

University of Maryland, College Park
National Pollutant Discharge Elimination
System MS4 Phase II
FY2020 Annual Report
General Discharge Permit #13-SF-5501



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List of Acronyms

AWRP	Anacostia Watershed Restoration Partnership
AWS	Anacostia Watershed Society
BLM	Facilities Management—Department of Building & Landscape Maintenance
BMP	Best Management Practice
BWPFS	Baltimore-Washington Partners for Forest Stewardship
CAD	Computer-Aided Design
CBLP	Chesapeake Bay Landscape Professionals
CBT	Chesapeake Bay Trust
COG	Metropolitan Washington Council of Governments
P&C	Facilities Management—Department of Planning & Construction
DESSR	Department of Environmental Safety, Sustainability & Risk
E&E	Facility Management—Department of Engineering & Energy
E&SC	Erosion & Sediment Control
ESD	Environmental Site Design
FM	Facilities Management
FP	Facilities Management—Department of Facilities Planning
GIS	Geographic Information Systems software
IBBR	Institute for Bioscience and Biotechnology Research
HVAC	Heating, Ventilation, and Air Conditioning
IDDE	Illicit Discharge Detection and Elimination
IPM	Integrated Pest Management
MCM	Minimum Control Measure
MDE	Maryland Department of the Environment
MEP	Maximum Extent Practicable
MES	Maryland Environmental Services
MS4	Municipal Separate Storm Sewer System
NNI	Non-Native Invasive
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
OS	Office of Sustainability
SOP	Standard Operating Procedure
SPCC Plan	Spill Prevention Control and Countermeasure Plan
SWPPP	Stormwater Pollution Prevention Plan
UMD	University of Maryland, College Park

I. NPDES MS4 PERMIT UMD AUTHORIZATION

The University of Maryland-College Park (UMD) owns and operates a municipal separate storm sewer system (MS4) and, therefore, must comply with the National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges from State and Federal Small Municipal Separate Storm Sewer Systems. Maryland Department of the Environment (MDE) has regulatory authority to implement this program under their General Discharge Permit No. 13-SF-5501, which was made effective on October 31, 2018 and expires on October 30, 2023.

The NPDES MS4 permit requires that permit holders implement Best Management Practices (BMPs) for the following Minimum Control Measures (MCMs):

- Personnel Education and Outreach
- Public Involvement and Participation
- Illicit Discharge Detection and Elimination
- Construction Site Stormwater Runoff Control
- Post Construction Management
- Pollution Prevention and Good Housekeeping

In addition, the permit requires restoration efforts for twenty percent of existing developed lands that have little or no stormwater management by 2025. These efforts may include:

- Developing planning strategies
- Identifying water quality improvement opportunities
- Securing appropriate funding
- Development of an implementation schedule for achieving the 20% restoration requirement
- Implementing water quality improvement projects

This annual report presents progress made on each of these MCMs and the restoration requirement, as well as challenges faced and steps taken to improve future performance.

II. NOTICE OF INTENT

UMD submitted a Notice of Intent (NOI) in October 2018, which identified all UMD properties in College Park that were eligible for MS4 coverage. An amendment was submitted in October 2019 to include the Institute for Bioscience and Biotechnology Research (IBBR) facility located on the campus of The Universities at Shady Grove, Maryland.

III. UMD MS4 PERMIT ADMINISTRATION

A. Reporting Period

This second annual report begins from the end of the previous period starting November 1, 2019 and reflects activities for the Impervious Restoration Program through June 30, 2020. However, since the previous report did not require progress on the six Minimum Control Measures (MCMs), this report includes the MCM activities from November 1, 2018 through June 30, 2020.

B. Contact Information

Agency Name: University of Maryland, College Park

Contact Person and Title: Christopher Ho, Civil Engineer

Mailing Address: 7757 Baltimore Avenue, 0600 Service Building, College Park, MD 20742

Phone Number: (301) 405-9969

Email: hocyho@umd.edu

C. UMD NPDES MS4 Organizational Structure

UMD Facilities Management-Facilities Planning (FM-FP) managed and administered the NPDES MS4 permit during the reporting period. Several units/departments helped implement MS4 permit requirements; however, the following units/departments were instrumental in implementing the BMPs within the six MCMs:

- Department of Environmental Safety, Sustainability & Risk (DESSR) – Environmental Affairs
- Facilities Management – Department of Building & Landscape Management (FM-BLM)
- Facilities Management – Department of Planning & Construction (FM-P&C)
- Facilities Management – Department of Engineering & Energy (FM-E&E)
- DESSR – Office of Sustainability (OS)

D. Staffing Resources

Compliance with the NPDES MS4 program requires significant funding, which is provided through both operational and capital budgets. The MS4 requirements are largely implemented by UMD staff that are either fully or partially dedicated to this effort. The following departments dedicate staff to this program as follows:

- DESSR: Four employees share MS4/stormwater responsibilities and spend the amount of time equivalent to 2.5 full-time staff members.
- FM-BLM: One full-time staff inspects and maintains stormwater facilities, and several other staff dedicate time to public outreach and volunteer events, forest/tree management, and landscape maintenance.
- FM-FP: One full-time staff dedicates at least 50 percent of the time to MS4 permit and stormwater regulations. In addition, several other staff members are partially dedicated to supporting stormwater inventory and geographic information system (GIS) efforts.
- FM-E&E: Two full-time staff members dedicate at least 20 percent of the time to engineering and water-related issues

IV. IMPLEMENTATION OF THE SIX MINIMUM CONTROL MEASURES

This section presents progress made on each of the six MCMs during the reporting period (November 1, 2018 thru June 30, 2020). Although this annual report is for BMPs selected for each MCM are included, and measurable progress towards implementing each BMP is documented. In addition, future steps to better implement each MCM are discussed.

A. Personnel Education and Outreach

UMD is first and foremost an academic and research institution. As such, the over 50,000 students, faculty, and staff that come to campus every day have the opportunity to get involved in dozens of departments, classes, groups, and activities related to water resources. It would be impossible to accurately track all these activities and, therefore, progress for this MCM is likely to be significantly underreported. The general discussion provided below summarizes how UMD is implementing this BMP. Refer to Table 1 for specific BMPs and measurable progress.

The overarching goal for this MCM is to educate as many students, faculty, and staff as possible about the impacts of stormwater. In addition, it is important for everyone to know what they can do to reduce the impacts of stormwater as well as what UMD is doing to address these concerns.



UMD Staff Giving a Tour of a Constructed Rain Gardens

UMD students can select from over 30 major, minor, and graduate degree programs that focus on environmental issues, including water resources. In addition, there are approximately 50 courses that over three thousand students take every year that introduce these topics to the student population. FM personnel regularly work with several professors to provide materials and even in-classroom presentations. In fact, FM and DESSR staff have personally reached well over 2,000 students. Faculty and staff also collaborate on student research projects to promote stormwater awareness. For example, staff is currently working with a group of engineering students to design and

construct a microbioretention facility on campus that will be added to the MS4 stormwater inventory when completed.

In 2014, UMD created the Sustainable Water Use and Watershed Workgroup to address water-related issues, including stormwater runoff and the MS4 permit. The workgroup consists of technical staff and senior managers, and meetings were held throughout the reporting period to address important issues related to water resources and how each unit can make improvements. These recommendations have been summarized in annual reports, presented to UMD administration, and the reports are made available to the public via the Office of Sustainability website.

DESSR-Environmental Affairs works with the campus community on proper material handling and disposal. In addition, they are responsible for emergency spill response and provide information on helping campus departments order and maintain spill kits. They have developed an “Emergency Response Guide” that is available on their website (<https://essr.umd.edu/emergency-response-guide>) and provide training to UMD staff in classroom settings, as well as online.

Table 1 below provides information on specific Education and Outreach training performed, as well as progress made during the reporting period.

