

JAMES MADISON UNIVERSITY®

MS4 Program Plan

Annual Report 2023-24



James Madison University - Harrisonburg, Virginia
Chesapeake Bay TMDL Action Plan

Submitted to satisfy the terms of the General VPDES Permit for Discharges of Stormwater from
Small Municipal Separate Storm Sewer Systems (MS4)

Registration Number: VAR040112

Updated: October 2024

Cover picture: JMU faculty, staff, and students installing live tree stakes into the North River
stream bank for erosion control.

Report Prepared By:
Alison Sloop
Stormwater Coordinator
Facilities Management - Engineering
James Madison University
181 Patterson St., MSC 7004
Harrisonburg, VA 22807
(540) 568-3174
witmanad@jmu.edu



JMU student walking in the rain.

CONTENTS

Public Education and Outreach.....3

Public Involvement and Participation.....9

Illicit Discharge Detection and Elimination.....11

Construction Site Stormwater Runoff Control.....14

Post-Construction Stormwater Management.....16

Pollution Prevention and
Good Housekeeping.....18

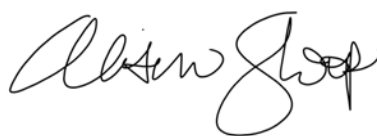
TMDL Action Plans.....20



CERTIFICATION STATEMENT

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 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.

I further certify that after an evaluation of the program plan, and associated MCM's, the plan has been determined to be effective and no plan changes are necessary.



ALISON 'ALI' SLOOP

STORMWATER COORDINATOR
SEPTEMBER 5, 2024

Black-eyed Susan flowers on the Land Bridge native meadow.

MCM 1: PUBLIC EDUCATION AND OUTREACH



Thunderstorm clouds rolling in over campus.

To best identify the most efficient use of resources to distribute information related to stormwater impacts to the public, three main issues have been identified for focus: public awareness of pollution prevention and reporting of water quality issues, litter prevention at outdoor athletic events, and bacteria from animal wastes and sanitary sewer overflows. These three issues have been selected as they target audiences that are most likely to have significant impacts on stormwater quality within the University.

Possible strategies of increasing public knowledge include printed materials (newspaper advertisements, brochures, flyers, etc.), signage, websites, social media, training (seminars, presentations, guidance booklets), and other activities deemed appropriate. As with most targeted audiences, there will be some overlap in promotion.

Several strategies listed above are ongoing and always available such as JMU's website, signage and storm drain marking. Typically, advertisements and posters are promoted during the first semester of each school year, and speaking arrangements and curriculum materials are provided as requested or scheduled throughout the year.

PUBLIC AWARENESS OF POLLUTION PREVENTION AND REPORTING OF WATER QUALITY ISSUES

Illicit discharges to the University's Municipal Separate Storm Sewer System or MS4 can be acutely harmful to aquatic life and pose a risk to health and safety on campus. These factors make it a critical issue of which the entire university community should be aware. The focus of this high priority issue is recognizing and reporting illicit discharges (water quality issues from pollution). While minimum control measure 3 (MCM 3) requires JMU to "promote, publicize, and facilitate public reporting of illicit discharges into or from" the MS4, the general public doesn't necessarily know how to identify or prevent such, or why. To maximize outreach effectiveness, this issue will combine education on general awareness with outreach on reporting water quality issues on campus.

Stormwater literacy and illicit discharges are general awareness issues, and thus affect everyone on campus. An illicit discharge could be noticed by anyone, at any time, necessitating broad outreach to the campus community. The target audiences for these issues include the faculty (1,400), staff (2,600), and students (21,800).



Football game attendees at Bridgeforth Stadium.

Faculty and staff are considered long-term members of the university community, and as such, will receive outreach on this topic cumulatively over the years. Students are short-term members of the campus community but will carry these lessons with them when they move on. Together these groups are the eyes and ears of the stormwater management team and play a critical role in addressing illicit discharges on campus. In general, bulletins or ads will be placed in the Breeze (printed student newspaper distributed throughout campus) along with posting on bulletin boards such as those at campus libraries during the first semester of each school year. Also, speaking engagements will be provided as requested to classes. (See Activity/Strategies for Outreach & Speaking Engagements table on page 8.)

LITTER PREVENTION AT OUTDOOR ATHLETIC EVENTS

JMU welcomes many visitors, in addition to faculty, staff, and students, to events that take place on campus. While JMU hosts other outdoor events, there are none that are as numerous and regularly scheduled as athletic events.

Athletic events are more prone to create litter than normal campus activities and events. Attendees often participate in tailgating and other activities, involving eating, drinking, and vending in outdoor areas for extended periods of time and the use of disposable items is the norm. Various promotional debris related to these events can also be left behind at the facilities, in the parking lots, and on the roads. Targeting the outdoor athletic events maximizes the opportunity to prevent and reduce litter on campus.

Carried by rain and wind, litter can end up in drainage ways, storm sewers, stormwater facilities, and ultimately Sibert Creek and Blacks Run. While JMU's Landscaping and Recycling Department is tasked with cleaning up the debris created by athletic events, there is the opportunity to reduce litter before it is created. Preventing litter from entering stormwater infrastructure is a priority.

Football games account for approximately 94% of JMU's outdoor athletic event activity. The football game attendees are the most likely to create the largest amount of litter, but also provide the best potential for litter prevention, education and outreach on stormwater pollution.

