ARLINGTON NATIONAL CEMETERY

MS4 Permit Year 2017/2018

VAR040139

Annual Report and Program Plan Update

Reporting Period
July 1, 2017 through June 30, 2018
(Due: October 1, 2018)

Submitted to:
Virginia Department of Environmental Quality
Woodbridge, VA

Prepared by:
Arlington National Cemetery
Arlington, VA

TABLE OF CONTENTS

ARLINGTON NATIONAL CEMETERY
1 MEMORIAL AVENUE
ARLINGTON, VA 22211

SIGNATURE AND CERTIFICATION

Certification, as required by Virginia Administrative Code (9VAC25-890-40):
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.

Michael D. Peloquin, Colonel, U.S. Army	Chief, Engineering Division
Printed Name	Title
PELOQUIN.MICHAEL.DAVID.1043747882 Digitally signed by PELOQUIN.MICHAEL.DAVID.1043747882 Date: 2018.10.01 13:32:38 -04'00'	1 OCT 18
Signature	Date

1.0 INTRODUCTION

Virginia Stormwater Management Act, the Virginia Stormwater Management Program (VSMP) Permit regulations, and the Clean Water Act regulate discharges from municipal separate storm sewer systems (MS4) as point source discharges. Publicly owned systems such as storm drains, pipes, ditches or swales collecting or moving water to surface waters must obtain permit coverage and develop a stormwater management program.

MS4 programs must be designed and implemented to control the discharge of pollutants from their storm sewer system to the maximum extent practicable in a manner that protects the water quality in nearby streams, rivers, wetlands and bays.

The General Permit for the Discharge of Stormwater from Small MS4s regulates stormwater discharges from MS4s, such as, Department of Defense facilities. The general permit requires small MS4s develop, implement, and enforce a program that includes the following "minimum control measures:"

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

The MS4 permit requires small MS4s submit annual reports to DEQ. These reports document the status of compliance with permit conditions. Arlington National Cemetery (ANC) personnel prepared this annual report to comply with the requirements of its MS4 permit.

2.0 PROGRESS ON MINIMUM CONTROL MEASURES - SUMMARY

This section provides progress during this reporting period, July 1, 2017, to June 30, 2018, and planned activities for the next reporting period, July 1, 2018, to June 30, 2017, for each Best Management Practices (BMPs) within the six MCMs. ANC identified these BMPs in its registration statement and its MS4 program plan dated December 2015. ANC conducted an assessment of the effectiveness of the identified BMPs and provides the following Progress Goals and Planned Activities.

2.1 Public Education and Outreach

ANC trained greater than 20% of its employees this past permit year. ANC employees received training during ANC's Town Hall event in May 2018 and received brochures regarding stormwater management and illicit discharge detection.

2.2 Public Involvement and Participation

In the last year, ANC worked with a contractor drafting a new MS4 program plan and hosted special guided tours of the ANC's facility focusing on environmental related topics associated with ANC's operations, such as, landscape management and stormwater best management practices.

2.3 Illicit Discharge Detection and Elimination

ANC maintains and updates storm sewer system map and interconnection/outfall information, tracks releases of pollutants, and trains employees regarding stormwater management and illicit discharge detection annually.

2.4 Construction Site and Stormwater Runoff Control

ANC incorporates environmental language into contracts as allowed by contracting action. In addition, ANC ensures any land disturbing activity greater than 2,500 square feet and less than one acre complies with Virginia Stormwater Management Regulation . Any project greater than one (1) acre complies with Virginia Stormwater Management Regulation and Erosion and Sediment Control Regulations, and obtains a Permit for Discharges of Stormwater from Construction Activities. During this permit year, VDEQ issued two (2) Permits for Discharges of Stormwater from Construction Activities, VAR10K463 and VAR10K727, for projects occurring at ANC.

2.5 Post-Construction Stormwater Management in New Development and Development on Prior Developed Lands

ANC incorporates stormwater best management practices in construction projects in accordance with the VA Stormwater Management Program Regulation, and participates in the design process by reviewing designs, plans and specifications, and providing stormwater program guidance to contracting personnel during design and contracting process. Annually, ANC inspects existing stormwater BMPs: permeable pavement, stormceptors, stormfilter, and bioretention units. ANC did not receive any new BMPS this permit year.

2.6 Pollution Prevention and Good Housekeeping for Municipal Operations

ANC manages pesticides, herbicides, and fertilizers in accordance with its Integrated Pest Management Plan and Nutrient Management Plan. ANC conducts and documents findings of annual inspections of the B123 Complex and Spoils/Contractor Laydown Yards (SEC 61 and SEC 58). In addition, ANC trains employees regarding stormwater management and illicit discharge detection annually.

3.0 PROGRESS ON MINIMUM CONTROL MEASURES - TABLE

ANC provides the following table and attachments of its Progress Goals and Planned Activities.

ARLINGTON NATIONAL CEMETERY
VAR040139

BMP ID #	BMP Description	Responsible Party	Measurable Goal(s)	Progress on Goal(s) Permit Year 2017/2018	Planned Activities
MCM 1 – Public Education and Outreach on Stormwater Impacts					
1.a	Information plaques at BMPs	Environmental / Facilities Maintenance	Installation of information plaques at BMPs. At least 20% of the target audience will be reached.	Removed	N/A
1.b	Storm drain inlet markings	Environmental / Facilities Maintenance	Installation of storm drain inlet markings. At least 20% of the target audience will be reached.	While ANC continues to install stormdrains marked with "Dump No Waste Drains to Chesapeake Bay" to alert visitors and ANC personnel of discharge location, ANC does not have a way to measure this goal.	Continue to install stormdrains marked with"Dump No Waste Drains to Chesapeake Bay".
1.c	Display printed materials at the Welcome Center and distribute information via email, websites, and social media	Environmental / Public Affairs Office	Development of outreach materials focusing on minimizing stormwater pollution and procedures implemented at ANC for reducing stormwater pollution. At least 20% of the target audience will be reached.	At least 20% of the target audience or 40 ANC employees receive training annually. ANC employees received training during Town Hall event held in May 2018. Provide environmental brochures regarding stormwater management. Estimate 161 employees of 180 (89% of target audience) reached through the Town Hall events and ANC SharePoint site. This component addresses illicit discharge minimization, Chesapeake Bay nutrients, and sediment and stomwater run-off as a high priority water quality issues. ANC personnel and contractors received the Stormwater handout (english and spanish) during training events.	Continue to provide ANC employees training on stormwater pollution and other high priority water quality issues (i.e., illicit discharge minimization, Chesapeake Bay nutrients, sediment, and stormwater run-off) during one of ANC's quarterly Town Hall events and Newcomer's briefings. At least 20% of the target audience or 40 ANC employees receive training annually.
1.d	Develop training plans and training materials	Environmental / Operations	The training plans and materials increase employee knowledge on reducing stormwater pollution and other high priority water quality issues. At least 20% of the target audience will be reached.	At least 20% of the target audience or 40 ANC employees receive training annually. ANC employees received training during Town Hall event held in May 2018. Provide environmental brochures regarding stormwater management. Estimate 161 employees of 180 (89% of target audience) reached through the Town Hall events and ANC SharePoint site. This component addresses illicit discharge minimization, Chesapeake Bay nutrients, and sediment and stomwater run-off as a high priority water quality issues. ANC personnel and contractors received the Stormwater handout (english and spanish) during training events.	Continue to provide ANC employees training on stormwater pollution and other high priority water quality issues (i.e., illicit discharge minimization, Chesapeake Bay nutrients, sediment, and stormwater run-off) during one of ANC's quarterly Town Hall events and Newcomer's briefings. At least 20% of the target audience or 40 ANC employees receive training annually.

In the last permit year, ANC worked with NAVFAC and Bluestone Environmental Group/CH2MHILL to develop a new MS4 program plan, Stormwater Pollution Prevention Plan, training plan, and TMDL plan.

ARLINGTON NATIONAL CEMETERY
VAR040139

BMP ID #	BMP Description	Responsible Party	Measurable Goal(s)	Progress on Goal(s) Permit Year 2017/2018	Planned Activities
MCM 2 – Public Involvement and Participation					
2.a	Maintain an updated MS4 Program Plan	Environmental	Evaluate the effectiveness of the MCMs documented in the MS4 Program Plan and revise/add new MCMs as appropriate. Any required updates to the MS4 Program Plan will be completed annually in conjunction with the annual report.	Plan submitted in December 2015.	Annual review of the MS4 Program Plan conducted. In the last year, ANC worked with NAVFAC and Bluestone Environmental Group/CH2MHILL to develop a new MS4 program plan. Anticipate submittal of revised plan with issuance of MS4 permit.
2.b	Promote availability of the MS4 Program Plan and any annual modifications for public review and comment	Environmental / Public Affairs Office (PAO) / Office of the Chief Information Officer (OCIO)	Post copies of the MS4 Program Plan on the ANC webpage at a minimum of once a year and no later than 30 days following submittal of the annual report to DEQ.	Plan submitted in December 2015.	Current MS4 program plan posted on the ANC internal Sharepoint page. Post VDEQ approved revised MS4 program plan on both Sharepoint and ANC website.
2.c	Provide public access to the annual report in compliance with Freedom of Information Act	Environmental / PAO / OCIO	Provide the annual report to the public via the ANC SharePoint no later than 30 days following submittal to DEQ and retain copies of annual reports online for the duration of the Small MS4 General Permit.	Post the 2017/2018 annual report to the ANC public website and internal SharePoint page no later than 30 days following the submittal of the annual report to DEQ.	Post annual reports on ANC public website and internal SharePoint page and retain copies of annual reports for the duration of the MS4 permit.
2.d	Promotion of Local Activities	Horticulture / Environmental / PAO	Sponsor and host a minimum of four special guided tours of the facility with a focus on stormwater related topics at ANC. These guided tours will be open to the public and be promoted on the ANC webpage.	09/29/2017: Let It Rain!: Memorial Arboretum Rain Garden Tour 10/27/2017: Memorial Arboretum Hidden Gardens: Columbarium Courts 11/03/17 & 11/17/17: Memorial Arboretum Walking Tour 04/20/18: Chesapeake Bay Watershed: Raingarden Tour 04/24/18: ANC and National Park Service personnel cleaned up of Memorial Avenue, supporting DOD Earth Day and Clean the Bay Day events 04/27/18: Arbor Day Memorial Arboretum Walking Tour and Tree Dedication 05/11/18: Memorial Arboretum Walking Tour 05/18/18: Memorial Arboretum Spring Plant Tour	Host special guided tours of the facility with a focus on environmental related topics at ANC. Address stormwater awareness in presentation of local activities (ANC's Arboretum, Columbarium, and Raingarden tours). Each activity discusses how ANC manages stormwater through landscape management and stormwater best management practices. Promote tours on ANC social media and ANC public website.

In the last permit year, ANC worked with NAVFAC and Bluestone Environmental Group/CH2MHILL to develop a new MS4 program plan, Stormwater Pollution Prevention Plan, training plan, and TMDL plan.

ARLINGTON NATIONAL CEMETERY
VAR040139

BMP ID #	BMP Description	Responsible Party	Measurable Goal(s)	Progress on Goal(s) Permit Year 2017/2018	Planned Activities
MCM 3 – Illicit Discharge Detection and Elimination					
3.a	Conduct a Storm Sewer Delineation Pilot to result in a storm sewer system map and outfall information table.	Environmental / OCIO	Create and update the Geographic Information Systems (GIS) mapping files for ANC to ensure storm sewer infrastructure is documented. Develop a storm sewer system map and an associated outfall information table consistent with the Small MS4 General Permit.	Completed 2014/2015.	N/A
3.b	Maintain an updated storm sewer system map and outfall information table	Engineering / OCIO	Update the GIS mapping files and the outfall information table as new data become available. Maintain a copy of the current storm sewer system map and outfall information table for review upon request by the public or by DEQ.	Maintain and update storm sewer system map and outfall information table as needed.	Maintain and update storm sewer system map and outfall information table as needed.
3.c	Coordinate with adjacent MS4s on physically interconnected discharge locations	Environmental	Notify in writing physically interconnected MS4s to promote continued awareness of ANC's points of stormwater discharge.	Completed 2014/2015 and 2016/2017.	N/A
3.d	Develop and implement procedures to detect and address non-stormwater discharges, including illegal dumping, to ANC.	Environmental / Facilities Maintenance	Document when illicit discharge detection and elimination program is developed. Document regular implementation of program following program development.	Completed 2014/2015.	Continue to provide training.
3.e	Track the illicit discharges identified.	Facilities Maintenance / Environmental	Develop a tracking database to record illicit discharges identified from dry weather monitoring.	Track releases of pollutants using a spreadsheet.	Continue to document releases and track illicit discharges when identified.
3.f	Incorporate standard nonstormwater compliance language into all contracts.	Contract Support Command/ Engineering	Develop standard language and document that the standard language is incorporated into contracts during the review process.	Completed 2014/2015.	N/A
3.g	Encourage public to notify ANC of possible illicit discharges	Environmental	Promote and facilitate employee reporting of illicit discharges observed at ANC or along ANC boundary.	ANC employees received training during Town Hall event held in May 2018. Provide environmental brochures regarding stormwater management. Estimate 161 employees of 180 (89% of target audience) reached through the Town Hall events and ANC SharePoint site. This component addresses illicit discharge minimization, Chesapeake Bay nutrients, and sediment and stomwater run-off as a high priority water quality issues. ANC personnel and contractors received the Stormwater handout (english and spanish) during training events.	Continue to provide ANC employees training on stormwater pollution and other high priority water quality issues (i.e., illicit discharge minimization, Chesapeake Bay nutrients, sediment, and stormwater run-off) during one of ANC's quarterly Town Hall events and Newcomer's briefings. At least 20% of the target audience or 40 ANC employees receive training annually.

In the last permit year, ANC worked with NAVFAC and Bluestone Environmental Group/CH2MHILL to develop a new MS4 program plan, Stormwater Pollution Prevention Plan, training plan, and TMDL plan.

ARLINGTON NATIONAL CEMETERY
VAR040139

BMP ID #	BMP Description	Responsible Party	Measurable Goal(s)	Progress on Goal(s) Permit Year 2017/2018	Planned Activities
MCM 4 – Construction Site and Stormwater Runoff Control					
4.a	Comply with Virginia laws and regulations governing construction site runoff control.	Engineering	Identify the appropriate regulations, check for updates to the regulations, and inform appropriate contractors, reviewers, and inspectors of the regulations.	Language incorporated into contracts as allowed by contracting action.	Monitor changes to laws and regulations and modify contract language as appropriate.
4.b	Incorporate standard stormwater compliance language into all construction designs and contracts	Contract Support Command/ Engineering	Develop standard language and ensure such language is incorporated into construction designs and contracts to address discharges entering the MS4 from land-disturbing activities	Language incorporated into contracts as allowed by contracting action.	Monitor changes to laws and regulations and modify contract language as appropriate.
4.c	Plan approval and permit authorizations obtained prior to commencement of the land disturbing activity	Engineering	Require that land disturbance not begin until: 1) an erosion and sediment control plan is approved by a VESCP authority in accordance with the Erosion and Sediment Control Act, and 2) that construction activities secure necessary state permit authorizations from DEQ to discharge stormwater.	1. VDEQ approved erosion and sediment control plan and issued permit, VAR10H891, to Environmental Design and Construction LLC for the Funeral Procession Queuing at Arlington National Cemetery on March 9, 2016. Regulated land disturbing activity, 4.95 acres. 2. VDEQ approved erosion and sediment control plan and issued permit, VAR10C624, to Forrester Construction Company for the Millennium Project at Arlington National Cemetery (Ord and Weitzel Dr) on July 25, 2014. Regulated land disturbing activity, 26 acres. 3. VDEQ approved erosion and sediment control plan and issued permit, VAR10K463, to Four Tribes Construction Services for the Ord and Weitzel Road Repairs at Arlington National Cemetery on November 13, 2017. Regulated land disturbing activity, 4.69 acres. 4. VDEQ approved erosion and sediment control plan and issued permit, VAR10K727, to New Dominion Construction for the Spoils Yard Project at Arlington National Cemetery (SEC 61) on March 23, 2018. Regulated land disturbing activity, 3.38 acres.	Ensure plan approvals and permits issued for land disturbing activities occur prior to land disturbance.
4.d	Conduct construction site compliance inspections by ANC personnel	Engineering	Inspect land-disturbing activities for compliance with an approved erosion and sediment control plan. Conduct inspections based on implementation schedule.	ANC personnel (certified Combined Administrator) conducts periodic inspections of construction sites to ensure compliance with regulations. ANC issued inspection reports and contractors addressed deficiencies. At the Milennium Project, Funeral Queuing Project, Ord Weitzel Road Repair, and Spoils Yard Project contract personnel (Responsible Land Disturbers) conducted routine and rain event inspections in accordance with construction general permits and erosion and sediment control plans.	ANC personnel conduct periodic inspections and contractor personnel conduct inspections in accordance with construction general permit and erosion and sediment control plan.
4.e	Ensure that plan reviewers, inspectors, and program administrators obtain the appropriate certifications as required under the Virginia Erosion and Sedimentation Law	Environmental	Document the types of certificates required under the Erosion and Sedimentation laws and regulations. Document required training and certification frequency. Ensure appropriate personnel have such certificates.	Stacey Rosenquist, ESC Combined Administrator Certification, #6164, expires 11/30/2018. Completed training required for certification renewal in 2018. Verified contractors have certified Responsible Land Disturbers.	Track personnel training and certification requirements through VDEQ Knowledge and Certification and Accreditation Tracking System (CATS).

In the last permit year, ANC worked with NAVFAC and Bluestone Environmental Group/CH2MHILL to develop a new MS4 program plan, Stormwater Pollution Prevention Plan, training plan, and TMDL plan.

ARLINGTON NATIONAL CEMETERY
VAR040139

BMP ID #	BMP Description	Responsible Party	Measurable Goal(s)	Progress on Goal(s) Permit Year 2017/2018	Planned Activities
MCM 5 - Post-Construction Stormwater Management in New Development and Development on Prior Developed Lands					
5.a	Encourage the use of low impact development (LID)	Engineering/ Contract Support Command	Encourage implementation of LID (as appropriate to local and regional conditions) in standardized contract language for addressing post-construction stormwater runoff that enters the MS4 from all applicable land-disturbing activities.	Incorporate stormwater best management practices in construction projects IAW VA Stormwater Management Program Regulation. Provide stormwater program guidance to contracting personnel during design and contracting process.	ANC complies with VA Stomwater Management Program Regulation and ANC's MS4 permit.
5.b	Incorporate required design criteria for stormwater runoff controls into standard stormwater compliance language for all construction designs and contracts	Contract Support Command/ Engineering	Coordinate MS4 program requirements with contracting center (US Army Corps of Engineers) during design and contracting process.	ANC participates in the design process by reviewing designs, plans, and specifications.	ANC participates in the design process by reviewing designs, plans, and specifications.
5.c	Implement an inspection and maintenance program for structural BMPs at ANC	Engineering	Implement regular inspection and long-term operation and maintenance of ANC's stormwater management facilities	Inspected existing BMPs: permeable pavement,stormceptors, stormfilter, and bioretention units. ANC continues design and development of a facility-wide inspection and maintenance tracking system, BUILDER.	Conduct inspections of existing stormwater management facilities. Where maintenance is deemed necessary according to the inspection, work with personnel for maintenance actions.
5.d	Electronic database of all known stormwater management facilities at ANC	Environmental	Maintain an updated electronic database of all known ANC-owned stormwater management facilities that discharge into the MS4.	ANC did not receive any new BMPS this permit year.	Update table as new BMPs are accepted.

In the last permit year, ANC worked with NAVFAC and Bluestone Environmental Group/CH2MHILL to develop a new MS4 program plan, Stormwater Pollution Prevention Plan, training plan, and TMDL plan.

ARLINGTON NATIONAL CEMETERY
VAR040139

BMP ID #	BMP Description	Responsible Party	Measurable Goal(s)	Progress on Goal(s) Permit Year 2017/2018	Planned Activities
MCM 6 – Pollution Prevention and Good Housekeeping for Municipal Operations					
6.a	Minimize or prevent pollutant discharge from daily operations such as road, street, and parking lot maintenance	Field Operation Officer/Deputy Superintendent	Implement written protocols included in the MS4 Program Plan for minimizing or preventing pollutant discharge from daily operations. Document BMPs in SWPPPs for high-priority areas.	Completed and submitted with MS4 plan in December 2015.	Conduct inspections.
6.b	Minimize or prevent pollutant discharge from equipment and vehicle maintenance activities	Field Operation Officer/Deputy Superintendent	Implement written protocols included in the MS4 Program Plan for minimizing or preventing pollutant discharge from equipment and vehicle maintenance. Document BMPs in SWPPPs for high-priority areas.	Completed and submitted with MS4 plan in December 2015.	Conduct and document inspections.
6.c	Minimize or prevent pollutant discharge from the application, storage, transport, and disposal of pesticides, herbicides, and fertilizers	Horticulture	Refer to written protocols included in the ANC Integrated Pest Management Plan for minimizing or preventing pollutant discharge from the application, storage, transport, and disposal of pesticides, herbicides, and fertilizers.	Pesticides and herbicides are managed in accordance with the ANC Integrated Pest Management Plan. Fertilizers are managed in accordance with Nutrient Management Plan (6.g).	Usage reports maintained by Horticulture.
6.d	Identify SWPPP sites at ANC	Environmental	Identify high-priority facilities at the installation that have a high potential of discharging pollutants	Completed and submitted with MS4 plan in December 2015.	N/A
6.e	Develop and implement facility-specific SWPPPs for all applicable sites at ANC	Environmental	Develop and implement SWPPPs for all high-priority facilities that have a high potential of discharging pollutants to the stormwater system	Completed and submitted with MS4 plan in December 2015.	N/A
6.f	Update the ANC SWPPPs on an annual basis following SWPPP development	Environmental	Conduct Comprehensive Site Compliance Evaluations (CSCEs) annually to compare current conditions at high-priority facilities to SWPPPs	Conducted annual inspection at B123 and Spoils Yard.	Conduct annual inspections.
6.g	Develop a Turf and Landscape Nutrient Management Plan	Horticulture	Develop Nutrient Management Plan in accordance with appropriate regulations.	Revised NMP.	Track changes for next revision of NMP.
6.h	Conduct appropriate training for all applicable employees in compliance with the small MS4 General Permit	Environmental	Develop a Training Plan (MCM 1.d) to determine and document required training and provide training frequency	ANC employees received training during Town Hall event held in May 2018. Provide environmental brochures regarding stormwater management. Estimate 161 employees of 180 (89% of target audience) reached through the Town Hall events and ANC SharePoint site. This component addresses illicit discharge minimization, Chesapeake Bay nutrients, and sediment and stomwater run-off as a high priority water quality issues. ANC personnel and contractors received the Stormwater handout (english and spanish) during training events.	ANC employees receive training on stormwater pollution and other high priority water quality issues (i.e., illicit discharge minimization, Chesapeake Bay nutrients, sediment, and stormwater run-off) during one of ANC'squarterly Town Hall events. At least 20% of the target audience or 40 ANC employees receive training annually.

In the last permit year, ANC worked with NAVFAC and Bluestone Environmental Group/CH2MHILL to develop a new MS4 program plan, Stormwater Pollution Prevention Plan, training plan, and TMDL plan.

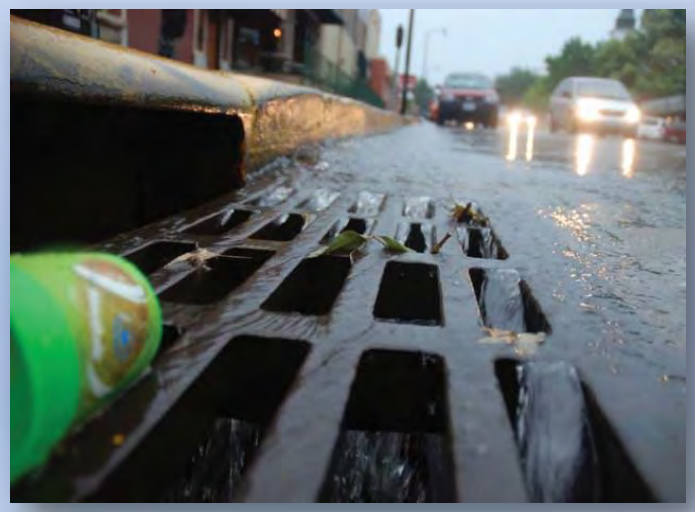
Arlington National Cemetery

Stormwater Training 2018

What is Stormwater Pollution?

Stormwater

- Precipitation - rain, snow, sleet, freezing rain
- Runs over pavement and grass and can pick up pollutants



- Pollutant = Sediment, dredged spoil, sewage, garbage, chemical wastes, oil/grease, biological materials, heat, rock, sand, soil, etc.

- Common ANC pollutant sources:
  - Littering
  - Sediment/spoil
  - Oil and chemical spills/leaks
  - Washing
  - Fertilizers and pesticides

Key Risks

ANC storm drains discharge to Boundary Channel and Pentagon Lagoon. Stormwater entering storm drains is not treated!

If regulations are not followed:

- Employees and/or public could be exposed to contaminated water
- Costly to achieve compliance again

Municipal Separate Storm Sewer System (MS4) Permit and Program

ANC's permit requires a MS4 Program Plan. This Plan includes:

- Public Education
- Public Involvement
- Construction Site Stormwater Control
- Post-Construction Stormwater Management
- Pollution Prevention Practices, Stormwater Pollution Prevention Plan (SWPPP), and Good Housekeeping
- Illicit Discharge Detection and Elimination

The VDEQ-approved Plan is "law" at ANC!

SWPPP and Good Housekeeping

SWPPP includes:

- Inventory of Potential Pollutants
- Best Management Practices (BMPs)
- Inspection Requirements
- Illicit Discharge Detection
- Training Requirements
- Reporting Requirements

SWPPP and Good Housekeeping

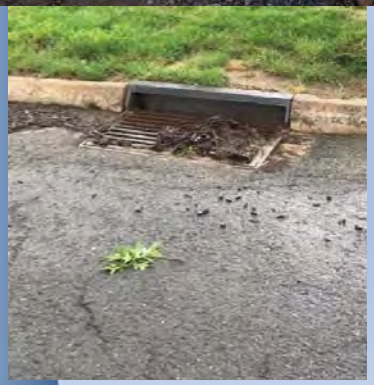
High Priority Areas at ANC	Potential Pollutants
Building 123 Complex	Sand, salt, sediment, petroleum, oil, lubricants, pesticides and fertilizers, hazardous materials and wastes, saw dust
High-Traffic Visitor Areas	Litter
Spoils Area and Contractor Storage Area	Spoils, unusable soils, green waste, dirt, concrete dust, solid waste, petroleum, oil, lubricants, pesticides and fertilizers
Active Construction Sites	Sediment, petroleum, oil, lubricants, hazardous materials, solid and construction wastes
Parking Lots, Vehicle and Equipment Storage	Petroleum, oil, lubricants, litter
Reseeding and Landscaping Areas	Sediment, petroleum, oil, lubricants, pesticides and fertilizers

SWPPP and Good Housekeeping

Best Practices at ANC

- Good housekeeping
- Performing maintenance and inspections to prevent and identify leaks
- Sediment and erosion control
- Spill response planning (SPCC plan)
- Street sweeping with vacuum truck
- Rain gardens and bioretention basins
- Stormceptors and storm filters
- Permeable and porous pavement
- Pre-treatment and underground treatment chambers

SWPPP and Good Housekeeping



What should you look for?

- Water backing up, overflowing
- Sediment or litter in BMPs or drains
- Dying vegetation
- Water bypassing BMP
- Sediment in road, not contained to site
- Blocked drains
- Litter on the ground
- Stains or chemical spills

See Something Say Something

Illicit Discharge Detection and Elimination

What is an Illicit Discharge?

- Any discharge into a storm drain system that is not composed entirely of stormwater.

Look for…

- Potable water, chemicals, other fluids flowing in storm drains during dry weather
- Water that is cloudy, dirty, has a sheen, contains debris or litter, has an odor
- Sediment, trash, fuels, and oils

PERMIT
ANC is required to track all observed discharges and spills.

Spill Response Procedures

Individual Reporting Spill		
Name and Address	Arlington National Cemetery 1 Memorial Drive Arlington, VA 22211	
Phone		
Date and time of spill		
Weather conditions		
Type of material discharged		
Location of the spill		
Quantity discharged (estimate) and time/duration of the event		
Name of any surface water involved or threatened		
The source of the discharge		
Description of all affected media (soil, water, vegetation)		
Cause of the discharge		
Possible hazards to the environment		
Any damages or injuries caused by the discharge		
Any known or anticipated health risks associated with the incident		
Actions being used to stop, remove, and mitigate the effects of the discharge		
Whether an evacuation may be needed		
Individuals or organizations contacted		
Name	Organization	Time of Call

If there is a threat to human health or the environment, immediately call 911 then the Environmental POC

If the spill is not life-threatening, immediately call the Environmental POC

703-614-0520

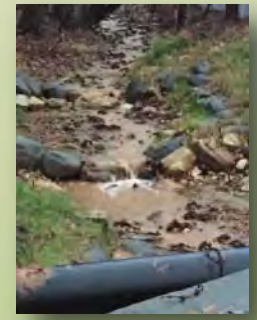
If safe to do so:

- **STOP THE FLOW OF PRODUCT**
- **WARN PERSONNEL**
- **SHUT OFF IGNITION SOURCES**
- **INITIATE CONTAINMENT**
- **COMPLETE SPILL REPORT FORM AND SUBMIT IT TO THE ENVIRONMENTAL POC**

What is Stormwater?

Stormwater (i.e., rain or snowmelt) flows over the ground and impervious surfaces, such as parking lots, roads, sidewalks, and rooftops instead of being absorbed into the ground.

Why is Stormwater Runoff a Problem?



As stormwater runoff flows over surfaces, it collects pollutants, such as trash, chemicals, nutrients, and sediment. This untreated runoff flows into storm drains that lead directly to rivers, streams, wetlands, or coastal waters. The runoff carries pollutants into the waterbodies we use for drinking, swimming, and fishing.

- Sediment can cloud the water, making it difficult for aquatic plants to grow.
- Excess nutrients from pesticides and fertilizers can cause algae blooms.
- Bacteria and other pathogens can create health hazards.
- Litter and debris can choke, suffocate, or disable aquatic life such as ducks, fish, crabs, and birds.
- Common pollutants like trash, pesticides, paint, solvents, and motor oil can poison animals and people.

According to the EPA, impervious surfaces in a typical city block generate more than 5x the runoff than a forested area the same size.

What Should I do if There is a Spill?

If the spill is life-threatening, immediately call 911, then the Environmental POC

If not life-threatening, immediately call the Environmental POC

If safe to do so:

- STOP THE FLOW OF PRODUCT
- WARN PERSONNEL
- PROTECT STORMWATER INLETS
- SHUT OFF IGNITION SOURCES
- INITIATE CONTAINMENT
- COMPLETE THE SPILL RESPONSE FORM AND SUBMIT IT TO THE ENVIRONMENTAL POC

What is an Illicit Discharge?

An illicit discharge is any discharge into a storm drain system that is not composed entirely of stormwater.

What to look for...

- Water, chemicals, and other fluids flowing in storm drains during dry weather
- Water that is cloudy, dirty, has a sheen, contains debris or litter, has an odor
- Sediment, trash, fuels, and oils on the ground

IF YOU SPILL SOMETHING OR SUSPECT AN ILLICIT DISCHARGE, CONTACT THE ENVIRONMENTAL POC AT 703-614-0520

Stormwater Pollution Prevention

At Arlington National Cemetery

What We're Doing at Arlington National Cemetery

Low-Impact Development (LID)

LID practices are stormwater management practices that mimic natural infiltration or evaporation to remove pollutants and reduce the amount of stormwater runoff.

ANC attempts to manage stormwater as close to its source as possible by preserving and recreating natural landscape features, minimizing impervious areas, and treating stormwater as a resource rather than a waste. To achieve this, ANC uses rain gardens, bioretention ponds, and permeable pavement.

Use and Benefit of Permeable Pavement

Permeable pavement reduces polluted runoff by allowing stormwater to seep through the surface, filtering out pollutants.

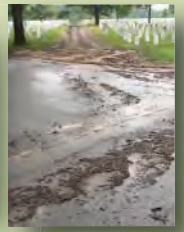
Permeable pavement is installed at the Millennium Site and used for sidewalks near the new Chapel Gate and along Eisenhower Avenue.

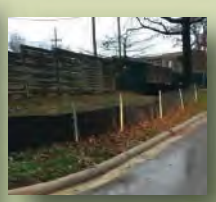
Pollution Prevention and You

Good Housekeeping

Good housekeeping is the easiest and most effective way you can help reduce or eliminate stormwater pollution.

ANC's GOAL: Keep stormwater from contacting pollutants and entering storm drains.





Keep a look out!

Contact ANC's Environmental POC if you see any of the following:

- Sediment or litter in drains, rain gardens, or bioretention ponds
- Dying vegetation
- Sediment in roads or not contained to construction sites
- Blocked drains
- Significant litter on the ground
- Chemical spills, leaks, or stains

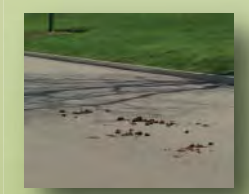
The EPA estimates that polluted stormwater accounts for 65% of pollution in rivers.

How You Can Reduce Your Impact on Stormwater Pollution

At work, at home, anywhere!

- NEVER DUMP ANYTHING DOWN STORM DRAINS!
- Don't litter!
- Maintain your car.

Only rain down the drain!

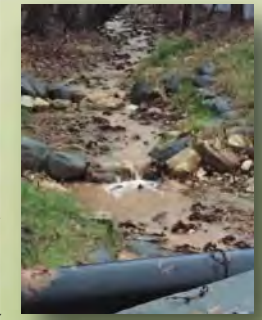


- Wash your car at a car wash or on your lawn.
- Pick up after your pet.
- Have your gutters discharge to vegetated or grassed areas.
- Reseed lawns to prevent sediment runoff.
- Compost or recycle yard waste.
- Use water-based paints and clean paint brushes in a sink.
- Deliver used oil to recycling centers.
- Use minimal amounts of pesticides and fertilizers.
- Consider using porous/permeable pavers when building patios and walkways.
- Clean up oil and chemical spills upon discovery.

