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COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

July 29, 2021

Northern Virginia Community College Facilities Planning and Support Services
Northern Virginia Community College Manassas Campus
8333 Little River Turnpike
Annandale VA 22003

Your nutrient management plan (NMP) dated 7/15/2021 for Northern Virginia Community College Manassas Campus located in Prince William County has been approved by the Virginia Department of Conservation and Recreation (DCR). The approved plan is for 16.34 acres.

This site has not been inspected by DCR and this approval is contingent upon field conditions being as stated in the NMP. Any revisions to this plan must be approved by DCR. Please note that this letter should be kept with the NMP and supporting documentation including nutrient application records. This plan expires on 7/15/2024. Please feel free to contact me with any questions or concerns regarding this approval.

Best regards,

A handwritten signature in cursive script that reads "Anita Tuttle".

Anita Tuttle
Urban Nutrient Management Coordinator
Division of Soil and Water Conservation
600 East Main Street, 24th Floor
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Nutrient Management Plan for the Manassas Campus Northern Virginia Community College

Prepared for:

**Northern Virginia Community College
Facilities Planning & Support Services, CW 312
8333 Little River Turnpike
Annandale, VA 22003**

Prepared By:

Sara J. Rilveria/Certified Nutrient Management Planner - Certification No. 943

**WSSI, Inc.
8525 Bell Creek Road
Mechanicsville, VA 23116**

Location Information	
Physical Address	<i>6901 Sudley Rd</i>
City State Zip	<i>Manassas, VA 20109</i>
Coordinates	<i>+38 48' 34.11"</i>
NAD 83 Deg Min Sec	<i>- 77 31' 3.51"</i>
VAHU6 Watershed Code	<i>PL44 – Middle Bull Run</i>
County	<i>Prince William</i>
Square Footage of Management Areas	
Total	<i>Total: 16.34 acres (711,905 ft²)</i>
Area 1	<i>14.72 acres (641,199 ft²)</i>
Area 2	<i>1.62 acres (70,706 ft²)</i>
Plan Start Date	<i>July 15, 2021</i>
Plan End Date	<i>July 15, 2024</i>
Planner Signature	<i>Sara Rilveria</i>

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1.0 INTRODUCTION AND SITE DESCRIPTION

1.1 Introduction

This Nutrient Management Plan (NMP) is for the Manassas Campus of the Northern Virginia Community College (NOVA) located in Prince William County, Virginia, just north of I-66 (Figure 1).

This NMP addresses only the nutrient management of turfgrass. Management of other vegetated areas containing trees, flowering ornamentals, small shrubs and groundcovers, is performed by each facility and their landscape contractor based on very site-specific conditions including but not limited to the type and status of vegetated areas, annual soil testing, and the occurrence of pests and weeds. This NMP is effective for three years until July 15, 2024 or until major renovation or other changes to maintenance practices occur. This NMP should be used as a resource for planning the quantity and timing of turfgrass nutrient application based on sound agronomic practices.

1.2 Site Description

The 108-acre Manassas Campus contains turfgrass in many areas including around campus buildings, along roadways and around and within parking lots. The Manassas Campus has an athletic field used for lacrosse and other field sports as well as a large turf area surrounding an amphitheater. All turf areas, with exception to the athletic field, have been seeded with a tall fescue blend (mix of fine leaf tall fescue and Kentucky bluegrass) and are therefore categorized as cool season turf. The athletic field, which was installed in 2014, is seeded with warm season bermudagrass.

The area surrounding the amphitheater is very sloped as well as the area behind Buildings MB and MT. In general, turf conditions are good except for some of the turfed medians and the strongly sloped areas surrounding Buildings MB and MT.

Only the athletic field is irrigated. The remainder of the turf is non-irrigated.

Five environmentally sensitive areas including streams and wetlands in the central and southern part of campus, and stormwater management facilities were identified on the Manassas Campus. These areas are addressed in Section 4.

1.3 Current and Future Turf Maintenance

A landscaping maintenance contractor will be performing most turf management including all nutrient applications. It will be the responsibility of the Landscape Supervisor and the campus Facility Manager to ensure the management plan is followed.

2.0 SOIL SAMPLING AND ANALYSIS

Although most of the soils in the turf areas have been modified by cut and fill activities, many areas still retain some of the characteristics from the U.S. Department of Agriculture (USDA) soil survey and may still be classified as loams to clay loams. The USDA soil survey indicates some of the soils on the campus were characterized as hydric or partially hydric soils with low infiltration rates and high runoff potential.