MCM 1: PUBLIC EDUCATION AND OUTREACH

The population size of the target audience is approximately 25,000 people per home football game. All other outdoor athletic events combined attract only approximately 300 people per event. This includes several other sports team schedules such as track, soccer, lacrosse, baseball, softball, field hockey and tennis. The Athletics Department makes at least two public service announcements at each outdoor sporting event to promote pollution prevention, requesting spectators to be responsible and discard all wastes in the trash and recycling receptacles located throughout the sports facility. With approximately 152,234 spectators at six home football game events, these targeted announcements were estimated to have reached more than 90% of the target audience.

BACTERIA FROM ANIMAL WASTES & SANITARY SEWER OVERFLOWS

Sanitary sewer overflows, wildlife (i.e. Canada Geese), and pet waste can contribute bacteria (E.coli) to stormwater run-off. JMU's campus welcomes many visitors in addition to faculty, staff, and students, and many bring their pets for a walk on campus grounds or at JMU's E.J.C. Arboretum.

With a lake and several wet ponds, excessive geese can be an issue with the amount of waste as each goose can leave up to 2 to 4 pounds of droppings a day. The goose population is managed using non-lethal measures such as educational signs for the public to ensure they "Don't Feed the Geese", habitat modification by planting buffers and aquatic benches, and the use of other visual deterrents.

To assist in repair to damaged sewer manholes, during regular inspections of MS4 outfalls JMU inspectors take a quick look at nearby sewer manholes to ensure frame and covers are adequately attached and sealed. If loose covers are observed, the owner of the utility will be notified.

JMU continues to focus on the education of pet owners through signage and access to pet waste stations. The year-round signage will serve as a reminder to pick up after pets.



E.J.C. Arboretum pet waste station

Dog playing fetch on the Quad.



EDUCATIONAL SIGNAGE

Educational signage along with storm drain marking is conducted to assist in educating the public on the purpose of stormwater best management practices and to inform that what goes in a storm drain eventually makes its way to our local waterways. One new educational sign was installed at the University Farm property explaining the new installation of a riparian meadow buffer, protecting over 250 linear feet of the North River's stream banks.

There were no new storm drains installed in this program year, so no new storm drain markers were placed. Construction is ongoing for two large building projects, with the anticipation of installing several new storm drain markers on the stormwater inlets associated with those projects once they are completed.



New educational signage at the University Farm.

ENVIRONMENTAL COURSES

A variety of environmental courses are offered at the University that cover issues related to the impact of urban stormwater runoff on the environment, hydrology in the urban landscapes, and strategies for pollution prevention which will increase the overall awareness of stormwater management and the University's MS4 program among students.

ISAT 320 (Fundamentals of Environmental Science and Technology) provided 46 students with a basic understanding of environmental processes, pollution and control technologies. Grounded in ecology and systems thinking, ISAT 320 integrates classroom learning, field-based studies and laboratory analysis of field samples (such as water quality testing) to explore local aquatic and terrestrial environments and contextualize them in broader scientific knowledge.

Four sections of ISAT 112 (Issues in Environmental Science and Technology) were taught through the year for 165 students. As an outdoor lab, students perform water quality sampling of on-campus waterbodies including the Arboretum Pond, ISAT Retention Ponds, Siebert Creek, and Newman Lake. Parameters measured include phosphorus, nitrate, pH, dissolved oxygen, hardness, conductivity, and turbidity.

One section of ISAT 321 (Fundamentals of Environmental Science and Technology II) was taught in the 2023-2024 academic year. This class specifically covers stormwater impacts and best management practices designed to reduce those impacts. Stormwater quantity and quality were discussed with particular attention given to stormwater best management practices installed on JMU's campus.

In Industrial Environmental Management (ISAT 422), students learn about stormwater and wastewater, and created fictitious companies to produce compliance plans addressing stormwater management.

MCM 1: PUBLIC EDUCATION AND OUTREACH



JMU faculty and student completing stream monitoring research.

Students enrolled in the GEOG 427 (Water Resources) where stormwater management was a major topic in the course, one that was introduced to students by Mr. Dale Chestnut, JMU Stormwater Manager, early in the semester. He discussed skills that are helpful for a career in stormwater management, went over some important water/stormwater terminology, gave a history of related laws and regulations and, finally, went into detail about stormwater management at JMU.

In the week following Mr. Chestnut's lecture, GEOG 427 students mapped an area of Harrisonburg that drains into a storm pipe on South Dogwood Drive. As part of this field activity, they discussed the impacts the runoff from the various surfaces in the area have on Blacks Run and, eventually, the Chesapeake Bay. For their semester project and working in pairs, students selected a site on a body of water in the local area. Using water quality test kits they had purchased; they monitored the water quality of the site over the course of the semester.

Students measured the water temperature and determined the turbidity level. They used the test kits to determine the level of dissolved O₂, biochemical O₂ demand, nitrates, pH, phosphates, and coliform bacteria. The results were written up in a term paper that was submitted at the end of the semester.

The following table lists courses with student numbers for the 2023-2024 academic year that educated students on stormwater and stormwater-related topics. This list is not exhaustive and other environment-related courses are available in Biology, Chemistry, Earth Science, Engineering, Geographic Science, Geology and Integrated Science and Technology programs.