¿Qué es la escorrentía pluvial?

Escorrentía pluvial (i.e., lluvia o nieve derretida) fluye sobre el terreno y superficies impermeables, tal como estacionamientos, carreteras, aceras y azoteas en vez de ser absorbida por el terreno.

¿Por qué la escorrentía pluvial es un problema?



Según la escorrentía pluvial fluye a través de las superficies, recoge contaminantes, tales como basura, compuestos químicos, nutrientes y sedimentos. Esta escorrentía pluvial sin tratamiento fluye hacia los drenajes pluviales que la llevan directamente a los ríos, quebradas, humedales o aguas costeras. La escorrentía pluvial transporta contaminantes hacia los cuerpos de agua que utilizamos para beber, nadar y pescar.

- Los sedimentos pueden poner turbia el agua, lo cual dificulta que las plantas acuáticas crezcan.
- Los nutrientes en exceso provenientes de los pesticidas y fertilizantes pueden causar un sobre crecimiento de algas.
- Las bacterias y otros patógenos pueden crear problemas de salud.
- Los escombros y basura pueden asfixiar, sofocar o inhabilitar la vida acuática tal como patos, peces, cangrejos y pájaros.
- Contaminantes comunes como basura, pesticidas, pintura, solventes y aceite de motor pueden envenenar los animales y las personas.

Según la Agencia de Protección Ambiental (EPA, por sus siglas en inglés), las superficies impermeables dentro de un bloque de una ciudad típica pueden generar hasta 5 veces la escorrentía pluvial comparado con un área boscosa del mismo tamaño.

¿Qué debo hacer si ocurre un derrame?

Si el derrame representa una amenaza a la vida, llame inmediatamente al 911, y después llame a la Persona de Contacto (POC, por sus siglas en inglés) Ambiental.

Si el derrame no representa una amenaza a la vida, llame inmediatamente al POC Ambiental.

De ser seguro hacerlo:

- DETENGA EL FLUJO DEL PRODUCTO
- AVISE AL PERSONAL
- PROTEJA LAS ENTRADAS AL DRENAJE PLUVIAL
- APAGUE LAS FUENTES DE IGNICIÓN
- INICIE LA CONTENCIÓN
- COMPLETE LA FORMA DE RESPUESTA A DERRAMES Y ENTRÉGUELA AL POC AMBIENTAL

¿Qué es una descarga ilegal?

Una descarga ilícita es cualquier descarga a un sistema de drenaje pluvial que no está compuesta en su totalidad por escorrentía pluvial.

Lo que debe observar…

- Agua, compuestos químicos, y otros fluidos que estén fluyendo hacia los drenajes pluviales durante tiempo seco
- Agua turbia, sucia, que tenga un brillo, contenga escombros o basura, o que tenga un olor
- Sedimentos, basura, combustibles y aceites sobre el terreno

SI USTED DERRAMA ALGO O SOSPECHA UNA DESCARGA ILEGAL, CONTACTE AL POC AMBIENTAL AL SIGUIENTE NÚMERO DE TELÉFONO 703-614-0520

Prevención de Contaminación de la Escorrentía Pluvial

en el Cementerio Nacional de Arlington (ANC, por sus siglas en inglés)

Lo que estamos haciendo en el Cementerio Nacional de Arlington

Desarrollo de Bajo Impacto (LID, por sus siglas en inglés)

Las practicas LID son prácticas de manejo de escorrentía pluvial que imitan la infiltración natural o evaporación para remover los contaminantes y reducir la cantidad de escorrentía pluvial.

El ANC intenta manejar las escorrentías pluviales de la manera más cercana posible a la fuente al preservar y recrear las características naturales del entorno, minimizando las áreas impermeables, y utilizando la escorrentía pluvial como un recurso y no como un desperdicio. Para lograr esto, el ANC utiliza jardines de lluvia, lagunas de bio-retención, y pavimento permeable.

El Uso y Beneficio del Pavimento Permeable

El pavimento permeable reduce las escorrentías contaminadas al permitir que las aguas de escorrentía pluvial se infiltren a través de la superficie, lo cual filtra los contaminantes.

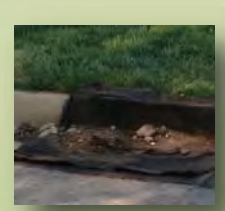
El pavimento permeable se instala en el Sitio del Milenio ("Millenium Site") y se utiliza para las aceras cerca al Portón de la Capilla ("Chapel Gate") y cerca de la Avenida Eisenhower ("Eisenhower Avenue").

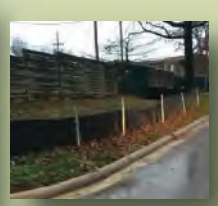
Prevención de Contaminación

Su Buen Mantenimiento de las Facilidades

El buen mantenimiento de las facilidades es el método más fácil y efectivo en que usted puede ayudar a reducir o eliminar la contaminación de las escorrentías pluviales.

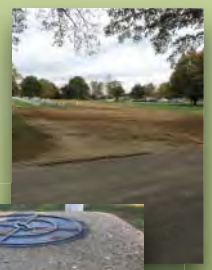
ALa META del ANC: Prevenir que las escorrentías pluviales entren en contacto con contaminantes y entren a los drenajes pluviales.





¡Manténgase pendiente!

Contacte al POC Ambiental del ANC si usted observa alguno de los siguientes:



- Sedimento o basura en los drenajes, jardines de lluvia o en las lagunas de bio-retención.
- Vegetación que esté decayendo.
- Sedimento en las carreteras o no contenido dentro de los sitios de construcción.
- Drenajes bloqueados.
- Cantidades excesivas de basura sobre el terreno
- Derrames de compuestos químicos, escapes o manchas.

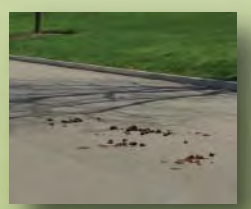
La EPA estima que las escorrentías pluviales contaminadas contribuyen al 65% de la contaminación en los ríos.

Como usted puede reducir su impacto en la contaminación de las escorrentías pluviales

¡En su trabajo, hogar y dondequiera!

- ¡NUNCA TIRE NADA DENTRO DE LOS DRENAJES PLUVIALES!
- No tire basura al piso
- Provea mantenimiento a su vehículo

¡Solamente lluvia por el desagüe!



- Lave su carro en un establecimiento de autolavado o sobre su césped.
- Recoja los desperdicios de su mascota.
- Coloque sus drenajes pluviales para que descarguen a áreas con vegetación o al césped.
- Re-siembre los jardines con césped para evitar que la escorrentía se lleve el sedimento.
- Haga composta o recicle los desechos del jardín.
- Utilice pinturas a base de agua y limpie las brochas dentro del lavadero.
- Entregue sus aceites usados a centros de reciclaje de aceite.
- Utilice cantidades mínimas de pesticidas y fertilizantes.
- Considere utilizar adoquines porosos / permeables cuando vaya a construir patios o aceras.
- Limpie los derrames deaceite o compuestos químicos tan pronto los descubra.

EMPLOYEES	SIGNATURE
AARON, JEFFREY D.	
ALBERTI, JOSEPH E.	
ANDERSON, CW4 ERIC	
ANDERSON, LEILAH O.	
ANDERSON, MARC	
ANNETTI, PHILLIP	
ARMSTRONG, MICHAEL	
BARNES, EUGENE III	
BARRETT, FRANKLIN	
BARROW, EDGAR	
BARTLEY, ROBERT	
BELL, MARCUS E.	
BOWMAN, LARRY P.	
BOYETT, PAMELA	
BOZEMAN, GWENDOLYN L.	
BRAZEL, SSG JACK	
BRISBANE, NORMA	
BROWN, LEONARD D.	
BULLER, JUSTIN	
BUNTON, JOSEPH C.	
BURGESS, GEORGE M.	
BUZZARD, RAYMOND	
CAMPBELL, SHARRON R.	
CANNADY, ANTOINETTE	
CARL, JAMIE	
CARNEY, STEPHEN A.	
CARPENTER, MARY E.	
CARPENTER, PETER J.	
CARSON, KENTON L.	
CARTER, DONALD	
CHEWNING, GEORGE	
COBURN, LTC GREGORY	
COLON, ANDREA	
COPPAGE, DANIEL R.	
COPPAGE, JAMIE	
COPPAGE, RALPH R.	
CREEK JR., NORMAN	
CREEK, NORMAN D.	
CROWELL, RAYMOND JR.	
CURTIS, JON	
CURTIS, MICHAEL J.	
DAVIS, KEVIN	
DAWSON, STEVEN A.	

DAXON, DENNIS	
DIXON, KELVIN D.	
DIXON, SGT JOSEPH	
DORLEY, JOSEPH	
DUNLAP, BARBARA A.	
DURHAM-AGUILERA, KAREN	
ELLIS, MALIK	
FARLEY, TAMEKA S.	
FARNSWORTH, COL GERRY	
FEDROFF, DAVID A.	
FERNANDEZ, BLADIMIRO	
FLANAGAN, TAMARA A.	
FORRESTER, BERNADETTE	
FOSTER, GLENN	
FRANK, TIMOTHY	
FRANKLAND, WALTER	
FRANTZ, WILSON E.	
FREELAND, MSG JOHN	
FRYE, DANIEL L.	
GABRIEL, LYNN	
GAINER, RODERICK R.	
GAINEY, COL MADALYN	
GAMBLE, WILLIAM	
GANDY, JOHNNIE W.	
GARDNER, DANIEL	
GASPAR-HIGGINS, JILL	
GILBERT, DOUGLAS A.	
GOODING, CW3 RICHARD	
GUMP II, CW2 HOWARD R.	
HALL, LEON	
HANNA, J'ANTHONY	
HARROD, STEVEN D.	
HENDLEY, STEVEN	
HOGAN, MARK B.	
HOLLAND, BARRY A.	
HORTON ROSALIE B.	
HUGHES, ROBERT B.	
HUSE, GREGORY R.	
HUXFORD, KEVIN	
IRVING, WESLEY	
JACKSON, SHAWNA D.	
JEFFRIES, PATRICK L.	
JENKINS, LILLIAN	
JENKINS, NOLAN	
JOHNSON, RAFAEL L.	
JOHNSON, WENDELL L.	
Gomez, David L.	

JONES, MAJ TESSA	
JONES, MICHI	
KAUFFMAN, LTC BRENT	
KEATING, TIMOTHY	
KEEL, QUINTON	
KELLEY, KATE	
KEMPTON, MICHAEL	
KEVAN, CONNER	
KIM, HI-HYOUN	
KIM, MAJ KENNETH	
KING, MICHAEL J.	
KIRK, DENNIS L.	
KITTLE, TYLER	
KNIGHT, SFC TAMEKA N.	
KONST, KEVIN	
LEE, JEFFREY K.	
LEE, RONALD	
LEWANDROWSKI, BARBARA	
LINCOLN, COREY	
LOVE, SHERRY S	
MACOMBER, KENNETH	
MALDON, JOSHUA	
MALONE, MARY L.	
MANNING, JR. DANIEL	
MARCIANO, KENNETH S.	
MASON, DIANA	
MCFARLIN, WARREN G.	
McGRADY, PATRICK R.	
MEEKER, KERRY	
MELSON, KEVIN	
MERCER, JOSEPH F.	
MIGLIARA, MICHEAL	
MITCHELL, ELIZABETH	
MONTGOMERY, JR. CHARLES W.	
MOORE, BRION	
MOORE, CHARLES	
MULLEN, THOMAS J.	
MYERS, MICHAEL	
NATHAN, SUJIT	
NELSON, DONNELL R.	
O'BRIEN, LTC MARK	
O'CONNELL, RAYMOND M.	
ODOOM, MICHAEL	
ORTMAN, JOY	
PARKER, MARK	
PARSONS, MSG TODD H.	

PELOQUIN, COL MICHAEL	
PENA, SGT JULIAN	
PEREZ, FRANKIE	
PERRY, LTC BRENDA	
PERRY, RODNEY S.	
PESCHOCK, ELIZABETH	
PETERS, BRANDON	
PETRY, CHRISTA L.	
PETTIT, AARON D.	
POKE, EARLINO	
POLITE, RYAN	
POLITE, WILLIE L.	
PRATHER, DARIUS A.	
QAYYUM, MUHAMMAD N.	
QUACKENBUSH, BOB	
REXCOAT, ROY	
RICHARDSON, AKIN	
RICKS, CHRISTOPHER	
RIDDLE, CYNTHIA	
RIVENBURGH, JOANNE M.	
RIVERA, BEATRIZ V.	
RIVERA, CPT KATHRYN	
RIVERAGOMEZ, MARIO	
ROBERTS, LINCOLN	
RODRIGUEZ, JOSEPH L.	
ROHRER, ANTHONY	
ROJAS, NORKA	
ROSARIO, JOSEAN	
ROSENQUIST, STACEY M.	
RUSH, STEPHANIE	
SANDERS, SHANTAR O.	
SANTOS, GEORGE	
SAUNDERS, WAYNE K.	
SESAY, ISHMAIL	
SESAY, PAKAPRI	
SHERROD, TERRY D.	
SHIN, TAE SUN K.	
SHUBERT, KEVIN	
SKEWS, THOMAS E.	
SMITH, ARTHUR	
SMITH, SHAWN	
SONDERMANN, LTC KARL	
SPRIGGS, MICHAEL R.	
STEELE, JONATHAN D.	
STEINLAGE, MAJ JEFFREY	
STEPHENS-JACKSON, ANDREA L.	

STERBUTZEL, ROBERT	
STEVENS, REBECCA L.	
STROUSE, ALLISON B.	
SUAZO, JOSE M.	
THIBADEAU, DAVID	
THOMPSON, LILLIAN M.	
THOMPSON, STEVE	
VAN-HOVEN-STEPHEN J.	
VAUGHN, JUSTIN	
VELAZQUEZ, CARLOS A.	
WALDEN, RONALD E.	
WALTERS, CHARLES	
WARD, EUGENE C.	
WARE, AHMAD B.	
WARREN, CHRISTOPHER	
WATSON, JOHN E.	
WAY, MAJ SHANNON	
WEBB JR., MOSES	
WEDGE, JOHN J.	
WEIBEL, SETH	
WHALEN, ANTHONY C.	
WHARTON, KEITH E.	
WHITE, PHYLLIS B.	
WHITE, TYLER G.	
WILLETT, DONNIE G.	
WILLIAMS, DALWUAN R.	
WILLIAMS, GRADY	
WILLIAMS, JAMES D.	
WILSON, KELLY D.	
WINSTON, HERBERT III	
YANCHISIN, ALICIA	
YATES, RENEA C.	
ZACHARZUK, PAUL A.	
ZYLA, ANTHONY J.	

EMPLOYEES	SIGNATURE
AARON, JEFFREY D.	
ALBERTI, JOSEPH E.	
ANDERSON, CW4 ERIC	
ANDERSON, LEILAH O.	
ANDERSON, MARC	
ANNETTI, PHILLIP	
ARMSTRONG, MICHAEL	
BARNES, EUGENE III	
BARRETT, FRANKLIN	
BARROW, EDGAR	
BARTLEY, ROBERT	
BELL, MARCUS E.	
BOWMAN, LARRY P.	
BOYETT, PAMELA	
BOZEMAN, GWENDOLYN L.	
BRAZEL, SSG JACK	
BRISBANE, NORMA	
BROWN, LEONARD D.	
BULLER, JUSTIN	
BUNTON, JOSEPH C.	
BURGESS, GEORGE M.	
BUZZARD, RAYMOND	
CAMPBELL, SHARRON R.	
CANNADY, ANTOINETTE	
CARL, JAMIE	
CARNEY, STEPHEN A.	
CARPENTER, MARY E.	
CARPENTER, PETER J.	
CARSON, KENTON L.	
CARTER, DONALD	
CHEWNING, GEORGE	
COBURN, LTC GREGORY	
COLON, ANDREA	
COPPAGE, DANIEL R.	
COPPAGE, JAMIE	
COPPAGE, RALPH R.	
CREEK JR., NORMAN	
CREEK, NORMAN D.	
CROWELL, RAYMOND JR.	
CURTIS, JON	
CURTIS, MICHAEL J.	
DAVIS, KEVIN	
DAWSON, STEVEN A.	

DAXON, DENNIS	
DIXON, KELVIN D.	
DIXON, SGT JOSEPH	
DORLEY, JOSEPH	
DUNLAP, BARBARA A.	
DURHAM-AGUILERA, KAREN	
ELLIS, MALIK	
FARLEY, TAMEKA S.	
FARNSWORTH, COL GERRY	
FEDROFF, DAVID A.	
FERNANDEZ, BLADIMIRO	
FLANAGAN, TAMARA A.	
FORRESTER, BERNADETTE	
FOSTER, GLENN	
FRANK, TIMOTHY	
FRANKLAND, WALTER	
FRANTZ, WILSON E.	
FREELAND, MSG JOHN	
FRYE, DANIEL L.	
GABRIEL, LYNN	
GAINER, RODERICK R.	
GAINEY, COL MADALYN	
GAMBLE, WILLIAM	
GANDY, JOHNNIE W.	
GARDNER, DANIEL	
GASPAR-HIGGINS, JILL	A/L
GILBERT, DOUGLAS A.	
GOODING, CW3 RICHARD	
GUMP II, CW2 HOWARD R.	
HALL, LEON	
HANNA, J'ANTHONY	
HARROD, STEVEN D.	
HENDLEY, STEVEN	
HOGAN, MARK B.	
HOLLAND, BARRY A.	Barry Holland
HORTON ROSALIE B.	Rosalie Horton
HUGHES, ROBERT B.	
HUSE, GREGORY R.	
HUXFORD, KEVIN	
IRVING, WESLEY	
JACKSON, SHAWNA D.	
JEFFRIES, PATRICK L.	
JENKINS, LILLIAN	
JENKINS, NOLAN	
JOHNSON, RAFAEL L.	
JOHNSON, WENDELL L.	

JONES, MAJ TESSA	
JONES, MICHI	
KAUFFMAN, LTC BRENT	
KEATING, TIMOTHY	
KEEL, QUINTON	
KELLEY, KATE	
KEMPTON, MICHAEL	
KEVAN, CONNER	
KIM, HI-HYOUN	
KIM, MAJ KENNETH	
KING, MICHAEL J.	
KIRK, DENNIS L.	
KITTLE, TYLER	
KNIGHT, SFC TAMEKA N.	
KONST, KEVIN	
LEE, JEFFREY K.	
LEE, RONALD	
LEWANDROWSKI, BARBARA	
LINCOLN, COREY	
LOVE, SHERRY S	
MACOMBER, KENNETH	
MALDON, JOSHUA	
MALONE, MARY L.	
MANNING, JR. DANIEL	
MARCIANO, KENNETH S.	
MASON, DIANA	
MCFARLIN, WARREN G.	
McGRADY, PATRICK R.	
MEEKER, KERRY	
MELSON, KEVIN	
MERCER, JOSEPH F.	
MIGLIARA, MICHEAL	
MITCHELL, ELIZABETH	
MONTGOMERY, JR. CHARLES W.	
MOORE, BRION	
MOORE, CHARLES	
MULLEN, THOMAS J.	
MYERS, MICHAEL	
NATHAN, SUJIT	
NELSON, DONNELL R.	
O'BRIEN, LTC MARK	
O'CONNELL, RAYMOND M.	
ODOOM, MICHAEL	
ORTMAN, JOY	
PARKER, MARK	
PARSONS, MSG TODD H.	

PELOQUIN, COL MICHAEL	
PENA, SGT JULIAN	
PEREZ, FRANKIE	
PERRY, LTC BRENDA	
PERRY, RODNEY S.	
PESCHOCK, ELIZABETH	
PETERS, BRANDON	
PETRY, CHRISTA L.	
PETTIT, AARON D.	
POKE, EARLINO	
POLITE, RYAN	
POLITE, WILLIE L.	
PRATHER, DARIUS A.	
QAYYUM, MUHAMMAD N.	
QUACKENBUSH, BOB	
REXROAT, ROY	
RICHARDSON, AKIN	
RICKS, CHRISTOPHER	
RIDDLE, CYNTHIA	
RIVENBURGH, JOANNE M.	
RIVERA, BEATRIZ V.	
RIVERA, CPT KATHRYN	
RIVERAGOMEZ, MARIO	
ROBERTS, LINCOLN	
RODRIGUEZ, JOSEPH L.	
ROHRER, ANTHONY	
ROJAS, NORKA	
ROSARIO, JOSEAN	
ROSENQUIST, STACEY M.	
RUSH, STEPHANIE	
SANDERS, SHANTAR O.	
SANTOS, GEORGE	
SAUNDERS, WAYNE K.	
SESAY, ISHMAIL	
SESAY, PAKAPRI	
SHERROD, TERRY D.	
SHIN, TAE SUN K.	
SHUBERT, KEVIN	
SKEWS, THOMAS E.	
SMITH, ARTHUR	
SMITH, SHAWN	
SONDERMANN, LTC KARL	
SPRIGGS, MICHAEL R.	
STEELE, JONATHAN D.	
STEINLAGE, MAJ JEFFREY	
STEPHENS-JACKSON, ANDREA L.	

STERBUTZEL, ROBERT	
STEVENS, REBECCA L.	
STROUSE, ALLISON B.	Allison Strouse
SUAZO, JOSE M.	
THIBADEAU, DAVID	
THOMPSON, LILLIAN M.	
THOMPSON, STEVE	Steve Thompson
VAN-HOVEN-STEPHEN J.	
VAUGHN, JUSTIN	
VELAZQUEZ, CARLOS A.	
WALDEN, RONALD E.	
WALTERS, CHARLES	
WARD, EUGENE C.	
WARE, AHMAD B.	
WARREN, CHRISTOPHER	
WATSON, JOHN E.	
WAY, MAJ SHANNON	
WEBB JR., MOSES	
WEDGE, JOHN J.	
WEIBEL, SETH	
WHALEN, ANTHONY C.	Anthony Whalen
WHARTON, KEITH E.	
WHITE, PHYLLIS B.	
WHITE, TYLER G.	
WILLETT, DONNIE G.	
WILLIAMS, DALWUAN R.	
WILLIAMS, GRADY	
WILLIAMS, JAMES D.	
WILSON, KELLY D.	
WINSTON, HERBERT III	
YANCHISIN, ALICIA	
YATES, RENEA C.	
ZACHARZUK, PAUL A.	
ZYLA, ANTHONY J.	
	Wendy Ervey
ERVING, WES	
Jones, James SEC	

EMPLOYEES	SIGNATURE
AARON, JEFFREY D.	
ALBERTI, JOSEPH E.	
ANDERSON, CW4 ERIC	
ANDERSON, LEILAH O.	
ANDERSON, MARC	
ANNETTI, PHILLIP	
ARMSTRONG, MICHAEL	
BARNES, EUGENE III	
BARRETT, FRANKLIN	
BARROW, EDGAR	
BARTLEY, ROBERT	
BELL, MARCUS E.	
BOWMAN, LARRY P.	
BOYETT, PAMELA	
BOZEMAN, GWENDOLYN L.	
BRAZEL, SSG JACK	
BRISBANE, NORMA	
BROWN, LEONARD D.	
BULLER, JUSTIN	
BUNTON, JOSEPH C.	
BURGESS, GEORGE M.	
BUZZARD, RAYMOND	
CAMPBELL, SHARRON R.	
CANNADY, ANTOINETTE	
CARL, JAMIE	
CARNEY, STEPHEN A.	
CARPENTER, MARY E.	
CARPENTER, PETER J.	
CARSON, KENTON L.	
CARTER, DONALD	
CHEWNING, GEORGE	
COBURN, LTC GREGORY	
COLON, ANDREA	
COPPAGE, DANIEL R.	
COPPAGE, JAMIE	
COPPAGE, RALPH R.	
CREEK JR., NORMAN	
CREEK, NORMAN D.	
CROWELL, RAYMOND JR.	
CURTIS, JON	
CURTIS, MICHAEL J.	
DAVIS, KEVIN	
DAWSON, STEVEN A.	

DAXON, DENNIS	
DIXON, KELVIN D.	
DIXON, ~~SGT~~ JOSEPH SSG.	
DORLEY, JOSEPH	
DUNLAP, BARBARA A.	
DURHAM-AGUILERA, KAREN	TDY
ELLIS, MALIK	
FARLEY, TAMEKA S.	
FARNSWORTH, COL GERRY	TDY
FEDROFF, DAVID A.	
FERNANDEZ, BLADIMIRO	
FLANAGAN, TAMARA A.	
FORRESTER, BERNADETTE	
FOSTER, GLENN	
FRANK, TIMOTHY	
FRANKLAND, WALTER	
FRANTZ, WILSON E.	
FREELAND, MSG JOHN	
FRYE, DANIEL L.	
GABRIEL, LYNN	
GAINER, RODERICK R.	
GAINEY, COL MADALYN	TDY
GAMBLE, WILLIAM	
GANDY, JOHNNIE W.	
GARDNER, DANIEL	
GASPAR-HIGGINS, JILL	
GILBERT, DOUGLAS A.	
GOODING, CW3 RICHARD	
GUMP II, CW2 HOWARD R.	
HALL, LEON	
HANNA, J'ANTHONY	
HARROD, STEVEN D.	
HENDLEY, STEVEN	
HOGAN, MARK B.	
HOLLAND, BARRY A.	
HORTON ROSALIE B.	
HUGHES, ROBERT B.	
HUSE, GREGORY R.	
HUXFORD, KEVIN	
IRVING, WESLEY	
JACKSON, SHAWNA D.	
JEFFRIES, PATRICK L.	
JENKINS, LILLIAN	
JENKINS, NOLAN	
JOHNSON, RAFAEL L.	
JOHNSON, WENDELL L.	

JONES, MAJ TESSA	
JONES, MICHI	
KAUFFMAN, LTC BRENT	Brent A Kauffman
KEATING, TIMOTHY	
KEEL, QUINTON	
KELLEY, KATE	
KEMPTON, MICHAEL	
KEVAN, CONNER	
KIM, HI-HYOUN	
KIM, MAJ KENNETH	Kenneth
KING, MICHAEL J.	
KIRK, DENNIS L.	
KITTLE, TYLER	
KNIGHT, SFC TAMEKA N.	
KONST, KEVIN	
LEE, JEFFREY K.	
LEE, RONALD	Ronald Lee
LEWANDROWSKI, BARBARA	
LINCOLN, COREY	
LOVE, SHERRY S	
MACOMBER, KENNETH	
MALDON, JOSHUA	
MALONE, MARY L.	
MANNING, JR. DANIEL	
MARCIANO, KENNETH S.	
MASON, DIANA	
MCFARLIN, WARREN G.	
McGRADY, PATRICK R.	
MEEKER, KERRY	
MELSON, KEVIN	
MERCER, JOSEPH F.	
MIGLIARA, MICHEAL	
MITCHELL, ELIZABETH	E Mitchell
MONTGOMERY, JR. CHARLES W.	
MOORE, BRION	
MOORE, CHARLES	
MULLEN, THOMAS J.	TDY
MYERS, MICHAEL	
NATHAN, SUJIT	
NELSON, DONNELL R.	
O'BRIEN, LTC MARK	TDY
O'CONNELL, RAYMOND M.	
ODOOM, MICHAEL	
ORTMAN, JOY	
PARKER, MARK	
PARSONS, MSG TODD H.	

PELOQUIN, COL MICHAEL	
PENA, SGT JULIAN	
PEREZ, FRANKIE	
PERRY, LTC BRENDA	
PERRY, RODNEY S.	
PESCHOCK, ELIZABETH	
PETERS, BRANDON	
PETRY, CHRISTA L.	
PETTIT, AARON D.	
POKE, EARLINO	
POLITE, RYAN	
POLITE, WILLIE L.	
PRATHER, DARIUS A.	
QAYYUM, MUHAMMAD N.	
QUACKENBUSH, BOB	
REXCOAT, ROY	
RICHARDSON, AKIN	
RICKS, CHRISTOPHER	
RIDDLE, CYNTHIA	JURY DUTY
RIVENBURGH, JOANNE M.	
RIVERA, BEATRIZ V.	
RIVERA, CPT KATHRYN	
RIVERAGOMEZ, MARIO	
ROBERTS, LINCOLN	
RODRIGUEZ, JOSEPH L.	
ROHRER, ANTHONY	
ROJAS, NORKA	
ROSARIO, JOSEAN	
ROSENQUIST, STACEY M.	
RUSH, STEPHANIE	
SANDERS, SHANTAR O.	
SANTOS, GEORGE	
SAUNDERS, WAYNE K.	
SESAY, ISHMAIL	
SESAY, PAKAPRI	
SHERROD, TERRY D.	
SHIN, TAE SUN K.	
SHUBERT, KEVIN	
SKEWS, THOMAS E.	
SMITH, ARTHUR	TDY
SMITH, SHAWN	
SONDERMANN, LTC KARL	
SPRIGGS, MICHAEL R.	
STEELE, JONATHAN D.	
STEINLAGE, MAJ JEFFREY	TDY
STEPHENS-JACKSON, ANDREA L.	

STERBUTZEL, ROBERT	
STEVENS, REBECCA L.	
STROUSE, ALLISON B.	
SUAZO, JOSE M.	
THIBADEAU, DAVID	
THOMPSON, LILLIAN M.	
THOMPSON, STEVE	
VAN-HOVEN-STEPHEN J.	
VAUGHN, JUSTIN	
VELAZQUEZ, CARLOS A.	
WALDEN, RONALD E.	
WALTERS, CHARLES	
WARD, EUGENE C.	
WARE, AHMAD B.	
WARREN, CHRISTOPHER	
WATSON, JOHN E.	
WAY, MAJ SHANNON	
WEBB JR., MOSES	
WEDGE, JOHN J.	
WEIBEL, SETH	
WHALEN, ANTHONY C.	
WHARTON, KEITH E.	
WHITE, PHYLLIS B.	
WHITE, TYLER G.	
WILLETT, DONNIE G.	
WILLIAMS, DALWUAN R.	
WILLIAMS, GRADY	
WILLIAMS, JAMES D.	
WILSON, KELLY D.	
WINSTON, HERBERT III	
YANCHISIN, ALICIA	
YATES, RENEA C.	
ZACHARZUK, PAUL A.	
ZYLA, ANTHONY J.	

