



MUNICIPAL SEPARATE STORM SEWER SYSTEM

ANNUAL REPORT 2022

PERMIT NUMBER 85-03-0-04

PREPARED BY THE DEPARTMENT OF
ENVIRONMENTAL HEALTH AND SAFETY
WITH ASSISTANCE FROM FACILITIES
PLANNING AND MAINTENANCE

Introduction

The 2022 Annual Storm Water Report for Iowa State University (ISU) was prepared by Environmental Health and Safety (EH&S) in accordance with Part III of the facility's Municipal Separate Storm Water System (MS4) permit, number 85-03-0-04. This report summarizes storm water compliance activities within the boundaries of ISU, including Central Campus, North Campus, South Campus, Applied Science Center, Arboretum and Southwest Athletics Complex and the Tower Residence Area.

General Information

ISU was issued a National Pollutant Discharge Elimination System (NPDES) permit on February 6, 2004. The permit was renewed in 2009, 2014, and 2019. The current permit expires on January 31, 2024.

Status of implementing the components of the National Discharge Elimination System Permit

A. Public Education and Outreach

- General Storm Water Education Fact Sheet: Iowa State's stormwater webpage leads off with a fact sheet discussing the importance of keeping our waterways clean, and how it impacts the university and its response to incidents should they arise.
- Storm Water Pollution Prevention Web Page: The website, as mentioned above, can be found at www.ehs.iastate.edu/services/environmental/stormwater. EH&S maintains this site annually and makes changes and/or updates when needed. It includes links to topics ranging from previous annual reports, examples of Iowa State's Best Management Practices (BMPs), and forms and links pertaining to storm water management.



Stormwater Pollution Prevention training module via Learn@ISU

- Training: EH&S put together a training module, which provides trainees background knowledge on spill prevention, and what to do if there is a release. The training module is available to all faculty and staff.

B. Public Involvement and Participation



24-hour Stormwater Hotline:
515-294-7229



- Storm Water Hotline: Iowa State maintains a 24-hour storm water pollution prevention hotline for the public to report suspected storm water pollution activities. No calls were received during 2022. The number is 515-294-7229.

- Storm Water Management Team: Due to staff turnover and training, the storm water management team did not meet during this reporting year. The group will reconvene once each semester in the future.

- Public Notice Requirements: For each construction permit, a Notice of Intent was completed which including a Public Notice to the Iowa State Daily or the Ames Tribune (using DNR Form 542-

8117). Copies of public notices are retained for three years.

C. Illicit Discharge Detection and Elimination

- Illicit Discharge Prohibition Policy Statement: This statement is available at www.ehs.iastate.edu/publications/policies/swpolicy.pdf
- Illicit Discharge Detection and Elimination Program: Iowa State did not have an illicit discharge in 2022. The program is run by Iowa State Utilities and documentation is held at the Power Plant.

D. Construction Site Storm Water Runoff Control

- Construction Site Runoff Control Policy Statement: This statement is available at <http://www.ehs.iastate.edu/publications/policies/swpolicy.pdf>
- Standard Operating Procedures (SOPs) for NPDES Construction Permits: EH&S and Facilities Planning and Management (FP&M) worked together to establish SOPs for obtaining and operating a NPDES construction permit. Those SOPs can be found here: http://www.ehs.iastate.edu/sites/default/files/uploads/publications/reports/ISU_SOP_For_Development_Of_NPDES_Construction_Permits.201905.pdf. EH&S has a helpful flow chart for the process as well, which is referenced in Attachment 1.
- Construction Site Inspection Program: EH&S completed 216 inspections in 2022 at nine construction sites covering a total of 45 acres. A draft of the inspection form can be found in Attachment 2.
- Pollution Prevention Plan Review Procedures: In addition to the storm water construction permit flow chart ISU developed to accompany the SOPs, each capital project includes contract language that requires compliance with good engineering practices for storm water management and a template for on-site best management practices for sediment and erosion control. This can be found in the SOP document referenced above.

E. Post-Construction Storm Water Management

- Construction Site Runoff Control Policy Statement: Iowa State University acknowledges the importance of post-construction site runoff control after construction activities have been completed. Storm water quality and quantity shall be considered in the design of new construction and best management practices shall be implemented when practicable. Design considerations shall promote the use of storm water detention and retention, grass swales, bioretention swales,

riparian buffers and proper operation and maintenance of these facilities.