Table 1: MCM #1 - Personnel Education and Outreach

<p>1. Does the permittee maintain a process and phone number for the public and/or staff to report water quality complaints? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Number of complaints received: <input type="text" value="8"/></p> <p>Describe the actions taken to address the complaints:</p> <p><i>Department of Environmental Affairs investigated all complaints, coordinated with P&C or the any other responsible parties to have the complaints addressed, and filled out an IDDE investigation report.</i></p>
<p>2. Describe training to employees to reduce pollutants to the MS4:</p> <p><i>DESSR Training programs included PowerPoint presentations and online training on the following subjects:</i></p> <ul style="list-style-type: none"> • <i>Annual Stormwater Pollution Prevention Training</i> • <i>Annual Illicit Discharge Detection and Elimination Training</i> • <i>Annual Spill Prevention Control and Countermeasure Training</i> • <i>Annual Hazardous Waste Training (Biological, Radioactive, General, and Hazardous Waste)</i> <p><i>In addition, BLM has 3 employees that have completed the Chesapeake Bay Landscape Professionals (CBLP) Tier 1 training. One employee has completed Tier 2. In addition, landscape crews have received education on the importance of keeping storm drains clear, and the difference between storm drain inlets and BMP inlets.</i></p>
<p>3. Describe the target audience(s):</p> <p><i>Different training programs are customized for the target audience which includes the campus community including students, staff, faculty, visitors, and administrators. Programs and presentations were tailored for the intended audience. The training materials discuss how to reduce the amount and number of spills as well as preventative maintenance, which reduce pollutants reaching the waterways.</i></p>
<p>4. Are examples of educational/training materials attached with this report? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>See Attachment C.</p>

Table 1: MCM #1 - Personnel Education and Outreach

<p>Provide the number and type of educational materials distributed:</p> <p><i>Not counted, but several hundred were distributed at various events.</i></p> <p>Describe how the personnel education program is appropriate for the target audience(s):</p> <p><i>The stormwater educational program is tailored for the target audience. For example, presentations given to students focus on the impacts of stormwater runoff, the MS4 permit, and how they can be involved to help the watershed. Presentations given to field staff and maintenance works include information on spill and pollution prevention, and presentations given to senior administrators focus on operational impacts of the stormwater permit.</i></p> <p><i>CBLP training is designed to educate landscape professionals in BMP identification and maintenance. In-house training is meant to make landscape crews and their supervisors aware of stormwater management facilities and their unique maintenance requirements.</i></p>
<p>5. Describe how stormwater education materials were distributed to the public and/or staff (e.g., newsletters, website):</p> <p><i>UMD has several websites with information on stormwater and the MS4 permit. The permit and past annual reports are available on the Department of Environmental Safety, Sustainability & Risk’s website (https://essr.umd.edu/environmental-affairs/stormwater-management) while information on stormwater can be found on the Office of Sustainability’s website (https://sustainability.umd.edu/campus/water).</i></p> <p><i>Annual Training to individual groups is provided by ESSR on Spill Prevention, Control, and Countermeasures (SPCC); the MS4 program, and Stormwater Pollution Prevention per the 12-SW permit. In addition, an “Environmental Bootcamp” was held in February 2019, to address all the environmental permits and programs.</i></p>
<p>6. Describe how educational programs facilitated efforts to reduce pollutants in stormwater runoff:</p> <p><i>UMD continues to implement practices that reduce pollutants in stormwater runoff. Efforts include maintaining stormwater management facilities, building new stormwater management facilities, using integrated pest management plans to reduce pesticide applications, and conducting outreach and education to the campus</i></p>

Table 1: MCM #1 - Personnel Education and Outreach

<p><i>community. The training materials provided establishes awareness of the harm from pollutants in stormwater runoff and has led to a proactive community awareness that leads to support for projects that provide reduction in pollutant runoff.</i></p> <p><i>Landscape crews are made aware of the importance of removing trash and debris, especially around inlets and BMP structures.</i></p>
<p>7. Provide a summary of activities planned for the next reporting cycle:</p> <p><i>UMD plans to continue our educational and outreach efforts, including making improvements information available on the web as well as advertising our Stormwater Hotline phone number.</i></p> <p><i>Continue training efforts, with more participants attending CBLP training. Continued in-house training of landscape maintenance professionals.</i></p>
<p>8. List the total cost of implementing this MCM over the permit term:</p> <p><i>Estimated \$15,000</i></p>

B. Public Involvement and Participation

UMD offers many opportunities for public involvement and participation related to stormwater activities. While public involvement is often in the form of UMD student and faculty volunteerism, staff also work with our local and regional neighbors on a variety of environmental and stormwater issues. Due to the number of student groups and public events held on campus it is likely that progress for this MCM is significantly underreported. Table 2 presents specific actions and progress made during the reporting period.

Table 2: MCM #2 - Public or Personnel Involvement and Participation

<p>1. Describe how the public or personnel involvement and participation program is appropriate for the target audience(s):</p> <p><i>The public or personnel involvement and participation program is tailored for the target audience of UMD students, faculty and staff. A variety of events throughout the year are intended to encourage participation and education. Events include Earth Day programs, stream cleanups, Pollution Prevention training, and Good Neighbor Day. These events allow participants to engage as little or as much as desired, while still achieving the desired outcome of participation.</i></p> <p><i>Numerous volunteer events include stormwater management facilities tours, stormwater talks, creek cleanups, and volunteer BMP maintenance events. Participants at these events help with campus stormwater management efforts and learn about the significance of their efforts, and the importance of good housekeeping for the health of our waterways and the Bay. A calendar of events can be found at: https://arboretum.umd.edu/calendar/.</i></p>
<p>2. Quantify and report public and/or staff involvement and participation efforts as shown below where applicable.</p> <p>Number of participants at public and/or staff events: <input type="text" value="705+"/></p> <p>Quantity of trash and debris removed at clean up events: <input type="text" value="152+"/></p> <p>Number of employee volunteers participating in sponsored events: <input type="text" value="64+"/></p>

Table 2: MCM #2 - Public or Personnel Involvement and Participation

Number of trees planted:	177
Length of stream cleaned (feet):	4000
Number of storm drains stenciled:	90
Number of public notices published to facilitate public and/or staff participation:	7
<p><i>Public Notifications are posted at https://essr.umd.edu/environmental-affairs/public-notifications.</i></p>	
Number of public and/or staff meetings organized:	8
Total number of attendees at all public and/or staff meetings:	over 100
<p>Describe the agenda, items discussed, and collaboration efforts with interested parties for public and/or staff meetings:</p> <p><i>Public and/or staff meetings include meetings and presentations with students, faculty, and staff. The agenda items discussed include: stormwater runoff and the background on why it impacts water quality; streams and watershed including the Chesapeake Bay; the MS4 permit including the 6 minimum control measures; and what UMD is doing to address the MS4 permit.</i></p> <p><i>Tours and speaking events covered topics from watershed boundaries, aquifers, effects of stormwater mitigation onsite to the Bay, and BMP types and functions.</i></p>	
<p>Describe how public and/or staff comments have been incorporated into the permittee's MS4 program, including water quality improvement projects to address impervious area restoration requirements:</p> <p><i>All previous MS4 annual reports are available to public and staff for review at https://essr.umd.edu/environmental-affairs/stormwater-management.</i></p> <p><i>UMD staff meet work with students and faculty to evaluate potential stormwater management BMPs. This includes studying the watershed, evaluating locations for potential BMPs, and even constructing new BMPs.</i></p>	

Table 2: MCM #2 - Public or Personnel Involvement and Participation

<p><i>FM staff have also been working with a student group to design and construct microbioretention facilities that will contribute to impervious area restoration requirements.</i></p> <p>Describe any additional events and activities if applicable:</p> <p><i>Various cleanup events by different university groups throughout the year</i></p> <p><i>Arbor Day – 04/3/2019</i></p> <p><i>Earth Day celebration – 4/22/2020 (Virtual), 4/22/2019</i></p> <p><i>Campus Creek trash cleanup each fall and spring – 10/12/2019</i></p> <p><i>Maryland Day – 4/24/2019</i></p> <p><i>College Park Day – 10/5/2019</i></p> <p><i>Good Neighbor Day community volunteer outreach event – 4/13/2019</i></p>
<p>3. Provide a summary of activities planned for the next reporting cycle:</p> <p><i>Continue holding events, planting trees, volunteer efforts and education efforts as the post-pandemic climate allows.</i></p>
<p>4. List the total cost of implementing this MCM for the permit term:</p> <p><i>~\$5,000</i></p>

Future Progress: Prior to the social distancing requirements, there was a very high rate of public participation and involvement at UMD. UMD will evaluate programs and events as conditions evolve and determine any additional efforts required to comply with the next reporting period on the MS4 permit.

C. Illicit Discharge Detection and Elimination (IDDE)

The goal of a comprehensive IDDE program is to identify unregulated discharges going through the storm drain system. The main components of an IDDE program are an accurate storm drain map/inventory and regular inspections, and procedures to eliminate illicit discharges. Proper disposal of hazardous waste and stringent spill cleanup procedures is also important parts of the IDDE program. Table 3 presents specific BMPs and measurable progress during the reporting period.