ARLINGTON NATIONAL CEMETERY	EMPLOYEES
OFFICE OF THE EXECUTIVE DIRECTOR	
Executive Director	DURHAM-AGUILERA, KAREN
Superintendent	KELLEY, KATE
Executive Officer	LTC O'BRIEN, MARK
Senior Enlisted Advisor	MSG PARSONS, TODD H.
EXECUTIVE DIRECTOR SPECIAL STAFF	
Legal Counsel	BULLER, JUSTIN
Liaison ABMC	FRANKLAND, WALTER
FACA	KEATING, TIMOTHY
Strategic Planner	MAJ WAY, SHANNON
OFFICE OF THE SUPERINTENDENT	
Deputy Superintendent/Cemetery Operations	MOORE, BRION
Deputy Superintendent/Cemetery Administration	YATES, RENEA C.
Deputy Superintendent/Cemetery Support	QUACKENBUSH, BOB
Field Operation Supervisor	ALBERTI, JOSEPH E.
Executive Assistant	MITCHELL, ELIZABETH
SAFETY	
Safety& Occupational Health Manager	YANCHISIN, ALICIA
Safety& Occupational Health Specialist	WHARTON, KEITH E.
PUBLIC AFFAIRS OFFICE	
Public Affairs Specialist	LEWANDROWSKI, BARBARA
Public Affairs Specialist	RUSH, STEPHANIE
Public Affairs Specialist	MEEKER, KERRY
EVENTS & CEREMONIES	
Director	MIGLIARA, MICHEAL
Deputy Director	LTC SONDERMANN, KARL
Events & Ceremonies Specialist	MCFARLIN, WARREN G.
Events & Ceremonies Specialist	SUAZO, JOSE M.
Events Coordination Specialist	PESCHOCK, ELIZABETH
Supervisory Security Specialist	BARRETT, FRANKLIN
Security Specialist	CURTIS, MICHAEL J.
Security Specialist	FRANTZ, WILSON E.
Security Specialist	WILSON, STACEY
Operations NCO	MSG FREELAND, JOHN
Supervisor Historian	CARNEY, STEPHEN A.
Museum Curator	GAINER, RODERICK R.
Historian	WARREN, CHRISTOPHER
Historian	FRANK, TIMOTHY
Supervisory Security Guard	DUQUE, MICHAEL
Supervisory Security Guard	KITTLE, TYLER
Supervisory Security Guard	BARROW, EDGAR
Lead Security Guard	SHERROD, TERRY D.
Security Guard	WALDEN, RONALD E.
Security Guard	CHEWNING, GEORGE
Security Guard	GAMBLE, WILLIAM

Security Guard	ROBERTS, LINCOLN
Security Guard	CURTIS, JON
Security Guard	VAUGHN, JUSTIN
Security Guard	RICHARDSON, AKIN
Security Guard	JONES, MICHI
Security Guard	SESAY, PAKAPRI
Security Guard	DAXON, DENNIS
Security Guard	ARMSTRONG, MICHAEL
Security Guard	ODOOM, MICHAEL
Security Guard	LINCOLN, COREY
Security Guard	MASON, DIANA
RESOURCE MANAGEMENT	
Financial Manager	ZACHARZUK, PAUL A.
Budget Officer	LOVE, SHERRY S
Budget Analyst	QAYYUM, MUHAMMAD N.
Budget Analyst	FERNANDEZ, BLADIMIRO
Budget Analyst	IRVING, WESLEY
Budget Analyst	COLON, ANDREA
Budget Analyst	KIM, HI-HYOUN
Management Analyst	POKE, EARLINO
CONTRACTING	
Contract Officer	LTC PERRY, BRENDA
Contract Officer	MAJ JONES, TESSA
SECRETARY OF THE GENERAL STAFF	
Human Resources Officer	GABRIEL, LYNN
Supervisory Administrative Advisor	WHITE, PHYLLIS B.
Staff Action Control Officer	POLITE, WILLIE L.
Congressional Affairs Specialist	JENKINS, LILLIAN
Administrative Specialist	ORTMAN, JOY
Administrative Specialist	ANDERSON, LEILAH O.
Human Resources NCOIC	SSG BRAZEL, JACK
Driver	SGT PENA, JULIAN
HORTICULTURE	
Supervisor Horticulturist	VAN-HOVEN-STEPHEN J.
Horticulturist	WILSON, KELLY D.
Agronomist	PETTIT, AARON D.
Forester	HUSE, GREGORY R.
Engineering Technician	MANNING, JR. DANIEL
LOGISTICS	
General Supply Specialist	BURGESS, GEORGE M.
General Supply Specialist	WATSON, JOHN E.
General Supply Specialist	BRISBANE, NORMA
General Supply Specialist	WEIBEL, SETH
Supply Sergeant	SGT DIXON, JOSEPH
INFORMATION TECHNOLOGY	
Chief Information Officer	GARDNER, DANIEL

Plans & Operations Officer	LTC COBURN, GREGORY
IT Program Manager (PLCYPLN/SYSANALYSIS)	MALONE, MARY L.
IT Specialist (CUSTSPT)	SHIN, TAE SUN K.
IT Specialist (CUSTSPT)	RICKS, CHRISTOPHER
IT Specialist (APPSW)	GASPAR-HIGGINS, JILL
IT Specialist (Network)	WEBB JR., MOSES
IT Specialist	BOYETT, PAMELA
Information Assurance Manager	FOSTER, GLENN
IT Project Manager (SYSANALYSIS/INET)	THOMPSON, LILLIAN M.
IT Project Manager	BUZZARD, RAYMOND
Knowledge & Records Management Specialist	DAWSON, STEVEN A.
Cartographer (GIS)	ROHRER, ANTHONY
Cartographer (GIS)	MELSON, KEVIN
Information Sys Tech	CW3 GOODING RICHARD
Information Sys Tech	CW4 ANDERSON, ERIC
ANMC	
Director	SMITH, ARTHUR
Chief of Staff	COL FARNSWORTH, GERRY
Executive Officer	PETRY, CHRISTA L.
Strategic Plans Officer	LTC KAUFFMAN, BRENT
Resource Manager	MAJ KIM, KENNETH
IT Automated Mgmt Officer	MAJ STEINLAGE, JEFFREY
Military Assistant	CPT RIVERA, KATHRYN
Staff NCO	SFC KNIGHT, TAMEKA N.
Public Affairs	COL GAINEY, MADALYN
Policy Analyst	RIDDLE, CYNTHIA
Cemetery Administration Specialist	KEEL, QUINTON
Cemetery Administration Specialist	MULLEN, THOMAS J.
QUALITY ASSURANCE	
Cemetery Administrator	MERCER, JOSEPH F.
Management & Program Analyst	WEDGE, JOHN J.
Quality Assurance Specialist	McGRADY, PATRICK R.
FACILITY ENGINEERING	
Chief	COL PELOQUIN, MICHAEL
Supervisory General Engineer	FEDROFF, DAVID A.
Supervisor, Facility Maint Specialist	CARSON, KENTON L.
Engineering Technician	BUNTON, JOSEPH C.
Engineering Technician	VELAZQUEZ, CARLOS A.
Supervisory General Engineer	KEMPTON, MICHAEL
General Engineer	HOGAN, MARK B.
General Engineer	NATHAN, SUJIT
Field Ops Tech	CW2 GUMP II, HOWARD R.
Realty Specialist	REXCOAT, ROY
Cultural Resources Manager	STEVENS, REBECCA L.
Environmental Protection Specialist	ROSENQUIST, STACEY M.
Secretary	HORTON ROSALIE B.
INTERMENT SERVICES BRANCH	
Director	ROJAS, NORKA

Supv Cemetery Administative Specialist	JACKSON, SHAWNA D.
Burial Exception Specialist	DUNLAP, BARBARA A.
Cemetery Administrator	CREEK JR., NORMAN
Cemetery Administrator	RODRIGUEZ, JOSEPH L.
Lead Cemetery Representative	MARCIANO, KENNETH S.
Cemetery Representative	DIXON, KELVIN D.
Cemetery Representative	STEPHENS-JACKSON, ANDREA L.
Cemetery Representative	CAMPBELL, SHARRON R.
Cemetery Representative	BOZEMAN, GWENDOLYN L.
Cemetery Representative	FLANAGAN, TAMARA A.
Cemetery Representative	STEELE, JONATHAN D.
Cemetery Representative	MOORE, CHARLES
Cemetery Representative	HALL, LEON
Cemetery Representative	LEE, JEFFREY K.
Cemetery Representative	PARKER, MARK
Cemetery Representative	WHALEN, ANTHONY C.
Cemetery Representative	CARPENTER, MARY E.
Cemetery Representative	MACOMBER, KENNETH
Cemetery Representative	WARE, AHMAD B.
Cemetery Representative	WALTERS, CHARLES
Cemetery Representative	CANNADY, ANTOINETTE
Cemetery Representative	FORRESTER, BERNADETTE
Cemetery Representative	STROUSE, ALLISON B.
Cemetery Representative	AARON, JEFFREY D.
Cemetery Representative	RIVENBURGH, JOANNE M.
Eligibilty Assistant	FARLEY, TAMEKA S.
FLEET MAINTENANCE	
Automotive Mechanic Leader	PERRY, RODNEY S.
Automotive Mechanic	HUXFORD, KEVIN
Heavy Mobile Equipment Servicer	RIVERA, BEATRIZ V.
Mobile Equipment Servicer	WILLETT, DONNIE G.
Mobile Equipment Servicer	RIVERAGOMEZ, MARIO
Mobile Equipment Servicer	SMITH, SHAWN
Welder	THIBADEAU, DAVID
Tools & Parts Attendant	ZYLA, ANTHONY J.
FACILITIES MAITENANCE	
Supervisor, Maintenance Mechanic	GANDY, JOHNNIE W.
Maintenance Mechanic Leader	COPPAGE, RALPH R.
Maintenance Mechanic	DORLEY, JOSEPH
Maintenance Worker	WILLIAMS, DALWUAN R.
Maintenance Worker	SPRIGGS, MICHAEL R.
Maintenance Worker	WINSTON, HERBERT III
Maintenance Mechanic	STERBUTZEL, ROBERT
Engineer Equipment Operator	PETERS, BRANDON
Electrician	FRYE, DANIEL L.
Pipefitter	HOLLAND, BARRY A.
INURNMENT OPERATIONS	
Supervisor, General Maintenance & Repair	HENDLEY, STEVEN
Supervisor, Engineering Equipment Operator	SKEWS, THOMAS E.

Cemetery Caretaker Leader	COPPAGE, DANIEL R.
Cemetery Caretaker Leader	
Cemetery Caretaker	NELSON, DONNELL R.
Cemetery Caretaker	KING, MICHAEL J.
Cemetery Caretaker	WARD, EUGENE C.
Cemetery Caretaker	WILLIAMS, GRADY
Cemetery Caretaker	JEFFRIES, PATRICK L.
Cemetery Caretaker	JENKINS, NOLAN
Cemetery Caretaker	PRATHER, DARIUS A.
Cemetery Caretaker	WHITE, TYLER G.
Cemetery Caretaker	SANDERS, SHANTAR O.
Cemetery Caretaker	MYERS, MICHAEL
Cemetery Caretaker	MALDON, JOSHUA
Cemetery Caretaker	HANNA, J'ANTHONY
Cemetery Caretaker	ROSARIO, JOSEAN
Cemetery Caretaker	SANTOS, GEORGE
Cemetery Caretaker	KEVAN, CONNER
Cemetery Caretaker	LEE, RONALD
Motor Vehicle Operator	DAVIS, KEVIN
Engineering Equipment Operator	SAUNDERS, WAYNE K.
Engineering Equipment Operator	SHUBERT, KEVIN
Engineering Equipment Operator	WILLIAMS, JAMES D.
Engineering Equipment Operator	KIRK, DENNIS L.
INTERMENT OPERATIONS	
Supervisor, Engineering Equipment Operator	HARROD, STEVEN D.
Supervisor, Engineering Equipment Operator	JOHNSON, RAFAEL L.
Cemetery Caretaker Leader	BARNES, EUGENE III
Cemetery Caretaker Leader	PEREZ, FRANKIE
Cemetery Caretaker	CROWELL, RAYMOND JR.
Cemetery Caretaker	CARPENTER, PETER J.
Cemetery Caretaker	O'CONNELL, RAYMOND M.
Cemetery Caretaker	THOMPSON, STEVE
Cemetery Caretaker	SESAY, ISHMAIL
Cemetery Caretaker	BROWN, LEONARD D.
Cemetery Caretaker	CREEK, NORMAN D.
Cemetery Caretaker	BELL, MARCUS E.
Cemetery Caretaker	JOHNSON, WENDELL L.
Cemetery Caretaker	ELLIS, MALIK
Cemetery Caretaker	BARTLEY, ROBERT
Cemetery Caretaker	COPPAGE, JAMIE
Cemetery Caretaker	POLITE, RYAN
Cemetery Caretaker	CARL, JAMIE
Cemetery Caretaker	ANDERSON, MARC
Cemetery Caretaker	KONST, KEVIN
Engineering Equipment Operator	CARTER, DONALD
Engineering Equipment Operator	HUGHES, ROBERT B.
Engineering Equipment Operator	BOWMAN, LARRY P.
Engineering Equipment Operator	MONTGOMERY, JR. CHARLES W.
Engineering Equipment Operator	GILBERT, DOUGLAS A.

ENVIRONMENTAL TRAINING

TRAINING TOPICS: ESC [redacted] for Construction Sites [MOST]

DATE: 5 Dec 2017

UNIT	NAME	SIGNATURE
ANC ENG	CW3 Grump. H	
ANC ENGINEERING	MARK B. Hogan	
"	REBECCA STEVENS	
	Kesha Carson	
	Rosalie Hart	
	DAVID Fedroff	
	Michael Kempton	
	Carlos A. Velazquez	
	Joseph C. Brunton	
	SASANKA SHARMA	
ANC ENG.	Sujit Nathan	
	Stacey Rosenquist	

(/)

Join for **FREE** (/user/register) Login (/user)

Course Catalog (/courses/available-courses)

AT A GLANCE

Status: Open

Release Date: January 2017

Length: 2:00
(Hours & Minutes)

Cost: FREE

Eligible For: Certificate of Completion

Level: Intermediate

Language: English

Developers:
Low Impact Development Center, Virginia Department of Environmental Quality

Features:
Supporting Resources, Interactive Quizzes

Stakeholders:
Businesses (/about-us/stakeholders/Businesses), Local-Government-Staff (/about-us/stakeholders/Local-Government-Staff), Non-Profits (/about-us/stakeholders/Non-Profits), Professionals (/about-us/stakeholders/Professionals)

Introduction to the course:

This course provides an overview of erosion principles, sediment control practices, & stormwater management requirements during construction throughout the Chesapeake Bay. This course is for anyone who wants to understand the principles and practices needed to keep polluted stormwater from leaving construction sites. Individuals responsible for demonstrating compliance with an Erosion Sediment Control plan or the conditions of a Construction General Permit will find the material a useful starting place.

You may take this course as a refresher but it will not replace statutory requirements for a “Responsible Person”, “Responsible Land Disturber”, or other state mandated construction site management certification.

Materials used in this course are derived primarily from the Commonwealth of Virginia’s Department of Environmental Quality (VA DEQ) course, Stormwater Management for Contractors & Operators, and supplemented by materials from the State of Delaware’s Department of Natural Resources and Environmental Control (DE DNREC) for their Blue Card program. Additional materials are gathered from sources throughout the Chesapeake Bay.

Course Syllabus:

Module 1: The Science of Erosion (30 min)

Module 2: Rules, Strategies, and Structures (30 min)

Module 3: Onsite Management Structures and Pollution Prevention Components (30 min)

Module 4: Pollution Prevention and SWPPP Inspections (30 mins)

Create New Account (/user/register)

Login Now (https://mostcenter.org/training/course/view

Image:

Tweet Like 6

The MOST Center is made possible by:

(https://www.umd.edu)

SIGN-IN SHEET FOR TRAINING
December 5, 2017

PRINTED NAME	SIGNATURE
John Gandy	
RALPH COPPAGE	
ROBERT STERBUTZEL	
MICHAEL SPRIGGS	
Dalwuan Williams	
Barry Holland	
Herbert Winston III	
THOMAS T MULLER	
Anthony Zyla	
Rodney S. Perry	
Maria Rivera	
Joshua Cleary	
DONNIE WILLETT	

ENVIRONMENTAL TRAINING

Fountains - Project Stormwater

TRAINING TOPICS:

DATE: 9-18-18

UNIT	NAME	SIGNATURE
Bannaker Ventures	Gerald L. Tobias	
Janeiro Inc	Rick Janeiro	
Janeiro Inc	Andrew Janeiro	
Janeiro Inc	ROBERTO RAMIA	
Bannaker	Zaneta White-Holmes	
Bannaker	Bradshaw Coff	
Fountain Craft Mfg	ART GARMAN	
Bannaker	Jeyone Muhammad	
USACE	DARNELL WILEY	
USACE	Wendy McCoy	
USACE	Preston Pham	
	Stormwater Handout	
	Illicit Discharge Handout Spill Reporting Procedures	

NAME	DEPARTMENT	JOB TITLE	SIGNATURE
Joseph Karanosky	Events & Ceremonies	Security Guard	
Reginald Sparks	Events & Ceremonies	Security Guard	
Edgardo Romero	Field Operations	Cemetery Caretaker	
Marvel Moore	Events & Ceremonies	Security Guard	
Maria Goodman	Resource Management	Budget Analyst	
Calvin Payne	Resource Management	Budget Analyst	
Douglas Martin	Resource Management	Civilian Pay Technician	
Nixon Muluh	OCIO	IT Specialist (DATAMGT)	
Thomas Hammond	Quality Assurance	Quality Assurance Specialist	
SFC James Jones	Events & Ceremonies	Operations NCO	
LTC Toney Stephenson	Contracting	Contracting Officer	
SFC Kwisi Lewis	Human Resources	Human Resources NCOIC	
SGT Deidre Best	Logistics	Supply Sergeant	
CPT Jordan Funderburk	ANMC		
LTC David Gomez	ANMC	Secretary of the General Staff	
CW3 Weaver Prosper	Engineers	Field Ops Tech	
CPT Frank Obie	Fleet Maintenance		

Newcomers Trng

May 2018

NAME	DEPARTMENT	JOB TITLE	SIGNATURE
Kevin Konst	Field Operations	Cemetery Caretaker	
Corey Lincoln	Events & Ceremonies	Security Guard ✓	
Diana Mason	Events & Ceremonies	Security Guard ✓	
Jamie Carl ✓	Field Operations	Cemetery Caretaker	
Ryan Polite	Field Operations	Cemetery Caretaker	
George Santos	Field Operations	Cemetery Caretaker	
Shawn Smith	Fleet Maintenance	Mobile Equipment Servicer	
Elizabeth Peschock	Events & Ceremonies	Event Coordination Specialist	
Norma Brisbane	Logistics	General Supply Specialist	
Pakapri Sesay	Events & Ceremonies	Security Guard ✓	
Conner Kevan	Field Operations	Cemetery Caretaker	QUANTICO
Bladimiro Fernandez	Resource Management	Budget Analyst ✓	
Wesley Erving	Resource Management	Budget Analyst	
Roy Rexroat	Engineers	Realty Specialist	
LTC GOMEZ	DSCS/ANMC	XO	

From:	Rosenquist, Stacey M CIV USARMY HQDA ANC OSA (US)
To:	Huse, Gregory R CIV USARMY HQDA ANC OSA (US); Pettit, Aaron D CIV USARMY HQDA ANC OSA (US); Wilson, Kelly D CIV (US)
Cc:	Van Hoven, Stephen J CIV (US)
Subject:	Stormwater Training
Date:	Monday, June 18, 2018 1:56:00 PM

Kelly and Aaron,

On Thursday, June 14, 2018, I conducted stormwater training for Davey/Greenleaf and King Bryant managers using the new stormwater brochure (English and Spanish). I encouraged them to use the brochures to provide stormwater training to their personnel by the end of June. As the CORs, please follow up with your contractor and provide me with a training date(s). Thank you.

Greg,

I would like to schedule stormwater training for DTS this week. Are the managers available this Wednesday at 12:30?

Thank you,
Stacey

Stacey M. Rosenquist
Environmental Compliance Program Manager
Arlington National Cemetery
703-614-0520 o
703-963-9465 c

Fall 2017 Horticulture Tours

Memorial Arboretum Rain Garden Tour

Friday September 29, 2017

Let it Rain! Join Arlington's Environmental Specialist and Horticulturist for a look at two of the cemetery's newest rain gardens and other practices the cemetery has in place to help manage storm water.

Learn how rain gardens function, what plants succeed and also some lessons learned. Explore some of the native plants and sustainability practices and designs in place at the cemetery.

Meet the ANC Horticulturist and Environmental Specialist at the Welcome Center Information Desk.
The walk will be from 9:00 am to 11:00 am.

Memorial Arboretum Hidden Gardens: Columbarium Courts

Friday October 27, 2017

Join us for a cool autumn tour of the cemetery Columbarium Court landscapes and gardens. Each of the nine courts' landscapes are unique. Learn more about the plants that thrive in the various conditions inside each court, and the new landscape design the ANC Horticulture team developed and is currently installing.
Stacey - Included stormwater MTD and landcover discussion.
Meet the ANC Horticulturist at the Welcome Center Information Desk.
The walk will be from 9:00 am to 11:00 am.

Memorial Arboretum Walking Tour

Friday November 3, 2017
And
Friday November 17, 2017

Come see the trees of Arlington at the peak of their autumn splendor! The vibrant reds, oranges, yellows, and russets of over 300 species of trees at ANC are a must see for anyone visiting in the Fall.

In this tour, you will learn about the cemetery's Memorial Arboretum, a level II accredited arboretum. You'll gain insight into the urban forestry program, extensive tree collection, and state champion trees. The overall Horticulture program and the variety of techniques used to create some of the most breathtaking formal and informal landscapes and gardens will also be highlighted.

Meet at the Welcome Center Information Desk.
The walk will be from 9:00 am to 11:30 am.

Spring 2018 Horticulture Tours

_____

Friday April 20, 2018
Guides: Kelly Wilson & Stacey Rosenquist

In the Chesapeake Bay Watershed, it's more and more important to think sustainably. In this tour, you'll join the cemetery's Environmental Specialist and Horticulturist for a look at two of the cemetery's newest rain gardens and other best management practices the cemetery has in place to help manage storm water.

You'll learn how rain gardens function, and what plants succeed, as well as explore some of the native plants, sustainability practices and designs in place at the cemetery.

To partake in the tour, please meet at the information desk in the ANC Welcome Center by 9:00 a.m.

Arbor Day Memorial Arboretum Walking Tour and Tree Dedication

Friday April, 27, 2018
Guide: Greg Huse

Arlington National Cemetery has long been recognized as a place of beauty, with the trees and plantings contributing greatly to the overall character and iconic image of the cemetery as one of the Nation's most sacred places.

In this tour, you will learn firsthand from the cemetery's horticulture Urban Forester, Greg Huse, about the cemetery's Memorial Arboretum, a level II accredited arboretum. You'll gain insight into the urban forestry program, extensive tree collection, and state champion trees. The overall Horticulture program and the variety of techniques used to create some of the most breathtaking formal and informal landscapes and gardens will also be highlighted.

Following the tour, please join us for a tree planting and dedication to Arbor Day at 1200. Location TBD.

To partake in the tour, please meet at the information desk in the ANC Welcome Center by 9:00 a.m.

Memorial Arboretum Walking Tour

Friday May 11, 2018
Guide: Greg Huse

Arlington National Cemetery has long been recognized as a place of beauty, with the trees and plantings contributing greatly to the overall character and iconic image of the cemetery as one of the Nation's most sacred places.

In this tour, you will learn firsthand from the cemetery's Urban Forester, Greg Huse, about the cemetery's Memorial Arboretum, a level II accredited arboretum. You'll gain insight into the urban forestry program, extensive tree collection, and state champion trees. The overall Horticulture program and the variety of techniques used to create some of the most breathtaking formal and informal landscapes and gardens will also be highlighted.

To partake in the tour, please meet at the information desk in the ANC Welcome Center by 9:00 a.m.

Memorial Arboretum Spring Plant Tour

Friday, May 18, 2018
Guide: Kelly Wilson

Relish the cemeteries spring time beauty with a walk through the Memorial Arboretum.

Arlington National Cemetery has a very diverse collection of shrubs, and perennials. Learn firsthand from the cemeteries Horticulturist about the cemetery's spring blooming treasures.

Meet the ANC Horticulturist at the Welcome Center Kiosk.
We'll depart at 9:00 a.m.

Public Outreach Event
ANC and National Park Service

On April 24, 2018, ANC and NPS personnel joined efforts for the annual clean-up of Memorial Avenue in Arlington County and collected 17 pounds of trash. Trash consisted of cigarette butts, plastic, gum, liquor bottles, water bottles, paper, and clothing.

Arlington National Cemetery Storm Sewer System Map

Legend

- MS4 Outfalls
- Interconnections to Adjacent MS4s (Inflows)
- Interconnections to Adjacent MS4s (Outflows)
- Headwall
- Catch Basin
- Manhole
- Direction of Flow
- Wetland
- Streams
- Subwatershed Areas
- Installation Area
- Vehicle Road & Parking Areas
- Structures
- Storm Sewer Lines & Culverts
- Storm Sewer Line - Abandoned
- Storm Sewer Line - Likely Abandoned/Questionable
- Storm Sewer Line - Estimated
- Storm Sewer Line - French Drain
- Storm Sewer Line - Open Drainage

1:10,000

2016 -2018 Outfalls -Illicit Discharge Survey

Inspector	Assessment ID	Outfall ID	Date	Time	Flow	Chlorine	Condition
Fenn	00001	R001	7/12/2016	16:40	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] 22" drain (concrete in concrete wall) to open ditch, with larger drain (from other source) adjoining. Little flow, mostly sediment, close to opaque, gray. No chlorine when tested. Outfall appears in good condition besides flow line and sediment.
Grady	00006	R001	8/1/2017	12:00	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Water flow. No chlorine. Outfall on NPS property. Concrete pipe discharging to a natural stream bed. Land use in Drainage Area is institutional. Closed concrete pipe discharges top open ditch. Flow is clear with no odor. Staining evident along flow line. No sample sent to offsite lab.
Rosenquist	00018	R001	8/24/2018	14:00	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] No trace of chlorine. Stromwater discharges to open ditch in wooded area on NPS property adajcent to SEC36A and SEC53. Sample collected in ditch on NPS property.
Castillo Casarez	00012	R002	8/7/2018	15:20	Y	N	R002-B [Total Chlorine=0 ppm/Free Chlorine=0 ppm] Drain and system in good condition and with no traces of chlorine.
Castillo Casarez	00013	R002	8/7/2018	16:00	Y	N	R002-A [Total Chlorine=0 ppm/Free Chlorine=0 ppm] All inlets are in similarly good condition and too deep to test for chlorine levels.
Castillo Casarez	00011	R002	8/8/2018	8:00	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Flow was identified but too deep to test. Access drain mostly covered with overgrown vegetation.
Grady	00008	R003	8/2/2017	12:00	N	N	Millennium Project has redirected stormwater and created new outfalls into Millennium stream. All ANC property.
Rosenquist	00015	R003	8/24/2018	13:30	N	N	Millennium Project has redirected stormwater and created new outfalls into Millennium stream. All ANC property.

2016 -2018 Outfalls -Illicit Discharge Survey

Inspector	Assessment ID	Outfall ID	Date	Time	Flow	Chlorine	Condition
Grady	00009	R004	8/2/2017	12:00	N	N	Millennium Project has redirected stormwater and created new outfalls into Millennium stream. All ANC property.
Rosenquist	00016	R004	8/24/2018	13:30	N	N	Millennium Project has redirected stormwater and created new outfalls into Millennium stream. All ANC property.
Fenn	00002	R005	7/12/2016	10:00	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] 12" drain to stream (concrete pipe protruding from earth). Little flow, with slight sulfurous smell, and barely visible oil sheen on surface of flow. Orange-brown in color, and very cloudy, liekly from sediment, which is visible all throughout stream. Outfall appears in good condition, but multiple problematic indicators.
Grady	00010	R005	8/2/2017	12:00	N	N	Millennium Project has redirected stormwater and created new outfalls into Millennium stream. All ANC property.
Rosenquist	00017	R005	8/24/2018	13:30	N	N	Millennium Project has redirected stormwater and created new outfalls into Millennium stream. All ANC property.
Fenn	00003	R006	7/12/2016	15:00	N	N	22" concrete drain (from concrete wall in side of hill) to open ditch, composed of concrete and stone. No flow present, but slight flow line visible in pipe.
Grady	00007	R006	8/2/2017	12:00	N	N	Stormwater BMP (MTD). Closed pipe to open drainage system down hillside to Millennium Stream. No flow.
Rosenquist	00014	R006	8/6/2018	10:00	N	N	Stormwater BMP (MTD). Closed pipe to open drainage system down hillside to Millennium Stream. No flow.

2016 -2018 Interconnections -Illicit Discharge Survey

Inspector	Interconnection ID	Interconnection ID Section	Date	Time	Flow	Chlorine	Condition
Fenn	I001		7/11/2016	8:30	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Large pipe draining into open ditch. Flow present, no chlorine detected. Concrete ditch is deteriorating, very overgrown. Sediment deposits and uneven patches in concrete at bottom of trapezoidal ditch.
Grady	I001		8/1/2017	12:00	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Steady water flow. Concrete drain in good condition (minor cracks). Eastside of gate overgrown with foilage.
Castillo Casarez	I001		8/6/2018	2:45	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Flow inspected twice on that day. Muddy water was present during first inspection. KTR replacing storm sewer lines discharging to outfall. Second inspection that day, flow was clear. KTR dewatering excavation for installation of MTD BMP in SEC 52. No chlorine detected.
Fenn	I002		7/11/2016	16:45	N	N	Three curb storm drains with square metal grates in front, along road. All in good condition, with mild corrosion of grates. No flow present at each. Unsure which is outflow; two directly across from each other, one closer to Memorial Ave.
Grady	I002		8/1/2017	12:00	N	N	No flow. Square grate overgrown with vegetation. Good condition.
Castillo Casarez	I002		8/8/2018	9:50	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Stagnant water with no traces of chlorine.
Fenn	I003		7/11/2016	16:40	N	N	Square metal grate in grass off of stairs/pedestrian path. Overgrown, partially covered with grass. Mild corrosion of grate, small debris present in drain. No flow present at time of inspection.
Grady	I003		8/1/2017	12:00	N	N	Earth encroaching grate. Inlet good condition. Border NPS property. No flow.

2016 -2018 Interconnections -Illicit Discharge Survey

Inspector	Interconnection ID	Interconnection ID Section	Date	Time	Flow	Chlorine	Condition
Castillo Casarez	I003		8/8/2018	9:45	N	N	Debris in outflow with minor overgrown vegetation.
Fenn	I004		7/11/2016	16:30	N	N	Large metal curb drain with manhole on sidewalk at far right end when faced from road. No flow present, substantial debris and sediment/dirt present in drain. Metal at curb has light wear, and manhole cover has light corrosion.
Grady	I004		8/1/2017	12:00	N	N	Metal grate. Inlet good condition. No flow. NPS property.
Castillo Casarez	I004		8/8/2018	11:00	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Metal grate in fair condition. Flow had no trace of chlorine. The east drain is the only drain that does not have a flow. All drains appear clear of debris.
Fenn	I005		7/11/2016	16:55	N	N	Storm drain at edge of parking lot, with concrete slab and manhole cover on top. Storm drain is bent/bowing at center and metal is worn, missing paint, and presents mild corrosion. No flow is audible, but visually inaccessible.
Grady	I005		8/2/2017	12:00	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Metal Great. Good condition. Standing water observed. No flow.
Castillo Casarez	I005		8/8/2018	9:00	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Stagnant water in inlet. Manhole houses many mosquitos. No traces of chlorine
Fenn	I006		7/11/2016	17:00	N	N	Small domed metal grate set in grass adjacent to parking lot. Grate is significantly covered by dirt and grass, and has mild corrosion. No flow present, but substantially overgrown and dirt spilling over into drain.
Grady	I006		8/1/2017	12:00	N	N	Circular grate. Earth encroachment. Debris over the area. Standing water observed. No flow.
Castillo Casarez	I006	-A	8/8/2018	8:40	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Small flow with no chlorine. Good condition.

2016 -2018 Interconnections -Illicit Discharge Survey

Inspector	Interconnection ID	Interconnection ID Section	Date	Time	Flow	Chlorine	Condition
Castillo Casarez	I006	-B	8/8/2018	8:50	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Minimal overgrown vegetation with stagnant water. No traces of chlorine.
Fenn	I007		7/12/2016	12:35	N	N	Round metal grate with rungs beneath leading down into drain. Too deep to determine flow or ascertain much about condition of drain. Metal grate has mild deterioration and corrosion, and slight overgrowth of grass.
Grady	I007		7/31/2017	12:00	N	N	Metal grate. Inlet good condition. No flow.
Castillo Casarez	I007		8/7/2018	9:00	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Metal grate over drain in good condition. Flow too deep to be able to reach to be tested. See I007-A & -B
Castillo Casarez	I007	-A	8/7/2018	9:05	N	N	No flow. Catch basin and inlet in good condition.
Castillo Casarez	I007	-B	8/8/2018	8:30	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Site currently under construction but in general good condition. A flow was indentified but is too deep to test.
Fenn	I008		7/12/2016	12:50	N	N	Manhole in concrete slab with asphalt-filled storm drain at front (curb), at perimeter of parking lot. Low points in curb appear to allow drainage of water into plantings beyond via gravel fill. Flow indeterminate, inaccessible.
Grady	I008		7/31/2017	12:00	N	N	Minor damage to concrete. Inlet good condition. No flow.
Castillo Casarez	I008		8/8/2018	7:18	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Overgrown vegetation and "foamy" basin cover overshadow access. Interior of outflow in good condition and with no traces of chlorine.
Fenn	I009		7/13/2016	12:52	N	N	Metal curb drain with metal grate in front. No flow, dirt and debris present in drain. Grate is worn and corroded, and is missing a small piece at front left corner. Road is cracking around grate.

2016 -2018 Interconnections -Illicit Discharge Survey

Inspector	Interconnection ID	Interconnection ID Section	Date	Time	Flow	Chlorine	Condition
Grady	I009		7/31/2017	12:00	N	N	Concrete cover deteriorated. Earth encroaching inlet. No flow.
Castillo Casarez	I009		8/7/2018	8:15	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Drain is mostly clear of debris. No traces of chlorine.
Fenn	I010		7/13/2016	13:00	N	N	Manhole in center of road, in good condition. Two possible manholes located, both photographed. Flow inaccessible, indeterminate.
Grady	I010		8/1/2017	12:00	N	N	No flow. Good condition.
Castillo Casarez	I010		8/7/2018	8:00	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Drain has been half-way covered with mowing debris. No traces of chlorines.
Fenn	I011		7/12/2016	13:15	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Large concrete slab resting on brick base covered in concrete. 18" square metal grate at center of slab. Small, vertical metal grate cut into west face of base to allow flow of water at ground level. Active flow, but unreachable. Grate has deteriorated paint and corrosion.
Grady	I011		8/2/2017	12:00	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Moderate water flow. No Chlorine. Inlet in good condition.
Castillo Casarez	I011		8/8/2018	10:30	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Flow uniterrupted and no traces of chlorine. Good condition.
Fenn	I012		7/13/2016	13:00	N	N	Small metal curb drain on exterior (to ANC) road side of wall, with square concrete slab resting on top. Road slopes down toward/around drain. Brick on cemetery side of wall shows arch, evidence of historic drain, now perhaps covered by ground. No flow immediately apparent, but difficult to see into drain.
Grady	I012		8/1/2017	12:00	N	N	No flow. Brick base is deterioated. No visible point of water inflow.

2016 -2018 Interconnections -Illicit Discharge Survey

Inspector	Interconnection ID	Interconnection ID Section	Date	Time	Flow	Chlorine	Condition
Castillo Casarez	I012		8/7/2018	7:45	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] All features appear to be in good condition. Drain is clear of debris and has no traces of chlorine.
Fenn	I013		7/12/2016	13:30	N	N	Small rectangular concrete slab with manhole cover, resting on brick. Four wooden posts driven into ground just beyond corners of slab. Flow inaccessible, indeterminate. Slab, manhole cover, and brick all show mild deterioration.
Grady	I013		8/2/2017	12:00	N	N	Brick base deteriorated. No flow.
Castillo Casarez	I013		8/7/2018	7:30	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Metal lid, concrete slab, and brick surround are in good condition and free of debris. Flow has no traces of chlorine. North drain currently does not have a flow while the west drain does.
Fenn	I014		7/12/2016	13:45	N	N	Small ditch in ground draining through pipe in wall, with stone/concrete surrounding. Trench is entirely filled with sediment/debris, pipe is barely visible, mostly filled/buried. No flow present.
Grady	I014		8/1/2017	12:00	N	N	Filled with debris. No visible inflow entry. No flow.
Castillo Casarez	I014		8/6/2018	1:50	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Stagnant water at catch basin. No traces of chlorine.
Fenn	I015		7/8/2016	11:45	N	N	Rectangular metal grate set in concrete along ANC wall. No flow present. Concrete around grate is cracked, grate is broken at corner, and sediment/dirt has entered drain.
Grady	I015		7/31/2017	12:00	N	N	Grate broken. Concrete has cracks. Drain is dry. Fair condition. No flow.
Castillo Casarez	I015		8/6/2018	1:30	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] No traces of chlorine. Drain in good condition except for missing corner (southwest) of the drain.

