University of Minnesota Duluth

Storm Water Pollution Prevention Program

NPDES Phase II – Small MS4 Storm Water Program

The UMD campus should work to cleanse runoff from the campus and be considerate of neighbors down stream" (UMD Campus Master Plan (2000) pg. 34)

http://www.d.umn.edu/fm/stormwater

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Mission Statement:

The University of Minnesota Duluth Storm Water Pollution Prevention Program will minimize, to the maximum extent practical, the possible negative impacts of the campus on the surrounding watersheds and ultimately the Lake Superior ecosystem.

Strategy
To this end the University of Minnesota Duluth will develop, implement, and enforce a storm water pollution prevention program to protect water quality and satisfy the appropriate requirements of the Clean Water Act.

At a minimum, the University of Minnesota Duluth must meet the requirements of each of the six control measures as defined in Minnesota Pollution Control Agency's General Permit MN R580000 by selecting best management practices specific for its operation. Both University financial and staffing resources will be dedicated, to the maximum extent practicable, to the implementation of the best management practices identified in this storm water pollution prevention program (SWPPP).

Our "community" is defined as the employees, contractors, and students of the University of Minnesota Duluth. To this end, we will be targeting this audience for our specific best management practices, annual meetings, notifications, etc. In realizing that we are but a small part of the Lake Superior watershed area, and that most of our "residents" live in the greater Duluth area, we will work in conjunction with the surrounding Municipal Separate Storm Sewer System (MS4s) owners, through the Regional Stormwater Protection Team (RSPT) to promote storm water education and to deal with joint municipal storm water problems.

This program builds on the 2005 Campus Master Plan's guideline that "Sound runoff management and ecological preservation will convey the message of UMD's concern for and appreciation of its natural amenities" (pg. 64).

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INTRODUCTION

Regulatory

In 1990, the Environmental Protection Agency (EPA) issued the National Pollutant Discharge Elimination System (NPDES) Phase 1 Storm Water Rules, which were in response to the 1987 Clean Water Act Amendments. There were three components of the Phase 1 Rule. First, they covered all construction sites impacting greater than 5 acres. Second, they identified 10 specific industrial source categories based on Standard Industrial Code (SIC), which required permitting. Finally, the Phase 1 Rule identified 'large' and 'medium' municipally separate storm sewer systems (MS4s) located in incorporated places or counties with populations greater than 100,000 as subject to developing storm water pollution prevention programs. See the EPA Phase II NPDES Storm Water Program's website http://cfpub.epa.gov/npdes/stormwater/swphase2.cfm for additional information.

On December 8, 1999, the EPA issued the NPDES Phase 2 Storm Water Rules in the Federal Register. The Phase 2 Storm Water Rule covers MS4s in urbanized areas with a population less than 100,000. It is important to note that the Phase 2 rule is not limited to 'municipally owned' storm sewer lines. It includes other storm sewer systems at large facilities such as prisons, military complexes and universities. Therefore, the Duluth Campus is covered under the Phase 2 rules.

The Minnesota Pollution Control Agency (MPCA) accepted responsibility for implementation of this program from the EPA. On June 25, 2002, MPCA finalized and approved general permit MN R580000 for 'authorization to discharge storm water associated with municipal separate storm sewer systems under the National Pollutant Discharge Elimination System/State Disposal System permit program.' This General Permit incorporates EPA's six minimum control measures as well as other state specific requirements. The MPCA's web site describing these requirements can be found at http://www.pca.state.mn.us/water/stormwater/stormwater-ms4.html.

In response to this new regulatory requirement, the University of Minnesota (U of M) created a Storm Water Task Force in 2000, consisting of U of M Environmental Health and Safety (EHS) and University of Minnesota Twin Cities (UMTC) Facilities Management (FM) employees, which monitored the MPCA general permit process. The U of M Storm Water Task Force systematically reviewed UMTC campus operations and developed the framework for storm water pollution prevention programs for the U of M.

In the summer of 2002, it was determined that the Duluth Campus would also be required to apply for coverage under the Phase 2 program. At this time UMD Facilities Management was asked to look into what this meant for our campus. Facilities Management put together a team of individuals (UMD SWPPP Development Team) familiar with general campus operations to develop a draft SWPPP. The program was developed under the guidance of the U of M's Department of Environmental Health and Safety. The SWPPP was implemented in March of 2003

In 2006 the MPCA MS4 permit was revised to meet the requirements of a May 2003 Minnesota Court of Appeals decision. This required MS4's to modify their existing SWPPPs to meet the new requirements and reapply for coverage under the revised MPCA general permit.

The SWPPP is overseen by the UMD Storm Water Steering Committee which works to develop and review the policies and procedures outlined in the best management practices (BMPs). This committee is comprised of major stakeholders and other interested parties from across our community.

In addition to 'MS4' coverage, the Phase 2 Rules lower the threshold for construction site coverage from 5 acres to 1 acre. Even though there are significant overlaps between the U of M's SWPPP's and the MPCA Construction Site Program, these are separate and distinct regulatory programs with differing permit requirements. Both the MPCA MS4 Program requirements and the MPCA Construction Site Program requirements must be met. When there is a conflict between these requirements, the most stringent requirements will apply.

As a regulated MS4, the U of M submitted permit applications with campus specific Storm Water Pollution Prevention Programs. The SWPPPs identify specific best management practices (BMPs) that; reduce discharge of pollutants to the 'maximum extent practicable (MEP)', protect water quality, and satisfy the appropriate water quality requirements of the Clean Water Act. In several instances, information, design, and control overlaps occur between the UMTC and UMD. In other words, applicable best management practices (BMP) developed for one U of M site may be used to fulfill BMP requirements for other sites. The U of M must fully define and implement the best management practices identified in their storm water pollution prevention programs in accordance with the time schedules set out in the program.

University wide policies and procedures include, but are limited to:

Environmental Management Policy:
http://policy.umn.edu/groups/ppd/documents/Policy/Environmental_pol.cfm

This policy establishes that university faculty, staff, and students must comply with environmental laws and regulations by using programs established to meet these legal requirements such as the NPDES program.

Storm Water Compliance Procedure:
http://policy.umn.edu/groups/ppd/documents/procedure/environmental_proc01.cfm

This procedure establishes administrative procedures implementing the regulatory controls for prohibitions of illicit discharges and connections, reduction of pollutants to the Maximum Extent Practicable, establishment and enforcement of construction site runoff controls for waste, sediment and erosion, and the establishment and enforcement of post-construction runoff controls for new development and major renovation projects.

University of Minnesota Standards & Procedures for Construction:

Temporary Erosion and Sediment Controls:
http://www.cppm.umn.edu/standards/Division1.pdf

This standard describes the requirements for the installation, inspection and maintenance of temporary erosion and sediment controls.

Storm Water Permits and Requirements:
http://www.cppm.umn.edu/standards/ProgramInformation.pdf

This standard describes the requirements for the design of temporary erosion and sediment controls, permanent storm water controls, and permitting.

Campus Background

In 1895, the Minnesota Legislature created the Normal School at Duluth, which was located at 2205 East Fifth Street. In 1921, the institution became the Duluth State Teachers College, and on July 1, 1947, it became a coordinated campus of the University of Minnesota. In 1948, ground was broken for the first building of the upper (main portion) campus, approximately ¼ mile northwest from the old campus, to accommodate the service men and women returning from World War II. Currently UMD is a comprehensive regional research and educational institution with a fall 2005 enrollment of approximately 10,500.

The UMD campus is located at the western end of Lake Superior within the Duluth city limits and is approximately one mile northwest of the north shore of Lake Superior. The UMD campus elevation ranges from 450 feet to 600 feet above the elevation of Lake Superior. The campus (City of Duluth) climate is transitional type with the average maximum temperature of 74 degrees F and an average minimum temperature of 2 degrees F. The average annual precipitation in the form of rainwater is 10 inches and in the form of snowfall is 70 inches. Information published by the United States Geological Survey Hydrologic Atlas HA-582 indicates that surficial soils in the general area are lake clays with poor drainage. These soils are described as predominantly stratified clay with silt and sand, which are generally less than 50 feet thick. The regional surficial groundwater gradient in the campus vicinity is to the southeast, toward Lake Superior.

The main portion of the UMD campus covers over 244 acres of land, including 55 undeveloped acres on the northwest side of the campus, commonly referred to as the Bagley Nature Area (BNA). Over 75 acres (30%) is covered with impervious surfaces (2002). This includes over 50 academic and residence buildings, parking lots, roads, sidewalks, and impervious recreational areas. The storm water is divided into three localized drainage basins: Oregon Creek to the southeast, Chester Creek on the southwest (*a designated trout stream, MN Rules 6264.0050 Subpart 4 (PP18)*), and the West Branch of Tischer Creek (*a designated trout stream, MN Rules 6264.0050 Subpart 4 (PP78)*) on the north. The campus has over 6 miles of storm sewer lines and two existing wet sedimentation ponds, Fire Hall Pond (built 1979) and Eric Clarke Pond (built 1965), which were both dredged back to their original capacities in 2001.

As a non-traditional MS4, UMD is not made up of a contiguous piece of property, but is actually many parcels dispersed throughout northern Minnesota. In addition to the main portion of the campus, the University of Minnesota Duluth has several sites in the urbanized area around the City of Duluth. It is our understanding that these auxiliary sites are also required to be part of our SWPPP.

- **Lower Campus** – This site is located 3 blocks southeast of the main portion of campus within the urbanized area of Duluth, Minnesota. The site was originally Normal School at Duluth / Duluth State Teachers College and in 1947 it became the UMD. The lower (old) campus has 2 buildings on 3.5 acres and has minimal storm sewer. Both buildings as well as the surrounding lands are listed on the *National Historic Register*. Oregon Creek flows directly under the Research Laboratory Building and is confined by stonewalls.
- **Glensheen** – This site is located on the shores of Lake Superior within the urbanized area of Duluth, Minnesota. It is a museum of the historical Congdon Estate completed in 1908. This site is listed on the *National Historic Register*. The estate is comprised of 10 acres with 6 buildings and 85,000 sq. ft. of

impervious surface. Tischer Creek (*a designated trout stream, MN Rules 6264.0050 Subpart 4 (PP78)*) forms the west edge of the property, and Bent Brook bisects the center the property. Minor drainage systems discharge into both of these creeks. Overland flow flows toward each of the creeks as well as Lake Superior (*a restricted discharge waters, MN Rules. 7050.0180, subp. 6 (A)*). There are no known UMD storm sewer lines discharging into Lake Superior, but there are rock lined drainage trenches that lead to the shoreline. The building septic system was originally designed to flow out to the end of the pier and into Lake Superior. This system was disconnected in 1941 and connected to the city sanitary system. The main grounds have the ability to be irrigated with Tischer Creek water via a gravity fed system originating at a dam and filtration unit up stream. This irrigation system was constructed as part of the original estate construction, but is not currently utilized. The property was given to the U of M in 1968 and began operating as a museum in 1979. The estate has about 70,000 visitors a year. The property is maintained and operated by its staff and is assisted by Facilities Management crews when requested.

- **Natural Resources Research Institute (NRRI)** – This site is located near the Duluth International Airport, within the urbanized area of Duluth, Minnesota. The site was originally part of the Duluth Air Force Base and was acquired by the U of M in 1983. The facility is used as a research center for the development of Minnesota's natural resources in an environmentally sound manner. The property consists of one main building, two storage sheds and outdoor storage on 7.6 acres. There is approximately 131,400 sq. ft. of impervious surface at this site. Storm sewer from this site drains into the road ditch and eventually into Miller Creek (*a designated trout stream, MN Rules 6264.0050 Subpart 4 (PP53) and a 303(d) waters for temperature and biota per MPCA 2002 tmdl-303d list*).
- **Limnology** - This site is located on the shores of Lake Superior within the urbanized area of Duluth, Minnesota. It is used as rental property for the U of M. The facility was constructed around 1888 as a fish hatchery for the U.S. Fish Commission and was acquired by the U of M from the U.S. Department of Interior in 1948. This site is listed on the *National Historic Register*. The property consists of the main building, an adjacent house, two small sheds, and a gravel drive/parking lot all on 2.8 acres. There is approximately 14,000 sq. ft. of impervious surface at this site. There is no known UMD storm sewer on this site, overland flow flows toward Lake Superior (*a restricted discharge waters, MN Rules. 7050.0180, subp. 6 (A)*) and the mouth of the Lester River (*a designated trout stream, MN Rules 6264.0050 Subpart 4 (PP47) and a 303(d) waters for turbidity and mercury per MPCA 2002 tmdl-303d list*).

Outstanding Resource Value, Special, and Impaired Waters

Areas that Discharge into Restricted Waters

While the University of Minnesota Duluth discharges storm water to several different waters, Lake Superior is the only one listed as a restricted waters in MN Rules 7050.0180 subp. 6 (A) – Nondegradation for Outstanding Resource Value Waters – Restricted Discharges.

All of the University of Minnesota Duluth properties located within an urbanized area are within the Lake Superior watershed. However, only two properties are located within 2000 feet of the lake; Glensheen and Limnology. Any new development of these properties should not create any new or expanded discharges. Any new development on these properties must meet or exceed the requirements of Part IX. Appendix C (B) of the MPCA permit # MN R 040000 and Appendix A (B.4) of the MPCA permit # MN R 100001 to the satisfaction of the MPCA.

Glensheen

This site is located on the shores of Lake Superior within the urbanized area of Duluth, Minnesota. It is a museum of the historical Congdon Estate completed in 1908. The property was given to the U of M in 1968 and began operating as a museum in 1979. The estate is comprised of 10 acres with 6 buildings and 85,000 sq. ft. of impervious surface. The property has three significant water features, Tischer Creek (*a designated trout stream, MN Rules 6264.0050 Subpart 4 (78)*) forms the northwest edge of the property, Lake Superior forms the southwest edge, and Bent Brook bisects the center the property. The Boat House, Gardener's Cottage, Museum Shop, potting shed, parking lot, part of the Carriage House, and their associated walkways all flow to the Lake Superior shoreline either through small (6-8") pipes, rock lined channels, dirt ditches, or overland flow. There are no known flows directly into the lake itself. The Mansion, part of the Carriage House, the formal gardens, tennis courts and their associated walkways flow into Bent and Tischer Creeks through small (6-10") pipes or overland flow. With the exception of the parking lots (last expansion in 1980) and Museum Shop (1979) these surfaces are from the original construction and listed on the *National Historic Register.* The parking area drainage path was modified in 2004 to include a combination of grassy swales, a bioretention area, and outlet shoreline protection to improve the current quality and lessen the quantity of the discharge water. This project won a 2006 Governor's Minnesota Government Reaching Environmental Achievements Together (MnGREAT) Award for superior environmental achievement by Minnesota's public agencies. Since the vast majority of the property is restricted by its *National Historic Register* requirements, the only foreseeable increase in impervious surfaces would be enlarging the parking lot and due to land constraints its maximum increase could only be about 10,000 sq. ft. This increase could easily be mitigated by the use of the bioretention area and/or additional rain gardens. To our knowledge there has not been any significant increase of impervious surface on this property since 1988. It was known that Lake Superior was a restricted waters

from the inception of this program. Therefore, no alterations are needed to our SWPPP for this reason. As a reminder to any Engineer / Architect receiving a site plan of this area, we placed a note stating that Lake Superior is a restricted discharge area. A copy of this map is attached in Appendix C. (http://www.d.umn.edu/fm/stormwater/ppp/AppC-Glensheen.pdf)

Limnology

This site is located on the shores of Lake Superior within the urbanized area of Duluth, Minnesota. It is used as rental property for the U of M. The facility was constructed around 1888 as a fish hatchery for the U.S. Fish Commission and was acquired by the U of M from the U.S. Department of Interior in 1948. This site is listed on the *National Historic Register*. The property consists of the main building, an adjacent house, two small sheds, and a gravel drive/parking lot all on 2.8 acres. There is approximately 14,000 sq. ft. of impervious surface at this site. There is no known UMD storm sewer on this site, overland flow flows toward Lake Superior (*a restricted discharge waters, MN Rules. 7050.0180, subp. 6 (A)*) and the mouth of the Lester River (*a designated trout stream, MN Rules 6264.0050 Subpart 4 (PP47) and a 303(d) waters for turbidity and mercury per MPCA 2004 tmdl-303d list*). There are no current long range plans to modify this property. If improvements were to be made they would probably include paving the gravel areas, adding sidewalk and patio areas. These increases would be minor and could easily be mitigated by the use of rain gardens. To our knowledge there has not been any significant increase of impervious surface on this property since 1988. It was known that Lake Superior was a restricted waters from the inception of this program. Therefore, no alterations are needed to our SWPPP for this reason. As a reminder to any Engineer / Architect receiving a site plan of this area, we placed a note stating that Lake Superior is a restricted discharge area. A copy of this map is attached in Appendix C. (http://www.d.umn.edu/fm/stormwater/ppp/AppC--Limno.pdf)

Areas that Discharge into Designated Trout Steams

The University of Minnesota Duluth discharges storm water to several designated trout streams, as listed in *MN Rules 6264.0050 Subpart 4.*

These properties include:

- Glensheen (South West Quarter)– Tischer Creek (PP (#78))
- Campus (North Side) – West Branch of Tischer Creek (PP (#78))
- Campus (South West Corner) – Chester Creek (PP (#18))
- NRRI – Miller Creek (PP (#53))
- Limnology (East Side) – Lester River (PP (#47))
- Research and Field Studies Center (RFSC)* – East Brach of Amity Creek (PP (#3))

*The RFSC is located outside the urban area of Duluth and therefore not specifically included in the UMD SWPPP.

Any new development on these properties should meet or exceed the requirements of Part IX. Appendix C (C) of the MPCA permit # MN R 040000 and Appendix A (B.8) of the MPCA permit # MN R 100001.

Areas that Discharge into TMDL Impaired Waters

The University of Minnesota Duluth discharges storm water to several streams considered total maximum daily load (TMDL) impaired waters as listed in MPCA 2004 tmdl-303d list, however, TMDL assessments have not yet been completed for any of these streams.

These properties include:

- NRRI – Miller Creek – 303(d) waters for temperature and biota
- Limnology (East Side)– Lester River – 303(d) waters for turbidity and mercury
- Research and Field Studies Center (RFSC)* – Amity Creek - 303(d) waters for turbidity

*The RFSC is located outside the urban area of Duluth and therefore not specifically included in the UMD SWPPP, it is located on a tributary up stream of the TMDL impaired portion of Amity Creek.

According to the MPCA “The TMDL defines how much of a pollutant would be the maximum amount that could be discharged daily into a water resource from all sources in a surrounding area, while still allowing the water to be used for drinking water, fishing, swimming and other purposes.” http://www.pca.state.mn.us/publications/mnenvironment/fall2001/tmdl.html

Any new development of these properties should be sensitive to these existing problems and comply with any additional local, state or federal requirements for TMDL impaired waters.

For more information on total maximum daily loads and Minnesota’s waterways see http://www.pca.state.mn.us/water/tmdl.html

Discharges to Wetlands
The Duluth campus discharges to several small wetland areas. The Duluth Area Wetland Inventory (DAWI) shows wetlands around several of our ponds, in several places along the West Branch of Tischer Creek, and on the outskirts of our Natural Resources Research Institute property. The DAWI was produced by the Natural Resources Research Institute for the City of Duluth using 1:24,000 color infrared photos taken in September 1997 by the Minnesota DNR. We conducted our own wetland study in 2006. The study is available on our website and shows the approximate size and quality of each wetland. The wetland delineations are also part of our storm water maps. (http://www.d.umn.edu/fm/environment/wetlands/index.htm)

Discharges Requiring Environmental Review
This permit would not cover discharges from projects that have not conducted the environmental review requirements of the Minnesota Environmental Policy Act and the National Environmental Policy Act. The University of Minnesota has processes in place to assure that projects are systematically evaluated for whether they fall within the requirements for environmental review and that, when projects meet these criteria, the appropriate environmental assessment worksheets (EAWs), environmental impact statements, and other appropriate environmental reviews are completed. As such, all project discharges will be within this permit. The vast majority of University projects will not require an EIS or EAW.