Table 3: MCM #3 - Illicit Discharge Detection and Elimination (IDDE)

<p>1. Does the permittee maintain a map of the MS4 owned or operated by the permittee, including stormwater conveyances, outfalls, stormwater best management practices (BMPs), and waters of the U.S. receiving stormwater discharges? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If Yes, attach the map to this report and provide a progress update on any features that are still being mapped. (If submitting a map would compromise the operational security of an agency, indicate that the map is available for MDE review on site.) If No, detail the current status of map development and provide an estimated date of submission to MDE:</p> <p><i>The updated campus georeferenced storm drain map is included in Attachment A. A GIS database has also been developed for the program to identify all BMPs.</i></p>
<p>2. Does the permittee have a policy, or other agency directive, that prohibits illicit discharges? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If Yes, describe the policy utilized for enforcement by the permittee (alternatively, a link may be provided to the permittee’s webpage where this information is available). If No, describe the permittee’s plan, including approximate time frame, to establish a policy that prohibits illicit discharges into the storm sewer system:</p> <p><i>University of Maryland’s Policies and Procedures Section VI-21.00(A) states that all operations shall be conducted in “compliance with all applicable laws, regulations and appropriate recommendations.” Per this policy, UMD’s Department of Environmental Safety, Sustainability & Risk (DESSR) is responsible for administration of this policy and is accountable for UMD’s compliance with all environmental regulations. DESSR’s website (https://essr.umd.edu/environmental-affairs/stormwater-management) has information on environmental regulations, including UMD’s IDDE plan. It is noted that illicit discharges are also prohibited by other NPDES permits as well.</i></p>

Table 3: MCM #3 - Illicit Discharge Detection and Elimination (IDDE)

<p>3. Did the permittee submit to MDE standard operating procedures (SOPs) in accordance with Part IV.C of the permit? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If No, provide a proposed date that SOPs will be submitted to MDE. MDE may require more frequent reports for delays in program development:</p> <p>Did MDE approve the submitted SOPs? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If No, describe the status of requested SOP revisions and approximate date of resubmission for MDE approval:</p> <p><i>UMD submitted an SOP for our IDDE program as part of the 2018 annual report. The updated SOP is included in Attachment B.</i></p>
<p>4. Describe how the permittee prioritized screening locations in areas of high pollutant potential and identify the areas within which screenings were conducted during this reporting period:</p> <p><i>Any outfall within the drainage area that had construction were potential sources of illicit discharges. 13 outfalls are routinely inspected each month, and additionally SWPPP quarterly inspections are conducted in 6 industrial activity areas. The remaining outfalls are randomly screened on an annual basis to fulfil the requirement that 50% of the outfalls be monitored.</i></p>
<p>5. Answers to the following questions must reflect this two-year reporting period.</p> <p>How many outfalls were identified on the map? <input type="text" value="54"/></p> <p>How many outfalls were required to be screened for dry weather flows to meet the minimum numeric requirement based on property size? <input type="text" value="27"/></p> <p>How many outfalls were screened for dry weather flows? <input type="text" value="53/24"/> (2018/2019)</p> <p>Per the permittee's SOP, how frequently were outfalls required to be screened?</p> <p><i>Annually</i></p>

Table 3: MCM #3 - Illicit Discharge Detection and Elimination (IDDE)

<p>At what frequency were outfalls screened during the reporting period?</p> <p style="text-align: center;"><i>Annually</i></p> <p>How many dry weather flows were observed? <input type="text" value="13, 13"/> (2018/2019)</p> <p>If dry weather flows were observed, how many were determined to be illicit discharges? <input type="text" value="0"/></p> <p>Describe the investigation process to track and eliminate each suspected illicit discharge and report the status of resolution:</p> <p><i>Receive the call/email, go to site, and take photos/video of the illicit discharge. Identify where the illicit discharge is coming from and, if necessary, use dye testing to back track the source. Once the source is identified, contact the appropriate department (FM, P&C, etc) on what the illicit discharge is, why it is wrong, and that it needs to cease. Provide them with ways to prevent this from happening again. Complete an illicit discharge tracking form and email a copy to all parties involved.</i></p>
<p>6. Describe maintenance or corrective actions undertaken during this reporting period to address erosion, debris buildup, sediment accumulation, or blockage problems:</p> <p><i>When erosion, sediment or debris is found during routine inspection, the appropriate corrective action is scheduled. Erosion is addressed by replacing soil as needed and then planting to stabilize the site. Trash is collected and disposed of. Fallen logs, leaves and other debris are removed to free water flow, unclog inlets/outfalls, or to otherwise free the facility from obstruction. Sediment is either removed by hand with shovels and wheel barrows, or for larger jobs that require heavy equipment, the contractor is scheduled to properly remove the buildup. Spoils are generally moved to an appropriate off-campus disposal site.</i></p> <p><i>Outfalls 3 and 4 have been cleared of vegetation twice during this reporting cycle. Outfall 2 has also been cleared of vegetation twice, with minor repairs to the stream bed to improve flow and remove sedimentation.</i></p>
<p>7. Is the permittee maintaining all IDDE inspection records and are they available to MDE during site inspections?</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>

Table 3: MCM #3 - Illicit Discharge Detection and Elimination (IDDE)

<p>8. If spills, illicit discharges, and illegal dumping occurred during this reporting period, describe the corrective actions taken, including enforcement activities, and indicate the status of resolution:</p> <p><i>For those discharges that violated our individual NPDES permit, we contacted MDE and made them aware. For sewage illicit discharges, the line was jetted to be cleared, hay bales were placed around the inlets, and lime was applied to saturated soil. For construction related illicit discharges, FM and P&C were made aware of the illicit discharge and we would provide them with suggestions on how to improve their BMPs. FM/PNC were then charged with the responsibility to enforce these changes on the BMPs to prevent future illicit discharges. All illicit discharges during this monitoring period have been resolved.</i></p>
<p>9. Attach to this report specific examples of educational materials distributed to the public and/or staff related to illicit discharge reporting, illegal dumping, and spill prevention. If these are not available, describe plans to develop public and/or staff education materials and submit examples with the next Progress Report:</p> <p><i>See Attachment C for Example Education Materials.</i></p> <p>10. Specify the number of employees trained in illicit discharge detection and spill prevention: <input type="text" value="594/64"/> 2019/2020 (did not capture all online participants from 2020)</p> <p>11. Provide examples of training materials. If not available, describe plans to develop employee training and submit examples with the next Progress Report:</p> <p><i>All training material examples are included as Attachment C. UMD also developed audience-specific training materials for several target groups including dining services, students, farms, and facilities management.</i></p>
<p>12. List the cost of implementing this MCM during this permit term:</p> <p><i>\$4,204 for SPCC and Stormwater training over 2 years</i></p>

Future Progress: UMD will continue to implement the IDDE Plan, focusing efforts on potential hotspots including dining halls, fueling areas, maintenance areas, and other industrial use sites.

D. Construction Site Stormwater Runoff Control

UMD complies with all applicable MDE construction site stormwater runoff requirements. This includes obtaining Erosion & Sediment Control (E&SC) permits for all projects with limits of disturbance greater than 5,000 square feet or 100 cubic yards and NPDES Permits for Construction Activities on projects greater than one acre. All E&SC devices are designed and installed in accordance with the latest MDE E&SC standards and specifications.

MDE inspects and enforces the E&SC plan throughout the construction process; however, UMD also has several construction inspectors that regularly visit construction sites. These inspectors have the authority to make the contractor implement corrective actions if any E&SC are deemed to be insufficient or failing. In addition, UMD implemented a more robust IDDE tracking system to better respond to any identified illicit discharges, especially associated with construction projects (see Section III(C) above).

Table 4 below shows specific projects that received required E&SC permits, projects that began or continued to be under construction for the reporting period, as well as the number of staff that received specialized E&SC training.

Table 4: MCM #4 - Construction Site Stormwater Runoff Control

<p>1. Does the permittee have a process for receiving, investigating, and resolving complaints from interested parties related to construction activities and erosion and sediment control? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Describe the process:</p> <p><i>UMD has developed a Stormwater Hotline (301-405-2222) for concerned individuals to call in complaints related to construction activities. This number is staffed 24 hours a day/7 days a week and provides service for the entire campus. Emails are also accepted at stormwater@umd.edu. Calls received are logged and then forwarded to the project manager in charge of the project and subsequently addressed with the contractor. The actions to remediate the problems are then relayed back to the concerned parties and the project manager follows through with the contractor to ensure the problems are addressed within seven days.</i></p> <p><i>In addition, UMD implemented a more robust IDDE tracking system to better respond to any identified illicit discharges, especially associated with construction projects (see Section III(C) above).</i></p>
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Table 4: MCM #4 - Construction Site Stormwater Runoff Control

Provide a list of all complaints and a summary of actions taken to resolve them:

12/11/2018 – DESSR notified P&C of sediment discharge from Outfall #003 and #004. Project Manager and contractor of the Cole Fieldhouse project were notified and discharge was determined to be from a dewatering pump. Pump discharge was relocated to a sediment tank for treatment.

12/17/2018 – DESSR notified P&C of sediment laden discharge from a filter bag and dewatering pump operated by a Purple Line contractor. P&C contacted the Purple Line project manager and the issue was corrected.

01/11/2019 – DESSR notified P&C of sediment discharge from Outfall #003 and #004. The sediment tank at the Cole Fieldhouse site was determined to need cleaning and maintenance.

2/8/2019 – DESSR identified construction stockpiles at Fieldhouse Drive for needing protection at nearby inlets and covers during wet weather events. The appropriate project managers were contacted for resolution.

02/12/2019 – Water main break resulting in sediment discharge to outfall #19. Water main was repaired and sediment was removed.