Soil samples were collected on March 16, 2021 from four (4) different turfgrass areas across the campus and submitted for laboratory analysis including pH, buffer pH, phosphorus and potassium, and other soil properties. Figure 2 shows the locations of the soil sampling areas as well as environmentally sensitive areas and Table 1 presents the laboratory results. Appendix A presents the soil laboratory data. No sampling was performed within wooded or landscaped areas.

Soil laboratory results were converted into nutrient management ratings based on the Virginia Nutrient Management Standards and Criteria (VNMS&C). Soil phosphorous levels ranged from L to M, and potassium concentrations ranged from M to H. Soil pH ranged from 6.4 to 6.8 Standard Units (SU), with all samples having a pH above the target level of 6.2 for turf.

3.0 NUTRIENT MANAGEMENT AREAS

Based on the soil test results, current turf conditions, the intensity of use, and overall visibility and aesthetic considerations, two Nutrient Management Areas (NMA) at the Manassas Campus have been established for this NMP. The number of nutrient management areas was kept to a minimum to facilitate effective management and still protect water quality and maintain healthy turf. Figures 3 and 4 show the two nutrient management areas. Tables 2a and 2b present the application schedule for the nutrient management and liming areas, discussed in greater detail in Section 3.1 below.

NMA 1 totals approximately 14.72-acres and includes all the cool season fescue turf at the Manassas Campus. As discussed in Section 3.2, some areas within NMA 1 should be temporarily removed from active nutrient management until an effective groundcover/turfgrass can be established. NMA 2 is the 1.62-acre warm season bermudagrass athletic field.

3.1 Nutrient and Liming Applications

3.1.1 Nitrogen, Phosphorous and Potassium

Nitrogen, phosphorous (P₂O₅) and potassium (K₂O) are the three macronutrients essential for healthy turf and, along with lime applications, are the central focus of the NMP. Phosphorous and potassium recommendations are based on the soil laboratory results. Nitrogen recommendations are based on the turfgrass needs, not soil test results, which vary based on the type of turfgrass (cool vs. warm season) and level of management (standard vs. intensive).

Recommended rates and timing of all three macronutrients is based on the VNMS&C. This NMP uses the most restrictive application rate for each NMA based on individual sample results where multiple sampling areas are part of the same NMA.

Based on the VNMS&C, the recommended annual nitrogen application amount is 5.0 pounds per 1,000 square feet for warm season turf as shown on Table 2a and 2.8 pounds per 1,000 square feet for cool season turf as shown on Table 2b. If facility personnel opt to overseed the warm season Bermudagrass athletic fields using perennial ryegrass in the fall, the VNMS&C allows for additional nitrogen applications totaling up to 1.0 pound per 1,000 square feet with specific application restrictions (see Tables 2a and 2b).

The acceptable window for nitrogen application for cool season fescue turf (NMA 1) at the Manassas Campus is six weeks prior to the last spring average frost and six weeks after the first fall average frost from February 27 until December 6. Although aggressive spring and summer nitrogen fertilization can result in lush, dark green foliage, this occurs at the expense of the turf's root system. Turf with an inadequate root system will then struggle in the summer heat and moisture conditions. Additionally, too much nitrogen in spring and summer for cool season turf can result in leaching or runoff to nearby waterbodies. The bulk of nitrogen should be applied in monthly increments from September through November.

The acceptable window for nitrogen application for non-overseeded warm season turfgrass (NMA 2) at the Manassas Campus begins no earlier than the last spring average frost and ends no later than one month prior to the first fall average frost from April 10 through September 25. April to May nitrogen applications should not be made until after complete green-up of turf. Fields overseeded with ryegrass in the fall are allowed additional late fall and early spring nitrogen applications after the perennial ryegrass is well established as identified in Table 2a. The bulk of nitrogen should be applied in monthly increments from June through August. February to March and October to November applications of nitrogen should only be performed if overseeding with perennial ryegrass.

Much like cool season fescue, heavy nitrogen fertilization in spring causes excessive shoot production and can weaken root development and set the turf up for disease. Heavy spring nitrogen fertilization can also be detrimental to the grass if there is a late frost after green-up. Avoiding excessive nitrogen applications in late summer and early fall can also reduce disease severity.

Phosphorous and potassium recommendations found on Tables 2a and 2b are based on the soil laboratory results, the VNMS&C, and overall turf conditions as observed during the soil sampling site visit. This NMP uses the most restrictive application rate of phosphorous and potassium based on individual sample results, where multiple sampling areas are part of the same NMA.

