Stormwater Pollution Prevention Plan

Southfield 2nd Addition
Subdivision Development

City of Moorhead
Engineering No. 10-A6-3
Legal No. A6-3-2010

Project Location

44th Avenue South & 14th Street South

NW ¼ of Section 28, Township 139N, Range 48W

Prepared August 2010

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1. **Stormwater Pollution Prevention Plan (SWPPP)**

a. Introduction

The SWPPP is a requirement of the National Pollution Discharge Elimination System (NPDES) permit, which is a document that the owner of the site has a pollution control plan in place. The SWPPP shows compliance with the NPDES deadlines and pollution control measures.

b. SWPPP Content:

i. Provides site information.
ii. Describes the pollution controls.
iii. Addresses incorporation of state and local requirements.
iv. Identifies maintenance and inspection procedures for pollution controls.
v. Identifies allowable non-stormwater discharges and pollution prevention measures.
vi. Defines contractor certification.
vii. Lists plan certifications.
viii. Outlines construction documentation and describes process of changes to plan.

2. Site Information

a. Nature of Activity

This is a subdivision construction project. The City of Moorhead's portion of the construction project will consist of underground utilities and street paving. Utilities will be installed per plans and specifications. Streets with curb and gutter will be constructed and paved. Once the City of Moorhead's portion of the project is complete, the project will be transferred to the Developer for the home building phase.

b. Intended Sequence of Major Construction Activities

The erosion prevention and sediment control BMPs shall be installed prior to the start of construction, as necessary to minimize erosion from disturbed surfaces and capture sediment on site.

- Temporary perimeter control measures will be installed prior to any soil disturbing activities.
- Clearing and grubbing will not commence in any area until it is necessary for construction to proceed.
- Permanent and temporary sediment traps and basins will be constructed before any hydraulic conveyance or dewatering procedures occur.
- Once construction activity has ceased the area must be stabilized within 14 days.
- Placement of rip-rap shall be started within 24 hours of placement of the culvert and done in one continuous operation.

- The normal wetted perimeter of any temporary or permanent drainage ditch must be stabilized within 200 linear feet from the property edge or discharge point to any surface water within 24 hours.
- All temporary perimeter controls shall remain in place until all construction activities at that site location is complete and the soil has been stabilized.

c. Total Site Area

The total surface area affected for the overall project construction is 3.8 acres. The breakdown of the pre-construction and post-construction surface areas are as follows.

Existing Impervious Surface (acres)	New Impervious Surface (acres)	Total Impervious Surface (acres)
0.09	1.55	1.64

d. Area of the Site Expected to Undergo Excavation

The area of the site that will undergo excavation for utility and street paving is approximately 0.5 acres. Construction will take place with in the street right-of-way.
The area of the site that will undergo excavation for the home building phase of the project is approximately 1.0 acres.

e. Stormwater Drainage Characteristics

Based on typical residential development, it is anticipated that up to 1.55 acres (40% of the platted area) will be converted from pervious to impervious surface. The lateral storm sewer will be designed in accordance with the City Standards for a 3-year design event. The existing stormwater treatment pond was designed to receive runoff from this site. To comply with the MPCA stormwater permit, it is necessary to direct as much of the runoff as possible into this pond.

f. Existing Soil and Groundwater Data

According to the Clay County Soil Survey, the predominant soil type in the project area is the Bearden silty clay loam, with smaller areas of Overly silty clay loam. Soil borings have not been conducted specifically for this project. However, soil borings conducted for various other projects adjacent to this site generally confirm the Clay County Soil Survey classifications. These soils generally have moderately poor to poor drainage and low strength, and are highly susceptible to frost action. The Bearden formation also has a shallow seasonal high water table. For these reasons, these soils are considered poor materials for constructing roads and are unsuitable for full basements. Typically, these soils present a high risk of corrosion to uncoated steel pipe, and a low risk of corrosion to concrete. Although these soil properties present challenges for development, their limitations can be overcome with various construction practices as noted below in Table 1:

Table 1	
Soil Limitations:	**Mitigation Measures:**
Poor drainage and shallow water table	Draintile and sump pump use
Low strength	Geotextile fabric and granular base use
Corrosivity to steel	PVC pipe use and plastic wrap on metal items
Frost Action	Granular backfill and draintile

g. Site Location

The project is located at the intersection of 14th Street South and 44th Avenue South in the NW ¼ of Section 28, Township 139N, Range 48W.

