

AMIRI ENGINEERING

Geotechnical, Materials & Environmental Engineers

April 30, 2018

Ms. Marla Smith
Alabama Department of Environmental Management
Water Division
Storm Water Management Branch
P.O. Box 301463
Montgomery, AL 36130-1463

Subject: Annual Report-MS4
Municipal Separate Storm Sewer System (MS4) Phase II General Permit
NPDES Permit No. ALR040059
The University of Alabama in Huntsville
Madison County (89)

Dear Ms. Smith:

Amiri Engineering Corporation has prepared the following Annual Report for The University of Alabama in Huntsville for the Municipal Separate Storm Sewer System (MS4) Phase II General Permit, NPDES Permit No. ALR040059, in Madison County (89), for the period between May 1, 2017 and April 30, 2018.

If you have any questions regarding the information contained herein, or if you require any revisions/changes, please contact undersigned at your convenience.

Respectfully submitted,

AMIRI ENGINEERING CORPORATION



Nasser Amiri, P.E.
Sr. Geotechnical Engineer
Ala. Registration No: 21540

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Introduction

This Annual Report was developed in accordance with the guidelines provided in Title 40 Code of Federal Regulations (CFR), Part 122.26(d) incorporated by reference in the Alabama Administrative Code 335-6 as administered by the Alabama Department of Environmental Management (ADEM) and NPDES ALR4040091 Phase II General Permit effective May 1, 2017.

The purpose of this Annual Report is to describe the compliance efforts reflected in the University of Alabama in Huntsville's Storm Water Management Program Plan (SWMPP). The Annual Report will identify the control measure specific efforts undertaken by University of Alabama in Huntsville from May 1, 2017 through April 30, 2018 to reduce discharge of pollutants from University of Alabama in Huntsville's campus to the Maximum Extent Practicable (MEP) to protect water quality and to satisfy the appropriate water quality requirements of the Clean Water Act (CWA).

This Annual Report is a result of a collaborative approach from individuals that represent both academic and operational areas of the campus. The multi-disciplinary effort continues to be strengthened by its diversity and includes the following individuals and their areas of responsibility or interest:

1. Mr. Mark Cowherd, Facilities & Operations, Assoc. Vice President for Facilities & Operations
2. Mr. Larrell Hughes, AIA, AUA, UAH Facilities & Operations, Senior Campus Architect
3. Mr. Justin Thompson, UAH Facilities & Operations, Assistant Campus Architect II
4. Mr. Bryce Morgan, UAH, Director OEHS (through April 17, 2018)
5. Mr. James A. Davis, UAH Facilities & Operations, Director of Facilities Maintenance
6. Mr. Taylor Myers, UAH Facilities & Operations, Sustainability Coordinator
8. Mr. Kevin Bennett, UAH Office of Risk Management, Director of Risk Management
9. Ms. Kristy Olive, Interim Director, UAH-Office of Environmental Health and Safety (beginning April 25, 2018)
10. Mr. Nasser Amiri, PE; Amiri Engineering Corp; Environmental Consultant
11. Mr. Robert Redmon, UAH, Senior Director of Grounds Management
12. Mr. Scott Royce, UAH, Director of Housing and Residence Life

MS4 Description

The University of Alabama in Huntsville (UAH) is a public Tier 1 national university located in Huntsville, Alabama. UAH offers nearly 90 degree programs of study at the undergraduate and graduate level, with colleges in Engineering; Education; Nursing; Science; Business Administration; Arts, Humanities, & Social Sciences; Graduate Studies; and Professional & Continuing Studies. UAH is a fast growing University with current year's record-setting enrollment of nearly 9,000. The current student population plus the faculty and staff does not trigger the Standard Urban Storm Water Mitigation Plan (SUSMP) requirements for new construction projects.

Control Measures

Storm water management controls or Best Management Practices (BMPs) is implemented to the MEP to minimize pollution in storm water discharges from University of Alabama in Huntsville's campus. The Permit requires BMPs to be implemented to address five minimum control measures to be part of the SWMPP. As required by Part III.B of the Permit, the Annual Report will describe the University's efforts performed during this reporting period to implement the established BMPs (Public Education & Public Involvement on Storm Water Impacts, Illicit Discharge Detection & Elimination, Construction Site Storm Water Runoff Control, Post Construction Storm Water Management in New and Redevelopments and Pollution Prevention / Good Housekeeping for Municipal Operations) and will include:

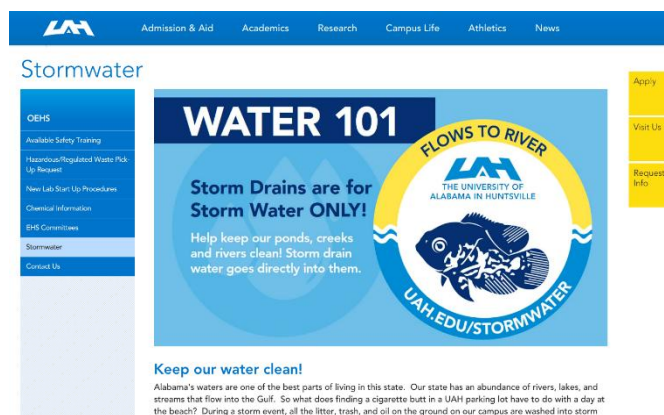
1. The status of UAH's compliance with Permit conditions, an assessment of the appropriateness of the identified BMPs, and progress towards achieving the statutory goal for each of the minimum control measures.
3. Results of information collected and analyzed during this reporting period, including any monitoring data used to assess the success of the SWMPP at reducing discharge of pollutants to the MEP.
4. Updated University of Alabama in Huntsville's SWMPP.
5. All monitoring results collected during the reporting period in accordance with Part V. of the Permit.

BMP: Public Education & Public Involvement on Storm Water Impacts

Storm water pollution prevention education leads to an informed and knowledgeable campus community that is more likely to support and comply with the BMP provisions. The targeted "Public" audiences of the University's SWMPP are University of Alabama in Huntsville faculty, staff, students and visitors, which populate the campus on any given day. Within these populations, only students in residence housing live on campus. All other students, employees and visitors reside in the surrounding communities.

Throughout this reporting period, University of Alabama in Huntsville initiated activities consistent with the SWMPP as follow:

- The marketing campaign's purpose is to inform and educate the campus community about the importance of properly managing storm water on campus and avoiding storm water pollution. The campaign included Website announcements, as shown here, Posters which were printed on March 15th and distributed on April 23rd, 2018, and Medallions informing the campus community that storm drains flow to the river were placed on drains around campus on April 20, 2018.



- During this reporting period (on April 3rd, 2018) Kristy Olive and Taylor Myers met with the Housing administration staff as part of the public education sessions to help get the word out on storm water pollution prevention. Scott Royce, Brande Bernat, Elizabeth Russell-Johnson, and Juanita Owen were all present.
- As part of the larger “Big Event” that Student Affairs puts on, over 20 volunteer students signed up for storm water medallion installation on April 14th “medallion installation day”. The event was rained out but at a later date, some of those students and three staff members performed the task on the make-up day.



- Taylor Myers, University Sustainability Coordinator, met with a Chad Bostic, a local landscape architect (Representative of BLA Landscape Architecture), in November 2017 and discussed plans for installation of a rain garden behind the Physical Plant Building. The area where it will be installed collects all of the storm water from UAH service vehicle parking lot. This project will include student participation and will serve as a pilot project in an attempt to discover the feasibility of implementing more rain gardens around the campus.
- On January 5th, 2015 UAH implemented a campus wide single-stream recycling program. The program covers majority of buildings on campus.
- On April 20th, 2018 Students from the UAH Bee Club and the UAH Green Club partnered together and worked to remove trash from our campus ponds and waterways.



Web Resources

Information related to water quality and storm water management continues to be provided from a wide variety of University of Alabama in Huntsville web sites. The UAH Office of Environmental Health and Safety (OEHS) is the central web resource specific to the SWMPP and the requirements of the Phase II General Permit NPDES ALR4040091 through the webpage located at www.uah.edu/oehs/stormwater. The University of Alabama in Huntsville websites which provide information relating to storm water BMPs include:

- Office of Environmental Health and Safety <https://www.uah.edu/oehs>
- Dept. of Atmospheric Science: www.uah.edu/science/departments/atmospheric-science

- Earth System Science: www.nsstc.uah.edu/ess/ess_bs.html
- Civil and Environmental Engineering: [//www.uah.edu/eng/departments/cee](http://www.uah.edu/eng/departments/cee)
- Office of Sustainability; www.uah.edu/sustainability
- Facilities and Operations: [//www.uah.edu/facilities-and-operations](http://www.uah.edu/facilities-and-operations)

Measure Specific Evaluation

Throughout this reporting period, University of Alabama in Huntsville continued to foster an open and collaborative relationship with different groups on and off campus to improve and protect water resources to engage and to train a local network for the continued efforts by the Office of Sustainability. Through these continued efforts, our connectivity with the environment and the importance of storm water management is better understood.