Phosphorous and potassium are less mobile than nitrogen and generally reside in soil for longer periods of time; therefore, the application timing of these two macronutrients is not as critical.

nitrogen per 1000 square feet (using slow-release forms) may be applied within a 30-day period (per VNMS&C). The nutrient applicator may use their discretion with the exact ratio of nutrients applied per application provided the maximum rate of nitrogen per application and total annual rates of all three nutrients are not exceeded as detailed in Tables 2a and 2b. The nutrient applicator may also create a different schedule to suit their needs, provided the conditions are met on Tables 2a and 2b.

3.1.2 Lime and pH

Soil acidity is critical to plants as it affects the availability of nutrients in the soil and potential leaching of nutrients from the soil. Most warm and cool season turfgrasses prefer a slightly acidic soil pH of approximately 6.2 Standard Units (SU). Periodic lime applications are necessary for many Virginia soils to correct low pH, add buffering capacity, and provide secondary nutrients calcium and magnesium as well as some micronutrients. Liming rates provided by the laboratory are based on the soil pH and the pH buffer indices. Based on the 2021 soil samples, no lime is recommended for any of the soil sampling areas.

Liming recommendations are only for the first year following sampling. The soil should be tested for soil pH and Buffer pH in the late fall to winter each following year to determine if liming is necessary following the initial recommended liming.

3.2 Problem Turfgrass Areas and Temporarily Inactive Nutrient Management Areas

Some of the medians in the parking lot north of the maintenance building have denuded areas due to a lack sufficient topsoil. The median ends and turfed area in the northern portion of the large parking lot close to the main entrance also has some denuded areas.

Areas where there is ineffective groundcover should be temporarily removed from active nutrient management until corrective measures can be applied to improve the turfgrass or groundcover condition. Corrective action options will vary by area but may include additional soil amendments (compost/topsoil), aeration or shallow tilling, and the use of mulch, turf mats and blankets. Alternative landscaping such as pavers, and other hardscape treatments may be the best alternative for some areas. If turfgrass is the desired vegetative cover, the soil should be retested for soil and buffer pH and adjusted accordingly with limestone as part of corrective action. Once turfgrass is re-established the areas may be included in Nutrient Management Area 1 for nutrient recommendations.

3.3 Selection of Fertilizers

Specific fertilizers have not been selected as a part of this NMP to provide greater flexibility and cost savings. The landscape contractor has the option to select either commonly used fertilizer blends that they may already have in stock or are readily available, or they can use custom blends, a common practice in the commercial landscaping industry. Slow-release nitrogen containing fertilizers are recommended. This NMP will require revision should the landscape contractor and the campus Facility Manager decide to use animal manures or Class B biosolids (not of exceptional quality).

Provided the maximum rate of nitrogen per application and the total annual rates of all three nutrients are not exceeded as detailed in Table 2, the landscape contractor may use their discretion with the exact ratio of nutrients applied per application.

3.4 Pre- and Post-Emergent Herbicides

Weed control is a necessary requirement for healthy turf and has been implemented in the past at the Manassas Campus. In the previous NMP period, pre and post emergent herbicides containing nitrogen fertilizers were applied in spring and early summer months for the campus grounds. As presented in Section 3.1.1, only one application of slow-release nitrogen is recommended in the late spring. Therefore, additional straight application of herbicides without nitrogen additives may be required.

Similarly, for the athletic field, it is best not to apply straight herbicides if using before spring green up and not to apply any herbicides containing nitrogen after September 1st.

3.5 Precautions for Fertilizer Applications

General precautions for fertilizer application include:

- Avoid applying fertilizers on steep slopes 48-hours prior to a rain event.
- Do not apply fertilizers to frozen or snow-covered ground, nor should they ever be used as ice melt.
- Avoid/minimize application of fertilizers to impervious areas such as parking lots, roads, and sidewalks, and within 25 feet of environmentally sensitive areas and stormwater collection/management facilities.
- 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.

4.0 ENVIRONMENTALLY SENSITIVE AREAS AND RECOMMENDED BUFFERS

Five environmentally sensitive areas including stormwater management facilities were identified on the Manassas Campus as shown on Figure 2 and 3:

- Two bioretention facilities east and south of building MP
- Detention basin located southeast of building MC
- Two streams at the southern and eastern portions of campus

A no-fertilizer/pesticide application buffer area of at least 25 feet and preferably 50 feet should be established around these sensitive areas. Where practicable, native vegetation may be an alternative to turf in the buffer areas. Turf in the detention basin and swale should be mowed at a greater height.

It is noted that identification of sensitive natural resources areas such as wetlands and streams is based on the publicly available National Hydrologic Dataset and the U.S. Fish & Wildlife Service (USFWS) National Wetland Inventory Maps. Field mapping of other wetlands and streams that may exist on the campus was outside the scope of this NMP.

