020	-	Jeff Saunders	Dept of Defense	2007	$337.87
2007	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 3	0.26	0.25	0.020	Systems	1	37.095243	-76.358593	208010	020801080102	JBLE-Langley	12/8/2020	-	Jeff Saunders	Dept of Defense	2007	$337.87
2007	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 4	0.26	0.24	0.019	Systems	1	37.095218	-76.358388	208010	020801080102	JBLE-Langley	12/8/2020	-	Jeff Saunders	Dept of Defense	2007	$337.87
2007	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 5	0.26	0.23	0.018	Systems	1	37.095197	-76.358187	208010	020801080102	JBLE-Langley	12/8/2020	-	Jeff Saunders	Dept of Defense	2007	$337.87
2007	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 6	0.23	0.21	0.017	Systems	1	37.095174	-76.357982	208010	020801080102	JBLE-Langley	12/8/2020	-	Jeff Saunders	Dept of Defense	2007	$337.87
2007	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 7	0.23	0.20	0.016	Systems	1	37.095154	-76.357777	208010	020801080102	JBLE-Langley	12/8/2020	-	Jeff Saunders	Dept of Defense	2007	$337.87
2007	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 8	0.19	0.11	0.009	Systems	1	37.095134	-76.357578	208010	020801080102	JBLE-Langley	12/8/2020	-	Jeff Saunders	Dept of Defense	2007	$337.87
2007	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 9	3.48	0.64	0.051	Systems	1	37.095992	-76.359729	208010	020801080102	JBLE-Langley	12/10/2020	-	Jeff Saunders	Dept of Defense	2007	$337.87
2008	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 10	0.45	0.27	0.022	Systems	1	37.094149	-76.361885	208010	020801080102	JBLE-Langley	12/8/2020	-	Jeff Saunders	Dept of Defense	2008	$337.87

Stormwater Management Facility Inventory, JBLE-Langley

Year_Installed	Practice_Name	Practice_Description	Total Acres	IMP_Acres	Runoff_Treated	Measurement_Unit	Report_Applied_Amount	Latitude	Longitude	HUC 6	HUC12	Facility_Name	Inspect_Date	Maint_Date	Contact_Name	Agency_Name	Year_Funded	SCM_Cost
2008	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 11	0.41	0.22	0.018	Systems	1	37.094116	-76.361686	208010	020801080102	JBLE-Langley	12/8/2020	-	Jeff Saunders	Dept of Defense	2008	$337.87
2008	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 12	0.17	0.14	0.011	Systems	1	37.093990	-76.361925	208010	020801080102	JBLE-Langley	12/8/2020	-	Jeff Saunders	Dept of Defense	2008	$337.87
2008	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 13	0.15	0.14	0.011	Systems	1	37.093955	-76.361728	208010	020801080102	JBLE-Langley	12/8/2020	-	Jeff Saunders	Dept of Defense	2008	$337.87
2008	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 14	0.23	0.16	0.013	Systems	1	37.093831	-76.361970	208010	020801080102	JBLE-Langley	12/8/2020	-	Jeff Saunders	Dept of Defense	2008	$337.87
2008	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 15	0.16	0.10	0.008	Systems	1	37.093797	-76.361769	208010	020801080102	JBLE-Langley	12/8/2020	-	Jeff Saunders	Dept of Defense	2008	$337.87
2008	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 16	0.21	0.18	0.015	Systems	1	37.096668	-76.361608	208010	020801080102	JBLE-Langley	12/8/2020	-	Jeff Saunders	Dept of Defense	2008	$337.87
2008	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 17	0.19	0.17	0.014	Systems	1	37.096578	-76.361971	208010	020801080102	JBLE-Langley	12/8/2020	-	Jeff Saunders	Dept of Defense	2008	$337.87
2008	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 18	0.30	0.27	0.022	Systems	1	37.096465	-76.362363	208010	020801080102	JBLE-Langley	12/8/2020	-	Jeff Saunders	Dept of Defense	2008	$337.87
2008	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 19	0.24	0.23	0.018	Systems	1	37.096342	-76.362799	208010	020801080102	JBLE-Langley	12/8/2020	-	Jeff Saunders	Dept of Defense	2008	$337.87
2008	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 20	0.99	0.72	0.058	Systems	1	37.096375	-76.361974	208010	020801080102	JBLE-Langley	12/8/2020	-	Jeff Saunders	Dept of Defense	2008	$337.87
2008	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 21	0.45	0.36	0.029	Systems	1	37.096008	-76.362506	208010	020801080102	JBLE-Langley	12/8/2020	-	Jeff Saunders	Dept of Defense	2008	$337.87

Stormwater Management Facility Inventory, JBLE-Langley

Year_Installed	Practice_Name	Practice_Description	Total Acres	IMP_Acres	Runoff_Treated	Measurement_Unit	Report_Applied_Amount	Latitude	Longitude	HUC 6	HUC12	Facility_Name	Inspect_Date	Maint_Date	Contact_Name	Agency_Name	Year_Funded	SCM_Cost
2008	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 22	0.60	0.49	0.039	Systems	1	37.096216	-76.361782	208010	020801080102	JBLE-Langley	12/8/2020	-	Jeff Saunders	Dept of Defense	2008	$337.87
2008	WetlandRestore	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. SCM ID: 23	2.51	1.39	0.111	Systems	1	37.095545	-76.362447	208010	020801080102	JBLE-Langley	12/8/2020	-	Jeff Saunders	Dept of Defense	2008	$364.45
2008	WetlandRestore	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. SCM ID: 24	4.38	1.78	0.142	Systems	1	37.094784	-76.362808	208010	020801080102	JBLE-Langley	12/8/2020	-	Jeff Saunders	Dept of Defense	2008	$364.45
2008	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 25	1.57	0.70	0.056	Systems	1	37.100139	-76.378244	208010	020801080102	JBLE-Langley	3/1/2021	-	Jeff Saunders	Dept of Defense	2008	$502.48
1977	WetlandRestore	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. SCM ID: 26	9.27	0.13	0.010	Systems	1	37.094030	-76.367133	208010	020801080102	JBLE-Langley	12/10/2020	-	Jeff Saunders	Dept of Defense	1977	$45.55
1977	WetlandRestore	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. SCM ID: 27	17.65	0.90	0.072	Systems	1	37.093374	-76.368813	208010	020801080102	JBLE-Langley	12/10/2020	-	Jeff Saunders	Dept of Defense	1977	$318.89
1977	WetlandRestore	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. SCM ID: 28	14.31	0.87	0.070	Systems	1	37.090823	-76.369517	208010	020801080102	JBLE-Langley	12/10/2020	-	Jeff Saunders	Dept of Defense	1977	$318.89
1977	WetlandRestore	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. SCM ID: 29	13.11	1.40	0.112	Systems	1	37.088444	-76.368606	208010	020801080102	JBLE-Langley	12/8/2020	-	Jeff Saunders	Dept of Defense	1977	$510.23
1977	WetlandRestore	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. SCM ID: 30	8.26	0.10	0.008	Systems	1	37.086498	-76.365593	208010	020801080102	JBLE-Langley	12/10/2020	-	Jeff Saunders	Dept of Defense	1977	$45.55
1977	WetlandRestore	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. SCM ID: 31	7.24	0.05	0.004	Systems	1	37.086428	-76.363477	208010	020801080102	JBLE-Langley	12/10/2020	-	Jeff Saunders	Dept of Defense	1977	$18.22