BMP: Illicit Discharge Detection & Elimination

During this reporting period, University of Alabama in Huntsville continued to utilize the storm water infrastructure engineering assessment to prioritize areas on campus requiring further assessment and/or repair along with field observations by UAH Facilities Management, Mechanical Shops, Resources and Risk Management & Safety to investigate sources of potential illicit discharges. An updated map is attached to this report and identifies the storm water conveyance system maintained by the University.

Upon discovery, any potential illicit discharge is investigated further. In the Stormwater section of the Environmental Health & Safety page of the University's website, <https://www.uah.edu/oehs/stormwater>, Individuals are asked to call UAH Emergency to report any illicit discharge. A variety of measures can be deployed to track the source of the illicit discharge and may involve multiple UAH groups as well as the City of Huntsville as necessary.

The proper management of waste and the prohibition of illicit discharges on campus continued to be promoted by University of Alabama in Huntsville through a variety of guidance documents, design standards, recycling guidelines and contractual specifications:

Measure Specific Evaluation

Throughout this reporting period, The University of Alabama in Huntsville was successful in meeting the objectives of the Illicit Discharge Detection Elimination (IDDE) measure as defined in the University's SWMPP. Advance/improvements to the program are dependent upon an informed public. Continued educational efforts promoted by numerous groups on campus are successful in increasing the campus community's awareness towards proper waste management procedures and services.

Measure specific activities planned for the next reporting period

University of Alabama in Huntsville will continue the Illicit Discharge Detection and Elimination (IDDE) measures as defined in the University's SWMPP. During the next reporting period, planned activities will include performing a campaign of IDDE to the UAH

employees, students and visitors to increase community's level of awareness to pollution prevention.

BMP: Construction Site Storm Water Runoff Control

In accordance with Part III (B) (4) of NPDES Permit No ALR04040091, University of Alabama in Huntsville developed the Construction Site Storm Water Runoff Control Best Management Practice. University of Alabama in Huntsville's Facilities Management is responsible for all construction projects on campus and implementation of this measure.

During this Report period, UAH Construction Site consultant begin education training including site inspections, reporting discharges and evaluation of inspection results. This is provided to project supervisors and construction site operators.

During this reporting period, a total of seven (7) projects were initiated that required storm water protection measures to be implemented and maintained. Responsibility of the design engineers and inspection agencies has been as follows:

Design Engineers responsibilities include:

- All UAH construction plans incorporate BMP's. Written Sediment and Erosion Control Plans are part of all applicable construction plans. All have been reviewed and approved. None have been significantly modified or rejected.
- Designing the project following the Erosion and Sedimentation Control Standards into all projects greater than .25 acres.
- Design must include three phase (pre-construction, construction and post construction) Erosion Sedimentation Control Plan.

Contractor responsibilities include:

- Request a Dig Permit from Facilities and Operations.
- Install and maintain Best Management Practices Plans.

Construction Site Inspection

Filed inspections associated with Construction Stormwater Runoff protection on all seven (6) projects have been conducted by a Professional (Registered) Engineer with Amiri Engineering Corporation. The inspections have included QCI/QCP inspections per ADEM Registration.



Construction Site Problem Reporting

There have been no public reports related to construction site problems. Some minor deficiencies which were noted were repaired during 48 hours of the inspection time or before next rain forecast date.

Post Construction Site Runoff

This control measure incorporates BMP's that are designed to minimize water quality impact from developments once construction is complete. During the Course of the past year, two (2) projects which required BMP were completed, and last inspections of both projects indicated that all Post Construction Sites have been stabilized and no deficiencies have been noted by the QCP that performed the site inspections. Photo on this page shows the stabilized grassed areas adjacent to the new parking lot to south of the Materials Science Building.



Protection of Sensitive Waters

The 303(d) listing of impaired waters is routinely reviewed to ensure that local bodies of water which receive stormwater runoff are not listed.

Local Interaction

During the course of this reporting period, The University of Alabama in Huntsville staff has interacted with the City of Huntsville personnel (Dustin Wilbourn, Project Supervisor of Landscape Management and Bobby Simmons of Landscape Management) which is an adjacent MS4. This interaction has been to discuss preventing sediments or pollutants from the City of Huntsville entering UAH Campus and also to collaborate about reducing erosion within the waterways within the UAH Campus.

UAH responsibilities included:

- Assign Project Manager for all sites.
- Review and approve Dig Permit requests.
- Contract with Engineer of Record to perform QCP inspections at least monthly, before forecasted rain events and within 48 hours of a Rain Wave flagged 0.5" or greater event.
- Notify contractors of all reported violations or BMP failures and inform them that corrections are to be made within 24 hours. If the contractor is non-responsive ADEM is to be notified.

BMP: POLLUTION PREVENTION / GOOD HOUSEKEEPING

Parking Lot, Parking Deck, Street Cleaning Program

Grounds Management Group at UAH utilizes street sweepers on an as-needed basis to address the removal of accumulated debris from parking lots, parking decks, streets, pedestrian walkways and sidewalks. Grounds Management Personnel provide weekly inspections of streets, and/or as conditions warrant, of the street drains and curbs. During fall and winter months, Grounds Management removes leaves and other debris on a daily basis throughout campus. Grounds Management also incorporates the use of a large vacuum that allows the landscape debris, which is harvested on campus grounds, to be removed before it is introduced into a storm drain system. Mowers with mulching equipment pulverize leaves, limbs and debris on site which reduces possible storm drain blockage. This process is used during the spring and summer months unless storms or high winds cause leaves, limbs and debris to cover the campus grounds and streets; at that point the same procedures as the fall and winter removal are used.

Storm Water Conveyance System Cleaning Program

The University of Alabama in Huntsville Grounds Management inspects all storm water conveyance outfalls routinely throughout the year. This is done after each heavy rain or storm activity. If any large limbs, trees, or debris are blocking the area, the blockage is removed as quickly as possible. Lakeside maintenance to include invasive plant removal is also performed. To facilitate the inspection process, a Drainage Inventory Map, as shown on this page, was prepared during the past year. This map shows all Manhole locations and also street side drop inlets throughout the campus which allows water to enter into the Campus Drainage system.



Waste Management Reduction & Recycling

The Sustainability Coordinator of the UAH manages the Recycling Waste on the campus and works with faculty, staff, and students on a daily basis to provide easy and convenient recycling to the University.

The Sustainability Coordinator manages the campus building recycling program, game day recycling, office clean-outs, and



indoor/outdoor event trash and recycling bins. Electronics recycling is handled by the Central Receiving. Universal Waste Recycling is coordinated by the Office of Environmental Health and Safety with assistance from the Electrical Maintenance employees.

Waste reduction and recycling initiatives are also promoted through education and outreach on campus and in the surrounding community. The UAH maintained a contract with Waste Management (WM).

Spill Prevention Control & Countermeasure (SPCC) Program

University of Alabama in Huntsville maintains compliance efforts consistent with 40 CFR 112 and the University's SPCC Plan. The SPCC Plan addresses the University's program to manage oil and other petroleum products defined by 40 CFR 112.7(2) and 40 CFR 112.7(4). This includes the management of fuel oils, gasoline, lubricating oils, hydraulic and dielectric fluids as they are utilized and stored on University of Alabama in Huntsville's campus. The plan includes guidance for inspection of all applicable containers (fuel tanks, generators, elevators and drums) monthly and all transformers annually. These routine inspections evaluate the condition of the containers to ensure proper functionality and management to prevent releases to the environment.

For the upcoming reporting period, training will be provided to oil handling personnel employed by University of Alabama in Huntsville to promote the objectives of the SPCC Plan, the regulatory responsibility associated with these regulated materials and to address in-house procedures necessary to respond to spills or releases from them.

Used Oil Recycling Program

University of Alabama in Huntsville's Grounds Management routinely collects used oil through the Garage, which is picked up by Holston environmental Services, Inc of Chattanooga, Tennessee for removal and recycling.

Measure Specific Evaluation

Throughout this reporting period, the on-going preventative measures taken by multiple groups on campus have removed items that could have been ultimately destined to our local landfill, groundwater and or surface waters. The University promotes waste minimization efforts to include regulated hazardous and non-hazardous wastes, e-waste and construction and demolition waste through reuse and recycling. Picture presented in this page is a sample of recycling efforts placed at UAH Website.



The University has developed sound practices to manage equipment and operations to minimize releases to the environment and provides training to University and contractual employees on these best management practices. Per the newly issued permit, UAH began efforts to inventory "municipal facilities".