- **Site Plan Review Procedures:** Iowa State EH&S and FP&M work together through the length of the project to best address BMPs and storm water concerns with the contractor. At the conclusion of the project, FP&M closely monitors the site until at least 70 percent of the vegetation has grown. Following area stabilization, the construction permit is closed within the required timeframe. Reference the flow chart in Attachment 1 for more details.
- **Re-pavement and Storm Water Repair Retrofit Evaluation Program:** FP&M maintains the grounds post-construction. Any BMPs or additional work that needs to be completed to help maintain erosion control is handled by its staff.

F. Pollution Prevention/Good Housekeeping

- **Educational Programs for ISU Staff:** EH&S trained 59 employees with storm water management responsibilities during the calendar year 2022, which took place in online learning courses. The EH&S storm water web page was viewed 823 times. ISU has in place a hazardous waste disposal program, which is managed through the EH&S website. Labs across campus submit requests through the webpage and waste is picked up, handled, and properly disposed of following local, state, and federal regulations. EH&S requires all lab personal and custodial staff to take waste disposal training through the website. 542 individuals were trained in 2022. Additionally, five full-time EH&S employees were trained to become certified Storm Water Pollution Prevention Plan (SWPPP) inspectors.
- **Pesticide and Fertilizer Maintenance Program:** ISU employs 23 certified pesticide applicators, trains them in integrative pest management strategies, and monitors fertilizer and pesticide applications on campus.



Programs across campus include:

Reiman Gardens

Reiman Gardens has committed to practicing sustainable principles for chemical application and supplemental watering. These practices are dependent on specific environmental conditions and pest/weed pressures.

Iowa State Athletics Department

ISU Athletics manages landscape and turf grasses using sustainable environmental practices including water conservation and timely fertilizer/pesticide applications. The annual priorities of minimizing chemical application while treating target areas continues to be a goal. Providing for safety of student athletes is forefront while developing playable conditions for Big 12 Conference athletic events and band activities. ISU Athletics also participates in a recycling program after each sporting event.

Veenker Golf Course

Veenker Golf Course continues to incorporate sustainable philosophies. Golf course staff have implemented best management practices of advanced environmental conservation. The best management practices include lowering application rates of herbicide/pesticides/fungicides, selection of improved disease-resistance cultivars, elimination and reduction of irrigation, establishment of low maintenance areas with wildflowers, fescues, buffalo grasses, and establishment of natural areas.

- Street and Parking Lot Sweeping Program: In 2022, Iowa State University collected 66 tons of sweepings from 45 miles of streets, sidewalks, and bike paths, and 178 acres of parking lots.
- Inspection and Maintenance Program: Since 2013, ISU staff have visually inspected the entire system, concluding the five-year inspection process with just over 500 inspections completed in calendar year 2022. Additionally, ISU Utilities staff televiser lines where needed to verify cleaning or to investigate sewer backups. ISU Utilities employs a facilities management program (FAMIS 360) to store all maintenance records, including dates, location of maintenance, assigned staff, descriptions of repairs and maintenance, cleaning, associated cost, and materials. FAMIS 360 works well to capture metrics and document maintenance and repair

activities.

Iowa State inspects each manhole once every five years. Utility crews systematically inspect the MS4 system based on campus map grid sheets. The data is kept on paper forms recording manhole number, date, person inspecting, method of inspection, and observation. The paper forms are scanned and maintained in electronic format. This combination of systematic inspections and digitized record keeping ensures that ISU Utilities satisfies MS4 permit requirements.

Summary of the Data and Narrative on Storm Water Quality Improvements

Iowa State University has continued storm water improvement programs to help keep trash and debris from polluting local streams. Its Storm Water Management program ensures controls are in place, staff are trained, and activities supported which prevent and minimize negative water quality impacts.

Spill Response

The program's responses to spills which have the potential of polluting the waterways were highlighted in July when a contractor on campus had a diesel spill run into a nearby drainage ditch.