03/11/2019 – Public complaint for sediment discharge from outfall pipe at Guilford Drive between Hartwick Rd & Graduate Garden Apartments. FM and DESSR staff investigated and traced source back to sidewalk replacement project by Graduate Gardens operator. Staff contacted operator to stabilize and address construction activity.

12/05/2019 – DESSR notified P&C of pH exceedance at Outfall 005. P&C notified the Purple Line construction to clean their sediment controls and to ensure no concrete wastes are being disposed into the storm drain system.

02/07/2020 – DESSR notified P&C that a concerned citizen reported sediment discharge from the new Residence Hall and Dining Facility construction site. The UMD PM was immediately notified and coordinated with the contractor to address/repair.

06/08/2020 – BLM staff notified P&C of concerns on lack of sediment controls around a couple of storm drain inlets in the vicinity of the Residence Hall construction site. The

Table 4: MCM #4 - Construction Site Stormwater Runoff Control

<p><i>PM coordinated with the contractor that the inlets in question have adequate sediment controls.</i></p>
<p>1. Total number of active construction projects within the reporting period: <input type="text" value="12"/></p> <p>Provide a list of all construction projects and tabulate the total disturbed area:</p> <ol style="list-style-type: none"> 1. <i>Iribe Center for Computer Science (16-SF-0064) – 4.9 ac</i> 2. <i>Cole Fieldhouse (16-SF-0061) – 13.3 ac</i> 3. <i>Purple Line (17-PL-0009) – 25 ac</i> 4. <i>Campus Creek Stream Restoration (18-SF-0204) – 4.5 ac</i> 5. <i>HJ Patterson Wing 2 Mechanical Room (17-SF-0107) – 0.5 ac</i> 6. <i>College Park Woods Trail (DPIE 29791-2017-0) – 2.2 ac</i> 7. <i>The Hall (19-SF-0195) – 0.8 ac</i> 8. <i>4600 River Road (DSP 09028-01) – 13.4 ac</i> 9. <i>Residence Hall and Dining Facility (19-SF-0094) – 8.8 ac</i> 10. <i>School of Public Policy (19-SF-0062) – 4.6 ac</i> 11. <i>Idea Factory (19-SF-0162) – 1.1 ac</i> 12. <i>Chilled Water Piping Mitchell Hall to Reckord Armory (20-SF-0004) – 0.1 ac</i>
<p>2. Total number of violation notices issued by MDE related to this MCM on the agency’s property: <input type="text" value="0"/></p> <p>Describe the status of enforcement activities:</p> <p><i>Repeated violations on the Cole Fieldhouse Project (MDRCQSOK8/16-SF-0061) led to MDE issuing an Administrative Penalty Assessment on 3/19/2019 to the contractor responsible. The fine was accepted, but more importantly, no additional violations have been since been reported.</i></p> <p>Describe how the permittee communicates and collaborates with MDE to maintain compliance with this MCM for all active construction projects on the agency’s property:</p> <p><i>Every project begins with a preconstruction meeting with MDE to ensure lines of communications and expectations are clear. MDE inspects and enforces the E&SC plan throughout the construction process; however, UMD also has several construction inspectors that regularly monitor construction sites. Our inspectors have MDE</i></p>

Table 4: MCM #4 - Construction Site Stormwater Runoff Control

<p><i>Responsible Personnel Certification training and have the authority to ensure the construction is in accordance with the approved plans. The MDE inspector is notified of any repeated any compliance issues or deviations from the approved plans.</i></p> <p><i>Construction site runoff is strictly the responsibility of the contractor who assumes control of the project site. Although UMD transfers the NPDES permit to the responsible contractor who accepts liability and enforcement of the sediment control, UMD inspectors and project managers provide oversight to ensure all requirements are met. In case of emergency spills or violations, the university has staff and on-call contractors to provide abatement as necessary.</i></p> <p>Are erosion and sediment control inspection records retained and available to MDE during field review of the agency MS4 program? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If No, explain:</p>	
<p>3. Number of staff trained in MDE’s Responsible Personnel Certification:</p>	<input style="width: 50px; border: 1px solid black;" type="text" value="15"/>
<p><i>In addition to the IDDE training provided by DESSR, BLM and FM staff are vigilant to monitor construction activity across campus. Any potential violations are immediately reported so that the responsible project manager or contractor is notified and the proper actions can be taken to address. Responsible Personnel Certification training is available to all staff involved with construction management or inspection.</i></p>	
<p>4. Describe the coordination with other entities regarding implementation of this MCM:</p> <p><i>Coordinated with Department of Environmental Safety, Sustainability & Risk to address compliance issues. Coordinated with Purple Line and MTA for compliance.</i></p>	
<p>5. List the total cost of implementing this MCM over the permit term:</p> <p><i>Costs exceeded \$500,000 to implement ESC on construction projects</i></p>	

Future Progress: UMD will continue to coordinate and comply with all MDE erosion and sediment control requirements for construction sites.

E. Post Construction Stormwater Management

Post construction stormwater management includes providing stormwater management for new construction projects as well as redevelopment projects, and ensuring that all stormwater BMPs are properly maintained in order to achieve maximum stormwater treatment. In addition, UMD personnel look for opportunities to retrofit existing impervious areas with stormwater management wherever possible. Table 5 presents specific BMPs and measurable progress.

During the design of new construction projects and redevelopment projects, UMD complies with all MDE stormwater management regulations. This includes providing Environmental Site Design (ESD) stormwater management facilities to the maximum extent practicable (MEP) for all projects, and incorporating other stormwater BMPs as needed. All projects incorporated required stormwater management facilities and the design plans were reviewed and approved by MDE.

A robust stormwater management maintenance program is necessary to ensure these facilities are operating at peak performance. UMD continued to make progress in this area during the reporting period. FM-BLM is responsible for inspection and maintenance of all stormwater BMPs. One full-time staff member is dedicated to managing this program; however, several staff members from other departments (e.g., DESSR, Facilities Planning) assist. Staff and student volunteers are able to perform a significant amount of maintenance; however, it was necessary to supplement this work with contractors. UMD dedicated funds to hire a maintenance contractor to assist with needed repairs.

UMD follows the MDE procedural guidance for performing inspections, including inspection intervals and checklists. All BMPs were visually inspected per the inspection program, and many of them were maintained as part of routine UMD landscape management or were part of volunteer maintenance projects.

Table 5: MCM #5 - Post Construction Stormwater Management

1.	<p>Has an Urban BMP database been submitted in accordance with the database structure in Appendix B, Tables B.1.a, b, and c as a Microsoft Excel file? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Describe the status of the database, efforts to complete all data fields, and provide a date as to when the required information will be submitted to MDE:</p> <p><i>The initial database was submitted with the 2019 Annual report and an update is included in Attachment I.</i></p>
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Table 5: MCM #5 - Post Construction Stormwater Management

<p>2.</p>	<p>Total number of plans submitted to MDE for review and approval: <input style="width: 50px; text-align: center;" type="text" value="6"/></p> <ul style="list-style-type: none"> • <i>Campus Creek Stream Restoration (18-SF-0204)</i> • <i>HJ Patterson Wing 2 Mechanical Room (17-SF-0107)</i> • <i>The Hall (19-SF-0195)</i> • <i>Residence Hall and Dining Facility (19-SF-0094)</i> • <i>School of Public Policy (19-SF-0062)</i> • <i>Idea Factory (19-SF-0162)</i> <p>Total number of as-built plans submitted to MDE: <input style="width: 50px; text-align: center;" type="text" value="2"/></p> <ul style="list-style-type: none"> • <i>Bioengineering Building (14-SF-0265)</i> • <i>Building and Landscape Services Office Building (13-SF-0233)</i> <p>Number of submitted as-built plans approved by MDE: <input style="width: 50px; text-align: center;" type="text" value="2"/></p>
<p>3.</p>	<p>Total number of BMPs located on each property covered under the general permit (list individual property, and total BMPs for that property – provide separate attachment if necessary):</p> <p><i>IBBR: 7 BMPs</i> <i>UMCP Main Campus: 156 BMPs</i></p> <p>Does the permittee perform inspections for all structural BMPs in accordance with the Dam Inspection Checklist in Maryland Pond Code 378 at least once every three years? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If No, describe efforts to train staff and develop a program to perform these required inspections on a triennial basis:</p> <p>Are BMP inspection records retained and available to MDE during field review of local programs? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p>

Table 5: MCM #5 - Post Construction Stormwater Management

4. Provide a summary of routine maintenance activities for all BMPs:

All maintenance activities are in compliance with, and closely follow MDE recommendations for each stormwater facility type. Activities include removal of dead and overgrown plant material, policing of trash and debris, removal of minor clogs and blockages, and inspection for proper function.

Are BMP maintenance procedures consistent with maintenance requirements on MDE approved plans?

Yes No

Are completed BMP maintenance checklists available to MDE during field review of local programs?