5.0 OTHER TURF MANAGEMENT CONSIDERATIONS

Aeration - Extensive core cultivation/aeration in the late summer to early fall is recommended for the Manassas campus. Core aeration is very disruptive to surface smoothness, but it is the best way to relieve the physical effects of soil compaction and increase soil oxygen levels.

Grass Seed Type – Refer to the most recent Virginia Cooperative Extension’s *Virginia Turfgrass Variety Recommendations* <https://www.sites.ext.vt.edu/newsletter-archive/turfgrass/index.html> - when selecting seed mix for over-seeding. The type should be suitable to environmental conditions of the Northern Virginia Transition zone. A general recommendation for the Manassas Campus is 90% Tall Fescue possibly blended with 10% Kentucky Bluegrass for turf in primarily sunny locations. Fine fescue blends may be more appropriate for shadier turf areas.

Iron - Iron applications (particularly foliar 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 and in late summer/fall applications for warm-season grasses. Since iron is a micronutrient, its application levels are very low. The color response is short-lived (typically two to three weeks) because the iron-induced color response in the leaves is removed by mowing.

Management of Grass Clippings - The recycling of grass clippings on turf should be encouraged as an effective means of recycling nitrogen, phosphorus, and potassium. Where aesthetics allow, all clippings from mowing events should be returned to the turf rather than discharging them onto sidewalks or streets. Clippings should not be blown onto impervious surfaces or surface waters, dumped down stormwater drains, or piled outside where rainwater will leach out the nutrients creating the potential for nutrient loss to the environment.

Spreader Equipment Calibration - Spreader equipment calibration is critical to NMP implementation. The landscape contractor should supply equipment calibration records to the campus Facility Manager on a routine basis.

6.0 RECORDKEEPING

Proper NMP implementation requires diligent record keeping of fertilizer, lime and herbicide applications, and turfgrass conditions. Important information to retain with the plan includes soil tests reports; spreader settings; calibration results, dates of fertilizer application and rates applied; seeding or renovation; and unusual stresses caused by disease, drought, and pests. This information will also provide the background needed for future plan revisions. NMP Application record keeping forms are included in Appendix B for use for tracking fertilizer, lime, pesticide and herbicides.

7.0 REFERENCES

Nutrient Management Training and Certification Regulations 4VAC50-85 (effective date November 23, 2014)

Virginia Nutrient Management Standards and Criteria (Revised July 2014):

<https://www.dcr.virginia.gov/document/standardsandcriteria.pdf>

Urban Nutrient Management Handbook (August 16, 2019); 430-350: <https://resources.ext.vt.edu/>

A Spreadsheet-Based Soil Test Converter for Turfgrass Professionals and Nutrient Management Planning in Virginia (November 1, 2018); SPES-60P: <https://resources.ext.vt.edu/>

Soil Test Note #1 – Explanation of Soil Tests (December 1, 2018): <https://resources.ext.vt.edu/>

TABLES

Table 1: Soil Test Summaries

Site:	Manassas Campus - NOVA								
Testing Lab:	Waypoint Analytical (Formerly A&L Eastern Laboratories)								
Sample Date:	03/16/2021								
Soil Sampling Area ID	Square Feet	Soil pH (SU)	Buffer pH (SU)	P (Mehlich I) ppm ¹	P (H/M/L) ²	K (Mehlich I) ppm	K (H/M/L) ²	Soil description	Turf Species
MA-1	305,475	6.5	DNC*	3	L	71	M	Dark Brown, Sandy Loam	Cool season, fescue
MA-2	202,173	6.4	DNC*	8	M-	94	H-	Dark Red-Brown, Sandy Clay Loam	Cool season, fescue
MA-3	133,551	6.8	DNC*	15	M	128	H	Dark Red-Brown, Sandy Clay Loam	Cool season, fescue
MA-4	70,706	6.7	DNC*	9	M-	94	H-	Dark Brown, Sandy Loam	Warm season, bermuda

Notes: SU = Standard Units; ppm = parts per million; P and K ratings are from Virginia Nutrient Management Standards & Criteria.
DNC* = Buffer pH did not compute because the pH was above 6.2, according to Waypoint Analytical personnel.

