Alabama State University

915 S. Jackson Street
Montgomery, AL 36104

Stormwater Management Program Plan (SWMPP)

NPDES Permit ALR040065

March 2022

Prepared By:

VOLKERT

7110 University Court, Montgomery, Alabama 36117

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1.0 Regulatory Overview

1.1 Alabama State University's NPDES Permit

Alabama State University (ASU) was issued its current NPDES Permit (Permit) for discharges from regulated small municipal separate storm sewer systems (No. ALR040065) by the Alabama Department of Environmental Management (ADEM) on September 16, 2021. The Permit was made effective on October 1, 2021.

As a condition of this Permit, "The permittee is required to develop, revise, implement, maintain and enforce a storm water management program (SWMP) which shall include controls necessary to reduce the discharge of pollutants from its MS4 consistent with Section 402(p)(3)(B) of the Clean Water Act and 40 CFR Part 122.30-122.37. These requirements shall be met by the development and implementation of a storm water management program plan (SWMPP) which addresses the best management practices (BMPs), control techniques and systems, design and engineering methods, public participation and education, monitoring, and other appropriate provisions designed to reduce the discharge of pollutants from the MS4 to the Maximum Extent Practicable (MEP)".

NPDES Permit ALR040065 is included in Appendix A.

1.2 MS4 Jurisdictional Boundary

NPDES Permit ALR040065 was triggered by the Alabama State University being designated as a Municipal Separate Storm Sewer System, or MS4. This designation is due to ASU being a public body operating a system of drainage conveyances within the larger urbanized area of the City of Montgomery

ASU's MS4 boundary is within Montgomery County, Alabama. Located within the City of Montgomery, ASU covers approximately 200 acres as shown in Appendix B. The current student population is approximately 5,318 students (4,694 full-time and 624 part-time). There are currently 97 buildings on campus ranging from academic buildings, dormitories, faculty buildings, sports complexes, cafeterias, and Facilities and Operations Department buildings. There is approximately 875 full-time and 231 part-time ASU staff working on campus.

1.3 Watershed Information

ASU receives approximately 53 inches of rainfall annually. Rainfall tends to be evenly distributed throughout the year with drier periods occurring during late summer and early fall. Stormwater runoff from ASU discharges into two primary receiving streams. The majority of the campus drains to the

southwest towards the Genetta Ditch. Genetta Ditch flows to Catoma Creek which eventually drains into the Alabama River west of Montgomery. A small portion of the northeast side of campus flows to the northeast to an unnamed drainage ditch. This unnamed drainage ditch flows east and then north to where it eventually reaches Galbraith Mill Creek. Galbraith Mill Creek flows into the Alabama River North of Montgomery.

Catoma Creek is currently impaired for Organic Enrichment and Low Dissolved Oxygen. Impairment to Catoma Creek is derived exclusively from non-point source (NPS) and Municipal Separate Storm Sewer Systems (MS4) pollutant loadings, for which needed reductions are being sought under Total Maximum Daily Load (TMDL) implementation. ASU property makes up less than 0.0007 of the total watershed of Catoma Creek. The University developed and implemented a sampling plan during the previous permit term to determine whether or not the discharge contributes to the impairment of Catoma Creek via the City of Montgomery's MS4. The sampling results indicated that ASU's discharges have minimal oxygen demand and nutrient loading and therefore are not contributing to the impairment of Catoma Creek. The sampling plan and results are provided in Appendix H.

2.0 SWMPP Development and Maintenance

2.1 SWMPP Components

Part III of the Permit requires that the permittee develop and implement a stormwater management program plan that includes the following five minimum stormwater control measures.

1. Public Education and Public Involvement
2. Illicit Discharge Detection and Elimination (IDDE) Program
3. Construction Site Stormwater Runoff Control
4. Post-Construction Stormwater Management in New Development and Re-Development
5. Pollution Prevention/Good Housekeeping for Municipal Operations

Program details are described with target audiences, measures of effectiveness, and responsible University departments in Appendix D below.

2.2 SWMPP Review and Updates

The Stormwater Management Program Plan will be reviewed by the University annually, at a minimum. Any necessary updates will likely be performed in conjunction with the preparation of the Annual Report required by the Permit.

It is ASU's intent to solicit and receive public input regarding the SWMPP and its implementation

continually. It is anticipated that the SWMPP will be modified annually, accommodating feedback and adjusting as practices are evaluated for effectiveness and practicality.

2.3 Annual Reports

Part VI of the Permit outlines the annual reporting requirements for the program. The defined permit year and reporting period is April 1st to March 31st. Annual reports are required to be submitted to ADEM no later than May 31st following the reporting period.

Annual Reports will include:

1. A list of contacts and responsible parties
2. An overall evaluation of Alabama State University Stormwater Management Program.
3. A narrative report of the required minimum control measures.
4. A summary table of controls that are planned for the next reporting cycle.
5. The results of related data collected and analyzed during the reporting period.
6. A notice of reliance on another entity to satisfy any Permit obligations.
7. Results of the evaluation to determine whether discharges from any part of the MS4 contributes to a waterbody that is included on the latest §303(d) list, designated by the Department as impaired, or has an EPA established or approved TMDL
8. All monitoring results collected during the previous year, if required
9. Certification

2.4 Recordkeeping

The SWMPP will be retained for at least five years after coverage under the Permit is terminated. The following records shall be maintained for at least three years following termination of Permit coverage:

- Copies of all reports required by the Permit
- Records required by the Permit
- Records of all other data required by or used to demonstrate compliance with the Permit

Documentation and other records used for demonstrating Permit compliance will be maintained by the Facilities and Operations Department in electronic and paper format.

2.5 Responsibilities

The Facilities and Operations Department is responsible for the creation, coordination, and implementation of the SWMPP. Coordination between the University departments is required for successful and complete implementation of the plan.

Montgomery Water Works and Sanitary Sewer Board operates and maintains the sanitary sewer system serving ASU. The Montgomery Water Works and Sanitary Sewer Board operations and maintenance of the sewer system is a component of Alabama State University's Pollution Prevention and Good Housekeeping control measure. Montgomery Water Works and Sanitary Sewer Board emergency response for sewer leaks is a component of Alabama State University's Illicit Discharge Detection and Elimination Control Measure.

Alabama State University relies on ADEM for the setting of standards for appropriate erosion and sediment controls for qualifying construction sites and for ultimate enforcement of such controls. The University requires developers to obtain coverage under ADEM's construction general permit when disturbance thresholds are met.

Comments and questions regarding this plan may be directed to Mr. Donald Dotson, Vice President of ASU's Facilities and Operations Department, using the following contact information.

Mr. Donald Dotson
Vice President of Facilities and Operations
Alabama State University
915 South Jackson Street
Montgomery, AL 36104
334-229-6965 Office
334-300-6784 Mobile
Ddotson@alasu.edu

3.0 Minimum Control Measures

Part III.A of the University's NPDES Permit requires the development, implementation, revision, and maintenance of a stormwater management program to reduce the discharge of pollutants into local waterways and streams. The University's program is governed by this plan, the SWMPP, which establishes minimum pollution control measures in five general areas: public education and public involvement; illicit discharge detection and elimination; construction site stormwater runoff control; post-construction stormwater management; and pollution prevention/good housekeeping for municipal operations.

A description for each control measure is provided below. Practice goals are also summarized with deadlines/frequencies in Appendix D.

3.1 Public Education and Public Involvement

Public education and public involvement is one of the main focus areas for the University during this

Permit term. Internal and External communication is vital to a successful and effective program. The primary target audience for this measure includes: University students, the University staff, and visitors to the campus.

Primary goals of this measure are: to bring awareness to ASU's stormwater management program, to train facilities staff to be aware of and implement good housekeeping practices, engage the student body to be positively impactful to the environment, and provide general education regarding potential impacts to water quality.

3.1.1 Stormwater Management Program Plan (SWMPP)

The SWMPP is considered a living document and will be reviewed annually and updated if necessary to improve upon its effectiveness, applicability, and practicality. Communication and collaboration will be required of both internal and external stakeholders.

Practice Measure: *review annually, updated if necessary*
Responsible Department: *Facilities and Operations Department*

3.1.2 SWMP Annual Report

The defined Permit year and reporting period is April 1st to March 31st. Annual reports are required to be submitted to ADEM no later than May 31st following the reporting period.

Practice Measure: *create and submit to ADEM annually*
Responsible Department: *Facilities and Operations Department*

3.1.3 Stormwater Webpage

The University's Stormwater Program webpage has been an effective tool to help inform the University's population of ASU's priorities and expectations in regards to water quality protection. At a minimum the following links to NPDES permit-related documents will be posted to the webpage and will be reviewed annually:

- The NPDES Permit
- The Annual Report
- The updated SWMPP

Practice Measure: *Review annually, update if necessary*
Responsible Department: *Technology Services*

3.1.4 University Staff Training

The Facilities and Operations Department will lead an effort to inform administrative staff on stormwater awareness and good housekeeping practices. Facility staff will also be trained during monthly safety meetings; refer to sections 3.2.5 and 3.5.3 for more information.

Practice Measure: *train staff annually*
Responsible Department: Facilities and Operations Department

3.1.5 Storm Drain Marking

Stormwater curb inlets adjacent to campus streets and sidewalks provide an opportunity for the University to inform the public of the impacts of allowing waste to enter the stormwater runoff. The University will maintain existing storm drain markings and continue marking additional storm drains as needed.

Practice Measure: *Maintain existing storm drain markings as needed*
Responsible Department: *Facilities and Operations Department*

3.1.6 Social Media Postings

Social media can be an effective mode of communication for the University to reach its students, staff, visitors, and alumni. ASU will present a water quality related social media posting to communicate water quality enhancement opportunities and the University's effort to manage their stormwater well.

Practice Measure: *develop consistent message during the 2022/2023 academic year, implement during the 2023/2024 academic year*
Responsible Department: *Technology Services*

3.1.7 Stormwater Awareness Surveys

The University will evaluate the effectiveness of the public education and public involvement program through implementing stormwater awareness surveys. Results of the surveys will be statistically evaluated to determine changes in awareness and knowledge of ASU's stormwater management program.

Practice Measure: *Implement during the 2022/2023 academic year*
Responsible Department: *Technology Services*

3.2 Illicit Discharge Detection and Elimination (IDDE)

This measure involves both technical data and an educated staff. The collection of outfall location and discharge data, and staff awareness training are priority focus areas for this permit term. The primary target audience for this measure includes: Facilities and Operations Department staff, ADEM, and those who may be identified as having responsibility for sources of illicit discharges.

The University prohibits non-stormwater discharges to the MS4 through the City of Montgomery's IDDE ordinance in *Chapter 12- Environment, Article V – Erosion and Sedimentation Control, Division 2* of the codes found at the link below:
https://library.municode.com/al/montgomery/codes/code_of_ordinances?nodeId=COOR_CH12EN_ARTVERSECO_DIV2ILDIDEELID

3.2.1 Outfall Inventory and Mapping

Outfall mapping must be updated once per permit term. ASU's current outfall inventory and mapping is provided in Appendix F. ASU will update 100% of the outfall inventory and mapping by March 2023.

Practice Measure: *update 100% of outfall mapping once per permit term*
Responsible Department: *Facilities and Operations Department*

3.2.2 Outfall Screening

All locations of discharges of stormwater from the University's campus must be inspected once per permit term for the presence or absence of illicit discharges. Outfall screening will be performed along with the outfall mapping effort. The goals will be to screen 100% of the outfalls by March 2023. Outfall screening will be performed based on the Environmental Protection Agency's latest *Illicit Discharge Detection and Elimination Guidance Manual for Program Development and Technical Assessments*.

Practice Measure: *screen all outfalls once per permit term*
Responsible Department: *Facilities and Operations Department*

3.2.3 IDDE Awareness Training

Facilities and Operations Department staff will be forerunners in the effort to identify and eliminate illicit discharges. Facilities and Operations Department staff will be trained on identification, reporting, and corrective action of illicit discharges. Facilities and Operations Department staff will be trained to informally observe outfall locations as they carry out their everyday duties for illicit indicators. Training will be performed during monthly safety meetings; training material is provided in Appendix G.

Practice Measure: *Provide IDDE training to facility staff once per permit term*
Responsible Department: *Facilities and Operations Department*

3.3 Construction Site Stormwater Runoff

Although ASU has experienced limited construction that meets the ground disturbance threshold of one-acre, past qualifying project development has followed a predictable path of project design and management, and is intended to remain largely unchanged in the future. The University typically hires a third-party project manager to ensure that Permit requirements are being upheld during development and redevelopment projects. The Alabama Department of Finance, Division of Construction Management (DCM) is responsible for construction plan reviews and inspections for all state-funded projects on ASU's campus. The design and implementation of construction stormwater management practices are informed by and are in accordance with the following: The NPDES general permit, *The Alabama Handbook for Erosion Control, Sediment Control, and Stormwater Management on Construction Sites and Urban Areas*; and City of Montgomery ordinances and applicable elements of their MS4 Permit. The primary target audience for this measure includes: *developers; engineers; and contractors.*

3.3.1 Construction Site Plan Review for New and Redevelopment

City of Montgomery ordinances require developers to submit copies of ADEM NPDES Permit authorization, and associated notice of intent and Construction Best Management Plan (CBMP plan) prior to commencing land disturbance activities within city limits.

The City's relevant codes and ordinances are in *Chapter 12 – Environment, Article V – Erosion and Sedimentation Control* of the codes and can be found at the link below:
https://library.municode.com/al/montgomery/codes/code_of_ordinances?nodeId=COOR_CH12EN_ARTVERSECO

Site plans are reviewed by the program management firm for compliance with the University's Permit and City of Montgomery ordinances.

Practice Measure: *review plans as submitted*
Responsible Department: *Program Management team under Facilities and Operations Department*

3.3.2 Construction Site Inspection and Reporting

City of Montgomery ordinances authorize construction site inspections by the University which are typically performed by the University's contracted program management team. Enforcement remedies for noncompliance are addressed immediately between the program management staff and the contactor. Project work may be stopped until issues are properly addressed. Should instances of noncompliance take place, proper notification is provided to ADEM in accordance with NPDES General Permit. It is important for the City to periodically review and update its inspection and reporting procedures to ensure effectiveness.

The University must also develop and implement a construction site inspection form within 365 days of the effective date of the permit. The form shall include facility type, inspection date, name and signature of inspector, location of construction project, owner/operator contact information, description of the storm water BMP condition, and photographic documentation of any issues and/or concerns. ASU will develop and implement an inspection form by September 30, 2022.

Practice Measures:

- *review procedures annually, update if necessary*
- *inspect construction activities per required frequencies*
- *develop and implement a construction site inspection form by September 30, 2022*

Responsible Department: *Facilities and Operations Department and Program Management team*

3.3.3 Construction Site Inventory

The University must maintain an inventory of qualifying construction sites containing relevant contact information for each construction site within 365 days of the effective date of the permit. The inventory shall include tracking number and construction site contact information, the size of the construction site, whether the construction site has submitted for permit coverage under ADEM's Construction General Permit ALR100000, and the date the MS4 Permittee approved the site

construction plan. ASU will develop and maintain an inventory spreadsheet by September 30, 2022.

Practice Measure: *develop and maintain an inventory of construction sites by September 30, 2022*
Responsible Department: *Facilities and Operations Department*

3.4 Post-Construction Stormwater Management

The University addresses post-construction stormwater management requirements through City of Montgomery ordinance for new and redevelopment, and through inspection of practices once installed. The primary target audience for this measure includes: *developers; engineers; and University staff.*

3.4.1 Post-Construction Procedures for New and Redevelopment

The University follows City of Montgomery ordinances to ensure post-construction stormwater is being managed to the greatest extent practicable. The City requires that post-development runoff mimics pre-development hydrology for the 2-year, 5-year, 10-year, and 25-year 24-hour storm events. The City's Post-Construction Stormwater Management requirements can be found at the link below:
https://www.montgomeryal.gov/home/showpublisheddocument/15435/637684196671570000

The University will look into their own policies and procedures to eliminate any potential barriers to low impact development and implementation of green infrastructure. Where appropriate, these practices will be promoted as means to mimic predevelopment hydrology, addressing discharge rate, velocity, and volume changes due to new or redevelopment. A review of policies and procedures will take place in the 2023-2024 reporting cycle.

Practice Measure: *review once per permit term, update if necessary*
Responsible Department: *Facilities and Operations Department*

3.4.2 Policy/Procedures for Maintenance of Stormwater Controls

The University ensures proper design, construction, and long-term maintenance of stormwater quality and quantity controls primarily through the City of Montgomery's Post-Construction Stormwater Management requirements. The City requires the Owner of the development to perform annual inspections and submit Annual Inspection Forms. The inspection forms can be found at the link below:
https://www.montgomeryal.gov/city-government/departments/engineering-environmental-services/stormwater-management/post-construction-stormwater-management

A review of University policy and procedures will take place in the 2023-2024 reporting cycle.

Practice Measure: *review once per permit term, update if necessary*
Responsible Department: *Facilities and Operations Department*

3.4.3 Plan Review for New and Redevelopment

The program management firm reviews new and redevelopment plans for compliance with NPDES Permit responsibilities and City of Montgomery ordinances. Plans are reviewed for assurance that structural and non-structural practices are designed so that predevelopment hydrology is maintained to the maximum extent practicable. Runoff velocity, volume, and rate are reviewed along with provisions for revegetation and other elements that are protective of ASU and surrounding waters.

Practice Measure: *review plans as submitted*
Responsible Department: *Facilities and Operations Department*

3.4.4 Promote Low Impact Development (LID)/Green Infrastructure

The University must encourage and educate landowners and developers to incorporate the use of low impact development (LID)/green infrastructure where feasible. ASU will create a statement encouraging developers to consider LID and green infrastructure practices on campus. The statement will be developed by March 2023 and implemented during the 2023-2024 reporting cycle.

Practice Measure: *develop and implement a statement encouraging LID/green infrastructure*
Responsible Department: *Facilities and Operations Department*

3.5 Pollution Prevention/Good Housekeeping for Municipal Operations

ASU's Transportation, Grounds, and Facilities services are based out of and are coordinated from ASU's Physical Plant building. Campus operations are being conducted in a manner that is protective of water quality and follow standard operating procedures created during the previous permit term. The primary target audience for this measure includes: Facilities and Operations Department Staff.

3.5.1 Facility Visual Audit

An internal visual audit of all facility buildings and campus operations will occur to expose areas of improvement as well as to communicate the importance of proper good housekeeping practices to Facilities and Operations Department staff. Checklists will be developed prior to the inspection and procedures will be developed for correcting noted deficiencies. The goal is to complete the audit by March 2025.

Practice Measure: *Complete facilities inspection including checklists and procedures for correcting noted deficiencies*
Responsible Department: *Facilities and Operations Department*

3.5.2 Standard Operating Procedures

Standard Operating Procedures (SOP's) were developed during the previous permit term and are provided in Appendix J. The SOP's were created to formalize a set of standards that the Facilities and Operations Department Staff can follow to ensure that good housekeeping practices are occurring. THE SOP's will be maintained and updated as needed.

Practice Measure: *maintain and update SOP's as needed*
Responsible Department: *Facilities and Operations Department*

3.5.3 Staff Training of Standard Operating Procedures

The Facilities and Operations Department Staff will be trained on each of the SOP's during monthly safety meetings. SOP training material, provided in Appendix K. was developed during the previous permit term and will be incorporated into monthly safety meetings by March 2023.

Practice Measure: *Incorporate SOP staff training into monthly safety meetings*
Responsible Department: *Facilities and Operations Department*

3.5.4 Motor Oil Disposal

To minimize the likelihood of used motor oil being introduced to stormwater runoff, the University utilizes the services of an oil recycling company to dispose of all of its used motor oil.

Practice Measure: *recycle as needed*
Responsible Department: *Facilities and Operations Department*

3.5.5 Cooking Oil Disposal

The University's cafeterias are managed by a concessionaire company. The concessionaire maintains designated cooking oil containers that store the used cooking oil. The concessionaire utilizes the services of a recycling company to pick up the oil and dispose of it properly. This reduces the potential for illegal disposal and illicit disposal of this waste.

Practice Measure: *recycled as needed*
Responsible Department: *concessionaire under Facilities and Operations Department*

3.5.6 Campus Trash Pick-up

Trash receptacles are situated across the campus grounds to deter littering. These receptacles are emptied at a minimum on a weekly basis and hauled to the North Montgomery Sanitary Landfill.

Practice Measure: *trash receptacles emptied on a weekly basis*
Responsible Department: *Facilities and Operations Department*

3.5.7 Vegetated Debris Collection

Landscape maintenance is handled in a way that promotes water quality stewardship. All vegetation debris is collected and hauled to the landfill for disposal.

Practice Measure: *vegetation debris disposal after all landscape maintenance*
Responsible Department: *Facilities and Operations Department*

4.0 Certification

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 gathered and evaluated 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 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 or imprisonment for knowing violations.

Dr. Quinton T. Ross, Jr.
President, Alabama State University

Date 3/29/22

PO Box 271
Montgomery, AL 36101
(334) 229-4100

Appendix A – NPDES Permit No. ALR040065

LANCE R. LEFLEUR
DIRECTOR

KAY IVEY
GOVERNOR

Alabama Department of Environmental Management
adem.alabama.gov
1400 Coliseum Blvd. 36110-2400 ■ Post Office Box 301463
Montgomery, Alabama 36130-1463
(334) 271-7700 ■ FAX (334) 271-7950

September 24, 2021

Dr. Quinton Ross
President
PO BOX 271
Montgomery, AL 36101

RE: Small Municipal Separate Storm Sewer System General NPDES Permit
Alabama State University
Montgomery County (101)

Dear Dr.Ross:

The Department has made a final determination to reissue General NPDES Permit No. ALR040000 for discharges from regulated small municipal separate storm sewer systems (MS4s). The reissued permit will become effective on October 1, 2021 and will expire on September 30, 2026.

The Department notified the public of its tentative determination to reissue General NPDES Permit No. ALR040000 on July 2, 2021. Interested persons were provided the opportunity to submit comments on the Departments' tentative decision through August 3, 2021. In accordance with ADEM Admin. Code r. 335-6-6-.21(7), a response to comments received during the public comment period will be available on the Department's eFile system.

Based on your request, as evidenced by the submittal of a Notice of Intent, and on the information contained in the Notice of Intent coverage under **General NPDES Permit Number ALR040065** is granted. The effective date of coverage is October 1, 2021.

Coverage under this permit does not authorize the discharge of any pollutant or non-stormwater that is not specifically identified in the permit and by the Notice of Intent which resulted in the granting of coverage.

A copy of the General NPDES Permit under which coverage of your stormwater discharges has been granted is enclosed. If you have any questions concerning this permit, please contact Cammie Ashmore by email at cammie.ashmore@adem.alabama.gov or by phone at (334) 271-7795.

Sincerely,

Jeffery W. Kitchens

Jeffery W. Kitchens, Chief
Water Division

Enclosure: Permit
File: NOI/50180

Birmingham Branch
110 Vulcan Road
Birmingham, AL 35209-4702
(205) 942-6168
(205) 941-1603 (FAX)

Decatur Branch
2715 Sandlin Road, S.W.
Decatur, AL 35603-1333
(256) 353-1713
(256) 340-9359 (FAX)

Mobile Branch
2204 Perimeter Road
Mobile, AL 36615-1131
(251) 450-3400
(251) 479-2593 (FAX)

Mobile-Coastal
3664 Dauphin Street, Suite B
Mobile, AL 36608-1211
(251) 304-1176
(251) 304-1189 (FAX)

Alabama Department of Environmental Management

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM GENERAL PERMIT

DISCHARGE AUTHORIZED: STORMWATER DISCHARGES FROM REGULATED SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS

AREA OF COVERAGE: THE STATE OF ALABAMA

PERMIT NUMBER: ALR040065

RECEIVING WATERS: ALL WATERS OF THE STATE OF ALABAMA

In accordance with and subject to the provisions of the Federal Water Pollution Control Act, as amended, 33 U.S.C.§§1251-1378 (the "FWPCA"), the Alabama Water Pollution Control Act, as amended, Code of Alabama 1975, §§ 22-22-1 to 22-22-14 (the "AWPCA"), the Alabama Environmental Management Act, as amended, Code of Alabama 1975, §§22-22A-1 to 22-22A-15, and rules and regulations adopted thereunder, and subject further to the terms and conditions set forth in this permit, the Permittee is hereby authorized to discharge into the above-named receiving waters.

ISSUANCE DATE: September 16, 2021

EFFECTIVE DATE: October 1, 2021

EXPIRATION DATE: September 30, 2026

Jeffery W. Kitchen

Alabama Department of Environmental Management

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PART I: COVERAGE UNDER THIS GENERAL PERMIT

A. PERMIT COVERAGE

This permit covers the urbanized areas designated as a Phase II Municipal Separate Storm Sewer System (MS4) within the State of Alabama.

B. AUTHORIZED DISCHARGES

1. This permit authorizes discharges of storm water from small MS4s, as defined in 40 CFR Part 122.26(b)(16). An entity may discharge under the terms and conditions of this general permit if the entity:

    a. Owns or operates a small MS4 within the permit area described in Section A;

    b. Is not a “large” or “medium” MS4 as described in 40 CFR Part 122.26(b)(4) or (7);

    c. Submits a Notice of Intent (NOI) in accordance with Part II of this General Permit; and

    d. Either:

        i. Is located fully or partially within an urbanized area as determined by the latest Decennial Census by the Bureau of Census, or

        ii. Is designated for permit authorization by the Department pursuant to 40 CFR Part 122.32(a)(2).

2. This permit authorizes the following non-storm water discharges provided that they do not cause or contribute to a violation of water quality standards and that they have been determined not to be substantial contributors of pollutants to a particular small MS4 applying for coverage under this permit and that is implementing the Storm Water Management Program (SWMP) set forth in this permit:

    a. Water line flushing

    b. Landscape irrigation

    c. Diverted stream flows

    d. Uncontaminated ground water infiltration

    e. Uncontaminated pumped groundwater

    f. Discharges from potable water sources

    g. Foundation drains

    h. Air conditioning condensate

    i. Irrigation water (not consisting of treated, or untreated, wastewater)

    j. Rising ground water

    k. Springs

    l. Water from crawl space pumps

    m. Footing drains

    n. Lawn watering runoff

    o. Individual residential car washing, to include charitable carwashes

    p. Residual street wash water

    q. Discharge or flows from firefighting activities (including fire hydrant flushing)

    r. Flows from riparian habitats and wetlands

s. Dechlorinated swimming pool discharges, and

t. Discharges authorized and in compliance with a separate NPDES permit.

C. PROHIBITED DISCHARGES

The following discharges are not authorized by this permit:

1. Discharges that are mixed with sources of non-storm water unless such non-storm water discharges are:

   a. In compliance with a separate NPDES permit; or

   b. Determined by the Department not to be a significant contributor of pollutants to waters of the State;

2. Storm water discharges associated with industrial activity as defined in 40 CFR Part 122.26(b)(14)(i)-(ix) and (xi);

3. Storm water discharges associated with construction activity as defined in 40 CFR Part 122.26(b)(14)(x) or 40 CFR 122.26(b)(15) and subject to Alabama Department of Environmental Management (ADEM) Code r. 335-6-12;

4. Storm water discharges currently covered under another NPDES permit;

5. Discharges to territorial seas, contiguous zone, and the oceans unless such discharges are in compliance with the ocean discharge criteria of 40 CFR Part 125, Subpart M;

6. Discharges that would cause or contribute to instream exceedances of water quality standards; Your SWMPP must include a description of the Best Management Practices (BMPs) that you will be using to ensure that this will not occur. The Department may require corrective action or an application for an individual permit or alternative general permit if an MS4 is determined to cause an instream exceedance of water quality standards;

7. Discharges of any pollutant into any water for which a Total Maximum Daily Load (TMDL) has been approved or developed by EPA unless your discharge is consistent with the TMDL; This eligibility condition applies at the time you submit a NOI for coverage. If conditions change after you have permit coverage, you may remain covered by the permit provided you comply with the applicable requirements of Part V. You must incorporate any limitations, conditions and requirements applicable to your discharges, including monitoring frequency and reporting required, into your SWMPP in order to be eligible for permit coverage. For discharges not eligible for coverage under this permit, you must apply for and receive an individual or other applicable general NPDES permit prior to discharging;

8. This permit does not relieve entities that cause illicit discharges, including spills, of oils or hazardous substances, from responsibilities and liabilities under State and federal law and regulations pertaining to those discharges.

