Stormwater Pollution Prevention Plan

Prairie Meadows 4th Addition
Subdivision Development

City of Moorhead
Engineering No. 13-A6-3
Legal No. A6-3-2013

Project Location

45th Avenue South & 15th Street South

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

Prepared February 2013
Andrea J. Crabtree Nayes
Revised May 9, 2013

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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.

2. Site Information

a. Nature of Activity

The project involves the construction of a 42 residential lot subdivision. The City's portion of the construction project will consist of underground utilities and street paving. The Developer will construct the homes and bring the project to final stabilization.

Because of the nature of this project, land will be disturbed and potential for the disturbed sediment to discharge from the site. The erosion and sediment control practices are outlined in the plans and SWPPP to prevent and/or capture such discharges. Only areas shown on the plans are to be disturbed.

b. Intended Sequence of Major Construction Activities

Before any soil disturbing activity may commence, all pre-construction BMPs must be in place. A 35 foot grass buffer strip along the drainage ditch on the west side of the project will remain undisturbed.

- A construction entrance/exit shall be constructed at all locations where construction vehicles enter and exit the site.
- 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 to prevent sediment from entering the storm sewer system.
- 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;

- 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.

c. Total Site Area

The total surface area affected for the overall project construction is 11.28 acres. The breakdown of the pre-construction and post-construction surface areas are as follows.

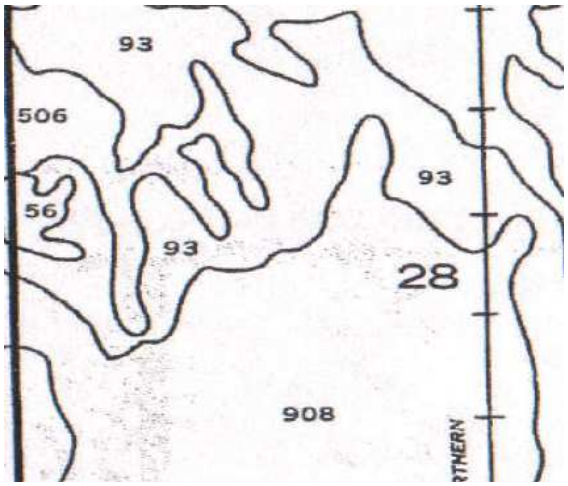
Existing Impervious Surface (acres)	New Impervious Surface (acres)	Total Impervious Surface (acres)
0	4.65	4.65

d. Stormwater Drainage Characteristics

The property is generally level and drains west with and elevation ranging from 908 to 909. The drainage area will be conveyed by underground pipes and drainage ditches to the regional pond for treatment of stormwater runoff prior to discharge through storm lift station # 14 into the drainage ditch that discharges to the Red River of the North. The Red River is listed as an impaired water body on the 303(d) list. Currently there is not a Total Daily Maximum Load (TMDL) implementation plan in place.

e. Existing Soil and Groundwater Data

According to the Clay County Soil Survey, the soil types in the project area are classified as Bearden silty clay loam and Bearden-Fargo complex. These soils are generally considered to be poorly drained, and have an apparent seasonal high water table. Typically, these soils present a high risk of corrosion to uncoated steel pipe and a low risk of corrosion to concrete.



93 – Bearden silty clay loam
908 – Bearden-Fargo complex

f. Site Location

The project is located in the southeast corner of 45th Avenue South and 14th Street South in the NW ¼ of Section 28, Township 139N, Range 48W. Attached at the end of this document is an area map showing the projects location.

g. Name of Receiving Water

Stormwater runoff from the project area drains into a regional stormwater pond shared with the Southfield subdivision. The stormwater pond discharges into the ditch system and then to the Red River of the North. The Red River is on the 303(d) list as impaired water. No TMDL study has been approved by the EPA at this time. The pollutant/stressor for this portion of the Red River is turbidity.

The Contractor shall pay special attention to the drainage ditch that drains to the regional stormwater pond. It is the Contractors responsibility to ensure that the "Waters of the State" are protected at all times.

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. 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 (Construction Activity Requirements) of the General Permit where "Permittee", "Owner" or "Operator" is referenced.

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.

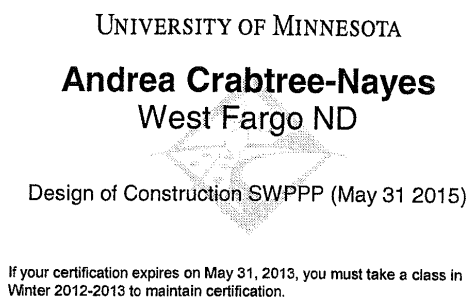
The EC Supervisor will provide the City of Moorhead with the following information as required in the MPCA Permit.