Stormwater Management Facility Inventory, JBLE-Langley

Year_Installed	Practice_Name	Practice_Description	Total Acres	IMP_Acres	Runoff_Treated	Measurement_Unit	Report_Applied_Amount	Latitude	Longitude	HUC 6	HUC12	Facility_Name	Inspect_Date	Maint_Date	Contact_Name	Agency_Name	Year_Funded	SCM_Cost
2016	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 32	2.42	0.20	0.016	Systems	1	37.075067	-76.381627	208010	020801080103	JBLE-Langley	1/11/2021	-	Jeff Saunders	Dept of Defense	2016	$502.48
2016	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: 33	5.95	0.62	0.049	Systems	1	37.074495	-76.380903	208010	020801080103	JBLE-Langley	1/11/2021	-	Jeff Saunders	Dept of Defense	2016	$848.00
2016	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 34	1.24	0.44	0.035	Systems	1	37.075376	-76.381025	208010	020801080103	JBLE-Langley	1/11/2021	-	Jeff Saunders	Dept of Defense	2016	$502.48
2016	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 35	0.64	0.19	0.016	Systems	1	37.074460	-76.378894	208010	020801080103	JBLE-Langley	12/8/2020	-	Jeff Saunders	Dept of Defense	2016	$502.48
2016	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 36	5.16	0.22	0.017	Systems	1	37.075170	-76.380560	208010	020801080103	JBLE-Langley	1/11/2021	-	Jeff Saunders	Dept of Defense	2016	$502.48
2016	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 37	3.54	0.73	0.059	Systems	1	37.077942	-76.382171	208010	020801080103	JBLE-Langley	1/11/2021	-	Jeff Saunders	Dept of Defense	2016	$502.48
2000	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 38	3.14	1.05	0.084	Systems	1	37.082615	-76.374694	208010	020801080103	JBLE-Langley	1/11/2021	-	Jeff Saunders	Dept of Defense	2000	$565.29
2012	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: 39	2.71	2.16	0.173	Systems	1	37.074474	-76.366869	208010	020801080103	JBLE-Langley	1/11/2021	-	Jeff Saunders	Dept of Defense	2012	$848.00
2005	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 40	1.12	0.68	0.054	Systems	1	37.068056	-76.360048	208010	020801080103	JBLE-Langley	12/9/2020	-	Jeff Saunders	Dept of Defense	2005	$337.87
2005	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 41	0.37	0.11	0.009	Systems	1	37.067781	-76.359545	208010	020801080103	JBLE-Langley	12/9/2020	-	Jeff Saunders	Dept of Defense	2005	$502.48
2005	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: 42	0.19	0.06	0.005	Systems	1	37.067830	-76.360984	208010	020801080103	JBLE-Langley	12/9/2020	-	Jeff Saunders	Dept of Defense	2005	$848.00
2005	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 43	1.13	0.44	0.035	Systems	1	37.067149	-76.359943	208010	020801080103	JBLE-Langley	12/9/2020	-	Jeff Saunders	Dept of Defense	2005	$502.48
2011	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 44	31.51	22.40	1.792	Systems	1	37.071135	-76.358055	208010	020801080103	JBLE-Langley	3/1/2021	-	Jeff Saunders	Dept of Defense	2011	$502.18
2007	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 45	2.16	1.45	0.116	Systems	1	37.070600	-76.360535	208010	020801080103	JBLE-Langley	12/9/2020	-	Jeff Saunders	Dept of Defense	2007	$337.87
2013	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 46	3.70	1.54	0.123	Systems	1	37.066793	-76.366190	208010	020801080103	JBLE-Langley	12/10/2020	-	Jeff Saunders	Dept of Defense	2013	$337.87
2013	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 47	3.30	1.40	0.112	Systems	1	37.067739	-76.365255	208010	020801080103	JBLE-Langley	12/9/2020	-	Jeff Saunders	Dept of Defense	2013	$464.57