9. The discharge of sanitary wastewater through cross connections or other illicit discharges through the MS4 is prohibited.

D. OBTAINING AUTHORIZATION

1. To be authorized to discharge storm water from small MS4s, you must submit a Notice of Intent (NOI) and a description of your SWMP) in accordance with the deadlines presented in Part II of this permit.

2. You must submit the information required in Part II on the latest version of the NOI form. Your NOI must be signed and dated in accordance with Part VII of this permit.

3. No discharge under the general permit may commence until the discharger receives the Department's acknowledgement of the NOI and approval of the coverage of the discharge by the general permit. The Department may deny coverage under this permit and require submittal of an application for an individual NPDES permit based on a review of the NOI.

4. Where the operator changes, or where a new operator is added after submittal of an NOI under Part II, a new NOI must be submitted in accordance with Part II within thirty (30) days of the change or addition.

5. For areas extended within your MS4 by the latest census or annexed into your MS4 area after you received coverage under this general permit, the first annual report submitted after the annexation must include the updates to your SWMP, as appropriate.

E. IMPLEMENTATION

1. This permit requires implementation of the MS4 program under the State and federal NPDES Regulations. MS4s shall modify their programs if and when water quality considerations warrant greater attention or prescriptiveness in specific components of the municipal program.

2. If a small MS4 operator implements the minimum control measures in 40 CFR 122.34(b) and the discharges are determined to cause or contribute to non-attainment of an applicable water quality standard as evidenced by the State of Alabama's 303(d) list or an EPA-approved or developed TMDL, the operator must tailor its BMPs within the scope of the six minimum control measures to address the pollutants of concern and implement permit requirements outlined in Part IV.D. and Part V of this permit.

3. Existing MS4s, unless otherwise stated within this permit, shall implement each of the minimum control measures outlined in Part III.B. of this permit immediately upon the effective date of coverage. Newly designated MS4s, unless otherwise stated in this permit, shall implement the minimum control measures outlined in Part III.B. of this permit within 365 days of the effective date of coverage. However, for newly designated MS4s, where new or revised ordinances are required to implement any of the minimum control measures, such ordinances shall be enacted within 730 days from the effective date of coverage.

PART II: NOTICE OF INTENT (NOI) REQUIREMENTS

A. DEADLINES OF APPLICATIONS

1. If you are automatically designated under 40 CFR Part 122.32(a)(1) or designated by the Department, then to request recoverage, you are required to submit an NOI or an application for an individual permit and a description of your SWMP at least 90 days before the expiration of this permit.

2. If you are designated by the Department after the date of permit issuance, then you are required to submit an NOI or an application for an individual permit and a description of your SWMP within 180 days upon notification. Within six months of initial issuance, the operator of the regulated small MS4 shall submit a SWMPP to the Department for review. A SWMPP shall be submitted electronically as described in Part II.D of this permit.

3. You are not prohibited from submitting an NOI after the dates provided in Part II.A.1-2. If a NOI is submitted after the dates provided in Part II.A.1-2., your authorization is only for discharges that occur after permit coverage is granted. The Department reserves the right to take appropriate enforcement actions for any unpermitted discharges.

4. Within six months of the date of re-issuance of coverage under this permit, all operators of regulated small MS4s shall submit a revised SWMPP to the Department for review.

B. CONTINUATION OF THE EXPIRED GENERAL PERMIT

If this permit is not reissued or replaced prior to the expiration date, it will be administratively continued in accordance with the ADEM Code r. 335-6-6 and remain in force and effect if the Permittee re-applies for coverage as required under Part II of this permit. Any Permittee who was granted permit coverage prior to the expiration date will automatically remain covered by the continued permit until the earlier of:

1. Reissuance or replacement of this permit, at which time you must comply with the Notice of Intent conditions of the new permit to maintain authorization to discharge; or

2. Issuance of an individual permit for your discharges; or

3. A formal permit decision by the Department not to reissue this general permit, at which time you must seek coverage under an alternative general permit or an individual permit.

C. CONTENTS OF THE NOTICE OF INTENT (NOI)

The Notice of Intent must be signed in accordance with Part VII.G of this permit and must include the following information:

1. The correct fee pursuant to ADEM Admin. Code R.335-1, Fee Schedule D.

2. Information on the Permittee:

   a. The name of the regulated entity, specifying the contact person and responsible official, mailing address, telephone number and email address; and

   b. An indication of whether you are a federal, State, county, municipal or other public entity.

3. Information on the MS4:

   a. The name of your organization, county, city, or town and the latitude/longitude of the center or the MS4 location;

   b. The name of the major receiving water(s) and an indication of whether any of your receiving waters are included on the latest 303(d) list, included in an EPA-approved and/or EPA developed TMDL or otherwise designated by the Department as being impaired. If you have discharges to 303(d) or TMDL waters, a certification that your SWMPP complies with the requirements of Part V;

c. If you are relying on another governmental entity, regulated under the storm water regulations (40 CFR Part 122.26 & 122.32) to satisfy one or more of your permit obligations (see Part III), the identity of that entity(ies) and the elements(s) they will be implementing. The Permittee remains responsible for compliance if the other entity fails to fully perform the permit obligation, and may be subject to enforcement action if neither the Permittee nor the other entity fully performs the permit obligation; and

d. Must include if you are relying on the Department for enforcement of erosion and sediment controls on qualifying construction sites in accordance with Part III.B.3.b.

4. Include a brief summary of the BMPs for the minimum control measures in Part III of this permit (i.e. a brief summary of the MS4's SWMPP), a timeframe for implementing new or additional BMPs, and the person or persons responsible for implementing or coordinating your SWMPP.

D. WHERE TO SUBMIT MS4 DOCUMENTS

The Permittee must complete and submit its NOI or individual application electronically, and a description of your SWMP as allowed under Part II.A., signed in accordance with the signatory requirements of Section VII of this permit, to the Department via the Alabama Environmental Permitting and Compliance System (AEPACS) unless the Permittee submits in writing valid justification as to why the electronic submittal cannot be utilized and the Department approves in writing the utilization of hard copy submittals. The AEPACS can be accessed at the following link: https://adem.alabama.gov/AEPACS. Permit requests for initial issuance and modifications of the existing permit shall all be submitted through the AEPACS.

Requests as to why AEPACS cannot be utilized shall be addressed to:

Alabama Department of Environmental Management
Water Division
Storm Water Management Branch
Post Office Box 301463
Montgomery, Alabama 36130-1463

PART III: STORM WATER POLLUTION PREVENTION AND MANAGEMENT PROGRAM

A. STORM WATER MANAGEMENT PROGRAM (SWMP)

1. The Permittee is required to develop, revise, implement, maintain and enforce a SWMP which shall include controls necessary to reduce the discharge of pollutants from its MS4 consistent with Section 402(p)(3)(B) of the Clean Water Act and 40 CFR Parts 122.30-122.37. These requirements shall be met by the development and implementation of a SWMPP which addresses the BMPs, control techniques and systems, design and engineering methods, public participation and education, monitoring, and other appropriate provisions designed to reduce the discharge of pollutants from the MS4 to the maximum extent practicable (MEP).

2. The Permittee shall provide and maintain adequate finance, staff, equipment, and support capabilities necessary to implement the SWMPP and comply with the requirements of this permit.

3. The SWMPP must address the minimum storm water control measures referenced in Part III.B. to include the following:

   a. A map of the Permittee's MS4 urbanized areas;

   b. The BMPs that will be implemented for each control measure. Low impact development/green infrastructure shall be considered and actively encouraged where feasible. Information on LID/Green Infrastructure is available on the following websites: http://www.adem.alabama.gov/programs/water/waterforms/LIDHandbook.pdf and https://epa.gov/nps/urban-runoff-low-impact-development;

   c. The measureable goals for each of the minimum controls outlined in Part III.B.;

   d. The proposed schedule—including interim milestones, as appropriate, inspections, and the frequency of actions needed to fully implement each minimum control; and

   e. The person and/or persons responsible for implementing or coordination the BMPs for each separate minimum control measure.

4. Unless otherwise specified in this permit, the Permittee shall be in compliance with the conditions of this permit by the effective date of coverage.

B. MINIMUM STORM WATER CONTROL MEASURES

1. Public Education and Public Involvement on Storm Water Impacts

   a. The Permittee must develop and implement a public education and outreach program to inform the public about the impacts of storm water discharges on water bodies and the steps that the public can take to reduce pollutants in storm water runoff to the MEP. The Permittee shall continuously implement this program in the areas served by the MS4. The Permittee shall also comply, at a minimum, with applicable State and local public notice requirements when implementing a public involvement/participation program. Each year, the Permittee shall implement a minimum of four BMPs, with two BMP emphasizing public education and two BMP emphasizing public involvement.

   b. The Permittee shall include within the SWMPP the following information:

      i. Annually, seek and consider public input in the development, revision, and implementation of the SWMPP, that may include, but is not limited to publishing in local newspaper, posting on the Permittee's website, etc.;

      ii. Address in its public education program, the targeted pollutant sources to include, at a minimum the land development community (i.e., construction contractors/developers);

      iii. Specifically address the reduction of litter, floatables and debris from entering the MS4, that may include, but is not limited to:

(1) Establishing a program to support volunteer groups for labeling storm drain inlets and catch basins with “no dumping” message; post and

(2) Posting signs referencing local codes that prohibit littering and illegal dumping at selected designated public access points to open channels, creeks, and other relevant waterbodies;

iv. Inform and involve individuals and households about the steps they can take to reduce storm water pollution;

v. Plans to inform and involve individuals and groups on how to participate in the storm water program (with activities that may include, but not limited to, local stream and lake restoration activities, storm water stenciling, advisory councils, watershed associations, committees, participation on rate structures, stewardship programs and environmental related activities, outreach on LID/GI). The target audiences and subject areas for the education program that are likely to have significant storm water impacts should include, but is not limited to, the following:

(1) General Public

(a) General impacts litter has on water bodies, how trash is delivered to streams via the MS4 and ways to reduce the litter;

(b) General impacts of storm water flows into surface water from impervious surface; and

(c) Source control BMPs in areas of pet waste, vehicle maintenance, landscaping and rain water reuse.

(2) General Public, Businesses, Including Home-Based and Mobile Businesses

(a) BMPs for use and storage of automotive chemicals, hazardous cleaning supplies, carwash soaps and other hazardous materials; and

(b) Impacts of illicit discharges and how to report them.

(3) Homeowners, Landscapers, and Property Managers

(a) Yard care techniques that protect water quality;

(b) BMPs for use and storage of pesticides and fertilizers;

(c) BMPs for carpet cleaning and auto repair and maintenance;

(d) Runoff reduction techniques, which may include but not limited to site design, pervious paving, retention of forests, mature trees, and maintenance required for LID/GI; and

(e) Storm water pond maintenance.

(4) Engineers, Contractors, Developers, Review Staff and Land Use Planners

(a) Technical standards for construction site sediment and erosion control;

(b) Storm water treatment and flow control BMPs;

(c) Impacts of increased storm water flows into receiving water bodies; and

(d) Run-off reduction techniques and low impact development (LID)/green infrastructure (GI) practices that may include, but not limited to, site design, pervious pavement, alternative parking lot design, retention of forests and mature trees to assist in storm water treatment and flow control BMPS, and maintenance required for LID/GI.

vi. Evaluate the effectiveness of the public education and public involvement program. If the Permittee determines any portion of the program (including BMPs) to be ineffective, then the Permittee shall update the SWMPP to address the ineffectiveness.

c. The Permittee shall report each year in the annual report the following information:

i. A description of the method used to seek and consider input from the public in the development, revision, and implementation of the SWMPP;

ii. A description of the activities used to involve groups and/or individuals in the development, revision, and implementation of the SWMPP;

iii. A description of the targeted pollutant sources the public education and public involvement program addressed;

iv. A description of the individuals and groups targeted and how many groups and/or individuals participated in the programs;

v. A description of the activities used to address the reduction of litter, floatables and debris from entering the MS4 as required in Part III.B.1.b.iii.;

vi. A description of the communication mechanism(s) or advertisement(s) used to inform individuals, households, public and/or groups as well as the quantity that were distributed (i.e. number of printed brochures, copies of newspapers, workshops, public service announcements, etc.); and

vii. Results of the evaluation of the public education and public involvement program as required in Part III.B.1.b.vi.

d. The Permittee shall make their SWMPP and their annual reports required under this permit available to the public when requested. The current SWMPP and the latest annual report should be posted on the Permittee's website, if available, and within 30 days of submittal of the SWMPP to the Department.

2. Illicit Discharge Detection and Elimination (IDDE) Program

a. The Permittee shall implement an ongoing program to detect and eliminate illicit discharges into the MS4, to the maximum extent practicable. The program shall include, at a minimum, the following:

i. An initial map shall be provided in the SWMPP with updates, if any, provided each year in the annual report. The map shall include, at a minimum:

(1) The latitude/longitude of all known outfalls;

(2) The names of all waters of the State that receive discharges from these outfalls; and,

(3) Structural BMPs owned, operated, or maintained by the Permittee, if applicable.

ii. To the extent allowable under State law, an ordinance or other regulatory mechanism that effectively prohibits non-storm water discharges to the MS4. The ordinance or other regulatory mechanism shall be reviewed annually and updated as necessary and shall:

(1) Include escalating enforcement procedures and actions; and

(2) Require the removal of illicit discharges and the immediate cessation of improper disposal practices upon identification of responsible parties. Where the removal of illicit discharge within ten (10) working days is not possible, the ordinance shall require an expeditious schedule for removal of the discharge. In the interim, the ordinance shall require the operator of the illicit discharge to take all reasonable and prudent measures to minimize the discharge of pollutants to the MS4.

iii. A dry weather screening program designed to detect and address non-storm water discharges to the MS4. This program must address, at a minimum, dry weather screening of fifteen percent (15%) of the outfalls once per year with all (100 percent) screened at least once per five years. Priority areas, as described by the Permittee in the SWMPP, will be dry weather screened on a more frequent schedule as outlined in the SWMPP. If any indication of a suspected illicit discharge, from an unidentified source, is observed during the dry weather screening, then the Permittee shall follow the screening protocol as outlined in the SWMPP.

iv. Procedures for tracing the source of a suspect illicit discharge as outlined in the SWMPP. At a minimum, these procedures will be followed to investigate portions of the MS4 that, based on the results of the field screening or other appropriate information, indicate a reasonable potential of containing illicit discharges or other sources of non-storm water.

v. Procedures for eliminating an illicit discharge as outlined in the SWMPP;

vi. Procedures to notify ADEM of a suspect illicit discharge entering the Permittee's MS4 from an adjacent MS4 as outlined in the SWMPP;

vii. A mechanism for the public to report illicit discharges discovered within the Permittee's MS4 and procedures for appropriate investigation of such reports;

viii. A training program for appropriate personnel to be trained on identification, reporting, and corrective action of illicit discharges, at a minimum of at least once per five years;

ix. Address the following categories of non-storm discharges or flows (i.e., illicit discharges) only if the Permittee or the Department identifies them as significant contributors of pollutants to your small MS4: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (infiltration is defined as water other than wastewater that enters a sewer system, including foundation drains, from the ground through such means as defective pipes, pipe joints, connections, or manholes. Infiltration does not include, and is distinguished from, inflow), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering run-off, individual residential car washing, flows from riparian habitats and wetlands, discharge or flows from firefighting activities (to include fire hydrant flushing); dechlorinated swimming pool discharges, and residual street wash water, discharge authorized by and in compliance with a separate NPDES permit; and

x. The Permittee may also develop a list of other similar occasional incidental non- storm water discharges (e.g. non-commercial or charity car washes, etc.) that will not be addressed as illicit discharges. These non- storm water discharges must not be reasonably expected (based on information available to the Permittees) to be significant sources of pollutants to the municipal separate storm sewer system, because of either the nature of the discharges or conditions you have established for allowing these discharges to your MS4 (e.g., a charity car wash with appropriate controls on frequency, proximity to impaired waterbodies, BMPs on the wash water, etc.). You must document in your SWMPP any local controls or conditions placed on the discharges. The Permittee must include a provision prohibiting any individual non- storm water discharge that is determined to be contributing significant amounts of pollutants to your MS4.

b. The Permittee shall report each year in the annual report the following information:

i. List of outfalls observed in the annual reporting year to demonstrate that 100% of outfalls are screened at least once per five years during the dry weather screening;

ii. Updated MS4 map(s) as required by Part III.B.2.a.i. unless there are no changes to the map that was previously submitted. When there are no changes to the map, the annual report must state this;

iii. Copies of, or a link to, the IDDE ordinance or other regulatory mechanism as required by Part III.B.2.a.ii. When there are no changes to the ordinance or other regulatory mechanism, the annual report should state this;

iv. Date(s) of training conducted for appropriate personnel; and

v. The number of illicit discharges investigated, the screening results, and the summary of corrective actions taken to include dates and timeframe of response.

3. Construction Site Storm Water Runoff Control

a. The Permittee must develop/revise, implement and enforce an ongoing program to reduce, to the maximum extent practicable, the pollutants in any storm water runoff to the MS4 from qualifying construction sites. The program shall include the following at a minimum:

i. Specific procedures for construction site plan (including erosion prevention and sediment controls) review and approval: The MS4 procedures must include an evaluation of plan completeness and overall BMP effectiveness;

ii. To the extent allowable under State law, an ordinance or other regulatory mechanism to require erosion and sediment controls, sanctions to ensure compliance, and to provide all other authorities needed to implement the requirements of Part III.B.3 of this permit. The ordinance or other regulatory mechanism shall be reviewed annually and updated as necessary;

iii. A training program for MS4 site inspection staff in the identification of appropriate construction BMPs (example: QCI training in accordance with ADEM Admin Code. R. 335-6-12 or the Alabama Construction Site General Permit). Applicable MS4 site inspection staff shall be trained at least once per year;

iv. Within 365 days of the effective date of the permit, develop and implement a construction site inspection form to include at least the items listed in Parts III.B.3.d.i.

v. Within 365 days of the effective date of the permit, maintain an inventory of qualifying construction sites containing relevant contact information for each construction site (i.e., tracking number and construction site contact name, address, phone number, etc.), the size of the construction site, whether the construction site has submitted for permit coverage under ADEM's Construction General Permit ALR100000, and the date the MS4 Permittee approved the site construction plan. The MS4 Permittee must make the inventory available upon the Department's request.

vi. Procedures for the inspection of qualifying construction sites to verify the use of appropriate erosion and sediment control practices that are consistent with the Alabama Handbook for Erosion Control, Sediment Control, and Stormwater Management on Construction Sites and Urban Areas published by the Alabama Soil and Water Conservation Committee (hereinafter the "Alabama Handbook"). The frequency and prioritization of inspection activities shall be documented in the SWMPP. Inspection of construction sites to verify use and proper maintenance of appropriate BMPs shall be performed in accordance with the frequency specified in the table below:

Site	Inspection Frequency
Priority Construction Sites (defined in Part VII.W.)	At a minimum, inspections must occur monthly.
Other sites determined by the Permittee or Permitting Authority to be a significant threat to water quality.*	
All qualifying construction sites not meeting the criteria specified above.	At a minimum, inspections must occur every three months.

*In evaluating the threat to water quality, the following factors must be considered, if applicable:

- Soil erosion potential;
- Site slope;
- Project size and type;
- Sensitivity of receiving waterbodies including 303d or TMDL status;
- Proximity to receiving waterbodies;
- Non-storm water discharges;
- Past record of non-compliance by the operators of the construction site; and
- Other factors deemed relevant to the MS4.

vii. For sites determined to have ineffective BMPs, a follow-up inspection shall be conducted and appropriately documented as outlined in Part III.B.3.d.i.

viii. Procedures, as outlined in the SWMPP, to notify ADEM of construction sites that do not have a NPDES permit or ineffective BMPs that are discovered during the periodic inspections. The notification must provide, at a minimum, the specific location of the construction project, the name and contact information from the owner or operator, and a summary of the site deficiencies; and

ix. A mechanism for the public to report complaints regarding discharges from qualifying construction sites.

b. ADEM implements a State-wide NPDES construction storm water regulatory program. As provided by 40 CFR Part 122.35(b), the Permittee may rely on ADEM for the setting of standards for appropriate erosion controls and sediment controls for qualifying construction sites and for enforcement of such controls, and must document this in its SWMPP. If the Permittee elects not to rely on ADEM's program, then the Permittee must include the following, at a minimum, in its SWMPP:

i. Requirements for construction site operators to implement appropriate erosion and sediment control BMPs consistent with the Alabama Handbook for Erosion Control, Sediment Control, And Stormwater Management on Construction Sites and Urban Areas published by the Alabama Soil and Water Conservation Committee (hereinafter the "Alabama Handbook");

ii. Requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality;

iii. Development and implementation of an enforcement strategy that includes escalating enforcement remedies to respond to issues of non-compliance;

iv. An enforcement tracking system designed to record instances of non-compliance and the MS4's responding actions. The enforcement case documentation should include:

(1) Name of owner/operator

(2) Location of construction project or industrial facility

(3) Description of violations

(4) Required schedule for returning to compliance

(5) Description of enforcement response used, including escalated responses if repeat violation occur or violations are not resolved in a timely manner;

(6) Accompanying documentation of enforcement response (e.g., notices of noncompliance, notices of violation, etc.);

(7) Any referrals to different departments or agencies; and

(8) Date violation was resolved

v. The Permittee must keep records of all inspections (i.e. inspection reports) and employee training required by Part III.B.3.a.

c. The Permittee shall include within the SWMPP the following information:

i. Procedures for site plan reviews as required by Part III.B.3.a.i;

ii. A copy or link of the ordinance or other regulatory mechanism required by Part III.B.3.a.ii.;

iii. Plans for the training of MS4 site inspection staff as required by Part III.B.3.a.iii; and

iv. A copy of the construction site inspection form meeting the requirements of Part III.B.3.a.iv.

d. The Permittee shall maintain the following information and make it available upon request:

   i. Documentation of all inspections conducted of qualifying construction sites as required by Part III.B.3.a.vi. The inspection documentation shall include, at a minimum, the following:

      (1) Facility type;

      (2) Inspection date;

      (3) Name and signature of inspector;

      (4) Location of construction project;

      (5) Owner/operator information (name, address, phone number, email);

      (6) Description of the storm water BMP condition that may include, but not limited to, the quality of vegetation and soils, inlet and outlet channels and structures, embankments, slopes and safety benches, spillways, weirs, and other control structures; and sediment and debris accumulation in storage and forebay areas as well as in and around inlet and outlet structures; and

      (7) Photographic documentation of any issues and/or concerns.

   ii. Documentation of referrals of noncompliant construction sites and/or enforcement actions taken at construction sites to include, at a minimum, the following:

      (1) Name of owner/operator

      (2) Location of construction project;

      (3) Description of violation;

      (4) Required schedule for returning to compliance;

      (5) Description of enforcement response used, including escalated responses if repeat violations occur; and

      (6) Accompanying documentation of enforcement responses (e.g. notices of non-compliance, notices of violations, etc.).

   iii. Records of public complaints including:

      (1) Date, time and description of the complaint;

      (2) Location of subject construction sites; and

      (3) Identification of any actions taken (e.g. inspections, enforcement, corrections). Identifying information must be sufficient to cross-reference inspection and enforcement records.

e. The Permittee shall report each year in the annual report the following information:

   i. A description of any completed or planned revisions to the ordinance or regulatory mechanism required by Part III.B.3.a.ii. and the most recent copy, or a link to the ordinance; and

   ii. List of all active construction sites within the MS4 to include the following summary:

      (1) Number of construction site inspections;

      (2) Number of non-compliant construction site referrals and/or enforcement actions and description of violations;

      (3) Number of construction site runoff complaints received; and

      (4) Number of MS4 staff/inspectors trained. Include copies of certifications or attendance records for those MS4 staff/inspectors.

4. Post-Construction Storm Water Management in New Development and Redevelopment

a. Post-construction storm water management refers to the activities that take place after construction occurs, and includes structural and non-structural controls including low-impact development and green infrastructure practices to obtain permanent storm water management over the life of the property's use. These post construction controls should be considered during the initial site development planning phase.

i. The Permittee must develop/revise, implement, and enforce a program to address storm water runoff from qualifying new development and redevelopment projects, to the maximum extent practicable. This program shall ensure that controls are in place to prevent or minimize water quality impacts. Specifically, the Permittee shall:

(1) Develop/revise and outline in the SWMPP procedures for the site-plan review and approval process and a required re-approval process when changes to post-construction controls are required; and

(2) Develop/revise and outline in the SWMPP procedures for a post-construction process to demonstrate and document that post-construction storm water measures have been installed per design specifications, which includes enforceable procedures for bringing noncompliant projects into compliance.

ii. The Permittee must develop and implement strategies which may include a combination of structural and/or non-structural BMPs designed to ensure, to the maximum extent practicable, that the post construction runoff mimics pre-construction hydrology. A design rainfall event with an intensity up to that of a 2yr-24hr storm event shall be the basis for the design and implementation of post- construction BMPs.

iii. Encourage and educate landowners and developers to incorporate the use of low impact development (LID)/green infrastructure where feasible. Information on low impact development (LID)/green infrastructure is available on the following websites: http://www.adem.alabama.gov/programs/water/waterforms/LIDHandbook.pdf; http://epa.gov/nps/lid. The Permittee shall include a narrative description in the SWMPP as to the means that will be taken to implement the requirement to encourage landowners and developers to incorporate the use of low impact development (LID)/green infrastructure;

iv. To the extent allowable under State law, the Permittee must develop and institute the use of an ordinance or other regulatory mechanism to address post-construction runoff from qualifying new development and redevelopment projects. The ordinance or other regulatory mechanism shall be reviewed annually and updated as necessary;

v. The Permittee must require adequate long-term operation and maintenance of BMPs. One or more of the following as applicable:

(1) The developer's signed statement accepting responsibility for maintenance until the maintenance responsibility is legally transferred to another party; and/or

(2) Written conditions in the sales or lease agreement that require the recipient to assume responsibility for maintenance; and/or

(3) Written conditions in project conditions, covenants and restrictions for residential properties assigning maintenance responsibilities to a home owner's association, or other appropriate group, for maintenance of structural and treatment control management practices; and/or

(4) Any other legally enforceable agreement that assigns permanent responsibility for maintenance of structural or treatment control management practices.

vi. The Permittee shall perform or require the performance of post-construction inspections, at a minimum of once per year, to confirm that post-construction BMP's are functioning as designed. The Permittee shall include an inspection schedule, to include inspection frequency, within the SWMPP. The Permittee shall document or require documentation of the post-construction inspection. Such documentation shall include, at a minimum:

(1) Facility type

(2) Inspection date

(3) Name and signature of inspector

(4) Site location

(5) Owner information (name, address, phone number, fax, and email)

(6) Description of the storm water BMP condition that may include the quality of: vegetation and soils, inlet and outlet channels and structures, embankments, slopes, and safety benches; spillways, weirs, and other control structures; and sediment and debris accumulation in storage and forebay areas as well as in and around inlet and outlet structures;

(7) Photographic documentation of all critical storm water BMP components;

(8) Specific maintenance items or violations that need to be corrected by the owner/operator of the storm water control or BMP; and

(9) Maintenance agreements for long-term BMP operation and maintenance.

vii. The Permittee shall maintain or require the developer/owner/operator to keep records of post-construction inspections, maintenance activities and make them available to the Department upon request and require corrective actions to poorly functioning or inadequately maintained post-construction BMP's.

b. The Permittee shall report each year in the annual report the following information:

i. Copies of, or link to, the ordinance or other regulatory mechanism required by Part III.B.4.a.iv.;

ii. A list of the post-construction structural controls installed and inspected during the permit year. The list shall include which post-construction structural controls installed are considered low impact development (LID)/green infrastructure, if applicable;

iii. Updated inventory of post-construction structural controls including those owned by the Permittee;

iv. Number of inspections performed on post-construction structural controls; and,

v. Summary of enforcement actions, if applicable.

