

IOWA STATE UNIVERSITY

# MUNICIPAL SEPARATE STORM SEWER SYSTEM 2021 ANNUAL REPORT

Permit Number 85-03-0-04

March 2022

Prepared by  
Department of Environmental Health and Safety  
2408 Wanda Daley Drive  
Ames, Iowa 50011-3602

And

Facilities Planning and Management

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## INTRODUCTION

The 2021 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 and outlying farm properties, including Central Campus, North Campus, South Campus, Applied Science Complex, Arboretum, Southwest Athletic Complex, College of Veterinary Medicine, Dairy Teaching Farm, and the BioCentury Research Farm.

## 1. STATUS OF IMPLEMENTING THE COMPONENTS OF THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

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. Modifications to the permit requested by ISU and approved by the Department included eliminating the requirement to publish quarterly the telephone number for the storm water hotline. This number is posted on the EH&S web page.

### A. Public Education and Outreach on Storm Water Impacts

- a. General Storm Water Education Fact Sheet and Storm Water Pollution Prevention web page, both available at: <https://www.ehs.iastate.edu/services/environmental/stormwater>
- b. Education Program for Faculty and Staff. Facilities Planning & Management (FP&M) staff participated in monthly storm water lunch and learn webinar series, provided through the Iowa Storm Water Education Partnership (ISWEP). ISWEP membership provides access to high quality education materials and training, and a vast network of storm water professionals.

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## B. Public Involvement and Participation

- a. 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 2021. The number is 515-294-7229.
- b. Storm Water Management. ISU has a storm water management team comprised of individuals impacting storm water management quality on the ISU campus. The group provides guidance on storm water management issues and directs implementation of the storm water program, and in 2021 met via Zoom video conferencing in the Spring, Summer and Fall semesters.



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- c. Public Notice Requirements. For each construction permit, a Notice of Intent was completed which include submitting a Public Notice to the Iowa State Daily (using DNR Form 542-8117). Notarized copies of public notices are retained for three years.

Iowa State Daily Media Group  
2420 Lincoln Way, Suite 205  
Ames, IA 50014-7448  
515-294-4485



## AFFIDAVIT OF PUBLICATION

STATE OF IOWA  
COUNTY OF STORY

The undersigned, Sarah Lefebber, being first duty sworn on oath states that she/he is the **General Manager**, of the Iowa State Daily Media Group, a corporation duly organized and existing under the laws of the State of Iowa, with its principal place of business in Ames, Iowa, the publisher of **THE IOWA STATE DAILY MEDIA GROUP** newspapers of general circulation printed and published in the City of Ames, Story County, Iowa, and that an advertisement, a printed copy of which is attached as Exhibit "A" and made a part of this affidavit, was printed and published in the Iowa State Daily on the following date (s):

February 17-23, 2021  
Richardson Court Ad

Subscribed and sworn to before me by said  
affiant this 23rd day of February, 2021.

Sarah Lefebber

Notary Public in and for Story County, Iowa

COPY OF ADVERTISEMENT  
Exhibit "A"



## PUBLIC NOTICE OF STORM WATER DISCHARGE

Pavement Preservation - Richardson Court 2021

Iowa State University plans to submit a Notice of Intent to the Iowa Department of Natural Resources to be covered under the NPDES General Permit General Permit No. 2 "Storm Water Discharge Associated with Industrial Activity for Construction Activities. The storm water discharge will be from the Parking Lots 2021 - Pavement Preservation - Richardson Court project located in the SE ¼ of Section 4, Township 83 North, Range 24 West, Story County. Storm water will be discharged from multiple point sources and will be discharged to the following streams: Squaw Creek.

Comments may be submitted to the Storm Water Discharge Coordinator, Iowa Department of Natural Resources, Environmental Protection Division, 502 E. 9th Street, Des Moines, IA 50319-0034. The public may review the Notice of Intent from 8 a.m. to 4:30 p.m., Monday through Friday, at the above address after it has been received by the department.

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- d. Community involvement. Each year, the Iowa State Office of Sustainability hosts a cleanup at College Creek, a creek that runs through Central Campus. Attached is a story the Iowa State Daily published on the event in 2021:  
[https://www.iowastatedaily.com/ames-volunteers-collect-loads-of-trash-at-college-creek-cleanup/article\\_31804996-ccbe-11eb-bf62-733b7b651289.html](https://www.iowastatedaily.com/ames-volunteers-collect-loads-of-trash-at-college-creek-cleanup/article_31804996-ccbe-11eb-bf62-733b7b651289.html)

An excerpt from the Iowa State Daily story on the creek cleanup:

The Iowa State Office of Sustainability hosted its annual College Creek Cleanup event Saturday with 35 Ames volunteers coming out to help make a difference. Director of Sustainability Merry Rankin estimated there were around 25 full bags of trash that were picked up, and although most of the trash was lightweight, there were a few standout items.