2016 -2018 Interconnections -Illicit Discharge Survey

Inspector	Interconnection ID	Interconnection ID Section	Date	Time	Flow	Chlorine	Condition
Fenn	I016		7/8/2016	11:30	N	N	Curved square metal grate in grass away from wall by appx. 30 feet. No flow, mild corrosion of grate, missing paint. Sediment and lawn clipping within drain.
Grady	I016		7/31/2017	12:00	N	N	No flow. Mortar damage. Debris build up. Good condition.
Castillo Casarez	I016		8/7/2018	10:10	N	N	No flow. Minorly wet likely rain water. Drain consists of minor overgrown vegetation but in fair condition.
Fenn	I017		7/8/2016	11:25	N	N	Drain covered by large circular concrete slab. Mostly inaccessible, but slab is broken along edge, enough to see there is no flow. Debris and sediment present in drain.
Grady	I017		8/31/2017	12:00	N	N	Circular condition cover broken. Broken cover allows stormwater to enter drain. Standing water. No flow.
Fenn	I018		7/8/2016	11:05	N	N	Partially covered by square concrete slab, which is broken at edges/corners. Pipe visible, no flow present. Sediment and debris (leaves/stones) present in drain.
Grady	I018		7/31/2017	12:00	N	N	Mortar cracks around inlet. Plant growth and debris impact inlet/drain. Good condition.
Castillo Casarez	I018		8/6/2018	1:05	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Concrete slab cover partially offset. No traces of chlorine. Sample tested from outflow next to wall.
Fenn	I019		7/12/2016	10:45	N	N	Inaccessible, flow indeterminate. Covered by small square concrete slab, which has been partially buried/sunken, perhaps when gate road was paved (seemingly overtop).
Grady	I019		7/31/2017	12:00	N	N	No flow. Square concrete cover broken/chipped. Brick base sunken. Standing water.
Fenn	I020		7/12/2016	10:45	N	N	Inaccessible, flow indeterminate. Covered by concrete slab, unknown condition.

2016 -2018 Interconnections -Illicit Discharge Survey

Inspector	Interconnection ID	Interconnection ID Section	Date	Time	Flow	Chlorine	Condition
Grady	I020		7/31/2017	12:00	N	N	Square concrete slab covers circular brick base. Moderate damage. No flow.
Castillo Casarez	I020		8/6/2018	12:55	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Concrete slab and brick in general good condition. Stagnant water identified.
Castillo Casarez	I020	-D	8/6/2018	12:56	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Catch basin part of I020, no traces of chlorine. Stagnant water. Basin in good condition.
Castillo Casarez	I020		8/8/2018	2:30	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Flow was identified with no traces of chlorine. Two samples were taken. Water is stagnant.
Castillo Casarez	I020	-A	8/8/2018	10:20	Y	Y	[Total Chlorine=0.5 ppm] Catch basin in general fair condition with a crack interiorly. The flow in this basin is stagnant.
Castillo Casarez	I020	-A	8/8/2018	2:15	Y	Y	[Total Chlorine=0.5 ppm] During the second assessment five sample were taken and all samples had traces of chlorine. This basin is the only basin in the system which tested positive for chlorine. Major crack observed along the south wall of the inlet.
Castillo Casarez	I020	-B	8/8/2018	2:10	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] The water is stagnant and had no traces of chlorine. Three sample were taken and all came out clean.
Castillo Casarez	I020	-C	8/8/2018	10:20	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Basin contain stagnant water and no traces of chlorine. Mild sings of debris but still in good condition.
Castillo Casarez	I020	-C	8/8/2018	2:00	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Second inspect reaffirmed no traces of chlorine in stagnant water.

2016 -2018 Interconnections -Illicit Discharge Survey

Inspector	Interconnection ID	Interconnection ID Section	Date	Time	Flow	Chlorine	Condition
Fenn	I021		7/12/2016	14:00	N	N	Small quire concrete slab covering brick base. One brick removed on eastern side, presumably for drainage. Flow inaccessible, indeterminate, although grate near road shows no evidence of flow.
Grady	I021		7/31/2017	12:00	N	N	Square cpncrete cover over round concrete on brick base. Damage to inlet and drainage area. No flow.
Castillo Casarez	I021		8/6/2018	12:35	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Stagnant water, all drains are mostly clear with minimal mowing waste. No trace of chlorine.
Grady	I022		8/2/2017	12:00	N	N	Millennium Project has established new inlets and redirected stormwater flow. This inlet no longer exists.
Grady	I023		8/2/2017	12:00	N	N	Millennium Project has established new inlets and redirected stormwater flow. This inlet no longer exists.
Grady	I024		8/2/2017	12:00	N	N	Millennium Project has established new inlets and redirected stormwater flow. This inlet no longer exists.
Grady	I025		8/2/2017	12:00	N	N	Millennium Project has established new inlets and redirected stormwater flow. This inlet no longer exists.
Grady	I026		8/2/2017	12:00	N	N	Millennium Project has established new inlets and redirected stormwater flow. This inlet no longer exists.
Grady	I027		8/2/2017	12:00	N	N	Millennium Project has established new inlets and redirected stormwater flow. This inlet no longer exists.
Grady	I028		8/2/2017	12:00	N	N	Millennium Project has established new inlets and redirected stormwater flow. This inlet no longer exists.

2016 -2018 Interconnections -Illicit Discharge Survey

Inspector	Interconnection ID	Interconnection ID Section	Date	Time	Flow	Chlorine	Condition
Fenn	I030		7/11/2016	10:20	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Gate at wall, no flow present. Gate in good condition. Substantial flow audible from circular grate across road from gate, but inaccessible, so unable to test for chlorine. Vegetation overgrown at base of gate.
Grady	I030		8/2/2017	12:00	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Flow. No chlorine. Debris and vegetation overgrowth at gate in wall. Damage to wall surrounding gate. Stormwater diverted under gate. Flow identified in downstream inlet.
Castillo Casarez	I030		8/6/2018	8:45	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Flow was identified with no traces of chlorine. Excess vegetation along the wall and gate. Major mortar failure by gate and mud over parts of the drain.
Fenn	I031		7/11/2016	10:10	N	N	Concrete slab with manhole cover atop/adjacent to curb storm drain. Good condition, no problems evident. Minimal flow: not moving, barely wet, likely from watering of grass (nearby). Inaccessible, so unable to test for chlorine.
Grady	I031		8/2/2017	12:00	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Very low flow. No Chlorine. Good condition.
Castillo Casarez	I031		8/6/2018	9:00	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Flow has no traces of chlorine. Good clean pathways.
Fenn	I032		7/11/2016	10:00	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Gate, ditch, and drain all deteriorating. Brick ditch leading to larger ditch crumbling, small bio growth (moss, lichen) evident. Gate out of plumb, flow appears to be emerging from beneath concrete slab at base of gate. Large debris (branches, twigs) in ditch, bricks and concrete show evidence of mineral deposits.

2016 -2018 Interconnections -Illicit Discharge Survey

Inspector	Interconnection ID	Interconnection ID Section	Date	Time	Flow	Chlorine	Condition
Grady	I032		7/31/2017	12:00	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] No chlorine. Overgrown vegetation at gate. Wall surronding gate in fair condition. Drain in fair condition.
Castillo Casarez	I032		8/6/2018	9:15	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Gate, ditch, and drain all deteriorating, specifically the east wall of the north portion of the ditch. Brick ditch leading to larger ditch consists of deteriorated bricks and loss of mortar. Gate out of plumb, flow appears to be emerging mostly from east corner beneath concrete slab. Ditch is clear of debris. No trace of chlorine.
Fenn	I033		7/11/2016	10:35	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Concrete slab with manhole atop ANC wall, with small ditch/curb drain beyond wall, for flow entering off of road. Flow audible, but could not test, all points inaccessible. Manhole shows deterioration of paint, and bio growth/sediment present in drain away from road.
Grady	I033		8/2/2017	12:00	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] No chlorine. Drain at wall is in good condition. Middle drain has considerable debris buildup and vegetation encroachment.
Castillo Casarez	I033		8/6/2018	9:30	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Man hole and basin north of wall are in good condition. Drain south of the wall is mostly unaffected by vegetation, other drains are similar. Flow mostly clear of debris and has no traces of chlorine.

2016 -2018 Interconnections -Illicit Discharge Survey

Inspector	Interconnection ID	Interconnection ID Section	Date	Time	Flow	Chlorine	Condition
Fenn	I034		7/11/2016	9:40	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] Large metal grate at base of wall inside ANC. Flow present, but inaccessible for chlorine testing. Mild corrosion of grate, grass surrounding is slightly overgrown, and small amount of debris visible in drain.
Grady	I034		8/2/2017	12:00	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] No chlorine. Drain at wall is in good condition. Middle drain has considerable debris buildup and vegetation encroachment.
Fenn	I035		7/11/2016	10:48	N	N	Manhole just outside of gate, set in concrete next to gate driveway. Flow inaccessible, indeterminate; no visible problems.
Grady	I035		8/1/2017	12:00	N	N	No flow. Metal grate and concrete in good condition. Inlet on Marshall Road. NPS property.
Castillo Casarez	I035		8/6/2018	2:30	N	N	Minimal dirt in drain but otherwise this drain is in good condition. No flow.
Fenn	I036		7/11/2016	13:20	N	N	Storm drain at side of road, with square metal grate in front. No flow. Grate has mildly deteriorated paint and mild corrosion. Sediment and small debris visible in drain.
Grady	I036		8/1/2017	12:00	N	N	No flow. Clear of debris. Good condition. 2 inlets.
Castillo Casarez	I036		8/10/2018	4:00	N	N	This inlet did not consist of a flow and contains minimal debris.
Fenn	I037		7/11/2016	13:22	N	N	Storm drain at side of road, with square metal grate in front. Paint on grate s deteriorated, grate is mildly corroded. No flow. Sediment and small debris visible in drain.
Grady	I037		8/2/2017	12:00	N	N	No flow. Minor debris in grates. 2 inlets. Good condition. Standing water.
Castillo Casarez	I037		8/10/2018	3:50	N	N	These inlets do not have any flow and contain minimal debris.

2016 -2018 Interconnections -Illicit Discharge Survey

Inspector	Interconnection ID	Interconnection ID Section	Date	Time	Flow	Chlorine	Condition
Fenn	I038		7/11/2016	13:15	N	N	Metal storm drain at side of road, partially broken/missing, with square metal grate in front, partially corroded. No flow, but broken portion of storm drain has significant corrosion. Small debris and mild sediment present in drain.
Grady	I038		8/2/2017	12:00	N	N	No flow. Minor debris in grates. 2 inlets. Good condition. Standing water. Metal cover of westside drain droken/damaged.
Castillo Casarez	I038		8/10/2018	3:50	N	N	These inlets do not have any flow and contain dirt and trash.
Fenn	I039		7/11/2016	13:10	N	N	Square metal grate set in concrete pad, in grass just off of walkway. Partially covered by lawn clippings, scratched from lawn equipment, with light corrosion of grate and deterioration of concrete. No flow present. Substantial lawn clippings and debris partially covering grate and present within drain.
Grady	I039		8/1/2017	12:00	N	N	Standing water. Good condition. No flow.
Castillo Casarez	I039		8/10/2018	4:00	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] This inlet consists of stagnant water with mowing debris. No traces of chlorine were found. In good condition.
Fenn	I040		7/11/2016	13:05	N	N	Square concrete slab resting atop outflow, flow inaccessible, indeterminate. Concrete slab shows mild staining/deterioration.
Grady	I040		8/1/2017	12:00	N	N	Standing water. Good condition. No flow.
Castillo Casarez	I040		8/10/2018	4:00	Y	N	[Total Chlorine=0 ppm/Free Chlorine=0 ppm] This system contains stagnant water and minimal vegetation debris. No traces of chlorine were found.

ARLINGTON NATIONAL CEMETERY

SPILL REPORTS July 1, 2017 - June 30, 2018

Date	Material	Location	Affected Media	Source	Amount	RP	Corrective Action	Reportable* (Y/N)	Reported To (Verbal/ Written)	Date Reported
9/26/2017	oil	Roosevelt Drive (south of fountain)	asphalt pavement	unknown	<1 QT	unknown	N/A	N	ANC ENV	9/26/2017
Jan 2018	hydraulic oil	Eisenhower Avenue	asphalt pavement	hydraulic line break	<1 G	KTR	N/A	N	ANC ENV	Feb 2018
1/26/2018	oil, coolant	L'Enfant and Ord & Weitzel	soil	excavator tipped over	<1 QT	Four Tribes	remove soil	N	ANC ENV	1/26/2018
2/27/2018	hydaulic oil	SEC 36	soil/grass	hydraulic line break	<1 G	ANC Operations	remove soil	N	ANC ENV	2/27/2018
4/30/2018	hydraulic oil	SEC 57	soil/grass	hydraulic line break	<1 G	KTR	remove soil	N	ANC ENV	4/30/2018
7/10/2018	potable water	Roosevelt Fountain	asphalt	broken water hose	unknown	KTR	replace hose	N	ANC ENV	7/10/2018

* Did spill enter stormdrain?
* Did spill exceed 25 gallons of oil?

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
TDD (804) 698-4021
www.deq.virginia.gov

Douglas W. Domenech
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4020
1-800-592-5482

11/25/2013

Arlington National Cemetery
1 Memorial Drive
Arlington, VA 22211

RE: Construction General Permit Coverage #VAR10C624, Arlington National Cemetery Millennum Project - Commercial - Arlington

Dear Don Free:

DEQ has received your registration statement for the proposed land-disturbing project under the General Permit for Discharges of Stormwater from Construction Activities (VAR10). The project's date of coverage is either the date of this letter or fifteen business days after the postmark date of the project's complete registration packet submittal to DEQ.

By submission of the registration statement, you acknowledge that the proposed project is eligible for coverage under the General Permit and you have agreed to the conditions in the General Permit including any applicable conditions regarding Total Maximum Daily Loads and impaired waters. Please be aware that §62.1-44.15:35 of the Code of Virginia and the General Permit contain additional requirements if nonpoint nutrient offsets are chosen to meet the post-development nonpoint nutrient runoff compliance requirements. Section §62.1-44.15:35 I requires that the permit issuing authority require that nonpoint nutrient offsets or other off-site options achieve the necessary nutrient reductions **PRIOR TO THE COMMENCEMENT OF THE PERMITTEE'S LAND DISTURBING ACTIVITY.**

A copy of the General Permit is available on the DEQ web page at http://www.deq.virginia.gov/Portals/0/DEQ/Water/Publications/CGPvar10.pdf. Print the VAR10 permit and read it carefully as you are responsible for meeting all the permit conditions. The General Permit will expire on June 30, 2014.

Your project specific permit registration number is **VAR10C624.** A copy of this permit coverage letter, registration statement, copy of the VAR10 permit, and the project's Stormwater Pollution Prevention Plan (SWPPP) must be at the construction site from the date of commencement of the construction activity to final stabilization. In addition, DEQ staff conduct periodic site inspections for compliance with the permit.

Additional information is available on the DEQ webpage at: http://www.deq.virginia.gov/programs/water/stormwatermanagement/vsmppermits/constructiongeneralpermit.aspx. For questions, contact the Permit Processor at (804) 698-4039.

Sincerely,

Frederick K. Cunningham

Frederick K. Cunningham, Director
Office of Water Permits

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
www.deq.virginia.gov

Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

March 09, 2016

Environmental Design and Construction LLC
1108 Good Hope Rd SE
Washington, DC 20020
pleclair@envdes.com

RE: Coverage under the VPDES Construction General Permit (VAR10)
General Permit No. VAR10H891
Arlington National Cememtery - Funeral Procession Queuing
Commercial - Parking Lot Demolition
Arlington

Dear Permittee:

DEQ has reviewed your Registration Statement received on February 25, 2016 and determined that the proposed land-disturbing activity is covered under the General VPDES Permit for Discharges of Stormwater from Construction Activities (VAR10). The effective date of your coverage under this general permit is July 1, 2014 or the date of this letter, whichever is later.

A copy of the general permit can be obtained from DEQ's webpage at the following location: http://www.deq.virginia.gov/Portals/0/DEQ/Water/Publications/CGP2014.pdf. The general permit contains the applicable Stormwater Pollution Prevention Plan (SWPPP) requirements and other conditions of coverage. Please print the general permit and read it carefully as you will be responsible for compliance with all permit conditions.

DEQ staff has determined that the proposed land-disturbing activity will discharge to a surface water identified as impaired or for which a TMDL wasteload allocation has been established and approved prior to the term of the general permit for (i) sediment or a sediment-related parameter or (ii) nutrients. Therefore, the following general permit (Part I.B.4) and SWPPP requirements (Part II.A.5) must be implemented for the land-disturbing activity:

- Permanent or temporary soil stabilization shall be applied to denuded areas within seven (7) days after final grade is reached on any portion of the site;
- Nutrients (e.g., fertilizers) shall be applied in accordance with manufacturer's recommendations or an approved nutrient management plan and shall not be applied during rainfall events;
- Inspections shall be conducted at a frequency of (i) at least once every four (4) business days or (ii) at least once every (5) business days and no later than 48 hours following a measurable storm event. In the event that a measurable storm event occurs when there are more than 48 hours between business days, the inspection shall be conducted on the next business day; and
- Representative inspections used by utility line installation, pipeline construction, or other similar linear construction activities shall inspect all outfalls.

The general permit will expire on June 30, 2019. The conditions of the general permit require that you submit a new registration statement at least 90 days prior to that date if you wish to continue coverage under the general

permit, unless permission for a later date has been granted by the Board. Permission cannot be granted to submit the registration statement after the expiration date of the general permit.

If you have any questions about this permit, please contact the DEQ Office of Stormwater Management at ConstructionGP@deq.virginia.gov.

Sincerely,

Frederick K. Cunningham, Director
Office of Water Permits

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
www.deq.virginia.gov

Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

November 13, 2017

Four Tribes Construction Services LLC
814 W Diamond Ave Ste 310
Gaithersburg, MD 20878
mmccourt@boldconcepts.com

RE: Coverage under the VPDES Construction General Permit (VAR10)
General Permit No. VAR10K463
Arlington National Cemetery Ord and Weitzel Road Repairs
Transportation - Roadway
Arlington

Dear Permittee:

DEQ has reviewed your Registration Statement received on November 02, 2017 and determined that the proposed land-disturbing activity is covered under the General VPDES Permit for Discharges of Stormwater from Construction Activities (VAR10). The effective date of your coverage under this general permit is July 1, 2014 or the date of this letter, whichever is later.

A copy of the general permit can be obtained from DEQ's webpage at the following location: http://www.deq.virginia.gov/Portals/0/DEQ/Water/Publications/CGP2014.pdf. The general permit contains the applicable Stormwater Pollution Prevention Plan (SWPPP) requirements and other conditions of coverage. Please print the general permit and read it carefully as you will be responsible for compliance with all permit conditions.

DEQ staff has determined that the proposed land-disturbing activity will discharge to a surface water identified as impaired or for which a TMDL wasteload allocation has been established and approved prior to the term of the general permit for (i) sediment or a sediment-related parameter or (ii) nutrients. Therefore, the following general permit (Part I.B.4) and SWPPP requirements (Part II.A.5) must be implemented for the land-disturbing activity:

- Permanent or temporary soil stabilization shall be applied to denuded areas within seven (7) days after final grade is reached on any portion of the site;
- Nutrients (e.g., fertilizers) shall be applied in accordance with manufacturer's recommendations or an approved nutrient management plan and shall not be applied during rainfall events;
- Inspections shall be conducted at a frequency of (i) at least once every four (4) business days or (ii) at least once every (5) business days and no later than 48 hours following a measurable storm event. In the event that a measurable storm event occurs when there are more than 48 hours between business days, the inspection shall be conducted on the next business day; and
- Representative inspections used by utility line installation, pipeline construction, or other similar linear construction activities shall inspect all outfalls.

The general permit will expire on June 30, 2019. The conditions of the general permit require that you submit a new registration statement at least 90 days prior to that date if you wish to continue coverage under the general

permit, unless permission for a later date has been granted by the Board. Permission cannot be granted to submit the registration statement after the expiration date of the general permit.

If you have any questions about this permit, please contact the DEQ Office of Stormwater Management at ConstructionGP@deq.virginia.gov.

Sincerely,

Frederick K. Cunningham, Director
Office of Water Permits

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Street address: 1111 E. Main Street, Suite 1400, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
www.deq.virginia.gov

Matthew J. Strickler
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

March 23, 2018

NDC LLC dba New Dominion Construction Inc
17958 Dumfries Shopping Plaza Ste B3
Dumfries, VA 22026
bdisentie@newdominionconstruction.com

RE: Coverage under the VPDES Construction General Permit (VAR10)
General Permit No. VAR10K727
Arlington National Cemetery Spoils Yard
Commercial/Military
Arlington

Dear Permittee:

DEQ has reviewed your Registration Statement received on January 23, 2018 and determined that the proposed land-disturbing activity is covered under the General VPDES Permit for Discharges of Stormwater from Construction Activities (VAR10). The effective date of your coverage under this general permit is July 1, 2014 or the date of this letter, whichever is later. A copy of the general permit can be obtained from DEQ's webpage at the following location: http://www.deq.virginia.gov/Portals/0/DEQ/Water/Publications/CGP2014.pdf.

The general permit contains the applicable Stormwater Pollution Prevention Plan (SWPPP) requirements and other conditions of coverage. Please print the general permit and read it carefully as you will be responsible for compliance with all permit conditions. Additionally, coverage under this construction general permit does not relieve the operator of complying with all other federal, state, or local laws and regulations.

DEQ staff has determined that the proposed land-disturbing activity will discharge to a surface water identified as impaired or for which a TMDL wasteload allocation has been established and approved prior to the term of the general permit for (i) sediment or a sediment-related parameter or (ii) nutrients. Therefore, the following general permit (Part I.B.4) and SWPPP requirements (Part II.A.5) must be implemented for the land-disturbing activity:

- Permanent or temporary soil stabilization shall be applied to denuded areas within seven (7) days after final grade is reached on any portion of the site;
- Nutrients (e.g., fertilizers) shall be applied in accordance with manufacturer's recommendations or an approved nutrient management plan and shall not be applied during rainfall events;
- Inspections shall be conducted at a frequency of (i) at least once every four (4) business days or (ii) at least once every (5) business days and no later than 48 hours following a measurable storm event. In the event that a measurable storm event occurs when there are more than 48 hours between business days, the inspection shall be conducted on the next business day; and
- Representative inspections used by utility line installation, pipeline construction, or other similar linear construction activities shall inspect all outfalls.

In accordance with the Virginia Stormwater Management Program State Permit Fee Regulation (9 VAC 25-870-830), you may be required to pay an annual permit maintenance fee until coverage under this general permit is terminated. If you are required to pay an annual permit maintenance fee, you will receive an invoice from the VSMP Authority including the amount and due date.

The general permit will expire on June 30, 2019. The conditions of the general permit require that you submit a new registration statement at least 90 days prior to that date if you wish to continue coverage under the general permit, unless permission for a later date has been granted by the Board. Permission cannot be granted to submit the registration statement after the expiration date of the general permit.

If you have any questions about this permit, please contact the DEQ Office of Stormwater Management at ConstructionGP@deq.virginia.gov.

Sincerely,

Jaime B. Robb

Jaime B. Robb, Manager
Office of Stormwater Management

ARLINGTON NATIONAL CEMETERY

VAR040139

ID#	Existing BMP Type	Year Installed	Location	LAT/LONG
	Vacuum-type sweeper used on all roads, not parking lots, once or twice a week. Contents dumpted in solid waste dumpster	2014	Roadways throughout ANC	
STC-3	Stormceptor 3 (STC 900)	2013	Columbarium 9 (North)	38.87657/-77.059791
STC-4	Stormceptor 4 (STC 900)	2013	Columbarium 9 (South)	38.87495/-77.05998
PP-1	Permeable Pavement, no underdrain, with gravel	2012	Sidewalk along Eisenhower Ave	38.87609/-77.066279
RG-1	Rain Garden 1, No underdrain	2012	Bldg. 123	38.87072/-77.062606
RG-2	Rain Garden 2, No underdrain	2012	Bldg. 123	38.87069/-77.062358
RG-3	Rain Garden 3, No underdrain	2012	Bldg. 123	38.87092/-77.062082
STC-5	Stormceptor 5 (STC 2400)	2006	Section 76	38.88087/-77.062114
STC-6	Stormceptor 6 (STC 1800)	2006	Section 78	38.87751/-77.059327
STC-1	Stormceptor 1 (STC 1800)	2002-2003	Columbarium 7	38.87485/-77.060522
STC-2	Stormceptor 2 (STC 1800)	2002-2003	Columbarium 8	38.87675/-77.060027
SF	Sand Filter	1998	COL 6/8	38.87666/-77.060511
PT UTD	Stormwater Pre-Treatment Chamber	1996	Bldg. 123	38.87119/-77.062587
UTD	Underground Stormwater Chamber	1996	Bldg. 123	38.87109/-77.062885
PP-2	Permeable Pavement, no underdrain, with gravel	2014	Sidewalk near Chapel Gate	38.88002/-77.076883
STC-7	Stormceptor 7 (STC 1200)	1998	York Drive/Marshall Drive	38.87687/-77.061929
STF-2	ConTech StormFilter	2017	B129	38.8714/-77.061838

Maintenance Inspection Checklist:

Stormceptor

Inspection Date May 10, 2018
Project _____ Site Plan/Permit Number ANC/VAR040139
Location STC 1 COL7 (STC-1800) Date BMP Placed in Service 2002-2003
Date of Last Inspection May/June 2017 Inspector S. Rosenquist
Owner/Owner's Representative _____
As-Built Plans available: Y / N X

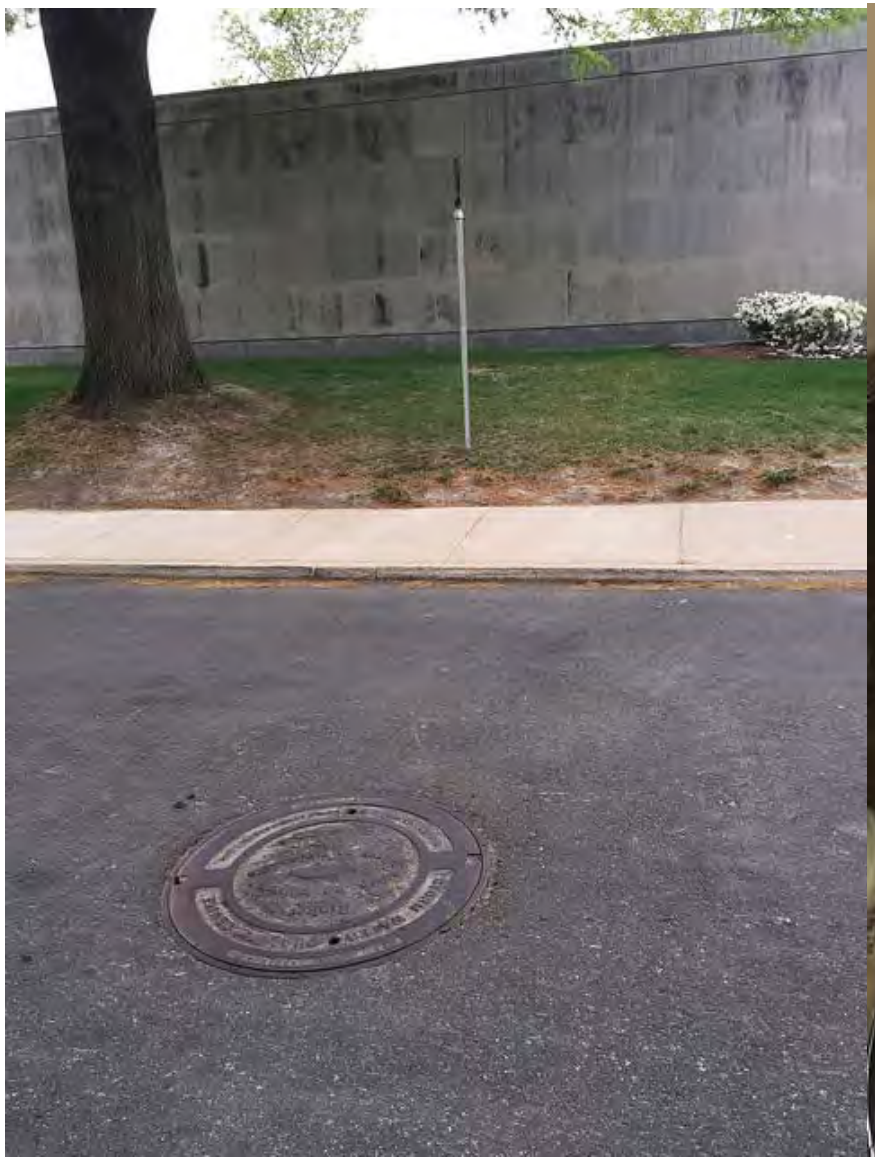
Compensatory device type (include if the pervious area flow path is less than the required minimum length): ***(NOTE: See the separate plan review checklist for the compensatory device)***

. Dry Well ☐ French Drain ☐ Rain Garden
☐ Other: _____

Element of BMP	Potential Problem	Problem? Y/ N	Investigate? Y / N	Repaired? Y / N	How to Fix Problem	Who Will Address Problem	Comments
Storage	Sediment and debris accumulation depth > 15% of total storage	Y			Correct the source of sediment and debris; remove and dispose according to environmental regulations	Owner or Professional	Cleanout scheduled in FY2019.
	Oil and fuel accumulation	N			Remove and dispose of accumulated oil/fuel waste according to environmental regulations	Owner or professional	
Inflow and outflow pipes	Blockage at inflow & outflow pipes	N			Remove blockage debris	Owner or professional	
	Breaks & cracks at pipe joint connections	unknown			Repair joints according to type of joint connections in-place	Professional	
Structural components	Concrete spalling or deterioration	N			Replace and repair damaged components in accordance with approved specifications	Professional	
	Cracks wider than ½ inch and any evidence of soil particles entering the structure through the cracks	N				Professional	
	Access grates and covers - cracked or damaged – unable to open	N			Replace grate/cover; remove grate / cover and clean frame or lubricate as needed	Owner	
Upstream oil, fuel or chemical spills	Oil, fuel or chemical spills that could be washed into the Stormceptor	N			Clean-up spill fluid according to spill prevention plan; remove spill fluid from Stormceptor according to manufacturer's specifications	Owner or professional	

May 10, 2018

STC1 COL7



Maintenance Inspection Checklist:

Stormceptor

Inspection Date May 10, 2018
Project _____ Site Plan/Permit Number ANC/VAR040139
Location STC 2 COL8 (STC-1800) Date BMP Placed in Service 2002-2003
Date of Last Inspection May/June 2017 Inspector S. Rosenquist
Owner/Owner's Representative _____
As-Built Plans available: Y / N X

Compensatory device type (include if the pervious area flow path is less than the required minimum length): ***(NOTE: See the separate plan review checklist for the compensatory device)***

. Dry Well ☐ French Drain ☐ Rain Garden
☐ Other: _____

Element of BMP	Potential Problem	Problem? Y/ N	Investigate? Y / N	Repaired? Y / N	How to Fix Problem	Who Will Address Problem	Comments
Storage	Sediment and debris accumulation depth > 15% of total storage	Y			Correct the source of sediment and debris; remove and dispose according to environmental regulations	Owner or Professional	Cleanout scheduled in FY2019.
	Oil and fuel accumulation	N			Remove and dispose of accumulated oil/fuel waste according to environmental regulations	Owner or professional	
Inflow and outflow pipes	Blockage at inflow & outflow pipes	N			Remove blockage debris	Owner or professional	
	Breaks & cracks at pipe joint connections	unknown			Repair joints according to type of joint connections in-place	Professional	
Structural components	Concrete spalling or deterioration	N			Replace and repair damaged components in accordance with approved specifications	Professional	
	Cracks wider than ½ inch and any evidence of soil particles entering the structure through the cracks	N				Professional	
	Access grates and covers - cracked or damaged – unable to open	N			Replace grate/cover; remove grate / cover and clean frame or lubricate as needed	Owner	
Upstream oil, fuel or chemical spills	Oil, fuel or chemical spills that could be washed into the Stormceptor	N			Clean-up spill fluid according to spill prevention plan; remove spill fluid from Stormceptor according to manufacturer's specifications	Owner or professional	

May 10, 2018

STC2 COL8

Maintenance Inspection Checklist:

Stormceptor

Inspection Date May 10, 2018
Project _____ Site Plan/Permit Number ANC/VAR040139
Location STC 3 COL 9N (STC-900) Date BMP Placed in Service 2013
Date of Last Inspection May/June 2017 Inspector S. Rosenquist
Owner/Owner's Representative _____
As-Built Plans available: Y / N X

Compensatory device type (include if the pervious area flow path is less than the required minimum length): ***(NOTE: See the separate plan review checklist for the compensatory device)***

. Dry Well ☐ French Drain ☐ Rain Garden
☐ Other: _____

Element of BMP	Potential Problem	Problem? Y/ N	Investigate? Y / N	Repaired? Y / N	How to Fix Problem	Who Will Address Problem	Comments
Storage	Sediment and debris accumulation depth > 15% of total storage	Y			Correct the source of sediment and debris; remove and dispose according to environmental regulations	Owner or Professional	Cleanout scheduled in FY2019.
	Oil and fuel accumulation	N			Remove and dispose of accumulated oil/fuel waste according to environmental regulations	Owner or professional	
Inflow and outflow pipes	Blockage at inflow & outflow pipes	N			Remove blockage debris	Owner or professional	
	Breaks & cracks at pipe joint connections	unknown			Repair joints according to type of joint connections in-place	Professional	
Structural components	Concrete spalling or deterioration	N			Replace and repair damaged components in accordance with approved specifications	Professional	
	Cracks wider than ½ inch and any evidence of soil particles entering the structure through the cracks	N				Professional	
	Access grates and covers - cracked or damaged – unable to open	N			Replace grate/cover; remove grate / cover and clean frame or lubricate as needed	Owner	
Upstream oil, fuel or chemical spills	Oil, fuel or chemical spills that could be washed into the Stormceptor	N			Clean-up spill fluid according to spill prevention plan; remove spill fluid from Stormceptor according to manufacturer's specifications	Owner or professional	

May 10, 2018

STC3 COL9N

Maintenance Inspection Checklist:

Stormceptor

Inspection Date May 10, 2018
Project _____ Site Plan/Permit Number ANC/VAR040139
Location STC 4 COL 9S (STC-900) Date BMP Placed in Service 2013
Date of Last Inspection May/June 2017 Inspector S. Rosenquist
Owner/Owner's Representative _____
As-Built Plans available: Y / N X

Compensatory device type (include if the pervious area flow path is less than the required minimum length): ***(NOTE: See the separate plan review checklist for the compensatory device)***