Figure 1 (Attached at the end of this document) is a US Quad Map Showing the project location.
Figure 2 (Attached at the end of this document) is an area map showing the project location.

h. Name of Receiving Water

Runoff from the site is transported via the storm sewer system to the Regional Pond that is shared with the Prairie Meadows Subdivision. All runoff from the site ultimately discharges to the Red River of the North. The Red River is listed as impaired water on the 303(d) list. No TMDL study plan has been approved by the EPA at this time. The pollutants/stressors for this portion of the Red River are turbidity, fecal coliform, mercury and PCB in fish tissue.

3. SWPPP Implementation and Chain of Responsibility

The implementation and maintenance of the SWPPP will provide the Contractor with the framework for reducing soil erosion and minimizing pollutants in stormwater and the air during construction.

The City of Moorhead will make Application for the General Stormwater Permit for Construction Activity (MN R100001) and be listed as "Owner" for the purpose of permit application. The City will continue the role of "Owner" until the underground utilities and street paving is complete. As outlined in the Project Specifications Special Provisions, the "Contractor" shall become a co-permittee with the City of Moorhead.

The Contractor shall be solely responsible for complying with the requirements of Part IV of the General Stormwater Permit where "Permittee", "Owner" or "Operator" is referenced until a Notice of Termination/Permit Modification form has been completed and approved.

The Contractor shall be responsible for providing all inspections, documentation, record keeping, maintenance, remedial actions, and repairs required by the permit. All inspections, maintenance, and records required in the General Stormwater Permit Paragraph IV.E shall be the sole responsibility of the Contractor.

The Contractor shall have all logs, documentation and inspection reports on-site for the Engineer to review and shall post the MPCA General Stormwater Permit on-site.

Once the underground utilities, street paving and boulevard stabilization is complete than a "Notice of Termination/Permit Modification Form" will be submitted to assign the Developer the "Owner" and "Contractor" responsibilities for the home building portion of this project.

a. Erosion Control Supervisor and Duties

The Erosion Control (EC) Supervisor will be provided by the Contractor during underground utility and street paving construction activities until their responsibilities have been transferred or terminated under the terms of the MPCA permit.

The EC supervisor will oversee the implementation of the SWPPP and the installation, inspection, and maintenance of the erosion prevention and sediment control BMPs before and during construction. It will be the responsibility of the EC Supervisor to enforce the SWPPP during construction and to maintain a quality control program, including providing contingency plans.

1. Coordinate and schedule the work of subcontractors so that erosion and sediment control measures are fully executed for each operation and in a timely manner over the duration of the Contract.
2. Oversee the work of the subcontractors so that appropriate erosion and sediment preventive measures are undertaken at each stage of the work.
3. Inspect or monitor activities related to the SWPPP as needed.
4. Ensure that proper cleanup occurs from vehicle tracking on paved surfaces and/or any location where sediment leaves the Right-of-Way.
5. Identify additional potential sources of pollutants not included in the SWPPP and take appropriate action to add them to the plan.
6. Ensure that any changes made to construction plans are consistent with the goals of the SWPPP.
7. To aid in the implementation of the SWPPP, random site visits will occur by the design team as well as an inspector on-site.

The EC Supervisor will be identified by name at the pre-construction conference, and a contact cell phone number will be made available. If the EC Supervisor is unable to perform the required duties due to illness, vacation or some other unforeseen event, an EC Supervisor designate shall be responsible for all parts of this document.

b. Certification of Erosion Control Supervisor

The Contractor shall provide a certified Erosion Control (EC) Supervisor to direct the Contractor and subcontractor(s) operations and insure compliance with Federal, State and Local ordinances and regulations. The certification is obtained by completing a two day Erosion/Sediment Control Site Management training class and passing the required test.

The EC Supervisor will provide the City of Moorhead with the following information as required in the MPCA Permit.