Yes No

If either answer is No, describe planned actions to implement maintenance checklists and procedures and provide formal documentation of these activities:

We are in the process of implementing a system that schedules, tracks and records an accounting log of all maintenance and repair activities required for each facility. Currently, BMP maintenance is tracked through itemized invoices of maintenance and repairs performed by contractors. A more comprehensive log that documents all activities by the Stormwater Maintenance Inspector, volunteers, and landscape staff is being developed.

Describe all problems discovered during routine maintenance operations and repair work performed to restore the function of the BMP(s) (attach photos and additional documentation as needed):

Sediment buildup, invasive plant removal, and clogged inlets and outfalls are the primary routine maintenance tasks. See inspection report for all UMD BMPs in the 2019 Annual Report. Additionally, a lack of construction documents for older facilities is another issue that brings into question what "proper function" should be. UMD has made significant progress in recovering existing design plans and creating digital file storage for these plans.

Table 5: MCM #5 - Post Construction Stormwater Management

5.	<p>Number of staff trained in proper BMP design, performance, inspection, and routine maintenance: <input type="text" value="10"/></p> <p><i>Design of SWM BMPs associated with site development projects are performed by professional consultants retained by the university. In addition to the CBLP training as mentioned in Table 1 and IDDE training in Table 3, all staff responsible for inspection and maintenance are trained on importance of keeping storm drains clear and differences between storm drain conveyance structures and BMP inlets.</i></p>
6.	<p>Provide a summary of activities planned for the next reporting cycle:</p> <p><i>Develop and implement a tracking system to inspection and maintenance of BMPs. Continue routine maintenance and prioritize repair items to accommodate budgetary constraints.</i></p>
7.	<p>List the total cost of implementing this MCM over the permit term:</p> <p><i>Over \$400,000</i></p>

Future Progress: UMD will continue to comply with all MDE stormwater management regulations for construction projects. The inspection and maintenance program continues to evolve and improve. UMD is in the process of evaluating all stormwater management facilities to determine forthcoming MS4 permit retrofit requirements.

F. Pollution Prevention and Good Housekeeping

UMD is required to implement and maintain pollution prevention and good housekeeping practices to reduce pollution from all operations. During the reporting period, progress was made towards reducing pollution and ensuring UMD has appropriate coverage under various State and Federal water pollution control programs. Table 6 presents specific BMPs and measurable progress.

During the reporting period, several other measures were taken to reduce the potential for pollution from entering the storm drain system, including street sweeping, maintaining healthy tree canopies, and reducing pesticide applications.

Table 6: MCM #6 - Pollution Prevention and Good Housekeeping

1. Provide a list of topics covered during the last training session related to pollution prevention and good housekeeping, and attach to this report specific examples of training materials:

Annual SPCC training

- *Spill Prevention*
- *Good Housekeep*
- *Preventative Maintenance*
- *Proper storage and handling of materials*
- *Proper Spill Response*

Annual SWPPP training

- *Good housekeeping of outdoor storage*
- *Preventative maintenance procedures*
- *Structural and non-structural BMPs*

*SPCC and SWPPP training materials are included in **Attachment C**.*

List all training dates within this two-year reporting period:

- February 1 / 4, 2019 – Environmental Boot Camp SPCC/SWPPP*
- 5/14/2019 – Clarksville and Beltsville Farm SPCC*
- May 21/23, 2019 – Dining Services SPCC/SWPPP*
- 5/22/2019 – Western Maryland Farm SPCC*
- 5/29/2019 – Eastern Shore Farms (LES and Wye) SPCC*
- 5/30/2019 – Upper Marlboro Farm SPCC*
- June 6, 2019 – Shuttle Bus SPCC/SWPPP*

Table 6: MCM #6 - Pollution Prevention and Good Housekeeping

<p> <i>January 2020 – Central Heating Plant SPCC Online Training</i> <i>1/13/2020 – Lower Eastern Shore (LES) Farm SPCCC Online Training</i> <i>1/15/2020 – Clarksville Farm SPCC Online Training</i> <i>1/16/2020 – Facilities Management SPCC Online Training</i> <i>1/17/2020 – Beltsville Farm SPCC Online Training</i> <i>1/22/2020 – Western Maryland Farm SPCC Online Training</i> <i>3/24/2020 – Wye Farm SPCC Online Training</i> <i>3/23-27, 2020 – Shuttle Bus SPCC Online Training</i> <i>3/1-4/2, 2020 – UMD Concessions SPCC Online Training</i> </p> <p> <i>UMD now offers online training in addition to in-person training. Online training is also available on-demand at: https://essr.umd.edu/environmental-affairs/stormwater-management.</i> </p> <p> Number of staff attended: <input type="text" value="594/64"/> (2019/2020) </p>
<p>2. Are the good housekeeping plan and inspection records at each property retained and available to MDE during field review of the local program? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><i>All SWPPP quarterly and annual inspections along with the monthly SPCC inspections are housed within the Seneca Building and on the K: drive (network share drive).</i></p> <p>If No, explain:</p> <p>Provide details of all discharges, releases, leaks, or spills that occurred in the past reporting period using the following format (attach additional sheets if necessary).</p> <p>Property Name: <i>University of Maryland</i> Date: <i>February 8, 2020</i></p> <p>Describe observations:</p> <p><i>Sanitary overflow from a sanitary sewer system manhole located in front of the residential hall Leonardtown 238. The overflow ran across a sidewalk and into the grass and across the hardscapes to a stormwater inlet, where a portion of the flow entered.</i></p> <p>Describe permittee's response:</p> <p><i>Bypass pumping was deployed until flows were reduced and overflow was stopped. All contaminated areas were disinfected and nearby student residents were notified. Future preventative maintenance to be performed on system to prevent recurrence.</i></p>

Table 6: MCM #6 - Pollution Prevention and Good Housekeeping

<p>Property Name: University of Maryland Date: November 1, 2019</p> <p>Describe observations:</p> <p>Sanitary overflow from a sanitary sewer system manhole located in front of Chincoteague Hall at McKeldin Mall. Approximately 525 gallons were discharge of which approximately 125 gallons entered a nearby stormwater inlet, which discharges to outfall 005.</p> <p>Describe permittee's response:</p> <p>Bypass pumping was deployed until the overflow stopped. All areas were cleaned and disinfected. This line is owned by WSSC and they are performing maintenance until the line can be replaced.</p>
<p>Property Name: University of Maryland Date: September 27, 2019</p> <p>Describe observations: Sewer overflow at manholes and floor drains at Capital One Stadium</p> <p>Describe permittee's response: Blockage was found in the sanitary pipes and were jetted and cleared. All surfaces were disinfected.</p>
<p>Property Name: University of Maryland Date: September 3, 2019</p> <p>Describe observations: Overflow at a sanitary sewer system manhole in the walk way between the South Campus Dining Hall and the South Campus Commons 2.</p> <p>Describe permittee's response: Pipe services is to perform preventative maintenance of sanitary sewer system. EA will continue to closely monitor discharges in accordance with the University's NPDES permit and IDDE plan. FM will order and maintain inventory of materials for sewage spill response. Measures taken to mitigate impact: Initially, booms were placed at the impacted stormwater inlets to minimize the discharge of sewage. The University's Incident Response Unit (IRU) also requested that domestic water to the surrounding buildings be curtailed in order to reduce the volume of the sewage overflow. After request was made and communicated to maintenance staff, domestic water supply was secured at approximately 6:15 pm. The overflow from the manhole stopped shortly thereafter. University staff, with assistance from an on-call plumbing contractor, were able to remove the blockage in the WSSC sewer line and stop the overflow. Powdered lime was applied to disinfect any surfaces contacted by the sewage overflow.</p> <p>Public notification: Residents of the South Campus Commons 2 were notified via email about their domestic water being shut off. MDE Emergency Response was notified via a phone call on 9/03/2019 at approximately 7:11pm.</p>

Table 6: MCM #6 - Pollution Prevention and Good Housekeeping

<p>Property Name: University of Maryland Date: August 5, 2019</p>
<p>Describe observations:</p>
<p>Wash water from the Shuttle Bus facility's bus washing area was observed discharging from discharge pipe into the banks of the unnamed tributary. While the plug in the trench drain was in place to seal the discharge pipe, flow was observed from the end of the discharge pipe. Wash water in the trench drain had an oil sheen to it.</p>
<p>Describe permittee's response:</p>
<p>DESSR Informed Shuttle Bus Facility personnel to ensure the plug is properly tightened prior to use of the wash area. If the plug is worn, please replace it prior to using the area anymore. Booms or oil pads should be used to remove any oil / sheen prior to discharge, even if the wash water is being sent to the sanitary sewer.</p>
<p>Property Name: University of Maryland Date: December 4, 2018</p>
<p>Describe observations: Used cooking oil/grease was leaking from dumpster.</p>
<p>Describe permittee's response: Sawdust and other spill response materials were deployed to contain the spill. Spill materials were disposed in dumpster and unit was removed for repair/replacement. Employees to be retrained on proper oil disposal.</p>
<p>Property Name: University of Maryland Date: November 20, 2018</p>
<p>Describe observations: Sewer overflow at manhole in front of Chincoteague Hall at McKeldin Mall. A portion of the overflow (approximately 250 gallons) entered the stormwater system via an inlet between McKeldin Library and Chincoteague Hall. The inlet is connected to Outfall 005 and discharges to an unnamed tributary of the Paint Branch.</p>
<p>Describe permittee's response: Straw bales and sandbags were installed around the nearest storm drain to prevent flow from continuing to enter the storm drain system. The small amount of biosolids in the immediate vicinity of the manhole were removed for disposal. Powdered lime was applied to disinfect any surfaces contacted by the sewage overflow.</p>
<p>3. Quantify and report property management efforts as shown below, where applicable (attach additional sheets if necessary).</p>