. Dry Well ☐ French Drain ☐ Rain Garden
☐ Other: _____

Element of BMP	Potential Problem	Problem? Y/ N	Investigate? Y / N	Repaired? Y / N	How to Fix Problem	Who Will Address Problem	Comments
Storage	Sediment and debris accumulation depth > 15% of total storage	Y			Correct the source of sediment and debris; remove and dispose according to environmental regulations	Owner or Professional	Cleanout scheduled in FY2019
	Oil and fuel accumulation	N			Remove and dispose of accumulated oil/fuel waste according to environmental regulations	Owner or professional	
Inflow and outflow pipes	Blockage at inflow & outflow pipes	N			Remove blockage debris	Owner or professional	
	Breaks & cracks at pipe joint connections	unknown			Repair joints according to type of joint connections in-place	Professional	
Structural components	Concrete spalling or deterioration	N			Replace and repair damaged components in accordance with approved specifications	Professional	
	Cracks wider than ½ inch and any evidence of soil particles entering the structure through the cracks	N				Professional	
	Access grates and covers - cracked or damaged – unable to open	N			Replace grate/cover; remove grate / cover and clean frame or lubricate as needed	Owner	
Upstream oil, fuel or chemical spills	Oil, fuel or chemical spills that could be washed into the Stormceptor	N			Clean-up spill fluid according to spill prevention plan; remove spill fluid from Stormceptor according to manufacturer's specifications	Owner or professional	

MAY 10, 2018

STC4 COL9S

Maintenance Inspection Checklist:

Stormceptor

Inspection Date May 10, 2018
Project _____ Site Plan/Permit Number ANC/VAR040139
Location STC 5 SEC 76 (STC-2400) Date BMP Placed in Service 2006
Date of Last Inspection May/June 2017 Inspector S. Rosenquist
Owner/Owner's Representative _____
As-Built Plans available: Y / N X

Compensatory device type (include if the pervious area flow path is less than the required minimum length): ***(NOTE: See the separate plan review checklist for the compensatory device)***

. Dry Well ☐ French Drain ☐ Rain Garden
☐ Other: _____

Element of BMP	Potential Problem	Problem? Y/ N	Investigate? Y / N	Repaired? Y / N	How to Fix Problem	Who Will Address Problem	Comments
Storage	Sediment and debris accumulation depth > 15% of total storage	Y			Correct the source of sediment and debris; remove and dispose according to environmental regulations	Owner or Professional	Cleanout scheduled in FY2019
	Oil and fuel accumulation	N			Remove and dispose of accumulated oil/fuel waste according to environmental regulations	Owner or professional	
Inflow and outflow pipes	Blockage at inflow & outflow pipes	N			Remove blockage debris	Owner or professional	
	Breaks & cracks at pipe joint connections	unknown			Repair joints according to type of joint connections in-place	Professional	
Structural components	Concrete spalling or deterioration	N			Replace and repair damaged components in accordance with approved specifications	Professional	
	Cracks wider than ½ inch and any evidence of soil particles entering the structure through the cracks	N				Professional	
	Access grates and covers - cracked or damaged – unable to open	N			Replace grate/cover; remove grate / cover and clean frame or lubricate as needed	Owner	
Upstream oil, fuel or chemical spills	Oil, fuel or chemical spills that could be washed into the Stormceptor	N			Clean-up spill fluid according to spill prevention plan; remove spill fluid from Stormceptor according to manufacturer's specifications	Owner or professional	

May 10, 2018

STC5 SEC76

Maintenance Inspection Checklist:

Stormceptor

Inspection Date May 10, 2018
Project _____ Site Plan/Permit Number ANC/VAR040139
Location STC6 SEC72 (STC-1800) Date BMP Placed in Service 2006
Date of Last Inspection May/June 2017 Inspector S. Rosenquist
Owner/Owner's Representative _____
As-Built Plans available: Y / N X

Compensatory device type (include if the pervious area flow path is less than the required minimum length): ***(NOTE: See the separate plan review checklist for the compensatory device)***

. Dry Well ☐ French Drain ☐ Rain Garden
☐ Other: _____

Element of BMP	Potential Problem	Problem? Y/ N	Investigate? Y / N	Repaired? Y / N	How to Fix Problem	Who Will Address Problem	Comments
Storage	Sediment and debris accumulation depth > 15% of total storage	Y			Correct the source of sediment and debris; remove and dispose according to environmental regulations	Owner or Professional	Cleanout scheduled in FY2019
	Oil and fuel accumulation	N			Remove and dispose of accumulated oil/fuel waste according to environmental regulations	Owner or professional	
Inflow and outflow pipes	Blockage at inflow & outflow pipes	N			Remove blockage debris	Owner or professional	
	Breaks & cracks at pipe joint connections	unknown			Repair joints according to type of joint connections in-place	Professional	
Structural components	Concrete spalling or deterioration	N			Replace and repair damaged components in accordance with approved specifications	Professional	
	Cracks wider than ½ inch and any evidence of soil particles entering the structure through the cracks	N				Professional	
	Access grates and covers - cracked or damaged – unable to open	N			Replace grate/cover; remove grate / cover and clean frame or lubricate as needed	Owner	
Upstream oil, fuel or chemical spills	Oil, fuel or chemical spills that could be washed into the Stormceptor	N			Clean-up spill fluid according to spill prevention plan; remove spill fluid from Stormceptor according to manufacturer's specifications	Owner or professional	

May 10, 2018

STC6 SEC72

Maintenance Inspection Checklist:

Stormceptor

Inspection Date May 10, 2018
Project _____ Site Plan/Permit Number _____
Location STC 7 York (STC-1200) Date BMP Placed in Service ANC/VAR040139
Date of Last Inspection May/June 2017 Inspector S. Rosenquist
Owner/Owner's Representative _____
As-Built Plans available: Y / N X

Compensatory device type (include if the pervious area flow path is less than the required minimum length): ***(NOTE: See the separate plan review checklist for the compensatory device)***

. Dry Well ☐ French Drain ☐ Rain Garden
☐ Other: _____

Element of BMP	Potential Problem	Problem? Y/ N	Investigate? Y / N	Repaired? Y / N	How to Fix Problem	Who Will Address Problem	Comments
Storage	Sediment and debris accumulation depth > 15% of total storage	Y			Correct the source of sediment and debris; remove and dispose according to environmental regulations	Owner or Professional	Cleanout scheduled in FY2019
	Oil and fuel accumulation	N			Remove and dispose of accumulated oil/fuel waste according to environmental regulations	Owner or professional	
Inflow and outflow pipes	Blockage at inflow & outflow pipes	N			Remove blockage debris	Owner or professional	
	Breaks & cracks at pipe joint connections	unknown			Repair joints according to type of joint connections in-place	Professional	
Structural components	Concrete spalling or deterioration	N			Replace and repair damaged components in accordance with approved specifications	Professional	
	Cracks wider than ½ inch and any evidence of soil particles entering the structure through the cracks	N				Professional	
	Access grates and covers - cracked or damaged – unable to open	N			Replace grate/cover; remove grate / cover and clean frame or lubricate as needed	Owner	
Upstream oil, fuel or chemical spills	Oil, fuel or chemical spills that could be washed into the Stormceptor	N			Clean-up spill fluid according to spill prevention plan; remove spill fluid from Stormceptor according to manufacturer's specifications	Owner or professional	

May 10, 2018

STC7 YORK

Sample Maintenance Inspection Checklist:
Filtering Practices

Inspection Date May 10, 2018
Project _____ Site Plan/Permit Number ANC/VAR040139
Location B123 Underground Stormwater Chamber Date BMP Placed in Service 1996
Date of Last Inspection May 2017 Inspector S. Rosenquist
Owner/Owner's Representative _____
As-Built Plans available: Y / N X

Facility Type: Level 1 N/A Level 2 N/A

Facility Location:
- ☐ Surface
- ☒ Underground

Hydraulic Configuration:
- ☐ On-line facility
- ☐ Off-line facility

Filtration Media:
- ☐ No filtration (e.g., dry well, permeable pavement, infiltration facility, etc.
- ☐ Sand
- ☐ Bioretention Soil
- ☐ Peat
- ☒ Other: None

Type of Pre-Treatment Facility:
- ☐ Sediment forebay (above ground)
- ☒ Sedimentation chamber
- ☐ Plunge pool
- ☐ Stone diaphragm
- ☐ Grass filter strip
- ☐ Grass channel
- ☒ Other: underground pretreatment chamber

An inspection and clean-up should be scheduled annually to remove trash and floatables that accumulate in the pre-treatment cells and filter bed. Frequent sediment cleanouts in the dry and wet sedimentation chambers are recommended every 2-3 years to maintain the function and performance of the filter. If the filter treats runoff from a hotspot, crews may need to test the filter bed media before disposing of the media and trapped pollutants. If the filter does not treat runoff from a hotspot, the media can be safely disposed by either land application or land filling, without prior testing.
***Warning:** If the filtering facility has a watertight cover; be careful regarding the possibility of flammable gases within the facility. Care should be taken lighting a match or smoking while inspecting facilities that are not vented. If the filtering facility is in a completely enclosed vault, the **OSHA Confined Space Entry** procedures must be followed.*

Element of BMP	Potential Problem	Problem? Y / N	Investigate? Y / N	Repaired? Y / N	How to Fix Problem	Who Will Address Problem	Comments
Contributing Drainage Area and Side Slopes	Adequate vegetation	N/A			Supplement as necessary	Owner	paved equipment parking area, storage buildings, ASTs, fueling pumps
	There is excessive trash and debris	N			Remove immediately	Owner or professional	
	There is evidence of erosion and / or bare or exposed soil	N/A			Stabilize immediately	Owner or professional	
	There are excessive landscape waste or yard clippings	N/A			Remove immediately and recycle or compost	Owner or professional	
Pre-Treatment	There is adequate access to the pre-treatment facility	N			Establish adequate access	Professional and, perhaps, the locality	underground baffled treatment device

Element of BMP	Potential Problem	Problem? Y / N	Investigate? Y / N	Repaired? Y / N	How to Fix Problem	Who Will Address Problem	Comments
Pre-Treatment (continued)	Excessive trash, debris, or sediment.	N			Remove immediately	Owner or professional	
Pre-Treatment (continued)	There is evidence of erosion and / or exposed soil	N/A			Stabilize immediately	Owner or professional	
	There is dead vegetation.	N/A			Replace dead vegetation as necessary	Professional	
	Perimeter turf (or a grass filter strip) is too high.	N/A			Mow at least 4 times a year to keep the grass at a height of 4" to 9". Remove grass clippings after mowing.	Owner or professional	
	There is evidence of oil, grease, clogging (standing water, noticeable odors, water stains, algae)	N			Identify and eliminate the source of the problem. If necessary, remove and clean or replace the clogged material.	Professional	
Inlets	The inlet provides a stable conveyance into the swale	N/A			Stabilize immediately, as needed, and clear blockages.	Owner or professional	no swale
	There is excessive trash, debris, or sediment.	N			Remove immediately	Owner or professional	inlets contain some sediment
	There is evidence of erosion at or around the inlet	N/A			Repair erosion damage and reseed	Owner or professional	inlets installed in paved parking area
Sedimentation Chambers	Sediment or debris accumulations are excessive	N			Clean out the wet and dry sedimentation chambers	Professional	
Filter Media	If facility takes longer than 48 hours to drain or filter media is discolored, the media is probably clogged	N/A			Replace the top sand layer of an enclosed filter (typically done every 5 years). Till or aerate the surface to improve infiltration and grass cover of an open filter (also typically done every 5 years.		no filter media
Oil and Grease	Evidence of filter surface clogging	N/A			Clean or replace filter media, as necessary.	Professional	none visible in pre-treatment chamber
Underdrain	The underdrain is not conveying water as designed	N/A			To determine if the pipe is clogged, measure the draw-down rate of the observation well for three days following a storm event in excess of 1/2 inches in depth. .After three days, if there is standing water on top but not in the underdrain, this indicates a clogged sand layer that must be replaced. If standing water is both on the surface and in the underdrain, then the underdrain is probably clogged. Immediately clean out the pipe manually or, if needed, use a high-pressure hose. Replace the underdrain if it is structurally	Professional	
Observation Well (*every 2 years*)	Is the observation well still capped?	N/A			Repair, as necessary.	Professional	

Element of BMP	Potential Problem	Problem? Y / N	Investigate? Y / N	Repaired? Y / N	How to Fix Problem	Who Will Address Problem	Comments
Outlet	The outlet provides stable conveyance	N/A			Remove blockages and stabilize, as needed.	Professional	Outlet is underground-connects to Pentagon 84", discharges to Pentagon Lagoon
	Evidence of flow bypassing facility	N/A			Repair immediately	Professional	
	Outlets are obstructed or erosion and soil exposure is evident below the outlet.	N/A			Remove obstructions and stabilize eroded or exposed areas.	Owner or Professional	
Structural Components	Evidence of structural deterioration	N			Repair as necessary	Professional	
	Evidence of spalling or cracking of structural components	N			Repair or replace, as necessary	Professional	
	Grates are in good condition	N			Repair or replace, as necessary	Owner or professional	
Pump (where applicable)	Catalog cuts and wiring diagram for pump available	N/A			If missing, obtain replacements	Owner	no pumps
	Waterproof conduits for wiring appear to be intact	N/A			Repair as necessary	Professional	
	Panel box is well marked	N/A			If not, mark it correctly	Professional	
	No evidence of pump failure (excess water in pump well, etc.)	N/A			Repair as necessary	Professional	
Overall	Access to the facility or its components is adequate.	N			Establish adequate access. Remove woody vegetation and debris that may block access. Ensure that hardware can be opened and operated.	Professional and, perhaps, the locality	
	Condition of hydraulic control components	N			Repair, as necessary.	Professional	
	Complaints from local residents	N/A			Correct real problems.	Owner or professional	
	Noticeable odors outside facility	N			Determine source and eliminate it.	Professional	
	Mosquito proliferation	N			Eliminate stagnant pools if feasible, and treat for mosquitoes as needed. If sprays are considered, then a mosquito larvicide, such as Bacillus thurendensis or Altoside formulations can be applied *only if absolutely necessary*.	Owner or professional	
	Encroachment on the filter or easement by buildings or other structures	N			Inform involved property owners of BMPs status ; clearly mark the boundaries of the receiving pervious area, as needed	Owner or professional (and perhaps the locality)	

May 10, 2018

B123 Underground Stormwater Chamber

May 10, 2018

B123 Underground Stormwater Chamber

Maintenance Inspection Checklist:

Filtering Practices

Inspection Date May 10, 2018
Project _____ Site Plan/Permit Number ANC/VAR040139
Location B129 Date BMP Placed in Service 2017
Date of Last Inspection N/A Inspector S. Rosenquist
Owner/Owner's Representative _____
As-Built Plans available: X Y / N

Facility Type: Level 1 N/A Level 2 N/A

Facility Location:
- ☐ Surface
- ☒ Underground

Hydraulic Configuration:
- ☒ On-line facility
- ☐ Off-line facility

Filtration Media:
- ☐ No filtration (e.g., dry well, permeable pavement, infiltration facility, etc.
- ☐ Sand
- ☐ Bioretention Soil
- ☐ Peat
- ☒ Other: stormfilter cartridge

Type of Pre-Treatment Facility:
- ☐ Sediment forebay (above ground)
- ☐ Sedimentation chamber
- ☐ Plunge pool
- ☐ Stone diaphragm
- ☐ Grass filter strip
- ☐ Grass channel
- ☐ Other: _____

An inspection and clean-up should be scheduled annually to remove trash and floatables that accumulate in the pre-treatment cells and filter bed. Frequent sediment cleanouts in the dry and wet sedimentation chambers are recommended every 2-3 years to maintain the function and performance of the filter. If the filter treats runoff from a hotspot, crews may need to test the filter bed media before disposing of the media and trapped pollutants. If the filter does not treat runoff from a hotspot, the media can be safely disposed by either land application or land filling, without prior testing.
***Warning:** If the filtering facility has a watertight cover; be careful regarding the possibility of flammable gases within the facility. Care should be taken lighting a match or smoking while inspecting facilities that are not vented. If the filtering facility is in a completely enclosed vault, the **OSHA Confined Space Entry** procedures must be followed.*

Element of BMP	Potential Problem	Problem? Y / N	Investigate? Y / N	Repaired? Y / N	How to Fix Problem	Who Will Address Problem	Comments
Contributing Drainage Area and Side Slopes	Adequate vegetation	N/A			Supplement as necessary	Owner	
	There is excessive trash and debris	Y			Remove immediately	Owner or professional	Excessive sediment remains on the surface in the drainage area.
	There is evidence of erosion and / or bare or exposed soil	N/A			Stabilize immediately	Owner or professional	
	There are excessive landscape waste or yard clippings	N/A			Remove immediately and recycle or compost	Owner or professional	
Pre-Treatment	There is adequate access to the pre-treatment facility	N/A			Establish adequate access	Professional and, perhaps, the locality	

Element of BMP	Potential Problem	Problem? Y / N	Investigate? Y / N	Repaired? Y / N	How to Fix Problem	Who Will Address Problem	Comments
Pre-Treatment (continued)	Excessive trash, debris, or sediment.	N/A			Remove immediately	Owner or professional	
Pre-Treatment (continued)	There is evidence of erosion and / or exposed soil	N/A			Stabilize immediately	Owner or professional	
	There is dead vegetation.	N/A			Replace dead vegetation as necessary	Professional	
	Perimeter turf (or a grass filter strip) is too high.	N/A			Mow at least 4 times a year to keep the grass at a height of 4" to 9". Remove grass clippings after mowing.	Owner or professional	
	There is evidence of oil, grease, clogging (standing water, noticeable odors, water stains, algae)	N/A			Identify and eliminate the source of the problem. If necessary, remove and clean or replace the clogged material.	Professional	
Inlets	The inlet provides a stable conveyance into the swale	N/A			Stabilize immediately, as needed, and clear blockages.	Owner or professional	
	There is excessive trash, debris, or sediment.	Y			Remove immediately	Owner or professional	Excessive sediment in inlets adjacent to B129 and B128.
	There is evidence of erosion at or around the inlet	N/A			Repair erosion damage and reseed	Owner or professional	
Sedimentation Chambers	Sediment or debris accumulations are excessive	Y			Clean out the wet and dry sedimentation chambers	Professional	Schedule for clean out in FY19.
Filter Media	If facility takes longer than 48 hours to drain or filter media is discolored, the media is probably clogged	N/A			Replace the top sand layer of an enclosed filter (typically done every 5 years). Till or aerate the surface to improve infiltration and grass cover of an open filter (also typically done every 5 years.		
Oil and Grease	Evidence of filter surface clogging	N/A			Clean or replace filter media, as necessary.	Professional	
Underdrain	The underdrain is not conveying water as designed	N/A			To determine if the pipe is clogged, measure the draw-down rate of the observation well for three days following a storm event in excess of 1/2 inches in depth. .After three days, if there is standing water on top but not in the underdrain, this indicates a clogged sand layer that must be replaced. If standing water is both on the surface and in the underdrain, then the underdrain is probably clogged. Immediately clean out the pipe manually or, if needed, use a high-pressure hose. Replace the underdrain if it is structurally damaged.	Professional	
Observation Well (*every 2 years*)	Is the observation well still capped?	N/A			Repair, as necessary.	Professional	

Element of BMP	Potential Problem	Problem? Y / N	Investigate? Y / N	Repaired? Y / N	How to Fix Problem	Who Will Address Problem	Comments
Outlet	The outlet provides stable conveyance	N/A			Remove blockages and stabilize, as needed.	Professional	
	Evidence of flow bypassing facility	N/A			Repair immediately	Professional	
	Outlets are obstructed or erosion and soil exposure is evident below the outlet.	N/A			Remove obstructions and stabilize eroded or exposed areas.	Owner or Professional	
Structural Components	Evidence of structural deterioration	N			Repair as necessary	Professional	
	Evidence of spalling or cracking of structural components	N			Repair or replace, as necessary	Professional	
	Grates are in good condition	N			Repair or replace, as necessary	Owner or professional	
Pump (where applicable)	Catalog cuts and wiring diagram for pump available	N/A			If missing, obtain replacements	Owner	
	Waterproof conduits for wiring appear to be intact	N/A			Repair as necessary	Professional	
	Panel box is well marked	N/A			If not, mark it correctly	Professional	
	No evidence of pump failure (excess water in pump well, etc.)	N/A			Repair as necessary	Professional	
Overall	Access to the facility or its components is adequate.	N			Establish adequate access. Remove woody vegetation and debris that may block access. Ensure that hardware can be opened and operated.	Professional and, perhaps, the locality	
	Condition of hydraulic control components	N/A			Repair, as necessary.	Professional	
	Complaints from local residents	N/A			Correct real problems.	Owner or professional	
	Noticeable odors outside facility	N/A			Determine source and eliminate it.	Professional	
	Mosquito proliferation	N/A			Eliminate stagnant pools if feasible, and treat for mosquitoes as needed. If sprays are considered, then a mosquito larvicide, such as Bacillus thurendensis or Altoside formulations can be applied *only if absolutely necessary*.	Owner or professional	
	Encroachment on the filter or easement by buildings or other structures	N/A			Inform involved property owners of BMPs status ; clearly mark the boundaries of the receiving pervious area, as needed	Owner or professional (and perhaps the locality)	

May 10, 2018

STF2 B129

May 10, 2018

STF2 B129

May 10, 2018

STF2 B129

Maintenance Inspection Checklist:

Permeable Pavement

Inspection Date May 10, 2018
Project _____ Site Plan/Permit Number ANC/VAR040139
Location Eisenhower Drive Date BMP Placed in Service _____
Date of Last Inspection May 2017 Inspector S. Rosenquist
Owner/Owner's Representative _____
As-Built Plans available: Y / N X

Facility Type: Level 1 no underdrain Level 2 _____

Ideally, each permeable pavement installation should be inspected in the Spring of each year, especially at large-scale installations.

Element of BMP	Potential Problems	Problem? Y / N	Investigate? Y / N	Repaired? Y / N	How to fix problem	Who Will Address Problem	Comments
Contributing Drainage Area	There is excessive trash and debris	N			Remove immediately.	Owner or professional	Landscapers routinely clean areas.
	There is evidence of erosion and/or bare or exposed soil	N			Stabilize immediately.	Owner or professional	Landscapers perform routine turf maintenance.
	There is excessive landscape waste and yard clippings	N			Remove immediately.	Owner or professional	Landscapers clean areas after mowing.
Adjacent Vegetation	Trees and shrubs are within 5 feet of the pavement surface	Y	N	N/A	Check that tree roots have not penetrated the pavement and leaf residue has not clogged the pavement. Vegetation that limits access or interferes with the permeable pavement operation must be pruned or removed.	Owner or Professional	Landscapers routinely clean areas.
Inlets, Pre-Treatment Cells and Flow Diversion Structures	There is excessive trash, debris or sediment accumulation	N/A			Remove immediately	Owner or Professional	
	There is evidence of erosion and / or exposed soil	N/A			Stabilize immediately	Owner or professional	
	Evidence of clogging	N/A			Clean out sediment or debris. Remove and wash or replace stone, as needed	Professional	

Element of BMP	Potential Problems	Problem? Y / N	Investigate? Y / N	Repaired? Y / N	How to fix problem	Who Will Address Problem	Comments
Pavement Surface	Mosquito proliferation	N			Eliminate standing water and establish vegetation; treat for mosquitoes as needed. If sprays are considered, then use a licensed pest controller to apply an approved mosquito larvicide *(only if absolutely necessary)*.	Owner or professional	
	There is evidence of erosion and / or bare or exposed soil in grid paver areas	N			Stabilize immediately. Mow, irrigate and apply organic (not chemical) fertilizer, as needed to keep grass healthy and dense enough to provide filtering while protecting the underlying soil. Remove any grass clippings.	Owner or professional	
	There is loose material (e.g., bark, sand, etc.) stored on the pavement surface	N			Remove immediately and vacuum sweep the area to prevent clogging the pavement pores.	Professional	
	Pavement is stained and/or clogged or water is ponding, indicating the pavement is not draining properly. Measure the drawdown rate in the observation well for three (3) days following a storm event that exceeds 1/2-inch of rain. If standing water is still observed in the well after three days, this is a clear sign that the pavement is clogged. There are significant amounts of sediment have accumulated between the pavers.	N			The surface must be kept clean and free of leaves, debris, and sediment by vacuum sweeping (without brooms or water spray) immediately and, otherwise, at a frequency consistent with the use and loadings encountered (at a minimum, annual dry-weather sweeping in the Spring). Where paving blocks are installed, the sweeper must be calibrated so it does *not* pick up the stones between the paver blocks. Following the vacuum sweeping, test pavement sections by pouring water from 5 gallon buckets, to ensure proper drainage.	Professional	
Structural Integrity	There is evidence of surface deterioration, such as slumping, cracking, spalling or broken pavers.	Y	Y	*	Repair or replace affected areas, as necessary.	Professional	*Contract action executed for repair in 2018.Repairs completed in September 2018.
Observation Wells	Is each observation well still capped?	N/A			Repair, as necessary.	Professional	
Outlet	Outlets are obstructed or erosion and soil exposure is evident below the outlet.	N/A			Remove obstructions and stabilize eroded or exposed areas.	Owner or Professional	

May 10, 2018

Permeable Pavement Eisenhower

Maintenance Inspection Checklist:

Permeable Pavement

Inspection Date May 10, 2018
Project _____ Site Plan/Permit Number ANC/VAR040139
Location Eisenhower Drive Date BMP Placed in Service _____
Date of Last Inspection May 2017 Inspector S. Rosenquist
Owner/Owner's Representative _____
As-Built Plans available: Y / N X

Facility Type: Level 1 no underdrain Level 2 _____

Ideally, each permeable pavement installation should be inspected in the Spring of each year, especially at large-scale installations.

Element of BMP	Potential Problems	Problem? Y / N	Investigate? Y / N	Repaired? Y / N	How to fix problem	Who Will Address Problem	Comments
Contributing Drainage Area	There is excessive trash and debris	N			Remove immediately.	Owner or professional	Landscapers routinely clean areas.
	There is evidence of erosion and/or bare or exposed soil	N			Stabilize immediately.	Owner or professional	Landscapers perform routine turf maintenance.
	There is excessive landscape waste and yard clippings	N			Remove immediately.	Owner or professional	Landscapers clean areas after mowing.
Adjacent Vegetation	Trees and shrubs are within 5 feet of the pavement surface	Y	N	N/A	Check that tree roots have not penetrated the pavement and leaf residue has not clogged the pavement. Vegetation that limits access or interferes with the permeable pavement operation must be pruned or removed.	Owner or Professional	Landscapers routinely clean areas.
Inlets, Pre-Treatment Cells and Flow Diversion Structures	There is excessive trash, debris or sediment accumulation	N/A			Remove immediately	Owner or Professional	
	There is evidence of erosion and / or exposed soil	N/A			Stabilize immediately	Owner or professional	
	Evidence of clogging	N/A			Clean out sediment or debris. Remove and wash or replace stone, as needed	Professional	

Element of BMP	Potential Problems	Problem? Y / N	Investigate? Y / N	Repaired? Y / N	How to fix problem	Who Will Address Problem	Comments
Pavement Surface	Mosquito proliferation	N			Eliminate standing water and establish vegetation; treat for mosquitoes as needed. If sprays are considered, then use a licensed pest controller to apply an approved mosquito larvicide *(only if absolutely necessary)*.	Owner or professional	
	There is evidence of erosion and / or bare or exposed soil in grid paver areas	N			Stabilize immediately. Mow, irrigate and apply organic (not chemical) fertilizer, as needed to keep grass healthy and dense enough to provide filtering while protecting the underlying soil. Remove any grass clippings.	Owner or professional	
	There is loose material (e.g., bark, sand, etc.) stored on the pavement surface	N			Remove immediately and vacuum sweep the area to prevent clogging the pavement pores.	Professional	
	Pavement is stained and/or clogged or water is ponding, indicating the pavement is not draining properly. Measure the drawdown rate in the observation well for three (3) days following a storm event that exceeds 1/2-inch of rain. If standing water is still observed in the well after three days, this is a clear sign that the pavement is clogged. There are significant amounts of sediment have accumulated between the pavers.	N			The surface must be kept clean and free of leaves, debris, and sediment by vacuum sweeping (without brooms or water spray) immediately and, otherwise, at a frequency consistent with the use and loadings encountered (at a minimum, annual dry-weather sweeping in the Spring). Where paving blocks are installed, the sweeper must be calibrated so it does *not* pick up the stones between the paver blocks. Following the vacuum sweeping, test pavement sections by pouring water from 5 gallon buckets, to ensure proper drainage.	Professional	
Structural Integrity	There is evidence of surface deterioration, such as slumping, cracking, spalling or broken pavers.	Y	Y	*	Repair or replace affected areas, as necessary.	Professional	*Contract action executed for repair in 2018.Repairs completed in September 2018.
Observation Wells	Is each observation well still capped?	N/A			Repair, as necessary.	Professional	
Outlet	Outlets are obstructed or erosion and soil exposure is evident below the outlet.	N/A			Remove obstructions and stabilize eroded or exposed areas.	Owner or Professional	

May 10, 2018

Permeable Pavement Eisenhower

Maintenance Inspection Checklist:

Bioretention Practices

Inspection Date May 25, 2018
Project Bio-Retention 1, 2, 3 Site Plan/Permit Number ANC/VAR040139
Location B123 Employee Parking Lot Date BMP Placed in Service 2012
Date of Last Inspection May 2017 Inspector S. Rosenquist
Owner/Owner's Representative
As-Built Plans available: Y / N

Facility Type: Level 1 X no underdrain Level 2

Facility Location:
- X Surface
- G Underground

Hydraulic Configuration:
- ☐ On-line facility
- ☐ Off-line facility

Filtration Media:
- ☐ No filtration (e.g., dry well, permeable pavement, infiltration facility, etc.
- ☐ Sand
- ☒ Bioretention Soil
- ☐ Peat
- ☐ Other:

Type of Pre-Treatment Facility:
- ☐ Sediment forebay (above ground)
- ☐ Sedimentation chamber
- ☐ Plunge pool
- ☐ Stone diaphragm
- ☐ Grass filter strip
- ☐ Grass channel
- ☐ Other: None

Ideally, Bioretention facilities should be inspected and cleaned up annually, preferably during the spring. During the first 6 months following construction of a bioretention facility, the site should be inspected at least twice after storm events that exceed 1/2-inch of rainfall. Watering is needed once a week during the first 2 months following installation, and then as needed during the first growing season (April-October), depending upon rainfall. If vegetation needs to be replaced, one-time spot fertilization may be needed, preferably using an organic rather than a chemical fertilizer. Each facility should have a customized routine maintenance schedule addressing issues such as the following: grass mowing, weeding, trash removal, .mulch raking and maintenance, erosion repair, reinforcement plantings, tree and shrub pruning, and sediment removal.

Element of BMP	Potential Problem	Problem? Y / N	Investigate? Y / N	Repaired? Y / N	How to fix problem	Who Will Address Problem	Comments
Contributing Drainage Area	Adequate vegetation	N			Supplement as necessary	Owner or professional	
	There is excessive trash and debris	N			Remove immediately	Owner or professional	
	There is evidence of erosion and / or bare or exposed soil	N			Stabilize immediately	Owner or professional	
	There are excessive landscape waste or yard clippings	N			Remove immediately and recycle or compost	Owner or professional	
	Oil, grease or other unauthorized substances are entering the facility	N			Identify and control the source of this pollution. It may be necessary to erect fences, signs, etc	Owner or professional	
Pre-Treatment	There is adequate access to the pre-treatment facility	N/	A		Establish adequate access	Professional and, perhaps, the locality	

Element of BMP	Potential Problem	Problem? Y / N	Investigate? Y / N	Repaired? Y / N	How to fix problem	Who Will Address Problem	Comments
Pre-Treatment (continued)	Excessive trash, debris, or sediment.	N/A			Remove immediately	Owner or professional	
Pre-Treatment (continued)	There is evidence of clogging (standing water, noticeable odors, water stains, algae or floating aquatic vegetation, or oil/grease)	N/A			Identify and eliminate the source of the problem. If necessary, remove and clean or replace the clogged material.	Professional	
	There is evidence of erosion and / or exposed soil	N/A			Stabilize immediately	Owner or professional	
	There is dead vegetation or exposed soil in the grass filter	N/A			Restabilize and revegetate as necessary	Owner or professional	
Inlets	Check for sediment build-up at curb cuts, gravel diaphragms or pavement edges that prevent flow from getting into the bed, and check for bypassing.	N			Remove sediment and correct any other problems that block inflow.	Owner or professional	
	There is excessive trash, debris, or sediment.	N			Remove immediately	Owner or professional	
	There is evidence of erosion at or around the inlet	N			Repair erosion damage and reseed or otherwise restabilize with vegetation	Owner or professional	
	Inflow is hindered by trees and/or shrubs.	N			Remove woody vegetation from points of inflow and directly above underdrains. (Trees and shrubs may be located closer to the perimeter.)	Owner or professional	
Side Slopes (*Annually, after major storms*)	There is evidence of rill or gully erosion or bare soil	N			Identify the source of erosion damage and prevent it from recurring. Repair erosion damage and reseed or otherwise restabilize with vegetation	Owner or professional	
	There is excess sediment accumulation	N			Remove immediately	Owner or professional	
	Side slopes support nuisance animals.	N			Animal burrows must be backfilled and compacted. Burrowing animals should be humanely removed from the area.	Professional	
Vegetation (*monthly*)	Plant composition is consistent with the approved plans and any stakes or wires are in good condition.	N			Determine if existing plant materials are at least consistent with general Bioretention design criteria and replace inconsistent species.	Professional	
	There should be 75-90% cover (mulch plus vegetation), and the mulch cover should be 2-3 inches deep.	Y			Supplement vegetation and mulch as needed.		Landscaper maintains mulch cover. Beds require mulch.