Table 2a: Nutrient Application Worksheet for Nutrient Management Area 1

Site: Manassas Campus – NOVA

Begins: 7/15/2021 Expires: 7/15/2024

Nutrient Management Area: 1

Square Feet: 641,199

Landscape Plants: Cool Season Turf (Fescue)

Annual Nutrient Needs (lbs/1000 ft ²) ¹	Application Month/Day ^{1,2}	Amendment Material Notes	% Slow Release N	Total N	Total P ₂ O ₅ (lbs/1000 ft ²)	Total K ₂ O (lbs/1000 ft ²)	Lime Recommendation (lbs/1000 ft ²) ³
2.8*-1.5*-0.75*	April 15-June 15	N - fertilization & Lime	50% or greater	0.5	0	0	
	Sept 1	Aerate, Overseed & Fertilize	50% or greater	0.9	0.5	0.25	
	Oct 1	Fertilize	50% or greater	0.9	0.5	0.25	
	Nov 1	Fertilize & Lime	50% or greater	0.5	0.5	0.25	
	Totals:			2.8	1.5	0.75	

Notes:

*Up to 3.5 lbs. of nitrogen per 1000 ft² is allowed for this NMA per the VNMS&C, but only 2.8 lbs. per 1000 ft² is recommended in this plan. Up to 2.5 lbs. of P₂O₅ per 1000 ft² is allowed per soil test results but only 1.5 lbs. of P₂O₅ per 1000 ft² is recommended in this plan. Up to 1.5 lbs. of K₂O per 1000 ft² is allowed per soil test results but only 0.75 lbs. of K₂O per 1000 ft² is recommended in this plan.

1. Fertilizer recommendations are flexible provided the following conditions are met: a) no more than 0.7 pounds of Water Soluble N per 1000 ft² is applied within a 30-day period; b) no more than 0.9 pounds of Total N (per 1000 ft²) may be applied within a 30-day period; and c) Total annual fertilizer amounts for each nutrient should not exceed the Annual Nutrient Needs listed in column 1.

2. The month and day designations are a general guideline. Apply as close to the month as possible, using the day designation to determine the interval between applications.

3. No lime is recommended for any of the soil sampling areas. Lime applications are for the first year after sampling only. Liming for following years should be based on additional soil pH and Buffer pH testing.

4. Do not apply inorganic fertilizers on frozen or snow-covered ground, or on denuded areas. Any fertilizer that makes its way onto impervious surfaces should be swept or blown back into pervious turfgrass – covered areas. Do not use fertilizers as ice melt.

5. Use a drop spreader for application of inorganic fertilizers on turf areas less than 10 feet wide or on slopes greater than 2%.

6. Apply pre and or post emergent herbicides as needed, but do not use fertilizer containing herbicide prior to April 15. Conditions must be met in Note 1.

Table 2b: Nutrient Application Worksheet for Nutrient Management Area 2

Site: Manassas Campus – NOVA

Begins: 7/15/2021 Expires: 7/15/2024

Management Area: 2 – Athletic Field

Square Feet: 70,706

Landscape Plants: Warm Season Turf (Bermuda)

Table 2a – Nutrient Application Worksheet (NMA 2)

Annual Nutrient Needs (lbs/1000 ft ²) ¹	Application Month/Day ^{1,2}	Amendment Material Notes	% Slow Release N	Total N	Total P ₂ O ₅ (lbs/1000 ft ²)	Total K ₂ O (lbs/1000 ft ²)	Lime Recommendation (lbs/1000 ft ²) ³
5.0-2.0-1.0	April	Lime					0
	April 10 - May 1	N - Fertilize	50% or greater	0.5 ^(1b)	0	0	
	June 1	Fertilize	50% or greater	0.7 ^(1d)	0	0	
	July 1	Fertilize	50% or greater	0.5 ^(1d)	0.50	0.50	
	August 1	Fertilize	50% or greater	0.5 ^(1d)	0.75	0.25	
	Sept 1 – Sept 15	N - Fertilize	50% or greater	0.5 ^(1b)	0.75	0.25	
	Totals:				5.0	2.0	1.0
If Overseeded with Perennial Ryegrass							
1.0-0-0^(1e)	Oct – Nov	N - Fertilize	50% or greater	0.5 ^(1e)	0	0	
	Feb - Mar	N - Fertilize	50% or greater	0.5 ^(1e)	0	0	
	Totals:			1.0	0	0	
Notes:							
<p>1. Fertilizer recommendations are flexible if the following conditions are met: (a) no more than 0.7 pounds of Water Soluble N per 1000 ft² is applied within a 30-day period; (b) Water Soluble N must be applied as two applications not to exceed 0.35 lbs/1000 ft² each with a minimum of 15 days between applications. Alternatively, using a material containing slowly available nitrogen sources, split applications of 0.5 lbs/1000 ft² may be applied with a minimum of 15 days between applications; (c) no more than 1.0 pounds of Total N per 1000 ft² may be applied within a 30-day period; (d) if a material containing slowly available forms of nitrogen is used, nitrogen application rates up to 1.0 lb/1000 ft² may be applied in a single application with a minimum of 30 days between applications; (e) up to 1.0 lb/1000 ft² of additional nitrogen is allowed if overseeding with perennial ryegrass. This may be accomplished using split applications of 0.5 lbs/1000 ft² applied with a minimum of 15 days between applications.</p> <p>2. The month and day designations are a general guideline. Apply as close to the month as possible, using the day designation to determine the interval between applications.</p> <p>3. Lime areas are shown in Figure 4. No lime is required for the turf areas in NMA 2 for the first year of this NMP. Lime applications are only for the first year. Liming for years 2 and 3 shall be based on additional soil pH and Buffer pH testing.</p> <p>4. Do not apply inorganic fertilizers on frozen or snow-covered ground, or on denuded areas. Any fertilizer that makes its way onto impervious surfaces should be swept or blown back into pervious turfgrass – covered areas. Do not use fertilizers as ice melt.</p> <p>5. Use a drop spreader for application of inorganic fertilizers on turf areas less than 10 feet wide or on slopes greater than 2%.</p> <p>6. Apply pre and/or post emergent herbicides as needed, but do not use fertilizer containing herbicide before April 15th. Conditions must be met in Note 1.</p>							