Table 6: MCM #6 - Pollution Prevention and Good Housekeeping

Number of miles swept:

Amount of debris collected from sweeping (indicate units):

If roads and streets are swept, describe the strategy the permittee has implemented to maximize efficiency and target high priority areas: *A prescribed route was mapped and followed.*

Number of inlets cleaned:

Amount of debris collected from inlet cleaning (indicate units):

Describe how trash and hazardous waste materials are disposed of at permittee owned and operated property(ies), including debris collected from street sweeping and inlet cleaning:

Based on waste qualities-Subtitle C regulates all waste (chemical waste) and Subtitle D (solid waste) dictates how waste is picked up, transported, stored, and disposed of. Since UMD is a treatment, storage, and disposal facility (TSDF), we handle regulated waste regularly and accordingly.

Does the permittee have a current State of Maryland public agency permit to apply pesticides?

Yes No

If No, explain (e.g., contractor applies pesticides):

Does the permittee employ at least one individual certified in pesticide application?

Yes No

If Yes, list name(s):

Karen Petroff, Joseph Cook, Edward Williams, Chris Humphrey, Luis Alfonzo, Bleriot Kuiken, Oscar Ferrer, Michael Ellis, Mark Santamaria, Scott Rupert, Ray Hargadon, Carlos Ramos, Jeff Weiser, Jean Nana, Darrick Davis, Thomas Adams, Michael Carmichael, Meg Smolinski, Sam Bahr, Richard Jones

If the permittee applied pesticides during the reporting year, describe good housekeeping methods (e.g., integrated pest management, alternative materials/techniques):

Table 6: MCM #6 - Pollution Prevention and Good Housekeeping

Integrated pest management is the standard operating procedure with organic land management where feasible. Mixing of chemicals occurs in a centralized location with spill prevention and control measures implemented.

If the permittee applied fertilizer during the reporting year, describe good housekeeping methods (e.g., application methods, chemical storage, native or low maintenance species, training):

Maryland Professional Fertilizer Applicators supervise all applications and follow the strict application regulations of the state of Maryland. Recent applications have employed EEF technology ensuring a release rate of no more than 0.7 lb N per month.

UMD currently has 11 Professional Fertilizer Applicators and 21 train applicators on staff. All state practices are followed.

If the permittee applied materials for snow and ice control during the reporting year, describe good housekeeping methods (e.g., pre-treatment, truck calibration and storage, salt domes):

Road salt is stored and dispatched from a salt dome and spreaders are calibrated as needed. Clearing occurs prior to material application to minimize amount of material required to maintain safe conditions. A detailed snow management plan is established to ensure policies and procedures are followed.

Describe good housekeeping BMP alternatives not listed above:

4. If applicable, provide a status update for permittee owned or operated properties regarding coverage under the Maryland General Permit for Stormwater Discharges Associated with Industrial Activity or an individual industrial surface water discharge permit:

UMD currently has a Maryland General Permit for Stormwater Discharges Associated with Industrial Activity for 6 industrial sites around campus (MDR003281). Additionally, UMD has an Individual State Discharge Permit (MD0063801) which expired in October 31, 2017 but has been currently administratively extended while MDE reviews the permit application for the 2017 permit renewal. Currently, UMD staff is working with MDE to adjust their permit limits under the Individual State Discharge Permit for total copper.

Table 6: MCM #6 - Pollution Prevention and Good Housekeeping

5. List the total cost of implementing this MCM over the permit term:

\$25,000 for street sweeping

\$10,000 for training and certifications

Future Progress: UMD will continue to implement the 12-SW permit to reduce discharges from industrial facilities. UMD has received a tentative determination for renewing the NPDES Discharge permit (Permit Number 08-DP-2618), and anticipates a final determination in the coming months. Progress will continue to be made on tree plantings, street sweeping, and other pollution prevention measures.

V. CHESAPEAKE BAY RESTORATION AND MEETING TOTAL MAXIMUM DAILY LOADS

The University of Maryland is committed to contributing towards the nutrient and sediment load reductions as specified by Maryland’s Watershed Implementation Plan to address the Chesapeake Bay TMDL by 2025.

The Baseline Impervious Area Treatment and Restoration Requirements were updated with this report.

A. Baseline Impervious Area Treatment

This section presents the Baseline Impervious Area Assessment. All of the UMD properties to be regulated as identified in the NOI were imported into a GIS mapping database. Mapping features delineated included all impervious and pervious areas within the properties, locations of existing Best Management Practices (BMPs), and drainage areas to the BMPs. Previously unidentified BMPs were added and impervious areas were updated to reflect development projects completed during the reporting period

The previous annual report provided identification and inspection of all existing surface BMPs known at the time. Additional progress was made since the last year by identifying additional previously unknown BMPs constructed with legacy projects. Inspection of all green roofs and underground structures were also completed.

A summary of the baseline information is follows:

	2019 (acres)	2020 (acres)
Total impervious covered by permit	458.4	459.33
Total impervious treated by BMPs	15.5	26.36
Total impervious treated by nonstructural practices	0.22	0.04
Total impervious acres untreated	443	432.97
20% restoration requirement	88.6	86.59

In the 2019 report, UMD identified and inspected 121 BMPs on the College Park Campus that were reported in the stormwater database. Of these facilities, 33 were identified as passing inspection; however, only 13 of these BMPs were assumed to be eligible for baseline or redevelopment credit as they had as-built plans or would be surveyed during the permit term.

Since the previous report, additional facilities were identified by cross checking legacy projects with the MDE permit database and searching UMD archives for records. BMPs constructed for leased projects on university owned properties were also added to the database. The IBBR BMPs were also incorporated in the UMCP BMP database. Finally, inspection efforts and further research led to reclassification or separation of a few facilities. Overall, 44 facilities were added to the BMP database for a total of 165 BMPs in the 2020 report.

To effectively manage the large number of BMPs for this year, the university decided to focus on the facilities that were permitted by MDE and constructed with past development projects. Any of these facilities without as-built approvals, were identified as priorities for maintenance and obtaining verification surveys for compliance with the permit.

See **Attachment D** for the full UMD MS4 Baseline BMP Assessment Report.

Table 1 below includes the Section I, Impervious area restoration reporting, as required by the MS4 permit. Overall, the initial baseline assessment finds that there is 459.33 acres of existing impervious area within the NOI boundaries. Of the 165 BMPs within the UMD database, 21 BMPs were identified to be in passing condition and met all MDE requirements including documentation with as-built plans and inspection documents, which qualifies for 26.36 acres of baseline treatment.

Facilities that qualify for restoration credit, as they were constructed for redevelopment projects, were also identified in the updated database. The baseline assessment will be updated annually to reflect the redevelopment restoration credit when the documentation verification for these facilities is complete.

Based on 459.33 acres of existing impervious area and 26.36 ac of treatment, 20% of the remaining 432.97 acres of untreated impervious area requires 86.59 acres of restoration.

Table 7: Section I - Impervious Area Restoration Reporting

1. a. Was the impervious area baseline assessment submitted in year 1?	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
b. If No, describe the status of completing the required information and provide a date at which all information required by MDE will be submitted:	
c. Has the baseline been adjusted since the previous reporting year?	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
2. Complete the information below based on the most recent data:	
Total impervious acres of area covered under this permit:	<input style="width: 100px;" type="text" value="459.33"/>
UMD 454.81 acres + IBBR 4.52 acres	
Total impervious acres treated by stormwater water quality best management practices (BMPs):	<input style="width: 100px;" type="text" value="26.36"/> UMD 24.05 acres + IBBR 2.31 acres
Total impervious acres treated by BMPs providing partial water quality treatment (multiply acres treated by percent of water quality provided):	

UMD 8.63 acres + IBBR 2.22 acres

Total impervious acres treated by nonstructural practices (i.e., rooftop disconnections, non-rooftop disconnections, or vegetated swales):

UMD 0.1 acres + IBBR 0.03 acres

Total impervious acres untreated:

Twenty percent of this total area (this is the restoration requirement):

Verify that all impervious area draining to BMPs with missing inspection records is not considered treated. Describe how this information was incorporated into the overall analysis:

All BMPs included in the treatment total have proper verification documentation and inspection records supporting that these facilities will provide water quality treatment in their current condition. Impervious area draining to BMPs without as-built plans or proper verification documentation were included in the untreated impervious acres total. Impervious area draining to BMPs reported as failing were also included in the untreated impervious acres total.