- Names of the personnel associated with this project that are required to be trained.
- Dates of training and name of instructor(s) and entity providing training.
- Content of training course or workshop (including number of hours of training)

c. Regulatory Officials

The EC Supervisor will address issues that impact the "waters of the State" of Minnesota arising during construction. The Supervisor will notify the proper regulatory officials as listed below:

Agency	Permit	Name	Phone #
State Duty Officer	MPCA		800-422-0798
MPCA Detroit Lakes	MPCA	Joyce Cieluch	218-847-1519
City of Moorhead Project Eng		Tom Trowbridge	218-299-5388
City of Moorhead Stormwater		Andrea Crabtree Nayes	218-299-5387

In the event of a reportable release the EC Supervisor shall:

- Notify the appropriate regulatory official immediately; and
- Notify permitting authority in writing within 14 days; and
- Modify the SWPPP to include the date of the release, circumstances leading to the release, and steps taken to prevent reoccurrence of the release.

d. Employee Training

The EC Supervisor shall implement and oversee an employee training program to educate the prime contractor's and subcontractors' employees about the requirements of the SWPPP. The education program will include background on the components and goals of the SWPPP and hands-on training in erosion controls, spill prevention and response, good housekeeping, proper material handling, disposal and control of waste, equipment fueling, and inspection procedures. All employees will be training prior to their fist day on the site.

4. Description of Controls

a. Erosion and Sediment Controls and Stormwater Management

Temporary erosion and sediment controls include such measures as inlet protection for all structures within the excavated area and down slope from the construction.

Temporary Erosion and Sediment Control during Underground Utility and Street Paving Phases

Specifically, the Contractor will provide the following:

1. Excavations and other soil disturbing activities shall be kept to practical minimums. Natural vegetation shall be preserved when possible.
2. Silt fence shall be installed prior to construction as shown on the Erosion Control Plan Sheet.
3. Sediment logs shall be used as provided on the Erosion Control Plan Sheet or as determined necessary in the field.
4. A construction entrance must be provided at all locations where construction vehicles enter and exit the site.
5. Haul Routes shall be swept at least once per week during construction.
6. Daily removal of tracked sediments is required on paved streets adjacent to the project areas.
7. As is appropriate during construction, Type A, B or C inlet protection will be installed in storm sewer inlets.
8. Concrete truck washout areas shall be constructed, designated and maintained throughout the project term. At the end of the project, the Contractor shall remove all concrete and restore the area. The concrete washout areas must meet the requirements of the MPCA General Stormwater Permit for Construction Activity.
9. Exposed soils are to be left rough, not smooth, until permanent stabilization is implemented.
10. Temporary stockpiles are NOT to be placed in the stormwater conveyance or surface waters and they are to be surrounded by erosion control BMPs.
11. Dewatering of turbid or sediment filled discharge must be discharged to a temporary sedimentation basin or it must be treated by the appropriate BMP before site discharge. Discharge points from dewatering must be protected from erosion and scouring by an acceptable energy dissipation method, such as rip-rap.
12. The normal wetted perimeter of any temporary or permanent drainage ditch or swale that drains water from any portion of the construction site, or diverts water around the site, must be stabilized within 200 lineal feet from the property edge, or from the point of discharge into any surface water. Stabilization of the last 200 lineal feet must be completed within 24 hours after connecting to a surface water. Stabilization of the remaining portions of any temporary or permanent ditches or swales must be complete within 14 days after connecting to a surface water and construction in that portion of the ditch has temporarily or permanently ceased. Temporary or permanent ditches or swales that are being used as a sediment containment system (with properly designed rock ditch checks, bio rolls, silt dikes

etc.) do not need to be stabilized. These areas must be stabilized within 24 hours after no longer being used as a sediment containment system. Pipe outlets must be provided with temporary or permanent energy dissipation within 24 hours after connection to a surface water.

Temporary Erosion and Sediment Control during Residential Construction Phase

During the residential building phase the Developer and Lot Owner/Contractor have the responsibility to maintain any erosion and sediment control measure put in place during the previous phases. In addition they must comply with the Residential Erosion Control Standards and the MPCA General Stormwater Permit for Construction Activity (MN R100001).