Briefly, the department of Capital Planning Project Development (CPPM) within the vice-presidential unit of University Services coordinates with the Department of Environmental Health and Safety and the Building Code Office, also within University Services, and ultimately the Office of General Counsel, to evaluate projects against the exemptions in Minn. R. 44110.4600, the thresholds for mandatory EAWs under Minn. R. 4410.4300 and guidelines for discretionary EAWs under Minn. R. 4410.1000. The University as the Responsible Governmental Unit ensures that EAWs are submitted and, if projects are determined to require environmental impact statements (EISs), these are funded and submitted, with requisite public comments periods; final recommendations are implemented.

> The 36 CFR 800 Section 106 process requires coordination with National Environmental Protection Act (NEPA - 42 U.S.C. § 4331) requirements and an evaluation of the need for conducting a NEPA EIS including endangered species impact. Typically, the Section 106 analysis engages many levels of City/County/State/Federal agencies like the National Park Service, Corp of Engineers, State DOT and DNR, County & City Parks/Public Works plus many others as appropriate during the discovery and analysis process.

Discharges affecting Endangered or Threatened Species
As to processes involving endangered species: projects funded by Federal funds require a response from the National Park Service prior to any undertaking using Federal money. The University is always fully engaged in the Section 106 review process and is made aware of the National Park Service's evaluation, requirements and mitigation response. CPPM does make an effort to consider environmental impacts, including the impact on endangered and the threatened species, as part of project planning and delivery processes. However, because of the University's unique constitutional position and the somewhat gray language in Minnesota Rules like Chapter 6134, and Minnesota Statute Section 84.0895, Capital Planning relies on the University’s Department of

Environmental Health and Safety's (DEHS) environmental expertise during the University project review process, as well as, be able to rely on DEHS recommendations with Office of General Counsel's confirmation of University responsibility for any required process/action related to endangered species

Discharges Involving Historic Places or Archeological Sites

The University of Minnesota, in accordance with the National Historic Preservation Act of 1966, as amended, along with the State Historic Preservation Office (SHPO) of the Minnesota Historical Society, is engaged in a continuing effort to identify, register, document and protect properties in the State of Minnesota of historical, architectural, cultural, archeological and engineering significance. The University conducts its historic resource management efforts in full compliance with the Minnesota Historic Sites Act, Minnesota Statutes, Section 138.666, and Minnesota Field Archeology Act of 1963. Minnesota Statutes, Section 138.40 also requires State Agencies and the Regents of the University of Minnesota to cooperate with the Society in safeguarding Minnesota historic sites and preserving historic and archeological properties. To ensure a high level of quality in its historic resource management, the University employs a professionally qualified historic architect per 36 CFR 61. Other required professionals such as Historians, Archeologists, Cultural Anthropologists, and Conservators, are employed as necessary on a project-by-project basis who also meet the requirements of 36 CFR 61. As part of its commitment to historic resource management, the University maintains an inventory of University properties listed on the National Register of Historic Places (NRHP), along with those University properties that are determined eligible for nomination to the NRHP, and those properties that are highly viable candidates for nomination to the NRHP that require additional documentation and research. The inventory is continuously evaluated by the University, along with SHPO, and revised to include viable future properties, as well as, to remove properties that are found to no longer meet NRHP criteria. Early consideration of the effects of physical intervention undertakings; development and agreement of any required mitigation; and professional level recordation/documentation prior to disturbing a property are important aspects of preserving the University's cultural heritage. The University also provides early engagement in all Federal undertakings affecting University properties as mandated by 36 CFR 800 Section 106. It is important to acknowledge that the University is first and foremost obligated to fulfill its statutory mission of providing teaching, research and outreach to its constituents, it will endeavor to do so while striving towards maximizing the preservation and re-use of its historic resources consistent with its financial, operational and physical limitations; will aspire to avoid, minimize and mitigate adverse effects on University historical and cultural resources; recognize that investment in those historic and cultural resources is critical to Minnesota's continued growth and prosperity, as well as, vital to the University's mission.

The UMD has three sites listed in the National Register of Historic Places:

Congdon, Chester and Clara, Estate (Glensheen)
Duluth State Normal School Historic District (Lower Campus)
U.S. Fisheries Station – Duluth (Limnology)

Storm water discharged from campus into Oregon Creek passes through the Duluth State Normal School Historic District where Oregon Creek was confined by rock retaining walls and directed under the Research Laboratory Building. Storm water discharged from campus into the West Branch of Tischer Creek passes through the Congdon Estate where Tischer Creek was confined by rock retaining walls.

Existing Storm Water Concerns

Educational, like commercial, campuses tend to have large buildings and large parking lot areas to facilitate the transient nature of the population. The compact nature of our campus means high impervious surface percentages and little excess land area for the traditional retention/detention pond BMPs.

Common pollutants in runoff include pesticides, fertilizers, excess quantity of water, increased temperature in trout waters, oils and greases, metals, pathogens, salt, sediment, cigarette butts, paper and plastic, and other debris.

The top five potential pollutants for the UMD community are believed to be:

- Quantity (Storm Surge) of Water – High percentage of directly connected impervious surfaces
- Temperature – Trout stream and high percentage of dark colored directly connected impervious surfaces
- Floatables – Wind blown debris from vehicles, trash and cigarette receptacles, construction sites, exterior events, and litterbugs
- Suspended Solids– Construction site erosion and road and parking lot sanding
- Hydrocarbons – Fueling operations and auto “drippings”

This program will focus on these potential pollution sources through the use of Best Management Practices (BMPs) on our campus.

Storm Water Management Program – Six Control Measures

Both the EPA Phase 2 Storm Water Rule and MPCA's General Permit, which implements the Phase 2 Rule, identify six minimum control areas that must be included as part of the U of M's SWPPPs.

The six minimum control measures are:

1) Public Education and Outreach
2) Public Participation and Involvement
3) Illicit Discharge and Detection
4) Construction Site Sediment and Erosion Control
5) Post Construction Storm Water Management
6) Pollution Prevention and Good Housekeeping

The U of M must select best management practices (BMP) to reduce impacts on its receiving waters to the maximum extent practicable (MEP) for each of these six minimum control measures. The BMPs form the framework for the SWPPP.

Specifically, in Part V. E of the General Permit, the SWPPP must:

- Describe each BMP
- Identify a responsible department or person for implementation of the BMP
- Provide an implementation schedule for each BMP
- Develop a measurable goal(s) to determine the effectiveness of the BMP

It is expected that some goals and implementation timelines may fluctuate with budgetary cycles and competing staffing demands. However, the U of M is committed to fully implementing the best management practices included in the program.

The U of M program has been broken down into two separate storm sewer management areas – The Twin Cities (UMTC) campus and the Duluth (UMD) campus. As separate areas in completely different watersheds, most of the BMPs associated with each unit are different; however, many functions of the University are centrally overseen. Therefore the University wide BMPs will be managed out of the Twin Cities. For these University wide BMPs, if there are any discrepancies between the UMD copy and the UMTC copy, the UMTC BMP will take precedence.

The University Wide BMP's are:

1c-4 Education Program: Construction Site Run-off Control
1c-5 Education Program: Post-Construction Stormwater Management in New Development and Redevelopment
3b-1 Regulatory Control Program
4a-1 Ordinance or other Regulatory Mechanism
4b-1 Construction Site Implementation of Erosion and Sediment Control BMPs
4c-1 Waste Controls for Construction Site Operators
4d-1 Procedure for Site Plan Review
4e-1 Establishment of Procedures for the Receipt and Consideration of Reports of Stormwater Noncompliance
4f-1 Establishment of Procedures for Site Inspections and Enforcement
5b-1 Regulatory Mechanism to Address Post Construction Runoff from New Development and Redevelopment

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Minimum Control Measure 1: Public Education and Outreach

The most critical component of the University's charter as a land grant and sea grant institution is to provide education and outreach. The University of Minnesota Duluth is uniquely equipped to provide educational resources for storm water education to both the campus and greater community. The Natural Resources Research Institute, UMD Sea Grant, and University Extension, as well as UMD Colleges, Schools and Departments, are committed to support the UMD Storm Water Pollution Prevention Program.

For the purpose of the SWPPP our primary "public" is defined as employees and students that make up the campus community as well as the contractors we employ. UMD will also disseminate materials and findings for use by others in the academic and general community.

In realizing that we are but a small part of the Lake Superior watershed area, and that most of our "public" live in the Duluth/Superior area, UMD is also working with the Regional Stormwater Protection Team (RSPT), a coalition of local MS4s and interested agencies jointly promoting stormwater education and addressing shared storm water issues.

Public Education and Outreach Best Management Practice Summaries

BMP ID Numbers	BMP Title	Permit Reference
1a-1	Distribute Educational Materials	**V.G.1.a**
1b-1	Implement an Education Program	**V.G.1.b**
1c-1	Education Program: Public Education and Outreach	**V.G.1.c**
1c-2	Education Program: Public Participation	**V.G.1.c**
1c-3	Education Program: Illicit Discharge Detection and Elimination	**V.G.1.c**
1c-4	Education Program: Construction Site Run-off Control	**V.G.1.c**
1c-5	Education Program: Post-Construction Stormwater Management in New Development and Redevelopment	**V.G.1.c**
1c-6	Education Program: Pollution Prevention/Good Housekeeping for Municipal Operations	**V.G.1.c**
1d-1	Coordination of Education Program	**V.G.1.d**
1e-1	Annual Public Meeting	**V.G.1.e**

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BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 1-PUBLIC EDUCATION AND OUTREACH

Unique BMP Identification Number: 1a-1

***BMP Title:** Distribute Educational Materials

***BMP Description:**

Educational materials will be:
Posted quarterly to http://www.d.umn.edu/outreach/stormwater/ and/or
http://www.lakesuperiorstreams.org
Distributed at all public events (see 1c-1 and 1-c-2)
Available upon request from UMD Facilities Management 241 Darland Administration Bldg and Minnesota Sea Grant College Program, 2305 E. Fifth Street, Duluth.
Included in UMD Website Homepage stories and UMD Currents publication.
Included in contributions to NRRI, Sea Grant and RSPT research papers and presentations.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP.

***Measurable Goals:**

A minimum of 1000 stormwater informational contacts annually, by web, classroom presentations or distribution of materials.

Participate in a minimum of one regional stormwater education event annually.
Develop evaluation tool to measure effectiveness of materials...

***Timeline/Implementation Schedule:**

Calendar year 2006 and remaining permit period.

Specific Components and Notes:

Also reference BMP 1b-1

Current specific educational materials are:
RSPT Stormwater brochures
UMD Rain Garden - Self-guided tour brochure and educational signage
UMD Storm Water Pollution Prevention Program - public power-point presentation reviewing stormwater educational messages, UMD campus projects and UMD SWPPP.
UMD Employee fact sheets
Tischer Creek signs
Glensheen shoreline protection and parking lot signs.
WEB SITES:
http://www.d.umn.edu/outreach/stormwater/
http://www.LakeSuperiorStreams.org ~ 285,000 "hits" & ~65,000 page requests per month.

***Responsible Party for this BMP:**

Name: Candice Richards
Department: UMD Stormwater Steering Committee
Phone: 218 726-8261
E-mail: crichar1@d.umn.edu

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

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BMP Summary Sheet

MS4 Name: University of Minnesota Duluth

Minimum Control Measure: PUBLIC EDUCATION AND OUTREACH

Unique BMP Identification Number: 1b-1

***BMP Title:** Implement an Education Program

***BMP Description:**

The University of Minnesota Duluth is uniquely equipped to provide educational resources for storm water education to both the campus and greater community. The Natural Resources Research Institute, University of Minnesota Sea Grant, and University Extension, as well as many UMD Colleges, Schools and Departments, are committed to support the UMD Storm Water Pollution Prevention Program.

For the purpose of the SWPPP our primary "public" is defined as employees and students that make up the campus community as well as the contractors we employ. UMD will also disseminate materials and findings for use by others in the academic and general community.

In realizing that we are but a small part of the Lake Superior watershed area, and that most of our "public" live in the Duluth/Superior area, UMD is also working with the Regional Stormwater Protection Team (RSPT), a coalition of local MS4's and interested agencies jointly promoting storm water education and addressing shared storm water issues.

UMD's Stormwater Education Program will target specific audiences through these initiatives:

1. RSPT Western Lk. Superior Region: Stormwater Education Program (ref. BMP 1c-1)
2. UMD Faculty: Provide access to stormwater related research and educational resources
3. UMD Students: Stormwater Awareness Program, Internships related to stormwater and helping grad. students doing stormwater related research.
4. UMD Employees: Specific training for Best Management Practices (refer to MCM #6)
5. UMD Contractors: Stormwater Training Program (refer to MCM #4 & #5); Collaboration with NRRI and Sea Grant to develop a site design toolkit for LSS website.
6. Researchers: Collaboration with NRRI, MN Sea Grant and other agencies and contractors to determine performance of stormwater BMPs.

The program encompasses a strong watershed emphasis by meeting regularly to develop messages which address specific regional issues. UMD will continue to actively support the RSPT which will continue to identify and publicize stormwater education messages to the Western Lake Superior region.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP.

***Measurable Goals:**

1. Participate in RSPT meetings on a regular basis and provide support for one regional education event annually.
2. Include a minimum of one Faculty and Student representative on the SWPPP Steering Committee.
3. Provide a minimum of one student stormwater internship opportunity.
4. Review and schedule training on BMP's to affected employees.
5. Notify contractors of Stormwater Requirements.
6. Acknowledgements in research papers.

***Timeline/Implementation Schedule:**

Calendar year 2003, 2004, 2005, 2006 continuing forward during each year of permit.

Specific Components and Notes:

1. UMD Classroom and Group Presentations: General stormwater educational information and UMD projects.
2. UMD Rain Garden tours: Self-guided brochure available at site explains how the 1/3 acre stormwater feature protects Oregon Creek from effects of largest parking lot.
3. RSPT "Watershed Moments" Public Service Announcements aired on local TV and Radio.
4. RSPT Contractor and Developer workshops.
5. RSPT Watershed Festival: Public event targeted at homeowners and families. (2005, 2007)
6. UMD SWPPP web site: http://www.d.umn.edu/outreach/stormwater/
7. RSPT Web Site: http://www.LakeSuperiorStreams.org

The UMD site and the LakeSuperiorStreams.org site are linked to each other to highlight UMD's connection to the larger watershed.

***Responsible Party for this BMP:**

Name: Candice Richards

Department: Facilities Management

Phone: 218 7268261

E-mail: crichar1@d.umd.edu

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BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: PUBLIC EDUCATION AND OUTREACH

Unique BMP Identification Number: 1c-1

***BMP Title:** Education Program: Public Education and Outreach

***Audience(s) Involved:**

(also refer to 1c-2 for UMD specific audience)
1. UMD participates fully in a joint stormwater education program through the Regional Stormwater Protection Team. MS4's in the Western Lake Superior region and other interested agencies have formed a working team to identify a regionally effective message and delivery format to efficiently reach a regional audience, including members of the UMD campus community.

***Educational Goals for Each Audience:**

Identification and recognition of local creeks and streams.
Awareness of the complex watershed network.
The impacts of litter and large areas of impervious surface; storm surge (volume), temperature, sediment, chemicals, nutrients and pathogens on local creeks, streams and lakes.

***Activities Used to Reach Educational Goals:**

(Also refer 1a-1)
The RSPT MS4's have jointly secured and matched funds from granting agencies for a regional media campaign related to storm water issues; for creation of a contractor training and certification program; and for a series of public service announcements for television and radio, which have been produced and aired. A recognizable RSPT logo was developed in 2004 (by a UMD student) and a brochure and mailing flyer have also been created and distributed (2005).
LakeSuperiorStreams.org web site has been developed and expanded as a collaborative City of Duluth / UMD project developed with cooperating local agencies and funded by the EPA, NOAA (MDNR) and MPCA. UMD SWPPP and other MS4 web sites are linked to this site.

***Activity Implementation Plan:**

(Primarily for joint RSPT activities. Also refer to 1c-2)
Participate in RSPT planning meetings - Quarterly or more often beginning in 2003 and thereafter.
RSPT: Identify a regional logo - completed 2003
RSPT: Participate in regional fairs or other public events - Duluth Home Show 2004, 2005, 2006 and annually.
RSPT: Produce and air public information media campaign - completed 2004, 2005, 2006
RSPT: Develop Contractor and Developer Workshop - completed 2004
RSPT: Review and seek grant funding as opportunities arise - completed 2003, 2004, 2005, 2006.
RSPT: Participate in regional awareness survey in 2007
RSPT: Participate in watershed festival planning (2006), and implementation (2007).

***Performance Measures:**

Increasing number of web site visits and page requests to both UMD and LakeSuperiorStreams.org websites.
Increasing number of participants at public events.
Number of informational pieces distributed.

***Responsible Party for this BMP:**

Name: Candice Richards
Department: Facilities Management
Phone: 218 726-8261
E-mail: Crichar1@d.umn.edu

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BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: PUBLIC EDUCATION AND OUTREACH

Unique BMP Identification Number: 1c-2

***BMP Title:** Education Program: Public Participation

***Audience(s) Involved:**

(also refer to 1c-1 for RSPT UMD and Regional audience)
Faculty, students, staff and interested public in the campus community will be provided access to stormwater related educational resources through the UMD Storm Water Steering Committee.

***Educational Goals for Each Audience:**

Identification and recognition of local creeks and streams, especially those on the UMD Campus.
Awareness of the impacts of litter and large areas of impervious surface.
Awareness of the educational potential of the physical campus and it's operations.

***Activities Used to Reach Educational Goals:**

(Also refer to 1a-1 and 1c-1)

Specific resources for Faculty and Students include:
Access to campus stormwater projects and operations data through UMD Facilities Management
Referrals to educational resources and research data through LakeSuperiorStreams.org and Minnesota Sea Grant College Program.
Student stormwater internship opportunities through UMD Facilities Management.
Research and monitoring opportunities through various University of Minnesota Departments.
Classroom presentations available through UMD Stormwater Steering Committee.

***Activity Implementation Plan:**

Stormwater Awareness will be encouraged through:
Faculty and Student representation on the SWPPP Steering Committee. (Quarterly mtgs.)
Identify key student education goals: (Litter survey completed 2004.) 2006 and remaining permit period.
Implement Litter Education campaign 2005, 2006
Provide educational and logistical support for student initiatives such as litter clean-ups. (2003, 2004, 2005, 2006)
Identify Faculty needs related to stormwater education.

***Performance Measures:**

Reduction of campus litter picked up by Facilities Management.
Faculty interest in stormwater resources.
Number of students involved in litter clean-up events.

***Responsible Party for this BMP:**

Name: Candice Richards
Department: Facilities Management
Phone: 218 726-8261
E-mail: Crichar1@d.umn.edu

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BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: PUBLIC EDUCATION AND OUTREACH

Unique BMP Identification Number: 1c-3

***BMP Title:** Education Program: Illicit Discharge Detection and Elimination

***Audience(s) Involved:**

Employees
Students
Contractors
General Public

***Educational Goals for Each Audience:**

Employees – Inform employees of what illicit discharges are and how they can prevent them.
Students – Inform student of what illicit discharges are and how they can prevent them.
Contractors – Inform contractors of what illicit discharges are and how they can prevent them.
General Public – Inform general public of what illicit discharges are and how they can prevent them.

***Activities Used to Reach Educational Goals:**

Our website will be our primary tool used to meet the educational goals for illicit discharge detection and elimination. Our audiences will be directed to the website by email, Statesman's ads, and our annual meeting. The annual meeting will also be a tool to increase awareness of illicit discharges. Contractors are informed through their Storm Water Pollution Prevention Plans associated with the construction project and through storm drain marking requirements. The general public will be informed through the RSPT group with activities, ads, LakeSuperiorStreams.org, and brochures.

***Activity Implementation Plan:**

Examples of illicit discharges on website – Done 2003
The annual meeting will happen annually.
Employees will be educated as needs arise – (3d-1)
Storm drain marking – as new catch basins are installed.

***Performance Measures:**

Track reports of illicit discharges and corresponding training response. (See 3c-1)

***Responsible Party for this BMP:**

Name: Candice Richards
Department: Facilities Management
Phone: 218 726-8261
E-mail: Crichar1@d.umn.edu

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BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: PUBLIC EDUCATION AND OUTREACH

Unique BMP Identification Number: 1c-4

***BMP Title:** Education Program: Construction Site Run-off Control

***Audience(s) Involved:**

University of Minnesota Project Managers, assigned through the Capital Planning Project Management (CPPM) department, for each construction project.