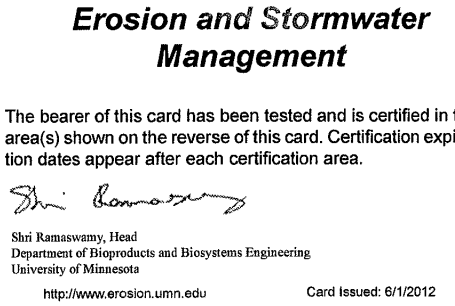
- Names of the personnel associated with this project that are required to be trained.
- Dates of training and name of instructor(s) and entity providing training.
- Content of training course or workshop (including number of hours of training)

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	218-299-5390
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 contractors 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 first 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. A 35' grass buffer strip will be preserved and maintained along the drainage ditch on the west side of the project area. See the Erosion Control Plan Sheet.
4. Sediment logs shall be used as shown on the Erosion Control Plan Sheet or as determined necessary in the field.
5. A construction entrance must be provided at all locations where construction vehicles enter and exit the site.
6. Haul Routes shall be swept at least once per week during construction.
   - Haul Routes
     - 40th Avenue South (TH 75 to 40th St S/CSAH 7)
     - 45th Avenue South (14th St S to 16th St S)
     - 14th Street South (40th Ave S to 45th Ave S)
     - 34th Street South (TH 10 to CSAH 52)
7. Daily removal of tracked sediments is required on paved streets adjacent to the project areas.
8. As is appropriate during construction, Type A, B or C inlet protection will be installed in storm sewer inlets.

9. 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.
10. Exposed soils are to be left rough, not smooth, until permanent stabilization is implemented.
11. Temporary stockpiles are NOT to be placed in the stormwater conveyance or surface waters and they are to be surrounded by erosion control BMPs.
12. 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.
13. 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.

Erosion Control BMPs

Best Management Practices	***Quantity***
Rock Construction Entrance	2 EACH
Bio-roll	150 LF
Silt Fence Machine Sliced	560 LF
Seed with Hydromulch	3.40 AC
Inlet Protection	19 EACH

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 a 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. If home construction is done by Contractor's that are not the developer than a Minnesota Pollution Control Agency (MPCA) Notice of Termination/Permit Modification (Subdivision Permit) must be submitted to the MPCA.

Submit the City of Moorhead Grading Erosion/Sediment Control Permit to building codes located in City Hall 4th floor when applying for your building permit.

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 outside of the one (1) mile limit 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 liquids	Ethylene glycol, propylene glycol	Random leaks and broken hoses	Trained personnel
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 locations of stormwater contamination:

- Ditch
- Regional Stormwater Pond
- Storm System Inlets
- Curb & Gutter

The contractor shall pay special attention to overland drainage towards the drainage ditch on the west and the regional Stormwater pond to the north 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 (651-649-5451) 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. 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. If the water cannot be discharged to a temporary or permanent sedimentation basin it shall be discharge through a sediment bag. 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, or inundation of the Red River causing significant adverse impact to the river.

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, whichever 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.

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 has an effect on the potential for discharge of pollutants.
- If there is a reportable release of a pollutant.

