

National Aeronautics and Space Administration
Goddard Space Flight Center
Greenbelt, MD 20771



October 24, 2019

Reply to Attn of: 250

Maryland Department of the Environment
Water and Science Administration
Sediment, Stormwater, and Dam Safety Program
1800 Washington Boulevard, Suite 440
Baltimore, MD 21230-1708

SUBJECT: Small Municipal Separate Storm Sewer System (MS4) Annual Report

NASA's Goddard Space Flight Center (GSFC) is submitting the enclosed MS4 Annual Report, as required by the National Pollutant Discharge Elimination System General Permit for Discharges from MS4 (General Discharge Permit No. 13-SF-5501). An Excel file of the Urban BMP Database will be e-mailed directly to Ms. Deborah Cappuccitti.

If you have any questions concerning this report, please contact Ms. Lori Levine at (301) 286-6741 or Lori.M.Levine@nasa.gov.

A handwritten signature in black ink, appearing to read "K. Finch".

Kimberly Finch P.E.
Chief, Medical and Environmental Management Division

Enclosure

cc:
Amy Fedorchak, Code 220

Maryland Department of the Environment (MDE)

National Pollutant Discharge Elimination System (NPDES)
Small Municipal Separate Storm Sewer Systems (MS4) General Permit

This Progress Report is required for those State and federal agencies covered under General Discharge Permit No. 13-SF-5501. Progress Reports must be submitted to:

Maryland Department of the Environment, Water and Science Administration
Sediment, Stormwater, and Dam Safety Program
1800 Washington Boulevard, Suite 440, Baltimore, MD 21230-1708
Phone: 410-537-3543 FAX: 410-537-3553
Web Site: www.mde.maryland.gov

Contact Information

Permittee Name:	Goddard Space Flight Center
Responsible Personnel:	George W. Morrow (Acting Director through 12/2019)
Mailing Address:	8800 Greenbelt Road, Mail Code 100 Greenbelt, MD 20771
Phone Number(s):	(301) 286-5121
Email address:	george.w.morrow@nasa.gov
Additional Contact(s):	Kimberly Finch, P.E./ Lori Levine*
Mailing Address:	8800 Greenbelt Road, Mail Code 250
Phone Number(s):	(301) 286-4230/ (301) 286-6741
Email address:	kimberly.s.finch@nasa.gov/ lori.m.levine@nasa.gov

***Please direct all permit correspondence to L. Levine**

Signature of Responsible Personnel

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

Kimberly Finch		10/24/2019
Printed Name	Signature	Date

Reporting Period (State Fiscal Year):

Due Date: **Date of Submission:**

Type of Report Submitted:

Impervious Area Restoration Progress Report (Annual):

Six Minimum Control Measures Progress (Years 2 and 4):

Both:

Permittee Information:

Renewal Permittee:

New Permittee:

Compliance with Reporting Requirements

Part VI of the Small MS4 General Discharge Permit (No. 13-SF-5501) specifies the reporting information that must be submitted to MDE to demonstrate compliance with permit conditions. The specific information required in this MS4 Progress Report includes:

1. Annual: Progress toward compliance with impervious area restoration requirements in accordance with Part V of the general permit. All requested information and supporting documentation must be submitted as specified in Section I of the Progress Report.
2. Years 2 and 4: Progress toward compliance with the six minimum control measures in accordance with Part IV of the general permit. All requested information and supporting documentation shall be reported as specified in Section II of the Progress Report. MDE may request more frequent reporting and/or a final report in year 5 if additional information is needed to demonstrate compliance with the permit.

Instructions for Completing Appendix D Reporting Forms

The reporting forms provided in Appendix D allow the user to electronically fill in answers to questions. Users may enter quantifiable information (e.g., number of outfalls inspected) in text boxes. When a more descriptive explanation is requested, the reporting forms will expand as the user types to allow as much information needed to fully answer the question. The permittee must indicate in the forms when attachments are included to provide sufficient information required in the MS4 Progress Report.

Section I: Impervious Area Restoration Reporting Form

Section I: Impervious Area Restoration Reporting

1. a. Was the impervious area baseline assessment submitted in year 1?