FIGURES

Figure 1: Project Location

Manassas Campus Boundary



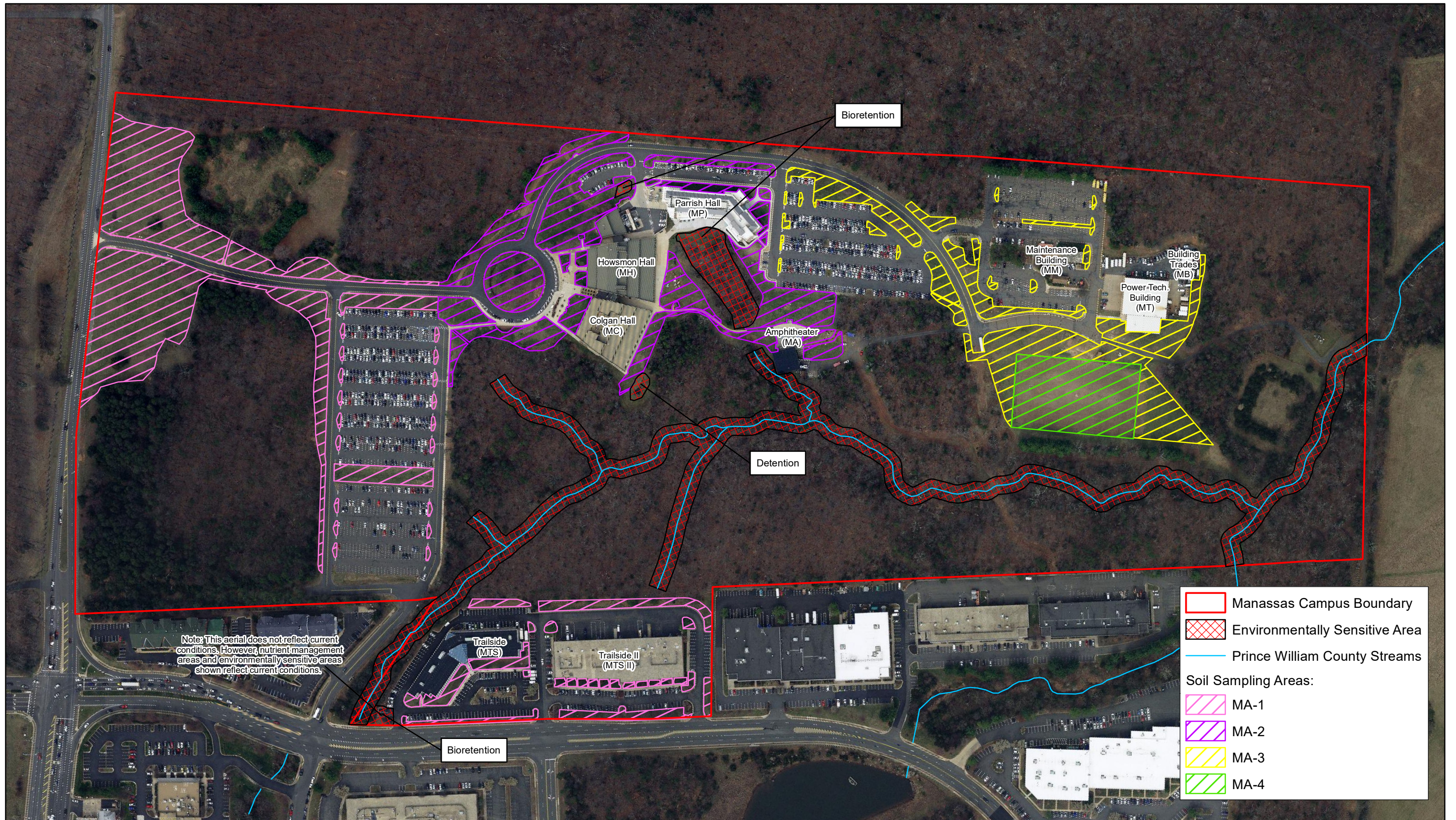
Date: June 2021
Author: MGM
Source: 2017-2019 VGIN VBMP Orthoimagery
Projection: NAD 1983 StatePlane Virginia North FIPS 4501 Feet