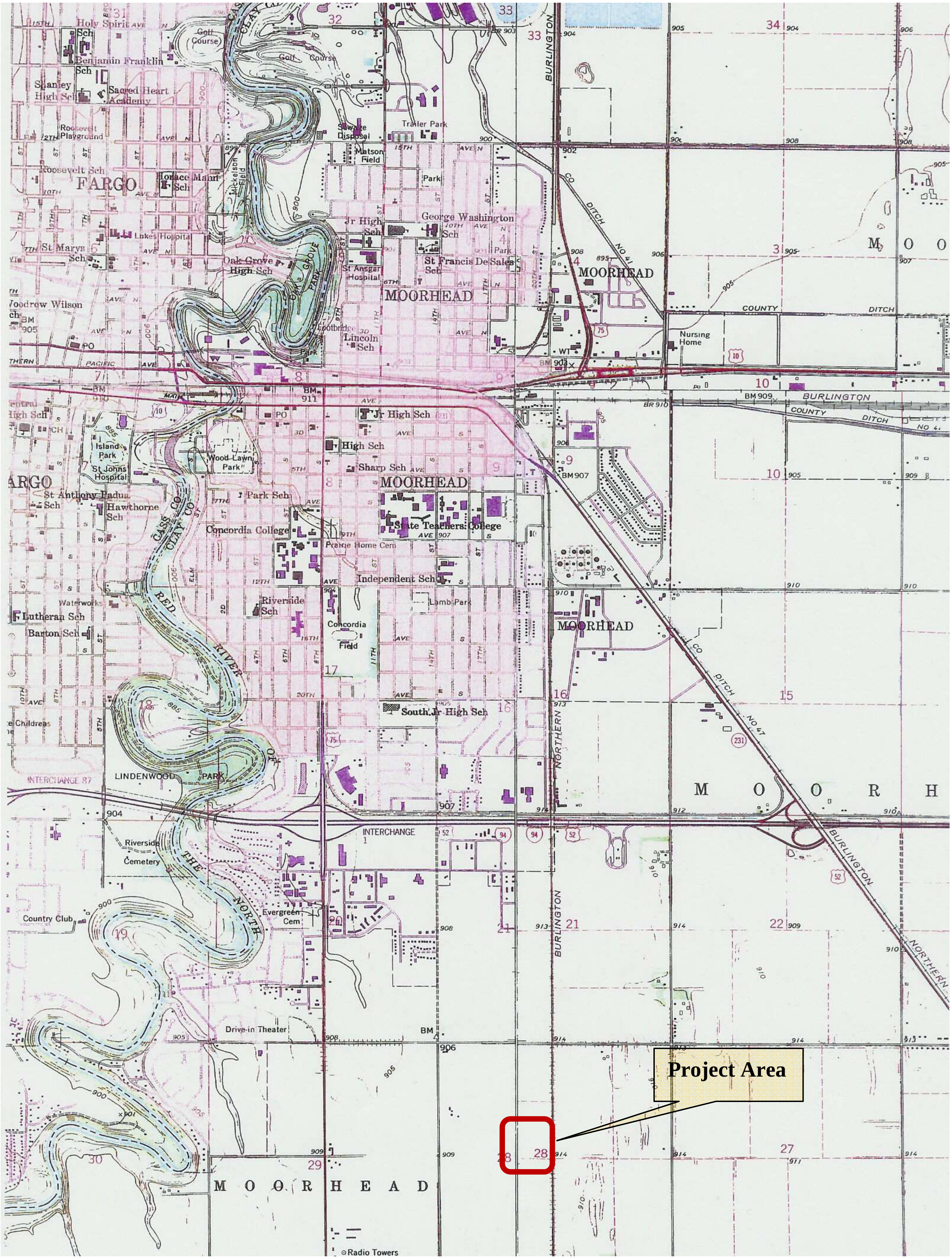
7. Permanent Erosion Control

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.


Project Area
MOORHEAD
FARGO
Holy Spirit
Benjamin Franklin Sch
Sacred Heart Academy
Roosevelt Playground
Roosevelt Sch
Horace Mann Sch
Lukes Hospital
St Marys Sch
Oak Grove High Sch
Woodrow Wilson
Golf Course
Sewage Disposal
Matson Field
Trailer Park
Park
Jr High Sch
George Washington Sch
St Ansgar Hospital
St Francis De Sales Sch
Lincoln Sch
Footbridge
Nursing Home
COUNTY DITCH
BURLINGTON
NORTHERN
PACIFIC
MAIN
Jr High Sch
High Sch
Sharp Sch
Island Park
St Johns Hospital
Wood Lawn Park
St Anthony Padua Sch
Hawthorne Sch
Park Sch
Concordia College
State Teachers College
Prairie Home Cem
Independent Sch
Waterworks
Lutheran Sch
Barton Sch
Riverside Sch
Concordia Field
Lamb Park
South Jr High Sch
RED RIVER
THE NORTH
CASS CO
CLAY CO
LINDENWOOD PARK
INTERCHANGE 87
INTERCHANGE 1
Riverside Cemetery
Country Club
Evergreen Cem
Drive-in Theater
Radio Towers
M O O R H E A D
M O O R H
CO DITCH NO 41
CO DITCH NO 47
BM 909
BM 907
BM 911
PO
WT
CH

!! CAUTION !!

UTILITIES IN THE AREA, BEFORE CONSTRUCTION UTILIZE 1 CALL 1-800-252-1166

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL " C ". THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

PLAN SYMBOLS

RIGHT-OF-WAY LINE ROAD
RIGHT-OF-WAY LINE DRAINAGE DITCH
SECTION LINE
QUARTER LINE
PROPERTY LINE
EASEMENT LINE
RAILROAD
FENCE
SANITARY SEWER - EXISTING
SANITARY SEWER - PROPOSED
SANITARY SEWER SERVICE - EXISTING
SANITARY SEWER SERVICE - PROPOSED
SANITARY SEWER FORCE MAIN
STORM SEWER - EXISTING
STORM SEWER - PROPOSED
WATER - EXISTING
WATER - PROPOSED
WATER SERVICE - EXISTING
WATER SERVICE - PROPOSED
TELEPHONE
TELEVISION
FIBER OPTIC
OVERHEAD POWER
UNDERGROUND POWER
PETROLEUM PIPELINE
GAS
CURB & GUTTER - EXISTING
CURB & GUTTER - PROPOSED

SANITARY MANHOLE
STORM MANHOLE
EXISTING MANHOLE
HYDRANT
EXISTING HYDRANT
GATE VALVE
EXISTING GATE VALVE
CLEAN OUT
CURB STOP
PROPOSED INLET
EXISTING INLET
SIGN - STREET NAME
SIGN - REGULATORY / WARNING
POWER POLE
STREET LIGHT
ELECTRICAL TRANSFORMER
UTILITY PEDESTAL
DECIDUOUS TREE
CONIFEROUS TREE
BUSH / HEDGE