5. Pollution Prevention/Good Housekeeping for Municipal Operations

a. The Permittee shall develop, implement, and maintain a program that will prevent or reduce the discharge of pollutants in storm water run-off from municipal operations to the maximum extent practicable. The program elements shall include, at a minimum, the following:

i. An inventory (to include name and location) of all municipal facilities. Evaluate and determine which municipal facilities have the potential to discharge pollutants via storm water runoff;

ii. Strategies for the implementation of BMPs to reduce litter, floatables and debris from entering the MS4 and evaluate those BMPs annually to determine their effectiveness. If a BMP is determined to be ineffective or infeasible, then an alternate BMP must be implemented. The Permittee shall also develop a plan to remove litter, floatable and debris material from the MS4, including proper disposal of waste removed from the system;

iii. Standard Operating Procedures (SOPs) detailing good housekeeping practices to be employed at municipal facilities (that have the potential to discharge pollutants via stormwater runoff) and during municipal operations that may include, but not limited to, the following:

(1) Equipment washing;

(2) Street sweeping;

(3) Maintenance of municipal roads including public streets, roads, and highways, including but not limited to unpaved roads, owned, operated, or under the responsibility of the Permittee;

(4) Storage, use, and disposal of chemicals, Pesticide, Herbicide and Fertilizers (PHFs) and waste materials;

(5) Vegetation control, cutting, removal, and disposal of the cuttings;

(6) Vehicle fleets/equipment maintenance and repair;

(7) External Building maintenance; and

(8) Materials storage facilities and storage yards.

iv. A program for inspecting municipal facilities for good housekeeping practices, including BMPs. The program shall include checklists and procedures for correcting noted deficiencies;

v. A training program for municipal facility staff in good housekeeping practices as outlined in the SOP developed pursuant to Part III.B.5.a.iii; and

b. The Permittee shall include within the SWMPP the following information:

i. The inventory of municipal facilities required by Part III.B.5.a.i;

ii. Evaluate and include a discussion of how effectiveness is measured for Part III.B.5.a.ii;

iii. Schedule for developing the SOP of good housekeeping practices required by Part III.B.5.a.iii;

iv. An inspection plan and schedule to include inspection frequency, checklists, and any other materials needed to comply with Part III.B.5.a.iv; and

v. A description of the training program and training schedule to include training frequency required by Part III.B.5.a.v.

c. The Permittee shall report each year in the annual report the following information:

i. Any updates to the municipal facility inventory;

ii. An estimated amount of floatable material collected from the MS4 as required by Part III.B.5.a.ii;

iii. Any updates to the inspection plan

iv. The number of inspections conducted; and

v. Any updates to the SOP of good housekeeping practices.

d. The Permittee shall maintain the following information and make it available upon request:

i. Records of inspections and corrective actions, if any; and

ii. Training records including the dates of each training activities and names of personnel in attendance.

PART IV: SPECIAL CONDITIONS

A. RESPONSIBILITIES OF THE PERMITTEE

1. If the Permittee is relying on another entity to satisfy one or more requirements of this permit, then the Permittee must note that fact in the SWMPP. The Permittee remains responsible for compliance with all requirements of this permit, except as provided by Part III.B.3.b and reliance on another entity will not be a defense or justification for non-compliance if the entity fails to implement the permit requirements.

2. If the Permittee is relying on the Department for the enforcement of erosion and sediment controls on qualifying construction sites and has included that information in the SWMPP as required by Part III.B.3.b., the Permittee is not responsible for implementing the requirements of Part III.B.3.b of this permit as long as the Department receives notification of non-compliant qualifying constructions sites from the Permittee as required by Part III.B.3.a.viii.

B. SWMPP PLAN REVIEW AND MODIFICATION

1. The Permittee shall submit a SWMPP and/or revised SWMPP to the Department as required by Part II.A of the permit. The Permittee shall implement plans to seek and consider public input in the development, revision and implementation of this SWMPP, as required by Part III.B.1.b.i. Thereafter, the Permittee shall perform an annual review of the current SWMPP and must revise the SWMPP, as necessary, to maintain compliance with the permit. Any revisions to the SWMPP shall be submitted to the Department at the time a revision is made for the Department review and the Permittee's website shall be updated with the revised version of the SWMPP. Revisions made to the SWMPP may include, but are not limited to, the replacement of ineffective or infeasible BMPs or the addition of components, controls and requirements; and

2. The Permittee shall implement the SWMPP on all new areas added to their municipal separate storm sewer system (or for which they become responsible for implementation of storm water quality controls) as soon as practicable, but not later than one (1) year from addition of the new areas. Implementation of the program in any new area shall consider the plans of the SWMPP of the previous MS4 ownership, if any.

C. DISCHARGE COMPLIANCE WITH WATER QUALITY STANDARDS

This general permit requires, at a minimum, that the Permittee develop, implement and enforce a Storm Water Management Program designed to reduce the discharge of pollutants to the maximum extent practicable. Full implementation of BMPs, using all known, available, and reasonable methods of prevention, control and treatment to prevent and control storm water pollution from entering waters of the State of Alabama is considered an acceptable effort to reduce pollutants from the municipal storm drain system to be the maximum extent practicable.

D. IMPAIRED WATERS AND TOTAL MAXIMUM DAILY LOADS (TMDLS)

1. The Permittee must determine whether the discharge from any part of the MS4 contributes directly or indirectly to a waterbody that is included on the latest §303(d) list or designated by the Department as impaired;

2. If the Permittee's MS4 discharges to a waterbody included on the latest §303(d) or designated by the Department as impaired, it must demonstrate the discharges, as controlled by the Permittee, do not cause or contribute to the impairment. The SWMPP must detail the BMPs that are being utilized to control discharges of pollutants associated with the impairment. If existing BMPs are not sufficient to achieve this demonstration, the Permittee must, within six (6) months following the publication of the latest final §303(d) list, Department designation, or the effective date of this permit, submit a revised SWMPP detailing new or modified BMPs. The SWMPP must be revised as directed by the Department and the new or modified BMPs must be implemented within one year from the publication of the latest final §303(d) list or Department designation.

3. Permittees discharging from MS4s into waters with EPA-Approved TMDLs and/or EPA-Established TMDLs

    a. The Permittee must determine whether its MS4 discharges to a waterbody for which a TMDL has been established or approved by EPA. If an MS4 discharges into a water body with an EPA approved or established TMDL, then the SWMPP must include BMPs targeted to meet the assumptions and

requirements of the TMDL. If additional BMPs will be necessary to meet the requirements of the TMDL, the SWMPP must include a schedule for installation and/or implementation of such BMPs. A monitoring component to assess the effectiveness of the BMPs in achieving the TMDL requirements must also be included in the SWMPP. Monitoring can entail a number of activities including, but not limited to: outfall monitoring, in-stream monitoring, and/or modeling. Monitoring data, along with an analysis of this data, shall be included in the Annual Report.

b. If, during this permit cycle, a TMDL is approved by EPA or a TMDL is established by EPA for any waterbody into which an MS4 discharges, the Permittee must review the applicable TMDL to see if it includes requirements for control of storm water discharges from the MS4.

   i. If it is found that the Permittee must implement specific allocations of the TMDL, it must assess whether the assumptions and requirements of the TMDL are being met through implementation of existing BMPs or if additional BMPs are necessary. The SWMPP must include BMPs targeted to meet the assumptions and requirements of the TMDL. If existing BMPs are not sufficient, the Permittee must, within six (6) months following the approval or establishment of the TMDL by EPA, submit a revised SWMPP detailing new or modified BMPs to be utilized along with a schedule of installation and/or implementation of such BMPs. Any new or modified BMPs must be implemented within one year, unless an alternate date is approved by the Department, from the establishment or approval of the TMDL by EPA. A monitoring component to assess the effectiveness of the BMPs in achieving the TMDL requirements must also be included in the SWMPP. Monitoring can entail a number of activities including, but not limited to: outfall monitoring, in-stream monitoring, and/or modeling. Monitoring data, along with an analysis of this data, shall be included in the Annual Report.

E. REQUIRING AN INDIVIDUAL PERMIT

The Department may require any person authorized by this permit to apply for and/or obtain an individual NPDES permit. When the Department requires application for an individual NPDES permit, the Department will notify the Permittee in writing that a permit application is required. This notification shall include a brief statement of the reasons for this decision, an application from and a statement setting a deadline for the Permittee to file the application.

PART V: MONITORING AND REPORTING

A. MONITORING REQUIREMENTS

1. If there are no 303(d) listed or TMDL waters located within the Permittee's MS4 area, no monitoring shall be required. The SWMPP shall include a determination stating if monitoring is required.

2. If a waterbody within the MS4 jurisdiction is listed on the latest final §303(d) list, or otherwise designated impaired by the Department, or for which a TMDL is approved or established by EPA, during this permit cycle, then the Permittee must implement a monitoring program, within 6 months, to include monitoring that addresses the impairment or TMDL. A monitoring plan shall be included with the SWMPP and any revisions to the monitoring program shall be documented in the SWMPP and Annual Report.

3. Proposed monitoring locations, and monitoring frequency shall be described in the monitoring plan with actual locations described in the annual report;

4. The Permittee must include in the monitoring program any parameters attributed with the latest final §303(d) list or otherwise designated by the Department as impaired or are included in an EPA-approved or EPA-established TMDL.

5. Analysis and collection of samples shall be done in accordance with the methods specified at 40 CFR Part 136. Where an approved 40 CFR Part 136 does not exist, then a Department approved alternative method may be used.

6. If the Permittee is unable to collect samples due to adverse conditions, the Permittee must submit a description of why samples could not be collected, including available documentation of the event. An adverse climatic condition which may prohibit the collection of samples includes weather conditions that create dangerous conditions for personnel (such as local flooding, high winds, hurricane, tornadoes, electrical storms, etc.) or otherwise make the collection of a sample impracticable (drought, extended frozen conditions, etc.).

B. REPORTING OF MONITORING RESULTS

Monitoring results must be reported with the subsequent Annual Report and shall include the following monitoring information:

1. The date, latitude/longitude of location, and time of sampling;

2. The name(s) of the individual(s) who performed the sampling;

3. The date(s) analysis were performed;

4. The name(s) of individuals who performed the analysis;

5. The analytical techniques or methods used; and

6. The results of such analysis.

PART VI: ANNUAL REPORTING REQUIREMENTS

A. ANNUAL REPORT SUBMITTAL

1. The Permittee shall submit to the Department an annual report and all other information and documents via the AEPACS system no later than May 31st of each year. The AEPACS system can be accessed at the following link: https://adem.alabama.gov/AEPACS. The annual report shall cover the previous April 1 to March 31. If an entity comes under coverage for the first time after the issuance of this permit, then the first annual report should cover the time coverage begins until March 31st of subsequent year.

2. The Permittee shall sign and certify the annual report in accordance with Part VII.G. If the Responsible Official has designated a duly authorized representative in accordance with Part VII.G. to sign the annual report, then include a copy of the written designation with the annual report.

B. ANNUAL REPORT CONTENTS

The annual report shall include the following information, at a minimum, and in addition to those requirements referenced in Part III-V:

1. A list of contacts and responsible parties (e.g.: agency, name, phone number, address, & email address) who had input to and are responsible for the preparation of the annual report;

2. Overall evaluation of the SWMP developments and progress for the following:

   a. Major accomplishments;

   b. Overall program strengths/weaknesses;

   c. Future direction of the program;

   d. Overall determination of the effectiveness of the SWMPP taking into account water quality/watershed improvements;

   e. Measureable goals that were not performed and reasons why the goals were not accomplished; and

   f. If monitoring is required, evaluation of the monitoring data.

3. Narrative report of all minimum storm water control measures referenced in Part III.B of this permit. The activities shall be discussed as follows:

   a. Minimum control measures completed and in progress;

   b. Assessment of the controls; and

   c. Discussion of proposed BMP revisions or any identified measureable goals that apply to the minimum storm water control measures.

4. Summary table of the storm water controls that are planned/scheduled for the next reporting cycle;

5. Results of information collected and analyzed, if any, during the reporting period, including any monitoring data used to assess the success of the program at reducing the discharge of pollutants to the MEP.

6. Notice of reliance on another entity to satisfy some of your permit obligations;

7. Results of the evaluation to determine whether discharges from any part of the MS4 contributes directly or indirectly to a waterbody that is included on the latest §303(d) list (or designated by the Department as impaired) or for which a TMDL has been established or approved by EPA; and

8. If monitoring is required, all monitoring results collected during the previous year in accordance with Part V, if applicable. The monitoring results shall be submitted in a format acceptable to the Department.

PART VII: STANDARD AND GENERAL PERMIT CONDITIONS

A. DUTY TO COMPLY

You must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of CWA and is ground for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

B. CONTINUATION OF THE EXPIRED GENERAL PERMIT

If this permit is not reissued or replaced prior to the expiration date, it will be administratively continued in accordance with the ADEM Code r. 335-6-6 and remain in force and effect if the Permittee re-applies for coverage as required under Part II of this Permit. Any Permittee who was granted permit coverage prior to the expiration date will automatically remain covered by the continued permit until the earlier of:

1. Reissuance or replacement of this permit, at which time you must comply with the Notice of Intent conditions of the new permit to maintain authorization to discharge; or

2. Issuance of an individual permit for your discharges; or

3. A formal permit decision by the Department not to reissue this general permit, at which time you must seek coverage under an alternative general permit or an individual permit.

C. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE

It shall not be a defense for you in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. DUTY TO MITIGATE

You must take all reasonable steps to minimize or prevent any discharge in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment.

E. DUTY TO PROVIDE INFORMATION

The Permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, suspending, or terminating the permit or to determine compliance with the permit. The Permittee shall also furnish to the Director upon request, copies of records required to be kept by the permit.

F. OTHER INFORMATION

If you become aware that you have failed to submit any relevant facts in your Notice of Intent or submitted incorrect information in the Notice of Intent or in any other report to the Department, you must promptly submit such facts or information.

G. SIGNATORY REQUIREMENTS

All Notices of Intent, reports, certifications, or information submitted to the Department, or that this permit requires be maintained by you shall be signed and certified as follows:

1. Notice of Intent.

All Notices of Intent shall be signed by a responsible official as set forth in ADEM Admin. Code r. 335-6-6-.09.

2. Reports and other information.

All reports required by the permit and other information requested by the Department or authorized representative of the Department shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. Signed authorization. The authorization is made in writing by a person described above and submitted to the Department.

b. Authorization with specified responsibility. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility for environmental matters for the regulated entity.

3. Changes to authorization.

If an authorization is no longer accurate because a different operator has the responsibility for the overall operation of the MS4, a new authorization satisfying the requirement of Part VII.G.2.b. above must be submitted to the Department prior to or together with any reports or information, and to be signed by an authorized representative.

4. Certification.

Any person signing documents under Part VII.G.1-2. above shall make the following certification:

"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 gathered and evaluated 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 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."

H. PROPERTY RIGHTS

The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege, nor it does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of federal, State or local laws or regulations.

I. PROPER OPERATION AND MAINTENANCE

You must at all time properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by you to achieve compliance with the conditions of this permit and with the conditions of your SWMPP. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance requires the operation of backup or auxiliary facilities or similar systems, installed by you only when the operation is necessary to achieve compliance with the conditions of the permit.

J. INSPECTION AND ENTRY

You must allow the Department or an authorized representative upon the presentation of credentials and other documents as may be required by law, to do any of the following:

1. Enter your premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit;

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment) practices, or operations regulated or required under this permit; and

4. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the CWA, any substances or parameters at any location.

K. PERMIT ACTIONS

This permit may be modified, revoked and reissued, or terminated for cause. Your filing of a request for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

L. PERMIT TRANSFERS

This permit is not transferable to any person except after notice to the Department. The Department may require modification or revocation and reissuance of the permit to change the name of the Permittee and incorporate such other requirements as may be necessary under the Act.

M. ANTICIPATED NONCOMPLIANCE

You must give advance notice to the Department of any planned changes in the permitted small MS4 or activity which may result in noncompliance with this permit.

N. COMPLIANCE WITH STATUTES AND RULES

1. The permit is issued under ADEM Admin. Code r. 335-6-6. All provisions of this chapter that are applicable to this permit are hereby made a part of this permit.

2. This permit does not authorize the noncompliance with or violation of any laws of the State of Alabama or the United States of America or any regulations or rules implementing such laws.

O. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall be affected thereby.

P. BYPASS PROHIBITION

Bypass (see 40 CFR 122.41(m)) is prohibited and enforcement action may be taken against a regulated entity for a bypass; unless:

1. The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

2. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during the normal periods of equipment downtime. This condition is not satisfied if the regulated entity should, in the exercise of reasonable engineering judgment, have installed adequate backup equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance.

3. The Permittee submits a written request for authorization to bypass to the Director at least ten (10) days prior to the anticipated bypass (if possible), the Permittee is granted such authorization, and the Permittee complies with any conditions imposed by the Director to minimize any adverse impact on human health or the environment resulting from the bypass.

The Permittee has the burden of establishing that each of the conditions of Part VII.P. have been met to qualify for an exception to the general prohibition against bypassing and an exemption, where applicable, from the discharge specified in this permit.

Q. UPSET CONDITIONS

An upset (see 40 CFR 122.41(n)) constitutes an affirmative defense to an action brought for noncompliance with technology-based permit limitations if a regulated entity shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence, that:

1. An upset occurred and the Permittee can identify the specific cause(s) of the upset;

2. The Permittee's facility was being properly operated at the time of the upset; and

3. The Permittee promptly took all reasonable steps to minimize any adverse impact on human health or the environment resulting from the upset.

The Permittee has the burden of establishing that each of the conditions of Part VII.Q. of this permit have been met to qualify for an exemption from the discharge specified in this permit.

R. PROCEDURES FOR MODIFICATION OR REVOCATION

Permit modification or revocation will be conducted according to ADEM Admin. Code r. 335-6-6-.17.

S. RE-OPENER CLAUSE

If there is evidence indicating potential or realized impacts on water quality due to storm water discharge covered by this permit, the regulated entity may be required to obtain an individual permit or an alternative general permit or the permit may be modified to include different limitations and/or requirements.

T. RETENTION OF RECORDS

1. The Permittee shall retain the storm water quality management program developed in accordance with Part III-V of this permit until at least five years after coverage under this permit terminates.

2. The Permittee shall retain records of all monitoring information including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of reports required by this permit, and records of all data used to complete the application of this permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended at the request of the Director at any time.

U. MONITORING METHODS

1. Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.

2. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

V. ADDITIONAL MONITORING BY THE PERMITTEE

If the Permittee monitors more frequently than required by this permit, using test procedures approved under 40 CFR Part 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the monitoring report. Such increased monitoring frequency shall also be indicated on the monitoring report.

W. DEFINITIONS

1. Alabama Handbook means the latest edition of the Alabama Handbook for Erosion Control, Sediment Control, and Stormwater Management on Construction Sites and Urban Areas, Alabama Soil and Water Conservation Committee (ASWCC) published at the time permit is effective.

2. AWPCA means Code of Alabama 1975, Title 22, the Alabama Water Pollution Control Act, as amended.

3. Best Management Practices (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the State. BMPs also include treatment requirements, operating procedures, and practices to control runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

4. Control Measure as used in this permit, refers to any Best Management Practice or other method used to prevent or reduce the discharge of pollutants to waters of the State.

5. CWA or The Act means the Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub.L. 92-500, as amended Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483 and Pub. L. 97-117, 33 U.S.C. 1251 et. seq.

6. Department means the Alabama Department of Environmental Management or an authorized representative.

7. Discharge, when used without a qualifier, refers to "discharge of a pollutant" as defined as ADEM Admin. Code r. 335-6-6-.02(m).

8. Green Infrastructure refers to systems and practices that use or mimic natural processes to infiltrate, evapotranspirate (the return of water to the atmosphere either through evaporation or by plants), or reuse storm water or runoff on the site where it is generated.

9. Hydrology refers to the physical characteristics of storm water discharge, including the magnitude, duration, frequency, and timing of discharge.

10. Illicit Connection means any man-made conveyance connecting an illicit discharge directly to municipal separate storm sewer.

11. Illicit Discharge is defined at 40 CFR Part 122.26(b)(2) and refers to any discharge to a municipal separate storm sewer that is not entirely composed of storm water, except discharges authorized under an NPDES permit (other than the NPDES permit for discharges from the MS4) and discharges resulting from fire fighting activities.

12. Indian Country, as defined in 18 USC 1151, means (a) all land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and including rights-of-way running through the reservation; (b) all dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a State, and (c) all Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same. This definition includes all land held in trust for an Indian tribe.

13. Infiltration means water other than wastewater that enters a sewer system, including foundation drains, from the ground through such means as defective pipes, pipe joints, connections, or manholes. Infiltration does not include, and is distinguished from, inflow.

14. Landfill means an area of land or an excavation in which wastes are placed for permanent disposal, and which is not a land application unit, surface impoundment, injection well, or waste pile.

15. Large municipal separate storm sewer system means all municipal separate storm sewers that are either:

    a. Located in an incorporated place (city) with a population of 250,000 or more as determined by the latest decennial census; or

    b. Located in counties (these counties are listed in Appendix H of 40 CFR Part 122, except municipal storm sewers that are located in the incorporated places, townships or towns within such counties; or

    c. Owned or operated by a municipality other than those described in Part VII.W.15.a. or b. and that are designated by the Director as part of the large or medium municipal separate storm sewer system; or

    d. The Director may designate as a large municipal separate storm sewer system, municipal separate storm sewers located within the boundaries of a region defined by a storm water management regional authority based on a jurisdictional, watershed, or other appropriate basis that includes one or more of the systems described in Part VII.W.15.a., b. or c.).

16. Low Impact Development (LID) is an approach to land development (or re-development) that works with nature to manage storm water as close to its source as possible. LID employs principles such as preserving and recreating natural landscape features, minimizing effective imperviousness to create functional and appealing site drainage that treat storm water as a resource rather than a waste product.

17. Medium municipal separate storm sewer system means all municipal separate storm sewers that are either:

    a. Located in an incorporated place (city) with a population of 100,000 or more but less than 250,000 as determined by the latest decennial census; or

b. Located in counties (these counties are listed in Appendix I of 40 CFR Part 122, except municipal separate storm sewers that are located in the incorporated places, townships or towns within such counties; or

c. Owned or operated by a municipality other than those described in Parts VII.W.17.a. and b. and that are designated by the Director as part of the large or medium municipal separate storm sewer system; or

d. The Director may designate as a medium municipal separate storm sewer system, municipal storm sewers located within the boundaries of a region defined by a stormwater management regional authority based on a jurisdictional, watershed, or other appropriate basis that includes one or more of the systems as described in Parts VII.W.17.a., b. or c.

18. MEP is an acronym for "Maximum Extent Practicable," the technology-based discharge standard for municipal separate storm sewer systems to reduce pollutants in storm water discharges that was established by CWA Section 402(p). A discussion of MEP as it applies to small MS4s is found at 40 CFR Part 122.34.

19. MS4 is an acronym for "Municipal Separate Storm Sewer System" and is used to refer to either a large, medium, or small municipal separate storm sewer system. The term is used to refer to either the system operated by a single entity or a group of systems within an area that are operated by multiple entities.

20. Municipal Separate Storm System is defined at 40 CFR Part 122.26(b)(8) and means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States; (ii) Designed or used for collecting or conveying storm water; (iii) Which is not a combined sewer; and (iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined in ADEM Admin. Code r. 335-6-6-.02(nn).

21. NOI is an acronym for "Notice of Intent" to be covered by this permit and is the mechanism used to "register" for coverage under a general permit.

22. Permittee means each individual co-applicant for an NPDES permit who is only responsible for permit conditions relating to the discharge that they own or operate.

23. Point Source means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

24. Priority construction site means any qualifying construction site in an area where the MS4 discharges to a waterbody which is listed on the most recently approved 303(d) list of impaired waters for turbidity, siltation, or sedimentation, any waterbody for which a TMDL has been finalized or approved by EPA for turbidity, siltation, or sedimentation, and any waterbody assigned specific water quality criteria, such as Outstanding Alabama Water use classification, in accordance with ADEM Admin. Code r. 335-6-10-.09 and any waterbody assigned a special designation in accordance with ADEM Admin. Code r. 335-6-10-.10.

25. Qualifying Construction Site means any construction activity that results in a total land disturbance of one or more acres and activities that disturb less than one acre but are part of a larger common plan of development or sale that would disturb one or more acres. Qualifying construction sites do not include land disturbance conducted by entities under the jurisdiction and supervision of the Alabama Public Service Commission.

26. Qualifying New Development and Redevelopment means any site that results from the disturbance of one acre or more of land or the disturbance of less than one acre of land if part of a larger common plan of development or sale that is greater than one acre. Qualifying new development and redevelopment does

not include land disturbances conducted by entities under the jurisdiction and supervision of the Alabama Public Service Commission.

27. Small municipal separate storm sewer system is defined at 40 CFR Part 122.26(b)(16) and refers to all separate storm sewers that are owned or operated by the United States, a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to water of the United States, but is not defined as "large" or "medium" municipal separate storm sewer system. This term includes systems similar to separate storm sewer systems in municipalities, such as systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. The term does not include separate storm sewers in very discrete areas, such as individual buildings.

28. Storm water is defined at 40 CFR Part 122.26(b) (13) and means storm water runoff, snow melt runoff, and surface runoff and drainage.

29. Storm Water Management Program (SWMP) refers to a comprehensive program to manage the quality of storm water discharged from the municipal separate storm sewer system.

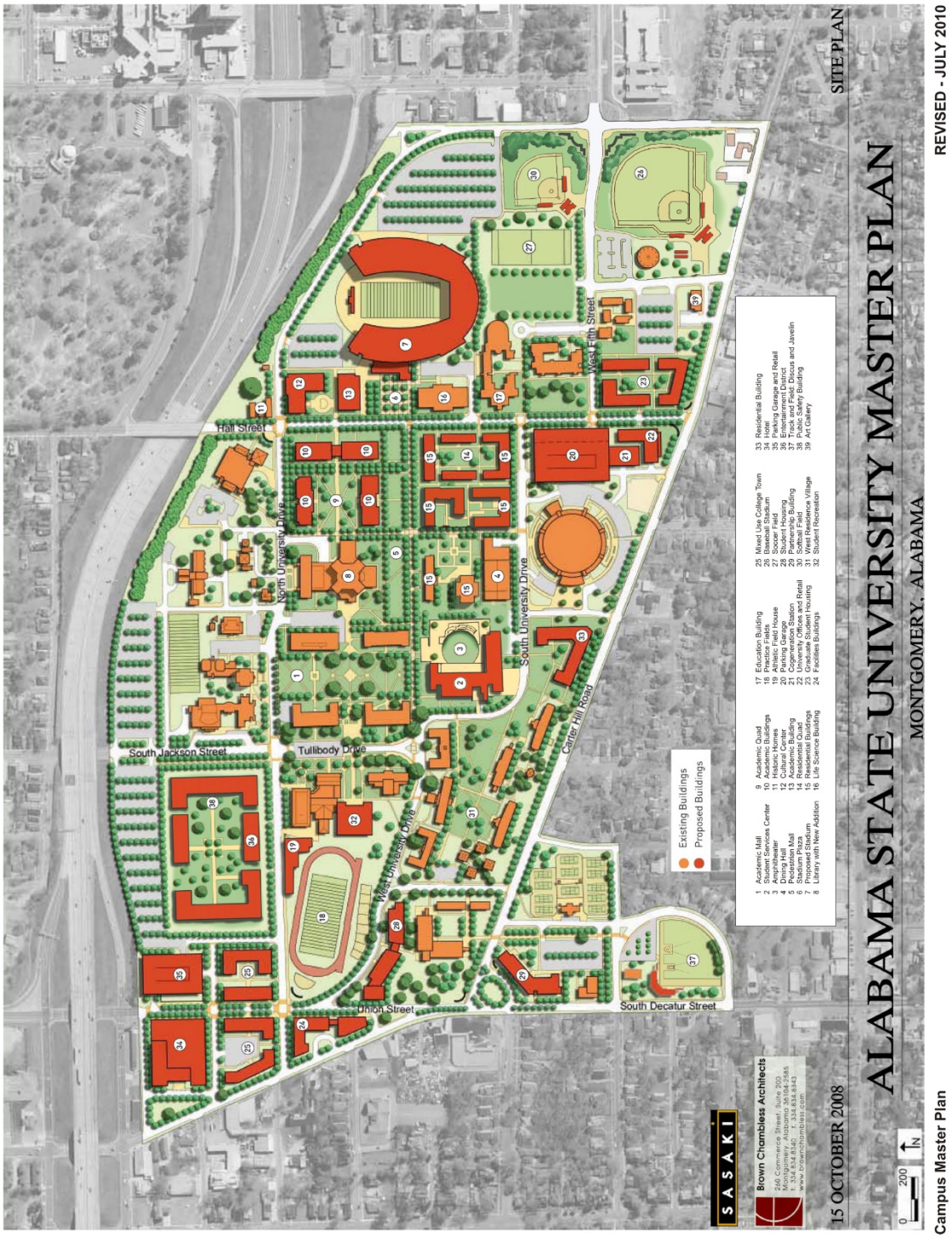
30. SWMP is an acronym for "Storm Water Management Program."