Construction site supervisors for the general contractors.

***Educational Goals for Each Audience:**

Project Managers understand:
1. Requirement that each project design incorporates erosion and soil control requirements meeting jurisdictional standards and for projects >1 acre meeting MPCA permit requirements.
2. General practices likely to be applicable to any project including silt fences, storm inlet protection, entry/exit stabilization and site stabilization procedures for any exposed soil.
3. Requirement that Contractor is responsible to implement these per schedules and specifications of the construction documents.
4. Requirement that Contractor is responsible for inspection of the control effectiveness and correction of any problems.

Construction Site Supervisors understand:
1. Site specific specifications and schedules for erosion and soil controls for the project.
2. Contractor's responsibility for implementation of these specifications and schedules.
3. Contractor's responsibility for inspection of the effectivenes of rthe controls and correction of problems

***Activities Used to Reach Educational Goals:**

Project Managers:
Initial training of Project Managers
Training for all new internal or external Project Managers
Biannual training refreshers for all CPPM Project Managers

Construction Site Supervisors:
Review of site specific specifications and schedules with architect engineer or DEHS
Review of specific erosion control methodologies
Review of inspection checklists and logs

***Activity Implementation Plan:**

1. Training Program
   - Initial training of Project Managers in 2006
   - Training for all new internal or external Project Managers
   - Biannual training refreshers for all CPPM Project Managers, 2008, 2010
2. Checklist development - 2006
3. Construction Site Supervisor Review
   - Pre-construction site review with A/E or DEHS - 2006
   - Incorporation into Construction Standards that A/E does review and documents same – Next Revision

***Performance Measures:**

1. Training documentation of initial and refresher training
2. Submittal and review of inspection checklists and logs
3. Periodic site audits by DEHS
4. Lack of citations by external inspections

***Responsible Party for this BMP:**

Name: Assistant Director, Environmental Health & Safety (Andrew Phelan)

Department: Environmental Health and Safety

Phone: 612-626-7744

E-mail: andyph@umn.edu

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BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: PUBLIC EDUCATION AND OUTREACH

Unique BMP Identification Number: 1c-5

***BMP Title:** Education Program: Post-Construction Stormwater Management in New Development and Redevelopment

***Audience(s) Involved:**

University of Minnesota Project Managers, assigned through the Capital Planning Project Management (CPPM) department, for each construction project.

Architect/Engineers for each project.

***Educational Goals for Each Audience:**

Project Managers:
1. University's standard "….of no net increase in storm water volume, rate or pollutant loads from new construction and redevelopment that add impervious surfaces"
2. The Minnesota Pollution Control Agency (MPCA) requirement of a separate National Pollutant Discharge Elimination System (NPDES) construction permit for any construction site or common project that disturbs more than one acre. Projects on the UM-Duluth Campus (UMD) require permits including section addressing trout stream on campus ("special water")
3. NPDES construction permit requires specific water quantity and quantity standards be met for all projects that add more than one acre of impervious surface and for special waters in UMD.

Architect/Engineers
1. Design projects that meet University, MPCA and local jurisdictional requirements for water quality and water quantity.
2. Incorpoate post construction BMPs .

***Activities Used to Reach Educational Goals:**

Project Managers:
Initial training of Project Managers
Training for all new internal or external Project Managers
Biannual training refreshers for all CPPM Project Managers

Architect/Engineers
Create fact sheet specifying University standards for construction projects of varying types, sizes and land disturbances
Create submittal checklist to accompany project documents for review by DEHS
Integrate items above into University Construction Standards

***Activity Implementation Plan:**

1. Training Program
   - Initial training of Project Managers in 2006
   - Training for all new internal or external Project Managers, ongoing
   - Biannual training refreshers for all CPPM Project Managers, 2008, 2010
2. Fact Sheet Checklist development 2006
3. Process to get Fact Sheet and Checklist to A/E for each project 2007
4. Integration into the next revision of Construction Standards Next revision

***Performance Measures:**

Training Documents
Fact sheet
Checklist
Construction Standards revision

***Responsible Party for this BMP:**

Name:	Assistant Director, Environmental Health & Safety (Andrew Phelan)
Department:	Environmental Health and Safety
Phone:	612-626-7744
E-mail:	andyph@umn.edu

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BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: PUBLIC EDUCATION AND OUTREACH

Unique BMP Identification Number: 1c-6 (Revised 9-25-06)

***BMP Title:** Education Program: Pollution Prevention/Good Housekeeping for Municipal Operations

***Audience(s) Involved:**

Employees of Grounds, Construction, Project Managers, Engineers, Environmental Health and Safety, Mechanical and Plumbing, Parking Services, Housing Maintenance, Custodians and other operations departments at UMD.
UMD Students; Contractors working for UMD; Faculty, Staff, and Campus Community.

***Educational Goals for Each Audience:**

Affected **employees** will know the impact of their work and how to prevent stormwater pollution.
BMP information will be available when operation is performed.
The Campus Community will have a greater awareness of the impact of their individual and collective actions on stormwater pollution.

***Activities Used to Reach Educational Goals:**

Group training meetings for BMPs / Informational signage / BMP Fact Sheets / Website referrals
Also see sections: 1a-1, 1b-1, 1c-3, 1c-4, 1c-5, 3d-1, 4a-1, 4b-1, 4c-1, 4d-1, and 6a-1 through 6a-7.

***Activity Implementation Plan:** Summary of BMP education for employees: (also see BMP's listed above). Create repetitive annual work orders for seasonal review by affected operations staff. Integrate BMPs into ongoing task training and reviews for new and existing employees. Contribute stormwater awareness information to campus events such as Beautiful U Day, Earth day, etc.

6a-2 Street Sweeping - 2007 Develop fact sheet for employees and contractors
6a-3 Exterior Loading Docks – 2008 Develop loading/unloading procedure training
6a-4 Impervious Surface Management – 2008 Educate re: long term storage, 2009 Vehicle Maintenance
6a-5 Salt / Sand Handling and Storage – Annual review of handling procedures
6a-6 Landscape Particulate Handling and Storage – Annual review of BMP
6a-7 Snow Storage – 2007 Train operators / contractors proper snow storage, annual review
6a-8 Handling of Hazardous Materials and Environmental Pollutants –Signage posted
6a-9 Dumpster / Litter Management – Annual campus education event
6a-10 Fueling System Spill Protection – Signage posted 2004
6a-11 Vehicle and Equipment Washing – 2008 develop fact sheet and post
6a-12 Swimming Pool Maintenance – BMP fact sheet posted
6a-13 Roof Top Weed Control – 2009 train employees in procedure
6a-14 Pond Maintenance / Cleaning – Review procedure with affected employees prior to annual clean up
6a-15 Landscape and Turf Management – Annual review for pesticide applicator licensing

***Performance Measures:**

Number of staff trained in BMPs.
Number of complaints or errors made regarding improper application of BMPs.
Time charged to stormwater training work orders.

***Responsible Party for this BMP:**

Name: Candice Richards
Department: Facilities Management
Phone: 218 726-8261
E-mail: Crichar1@d.umn.edu

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BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: PUBLIC EDUCATION AND OUTREACH

Unique BMP Identification Number: 1d-1

***BMP Title:** Coordination of Education Program

***BMP Description:**

The UMD Stormwater Education program is coordinated through UMD Facilities Management as directed by the UMD Stormwater Steering Committee, and with support of Regional Stormwater Protection Team, Minnesota Sea Grant College Program and varying University of Minnesota Colleges and Departments.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP.

***Measurable Goals:**

To identify and use existing University of Minnesota resources for storm water education.
To participate in Regional Stormwater Protection Team educational activities.
To integrate storm water education into on-going campus activities such as Earth Week and campus clean-ups.
To integrate Best Management Practices for Pollution Prevention/Good Housekeeping for Municipal Operations into new and on-going employee training.

***Timeline/Implementation Schedule:**

2003, 2004, 2005, 2006 and annually throughout the permit period.

Specific Components and Notes:

refer to: 1b-1, 1a-1, 1d-1 and 1c-1 to 1c-6

***Responsible Party for this BMP:**

Name: Candice Richards
Department: Facilities Management
Phone: 218 726-8261
E-mail: Crichar1@d.umn.edu

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BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: PUBLIC EDUCATION AND OUTREACH

Unique BMP Identification Number: 1e-1

***BMP Title:** Annual Public Meeting

***BMP Description:**

The UMD Storm Water Steering Committee has sought public input by holding annual public meetings, beginning in February 2003.
An annual public meeting will continue to be held to review the program and invite public questions and comments on the UMD SWPPP through the term of the permit.

Location(s) in SWPPP of detailed information relating to this BMP:
This summary sheet details all SWPPP information for this BMP.

***Measurable Goals:**

Conduct public meeting annually. 2003, 2004, 2005, 2006 Completed

The UMD public will be notified of the Annual Public SWPPP Meeting a minimum of 30 days in advance

Forms will be available for public comment.

Meetings will be attended by UMD Faculty, Staff and Students.

***Timeline/Implementation Schedule:**

The UMD public will be notified of the Annual Public SWPPP Meeting a minimum of 30 days in advance. Because UMD is a non-traditional MS4, and the official (and most effective) means of communication is electronic mail, the announcement will be sent to the UMD public by email message, and in electronic publication (UMD Currents). A notice in print media (UMD Statesman) will supplement the official notice.

Specific Components and Notes:

Number of attendees and comments will be documented and kept on record.
Meeting time and place will be chosen to attract greatest number of participants.
Particpants will be encouraged to comment on the adequacy of the SWPPP.
Additional notices will be made during the week preceding the meeting, to encourage attendance.

***Responsible Party for this BMP:**

Name: Candice Richards
Department: Facilities Management
Phone: 218 726-8261
E-mail: Crichar1@d.umn.edu

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Minimum Control Measure 2: Public Involvement and Participation

The MPCA General Permit requires municipalities to involve stakeholder groups, including local governments, businesses, and citizens, in making decisions about storm water management priorities and programs.

For the purpose of the SWPPP, the UMD "public" is defined as employees, students, and contractors that make up the campus community. An involved community is more likely to understand the need for, and thus support the success of a storm water program, and so we encourage involvement in its creation, implementation and evaluation. All input is documented and responded to as appropriate.

In recognition that we are but a small part of the Lake Superior watershed area, and that we are also part of the larger Duluth/Superior area, we have also initiated and are working with the surrounding MS4s to promote storm water education and to address shared storm water problems through the Regional Stormwater Protection Team.

Public Participation/Involvement Best Management Practice Summaries

BMP ID Numbers	BMP Title	Permit Reference
2a-1	Comply with Public Notice Requirements	**V.G.2.a**
2b-1	Solicit Public Input and opinion on the Adequacy of the SWPPP	**V.G.2.b**
2c-1	Consider Public Input	**V.G.2.c**

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BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 2-PUBLIC PARTICIPATION/INVOLVEMENT

Unique BMP Identification Number: 2a-1

***BMP Title:** Comply with Public Notice Requirements

***BMP Description:**

The UMD public will be notified of the Annual Public SWPPP Meeting a minimum of 30 days in advance. Because UMD is a non-traditional MS4, and the official (and most effective) means of communication is electronic mail, the announcement will be sent to the UMD public by email message.

A notice in print media (UMD Statesman) and in campus electronic news publications (UMD Currents) will supplement the official notice.

A copy of the notice will be made available to all who have requested to be informed of such public meetings.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP.

***Measurable Goals:**

The UMD public will be notified of the Annual Public SWPPP Meeting a minimum of 30 days in advance.
The Annual Public SWPPP will be scheduled prior to the annual report submittal to the Commissioner.

***Timeline/Implementation Schedule:**

The UMD public will be notified of the Annual Public SWPPP Meeting a minimum of 30 days in advance.
The Annual Public SWPPP will be scheduled prior to the annual report submittal to the Commissioner.

Specific Components and Notes:

The announcement will be sent to the UMD public by email message. A notice in print media (UMD Statesman) and in campus electronic news publications (UMD Currents) will supplement the official notice.
The notice will include location, date, time and a description of the meeting, and location where the SWPPP is available for public review.

***Responsible Party for this BMP:**

Name: Candice Richards

Department: Facilities Management

Phone: 218 726-8261

E-mail: Crichar1@d.umn.edu

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BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 2-PUBLIC PARTICIPATION/INVOLVEMENT

Unique BMP Identification Number: 2b-1

***BMP Title:** Solicit Public Input and opinion on the Adequacy of the SWPPP

***BMP Description:**

(Includes 2b-1 and 2c-1)

Measure 2: Public Involvement and Participation
For the purpose of the SWPPP, the UMD "public" is defined as employees, students, and contractors that make up the campus community. An involved community will be more likely to understand the need for, and thus support the success of a storm water pollution prevention program. Involvement has been, and will be encouraged in its creation, implementation and evaluation.

UMD will Solicit Public Input and opinion on the adequacy of the SWPPP in three primary ways:

1. The SWPPP Steering Committee will seek knowledgeable representation and will include stakeholders representing Environmental Health and Safety, academic departments, research facilities, Auxiliary Services and Facilities Management Departments, and students. The committee will be appointed by the Vice Chancellor for Finance and Operations, and is established to provide oversight of UMD's Storm Water Pollution Prevention Program, and to create sub-committees as needed to solicit broader involvement. A representative from the steering committee will chair each sub-committee and report on the subcommittees' actions.

2. The UMD Storm Water Steering Committee will seek public input by holding public meetings, beginning with an initial draft review in February 2003 and annually thereafter. Beginning in 2004, an annual public meeting will be held to review the program and invite public questions and comments on the UMD SWPPP. (see 1e-1)

3. Comment forms and contact information are available on the UMD Storm Water web site.
Public input, oral and written, regarding the adequacy of the Storm Water Pollution Prevention Program will be documented and considered by the UMD SWPPP Steering Committee.

Adjustments will be made to the SWPPP that are found to be appropriate by the SWPPP Steering Committee prior to submittal of the annual report.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP.

***Measurable Goals:**

A Steering Committee will be appointed: (completed 2003, 2004, 2005, 2006)
The steering committee will meet quarterly, or as needed.
At least one member of the steering committee will represent UMD on the Regional Storm Water Protection Team.
Evaluation forms will be available at public meetings to solicit comments on the SWPPP.
Contact information is available on Regional Storm Water Protection Team publications and the LakeSuperiorStreams.org web site.

***Timeline/Implementation Schedule:**

Completed 2003,2004,2005
Calendar year 2006 and each plan year
Public Comments can be submitted at any time.
Comments received within 14 days following the Annual Meeting will be incorporated into the annual report.
There will be a 30 day review period for public comments.
Comments will be responded to within 45 days of receipt.

Specific Components and Notes:

The SWPPP Steering Committee will seek stakeholders representing Environmental Health and Safety, academic departments, research facilities, Auxiliary Services and Facilities Management Departments, and students.

***Responsible Party for this BMP:**

Name: Candice Richards
Department: Facilities Management
Phone: 218 726-8261
E-mail: Crichar1@d.umn.edu

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BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 2-PUBLIC PARTICIPATION/INVOLVEMENT

Unique BMP Identification Number: 2c-1

***BMP Title:** Consider Public Input

***BMP Description:**

refer to 2b-1

Location(s) in SWPPP of detailed information relating to this BMP:

Refer to 2b-1

***Measurable Goals:**

refer to 2b-1

***Timeline/Implementation Schedule:**

refer to 2b-1

Specific Components and Notes:

refer to 2b-1

***Responsible Party for this BMP:**

Name: Candice Richards

Department: Facilities Management

Phone: 218 726-8261

E-mail: Crichar1@d.umn.edu

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Minimum Control Measure 3: Illicit Discharge Detection and Elimination

According to the MPCA's *Guidance Manual For Small Municipal Separate Storm Sewer Systems*:

> "Federal regulations define an illicit discharge as "…any discharge to a MS4 that is not composed entirely of storm water…" with some exceptions. These exceptions include discharges from NPDES-permitted industrial sources and fire-fighting activities. Illicit discharges are considered "illicit" because MS4s are not designed to accept, process, or discharge such non-storm water wastes. It is important to note that illicit does not mean illegal.
>
> Illicit discharges enter the system through either direct connections (i.e. wastewater piping either mistakenly or deliberately connected to the storm drains) or indirect connections (i.e. infiltration into the MS4 from cracked sanitary systems, spills collected by drain outlets, or paint or used oil dumped directly into a drain). The result is untreated discharges that 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."

According to EPA definition in 40 CFR Part 122.26, non-storm discharges can include 'Water line flushing, landscape irrigation, diverted stream flows, rising groundwaters, uncontaminated ground water infiltration, and uncontaminated potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residence car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water.' **The EPA does not consider these discharges as "illicit" unless they are identified as significant contributors of pollutants by the individual MS4**.

UMD has not identified any of these discharges to be illicit in and of themselves and therefore none are specifically part of the SWPPP. However, several are addressed within the Construction Site Sediment and Erosion Control and Pollution Prevention and Good Housekeeping BMPs with relation to other construction and land use issues. If, upon further study, it is found that one of these discharges may actually be a "significant contributor of pollutants" to our MS4, it will be thoroughly investigated and appropriate BMP's developed. To identify illicit discharges, it is important to know the system and its surroundings. As the outlying UMD properties are relatively small and uncomplicated, with few buildings and single watersheds, we will be dealing mainly with the main UMD campus area.

There are three distinct watersheds that flow through the campus:

> The West Branch of Tischer Creek flows along the northeastern boundary of campus. It has several small tributaries that start in the Bagley Nature Area. Tischer Creek, including its branches, is a protected trout stream per MN Rules 6264.0050 Subpart 4 (PP78). Because of this, temperature increases from impervious surfaces must also be addressed along with the standard water quality issues. UMD has two ponds (Rock Hill and Eric Clarke) within this watershed. Rock Hill pond was built in the 1970's as a recreational pond and Eric Clarke pond was built 1965 for storm water detention. UMD has several storm sewer outfalls into the West Branch of Tischer Creek.

Oregon Creek starts just above campus in a residential neighborhood and is piped down the south side of campus alternating between city and university storm sewer lines. 46 percent of the campus land area and 55 percent of the campus impervious surface discharge into this storm system. Part of this system is a campus sediment pond (Fire Hall Pond). Approximately eight percent of the campus land area and eight percent of the campus impervious surface feed this pond, as well as several square blocks of city neighborhoods. Oregon Creek emerges as a surface stream one half block below campus. On the Lower Campus (listed on the *National Historic Register* as Old Main) Oregon Creek is partially confined by rock walls and passes under the Research Laboratory Building. From there it is intermittently confined to pipe by the City of Duluth until it empties into Lake Superior. Oregon Creek has experienced localized flooding and stream bank erosion downstream of campus. Oregon Creek is not listed as a protected or special waters, and the campus is located more than 2000' from Lake Superior. Therefore UMD is not subject to more rigorous ORVW or special water standards on this portion of campus.

Chester Creek (*a designated trout stream, MN Rules 6264.0050 Subpart 4 (PP18)*) takes overland runoff, via the city of Duluth storm sewer system, from a small parcel of University land on the northwest corner of W. College Street and Junction Avenue. With an understanding of water quality issues, there are specific illicit discharge requirements as listed in MPCA's General Permit. The University must:

1. Develop a storm sewer map (section V.G.3.a)
2. Prohibit non-storm discharges through ordinance or other regulatory mechanism and implement appropriate enforcement procedures and actions (section V.G.3.b.)
3. Develop and implement a program to detect and address non-storm discharges, including illegal dumping (section V.G.3.c)
4. Inform employees and the general public in our MS4 area of hazards associated with illegal discharges and improper disposal of wastes (section V.G.3.d)
5. Address categories of non-storm water discharges or flows, only if we identify them as significant contributors of pollutants to our system (section V.G.3.e)

Best management practices addressing illicit dumping or discharges during construction or maintenance procedures are included in the Construction Storm Water Runoff Control and Pollution Prevention/Good Housekeeping measures. Educational information relating to illicit discharges are identified in 1b-1 and 1c-3.

The University's Environmental Management Policy and it's Storm Water Compliance Procedure (http://policy.umn.edu/groups/ppd/documents/Policy/Environmental_pol.cfm and http://policy.umn.edu/groups/ppd/documents/procedure/environmental_proc01.cfm) specifically prohibit non-storm water discharges unless they determined to be non-illicit such as those described in 40 CFR Part 122.26.