**UNIVERSITY OF ALABAMA IN HUNTSVILLE CAMPUS
301 SPARKMAN DRIVE
HUNTSVILLE, MADISON COUNTY, ALABAMA 35899**

STORM WATER CONVEYANCE SYSTEM PLAN

Stormwater Conveyance System Inspection Performed between Feb. 1 & March 1, 2018

Name	Y	X	Location	Type	Medalian	Blocked	City	Sump	Clean out	Flow	Repair
					Condition		Marking		Needed	Noted	Needed
B7-0006	34.718387	-86.636329	(34.7183873,-86.6363292)	Inlet Box	Missing	No	Yes	No	No	No	No
B7-0007	34.718387	-86.636329	(34.7183873,-86.6363292)	Culvert	Missing	Yes	No	No	Yes	No	No
C7-0008	34.718835	-86.639347	(34.7188349,-86.6393467)	Culvert	Missing	Yes	No	No	Yes	No	NF**
B7-0009	34.71928	-86.637583	(34.7192797,-86.6375834)	Culvert	Missing	No	No	No	No	No	No
C7-0010	34.719221	-86.638588	(34.7192210,-86.6385880)	Curb	Missing	No	No	No	No	No	No
C7-0011	34.719331	-86.638882	-86.638882 34.719331	Curb	Missing	No	Yes	No	No	No	No
C7-0012	34.719389	-86.639138	-86.639138 34.719389	Culvert	Missing	No	No	No	No	Yes: St	Yes
C7-0013	34.719284	-86.639138	-86.639138 34.719284	Curb	Missing	No	Yes	No	No	No	No
C7-0014	34.719301	-86.639844	-86.639844 34.719301	Curb	Missing	No	Yes	No	No	No	No
C7-0015	34.719085	-86.639908	-86.639908 34.719085	Culvert	Missing	No	Yes	No	No	No	No
C7-0016	34.719219	-86.640379	-86.640379 34.719219	Culvert	Missing	No	Yes	No	No	No	No
D8-0017	34.716635	-86.642826	-86.642826 34.716635	Outfall	Missing	No	No	No	No	No	No
C7-0018	34.719572	-86.638823	-86.638823 34.719572	Curb	Old	No	No	No	No	No	No
C7-0019	34.719666	-86.639018	-86.639018 34.719666	Curb	Old	No	Yes	No	No	No	No
B7-0020	34.720396	-86.637744	-86.637744 34.720396	Curb	Old	No	No	No	No	No	No
B7-0021	34.72042	-86.637915	-86.637915 34.720420	Curb	Old	No	Yes	No	No	No	No
B7-0022	34.720201	-86.63752	-86.637520 34.720201	Culvert	Missing	No	No	No	No	No	No
B6-0023	34.721326	-86.635286	-86.635286 34.721326	Inlet Box	Missing	No	No	No	No	No	No
A6-0024	34.721467	-86.634853	-86.634853 34.721467	Culvert	Missing	No	No	No	No	No	No
A6-0025	34.721033	-86.634744	-86.634744 34.721033	Inlet Box	Missing	No	No	No	No	No	No
A6-0026	34.720998	-86.634183	-86.634183 34.720998	Inlet Box	Missing	No	No	No	No	No	No
A6-0027	34.721037	-86.633931	-86.633931 34.721037	Inlet Box	Missing	No	No	No	No	No	No
A6-0028	34.721033	-86.633627	-86.633627 34.721033	Inlet Box	Missing	No	No	No	No	No	No
B7-0029	34.720574	-86.63634	-86.636340 34.720574	Inlet Box	Missing	No	No	No	No	No	No
B6-0030	34.72095	-86.63644	-86.636440 34.720950	Inlet Box	Missing	No	No	No	No	No	No
B6-0031	34.721325	-86.63664	-86.636640 34.721325	Inlet Box	Missing	No	No	No	No	No	No
A7-0032	34.720446	-86.633659	-86.633659 34.720446	Inlet Box	Missing	No	No	No	No	No	No
A7-0033	34.720422	-86.634016	-86.634016 34.720422	Inlet Box	Missing	No	No	No	No	No	No
A7-0034	34.720422	-86.634344	-86.634344 34.720422	Inlet Box	Missing	No	No	No	No	No	No
A5-0035	34.723352	-86.634686	-86.634686 34.723352	Culvert	Missing	No	No	No	No	No	No
B5-0036	34.72327	-86.63664	-86.636640 34.723270	Curb	Printed in C	No	No	No	No	No	No
B6-0037	34.722988	-86.636533	-86.636533 34.722988	Inlet Box	Missing	No	No	No	No	No	No
B6-0038	34.721112	-86.637563	-86.637563 34.721112	Curb	Old	No	No	No	No	No	No
B6-0039	34.72117	-86.637789	-86.637789 34.721170	Curb	Old	No	No	No	No	No	No
B6-0040	34.72245	-86.636672	-86.636672 34.722450	Curb	Printed in C	No	No	No	No	No	No
B6-0041	34.722684	-86.6371	-86.637100 34.722684	Curb	Printed in C	No	No	No	No	No	No
B6-0042	34.722606	-86.637135	-86.637135 34.722606	Curb	Printed in C	No	No	No	No	No	No
B6-0043	34.723202	-86.637302	-86.637302 34.723202	Curb	Printed in C	No	No	No	No	No	No
B6-0044	34.721424	-86.637444	-86.637444 34.721424	Curb	Old	No	Yes	No	No	No	No