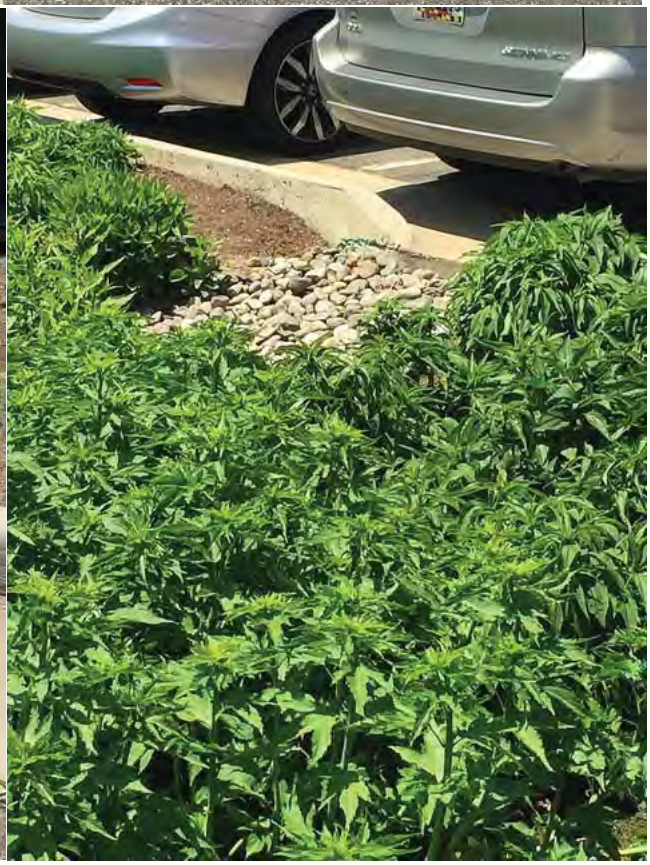
Element of BMP	Potential Problem	Problem? Y / N	Investigate? Y / N	Repaired? Y / N	How to fix problem	Who Will Address Problem	Comments
Vegetation (*monthly*) **(continued)**	There is evidence of hydrocarbons or other deleterious materials, resulting in unsatisfactory plant growth or mortality,	N			Replace contaminated mulch. If problem persists, test soils for hydrocarbons and other toxic substances. If excess levels are found, the soils, plants and mulch may all need to be replaced in accordance with the approved construction plans.	Professional	
	Invasive species or weeds make up at least 10% of the facility's vegetation	N			Remove invasive species and excessive weeds immediately and replace vegetation as needed.	Owner or professional	
	The grass is too high	N			Mow within a week. Grass species should be selected that have dense cover, are relatively slow growing, and require the least mowing and chemical inputs. Grass should be from 6-10 inches high.	Owner or professional	
	Vegetation is diseased, dying or dead	N			Remove and replace. Increase watering, but avoid using chemical fertilizers, unless absolutely necessary.	Professional	
	Winter-killed or salt-killed vegetation is present.	N			Replace with hardier species.	Owner or professional	
Filter Media (*Annually*)	The filter media is too low, too compacted, or the composition is inconsistent with design specifications	N			Raise the level, loosen and amend or replace the media, as needed, to be consistent with the state design criteria for Bioretention (85-88% sand 8-12% soil fines 3-5% organic matter in form of leaf compost). Other remediation options are described in the maintenance section of the state design criteria for Bioretention	Professional	
	The mulch is older than 3 years or is otherwise in poor condition	N			The mulch must be replaced every 2-3 years	Professional	
	There is evidence that chemicals, fertilizers, and/or oil/grease are present	N			Remove undesirable chemicals from media and facility immediately, and replace mulch or media as needed	Professional	
	There is excessive trash, debris, or sediment.	N			Remove trash and debris immediately. Check plant health and, without damaging plants, manually remove the sediment, especially if the depth exceeds 20% of the facility's design depth.	Owner or professional	
	There is evidence of concentrated flows, erosion or exposed soil	N			Identify the source of erosion damage and prevent it from recurring. Repair the erosion damage and reseed or otherwise restabilize with vegetation.	Professional	

Element of BMP	Potential Problem	Problem? Y / N	Investigate? Y / N	Repaired? Y / N	How to fix problem	Who Will Address Problem	Comments
Filter Media (*Annually*) **(continued)**	The filter bed is clogged and/or filled inappropriately	N			Redistribute the soil substrate and remove sediment within 2 weeks.	Professional	
	The topsoil is in poor condition (e.g., the pH level is not 6-7, the composition is inappropriate, etc.)	N			Ensure a 3-inch surface depth of topsoil consistent with the state design criteria for Bioretention (loamy sand or sandy loam texture, with less than 5% clay content, and organic matter content of at least 2%). If the pH is less than 6.5, spread limestone.	Professional	
Underdrain/ Proper Drainage	The perforated pipe is not conveying water as designed	N/A			Determine if the pipe is clogged with debris or if woody roots have pierced the pipe. Immediately clean out or replace the pipe, as necessary.	Professional	
	The underlying soil interface is clogged (there is evidence on the surface of soil crusting, standing water, the facility does not dewater between storms, or water ponds on the surface of basin for more than 48 hours after an event).	N/A			Measure the draw-down rate of the observation well for three days following a storm event in excess of 1/2 inches in depth. .After three days, if there is standing water on top but not in the underdrain, this indicates a clogged soil layer. If standing water is both on the surface and in the underdrain, then the underdrain is probably clogged. This should be promptly investigated and remediated to restore proper filtration. Grading changes may be needed or underdrain repairs made. The filter media may need to be raked, excavated and cleaned or replaced to correct the problem. Holes that are not consistent with the design and allow water to flow directly through a planter to the ground must be plugged.	Professional	
Planters	The planter is unable to receive or detain stormwater prior to infiltration. Water does not drain from the reservoir within 3-4 hours of after a storm event.	N			Identify and correct sources of clogging. Topsoil and sand/peat layer may need to be amended with sand or replaced all together.	Owner or professional	
	The planter has structural deficiencies, including rot, cracks, and failure, or the planter is unable to contain the filter media or vegetation	N			Make needed repairs immediately.	Owner or professional	
Outlet/ Overflow Spillway	Outlets are obstructed or erosion and soil exposure is evident below the outlet.	N			Remove obstructions and stabilize eroded or exposed areas.	Owner or Professional	
	There is excessive trash, debris, or sediment at the outlet	N			Remove immediately, and keep the contributing area free of trash and debris.	Owner or professional	

Element of BMP	Potential Problem	Problem? Y / N	Investigate? Y / N	Repaired? Y / N	How to fix problem	Who Will Address Problem	Comments
Outlet/ Overflow Spillway (continued)	Any grates present are in good condition	N			Repair or replace as necessary	Owner or professional	
Observation Well	Is the observation well still capped?	N/A			Repair, as necessary.	Professional	
Overall	Access to the Infiltration facility or its components is adequate	N			Establish adequate access. Remove woody vegetation and debris that may block access. Ensure that hardware can be opened and operated.	Professional and, perhaps, the locality	
	There is evidence of standing water	N			Fill in low spots and stabilize; correct flow problems causing ponding.	Owner or professional	
	Mosquito proliferation	N			Eliminate stagnant pools and establish vegetation; treat for mosquitoes as needed. If sprays are considered, then a mosquito larvicide, such as Bacillus thurendensis or Altoside formulations can be applied *only if absolutely necessary*.	Owner or professional	
	Complaints from local residents	N			Correct real problems	Owner or professional	
	Encroachment on the bioretention area or easement by buildings or other structures	N			Inform involved property owners of BMPs status ; clearly mark the boundaries of the receiving pervious area, as needed	Owner or professional (and perhaps the locality)	

RAIN GARDENS 1 2 3

MAY 25, 2018



RAIN GARDENS 1 2 3

MAY 25, 2018

Inspector: **S. Rosenquist**

Reporting Period: **1 July 2017- 30 June 2018**

How many routine facility inspections were performed during the reporting period? **1**

How many corrective actions were needed to remove the original violation? **Document these actions according to corrective action deadlines.**

Date	Deficiencies	Corrected (Y or N)	Date Corrected
Daily	**trash/debris/soil**	**ongoing**	**ongoing**

What must be completed to correct the deficiencies that remain uncorrected?

_____

_____

Were all BMPs indicated in the SWPPP, including good housekeeping practices, being implemented at the time of the CSCE?

Yes X* No_____ **[*Revising MS4 Program Plan and SWPPP to identify new BMPs.]**

If one or more BMPs were not being implemented, were corrective actions taken after the FIRST inspection to find the problem?

Yes _____ No_____ **All BMPs were being implemented X* [*Revising MS4 Program Plan and SWPPP to identify new BMPs.]**

Was/were the same failure(s) to implement a BMP deficiency(ies) noted in more than one inspection?

Yes _____ **No X** No deficiencies noted in any inspection _____

Did any routine facility inspections find that one or more BMPs were not effective in controlling the pollutant source for which it was designed?

Yes _____ No _____ **All BMPs were effective X* [*Revising MS4 Program Plan and SWPPP to identify new BMPs. Existing BMPs do not address all pollutant sources.]**

If one or more BMPs are ineffective, have they been replaced with an alternative or modified BMP?

Yes _____ No_____ **All BMPs were effective X* [*Revising MS4 Program Plan and SWPPP to identify new BMPs. Existing BMPs do not address all pollutant sources.]**

Are additional BMPs needed to address any conditions requiring corrective action?

Yes X* No_____ **[*Revising MS4 Program Plan and SWPPP to identify new BMPs. Existing BMPs do not address all pollutant sources.]**

At any time during the reporting period, were any previously unidentified illicit discharges or previously unidentified pollutants in the existing discharges discovered?

Yes _____ **No X**

Have all illicit discharges (including any discovered in previous years) been eliminated or permitted?

Yes X* No_____ Permit applied for _____ No known illicit discharges____ **[*Revising MS4 Program Plan and SWPPP to identify new BMPs. Existing BMPs do not address all pollutant sources.]**

Have any significant spills or leaks occurred during the reporting period?

Yes _____ **No X**

If any significant spills or leaks occurred, did they result in either a dry weather discharge or an actual discharge of the spilled or leaked material commingled with stormwater (as opposed to the spilled material being washed away by stormwater?)

Yes _____ **No X**

If any significant spills or leaks occurred, did they result in more than the minimum amounts of material being discharged in stormwater?

Yes _____ No_____ **No spills or leaks occurred X**

Have all known spills or leaks been cleaned up or otherwise prevented from contaminating stormwater that would be discharged under the authority of this permit?

Yes _____ No_____ **No spills or leaks occurred X**

How many times were stormwater discharges visually monitored at of all the facility outfalls during the reporting year? **Document the condition of and around the outfalls, including flow dissipation measures to prevent scouring.**

Yes _____ No_____ **Number of Visual Monitorings 1**

Would the results of the visual monitoring indicate that there are pollutants in the stormwater discharges that are not adequately controlled by the current BMPs?

Yes _____ **No X**

If the results of visual monitoring indicated a potential problem, was it due to one or more of the following?

1. New pollutant source (including exposure of previously unexposed material). [new storm drain adjacent B128, interior wash rack]
2. Failure to implement or maintain an existing BMP.
3. Less than expected performance from a BMP.
4. No BMP was selected to deal with that problem. [**Soil left on equipment and stored in equipment parked in lot, exposed to rain events.]**
5. N/A (No problems identified)

If visual monitoring indicated a potential problem, what corrective action needs to be implemented?

1. Eliminated exposure or pollutant source.
2. Modified existing BMPs.
3. Added a new BMP.
4. Plan to address problem by end of current reporting year.
5. Nothing planned.
6. N/A (No problems identified).
7. Revising MS4 Program Plan and SWPPP.

Did any analysis of any element tested during any previous discharge monitoring period exceed the numeric limitation value?

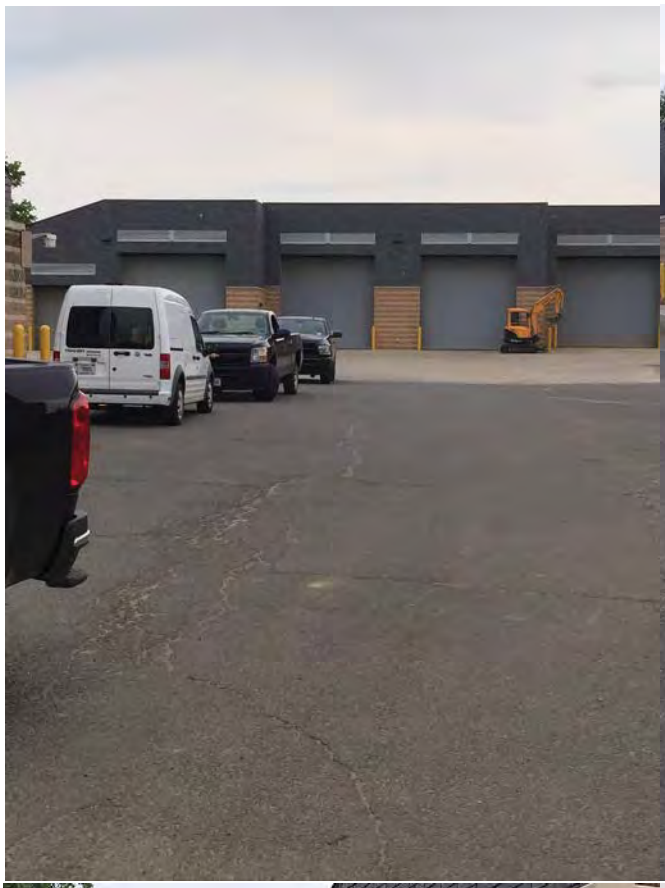
Yes _____ No_____ **N/A X**

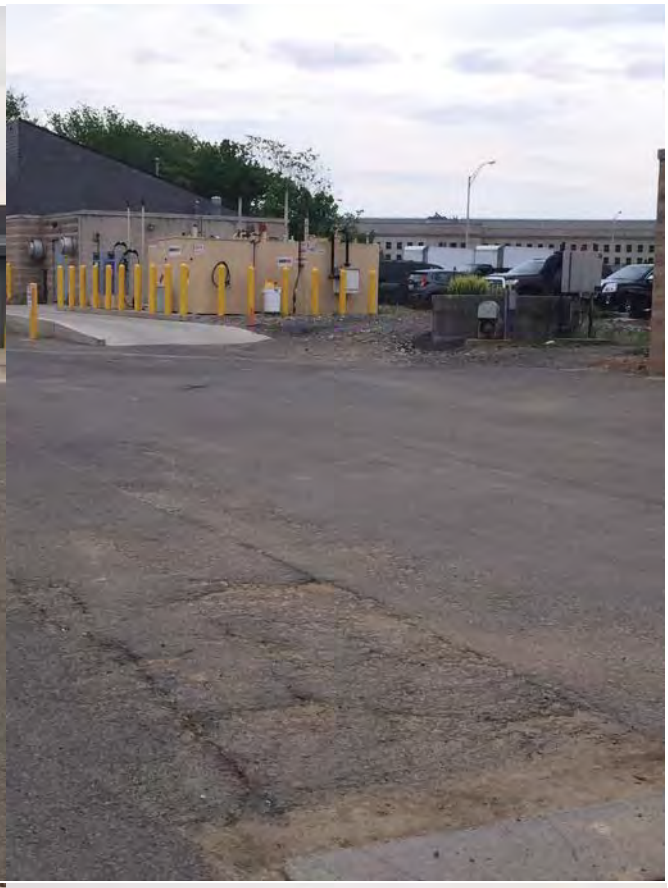
If the answer to the previous question was "Yes", please name the element and the test results.

Element	Test Results	Element	Test Results

Are any revisions to the SWPPP required resulting from the inspection?

Yes X No_____






4,000 Gallon
HOOVER VAULT


TORO
GAS


4,000 Gallon


Bobcat
ARLINGTON
NATIONAL CEMETERY


KUBOTA


NEW HOLLAND


WACKER NEUSON

Inspector: **S. Rosenquist**

Reporting Period: **1 July 2017- 30 June 2018**

How many routine facility inspections were performed during the reporting period? **1**

How many corrective actions were needed to remove the original violation? **Document these actions according to corrective action deadlines.**

Date	Deficiencies	Corrected (Y or N)	Date Corrected
Daily	**trash/debris/soil**	**ongoing**	**ongoing**

What must be completed to correct the deficiencies that remain uncorrected?

_____

_____

Were all BMPs indicated in the SWPPP, including good housekeeping practices, being implemented at the time of the CSCE?

Yes X* No_____ **[*Revising MS4 Program Plan and SWPPP to identify new BMPs.]**

If one or more BMPs were not being implemented, were corrective actions taken after the FIRST inspection to find the problem?

Yes _____ No_____ **All BMPs were being implemented X* [*Revising MS4 Program Plan and SWPPP to identify new BMPs.]**

Was/were the same failure(s) to implement a BMP deficiency(ies) noted in more than one inspection?

Yes _____ **No X** No deficiencies noted in any inspection _____

Did any routine facility inspections find that one or more BMPs were not effective in controlling the pollutant source for which it was designed?

Yes _____ No _____ **All BMPs were effective X* [*Revising MS4 Program Plan and SWPPP to identify new BMPs. Existing BMPs do not address all pollutant sources.]**

If one or more BMPs are ineffective, have they been replaced with an alternative or modified BMP?

Yes _____ No_____ **All BMPs were effective X* [*Revising MS4 Program Plan and SWPPP to identify new BMPs. Existing BMPs do not address all pollutant sources.]**

Are additional BMPs needed to address any conditions requiring corrective action?

Yes X* No_____ **[*Revising MS4 Program Plan and SWPPP to identify new BMPs. Existing BMPs do not address all pollutant sources.]**

At any time during the reporting period, were any previously unidentified illicit discharges or previously unidentified pollutants in the existing discharges discovered?

Yes _____ **No X**

Have all illicit discharges (including any discovered in previous years) been eliminated or permitted?

Yes X* No_____ Permit applied for _____ No known illicit discharges____ **[*Revising MS4 Program Plan and SWPPP to identify new BMPs. Existing BMPs do not address all pollutant sources.]**

Have any significant spills or leaks occurred during the reporting period?

Yes _____ **No X**

If any significant spills or leaks occurred, did they result in either a dry weather discharge or an actual discharge of the spilled or leaked material commingled with stormwater (as opposed to the spilled material being washed away by stormwater?)

Yes _____ **No X**

If any significant spills or leaks occurred, did they result in more than the minimum amounts of material being discharged in stormwater?

Yes _____ No_____ **No spills or leaks occurred X**

Have all known spills or leaks been cleaned up or otherwise prevented from contaminating stormwater that would be discharged under the authority of this permit?

Yes _____ No_____ **No spills or leaks occurred X**

How many times were stormwater discharges visually monitored at of all the facility outfalls during the reporting year? **Document the condition of and around the outfalls, including flow dissipation measures to prevent scouring.**

Yes _____ No_____ **Number of Visual Monitorings 1**

Would the results of the visual monitoring indicate that there are pollutants in the stormwater discharges that are not adequately controlled by the current BMPs?

Yes _____ **No X**

If the results of visual monitoring indicated a potential problem, was it due to one or more of the following?

1. New pollutant source (including exposure of previously unexposed material).

2. Failure to implement or maintain an existing BMP.
3. Less than expected performance from a BMP.
4. No BMP was selected to deal with that problem. [**Soil left on equipment and stored in equipment parked in lot, exposed to rain events.]**
5. N/A (No problems identified)

If visual monitoring indicated a potential problem, what corrective action needs to be implemented?

1. Eliminated exposure or pollutant source.
2. Modified existing BMPs.
3. Added a new BMP.
4. Plan to address problem by end of current reporting year.
5. Nothing planned.
6. N/A (No problems identified).
7. Revising MS4 Program Plan and SWPPP.

Did any analysis of any element tested during any previous discharge monitoring period exceed the numeric limitation value?

Yes _____ No_____ **N/A X**

If the answer to the previous question was "Yes", please name the element and the test results.

Element	Test Results	Element	Test Results

Are any revisions to the SWPPP required resulting from the inspection?

Yes X No_____


DAVEY


Power Products


WARNING. USE OF THIS CASE
BY ANY PERSON OTHER THAN


HUSKY


Meyer


HAZARD
MATERIA
HANDLE WITH
HAZARD
MATERIA
HANDLE WITH

ARLINGTON NATIONAL CEMETERY
MUNICIPAL SEPARATE STORM SEWER

Nutrient Management Plan

Nutrient Management Plan

Arlington National Cemetery

Landowner Information	
Company Name	*Arlington National Cemetery*
Customer Name	*Engineering*
Mailing Address	*1 Memorial Drive*
City State Zip	*Arlington, VA 22211*
Phone	*703-614-0520*
Email	
Planners Information	
Planner Name	*Aaron Pettit*
Mailing Address	*1 Memorial Drive*
City State Zip	*Arlington, VA 22211*
Phone	*703-614-0244*
Fax	*571-256-3348*
Email	*aaron.d.pettit.civ@mail.mil*
Certification Code	*897*
Location Information	
Physical Address	*1 Memorial Drive*
City State Zip	*Arlington, VA 22211*
Coordinates	*38°53'2"N Latitude; 77°3'54"W Longitude*
VAHU6 Watershed Code	*020700100103*
County	*Arlington*
Management Area Acreage – 506.9 Acres Total	
Turf Mgmt Unit 1	35.4 acres (eight individual turf areas)
Turf Mgmt Unit 2	60.1 acres (nine individual turf areas)
Turf Mgmt Unit 3	192.7 acres (28 individual turf areas)
Turf Mgmt Unit 4	159.6 acres (20 individual turf areas)
Turf Mgmt Unit 5	28.7 acres (four individual turf areas)
Turf Mgmt Unit 6	29.9 acres (four individual turf areas)

Plan Start Date	June 1, 2018
Plan End Date	May 31, 2021

Planner Signature *Aaron Pettit*

Narrative
Arlington National Cemetery

This Nutrient Management Plan (NMP) for Arlington National Cemetery (ANC) is intended to meet the requirements in the Virginia Small Municipal Separate Storm Sewer System (MS4) General Permit (Virginia Small MS4 General Permit).

1.1 INTRODUCTION

ANC is a United States (U.S.) Army facility located in Arlington County, Virginia. The ANC property is approximately 640 acres in area, including the newly-acquired Millennium Site. Attachment 1 contains the site map and depicts the ANC property boundary based on the most recent Geographic Information System (GIS) data.

The following parcels are not included in the NMP as described below:

- The National Park Service (NPS) owns property in four areas within the ANC property boundaries; 1) land along Memorial Avenue, 2) Lee Mansion area, 3) USNPS Ranger Station (Old Admin.) and adjacent turf area along west side of Sherman drive, and 4) section 29 the forest area along Sherman drive. ANC is not responsible for the NPS property, and these parcels are not included in the NMP. According to U.S. Geological Survey data, an unused dug well of 48 inches in diameter is located on NPS property and shown on the site map for informational purposes.
- Current plans for the former Navy Annex are to convert the site into a meadow that will not be fertilized, prior to eventual construction and redevelopment. Since nutrient application is not planned in this area, it is not included in the NMP.

2.1 ENVIRONMENTALLY SENSITIVE FEATURES

An environmentally sensitive site is any field particularly susceptible to nutrient loss to groundwater or surface water since it contains or drains to areas that contain sinkholes, or where at least 33 percent of the area contains one or any combination of features including: 1) Soils with high leaching potential based on texture or excessive drainage[1]; 2) Shallow soils less than 41 inches deep likely to be located over fractured or limestone bedrock; 3) Subsurface drains; 4) Soils with high potential for subsurface lateral flow based on soil texture and poor drainage; 5) Floodplains as identified by soils prone to frequent flooding in county soil surveys; or 6) Lands with slopes greater than 15 percent.[2] For turf and landscape NMPs, Virginia Department of Conservation and Recreation's (VDCR's) guidance has been that while environmentally sensitive features should be noted and/or shown on the NMP map as appropriate, surface waters such as streams and wetlands are the primary features that need protection during fertilizer application. In addition, protection of storm water inlets and open drainage ditches are both addressed in this NMP. The following environmentally sensitive features at ANC are shown on the site map in Attachment 1:

- Poorly drained areas with French drains installed to aid drainage.
- Open drainage ditches.
- Surface streams and wetlands. These features are located on the Millennium Site, and adjacent NPS property, which are not incorporated into this NMP.

In addition, VDCR considers the allowable nutrient application rates for turf as adequately protective of environmental sensitivities such as soil types and steep slopes. Therefore, while there are some slopes greater than 15 percent within the ANC property boundary, they are not depicted on the site map.

3.1 FERTILIZED AREAS

The grounds to which nutrients are added on a regular basis at ANC include: 1) Established Turf; and 2) Turf Maintenance Areas (Renovation). Each of these fertilized areas are included in the NMP and separately discussed in the subsections below. For fertility needs, ANC total acreage is broken into 85 sections and other cemetery landmarks to track fertilization within the cemetery.

During inclement weather, ANC applies salt to the roadways, and treats the sidewalks and plazas with magnesium or potassium products to minimize damage to marble and granite. ANC does not apply deicing agents containing urea or other forms of nitrogen or phosphorus to parking lots, roadways, sidewalks, or other paved surfaces. Monuments, memorials, and the Amphitheater are cleaned with a product called D/2 (www.d2bio.com). ANC confirmed that D/2 does not contain any form of phosphorus through direct inquiry to D/2 Biological Solutions.

4.1 TURF MANAGEMENT

4.2 Soil Samples

Soil samples shall be taken by sections, sub-sections or other areas according to the soil sample map and list (Attachment 3 & 4). Take 20 or more sub-samples from the upper 2 to 4 inches of soil, from each sampling section area, to make a composite sample. Take the sub-samples in a random manner (e.g., with a zigzag pattern) to minimize the variability that may be present in your sampling area. This allows a person to obtain a reasonably representative soil sample. Soil samples shall be analyzed for pH, buffer pH, cation exchange capacity (CEC), phosphorus, potassium and organic matter at a minimum. When you have taken sufficient sub-samples from a uniform area, thoroughly mix the sub-sample cores, breaking up clumps and removing all foreign matter such as stalks, rocks, etc. Soil samples shall be taken no less than once every three years for each section. The soil cores must be composited in a clean container using clean tools and submitted to a certified laboratory with approved analytical methods from VDCR. Lab results should be based on Virginia Tech soil lab (Mehlich 1 soil extraction) results or have appropriate convent method noted in the Virginia Nutrient Management Standards and Criteria. Ensure proper plant code is used to get proper fertility recommendation.
Turf Renovation areas and offsite materials shall also be tested. Offsite topsoil and/or materials will most likely have analytical test done to the materials by the companies; these results need to be requested and results may need to double check with another analytical test. Turf renovation and offsite topsoil and/or compost shall be analyzed with more criteria than routine samples, testing for P, K, Ca, Mg, S, Fe, Mn, CEC, pH, EC, buffer pH, and soil texture, with additional test for metals/heavy metals (Cu, Zn, Mn, Pb, Cd, As, etc.) for offsite soil and compost. Collect subsamples randomly to minimize the variability.

4.3 Established Turf

Management of established turf is the major component of this NMP, fertility applications are established based on soil fertility levels and Virginia Nutrient Management Standards and Criteria. Attachment 2 provides the Nutrient Application Records Worksheet that provide the detailed about fertilizer applications record keeping. Soil analyses from composite soil samples and along with Standards and Criteria from Virginia Department of Conservation and Recreation and Division of Soil and Water Conservation are the basis for the fertility levels provided in this NMP.

The established turf consists of cool season grasses (80- 100% fescue, 0- 20% blue grass). ANC conducts soil sampling throughout the cemetery, and fertilization is applied according to the soil sample results and Virginia Nutrient Management Standards and Criteria. Nutrient applications are tracked by cemetery section and other named cemetery areas. Acreage of the 85 cemetery sections ranges from less than one acre to 25 acres. Several of the other named turf areas that are not part of a cemetery section are typically less than one acre but can range up to seven acres.

4.4 Turf Management

Fertilizer applications are primarily to supply nitrogen need for the turf. Nitrogen rates shall not exceed 0.7 lbs of soluble nitrogen per 1000 ft2, unless fertilizer material can ensure no more than 0.7 lbs N per 1000 ft2 of water soluble nitrogen is released into the soil in a 30-day period. There are two primary application of nitrogen annually; one application fall and the other application in the spring. Fall fertilization shall be applied at a rate of 1.5lbs of nitrogen per 1000 ft^2 and consist of no less than 90% SRN granular fertilizer that shall not release more than 0.7lbs N per 1000 ft^2 of water soluble nitrogen in a 30 period. Spring fertilization shall be applied at a rate of 1.5lbs of nitrogen per 1000 ft2 and consist of no less than 90% SRN granular fertilizer that shall not release more than 0.7lbs N per 1000 ft2 of water soluble nitrogen in a 30 period. If turfgrass is showing nitrogen deficiency outside the window of application, a winter application may be use containing no more than 0.5 lbs of N per 1000ft2. If summer post-emerge herbicides are used, nitrogen can be mixed with the herbicide; rates shall not exceed 0.25 lbs of N per 1000 ft2. Nitrogen Note nitrogen application shall not excess 3.5 lbs of N per 1000 ft2 annually. Phosphorus applications are based upon the Virginia Tech phosphorus soil fertility rating, which are determined from the soil sampling laboratory results. No addition phosphorus shall be added if Virginia Tech Phosphorus Fertility indexes are M or higher (no P_2O_5 for levels M, M+, H-, H, H+, or VH). Rates of P2O5 shall be applied according to the lowest rate given by the soil test report and not to exceed 1.4 lbs of P_2O_5 per 1000 ft^2 annual on established turf. Potassium shall be applied according to soil report, in pre-emerge, and/or in fall fertilizer application, with rates ranging from 0.2 lbs to 0.4 lbs K_2O per 1000 ft^2.

4.5 Protocol for Nutrient Application to Established Turf

This NMP follows the July 2014 Virginia Nutrient Management Standards and Criteria[3] (2014 Standards and Criteria) pertinent to turf and landscape. Per the 2014 Standards and Criteria, the fertilizer application window for cool season grass is six weeks before the last spring killing frost for the area (approximately 10 April) and six weeks after first fall killing frost (approximately 20 October). This would result in an annual application window of

approximately 27 February to 1 December. Fertilizer is not applied to frozen or snow covered ground.

Table 2 also provides a summary of key aspects of the fertilization program for established turf, providing the seasonal schedule and types of fertilizer to be used. The fertilization schedule provided in Table 2 follows the seasonal application guidelines. The turf fertilizer types and grades shown in Table 2 are manufactured inorganic fertilizer that will be purchased through various retailers and distributors. ANC also applies pelletized dolomitic lime as needed based on soil pH and buffer pH determined by soil sampling results.

Table 2. Summary of Fertilization Program for Established Turf

TMU No.	Spring		Fall	
	Schedule	Grade and Type of Fertilizer	Schedule	Grade and Type of Fertilizer
1	10 March plus or minus two weeks	38-0-0 100% Slowly Available Nitrogen; 70% Water Insoluble Nitrogen (WIN)	20 September plus or minus two weeks	32-0-5 Poly coated 100% Slowly Available Nitrogen, WIN
2				
3				
4				
5				
6				

ANC established turf is irrigated with potable water as needed, using both automatic and manual systems. ANC will conduct a light irrigation immediately after fertilization if needed, to ensure fertilizer granules are washed from the turf blade into the soil. All automatic systems are set for early morning hours and irrigation is completed by 7 am. Automatic systems typically operate three times per week for 12-20 minutes per station, depending on weather conditions. Manual irrigation occurs in the morning and afternoon hours, avoiding mid-day watering as much as possible. Rainfall during the irrigation season is closely monitored, and irrigation is suspended when there has been adequate rainfall. ANC's goal is to ensure turf receives one inch of water per week, as is necessary for good turf health. This is normally accomplished using aboveground irrigation for one hour twice a week through hose and irrigation stands. New sod is watered by tanks mounted onto utility vehicles. ANC leaves an eight-foot fertilization buffer around culverts and open drainage ditches. In addition, storm water inlets are protected during fertilizer applications by covering them with mats. After mowing, grass clippings and leaf litter are mulched into the soil with minimal pick up. The small amount of clippings that are picked up are removed from ANC and composted off site.

4.6 Turf Maintenance Program and Establishing Turf

ANC budgets for annual turf maintenance processes through their turf contract. Due to

high traffic, mechanical, environmental and pest damage, ANC fully utilizes budgeted turf repair/maintenance allocations each year. Five turf maintenance processes used for overall improvement as well as repair of the turf at ANC are described in Table 3.

Table 3. Turf Maintenance Activities

Activity	Annual Acreage	Description
Turf Renovation	30	During renovation, existing cover is killed off; Ground is then tilled, leveled, reseeded and covered; Locations determined by identifying areas in poor condition (based on turf density, weed infiltration, uneven grade, and overall appearance); Starter fertilizer needed after seeding
Hydro-seeding	6	For repair of bare or damaged turf; May occur anywhere in cemetery in areas as small as individual gravesites up to larger areas as needed, but generally less than 3,000 square feet (sq ft); liquid fertilizer applied during hydro-seeding
Sod Placement	17	Maryland certified sod is used at peak condition so no fertilization and only watering is required; Approximately 80% of the total acreage is installed on gravesites; Sod is generally placed from mid-September to early December, and mid-April through the end of May, depending on temperatures.
Over-seeding	150	For increasing turf density; conducted in conjunction with an aeration process; No additional fertilization used in this process since it occurs within existing turf areas
Slice/Slit Seeding	75	Process of creating furrows, dropping seed, and closing furrows in one step to thicken existing turf areas thinned due to harmful conditions (e.g., drought, insect, mechanical damage); No additional fertilization used in this process since it occurs within existing turf areas

This NMP provides fertilization protocol for turf renovation and hydro-seeding since these are the only two turf maintenance activities that incorporate fertilization. The turf renovation and hydro-seeding fertilization protocol are included in the "Establishing New Turf" tab of the Nutrient Application Worksheets (Attachment 2). The protocol calls for either a 32-0-0 100% water insoluble nitrogen (WIN) or 18-24-12 50% WIN for renovation, and 18-0-6 50% WIN liquid fertilizer for hydro-seeding. The type of fertilizer is dependent upon soil test results, where the turf renovation activities will occur, and the allowable nutrient applications. Areas where turf renovation is needed cannot be determined in advance, fertilization rates are given per 1,000ft^2.

4.7 Adjustment of pH / Soil Conditioning / Soil Amendments

All turf lime applications are made according to soil test reports. Lime applications and rates change depending on test results. The application rate is determine from the soil test results using pelletized dolomitic lime, with a maximum application rate of 2,000 lbs/ac per application within a year. A maximum of 2,000 lbs/ac can be applied in a single application, for a maximum amount of 2,000 lbs/ac applied in a single year. Gypsum will be applied as needed to condition soils. Iron applications may periodically be used for enhanced greening as an alternative to nitrogen. These applications are most beneficial if applied in late spring through summer for cool season grasses

5.0 LANDSCAPE BED MANAGEMENT

There are no landscape beds greater than one acre in ANC.

6.0 TREE FERTILIZATION

Trees are only fertilized on a case-by-case basis as needed. No management units are needed.