Illicit Discharge Best Management Practice Summaries

BMP ID Numbers	BMP Title	Permit Reference
3a-1	Storm Sewer System Map	**V.G.3.a**
3b-1	Regulatory Control Program	**V.G.3.b**
3c-1	Illicit Discharge Detection and Elimination Plan	**V.G.3.c**
3d-1	Public and Employee Illicit Discharge Information Program	**V.G.3.d**
3e-1	Identification of Non Stormwater Discharges and Flows	**V.G.3.e**

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BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 3-ILLICIT DISCHARGE DETECTION AND ELIMINATION

Unique BMP Identification Number: 3a-1 – Updated 2007

***BMP Title:** Storm Sewer System Map

***BMP Description:**

Develop and maintain maps of storm water conveyance systems on UMD properties for use and review by university employees, architects, engineers, and contractors. Maps to contain location, size, and departmental control of system components such as pipes, outfalls, ponds, and structural pollution control devices.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP.

***Measurable Goals:**

Invert elevations and location of manholes, catch basins, and outfall culverts on main portion of campus
Produce map for Glensheen
Review and update map for Limnology
Add wetland delineations to main campus map
Review and update map for NRRI
Review and update map for lower campus
Update existing main campus storm water map for new construction

***Timeline/Implementation Schedule:**

Invert elevations and location of MH, CB, and outfall culverts on main portion of campus - Done 2003
Produce map for Glensheen - Done 2004
Review and update map for Limnology - Done 2005
Add wetland delineations to main campus map - Done 2007
Review and update map for NRRI -Done 2006
Review and update map for lower campus - Done 2007
Update existing main campus storm water map for past years new construction - Annual

Specific Components and Notes:

Show ponds, streams, lakes and wetlands.
Show structural pollution control devices that are part of the systems.
Show all pipes 12 inches in diameter and greater. Include smaller size pipe if possible.
Show ownership of conveyances and outfalls from UMD systems.
Number manholes, catch basins, and outfalls.
Show sub watershed divisions if applicable.

***Responsible Party for this BMP:**

Name: Erik Larson
Department: Facilities Management
Phone: 218-726-6915
E-mail: elarson@d.umn.edu

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 3-ILLICIT DISCHARGE DETECTION AND ELIMINATION

Unique BMP Identification Number: 3b-1

***BMP Title:** Regulatory Control Program

***BMP Description:**

As a land grant institution with its own building code official, the University has the legal authority to operate its storm water system in a manner necessary to comply with the applicable regulations. The University therefore has the power to formulate administrative procedures for the operation, management, and maintenance of the storm water system, as well as the power to control illicit discharges, spills and dumping.

Location(s) in SWPPP of detailed information relating to this BMP:

The information included or referenced on this Summary Sheet is intended to meet all SWPPP requirements for this BMP.

***Measurable Goals:**

-Develop draft administrative procedure to address illicit discharges, spills and dumping
-Complete process for acceptance as University administrative procedure
-Develop specific programs to identify and control illicit discharges, spill and dumping
-Implement specific programs to identify and control illicit discharges, spills and dumping

***Timeline/Implementation Schedule:**

-Develop draft administrative procedure to address illicit discharges, spills and dumping	2006
-Complete process for acceptance as University administrative procedure	2007
-Develop specific programs to identify and control illicit discharges, spill and dumping	2006
-Implement specific programs to identify and control illicit discharges, spills and dumping	2007

Specific Components and Notes:

***Responsible Party for this BMP:**

Name: Assistant Director, Environmental Health & Safety (Andrew Phelan)

Department: Environmental Health and Safety

Phone: 612-626-7744

E-mail: andyph@umn.edu

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 3-ILLICIT DISCHARGE DETECTION AND ELIMINATION

Unique BMP Identification Number: 3c-1 – Revised 2007

***BMP Title:** Illicit Discharge Detection and Elimination Plan

***BMP Description:**

Illicit discharges outside of construction activities are believed to be rare. There is no reason for our constituents to improperly dispose of waste. Environmental Health and Safety Department has systems in place to dispose of chemicals and other hazardous waste, and garbage service is available at all our buildings. The areas that we could have illicit discharges are from improperly connected plumbing features, ground water contamination and/or uninformed employees or students. To this end we will put together a plan to address these issues. It will consist of three parts:

1) Review our storm water system for evidence of incorrectly piped plumbing features through BMP 6b-3 and videotape the major storm lines on main campus (3e-1).

2) Determine the location of building sumps and draintiles that are in the vacinity of known contaminates and verify that groundwater near these areas do not constitute an illicit discharge (3e-1).

3) Educate our employees on what constitues an illict dischage through 3d-1

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP. Related BMP's are 6b-3 / 3d-1 / 3e-1 / 1c-3

***Measurable Goals:**

Videotape storm sewer system
Review A/E report on system
Include examples of illicit discharges on website
Investigate unknown lines (20% Annually)
Develop plan for modification of lines with illicit discharge
Determine location of building sumps and drain tile
Map MPCA Reported Spills
Compare MPCA reportable spills to sump and drain tile locations completed
Test sump / drain tile water in vicinity of spill locations
Correction of illicit discharges found during investigations

***Timeline/Implementation Schedule:**

Videotape storm sewer system - Done 2003
Review A/E report on system - Done 2004
Include examples of illicit discharges on website - Done 2004
Investigate unknown lines - 20% Annually
Develop plan for modification of lines with illicit discharge - As needed
Determine location of building sumps and drain tile - 2008
Map MPCA Reported Spills - Done 2005
Compare MPCA reportable spills to sump and drain tile locations completed - 2008
Test sump / drain tile water in vicinity of spill locations - 2008
Correction of illicit discharges found during investigations - Within 2 years of discovery

Specific Components and Notes:

Verify sources of unknown connections found during video documentation of lines.
Develop plan to disconnect illicit discharge and obtain funding. Funding may require bi-annual legislatively approved funds.
Complete modifications based of monies available and protential environmental hazard.
Investigate for connection to non-contact cooling systems, sanitary cross-connects, etc.

***Responsible Party for this BMP:**

Name: Erik Larson

Department: Facilities Management

Phone: 218-726-6915

E-mail: elarson@d.umn.edu

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 3-ILLICIT DISCHARGE DETECTION AND ELIMINATION

Unique BMP Identification Number: 3d-1– Revised 2007

***BMP Title:** Public and Employee Illicit Discharge Information Program

***BMP Description:**

Provide employees with information on procedures that will stop or prevent illicit discharges to our storm water system. The vehicle for delivering this information will be mainly through the SWPPP website and periodic email reminders to review the infromation.
Provide the general public with information as to what an illicit discharge is and why they are a problem. This will be achieved theough the SWPPP website, annual meetings, MN SeaGrant presentations, RSPT educational material and a illicit discharges sectionon the LakeSuperiorStreams.org website.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP. Related BMP is 1c-3

***Measurable Goals:**

Develop examples of illicit discharges for website
Develop Sewer Dye Testing Procedure
Develop Procedures for reporting Unusual Characteristics in Local Surface Waters
Develop Swimming Pool Maintenance Procedure
Include catch basin identifying stamp as part of new construction
Portable Toilet Procedure
Discuss illicit discharges at annual meeting

***Timeline/Implementation Schedule:**

Examples of illicit discharges on website - Done 2004
Sewer Dye Testing Procedure on website - Done 2004
Procedures for reporting Unusual Characteristics in Local Surface Waters - Done 2005
Swimming Pool Maintenance Procedure on website - Done 2004
Include catch basin identifying stamp as part of new construction - Done 2005
Portable Toilet BMP - Done 2007
Discuss illicit discharges at annual meeting - 2006-2011

Specific Components and Notes:

As problems are identified, specific targeted training will be necessary to inform specific employee groups of actions they should or should not be taking to protect water quality.

***Responsible Party for this BMP:**

Name: Erik Larson
Department: Facilities Management
Phone: 218-726-6915
E-mail: elarson@d.umn.edu

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 3-ILLICIT DISCHARGE DETECTION AND ELIMINATION

Unique BMP Identification Number: 3e-1-Revised 2007

***BMP Title:** Identification of Non Stormwater Discharges and Flows

***BMP Description:**

The identification of Non Stormwater Discharges and Flows on campus is particularly difficult. The UMD campus is located in highly saturated clay soils and buildings and roads have significant draintile and sump pump systems to protect and stabilize them. These systems are almost constantly functioning supplying ground water into our storm water systems. In BMP 3c-1 and 6b-3 we address our plan for looking for and identifying illicit discharges. According to EPA definition in 40 CFR Part 122.26, non-storm discharges can include "Water line flushing, landscape irrigation, diverted stream flows, rising groundwaters, uncontaminated ground water infiltration, and uncontaminated potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residence car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water." The EPA does not consider these discharges as “illicit” unless they are identified as significant contributors of pollutants by the individual MS4. UMD has not identified any of these discharges to be illicit in and of themselves and therefore none are specifically part of the SWPPP. If, upon further study, it is found that one of these discharges may actually be a “significant contributor of pollutants” to our MS4, it will be thoroughly investigated and appropriate BMP’s developed.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP. Related BMP are 6b-3 / 3c-1

***Measurable Goals:**

Videotape storm sewer system
Review A/E report on system
Investigate unknow lines
Determine location of building sumps and drain tile (20% Annually)
Map MPCA Reported Spills
Compare MPCA reportable spills to sump and drain tile locations completed
Test sump / drain tile water in vicinity of spill locations

***Timeline/Implementation Schedule:**

Videotape storm sewer system - Done 2003
Review A/E report on system - Done 2004
Investigate unknown lines - 20% Annually
Determine location of building sumps and drain tile - 20% Annually, or until completed
Map MPCA Reported Spills - Done 2005
Compare MPCA reportable spills to sump and drain tile locations completed - 2006
Test sump / drain tile water in vicinity of spill locations - 2008

Specific Components and Notes:

***Responsible Party for this BMP:**

Name: Erik Larson
Department: Facilities Management
Phone: 218-726-6915
E-mail: elarson@d.umn.edu

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Regulatory Programs Overlapping with Illicit Discharge Requirements

There are many other highly developed regulatory programs, which meet the intent of identifying and addressing illicit discharge. For example,

SPCC- UMD has a Spill Prevention Control and Countermeasures Plan. In essence, this plan requires an engineer's evaluation of spill containment measures to minimize releases to the environment. The University has reviewed oil storage containers for the potential for spills to the environment and has made structural and non-structural improvements. In some instances, structural secondary containments have been installed and/or enhanced. In other instances, operational procedures including training are being developed to safely handle oils and clean up spills if applicable. AST and UST requirements overlap with SPCC and provide monitoring to document tank integrity among other protections.

Chemical Hygiene Plan – The University's Chemical Hygiene Plan requires training of safe and appropriate chemical transportation, storage, use and disposal. Students, staff and faculty are trained in these requirements. This is a requirement for new students and faculty before working in University laboratories. These requirements are monitored through the U of M Department of Environmental Health and Safety.

RCRA Regulations – The U of M has constructed a state-of-the-art integrated waste management facility (IWMF) at the Twin Cities campus, for treating and disposing of hazardous materials. As a source specific category under the EPA Phase 1 Rule, IWMF included many structural and operational best management practices to virtually eliminate any exposure of significant materials to storm water. In terms of structural BMPs, the facility is designed so that all significant materials are stored indoors. Even chemical unloading occurs in an enclosed loading dock with spill protection. The IWMF facility maintains appropriate equipment and training to respond to chemical spills on the UMTC campus. The equipment includes a spill response truck with secondary containment so that if a spill happened inside the truck during transportation, it would be contained. On the Duluth campus, hazardous materials needing disposal are collected, stored, and shipped to the IWMF under the direction of a U of M Department of Environmental Health and Safety employee stationed in Duluth.

U of M EHS staff are regularly trained on spill response procedures. The U of M maintains an after-hour emergency response' pager system to ensure that appropriate expertise available for after hours emergencies.

The U of M already has formal programs for addressing these types of possible illicit discharges in its system, and many other overlapping regulatory programs that also protect water quality.

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Minimum Control Measure 4: Construction Storm Water Runoff Control

According to the EPA Fact sheet on Construction Site Runoff Control (http://www.epa.gov/npdes/pubs/fact2-6.pdf), "sediment runoff rates from construction sites are typically 10 to 20 times greater than those of agricultural lands, and 1,000 to 2,000 times greater than those of forest lands. During a short period of time, construction sites can contribute more sediment to streams than can be deposited naturally during several decades. The resulting situation, and the contribution of other pollutants from construction sites, can cause physical, chemical, and biological harm to our nation's waters."

Construction sites on U of M properties that can potentially impact receiving waters will be subject to sediment and erosion control requirements. In addition, all U of M construction sites that disturb greater than 1 acre are also required to apply for a MPCA NPDES Construction Site Permit. There are many overlaps between these regulatory requirements. For more information on MPCA Construction Site Permitting, see http://www.pca.state.mn.us/water/stormwater/stormwater-c.html.

The University's Environmental Management Policy and it's Storm Water Compliance Procedure (http://policy.umn.edu/groups/ppd/documents/Policy/Environmental_pol.cfm and http://policy.umn.edu/groups/ppd/documents/procedure/environmental_proc01.cfm) specifically require compliance with MPCA storm water requirements and in some cases include additional more stringent requirements. Where these regulatory programs do overlap, the more stringent requirements take precedent.

Additional information on U of M storm water permitting requirements can be found in the *University of Minnesota Standards & Procedures for Construction.* (*University of Minnesota Standards & Procedures for Construction, Program Information/Requirements, Basic Design Requirements, 3 Permits, 3.3 Storm Water Permits and Requirements). http://www.cppm.umn.edu/standards/ProgramInfo.pdf*

Like the NPDES Construction Permit, U of M construction projects are required to have temporary and permanent erosion and sediment control measures incorporated into the design. The construction documents must identify specific controls and locations as well as contractor implementation and inspection responsibilities. (*University of Minnesota Standards & Procedures for Construction, Division 1 -General Requirements, 01500 – Construction Facilities and Temporary Controls, 7. Temporary Erosion and Sediment Controls* http://www.cppm.umn.edu/standards/Division1.pdf).

As required by the *University of Minnesota Standards & Procedures for Construction*, the A/E will identify temporary and permanent control measures that are site specific and will include them in the construction documents. Temporary controls include, but are not limited to, silt fences, storm inlet protections, entry/exit stabilization as well as site stabilization procedures for exposed soils.

The contractor is required to implement these measures and to inspect weekly, or after each rain (participation) event, for control effectiveness. Any storm water discharge from a construction site must be "sediment free". The temporary erosion and sediment control measures apply from the start of construction until "final stabilization". Final stabilization is defined as the time when all soil-disturbing activities at the site have been completed, vegetative cover (with a density of 70 percent of the cover for unpaved areas

and areas not covered by permanent structures) has been established or equivalent permanent stabilization measures have been employed.

The 2002 *University of Minnesota Standards & Procedures for Construction* can be found at: http://www.cppm.umn.edu/standards.html

A "Storm Water Hotline" has been set up on the UMD storm water web page (http://www.d.umn.edu/fm/stormwater/hotline.htm) to field storm water comments or complaints. All comments will be seriously considered and the Minnesota Pollution Control Agency's (MPCA) general permit MN R580000 requires us to summarize all comments made and the actions taken, in our annual storm water report.

There are several excellent resources for construction best management practices.

- Stormwater Practices for Cold Climates - http://www.cwp.org/cold-climates.htm
- Metropolitan Council's Urban Small Sites Best Management Practice Manual http://www.metrocouncil.org/environment/Watershed/bmp/manual.htm
- MPCA's Protecting Water Quality in Urban Areas http://www.pca.state.mn.us/water/pubs/sw-bmpmanual.html

Construction Storm Water Runoff Control Best Management Practice Summaries

BMP ID Numbers	BMP Title	Permit Reference
4a-1	Ordinance or other Regulatory Mechanism	**V.G.4.a**
4b-1	Construction Site Implementation of Erosion and Sediment Control BMPs	**V.G.4.b**
4c-1	Waste Controls for Construction Site Operators	**V.G.4.c**
4d-1	Procedure for Site Plan Review	**V.G.4.d**
4e-1	Establishment of Procedures for the Receipt and Consideration of Reports of Stormwater Noncompliance	**V.G.4.e**
4f-1	Establishment of Procedures for Site Inspections and Enforcement	**V.G.4.f**

BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 4-CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

Unique BMP Identification Number: 4a-1

***BMP Title:** Ordinance or other Regulatory Mechanism

***BMP Description:**

As a non-traditional MS4, the University does not have traditional "regulatory mechanisms." It relies on administrative procedures and contractual relationships to ensure compliance. University Construction Standards, which are incorporated into contracts with Architect/Engineering (A/E) firms, already require construction projects to 'include temporary erosion and sediment controls.' They also require post construction controls. So the basis for this program is in place.

There remains a need to review inspection and enforcement mechanisms to ensure compliance with the construction standards. The UMTC Storm Water Linkage Committee will review and recommend appropriate enforcement mechanisms and sanctions as applicable. Procedures for plan review may be amended if appropriate. The UMTC Linkage Committee will also review and recommend procedures for reports of non-compliance. This committee may also review and recommend checklists for site inspections and/or A/E guidance. These committee's recommendations will be formulated into an administrative procedure for the University, after review by affected parties. This administrative procedure will be the equivalent regulatory mechanism for the University, will be referenced in the construction standards and, as such, will become part of the contract between the University and the engineering and construction contractors.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP.

***Measurable Goals:**

Develop draft administrative procedure per above reflecting comments
Complete process for acceptance as University administrative procedure
Update Construction Standards referencing procedure.
Develop inspection and enforcement tools and assign responsibility
Train Project Managers on Procedure and/or Construction Standards

***Timeline/Implementation Schedule:**

Develop draft administrative procedure per above reflecting comments	Summer, 2006
Complete process for acceptance as University administrative procedure	CY 2006
Update Construction Standards referencing procedure.	Next revision
Develop inspection and enforcement tools and assign responsibility	CY 2006
Train Project Managers on Procedure and/or Construction Standards	Annually

Specific Components and Notes:

See UMTC BMP 4a-1. BMP 4a-1 is a University wide Best Management Practice.
UMD will work with the UMTC to complete this BMP as described in the UMTC SWPPP.

***Responsible Party for this BMP:**

Name: Assistant Director, Environmental Health & Safety (Andrew Phelan)
Department: Environmental Health and Safety
Phone: 612-626-7744
E-mail: andyph@umn.edu

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 4-CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

Unique BMP Identification Number: 4b-1

***BMP Title:** Construction Site Implementation of Erosion and Sediment Control BMPs

***BMP Description:**

Current University Construction Standards require all construction projects to have 'temporary erosion and sediment controls.' Specific examples are listed in the standards to include, but are not limited to, silt fences, storm inlet protection, entry/exit stabilization and site stabilization procedures for any exposed soil. As part of Program Design Requirements, the architect/engineer (A/E) must incorporate such temporary and permanent erosion and sediment controls into construction documents. The Contractor is then required to implement according to schedules and specifications in the construction documents. The contractor is also required to inspect for BMPs effectiveness and correct any problems. The contractor must document all inspections and corrections.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP.

***Measurable Goals:**

Train PMs on Erosion and Sediment Control Requirements
Develop Construction Site Inspection Checklist
Update Construction Standards for A/E requirements
Train PM on Erosion and Sediment Controls

***Timeline/Implementation Schedule:**

Train PMs on Erosion and Sediment Control Requirements	Fall 2006
Develop Construction Site Inspection Checklist	Summer 2006
Update Construction Standards for A/E requirements	Next revision.
Train PM on Erosion and Sediment Controls	Biannually

Specific Components and Notes:

See UMTC BMP 4b-1.
BMP 4b-1 is a University wide Best Management Practice.
UMD will work with the UMTC to complete this BMP as described in the UMTC SWPPP.