Elizabeth Smith, Merry Rankin and Hannah Bartel show off all of the trash that was collected during the event.  
Kelly Snawerdt/Iowa State Daily

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- C. Illicit Discharge Detection and Elimination
  - a. Illicit Discharge Prohibition Policy Statement, available at:  
<https://www.ehs.iastate.edu/publications/policies/swpolicy.pdf>
  - b. An illicit discharge was identified Feb. 5, 2021. IDNR staff contacted ISU representatives to investigate the incident. The following is a written statement explaining the source:

**SUBJECT: LETTER OF INQUIRY: ILLICIT DISCHARGE TO MS4**  
Discharges from Molecular Biology Building to Clear Creek

Mr. Richmond:

On Friday, February 5, 2021, the Iowa Department of Natural Resources received notification from a citizen that the water in Clear Creek was bright green. Pictures provided demonstrated that Clear Creek was green immediately south of the railroad tracks.

On Saturday, February 6, 2021, I observed Clear Creek and determined that the color had mostly dissipated, but there was residue of green coloration in pooled areas. Pooled areas in the drainage from a storm sewer outfall on the east side of Clear Creek contained green residue, indicating that the discharge of the green material originated from this storm sewer. Although no green discharge was actively occurring, a clear discharge of warm water was creating steam at the outfall. No evidence of green water, ice, or snow could be found in Clear Creek upstream of the confluence with this drainage.

On Monday, February 8, 2021, I met with Steve Mayberry, Assistant Manager of the ISU EH&S, and other EH&S staff. Through observations of Clear Creek and the storm sewer outfall, as well as conversations with ISU staff, it was determined that the warm discharge from the storm sewer was generating from the Molecular Biology building. Furthermore, the green discharge was from the use of fluorescein plumber's dye to trace the plumbing in the Molecular Biology building. The individual utilizing the dye failed to implement the policies to communicate with EH&S staff and use a minimal amount of dye.

The ongoing discharge from the Molecular Biology building was reported to the Iowa DNR on January 14, 2021 as an illicit discharge. It is understood that an ongoing investigation is being conducted to determine the extent of the project necessary to eliminate the illicit discharge. By April 15, 2021, please provide a written plan for elimination of the illicit discharge from the Molecular Biology building.

If you have any question regarding this letter, please feel free to contact me at 515-725-0371 or [tom.atkinson@dnr.iowa.gov](mailto:tom.atkinson@dnr.iowa.gov).

Sincerely,



Tom Atkinson  
Environmental Specialist Sr.  
DNR Field Office #5

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The following remedial actions were taken:

ISU FP&M and staff developed and implemented a temporary solution by placing a stainless steel sleeve into the existing condensate pump pit in the Molecular Biology building. On March 23, 2021, the stainless steel sleeve was installed and connected to the steam condensate tank/piping system. The diameter of the stainless steel sleeve is smaller than the original pump pit and requires replacement of the existing condensate collection system. FP&M staff are actively identifying manufactures that can provide a suitable product for a long-term solution.

## D. Construction Site Storm Water Runoff Control

- a. Construction Site Runoff Control Policy Statement, available at:  
<https://www.ehs.iastate.edu/publications/policies/swpolicy.pdf>
- b. Public Notice Requirements. For each construction permit, a Notice of Intent was completed which includes submitting a Public Notice to the Iowa State Daily (using DNR Form 542-8117). Notarized copies of public notices are retained for three years.
- c. Construction Site Inspection Program. EH&S completed 145 storm water inspections at four construction sites covering a total of 19 acres.
- d. Pollution Prevention Plan Review Procedures. In addition to the storm water construction permit flow chart ISU developed to accompany the Standard Operating Procedures (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.

## E. Post-Construction Storm Water Management

- a. Post-Construction Site Runoff Control Policy Statement, available at:  
<https://www.ehs.iastate.edu/publications/policies/swpolicy.pdf>
- b. The following page provides an example of Iowa State's post-construction BMP evaluation. Before and after pictures from a project at the Sukup Basketball Complex in West Ames are included. The detention pond over time became overgrown by invasive tree growth. ISU staff removed the trees and cleaned outfall areas that silted in.