31. Total Maximum Daily Load (TMDL) means the calculated maximum permissible pollutant loading to a waterbody at which water quality standards can be maintained. The sum of wasteload allocations (WLAs) and load allocations (LAs) for any given pollutant.

32. You and Your as used in this permit is intended to refer to the Permittee, the operator, or the discharger as the context indicates and that party's responsibilities (e.g., the city, the country, the flood control district, the U.S. Air Force, etc.).

Appendix B – ASU MS4 Boundary Map

Appendix C – ASU Facilities Map



Appendix D – SWMPP Measures and Goals Summary Table

SWMPP MEASURES AND GOALS SUMMARY TABLE

✓	Minimum Control Measure	Practice/Goal Description	Goal Measure	Goal Date/Frequency	Responsible
	1. Public Education and Public Involvement on Stormwater Impacts	1.1 Stormwater Management Program Plan (SWMPP)	review annually, update if necessary	**5/31 Annually**	Facilities and Operations Department
		1.2 SWMP Annual Report	create and submit to ADEM annually	**5/31 Annually**	Facilities and Operations Department
		1.3 ASU Stormwater Webpage	Review annually, update if necessary	**3/31 Annually**	Technology Services
		1.4 University Staff Training	Train staff annually	**3/31 Annually**	Facilities and Operations Department
		1.5 Storm Drain Marking	Maintain storm drain markings as needed	**Ongoing**	Facilities and Operations Department
		1.6 Social Media Postings	develop consistent message during the 2022/2023 academic year, implement during the 2023/2024 academic year	**March 31, 2024**	Technology Services
		1.7 Stormwater Awareness Surveys	Implement during the 2022/2023 academic year	**March 31, 2023**	Technology Services
	2. Illicit Discharge Detection and Elimination (IDDE) Program	2.1 Outfall Inventory and Mapping	update 100% of outfall mapping once per permit term	**March 31, 2023**	Facilities and Operations Department
		2.2 Outfall Screening	screen 100% of all outfalls once per permit term	**March 31, 2023**	Facilities and Operations Department
		2.3 IDDE Awareness Training	Provide IDDE training to facility staff once per permit term	**March 31, 2023**	Facilities and Operations Department
	3. Construction Site Stormwater Runoff Control	3.1 Plan Review for New and Redevelopment - Construction	review plans as submitted	**Ongoing**	Program Management team under Facilities and Operations Department
		3.2 Construction Site Inspection and Reporting Procedures	review procedures annually, update if necessary	**3/31 Annually**	Facilities and Operations Department
		3.3 Construction Site Inspection form	develop and implement a construction site inspection form	**September 30, 2022**	Facilities and Operations Department
		3.4 Inventory of Construction Sites	develop and maintain an inventory of construction sites	**September 30, 2022**	Facilities and Operations Department
		3.5 Construction Site Inspection and Reporting	inspect construction activities per required frequencies	**Ongoing**	Program Management team under Facilities and Operations Department
	4. Post-Construction Stormwater Management in New Development and Redevelopment	4.1 Procedures for New and Redevelopment - Post Construction	review once per permit term, update if necessary	**March 31, 2024**	Facilities and Operations Department
		4.2 Policy/Procedures for Maintenance of Stormwater Controls	review once per permit term, update if necessary	**March 31, 2024**	Facilities and Operations Department
		4.3 Plan Review for New and Redevelopment	review plans as submitted	**Ongoing**	Facilities and Operations Department
		4.4 Promote Low Impact Development (LID)/Green Infrastructure	develop and implement a statement encouraging LID/green infrastructure	**March 31, 2024**	Facilities and Operations Department
	5. Pollution Prevention/Good Housekeeping for Municipal Operations	5.1 Facilities Visual Audit	Complete facilities inspection including checklists and procedures for correcting noted deficiencies	**March 31, 2025**	Facilities and Operations Department
		5.2 Standard Operating Procedures	maintain and update SOP's as needed	**Ongoing**	Facilities and Operations Department
		5.3 Staff Training of Standard Operating Procedures	Incorporate SOP staff training into monthly safety meetings	**March 31, 2023**	Facilities and Operations Department
		5.4 Motor Oil Disposal	recycle as needed	**Continual**	Facilities and Operations Department
		5.5 Cooking Oil Disposal	recycle as needed	**Continual**	Concessionaire Under Facilities and
		5.6 Campus Trash Pick-up	trash receptacles emptied on a weekly basis	**Continual**	Facilities and Operations Department
		5.7 Vegetated Debris Collection	vegetation debris disposal after all landscape maintenance	**Continual**	Facilities and Operations Department

Appendix E – Plan for Outfall Mapping and Screening

Alabama State University Plan for Mapping and Screening its Stormwater Outfalls

As a requirement of Alabama State University's NPDES permit for municipal discharge, the University is required to implement a continual program of detecting and eliminating, to the maximum extent practicable, illicit discharges into its MS4. As a part of this Illicit Discharge Detection and Elimination (IDDE) Program, the University must create and update a map of all known outfalls and implement a dry weather screening program designed to detect and address non-stormwater discharges into the University's MS4.

This plan for addressing the University's mapping and screening responsibilities in these areas will become a part of the University's Stormwater Management Program Plan (SWMPP) at the next annual update.

A. Outfall Mapping Requirements

An initial map of all known outfalls must be initially created, then reviewed annually and updated if necessary. Any updates to the map must be included in the SWMPP Annual Report for the current reporting term. The map and accompanying data must include, at a minimum, the latitude and longitude of all known outfalls; the names of all State waters that receive discharges from these outfalls; and all structural BMPs owned, operated, or maintained by the University.

Sections D and E of this plan provides the scope and schedule for the mapping update and screening.

B. Outfall Screening Requirements

Another component of the University's IDDE Program is a program for dry-weather screening of all outfalls once mapped. This program must be designed to detect and address illicit discharges, looking at fifteen percent (15%) of the University's outfalls each year of the permit reporting term. One hundred percent of the outfalls must be screened during each five-year permit term.

C. Illicit Discharge Detection and Elimination Requirements

1. Identifying Suspected Illicit Discharges

If a potential indicator of illicit discharge is discovered during screening, a screening protocol is to be followed. This document provides Alabama State University's Protocol for Identifying Suspected Illicit Discharges in Section E of this report. It describes how outfalls are screened for illicit discharges and how suspected discharges are addressed as the University pursues elimination.

2. Eliminating Confirmed Illicit Discharges

After the source of an illicit discharge has been identified, the University will take appropriate actions to abate the illicit discharge. If the University cannot completely eliminate the illicit discharge on its own, a report of the illicit discharge, with details of the suspected source will be communicated to ADEM and/or other appropriate regulatory agencies and entities. This communication will include a request for assistance in achieving ultimate discontinuation of the illicit discharge.

D. Outfall Mapping Scope and Schedule

The scope of the outfall mapping effort for Alabama State University involves contracting with a consulting firm as the University does not have the personnel resources required to do the work. The University has asked Volkert, Inc. to provide services for accomplishing the work.

The mapping effort will consist of observing waters of the State within the MS4 boundary, confirming the locations of known outfalls and documenting the attributes of newly discovered outfalls. It is anticipated that the equipment to be used will consist of a tablet-based ARCGIS program and GPS antenna. The data will be processed and maintained in a GIS layer, with reports being provided to the University in a usable format.

Field observation to identify outfalls includes collection of the following data and attributes:

- Outfall coordinates
- Conveyance type (ditch, culvert, pipe, etc.)
- Conveyance shape
- Conveyance size (pipe diameter, ditch width and depth, box culvert dimensions, etc.)
- Conveyance material (RCP, PVC, CMP, etc.)
- Outfall condition
- Photo of each outfall

An outfall is defined as a location where concentrated stormwater runoff discharges, primarily from constructed conveyances, leave the influence of land uses within developed areas of the University's MS4 boundary, flowing toward the boundary of another MS4 or to a water of the State, as identified on the most current version of the National Hydrography Dataset maintained by the USGS,. Given that Alabama State University's MS4 boundary is surrounded by the City of Montgomery's MS4, stormwater flows from within the University's closed stormwater sewer system into the City of Montgomery's closed stormwater sewer system. For Alabama State University's outfall mapping effort, outfalls will be located at the closest accessible location along the conveyance prior to leaving the University's MS4 boundary.

Contingent upon funding availability, the mapping effort will begin in the Fall of 2019 when the density of foliage has decreased to a suitable level. The progress and completion of the mapping update will also be contingent upon available funding. The entire mapping update effort for the University will be completed prior to the expiration of the current NPDES permit (September 30, 2021).

E. Outfall Screening Scope and Schedule

1. Outfall Reconnaissance Inventory (ORI)

Outfalls will be screened for indicators of illicit discharges as the outfall mapping update progresses. A field assessment known as an Outfall Reconnaissance Inventory (ORI) will be utilized for dry weather screening. At a minimum, 25% of the University's outfalls will be screened for suspected illicit discharges each year beginning in 2020.

The University's ORI methodology and procedures have been developed using the following document as their basis - Chapter 11 of *The Illicit Discharge Detection and Elimination, A Guidance Manual for Program Development and Technical Assessments*, October 2004. This chapter of the EPA document is included in Appendix A.

2. Completing the ORI

To conduct the mapping update and ORI, a field crew will walk around campus to find outfalls as defined above. Outfall locations will be recorded using GPS. Each outfall will be photographed and attributes will be recorded. Documented attributes of the conveyance will include dimensions, shape, and component material. Documentation will either be on paper or collected electronically. An ORI field sheet is provided in Attachment B to document the attributes of conveyances and discharges that will be collected. This sheet may be modified to better reflect the needs of the University and the outfall inventory.

3. Suspect Discharge Screening

Discharges, if present during the ORI (after a 72-hour dry antecedent period), will be observed and described. The discharge will be screened to determine if it is a potential illicit discharge. This initial screening will be basic, utilizing characteristics observed based on odor, color, turbidity, and presence of floatables to eliminate or to help identify the potential illicit discharges.

Should a discharge have characteristics that do not preclude it from being potentially illicit, further investigation will be conducted including field and/or laboratory testing to adequately determine the type of discharge and its potential source. This additional evaluation may take place at the time of initial screening.

3. Illicit Discharge Tracing

Regardless of whether potential illicit discharges are discovered through the outfall and screening process, by internal observation and notification, or through solicited or unsolicited feedback from the public, investigations will be performed to determine the source of an identified illicit discharge.

When a suspect illicit discharge or illicit connection is identified, a report will be created detailing pertinent information. Throughout the problem investigation and corrective action activities, all information related to the incident or property in question will be documented in the report. Information will include information such as the following:

- Type of suspected discharge
- Location of suspected discharge
- Details of the discovery
- IDDE investigation activities and dates
- IDDE investigation results
- Responsible party information
- Communications with the responsible party

- Descriptions of corrective actions

As stated above, if the University cannot eliminate the illicit discharge on its own, a report of the illicit discharge, with details of the suspected source will be communicated to ADEM and other agencies and entities if appropriate, with a request for assistance.

Alabama State University MS4 is within and surrounded by the City of Montgomery's MS4. Should the University identify a suspect illicit discharge originating within the adjacent MS4, the University will notify the City of Montgomery and the ADEM Water Division within 48 hours of observation of the suspect illicit discharge.

The notification to the applicable MS4 and ADEM will include the following information:

- Location of the suspect illicit discharge, including latitude and longitude and receiving water, if known
- Type of illicit discharge, if known
- Origin or suspected origin of the suspect illicit discharge, if known
- Date and time the suspect illicit discharge was observed

F. Records Retention

The progress and results of outfall mapping and screening will be reported each year in the SWMP Annual Report. Records of all outfall mapping and screening will be retained for a minimum of five years after permit coverage terminates.

G. Responsibility

Alabama State University is solely responsible for the outfall mapping and screening requirements of its NPDES permit for municipal discharges. The University's Facilities Management and Operations Department coordinates the work of consultants and contractors to achieve compliance in this area of the permit. Mr. Donald Dotson is currently managing the University's outfall mapping and screening effort. Mr. Dotson may be reached at:

Donald Dotson
Vice President of Facilities Management and Operations
Alabama State University
915 South Jackson Street
Montgomery, AL 36104
334-229-6965 office
334-300-6784 mobile
ddotson@alasu.edu

APPENDIX A:
Chapter 11 of The Illicit Discharge Detection and Elimination, A Guidance Manual for Program Development and Technical Assessments, October 2004

Chapter 11: The Outfall Reconnaissance Inventory

This chapter describes a simple field assessment known as the Outfall Reconnaissance Inventory (ORI). The ORI is designed to fix the geospatial location and record basic characteristics of individual storm drain outfalls, evaluate suspect outfalls, and assess the severity of illicit discharge problems in a community. Field crews should walk all natural and man-made streams channels with perennial and intermittent flow, even if they do not appear on available maps (Figure 19). The goal is to complete the ORI on every stream mile in the MS4 within the first permit cycle, starting with priority subwatersheds identified during the desktop analysis. The results of the ORI are then used to help guide future outfall monitoring and discharge prevention efforts.

11.1 Getting Started

The ORI requires modest mapping, field equipment, staffing and training resources. A complete list of the required and optional resources needed to perform an ORI is presented in Table 30. The ORI can be combined with other stream assessment tools, and may be supplemented by simple indicator monitoring. Ideally, a Phase II community should plan on surveying its entire drainage network at least once over the course of each five-year permit cycle. Experience suggests that it may take up to three stream walks to identify all outfalls.

Figure 19: Walk all streams and constructed open channels

Best Times to Start

Timing is important when scheduling ORI field work. In most regions of the country, spring and fall are the best seasons to perform the ORI. Other seasons typically have challenges such as over-grown vegetation or high groundwater that mask illicit discharges, or make ORI data hard to interpret[9].

Prolonged dry periods during the non-growing season with low groundwater levels are optimal conditions for performing an ORI. Table 31 summarizes some of the regional factors to consider when scheduling ORI surveys in your community. Daily weather patterns also determine whether ORI field work should proceed. In general, ORI field work should be conducted at least 48 hours after the last runoff-producing rain event.

Field Maps

The field maps needed for the ORI are normally generated during the desktop assessment phase of the IDDE program described in Chapter 5. This section

[9] Upon initial program start-up, the ORI should be conducted during periods of low groundwater to more easily identify likely illicit discharges. However, it should be noted that high water tables can increase sewage contamination in storm drain networks due to infiltration and inflow interactions. Therefore, in certain situations, seasonal ORI surveys may be useful at identifying these types of discharges. Diagnosis of this source of contamination, however, can be challenging.

Table 30: Resources Needed to Conduct the ORI		
Need Area	**Minimum Needed**	**Optional but Helpful**
Mapping	• Roads • Streams	• Known problem areas • Major land uses • Outfalls • Specific industries • Storm drain network • SIC-coded buildings • Septics
Field Equipment	• 5 one-liter sample bottles • Backpack • Camera (preferably digital) • Cell phones or hand-held radios • Clip boards and pencils • Field sheets • First aid kit • Flash light or head lamp • GPS unit • Spray paint (or other marker) • Surgical gloves • Tape measure • Temperature probe • Waders (snake proof where necessary) • Watch with a second hand	• Portable Spectrophotometer and reagents (can be shared among crews) • Insect repellant • Machete/clippers • Sanitary wipes or biodegradable soap • Wide-mouth container to measure flow • Test strips or probes (e.g., pH and ammonia)
Staff	• Basic training on field methodology • Minimum two staff per crew	• Ability to track discharges up the drainage system • Knowledge of drainage area, to identify probable sources. • Knowledge of basic chemistry and biology

Table 31: Preferred Climate/Weather Considerations for Conducting the ORI		
Preferred Condition	**Reason**	**Notes/Regional Factors**
Low groundwater (e.g., very few flowing outfalls)	High groundwater can confound results	In cold regions, do not conduct the ORI in the early spring, when the ground is saturated from snowmelt.
No runoff-producing rainfall within 48 hours	Reduces the confounding influence of storm water	The specific time frame may vary depending on the drainage system.
Dry Season	Allows for more days of field work	Applies in regions of the country with a “wet/ dry seasonal pattern.” This pattern is most pronounced in states bordering or slightly interior to the Gulf of Mexico or the Pacific Ocean.
Leaf Off	Dense vegetation makes finding outfalls difficult	Dense vegetation is most problematic in the southeastern United States. This criterion is helpful but not required.

provides guidance on the basic requirements for good field maps. First, ORI field maps do not need to be fancy. The scale and level of mapping detail will vary based on preferences and navigational skills of field crews. At a minimum, maps should have labeled streets and hydrologic features (USGS blue line streams, wetlands, and lakes), so field crews can orient themselves and record their findings spatially.

Field maps should delineate the contributing drainage area to major outfalls, but only if they are readily available. Urban landmarks such as land use, property boundaries, and storm drain infrastructure are also quite useful in the field. ORI field maps should be used to check the accuracy and quality of pre-existing mapping information, such as the location of outfalls and stream origins.

Basic street maps offer the advantage of simplicity, availability, and well-labeled road networks and urban landmarks. Supplemental maps such as a 1": 2000' scale USGS Quad sheet or finer scale aerial photograph are also recommended for the field. USGS Quad sheets are readily available and display major transportation networks and landmarks, "blue line" streams, wetlands, and topography. Quad maps may be adequate for less developed subwatersheds, but are not always accurate in more urban subwatersheds.

Recent aerial photographs may provide the best opportunity to navigate the subwatershed and assess existing land cover. Aerial photos, however, may lack topography and road names, can be costly, and are hard to record field notes on due to their darkness. GIS-ready aerial photos and USGS Quad sheets can be downloaded from the internet or obtained from local planning, parks, or public works agencies.

Field Sheets

ORI field sheets are used to record descriptive and quantitative information about each outfall inventoried in the field. Data from the field sheets represent the building blocks of an outfall tracking system allowing program managers to improve IDDE monitoring and management. A copy of the ORI field sheet is provided in Appendix D, and is also available as a Microsoft Word™ document. Program managers should modify the field sheet to meet the specific needs and unique conditions in their community.

Field crews should also carry an authorization letter and a list of emergency phone numbers to report any emergency leaks, spills, obvious illicit discharges or other water quality problems to the appropriate local authorities directly from the field. Local law enforcement agencies may also need to be made aware of the field work. Figure 20 shows an example of a water pollution emergency contact list developed by Montgomery County, MD.

Equipment

Basic field equipment needed for the ORI includes waders, a measuring tape, watch, camera, GPS unit, and surgical gloves (see Table 30). GPS units and digital cameras are usually the most expensive equipment items; however, some local agencies may already have them for other applications. Adequate ranging, water-resistant, downloadable GPS units can be purchased for less than $150. Digital cameras are preferred and can cost between $200 and $400, however, conventional or disposable cameras can also work, as long as they have flashes. Hand-held data recorders and customized software can be used to record text, photos, and GPS coordinates electronically in the field. While

these technologies can eliminate field sheets and data entry procedures, they can be quite expensive. Field crews should always carry basic safety items, such as cell phones, surgical gloves, and first aid kits.

Staffing

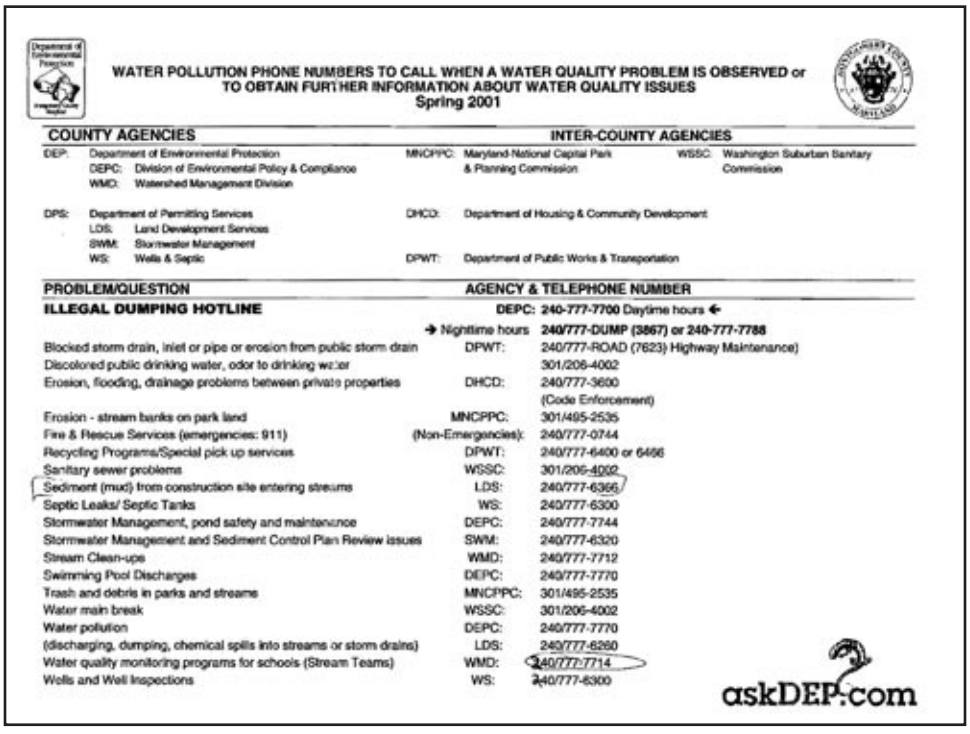
The ORI requires at least a two-person crew, for safety and logistics. Three person crews provide greater safety and flexibility, which helps divide tasks, allows one person to assess adjacent land uses, and facilitates tracing outfalls to their source. All crew members should be trained on how to complete the ORI and should have a basic understanding of illicit discharges and their water quality impact. ORI crews can be staffed by trained volunteers, watershed groups and college interns. Experienced crews can normally expect to cover two to three stream miles per day, depending on stream access and outfall density.

11.2 Desktop Analysis to Support the ORI

Two tasks need to be done in the office before heading out to the field. The major ORI preparation tasks include estimating the total stream and channel mileage in the subwatershed and generating field maps. The total mileage helps program managers scope out how long the ORI will take and how much it will cost. As discussed before, field maps are an indispensable navigational aid for field crews working in the subwatershed.

Delineating Survey Reaches

ORI field maps should contain a preliminary delineation of **survey reaches**. The stream network within your subwatershed should be delineated into discrete segments of relatively uniform character. Delineating survey reaches provides good stopping and starting points for field crews, which



WATER POLLUTION PHONE NUMBERS TO CALL WHEN A WATER QUALITY PROBLEM IS OBSERVED or TO OBTAIN FURTHER INFORMATION ABOUT WATER QUALITY ISSUES
Spring 2001

COUNTY AGENCIES

DEP: Department of Environmental Protection
DEPC: Division of Environmental Policy & Compliance
WMD: Watershed Management Division

DPS: Department of Permitting Services
LDS: Land Development Services
SWM: Stormwater Management
WS: Wells & Septic

INTER-COUNTY AGENCIES

MNCPPC: Maryland-National Capital Park & Planning Commission

WSSC: Washington Suburban Sanitary Commission

DHCD: Department of Housing & Community Development

DPWT: Department of Public Works & Transportation

PROBLEM/QUESTION	AGENCY & TELEPHONE NUMBER	
ILLEGAL DUMPING HOTLINE	**DEPC:**	**240-777-7700** Daytime hours ←
	→ Nighttime hours	**240/777-DUMP (3867) or 240-777-7788**
Blocked storm drain, inlet or pipe or erosion from public storm drain	DPWT:	240/777-ROAD (7623) Highway Maintenance)
Discolored public drinking water, odor to drinking water		301/206-4002
Erosion, flooding, drainage problems between private properties	DHCD:	240/777-3600 (Code Enforcement)
Erosion - stream banks on park land	MNCPPC:	301/495-2535
Fire & Rescue Services (emergencies: 911)	(Non-Emergencies):	240/777-0744
Recycling Programs/Special pick up services	DPWT:	240/777-6400 or 6456
Sanitary sewer problems	WSSC:	301/206-4002
Sediment (mud) from construction site entering streams	LDS:	240/777-6366
Septic Leaks/ Septic Tanks	WS:	240/777-6300
Stormwater Management, pond safety and maintenance	DEPC:	240/777-7744
Stormwater Management and Sediment Control Plan Review issues	SWM:	240/777-6320
Stream Clean-ups	WMD:	240/777-7712
Swimming Pool Discharges	DEPC:	240/777-7770
Trash and debris in parks and streams	MNCPPC:	301/495-2535
Water main break	WSSC:	301/206-4002
Water pollution	DEPC:	240/777-7770
(discharging, dumping, chemical spills into streams or storm drains)	LDS:	240/777-6260
Water quality monitoring programs for schools (Stream Teams)	WMD:	240/777-7714
Wells and Well Inspections	WS:	240/777-6300

askDEP.com

Figure 20: Example of a comprehensive emergency contact list for Montgomery County, MD

is useful from a data management and logistics standpoint. Each survey reach should have its own unique identifying number to facilitate ORI data analysis and interpretation. Figure 21 illustrates some tips for delineating survey reaches, and additional guidance is offered below:

- Survey reaches should be established above the confluence of streams and between road crossings that serve as a convenient access point.
- Survey reaches should be defined at the transition between major changes in land use in the stream corridor (e.g. forested land to commercial area).
- Survey reaches should generally be limited to a quarter mile or less in length. Survey reaches in lightly developed subwatersheds can be longer than those in more developed subwatersheds, particularly if uniform stream corridor conditions are expected throughout the survey reach.
- Access through private or public property should be considered when delineating survey reaches as permission may be required.

It should be noted that initial field maps are not always accurate, and changes may need to be made in the field to adjust survey reaches to account for conditions such as underground streams, missing streams or long culverts. Nevertheless, upfront time invested in delineating survey reaches makes it easier for field crews to perform the ORI.