C6-0045	34.72162	-86.638621	-86.638621	34.721620	Curb	Missing	No	No	No	No	No	No
C6-0046	34.721532	-86.638858	-86.638858	34.721532	Curb	Missing	No	No	No	No	No	No
C6-0047	34.721698	-86.638906	-86.638906	34.721698	Curb	Missing	No	No	No	No	No	No
C6-0048	34.722264	-86.638882	-86.638882	34.722264	Curb	Missing	No	No	No	No	No	No
C6-0049	34.722538	-86.638882	-86.638882	34.722538	Grate	Missing	No	No	No	No	No	No
C6-0050	34.72243	-86.638728	-86.638728	34.722430	Grate	Missing	No	No	No	No	No	No
B6-0051	34.722167	-86.638145	-86.638145	34.722167	Grate	Missing	No	No	No	No	No	No
B6-0052	34.722186	-86.638133	-86.638133	34.722186	Grate	Missing	No	No	No	No	No	No
B6-0053	34.722137	-86.637813	-86.637813	34.722137	Curb	Old	No	No	No	No	No	No
B6-0054	34.722928	-86.637492	-86.637492	34.722928	Curb	Old	No	No	No	No	No	No
C6-0055	34.723048	-86.639235	-86.639235	34.723048	Curb	Printed in C	No	No	No	No	No	No
C6-0056	34.72293	-86.639378	-86.639378	34.722930	Curb	Printed in C	No	No	No	No	No	No
C6-0057	34.722614	-86.639606	-86.639606	34.722614	Grate	Missing	No	No	No	No	No	No
C6-0058	34.721219	-86.639064	-86.639064	34.721219	Curb	Missing	No	No	No	No	No	No
C6-0059	34.721219	-86.638893	-86.638893	34.721219	Curb	Missing	No	No	No	No	No	No
B6-0060	34.720692	-86.637909	-86.637909	34.720692	Curb	Missing	No	No	No	No	No	No
C7-0061	34.719836	-86.640533	-86.640533	34.719836	Curb	Missing	No	No	No	No	No	No
C6-0062	34.722837	-86.639634	-86.639634	34.722837	Grate	Missing	No	No	No	No	No	No
C6-0063	34.723001	-86.639435	-86.639435	34.723001	Grate	Missing	No	No	No	No	No	No
C6-0064	34.723059	-86.639463	-86.639463	34.723059	Grate	Missing	No	No	No	No	No	No
C5-0065	34.723364	-86.640176	-86.640176	34.723364	Grate	Printed in C	No	No	No	No	No	No
C7-0066	34.7195	-86.64054	-86.640540	34.719500	Curb	Old	No	Yes	No	No	No	No
C7-0067	34.719629	-86.64054	-86.640540	34.719629	Curb	Old	No	Yes	No	No	No	No
D7-0068	34.720016	-86.642907	-86.642907	34.720016	Curb	Old	No	Yes	No	No	No	No
D7-0069	34.720086	-86.643221	-86.643221	34.720086	Culvert	Missing	No	No	No	No	Pond	No
D5-0070	34.723978	-86.643392	-86.643392	34.723978	Curb	Missing	No	Yes	No	No	No	No
D5-0071	34.723884	-86.643406	-86.643406	34.723884	Curb	Missing	No	Yes	No	No	No	No
D5-0072	34.723825	-86.643378	-86.643378	34.723825	Curb	Missing	No	Yes	No	No	No	No
D5-0073	34.723767	-86.643406	-86.643406	34.723767	Culvert	Missing	No	No	No	No	No	No
D5-0074	34.724329	-86.642836	-86.642836	34.724329	Curb	Old	No	Yes	No	No	No	No
D5-0075	34.724259	-86.642422	-86.642422	34.724259	Curb	Old	No	Yes	No	No	No	No
D5-0076	34.724493	-86.641895	-86.641895	34.724493	Curb	Old	No	Yes	No	No	No	No
D5-0077	34.723743	-86.642137	-86.642137	34.723743	Curb	Old	No	Yes	No	No	No	No
D5-0078	34.723626	-86.641923	-86.641923	34.723626	Curb	Old	No	Yes	No	No	No	No
D6-0079	34.721586	-86.642208	-86.642208	34.721586	Curb	Old	No	Yes	No	No	No	No
C6-0080	34.722325	-86.641167	-86.641167	34.722325	Curb	Missing	No	Yes	No	No	No	No
D6-0081	34.722958	-86.641552	-86.641552	34.722958	Curb	Missing	No	Yes	No	No	No	No
D6-0082	34.722524	-86.64161	-86.641610	34.722524	Curb	Missing	No	Yes	No	No	No	No
D6-0083	34.722348	-86.641581	-86.641581	34.722348	Curb	Missing	No	Yes	No	No	No	No
D6-0084	34.720766	-86.642237	-86.642237	34.720766	Curb	Old	No	Yes	No	No	No	No
D6-0085	34.720684	-86.642408	-86.642408	34.720684	Curb	Old	No	Yes	No	No	No	No
D7-0086	34.720449	-86.642494	-86.642494	34.720449	Curb	Missing	No	Yes	No	No	No	No
E7-0087	34.719887	-86.645089	-86.645089	34.719887	Curb	Missing	No	No	No	No	No	No
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E7-0089	34.719793	-86.646912	-86.646912	34.719793	Culvert	Missing	No	No	No	No	No	No
E7-0090	34.719207	-86.646033	-86.646033	34.719207	Curb	Missing	No	Yes	No	No	No	No
E7-0091	34.719197	-86.646187	-86.646187	34.719197	Curb	Missing	No	Yes	No	No	No	No
E7-0092	34.718386	-86.646734	-86.646734	34.718386	Grate	Missing	No	No	No	No	No	No
E7-0093	34.718484	-86.647328	-86.647328	34.718484	Curb	Missing	No	Yes	No	No	No	No
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E7-0095	34.719328	-86.645496	-86.645496	34.719328	Grate	Missing	No	No	No	No	No	No
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C5-0098	34.723352	-86.640956	-86.640956	34.723352	Curb	Missing	No	Yes	No	No	No	No
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C5-0100	34.723948	-86.640207	-86.640207	34.723948	Grate	Printed in C	No	No	No	No	No	No
C5-0101	34.723978	-86.640314	-86.640314	34.723978	Grate	Printed in C	No	No	No	No	No	No
C5-0102	34.723411	-86.64054	-86.640540	34.723411	Curb	Printed in C	No	Yes	No	No	No	No
C5-0103	34.723636	-86.640944	-86.640944	34.723636	Curb	Printed in C	No	Yes	No	No	No	No
C5-0104	34.723909	-86.641027	-86.641027	34.723909	Curb	Printed in C	No	Yes	No	No	No	No
C5-0105	34.723948	-86.641099	-86.641099	34.723948	Curb	Printed in C	No	Yes	No	No	No	No
D5-0106	34.724124	-86.641693	-86.641693	34.724124	Curb	Printed in C	No	Yes	No	No	No	No
D5-0107	34.72429	-86.641538	-86.641538	34.724290	Curb	Printed in C	No	No	No	No	No	No
D5-0108	34.724642	-86.641431	-86.641431	34.724642	Curb	Printed in C	No	No	No	No	No	No
D5-0109	34.724485	-86.641467	-86.641467	34.724485	Curb	Printed in C	No	No	No	No	No	No
D5-0110	34.724466	-86.64136	-86.641360	34.724466	Curb	Printed in C	No	No	No	No	No	No
C5-0111	34.72471	-86.641312	-86.641312	34.724710	Curb	Printed in C	No	No	No	No	No	No
C5-0112	34.724339	-86.640718	-86.640718	34.724339	Curb	Printed in C	No	No	No	No	No	No
C5-0113	34.724368	-86.640801	-86.640801	34.724368	Curb	Printed in C	No	No	No	No	No	No
C5-0114	34.724798	-86.640706	-86.640706	34.724798	Curb	Printed in C	No	No	No	No	No	No
C5-0115	34.724749	-86.640801	-86.640801	34.724749	Curb	Printed in C	No	No	No	No	No	No
C5-0116	34.724876	-86.641087	-86.641087	34.724876	Curb	Printed in C	No	No	No	No	No	No
C5-0117	34.724095	-86.640968	-86.640968	34.724095	Curb	Printed in C	No	No	No	No	No	No
C5-0118	34.724046	-86.640885	-86.640885	34.724046	Curb	Printed in C	No	No	No	No	No	No
C5-0119	34.725067	-86.640933	-86.640933	34.725067	Curb	Printed in C	No	No	No	No	No	No
D5-0120	34.724785	-86.641375	-86.641375	34.724785	Curb	Printed in C	No	No	No	No	No	No
D5-0121	34.724744	-86.641952	-86.641952	34.724744	Curb	Missing	No	No	No	No	No	No
D5-0122	34.72492	-86.642102	-86.642102	34.724920	Curb	Old	No	Yes	No	No	No	No
D5-0123	34.724774	-86.64258	-86.642580	34.724774	Curb	Old	No	No	No	No	No	No
D5-0124	34.724234	-86.641981	-86.641981	34.724234	Curb	Old	No	Yes	No	No	No	No
D5-0125	34.72417	-86.642123	-86.642123	34.724170	Curb	Old	No	Yes	No	No	No	No
C5-0126	34.723689	-86.640041	-86.640041	34.723689	Inlet Box	Missing	No	No	No	No	No	No
C5-0127	34.723783	-86.639599	-86.639599	34.723783	Grate	Printed in C	No	No	No	No	No	No
C5-0128	34.723754	-86.639507	-86.639507	34.723754	Grate	Printed in C	No	No	No	No	No	No
C5-0129	34.724123	-86.6395	-86.639500	34.724123	Grate	Printed in C	No	No	No	No	No	No
D5-0130	34.724287	-86.641924	-86.641924	34.724287	Inlet Box	Missing	No	No	No	No	No	No
C5-0131	34.724973	-86.639557	-86.639557	34.724973	Grate	Missing	No	No	No	No	No	No
C5-0132	34.724955	-86.639485	-86.639485	34.724955	Grate	Missing	No	No	No	No	No	No

C5-0133	34.724838	-86.639564	-86.639564	34.724838	Grate	Missing	No	No	No	No	No	No
C5-0134	34.724891	-86.639942	-86.639942	34.724891	Grate	Missing	No	No	No	No	No	No
C5-0135	34.724563	-86.640049	-86.640049	34.724563	Grate	Missing	No	No	No	No	No	No
C5-0136	34.724774	-86.640063	-86.640063	34.724774	Grate	Printed in C	No	No	No	No	No	No
C5-0137	34.725471	-86.640234	-86.640234	34.725471	Grate	Missing	No	No	No	No	No	No
C5-0138	34.725477	-86.640491	-86.640491	34.725477	Grate	Missing	No	No	No	No	No	No
C5-0139	34.724961	-86.638986	-86.638986	34.724961	Grate	Missing	No	No	No	No	No	No
C5-0140	34.724867	-86.638979	-86.638979	34.724867	Grate	Missing	No	No	No	No	No	No
C5-0141	34.724867	-86.638979	-86.638979	34.724867	Grate	Missing	Yes	No	No	Yes	No	No
C5-0142	34.724985	-86.638808	-86.638808	34.724985	Grate	Printed in C	No	No	No	No	No	No
C5-0143	34.724973	-86.638558	-86.638558	34.724973	Grate	Printed in C	No	No	No	No	No	No
C5-0144	34.725061	-86.638508	-86.638508	34.725061	Grate	Printed in C	No	No	No	No	No	No
C5-0145	34.725272	-86.638423	-86.638423	34.725272	Grate	Printed in C	No	No	No	No	No	No
C5-0146	34.725371	-86.63843	-86.638430	34.725371	Grate	Printed in C	No	No	No	No	No	No
C5-0147	34.725143	-86.638573	-86.638573	34.725143	Grate	Printed in C	No	No	No	No	No	No
C5-0148	34.72509	-86.63905	-86.639050	34.725090	Grate	Printed in C	No	No	No	No	No	No
C5-0149	34.725476	-86.638569	-86.638569	34.725476	Grate	Printed in C	No	No	No	No	No	No
C5-0150	34.725493	-86.638498	-86.638498	34.725493	Grate	Printed in C	No	No	No	No	No	No
C5-0151	34.725476	-86.638512	-86.638512	34.725476	Grate	Printed in C	No	No	No	No	No	No
B5-0152	34.725482	-86.638041	-86.638041	34.725482	Curb	Old	No	No	No	No	No	No
B5-0153	34.725488	-86.63792	-86.637920	34.725488	Curb	Old	No	No	No	No	No	No
B5-0154	34.724591	-86.638155	-86.638155	34.724591	Grate	Printed in C	No	No	No	No	No	No
B5-0155	34.724579	-86.638248	-86.638248	34.724579	Grate	Printed in C	No	No	No	No	No	No
C5-0156	34.724579	-86.638369	-86.638369	34.724579	Grate	Printed in C	No	No	No	No	No	No
C5-0157	34.724567	-86.638498	-86.638498	34.724567	Grate	Printed in C	No	No	No	No	No	No
B5-0158	34.724773	-86.638106	-86.638106	34.724773	Grate	Printed in C	No	No	No	No	No	No
B5-0159	34.724503	-86.637728	-86.637728	34.724503	Grate	Printed in C	No	No	No	No	No	No
B5-0160	34.724274	-86.637877	-86.637877	34.724274	Grate	Printed in C	No	No	No	No	No	No
B5-0161	34.724046	-86.637464	-86.637464	34.724046	Grate	Missing	No	No	No	No	No	No
B5-0162	34.724011	-86.637478	-86.637478	34.724011	Grate	Missing	No	No	No	No	No	No
B5-0163	34.7238	-86.637499	-86.637499	34.723800	Curb	Old	No	No	No	No	No	No
B5-0164	34.723817	-86.637314	-86.637314	34.723817	Grate	Missing	No	No	No	No	No	No
B5-0165	34.723817	-86.637043	-86.637043	34.723817	Grate	Missing	No	No	No	No	No	No
B5-0166	34.723835	-86.636922	-86.636922	34.723835	Grate	Missing	No	No	No	No	No	No
B5-0167	34.723636	-86.635695	-86.635695	34.723636	Grate	Missing	No	No	No	No	No	No
A5-0168	34.723489	-86.634555	-86.634555	34.723489	Inlet Box	Missing	Yes	No	No	Yes	No	No
B5-0169	34.723618	-86.635539	-86.635539	34.723618	Grate	Printed in C	No	No	No	No	No	No
B5-0170	34.724104	-86.636672	-86.636672	34.724104	Grate	Missing	No	No	No	No	No	No
B5-0171	34.724017	-86.636758	-86.636758	34.724017	Grate	Missing	No	No	No	No	No	No
B5-0172	34.724116	-86.637015	-86.637015	34.724116	Grate	Missing	No	No	No	No	No	No
B5-0173	34.724011	-86.636972	-86.636972	34.724011	Grate	Missing	No	No	No	No	No	No
B5-0174	34.724099	-86.637072	-86.637072	34.724099	Grate	Missing	No	No	No	No	No	No
B5-0175	34.723999	-86.637079	-86.637079	34.723999	Grate	Missing	No	No	No	No	No	No
B5-0176	34.724556	-86.637207	-86.637207	34.724556	Grate	Missing	No	No	No	No	No	No