7.0 RECORDKEEPING

ANC will track all nutrient applications under this NMP.

For established turf, ANC will complete one worksheet for each seasonal application. For maintenance/establishing turf, ANC will complete one worksheet per year to summarize all turf renovation and one worksheet to summarize hydro-seeding activities that occur in one season. ANC will complete one worksheet tracking lime, iron, and gypsum applications.

8.0 NMP ADDITIONAL CONSIDERATIONS

The worksheets in this NMP represent recommendations for each management area for the next few years. ANC will conduct annual soil sampling to obtain new laboratory recommendations for liming each year. As noted, the turf renovation, and hydro-seeding processes are applicable to rotating areas on an annual basis.

The 2014 Standards and Criteria and Virginia Tech 2011 Urban Nutrient Management Handbook provide additional conditions and management practices that should be utilized where appropriate to protect water quality and assist in NMP implementation. These are summarized below.

1. **Soil Samples** - Soil samples will be analyzed at least once every three to four years from turf areas for pH, buffer pH, organic matter, cation exchange capacity (CEC), phosphorus, potassium, magnesium, and calcium A representative soil sample of each turf management area that is 20 acres or less should be composed of at least 20 cores randomly sampled from throughout the area with a soil sampling core depth of two to four inches, excluding turf blades and thatch. The soil cores must be composited in a clean container using clean tools and submitted to a laboratory certified by the VDCR for analysis, informing the laboratory of the plant species (turf or ornamentals).

2. **Fertilizer Application Records** - Fertilizer type, manufacturer, and analysis, and compost analysis will be obtained, and Fertilizer Application Records completed and maintained for every nutrient application conducted.

3. **Soil pH Adjustment** - Soil pH should be maintained at appropriate agronomic levels to promote optimum plant growth and nutrient utilization, and records kept for materials added for pH adjustment or soil conditioning.

4. **Spreader Calibration** - Spreader calibration should be performed annually, as it is critical to ensure proper application rates. (Chapter 10, *Urban Nutrient Management Handbook*).

5. **Construction Areas** - A protective cover of appropriate vegetation should be established and maintained on all disturbed construction areas.

6. **Returning Grass Clippings** – Recycling of clippings on turf is encouraged as an effective means of recycling nutrients. Proper mowing practices that ensure no more than one third of the leaf blade is removed in any cutting event will enhance turf appearance and performance when clippings are returned. Return all leaf clippings from mowing events to the turf rather than discharging them onto sidewalks or streets. Rotary mulching mowers can further enhance clipping recycling by reducing the size of clipping being returned to the turfgrass canopy.

7. **Management of Collected Clippings** - If clippings are collected, they should be disposed of properly. They may be composted or spread uniformly as a thin layer over other turf areas or areas where the nutrient content of the clippings can be recycled through actively growing plants. They should not be blown onto impervious surfaces or surface waters, dumped down storm water drains, or piled outside where rainwater will leach out the nutrients, creating the potential for nutrient loss to the environment.

8. **Impervious Surfaces** - Fertilizers must not be applied to impervious surfaces (sidewalks, streets, etc.). Remove any granular materials that land on impervious surfaces by sweeping and collecting, and either put the collected material back in the bag or spread it onto the turf using a leaf blower, etc., to return the fertilizer back to the turfgrass canopy. Storm water inlets must be protected from accidental flushing of fertilizer into the storm sewer system.

9. **Conditions Do Not Override** - These conditions do not override any applicable regulations that may be more restrictive.

9.0 REFERENCES

9VAC890, *General VPDES Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems*, Virginia Legislative Information System. Available at http://lis.virginia.gov/cgi-bin/legp604.exe?000+reg+9VAC25-890 and http://register.dls.virginia.gov/details.aspx?id=3948

Arlington National Cemetery Web Site, 2013. "History of Arlington National Cemetery – Arlington House," Accessed on September 18, 2013. Available at http://www.arlingtoncemetery.mil/History/Facts/ArlingtonHouse.aspx.

HNTB for U.S. Army Corps of Engineers, Norfolk District, 2013. Programmatic Environmental Assessment for the Arlington National Cemetery Real Property Master Plan, August 2013.

NDCEE, 2014. *Arlington National Cemetery Municipal Separate Storm Sewer Permitting Evaluation Pilot Draft Storm System Delineation Pilot Report*, National Defense Center for Energy and Environment, Concurrent Technologies Corporation, Johnstown, Pennsylvania, January 2014.

NRCS, 2007. Soil Survey of Arlington County, Natural Resources Conservation Service, 2007.

Virginia Cooperative Extension, Virginia Tech, Virginia State University, Virginia Department of Conservation and Recreation, 2011. *Urban Nutrient Management Handbook*, Virginia Cooperative Extension, May 2011. Available at http://pubs.ext.vt.edu/430/430-350/430-350_pdf.pdf

Virginia Department of Conservation and Recreation, 2014. *Virginia Nutrient Management Standards and Criteria, Revised October 2014*, Virginia Department of Conservation and Recreation, Richmond, VA. Available at http://www.dcr.virginia.gov/documents/StandardsandCriteria.pdf

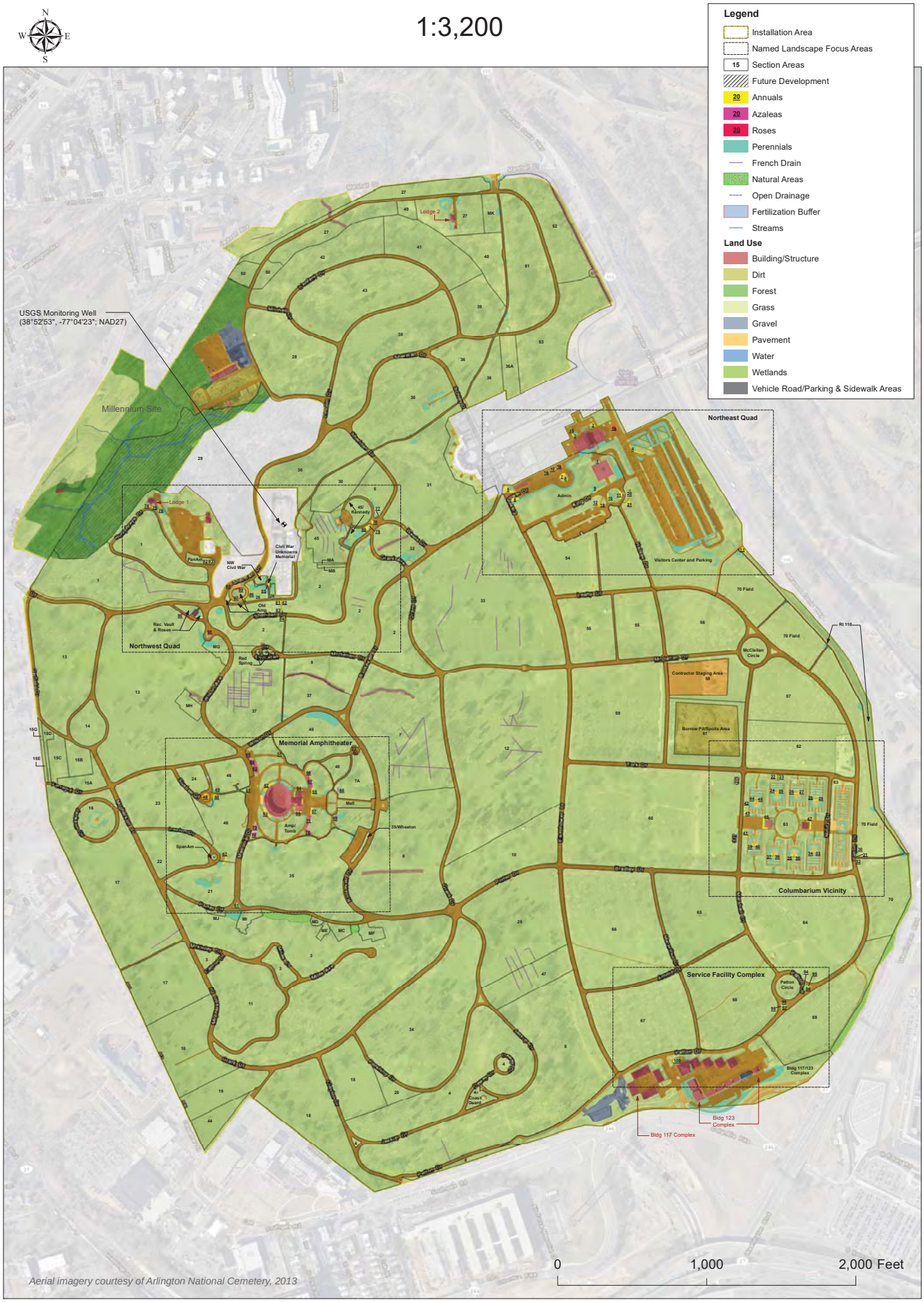
Virginia Department of Environmental Quality, 2013. *Commonwealth of Virginia Draft Guidance Memo (for Chesapeake Bay TMDL Special Condition requirements in the 2013-2018 General Permit for Discharges of Stormwater from Small (Phase II) MS4s),* Virginia Department of Environmental Quality, Water Division, Richmond, VA, July 20, 2013.

Virginia Golf Course Superintendents Association, 2012. *Environmental Best Management Practices for Virginia's Golf Courses*, Virginia Golf Course Superintendents Association, January 2012.

This page left blank.

Arlington National Cemetery
Nutrient Management Plan Map

1:3,200

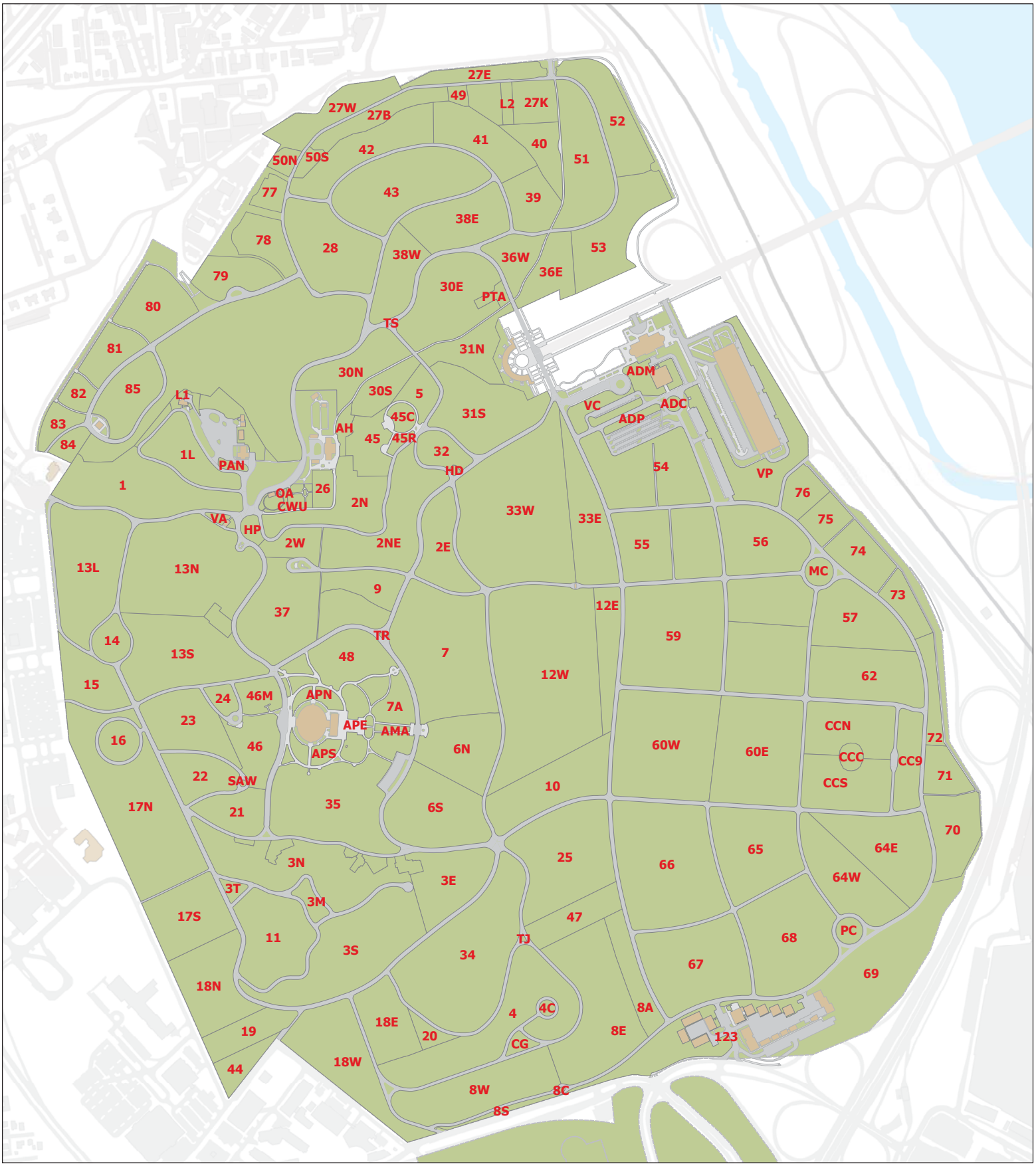


Aerial imagery courtesy of Arlington National Cemetery, 2013

Arlington National Cemetery

Honor - Remember - Explore

Soil Area Map



0 0.3 0.6 Miles

Document Path: O:\CIOG6\GIS\1. Data\Vector\Internal Data Collection\MXD\Kevin_Melson\Soil\ANC_Soils_Installation_ANSI_C.mxd

*This product has been created with the highest degree of accuracy possible and is intended to serve as a reference. Errors and omissions may exist.
It shall be the sole responsibility of any contractor, architect, engineer, agency, etc. to verify the accuracy and/or completeness of the location of all underground utilities shown on this drawing prior to any construction activity.

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere

Date: 4/16/2018

Soil sample information key

1. 1
2. 1L (Loop)
3. 2E
4. 2NE
5. 2N
6. 2W
7. 3M (middle island)
8. 3T (Triangle between Capron, McKinley, and McPherson drives)
9. 3S (South)
10. 3E (east)
11. 3N (north)
12. 4
13. 4C (Circle)
14. 5
15. 6N (north; drainage ditch is border between S and N)
16. 6S (south; drainage ditch is border between S and N)
17. 7A
18. 7N (north)
19. 7S (south; hill will be on south side, interment road separates)
20. 8C (circle at Patton Circle)
21. 8E (east)
22. 8S (stripe along the wall)
23. 8W (west)
24. 8T (area with crabapple trees, clayton dr., at the edge of section 8)
25. 9
26. 10
27. 11
28. 12E (east: McClellan Gate alone drainage ditch is the border)
29. 12W (west: McClellan Gate alone drainage ditch is the border)
30. 13L (little section 13)
31. 13N (north)
32. 13S (south)
33. 14
34. 15
35. 16 (Jackson Circle)
36. 17S (south)
37. 17N (north)
38. 18N (North; Argonne Cross)
39. 18E (East)
40. 18W (West)
41. 19
42. 20
43. 21
44. 22
45. 23
46. 24
47. 25

48. 26 (around the Arlington house garden)
49. 27K (memorial section K)
50. 27E (east along the wall: drainage ditch is the border)
51. 27W (west along the wall: drainage ditch is the border)
52. 27L (grave sites around lodge 2)
53. 27B (Large section running between sections 49 and 50)
54. 28
55. 30E (east)
56. 30N (north)
57. 30S (south)
58. 31N (north)
59. 31S (south)
60. 32
61. 33E (east: McClellan Gate to Weeks dr. is the border)
62. 33W (west: McClellan Gate to Weeks dr. is the border)
63. 34E (east)
64. 34W (west)
65. 35
66. 36E (east)
67. 36W (west)
68. 37N (north)
69. 37S (south)
70. 37E (east)
71. 38E (east, divider is L'Enfant dr. to Schley dr.)
72. 38W (west, woody area, divider is L'Enfant dr. to Schley dr.)
73. 39
74. 40
75. 41
76. 42
77. 43 (east)
78. 43 (west)
79. 44
80. 45C (Kennedy Circle, , Kentucky Bluegrass)
81. 45H (Kennedy Hill)
82. 45R (remaining areas)
83. 46
84. 46M (Memorial section)
85. 47
86. 48
87. 48T (no graves)
88. 49
89. 50N (north)
90. 50S (South)
91. 51
92. 52
93. 53
94. 54
95. 55
96. 56

97. 57
98. 59
99. 60E (east)
100. 60W (west)
101. 62
102. 64E (east, interment road separates)
103. 64W (west, interment road separates)
104. 65
105. 66
106. 67
107. 68
108. 69
109. 70
110. 71
111. 72
112. 73
113. 74
114. 75
115. 76
116. 123 (facility building)
117. AC (Admin Circle)
118. ADM (Admin building)
119. AE (Amphitheater east, both grass areas beside the tomb of unknown)
120. AN (Amphitheater north)
121. AS (Amphitheater south)
122. AH (Arlington House walk outlook, under large Gingko)
123. CG (Coast Guard Memorial)
124. CC9 (columbarium court 9)
125. CCC (columbarium circle)
126. CCN (columbarium north side)
127. CCS (columbarium south side)
128. CWU (Civil War Unknown, plus surrounding turf)
129. HD (Horse Rider John Greer Dill)
130. HP (Horse Rider Philip Kearny)
131. L1 (lodge 1)
132. L2 (lodge 2)
133. MA (Mall)
134. MC (McClellan Circle)
135. OA (Old Amp inside grass)
136. PC (Patton Circle)
137. TJ (Triangle of turf on Jesup dr., at Pershing)
138. TR (Triangle of turf on Roosevelt dr. at Wilson dr)
139. TS (Triangle of turf on Sherman dr. at Sheridan dr)
140. SAW (Spanish American War Memorial)
141. TA (President Taft grave site)
142. WP (Wheaton Parking; Turf above the parking lot on the hill)
143. V (Vault)
144. VC (Visitor Center courtyard)
145. VP (visitor parking)

146. U1 (Soldier Home Sections L and K)
147. U2 (Soldier Home Sections P and Q)
148. U3 (Soldier Home A, B, C, D, E, F, G, H, I)
149. U4 (Soldier Home J, M, N, O, R)

Report Number: 17-037-0677
Account Number: 08576

Waypoint ANALYTICAL
"Every acre...Every year."™

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Send To: Greenleaf Services Inc
365 Water Street
Wilmington DE 19804

Grower: Arlington National Cemetery
1 Memorial Avenue
Ft Myer, VA 22211
302-275-2398

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 02/06/2017 **Date Of Analysis:** 02/07/2017 **Date Of Report:** 02/07/2017

Sample ID / Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium	Magnesium	Calcium	Sodium	pH		Acidity	C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm Rate	ppm Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
6N	23502	4.1 M		119	67 H DE = 67			201 VH DE = 111	174 H DE = 132	1089 M DE = 109		5.8	6.76	1.7	9.1
6S	23504	5.0 H		134	80 H DE = 80			197 VH DE = 108	209 H DE = 159	1442 M DE = 144		6.1	6.78	1.5	11.0
7N	23505	4.9 M		132	84 H DE = 84			222 VH DE = 122	219 H DE = 166	1542 H DE = 154		6.5		0.8	10.9
7S	23506	3.8 M		114	47 M DE = 47			199 VH DE = 109	185 H DE = 141	1194 M DE = 119		6.5		0.6	8.6
9	23507	4.8 M		132	70 H DE = 70			181 VH DE = 100	189 H DE = 144	1078 M DE = 108		5.6	6.70	2.3	9.7

Sample ID / Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO_3 N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
6N	5.7	15.9	59.8		18.7										
6S	4.6	15.8	65.5		13.6										
7N	5.2	16.7	70.7		7.3										
7S	5.9	17.9	69.4		7.0										
9	4.8	16.2	55.6		23.7										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 17-037-0677
Account Number: 08576

Waypoint ANALYTICAL
"Every acre...Every year."™

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Send To: Greenleaf Services Inc
365 Water Street
Wilmington DE 19804

Grower: Arlington National Cemetery
1 Memorial Avenue
Ft Myer, VA 22211
302-275-2398

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 02/06/2017 **Date Of Analysis:** 02/07/2017 **Date Of Report:** 02/07/2017

Sample ID / Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium	Magnesium	Calcium	Sodium	pH		Acidity	C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm Rate	ppm Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
10	23508	4.4 M		125	44 M DE = 44			336 VH DE = 185	204 H DE = 155	1160 M DE = 116		6.7		0.4	8.8
11	23509	4.4 M		125	61 H DE = 61			203 VH DE = 112	183 H DE = 139	1009 M DE = 101		5.7	6.74	1.9	9.0
13L	23510	3.7 M		113	58 H DE = 58			159 VH DE = 87	133 M DE = 101	969 M DE = 97		5.8	6.78	1.5	7.9
13N	23511	3.8 M		115	48 M DE = 48			143 H DE = 79	168 H DE = 128	1017 M DE = 102		6.1	6.82	1.1	8.0
13S	23512	4.3 M		125	33 M DE = 33			136 H DE = 75	169 H DE = 128	1026 M DE = 103		6.3		0.8	7.7

Sample ID / Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO_3 N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
10	9.8	19.3	65.9		4.5										
11	5.8	16.9	56.1		21.1										
13L	5.2	14.0	61.3		19.0										
13N	4.6	17.5	63.6		13.8										
13S	4.5	18.3	66.6		10.4										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 17-037-0677
Account Number: 08576

Waypoint ANALYTICAL
7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

"Every acre...Every year."™

Send To: Greenleaf Services Inc
365 Water Street
Wilmington DE 19804

Grower: Arlington National Cemetery
1 Memorial Avenue
Ft Myer, VA 22211
302-275-2398

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 02/06/2017 **Date Of Analysis:** 02/07/2017 **Date Of Report:** 02/07/2017

Sample ID / Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium	Magnesium	Calcium	Sodium	pH		Acidity	C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm Rate	ppm Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
14	23513	4.6 M		130	46 M DE = 46			165 VH DE = 91	152 M DE = 116	919 M DE = 92		5.5	6.71	2.2	8.5
15	23515	4.2 M		123	27 L DE = 27			106 M DE = 58	140 H DE = 106	802 M DE = 80		5.4	6.71	2.2	7.6
16	23516	4.1 M		120	42 M DE = 42			154 VH DE = 85	176 H DE = 134	1245 H DE = 125		6.8		0.2	8.3
17S	23517	4.2 M		122	57 H DE = 57			185 VH DE = 102	196 H DE = 149	1143 M DE = 114		6.5		0.6	8.4
17N	23518	3.9 M		116	27 L DE = 27			195 VH DE = 107	189 H DE = 144	1086 M DE = 109		6.3		0.9	8.4

Sample ID / Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO_3 N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
14	5.0	14.9	54.1		25.9										
15	3.6	15.4	52.8		28.9										
16	4.8	17.7	75.0		2.4										
17S	5.6	19.4	68.0		7.1										
17N	6.0	18.8	64.6		10.7										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 17-037-0677
Account Number: 08576

Waypoint ANALYTICAL
7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

"Every acre...Every year."™

Send To: Greenleaf Services Inc
365 Water Street
Wilmington DE 19804

Grower: Arlington National Cemetery
1 Memorial Avenue
Ft Myer, VA 22211
302-275-2398

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 02/06/2017 **Date Of Analysis:** 02/07/2017 **Date Of Report:** 02/07/2017

Sample ID / Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium	Magnesium	Calcium	Sodium	pH		Acidity	C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm Rate	ppm Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
18N	23519	4.1 M		122	34 M DE = 34			131 H DE = 72	171 H DE = 130	1023 H DE = 102		6.6		0.4	7.3
18E	23520	3.1 M		101	48 M DE = 48			201 VH DE = 111	183 H DE = 139	1084 M DE = 108		6.7		0.4	7.9
18W	23521	3.3 M		105	27 L DE = 27			172 VH DE = 95	180 H DE = 137	1049 M DE = 105		6.6		0.5	7.7
19	23522	3.9 M		115	52 H DE = 52			190 VH DE = 105	182 H DE = 138	1390 H DE = 139		7.0		0.0	9.0
20	23523	3.5 M		109	62 H DE = 62			134 H DE = 74	172 H DE = 131	1171 H DE = 117		6.8		0.2	7.8

Sample ID / Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO_3 N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
18N	4.6	19.5	70.1		5.5										
18E	6.5	19.3	68.6		5.1										
18W	5.7	19.5	68.1		6.5										
19	5.4	16.9	77.2		0.0										
20	4.4	18.4	75.1		2.6										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 17-037-0677
Account Number: 08576

Waypoint ANALYTICAL
7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

"Every acre...Every year."™

Send To: Greenleaf Services Inc
365 Water Street
Wilmington DE 19804

Grower: Arlington National Cemetery
1 Memorial Avenue
Ft Myer, VA 22211
302-275-2398

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 02/06/2017 **Date Of Analysis:** 02/07/2017 **Date Of Report:** 02/07/2017

Sample ID / Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium	Magnesium	Calcium	Sodium	pH		Acidity	C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm Rate	ppm Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
21	23524	4.4 M		126	92 H DE = 92			177 VH DE = 97	170 H DE = 129	1119 M DE = 112		6.3		0.9	8.4
22	23526	4.5 M		127	45 M DE = 45			236 VH DE = 130	204 H DE = 155	1230 M DE = 123		6.5		0.7	9.2
23	23527	4.0 M		120	45 M DE = 45			177 VH DE = 97	173 H DE = 131	1009 M DE = 101		6.6		0.4	7.3
24	23528	4.1 M		122	50 M DE = 50			159 VH DE = 87	160 H DE = 122	1032 H DE = 103		6.6		0.4	7.3
25	23529	3.7 M		112	53 H DE = 53			155 VH DE = 85	198 H DE = 150	999 M DE = 100		5.9	6.78	1.5	8.5

Sample ID / Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO_3 N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
21	5.4	16.9	66.6		10.7										
22	6.6	18.5	66.8		7.6										
23	6.2	19.7	69.1		5.5										
24	5.6	18.3	70.7		5.5										
25	4.7	19.4	58.8		17.6										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 17-037-0677
Account Number: 08576

Waypoint ANALYTICAL
"Every acre...Every year."™

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Send To: Greenleaf Services Inc
365 Water Street
Wilmington DE 19804

Grower: Arlington National Cemetery
1 Memorial Avenue
Ft Myer, VA 22211
302-275-2398

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 02/06/2017 **Date Of Analysis:** 02/07/2017 **Date Of Report:** 02/07/2017

Sample ID / Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium	Magnesium	Calcium	Sodium	pH		Acidity	C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm Rate	ppm Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
27K	23530	3.7 M		112	31 M DE = 31			131 H DE = 72	246 H DE = 187	903 M DE = 90		5.9	6.79	1.4	8.3
27E	23531	3.9 M		120	46 M DE = 46			131 H DE = 72	127 H DE = 97	615 M DE = 62		5.8	6.82	1.1	5.6
27W	23532	3.7 M		102	54 H DE = 54			200 H DE = 110	218 M DE = 166	1415 L DE = 142		5.1	6.36	5.7	15.1
27L	23533	3.9 M		123	63 H DE = 63			95 H DE = 52	78 H DE = 59	457 M DE = 46		6.3		0.4	3.6
27B	23534	3.4 M		110	68 H DE = 68			149 H DE = 82	109 H DE = 83	632 M DE = 63		5.6	6.79	1.4	5.9

Sample ID / Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO_3 N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
27K	4.0	24.7	54.4		16.9										
27E	6.0	18.9	54.9		19.6										
27W	3.4	12.0	46.9		37.7										
27L	6.8	18.1	63.5		11.1										
27B	6.5	15.4	53.6		23.7										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 17-037-0677
Account Number: 08576

Waypoint ANALYTICAL
"Every acre...Every year."™

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Send To: Greenleaf Services Inc
365 Water Street
Wilmington DE 19804

Grower: Arlington National Cemetery
1 Memorial Avenue
Ft Myer, VA 22211
302-275-2398

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 02/06/2017 **Date Of Analysis:** 02/07/2017 **Date Of Report:** 02/07/2017

Sample ID / Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium	Magnesium	Calcium	Sodium	pH		Acidity	C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm Rate	ppm Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
28	23535	4.1 M		118	66 H DE = 66			170 VH DE = 94	262 H DE = 199	1206 M DE = 121		6.2		1.2	9.8
30E	23537	5.1 H		140	59 H DE = 59			178 VH DE = 98	199 H DE = 151	1018 M DE = 102		6.3		0.9	8.1
30N	23538	4.9 M		137	91 H DE = 91			154 VH DE = 85	179 H DE = 136	965 M DE = 97		6.3		0.8	7.5
30S	23539	5.5 H		148	108 VH DE = 108			175 VH DE = 96	147 M DE = 112	921 M DE = 92		5.6	6.74	1.9	8.2
31N	23540	2.8 M		94	83 H DE = 83			183 VH DE = 101	145 M DE = 110	980 M DE = 98		5.8	6.78	1.5	8.1

Sample ID / Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO_3 N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
28	4.4	22.3	61.5		12.2										
30E	5.6	20.5	62.8		11.1										
30N	5.3	19.9	64.3		10.7										
30S	5.5	14.9	56.2		23.2										
31N	5.8	14.9	60.5		18.5										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 17-037-0677
Account Number: 08576

Waypoint ANALYTICAL
"Every acre...Every year."™

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Send To: Greenleaf Services Inc
365 Water Street
Wilmington DE 19804

Grower: Arlington National Cemetery
1 Memorial Avenue
Ft Myer, VA 22211
302-275-2398

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 02/06/2017 **Date Of Analysis:** 02/07/2017 **Date Of Report:** 02/07/2017

Sample ID / Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium	Magnesium	Calcium	Sodium	pH		Acidity	C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm Rate	ppm Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
31S	23541	4.4 M		124	61 H DE = 61			191 VH DE = 105	200 H DE = 152	1085 M DE = 109		5.7	6.73	2.0	9.6
32	23542	4.4 M		120	52 H DE = 52			210 VH DE = 116	200 M DE = 152	1086 L DE = 109		5.0	6.40	5.3	12.9
33E	23543	3.8 M		112	49 M DE = 49			186 VH DE = 102	233 H DE = 177	1165 M DE = 117		6.1	6.80	1.3	9.5
33W	23544	3.5 M		108	30 L DE = 30			159 VH DE = 87	170 H DE = 129	807 L DE = 81		5.4	6.70	2.3	8.2
34E	23545	3.5 M		108	48 M DE = 48			157 VH DE = 86	182 H DE = 138	1013 M DE = 101		6.0	6.80	1.3	8.3

Sample ID / Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO_3 N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
31S	5.1	17.4	56.5		20.8										
32	4.2	12.9	42.1		41.1										
33E	5.0	20.4	61.3		13.7										
33W	5.0	17.3	49.2		28.0										
34E	4.9	18.3	61.0		15.7										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 17-037-0677
Account Number: 08576

Waypoint ANALYTICAL
"Every acre...Every year."™

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Send To: Greenleaf Services Inc
365 Water Street
Wilmington DE 19804

Grower: Arlington National Cemetery
1 Memorial Avenue
Ft Myer, VA 22211
302-275-2398

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 02/06/2017 **Date Of Analysis:** 02/07/2017 **Date Of Report:** 02/07/2017

Sample ID / Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium	Magnesium	Calcium	Sodium	pH		Acidity	C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm Rate	ppm Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
34W	23546	3.4 M		108	51 H DE = 51			145 H DE = 80	140 H DE = 106	908 M DE = 91		6.1	6.83	1.0	7.1
35	23548	3.8 M		114	36 M DE = 36			143 H DE = 79	199 H DE = 151	1049 M DE = 105		6.1	6.81	1.2	8.5
37N	23549	4.2 M		122	60 H DE = 60			168 VH DE = 92	174 H DE = 132	912 M DE = 91		5.6	6.73	2.0	8.4
37S	23550	3.6 M		108	58 H DE = 58			156 VH DE = 86	143 M DE = 109	808 L DE = 81		5.0	6.54	3.9	9.5
37E	23551	3.9 M		114	64 H DE = 64			176 VH DE = 97	175 H DE = 133	1000 M DE = 100		5.4	6.66	2.7	9.6

Sample ID / Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO_3 N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
34W	5.2	16.4	63.9		14.1										
35	4.3	19.5	61.7		14.1										
37N	5.1	17.3	54.3		23.8										
37S	4.2	12.5	42.5		41.1										
37E	4.7	15.2	52.1		28.1										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 17-037-0677
Account Number: 08576

Waypoint ANALYTICAL
7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

"Every acre...Every year."™

Send To: Greenleaf Services Inc
365 Water Street
Wilmington DE 19804

Grower: Arlington National Cemetery
1 Memorial Avenue
Ft Myer, VA 22211
302-275-2398

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 02/06/2017 **Date Of Analysis:** 02/07/2017 **Date Of Report:** 02/07/2017

Sample ID / Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium	Magnesium	Calcium	Sodium	pH		Acidity	C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm Rate	ppm Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
38E	23552	1.9 L		71	53 H DE = 53			198 VH DE = 109	333 H DE = 253	1283 M DE = 128		5.9	6.73	2.0	11.7
38W	23553	3.6 M		108	40 M DE = 40			155 VH DE = 85	284 H DE = 216	1114 M DE = 111		5.9	6.76	1.7	10.0
41	23554	3.5 M		104	46 M DE = 46			166 H DE = 91	326 H DE = 248	1405 M DE = 141		6.4		1.0	11.2
42	23555	3.3 M		101	64 H DE = 64			173 H DE = 95	348 VH DE = 264	1063 M DE = 106		5.9	6.75	1.8	10.5
43E	23556	3.1 M		96	58 H DE = 58			179 VH DE = 98	347 VH DE = 264	1184 M DE = 118		5.8	6.71	2.2	11.5

Sample ID / Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO_3 N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
38E	4.3	23.7	54.8		17.1										
38W	4.0	23.7	55.7		17.0										
41	3.8	24.3	62.7		8.9										
42	4.2	27.6	50.6		17.1										
43E	4.0	25.1	51.5		19.1										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 17-037-0677
Account Number: 08576

Waypoint ANALYTICAL
7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

"Every acre...Every year."™

Send To: Greenleaf Services Inc
365 Water Street
Wilmington DE 19804

Grower: Arlington National Cemetery
1 Memorial Avenue
Ft Myer, VA 22211
302-275-2398

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 02/06/2017 **Date Of Analysis:** 02/07/2017 **Date Of Report:** 02/07/2017