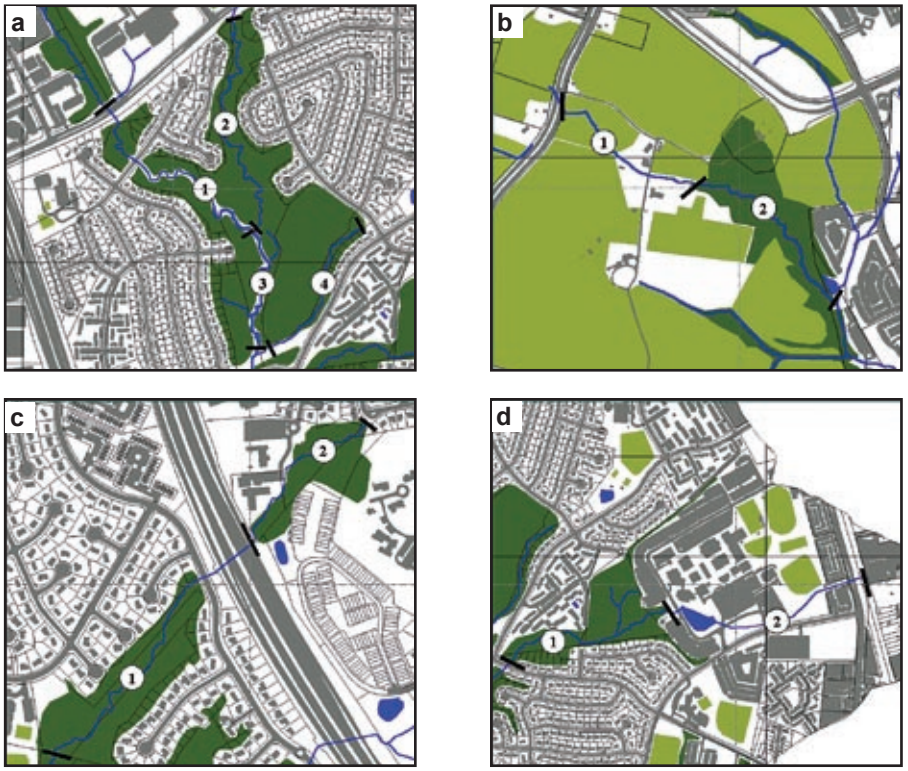


Figure 21: Various physical factors control how survey reaches are delineated. (a) Survey reaches based on the confluence of stream tributaries. (b) A long tributary split into ¼ mile survey reaches. (c) Based on a major road crossing (include the culvert in the downstream reach). (d) Based on significant changes in land use (significant changes in stream features often occur at road crossings, and these crossings often define the breakpoints between survey reaches).

11.3 Completing the ORI

Field crews conduct an ORI by walking all streams and channels to find outfalls, record their location spatially with a GPS unit and physically mark them with spray paint or other permanent marker. Crews also photograph each outfall and characterize its dimensions, shape, and component material, and record observations on basic sensory and physical indicators. If dry weather flow occurs at the outfall, additional flow and water quality data are collected. Field crews may also use field probes or test strips to measure indicators such as temperature, pH, and ammonia at flowing outfalls.

The ORI field sheet is divided into eight sections that address both flowing and non-flowing outfalls (Appendix D). Guidance on completing each section of the ORI field sheet is presented below.

Outfalls to Survey

The ORI applies to **all** outfalls encountered during the stream walk, regardless of diameter, with a few exceptions noted in Table 32. Common outfall conditions seen in communities are illustrated in Figure 22 As a rule, crews should only omit an outfall if they can definitively conclude it has no potential to contribute to a transitory illicit discharge. While EPA's Phase I guidance only targeted major outfalls (diameter of 36 inches or greater), documenting all outfalls is recommended, since smaller pipes make up the majority of all outfalls and frequently have illicit discharges (Pitt *et al.*, 1993 and Lalor, 1994). A separate ORI field sheet should be completed for each outfall.

Table 32: Outfalls to Include in the Screening

Outfalls to Record	Outfalls to Skip
• Both large and small diameter pipes that appear to be part of the storm drain infrastructure • Outfalls that appear to be piped headwater streams • Field connections to culverts • Submerged or partially submerged outfalls • Outfalls that are blocked with debris or sediment deposits • Pipes that appear to be outfalls from storm water treatment practices • Small diameter ductile iron pipes • Pipes that appear to only drain roof downspouts but that are subsurface, preventing definitive confirmation	• Drop inlets from roads in culverts (unless evidence of illegal dumping, dumpster leaks, etc.) • Cross-drainage culverts in transportation right-of-way (i.e., can see daylight at other end) • Weep holes • Flexible HDPE pipes that are known to serve as slope drains • Pipes that are clearly connected to roof downspouts via above-ground connections

 Ductile iron round pipe	 4-6” HDPE; Check if roof leader connection (legal)	 Field connection to inside of culvert; Always mark and record.
 Small diameter (<2”) HDPE; Often a sump pump (legal), or may be used to discharge laundry water (illicit).	 Elliptical RCP; Measure both horizontal and vertical diameters.	 Double RCP round pipes; Mark as separate outfalls unless known to connect immediately up-pipe
 Culvert (can see to other side); Don’t mark as an outfall	 Open channel “chute” from commercial parking lot; Very unlikely illicit discharge. Mark, but do not return to sample (unless there is an obvious problem).	 Small diameter PVC pipe; Mark, and look up-pipe to find the origin.
 CMP outfall; Crews should also note upstream sewer crossing.	 Box shaped outfall	 CMP round pipe with two weep holes at bridge crossing. (Don’t mark weep holes)

Figure 22: Typical Outfall Types Found in the Field

Obvious Discharges

Field crews may occasionally encounter an obvious illicit discharge of sewage or other pollutants, typified by high turbidity, odors, floatables and unusual colors. When obvious discharges are encountered, field crews should STOP the ORI survey, track down the source of the discharge and immediately contact the appropriate water pollution agency for enforcement. Crews should photo-document the discharge, estimate its flow volume and collect a sample for water quality analysis (if this can be done safely). All three kinds of evidence are extremely helpful to support subsequent enforcement. Chapter 13 provides details on techniques to track down individual discharges.

11.4 ORI Section 1 - Background Data

The first section of the ORI field sheet is used to record basic data about the survey, including time of day, GPS coordinates for the outfall, field crew members, and current and past weather conditions (Figure 23). Much of the information in this section is self-explanatory, and is used to create an accurate record of when, where, and under what conditions ORI data were collected.

Every outfall should be photographed and marked by directly writing a unique identifying number on each outfall that serves as its subwatershed "address" (Figure 24). Crews can use spray paint or another temporary marker to mark outfalls, but may decide to replace temporary markings with permanent ones if the ORI is repeated later. Markings help crews confirm outfall locations during future investigations, and gives citizens a better way to report the location of spills or discharges when calling a water pollution hotline. Crews should mark the spatial location of all outfalls they encounter directly on field maps, and record the coordinates with a GPS unit that is accurate to within 10 feet. Crews should take a digital photo of each outfall, and record photo numbers in Section 1 of the field sheet.

Section 1: Background Data

Subwatershed:		Outfall ID:	
Today's date:		Time (Military):	
Investigators:		Form completed by:	
Temperature (°F):	Rainfall (in.): Last 24 hours: Last 48 hours:		
Latitude:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	
Land Use in Drainage Area (Check all that apply):			
☐ Industrial		☐ Open Space	
☐ Ultra-Urban Residential		☐ Institutional	
☐ Suburban Residential		Other: _____	
☐ Commercial		Known Industries: _____	
Notes (e.g., origin of outfall, if known):			

Figure 23: Section 1 of the ORI Field Sheet

Figure 24: Labeling an outfall (a variety of outfall naming conventions can be used)

The land use of the drainage area contributing to the outfall should also be recorded. This may not always be easy to characterize at large diameter outfalls that drain dozens or even hundreds of acres (unless you have aerial photographs). On the other hand, land use can be easily observed at smaller diameter outfalls, and in some cases, the specific origin can be found (e.g., a roof leader or a parking lot; Figure 25). The specific origin should be recorded in the "notes" portion of Section 1 on the field sheet.

11.5 ORI Section 2 - Outfall Description

This part of the ORI field sheet is where basic outfall characteristics are noted (Figure 26). These include material, and presence of flow at the outfall, as well as the pipe's dimensions (Figure 27). These measurements are used to confirm and supplement existing storm drain maps (if they are available). Many communities only map storm drain outfalls that exceed a given pipe diameter, and may not contain data on the material and condition of the pipe.

Figure 25: The origin of this corrugated plastic pipe was determined to be a roof leader from the house up the hill.

Section 2 of the field sheet also asks if the outfall is submerged in water or obstructed by sediment and the amount of flow, if present. Figure 28 provides some photos that illustrate how to characterize relative submergence, deposition and flow at outfalls. If no flow is observed at the outfall, you can skip the next two sections of the ORI field sheet and continue with Section 5.

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☐ **Closed Pipe**	☐ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☐ Circular ☐ Eliptical ☐ Box ☐ Other: _____	☐ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: _____	In Water: ☐ No ☐ Partially ☐ Fully With Sediment: ☐ No ☐ Partially ☐ Fully
☐ **Open drainage**	☐ Concrete ☐ Earthen ☐ rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ **In-Stream**	**(applicable when collecting samples)**				
Flow Present?	☐ Yes ☐ No *If No, Skip to Section 5*				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Figure 26: Section 2 of the ORI Field Sheet

Figure 27: Measuring Outfall Diameter

Submerged: More than ½ below water

Partially submerged: Bottom is below water

Fully submerged: Can't see outfall

Outfall fully submerged by debris

Fully submerged from downstream trees trapping debris

Partially submerged by leaf debris "back water"

Trickle Flow: Very narrow stream of water

Moderate Flow: Steady stream, but very shallow depth

Significant flow (Source is a fire hydrant discharge)

Figure 28: Characterizing Submersion and Flow

11.6 ORI Section 3 - Quantitative Characterization for Flowing Outfalls

This section of the ORI records direct measurements of **flowing outfalls**, such as flow, temperature, pH and ammonia (Figure 29). If desired, additional water quality parameters can be added to this section. Chapter 12 discusses the range of water quality parameters that can be used.

Field crews measure the rate of flow using one of two techniques. The first technique simply records the time it takes to fill a container of a known volume, such as a one liter sample bottle. In the second technique,

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		**RESULT**	**UNIT**	**EQUIPMENT**
☐Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
☐Flow #2	Flow depth		In	Tape measure
	Flow width	____' ____"	Ft, In	Tape measure
	Measured length	____' ____"	Ft, In	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Figure 29: Section 3 of the ORI Field Sheet

the crew measures the velocity of flow, and multiplies it by the estimated cross sectional area of the flow.

To use the flow volume technique, it may be necessary to use a "homemade" container to capture flow, such as a cut out plastic milk container that is marked to show a one liter volume. The shape and flexibility of plastic containers allows crews to capture relatively flat and shallow flow (Figure 30). The flow volume is determined as the volume of flow captured in the container per unit time.

The second technique measures flow rate based on velocity and cross sectional area, and is preferred for larger discharges where containers are too small to effectively capture the flow (Figure 31). The crew measures and marks off a fixed flow length (usually about five feet), crumbles leaves or other light material, and drops them into the discharge (crews can also carry peanuts or ping pong balls to use). The crew then measures the time it takes the marker to travel across the length. The velocity of flow is computed as the length of the flow path (in feet) divided by the travel time (in seconds). Next, the cross-sectional flow area is measured by taking multiple readings of the depth and width of flow. Lastly, cross-sectional area (in square feet) is multiplied by flow velocity (feet/second) to calculate the flow rate (in cubic feet/second).

Crews may also want to measure the quality of the discharge using relatively inexpensive probes and test strips (e.g., water temperature, pH, and ammonia). The choice of which indicator parameters to measure is usually governed by the overall IDDE monitoring framework developed by the community. Some communities have used probes or test strips to measure additional indicators such as conductivity, chlorine, and hardness. Research by Pitt (for this project) suggests that probes by Horiba for pH and conductivity are the most reliable and

Figure 30: Measuring flow (as volume per time)

accurate, and that test strips have limited value.

When probes or test strips are used, measurements should be made from a sample bottle that contains flow captured from the outfall. The exact measurement recorded by the field probe should be recorded in Section 3 of the field sheet. Some interpolation may be required for test strips, but do not interpolate further than the mid-range between two color points.

11.7 ORI Section 4 – Physical Indicators for Flowing Outfalls Only

This section of the ORI field sheet records data about four sensory indicators associated with **flowing outfalls**—odor, color, turbidity and floatables (Figure 32). Sensory indicators can be detected by smell or sight, and require no measurement equipment. Sensory indicators do not always reliably predict illicit discharge, since the senses can be fooled, and may result in a "false negative" (i.e., sensory indicators fail to detect an illicit discharge when one is actually present). Sensory indicators are important, however, in detecting the most severe or obvious discharges. Section 4 of the field sheet asks whether the sensory indicator is present, and if so, what is its severity, on a scale of one to three.

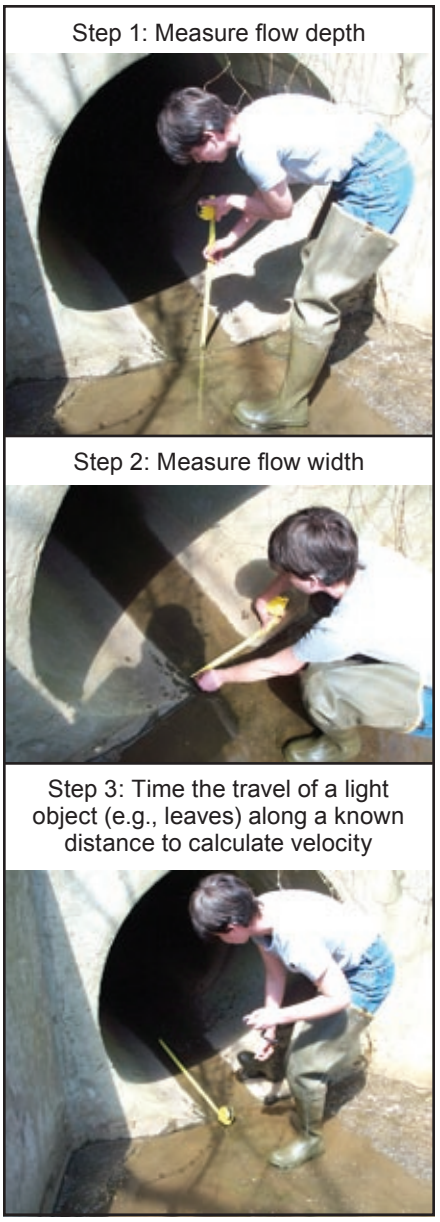


Figure 31: Measuring flow (as velocity times cross-sectional area)

Section 4: Physical Indicators for Flowing Outfalls Only

Are Any Physical Indicators Present in the flow? ☐ Yes ☐ No *(If No, Skip to Section 5)*

INDICATOR	CHECK if Present	DESCRIPTION	RELATIVE SEVERITY INDEX M(1-3)		
Odor	☐	☐ Sewage ☐ Rancid/sour ☐ Petroleum/gas ☐ Sulfide ☐ Other:	☐ 1 – Faint	☐ 2 – Easily detected	☐ 3 – Noticeable from a distance
Color	☐	☐ Clear ☐ Brown ☐ Gray ☐ Yellow ☐ Green ☐ Orange ☐ Red ☐ Other:	☐ 1 – Faint colors in sample bottle	☐ 2 – Clearly visible in sample bottle	☐ 3 – Clearly visible in outfall flow
Turbidity	☐	See severity	☐ 1 – Slight cloudiness	☐ 2 – Cloudy	☐ 3 – Opaque
Floatables -Does Not Include Trash!!	☐	☐ Sewage (Toilet Paper, etc.) ☐ Suds ☐ Petroleum (oil sheen) ☐ Other:	☐ 1 – Few/slight; origin not obvious	☐ 2 – Some; indications of origin (e.g., possible suds or oil sheen)	☐ 3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)

Figure 32: Section 4 of the ORI Field Sheet

Odor

Section 4 asks for a description of any odors that emanate from the outfall and an associated severity score. Since noses have different sensitivities, the entire field crew should reach consensus about whether an odor is present and how severe it is. A severity score of one means that the odor is faint or the crew cannot agree on its presence or origin. A score of two indicates a moderate odor within the pipe. A score of three is assigned if the odor is so strong that the crew smells it a considerable distance away from the outfall.

TIP

Make sure the origin of the odor is the outfall. Sometimes shrubs, trash or carrion, or even the spray paint used to mark the outfall can confuse the noses of field crews.

Color

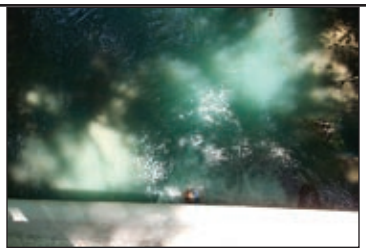
The color of the discharge, which can be clear, slightly tinted, or intense is recorded next. Color can be quantitatively analyzed in the lab, but the ORI only asks for a visual assessment of the discharge color and its intensity. The best way to measure color is to collect the discharge in a clear sample bottle and hold it up to the light (Figure 33). Field crews should also look for downstream plumes of color that appear to be associated with the outfall. Figure 34 illustrates the spectrum of colors that may be encountered during an ORI survey, and offers insight on how to rank the relative intensity or strength of discharge color. Color often helps identify industrial discharges; Appendix K provides guidance on colors often associated with specific industrial operations.

Turbidity

The ORI asks for a visual estimate of the turbidity of the discharge, which is a measure of the cloudiness of the water. Like color, turbidity is best observed in a clear sample bottle, and can be quantitatively measured using field probes. Crews should also look for turbidity in the plunge pool below the outfall, and note any downstream turbidity plumes that appear to be related to the outfall. Field crews can sometimes confuse turbidity with color, which are related but are not the same. Remember, turbidity is a measure of how easily light can penetrate through the sample bottle, whereas color is defined by the tint or intensity of the color observed. Figure 34 provides some examples of how to distinguish turbidity from color, and how to rank its relative severity.

Figure 33: Using a sample bottle to estimate color and turbidity

Color: Brown; Severity: 2
Turbidity Severity: 2



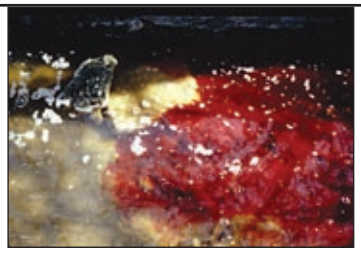
Color: Blue-green; Severity: 3
Turbidity Severity: 2

Highly Turbid Discharge
Color: Brown; Severity: 3
Turbidity Severity: 3

Sewage Discharge
Color: 3
Turbidity: 3

Paint
Color: White; Severity: 3
Turbidity: 3

Industrial Discharge
Color: Green; Severity: 3
Turbidity Severity: 3



Blood
Color: Red; Severity: 3
Turbidity Severity: None

Failing Septic System:
Turbidity Severity: 3

Turbidity in Downstream Plume
Turbidity Severity: 2
(also confirm with sample bottle)

High Turbidity in Pool
Turbidity Severity: 2
(Confirm with sample bottle)

Iron Floc
Color: Reddish Orange; Severity: 3
(Often associated with a natural source)

Slight Turbidity
Turbidity: 1
(Difficult to interpret this observation; May be natural or an illicit discharge)

Construction Site Discharge
Turbidity Severity: 3

Discharge of Rinse from Floor Sanding
(Found during wet weather)
Turbidity Severity: 3

Figure 34: Interpreting Color and Turbidity

Floatables

The last sensory indicator is the presence of any floatable materials in the discharge or the plunge pool below. Sewage, oil sheen, and suds are all examples of floatable indicators; trash and debris are generally not in the context of the ORI. The presence of floatable materials is determined visually, and some guidelines for ranking their severity are provided in Figure 35, and described below.

If you think the floatable is sewage, you should automatically assign it a severity score of three since no other source looks quite like it. Surface oil sheens are ranked based on their thickness and coverage. In some cases, surface sheens may not be related to oil discharges, but instead are created by in-stream processes, such as shown in Figure 36. A thick or swirling sheen associated with a petroleum-like odor may be diagnostic of an oil discharge.

Suds are rated based on their foaminess and staying power. A severity score of three is designated for thick foam that travels many feet before breaking up. Suds that break up quickly may simply reflect water turbulence, and do not necessarily have an illicit origin. Indeed, some streams have naturally occurring foams due to the decay of organic matter. On the other hand, suds that are accompanied by a strong organic or sewage-like odor may indicate a sanitary sewer leak or connection. If the suds have a fragrant odor, they may indicate the presence of laundry water or similar wash waters.

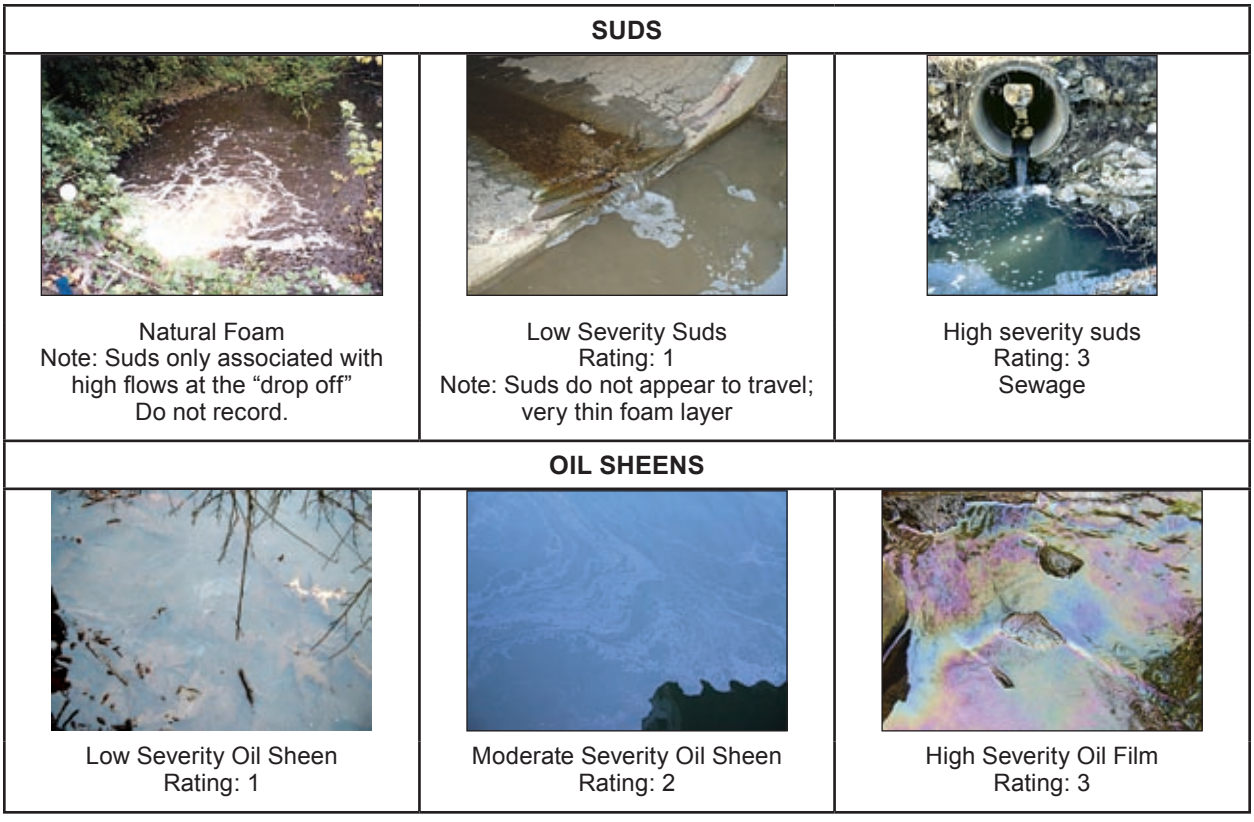


Figure 35: Determining the Severity of Floatables

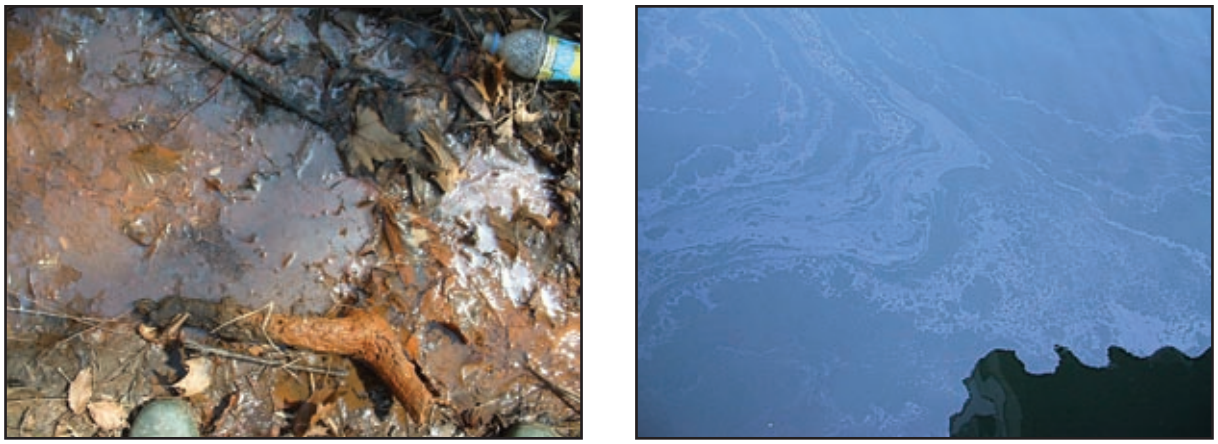


Figure 36: Synthetic versus Natural Sheen (a) Sheen from bacteria such as iron floc forms a sheet-like film that cracks if disturbed (b) Synthetic oil forms a swirling pattern

11.8 ORI Section 5 - Physical Indicators for Both Flowing and Non-Flowing Outfalls

Section 5 of the ORI field sheet examines physical indicators found at both **flowing and non-flowing** outfalls that can reveal the impact of past discharges (Figure 37). Physical indicators include outfall damage, outfall deposits or stains, abnormal vegetation growth, poor pool quality, and benthic growth on pipe surfaces. Common examples of physical indicators are portrayed in Figures 38 and 39. Many of these physical conditions can indicate that an intermittent or transitory discharge has occurred in the past, even if the pipe is not currently flowing. Physical indicators are not ranked according to their severity, because they are often subtle, difficult to interpret and could be caused by other sources. Still, physical indicators can provide strong clues about the discharge history of a storm water outfall, particularly if other discharge indicators accompany them.

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls
Are physical indicators that are not related to flow present? ☐ Yes ☐ No *(If No, Skip to Section 6)*

INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Outfall Damage	☐	☐ Spalling, Cracking or Chipping ☐ Peeling Paint ☐ Corrosion	
Deposits/Stains	☐	☐ Oily ☐ Flow Line ☐ Paint ☐ Other:	
Abnormal Vegetation	☐	☐ Excessive ☐ Inhibited	
Poor pool quality	☐	☐ Odors ☐ Colors ☐ Floatables ☐ Oil Sheen ☐ Suds ☐ Excessive Algae ☐ Other:	
Pipe benthic growth	☐	☐ Brown ☐ Orange ☐ Green ☐ Other:	

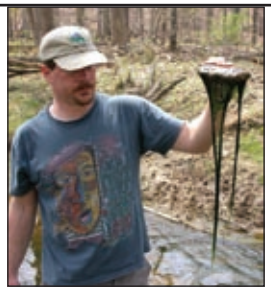
Figure 37: Section 5 of the ORI Field Sheet

Bacterial growth at this outfall indicates nutrient enrichment and a likely sewage source.

This bright red bacterial growth often indicates high manganese and iron concentrations. Surprisingly, it is not typically associated with illicit discharges.

Sporalitis filamentous bacteria, also known as “sewage fungus” can be used to track down sanitary sewer leaks.

Algal mats on lakes indicate eutrophication. Several sources can cause this problem. Investigate potential illicit sources.



Illicit discharges or excessive nutrient application can lead to extreme algal growth on stream beds.

The drainage to this outfall most likely has a high nutrient concentration. The cause may be an illicit discharge, but may be excessive use of lawn chemicals.