Course #	Students	Environmental (Stormwater Emphasis) Course Name
ISAT 112	165	Environmental Issues in Science and Technology
ISAT 320	46	Fundamentals of Environmental Science and Technology I
ISAT 321	49	Fundamentals of Environmental Science and Technology II
ISAT 420	12	Environmental Analysis and Modeling
ISAT 422	24	Industrial Environmental Management
ISAT 424	11	Natural Resource Management
ISAT 429	19	Sustainability: An Ecological Perspective
ENGR 472	11	Environmental Engineering
ENGR 478	30	Water Resources Engineering
GEOG 310	17	Environmental Issues
GEOG 427	25	Water Resources of the World
Total	409	11 courses

MCM 1: PUBLIC EDUCATION AND OUTREACH

MEANINGFUL WATERSHED EDUCATIONAL EXPERIENCE

A new educational program was implemented this year on campus focusing on watershed education through a partnership between the E.J.C. Arboretum and Harrisonburg City Public Schools STEM program. The program is called a Meaningful Watershed Educational Experience or MWEE. The program is a learner-centered, inquiry and action framework that is used nationwide and provides educators a roadmap for teaching content in a more engaging way. This type of hands-on learning helps students to understand their impact and realize their personal power to make changes in their local community, which in turn has the potential to affect all habitats and species living downstream.

The Education Coordinator at the E.J.C. Arboretum and the City's STEM Director received a grant to get all 4th grade students out to the arboretum to participate in this MWEE program. Students rotated through four different field activities where they learned about stormwater runoff, types of non-point source pollution, how pollution affects the watershed and the ecosystems

within the watershed and activities they can do at their own homes to reduce runoff and pollution. JMU Stormwater staff facilitated an activity where students took a hike through the arboretum and observed wildlife and sources and signs of pollution and made the connection between how pollution affects these organisms and ecosystems. Over 500 students and over 100 teachers and chaperones were able to participate in this MWEE program and with the hope they will turn learning into action.



Activity/Strategies for Outreach & Speaking Engagements	Partner(s)	Date
"Stormwater Pollution Prevention @ JMU" poster posted at Rose Library.	FM, Library	8/17/23
"Stormwater Pollution Prevention @ JMU" ad in <i>the Breeze</i> , JMU's newspaper.	FM	8/17/23
Stormwater education campaign on Facebook started for fiscal year.	FM	8/22/23
"Stormwater Pollution Prevention @ JMU" ad in <i>the Breeze</i> , JMU's newspaper.	FM	8/24/23
"Stormwater Pollution Prevention @ JMU" ad in <i>the Breeze</i> , JMU's newspaper.	FM	8/31/23
Meaningful Watershed Education Experience (MWEE) for 476 local elementary students and 50 adults at JMU's Arboretum.	FM, Arboretum	Week of 9/11/23
Meaningful Watershed Education Experience (MWEE) for 90 local elementary students and 20 adults at JMU's Arboretum.	FM, Arboretum	10/10/23
"Stormwater Pollution Prevention @ JMU" presentation to 9 participants of the JMU Safety Champion Series training.	FM, Talent Development	12/13/23
Stream restoration – live stake planting day at the University Farm	FM, CISE	2/23/24
Watershed Program at EJC Arboretum – pollution prevention and riparian buffer education, 24 students, 8 adults	FM, Arboretum	4/4/24
Booth at Blacks Run Clean Up Day. 614 volunteers for Stream Clean-up. 2.8 tons of trash removed from Blacks Run.	City, SVSWCD	4/13/24
Hillside Environmental Tour – Stream restoration and land use conversion from turf to meadow – class of 18 middle school students	FM, ISNW	4/15/24
EC Tree Seedling Riparian Buffer Planting, 2 classes – 38 students	FM, GEOG	4/29/24

MCM 2: PUBLIC INVOLVEMENT AND PARTICIPATION

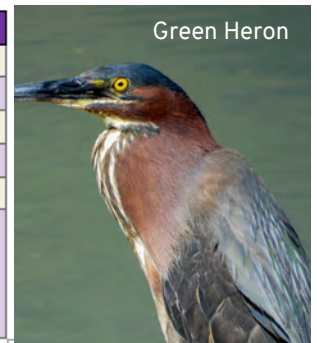


East Campus solar facility and native meadow areas.

ENVIRONMENTAL GROUPS AND COMMITTEES

Faculty and staff participate with local organizations and environmental advisory committees such as Soil & Water Conservation Districts, stormwater advisory committees, environmental performance standards advisory committees, Friends of the Shenandoah River, and the Shenandoah Valley Pure Water Forum. JMU also maintains membership in environmental organizations such as the Virginia Municipal Stormwater Association (VAMSA) and the Central Shenandoah Stormwater Network to network with the planning district, other municipalities, engineers, and regulatory agencies.

Organization or Committee name	Web Link
Central Shenandoah Stormwater Network	cleanstream.org
City of Harrisonburg Environmental Performance Standards Advisory Committee	harrisonburgva.gov/epsac
City of Harrisonburg Stormwater Advisory Committee	harrisonburgva.gov/swac
Virginia Municipal Stormwater Association (VAMSA)	vamsa.org
Shenandoah Valley Pure Water Forum	purewaterforum.org
Shenandoah Valley Soil & Water Conservation District	svswcd.org
Dam Maintenance Committee	
Education & Awards Committee	
Urban Committee	



Green Heron

STORMWATER MANAGEMENT WEBSITE

Through the FM Engineering and Construction's stormwater website, which can be found at www.jmu.edu/stormwater, documents such as this MS4 Plan, TMDL Action Plans, stormwater related policies and procedures, and other relevant information are available for access. An email and phone number are listed in order for the public to report potential illicit discharges, improper disposal or spills to the MS4, complaints regarding land disturbing activities, or other potential stormwater pollution concerns. The same contact information can also be used to provide input on the University's MS4 program plan. No public input was received regarding the MS4 program.

www.jmu.edu/stormwater

Page Description	Pageviews
Stormwater Main Page	1,065
IDDE Information	70
MS4 Information	219
Site Plan Review	333
FAQ	31
Stormwater Education and Outreach	101
Total	1,819