Stormwater Management Facility Inventory, JBLE-Langley

Year_Installed	Practice_Name	Practice_Description	Total Acres	IMP_Acres	Runoff_Treated	Measurement_Unit	Report_Applied_Amount	Latitude	Longitude	HUC 6	HUC12	Facility_Name	Inspect_Date	Maint_Date	Contact_Name	Agency_Name	Year_Funded	SCM_Cost
2013	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: 48	3.48	1.14	0.091	Systems	1	37.068257	-76.364621	208010	020801080103	JBLE-Langley	12/9/2020	-	Jeff Saunders	Dept of Defense	2013	$848.00
2000	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 49	1.26	0.72	0.058	Systems	1	37.072550	-76.363403	208010	020801080103	JBLE-Langley	12/9/2020	-	Jeff Saunders	Dept of Defense	2000	$337.87
2000	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 50	1.35	0.68	0.054	Systems	1	37.072432	-76.364202	208010	020801080103	JBLE-Langley	12/9/2020	-	Jeff Saunders	Dept of Defense	2000	$337.87
2015	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 51	1.56	0.07	0.006	Systems	1	37.074457	-76.375603	208010	020801080103	JBLE-Langley	12/7/2020	-	Jeff Saunders	Dept of Defense	2015	$62.81
2009	WetlandRestore	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. SCM ID: 52	0.95	0.09	0.008	Systems	1	37.099548	-76.355627	208010	020801080102	JBLE-Langley	12/10/2020	-	Jeff Saunders	Dept of Defense	2009	$45.55
2010	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: 53	0.67	0.27	0.022	Systems	1	37.097720	-76.356485	208010	020801080102	JBLE-Langley	12/10/2020	-	Jeff Saunders	Dept of Defense	2010	$848.00
2013	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 55	1.92	1.43	0.114	Systems	1	37.075794	-76.357982	208010	020801080103	JBLE-Langley	12/9/2020	-	Jeff Saunders	Dept of Defense	2013	$690.91
2013	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: 56	0.51	0.23	0.018	Systems	1	37.065987	-76.366677	208010	020801080103	JBLE-Langley	12/10/2020	-	Jeff Saunders	Dept of Defense	2013	$212.00
2006	WetlandRestore	A water impoundment structure that intercepts stormwater runoff then releases it to an open water system at a specified flow rate. These structures retain a permanent pool and usually have retention times sufficient to allow settlement of some portion of the intercepted sediments and attached nutrients/toxics. Until recently, these practices were designed specifically to meet water quantity, not water quality objectives. There is little or no vegetation living within the pooled area nor are outfalls directed through vegetated areas prior to open water release. Nitrogen reduction is minimal. SCM ID: 57	1.76	1.16	0.093	Systems	1	37.094402	-76.424570	208010	020801080102	JBLE-Langley	1/12/2021	-	Jeff Saunders	Dept of Defense	2006	$410.00
2010	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: 58	8.64	4.35	0.348	Systems	1	37.097141	-76.422678	208010	020801080102	JBLE-Langley	1/12/2021	-	Jeff Saunders	Dept of Defense	2010	$3,710.00
2010	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: 59	7.51	2.67	0.213	Systems	1	37.099519	-76.423363	208010	020801080102	JBLE-Langley	1/12/2021	-	Jeff Saunders	Dept of Defense	2010	$2,226.00
2009	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: 60	2.00	0.07	0.006	Systems	1	37.073553	-76.384703	208010	020801080103	JBLE-Langley	1/12/2021	-	Jeff Saunders	Dept of Defense	2007	$800.00
2010	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: 61	0.25	0.11	0.008	Systems	1	37.065989	-76.366401	208010	020801080103	JBLE-Langley	12/11/2020	-	Jeff Saunders	Dept of Defense	2013	$500.00
2010	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 62	0.17	0.02	0.002	Systems	1	37.065807	-76.366288	208010	020801080103	JBLE-Langley	12/11/2020	-	Jeff Saunders	Dept of Defense	2013	$500.00
2010	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: 63	0.36	0.13	0.010	Systems	1	37.065539	-76.366573	208010	020801080103	JBLE-Langley	12/11/2020	-	Jeff Saunders	Dept of Defense	2013	$500.00
2010	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: 64	0.36	0.10	0.008	Systems	1	37.065280	-76.366189	208010	020801080103	JBLE-Langley	12/11/2020	-	Jeff Saunders	Dept of Defense	2013	$500.00
2010	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 65	0.18	0.14	0.011	Systems	1	37.065169	-76.366164	208010	020801080103	JBLE-Langley	12/11/2020	-	Jeff Saunders	Dept of Defense	2013	$600.00