Appendix

Storm Water Management Program Plan (SWMPP)



NPDES Phase II Storm Water Management Plan (MS4)



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1.0 INTRODUCTION

The Storm Water Management Program Plan (SWMPP) is required by Part II of the Alabama Department of Environmental Management (ADEM) National Pollutant Discharge Elimination System (NPDES) Individual Permit ALS000014 for discharges from The University of Alabama in Huntsville to Huntsville municipal separate storm sewer system (Madison MS4).

1.1 Regulatory Background

This Storm Water Management Plan (SWMP) is required under Federal Environmental Protection Agency Phase II storm water regulations, promulgated under the Clean Water Act. These regulations require The University of Alabama in Huntsville to apply for a National Pollution Discharge Elimination System (NPDES) permit and submit a SWMP.

Polluted storm water runoff is often transported to municipal separate storm sewer systems (MS4s) and ultimately discharged into local waterways (rivers, streams, lakes, and bays) without treatment. EPA's Storm Water Phase II Rule establishes an MS4 storm water management program that is intended to improve the nation's waterways by reducing the quantity of pollutants that storm water picks up and carries into storm sewer systems during storm events. Common pollutants include oil and grease from roadways and parking lots, pesticides from lawns, sediment from construction sites, and carelessly discarded trash, such as cigarette butts, paper wrappers and plastic bottles. These pollutants are deposited into nearby waterways, discouraging recreational use of the resource, and interfering with the habitat for fish, other aquatic organisms, and wildlife.

In 1990, EPA promulgated rules establishing Phase I of the NPDES storm water program. The Phase I program for MS4s requires operators of "medium" and "large" MS4s, that is, those that generally serve populations of 100,000 or greater, to implement a storm water management program as a means to control polluted discharges from these MS4s. The Storm Water Phase II Rule extends coverage of the NPDES storm water program to certain "small" MS4s but takes a slightly different and simplified approach to how the storm water management program is developed and implemented. NPDES Phase II regulations require operators of small MS4s to develop a program in order to:

- Reduce the discharge of pollutants to the "maximum extent practicable" (MEP);
- Protect water quality;
- Satisfy the appropriate water quality requirements of the Clean Water act and Regional Water Quality Control Board Basin Plan.

1.2 Purpose of the SWMP

This document has been developed to comply with Federal Environmental Protection Agency Phase II National Pollutant Discharge Elimination System requirements promulgated under the Clean Water Act. The purpose of the SWMP is: (1) to identify pollutant sources potentially affecting the quality and quantity of storm water discharges; (2) to provide Best Management Practices (BMPs) for municipal and small construction activities implemented by The

University of Alabama in Huntsville staff and contractors and; (3) provide measurable goals for the implementation of this SWMP to reduce the discharge of the identified pollutants into the storm drain system and associated waterways. This SWMP covers The University of Alabama in Huntsville campus.

1.3 SWMP Development Committee

The SWMP was developed with input from representatives from various campus departments with a potential to impact surface water quality. The campus committee members ranged from departmental directors to operations personnel as follows:

- Office of Environmental Health & Safety(OEHS)
- Facilities and Operations — Planning, Design, and Construction; Grounds; Facilities Maintenance; Sustainability
- Auxiliary Services/ Housing and Residence Life

Public input is solicited in the development and implementation of the Stormwater Management Plan (SWMPP). The plan is reviewed at least annually by OEHS. Revisions will be made as necessary and will be submitted to ADEM for review.

1.4 The Storm Water Management Plan

The SWMP has been developed and designed to manage the discharge of pollutants from The University of Alabama in Huntsville small MS4 to the maximum extent practical. The purpose is to protect the water quality of the Unnamed Tributary to McDonald Creek and to satisfy requirements of the Clean Water Act. The University of Alabama in Huntsville SWMP includes various management practices, control techniques, engineering methods, and other provisions which will be described in detail in the body of this document.

1.5 Minimum Control Measures

There are six minimum control measures outlined in the permit requirements. These are:

1. Public Education and Outreach.
2. Public Involvement and Participation.
3. Illicit Discharge Detection and Elimination (IDDE).
4. Construction Site Stormwater Runoff Control.
5. Post-Construction Stormwater Management in new Development and Redevelopment.
6. Pollution Prevention and Good Housekeeping.

Each minimum control measure will be addressed and detailed separately as part of the SWMP.

1.6 Contacts List

Part IV.3.a of the NPDES Permit requires that The University of Alabama in Huntsville provide a list of contacts and responsible parties involved in the preparation of the Annual Report. The following personnel are responsible for the preparation and review of this report:

Ms. Kristy Olive

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Responsibility for management of the Stormwater program lies with OEHS and Construction Administration. The personnel responsible for facilitating operational aspects of the program are the Stormwater Working Group facilitated by Kristy Olive, OEHS.

2.0 SITE INFORMATION

2.1 Facility Description

The University of Alabama in Huntsville (UAH) is a public Tier 1 national university located in Huntsville, Alabama. UAH offers nearly 90 degree programs of study at the undergraduate and graduate level, with colleges in Engineering; Education; Nursing; Science; Business Administration; Arts, Humanities, & Social Sciences; Graduate Studies; and Professional & Continuing Studies. UAH is a fast growing University with current year's record-setting enrollment of nearly 8,500. The current student population plus the faculty and staff does not trigger the Standard Urban Storm Water Mitigation Plan (SUSMP) requirements for new construction projects.

The university's 432-acre campus, which includes 16 research centers and labs, serves the anchor tenant for the second-largest research park in the nation. It also maintains strong partnerships with federal agencies and commercial organizations that include the Hudson Alpha Institute for Biotechnology, NASA's Marshall Space Flight Center, the Missile Defense Agency, the DIA Missile and Space Intelligence Center, and the U.S. Army Materiel Command.

The University of Alabama in Huntsville campus is situated in Huntsville, Madison County. The facility is generally bounded by University Drive to the north, Interstate I565 to the south, Sparkman Drive to the west and residential neighborhoods to the east. However, as shown on the attached Campus Plan, a few of UAH buildings are situated to the west of Sparkman Drive.

This SWMP covers facilities in urbanized areas operated by The University of Alabama in Huntsville.

2.2 Facility Operation

The University of Alabama in Huntsville employs maintenance, custodial, and grounds staff for day-to-day operations. This includes building maintenance (cleaning, painting, repairs), completion of department work requests, daily cleaning of common buildings, grounds maintenance, small construction jobs, and various repair and maintenance activities.