MCM 2: PUBLIC INVOLVEMENT AND PARTICIPATION

STUDENT WATER QUALITY TESTING

Two sections of ISAT 320 (Fundamentals of Environmental Science and Technology I) were offered in the fall with a total of 46 students. This course included a 6-week water project that incorporated surveys of water quality, fish and macroinvertebrate communities, and physical habitat within the North River watershed. Students performed water quality sampling of tributaries within the North River watershed, including Blacks Run. Parameters measured include specific conductivity, pH, dissolved oxygen, nitrogen, phosphorus, and fecal coliform/E. coli counts. In addition, students performed biological and physical habitat assessments of macro-invertebrates and fish communities. This class increases the awareness of local water quality issues within the student body, and any

concerns observed during testing can be reported to Facilities Management for follow-up. This water testing is not for monitoring of stormwater discharges or control measures, but for educational purposes of basic water quality and is to be considered as a “citizen monitoring group”.

STREAM CLEAN-UP EVENTS

Newman Lake has a watershed of approximately 4 square miles and is fed by Sibert Creek, a tributary of Blacks Run. As part of JMU’s efforts to keep the campus clean, JMU staff from the FM Environmental Services Department regularly pick up trash and debris within the heart of campus and along the streams and lake.

In addition to the constant efforts on campus, JMU staff and students typically participate in Earth Day and provide a large group of volunteers to assist the City of Harrisonburg with efforts for the annual Blacks Run Clean-Up Day. This event increases awareness among students and staff of the opportunity to improve local water quality, how to identify illicit discharges, and report illicit discharges to the City or JMU for further investigation. The 25th annual Blacks Run Clean-Up Day was on April 13th and had approximately 614 volunteers that gathered over 2.8 tons of trash from the stream.

The combination of all activities implemented to provide educational outreach through a website, educational signage, speaking engagements, clean-up events, and involvement on committees allows for many beneficial activities for improving water quality.



JMU pollution prevention educational activity at community event.



JMU students at a stream clean up community event.



Soil erosion education demonstration.

MCM 3: ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE)

MS4 MAP

JMU maintains a GIS map with a corresponding database that contains the locations and attributes of the storm sewer system, structural best management practices, and MS4 outfalls that the university is responsible for within their municipal jurisdiction. The MS4 map and corresponding database have been updated to reflect any changes to the MS4 occurring on or before June 30 of the reporting year.

There were no additional MS4 outfalls installed for this reporting period.

NOTIFICATIONS OF INTERCONNECTIONS WITH ADJACENT MS4's

James Madison University's MS4 system interconnects with the City of Harrisonburg, Rockingham County, and the Virginia Department of Transportation (VDOT). Both Harrisonburg and VDOT are MS4's and have previously been notified and are aware that our systems interconnect.

JMU will continue to notify adjacent MS4's of any new interconnections established or discovered.

No new interconnections were made with adjacent MS4s, and no notifications were received from adjacent MS4s.

IDDE POLICY & PROCEDURES

The University has implemented a campus wide IDDE policy to establish methods for controlling the introduction of pollutants into the MS4. The policy includes procedures for field screening, notification of spills and illicit discharges, tracking, enforcement, and training with the goal of eliminating unauthorized discharges.

A total of 116 inspections were conducted on the 116 outfalls within JMU's jurisdiction. No illicit discharges were observed during the annual outfall inspections. Approximately \$1,717.20 was spent for inspections, maintenance and repairs related to stormwater outfalls.

Six IDDE notifications were received from either the pollution hotline, from JMU staff, or from field observations by the JMU stormwater team and those were investigated. None were reported to enter any of the streams or waterways on campus.

#1

On Tuesday, September 12th, received an email from DEQ about a potential illicit discharge. At 4:29 PM email stated a company was observed dumping diesel fuel and human waste into a storm drain. No location provided. A follow-up email from DEQ at 4:59 PM stated this observation was from a couple months ago and was near a library. Four areas were investigated, two libraries and two locations where a company was contracted for work. Inlets at sites investigated, and outfalls to stream and/or BMPs investigated. No evidence of dumping observed. DEQ notified of findings and investigation closed at 10:10am on September 13th.

What should I do if I witness an illicit discharge?

Contact the Stormwater Pollution Hotline:

Stormwater Pollution Hotline

If you notice any illicit discharges or have concerns about practices on JMU grounds or construction projects please contact our Stormwater Coordinator by phone at (540) 568-3174 or email at stormwater@jmu.edu.

Please be prepared to give the following information if possible:

- Source of pollution.
- Location of problem.
- Responsible party (if known).
- Date and time.

What is the difference between a storm sewer and a sanitary sewer?

Sanitary sewers are underground pipes that carry liquid from places like the bathroom, sinks, and kitchens to a wastewater treatment plant. Substances that enter sanitary sewers are filtered and treated before being discharged.

While storm sewers may seem similar they are only designed to carry stormwater and runoff. Storm sewers are not treated and lead directly into our natural environment. Substances that are not stormwater should never be released into the storm sewer system. At JMU, many storm sewer inlets can be identified by the "No Dumping – Drains to Stream" medallion:



MCM 3: ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE)

#2

On Friday, May 3rd, during a monthly dam inspection staff observed concrete washout residue in the inlet of a bioretention along Newman Lake. The area upslope from the inlet was investigated and it was determined that concrete washout from an upslope installation of a firepit at the College of Business lawn area had washed out onto the service drive and into the inlet of the bioretention. Project manager and contractor for this project were contacted and stormwater staff met with contractor on site. Contractor cleaned up residue using dry sweep methods, re-installed inlet protection for bioretention and one other inlet on site and sent photos of clean up. Concrete residue was not observed in the outlet of the bioretention and did not impact Newman Lake. Investigation was closed on 3:21 pm, Friday May 3rd after receiving photo documentation from contractor.