3. Has an Impervious Area Restoration Work Plan been developed and submitted to MDE in accordance with Part V.B, Table 1 of the permit or other format?
 Yes No

Has MDE approved the work plan?

Yes No

If the answer to either question is No, describe the status of submitting (or resubmitting) the work plan to MDE and provide a date at which all outstanding information will be available:

Describe progress made toward restoration planning, design, and construction efforts and describe adaptive management strategies necessary to meet restoration requirements by the end of the permit term:

In year 2, 35 verification surveys were completed for facilities missing as-built plans. This allowed UMCP to claim 23.08 acres of treatment toward the baseline and 5.07 acres of restoration credit.

Planning level restoration concepts and cost estimates were developed for 5 existing facilities. Maintenance items were identified to restore facilities to design conditions. Additional action items were identified for facilities that qualified for possible retrofit. These restoration concepts will be utilized for coordinating with engineers for design.

UMCP made additional progress with an August 2020 submission to the Chesapeake Bay Trust Watershed Assistance Grant Program to acquire funding for the design of Phase II of the Campus Creek Restoration and retrofit of the Animal Science dry pond. UMCP will receive notification of the grant decision in December 2020.

4. Has a Restoration Schedule been completed and submitted to MDE in accordance with Part V.B, Table 2 of the permit?

Yes No

In year 5, has a complete restoration schedule been submitted including a complete list of projects and implementation dates for all BMPs needed to meet the twenty percent restoration requirement?

Yes No

Are the projected implementation years for completion of all BMPs no later than 2025?

Yes No

Describe actions planned to provide a complete list of projects in order to achieve compliance by the end of the permit term:

In year 1, a project list was developed including a stream restoration and list of existing facilities to bring into compliance. Depending on the construction purpose and built date, credit from completing work for existing facilities may contribute toward the baseline rather than the restoration goal. This project list will be updated as needed to document additional projects anticipated to be completed under this permit term.

Describe the progress of restoration efforts (attach examples and photos of proposed or completed projects when available):

The Campus Creek Stream Restoration was completed in November 2019. Required documentation for the stream restoration was submitted to MDE in year 1. The stream restoration provides a maximum credit of 104.8 acres. This exceeds UMCP restoration requirement of 86.59 acres.

Even though UMCP has surpassed their restoration requirement, UMCP has continued efforts to identify additional restoration opportunities across campus. This

included an analysis of 5 BMPs to develop restoration concepts to restore the BMP to design conditions or retrofit to update the facility to current MDE standards, when applicable. Additionally, UMCP applied to the Chesapeake Bay Trust Watershed Assistance Grant Program to receive funding for the design of Phase 2 of the Campus Creek restoration and the retrofit of Animal Science Pond. These projects combined would provide an estimated additional restoration credit of 35 acres.

5. Has the BMP database been submitted to MDE in Microsoft Excel format in accordance with Appendix B, Tables B.1.a, b, and c?

Yes No

Is the database complete?

Yes No

If either answer is No, describe efforts underway to complete all data fields, and a date that MDE will receive the required information:

Additional BMPs were identified after further investigation of UMCP campus treatment. These BMPs have not been fully investigated to verify treatment and current condition. Information including drainage area, impervious areas and Pe treated will be completed for the database in Year 3.

6. Provide a summary of impervious area restoration activities planned for the next reporting cycle (attach additional information if necessary):

Establish as-built records and determine impervious area treated for existing facilities that have no design records. Perform repairs on existing facilities that are not functional. Establish routine maintenance reporting and integrate with GIS database. Coordinate with engineering firms to begin design phase of restoration projects. See attached restoration activity schedule.

7. Describe coordination efforts with other agencies regarding the implementation of impervious area restoration activities:

Currently in discussions with City of College Park for treatment of off-site City drainage that flows onto UMD campus. Also in discussions with MTA for credit sharing of SWM facilities being proposed for Purple Line construction.

8. List the total cost of developing and implementing impervious area restoration program during the permit term:

Year 1: Consultant cost \$168,232

Year 2: Consultant cost \$297,472

Approximate Cost to bring all permitted BMPs into MS4 compliance: \$2 million

B. Impervious Area Restoration Work Plan

The restoration work plan required to be submitted with the MS4 progress report describes the plans and future activities proposed, as well as progress completed, over the course of the permit term towards meeting the restoration requirement.

Table 8: Restoration Work Plan

Year 1 (FY19)	<ul style="list-style-type: none"> • Import entire UMD campus properties into GIS mapping. • Delineate all property lines, impervious areas, pervious area surfaces, BMP locations and drainage areas for baseline assessment. • Inspect the entire UMD inventory of SWM BMP facilities and assess for compliance with the MS4 permit requirements. • Research archives at UMD and MDE. Compile all available design plans, as-built plans, stormwater reports and maintenance records for each BMP. • Rate each facility based on the condition, availability of design plans, as-built plans, and maintenance records. • Establish a priority list of BMP repairs based on the lowest cost and greatest potential treatment areas. • Establish a BMP maintenance tracking program. • Program budgets for Year 2 surveys, designs, and repairs.
Year 2 (FY20)	<ul style="list-style-type: none"> • Complete MS4 BMP database. • Incorporate IBBR impervious and BMP inventory into UMCP MS4 BMP database. • Update GIS impervious layer to incorporate completed construction projects. • Begin BMP verification survey for facilities without as-built documentation. • Begin developing a remediation plan or restoration concepts for failing BMPs. • Develop priority ranking for non-permitted facilities to determine if facility should be restored/retrofit and permitted. • Update baseline assessment and restoration goal. • Update restoration activity schedule for completed and proposed projects. • Develop program budgets for Year 3 surveys, designs, and repairs.

<p>Year 3 (FY21)</p>	<ul style="list-style-type: none"> • Inspect and evaluate treatment for additional BMPs added to the BMP database during the year 2 analysis. • Continue BMP verification survey for facilities without as-built documentation. • Complete inspection for high priority non permitted facilities to identify repair requirements or retrofit opportunities. • Develop priority ranking for permitted facilities to develop refined restoration schedule. • Begin repairs for BMPs requiring remediation. • Begin implementing projects identified on the restoration activity schedule. • Update GIS impervious layer to incorporate completed construction projects. • Update baseline assessment and restoration goal. • Update and submit Urban BMP database and documented maintenance and inspection status for all BMPs. • Update restoration activity schedule on completed and proposed projects. • Develop program budgets for Year 4 surveys, designs, and repairs.
<p>Year 4 (FY22)</p>	<ul style="list-style-type: none"> • Perform BMP verification survey for IBBR outfall stabilization. • Complete BMP verification survey for facilities without as-built documentation. • Begin restoration efforts for high priority non-permitted BMPs. • Continue repair efforts for facilities requiring remediation. • Continue implementing projects identified in the restoration activity schedule. • Update GIS impervious layer to incorporate completed construction projects. • Update baseline assessment and restoration goal. • Update and submit Urban BMP database and documented maintenance and inspection status for all BMPs. • Update restoration activity schedule on completed and proposed projects. • Develop program budgets for Year 5 designs and repairs.

Year 5 (FY23)	<ul style="list-style-type: none">• Continue repair efforts for facilities requiring remediation.• Continue implementing projects identified in the restoration activity schedule.• Update GIS impervious layer to incorporate completed construction projects.• Update baseline assessment and restoration goal.• Update and submit Urban BMP database and documented maintenance and inspection status for all BMPs.• Develop program budgets for proposed restoration projects.• Update restoration activity schedule for completed and proposed projects. All proposed projects must be completed no later than 2025.
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C. Restoration Activity Schedule

The Restoration Activity Schedule shows the status of projects that will be implemented to meet the MS4 permit restoration requirements. This table shows the proposed list of projects and identifies if they are in planning, construction or completed. The table is updated every year to show the balance towards achieving the restoration requirement.

Projects included in the Restoration Activity Schedule submitted in year 1 were each reviewed to determine if the project should remain on the schedule or be removed for this report. Completed restoration and redevelopment projects eligible for restoration credit were also reviewed. In reviewing the projects included in the year 1 Restoration Activity Schedule, restoration of facilities identified as functioning and requiring minimal maintenance were removed from the schedule.

Permitted facilities identified as failing or requiring maintenance beyond routine work remained on the schedule. Cost estimates and credit earned for projects already included in the schedule were updated. Many projects included in the restoration activity schedule will provide credit toward the baseline rather than the restoration goal once complete. The schedule was also updated to identify restoration and redevelopment projects completed within or after 2006. However, if the facility is missing necessary documentation or treatment has not been verified, restoration credit was not reported. The schedule will be updated as proper documentation is obtained and treatment verified.