1. Any erosion control devices damaged during construction must be repaired and replaced within 24 hours of discovery or when site conditions allow access.
2. Each building site must have a designated construction entrance.
3. Tracked sediment must be removed from paved streets by the end of the days work.
4. If dewatering is necessary use a filter bag, sock or a temporary sediment basin.
5. If a regional concrete washout area is not provided than the site must constructed a washout area to MPCA regulations.
6. Weekly site inspections of BMPs must be performed and documented. The City of Moorhead and the MPCA also require that a site inspection be conducted within 24 hours of a rain event of 0.5 inches or greater.
7. The permit holder is responsible for erosion control devices year round until the permit is closed. See Residential Standards for winter stabilization.
8. Permits

   The lot owner and/or contractor must complete and submit the following permits.

   a. City of Moorhead Residential Erosion/Sediment Control Permit
   b. Minnesota Pollution Control Agency (MPCA) Notice of Termination/Permit Modification

   The lot owner and/or contractor must submit a signed copy of the MPCA Notice of Termination/Permit Modification form along with the City of Moorhead Erosion/Sediment Control Permit to building codes located in City Hall. The original signed MPCA Notice of Termination/Permit Modification form must be submitted to the MPCA. The permits are located on the City of Moorhead's website at www.cityofmoorhead.com.

b. Stabilization Time Schedule for Soil Exposure Condition

All exposed soil areas must be stabilized as soon as possible to limit soil erosion but in no case later than 14 days after the construction activity in the portion of the site has temporarily or permanently ceased. The project area is just outside of one (1) mile from an impaired water body.

Temporary stockpiles without significant silt, clay or organic components (e.g., clean aggregate stockpiles) and the constructed base components of a road are exempt from this

requirement but must comply with Part IV.C.5 of the MPCA General Stormwater Permit for Construction Activity (MN R100001).

c. Identification of Potential Pollutants and Process for Containment

The purpose of this section is to identify pollutants that could impact stormwater during and after construction of this project.

Significant Materials Inventory

Pollutants that result from demolition, grading, excavation, redevelopment and road building materials and have the potential to be present in stormwater runoff are listed in the following table. The table includes information regarding material type, chemical and physical description and specific regulated stormwater pollutants associated with each material.

SIGNIFICANT MATERIALS INVENTORY				
Material/Chemical	**Physical Description**	**Stormwater Pollutants**	**Location**	**Process for Containment**
Pesticides (insecticides, fungicides, herbicides, rodenticides	Various colored to colorless liquids, powders, pellets or grains	Chlorinated hydrocarbons, organophosphates, carbamates and arsenic	Herbicides used for noxious weed control	Certified applicator
Permanent Seeding Fertilizer	Liquid or solid grains, nitrogen and phosphorus	Nitrogen, phosphorus, organic substrate	Permanent cover - newly seeded areas	Organic base, slow release forms only, tied up in compost
Temporary Seeding Fertilizer	Liquid or solid grains, nitrogen and phosphorus	Nitrogen, phosphorus, organic substrate	Rapid stabilization areas, topsoil berms, stockpiles	Managed application, certified installers, quick cover plant materials
Cleaning Solvents	Colorless, blue or yellow-green liquid	Perchloroethylene, methylene chloride, trichloroethylene, petroleum distillates	No equipment cleaning allowed in project limits	Tarps, monitor weather for rain and wind
Wastewater from construction	Equipment washing rinse water	Water soil, oil, grease and solids	Equipment washing not allowed in project limits	N/A
Asphalt	Black solid	Oil, petroleum distillates	Streets, roofing	Excess material to be removed for project limits
Concrete	White solid	Limestone, sand	Railroad tracks, culverts, curb and gutter, driveways, home foundations, masonry	Designated wash areas or complete haul removal
Glue, adhesives	White or yellow liquid	Polymers, epoxies	Expansion joints, home construction	Empty container management
Curing compounds	Creamy white liquid	Naphtha	Curb and gutter	Follow manufacturers recommendations
Wood preservatives	Clear amber or dark brown liquids	Stoddard solvent, petroleum distillates, arsenic, copper, chromium	Timber pads, railroad tracks, home construction	Oil absorbing diapers, trained personnel
Hydraulic oil/fluids	Brown oily petroleum hydrocarbon	Mineral oil	Random leaks broken hoses	Oil absorbing diapers, trained personnel
Gasoline	Colorless pale brown or pink liquids	Petroleum hydrocarbon, benzene, ethyl benzene, toluene, xylene, MTBE	Secondary containment	Oil absorbing diapers, trained personnel
Diesel fuel	Clear blue-green to yellow liquids	Petroleum distillates, oil & grease, naphthalene, xylene	Secondary containment	Oil absorbing diapers, trained personnel
Anti-freeze/coolant	Clear green/yellow	Ethylene glycol, propylene	Random leaks and	Trained personnel