#3

On Wednesday, May 8th, an email was received from Sam Hottinger (GES) who observed an oil sheen on Modular Drive across from the D8 Lot where a recent steam vault dewatering occurred. Stormwater staff visited the site and contacted Dennis

Hart with the East Campus Power Plant to see if his staff noticed anything when they were dewatering the steam vault at this location. Dennis said they would clean up what they could and that the dewatering was groundwater that had infiltrated the vault. No oil leaks were observed from any vehicles. Oily sheen and washout did not reach storm drain or conveyance structure or East Campus stream downslope from this area. Investigation was closed on May 8th after conversation with Dennis.

#4

On Friday, May 17th, a phone call was received about concrete washout entering a City storm drain from Hotel Madison valet drive improvement project. Stormwater staff visited the site and observed concrete washout residue and a temporary concrete washout facility that had overflowed. Staff spoke with the contractor on site who stated that he had stopped construction when he noticed that the runoff was entering the City storm drain. Inlet protection was installed on the storm drain inlets on Hotel Madison's property, but the runoff from the washout did not flow to these inlets. The contractor was asked to clean up the washout residue via dry methods and dispose of the overflowed concrete washout facility by the end of the day. Contractor replied via email with photo documentation of the cleanup and washout facility gone later that afternoon. That documentation and correspondence was forwarded to City stormwater staff and the investigation was closed the same day, May 17th.

#5

On Friday, May 17th, a message was received from Nate Brown (FM-Sustainability) who had observed bright yellow liquid spilled on the pavement from a plumbing contractor's truck at the Union loading dock off Grace Street the evening before (5/16). Stormwater staff visited the area and observed the stain which had turned brown. Liquid was unknown and an email was sent to HAZWOPER for cleanup of the liquid. The liquid did not run into any nearby storm drain inlets. The investigation was closed the same day.

#6

On Tuesday, June 18th, stormwater staff were notified by Sam Hottinger (GES) of a stockpile of erodible material on top of a storm drain at Sentara



Aerial view of parking lot bioretention.

MCM 3: ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE)

Park Stadium where turf replacement was happening. Stormwater staff went to site and observed the stockpile on top of an unprotected inlet and adjacent to an unprotected inlet. The project manager and JMU Grounds staff assisting with the turf replacement project were notified that the stockpile would need to be moved off the inlet and inlet protection placed on all inlets in the area, as well as ESC measures around the perimeter of the stockpile if it would be left overnight. The contractor completing the turf replacement was notified via email the following day. An email was received on Friday, June 21st from the contractor and JMU Grounds that the area was cleaned up, inlet protection and ESC measure were installed, and the stockpile was moved. The investigation closed on 6/21/24.

JMU operates a HAZWOPER team with 6 Certified Team Members and 4 Active responders. JMU’s Spill Prevention, Control and Countermeasure Plan (SPCC) was last updated in April of 2019, it is currently in the process of being reviewed and updated. The HAZWOPER team were called out for four clean-ups over the year, with none reported to enter the storm system or waterway.

Date	Description	Approximate Amount
7/7/23	Cooking oil spill at Bridgeforth Stadium	~ 4 gallons
9/20/23	Cooking oil spill at Dukes Dining	~ 4 gallons
3/26/24	Oil leak at S Main Motor Pool	~Quart
6/11/24	Cooking oil spill at EC Dining Hall Loading Dock	~10 gallons



AI generated photo of a bulldog picking up trash.



AI generated photo of a bulldog inspecting stormwater runoff.



Spill control center at campus facility.

MCM 4: CONSTRUCTION SITE STORMWATER RUNOFF CONTROL



A regulated construction site on campus.

STANDARDS & SPECIFICATIONS

JMU initially received approval from the Department of Conservation and Recreation (DCR) to operate its own erosion and sediment control (ESC) program under a set of annual standards and specifications on July 6, 2009. While the responsibility of the stormwater program has been transferred from the DCR to the Department of Environmental Quality (DEQ), JMU continues to maintain approved standards and specifications as requested by the Department. Responding to amendments to regulations, stormwater management (SWM) was introduced into the standards and JMU received combined approval from DEQ for Standards and Specifications for ESC and SWM on May 28, 2014. This document continues to be updated as needed.

On January 5th, 2022 updated standards and specifications were submitted to DEQ for approval. Those standards have been administratively approved via email and the University is still awaiting a formal letter of approval.

These standards layout the framework for the administration and implementation of projects within the

University concerning erosion and sediment control, and stormwater management. Certification requirements are listed for appropriate personnel along with the structure for plan review and approvals, construction inspections, variances and exceptions and long-term maintenance.

LAND DISTURBING ACTIVITIES POLICY

JMU is responsible for ensuring all regulated land disturbing activities have adequate documentation before construction activity begins and that construction activities follow approved plans, JMU's Standards and Specifications for ESC and SWM, and regulatory requirements. The purpose of this policy is to layout the procedures for regulatory compliance concerning all regulated land-disturbing activities at the University.

The policy includes definitions of relevant terms, the individuals responsible for implementation of the policy, and procedures for both non-regulated and regulated activities. The land disturbing activities policy was originally approved in July 2009, and is re-evaluated on an annual basis.