***Responsible Party for this BMP:**

Name: Assistant Director, Environmental Health & Safety (Andrew Phelan)
Department: Environmental Health and Safety
Phone: 612-626-7744
E-mail: andyph@umn.edu

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 4-CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

Unique BMP Identification Number: 4c-1

***BMP Title:** Waste Controls for Construction Site Operators

***BMP Description:**

The present revision of the University's Construction Standards does not specifically address 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. The administrative procedure developed to formalize the construction site runoff controls (4a-1 above) will specifically address these issues. The procedure will be integrated into the construction standards in the next revision but will be formally presented to the Project Managers in their annual training in this area.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP. Related BMP 4a-1

***Measurable Goals:**

Research and incorporate best practices for construction site management into the administrative procedure addressing construction site runoff controls.
Include this item as part of annual retraining of project managers, including upper management.
Incorporate this BMP into the next revision of the construction standards.
Incorporate these procedures into site inspection checklist for site runoff control inspections.

***Timeline/Implementation Schedule:**

Research and incorporate best practices for construction site management into the administrative procedure addressing construction site runoff controls. - 2006
Include this item as part of annual retraining of project managers, including upper management. - 2006
Incorporate this BMP into the next revision of the construction standards. - 2006
Incorporate these procedures into site inspection checklist for site runoff control inspections. - 2006

Specific Components and Notes:

See UMTC BMP 4c-1.
BMP 4c-1 is a University wide Best Management Practice.
UMD will work with the UMTC to complete this BMP as described in the UMTC SWPPP.

***Responsible Party for this BMP:**

Name: Assistant Director, Environmental Health & Safety (Andrew Phelan)
Department: Environmental Health and Safety
Phone: 612-626-7744
E-mail: andyph@umn.edu

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 4-CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

Unique BMP Identification Number: 4d-1

***BMP Title:** Procedure for Site Plan Review

***BMP Description:**

All construction project documents are sent to the Department of Environmental Health and Safety for review at each stage of design development. Projects over 10,000 square feet are reviewed for storm water temporary and permanent controls. Architect/Engineers are apprised of the University's standards for storm water controls in the University Construction standards and Project Managers are trained annually on University Administrative procedures. A/E is required to submit a storm water project submittal checklist documenting that they have addressed both temporary and permanent runoff controls.

In addition, projects involving major storm water planning and features are reviewed by the Storm Water Linkage Committee or one of its subcommittees (examples are campus master plans, large basins and forebays on campus, large site plans such as athletic stadiums) to ensure that faculty and operational expertise is incorporated into aspects of the sites, long term planning objectives and the educational aspects of these plans and features.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP.

***Measurable Goals:**

DEHS review of project documents
Finalization of Administrative Storm Water Procedure
Storm Water Project Submittal Checklist developed

***Timeline/Implementation Schedule:**

DEHS review of project documents is ongoing.
Finalization of Administrative Storm Water Procedure - 2006
Storm Water Project Submittal Checklist developed - 2006

Specific Components and Notes:

See UMTC BMP 4d-1.
BMP 4d-1 is a University wide Best Management Practice.
UMD will work with the UMTC to complete this BMP as described in the UMTC SWPPP.

***Responsible Party for this BMP:**

Name: Assistant Director, Environmental Health & Safety (Andrew Phelan)
Department: Environmental Health and Safety
Phone: 612-626-7744
E-mail: andyph@umn.edu

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 4-CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

Unique BMP Identification Number: 4e-1

***BMP Title:** Establishment of Procedures for the Receipt and Consideration of Reports of Stormwater Noncompliance

***BMP Description:**

The University will establish as part of its storm water procedure a program for receipt and consideration of reports of storm water noncompliance. This procedure will include receipt and consideration of a wide range of reports of storm water non-compliance, including construction site runoff issues. It will maintain a website in support of this procedure, listing a fairly comprehensive list of storm water concerns that should be reported. It will determine whether to incorporate this reporting process into its existing confidential reporting system for a wider range of conduct that may be in violation of laws or University policies and procedures.

The development of this procedure will include assigning responsibility for consideration and final determination for these reports. At a minimum, the Department of Environmental Health and Safety will manage the process for tracking. In most cases, it will investigate and apply existing standards and rules to the fact situation. Enforcement for construction site runoff issues will be through the CPPM Project Manager through the contract enforcement mechanism for that project.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP.

***Measurable Goals:**

Determine best reporting route for reports of storm water non-compliance
Develop website for storm water concerns including examples and reporting process.
Develop program for consideration and determination of actions to resolve issues raised in the complaints

***Timeline/Implementation Schedule:**

Determine best reporting route for reports of storm water non-compliance - 2006
Develop website for storm water concerns including examples and reporting process. - 2006
Develop program for consideration and determination of actions to resolve issues raised in the complaints - 2006

Specific Components and Notes:

See UMTC BMP 4e-1.
BMP 4e-1 is a University wide Best Management Practice.
UMD will work with the UMTC to complete this BMP as described in the UMTC SWPPP.

***Responsible Party for this BMP:**

Name: Assistant Director, Environmental Health & Safety (Andrew Phelan)
Department: Environmental Health and Safety
Phone: 612-626-7744
E-mail: andyph@umn.edu

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 4-CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

Unique BMP Identification Number: 4f-1

***BMP Title:** Establishment of Procedures for Site Inspections and Enforcement

***BMP Description:**

As part of the University's Construction Standards, Program Design Requirements, the A/E must incorporate temporary and permanent erosion and sediment controls into construction documents. The Contractor is then required to implement according to schedules and specifications in the construction documents. The contractor is also required to inspect for BMPs effectiveness and correct any problems. The contractor must document all inspections and corrections. For internal review process, enforcement mechanisms and sanctions, please refer to administrative procedure development process per 4a-1.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP. Related BMP is 4a-1.

***Measurable Goals:**

Inspections by construction contractor
Evaluate pre-construction meetings between A/E or DEHS and contractor explaining details and intent of runoff controls. See 1c-4
Development of administrative procedure for internal review enforcement mechanisms and sanctions.

***Timeline/Implementation Schedule:**

Inspections by construction contractor - Ongoing
Pre-construction meetings between A/E or DEHS and contractor explaining details and intent of runoff controls - 2006
Development of administrative procedure for internal review enforcement mechanisms and sanctions. - 2006

Specific Components and Notes:

See UMTC BMP 4f-1.
BMP 4f-1 is a University wide Best Management Practice.
UMD will work with the UMTC to complete this BMP as described in the UMTC SWPPP.

***Responsible Party for this BMP:**

Name: Assistant Director, Environmental Health & Safety (Andrew Phelan)
Department: Environmental Health and Safety
Phone: 612-626-7744
E-mail: andyph@umn.edu

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

Minimum Control Measure 5: Post-Construction Storm Water Management

In addition to the temporary controls required during construction, EPA Phase 2 Storm Water Rules require that all new development and redevelopment projects impacting greater than 1 acre include permanent control measures to reduce storm water impacts on receiving water to the 'maximum extent practicable (MEP).'

According to the UMD Campus Master Plan's Guidelines for Future Campus Development (2005 Update), "UMD, like the City of Duluth, gains character from the streams and ravines that pass through the site." (pg. 64) It goes on to say:

- "Sound runoff management and ecological preservation will convey the message of UMD's concern for and appreciation of it's natural amenities" (pg. 64)
- "Bodies of water, including ponds, creeks, and adjacent wetlands: These areas and their shorelines should be protected from runoff effects and building encroachment." (pg. 64)
- "A plan for detention ponding and runoff filtration should be developed in response to hard surfaces." (pg. 70)

While these guidelines were originally written in 1995 prior to our need to meet Phase II compliance, and may seem a little bit simplistic, they show that post-construction storm water management was already on the minds of the campus planners.

The University's Environmental Management Policy and it's Storm Water Compliance Procedure (http://policy.umn.edu/groups/ppd/documents/Policy/Environmental_pol.cfm and http://policy.umn.edu/groups/ppd/documents/procedure/environmental_proc01.cfm) echo these sentiments, requiring a "sustainably viable storm water system" for projects disturbing more than 0.5 acres of land.

The University of Minnesota Standards & Procedures for Construction, Program Information/Requirements, Basic Design Requirements, 3 Permits, 3.3 Storm Water Permits and Requirements # 3.3.3 states: "Permanent controls are based on a goal of no net increase in storm water volume, rate or pollutant loads from new construction and redevelopment that add impervious surfaces. Permanent controls include, but are not limited to, [vegetative] swales, rain gardens, sediment ponds, retention areas, pervious surfaces and other alternatives to direct plumbing." (http://www.cppm.umn.edu/standards/ProgramInfo.pdf)

As part of pre-design for major construction, net assessment of change in impervious surface should be conducted to quantitatively measure the increase or (ideally) decrease in impervious surfaces. Clearly, if there is an increase in impervious surfaces as a result of new development or redevelopment, options to mitigate the increase must be evaluated and included as part of the final design. Similarly, as a goal, any redevelopment project should attempt to mitigate existing impervious surfaces to pre-development levels.

According to the EPA's fact sheet on post construction runoff control, "Post-construction storm water management in areas undergoing new development or redevelopment is necessary because runoff from these areas has been shown to significantly effect

receiving water bodies. Many studies indicate that prior planning and design for the minimization of pollutants in post-construction storm water discharges is the most cost-effective approach to storm water quality management." During design, the potential increase in type and quantity of pollutants in storm water runoff and the potential increase in the quantity of water delivered to the water body during storms should be addressed and mitigated to the maximum extent practicable.

Post-construction controls can be particularly difficult in cold weather climates due to frozen soils and ponds, and sand and salt use. The Center for Watershed Protection has a *Stormwater Practices for Cold Climates* manual available on line at http://www.cwp.org/cold-climates.htm. Several Minnesota organizations have also put out manuals that have BMP's for post-construction storm water management. Metropolitan Council Environmental Services (MCES) offers guidance on post construction storm water controls in their *Urban Small Sites Best Management Practice* Manual (http://www.metrocouncil.org/environment/Watershed/bmp/manual.htm), and the MPCA put out the *Protecting Water Quality in Urban Areas* manual (http://www.pca.state.mn.us/water/pubs/sw-bmpmanual.html).

The University of Minnesota Duluth has completed several post-construction storm water management improvement projects in the last few years.

> In 2004 we redesigned the outlet structure of Rock Pond. The old outlet structure would take the warmer top water (usually about ½" depth) and discharge it into a tributary of Tischer Creek, a designated trout stream. The new structure will take cooler water from about 3' in depth. In 2005 and again in 2006 we are conducting pond temperature studies with St. Anthony Falls Laboratory to determine the effect of pond outlet structure modifications.
>
> In 2004 Glensheen constructed a "Low Impact Development Storm Water Demonstration Project" with the goal showing innovative storm control methods for parking lot runoff near Lake Superior. The project consisted of grassy swales, rock check dams, and bio-retention. For more information see http://www.d.umn.edu/outreach/stormwater/glensheen/.
>
> In 2005 UMD completed a 1/3 acre demonstration rain garden along College Street. The rain garden receives storm water from 2.5 acres of an existing parking lot. For more information see http://www.d.umn.edu/fm/environment/raingarden.htm.

Post-construction Storm Water Management Best Management Practice Summaries

BMP ID Numbers	BMP Title	Permit Reference
5a-1	Development and Implementation of Structural and/or Non-structural BMPs	**V.G.5.a**
5b-1	Regulatory Mechanism to Address Post Construction Runoff from New Development and Redevelopment	**V.G.5.b**
5c-1	Long-term Operation and Maintenance of BMPs	**V.G.5.c**

BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 5-POST-CONSTRUCTION STORMWATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT

Unique BMP Identification Number: 5a-1 (Revised 2007)

***BMP Title:** Development and Implementation of Structural and/or Non-structural BMPs

***BMP Description:**

To reduce the existing foot print of the Duluth campus we will look into building infiltration / retention / detention centers (IRDC) in drainage zones 1, 2, 5, and 6. This would include design and possible modifications to existing wet ponds for retention capabilities, and the design and possible construction of new facilities. New facilities may include rain gardens, bio-retention, sand filters, etc. Our ability to construct as scheduled is dependent on State of Minnesota Legislative funding. If state funding is not available, other potential funding sources will be reviewed and projects will be delayed. In some locations it is not know whether construction of some type of IRDC is even possible due to space limitations, high water tables, clay soils, and / or possible wetlands.
We will also be looking for ways to protect our creeks by develop setback requirements, improving shade for trout streams and protecting shorelines against erosion where necessary.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP.

***Measurable Goals:**

Design for Low Impact Development Demonstration at Glensheen
Design Rain Garden Demonstration on campus
Construct for Low Impact Development Demonstration at Glensheen
Develop construction and development stream bank setback policies
Design for shoreline protection at Glensheen
Construct shoreline protection at Glensheen
Construct Rain Garden Demonstration on campus
Review the West Branch of Tischer Creek (WBTC) for erosion and shade problems
Investigate and design (if feasible) modifications to Eric Clarke Pond
Investigate feasibility of IRDC for Zone 1
Investigate and design (if feasible) IRDC modifications to Fire Hall Pond
Review Oregon Creek (lower Campus) for erosion structural integrity problems
Recommendations for erosion and shade problems in WBTC
Construct IRDC (if feasible) modifications to Eric Clarke Pond
Construct IRDC (if feasible) modifications to Fire Hall Pond
Design (if feasible) IRDC in Zone 1
Recommendations for Oregon Creek at lower campus
Construct repairs for Oregon Creek at lower campus
Investigate and design (if feasible) IRDC in Zone 2
Construct (if feasible) IRDC in Zone 1
Construct IRDC (if feasible) IRDC in Zone 2

***Timeline/Implementation Schedule:**

Design for Low Impact Development Demonstration at Glensheen – Done 2003
Design Rain Garden Demonstration on campus – Done 2004
Construct for Low Impact Development Demonstration at Glensheen – Done 2004
Develop construction and development stream bank setback policies – Done 2004
Design for shoreline protection at Glensheen – Done 2005
Construct shoreline protection at Glensheen – Done 2005

Construct Rain Garden Demonstration on campus – Done 2005
Review the West Branch of Tischer Creek (WBTC) for erosion and shade problems – Done 2006
Investigate and design (if feasible) modifications to Eric Clarke Pond – Done 2007
Investigate feasibility of IRDC for Zone 1 – Done 2007
Investigate and design (if feasible) IRDC modifications to Fire Hall Pond – Done 2007
Review Oregon Creek (lower Campus) for erosion structural integrity problems – 2008
Recommendations for erosion and shade problems in WBTC – 2008
Construct IRDC (if feasible) modifications to Eric Clarke Pond – 2009
Construct IRDC (if feasible) modifications to Fire Hall Pond – 2010
Design (if feasible) IRDC in Zone 1 – Not Financially Feasible
Recommendations for Oregon Creek at lower campus – 2008
Construct repairs for Oregon Creek at lower campus – 2009
Investigate and design (if feasible) IRDC in Zone 2 – 2010
Construct (if feasible) IRDC in Zone 1 - Not Financially Feasible
Construct IRDC (if feasible) IRDC in Zone 2 – 2011

Specific Components and Notes:

The MNDNR has asked that we review the West Branch of Tischer Creek for ways to cool the water. Shading of the creek will be looked at as a possible solution.
In the early 1900's Oregon Creek was confined to a rock walled channel along some of the lower campus property. This area needs to be investigated for the stability of the walls.
The IRDC should address water temperature, suspended solids, storm surge, floatables, and parking lot oils and greases, with the goal of reducing the impact of existing impervious surfaces and future small maintenance type construction projects.
If feasible, size the IRDC (or design for expansion) for future planned development
Work with the DNR on water temperature issues in Zone 2.
Zone 2 plans may change based off future of Stadium Apartments.

***Responsible Party for this BMP:**

Name: Erik Larson
Department: Facilities Management
Phone: 218-726-6915
E-mail: elarson@d.umn.edu

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 5-POST-CONSTRUCTION STORMWATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT

Unique BMP Identification Number: 5b-1

***BMP Title:** Regulatory Mechanism to Address Post Construction Runoff from New Development and Redevelopment

***BMP Description:**

As a non-traditional MS4, the University does not have traditional "regulatory mechanisms." It relies on administrative procedures and contractual relationships to ensure compliance. University Construction Standards, which are incorporated into contracts with Architect/Engineering (A/E) firms, already require construction projects to include post construction controls, specifically requiring all new projects to 'reduce impacts on receiving waters with a goal of no net increase in volume, rate or pollutant loading.' So, Part V.G.5. b requirement to prevent or reduce water quality impacts is met. The A/E must incorporate post construction BMPs into construction documents. Permanent controls include, but are not limited to, vegetation swales, rain gardens, sediment ponds, retention areas, pervious surfaces and other alternatives to direct plumbing. The Contractor, through its construction contract, is then required to implement A/E designs according to the construction documents. So the basis for this program is in place.

There remains a need to review inspection and enforcement mechanisms to ensure compliance with the construction standards. The UMTC Storm Water Linkage Committee will evaluate and recommend appropriate changes to the standards, enforcement mechanisms and sanctions as applicable. These committee recommendations will be formulated into an administrative procedure for the University, after review by affected parties. This administrative procedure will be the equivalent regulatory mechanism for the University, will be referenced in the construction standards and, as such, will become part of the contract between the University and the engineering and construction contractors.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP.

***Measurable Goals:**

Develop draft administrative procedure per above reflecting comments
Complete process for acceptance as University administrative procedure
Update Construction Standards referencing procedure
Develop inspection and enforcement tools and assign responsibility
Train Project Managers on Procedure and/or Construction Standards

***Timeline/Implementation Schedule:**

Develop draft administrative procedure per above reflecting comments - 2006
Complete process for acceptance as University administrative procedure - 2007
Update Construction Standards referencing procedure - Next revision
Develop inspection and enforcement tools and assign responsibility - 2007
Train Project Managers on Procedure and/or Construction Standards - Biannually

Specific Components and Notes:

See UMTC BMP 5b-1.
BMP 5b-1 is a University wide Best Management Practice.
UMD will work with the UMTC to complete this BMP as described in the UMTC SWPPP.

***Responsible Party for this BMP:**

Name:	Assistant Director, Environmental Health & Safety (Andrew Phelan)
Department:	Environmental Health and Safety
Phone:	612-626-7744
E-mail:	andyph@umn.edu

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 5-POST-CONSTRUCTION STORMWATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT

Unique BMP Identification Number: 5c-1

***BMP Title:** Long-term Operation and Maintenance of BMPs

***BMP Description:**

As a non-traditional MS4, the University of Minnesota Duluth will be the final owner of all installed structural BMPs. These BMPs will be operated and maintained as part of our on going maintenance of the campus.

In order to ensure that post-construction BMPs continue to function as designed the University will put in place a program ensuring that:

1. A/E include operation and maintenance recommendations for each structural BMP in a project;
2. Responsibility for monitoring maintenance of these BMPs be assigned per BMP's 6b
3. Tools for inspecting and maintaining these BMPs be provided.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP. Related Information in 6b-2 / 6b-3 / 6b-5 / 6b-6

***Measurable Goals:**

Construction standards be revised to include requirement that O & M plan be included.
Maintenance of structural BMP's (6b-2)
Tracking of maintenance (6b-5)

***Timeline/Implementation Schedule:**

Construction standards be revised to include requirement that O & M plan be included. Next Revision
Maintenance of structural BMP's (6b-2) – Per 6b-2
Tracking of maintenance (6b-5) – Per 6b-5

Specific Components and Notes:

***Responsible Party for this BMP:**

Name: Candice Richards
Department: Facilities Management
Phone: 218 726-8261
E-mail: Crichar1@d.umn.edu

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

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Minimum Control Measure 6: Pollution Prevention/ Good Housekeeping

The University takes pride in setting an example for preventing storm water pollution in its maintenance practices. In general, UMD has a developed system of good housekeeping that inherently recognizes that the campus operates in an urban area. Many operational areas already perform variations on best management practices to protect water quality. The SWPPP will formalize existing practices and identify areas for improvement. Although often associated only with Facilities Management operations, housekeeping best management practices need to be implemented equitably across all affected departments.

Like many campuses and municipalities in the northern climate, snow and ice-control practices are ever changing to incorporate new materials and to adapt to the yearly climate changes. As a campus we are very aware of the blurred line between the potential for storm water pollution, “good” ice control practices, and the safety of the users of the campus. Trying to balance environmentally friendly snow and ice-control practices with public safety will be a big part of our program.

In 2003 we opened our new materials storage area. This facility has an enclosed area for sand/salt storage and the loading area has controlled drainage through grassy swales and a small settling pond. 6a-1 contains the best management practices for sand / salt storage in this facility. The facility will also be used to store erodable soils during the summer maintenance season.