Stormwater Management Facility Inventory, JBLE-Langley

Year_Installed	Practice_Name	Practice_Description	Total Acres	IMP_Acres	Runoff_Treated	Measurement_Unit	Report_Applied_Amount	Latitude	Longitude	HUC 6	HUC12	Facility_Name	Inspect_Date	Maint_Date	Contact_Name	Agency_Name	Year_Funded	SCM_Cost
2010	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 66	0.18	0.14	0.011	Systems	1	37.064939	-76.366112	208010	020801080103	JBLE-Langley	12/11/2020	-	Jeff Saunders	Dept of Defense	2013	$600.00
2010	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: 67	0.32	0.09	0.007	Systems	1	37.064781	-76.366055	208010	020801080103	JBLE-Langley	12/11/2020	-	Jeff Saunders	Dept of Defense	2013	$500.00
2010	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: 68	0.30	0.07	0.005	Systems	1	37.064861	-76.366419	208010	020801080103	JBLE-Langley	12/11/2020	-	Jeff Saunders	Dept of Defense	2013	$500.00
2010	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: 69	0.16	0.002	0.000	Systems	1	37.064842	-76.366405	208010	020801080103	JBLE-Langley	12/11/2020	-	Jeff Saunders	Dept of Defense	2013	$400.00
2010	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: 70	0.15	0.004	0.000	Systems	1	37.064530	-76.366520	208010	020801080103	JBLE-Langley	12/11/2020	-	Jeff Saunders	Dept of Defense	2013	$300.00
2010	FilteringDevice	Filtering devices are pre-manufactured devices that provide treatment through detention and infiltration of stormwater through engineered media. SCM ID: 71	0.06	0.01	0.000	Systems	1	37.064504	-76.366493	208010	020801080103	JBLE-Langley	12/11/2020	-	Jeff Saunders	Dept of Defense	2013	$200.00
2010	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: 72	0.56	0.16	0.013	Systems	1	37.064860	-76.366344	208010	020801080103	JBLE-Langley	12/11/2020	-	Jeff Saunders	Dept of Defense	2013	$800.00
2010	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: 73	0.36	0.10	0.008	Systems	1	37.065333	-76.366227	208010	020801080103	JBLE-Langley	12/11/2020	-	Jeff Saunders	Dept of Defense	2013	$600.00
2010	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: 74	0.32	0.09	0.007	Systems	1	37.064723	-76.366030	208010	020801080103	JBLE-Langley	12/11/2020	-	Jeff Saunders	Dept of Defense	2013	$650.00
2009	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 75	2.30	0.61	0.049	Systems	1	37.076005	-76.356640	208010	020801080103	JBLE-Langley	12/9/2020	-	Jeff Saunders	Dept of Defense	2007	$500.00
2005	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 76	1.09	0.57	0.046	Systems	1	37.068155	-76.361436	208010	020801080103	JBLE-Langley	12/9/2020	-	Jeff Saunders	Dept of Defense	2007	$800.00
2004	HydroDynStruc	Hydrodynamic Structures are devices designed to improve quality of stormwater using features such as swirl concentrators, grit chambers, oil barriers, baffles, micropools and absorbent pads that are designed to remove sediments, nutrients, metals, organic chemicals, or oil and grease from urban runoff. SCM ID: 77	0.19	0.15	0.012	Systems	1	37.074325	-76.367334	208010	020801080103	JBLE-Langley	1/11/2021	-	Jeff Saunders	Dept of Defense	2001	$400.00
2007	ExtDryPonds	Dry extended detention (ED) basins are depressions created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. Dry ED basins are designed to dry out between storm events, in contrast with wet ponds, which contain standing water permanently. As such, they are similar in construction and function to dry detention basins, except that the duration of detention of stormwater is designed to be longer, theoretically improving treatment effectiveness. SCM ID: 78	2.79	1.81	0.145	Systems	1	37.094874	-76.358337	208010	020801080102	JBLE-Langley	12/10/2020	-	Jeff Saunders	Dept of Defense	2007	$337.87
2010	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 79	1.84	0.68	0.054	Systems	1	37.074284	-76.377328	208010	020801080103	JBLE-Langley	12/8/2020	-	Jeff Saunders	Dept of Defense	2007	$337.87
2002	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has no underdrain and is in C or D soil. SCM ID: 80	2.31	0.72	0.058	Systems	1	37.070457	-76.367073	208010	020801080103	JBLE-Langley	12/10/2020	-	Jeff Saunders	Dept of Defense	2002	$500.00
2009	DryPonds	Dry Detention Ponds are depressions or basins created by excavation or berm construction that temporarily store runoff and release it slowly via surface flow or groundwater infiltration following storms. SCM ID: 81	0.08	0.01	0.001	Systems	1	37.073480	-76.383011	208010	020801080103	JBLE-Langley	1/12/2021	-	Jeff Saunders	Dept of Defense	2007	$400.00
2020	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has an underdrain and filter media. SCM ID: 82				Systems	1	37.076031	-76.365776			JBLE-Langley	12/9/2020	-	Jeff Saunders	Dept of Defense		
2020	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has an underdrain and filter media. SCM ID: 83				Systems	1	37.076500	-76.365866			JBLE-Langley	12/9/2020	-	Jeff Saunders	Dept of Defense		
2020	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has an underdrain and filter media. SCM ID: 84				Systems	1	37.076333	-76.365262			JBLE-Langley	12/9/2020	-	Jeff Saunders	Dept of Defense		

Stormwater Management Facility Inventory, JBLE-Langley

Year_Installed	Practice_Name	Practice_Description	Total Acres	IMP_Acres	Runoff_Treated	Measurement_Unit	Report_Applied_Amount	Latitude	Longitude	HUC 6	HUC12	Facility_Name	Inspect_Date	Maint_Date	Contact_Name	Agency_Name	Year_Funded	SCM_Cost
2020	VegOpChanNoUDCD	Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed, includes bioswales. Runoff passes through either vegetation in the channel, subsoil matrix and/or is infiltrated into the underlying soils. This SCM has an underdrain and filter media. SCM ID: 85				Systems	1	37.084900	-76.340362			JBLE-Langley	12/9/2020	-	Jeff Saunders	Dept of Defense		

Attachment 4:
Chesapeake Bay TMDL Action Plan Implementation Status Memo

Date: 23 June 2023

Subject: **Chesapeake Bay Phase II Total Maximum Daily Load (TMDL) Action Plan Implementation Progress for JBLE–Langley**

1.0 INTRODUCTION

In 2010 the United States Environmental Protection Agency (EPA) established the Chesapeake Bay Total Maximum Daily Load (TMDL) to address excess nitrogen, phosphorus and total suspended solids (pollutants of concern or POCs) in the bay (EPA, 2010). A TMDL is the maximum amount of a pollutant that a waterbody can assimilate and still support its designated use. The Chesapeake Bay watershed encompasses over 64,000 square miles across the District of Columbia and large sections of Delaware, Maryland, New York, Pennsylvania, West Virginia and Virginia.

In the Phase I and Phase II Chesapeake Bay Watershed Implementation Plan (WIP) for the Chesapeake Bay TMDL, the Commonwealth of Virginia committed to a phased approach to reducing nutrients and suspended solids discharging from Municipal Separate Storm Sewer Systems (MS4). Section I.C of the Joint Base Langley Eustis–Langley (JBLE–Langley) MS4 permit (VAR040140, effective 01 November 2018) requires the base to prepare a Chesapeake Bay TMDL Action Plan that demonstrates future plans to meet the required nutrient and suspended solids reductions for each permit cycle as specified in the 2010 Phase I WIP (VDEQ, 2010).

JBLE–Langley developed a Chesapeake Bay TMDL Action Plan for the installation's MS4 area (JBLE–Langley, 2023). The Action Plan is an annual report on the progress made by the base in meeting the Chesapeake Bay TMDL pollutant reduction requirements, specifically the Level 2 (L2) scoping run as specified in the 2010 Phase I WIP (VDEQ, 2010). The L2 reductions are to be met in phases corresponding to the permit cycles, as outlined in Table 1-1.