MCM 4: CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

REPORTING PERIOD SUMMARY

The project table below shows the active construction projects throughout the reporting period along with the VSMP permit number, if applicable, and the disturbed acreage associated with the project. These projects were conducted in accordance with the current department approved standards and specifications for erosion and sediment control and stormwater management.

A total of 150 construction site inspections were conducted over the reporting period on three projects. Alleged deficiencies observed on-site were noted in inspection reports and were addressed in an acceptable manner and time frame, thus requiring no further methods of enforcement. There were no corrective actions or violations issued for this reporting period. Thank you to the contractors and project managers on these regulated project sites for your efforts! Copies of inspection reports are kept on file and are available upon request.

Active Projects	VSMP Permit	Disturbed Acreage
Carrier Library Expansion & Renovation	VAR10S314	2.55
South Main Spoils Site	VAR10Q431	6.20
Village Housing Phase 1	VAR10S560	3.00
Total Acreage		11.75

DEQ ESC/SWM Certification	Person	Certificate Number	Expiration Date
Dual Combined Administrator	Abe Kaufman	DCA0330	7/11/2026
Dual Combined Administrator	Ali Sloop	DCA0582	8/18/2025
Responsible Land Disturber	Adam Brunk	RLD05599	12/7/2025
Responsible Land Disturber	Kevin Dinges	RLD05601	12/7/2025
Responsible Land Disturber	Robert S. Jones	41745	4/7/2026
Responsible Land Disturber	Ricky Lucas	RLD05597	12/7/2025
Responsible Land Disturber	Josh McNett	RLD05596	12/7/2025
Responsible Land Disturber	Nicholas Workman	RLD23543	12/6/2025
Responsible Land Disturber	Patrick Puffenbarger	RLD23542	12/7/2025



Diversion dike on regulated construction site.



Regulated construction site on campus.

MCM 5: POST-CONSTRUCTION STORMWATER MANAGEMENT

STORMWATER MANAGEMENT FACILITIES POLICY

JMU is required to operate a Virginia Stormwater Management Program (VSMP) as part of permit and legislative requirements. Structural stormwater best management practices (BMP's) are sometimes required to be installed for the mitigation of construction projects or for pollution reduction credits related to watershed clean-up efforts such as the Chesapeake Bay Total Maximum Daily Load (TMDL). These BMP's must remain in place as designed and be maintained in perpetuity to function as intended.

The purpose of the policy is to establish procedures for the design, installation, acceptance, inspections, and maintenance of stormwater facilities installed on campus. The stormwater management facilities policy was originally approved in 2009 and is re-evaluated on an annual basis.

For this reporting period, no new BMPs were installed on campus. Two large capital projects on campus will be adding a total of five new BMPs (stormfilter, underground detention, and bioretentions) in 2025. All new BMP's installed as part of a project under a Construction General Permit have been, or will be, provided to the DEQ as part of the project permit's Notice of Termination.

A total of 130 inspections were performed on JMU's 114 structural BMP's. All maintenance work completed on the structural BMP's were typical maintenance items. Approximately \$42,026.45 was expended for inspections, maintenance, and repairs of stormwater management facilities.



Wet pond on East Campus.



Stream restoration on East Campus.



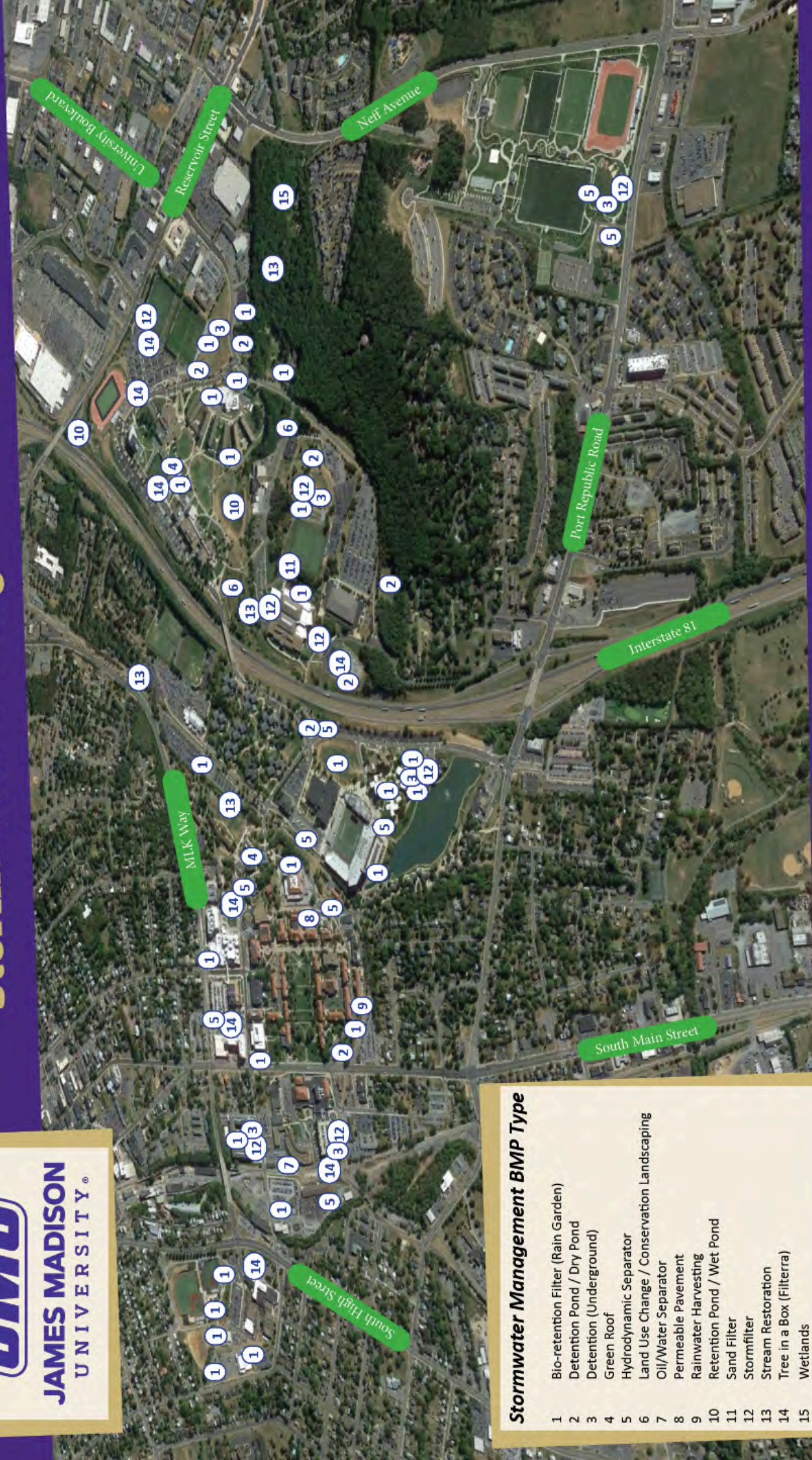
Underground detention facility installation.