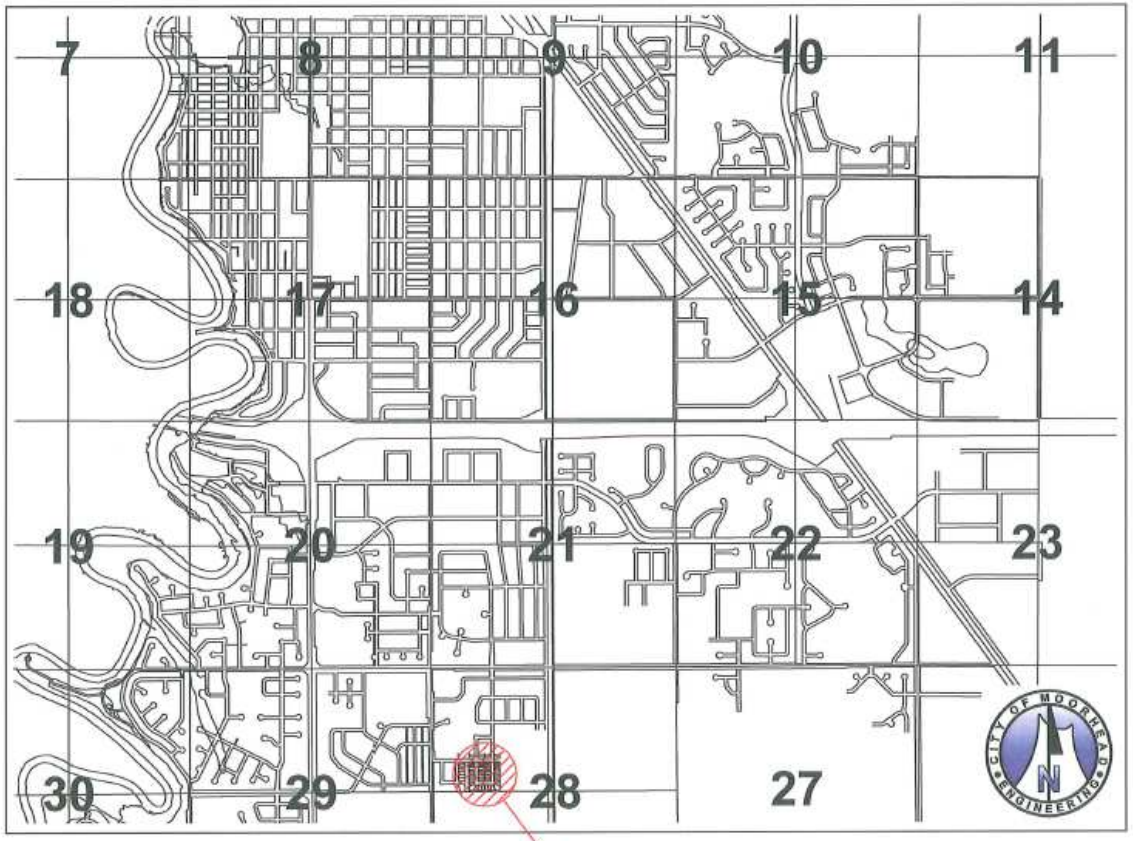
SPECIFICATION REFERENCE

THE 2005 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN, AS MODIFIED BY THE CITY OF MOORHEAD SPECIFICATIONS AND SPECIAL PROVISIONS.

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE 2012 MNUTCD, AND TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS (FIELD MANUAL) DATED FEBRUARY 2011.

CITY OF MOORHEAD
MINNESOTA
ENGINEERING DEPARTMENT

Prairie Meadows 4th Addition Street and Underground Utility Improvements
Eng. No. 13-A6-03



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PROJECT LOCATION

13th Street South, 16th Street South and 46th Avenue South

PART OF SECTION	28
SECTION No.	28
TOWNSHIP	139 N
RANGE	48 W

BENCHMARK

(Set in Concrete)