Sample ID / Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium	Magnesium	Calcium	Sodium	pH		Acidity	C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm Rate	ppm Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
43W	23557	3.2 M		99	62 H DE = 62			144 M DE = 79	267 H DE = 203	1022 L DE = 102		5.5	6.66	2.7	10.4
44	23559	4.3 M		123	31 M DE = 31			178 VH DE = 98	207 H DE = 157	1262 H DE = 126		6.7		0.4	8.9
47	23560	3.4 M		106	39 M DE = 39			167 VH DE = 92	189 H DE = 144	1129 M DE = 113		6.5		0.6	8.2
49	23561	4.0 M		119	52 H DE = 52			115 M DE = 63	144 H DE = 109	756 L DE = 76		5.3	6.69	2.4	7.7
51	23562	3.4 M		104	42 M DE = 42			154 VH DE = 85	242 H DE = 184	1377 H DE = 138		6.8		0.3	9.6

Sample ID / Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO_3 N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
43W	3.6	21.4	49.1		26.0										
44	5.1	19.4	70.9		4.5										
47	5.2	19.2	68.8		7.3										
49	3.8	15.6	49.1		31.2										
51	4.1	21.0	71.7		3.1										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 17-037-0677
Account Number: 08576

Waypoint ANALYTICAL
"Every acre...Every year."™

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Send To: Greenleaf Services Inc
365 Water Street
Wilmington DE 19804

Grower: Arlington National Cemetery
1 Memorial Avenue
Ft Myer, VA 22211
302-275-2398

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 02/06/2017 **Date Of Analysis:** 02/07/2017 **Date Of Report:** 02/07/2017

Sample ID / Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium	Magnesium	Calcium	Sodium	pH		Acidity	C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm Rate	ppm Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
52	23563	3.5 M		105	65 H DE = 65			228 VH DE = 125	255 H DE = 194	1431 M DE = 143		6.7		0.5	10.4
53	23564	3.5 M		107	43 M DE = 43			172 VH DE = 95	242 H DE = 184	1233 M DE = 123		6.4		0.8	9.4
123	23565	3.7 M		113	54 H DE = 54			168 VH DE = 92	169 H DE = 128	1071 M DE = 107		6.4		0.7	7.9
CWU	23566	3.3 M		106	79 H DE = 79			123 M DE = 68	155 H DE = 118	882 M DE = 88		6.3		0.7	6.7
HP	23567	2.9 M		99	23 L DE = 23			111 M DE = 61	134 H DE = 102	790 M DE = 79		6.3		0.6	6.0

Sample ID / Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO_3 N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
52	5.6	20.4	68.8		4.8										
53	4.7	21.5	65.6		8.5										
123	5.5	17.8	67.8		8.9										
CWU	4.7	19.3	65.8		10.4										
HP	4.7	18.6	65.8		10.0										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 17-037-0677
Account Number: 08576

Waypoint ANALYTICAL
"Every acre...Every year."™

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Send To: Greenleaf Services Inc
365 Water Street
Wilmington DE 19804

Grower: Arlington National Cemetery
1 Memorial Avenue
Ft Myer, VA 22211
302-275-2398

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 02/06/2017 **Date Of Analysis:** 02/07/2017 **Date Of Report:** 02/07/2017

Sample ID / Field ID	Lab Number	OM % Rate	W/V Soil Class	ENR lbs/A	Phosphorus M3 ppm Rate	Phosphorus ppm Rate	Phosphorus ppm Rate	Potassium K ppm Rate	Magnesium Mg ppm Rate	Calcium Ca ppm Rate	Sodium Na ppm Rate	pH Soil pH	pH Buffer Index	Acidity H meq/100g	C.E.C meq/100g
L1	23568	2.7 M		93	73 H DE = 73			87 L DE = 48	161 H DE = 122	925 M DE = 93		5.9	6.80	1.3	7.5
L2	23570	2.8 M		94	122 VH DE = 122			141 H DE = 78	162 H DE = 123	870 M DE = 87		5.5	6.72	2.1	8.2
TJ	23571	3.8 M		117	22 L DE = 22			142 H DE = 78	119 M DE = 90	839 M DE = 84		6.0	6.83	1.0	6.6
TR	23572	5.4 H		141	66 H DE = 66			339 VH DE = 186	266 H DE = 202	1535 M DE = 154		6.4		1.1	11.9
TS	23573	1.3 L		68	30 L DE = 30			105 M DE = 58	134 H DE = 102	904 H DE = 90		7.3		0.0	5.9

Sample ID / Field ID	Percent Base Saturation K %	Mg %	Ca %	Na %	H %	Nitrate NO_3 N ppm Rate	Sulfur S ppm Rate	Zinc Zn ppm Rate	Manganese Mn ppm Rate	Iron Fe ppm Rate	Copper Cu ppm Rate	Boron B ppm Rate	Soluble Salts SS ms/cm Rate		
L1	3.0	17.9	61.7		17.3										
L2	4.4	16.5	53.0		25.6										
TJ	5.5	15.0	63.6		15.2										
TR	7.3	18.6	64.5		9.2										
TS	4.6	18.9	76.6		0.0										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 17-037-0677
Account Number: 08576

Waypoint ANALYTICAL
"Every acre...Every year."™

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Send To: Greenleaf Services Inc
365 Water Street
Wilmington DE 19804

Grower: Arlington National Cemetery
1 Memorial Avenue
Ft Myer, VA 22211
302-275-2398

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 02/06/2017 **Date Of Analysis:** 02/07/2017 **Date Of Report:** 02/07/2017

Sample ID / Field ID	Lab Number	OM % Rate	W/V Soil Class	ENR lbs/A	Phosphorus M3 ppm Rate	Phosphorus ppm Rate	Phosphorus ppm Rate	Potassium K ppm Rate	Magnesium Mg ppm Rate	Calcium Ca ppm Rate	Sodium Na ppm Rate	pH Soil pH	pH Buffer Index	Acidity H meq/100g	C.E.C meq/100g
SAW	23574	2.0 L		85	15 L DE = 15			81 M DE = 45	64 M DE = 49	276 L DE = 28		4.9	6.76	1.7	3.8
V	23575	3.3 M		108	44 M DE = 44			88 L DE = 48	123 H DE = 93	589 M DE = 59		5.6	6.80	1.3	5.5
VC	23576	3.3 M		104	25 L DE = 25			115 M DE = 63	158 H DE = 120	919 M DE = 92		5.4	6.68	2.5	8.7
VP	23577	4.5 M		126	29 L DE = 29			113 M DE = 62	270 H DE = 205	1265 M DE = 127		6.4		0.9	9.8
U1	23578	2.8 M		96	29 L DE = 29			117 M DE = 64	147 H DE = 112	738 M DE = 74		5.4	6.72	2.1	7.3

Sample ID / Field ID	Percent Base Saturation K %	Mg %	Ca %	Na %	H %	Nitrate NO_3 N ppm Rate	Sulfur S ppm Rate	Zinc Zn ppm Rate	Manganese Mn ppm Rate	Iron Fe ppm Rate	Copper Cu ppm Rate	Boron B ppm Rate	Soluble Salts SS ms/cm Rate		
SAW	5.5	14.0	36.3		44.7										
V	4.1	18.6	53.5		23.6										
VC	3.4	15.1	52.8		28.7										
VP	3.0	23.0	64.5		9.2										
U1	4.1	16.8	50.5		28.8										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 17-037-0677
Account Number: 08576

Waypoint ANALYTICAL
"Every acre...Every year."™

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Send To: Greenleaf Services Inc
365 Water Street
Wilmington DE 19804

Grower: Arlington National Cemetery
1 Memorial Avenue
Ft Myer, VA 22211
302-275-2398

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 02/06/2017 **Date Of Analysis:** 02/07/2017 **Date Of Report:** 02/07/2017

Sample ID / Field ID	Lab Number	OM % Rate	W/V Soil Class	ENR lbs/A	Phosphorus M3 ppm Rate	Phosphorus ppm Rate	Phosphorus ppm Rate	Potassium K ppm Rate	Magnesium Mg ppm Rate	Calcium Ca ppm Rate	Sodium Na ppm Rate	pH Soil pH	pH Buffer Index	Acidity H meq/100g	C.E.C meq/100g
U2	23579	2.1 L		85	45 M DE = 45			102 M DE = 56	104 H DE = 79	490 L DE = 49		5.3	6.77	1.6	5.2
U3	23581	3.9 M		117	52 H DE = 52			132 H DE = 73	139 H DE = 106	777 M DE = 78		5.4	6.72	2.1	7.5
U4	23582	3.4 M		108	38 M DE = 38			92 M DE = 51	133 H DE = 101	761 M DE = 76		5.5	6.75	1.8	6.9

Sample ID / Field ID	Percent Base Saturation K %	Mg %	Ca %	Na %	H %	Nitrate NO_3 N ppm Rate	Sulfur S ppm Rate	Zinc Zn ppm Rate	Manganese Mn ppm Rate	Iron Fe ppm Rate	Copper Cu ppm Rate	Boron B ppm Rate	Soluble Salts SS ms/cm Rate		
U2	5.0	16.7	47.1		30.8										
U3	4.5	15.4	51.8		28.0										
U4	3.4	16.1	55.1		26.1										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 18-061-0507
Account Number: 29290

Waypoint ANALYTICAL
"Every acre...Every year."™

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Send To: Pennington Seed Inc
9327 US Route 1
Ste J
Laurel MD 20723

Grower: Arlington National Cemetary

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 03/02/2018 **Date Of Analysis:** 03/05/2018 **Date Of Report:** 03/05/2018

Sample ID / Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium	Magnesium	Calcium	Sodium	pH		Acidity	C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm Rate	ppm Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
ADM	15752	4.0 M		115	23 L MD = 27			113 M MD = 71	248 H MD = 191	1421 M MD = 152		6.3		1.1	10.6
ADP	15753	5.1 H		131	52 H MD = 59			209 VH MD = 134	360 H MD = 276	1633 M MD = 179		5.7	6.62	3.1	14.8
AE	15754	2.7 M		91	77 H MD = 86			117 M MD = 74	223 H MD = 172	971 M MD = 96		5.7	6.74	1.9	8.9
AN	15755	3.4 M		103	56 H MD = 63			165 H MD = 105	266 H MD = 204	1350 M MD = 144		6.3		1.1	10.5
AS	15756	4.9 M		131	53 H MD = 60			209 VH MD = 134	240 H MD = 185	1767 H MD = 196		6.6		0.7	12.1

Sample ID / Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO_3 N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
ADM	2.7	19.5	67.0		10.4										
ADP	3.6	20.3	55.2		20.9										
AE	3.4	20.9	54.6		21.3										
AN	4.0	21.1	64.3		10.5										
AS	4.4	16.5	73.0		5.8										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 18-061-0507
Account Number: 29290

Waypoint ANALYTICAL
"Every acre...Every year."™

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Send To: Pennington Seed Inc
9327 US Route 1
Ste J
Laurel MD 20723

Grower: Arlington National Cemetary

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 03/02/2018 **Date Of Analysis:** 03/05/2018 **Date Of Report:** 03/05/2018

Sample ID / Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium	Magnesium	Calcium	Sodium	pH		Acidity	C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm Rate	ppm Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
AH	15757	4.2 M		124	33 M MD = 38			131 H MD = 83	144 H MD = 112	783 M MD = 72		5.7	6.78	1.5	7.0
CG	15758	3.2 M		103	121 VH MD = 134			183 VH MD = 117	127 M MD = 99	823 M MD = 77		5.5	6.73	2.0	7.6
CC9	15759	4.5 M		127	58 H MD = 65			124 M MD = 79	206 H MD = 159	1326 H MD = 140		6.8		0.3	9.0
CCC	15760	5.9 H		149	24 L MD = 29			158 H MD = 101	328 H MD = 251	1860 H MD = 208		6.6		0.8	13.2
CCN	15761	5.0 H		135	23 L MD = 27			135 M MD = 86	254 H MD = 195	1529 H MD = 166		6.7		0.5	10.6

Sample ID / Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO_3 N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
AH	4.8	17.1	55.9		21.4										
CG	6.2	13.9	54.1		26.3										
CC9	3.5	19.1	73.7		3.3										
CCC	3.1	20.7	70.5		6.1										
CCN	3.3	20.0	72.1		4.7										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 18-061-0507
Account Number: 29290

Waypoint ANALYTICAL
"Every acre...Every year."™

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Send To: Pennington Seed Inc
9327 US Route 1
Ste J
Laurel MD 20723

Grower: Arlington National Cemetary

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 03/02/2018 **Date Of Analysis:** 03/05/2018 **Date Of Report:** 03/05/2018

Sample ID / Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium	Magnesium	Calcium	Sodium	pH		Acidity	C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm Rate	ppm Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
68	15763	5.5 H		145	35 M MD = 40			173 H MD = 110	234 H MD = 180	1194 M MD = 124		5.7	6.71	2.2	10.6
69	15764	3.9 M		113	44 M MD = 50			187 VH MD = 119	287 H MD = 220	1388 M MD = 148		6.5		0.8	10.6
70	15765	4.3 M		121	30 L MD = 35			215 VH MD = 137	235 H MD = 181	1217 M MD = 127		6.0	6.77	1.6	10.2
71	15766	3.1 M		97	6 VL MD = 9			109 M MD = 69	279 H MD = 214	1473 M MD = 159		6.6		0.6	10.6
72	15767	1.6 L		74	15 L MD = 19			70 L MD = 44	90 M MD = 71	749 H MD = 68		6.3		0.6	5.3

Sample ID / Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO_3 N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
68	4.2	18.4	56.3		20.8										
69	4.5	22.6	65.5		7.5										
70	5.4	19.2	59.7		15.7										
71	2.6	21.9	69.5		5.7										
72	3.4	14.2	70.7		11.3										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 18-061-0507
Account Number: 29290

Waypoint ANALYTICAL
"Every acre...Every year."™

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Send To: Pennington Seed Inc
9327 US Route 1
Ste J
Laurel MD 20723

Grower: Arlington National Cemetary

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 03/02/2018 **Date Of Analysis:** 03/05/2018 **Date Of Report:** 03/05/2018

Sample ID / Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium	Magnesium	Calcium	Sodium	pH		Acidity	C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm Rate	ppm Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
73	15768	2.4 L		88	17 L MD = 21			96 M MD = 60	115 M MD = 90	1160 H MD = 120		6.8		0.2	7.2
74	15769	3.1 M		97	14 L MD = 18			123 M MD = 78	199 H MD = 154	1749 H MD = 194		7.3		0.0	10.7
75	15770	2.5 L		87	16 L MD = 20			120 M MD = 76	193 H MD = 149	1482 H MD = 160		6.9		0.1	9.4
76	15771	3.2 M		101	11 VL MD = 14			129 H MD = 82	193 H MD = 149	1429 H MD = 153		6.9		0.1	9.2
AC	15772	6.1 H		150	48 M MD = 55			100 L MD = 63	260 H MD = 200	1692 H MD = 187		6.6		0.7	11.6

Sample ID / Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO_3 N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
73	3.4	13.3	80.6		2.8										
74	2.9	15.5	81.7		0.0										
75	3.3	17.1	78.8		1.1										
76	3.6	17.5	77.7		1.1										
AC	2.2	18.7	72.9		6.0										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 18-061-0507
Account Number: 29290

Waypoint ANALYTICAL
"Every acre...Every year."™

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Send To: Pennington Seed Inc
9327 US Route 1
Ste J
Laurel MD 20723

Grower: Arlington National Cemetary

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 03/02/2018 **Date Of Analysis:** 03/05/2018 **Date Of Report:** 03/05/2018

Sample ID / Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium	Magnesium	Calcium	Sodium	pH		Acidity	C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm Rate	ppm Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
57	15774	2.6 M		89	15 L MD = 19			111 M MD = 70	264 H MD = 203	1327 H MD = 141		6.8		0.3	9.4
59	15775	4.1 M		120	35 M MD = 40			86 L MD = 54	179 H MD = 139	1110 M MD = 113		6.3		0.9	8.2
60E	15776	3.3 M		102	27 L MD = 32			114 M MD = 72	272 H MD = 209	1191 M MD = 123		6.3		1.0	9.5
60W	15777	4.8 M		129	41 M MD = 47			152 H MD = 97	248 H MD = 191	1455 M MD = 157		5.9	6.73	2.0	11.7
62	15778	3.2 M		101	8 VL MD = 11			119 M MD = 75	186 H MD = 144	1394 H MD = 149		6.8		0.3	9.1

Sample ID / Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO_3 N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
57	3.0	23.4	70.6		3.2										
59	2.7	18.2	67.7		11.0										
60E	3.1	23.9	62.7		10.5										
60W	3.3	17.7	62.2		17.1										
62	3.4	17.0	76.6		3.3										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 18-061-0507
Account Number: 29290

Waypoint ANALYTICAL
"Every acre...Every year."™

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Send To: Pennington Seed Inc
9327 US Route 1
Ste J
Laurel MD 20723

Grower: Arlington National Cemetary

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 03/02/2018 **Date Of Analysis:** 03/05/2018 **Date Of Report:** 03/05/2018

Sample ID / Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium	Magnesium	Calcium	Sodium	pH		Acidity	C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm Rate	ppm Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
64E	15779	5.3 H		139	67 H MD = 75			277 VH MD = 178	288 H MD = 221	1818 H MD = 202		7.1		0.0	12.2
64W	15780	4.8 M		133	24 L MD = 29			162 VH MD = 103	212 H MD = 164	1271 M MD = 134		6.4		0.8	9.3
65	15781	5.6 H		142	70 H MD = 79			188 VH MD = 120	332 H MD = 254	1599 M MD = 175		5.8	6.67	2.6	13.8
66	15782	4.1 M		119	64 H MD = 72			131 H MD = 83	192 H MD = 148	966 M MD = 95		5.5	6.70	2.3	9.1
67	15783	5.1 H		137	66 H MD = 74			166 H MD = 106	224 H MD = 173	1112 M MD = 114		5.5	6.66	2.7	10.6

Sample ID / Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO_3 N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
64E	5.8	19.7	74.5		0.0										
64W	4.5	19.0	68.3		8.6										
65	3.5	20.0	57.9		18.8										
66	3.7	17.6	53.1		25.3										
67	4.0	17.6	52.5		25.5										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 18-061-0507
Account Number: 29290

Waypoint ANALYTICAL
"Every acre...Every year."™

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Send To: Pennington Seed Inc
9327 US Route 1
Ste J
Laurel MD 20723

Grower: Arlington National Cemetary

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 03/02/2018 **Date Of Analysis:** 03/05/2018 **Date Of Report:** 03/05/2018

Sample ID / Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium	Magnesium	Calcium	Sodium	pH		Acidity	C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm Rate	ppm Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
45R	15785	4.0 M		115	58 H MD = 65			113 M MD = 71	224 H MD = 173	1438 H MD = 155		6.4		0.9	10.2
46	15786	5.0 H		135	61 H MD = 69			209 VH MD = 134	204 H MD = 158	1409 M MD = 151		6.1	6.78	1.5	10.8
46M	15787	4.6 M		127	62 H MD = 70			318 VH MD = 204	251 H MD = 193	1383 M MD = 148		6.6		0.6	10.4
48	15788	3.8 M		111	104 VH MD = 115			222 VH MD = 142	225 H MD = 173	975 L MD = 96		5.4	6.64	2.9	10.2
48T	15789	4.6 M		129	65 H MD = 73			160 VH MD = 102	122 M MD = 95	1034 M MD = 104		5.5	6.70	2.3	8.9

Sample ID / Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO_3 N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
45R	2.8	18.3	70.5		8.8										
46	5.0	15.7	65.2		13.9										
46M	7.8	20.1	66.5		5.8										
48	5.6	18.4	47.8		28.4										
48T	4.6	11.4	58.1		25.8										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 18-061-0507
Account Number: 29290

Waypoint ANALYTICAL
"Every acre...Every year."™

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Send To: Pennington Seed Inc
9327 US Route 1
Ste J
Laurel MD 20723

Grower: Arlington National Cemetary

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 03/02/2018 **Date Of Analysis:** 03/05/2018 **Date Of Report:** 03/05/2018

Sample ID / Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium	Magnesium	Calcium	Sodium	pH		Acidity	C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm Rate	ppm Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
50N	15790	3.4 M		103	45 M MD = 51			231 VH MD = 148	225 H MD = 173	1206 M MD = 125		5.8	6.73	2.0	10.5
50S	15791	3.0 M		95	35 M MD = 40			134 M MD = 85	215 H MD = 166	1327 M MD = 141		6.0	6.77	1.6	10.4
54	15792	3.3 M		101	34 M MD = 39			114 M MD = 72	312 H MD = 239	1204 M MD = 125		6.0	6.77	1.6	10.5
55	15793	3.6 M		109	17 L MD = 21			124 M MD = 79	255 H MD = 196	1199 M MD = 124		6.3		1.0	9.4
56	15794	3.5 M		105	16 L MD = 20			141 M MD = 90	187 M MD = 145	1705 H MD = 188		6.8		0.3	10.7

Sample ID / Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO_3 N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
50N	5.6	17.9	57.4		19.0										
50S	3.3	17.2	63.8		15.4										
54	2.8	24.8	57.3		15.2										
55	3.4	22.6	63.8		10.6										
56	3.4	14.6	79.7		2.8										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 18-061-0507
Account Number: 29290

Waypoint ANALYTICAL
"Every acre...Every year."™

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Send To: Pennington Seed Inc
9327 US Route 1
Ste J
Laurel MD 20723

Grower: Arlington National Cemetary

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 03/02/2018 **Date Of Analysis:** 03/05/2018 **Date Of Report:** 03/05/2018

Sample ID / Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium	Magnesium	Calcium	Sodium	pH		Acidity	C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm Rate	ppm Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
8T	15796	4.5 M		128	30 L MD = 35			114 M MD = 72	220 H MD = 170	1199 M MD = 124		6.5		0.6	8.7
12E	15797	3.7 M		109	39 M MD = 45			180 VH MD = 115	220 H MD = 170	1197 M MD = 124		5.8	6.74	1.9	10.2
12W	15798	4.8 M		129	80 H MD = 89			186 VH MD = 119	178 M MD = 138	1155 L MD = 119		5.2	6.53	4.0	11.7
26	15799	3.1 M		100	84 H MD = 94			137 H MD = 87	109 M MD = 86	1076 M MD = 109		5.8	6.77	1.6	8.2
36E	15800	4.1 M		108	90 H MD = 100			188 H MD = 120	253 M MD = 195	1059 VL MD = 107		4.5	6.10	10.9	18.8

Sample ID / Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO_3 N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
8T	3.4	21.1	68.9		6.9										
12E	4.5	18.0	58.7		18.6										
12W	4.1	12.7	49.4		34.2										
26	4.3	11.1	65.6		19.5										
36E	2.6	11.2	28.2		58.0										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 18-061-0507
Account Number: 29290

Waypoint ANALYTICAL
"Every acre...Every year."™

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Send To: Pennington Seed Inc
9327 US Route 1
Ste J
Laurel MD 20723

Grower: Arlington National Cemetary

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 03/02/2018 **Date Of Analysis:** 03/05/2018 **Date Of Report:** 03/05/2018

Sample ID / Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium	Magnesium	Calcium	Sodium	pH		Acidity	C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm Rate	ppm Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
36W	15801	2.9 M		97	73 H MD = 82			137 H MD = 87	168 H MD = 130	817 M MD = 76		5.5	6.73	2.0	7.8
39	15802	3.6 M		102	50 M MD = 57			183 VH MD = 117	410 H MD = 313	1760 M MD = 195		6.5		1.0	13.7
40	15803	4.1 M		117	35 M MD = 40			164 H MD = 104	247 H MD = 190	1554 H MD = 169		7.0		0.0	10.2
45C	15804	3.4 M		107	66 H MD = 74			116 M MD = 73	146 H MD = 114	1005 M MD = 100		5.8	6.78	1.5	8.0
45H	15805	3.4 M		102	60 H MD = 68			119 M MD = 75	280 H MD = 215	1449 M MD = 156		6.3		1.2	11.1

Sample ID / Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO_3 N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
36W	4.5	17.9	52.4		25.6										
39	3.4	24.9	64.2		7.3										
40	4.1	20.2	76.2		0.0										
45C	3.7	15.2	62.8		18.8										
45H	2.7	21.0	65.3		10.8										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 18-061-0507
Account Number: 29290

Waypoint ANALYTICAL
"Every acre...Every year."™

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Send To: Pennington Seed Inc
9327 US Route 1
Ste J
Laurel MD 20723

Grower: Arlington National Cemetary

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 03/02/2018 **Date Of Analysis:** 03/05/2018 **Date Of Report:** 03/05/2018

Sample ID / Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium	Magnesium	Calcium	Sodium	pH		Acidity	C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm Rate	ppm Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
3E	15807	2.5 L		90	25 L MD = 30			115 M MD = 73	193 H MD = 149	889 M MD = 85		6.1	6.83	1.0	7.3
3N	15808	3.9 M		116	94 H MD = 105			172 VH MD = 110	186 H MD = 144	1104 M MD = 113		6.1	6.81	1.2	8.7
4	15809	4.0 M		115	61 H MD = 69			165 H MD = 105	144 M MD = 112	1000 L MD = 99		5.1	6.53	4.0	10.6
4C	15810	3.4 M		107	46 M MD = 52			175 VH MD = 112	144 H MD = 112	905 M MD = 87		5.8	6.78	1.5	7.7
5	15811	4.3 M		117	155 VH MD = 171			186 VH MD = 119	132 L MD = 103	814 L MD = 76		4.5	6.15	7.8	13.4

Sample ID / Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO_3 N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
3E	4.0	22.0	60.9		13.7										
3N	5.1	17.8	63.4		13.8										
4	4.0	11.3	47.2		37.7										
4C	5.8	15.6	58.8		19.5										
5	3.6	8.2	30.4		58.2										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 18-061-0507
Account Number: 29290

Waypoint ANALYTICAL
"Every acre...Every year."™

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Send To: Pennington Seed Inc
9327 US Route 1
Ste J
Laurel MD 20723

Grower: Arlington National Cemetary

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 03/02/2018 **Date Of Analysis:** 03/05/2018 **Date Of Report:** 03/05/2018

Sample ID / Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium	Magnesium	Calcium	Sodium	pH		Acidity	C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm Rate	ppm Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
7A	15812	4.0 M		116	41 M MD = 47			188 VH MD = 120	286 H MD = 220	1251 M MD = 131		6.4		0.9	10.0
8C	15813	5.1 H		141	24 L MD = 29			146 H MD = 93	114 M MD = 89	980 M MD = 97		5.7	6.76	1.7	7.9
8E	15814	4.2 M		118	40 M MD = 46			152 H MD = 97	240 H MD = 185	1214 M MD = 126		5.5	6.64	2.9	11.4
8S	15815	4.9 M		133	72 H MD = 81			143 M MD = 91	146 M MD = 114	1136 M MD = 117		5.4	6.64	2.9	10.2
8W	15816	5.7 H		146	40 M MD = 46			207 VH MD = 132	285 H MD = 219	1214 L MD = 126		5.4	6.58	3.5	12.5

Sample ID / Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO_3 N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
7A	4.8	23.8	62.6		9.0										
8C	4.7	12.0	62.0		21.5										
8E	3.4	17.5	53.2		25.4										
8S	3.6	11.9	55.7		28.4										
8W	4.2	19.0	48.6		28.0										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 18-061-0507
Account Number: 29290

Waypoint ANALYTICAL
"Every acre...Every year."™

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Send To: Pennington Seed Inc
9327 US Route 1
Ste J
Laurel MD 20723

Grower: Arlington National Cemetary

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 03/02/2018 **Date Of Analysis:** 03/05/2018 **Date Of Report:** 03/05/2018

Sample ID / Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium	Magnesium	Calcium	Sodium	pH		Acidity	C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm Rate	ppm Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
1	15818	3.5 M		107	64 H MD = 72			148 H MD = 94	170 H MD = 132	1058 M MD = 107		5.8	6.76	1.7	8.8
1L	15819	2.7 M		93	71 H MD = 80			114 M MD = 72	139 M MD = 108	796 M MD = 74		5.3	6.69	2.4	7.8
2E	15820	4.6 M		125	85 H MD = 95			166 H MD = 106	147 L MD = 114	892 L MD = 86		4.7	6.32	6.1	12.2
2M	15821	4.5 M		124	102 VH MD = 113			164 H MD = 104	171 M MD = 133	971 L MD = 96		5.0	6.47	4.6	11.3
2NE	15822	4.0 M		108	60 H MD = 68			198 H MD = 126	166 L MD = 129	997 L MD = 99		4.6	6.11	8.2	15.1

Sample ID / Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO_3 N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
1	4.3	16.1	60.1		19.3										
1L	3.7	14.9	51.0		30.8										
2E	3.5	10.0	36.6		50.0										
2M	3.7	12.6	43.0		40.7										
2NE	3.4	9.2	33.0		54.3										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 18-061-0507
Account Number: 29290

Waypoint ANALYTICAL
"Every acre...Every year."™

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Send To: Pennington Seed Inc
9327 US Route 1
Ste J
Laurel MD 20723

Grower: Arlington National Cemetary

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 03/02/2018 **Date Of Analysis:** 03/05/2018 **Date Of Report:** 03/05/2018

Sample ID / Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium	Magnesium	Calcium	Sodium	pH		Acidity	C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm Rate	ppm Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
2N	15823	5.2 H		139	67 H MD = 75			244 VH MD = 156	171 M MD = 133	1188 M MD = 123		5.6	6.69	2.4	10.4
2W	15824	4.7 M		128	75 H MD = 84			171 H MD = 109	152 M MD = 118	792 L MD = 73		4.7	6.36	5.7	11.4
3M	15825	4.9 M		132	59 H MD = 67			159 H MD = 101	190 M MD = 147	1102 L MD = 112		5.2	6.54	3.9	11.4
3T	15826	4.3 M		121	64 H MD = 72			161 H MD = 102	154 M MD = 120	787 L MD = 73		4.8	6.44	4.9	10.5
3S	15827	3.5 M		110	67 H MD = 75			148 H MD = 94	136 H MD = 106	752 M MD = 68		5.6	6.77	1.6	6.9

Sample ID / Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO_3 N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
2N	6.0	13.7	57.1		23.1										
2W	3.8	11.1	34.7		50.0										
3M	3.6	13.9	48.3		34.2										
3T	3.9	12.2	37.5		46.7										
3S	5.5	16.4	54.5		23.2										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 18-061-0507
Account Number: 29290

Waypoint ANALYTICAL
"Every acre...Every year."™

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Send To: Pennington Seed Inc
9327 US Route 1
Ste J
Laurel MD 20723

Grower: Arlington National Cemetary

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 03/02/2018 **Date Of Analysis:** 03/05/2018 **Date Of Report:** 03/05/2018

Sample ID / Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium	Magnesium	Calcium	Sodium	pH		Acidity	C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm Rate	ppm Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
CCS	15829	4.7 M		127	22 L MD = 26			125 M MD = 79	287 H MD = 220	1758 H MD = 195		6.7		0.5	12.0
HD	15830	4.0 M		112	114 VH MD = 126			232 VH MD = 149	239 H MD = 184	1632 M MD = 179		6.0	6.73	2.0	12.7
MA	15831	3.6 M		104	94 H MD = 105			161 H MD = 102	301 H MD = 231	1799 M MD = 200		6.5		1.0	12.9
MC	15832	3.3 M		102	19 L MD = 23			159 H MD = 101	210 H MD = 162	1524 H MD = 165		6.8		0.3	10.1
OA	15833	6.1 H		150	120 VH MD = 133			89 L MD = 56	215 H MD = 166	1437 M MD = 154		5.9	6.74	1.9	11.1

Sample ID / Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO_3 N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
CCS	2.7	19.9	73.3		4.2										
HD	4.7	15.7	64.3		15.7										
MA	3.2	19.4	69.7		7.8										
MC	4.0	17.3	75.4		3.0										
OA	2.1	16.1	64.7		17.1										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Report Number: 18-061-0507
Account Number: 29290

Waypoint ANALYTICAL
"Every acre...Every year."™

7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Send To: Pennington Seed Inc
9327 US Route 1
Ste J
Laurel MD 20723

Grower: Arlington National Cemetary

SOIL ANALYSIS REPORT

Analytical Method(s): SMP Buffer pH Mehlich 3 Loss On Ignition Water pH

Date Received: 03/02/2018 **Date Of Analysis:** 03/05/2018 **Date Of Report:** 03/05/2018

Sample ID / Field ID	Lab Number	OM	W/V	ENR	Phosphorus			Potassium	Magnesium	Calcium	Sodium	pH		Acidity	C.E.C
		% Rate	Soil Class	lbs/A	M3 ppm Rate	ppm Rate	ppm Rate	K ppm Rate	Mg ppm Rate	Ca ppm Rate	Na ppm Rate	Soil pH	Buffer Index	H meq/100g	meq/100g
PC	15834	8.3 VH		150	20 L MD = 24			92 L MD = 58	287 H MD = 220	2015 H MD = 227		6.8		0.4	13.1
TA	15835	4.1 M		119	134 VH MD = 148			149 H MD = 95	154 M MD = 120	1062 M MD = 107		5.6	6.72	2.1	9.1
WPS	15836	3.6 M		110	47 M MD = 54			121 M MD = 77	157 H MD = 122	800 L MD = 74		5.2	6.64	2.9	8.5

Sample ID / Field ID	Percent Base Saturation					Nitrate	Sulfur	Zinc	Manganese	Iron	Copper	Boron	Soluble Salts		
	K %	Mg %	Ca %	Na %	H %	NO_3 N ppm Rate	S ppm Rate	Zn ppm Rate	Mn ppm Rate	Fe ppm Rate	Cu ppm Rate	B ppm Rate	SS ms/cm Rate		
PC	1.8	18.3	76.9		3.1										
TA	4.2	14.1	58.4		23.1										
WPS	3.7	15.4	47.1		34.1										

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Pauric McGroary

Pauric McGroary

Fertilizer Applications Records

Customer Information		Management Area Information	
Name:	Arlington National Cemetery	Management Area ID:	ANC & USSAH
Address:	1 Memorial Drive	Management Area Size:	565 Acres
	Ft. Myer, VA 22211	Plant Species	Turf Type Tall Fescue
		Notes:	

Date: (M/D/Y)	Section #	Applicator	Weather Conditions			Fertilizer Analysis	Rate lbs/ac	Total Amount	Application Equipment Used
			Temp	Wind Speed	Precip				