Yes No

This is the first year of reporting. The impervious area baseline is being submitted with this report.

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? **This is the first reporting year.**

Yes No

2. Complete the information below based on the most recent data:

Total impervious acres of area covered under this permit:

189.56

Total impervious acres treated by stormwater water quality best management practices (BMPs):

0.00

Total impervious acres treated by BMPs providing partial water quality treatment

(multiply acres treated by percent of water quality provided):

32.16

***32.16 potential impervious acres treated by three baseline ponds (SMW004, -008 and -009). GSFC is validating maintenance/inspection records and as-built drawings necessary to subtract from the baseline.**

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

2.07

***2.07 potential impervious acres treated by eight grass swales. GSFC is validating maintenance/inspection records and as-built drawings necessary to subtract from the baseline.**

Total impervious acres untreated:

155.33

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

31.07

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:

A baseline assessment was conducted using 2006 as the baseline year. BMPs are being verified based on as-built drawings/plans, and maintenance records are being reviewed. BMP maintenance records not available/not found were noted in the baseline assessment report. If the documentation cannot be retrieved, the associated BMP will be excluded from the baseline calculation until it can be verified.

Section I: Impervious Area Restoration Reporting

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:

GSFC's Impervious Restoration Work Plan is being submitted with this annual MS4 Phase II progress report as requested by Year 1 permit requirements.

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:

GSFC master planning updates underway are incorporating restoration efforts into future construction efforts/planning. GSFC is also evaluating potential restoration and pond retrofit projects, pending the availability of funding.

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

N/A

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:

Restoration efforts are being considered in current GSFC master planning updates for future construction efforts and site planning. Implementation of proposed BMP improvements or alternative restoration practices is contingent upon appropriated funding.

Section I: Impervious Area Restoration Reporting

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

GSFC is in the planning stages for restoration projects. Low impact development designs (micro-bioretenment) were incorporated into the Building 36 redevelopment project completed in 2017 and are included in the Building 37 Instrument Development Facility currently under construction.

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:

N/A

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

Please see attached Restoration Activity Schedule

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

At this time GSFC does not have any ongoing efforts to coordinate with other agencies for the implementation of impervious area restoration activities.

8. List the total cost of developing and implementing impervious area restoration program during the permit term: **approximately \$140,000**

Total projected cost of restoration projects (with known budget information) divided by the number of permit years to 2025 (5 years); this value will change as projects are planned, funded, and completed.

GSFC Impervious Area Restoration Work Plan

Timeline	Management Strategies and Goals
Year 1	<ul style="list-style-type: none"> • Develop impervious area baseline assessment. • Develop restoration work plan for MDE review and approval. • Update and submit Urban BMP database and documented maintenance and inspection status for all BMPs. • Assess opportunities and timelines for implementing water quality BMPs. • Assess current demo and redevelopment projects for impervious area addressed; assess alternate BMP opportunities. • Determine funding needs and develop a long-term budget and master plan.
Year 2	<ul style="list-style-type: none"> • Update and submit Urban BMP database and documented maintenance and inspection status for all BMPs. • Develop list of specific projects to be implemented for restoration and identify on the Restoration Activity Schedule (Table 2). • Maintain inspection records for all BMPs. • Identify water quality problems and opportunities for restoration. • Incorporate future GSFC growth into restoration planning efforts. • Evaluate and refine budget needs for project implementation.
Year 3	<ul style="list-style-type: none"> • Update and submit Urban BMP database and documented maintenance and inspection status for all BMPs. • Update and submit project implementation status via the Restoration Activity Schedule. • Develop adaptive management strategies for BMP implementation that identify opportunities for improved processes and procedures. • Continue to identify opportunities for water quality improvement projects to meet restoration requirements.
Year 4	<ul style="list-style-type: none"> • Update and submit Urban BMP database and documented maintenance and inspection status for all BMPs. • Update and submit project implementation status via the restoration activity schedule. • Submit narrative describing progress and updated adaptive management strategies toward implementing restoration projects.
Year 5	<ul style="list-style-type: none"> • Update and submit Urban BMP database and documented maintenance and inspection status for all BMPs. • Update and submit project implementation status via the Restoration Activity Schedule. • Provide complete list of specific projects needed to meet the twenty percent restoration requirement in Table 2 and include the projected implementation year (no later than 2025).