Iowa State University Environmental Health and Safety Staff (ISU EH&S)



Left: EcoSolutions collects diesel-impacted soil and organic material from drainage ditch near Iowa State Center. **Right:** Sphagsorb sets in drainage ditch after excavation.

received notice at approximated 12:30 p.m. on July 11, 2022, that a diesel spill occurred at a parking lot construction site located west of Stephens Auditorium at the Iowa State Center. EH&S staff responded and verified a contractor's diesel tank had released an unknown amount of diesel fuel. EH&S staff realized the release had impacted soil and flowed into a storm drain and reported the spill event to the Iowa Department of Natural Resources Emergency Spill Reporting phone number. Later in the evening on July 11, at 6:31 p.m. EcoSource, LLC responded to the spill site by request of the responsible party.

EcoSource spent five days cleaning up the drainage ditch down to the concrete. It filled eight roll-off containers of contaminated soil, three drums of oil-contaminated debris, and approximately 14,000 gallons of diesel impacted water for disposal.



Town Engineering Dock Cleanup and Improvement

Iowa State EH&S staff responded to an incident at Town

Engineering Building on campus on June 21, 2022, when dry concrete bags on a pallet were observed leaking after a rainstorm. The runoff went to a nearby storm drain, where a larger blockage was discovered.

Without access to a roll-off container, concrete waste had been dumped off the back dock and onto the cement ground, where a loader would come take

it away periodically. This unknowingly accumulated over a period of time within the storm drain. Upon observation, the concrete did not make it to the storm water sewer but had settled in the spot under the drain on the dock. EH&S, Iowa State FP&M, and an independent contractor worked through the next day to get the drain vacuum pumped and cleaned out and the dock returned to a workable state. New practices have been put in place along with a stationary roll-off dedicated to concrete waste management.

Estimate of Previous Fiscal Year Expenditures for Implementation of the Management Program and the Budget for the Current Year



The field at Jack Trice Stadium before Iowa State turfgrass management team installs new sod. The turf replacement was one of Iowa State's permitted projects in 2022.

- EH&S dedicated ½ fulltime equivalent (FTE) staff time to storm water activities, which included regular inspections of all permitted construction sites. EH&S conducted 216 weekly site inspections in 2022 at a total expenditure to permitted projects of \$64,840.
- EH&S staff maintained the storm water website, managed quarterly storm water hotline advertisements in the newspaper, attended storm water training, and developed ISU staff training programs, at an estimated expenditure of

\$45,000 in salary and benefits.

- Construction of new storm water management projects and design fees, including seeding/ sodding, associated with capital site, parking, and building projects estimated at \$1,220,750.
- FP&M expenditures associated with storm water project design/best management practices, project support, implementation, maintenance, MS4 televising and cleaning, and seeding/sodding were approximately \$754,000.
- FP&M maintains 45 lane miles of paved institutional roads, 15 lane miles of gravel roads, 178 acres of parking lots, and 51 miles of sidewalks and bike paths throughout campus. To ensure safe passage of all vehicles, sweeping of pedestrian and cyclist roadways, parking lots, and bike paths resulted in an expenditure of \$53,532.
- Total estimated expenditures for 2022 is \$2,138,122.

Summary Describing the Number and Nature of Inspections, Enforcement Actions and Public Education Programs During the Reporting Year

IDNR Inspections

- Iowa State had no construction site regulatory enforcement actions during the last reporting period.

Permitted Site Inspections by ISU Staff

- 216 inspections were conducted by Environmental Health and Safety in 2022 on all Iowa State University construction sites requiring a National Pollutant Discharge Elimination System General Permit Number 2. The inspections evaluated contractor compliance with BMPs as described on the site-specific Storm Water Pollution Prevention Plan (SWPPP). EH&S and FP&M staff coordinated mitigation efforts with site contractors when deficiencies were noted. The status of these permits is summarized in Table 1. A campus map with 2022's permitted sites can be found in Attachment 3.

Public Education Programs

- Iowa State runs programs throughout the year to help educate faculty, staff and students, as well as the general public, on sustainability and the importance of keeping our planet and environment clean. Here are a few of the projects



and programs Iowa State and its partners put on in the past year:

College Creek Cleanup

- In recognition of National Rivers Month in June, the Live Green! Initiative and Keep Iowa State Beautiful teamed up with Facilities Planning and Management for the annual cleanup (pictured above). College Creek is

the main waterway found throughout campus, often becoming ground zero for numerous pounds of trash. In an effort to keep this waterway clean, volunteers from both campus (students, faculty and staff) and the Ames community walk the creek and its surrounding banks, filling bags of trash along the way. This event brings together individuals from all walks of life, melding an environmentally minded activity into a socially worthwhile volunteer opportunity.