Table 1-1. Pollutant Percent Reduction Requirements by Permit Cycle

Permit Cycle	Timeframe	Cycle Percent Reduction	Cumulative Percent Reduction
1	2013-2018	5%	5%
2	2018-2023	35%	40%
3	2023-2028	60%	100%

The purpose of this memorandum is to document progress toward implementing the Chesapeake Bay TMDL Action Plan. The objectives of this memorandum are to present the required pollutant reduction requirements for the second permit cycle and discuss strategies that have been implemented or will be implemented by the Air Force Civil Engineer Center (AFCEC) and JBLE–Langley to reduce nutrient and sediment loads.

This memorandum is organized into the following sections:

- Section 1.0 presents the background, purpose and objectives
- Section 2.0 describes the pollutant load reduction requirements
- Section 3.0 describes the pollutant credits achieved by the base
- Section 4.0 describes future best management practices (BMP)
- Section 5.0 presents the progress summary
- Section 6.0 contains a list of references associated with this memorandum

2.0 POLLUTANT LOAD REDUCTION REQUIREMENTS

The source load and reduction values for total nitrogen, total phosphorus, and total suspended solids from existing developed lands (served by the MS4 as of 30 June 2009) and newly developed or redeveloped lands (contributed by the base after 01 July 2009) were calculated using the means and methods described in the Guidance Document (VDEQ, 2021). The base is required to reduce 40% of the existing and new source loads by the end of this second permit cycle (30 June 2023). New source loads have been offset by eligible BMPs to entirely meet the current reduction requirement. The Existing Source Loads and required reductions were calculated using the Table 3a (York River Basin) template of the Guidance Document (VDEQ, 2021). New Source Loads and offsets were calculated using the aggregate accounting method described in the Guidance Document (VDEQ, 2021). Total load changes since 01 July 2009 were calculated based on changes in land cover, as shown in Table 2-1.

Table 2-1. Existing and New Loads and Total Load Change at JBLE–Langley

Land Cover (Subsource)	Pollutant	Estimated Total Load as of 30 June 2023 (lbs/yr)	Estimated Total Load as of 30 June 2009 (lbs/yr)	Total Load Change (lbs/yr)	
Regulated Urban Impervious	Nitrogen	4,355	4,143	213	8
Regulated Urban Pervious		9,087	9,292	-204	
Regulated Urban Impervious	Phosphorus	900	856	44	30
Regulated Urban Pervious		606	619	-14	
Regulated Urban Impervious	Total Suspended Solids	272,090	258,801	13,289	11,346
Regulated Urban Pervious		86,455	88,399	-1,943	

Note and Acronym:
Minor calculation discrepancies are accounted for in rounding.
lbs/yr – Pounds per year

Net changes in source loads were calculated by adjusting the total load change since 2009 with offset credits earned from eligible BMPs, as shown in Table 2-2.

Table 2-2. Net Load Changes from New Sources and Additional Reductions Required

Pollutant	Total Load Change (lbs/yr)	BMP Offset since 01 July 2009 (lbs/yr)[1]	Net Load Change (lbs/yr)	Sum of 40% Cumulative Reduction Required by 30 June 2023 (lbs/yr)[2]	Sum of 100% Cumulative Reduction Required by 30 June 2028 (lbs/yr)[2]
Nitrogen	8	194	-186	0	0
Phosphorus	30	30	0.6	0	0
Total Suspended Solids	11,346	11,964	-618	0	0

Notes and Acronym:
[1] Reductions from BMPs installed between 2009 and 2023 are calculated in Section 5.0 below.
[2] A zero value indicates reductions from BMPs installed after 01 July 2009 are higher than the Total Load Change and no additional reductions are required to offset the Net Load Change.

Minor calculation discrepancies are accounted for in rounding.
lbs/yr – Pounds per year

3.0 LOAD REDUCTION CREDITS ACHIEVED

This section describes load reduction credits achieved by JBLE–Langley from post-construction BMPs, street sweeping, land use change and shoreline management.

3.1 Existing Post-Construction BMPs (Post-2006)

A geographic information system (GIS) inventory of existing post-construction BMPs present at JBLE–Langley and their drainage areas was developed to help calculate existing credits for the Action Plan. BMPs installed between 01 January 2006 and 30 June 2009 were included in this analysis. BMPs installed prior to 01 January 2006 are not eligible for credit and were thus excluded from consideration for this Action Plan. BMPs installed after 30 June 2009 were tracked separately to facilitate the calculation of new source loads. For BMPs installed after 30 June 2009, only those implemented under conditions of redevelopment were eligible for credits, as described in the Guidance Document (VDEQ, 2021). Summaries of existing BMP types and credits are provided in Table 3-1 and 3-2 respectively.

Table 3-1. Summary of Existing Post-Construction BMP Types

BMP Type	Timeframe Implemented			Total
	01 Jan 2006 to 30 June 2009	01 Jan 2009 to 30 June 2018	01 July 2018 to 30 June 2023	
Dry Detention Pond	0	13	0	13
Dry Extended Detention Pond	3	1	0	4
Swale	2	14	4	20
Wet Pond or Wetland	1	0	0	1
Filterra Bioretention Systems	0	8	0	8
Total	**6**	**36**	**4**	**46**

Table 3-2. Summary of Credits from Existing Post-Construction BMPs

BMP Timeframe	Number of BMPs	Credits (lbs/yr)		
		Nitrogen	Phosphorus	Total Suspended Solids
2006–2009	6	22	2.8	1,303
2009–2018[1]	36	185	29	11,549
2018–2023[1]	4	9.4	1.1	416

Acronym:
[1] Reductions from BMPs installed after 01 July 2009 are accounted for as offsets to New Source Loads rather than BMP credits.
lbs/yr – Pounds per year

3.2 Street Sweeping

The base performs vacuum powered street sweeping on primary roads, secondary roads and parking lots on a regular basis. Street sweeping credits are calculated based on the methodology described in *Recommendations of the Expert Panel to Define Removal Rates for Street and Storm Drain Cleaning Practices* (Donner et al., 2016). Data on frequency and linear miles of sweeping was provided by the base and is used to calculate load reduction credits. A summary of street sweeping credits is presented in Table 3-3.