INTERSECTION	Southfield Lift Station
ELEVATION	910.645
DATUM	NAVD 1988

CITY OF MOORHEAD
MINNESOTA
ENGINEERING DEPARTMENT

DRAWN BY	CHECKED BY	APPROVED BY
TAO	MEO	TET

S.P. No. - | ENG. No. 13-A6-3 | LEGAL No. A6-3-2013

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

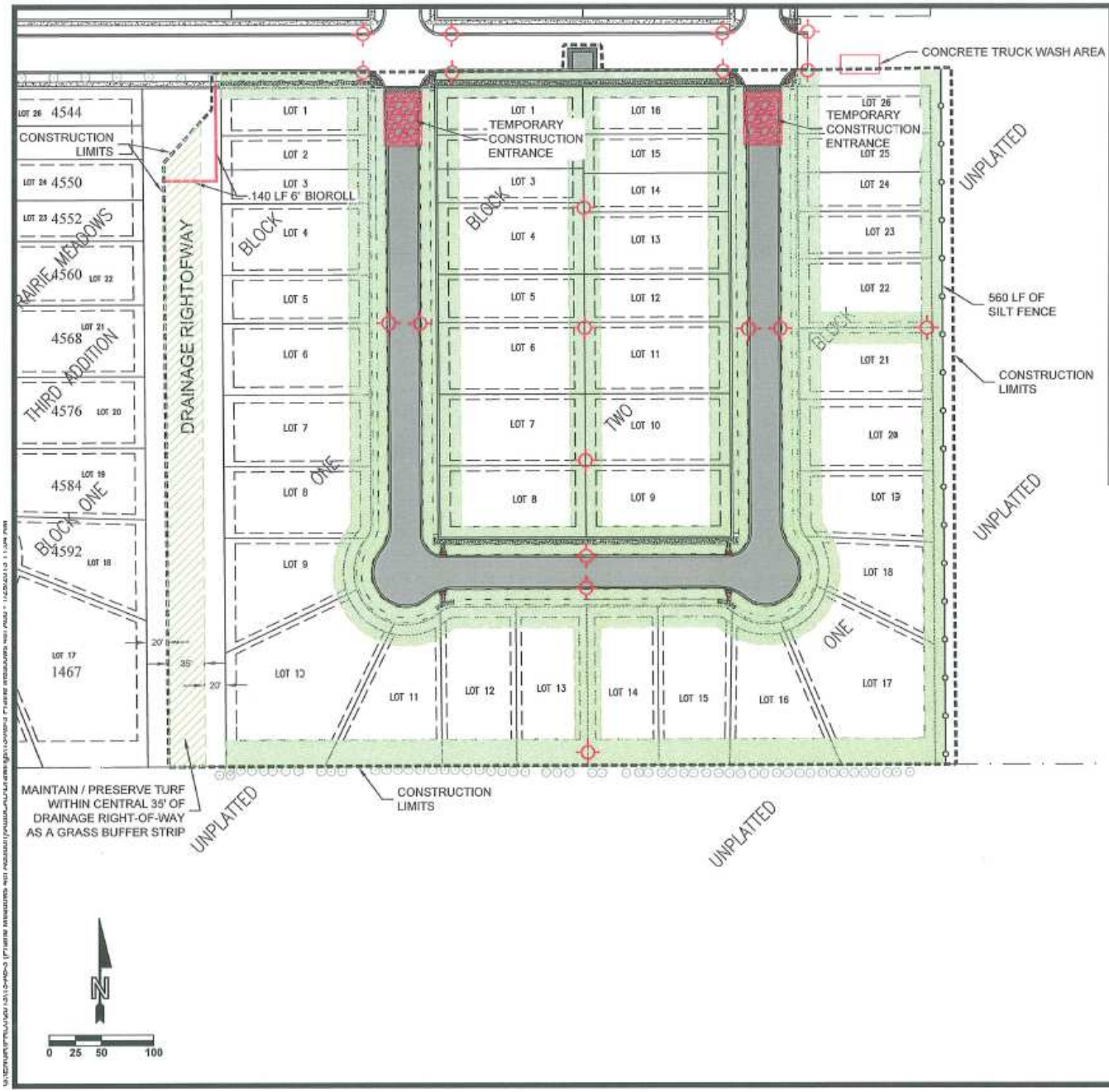
Signature - Project Engineer: Thomas E. Trowbridge | Date: January 29, 2013

Name - Project Engineer: Thomas E. Trowbridge | License No.: 25771

Title Sheet

Prairie Meadows 4th Addition Street and Underground Utility Improvements
15th Street South, 16th Street South and 46th Avenue South
Curb & Gutter, Asphalt Paving, and Underground Utilities

SHEET 1 OF 44



LEGEND

- INLET PROTECTION - TYPE A, B OR C
- SILT FENCE - MACHINE SLICED
- 6" BIOROLL
- CONSTRUCTION LIMITS
- CONCRETE TRUCK WASH AREA
- TEMPORARY CONSTRUCTION ENTRANCE
- SEEDING WITH TYPE 5 HYDROMULCH

NOTES:

1. ALL DISTURBED TOPSOIL SHALL HAVE PERMANENT SEEDING WHICH SHALL CONSIST OF 200 LBS./AC. OF AGASSIZ SEED & SUPPLIES PREMIUM SUNNY BRAND LAWN MIX OR APPROVED EQUAL WITH TYPE 5 MULCH UNLESS OTHERWISE INDICATED. DUE TO SCOPE OF WORK ADDITIONAL SEEDING MAY BE NECESSARY.
2. THE CONCRETE TRUCK WASH AREA SHALL CONSIST OF A TRENCH A MINIMUM OF 24" DEEP WITH A VOLUME OF AT LEAST 2 CY. ALL TRUCKS DELIVERING CONCRETE TO THE SITE SHALL WASH AT THE DESIGNATED LOCATION. UPON COMPLETION OF ALL CONCRETE WORK, THE CONCRETE RESIDUE SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR. THIS WORK IS INCIDENTAL TO CONSTRUCTION.
3. AT THE END OF EACH DAY OF CONSTRUCTION, THE CONTRACTOR SHALL USE A SKID-STEER OR OTHER APPROVED METHOD TO REMOVE CLAY AND DIRT DEPOSITS THAT HAVE BEEN TRACKED FROM THE CONSTRUCTION SITE ONTO ADJACENT PAVED ROADS. THIS WORK SHALL BE INCIDENTAL TO CONSTRUCTION.
4. MAINTAIN ALL EROSION CONTROL DEVICES, AND UPGRADE THEM AS NECESSARY DURING CONSTRUCTION.
5. ALL EROSION CONTROL DEVICES ARE TO REMAIN IN PLACE AFTER FINAL CONSTRUCTION FOR FUTURE IMPROVEMENTS.