	liquids	glycol	broken hoses	
Soil erosion	Solid particles	Soil, sediment	Project limits	Prevention and Stabilization measures within prescribed periods

d. Potential Locations for Stormwater Contamination

The following areas were identified and evaluated as potential sources of stormwater contamination:

- Ditch
- Regional Stormwater Pond
- Storm System Inlets
- Curb & Gutter
- Material Storage
- Material Stock Piles

The contractor shall pay special attention to overland drainage towards the drainage ditches on the north and west sides of the project and the regional Stormwater pond to the east of the site. It is the contractor's responsibility to ensure these areas are protected at all times.

e. Additional Pollution Management Controls

The EC Supervisor shall implement any process for containment necessary to minimize pollutants, which may include controls not listed below.

- All nonhazardous waste materials will be collected and stored in a securely lidded metal dumpsters or other approved containment method at the end of each day. Any alternative to a metal dumpster will be made and submitted in writing for approval by the Project Engineer.
- All trash and construction debris from the site will be deposited in the dumpster. The dumpster will be emptied as necessary to function as intended for debris collection. No construction materials will be buried on-site. All personnel will be instructed by the contractors EC Supervisor regarding the correct procedure for all waste disposals.
- Hazardous materials will be limited to gasoline, diesel fuel, and motor oil. The Contractor must make the necessary arrangements to store these hazardous materials in a manner that is compliant with the MPCA regulations. Spills must be reported to the State Duty Officer at 1-800-422-0798.
- External washing of trucks and other construction vehicles will NOT be allowed on the project site. Concrete trucks shall be washed only in designated areas.
- All sanitary waste will be collected from the portable units at rate necessary to maintain designed function, by the licensed sanitary waste management contractor.

- Good housekeeping and spill control practices will be followed during construction to minimize stormwater contamination from petroleum products, fertilizers, paints, and concrete.

To prevent stormwater contamination from occurring, the following BMPs will be implemented. All work, devices, materials and remedial actions required to perform the following tasks as listed below are incidental on the project.

- All vehicles on site will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage.
- Petroleum products will be stored in tightly sealed containers which are clearly labeled.
- Spill kits will be included with all fueling sources, maintenance activities, and all construction activities near a "water of the state". Secondary containment measures will be installed and maintained by the contractor.
- Concrete trucks will not be allowed to washout or discharge surplus concrete or drum wash water on the site, unless done in a designated area or in an engineering containment system.
- Any asphalt substances used onsite will be applied according to the manufacturer's recommendation.
- All paint containers will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm sewer system, but will be properly disposed of according to the manufacturer's recommendation.
- All spills will be cleaned up immediately upon discovery. Spills large enough to reach the storm sewer system will be reported to the MPCA State Duty Officer (1-800-422-0798) and should immediately call the City of Moorhead Fire Department dispatch (701-451-7660).
- A stabilized construction entrance/exit will be constructed to reduce vehicle tracking of sediments off project right-of-way.
- A pickup style broom will be required for all street sweeping and project cleanup operations from hard surfaces. An open air broom will be allowed only when the material is wet due to a rain event, provided the material cannot leave the site from the operation.

f. Coordination of BMPs with Construction Activities

The EC Supervisor shall coordinate BMPs with construction activities so the BMPs are in place before construction begins. The following BMPs will be coordinated with construction activities:

- Type A, B or C inlet protection will be installed during different phases of the project.
- Silt fence or bio-rolls (sediment logs) around any soil stockpiles will be installed prior to stockpiling material.
- Access roads will be installed and stabilized prior to construction to prevent tracking sediment from the project area.
- Once construction activity ceases in an area, that area will receive hydro-mulch with seed as indicated in the special provisions and within 14 days.