This brownish algae indicates an elevated nutrient level.

Figure 38: Interpreting Benthic and Other Biotic Indicators

Reddish staining on the rocks below this outfall indicate high iron concentrations.

Toilet paper directly below the storm drain outlet.

Watershed Protection??

Trash is not an indicator of illicit discharges, but should be noted.

Staining at the base of the outfall may indicate a persistent, intermittent discharge.

Excessive vegetation may indicate enriched flows associated with sewage.

Brownish stain of unclear origin. May be from degradation of the brick infrastructure.

Cracked rock below the outfall may indicate an intermittent discharge.

Poor pool quality. Consider sampling from the pool to determine origin.

Figure 39: Typical Findings at Both Flowing and Non-Flowing Outfalls

11.9 ORI Sections 6-8 - Initial Outfall Designation and Actions

The last three sections of the ORI field sheet are where the crew designates the illicit discharge severity of the outfall and recommends appropriate management and monitoring actions (Figure 40). A discharge rating is designated as obvious, suspect, potential or unlikely, depending on the number and severity of discharge indicators checked in preceding sections.

It is important to understand that the ORI designation is only an initial determination of discharge potential. A more certain determination as to whether it actually is an illicit discharge is made using a more sophisticated indicator monitoring method. Nevertheless, the ORI outfall

designation gives program managers a better understanding of the distribution and severity of illicit discharge problems within a subwatershed.

Section 7 of the ORI field sheet records whether indicator samples were collected for laboratory analysis, or whether an intermittent flow trap was installed (e.g., an optical brightener trap or caulk dam described in Chapter 13). Field crews should record whether the sample was taken from a pool or directly from the outfall, and the type of intermittent flow trap used, if any. This section can also be used to recommend follow-up sampling, if the crew does not carry sample bottles or traps during the survey.

The last section of the ORI field sheet is used to note any unusual conditions near the outfall such as dumping, pipe failure, bank erosion or maintenance needs. While these maintenance conditions are not directly related to illicit discharge detection, they often are of interest to other agencies and utilities that maintain infrastructure.

11.10 Customizing the ORI for a Community

The ORI method is meant to be adaptable, and should be modified to reflect local conditions and field experience. Some indicators can be dropped, added or modified in the ORI form. This section looks at four of the most common adaptations to the ORI:

- Open Channels
- Submerged/Tidally Influenced Outfalls
- Cold Climates
- Use of Biological Indicators

In each case, it may be desirable to revise the ORI field sheet to collect data reflecting these conditions.

Open Channels

Field crews face special challenges in more rural communities that have extensive open channel drainage. The ditches and channels serve as the primary storm water conveyance system, and may lack storm drain and sewer pipes. The open channel network is often very long with only a few obvious outfalls that are located far apart. While the network can have illicit discharges from septic systems, they can typically only be detected in the ORI if a straight pipe is found. Some adaptations for open channel systems are suggested in Table 33.

Section 6: Overall Outfall Characterization

☐ Unlikely ☐ Potential (presence of two or more indicators) ☐ Suspect (one or more indicators with a severity of 3) ☐ Obvious

Section 7: Data Collection

1.	Sample for the lab?	☐ Yes	☐ No	
2.	If yes, collected from:	☐ Flow	☐ Pool	
3.	Intermittent flow trap set?	☐ Yes	☐ No	If Yes, type: ☐ OBM ☐ Caulk dam

Section 8: Any Non-Illicit Discharge Concerns (e.g., trash or needed infrastructure repairs)?

Figure 40: Sections 6-8 of the ORI Field Sheet

Submerged/Tidally Influenced Outfalls

The ORI can be problematic in coastal communities where outfalls are located along the waterfront and may be submerged at high tide. The ORI methods need to be significantly changed to address these constraints. Often, outfalls are initially located from offshore using canoes or boats, and then traced landward to the first manhole that is not tidally influenced. Field crews then access the storm drain pipe at the manhole and measure whatever indicators they can observe in the confined and dimly lit space. Table 33 recommends strategies to sample outfalls in the challenging environment of coastal communities.

Winter and Ice

Ice can be used as a discharge indicator in northern regions when ice forms in streams and pipes during the winter months (Figure 41). Because ice lasts for many weeks, and most illicit discharges are warm, astute field crews can interpret outfall history from ice melting patterns along pipes and streams. For example, exaggerated melting at a frozen or flowing outfall may indicate warm water from sewage or industrial discharge. Be careful, because groundwater is warm enough to cause some melting at below freezing temperatures. Also, ice acts like an intermittent flow trap, and literally freezes these discharges. Crews should also look for these traps to find any discolored ice within the pipe or below the outfall.

A final winter indicator is "rime ice," which forms when steam freezes. This beautiful ice formation is actually a good indicator of sewage or other relatively hot discharge that causes steam to form (Figure 41).

Biological Indicators

The diversity and pollution tolerance of various species of aquatic life are widely used as an indicator of overall stream health, and has sometimes been used to detect illicit discharges. One notable example is the presence of the red-eared slider turtle, which is used in Galveston, Texas to find sewage discharges, as they have a propensity for the nutrient rich waters associated with sewage (Figure 42).

Table 33: Special Considerations for Open Channels/Submerged Outfalls

OPEN CHANNELS	
Challenge	**Suggested Modification**
Too many miles of channel to walk	Stop walking at a given channel size or drainage area
Difficulty marking them	Mark on concrete or adjacent to earth channel
Interpreting physical indicators	For open channels with mild physical indicators, progress up the system to investigate further.
SUBMERGED/TIDALLY INFLUENCED OUTFALLS	
Challenge	**Suggested Modification**
Access for ORI – Tidal Influence	Access during low tide
Access for ORI – Always submerged	Access by boat or by shore walking
Interpreting physical indicators	For outfalls with mild physical indicators, also inspect from the nearest manhole that is not influenced by tides
Sampling (if necessary)	Sample "up pipe"

Figure 41: Cold climate indicators of illicit discharges

Figure 42: One biological indicator is this red-eared slider turtle

11.11 Interpreting ORI Data

The ORI generates a wealth of information that can provide managers with valuable insights about their illicit discharge problems, if the data are managed and analyzed effectively. The ORI can quickly define whether problems are clustered in a particular area or spread across the community. This section presents a series of methods to compile, organize and interpret ORI data, including:

1. Basic Data Management and Quality Control
2. Outfall Classification
3. Simple Suspect Outfall Counts
4. Mapping ORI Data
5. Subwatershed and Reach Screening
6. Characterizing IDDE Problems at the Community Level

The level of detail for each analysis method should be calibrated to local resources, program goals, and the actual discharge problems discovered in the stream corridor. In general, the most common conditions and problems will shape your initial monitoring strategy, which prioritizes the subwatersheds or reaches that will be targeted for more intensive investigations.

Program managers should analyze ORI data well before every stream mile is walked in the community, and use initial results to modify field methods. For example, if initial results reveal widespread potential problems, program managers may want to add more indicator monitoring to the ORI to track down individual discharge sources (see Chapter 12). Alternatively, if the same kind of discharge problem is repeatedly found, it may be wise to investigate whether there is a common source or activity generating it (e.g., high turbidity observed at many flowing outfalls as a result of equipment washing at active construction sites).

Basic Data Management and Quality Control

The ORI produces an enormous amount of raw data to characterize outfall conditions. It is not uncommon to compile dozens of individual ORI forms in a single subwatershed. The challenge is to devise a system to organize, process, and translate this data into simpler outputs and formats that can guide illicit discharge elimination efforts. The system starts with effective quality control procedures in the field.

Field sheets should be managed using either a three-ring binder or a clipboard. A small field binder offers the ability to quickly flip back and forth among the outfall forms. Authorization letters, emergency contact lists, and extra forms can also be tucked inside.

At the end of each day, field crews should regroup at a predetermined location to compare notes. The crew leader should confirm that all survey reaches and outfalls of interest have been surveyed, discuss initial findings, and deal with any logistical problems. This is also a good time to check whether field crews are measuring and recording outfall data in the same way, and are consistent in what they are (or are not) recording. Crew leaders should also use this time to review field forms for accuracy and thoroughness. Illegible handwriting should be neatened and details added to notes and any sketches. The crew leader should also organize the forms together into a single master binder or folder for future analysis.

Once crews return from the field, data should be entered into a spreadsheet or database. A Microsoft Access database is provided with this Manual as part of Appendix D (Figure 43), and is supplied on a compact disc with each hard copy. It can also be downloaded with Appendix D from http://www.stormwatercenter.net. Information stored in this database can easily be imported into a GIS for mapping purposes. The GIS can generate its own database table that allows the user to create subwatershed maps showing outfall characteristics and problem areas.

Once data entry is complete, be sure to check the quality of the data. This can be done quickly by randomly spot-checking 10% of the entered data. For example, if 50 field sheets were completed, check five of the spreadsheet or database entries. When transferring data into GIS, quality control maps that display labeled problem outfalls should be created. Each survey crew is responsible for reviewing the accuracy of these maps.

Outfall Classification

A simple outfall designation system has been developed to summarize the discharge potential for individual ORI field sheets. Table 34 presents the four outfall designations that can be made.

Table 34: Outfall Designation System Using ORI Data

Designation	Description
1. Obvious Discharge	Outfalls where there is an illicit discharge that doesn't even require sample collection for confirmation
2. Suspect Discharge	Flowing outfalls with high severity on one or more physical indicators
3. Potential Discharge	Flowing or non-flowing outfalls with presence of two or more physical indicators
4. Unlikely Discharge	Non-flowing outfalls with no physical indicators of an illicit discharge

Simple Suspect Outfall Counts

The first priority is to count the frequency of each outfall designation in the subwatershed or the community as a whole. This simple screening analysis counts the number of problem outfalls per stream mile (i.e., the sum of outfalls designated as having potential, suspected or obvious illicit discharge potential). The density of problem outfalls per stream mile is an important metric to target and screen subwatersheds.

Based on problem outfall counts, program managers may discover that a particular monitoring strategy may not apply to the community. For example, if few problem outfalls are found, an extensive follow-up monitoring program may not be needed, so that program resources can be shifted to pollution hotlines to report and control transitory discharges such as illegal dumping. The key point of this method is to avoid getting lost in the raw data, but look instead to find patterns that can shape a cost-effective IDDE program.

Mapping ORI Data

Maps are an excellent way to portray outfall data. If a GIS system is linked to the ORI database, maps that show the spatial distribution of problem outfalls, locations of dumping, and overall reach conditions can be easily generated. Moreover, GIS provides flexibility that allows for rapid updates to maps as new data are collected and compiled. The sophistication and detail of maps will depend on the initial findings, program goals, available software, and GIS capability.

Subwatershed maps are also an effective and important communication and education tool to engage stakeholders (e.g., public officials, businesses and community residents), as they can visually depict reach quality and the location of problem outfalls. The key point to remember is that maps are tools for understanding data. Try to map with a purpose in mind. A large number of cluttered maps may only confuse, while a smaller number with select data may stimulate ideas for the follow-up monitoring strategy.

Subwatershed and Survey Reach Screening

Problem outfall metrics are particularly valuable to screen or rank priority subwatersheds or survey reaches. The basic approach is simple: select the outfall metrics that are most important to IDDE program goals, and then see how individual subwatersheds or reaches rank in the process. This screening process can help determine which subwatersheds will be priorities for initial follow-up monitoring efforts. When feasible, the screening process should incorporate non-ORI data, such as existing dry weather water quality data, citizen complaints, permitted facilities, and habitat or biological stream indicators.

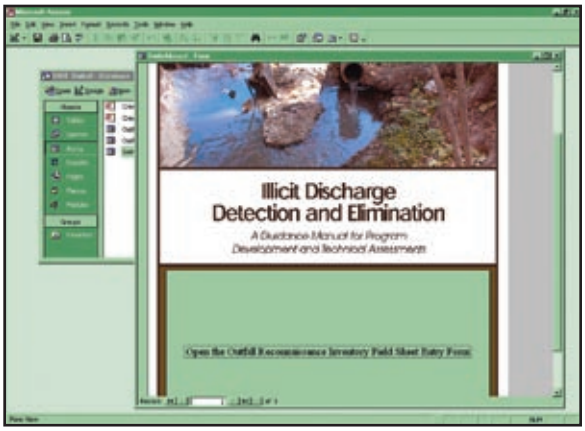


Figure 43: Sample screen from ORI Microsoft Access database

An example of how outfall metrics can screen subwatersheds is provided in Table 35. In this hypothetical example, four metrics were used to screen three subwatersheds within a community: number of suspect discharges, subwatershed population as a percent of the total community, number of industrial discharge permits, and number of outfalls per stream mile. Given these screening criteria, subwatershed C was selected for the next phase of detailed investigation.

Characterizing the IDDE Problem at the Community Level

ORI data should be used to continuously revisit and revise the IDDE program as more is learned about the nature and distribution of illicit discharge problems in the community. For example, ORI discharge designation should be compared against illicit discharge potential (IDP) predictions made during the original desktop analysis (Chapter 5) to refine discharge screening factors, and formulate new monitoring strategies.

In general, community illicit discharge problem can be characterized as minimal, clustered, or severe (Table 36). In the minimal scenario, very few and scattered problems exist; in the clustered scenario, problems are located in isolated subwatersheds; and in the severe scenario, problems are widespread.

Table 35: An Example of ORI Data Being Used to Compare Across Subwatersheds

	# of suspect discharges	Population as % of total community	# of industrial discharge permits	# of outfalls per stream/ conveyance mile
Subwatershed A	2	30	4	6
Subwatershed B	1	10	0	3
Subwatershed C	8	60	2	12

Table 36: Using Stream and ORI Data to Categorize IDDE Problems

Extent	ORI Support Data
Minimal	• Less than 10% of total outfalls are flowing • Less than 20% of total outfalls with obvious, suspect or potential designation
Clustered	• Two thirds of the flowing outfalls are located within one third of the subwatersheds • More than 20% of the communities subwatersheds have greater than 20% of outfalls with obvious, suspect or potential designation
Severe	• More than 10% of total outfalls are flowing • More than 50% of total outfalls with obvious, suspect or potential designation • More than 20% of total outfalls with obvious or suspect designation

11.12 Budgeting and Scoping the ORI

Many different factors come into play when budgeting and scoping an ORI survey: equipment needs, crew size and the stream miles that must be covered. This section presents some simple rules of thumb for ORI budgeting.

Equipment costs for the ORI are relatively minor, with basic equipment to outfit one team of three people totaling about $800 (Table 37). This cost includes one-time expenses to acquire waders, a digital camera and a GPS unit, as well as disposable supplies.

The majority of the budget for an ORI is for staffing the desktop analysis, field crews and data analysis. Field crews can consist of two or three members, and cover about two to three miles of stream (or open channel) per day. Three staff-days should be allocated for pre- and post-field work for each day spent in the field.

Table 38 presents example costs for two hypothetical communities that conduct the ORI. Community A has 10 miles of open channel to investigate, while Community B has 20 miles. In addition, Community A has fewer staff resources available and therefore uses two-person field crews, while Community B uses three-person field crews. Total costs are presented as annual costs, assuming that each community is able to conduct the ORI for all miles in one year.

Table 37: Typical Field Equipment Costs for the ORI

Item	Cost
100 Latex Disposable Gloves	$25
5 Wide Mouth Sample Bottles (1 Liter)	$20
Large Cooler	$25
3 Pairs of Waders	$150
Digital Camera	$200
20 Cans of Spray Paint	$50
Test Kits or Probes	$100-$500
1 GPS Unit	$150
1 Measuring Tape	$10
1 First Aid Kit	$30
Flashlights, Batteries, Labeling tape, Clipboards	$25
Total	**$785-$1185**

Table 38: Example ORI Costs		
Item	**Community A**	**Community B**
Field Equipment[1]	$700	$785
Staff Field Time[2]	$2,000	$6,000
Staff Office Time[3]	$3,000	$6,000
Total	**$5,700**	**$12,785**

[1] From Table 44
[2] Assumes $25/hour salary (2 person teams in Community A and three- person teams in Community B) and two miles of stream per day.
[3] Assumes three staff days for each day in field.

APPENDIX B:

Outfall Reconnaissance Inventory Field Sheet

OUTFALL RECONNAISSANCE INVENTORY FIELD SHEET

Section 1: Background Data

Subwatershed:		Outfall ID:	
Today's date:		Time (Military):	
Investigators:		Form completed by:	
Temperature (°F):	Rainfall (in.): Last 24 hours: Last 48 hours:		
Latitude:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #s:	

Land Use in Drainage Area (Check all that apply):

☐ Industrial ☐ Open Space

☐ Urban Residential ☐ Institutional

☐ Suburban Residential Other: _____

☐ Commercial Known Industries: _____

Notes (e.g.., origin of outfall, if known):

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
☐ **Closed Pipe**	☐ RCP ☐ CMP ☐ PVC ☐ HDPE ☐ Steel ☐ Other: _____	☐ Circular ☐ Elliptical ☐ Box ☐ Other: _____	☐ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: _____	In Water: ☐ No ☐ Partially ☐ Fully With Sediment: ☐ No ☐ Partially ☐ Fully
☐ **Open drainage**	☐ Concrete ☐ Earthen ☐ Rip-rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
☐ **In-Stream**	**(applicable when collecting samples)**				
Flow Present?	☐ Yes ☐ No ***If No, Skip to Section 5***				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		**RESULT**	**UNIT**	**EQUIPMENT**
☐Flow #1	Volume		Liter	Bottle
	Time to fill		Seconds	Stop watch
☐Flow #2	Flow depth		Inches	Tape measure
	Flow width	_____' _____"	Ft, In	Tape measure
	Measured length	_____' _____"	Ft, In	Tape measure
	Time of travel		Seconds	Stop watch
Temperature			°F	Thermometer
pH			pH Standard Units	Test strip / probe
Ammonia			mg/L	Test strip

OUTFALL RECONNAISSANCE INVENTORY FIELD SHEET (CONTINUED)

Section 4: Physical Indicators for Flowing Outfalls Only

Are Any Physical Indicators Present in the flow? ☐ Yes ☐ No (*If No, Skip to Section 5)*

INDICATOR	CHECK if Present	DESCRIPTION	RELATIVE SEVERITY INDEX (1-3)		
Odor	☐	☐ Sewage ☐ Rancid/sour ☐ Petroleum/gas ☐ Sulfide ☐ Other:	☐ 1 – Faint	☐ 2 – Easily detected	☐ 3 – Noticeable from a distance
Color	☐	☐ Clear ☐ Brown ☐ Gray ☐ Yellow ☐ Green ☐ Orange ☐ Red ☐ Other:	☐ 1 – Faint colors in sample bottle	☐ 2 – Clearly visible in sample bottle	☐ 3 – Clearly visible in outfall flow
Turbidity	☐	See severity	☐ 1 – Slight cloudiness	☐ 2 – Cloudy	☐ 3 – Opaque
Floatables -Does Not Include Trash!!	☐	☐ Sewage (toilet paper, etc.) ☐ Suds ☐ Petroleum (oil sheen) ☐ Other:	☐ 1 – Few/slight; Origin not obvious	☐ 2 – Some; Indications of origin (e.g., possible suds or oil sheen)	☐ 3 – Some; Origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)

Section 5: Physical Indicators for Both Flowing and Non-Flowing Outfalls

Are physical indicators that are not related to flow present? ☐ Yes ☐ No (*If No, Skip to Section 6)*

INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Outfall Damage	☐	☐ Spalling, Cracking or Chipping ☐ Peeling Paint ☐ Corrosion	
Deposits/Stains	☐	☐ Oil ☐ Flow Line ☐ Paint ☐ Other:	
Abnormal Vegetation	☐	☐ Excessive ☐ Inhibited	
Poor pool quality	☐	☐ Odors ☐ Colors ☐ Floatables ☐ Oil Sheen ☐ Suds ☐ Excessive Algae ☐ Other:	
Pipe benthic growth	☐	☐ Brown ☐ Orange ☐ Green ☐ Other:	

Section 6: Overall Outfall Characterization

☐ Unlikely ☐ Potential (presence of two or more indicators) ☐ Suspect (one or more indicators with a severity of 3) ☐ Obvious

Section 7: Data Collection

1.	Sample for the lab?	☐ Yes	☐ No	If Yes, what time was the sample collected?
2.	If yes, collected from:	☐ Flow	☐ Pool	
3.	Intermittent flow trap set?	☐ Yes	☐ No	If Yes, type: ☐ OBM ☐ Caulk dam

Section 8: Any Non-Illicit Discharge Concerns (e.g., trash or needed infrastructure repairs)?

Appendix F – Outfall Mapping and Screening Report

Stormwater Outfall Mapping and Screening Report

As a requirement of Alabama State University's NPDES Municipal Separate Storm Sewer System (MS4) permit for municipal discharges, the University is required to implement a continual program of detecting and eliminating, to the maximum extent practicable, illicit discharges into its MS4. For the 2019-2020 reporting cycle, Alabama State University dedicated resources to complete outfall mapping and screening for the entire campus in one operational effort. Volkert assisted the University with this work.

Outfall mapping and screening is a part of the University's illicit discharge detection and elimination (IDDE) program and was conducted in accordance with the University's *Outfall Mapping and Screening Plan August 2019*. This effort resulted in an inventory of all known stormwater outfalls as defined by Alabama State University's Stormwater Management Program Plan (SWMPP).

14 outfalls were discovered and mapped within the University's MS4. Due to a 72-hour dry antecedent period prior to the mapping effort, dry weather screening was also performed as a part of a program designed to detect and address non-stormwater discharges within the University's MS4. 100% of the University's 14 outfalls were screened for potential illicit discharges. Of the 14 outfalls identified, six outfalls were located near the Carter Hill Road corridor to the south of campus, six outfalls were identified in the northwest corner of campus, and two outfalls were identified along Pineleaf Street on the eastern extent of campus.

To facilitate the mapping and screening effort, Volkert utilized GPS technology via a tablet-based ARCGIS program to locate and store the data associated with each outfall in a GIS layer.

Field observation to identify and locate outfalls includes collection of the following data and attributes:

- Outfall coordinates
- Conveyance type (ditch, culvert, pipe, etc.)
- Conveyance shape
- Conveyance size (pipe diameter, ditch width and depth, box culvert dimensions, etc.)
- Conveyance material (RCP, PVC, CMP, etc.)
- Outfall condition
- Outfall receiving water
- Photo of each outfall

For the purpose of this mapping effort, the definition of an outfall is as follows:

Outfall - *a location where concentrated stormwater runoff discharges, primarily from constructed conveyances, leave the influence of land uses within developed areas of the University's MS4 boundary, flowing toward the boundary of another MS4 or to a water of the State, as identified on the most current version of the National Hydrography Dataset maintained by the USGS.*

Given that Alabama State University's MS4 boundary is surrounded by the City of Montgomery's MS4, stormwater flows from within the University's closed stormwater sewer system into the City of

Montgomery's closed stormwater sewer system. For this outfall mapping effort, outfalls were located at the closest accessible location along the conveyance prior to leaving the University's MS4 boundary.

In order to locate these outfall locations, the Volkert team analyzed the natural topography of the land in relation to the MS4 boundary and waters of the state to identify areas of potential outfalls. Once these zones were identified, the team walked these areas to locate outfalls as defined above and stored the data within the ARCGIS program.

Outfall screening observations were made during the mapping effort and described within the ARCGIS program. All discharges were screened for potential illicit discharges. The initial screening performed during this effort was basic, utilizing characteristics observed based on odor, color, turbidity, and presence of floatables to eliminate or to help identify the potential illicit discharges.

No potential illicit discharges were observed in any of the University's stormwater outfalls during the outfall mapping and screening effort.

Mapping and screening of Alabama State University's outfalls began and was completed in September 2019. This satisfies the NPDES permit requirements to screen 100% of the University's known outfalls within a five-year permit cycle.

Attached is a spreadsheet that lists all known outfalls within Alabama State University's MS4 boundary. Additional documentation and GIS data will be kept on file by Volkert and are available as needed.