MOORHEAD MINNESOTA ENGINEERING DEPARTMENT

DRAWN BY	CHECKED BY	APPROVED BY
TAO	MEO	TET

S.P. No.	ENG. No.	LEGAL No.
-	13-A6-3	A6-3-2013

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Thomas E. Trowbridge — January 29, 2013

Signature - Project Engineer — Date

Thomas E. Trowbridge — 25771

Name - Project Engineer — License No.

Erosion Control & Turf Establishment

Prairie Meadows 4th Addition Street and Underground Utility Improvements
15th Street South, 16th Street South and 46th Avenue South
Curb & Gutter, Asphalt Paving, and Underground Utilities

SHEET 2 OF 44

PROJECT DESCRIPTION

THE PROJECT INVOLVES THE CONSTRUCTION OF A 42 LOT RESIDENTIAL SUBDIVISION. THE CITY's PORTION OF THE CONSTRUCTION PROJECT WILL CONSIST OF UNDERGROUND UTILITIES AND STREET PAVING. THE DEVELOPER WILL CONSTRUCT THE HOMES AND BRING THE PROJECT TO FINAL STABILIZATION.

EXISTING SITE CONDITIONS: THE PROJECT SITE CONSISTS OF UNDEVELOPED FARMLAND ABUTTING RESIDENTIAL PROPERTIES.

PROJECT AREA = 11.28 ACRES
EXISTING IMPERVIOUS AREA = 0 ACRES
INTERIM NEW IMPERVIOUS AREA = 1.14 ACRES
- STREETS ONLY

ULTIMATE NEW IMPERVIOUS AREA = 1.14 + 35% x 10.04 = 4.65 ACRES
- ULTIMATE DEVELOPMENT, INCLUDING HOMES AND DRIVEWAYS (ESTIMATED AT 35% OF LOT AREA)
- TOTAL AREA OF RESIDENTIAL LOTS = 10.04 ACRES

PROJECT CONTACTS

PROJECT ENGINEER	STORMWATER	MPCA	STATE DUTY OFFICER
Tom Trowbridge, P.E.	Andrea Crabtree Nayes	Joyce Cieluch	MPCA
City of Moorhead	City of Moorhead	MPCA Detroit Lakes	(800) 422-0798
(218) 299-5390	(218)-299-5387	(218) 846-7387	

CONTRACTOR'S RESPONSIBILITIES

THE CONSTRUCTION SITE EROSION CONTROL (EC) SUPERVISOR FOR THE PROJECT WILL BE PROVIDED BY THE CONTRACTOR DURING CONSTRUCTION ACTIVITIES. THE EC SUPERVISOR WILL BE IDENTIFIED BY NAME AT THE PRECONSTRUCTION CONFERENCE AND A CONTACT CELL PHONE NUMBER WILL BE MADE AVAILABLE. ISSUES THAT ARISE DURING CONSTRUCTION THAT IMPACT THE "WATERS OF THE STATE" WILL BE ADDRESSED AND THE EC SUPERVISOR WILL NOTIFY THE PROPER REGULATORY OFFICIAL AS LISTED ABOVE.

IT WILL BE THE RESPONSIBILITY OF THE EC SUPERVISOR TO IMPLEMENT THE SWPPP PLAN DURING CONSTRUCTION AND MAINTAIN A QUALITY CONTROL PROGRAM. IN ADDITION, THE EC SUPERVISOR WILL 1) OVERSEE MAINTENANCE PRACTICES IDENTIFIED AS BMPS IN THE SWPPP; 2) IMPLEMENT AND OVERSEE SWPPP AND BMP TRAINING FOR ALL PARTIES THAT WILL BE CONSTRUCTING THE PROJECT; 3) CONDUCT AND PROVIDE INSPECTIONS AS NECESSARY; 4) IDENTIFY OTHER POTENTIAL POLLUTANT SOURCES AND MAKE SURE THEY ARE ADDED TO THE PLAN; 5) IDENTIFY ANY DEFICIENCIES IN THE SWPPP AND MAKE SURE THEY ARE CORRECT; 6) ENSURE THAT ANY CHANGES IN CONSTRUCTION PLANS ARE ADDRESSED IN THE SWPPP; AND 7) TO AID IN THE IMPLEMENTATION OF THE SWPPP PLAN.

NAME OF RECEIVING WATER

STORMWATER RUNOFF FROM THE PROJECT AREA DRAINS INTO THE REGIONAL STORMWATER POND. THE STORMWATER POND DISCHARGES INTO THE DITCH SYSTEM THEN TO THE RED RIVER OF THE NORTH. THE RED RIVER IS LISTED AS IMPAIRED ON THE 303(d) LIST. NO TMDL STUDY PLAN HAS BEEN APPROVED BY THE EPA AT THIS TIME.