Table 3-3. Summary of Annual Street Sweeping Credits

Acres Swept	Credits (lbs/yr)		
	Nitrogen	Phosphorus	Total Suspended Solids
279.6	4.6	6.4	3,985

Acronym:
lbs/yr – Pounds per year
Street sweeping credits are calculated based on the methodology described in *Recommendations of the Expert Panel to Define Removal Rates for Street and Storm Drain Cleaning Practices* (Donner et al., 2016)

3.3 Land Use Change

Four land use change BMP opportunities were identified on the base at Eaglewood Golf. At all locations, brush and trees are growing in place of managed turf. The land use change credited at these locations is thus based on the turf to mixed-open land use, and the credit reductions were calculated per Appendix V.H of the Guidance Document. A summary of land use change credits is presented in Table 3-1.

Table 3-1. Summary of Land Use Change Credits

Pollutant	Turf to Mixed Open (acres)	Credit (lbs/yr)
Nitrogen	101.5	630.3
Phosphorus	101.5	114.7
Total Suspended Solids	101.5	0.0

Acronym:
lbs/yr – Pounds per year

3.4 Shoreline Management

A summary of pollutant load reductions from the 10,841 linear feet of shoreline restoration activities on the base is presented in Table 3-5. Additional details are provided in the TMDL Action Plan.

Table 3-5. Summary of Shoreline Management Reductions

Shoreline Restoration (ft)	TN Credit (lbs/yr)	TP Credit (lbs/yr)	TSS Credit (lbs/yr)
5,400	118.6	83.8	408,800
3,150	34.6	24.4	119,233
725	1.9	0.4	1,821
1,566	100.1	33.9	152,521
Total	**255.1**	**142.5**	**682,374**

Note and Acronyms:
lbs/ft/yr – Pounds per foot per year
lbs/yr – Pounds per year
Minor calculation discrepancies are accounted for in rounding.

4.0 FUTURE BMPs

JBLE–Langley plans on building seawalls at various locations around the base to prevent shoreline erosion. The base is also planning on expanding the area converted from turf into native species grass lands. Because all of these projects were or will be implemented after 30 June 2023 no credit is being claimed. The base will continue to investigate the applicability and feasibility of additional BMPs and BMP types in order to meet the pollutant load reduction requirements of the Chesapeake Bay TMDL. Opportunities for effective retrofit options will be explored and prioritized to make the best use of available resources.

5.0 PROGRESS SUMMARY

A summary of the required load reductions is presented in Table 5-1 and the second permit cycle pollutant credits are presented in Table 5-2.

Table 5-1. Summary of Permit Cycles 1, 2 and 3 Reduction Requirements

Pollutant	Required Load Reduction by 2018 (lbs/yr)	Required Load Reduction by 2023 (lbs/yr)	Required Load Reduction by 2028 (lbs/yr)
Nitrogen	37	298	745
Phosphorus	9.1	73	182
Total Suspended Solids	2,944	23,551	58,877

Acronym:
lbs/yr – Pounds per year

Table 5-2. Summary of Second Permit Cycle Reduction Requirements and Credits

Pollutant	Second Permit Cycle Cumulative Percent Reduction Requirement	Required Load Reduction by 2023 (lbs/yr)	Credits from Existing BMPs (lbs/yr)[1]	Second Permit Cycle Target Met?
Nitrogen	40%	298	912	Yes
Phosphorus	40%	73	266	Yes
Total Suspended Solids	40%	23,551	687,663	Yes

Note and Acronym:
[1] Does not include credits related to New Sources that were previously accounted for in Table 2-2.
lbs/yr – Pounds per year

6.0 REFERENCES

Donner, S., Frost, B., Goulet, N., Hurd, M., Law, N., Maguire, T., Selbig, B., Shafer, J., Stewart, S. and Tribo, J. 2016. *Recommendations of the Expert Panel to Define Removal Rates for Street and Storm Drain Cleaning Practices*. Chesapeake Bay Program Office. Accessed at https://www.chesapeakebay.net/channel_files/23064/final_street_cleaning_expert_panel_report.pdf.

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Forand N., Dubois K., Halka J., Hardaway S., Janek, G., Karrh, G., Koch, E., Linker, L., Mason, P., Morgereth, E., Proctor, D., Smith, K., Stack, B., Stewart, S. and Wolinski, B. 2017. *Recommendations of the Expert Panel to Define Removal Rates for Shoreline Management Projects*. Chesapeake Bay Program Office. Accessed at https://www.chesapeakebay.net/documents/LONG_SHORELINE_MGMT_EPR_05152018.pdf.

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VDEQ. 2018. *General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems, General Permit No. VAR040140*. Effective date 01 November 2018.

VDEQ. 2021. *Guidance Memo No. 20-2003*. 6 February, 2021.

LIST OF ACRONYMS

AFCEC	Air Force Civil Engineer Center
BMP	Best Management Practice
EPA	Environmental Protection Agency
ft	Feet
GIS	Geographic Information System
JBLE–Langley	Joint Base Langley Eustis–Langley
L2	Level 2
lbs/yr	Pounds per year
MS4	Municipal Separate Storm Sewer System
POC	Pollutants of Concern
TMDL	Total Maximum Daily Load
VDEQ	Virginia Department of Environmental Quality
WIP	Watershed Implementation Plan

Attachment 5:
Bacteria TMDL Action Plan Implementation Status Memo

Date: 23 June 2023

Subject: Back River Bacteria TMDL Action Plan Implementation Progress for JBLE–Langley

1.0 INTRODUCTION

In 2017, the Virginia Department of Environmental Quality (VDEQ) developed Total Maximum Daily Loads (TMDL) to address fecal coliform bacteria impairment in the Back River Virginia (VDEQ, 2017). The TMDLs, which were approved by the United States Environmental Protection Agency (EPA) on 09 February 2018, assign wasteload allocations for bacteria to Joint Base Langley Eustis–Langley (JBLE-Langley). The wasteload allocation is a portion of the TMDL load and represents the allowable load a permittee may discharge to the waterbody and still meet water quality standards.