Campus Facilities Management staff and outside contractors do electrical, plumbing, roofing, asphalt, painting, sewer line cleaning, utility repairs, vehicle repairs, pool maintenance and janitorial duties.

3.0 DESCRIPTION OF POTENTIAL SOURCES OF POLLUTION

3.1 Potential Pollutant Activity or Sources List

In order to aid in the identification of pollutant sources, historic spills as well as knowledge on the day to day operations to identify activities and sources of potential pollutants of concern were utilized to prepare this SWMP. Best Management Practices (BMP) to address the pollutant sources and activities described below will be developed as described in the Minimum Control Measures (Section 4.03).

Activity/Source	Pollutants of Concern
Building maintenance (washing, graffiti abatement)	Wash water, paint chips, cleaning products, dirt and sediment
Chemical Spills	Various- cleaning compounds, diesel, paint, hazardous materials, vehicle fluids
Construction activities	Concrete, drywall, paint, sediment
Erosion	Sediment, organic matter
Food service operations	Wash-water, food residue, oil and grease
Grounds maintenance	Green waste, fuel, oil, pesticides, herbicides, sediment
Impervious areas	Increased flows and pollutant loading
Litter and debris	Litter and debris
Loading/Unloading Areas	Petroleum products, fertilizers, pesticides, herbicides,
Outdoor Storage of Raw Materials	Sand, asphalt, soil, pesticides, herbicides, fertilizer, paint, solvents, fuel
Painting (indoor)	Paint or rinse water (oil and water based), paint thinner
Painting (outdoor)	Paint or rinse water (oil and water based), paint thinner
Parking lot runoff	Oil/grease, litter, heavy metals
Roof runoff	Particulate matter and associated pollutants
Sewer line blockages	Raw sewage
Sewer line seepage	Raw sewage
Trash storage areas	Organic materials, litter and debris
Vehicle and equipment washing	Cleaning products, oil/grease, vehicle fluids
Utility line maintenance and repairs (water/ irrigation/ sewer)	Chloramines, chlorine, sediment, adhesive cements, primers & fire protection system water
Animal feces	Coliform bacteria
Swimming Pool	Chlorinated water, pool chemicals
Fleet Maintenance & Repair	Oil, grease, antifreeze

Activity/Source	Pollutants of Concern
Building maintenance (washing, graffiti abatement)	Wash water, paint chips, cleaning products, dirt and sediment
Chemical Spills	Various- cleaning compounds, diesel, paint, hazardous materials, vehicle fluids
Construction activities	Concrete, drywall, paint, sediment
Erosion	Sediment, organic matter
Food service operations	Wash-water, food residue, oil and grease
Grounds maintenance	Green waste, fuel, oil, pesticides, herbicides, sediment
Impervious areas	Increased flows and pollutant loading
Litter and debris	Litter and debris

Loading/Unloading Areas		Petroleum products, fertilizers, pesticides, herbicides,
Outdoor Storage of Raw Materials		Sand, asphalt, soil, pesticides, herbicides, fertilizer, paint, solvents, fuel
Painting (indoor)	Paint or rinse water (oil and water based), paint thinner	Painting
(outdoor)	Paint or rinse water (oil and water based), paint thinner	
Parking lot runoff		Oil/grease, litter, heavy metals
Roof runoff		Particulate <u>matter and associated pollutants</u>
Sewer line blockages	Raw sewage	Sewer line seepage
	Raw sewage	
Trash storage areas		Organic materials, litter and debris
Vehicle and equipment washing		Cleaning products, oil/grease, vehicle fluids
Utility line maintenance and repairs (water/ irrigation/ sewer)		Chloramines, chlorine, sediment, adhesive cements, primers & fire protection system water
Animal feces		Coliform bacteria
Swimming Pool		Chlorinated water, pool chemicals
Fleet Maintenance & Repair		Oil, grease, antifreeze

4.0 MINIMUM CONTROL MEASURES

4.1 What are Minimum Control Measures

MEP, and BMPs “Minimum Control Measures” is the term used by the EPA for the six MS4 program elements aimed at achieving improved water quality through NPDES Phase II requirements listed below:

- Public Education and Outreach on Storm Water Impacts
- Public Involvement / Participation
- Illicit Discharge Detection and Elimination
- Pollution Prevention / Good Housekeeping
- Construction Site Storm Water Runoff Control
- Post-construction Storm Water Management in New Development and Redevelopment

The goal of the SWMP is to reduce the discharge of pollutants to the Maximum Extent Practicable (MEP), as defined by the EPA, and to identify activities or structural improvements that help reduce the quantity and improve the quality of the storm water runoff. Best Management Practices (BMPs) have been developed for the SWMP to reduce the discharge of pollutants to the storm drain system to the MEP. BMPs include treatment controls, engineering controls, operating procedures, and practices to control site runoff, spills and leaks, sludge or waste disposal, or drainage from raw material storage. BMPs will be updated as appropriate to comply with any additions or changes to NPDES permit requirements.

4.2 How to use BMPs to Meet MEP Requirements

The BMPs described in this document in the measurable goals section are to be implemented by The University of Alabama in Huntsville staff and outside contractors. Whenever UAH staff or contractors perform work on the campus or associated areas, steps outlined in each relevant

BMP, or other proven technique that reaches the same goal, must be used in order to ensure compliance with storm water discharge regulations. The University of Alabama in Huntsville has already initiated many of the BMPs listed in the Minimum Control Measures in this SWMP. In some cases the measure has not been formalized into a written plan or program. The SWMP will formalize and document these Minimum Control measures and associated BMPs. Full development and implementation of BMPs will be completed through the five-year implementation plan as presented in the measurable goals for each Minimum Control Measure in the following sections.

4.3 Minimum Control Measures

4.3.1 Public Education and Outreach on Storm Water Impacts

The goal of this minimum control measure is to develop and distribute educational materials and perform outreach to inform students, faculty, and staff about the impact of polluted storm water runoff discharges, and that their actions can make a positive impact on water quality.

Maximum Extent Practicable (MEP) Standards

- Implement a public education program to distribute educational materials to the community, or conduct equivalent outreach activities about the impacts of storm water discharges on local water bodies and the steps that can be taken to reduce storm water pollution;
- Determine the appropriate Best Management Practices (BMPs) and measurable goals for this minimum control measure.

Measurable Goals to Meet MEP Requirements

Year 1:

- Develop storm water pollution prevention educational materials. Developed by Taylor Myers in conjunction with Marketing Department. UAH's Sustainability Program is hosting a water monitoring workshop by Alabama Water Watch on campus April 7. The UAH News published an article to raise awareness of the Stormwater Program on April 2, 2018.
- Develop poster to educate students regarding storm water pollution prevention. Developed by TaylorMyers in conjunction with Marketing Department.
- Stencil: "Flows to River" at accessible campus storm drains. A new medallion has been designed by Marketing and has been ordered for installation on unmarked storm drains. OEHS is working through student workers to develop a Stormwater Drain Map. 50% of the campus has been mapped geographically and a spreadsheet of the status of drain markers is included in the map and associated spreadsheet. Medallion installation was kicked off on April 20, 2018 and continues.
- Develop storm water pollution prevention information for OEHS website. A Stormwater website has been developed and is available at www.uah.edu/stormwater. In addition, the MS4 plan has been posted to the OEHS website and contact information for reporting stormwater pollution concerns has also been added to the OEHS website.

Year 2:

- Maintain campus storm drain stencils and replace as needed.
- Distribute educational material to faculty and staff.
- Post storm water pollution prevention information on OEHS website.

- Increase storm water pollution prevention outreach surrounding community.

Year 3:

- Continue stenciling campus storm drains as needed.
- Distribute educational material to students.
- Sponsor

Year 4: • Continue stenciling campus storm drains as needed.

- Continue sponsoring and/or participating in storm water pollution prevention events such as campus and levee clean-ups. • Outreach to faculty/academic programs for possible guest lecture opportunities.

Year 5:

- Continue stenciling campus storm drains as needed.
- Continue sponsoring and/or participating in storm water pollution prevention events such as campus and levee clean-ups.
- Write articles on storm water program for campus publications and newsletters.
- Include educational information in new student and new employee orientation packets.
- Give guest lectures on storm water runoff impacts/pollution prevention at community events.

OHES is the Department responsible for implementation of the above goals.

4.3.2 Public Involvement / Participation

The goal of this minimum control measure is to provide opportunities for students, faculty, and staff to participate in program development and implementation on a storm water management working-group. MEP Standards

- Interact, comply and insure consistency with applicable State, and local public program requirements;
- Determine the appropriate best management practices (BMPs) and measurable goals for this minimum control measure.