0 500 1,000 Feet



Manassas Campus
Figure 1: Project Location
NVCC NMP

Figure 2: Soil Sampling Areas

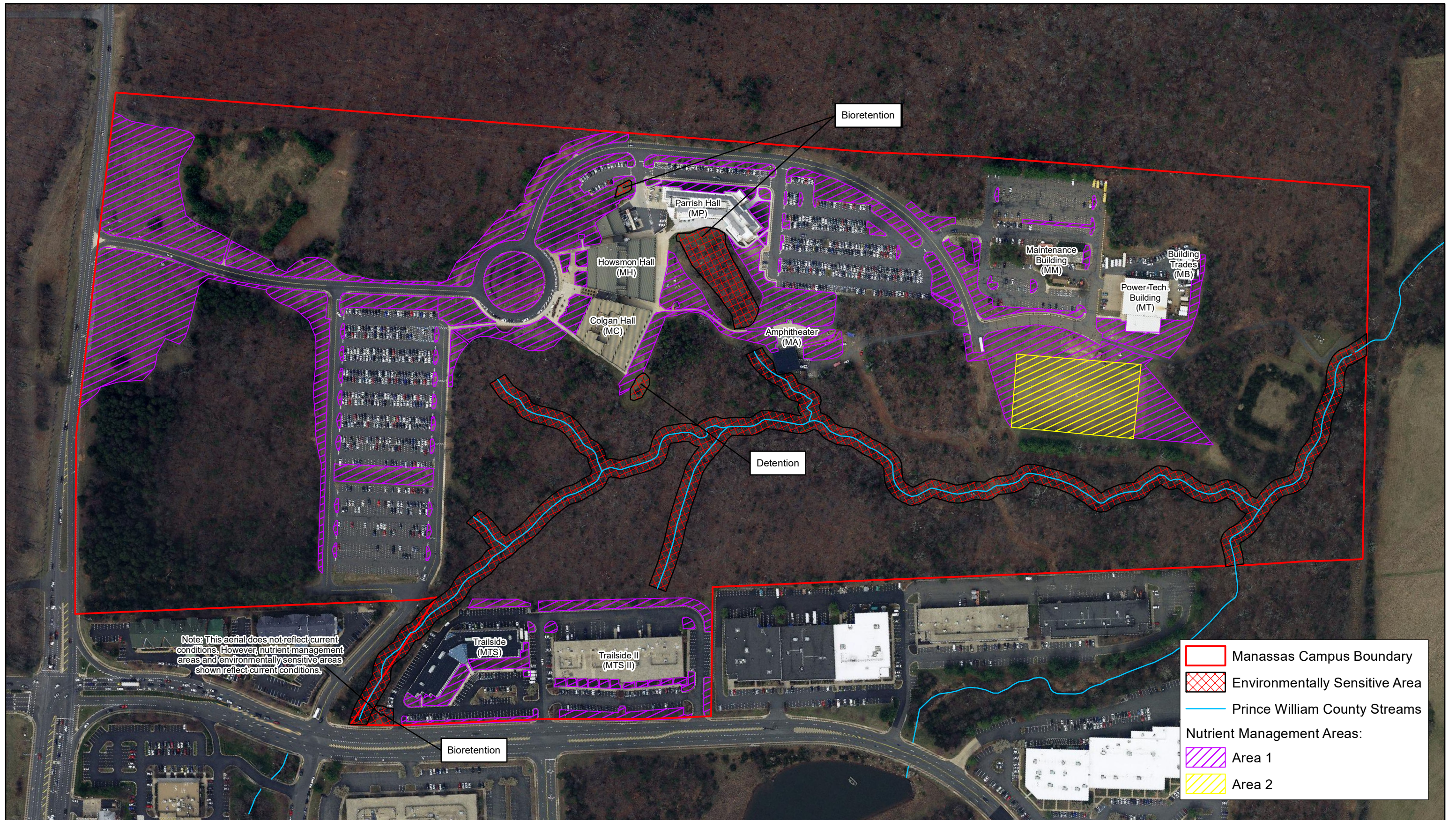


Date: June 2021
 Author: MGM
 Source: 2017-2019 VGIN VBMP Orthoimagery;
 Prince William County Streams
 Projection: NAD 1983 StatePlane Virginia North FIPS 4501 Feet

0 250 500 Feet



Figure 3: Nutrient Management Areas



Note: This aerial does not reflect current conditions. However, nutrient management areas and environmentally sensitive areas shown reflect current conditions.