JBLE–Langley is authorized to discharge stormwater from the installation in accordance with an industrial stormwater permit (VAR052285) and a Municipal Separate Storm Sewer System (MS4) permit (VAR040140) (VDEQ 2018), both issued by the VDEQ. The MS4 permit identifies minimum control measures and special condition requirements, measurable goals and best management practices selected for implementation at JBLE–Langley. Special Condition 1 found in Section II.B.1 of the JBLE–Langley MS4 permit requires the installation to maintain a specific TMDL Action Plan for pollutants allocated to the MS4 in an approved TMDL.

JBLE–Langley updated their Bacteria TMDL Action Plan for the installation's MS4 area. The TMDL Action Plan describes the TMDL waterbodies, JBLE–Langley installation, existing and proposed bacteria control measures and an implementation schedule for addressing bacteria sources in the Back River watershed (JBLE–Langley, 2023).

The purpose of this memorandum is to document progress toward implementing the Back River Bacteria TMDL Action Plan (JBLE–Langley, 2023). The objectives of this memorandum are to present the results of the bacteria source assessment at JBLE–Langley and discuss strategies that have been implemented or will be implemented by the Air Force Civil Engineer Center (AFCEC) and JBLE–Langley to reduce bacteria sources.

This memorandum is organized into the following sections:

- Section 1.0 presents the background, purpose and objectives
- Section 2.0 describes the schedule and actions for addressing bacteria sources
- Section 3.0 describes the bacteria source assessment
- Section 4.0 describes the bacteria action plan implementation progress
- Section 5.0 describes bacteria-reducing actions in progress
- Section 6.0 presents the summary and next steps
- Section 7.0 contains a list of references associated with this memorandum

2.0 ACTION PLAN FOR ADDRESSING BACTERIA IN THE BACK RIVER

JBLE–Langley developed an implementation schedule for addressing bacteria impairments in the Back River as part of the Back River Bacteria TMDL Action Plan for JBLE–Langley (JBLE–Langley, 2023). During the first MS4 permit cycle (2017 – 2018), the Action Plan lists the following JBLE–Langley implementation actions:

- Identify and maintain a list of existing source controls and management practices that are applicable to reducing fecal coliform bacteria.
- Identify opportunities for enhancing public education and outreach programs to address bacteria impairment.
- Assess significant sources of bacteria using desktop evaluations, field investigations and collaboration with key base staff.
- Determine if additional source controls are needed. Prepare a summary of potential controls and identified programs and activities to support their implementation.
- Evaluate new bacteria-related datasets for the Back River watershed collected by other agencies (e.g., VDEQ) as available.

As described in the Back River Bacteria TMDL Action Plan, bacteria-reducing activities to be performed during the second MS4 permit cycle (2018 – 2023) include:

- As funding permits, implement activities identified in the implementation schedule (from previous years) as appropriate.
- Evaluate new bacteria-related datasets for the Back River watershed collected by other agencies as available.
- Identify any current or additional activities to be performed during the subsequent permit cycle.
- Submit an estimated end date for achieving the bacteria wasteload allocation.
- Update the Bacteria TMDL Action Plan to reflect activities performed during the following year and report on progress annually. Adjust the implementation schedule as needed to reflect findings from field and desktop assessments. Report on progress annually.

3.0 BACTERIA SOURCE ASSESSMENT

The Back River TMDL report identifies both natural and anthropogenic sources of bacteria in the watershed (Table 3-1).

Table 3-1. Fecal Bacteria Source Allocations (%) in the Back River Watershed (Source: VDEQ 2017, Table 3.7 and Table 3.8)

Source Category	Source	Percent
Wildlife	Deer	4.3
	Ducks/Birds	43.2
	Muskrats	0.6
	Nutria	1.3
	Racoons	0.3
Pets	Dog	34.6
Livestock	Livestock	9.0
Human	Human-Sanitary Sewer Overflow	6.1
	Human-Septic	0.0
	Marina (slips)	0.4

The percentages presented in Table 3-1 are averages across the entire Back River watershed. The 2017 TMDL does not identify any specific sources of bacteria within the JBLE–Langley MS4 area. To build on this information, JBLE–Langley conducts an annual evaluation of local fecal bacteria sources with the goal of identifying potential pollutant "hot spots" or sources across the base. The evaluation conducted in 2023 included field assessments of potential point and nonpoint sources of bacteria. Potential sources of bacteria include wildlife, horse stables, the dog training center and associated dog kennels, and resident housing area The sources identified, and strategies taken to address these sources are described in Sections 4.0 and 5.0.

4.0 BACTERIA ACTION PLAN IMPLEMENTATION PROGRESS

This section describes programs and activities that are being implemented at JBLE–Langley to address bacteria sources and accomplish the goals set forth in the JBLE–Langley Bacteria TMDL Action Plan.

4.1 Wildlife

Wildlife is the single largest source contributor of bacteria within the Back River watershed and also the most challenging to control. The base employs strategies to control the wildlife population through the Natural Resources Program as described in the Installation Natural Resources Management Plan (INRMP) to address bird/animal aircraft strike hazard (BASH) safety concerns, reduce disease burden on local wildlife, and lower predation pressure on nesting Diamondback Terrapins. JBLE–Langley works with the United States Department of Agriculture, Natural Resource Conservation Service to remove deer, coyotes, large birds, cats, and other animals. Additionally, steps the base takes to prevent wildlife from being drawn to the flightline include maintaining low-cut grass around the airfield, removing wetlands in the airfield clear zone, restricting stormwater management basins that retain water for over 48 hours, and installing fencing around the airfield.

4.2 Domestic Animals

Pet waste is the second largest contributor of bacteria within the Back River watershed. Unlike wildlife, pet waste can be effectively controlled using a variety of management approaches. JBLE–Langley residents are permitted to have pets and it is reasonable to assume that residents walk their dogs around nearby neighborhoods. Pet waste disposal stations have been installed and are maintained by Langley Family Housing (LFH) staff who work for Balfour Beatty Communities, the private real estate company that manages JBLE–Langley housing. As described in the base's MS4 Program Plan, residents with pets are briefed on the importance of proper pet waste disposal and the impact on stormwater and water quality (JBLE–Langley, 2019).