The campus has made maintenance of our equipment and the campus fleet a high priority. With the completion of the Robert W. Bridges Fleet Grounds Maintenance Facility, we are better equipped to handle the materials such as oil, grease, anti-freeze, etc. that are used during operation and maintenance of the equipment and fleet.

One of our biggest challenges is litter control on the campus (6a-9). A litter education program has been implemented to raise awareness of the campus community. Interdepartmental procedures will also be addressed.

During our preliminary assessment of good housekeeping practices prior to the 2003 permit application, we realized that most of the general issues in measure six were already being addressed. Our pesticide applicators are licensed, our irrigation staff is trained, and parking areas, sidewalks, and streets are swept as needed.

Pollution Prevention and Good Housekeeping Practices Summaries

BMP ID Numbers	BMP Title	Permit Reference
6a-1	Municipal Operations and Maintenance Program	V.G.6.a
6a-2	Street Sweeping	
6a-3	Exterior Loading Docks	
6a-4	Impervious Surface Management	
6a-5	Salt / Sand Handling and Storage	
6a-6	Landscape Particulate Handling and Storage	
6a-7	Snow Storage	
6a-8	Handling of Hazardous Materials and Environmental Pollutants	
6a-9	Dumpster / Litter Management	
6a-10	Fueling System Spill Protection	
6a-11	Vehicle and Equipment Washing	
6a-12	Swimming Pool Maintenance	
6a-13	Roof Top Weed Control	
6a-14	Pond Maintenance / Cleaning	
6a-15	Landscape and Turf Management	
6b-2	Annual Inspection of All Structural Pollution Control Devices	V.G.6.b.2
6b-3	Inspection of a Minimum of 20 percent of the MS4 Outfalls, Sediment Basins and Ponds Each Year on a Rotating Basis	V.G.6.b.3
6b-4	Annual Inspection of All Exposed Stockpile, Storage and Material Handling Areas	V.G.6.b.4
6b-5	Inspection Follow-up Including the Determination of Whether Repair, Replacement, or Maintenance Measures are Necessary and the Implementation of the Corrective Measures	V.G.6.b.5
6b-6	Record Reporting and Retention of all Inspections and Responses to the Inspections	V.G.6.b.6
6b-7	Evaluation of Inspection Frequency	V.G.6.b.7

BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number: 6a-1 (Revised 9/25/06)

***BMP Title:** Municipal Operations and Maintenance Program

***BMP Description:**

The University of Minnesota Duluth will put together a municipal operations and maintenance program as described in the 6a and 6b BMP summary sheets.

6a-2 Street Sweeping
6a-3 Exterior Loading Docks
6a-4 Impervious Surface Management
6a-5 Salt / Sand Handling and Storage
6a-6 Landscape Particulate Handling and Storage
6a-7 Snow Storage
6a-8 Handling of Hazardous Materials and Environmental Pollutants
6a-9 Dumpster / Litter Management
6a-10 Fueling System Spill Protection
6a-11 Vehicle and Equipment Washing
6a-12 Swimming Pool Maintenance
6a-13 Roof Top Weed Control
6a-14 Pond Maintenance / Cleaning
6a-15 Landscape and Turf Management
6b-2 Annual Inspection of All Structural Pollution Control Devices
6b-3 Inspection of a Minimum of 20 percent of the MS4 Outfalls, Sediment Basins and Ponds Each Year on a Rotating Basis
6b-4 Annual Inspection of All Exposed Stockpile, Storage and Material Handling Areas
6b-5 Inspection Follow-up Including the Determination of Whether Repair, Replacement, or Maintenance Measures are Necessary and the Implementation of the Corrective Measures
6b-6 Record Reporting and Retention of All Inspections and Responses to the Inspections
6b-7 Evaluation of Inspection Frequency

Location(s) in SWPPP of detailed information relating to this BMP:

Additional Information in 6a and 6b summary sheets and 1c-6

***Measurable Goals:**

Per each BMP

***Timeline/Implementation Schedule:**

Per Each BMP

Specific Components and Notes:

As portions of the program are completed they will be posted on our website.

***Responsible Party for this BMP:**

Name: Erik Larson
Department: Facilities Management
Phone: 218-726-6915
E-mail: elarson@d.umn.edu

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number: 6a-2 (Revised 2007)

***BMP Title:** Street Sweeping**

***BMP Description:**

Facilites Management in conjunction with Parking Services will develop a Street and Parking Lot Sweeping Program for all University streets and parking lots. The University intends to sweep these impervious surfaces at least once a year, in the spring. Street sweeping is completed to remove road sand and other debris from the impervious surfaces before it is washed into the surrounding streams.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP. Related Information in 6a-1

***Measurable Goals:**

Review current sweeping practices
Make recommendations for street/ parking sweeping
Develop program
Implement street/ parking sweeping program

***Timeline/Implementation Schedule:**

Review current sweeping practices - Done 2005
Make recommendations for street/ parking sweeping - Done 2005
Research recommendation effects - 2008
Develop program - 2009
Implement street/ parking sweeping Program - 2009
Evaluate program effectiveness and recommend changes if needed- 2010
Revise program to include necessary changes - 2011

Specific Components and Notes:

Review current practices. (Frequency).
Make recommendation for changes in current practice.
Auxiliary Services and FM to review recommended practice.
Document recommendation decisions
Implement agreed procedure.
Provide training for employees.

***Responsible Party for this BMP:**

Name: Erik Larson (Steve Schilling)
Department: Facilities Management
Phone: 218-726-6915
E-mail: elarson@d.umn.edu

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

Additional MP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number: 6a-3 (Revised 2007)

***BMP Title:** Exterior Loading Docks

***BMP Description:**

Identify loading and unloading procedures for liquid and particulate materials at all exterior loading docks.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP. Related Information in 6a-1 / 6b-4

***Measurable Goals:**

Identify exterior loading areas and entities involved
Review loading and unloading practices with departments that use these areas
Make recommendations for storm water protection
Develop procedures
Develop training
Implement procedure

***Timeline/Implementation Schedule:**

Identify exterior loading areas and entities involved – Done 2007
Review loading and unloading practices with departments that use these areas -2008
Make recommendations for storm water protection - 2008
Develop procedures - 2008
Develop training - 2009
Implement procedure - 2009
Review Procedure and make necessary modifications - 2010

Specific Components and Notes:

Develop procedures for loading/unloading particulate materials.
Develop procedures for loading docks regarding loading and unloading of liquid materials at all exterior docks.
Provide training information regarding loading and unloading of liquid particulate materials.
Departments will be made aware that they are responsible for following the final procedures

***Responsible Party for this BMP:**

Name: Erik Larson
Department: Facilities Management
Phone: 218-726-6915
E-mail: elarson@d.umn.edu

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

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Additional BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number: 6a-4 (Revised 2007)

***BMP Title:** Impervious Surface Management

***BMP Description:**

Identify and prioritize maintenance related issues for storm water run-off from impervious surfaces. Review existing impervious surfaces and make recommendations for removal of unnecessary areas, changes to pervious pavements, or disconnections from direct connections.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP. Related Information in 6a-1 / 6a-2

***Measurable Goals:**

Identify the issues with impervious storage/parking areas
Identify affected entities
Educate users of parking areas regarding vehicle maintenance issues and long term storage of unused equipment
Review Facilities Management areas
Recommend areas for removal or replacement to Facilities Management
Review Auxiliary Services areas
Recommend areas for removal or replacement Auxiliary Services
Investigate options for disconnections
Recommend options for disconnections to Facilities Management
Recommend options for disconnections to Auxiliary Services

***Timeline/Implementation Schedule:**

Review Facilities Management impervious surface areas – Done 2003
Recommend areas for removal or replacement to Facilities Management – Done 2003
Review Auxiliary Services impervious surface areas – Done 2004
Recommend areas for removal or replacement Auxiliary Services – Done 2004
Identify the issues with impervious storage/parking areas - 2008
Identify affected entities - 2008
Create maintenance procedure for impervious storage/parking areas - 2009
Educate users with long term storage of unused equipment -2009
Investigate options for disconnections – 2008 thru 2009
Educate users of parking areas regarding vehicle maintenance issues - 2009
Recommend options for disconnections to Facilities Management - 2010
Recommend options for disconnections to Auxiliary Services - 2010

Specific Components and Notes:

Review impervious areas that seem to have limited or no function, “function” being defined as having aesthetic, traffic, or maintenance reasons.
Recommend pervious surface options for impervious areas with limited use and removal for areas with no use.
Review systems with larger impervious surfaces for possible disconnection from direct connection to storm sewer system.
Investigate different “disconnected” BMPs for poor infiltration / cold weather / high pedestrian problems.
Recommend disconnection options.
Document areas review and recommendation response.
Identify possible funding sources.
FM and Auxiliary Services to identify and prioritize storm water issues in regards to parking and storage areas.
Provide procedures and training for staff and students regarding storm water run-off from impervious surfaces.
Create and implement a policy regarding storage of equipment and materials in parking areas.

***Responsible Party for this BMP:**

Name: Erik Larson

Department: Facilities Management

Phone: 218-726-6915

E-mail: elarson@d.umn.edu

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Additional BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number: 6a-5

***BMP Title:** Salt / Sand Handling and Storage

***BMP Description:**

Provide good housekeeping practices for the Grounds Materials Storage area and the handling of salt and sand during mixing, loading, and storage.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP. Related Information in 6a-1 / 6b-4

***Measurable Goals:**

Review current practices that relate to the handling of salt and sand during mixing, loading, and storage
Develop procedures for the handling of salt and sand during mixing, loading, and storage
Implement procedures
Review procedures and update as necessary

***Timeline/Implementation Schedule:**

Review current practices that relate to the handling of salt / sand during mixing, loading, and storage – Done 2003
Develop procedures for the handling of salt and sand during mixing, loading, and storage – Done 2003
Implement procedures – Done 2003
Provide the training for those who handle these materials – Done 2003

Specific Components and Notes:

Review current practices with staff and how they will incorporate with the new storage facility.
Write good housekeeping procedures for storage, mixing, loading, and clean up.
Review procedures and compound annually to evaluate how effective the procedures are.
Create procedural manual (brochure) and post in facility.

***Responsible Party for this BMP:**

Name: Peggy Dahlberg
Department: Facilities Management
Phone: 218-726-7295
E-mail: pdahlber@d.umn.edu

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Additional BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number: 6a-6

***BMP Title:** Landscape Particulates Handling and Storage

***BMP Description:**

Implement storage practices to reduce storm water issues with short-term storage of particulate materials (soil, peat, sand, and gravel).

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP. Related Information in 6a-1 / 6b-4

***Measurable Goals:**

Review current practices for storage of landscape particulate materials
Develop guidelines for storage of landscape particulate materials
Implement guidelines
Provide the training for those who handle these materials

***Timeline/Implementation Schedule:**

Review current practices for storage of landscape particulate materials – Done 2004
Develop guidelines for storage of landscape particulate materials – Done 2004
Implement guidelines – Done 2004
Provide the training for those who handle these materials – Done 2004

Specific Components and Notes:

Guidelines for storage of landscape particulate such as; amounts, whether they must be covered, time line need, and sites suitable for storage, short term vs. long term.

***Responsible Party for this BMP:**

Name: Peggy Dahlberg
Department: Facilities Management
Phone: 218-726-7295
E-mail: pdahlber@d.umn.edu

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Additional BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number: 6a-7 (Revised 2007)

***BMP Title:** Snow Storage

***BMP Description:**

The storage of bulk snow can bring along with it trash, road sand, and salts. These, if allowed to get into the surface waters, can contribute to storm water pollution.

Identify major snow storage areas and their effects on the surrounding area.
Map snow storage areas.
Identify priorities regarding snow storage and spring clean up.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP. Related Information in 6a-1 / 6b-4

***Measurable Goals:**

Identify and map major snow storage areas
Review the storage areas, prioritize and make recommendations
Develop procedures
Implement and train snow control operators

***Timeline/Implementation Schedule:**

Identify and map major snow storage areas – Done 2006
Review the storage areas, prioritize and make recommendations – Done 2006
Develop procedures - 2008
Implement and train snow control operators - 2008

Specific Components and Notes:

Map snow storage areas. Distinguish between plowed show storage and hauled snow storage.
Identify issues in the areas snow is stored and make recommendations to treat the snow melt.
Document recommendation decisions.
Procedures for storing snow to be established and implemented
Train snow control operators where to pile snow and why they should not pile it in certain areas.

***Responsible Party for this BMP:**

Name: Peggy Dahlberg
Department: Facilities Management
Phone: 218-726-7295
E-mail: pdahlberg@d.umn.edu

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Additional BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number: 6a-8

***BMP Title:** Handling of Hazardous Materials and Environmental Pollutants

***BMP Description:**

Review of current handling and storage procedures for the Robert W Bridges Fleet Grounds Maintenance waste storage shed by U of MN Environmental Health and Safety Department. Update training for employees regarding the use of the waste storage shed.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP. Related Information in 6a-1 / 6b-4

***Measurable Goals:**

Review procedures and equipment necessary in the event of a spill (EHS)
Update training for those who use storage shed

***Timeline/Implementation Schedule:**

Review procedures and equipment necessary in the event of a spill (EHS) – Done 2003
Update training for those who use storage shed – Done 2003

Specific Components and Notes:

EHS to review procedures and equipment needed with FM.
Address proper handling procedures of materials stored on a short-term basis.
Train employees how to react in the event of a spill.

***Responsible Party for this BMP:**

Name: Mahjoub Labyad
Department: Environmental Health and Safety
Phone: 218-726-7273
E-mail: mlabyad@d.umn.edu

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

Additional BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number: 6a-9 (Revised 2007)

***BMP Title:** Dumpster / Litter Management

***BMP Description:**

Litter is one of the most visible storm water pollution issues on campus. With this BMP we will we will develop controls as programs to reduce the amount of litter on campus. This will be accomplished by actively managing our dumpsters and education the public about the effects of litter on the environment.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP. Related Information in 6a-1

***Measurable Goals:**

Identify and meet with involved groups regarding litter control
Recommend possible ways to changes to improve
Develop litter control program
Provide litter prevention education
Review all permanent dumpster locations on campus map
Develop checklist to review container condition
Develop handling and inspection practice for dumpsters
Produce dumpster practice brochure/web page and distribute
Annual inspection of dumpsters

***Timeline/Implementation Schedule:**

Identify and meet with involved groups regarding litter control – Done 2003
Recommend possible ways to changes to improve – Done 2004
Develop litter control program – Done 2004
Provide litter prevention education – Done 2004 / 2005 – On going
Review all permanent dumpster locations on campus map – Done 2005
Develop checklist to review container condition – Done 2006
Develop handling and inspection practice for dumpsters – Done 2007
Produce dumpster practice brochure/web page and distribute - 2008
Annual inspection of dumpsters - Annual

Specific Components and Notes:

Litter:
Meetings with involved groups to develop policy, discuss updating, and responsibilities of each department.
Work together to create an equitable litter control program that works for all departments.
Dumpsters:
Identify and create a map of dumpster locations.
Create handling procedure and annual inspection.
Develop policy regarding placement sites and storm water management in area.
Prepare checklist for container inspection and procedures. Distribute to departments for annual inspections.
Develop policy/procedure for trash cans/cigarette bins.

***Responsible Party for this BMP:**

Name: Peggy Dahlberg
Department: Facilities Management
Phone: 218-726-7295
E-mail: pdahlber@d.umn.edu

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Additional BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number: 6a-10

***BMP Title:** Fueling System Spill Protection

***BMP Description:**

The UMD campus has its own fueling station with in the Robert W. Bridges Fleet Grounds Maintenance Facility. The Facility is located adjacent to the West Branch of Tischer Creek, a designated trout stream. For this BMP we will review and update current procedures for fueling vehicles and filling gas cans, and identify equipment necessary in the event of a spill.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP. Related Information in 6a-1

***Measurable Goals:**

Review fueling procedures and spill protection materials available for the fueling area
Update procedures and implement changes
Develop informational signage for proper fueling and spill protection procedures in the fueling area
Identify and provide necessary spill containment equipment

***Timeline/Implementation Schedule:**

Review fueling procedures and spill protection materials available for the fueling area – Done 2003
Update procedures and implement changes – Done 2004
Develop informational signage for proper fueling and spill protection procedures in the fueling area – Done 2004
Identify and provide necessary spill containment equipment – Done 2004

Specific Components and Notes:

Review procedures and spill protection materials.
Provide protection to storm water sewer drains by providing spill retention equipment.
Provide a copy of Spill Prevention Control and Counter Measures Plan for the R.W. Bridges Fleet Grounds Maintenance Facility.
Install signage at the pumps to inform employees how to react in the event of a spill.
Install signage at the pumps to inform employees of the proper handling techniques for fuel transfer (pump to vehicle and pump to can).

***Responsible Party for this BMP:**

Name: Erik Larson
Department: Facilities Management
Phone: 218-726-6915
E-mail: elarson@d.umn.edu

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Additional BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number: 6a-11 (Revised 2007)

***BMP Title:** Vehicle and Equipment Washing

***BMP Description:**

Multiple departments across UMD own vehicles. This BMP will review current vehicle and equipment washing practices and develop procedures to prevent vehicle and equipment wash water from entering the storm sewer system.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP. Related Information in 6a-1

***Measurable Goals:**

Review current vehicle and equipment washing practices
Make recommendations for vehicle and equipment washing procedures
Develop vehicle and equipment washing procedures
Implement procedures

***Timeline/Implementation Schedule:**

Review current vehicle and equipment washing practices - 2008
Make recommendations for vehicle and equipment washing procedures - 2008
Develop vehicle and equipment washing procedures - 2009
Develop vehicle and equipment washing fact sheet - 2009
Implement procedures - 2009

Specific Components and Notes:

Review current procedures and make recommendations for changes if necessary.
Create procedure and document decisions.
Implement procedures for washing of vehicles and equipment.
Develop fact sheet and post on website and at Robert W. Bridges Fleet Grounds Maintenance Facility

***Responsible Party for this BMP:**

Name: Peggy Dahlberg
Department: Facilities Management
Phone: 218-726-7295
E-mail: pdahlber@d.umn.edu

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Additional BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number: 6a-12

***BMP Title:** Swimming Pool Maintenance

***BMP Description:**

Swimming Pool draining and maintenance procedures for pool and filtering system to prevent discharge of chlorinated swimming pool water into the storm sewer system.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP. Related Information in 6a-1

***Measurable Goals:**

Review current Draining and filter maintenance practice
Develop procedure for draining pool, cleaning of the filter, and disposal of debris
Review procedure with staff
Implement
Create procedure brochure / website

***Timeline/Implementation Schedule:**

Review current Draining and filter maintenance practice – Done 2003
Develop procedure for draining pool, cleaning of the filter, and disposal of debris– Done 2003
Review procedure with staff – Done 2003
Implement – Done 2003
Create procedure brochure / website – Done 2003

Specific Components and Notes:

Review pool maintenance requirement applicable with staff.
Write procedure.
Create procedure manual (brochure / website) and post in pool mechanical room.
Review procedure with staff.

***Responsible Party for this BMP:**

Name: Erik Larson
Department: Facilities Management
Phone: 218-726-6915
E-mail: elarson@d.umn.edu

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Additional BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number: 6a-13

***BMP Title:** Roof Top Weed Control

***BMP Description:**

Review current weed control practice for rooftops, recommend changes and update procedure. Flat roofs with roof drains present a particular problem of how to handle the elimination of roof top weeds. Chemical application has the potential for storm water pollution, but manual removal can damage the waterproofing membrane.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP. Related Information in 6a-1

***Measurable Goals:**

Review current weed control practices with stakeholders
Recommend changes in procedures
Develop final procedures
Implement procedures
Train employees

***Timeline/Implementation Schedule:**

Review current weed control practices with stakeholders - 2008
Recommend changes in procedures - 2008
Develop final procedures - 2008
Implement procedures - 2009
Train employees – 2009 / as necessary

Specific Components and Notes:

Review current practice and document
Make recommendations regarding possible changes.
Review recommendations for impact on roofs and operations.
Write procedure for weed control on rooftops.
Inform university employees through email, website, and/or meetings.