- Manassas Campus Boundary
- Environmentally Sensitive Area
- Prince William County Streams
- Nutrient Management Areas:
- Area 1
- Area 2



Date: June 2021
 Author: MGM
 Source: 2017-2019 VGIN VBMP Orthoimagery;
 Prince William County Streams
 Projection: NAD 1983 StatePlane Virginia North FIPS 4501 Feet

0 250 500 Feet



Manassas Campus
Figure 3: Nutrient Management Areas
 NVCC NMP

APPENDICES

Appendix A: Laboratory Soil Test Results

Report Number: 21-078-0734

Account Number: 78934



"Every acre...Every year."™

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

Send To: Wetlands Studies Solutions
 201 Church Street
 Suite C
 Blacksburg VA 24060

Grower: NVCC Manassas
 10950 Campus Drive
 Manassas VA 20109

SOIL ANALYSIS REPORT

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

Date Received: 03/19/2021

Date Of Analysis: 03/22/2021

Date Of Report: 03/22/2021

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
MA-1	19585	5.3 H		140	13 VL			100 L	395 VH	1380 M		6.5		0.8	11.2
MA-2	19586	5.4 H		141	25 L			132 M	356 H	1511 M		6.4		1.1	12.0
MA-3	19587	6.8 H		150	40 M			180 VH	431 H	2049 M		6.8		0.4	14.7
MA-4	19589	5.8 H		148	26 L			132 M	248 H	1891 H		6.7		0.6	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		
MA-1	2.3	29.4	61.6		7.1										
MA-2	2.8	24.7	63.0		9.2										
MA-3	3.1	24.4	69.7		2.7										
MA-4	2.7	16.5	75.6		4.8										

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: Paucic Mc Groary

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Appendix B: Application Record Forms

Fertilizer Application Records

Fertilizer Application Records									
Customer Information					Management Area Information				
Name:					Management Area ID:				
Address:					Management Area Size:				
					Target Species:				
					Notes:				
Date	Supervisor/Applicator	Weather Conditions			Fertilizer Analysis	Rate	Amount Fertilizer Used (1000 lbs/AC)	Application Equipment Used	
		Temp	Wind Speed	Precip					

When was the last time your fertilizer equipment was calibrated??? For information on calibration see Chapter 10 of the "Urban Nutrient Management Handbook". Available for download at <http://pubs.ext.vt.edu/430/430-350/430-350.html>

Lime Application Records

Lime Application Records									
Customer Information					Management Area Information				
Name:					Management Area ID:				
Address:					Management Area Size:				
					Notes:				
Date	Supervisor/Applicator	Weather Conditions			Lime Analysis	Rate	Amount Lime Used (1000 lbs/AC)	Application Equipment Used	
		Temp	Wind Speed	Precip					

When was the last time your fertilizer equipment was calibrated??? For information on calibration see Chapter 10 of the "Urban Nutrient Management Handbook". Available for download at <http://pubs.ext.vt.edu/430/430-350/430-350.html>

Herbicide Application Records

Herbicide Application Records									
Customer Information					Management Area Information				
Name:					Management Area ID:				
Address:					Management Area Size:				
					Target Species:				
					Notes:				
Date	Supervisor/Applicator	Weather Conditions			Herbicide Analysis	Rate	Amount Herbicide Used	Application Equipment Used	
		Temp	Wind Speed	Precip					

When was the last time your fertilizer equipment was calibrated??? For information on calibration see Chapter 10 of the "Urban Nutrient Management Handbook". Available for download at <http://pubs.ext.vt.edu/430/430-350/430-350.html>

Pesticide Application Records

Customer Information					Management Area Information			
Name:					Management Area ID:			
Address:					Management Area Size:			
					Target Species:			
					Notes:			
Date	Supervisor/Applicator	Weather Conditions			Pesticide Analysis	Rate	Amount Pesticide Used	Application Equipment Used
		Temp	Wind Speed	Precip				

When was the last time your fertilizer equipment was calibrated??? For information on calibration see Chapter 10 of the "Urban Nutrient Management Handbook". Available for download at <http://pubs.ext.vt.edu/430/430-350/430-350.html>