Goddard Space Flight Center (GSFC) Phase II MS4 Restoration Activity Schedule

Total Acreage (189.56); Impervious Acre Baseline (155.33); 20% Restoration Target (31.07 acres)

Type of Restoration Project	BMP Code ¹	Cost (\$K) ²	Imperv Acres Treated (from as-builts)	Imperv Acre Target and Balance	Project Status ³	Year Complete or Projected Implementation Year (by 2025)	MD Grid Coordinates (Northing/Easting)		Notes
				31.07					
B36	MMBR		1.87	29.2	C	2017			
Tiros Road Reconstruction (Minitrack Rd Redevelopment)			1.72	27.48	C	2018			The building 16 demolition (water tower redevelopment project) resulted in 3.29 acres of water quality (WQ) credit placed into the MD WQ bank. 1.13 acres of that total was used for Minitrack Road redevelopment. Additional pavement removal resulted in a total of 1.72 acres treated. B37 redevelopment of B16 site cannot be used for restoration credit as it was accounted for in the WQ bank and would be considered double accounting.
B2 Pavement Removal (various projects)	IMPP		2.3	25.18	C	2011/2012			
Building 104		\$517,800	0.03	25.15	P		39 0112566	-76 8351574	Deconstruction. Total cost estimate of \$517,800 includes all projects in blue cells. B104 demo to begin 10/09/2019.
Building X104E			0.004	25.146			39 0112807	-76 8350822	
Building 205			0.02	25.126			39 0200266	-76 8258266	
Building 306			0.03	25.096			39 0071683	-76 8286751	
Building 307			0.02	25.076			39 0067324	-76 8249418	
Building 025J			0.15	24.926			39 0012631	-76 8405772	
Building 025B			0.01	24.916			38 9984753	-76 8425603	
Building 025C			0.27	24.646			38 991752	-76 8525019	
Building 025E			0.01	24.636			38 9984886	-76 8419219	
Building X021E			0.004	24.632			38 9958507	-76 8557236	
Building X021F			0.004	24.628			38 9958378	-76 8558298	
Building X021G			0.004	24.624			38 9958338	-76 8559437	
Building 9			0.09	24.534			38 991752	-76 8525019	
Building T101									Not Yet Confirmed
Pond Retrofit Main Pond	PWET	\$70,161			P				Proposed, pending appropriated funding; cost estimate is for feasibility study only. Estimate includes the main pond and b29 pond.
Pond Retrofit B29 Pond	PWED				P				Proposed, pending appropriated funding.
B27 Demolition					P				Potential Project
Main Gate Relocation					P				Planned and funded, restoration efforts TBD.
Stream Restoration (Cobe Rd)	PWET				P				Estimated 425 linear feet; design has been completed, project is pending availability of construction funds.
Instrument Development Facility (IDF) 2					P				Potential Project
Lawns to Meadows					P				Potential Project

¹ See Appendix B, Tables B 1 a,b, and c, Urban BMP Database. BMP codes are identified under "MDE BMP Classification".

² Provide cost at project completion. Projects under the same funding are grouped by color.

³ Project Status: Enter P for planning and design (pending appropriated funding), UC for under construction, and C for complete.

Table B.1.a. BMP Reporting Requirements

This table represents the basic data elements that are required of all structural, ESD and alternative Best Management Practices (BMPs)