CRITICAL AREAS

THE CONTRACTOR SHALL PAY SPECIAL ATTENTION TO THE DRAINAGE DITCH THAT DRAINS TO THE REGIONAL STORMWATER POND. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT THE "WATERS OF THE STATE" ARE PROTECTED AT ALL TIMES.

SOIL TYPE

THE SOIL TYPES WITHIN THE PROJECT AREA ARE THE OVERLY AND BEARDEN SILTY CLAY LOAMS AND ARE CLASSIFIED AS TYPE C/D SOILS.

DEWATERING

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 TERMS 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 DOWN SLOPE PROPERTIES, OR INUNDATION OF THE RED RIVER CAUSING SIGNIFICANT ADVERSE IMPACT TO THE RIVER.

POLLUTION PREVENTION

1. WASTE RECEPTACLES WITH COVERS ARE REQUIRED ON SITE FOR ANY SOLID WASTE GENERATED DURING THE CONSTRUCTION PROCESS. THESE RECEPTACLES MUST BE EMPTIED PERIODICALLY AND THE TRASH MUST BE DISPOSED OF PROPERLY.
2. HAZARDOUS MATERIALS WILL BE LIMITED TO GASOLINE, DIESEL, FUEL, AND MOTOR OIL. THE CONTRACTOR MUST MAKE THE NECESSARY ARRANGEMENT TO STORE THESE HAZARDOUS MATERIALS IN A MANNER THAT IS COMPLIANT WITH THE MPCA REGULATIONS. SPILLS MUST BE REPORTED TO THE MPCA DUTY OFFICER AT (800) 422-0798
3. EXTERNAL WASHING OF TRUCKS AND OTHER CONSTRUCTION VEHICLES WILL NOT BE ALLOWED ON THE PROJECT SITE. CONCRETE TRUCKS SHALL BE WASHED ONLY IN A DESIGNATED AREA.
4. THE CONTRACTOR SHALL PROVIDE PORTABLE REST ROOM FACILITIES AND SHALL BE CLEANED PERIODICALLY. PORTABLE RESTROOM FACILITIES AND COSTS NECESSARY TO MAINTAIN ARE INCIDENTAL.

STORMWATER POLLUTION PREVENTION PLAN

SEE THE STORMWATER POLLUTION PREVENTION DOCUMENT FOR;
1. EROSION AND SEDIMENT CONTROLS
2. INSPECTION AND MAINTENANCE
3. FINAL STABILIZATION

CITY OF MOORHEAD, MINNESOTA
ENGINEERING DEPARTMENT
DRAWN BY: TAO | CHECKED BY: MEO | APPROVED BY: TET
S.P. No. - | 13-A6-3 | A6-3-2013
ENG. No. | LEGAL No.

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
Signature - Project Engineer: Thomas E. Trowbridge | Date: January 29, 2013
Name - Project Engineer: Thomas E. Trowbridge | License No.: 25771

Storm Water Pollution Prevention Plan

Prairie Meadows 4th Addition Street and Underground Utility Improvements
15th Street South, 16th Street South and 46th Avenue South
Curb & Gutter, Asphalt Paving, and Underground Utilities

SHEET 3 OF 44

CITY APPROVED HAUL ROUTES:

40th Avenue South (TH 75 TO 40th Street South/CSAH 7)

45th Ave South (14th Street South TO 16th Street South)

14th Street South (40th Avenue South TO 45th Avenue South)

34th Street South (TH 10 TO CSAH 52)