Stormwater Management BMP Map



**JAMES MADISON
UNIVERSITY®**



Stormwater Management BMP Type

- | | |
|----|--|
| 1 | Bio-retention Filter (Rain Garden) |
| 2 | Detention Pond / Dry Pond |
| 3 | Detention (Underground) |
| 4 | Green Roof |
| 5 | Hydrodynamic Separator |
| 6 | Land Use Change / Conservation Landscaping |
| 7 | Oil/Water Separator |
| 8 | Permeable Pavement |
| 9 | Rainwater Harvesting |
| 10 | Retention Pond / Wet Pond |
| 11 | Sand Filter |
| 12 | Stormfilter |
| 13 | Stream Restoration |
| 14 | Tree in a Box (Filterra) |
| 15 | Wetlands |

MCM 6: POLLUTION PREVENTION AND GOOD HOUSEKEEPING

NUTRIENT MANAGEMENT PLANS

The University currently implements several Nutrient Management Plans (NMPs) that cover the lawn and landscaped areas of the University that receive nutrient applications. The plans outline the rates and frequencies that nutrients may be applied and covers best management practices regarding the application of these nutrients. By following this management plan it can be ensured that nutrients are applied in a manner that will minimize their impact on stormwater quality. JMU has 11 Certified Fertilizer Applicators, 5 Commercial Pesticide Applicators, 27 Registered Technicians, 1 person Licensed in Trapping and Nuisance, and 1 Licensed Nutrient Management Planner. The Main Campus NMP was updated and approved by the Department of Conservation and Recreation (DCR). The following is a list of active NMPs at JMU:

Plan Name	Acreage	Start Date	Expiration Date
Main Campus	218.87	May 20, 2024	May 20, 2027
Forest Hills Off Campus Properties	6.95	December 5, 2021	December 5, 2024
Total	225.82		

SWPPP's FOR HIGH PRIORITY FACILITIES

Several facilities at JMU meet the criteria listed in the general permit as high-priority facilities and are considered to have a high potential for discharging pollutants. These facilities are required to maintain and implement a stormwater pollution prevention plan (SWPPP) to provide a summary description of the facility and activities, description of potential pollutants and sources, procedures for reducing and preventing pollutant discharges and procedures for inspections and maintenance. There were no modifications needed for existing SWPPP locations. There was one new facility that was brought on-line requiring SWPPP development, the East Campus Power Plant (ECPP) Landscape Storage Building. A SWPPP was developed and is being implemented at that new facility. The following is a list of existing facilities that have been identified as high-priority facilities with a high potential for discharging pollutants:

Facility	Type of Facility
Arboretum Storage Yard	Materials storage.
ECPP Landscape Storage Building	Equipment, vehicle, and materials storage
Memorial Hall Maintenance Shop	Maintenance shop.
R2 Lot Storage Yard	Materials and salt storage.
South Main Street Facilities: HVAC	Maintenance shop.
South Main Street Facilities: Recycling	Recycling.
South Main Street Facilities: Salt & Other Material Storage	Materials and salt storage.
South Main Street Facilities: Transportation	Vehicle storage and maintenance.
South Main Street Maintenance Facility by K Lot	Materials and mulch storage.
University Park Maintenance Shop	Maintenance shop.
University Services Building & Annex	Equipment, vehicle and materials storage, and maintenance facilities.

INTEGRATED PEST MANAGEMENT

The University also has an Integrated Pest Management (IPM) program which seeks to control pests with a minimal use of pesticide while maximizing effectiveness and cost efficiency. The application of both fertilizers and pesticides will be conducted in accordance with the Virginia Department of Agriculture and Consumer Services (VDACS) rules and regulations and only properly trained and/or certified employees or contractors will apply fertilizer or pesticides on campus.

MCM 6: POLLUTION PREVENTION AND GOOD HOUSEKEEPING



South Main Landscape Storage permitted site.

DAILY OPERATIONAL PROCEDURES

As a MS4 permittee, JMU is responsible for preventing, or minimizing to the maximum extent practicable, any discharges to the storm sewer system, or waterways, that is not entirely composed of stormwater run-off. A “*Daily Operational Procedures for Stormwater Control Best Management Practices*” policy was created in 2015 to implement written procedures for activities such as road, street, and parking lot maintenance; equipment maintenance; and the application, storage, transport, and disposal of pesticides, herbicides, and fertilizers. The policy and procedures are re-evaluated on an annual basis, and no modifications were made for this reporting period.