- The temporary erosion control BMPs will remain in place until all construction activities at that location are complete and the soil has been stabilized.

g. Non-stormwater Discharges

It is expected that the following non-stormwater discharges may occur from the site during the construction period:

- Uncontaminated groundwater from dewatering excavations.
- Water from water line flushing.

Dewatering or basin drainage related to construction shall be discharged to a temporary or permanent sedimentation basin. Discharging directly to the storm sewer system is not allowed under the terns of the contract. All water from dewatering or basin draining activities must be discharged in a manner that does not cause nuisance conditions, erosion in receiving channels or on down slope properties.

5. Record Keeping, Maintenance and Inspection Procedures

a. Records of Construction Activities

The EC Supervisor shall maintain records of construction activities, including:

- Date and time of inspection.
- Name of person conducting inspection.
- Findings of inspections, including recommendations for corrective actions.
- Corrective actions undertaken (including dates, times and party completing maintenance activity).
- Date and amount of all rainfall amounts greater than 0.5 inches in 24 hours.
- If construction activities or design modifications are made to the site plan, which could impact stormwater, this SWPPP will be amended appropriately. The amended SWPPP will have a description of the new activities that contribute to the increased pollutant loading and the planned source control measures.
- Where parts of the project area have undergone final stabilization, those parts may have inspections reduced to once per month. Areas not yet stabilized will still need weekly inspection.
- Where work has been suspended due to frozen ground the required inspections and maintenance must take place as soon as runoff occurs at the site or prior to resuming construction, which ever comes first.
- Erosion prevention and sedimentation control BMPs implemented on this project must be inspected to ensure integrity and effectiveness. Non-functional BMPs must be repaired, replaced or supplemented with functional BMPs.

b. Maintenance and Inspections

Inspections
Visual inspection of all cleared, graded or areas of exposed sub-grade within the project site will be performed daily. Inspections will also be performed within 24 hours after a rainfall event greater than 0.5 inches.

Additionally formal written inspections will be performed weekly in accordance with the NPDES permit on the form provided by the Owner. The EC Supervisor or his/her documented designated stormwater team members will conduct the weekly inspections. **Copies of the written weekly inspections must be submitted along with the monthly pay request. No payments will be made without submitting copies of the inspection records.**

BMP Maintenance
The Contractor is responsible for maintaining all BMPs during construction, as outlined in this SWPPP as well as within the project plans & specifications and meeting the requirements of the NPDES permit. The Contractor is also responsible for removal of temporary BMPs prior to termination of the permit.

6. Changes to the SWPPP

The EC Supervisor shall immediately initiate any changes required to this SWPPP, the construction documents, or construction diaries, when:

- Notified by the MPCA, EPA, or other regulatory authority that the SWPPP does not comply.
- Changed in design, construction staging, construction operations, or maintenance which have an effect on the potential for discharge of pollutants.
- If there is a reportable release of a pollutant.

7. Permanent Erosion Control

The EC Supervisor will leave the temporary pollution prevention controls in place for the residential construction phase. Once the grass buffer strips are installed adjacent to the curb lines and accepted by the City, the City will complete a Notice of Termination/Permit Modification form transferring the "Owner and Contractor" designation and responsibilities to the Developer during the residential construction phase.

The permanent erosion control measures for this project will consist of turf establishment as homes are being built.

8. Certification of Compliance with Federal and State Regulations

This SWPPP reflects the requirements of NPDES for stormwater management and erosion and sediment control for construction. To ensure compliance, this plan was

prepared in accordance with the University of Minnesota Design Training Certification Program, MnDOT specifications used in the project plans and specifications and the Memorandum of Understanding between MnDOT and MPCA.