Measurable Goals to Meet MEP Requirements Year

1:

- Establish on-going storm water working group and conduct for public comment. A stormwater working group began meeting on 1/10/18. Attendees from OEHS, Facilities and Operations and Housing are included. OEHS and Sustainability are working with Housing and Student Life to coordinate events to increase student involvement. Two events are planned: Residence Hall staff will be trained on stormwater in April and a Stormwater Awareness Event will be included in the “Big Event” planned by Student Life on April 14. An article will also be published in the UAH News to raise stormwater awareness.
- Establish and maintain working relationship with the joint City/County Storm Water Program. On 3/31/17, Taylor Myers and Bryce Morgan met with representatives of the City (Dustin Wilbourne and Bobby Simmons) to discuss a solution to stormwater coming onto the UAH property from the city from a ditch along John Wright Drive and another that feeds the two ponds on Sparkman Drive. An agreement was reached to reduce the spraying of herbicide in these areas to prevent erosion.

- Make copies of the SWMP available at OEH&S office and website. This information was posted to the website as of 1/10/18.
- Place e-mail link on OEHS website to report storm water pollution concerns. This information was posted to the website as of 2/9/18.

Year 2:

- Contact campus community environmental event organizers.
- Convene campus storm water working group.
- Use Media and publications to promote program and participation

Year 3:

- Participate in campus storm water pollution prevention event(s). □ Continue to convene campus storm water working group.

Year 4:

- Organize and sponsor campus volunteer clean-up event.
- Continue to convene campus storm water working group.

Year 5:

- Organize and sponsor another campus volunteer clean-up event.
- Participate in campus storm water pollution prevention event(s).
- Continue to convene campus storm water working group.

OHES is the Department responsible for implementation of the above goals.

4.3.3 Illicit Discharge Detection and Elimination

The goal of this minimum control measure is to develop and implement a plan to detect and eliminate non-storm water discharges (illicit discharges) such as process water, wash water, chemical spills, and other non-rainwater discharges to the storm drain system (not applicable to exempt discharges).

MEP Standards

- Have a storm water map, showing outfall locations and the names and location of the waters of the United States that receive discharges from those outfalls;
- Through management, contracting, or other mechanism, prohibit (to the extent allowable under State, or local law) non-storm water discharges into the MS4, and establish appropriate enforcement procedures and actions;
- Have a plan to detect and address non-storm water discharges, including illegal dumping, into the MS4;
- Educate the campus community about the hazards associated with illegal discharges and improper disposal of waste;
- Determine the appropriate best management practices (BMPs) and measurable goals for this minimum control measure.

Measurable Goals to Meet MEP Requirements

Year 1:

- Review and update campus notification system for sewage spills and other non-storm water discharges. The Director of Risk Management was contacted to discuss notification. Currently, the website directs all concerns to Bryce Morgan. OEHS has developed a list of people that should be notified in the event that a stormwater concern is reported through the 6911 number used for students to report environmental concerns. The UAlert system is used to ensure affected departments are notified.
- Develop a storm drain sump and outfall monitoring program to visually identify dry weather flows into the storm drain system. This is being done as part of the stormwater mapping project. Approximately 50% of the campus has been reviewed as of 3/14/18.

Year 2:

- Implement updated campus notification system for sewage spills and other non-storm water discharges.
- Provide drain blockers and related training to campus police and parking staff.
- Implement the storm drain sump and outfall monitoring program.
- Develop educational material

Year 3:

- Develop a campus policy that includes prohibiting non-storm water discharges or improper disposal of wastes to the storm drains.
- Continue to implement storm drain sump and outfall monitoring program.
- Develop an inspection and enforcement program for illegal discharges/improper disposal. The enforcement program will include a plan for escalation in penalties depending on the severity of the act and the number of offenses.
- Train employees of the hazards associated with illegal discharges/improper disposal.
- Provide educational materials on the hazards of illegal storm water discharges at environmental events on campus and in the local community. Make educational materials available on the OEHS website.
- Conduct a storm drain assessment to identify potential sources of non-storm water discharges. Categorize those sources by major functions on campus.

Year 4:

- Implement an inspection/enforcement program for illegal discharge/improper disposal.
- Evaluate the results of the storm drain assessment. Assign risk factors to the potential sources and develop a matrix by area on campus. Develop a prioritization scheme to identify those units that are exposed to the greatest risk.
- Develop a list of procedural and physical BMPs to be used as measures to control nonstorm water discharges.
- Develop an action plan to re-route any illicit connections identified in the assessment. Determine any interim measures necessary to prevent illicit discharges from contaminating storm water.

Year 5:

- Continue to implement the inspection/enforcement program for illegal discharge/disposal.
- Implement procedural and physical BMPs to reduce risk of illegal discharges and improper disposal to storm drains.
- Implement any interim measures to reduce the risk of illicit discharges from cross connection until permanent re-routing takes place.
- Develop a long-term sanitary sewer maintenance/upgrade program.

OHES is the Department responsible for implementation of the above goals.

4.3.4 Pollution Prevention / Good Housekeeping for Facilities Operation and Maintenance

The goal of this minimum control measure is to develop and implement a program to prevent or reduce pollutant runoff from facilities operation and maintenance activities. The program must include training to relevant staff on pollution prevention measures and techniques (e.g., regular street sweeping, reduction in the use of pesticides, or frequent sump grate cleaning).

MEP standards

- Have a program with the ultimate goal of preventing or reducing pollutant runoff from facilities and maintenance operations into the storm sewer system;
- Include employee training on how to incorporate pollution prevention/good housekeeping techniques into facilities operation and maintenance such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance. To minimize duplication of effort and conserve resources, the MS4 operator can use training materials that are available from EPA, their State, or relevant organizations;
- Determine the appropriate best management practices (BMPs) and measurable goals for this minimum control measure.

Measurable Goals to Meet MEP Requirements

Measurable Goals to Meet MEP Requirements Year

1:

- Review and evaluate Best Management Practices (BMPs) for major campus physical operations (grounds; facilities maintenance; physical plant/utilities; fleet services; custodial services; housing and dining services).
- A list of current BMP's in place at UAH has been developed. The Stormwater Working Group is in the process of converting these to a common format.
- Develop a multi-level training program for Facilities Management staff. The first level would cover the basics on sources of storm water pollution. The second level would cover campus storm water policies/procedures and the implementation of the BMP's. A multi-level training program is being developed by Bryce Morgan. Level One has been developed and Directors in the F&O Dept. have been trained. Level Two was conducted on April 13, 2018. Level One training was also posted to the website.
- Create a maintenance schedule for periodic cleaning of storm water system sump grates. OEHS is in the process of mapping Stormwater Drains and determining a base level status for inspection. This process is about 50% complete. Grounds has an informal system in place to monitor storm drains after rain events and perform cleanouts as needed.

Year 2:

- Select appropriate BMPs for major campus physical operations and use them as the basis to develop a Storm Water Pollution Prevention Plan (SWPPP) for each major campus physical operation.
- Continue to develop the multi-level training program on the sources of storm water pollution and how to implement selected BMPs.
- Implement the sump grate cleaning program.

Year 3:

- Implement the multi-level storm water training program.

- Begin implementation of the Storm Water Pollution Prevention Plan (SWPPP) for major campus physical operations.
- Develop an inspection program for compliance with BMPs.
- Continue sump grate cleaning schedule.

Year 4:

- Continue implementation of SWPPP with selected operational BMPs.
- Implement an inspection program for compliance with BMPs.
- Continue implementation of the multi-level storm water training program.
- Continue sump grate cleaning schedule.

Year 5:

- Continue implementation of SWPPP with selected operational BMPs.
- Continue implementation of the multi-level storm water training program.
- Continue implementation of an inspection program for compliance with BMPs.
- Continue sump grate cleaning schedule.

OHES is the Department responsible for implementation of the above goals.

4.3.5 Construction Site Storm water Runoff Control

The goal of this minimum control measure is to develop, implement, and enforce an erosion and sediment control program for construction activities.

MEP Standards

- Have a management, contracting, or other mechanism requiring the implementation of proper erosion and sediment controls, and controls for other wastes, on applicable construction sites;
- Have procedures for site plan review of construction plans that consider potential water quality impacts;
- Have procedures for site inspection and enforcement of control measures;
- Have sanctions to ensure compliance (established in management, contracting, or other mechanism);
- Establish procedures for the receipt and consideration of information submitted by the public;
- Determine the appropriate best management practices (BMPs) and measurable goals for this minimum control measure.

Measurable Goals to Meet MEP Requirements

Year 1:

- As a component of the University of Alabama in Huntsville Design and Construction Standards, the Post Construction Storm Water Manual provides the principles, guidelines and standards for storm water management design for new campus projects. By providing a set of comprehensive best management practices for storm water management, future campus construction projects will protect and improve water quality, provide campus flood protection, and reduce storm water flow rates to downstream waters. The Post Construction Storm Water Manual includes a storm water management review checklist to review compliance with the University's design standards. Multiple projects were completed, are in construction, or are currently being designed during this reporting period. Review of the BMPs has been

conducted on every project by the design professionals as well as a Professional Engineer with Amiri Engineering Corporation, to verify all BMP meet the latest requirements.