These procedures are utilized as part of FM employee training and is an effective way to ensure that employees are aware of proper procedures associated with typical operations and the possible impacts on local waterways.

TRAINING PLAN

A “Stormwater Pollution Prevention/IDDE” presentation and guidebook has been developed for use with Facilities Management employee training. During new employee orientation for FM personnel, a presentation is given, introducing them to basic stormwater information, pollution prevention, good housekeeping measures, related policies and procedures, and how to recognize and report illicit discharges. Refresher trainings will be provided no less than once per 24 months through the use of a presentation, guidebook, or other similar format. New FM employee training is provided with FM orientation which typically occurs on a monthly basis. Through new employee orientations, 113 employees received initial training about stormwater management at JMU. Bi-annual training is also provided to FM employees and was last provided in March/April 2024 to 357 employees (approx. 67% of staff).

Date	Event	Participants
July 10, 2023	FM New Employee Orientation	7
September 4, 2023	FM New Employee Orientation	13
October 2, 2023	FM New Employee Orientation	4
November 6, 2023	FM New Employee Orientation	11
December 4, 2023	FM New Employee Orientation	10
January 9, 2024	FM New Employee Orientation	12
February 4, 2024	FM New Employee Orientation	35
March 4, 2024	FM New Employee Orientation	3
March/April 2024	FM Biennial Refresher Training	357
April 1, 2024	FM New Employee Orientation	5
May 6, 2024	FM New Employee Orientation	4
June 3, 2024	FM New Employee Orientation	9

TMDL ACTION PLANS

BLACKS RUN TMDL

Blacks Run is located in the City of Harrisonburg and receives run-off from the City, JMU, VDOT and Rockingham County, then eventually flows to Cooks Creek. A TMDL was developed in 2002 for Blacks Run and Cooks Creek but did not issue waste load allocations (WLA) to the jurisdictions in the watershed. A revision to the local TMDL has been completed and approved by the EPA on July 10, 2019. As such, an Action Plan will be developed and included in the requested time frame for the next MS4 General Permit period. In preparation for the Blacks Run TMDL, JMU has already implemented the following BMPs:

Description	Total Removal (lbs/yr)		
	Phosphorus	Nitrogen	TSS
East Campus Hillside Meadow	1.21	4.81	0
East Campus Creek Area Tree Buffer Land Conversion	3.76	16.63	1,438.69
East Campus Triangle Meadow	1.82	0.46	0
Total Reductions	6.79	21.90	1,438.69
Required Reductions	78	-	-



East Campus riparian buffer tree planting



East Campus Solar Facility and native meadow



East Campus Triangle native meadow planting

TMDL ACTION PLANS

CHESAPEAKE BAY TMDL

Pollutant Reduction Requirements		
Phosphorus (lbs/yr)	Nitrogen (lbs/yr)	TSS (tons/yr)
78.90	626.82	35.5

The Chesapeake Bay Total Maximum Daily Load (TMDL) was established to create implementation plans to reduce pollutants entering the Bay. The pollutants of concern were listed as phosphorus, nitrogen, and sediment, of more specifically, total suspended solids (TSS). For JMU, those pollutant reductions per year were calculated to be 78.90 lbs/yr of phosphorus, 626.82 lbs/yr of nitrogen, and approximately 33.5 tons/yr of TSS.

Stream restoration has become a popular choice for meeting the Bay goals, and that practice was chosen to be implemented throughout campus streams to meet those goals and to be an educational tool for students and the public. Nearly 3,700 linear feet of stream has been restored on campus along with allowing a vegetated buffer to grow on most stream banks. In addition to stream restoration work, nearly 53,000 square feet of land has been converted from pervious (turf areas) to a grass buffer (unmanaged grass).

With the completion of the stream restoration and constructed wetland cells in JMU’s Arboretum in March of 2016, reduction goals for the Chesapeake Bay TMDL was surpassed by the University. No new BMP’s were installed this reporting period, and none are currently planned to be implemented in the near future. For the most recent action plan for the Chesapeake Bay TMDL, public comment was provided by sending a mass email alert to the JMU community allowing a month-long comment period. No comments were received for the action plan. JMU’s complete Chesapeake Bay TMDL Action Plan can be viewed online at jmu.edu/stormwater.

Description	Total Removal (lbs/yr)		
	Phosphorus	Nitrogen	TSS
East Campus Stream Restoration	69.74	71.03	45,895.20
East Campus Land Use Change		2.75	
Siberts Creek Stream Restoration – Segment A	27.63	29.47	18,231.23
Siberts Creek Stream Restoration – Segment B	33.80	36.09	22,283.14
Siberts Creek Stream Restoration – Segment C	47.91	47.45	31,446.04
Siberts Creek Area Land Use Change		4.31	
Siberts Creek Bio-retention	1.87	13.02	1,551.38
Arboretum Stream Restoration w/ Constructed Wetlands	161.84	630.91	54,160.00
Total Reductions	342.79	835.03	173,566.99
Required Reductions	78.90	626.82	66,904.99
Goals exceeded by:	263.89	208.21	106,662.00



East Campus stream restoration and riparian buffer.

BEING THE CHANGE.



Visit the [JMU Stormwater MS4 Website](#)

JAMES MADISON UNIVERSITY.

Horned Grebe in wet pond on East Campus.