Events and speakers

- The Office of Sustainability at Iowa State also hosts numerous events throughout the Fall and Spring semesters

for public awareness on topics ranging from keeping our waterways clean, to living a sustainable life, and ways to reduce waste. This is highlighted by its annual Sustainapalooza event each February.

The department's Live Green!

Initiative hosts lecturers throughout the year on topics of sustainability.

Jennifer Cherrier, PhD and professor at Brooklyn College-The City

University of New York, was in town this past November in an event open

to the public on campus. Cherrier shared information about her

research work and expertise related

water resource sustainability and nature-based approaches for offsetting urban flooding, as well as human impacts on

marine and freshwater systems.



Table 1

<u>Facility</u>	<u>Permit</u>	<u>Status</u>
Kent Feed Mill and Grain Science Complex	IA-38275-37912	Active
Vet Diagnostic Laboratory Facility	IA-38778-38409	Active
ISU Jack Trice Stadium Turf Replacement Project	IA-40734-40352	Closed (7-21-22)
ISU Johnny Majors Practice Field Expansion Project	IA-40712-40330	Closed (7-21-22)
Parking Lot G7 – ISU RV Parking Project	IA-40710-40328	Closed (8-3-22)
Parking Lots B1 & F Resurfacing and Expansion	IA-40711-40329	Closed (10-7-22)
RCA Pavement Preservation Phase 2	IA-39064-38690	Closed (10-7-22)
Therkildsen Engineering Building, Parking Lot 1 Expansion and Sheldon Ave	IA-41677-41305	Active
Therkildsen Engineering Building	IA-42111-41739	Active

Attachment 1



Attachment 2

Iowa State University

Department of Environmental Health and Safety

Stormwater Construction Site Inspection Report

Project Name:	Inspection Date/Time:	NPDES GP#2 Authorization Number:
Project Location:		Weather/Temperature/Rainfall:

Current activity onsite?

Best Management Practice (BMP)	Implemented	Maintained	Not Applicable	Comments:
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Sediment Control Practices

Are perimeter controls properly maintained?				
Is there evidence of offsite tracking onto pavement?				
Are storm drain inlets properly protected?				
Is a stabilized entrance properly maintained?				
Are all discharge points free of visible pollutants?				
Are dust control BMPs necessary?				
Has sediment discharge occurred offsite since last inspection? If so, specify cleanup efforts.				

Erosion Control Practices

Are soil stockpiles in correct locations and vegetated, mulched or covered?				
Are all inactive disturbed areas protected with vegetation, mulch, tarps etc.?				
Are current erosion control practices adequate?				
Is onsite traffic and parking restricted to designated, stabilized areas?				
Are dewatering BMPs used and maintained?				

Pollution Prevention Measures

Are natural resources protected? (e.g., streams, wetlands, trees)				
Are hazardous materials properly managed?				
Are potential water contaminants covered or stored inside?				
Vehicle cleaning and maintenance areas free of spills/leaks?				

Good Housekeeping

Concrete washout used and maintained?				
Wet saw cuttings contained and removed?				
Site free of construction debris? Waste dumpsters covered?				

"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 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."

Signature: _____ Date: _____

Inspector Name:

Inspector Phone: (515) 294-5359 / 294-

Form Updated: April 2019

Attachment 3



NPDES-Permitted Construction sites on ISU Campus in 2022

1. **Kent Feed Mill and Grain Science Complex (IA-38275-37912)**
2. **Vet Diagnostic Laboratory Facility (IA-38778-38409)**
3. ISU Jack Trice Stadium Turf Replacement Project (IA-40734-40352)
4. ISU Johnny Majors Practice Field Expansion Project (IA-40712-40330)
5. Parking Lot G7 - ISU RV Parking Project (IA-40710-40328)
6. Parking Lots B1 & F Resurfacing and Expansion (IA-40711-40329)
7. RCA Pavement Preservation Phase 2 (IA-39064-38690)
8. **Therkildsen Engineering Building, Parking Lot 1 Expansion and Sheldon Ave (IA-41677-41305)**
9. **Therkildsen Engineering Building (IA-42111-41739)**

*** Active sites in bold