- Review and evaluate construction contract sanctions/penalties for violations of storm water sediment and erosion runoff controls. Penalties/sanctions which have been in-place for the construction projects were generally such that the contractor had sufficient incentive to implement the BMPs.
- Review and evaluate construction site inspection procedures for BMPs. All Site Inspection procedure and forms were reviewed and no changes in the reports or procedures was warranted.
- Develop training for construction project managers/inspector. Training and one-on-one discussions of the BMP requirements and procedures were conducted for every project by a Professional Engineer with Amiri Engineering Corporation.

Year 2:

- Develop a campus policy statement regarding storm water runoff controls for minimizing sediment and erosion impacts from construction sites.
- Develop formal review procedures and checklists to document site plan, including pollutant source assessment for pre-construction campus site plan and BMP review process.
- Incorporate construction sanctions/penalties where needed in construction contract language. □ Include revised storm water BMP specifications in large construction projects with the potential to impact water quality.
- Train project managers and inspectors on the campus storm water policy and how the procedures will be incorporated into the construction project planning and contract development. The implication of violations and the importance of the enforcement of storm water specifications will be stressed.
- Train contractors and sub-contractors at pre-construction meetings regarding storm water issues related to the job site and the Storm Water Pollution Prevention Plan (SWPPP) for the construction project.
- Develop construction site inspection procedures.

Year 3:

- Implement campus BMP enforcement procedures and responsibilities.
- Implement construction site inspection procedures.

Year 4:

- Include storm water specifications in smaller projects (less than \$50,000) including Physical Plant, and other departments' minor construction activities.
- Continue implementation of construction site inspection procedures.
- Conduct pollutant source assessment during site plan and BMP review.
- Develop standard procedures to receive and respond to public and/or campus reporting/incidents regarding storm water runoff impacts from construction sites.

Year 5:

- Implement standard procedures to receive and respond to public and/or campus reporting/incidents regarding storm water runoff impacts from construction sites.
- Continue implementation of construction site inspection procedures.

- Continue to conduct pollutant source assessment during site plan and BMP review.

OHES is the Department responsible for implementation of the above goals.

4.3.5.1 Construction Projects Greater than One Acre

Construction projects that encompass an area greater than one acre (including Small Linear Underground/Overhead Projects) must develop a specific Storm Water Pollution Prevention Plan (SWPPP). The SWPPP shall conform to the Alabama Department of Environmental Management (ADEM) Template and shall include appropriate BMP's related to the specific project. At project completion, a Notice of Completion shall be submitted. All inspection and monitoring records will be retained for three years.

4.3.5.2 Construction Projects Less than One Acre

Construction projects that encompass an area less than one acre shall follow the guidelines for Construction Project Storm Water Pollution Prevention. All inspection and monitoring records obtained during the project timeframe will be retained for three years.

4.3.6 Post-construction Storm water Management in New Development and Redevelopment

The goal for this minimum control measure is to develop, implement, and enforce a program to address discharges of post-construction storm water runoff from new development and redevelopment areas.

Post-construction storm water management controls include permanent structural and non-structural best management practices (BMPs) (e.g. conservation of natural and permeable areas, permeable pavers, rooftop runoff infiltration galleries, and mechanical storm drain filters) that remain in place after the project is completed and prevent pollution from the new development in the long-run.

MEP standards

- Develop and implement strategies which include a combination of structural and/or nonstructural post-construction BMPs;
- Have a management, contracting, or other mechanism requiring the implementation of post construction runoff controls,
- Ensure adequate long-term operation and maintenance of controls;
- Determine the appropriate BMPs and measurable goals for this minimum control measure.
Measurable Goals to Meet MEP Requirements

Year 1:

- Review and evaluate current procedures for developing structural and non-structural post construction BMPs for both new development and re-development projects. Throughout this reporting period, University of Alabama in Huntsville was successful in meeting the objectives of the Illicit Discharge Detection Elimination measure as defined in the University's SWMPP. Advance/improvements to the program are dependent upon an informed public. Continued educational efforts promoted by numerous groups on campus are successful in increasing the campus community's awareness towards proper waste management procedures and services. Routine screening (dry and wet) allowed for several incidences of illicit discharges to be

identified. Projects were initiated during the reporting period to address the identified illicit discharges.

- Review current procedures for transitioning responsibility of BMPs from construction phase into long term maintenance. The Stormwater Working Group member from Maintenance will inform the group when projects are turned over to the university for maintenance. This will allow the Group to add these new areas to any plans and programs that are in place.

Year 2:

- Develop a campus policy/enforcement program regarding post-construction storm water controls for new development and re-development project sites.
- Develop standard specifications for selected structural and non-structural post-construction BMPs.
- Develop procedures to incorporate inspection of new development and re-development project facilities into overall campus storm water inspection program.

Year 3:

- Provide training for construction staff on post-construction BMP site planning, design, implementation, and inspection/enforcement protocols.
- Develop procedures for a post-construction audit of the effectiveness of structural and nonstructural BMP's.
- Develop procedures for long-term operation and maintenance of BMPs.
- Develop inspection program for long-term operation and maintenance of BMPs.

Year 4:

- Implement inspection and enforcement program for post-construction structural and nonstructural BMP's.
- Begin post-construction audits of BMP effectiveness and incorporate any findings into the BMP specifications.
- Provide training for operations and maintenance staff for long-term site BMPs

Year 5:

- Implement procedures for transitioning long-term site BMPs into campus storm water inspection program.
- Implement procedures for the long-term operation and maintenance of BMPs.

OHES is the Department responsible for implementation of the above goals.

5.0 RECORD KEEPING

5.1 SWMP Updating

The SWMP will be reviewed annually and The University of Alabama in Huntsville will update the SWMP whenever a change in activities or operations occur which may significantly affect the discharge of storm water pollutants.

5.2 SWMP Public Access

This SWMP is meant for use by The University of Alabama in Huntsville staff and is a public document.

Any request for a copy of the SWMP by the governmental agency, or citizen is to be forwarded to The University of Alabama in Huntsville, Office of Environmental, Health & Safety (OEHS), 301 Sparkman Drive, Huntsville, AL 35899.

5.3 SWMP Annual Reports

OEHS will complete and submit annual reports regarding the implementation of the SWMP and measurable goals to the ADEM Water Division.

Appendix

7.01 Appendix 1

Campus Facility Information

Location Description

The University of Alabama in Huntsville campus is situated in Huntsville, Madison County. The facility is generally bounded by University Drive to the north, Interstate I565 to the south, Sparkman Drive to the west and residential neighborhoods to the east. However, as shown on the attached Campus Plan, a few of UAH buildings are situated to the west of Sparkman Drive.

Facility Operations

The University of Alabama in Huntsville employs skilled trades, grounds, and custodial staff for day to day operations. Typical duties include building maintenance, plumbing and electrical repairs, clogged sewer line clean-outs, and grounds maintenance.

Climate and Rainfall

Meteorological conditions at The University of Alabama in Huntsville are as follows:

Climate	Jan	Feb	Mar	Apr	May	June	July	August	Sept	Oct.	Nov.	Dec.
Avg. High °F	51	56	65	74	81	88	91	91	85	75	64	53
Avg. Low °F	32	35	42	50	50	67	70	69	62	51	42	34
Avg. Precipitation	4.88	4.84	5.2	4.33	4.33	4.29	4.06	3.62	3.7	3.58	4.92	5.79

Source: US Climate Data

Facility Drainage

There are over 100 point sources that discharge into the storm drain system from the campus. These point sources drain areas such as streets, parking lots, loading docks, roofs, landscaped areas and any other surfaces that receive rainwater. All of the point sources drain into the existing lakes which are situated to the immediately to the east of Sparkman Drive (i.e., western end of the campus). Flow from these lakes then discharges into the Unnamed Tributary to the McDonald Creek which is situated in the southwestern end of the campus.

Local Geology

The University of Alabama in Huntsville is underlain by Tusculumbia Limestone, which is of the Mississippian age. Tusculumbia Limestone is composed of coarsely crystalline, fossiliferous

limestone with small amounts of chert. The formation weathers to a deep soil mixed with chert boulders, which may be 12 inches or more in dimension.

Since the Tusculumbia is primarily a carbonate rock, it is subject to solutioning along both joints and bedding planes. The solutioning process tends to initially form vertical slots in the limestone. In many instances, the overlying residual soil is eroded downward into these vertical slots, which subsequently become filled with soft, wet cohesive soils. As a result, the surface of the rock in many instances is characterized by relatively hard blocks (or boulders) and pinnacles separated by soil filled slots. The overlying residual clay is derived from the solution weathering of the limestone strata. The soil mantle has a varying thickness from a few to 50± feet because of the irregular configuration of the underlying limestone.

The groundwater is poorly defined and subject to seasonal changes. Flow is often very slow and nonuniform. In limestone, the Geologic structure is the major influence on the movement of groundwater. The permeability of rock is generally increased by faulting and fracturing, which results in severe rock weathering in these areas. In this formation, the groundwater flows along the bedding planes and joints, resulting in solutioning of the limestone bedrock. The solution activity along the joints often produces deep vertical slots.