BMP_ID ¹	REPORTING_YEAR	MD_NORTH ²	MD_EAST	PERMIT_NUM	LOCAL_BMP_ID	BMP_NAME	BMP_CLASS	BMP_TYPE	CON_PURPOSE	LAST_INSP_DATE	BMP_STATUS
GSFC66BMP00001	2018	148154.9	412215.3		SWM-001	Main Pond	S	PWET	NEWD	8/19/2019	P
GSFC66BMP00002	2018	147879.3	412281		SWM-002	Sediment Pond	S	PWET	NEWD	8/27/2019	P
GSFC92BMP00003	2018	148010.2	412711.2		SWM-003	Building 28 Pond	S	XDPD	NEWD	8/15/2019	P
GSFC90BMP00004	2018	148115.4	413028.1		SWM-004	Building 29 Pond	S	PWED	NEWD	8/7/2019	P
GSFC63BMP00005	2018	147389.5	413195.2	95-SF-0015	SWM-005	Building 17 Pond	S	XDED	NEWD	9/4/2019	P
GSFC63BMP00006	2018	148256.2	413548.3		SWM-006	Beaver Pond	S	WEDW	NEWD	8/7/2019	P
GSFC94BMP00007	2018	147649.9	413643.9	92-SF-0260	SWM-007	Building 31 Pond	S	PWET	NEWD	8/2/2019	P
GSFC92BMP00008	2018	147220.1	413616.9	92-SF-0054	SWM-008	EOSDIS (Building 32) Pond	S	PWET	NEWD	8/21/2019	P
GSFC98BMP00009	2018	147063.7	414144.7	95-SF-0151	SWM-009	ESSB (Building 33) Pond	S	PWET	NEWD	8/16/2019	P
GSFC07BMP00010	2018	147230.9	413441.4		SWM-010	Vistor Center Pond	S	FSND	NEWD	8/6/2019	P
GSFC07BMP00011	2018	148182.2	413043		SWM-011	Hubble Road Pond	S	FSND	NEWD	8/7/2019	P
GSFC07BMP00012	2018	148426.3	414037.3		SWM-012	Soil Conservation Service Road Pond	S	XDED	NEWD	8/27/2019	P
GSFC08BMP00013	2018	147391.2	414268.6		SWM-013	Good Luck Road Pond	S	PMED	NEWD	8/7/2019	P
GSFC08BMP00014	2018	148193.8	413520	03-NT-0444	SWM-014	Wetland Mitigation Area (Building 25)	S	WEDW	NEWD	9/4/2019	P
GSFC90BMP00015	2018	148031.2	412494.8		SWM-015	Cobe Road Pond	S	PWET	NEWD	8/19/2019	P
GSFC06BMP00016	2018	147867.2	414594.8		SWM-016	Corn Field (Good Luck Road Soil Stock Pile) Pond	S	PWET	NEWD	8/27/2019	P
GSFC10BMP00017	2018	147818.9	413465.5	06-SF-0070	SWM-017	ESB (Building 34)	S	PWET	NEWD	8/19/2019	P
GSFC07BMP00018	2018	147962.1	413407.6		SWM-018	Explorer Road Pond	S	PWED	NEWD	8/15/2019	P
GSFC08BMP00019	2018	147487.5	413728.8		SWM-019	Building 32 Bioretention	S	FBIO	REST	8/16/2019	P
GSFC08BMP00020	2018	147479.9	413747.1		SWM-020	Building 32 Bioretention	S	FBIO	REST	8/16/2019	P
GSFC08BMP00021	2018	147469.3	413769.7		SWM-021	Building 32 Bioretention	S	FBIO	REST	8/16/2019	P
GSFC12BMP00022	2018	147919.4	414037.6	10-SF-0158	SWM-022	Building 35 Pond	S	PMED	NEWD	8/21/2019	P
GSFC10BMP00023	2018	147379.9	413780		SWM-023	Rain Garden (Building 32)	E	MRNG	REST	8/16/2019	P
GSFC17BMP00024	2018	147503	413167	MDRCQF00B	SWM-024	Building 36 Bioretention 3.1	E	MMBR	REDE	9/5/2019	P
GSFC17BMP00025	2018	147500	413107	MDRCQF00B	SWM-025	Building 36 Bioretention 2.1	E	MMBR	REDE	8/27/2019	P
GSFC17BMP00026	2018	147438	413110	MDRCQF00B	SWM-026	Building 36 Bioretention 4.1	E	MMBR	REDE	9/5/2019	P
GSFC17BMP0127	2018	147433	413140	MDRCQF00B	SWM-027	Building 36 Bioretention 5.1	E	MMBR	REDE	9/5/2019	P
GSFC17BMP0227	2018	147423	413160	MDRCQF00B	SWM-027	Building 36 Bioretention 5.2	E	MMBR	REDE	9/5/2019	P
GSFC17BMP0327	2018	147464	413140	MDRCQF00B	SWM-027	Building 36 Bioretention 5.3	E	MMBR	REDE	9/5/2019	P
GSFC17BMP00028	2018	147407	413087	MDRCQF00B	SWM-028	Building 36 Bioretention 4.2	E	MMBR	REDE	9/5/2019	P

Note: The following template is based on recent MD Phase II NPDES data reporting requirements. Definitions of each column and data elements can be found in the three descriptions sheets.