ALABAMA STATE UNIVERSITY
OUTFALL KEY MAP

VOLKERT | Green Infrastructure

FIGURE 1

FIGURE 2

FIGURE 3

LEGEND

- =OPEN CONVEYANCE OUTFALL
- =ENCLOSED CONVEYANCE OUTFALL
- =CITY OF FULTONDALE MS4 BOUNDARY

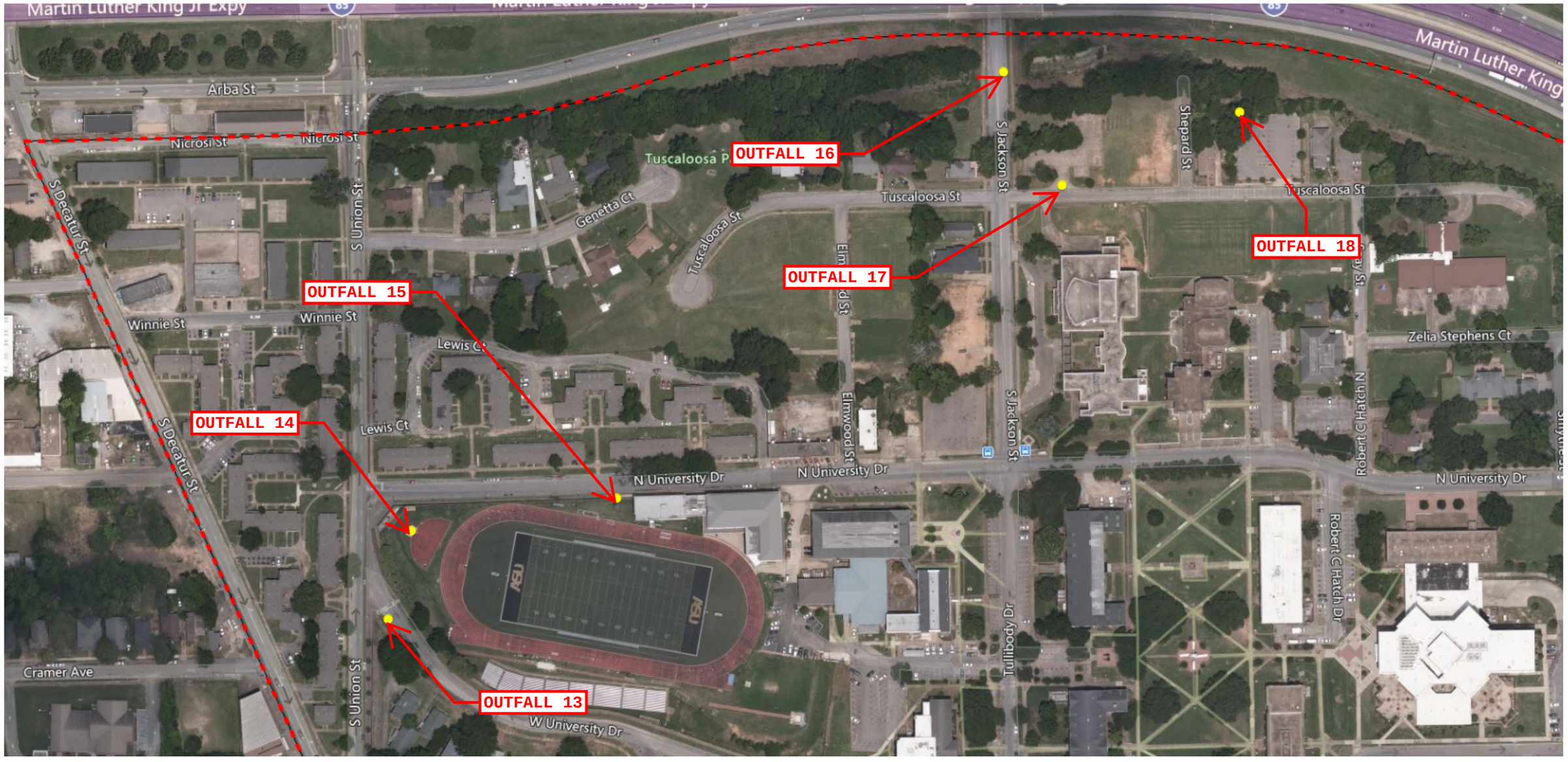

Martin Luther King Jr Expy
Arba St
Nicrosi St
Nicrosi St
S Decatur St
S Union St
Tuscaloosa P
Genetta Ct
Tuscaloosa St
Tuscaloosa St
S Jackson St
Shepard St
Tuscaloosa St
Martin Luther King
OUTFALL 16
OUTFALL 17
OUTFALL 18
OUTFALL 15
OUTFALL 14
OUTFALL 13
Winnie St
Winnie St
Lewis Ct
Lewis Ct
Elmwood St
Zelia Stephens Ct
Robert C Hatch N
N University Dr
N University Dr
N University Dr
Tullibody Dr
Robert C Hatch Dr
Cramer Ave
S Union St
W University Dr

FIGURE 1

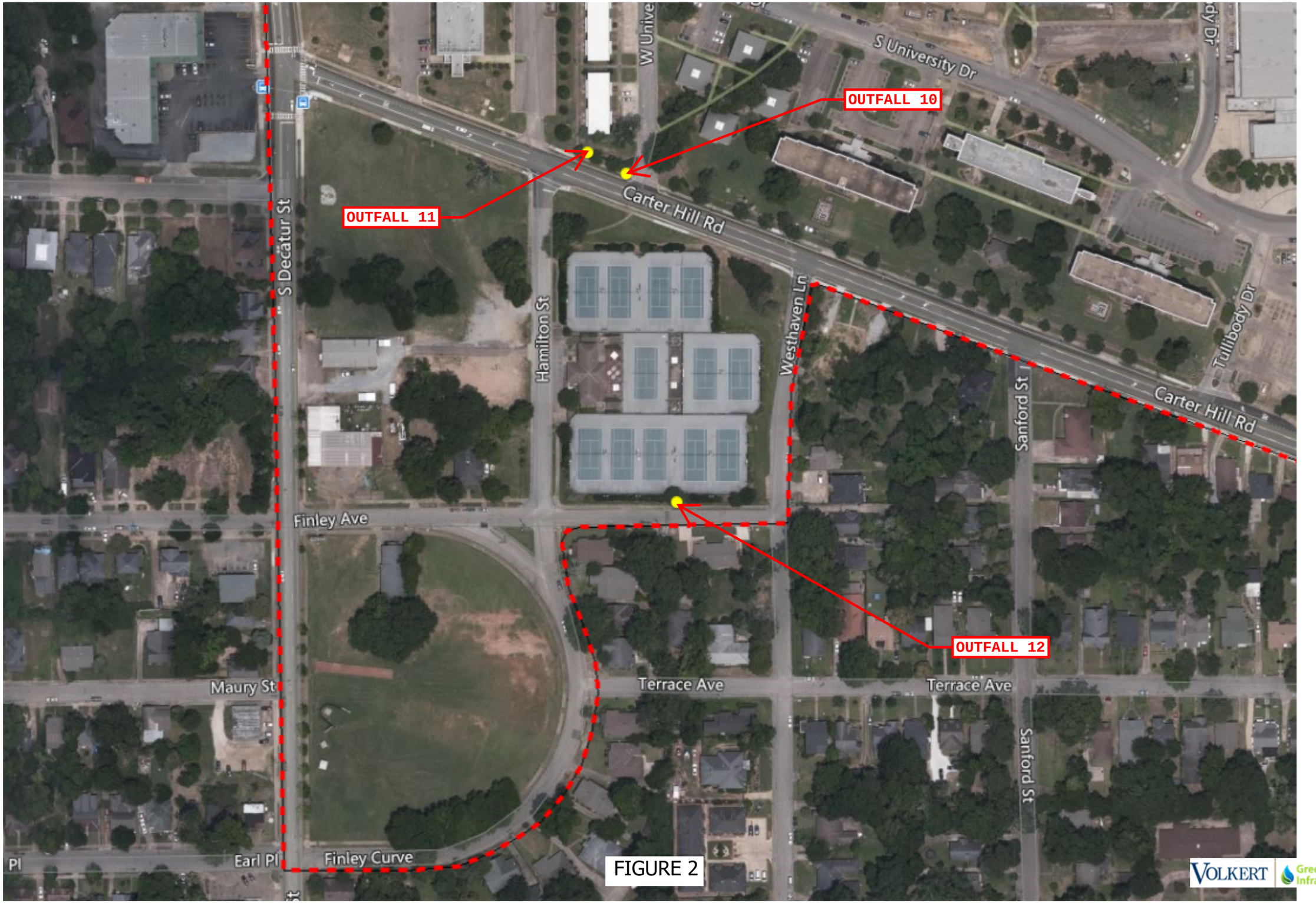

OUTFALL 10
OUTFALL 11
OUTFALL 12
S University Dr
Carter Hill Rd
S Decatur St
Hamilton St
Westhaven Ln
Sanford St
Tullibody Dr
Finley Ave
Maury St
Terrace Ave
Earl Pl
Finley Curve

FIGURE 2

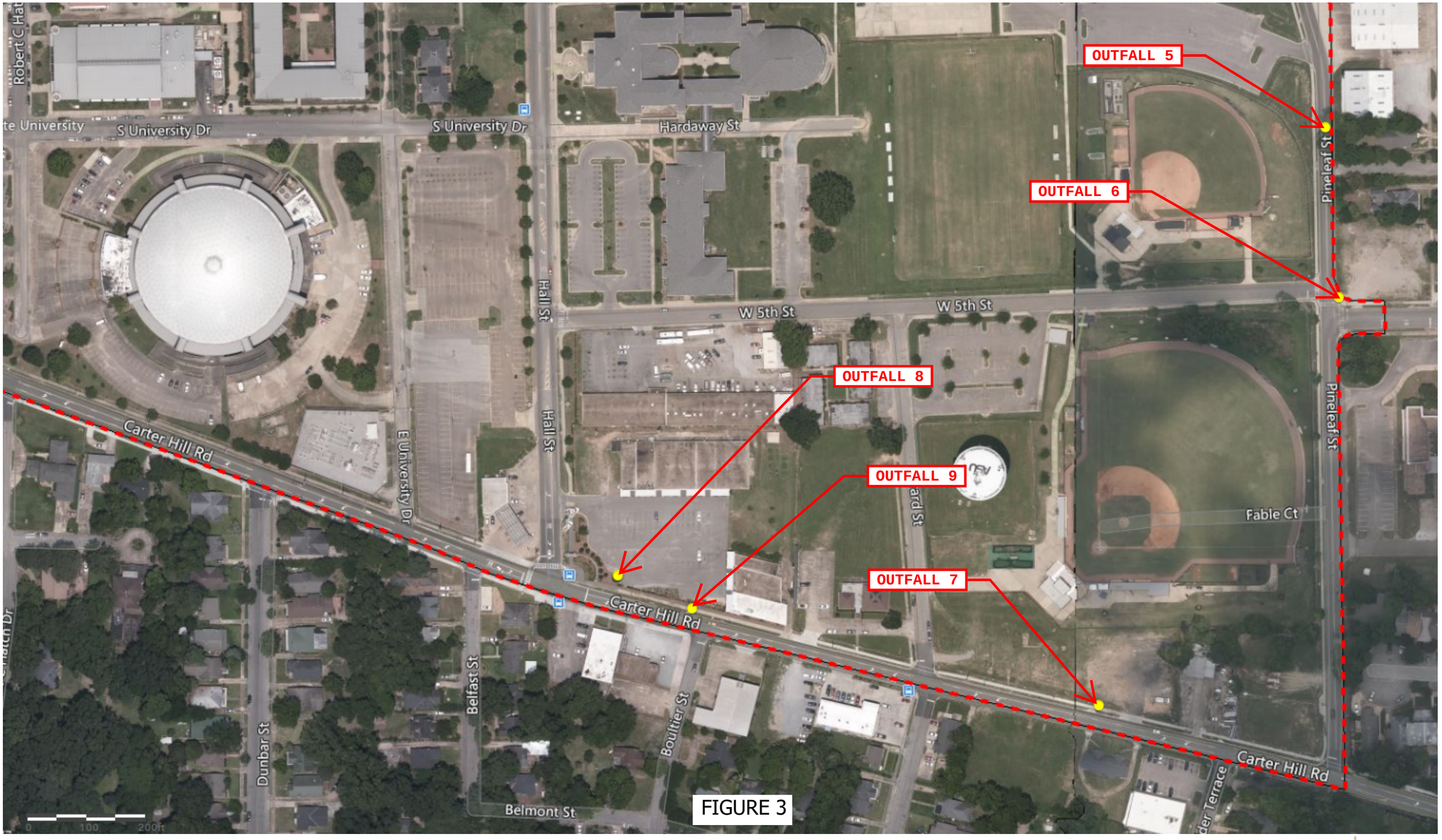

OUTFALL 5
OUTFALL 6
OUTFALL 8
OUTFALL 9
OUTFALL 7
S University Dr
Hardaway St
Hall St
W 5th St
Pineleaf St
Carter Hill Rd
E University Dr
Belfast St
Dunbar St
Boultier St
Belmont St
Fable Ct
0
100
200ft

FIGURE 3

Note: X and Y location is based on WGS 1984 Web Mercator Coordinate System

Count	Outfall ID	x	y	Outfall Type	Enclosed Conveyance Material	Enclosed Conveyance Opening Size	Enclosed Conveyance Number of Barrels	Enclosed Conveyance Material Comment
1	5	-9605426.503	3810982.678	Enclosed	RCP	15"	1	15” in from west. 15” in from north
2	6	-9605418.519	3810878.864	Enclosed	RCP	18"	2	Elliptical pipe out 28”x18”. 2 in pipes coming in
3	7	-9605565.335	3810629.766	Enclosed	RCP	15"	1	Grated drop inlet. Small portion obstructed.
4	8	-9605858.599	3810709.368	Enclosed	RCP	15"	1	Curb inlet in parking lot
5	9	-9605813.166	3810689.073	Enclosed	RCP	8"	1	Curb inlet in street
6	10	-9606685.514	3811009.62	Enclosed	RCP	12"	1	Curb inlet in road
7	11	-9606706.385	3811020.163	Enclosed	RCP	12"	1	Curb inlet in road
8	12	-9606658.844	3810833.065	Enclosed	RCP	12"	1	Curb inlet in street draining tennis courts
9	13	-9606853.408	3811290.703	Enclosed	RCP	18"	1	Combo into in road
10	14	-9606838.474	3811347.984	Enclosed	Other (See Enclosed Material Comment)	12"	1	Petrified clay
11	15	-9606703.739	3811369.336	Enclosed	RCP	18"	1	Grated drop inlet on side of field
12	16	-9606450.653	3811648.849	Enclosed	RCP	18"	2	2 18” pipes out falling to culvert under road
13	17	-9606411.784	3811573.968	Enclosed	RCP	15"	1	Curb inlet in road
14	18	-9606295.883	3811621.603	Enclosed	HDPE	15"	1	Curb inlet in parking lot

Photo 1: View of outfall 5 in.

Photo 2: View of outfall 5 out.

Photo 3: View of outfall 6 in.

Photo 4: View of outfall 6 out.

Photo 5: View of outfall 7 in.

Photo 6: View of outfall 7 out.

Photo 7: View of outfall 8 in.

Photo 8: View of outfall 8 out.

Photo 9: View of outfall 9 in.

Photo 10: View of outfall 9 out.

Photo 11: View of outfall 10 in.

Photo 12: View of outfall 10 out.

Photo 13: View of outfall 11 in.

Photo 14: View of outfall 11 out.

Photo 15: View of outfall 12 in.

Photo 16: View of outfall 12 out.

Photo 17: View of outfall 13 in.

Photo 18: View of outfall 13 out.

Photo 19: View of outfall 14 in. Inlet is out of the picture below the steps.

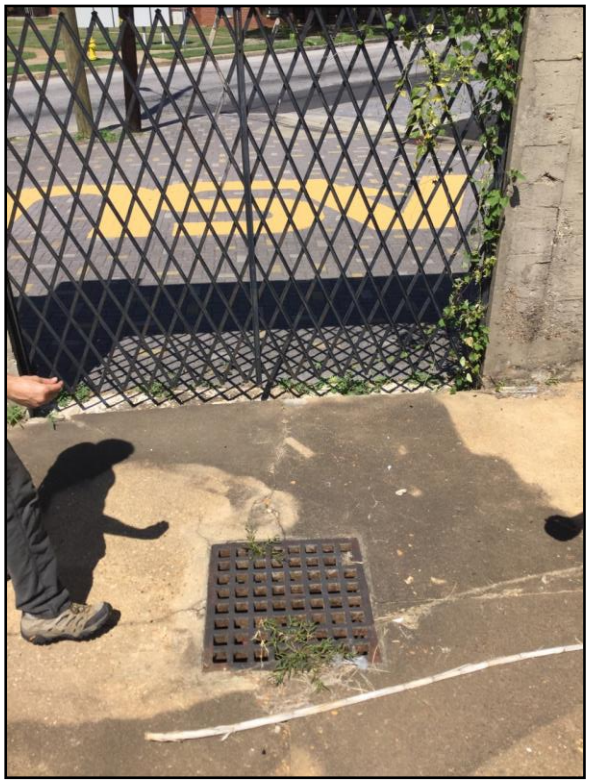


Photo 20: View of outfall 14 out.

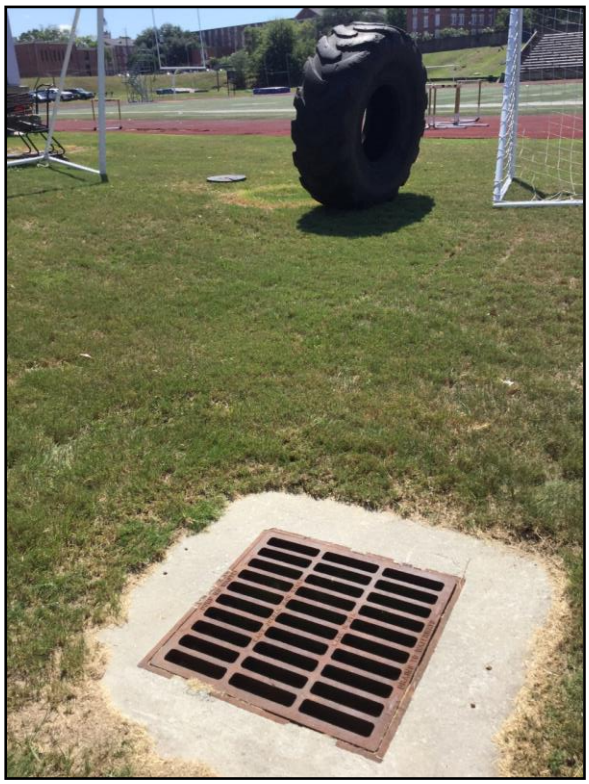


Photo 21: View of outfall 15 in.

Photo 22: View of outfall 15 out.

Photo 23: View of outfall 16 in.

Photo 24: View of outfall 16 out.

Photo 25: View of outfall 17 in.

Photo 26: View of outfall 17 out.

Photo 27: View of outfall 18 in.

Photo 28: View of outfall 18 out.

Appendix G – IDDE Awareness Training Material

Alabama State University Stormwater Management Program

Illicit Discharge Detection and Elimination (IDDE)

For our purposes, an illicit discharge is any runoff from the university that is not composed entirely of stormwater, unless authorized by regulation.

What to Look for:

- Draining water during dry periods. If it hasn't been raining, it shouldn't be draining.
- Runoff with unusual color (green, brown, orange, gray, yellow, red)
- Runoff with unusual odor (sewage, sour/rancid, sulfur, petroleum/fuel)
- Turbidity (cloudiness)
- Floatables (sewage/toilet paper, suds, oil sheen)

Illicit discharges may enter the storm sewer system through either direct connections such as wastewater piping, either mistakenly or deliberately connected to the storm drains. It may also enter through indirect connections, such as infiltration into the MS4 from cracked sanitary systems, leaks and spills collected by drain outlets, paint or used oil dumped directly into a drain, or water that is used to wash vehicles.

The result is untreated discharges that potentially contribute high levels of pollutants, including heavy metals, toxics, oil and grease, solvents, nutrients, viruses, and bacteria to receiving waterbodies. Pollutant levels from these illicit discharges have been shown in EPA studies to be high enough to significantly degrade receiving water quality and threaten aquatic, wildlife, and human health.

Potential Sources:

- Sanitary wastewater
- Paint and chemical leaks and spills
- Motor oil, gasoline, and coolants from leaking equipment and vehicles
- Improper disposal of motor oil, pesticides/herbicides, coolants, paints, cooking oils and grease
- Car wash wastewaters
- Cafeteria related wastewaters
- Laundry wastewaters

What to do:

- Be on the lookout for suspicious water draining at inappropriate times and places.
- Pay particular attention around ditches, creeks, inlets, and pipe outlets.

- If you notice potential illicit discharge, tell your supervisor.
- Supervisors, notify Mr. Donald Dotson immediately for follow up investigation.
- Mr. Donald Dotson will need the location, description, and date/time of discovery.

Alabama State University is a campus that values our environment, including our local bodies of water. The University is going to continue to take steps towards ensuring that our facilities and surrounding environments are upheld for future generations.

This information sheet is provided to University employees as a part of a series of training intended to increase awareness of ASU's Stormwater Management Program and its MS4 responsibilities. For more information regarding this topic, our obligations, or our program, please contact Mr. Donald Dotson.

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Appendix H – Sampling Plan and Results for Dissolved Oxygen and Organic Enrichment in Stormwater Discharge

Sampling Plan for Dissolved Oxygen and Organic Enrichment in Stormwater Discharge

As a requirement of Alabama State University's NPDES Phase II Municipal Separate Storm Sewer System (MS4) Permit, the University must demonstrate that its discharges do not cause or contribute to the impairment of an impaired water body.

Alabama State University's MS4 boundary is surrounded by the City of Montgomery's MS4. Stormwater flows from within the University's closed stormwater sewer system into the City of Montgomery's closed stormwater sewer system. The majority of ASU's runoff eventually drains into Catoma Creek via the City of Montgomery's MS4.

Catoma Creek was added to the State of Alabama's 303(d) list of impaired waters in 1996. Catoma Creek was impaired for Low Dissolved Oxygen (DO) and Organic Enrichment from non-point source (NPS) and MS4 pollutant loadings. The EPA approved a Total Maximum Daily Load (TMDL) for the impaired stream in 2005. ASU property makes up less than 0.07% of the total watershed of Catoma Creek.

A. Sampling Plan Objectives

This plan includes sampling of observed discharge from the University's stormwater system to establish whether or not the discharge contributes to the impairment of Catoma Creek via the City of Montgomery's MS4. This plan will become a part of the University's Stormwater Management Program Plan (SWMPP) and results will be documented in the next Annual Report.

This plan will address pollutants of concern related to the impairment of Catoma Creek, which are summarized below in Table 1.

Table 1: Pollutants of concern and parameters contributing to the impairment of Catoma Creek.

Pollutant of Concern	Parameter
Dissolved Oxygen (DO)	Levels Below 5 mg/l
Organic Enrichment	Ultimate Carbonaceous Biochemical Oxygen Demand ($CBOD_u$)
	Nitrogenous Biochemical Oxygen Demand (NBOD)

B. Sampling

1. Sampling Procedures

This plan includes sampling for DO, $CBOD_u$, and NBOD. All samples will be collected and analyzed in accordance with methods approved by the EPA under 40 CFR Part 136. This sampling method is located in The Standard Methods for the Examination of Water and Wastewater. In particular, this method is referred to as method 5210B-2011 and is known as the 5-day BOD test. The collection and analysis methods for each sampling parameter are summarized below in Table 2.

Table 2: Collection and analysis methods for each sampling parameter.

Sampling Parameter	Collection Method	Analysis Method
DO (mg/l)	Grab Sample	DO meter
$CBOD_u$ (mg/l)	Grab Sample	Laboratory Analysis
NBOD (mg/l)	Grab Sample	Laboratory Analysis

To ensure reliable results, the grab samples will be collected and analyzed using the following guidelines:

- Grab samples will be collected at the sampling location.
- A pole with a sampling container attached to the end, or other appropriate sampling apparatus, will be utilized to collect samples from the specified outfall location.
- DO will be measured on-site using a DO meter. The DO meter will be calibrated prior to the sampling event. Results will be recorded in the field on the sampling form (Appendix A) and reported in the annual report.
- Samples for laboratory analysis:
    - The lab will be contacted prior to collecting samples to ensure the samples can be analyzed within appropriate holding times.
    - Sample bottles will be labeled with location, date, time, sample collector, analysis, and preservative type.
    - The samples will be collected using 60 mL glass bottles provided by the analytical laboratory.
    - The samples will be placed in a cooler partially filled with ice to maintain a temperature of approximately 4°C until it is delivered to the lab. To ensure temperature compliance, a temperature blank will be included in the cooler along with the sample.
    - A completed chain-of-custody form will be enclosed in a resealable plastic bag inside the cooler.
    - Same-day or overnight delivery will be arranged for the samples to be transported to the lab.
    - Laboratory analysis will be performed in accordance with method 5210B-2011, specified in 40 CFR Part 136.

3. Sampling Location

Initial sampling will take place at one outfall located in the northwest corner of campus. This site was identified as the only potential source for runoff impairment. During dry weather screening, this was the only outfall where baseflow was observed. Flow during dry weather could indicate a potential source for cross connection with the sanitary sewer system, which could cause stormwater impairment.

No surface activities occur on campus that could be a potential source of pollutants in runoff. No spills have been identified and pets are not allowed on campus. The site is further described below in Table 3 and is depicted on a map in Figure 1.

Table 3: Sampling location and description.

Sampling Station Number	Outfall ID[1]	Location	Description	Latitude/Longitude
1	19	East of the football field	Grated drop inlet	32.364969°, -86.297584°

[1]Identified in the Stormwater Outfall Mapping and Screening Report.

Figure 1: Aerial view of the sampling location.

C. Sampling Frequency

Initial sampling will be conducted once during the Spring of 2021. Sampling frequency will be reevaluated if additional analysis is deemed necessary to achieve the objectives of this plan.

D. Records Retention

The progress and results of sampling will be reported each year in the SWMPP Annual Report. Records of all sampling will be retained for a minimum of three years after a sample is taken.

E. Responsibility

Alabama State University is solely responsible for the requirements of its NPDES permit for municipal discharges. The University's Facilities Management and Operations Department coordinates the work of consultants and contractors to achieve compliance in this area of the permit. Mr. Donald Dotson is currently managing the University's sampling effort. Mr. Dotson may be reached at:

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APPENDIX A:

Sampling Form

Alabama State University Stormwater Management Program
Dissolved Oxygen Sampling Form

Date/Time of Sample	Sample Location	Date/Time of Storm Event	Temperature	DO Reading	Sampled by	Notes

SAMPLING RESULTS

Alabama State University Stormwater Management Program
Dissolved Oxygen Sampling Form

Date of Sample	Time of Sample	Sampling Station	Temperature (°C)	DO Reading (mg/L)	Sampled by	Notes
4/6/2021	9:00 AM	1	19.1	9.45	AD	Temperature and DO measured using a YSI ProODO meter and probe

STILLBROOK

Environmental Testing Laboratory, Inc.

302 Crawford Street
Fairfield, AL 35064
Phone:(205)788-1750 Fax:(205)788-1747

Lab Invoice #: 44055

Invoice Date: April 12, 2021

V2787
Client: Volkert, Inc.
7110 University Court
Montgomery, AL 36117
U.S.A.

P.O. # and/or Project I.D.	Terms
ASU Montg 4/2/21	Net 30 Days

Quantity	Test #	Test Description	Unit Price	Subtotal
2	5210B	BOD-5day	$ 18.00	$ 36.00
2	5210BC	CBOD-5day	$ 18.00	$ 36.00
			Total	$ 72.00

Credit Card Payment Information

Name On Card _____

Billing Address _____

City _____

State _____ Zip Code _____

Card Type: MC Visa Amex Disc (Please Circle)

Card Number _____

Expiration Date _____

Security Code (If Needed) _____

Signature X _____

Please include invoice number on payment check.

Accounts Receivable Department

STILLBROOK

Environmental Testing Laboratory, Inc.
302 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Lab Invoice #: 44055

Client: Mr. Casey Nowell
Volkert, Inc.
7110 University Court
Montgomery, AL 36117

Date: April 12, 2021

Project Name: ASU
Project Number: N/A
Project Location: Montgomery
P.O. Number: N/A
Sample Matrix: Water
Sampled By: Casey Nowell
Date Collected: April 2, 2021
Test Method: "Standard Methods for the Examination of Water and Wastewater", 20th Edition.

WATER AND WASTEWATER ASSAYS

Lab I.D.: / **Field I.D.:**	108038 / #1	108039 / #2		Detection Limit/Units	Method Reference	Date Analyzed	Time Analyzed	Lab Analyst
PARAMETERS				D.L./UNITS	NUMBER	DATE	TIME	ANALYST
BOD-5day	BDL	1		1 mg/L	5210B	2 thru 7-Apr-21	1630	MD
CBOD-5day	BDL	BDL		1 mg/L	5210B	2 thru 7-Apr-21	1630	MD

Detection limit, practical
BDL=Below Detection Limit

Respectfully submitted,

John T. Brooks
President

ADEM Laboratory Certification I.D.# 40710

STILLBROOK

CHAIN OF CUSTODY

LAB INVOICE # 44055

Environmental Testing Laboratory, Inc.

SHIPPING #: _____

302 Crawford Street Fairfield, AL 35064 Phone: 205-788-1750 FAX: 205-788-1747

CLIENT: Volkert INC
205-515-5755
7110 University Court, Montgomery AL 36117

Contact: Phone:

Date Results Needed: Normal turn around time

Send Invoice to: Casey.Nowell@volkert.com

Special Instructions: 205-515-5755

☐ Phone Results to: _____ at _____

☐ FAX Results to: _____ at _____

SAMPLE IDENTIFICATION

PROJECT NAME: ASU

PROJECT LOC: Montgomery

PROJECT #: P.O. #:

SAMPLER: Casey Nowell SAMPLE DATE: 4-2

LAB I.D.	FIELD I.D.	MATRIX	DATE	TIME	# BTL	PARAMETERS: CBOD BOD
108038	#1	H_2O	4/2	1:30	1	✓
108039	#2	H_2O	4/2	2:00	1	✓

Indicate Preservative: Metals use HNO_3 Nitric Acid

BTEX use HCL Hydrochloric Acid + 0.008% Sodium Thiosulfate

Semi-Vol Organics or Coliforms/Fecal Strep use 0.008% Sodium Thiosulfate.

H_2SO_4 Sulfuric Acid Sulfide use Zinc Acetate

CN use NaOH Sodium Hydroxide &--if needed Ascorbic Acid

Indicate Sample Bottle Type: Glass Plastic VOC Vial

Sample Preservative & Container

4°C

HDPE

Special Note:

RELINQUISHED BY	DATE/TIME	*RECEIVED BY*
SIGNATURE: Casey Nowell	Date: 4/2/21	*SIGNATURE:*
PRINT NAME: Casey Nowell	Time(24hr) 1705	*PRINT NAME:* Mandy Dowdy

RELINQUISHED BY	DATE/TIME	*RECEIVED BY*
SIGNATURE:	Date:	*SIGNATURE:*
PRINT NAME:	Time(24hr)	*PRINT NAME:*

In the event of default on charges for above services, customer agrees to pay all costs of collection, including a reasonable attorney's fee.

Appendix I – Stormwater Awareness Survey

MEMO | VOLKERT

DATE: **May 26, 2021**
FROM: **Barry Fagan**
RE: **ASU Stormwater Awareness Survey Recommendations**

TO: **Donald Dotson**
CC: **Lehman Tucker**

Donald, as requested, we have developed a few survey questions that are intended to help with assessing the effectiveness of the ASU public education and public involvement efforts as a part of the University's Stormwater Management Program. These are for your evaluation, modification, and adoption. Survey information would need to be gathered from students, faculty, and staff at the beginning of the Fall, 2022 semester and again at the end of the semester. We are available to assist with additional planning for and coordinating survey data gathering if you need us.