***Responsible Party for this BMP:**

Name: Erik Larson
Department: Facilities Management
Phone: 21/-726-6915
E-mail: elarson@d.umn.edu

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Additional BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number: 6a-14

***BMP Title:** Pond Maintenance/ Cleaning

***BMP Description:**

With the amount of litter we have on campus, it appears that annual cleaning of our ponds is necessary. Review current pond maintenance and cleaning practice and make recommendations.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP. Related Information in 6a-1 / 6a-9

***Measurable Goals:**

Review current pond maintenance and cleaning practices
Develop written maintenance plan
Provide training regarding pond maintenance
Implement maintenance schedule
Maintenance

***Timeline/Implementation Schedule:**

Review current pond maintenance and cleaning practices – Done 2003
Develop written maintenance plan – Done 2004
Provide training regarding pond maintenance – Done 2004
Implement maintenance schedule – Done 2004
Cleaning / Maintenance – As necessary based off inspection
Training of employees doing the clean up – As needed

Specific Components and Notes:

Review current practices. Document frequency
Create a maintenance schedule (both long-term and annual), to include dredging, removing floatables, cleaning intake, and maintaining vegetation.
Document maintenance schedule and prepare procedure.
Implement maintenance and cleaning schedule.
Annual training for employees doing the clean up

***Responsible Party for this BMP:**

Name: Peggy Dahlberg
Department: Facilities Management
Phone: 218-726-7295
E-mail: pdahlber@d.umn.edu

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Additional BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number: 6a-15 (Revised 2007)

***BMP Title:** Landscape and Turf Management

***BMP Description:**

Purpose of this BMP will be to review current practices and develop a turf and landscape management program to include irrigation, Integrated Pest Management (IPM), fertilizer and pesticide use and to ensure that the program is monitored for effectiveness and the protection of our watershed.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP. Related Information in 6a-1

***Measurable Goals:**

Review current fertilizer and pesticide handling practices.
Develop fertilizer and pesticide handling and application program.
Develop training regarding fertilizer and pesticide handling and application procedures.
Implement fertilizer and pesticide handling program and training.
Review current turf and landscape management practices.
Review current irrigation practices.
Develop turf and landscape management plan to include IPM and irrigation practices.
Develop training regarding turf and landscape management practices (to include irrigation and IPM).
Implement turf and landscape management plan and training.

***Timeline/Implementation Schedule:**

Review current fertilizer and pesticide handling practices – Done 2003
Develop fertilizer and pesticide handling and application program – Done 2004
Develop training regarding fertilizer and pesticide handling and application procedures – Done 2004
Implement fertilizer and pesticide handling program and training – Done 2004
Review current turf and landscape management practices – Done 2006
Review current irrigation practices – Done 2006
Develop Integrated Pest Management plan - 2008
Develop turf and landscape management plan to include IPM and irrigation practices – 2008
Develop training regarding turf and landscape management practices(to include irrigation and IPM) – 2009
Implement turf and landscape management plan and training – 2009

Specific Components and Notes:

Protection of our water (as well as our human and financial) resources through responsible turf and landscape practices is the goal for creating this management plan. By evaluating each of the above practices UMD Facilities Management can address the protection of water resources from inadvertent pollution by pesticides and nutrients entering ground water and surface water.

***Responsible Party for this BMP:**

Name: Peggy Dahlberg
Department: Facilities Management
Phone: 218-726-7295
E-mail: pdalhber@d.umn.edu

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BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number: 6b-2 (Revised 9/25/06)

***BMP Title:** Annual Inspection of All Structural Pollution Control Devices

***BMP Description:**

For structural pollution control devices to properly function they need to be properly maintained. In order to determine the appropriate maintenance schedule for each control device, each will be inspected annually until such a point that it can be determined that a particular device should be inspected at a different frequency (more frequently or less frequently).

Structural devices to be inspected include, oil/grit chambers, sediment traps, rain gardens and bio-retention ponds, sand filters, detention / retention devices, etc.

Inspection reports to include: Date, weather conditions, sediment storage and capacity remaining, odors, vegetative conditions, and maintenance done or needed.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP. Related Information in 6a-1

***Measurable Goals:**

Inspect structural pollution controls annually (separators, traps, etc.)
Repair, replace, or maintain based off annual inspection
Develop inspection forms for annual inspections
Report of inspection findings

***Timeline/Implementation Schedule:**

Inspect structural pollution controls annually (separators, traps, etc.) - Annually
Report of inspection findings - Annually
Maintain (general maintenance – i.e. cleaning) based off annual inspection - Same calendar year as inspection
Repair or replace (major construction) based off annual inspection – As soon as funding is available (preferably same year)
Develop inspection forms for annual inspections – Done 2003

Specific Components and Notes:

Individual departments may be held responsible to inspect and maintain their own structural pollution control devices. Annual reporting will be done by Facilities Management. As of the 2005 program year UMD had 10 structural pollution control devices, currently it is our intention to continue to inspect all 10 devices each year even though some have yet to require any maintenance.

***Responsible Party for this BMP:**

Name: Erik Larson
Department: Facilities Management
Phone: 218-726-6915
E-mail: elarson@d.umn.edu

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BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number: 6b-3 (Revised 9/25/06)

***BMP Title:** Inspection of a Minimum of 20 percent of the MS4 Outfalls, Sediment Basins and Ponds Each Year on a Rotating Basis

***BMP Description:**

Visual inspection of outfalls, sediment basins and ponds once every 5 years (20% each year).

Inspection reports to include: Date, weather conditions, erosion, odors, deposits or stains, vegetative conditions, and maintenance done or needed.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP. Related Information in 6a-1/ 3c-1 / 3e-1

***Measurable Goals:**

Inspect 20% of outfalls, sediment basins and ponds
Report of inspection findings
Repair, replace, or maintain based off annual inspection
Develop inspection forms for annual inspections

***Timeline/Implementation Schedule:**

Inspect 20% of outfalls, sediment basins and ponds - Annually
Report of inspection findings - Annually
Maintain (general maintenance – i.e. cleaning) based off annual inspection - Same calendar year as inspection
Repair or replace (major construction) based off annual inspection – As soon as funding is available (preferably same year)
Develop inspection forms for annual inspections – Done 2003

Specific Components and Notes:

As of the 2005 program year UMD had approximately 70 outfalls where pipes and or ditches discharged storm water into lakes, streams or other MS4 systems. We have included pipes less than 12" diameter, but not drain tiles. To meet the 20 % requirements we would need to inspect 14 outfalls each year. We will inspect approximately 20% each year, with 100% being inspected by the end of the 5th year. Over the next two years we should complete the inspection of our final two properties and have an exact count of outfalls. We believe that the number will be less than the 70 currently estimated. We also have 5 ponds that actively store or treat storm water. We will inspect at least 1 (20%) pond each year.

***Responsible Party for this BMP:**

Name: Erik Larson
Department: Facilities Management
Phone: 218-726-6915
E-mail: elarson@d.umn.edu

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BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number: 6b-4 (Updated 2007)

***BMP Title:** Annual Inspection of All Exposed Stockpile, Storage and Material Handling Areas

***BMP Description:**

All exposed non-temporary stockpiles, storage, and material handling areas are to be inspected annually. In order to determine the appropriate maintenance schedule for each area, each will be inspected annually until such a point that it can be determined that a particular device should be inspected at a different frequency (more frequently or less frequently).

Stockpiles used for maintenance activities such as salt and topsoil which are used only seasonally but are stored in the same location each year, even if only part of the year, are not considered temporary stockpiles and the areas are required to be inspected annually. Short-term temporary (hours to days) stockpiles and storage areas do not need to be inspected, recorded and included in annual report. Temporary stockpiles for construction activity are not inspected under this best management practice. Construction activities are covered under the construction permit requirements.

Inspection reports to include: Date, weather conditions, potential for environmental impact, condition of environmental protection devices (i.e. protective covers, silt fence, etc.) odors, vegetative conditions, and maintenance done or needed.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP. Related Information in 6a-1

***Measurable Goals:**

Determine location and ownership of exposed non-temporary stockpiles, storage, and material handling areas
Develop inspection forms for annual inspections
Inspect exposed non-temporary stockpiles, storage, and material handling areas
Corrective maintenance based off annual inspection
Report of inspection findings

***Timeline/Implementation Schedule:**

Determine locations and ownership of exposed stockpiles, storage, and material handling areas. – Done 2006
Develop inspection forms for annual inspections – Done 2006
Inspect exposed non-temporary stockpiles, storage, and material handling areas - Annually
Report of inspection findings - Annually
Maintain based off annual inspection - Same calendar year as inspection

Specific Components and Notes:

Individual departments may be held responsible to inspect and maintain their own areas. Annual reporting will be done by Facilities Management

***Responsible Party for this BMP:**

Name: Erik Larson
Department: Facilities Management
Phone: 218-726-6915
E-mail: elarson@d.umn.edu

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BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number: 6b-5

***BMP Title:** Inspection Follow-up Including the Determination of Whether Repair, Replacement, or Maintenance Measures are Necessary and the Implementation of the Corrective Measures

***BMP Description:**

Once the annual inspections (6b-2, 6b3, and 6b-4) are completed, there needs to be a way to track the features condition and verify that any required maintenance is completed. A spreadsheet, or similar system, will be used to note and track any maintenance needed and when that maintenance is completed.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP. Related Information in 6a-1 / 6b-2 / 6b3 / 6b-4

***Measurable Goals:**

Tracking method to document required maintenance / cleaning
Annual maintenance and up-keep of the tracking method

***Timeline/Implementation Schedule:**

Tracking method to document required maintenance / cleaning – Done 2005
Annual maintenance and up-keep of the tracking method - Annual

Specific Components and Notes:

Tracking method is a spreadsheet listing feature designation, inspection date, any maintenance needed and maintenance completion date.

***Responsible Party for this BMP:**

Name: Erik Larson
Department: Facilities Management
Phone: 218-726-6915
E-mail: elarson@d.umn.edu

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BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number: 6b-6 (Updated 2007)

***BMP Title:** Record Reporting and Retention of All Inspections and Responses to the Inspections

***BMP Description:**

The results of that year's inspections will be summarized in the annual report. Documentation of all inspections per 6b-2, 6b3, 6b-4, and 6b-5 will be maintained for the life of the permit.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP. Related Information in 6a-1 / 6b-2 / 6b3 / 6b-4

***Measurable Goals:**

Develop filing system for inspection reports and summaries
Summary report of inspection findings
Maintenance of filing system

***Timeline/Implementation Schedule:**

Develop filing system for inspection reports and summaries – Done 2006
Summary report of inspection findings - Annually
Maintenance of filing system – Life of Permit
Retention of findings – June 2014

Specific Components and Notes:

Per Part VI of the permit records will be maintained through June 2014

***Responsible Party for this BMP:**

Name: Erik Larson
Department: Facilities Management
Phone: 218-726-6915
E-mail: elarson@d.umn.edu

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BMP Summary Sheet

MS4 Name: University Minnesota Duluth

Minimum Control Measure: 6-POLLUTION PREVENTION/GOOD HOUSEKEEPING

Unique BMP Identification Number: 6b-7 (Revised 2007)

***BMP Title:** Evaluation of Inspection Frequency

***BMP Description:**

In order to determine the appropriate maintenance and inspection schedules for 6b-2, 6b3, and 6b-4, each required feature will be inspected annually until such a point that it can be determined that a particular device should be inspected at a different frequency.

These inspections and the required maintenance / cleaning will be tracked to determine condition and cleaning frequency. As sufficient data is gathered, the inspection frequency will be increased or decreased accordingly. If maintenance or sediment removal is not required as a result of two successive annual inspections, the frequency may be reduced to once every two (2) years.

Any change in frequency will be noted on the inspection schedule for each feature.

Location(s) in SWPPP of detailed information relating to this BMP:

This summary sheet details all SWPPP information for this BMP. Related Information in 6a-1 / 6b-2 / 6b3 / 6b-4

***Measurable Goals:**

Determine location and ownership of each feature required to be inspected
Develop tracking method to review required maintenance / cleaning

***Timeline/Implementation Schedule:**

Determine location and ownership of each feature required to be inspected – Done 2006
Develop tracking method to review required maintenance / cleaning – Done 2006
Review existing data for features inspected 2003-2006 – 2008
Adjust inspection frequency for specific features – As necessary

Specific Components and Notes:

Anticipated tracking method is a spreadsheet listing feature designation and required action per year.

***Responsible Party for this BMP:**

Name: Erik Larson
Department: Facilities Management
Phone: 218-726-6915
E-mail: elarson@d.umn.edu

**Indicates a REQUIRED field. Failure to complete any required field will result in rejection of the application due to incompleteness.*

Reporting and Record Keeping

The general permit requires an annual report by June 30 of each year. The report must include:

1) Status of compliance with the permit conditions, including an assessment of appropriateness of BMPs, and progress toward achieving the stated goals.

2) Storm water activities planned to be undertaken in the next year.

3) Any change in the identified BMPs or measurable goals for any of the minimum control measures.

4) Notice of other entities used to satisfy some of our permit obligations, if applicable.

The Storm Water Steering Committee will oversee the completion of the annual report. UMD Facilities Management will keep the master records of the program for a minimum of three years after the termination of the permit, unless otherwise requested by the Commissioner of the MPCA.

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Appendix A

UMD Storm Water Steering Committee (2008-2009)

Rich Axler	**Natural Resources Research Institute**
Tim Bates	**Outdoor Program**
Peggy Dahlberg	**Facilities Management**
Cindy Hagley	**Minnesota Sea Grant**
Mahjoub Labyad	**Environmental Health and Safety (UMD)**
Erik Larson	**Facilities Management**
Cheryl Love	**UMD Parking Services**
Candice Richards	**Facilities Management**
David Schimpf	**Biology Faculty**
Jesse Schomberg	**MN Sea Grant / Extension / NRRI**
Judith Trolander	**History Faculty**
Zandy Zwiebel	**Minnesota Sea Grant / Student Representative**
*** Chris Kleist**	**City of Duluth**
*** Van-Anh Tang**	**Environmental Health and Safety (UMTC)**
*** Andy Phalen**	**Environmental Health and Safety (UMTC)**

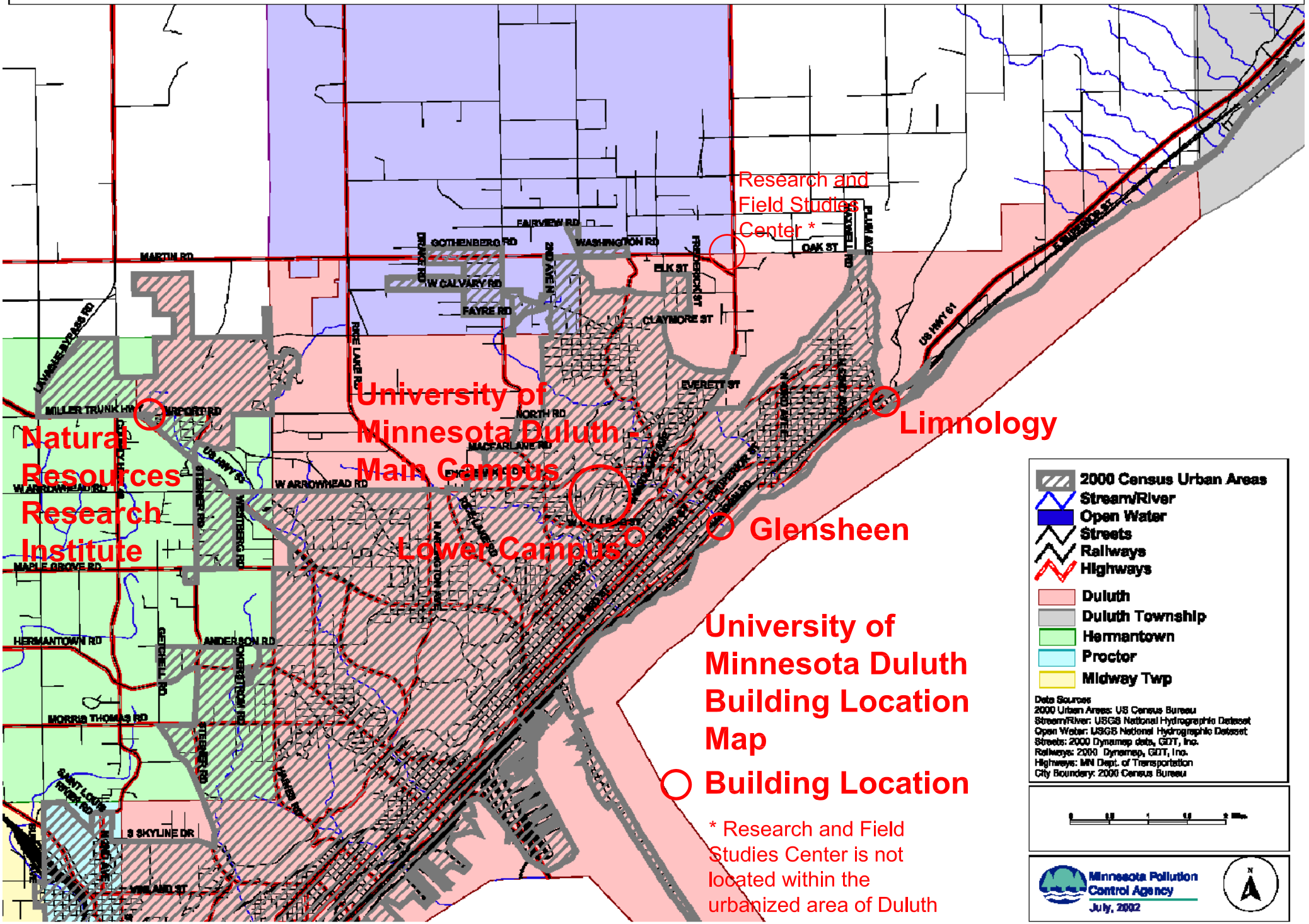
*** Ex-officio Members**

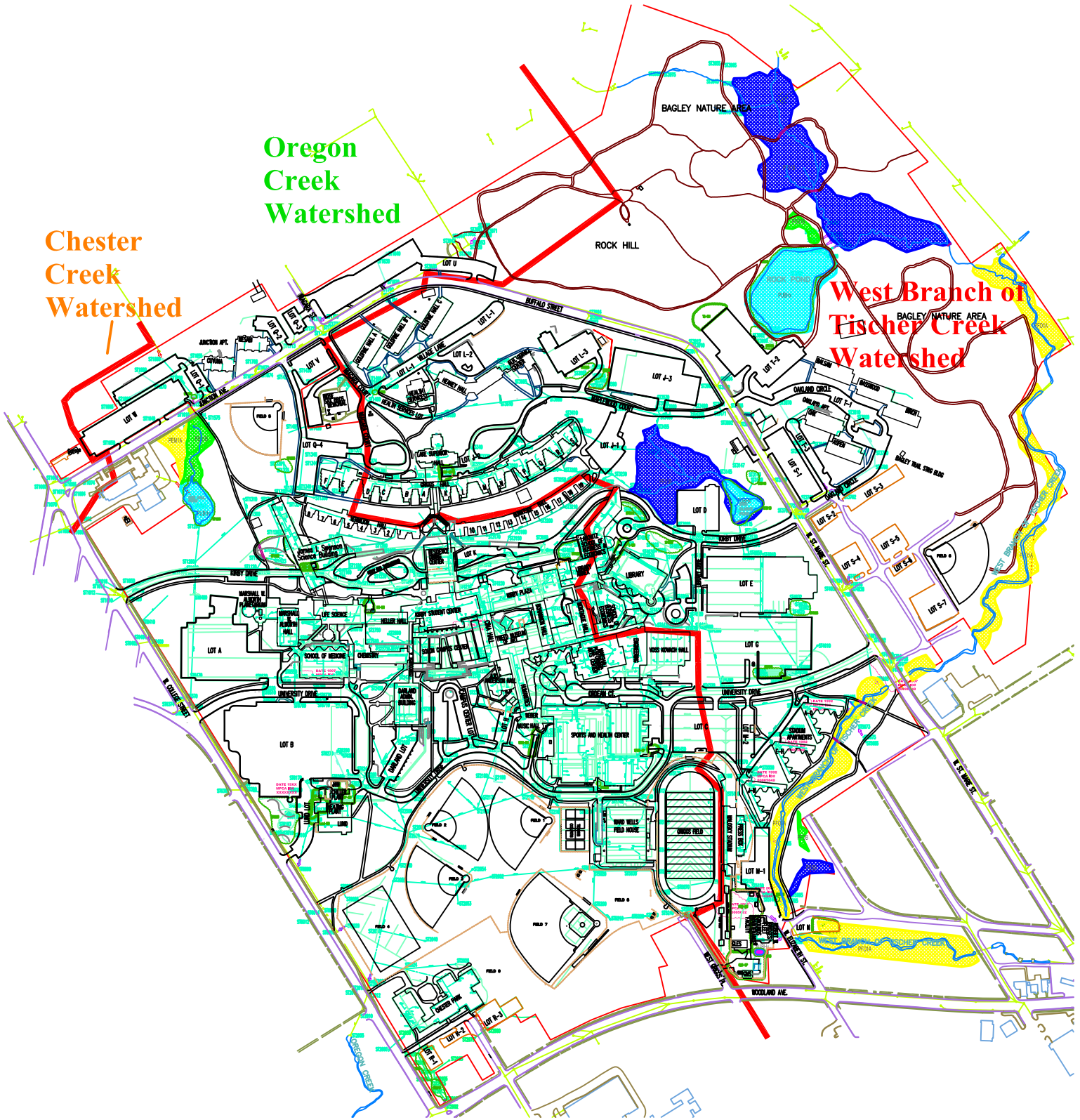
Appendix B

List of Acronyms

A/E – Architect/Engineer
BMP – Best Management Practices
BWSR – Minnesota Board of Water and Soil Resources
CWA – Clean Water Act
EPA – Environmental Protection Agency
EHS - Environmental Health and Safety (Department of)
FM – Facilities Management (Department of)
FR – Federal Register
MCES – Metropolitan Council Environmental Services
MECA - Minnesota Erosion Control Association
MEP – Maximum Extent Practicable
MNDNR – Minnesota Department of Natural Resources
MPCA – Minnesota Pollution Control Agency
MS4 – Municipal Separate Storm Sewer System
NEMO – Nonpoint Education for Municipal Officials
RSPT – Regional Stormwater Protection Team
SIC – Standard Industrial Code
SWPPP – Storm Water Pollution Prevention Program
TMDL - Total Maximum Daily Load
U of M – University of Minnesota System
UMD – University of Minnesota Duluth
UMDFM – University of Minnesota Duluth Facilities Management
UMTC – University of Minnesota Twin Cities
WRC – Water Resource Center
WRSIA – Water Resource Students in Action