For the FY2020 report, the Restoration Activity schedule was updated to identify 45 projects planned through 2025 for restoration work to bring these existing permitted BMPs into compliance. Phase 1 on the Campus Creek restoration project (BMP 0249) was completed in October 2019 and the restoration of the regional Surface Sand Filter (BMP 0005) is currently under design with an anticipated construction for summer of 2021.

In August of 2020, UMD applied for design grant with the Chesapeake Bay Trust for the phase 2 Stream Restoration of Campus Creek and restoration of the Animal Sciences Pond (BMP 0021).

Planned restoration activities for 2021 and beyond include maintenance and repair of various existing facilities. A ranking system was developed to help prioritize the facilities based on factors including safety, visibility, impervious area treated, cost, accessibility, maintenance, and permitting.

Five (5) restoration concept plans were developed for budgeting and planning, so that the university can allocate funding for this work in subsequent years. See **Attachment G** for the plans and cost estimates for these restoration concepts.

Finally, as part of the baseline assessment, legacy projects that qualified for baseline or restoration credits were also added to the restoration schedule to account for impervious area credits received to date. The complete schedule is included in **Attachment H**. The schedule below identifies the future work anticipated to bring all the remaining permitted BMPs into compliance.

Table 9: Phase II MS4 Restoration Activity Schedule

Phase II MS4 Restoration Activity Schedule									
Total Acreage (1297); Impervious Acre Baseline (459.33); 20% Restoration Target (86.59 acres)									
Type of Restoration Project	BMP Code	BMP ID	Cost (\$K)	Imperv Acres Treated	Imperv Acre Target and Balance	Project Status	Year Complete or Projected Implementation Year (by 2025)	MD Grid Coordinates (Northing/Easting)	
					86.59				
UMCP Student Housing Building B Sand Filter	FUND	UMCP20BMP0257	21.0	0.37	baseline	P	2021	145928	405022.5
Clark Hall Bioretention 1	MMBR	UMCP19BMP0231	6.2	0.16	-26.20	P	2021	147130	405375.4
Taylor Stadium Micro-bioretention	MMBR	UMCP19BMP0107	13.1	0.22	baseline	P	2021	147573	405296.4
Softball Complex retention pond	PWET	UMCP19BMP0012	7.2	6.87	baseline	P	2021	147658	405172.7
Kim Plaza Micro-bioretention	MMBR	UMCP19BMP0133		0.02	baseline	UC	2021	146961	405387.4
Kim Plaza Micro-bioretention	MMBR	UMCP19BMP0134		0.05	baseline	UC	2021	146948	405387.5
Kim Plaza Micro-bioretention	MMBR	UMCP19BMP0135		0.02	baseline	UC	2021	146934	405387.5
Kim Plaza Micro-bioretention	MMBR	UMCP19BMP0136		0.04	baseline	UC	2021	146948	405400.8
Kim Plaza Micro-bioretention	MMBR	UMCP19BMP0137		0.03	baseline	UC	2021	146934	405400.9
Kim Plaza Micro-bioretention	MMBR	UMCP19BMP0138		0.03	baseline	UC	2021	146961	405400.8
Kim Plaza Micro-bioretention	MMBR	UMCP19BMP0139		0.13	baseline	UC	2021	146962	405414.2
Kim Plaza Micro-bioretention	MMBR	UMCP19BMP0140		0.04	baseline	UC	2021	146948	405414.2
Kim Plaza Micro-bioretention	MMBR	UMCP19BMP0141		0.02	baseline	UC	2021	146934	405414.2
Kim Plaza Micro-bioretention	MMBR	UMCP19BMP0142		0.1	baseline	P	2021	146982	405407.4
Prince Frederick Hall Bioretention Cell 2	MMBR	UMCP19BMP0125	45.2	0.3	-26.50	P	2022	146116	404734.6
Terrapin Trail Garage retention pond	PWET	UMCP19BMP0024	6.5	3.85	baseline	P	2022	147411	404873.6
Comcast north retention pond	PWET	UMCP19BMP0056	60.0	5.96	baseline	P	2022	147751	405055.9
Laboratory for Physical Science Pond	PWET	UMCP19BMP0010	50.2	2.7	baseline	P	2022	148438	404925.5
Animal Science pond	PWET	UMCP19BMP0021	330.7	7.23	-33.73	P	2023	147227	405331.7
Brendan Iribe 3 Bioswale	MSWB	UMCP19BMP0243		0.19	-33.92	P	2023	146804	405608.1
Artificial Turf Field	PWET	UMCP19BMP0098	41.1	3.58	baseline	P	2023	147514	405342.5
Golf Course Parking Lot	MMBR	UMCP19BMP0112	24	0.26	baseline	P	2023	146968	404041.1
North East corner of Golf Course parking Lot	MRNG	UMCP19BMP0144	6	0.2	-34.12	P	2023	146956	404032.5
Mosquito Control MBR	MMBR	UMCP20BMP0261	14	0.27	baseline	P	2023	148672	405055.7
VetMed research pond	PWET	UMCP19BMP0020	54.9	7.14	baseline	P	2023	148418	405181.9
Lot 2 retention pond	PWET	UMCP19BMP0002	150	3.52	baseline	P	2024	147379	404651.4
Lot PP2 rain garden	FBIO	UMCP19BMP0090	257.5	4.88	baseline	P	2024	147315	405100.7
New Training Facility for MFRI Pond	PWET	UMCP20BMP0264	120.8	1.06	baseline	P	2024	146140	406328.3
Lot Three (Guilford Park Bioretention)	FBIO	UMCP19BMP0036	17	1.6	-35.72	P	2024	146323	404288.2
Greenmeade North Grass Channel B	MSWG	UMCP19BMP0065		0.22	baseline	P	2024	148725	405016.9
Greenmeade North Grass Channel A	MSWG	UMCP19BMP0066		2.43	baseline	P	2024	148721	405017.7
Lot 11b bioretention	FBIO	UMCP19BMP0022	17	0.82	baseline	P	2024	147243	405582.1
Lot 11b bioretention	FBIO	UMCP19BMP0043	17	0.54	baseline	P	2024	147241	405591.2
Lot 9 Bioretention	FBIO	UMCP19BMP0092		2.67	baseline	P	2024	147374	405327.2
Shuttle Bus Pond	PWET	UMCP19BMP0106		1.17	-36.89	P	2024	147494	405574.9
Campus Creek Stream Restoration Phase 2	STRE			42	-78.89	P	2025	147352	404982.8
Regents Drive Bioretention	FBIO	UMCP19BMP0091	14.6	0.79	-79.68	P	2025	147295	405324.8
Metzerott Rd. and Greenmead Dr.	PWET	UMCP19BMP0109	87	1.07	baseline	P	2025	148135	404878.5
Northwest corner of Golf Course Parking Lot Rain Garden	MRNG	UMCP19BMP0146	14.5	0.37	-80.05	P	2025	146970	403914
Southwest corner of Golf Course Parking Lot Rain Garden	MRNG	UMCP19BMP0147	12.5	0.2	-80.25	P	2025	146905	403933
Infiltration Trench 3 at IBBR	ITRN	USG19BMP00006		0.37	baseline	P	2025	158380	382711.8
Infiltration Trench 1 at IBBR	ITRN	USG19BMP00003		0.07	baseline	P	2025	158508	382721.7
Plant Sciences WQ Inlet	XOTH	UMCP20BMP0255	10	0	-80.25	P	2025	146730	405124
Terrapin Trail Garage Baysaver unit	XOGS	UMCP19BMP0162		0	-80.25	P	2025	147481	404827.6
Presidents House Disconnect 1	NDNR	UMCP19BMP0239		0.01	baseline	P	2025	146722	404139.6

D. BMP Database Tracking

The data tables specified in the MS4 permit have been completed for all identified BMPs within the permit area. A GIS system was established with these data tables so that the corresponding information can be recorded, updated, and tracked to be associated with an electronically mapped BMP feature.

See **Attachment I** for the Urban Best Management Practice Database. An electronic version of this information will also be transmitted to MDE.

The university intends to further develop this database and incorporate additional fields such as cost data, credit data and maintenance tracking to establish a more adaptive management approach to maintaining the BMPs. It will provide better data for managing, planning, budgeting and tracking of the UMD BMP inventory.

Coordination with Building and Landscape Maintenance and Department of Operations and Maintenance is on-going to create this system.

VI. CONCLUSION

The completion of the FY2020 General Discharge Permit #13-SF-5501 provides updates on the progress the University of Maryland, College Park has achieved on the six Minimum Control Measures and the Chesapeake Bay Restoration requirements.

Overall, the university continues to maintain programs related to education, involvement, IDDE, runoff control, stormwater management and pollution prevention related to the MS4 permit.

Although the university has met the Chesapeake Bay Restoration requirements for this permit term, the university continues to progress with documentation, restoration and maintenance of existing stormwater facilities on campus to bring all permitted BMPs into compliance with the MS4 permit.