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## F. Pollution Prevention / Good Housekeeping

- a. Educational Programs for ISU Staff. EH&S trained 94 employees during calendar year 2021. The training all took place in online learning courses. The EH&S storm water web page was viewed 450 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 pickup up, handled and properly disposed following local, state and federal regulations.  
<https://www.ehs.iastate.edu/services/waste/wasteremoval>
- b. 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 Twelve 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.

- c. Street and Parking Lot Sweeping Program. In 2021, Iowa State University collected 210 tons of sweepings from 69 miles of streets, sidewalks, and bike paths, and 178 acres of parking lots.

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- d. Inspection and Maintenance Program. Since 2013, ISU staff have visually inspected the entire system, concluding the five-year inspection process with 533 inspections completed in calendar year 2021. Additionally, ISU Utilities staff televise 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 works well to capture metrics and document maintenance and repair activities.

To document, the University is inspecting each manhole once every five years; ISU Utilities has implemented a separate data collection process. 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. In addition, Utilities is prototyping new methods to collect and store information electronically to evaluate cost effective choices for the MS4 system.

Mechanical Distribution also designated three manholes for lining and vacuumed and jetted 10 structures. In 2021, four areas representing approximately 1,200 feet were televised. Additionally, ISU raised three structures to reflect the current soil grade as a result of these regular inspections.

## 2. SUMMARY OF THE MONITORING DATA 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.

## 3. AN ESTIMATE OF THE PREVIOUS FISCAL YEAR EXPENDITURES FOR IMPLEMENTATION OF THE MANAGEMENT PROGRAM AND THE BUDGET FOR THE CURRENT FISCAL YEAR

The storm water management budget for calendar year 2021 was funded “as needed” by several campus entities:

- EH&S dedicated ½ fulltime equivalent (FTE) staff time to storm water activities, that included regular inspections of all permitted construction sites. EH&S conducted 145 weekly site inspections in 2021 at a total expenditure to permitted projects of \$56,675.
- EH&S staff maintained the storm water website, managed quarterly storm water hotline advertisements in the student newspaper, attended storm water training, and developed ISU staff training programs, at an estimated expenditure of \$40,000 in salary and benefits.
- Construction of new storm water management projects and design fees associated with capital site, parking and building projects estimated at \$650,000.
- 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 \$750,000.
- FP&M maintains 45 lane miles of paved institutional roads, 15 lane miles of gravel roads, 191 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 \$121,074. The 211 tons of sweepings included 116.45 tons from streets and 46.5 tons from sidewalks.
- Total estimated expenditures for 2021 is \$1,577,749.

## 4. SUMMARY DESCRIBING THE NUMBER AND NATURE OF INSPECTIONS, ENFORCEMENT ACTIONS AND PUBLIC EDUCATION PROGRAMS CONDUCTED DURING THE REPORTING PERIOD

### IDNR INSPECTIONS

IDNR responded to an illicit discharge from the Molecular Biology building on Central Campus. Refer to section 1-C of this annual report.

ISU had no construction site regulatory enforcement actions during 2021.

### PERMITTED SITE INSPECTIONS BY ISU STAFF

145 inspections were conducted by Environmental Health and Safety 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.

### Active and Discontinued Construction Sites

During the 2021 calendar year, four construction sites operated under NPDES General Permit No. 2 authorizations. The status of these permits is summarized in Table 1.

**Table 1. Status of Construction Permits**

<u>Facility</u>	<u>Permit</u>	<u>Status</u>
Kent Feed Mill and Grain Sciences Complex	IA-38275-37912	Active
Veterinary Diagnostic Laboratory Facility - Construction	IA-38778-38409	Active
Sports Performance Center and Jack Trice Stadium Improvements North	IA-35214-34883	Closed (9/1/21)
ISU Pavement Preservation 2021 Richardson Court - Construction	IA-39064-38690	Closed (10/20/21)

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## NPDES-Permitted Construction Sites on ISU Campus



### KEY

- 1. Kent Feed Mill and Grain Sciences Complex (IA-38275-37912)**
- 2. Sports Performance Center & Jack Trice Stadium (IA-35214-34883)
- 3. Veterinary Diagnostic Laboratory Facility (IA-38778-38409)**
- 4. ISU Pavement Preservation 2021 Richardson Court (IA-39064-38690)

\*\*\*Active sites in bold

## Campus Storm Water Management Projects