Note: Several Example BMPs have been incorporated to help display the new structure.

¹ Every BMP Identified in this table should match BMP_ID data entered in either "Table B1.b._ESD.STRUCTURAL" sheet or "Table B.1.c._Alternative" sheet

² Northing and Easting are geographic points used to locate BMP. MD requires using State Plane NAD 83 meters for geographic location. Use GIS or other computer programs to provide these coordinates.

Table B.1.a.

BMP_ID ¹	MAIN_DATE	REINSP_DATE	REINSP_STATUS	GEN_COMMENTS
GSFC66BMP00001				Project submitted for FY19 Funding for embankment compliance.
GSFC66BMP00002				
GSFC92BMP00003				
GSFC90BMP00004				Project submitted for FY19 Funding for embankment compliance.
GSFC63BMP00005				
GSFC63BMP00006				Damaged/collapsed outlet structure and embankment replaced with weir in 2018.
GSFC94BMP00007				
GSFC92BMP00008				
GSFC98BMP00009				
GSFC07BMP00010				Sandfilter with extended detention above filter for quantity control
GSFC07BMP00011				Sandfilter with extended detention above filter for quantity control
GSFC07BMP00012				
GSFC08BMP00013				
GSFC08BMP00014				Wetland created to offsite impacts from construction. No a SWM facility
GSFC90BMP00015				Abandoned Sediment Trap
GSFC06BMP00016				Sediment trap; removed as a BMP, deleting from BMP database
GSFC10BMP00017				
GSFC07BMP00018				
GSFC08BMP00019				BMP provides pretreatment for water before it enters SWM008
GSFC08BMP00020				BMP provides pretreatment for water before it enters SWM008
GSFC08BMP00021				BMP provides pretreatment for water before it enters SWM008
GSFC12BMP00022				
GSFC10BMP00023				BMP provides pretreatment for water before it enters SWM008
GSFC17BMP00024				Original MDE permit 12SF0102 issued on 6/7/2012.
GSFC17BMP00025				Original MDE permit 12SF0102 issued on 6/7/2012.
GSFC17BMP00026				Original MDE permit 12SF0102 issued on 6/7/2012.
GSFC17BMP0127				Original MDE permit 12SF0102 issued on 6/7/2012. SWM-027 were constructed as separate BMPs, but received the same GSFC asset number. Keeping them separate for tracking.
GSFC17BMP0227				Original MDE permit 12SF0102 issued on 6/7/2012. SWM-027 were constructed as separate BMPs, but received the same GSFC asset number. Keeping them separate for tracking.
GSFC17BMP0327				Original MDE permit 12SF0102 issued on 6/7/2012. SWM-027 were constructed as separate BMPs, but received the same GSFC asset number. Keeping them separate for tracking.
GSFC17BMP00028				Original MDE permit 12SF0102 issued on 6/7/2012. SWM-027 were constructed as separate BMPs, but received the same GSFC asset number. Keeping them separate for tracking.



October 28, 2019

Dear Customer:

The following is the proof-of-delivery for tracking number **477004713566**.

Delivery Information:

Status:	Delivered	Delivered to:	Shipping/Receiving
Signed for by:	O.SABASA	Delivery location:	BALTIMORE, MD
Service type:	FedEx Standard Overnight	Delivery date:	Oct 25, 2019 09:04
Special Handling:	Deliver Weekday		

Signature image is available. In order to view image and detailed information, the shipper or payor account number of the shipment must be provided.

Shipping Information:

Tracking number:	477004713566	Ship date:	Oct 24, 2019
		Weight:	1.0 lbs/0.5 kg

Recipient:
BALTIMORE, MD US

Shipper:
Greenbelt, MD US

Reference
Department number

077909
250

Thank you for choosing FedEx.