2000 Census Urban Area: Duluth, MN–WI Map 1





UMD Storm Sewer

University of Minnesota Duluth
Facilities Management
241 Darland Admin Bldg
10 University Drive
Duluth, MN 55812-2496
218-726-8262

Project

Scale
Not to Scale

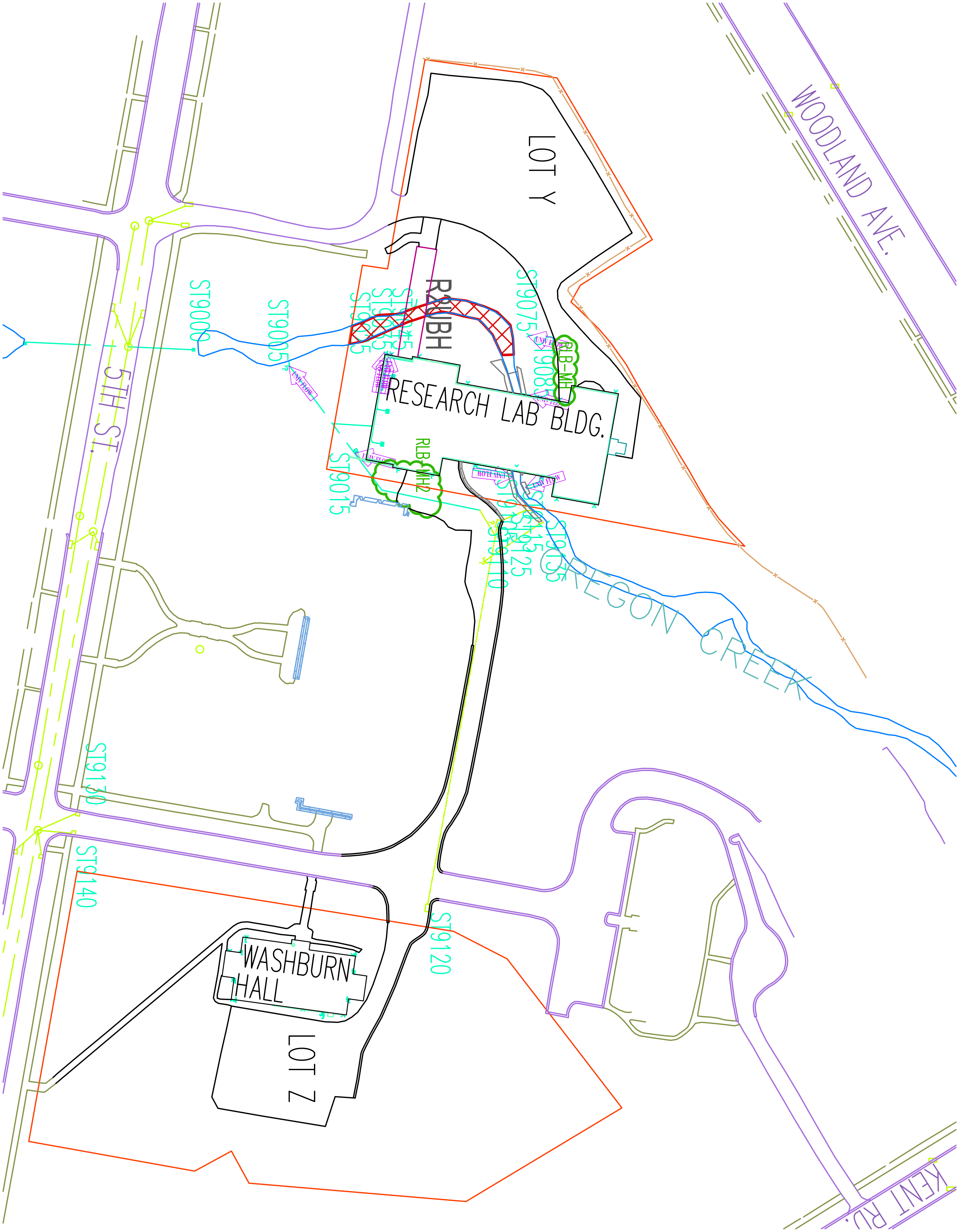
Date
4/01/09

Sheet
1 of 1

Maintained by
Facilities Management

Contact
Erik Larsen @ (218) 726-6915

CAD dwg file
L:\Map\UMD\(Title Site/Util/Stormzone)



UMD Lower Campus Storm Sewer

University of Minnesota Duluth
Facilities Management
241 Darland Admin Bldg
10 University Drive
Duluth, MN 55812-2496
218-726-8262

Project
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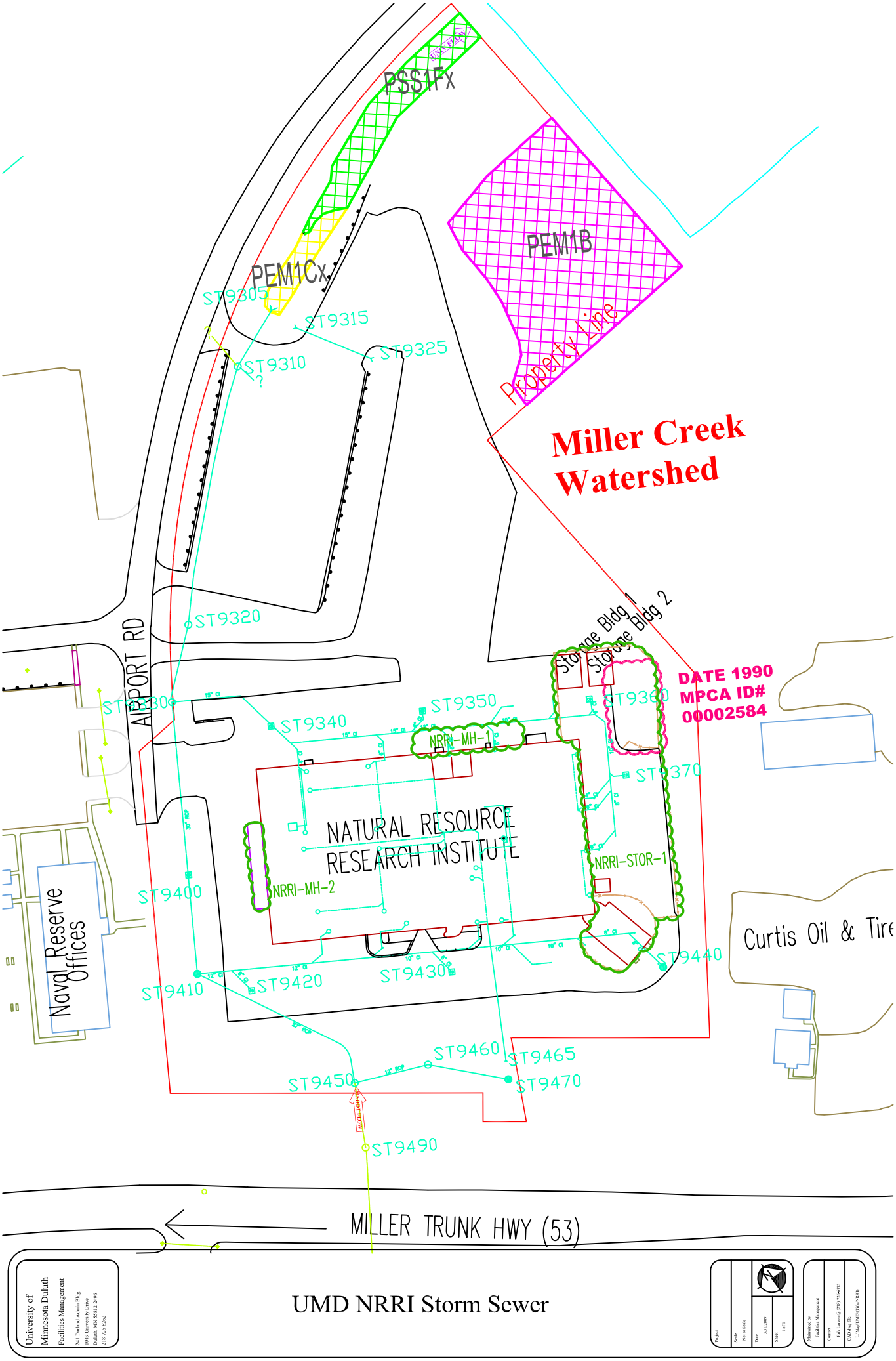
Date: 4/01/09
Sheet: 1 of 1

Maintained by: Facilities Management
Contact: Erik Larson @ (218) 726-6915
CAD dwg file: L:\Map\UMD\Title\Site\Util\Stormsewer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PEM1B
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Watershed
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ST9310
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ST9320
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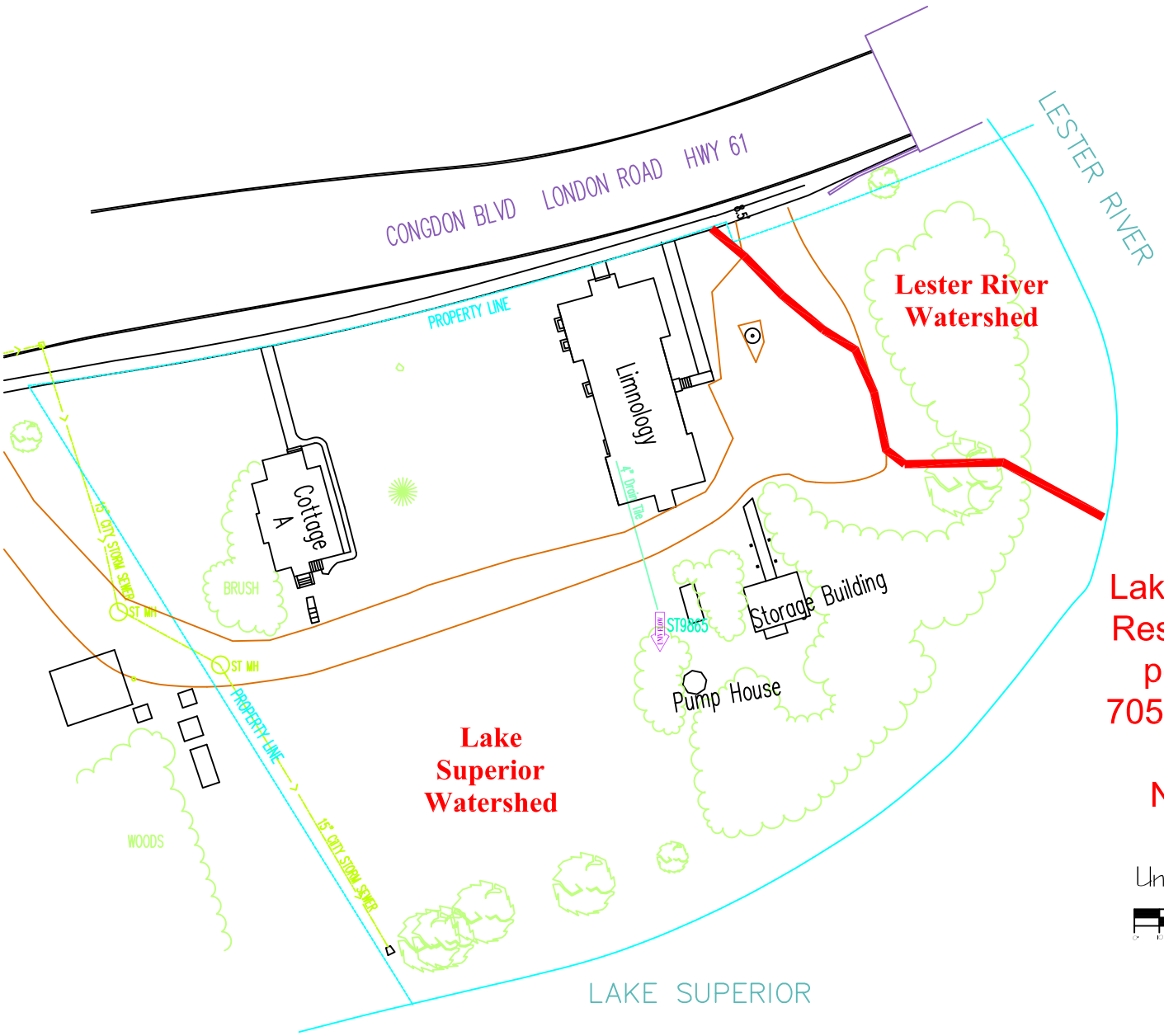
ST9350
ST9360
ST9370
ST9400
ST9410
ST9420
ST9430
ST9440
ST9450
ST9460
ST9465
ST9470
ST9490
AIRPORT RD
Storage Bldg 1
Storage Bldg 2
NRRI-MH-1
NRRI-MH-2
NRRI-STOR-1
NATURAL RESOURCE
RESEARCH INSTITUTE
DATE 1990
MPCA ID#
00002584
Naval Reserve
Offices
Curtis Oil & Tire
MILLER TRUNK HWY (53)
University of
Minnesota Duluth
Facilities Management
UMD NRRI Storm Sewer



Lake Superior is a Restricted Waters per MN Rules 7050.0180 subp. 6

No Wetlands

University of Minnesota Duluth - Limnology

Scale

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Revised: 5/30/07
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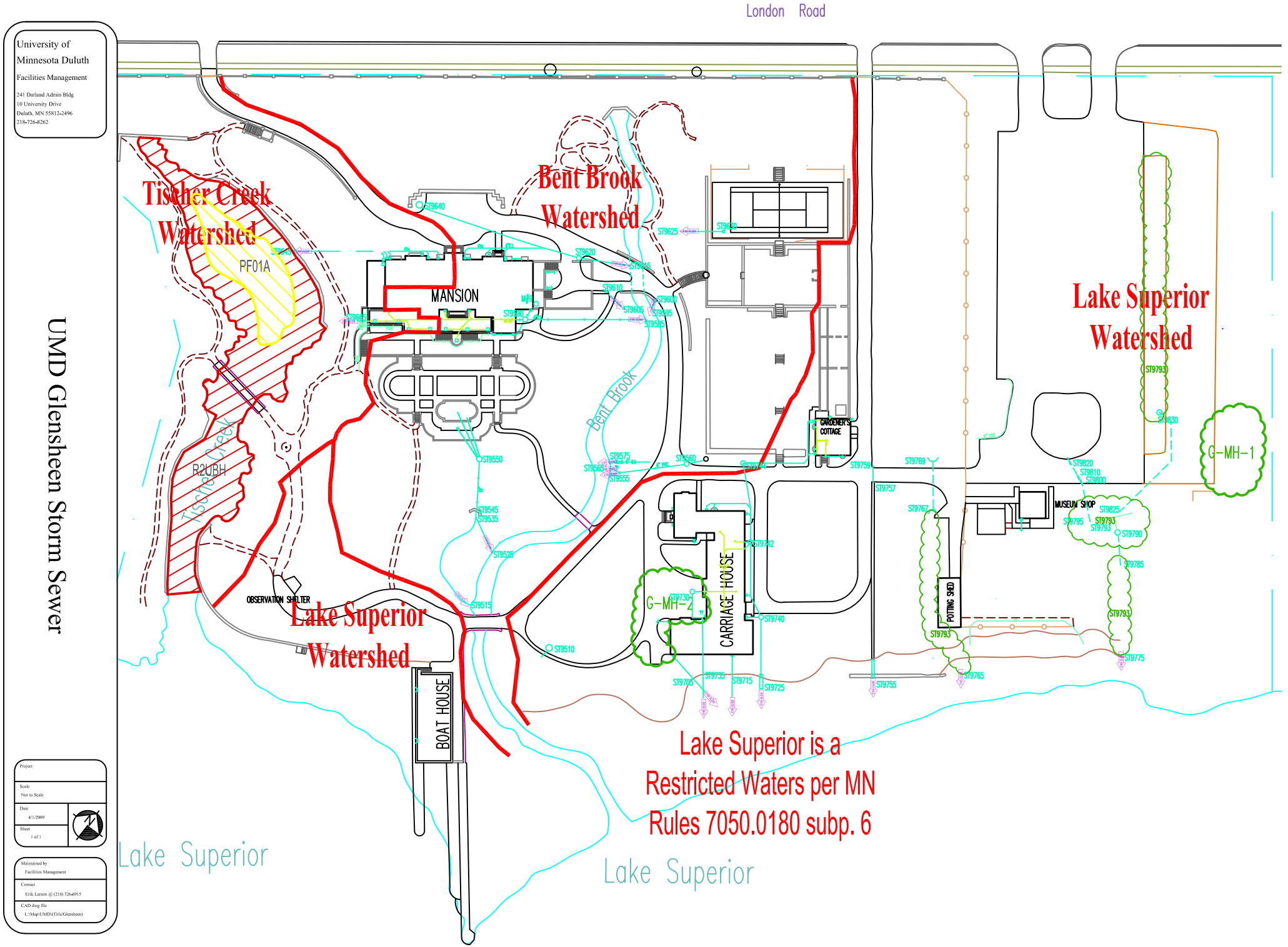
University of
Minnesota Duluth
Facilities Management
241 Darland Admin Bldg
10 University Drive
Duluth, MN 55812-2496
218-726-8262
UMD Glensheen Storm Sewer
London Road
Tischer Creek
Watershed
PF01A
Bent Brook
Watershed
Lake Superior
Watershed
MANSION
Bent Brook
Tischer Creek
R2UBH
OBSERVATION SHELTER
Lake Superior
Watershed
BOAT HOUSE
CARRIAGE HOUSE
G-MH-2
GARDENER'S
COTTAGE
MUSEUM SHOP
POTTING SHED
G-MH-1
Lake Superior is a
Restricted Waters per MN
Rules 7050.0180 subp. 6
Lake Superior
Lake Superior
Project
Scale
Not to Scale
Date
4/1/2009
Sheet
1 of 1
Maintained by
Facilities Management
Contact
Erik Larson @ (218) 726-6915
CAD dwg file
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