Suggested survey language and questions:

ASU family member, we are interested in your knowledge of our efforts to protect local waterways. Please help us by answering the questions below and returning your results to_ (depends on survey format) _.

1. Which ASU community member type best fits you?
    a. Student
    b. Faculty/Staff
       Department _____
    c. Other _____

2. Were you aware before now that ASU has a stormwater management program that protects local waterways and satisfies regulatory requirements?
    a. Yes
    b. No

3. Have you noticed the storm drain markings on ASU's campus?
    a. Yes
    b. No

4. Did you know before now that stormwater runoff from ASU's campus drains directly into local waterways?
    a. Yes
    b. No

5. Did you know before now that it is illegal and against ASU policy to dump wastewater containing soap, paint, cleaning products, grease, oil or other pollutants into the streets or storm drains?
    a. Yes
    b. No

6. In the last year or so, have you seen or heard anything about ways that people can help prevent water pollution on campus? (e.g., campus events, handouts, flyers, signs, online content, campus announcements, classroom instruction, training material)
    a. Yes
    b. No

7. Did you know before now that you can report possible water pollution incidents, leaks, and spills directly to campus security?
    a. Yes
    b. No

On behalf of President Ross and the ASU Stormwater Management Program, we appreciate you taking time to help keep ASU clean and our local waters protected. To learn more about our stormwater program please visit https://www.alasu.edu/faculty-staff/physical-plant.

Get involved! Join the Earth Day Cleanup Event on April 22nd, organized by ASU's National Society of Black Engineers.

Donald Dotson
Vice President of Facilities Management & Operations
Alabama State University
915 South Jackson Street
Montgomery, AL 36104
334-229-6965 office
334-300-6784 mobile
ddotson@alasu.edu

Appendix J – Standard Operating Procedures for Pollution Prevention and Good Housekeeping

Pollution Prevention / Good Housekeeping

SOP: CATCH BASIN/INLET CLEANING AND MAINTENANCE

Purpose:
To establish catch basin/inlet cleaning and maintenance procedures to prevent sediments, organic matter, and litter from clogging in the storm drain system and minimize the transport of sediments and pollutants into receiving waterbodies.

Procedures:

1. Complete periodic inspections of storm sewer infrastructure.
2. Maintain a list of inlets and catch basins that are consistently problematic in order to provide more frequent maintenance or inform future infrastructure improvement planning.
3. Document the location of the structure and details of the cleaning operation for future reference.
4. Start cleaning drainage basins from the most upstream point and work downstream.
5. Visually inspect the structure for any signs of cracks, leaks, and structural integrity.
6. Clean sediment and debris from the inlet grate and riser.
7. The following methods can be used to clean the inside of an inlet:
    - Manually remove sediments using a shovel/other tools
    - Utilize mechanical equipment to remove debris by suction
    - Spray a high-pressure washer and capture the slurry with a vacuum
8. Properly dispose of all materials removed from inlets and catch basins.
9. If conditions such as the following are found in inlets and catch basins, preventative measures should be taken to identify the source of the illicit discharge and eliminate it:
    - Abnormal colored water or staining
    - Abnormal odors
    - Petroleum sheen or suds
    - Intentionally placed trash or debris
10. If contamination is suspected, contact the VP of Facilities Management & Operations immediately:

    Mr. Donald Dotson
    Vice President of Facilities Management & Operations
    Alabama State University
    915 South Jackson Street
    Montgomery, AL 36104
    334-229-6965 office
    334-300-6784 mobile
    ddotson@alasu.edu

Pollution Prevention / Good Housekeeping

SOP: GENERAL HOUSEKEEPING FOR CAMPUS FACILITIES

Purpose:
To establish procedures for maintaining clean and orderly campus facilities, including transportation, grounds, and buildings (painting, electrical, HVAC, plumbing, and crafts), to minimize the potential for pollutants to enter our stormwater system.

Procedures:

1. Perform routine straightening and cleaning of the facility.
2. Perform regular inspections of the facility for spills/leaks and ensure effective practices are implemented.
3. Properly label all containers.
4. Properly store materials in covered areas away from drains to prevent rain and runoff from washing leaks and spills into stormwater conveyances.
5. Store petroleum products, hazardous substances, and other liquids within secondary containment.
6. Store, apply, use, and dispose of hazardous materials, such as pesticides and paints, in accordance with the manufacturer's recommendations and labeling.
7. Maintain an inventory to ensure that all stored materials are accounted for and to minimize the amount being stored.
8. Purchase products in useable amounts to avoid long-term storage.
9. Ensure used cooking oil and motor oil are placed within appropriate pick-up containers for the University's oil recycling program.
10. Designate areas for vehicle and equipment maintenance, washing, and fueling.
11. Provide an adequate amount of trash receptacles and perform routine trash pick-up.
12. Regularly pick-up and dispose of litter and debris on campus.
13. Perform routine maintenance to clean stormwater inlets.
14. Conduct regular employee training to reinforce proper housekeeping.

Pollution Prevention / Good Housekeeping

SOP: PAINTING

Purpose:
To establish proper storage, handling, and disposal procedures for paint and paint-based products to prevent pollutants from entering into the storm sewer system.

Procedures:

1. Do not buy more paint than necessary and recycle or properly dispose of any extra paint.
2. Whenever possible, use less-toxic paints such as latex or water-based paints.
3. Store paints and waste paint products in covered containers.
4. Never dispose of paint or waste paint products into a drain or onto the ground.
5. Latex and water-based paint disposal:
    - All residual/leftover latex and water-based paint must be hardened or dried before disposal.
    - If paint cans are less than ¼ full:
        - Remove the lid and place the can in a covered, well ventilated area away from any drains and allow a few days for the paint to dry.
        - To speed up the process, stir in an absorbent material such as clay kitty litter, sawdust, or leftover concrete mix (optional).
    - If paint cans are more than ¼ full:
        - Add waste paint hardener to paint can (one packet or one cup generally treats up to one gallon of paint). Mulch, kitty litter, or shredded paper may also be used as a bulking/drying agent but will take longer to solidify paint.
        - Stir/mix thoroughly and set aside for at least 30 minutes.
        - Once paint is a tacky, oatmeal-like consistency and will not spill out, it is ready for disposal.
    - Once paint cans are dried, place cans and lids into a plastic trash bag with regular trash.
6. Oil-based paint disposal:
    - Empty oil-based paint cans may be disposed of with regular trash.
    - Any leftover oil-based paints must be disposed of as hazardous waste.
    - Empty aerosol cans, which held oil-based products, may be disposed of with regular trash.
    - If aerosol cans still contain oil-based product, they must be disposed of as hazardous waste.

Pollution Prevention / Good Housekeeping

SOP: PESTICIDES AND HERBICIDES

Purpose:
To establish proper storage, application, and disposal procedures for herbicides and pesticides to prevent contaminating stormwater.

Procedures:
Storage

1. Store all chemicals in accordance with the manufacturer's recommendations, the Alabama Department of Agriculture and Industries, and any local requirements.
2. Store all pesticide and herbicide containers in a covered area away from drains to prevent chemicals from washing into runoff and the storm sewer system.
3. Regularly inspect pesticide and herbicide containers and storage areas for leaks and spills.
4. Maintain an inventory to ensure that all stored materials are accounted for and to minimize the amount being stored.
5. Only order the amount needed to minimize excess materials requiring storage and disposal.
6. Always empty application equipment prior to storage. The occurrence of a spill or leak is much more likely in equipment rather than the recommended storage containers.

Application

1. Only use pesticides and herbicides when necessary.
2. Use manual/mechanical methods to control weeds and pests whenever possible rather than chemical methods.
3. Research and implement, if appropriate, alternative measures for weed and pest control such as Integrated Pest Management strategies, biorational insecticides (natural soaps and oils), or biological controls.
4. Never apply pesticides and herbicides prior, during, or directly after a rain event.
5. Only apply pesticides and herbicides in affected areas instead of general location application.
6. Only mix and handle pesticides and herbicides in areas that are contained, and immediately clean up any spills.
7. Inspect application equipment prior to use to ensure that no cracks or holes exist which could allow leakage.

Disposal

1. Only rinse equipment when necessary.
2. Use rinse water to dilute the next mix as long as application rates are not exceeded.
3. Prior to disposing of pesticide and herbicide containers, triple rinse the insides to remove excess residues.
4. If pesticides and herbicides need to be disposed of, follow manufacturer's direction, labeling and applicable regulation.

Pollution Prevention / Good Housekeeping

SOP: VEHICLE AND EQUIPMENT FUELING

Purpose:
To establish vehicle and equipment fueling procedures to prevent petroleum products from entering into the storm sewer system.

Procedures:

1. Fuel vehicles and equipment in designated areas (preferably covered) and ensure that these areas do not drain to stormwater conveyances.
2. Maintain fuel storage tanks in accordance with local, state and federal laws.
3. Keep fueling areas clean and take steps to prevent spills.
4. Have absorbent spill cleanup kits and materials available at fueling areas.
5. Ensure that spill containment provisions are in place and functioning properly.
6. Know the procedures for spill cleanup and notification.
7. Do not hose down fuel spills with water. Use dry cleanup methods such as a squeegee and absorbing materials.
8. Only use fueling hoses that have check valves to prevent spilling once filling has commenced.
9. Fuel carefully to minimize drips to the ground surface as much as possible.
10. Use drip pans during fueling to collect leaks whenever possible.
11. Do not top off or overfill fuel tanks.

Pollution Prevention / Good Housekeeping

SOP: VEHICLE AND EQUIPMENT MAINTENANCE

Purpose:
To establish vehicle and equipment maintenance procedures to prevent pollutants, such as petroleum products, coolants, fluids, and sediment caused by leaks, spills, and maintenance activities, from entering into the storm sewer system.

Procedures:

1. Regularly clean and maintain vehicles and equipment.
2. Regularly inspect vehicles and equipment for leaks and make repairs in a timely manner.
3. Place drip pans underneath leaking vehicles and equipment until leaks can be repaired.
4. Drip pans should be utilized when conducting maintenance work.
5. Only conduct maintenance or repair work in designated areas. Designated maintenance areas should never be located near storm drain inlets or stormwater conveyances.
6. Keep maintenance areas clean and take steps to prevent spills.
7. Ensure that spill containment provisions are in place and functioning properly.
8. Know the procedures for spill cleanup and notification.
9. Do not hose down spills with water. Use dry cleanup methods such as squeegee, dust pans, sweeping, and absorbing materials.
10. Sweep floors instead of using water when possible to minimize pollutant transport.
11. Know procedures for vehicle and equipment fueling.
12. Recycle waste fluids when possible.
13. Properly label all containers of new and used materials.
14. Use containment pallets for stored fluids and used batteries awaiting recycling or disposal.
15. Used motor oil should be placed in recycling containers for pick-up.
16. Purchase chemicals on an as-needed basis and properly dispose of or recycle unused materials.
17. Dispose of solvents per manufacturer’s directions.
18. Know procedures for vehicle and equipment washing.

Pollution Prevention / Good Housekeeping

SOP: VEHICLE AND EQUIPMENT WASHING

Purpose:
To establish vehicle and equipment washing procedures to prevent pollutants, including wash water, from entering into the storm sewer system.

Procedures:

1. Inspect vehicles and equipment for leaks prior to washing.
2. Only wash vehicles and equipment in designated areas. Designated wash areas should be located where wash water will drain into the sanitary sewer or on gravel, grass, or other permeable surfaces.
3. Never wash vehicles or equipment over a storm drain inlet.
4. Keep designated wash areas clean.
5. Use commercial car washes for light-duty vehicles.
6. Properly label all containers of new and used materials.
7. Purchase environmentally friendly cleaning products when available.
8. Dispose of solvents per manufacturer's directions.
9. Avoid cleaning the vehicle chassis and undercarriage when possible.

Appendix K – Facilities Staff Training Material

Alabama State University Stormwater Management Program

Catch Basin/Inlet Cleaning and Maintenance

Alabama State University's storm sewer infrastructure is the means by which urban stormwater moves within and away from the campus. Our storm sewer system helps us to minimize local flooding, erosion and other potential negative impacts to the affected built and natural environments.

Stormwater runoff can carry suspended solids that first enter our storm sewer infrastructure before reaching our local streams. Our inlets and catch basins may be our first line of defense in preventing certain pollutants from reaching our watershed. Proper maintenance of these structures can help to minimize pollution of our streams and can ensure that these systems function properly.

Catch Basin/Inlet Maintenance Good Practices:

- Complete periodic inspections of storm sewer infrastructure.
- Maintain a list of inlets and catch basins that are consistently problematic in order to provide more frequent maintenance or inform future infrastructure improvement planning.
- Research and communicate the proper disposal of debris collected in inlets and catch basins to employees prior to routine maintenance.
- Litter pick-up and street sweeping at regular intervals can help to prevent some pollutants from entering the storm sewer system.
- Educational markings on storm drains helps to minimize intentional improper debris and pollutant disposal.

Catch Basin/Inlet Cleaning Procedures:

- Start cleaning drainage basins from the most upstream point and work downstream.
- Visually inspect the structure for any signs of cracks, leaks, and structural integrity.
- Document the location of the structure and details of the cleaning operation for future reference.
- Clean sediment and debris from the inlet grate.
- Several methods exist to clean the inside of an inlet:
    - Manually removing sediments using a shovel/other tools and using mechanical equipment to remove debris by suction.
    - Spraying a high-pressure washer and capturing the slurry with a vacuum
- Ensure that all other material removed from inlets and drainage basins is disposed of properly.
- If conditions such as the following are found in inlets and catch basins, preventative measures should be taken to identify the source of the illicit discharge and eliminate it.

  - Abnormal colored water or staining
  - Abnormal odors
  - Petroleum Sheen or suds
  - Intentionally placed trash or debris
- If contamination is suspected, Mr. Donald Dotson should be contacted immediately at the numbers below.

Alabama State University is a campus that values our environment, including our local bodies of water. The University is going to continue to take steps towards ensuring that our facilities and surrounding environments are upheld for future generations.

This information sheet is provided to University employees as a part of a series of training intended to increase awareness of ASU's Stormwater Management Program and its MS4 responsibilities. For more information regarding this topic, our obligations, or our program, please contact Mr. Donald Dotson.

Mr. Donald Dotson
Vice President of Facilities Management & Operations
Alabama State University
915 South Jackson Street
Montgomery, AL 36104
334-229-6965 office
334-300-6784 mobile
ddotson@alasu.edu

Alabama State University Stormwater Management Program

Debris Removal and Non-Hazardous Waste Pickup

Alabama State University picks up and disposes of campus trash and vegetated debris, which protects our stormwater infrastructure and the quality of local waterways. Debris, if left unmanaged, can clog storm sewers causing flooding and also harm receiving waters and aquatic species by the addition of nutrients. In some cases, improper disposal can present a threat to human health. By being aware of the potential consequences of unmanaged debris, we can help preserve both the built and the natural environment.

What are potentially hazardous wastes?

Some leftover household products can catch fire, react, or explode under certain circumstances, and could be corrosive or toxic. We consider these to be hazardous wastes. Products, such as paints, cleaners, oils, batteries, and pesticides can contain hazardous ingredients and require special care when being disposed of.

What can I do?

- Be prepared to manage increased volumes of certain items based on the season – leaves and tailgating litter in the fall and landscaping debris in the spring.
- Educate students and University staff on proper disposal procedures and promote a litter-free campus.
- Ensure cooking oil and motor oil are disposed of properly – pick-up by recycling companies.
- Be wary of unlabeled containers. Know what's in the bottle.
- Make sure pickup is complete. Even small amounts of litter and debris, if left on campus to wash into storm drains, can cause clogging and water quality issues.
- Improve the process – if you know of ways we can be more efficient or more effective in protecting our campus, speak up.

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Alabama State University Stormwater Management Program

General Housekeeping and Storage of Materials

Good Housekeeping and Storage of Materials in terms of our MS4 permit addresses potential pollution from University facility services including transportation, grounds, and facilities (painting, electrical, HVAC, plumbing, and crafts.). Sources such as equipment maintenance, washing, fueling, equipment storage, and chemical storage can cause pollutants to be discharged into our stormwater system. We are responsible for managing the cleanliness and organization of our facilities and are directly responsible for what pollutants are discharged into our stormwater runoff.

By keeping clean and orderly facility services, we can minimize the potential for pollutants to reach our waterways during rain events. The table below provides best practices that may be employed as part of our program. Regular inspection of University's facility services is necessary to ensure effective practices are implemented.

Materials Storage	store petroleum products, hazardous substances, and other liquids within secondary containment, store materials in covered areas away from drains to prevent rain and runoff from washing leaks and spills into stormwater conveyances, properly store toxic chemicals including pesticides and paints according to the manufacturer's guidelines
Storage Facilities	label all containers, purchase products in useable amounts to avoid long-term storage, keep facilities neat and orderly, cover areas where garbage and waste products are stored
Disposal Procedures and Good Practices	properly dispose of toxic chemicals including pesticides and paints, ensure cooking oil and motor oil are placed within appropriate pick-up containers for the University's oil recycling program, provide necessary waste containers and place in easily accessible locations
Vehicle and Equipment Maintenance	designate areas for vehicle washing that will drain to sanitary sewer or on pervious surfaces, vehicle maintenance areas should be covered, vehicles should be inspected for leaks
Good Housekeeping	provide an adequate amount of trash receptacles and perform routine trash pick-up, pick-up and dispose of litter and debris on campus, perform routine maintenance to clean stormwater inlets

Alabama State University is a campus that values our environment, including our local bodies of water. The University is going to continue to take steps towards ensuring that our facilities and surrounding environments are upheld for future generations.

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Alabama State University Stormwater Management Program

Hazardous Materials

Many of the biological, chemical, and physical materials that are crucial for our day to day operations are considered hazardous materials. Unfortunately, when hazardous materials are not managed properly they sometimes end up in our natural environment. They can sometimes be extremely harmful to surrounding ecosystems as well as our human health. One of the most common ways for hazardous waste to enter our environment is through stormwater runoff. Even a small volume of hazardous material released into the environment can contaminate hundreds of thousands of gallons of receiving waters.

What are potential sources of hazardous materials?

The Environmental Protection Agency (EPA) has defined liquids, discarded gaseous materials, and solids as hazardous if they are toxic, flammable, corrosive, or chemically reactive above specific safety thresholds. Sources of hazardous waste can be from operational facilities that handle solid and liquid wastes and chemicals such as motor oils, gasoline, fertilizers, antifreeze, paints, cooking oils and grease, and many others. Any liquid or solid materials that exhibit hazardous characteristics such as ignitability or toxicity must be handled and disposed of properly.

Hazardous material handling and storage best practices:

- Provide cover, grade surfaces, and disconnect storm drains where hazardous materials are going to be stored in a way that prevents rain and runoff from washing leaks and spills into stormwater conveyances.
- Provide secondary containment for all stored materials and elevate materials to help identify and manage leaks and spills.
- Clearly label all storage containers with the name of the chemical, expiration date, and handling instructions.
- Inspect containers for any sign of leakage or failure to contain the material on a regular basis and especially prior to any movement of containers.
- Do not hose down spills with water. Use dry cleanup methods such as squeegee, dust pans, sweeping, and absorbing materials.

Paint handling best practices:

- Do not buy more paint than necessary and recycle or properly dispose of any extra paint.
- Never pour paint into a drain or onto the ground.

Latex and water-based paint disposal:

- All residual/leftover latex and water-based paint must be hardened or dried before disposal.
- If paint cans are less than ¼ full:
    - Remove the lid and place the can in a covered, well ventilated area away from any drains and allow a few days for the paint to dry.
    - To speed up the process, stir in an absorbent material such as clay kitty litter, sawdust, or leftover concrete mix (optional).
- If paint cans are more than ¼ full:
    - Add waste paint hardener to paint can (one packet or one cup generally treats up to one gallon of paint). Mulch, kitty litter, or shredded paper may also be used as a bulking/drying agent but will take longer to solidify paint.
    - Stir/mix thoroughly and set aside for at least 30 minutes.
    - Once paint is a tacky, oatmeal-like consistency and will not spill out, it is ready for disposal.
- Once paint cans are dried, place cans and lids into a plastic trash bag with regular trash.

Oil-based paint disposal:

- Empty paint cans may be disposed of with regular trash.
- Any leftover oil-based paints must be disposed of at a hazardous waste facility.
- Empty aerosol cans which held oil-based products may be disposed of with regular trash.
- If aerosol cans still contain product, they also must be disposed of as hazardous waste.

Vehicle and equipment maintenance best practices:

- Dispose of old oils, grease, and other hazardous materials immediately after extracting them from vehicles and machinery. Leaving containers open and sitting around the shop poses an unnecessary rick of spills.
- Motor oil should be placed in recycling containers for pick-up.
- Fuel vehicles in designated areas that are covered and ensure that these areas do not drain to stormwater conveyances.
- Only use fueling hoses that have check valves to prevent spilling once filling has commenced.
- Maintain fuel storage tanks in accordance with local, state, and federal laws.
- Have absorbent spill cleanup kits and materials available at fueling areas.

Alabama State University is a campus that values our environment, including our local bodies of water. The University is going to continue to take steps towards ensuring that our facilities and surrounding environments are upheld for future generations.

This information sheet is provided to University employees as a part of a series of training intended to increase awareness of ASU's Stormwater Management Program and its MS4 responsibilities. For more information regarding this topic, our obligations, or our program, please contact Mr. Donald Dotson.

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Alabama State University
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Montgomery, AL 36104
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334-300-6784 mobile
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Alabama State University Stormwater Management Program

Pesticides and Herbicides

Pesticides and herbicides can be extremely harmful to our waters and to our environment if we fail to manage and handle them properly. Although pesticides and herbicides are beneficial in the sense of controlling insects and weeds, they have a potential negative impact on every other organism that they come in contact with. It is easy to become complacent in how we manage these potentially toxic chemicals but following a few simple procedures can help us prevent unintended negative impacts of pesticides and herbicides.

Storage Procedures:

1. Ensure that all chemicals are being stored in accordance with the manufacturer's recommendations, the Alabama Department of Agriculture and Industries, and any local requirements.
2. Keep all herbicide and pesticide containers stored in a covered area and away from drains to prevent chemicals from washing into runoff and the storm sewer system.
3. Complete regular inspections of pesticide and herbicide storage containers to ensure that no leaks are occurring and that all manufacturers storage procedures are being followed.
4. Maintain an inventory to ensure that all stored materials are accounted for and to minimize the amount being stored.
5. Always empty application equipment prior to storage. The occurrence of a spill or leak is much more likely in equipment rather than the recommended storage containers.

Application Procedures:

1. Research and implement alternative measures to control weeds and pests such as Integrated Pest Management strategies, biorational insecticides (natural soaps and oils) or biological controls.
2. Never apply pesticides and herbicides prior, during, or directly after a rain event.
3. Only apply pesticides and herbicides in affected areas instead of general location application.
4. Only mix and handle pesticides and herbicides in areas that are contained, and immediately clean up any spills.
5. Inspect application equipment prior to use to ensure that no cracks or holes exist which could allow leakage.

Disposal Procedures:

1. Rinse equipment only when necessary.
2. Prior to disposing of pesticide and herbicide containers rinse the insides to remove excess residues.
3. Use rinse water to dilute the next mix as long as application rates are not exceeded.
4. If pesticides and herbicides need to be disposed of, treat them as hazardous waste.

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This information sheet is provided to University employees as a part of a series of training intended to increase awareness of ASU's Stormwater Management Program and its MS4 responsibilities. For more information regarding this topic, our obligations, or our program, please contact Mr. Donald Dotson.

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Alabama State University Stormwater Management Program

General Stormwater Awareness

In order to fully understand how to manage stormwater to the greatest extent, it is important to build a solid foundation for understanding how it functions in the environment. Starting at square one, stormwater originates from droplets of water that have condensed from water vapor. The droplets eventually condense to a certain size that become too heavy to stay suspended in the atmosphere. The gravitational force of the earth pulls the water droplets out of the sky, which is commonly known as rain. As rainwater lands on the surface of the earth it becomes surface water. As gravity continues to work, surface water finds its way downhill until it can either infiltrate into the ground or collect in larger bodies of water where it will eventually evaporate back into the atmosphere.

Due to the natural population growth occurring in the United States, the rapid conversion of land to urban settings has had a major impact on the state of stormwater in the U.S. With the increase of urban areas that are not able to drain stormwater as efficiently as natural land, the increase in stormwater flows puts a higher volume of water and more pollutants into our lakes, rivers, and estuaries. As runoff increases, so does the occurrence of erosion and sediment deposition in our waterways, the likelihood of creating pollutant and litter laden drainageways, as well as the risk of flooding in our communities. These changes have degraded water quality and habitat in almost every body of water in the U.S. Without proactive measures, the state of stormwater in the United States will only degrade further.

In 1948, the Federal Water Pollution Control Act was enacted and would end up being the basis for regulating discharges of pollutants in the waters of the United States. In 1972, the Clean Water Act reorganized and significantly expanded the original act to require permits for discharges as well as setting standards for water quality. Actions such as this as well as proactive thinking by all of us on staff here at Alabama State University will effectively help improve the overall quality of our watersheds.

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Vehicle and Equipment Maintenance

Dirty or leaking equipment and vehicles can deposit oil, grit, coolants and other pollutants onto the ground. These pollutants can contaminate the ground and/or be carried by stormwater runoff to pollute our local streams. Spills may also occur during fueling or other maintenance activities. Proper maintenance and related management of spills, leaks, and wastes can ensure that the quality of receiving waters is protected and that ASU remains in compliance with all related laws and regulations.

What Can I Do?

- Regularly clean and maintain vehicles and equipment. Inspect for leaks and make repairs in a timely manner.
- Use drip pans until leaks can be repaired and during maintenance activities.
- Only conduct maintenance or repair work in designated areas. This includes vehicle washing.
- Ensure that spill containment provisions are in place and functioning properly.
- Keep servicing and wash areas clean and take steps to prevent spills.
- Know the procedures for spill cleanup and notification.
- Sweep floors instead of using water when possible to minimize pollutant transport.
- Use commercial car washes for light-duty vehicles.
- Do not overfill fuel tanks.
- Know emergency procedures for fueling operations.
- Recycle waste fluids when possible.
- Use containment pallets for stored fluids and used batteries awaiting recycling or disposal.
- Purchase chemicals on an as-needed basis and properly dispose of or recycle unused materials.
- Purchase environmentally friendly cleaning products when available.
- Dispose of solvents per manufacturer’s directions.
- Label all containers of new and used materials.

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What is an MS4?

MS4 stands for Municipal Separate Storm Sewer System. The term generally describes the storm drainage system for a public entity. Public universities must develop a stormwater management program to address the potential for pollutants trying to enter and leave the MS4.

In order to better protect our waters and to satisfy our regulatory responsibilities associated with our MS4, Alabama State University has developed a program and a plan for its implementation.

Our stormwater program focuses on five elements that, when implemented together, will help keep local waterways clean and healthy. The five elements are:

1. Public education/public involvement,
2. Illicit discharge detection and elimination,
3. Construction site storm water runoff control,
4. Post-construction storm water management, and
5. Pollution prevention/good housekeeping for municipal operations.

What can I do?

- Read over the goals of the Alabama State University Stormwater Management Program to see how you can help.
- If you see a potential water quality threat, call campus security and Mr. Donald Dotson.
- Help others to document your water quality-related work - let Mr. Donald Dotson know when we do good things for our environment.
- Be a positive example – properly dispose of used oil and other chemicals, don't litter (includes cigarette butts and trash in your truck bed).
- Help to educate others about the potential impacts of stormwater runoff and the quality of water in local waterways.
- Keep in mind that faculty, staff, students, and visitors all have the potential to positively and negatively impact water quality.

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