JBLE–Langley maintains a military dog training center with associated dog kennels and approximately 15 acres of horse stable and pasture. Dog training areas are covered with artificial turf and are surrounded by vegetated buffers that provides filtration of pollutants prior to entering surface waters. Potential sources of bacteria in runoff from the dog training center are addressed through stormwater treatment practices and training as described in the MS4 Program Plan (JBLE–Langley, 2019).

JBLE–Langley has developed and distributed a pet waste brochure that contains educational information and contact information for the Stormwater Program Manager. The pet waste brochure is given to new residents of base housing.

4.3 Livestock

The JBLE–Langley horse stable is the only location housing livestock on the installation. The JBLE–Langley horse stable is privatized through the Saddle Club and encompasses approximately 15 acres including a horse stable, boarding facility and pasture. Stable bedding and manure associated with the stable are contained under cover and horse owners are informed of the importance of minimizing exposure to stormwater. Potential sources of bacteria in runoff from the horse stable are addressed through stormwater treatment practices and training as described here and in the MS4 Program Plan (JBLE–Langley, 2019).

4.4 Human

The entire JBLE–Langley installation is currently connected to a sanitary sewer network, and there are no septic systems currently located on the installation. The JBLE–Langley Illicit Discharge Detection and Elimination (IDDE) program is designed to help detect, identify and address non-stormwater discharges to the stormwater network. Non-stormwater discharges include untreated sewage that contains fecal bacteria. To help detect and identify illicit discharges, the base regularly screens outfalls to determine if any non-runoff related discharges are occurring. Recent inflow and infiltration evaluations found no interconnections between the sanitary and storm sewer systems. Dry weather screening is conducted on non-industrial outfalls annually as outlined in the IDDE Procedure Manual. Any sanitary sewer overflows that occur will be immediately addressed.

In 2017, JBLE–Langley replaced sanitary sewer piping and spent approximately $1.3 million dollars on sanitary sewer repairs to reduce infiltration and inflow. In addition, the primary force main that services most of the base has been redesigned and is planned for construction. These efforts assist in reducing the occurrence of sanitary sewer overflows. Fifty (50) of the 98 non-industrial outfalls were inspected during 2022-2023. The outfall inspections included the collection of outfall type, outfall pipe diameter and material type, flow description, physical indicators of illicit discharge, and overall preliminary rating based on these indicators. Details on the IDDE program and procedures used to identify illicit discharges are provided in the JBLE–Langley IDDE Procedures Manual (JBLE–Langley, 2017). Additional detail on IDDE initiatives is presented in the JBLE–Langley MS4 Program Plan (JBLE–Langley, 2019).

Improperly discharged sewage from recreational boats is also a potential source of bacteria. The base maintains a recreational boat marina used by members of the JBLE–Langley community. To avoid illicit or accidental discharge of raw sewage at the marina, the base provides required training to all boat-slip renters on the proper use of the sewage pump-out station. When properly utilized by boat owners, this device will help to minimize sewage leaks and associated bacteria inputs to the Southwest Branch Back River and Back River.

4.5 All Source Categories

JBLE–Langley has implemented a number of additional control measures to address fecal bacteria pollution from the base. Over the past seven years, JBLE–Langley has completed 9,295 linear feet of shoreline stabilization along the eastern and southeastern shorelines of the Back River and Southwest Branch Back River. JBLE–Langley constructed an additional 1,566 linear feet of stabilization in 2020 along portions of the Southwest Branch Back River near the marina. Additional shoreline restoration is planned for the near future. These areas of stabilization increase resilience to major storm events and flooding, provide habitat for native animals and plants and reduce erosion and suspension of sediment and associated bacteria in the Back River and Chesapeake Bay.

5.0 BACTERIA-REDUCING ACTIVITIES IN PROGRESS (2022-2023)

JBLE–Langley has initiated 2022-2023 actions that are identified in Section 2.0 of this memorandum. In addition, JBLE–Langley plans to refine its initial assessments of potential sources and control measures, with the goal of improving resource allocation across the installation.

6.0 SUMMARY

In summary, JBLE–Langley has taken several actions to reduce bacteria and address various sources on the installation. Completed or ongoing actions taken by JBLE–Langley include the following:

- Prepared a Bacteria TMDL Action Plan, including preliminary source investigations and schedule for addressing bacteria sources.
- Relocated deer, coyotes, large birds, cats and other animals away from the base and deterred these wildlife from areas surrounding airfields to avoid BASH safety concerns.
- Installed pet waste disposal stations at housing areas and in areas frequented by pets.

- Developed and distributed educational brochures to the public, including pet waste, outdoor vehicle washing, and car maintenance and pollution prevention brochures.
- Performed sanitary sewer repairs to reduce infiltration and inflow and redesigned the primary force main that services most of the base.
- Installed a new sewage boat pump out station.
- Completed 10,861 linear feet of shoreline stabilization along the eastern and southeastern shorelines of the Back River and Southwest Branch Back River.
- Constructed an oyster reef restoration project in the Back River in partnership with the Chesapeake Bay Foundation and Booker Elementary school in 2017. In August 2018 and again in June 2019, the base expanded the reef habitat through oyster reef building workshops, involving both elementary school students and base residents.
- During 2022-2023, several local events were hosted to raise awareness and facilitate public involvement on the topics of reducing pollutants in stormwater, improving water quality and supporting local restoration and clean-up projects.

7.0 REFERENCES

JBLE–Langley. 2019. *Joint Base Langley Eustis–Langley (JBLE–Langley) Municipal Separate Storm Sewer System (MS4) Program Plan*. January 2022.

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LIST OF ACRONYMS

AFCEC	Air Force Civil Engineer Center
BASH	Bird/Animal Aircraft Strike Hazard
EPA	Environmental Protection Agency
IDDE	Illicit Discharge Detection and Elimination
JBLE–Langley	Joint Base Langley Eustis–Langley
MS4	Municipal Separate Storm Sewer System
TMDL	Total Maximum Daily Load
VDEQ	Virginia Department of Environmental Quality