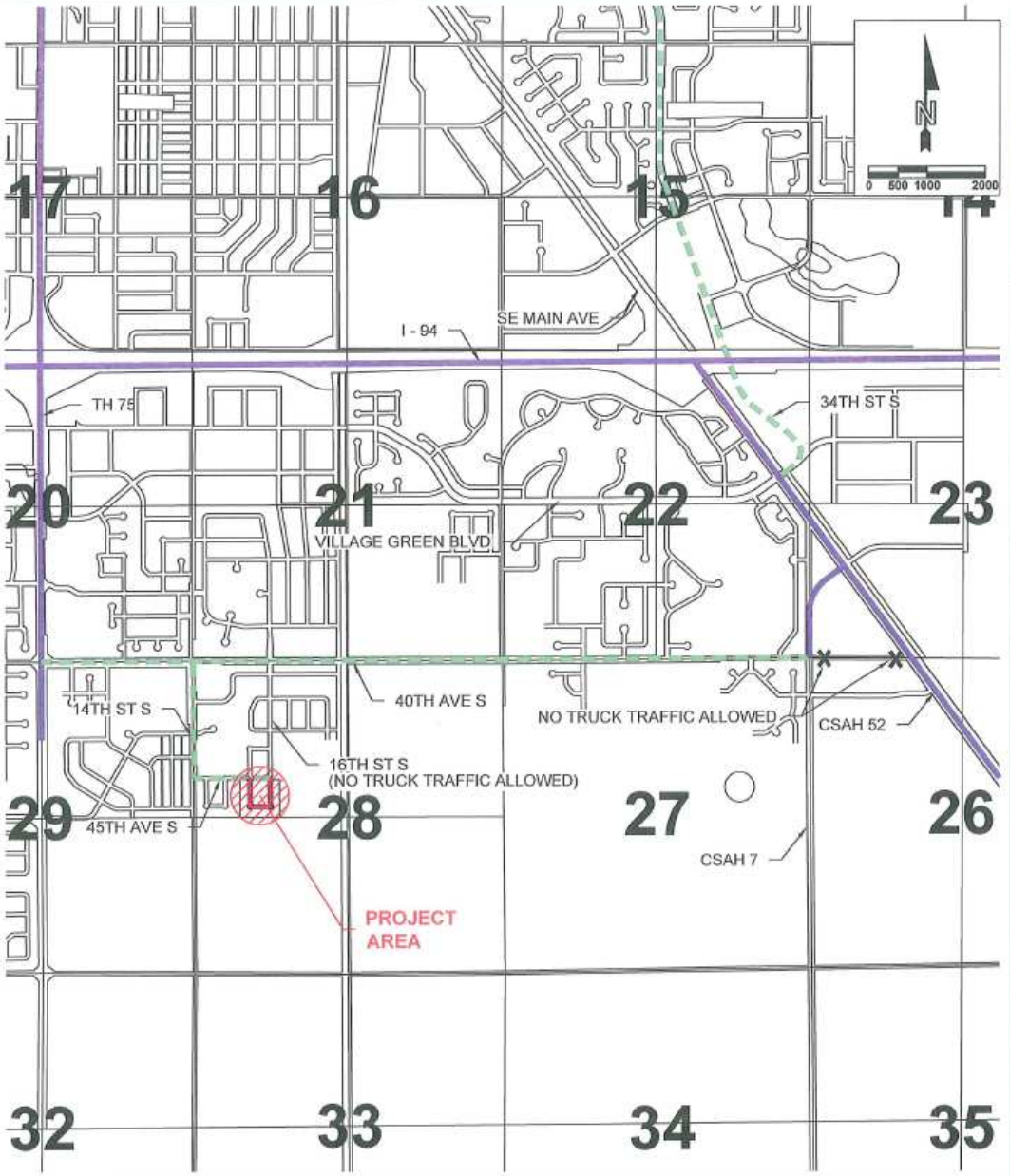
COUNTY, STATE AND FEDERAL ROADS:

(It is the responsibility of the Contractor to obtain permission from the County and the State for the use of these roads)

INTERSTATE 94
TH 75
TH 10
CSAH 7
CSAH 52

NOTES:

1. TRUCKS DELIVERING TO OR HAULING FROM THIS PROJECT SHALL NOT DRIVE ON 16TH STREET SOUTH BETWEEN 40TH AND 43RD AVENUE SOUTH.
2. TRUCKS DELIVERING TO OR HAULING FROM THIS PROJECT SHALL NOT DRIVE ON 40TH AVENUE SOUTH BETWEEN CSAH 7 (40TH STREET) AND CSAH 52.



CITY OF WOODBURY MINNESOTA ENGINEERING DEPARTMENT

DRAWN BY TAO | CHECKED BY MEO | APPROVED BY TET

S.P. No. - | BWS No. 13-A6-3 | LEGAL No. A6-3-2013

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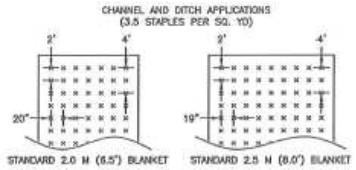
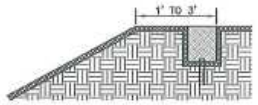
Name - Project Engineer: Thomas E. Trowbridge | License No. 25771

Haul Routes

Prairie Meadows 4th Addition Street and Underground Utility Improvements
15th Street South, 16th Street South and 46th Avenue South
Curb & Gutter, Asphalt Paving, and Underground Utilities

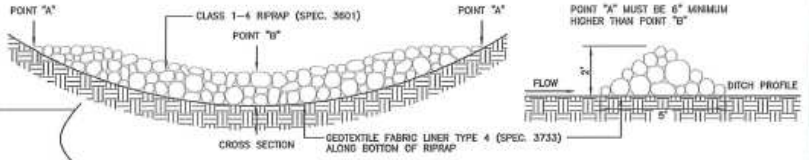
SHEET 5 OF 44





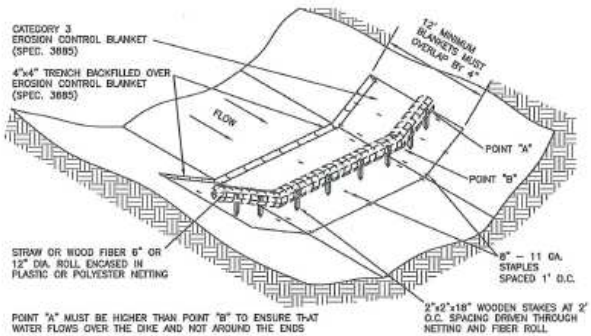
EROSION CONTROL BLANKET INSTALLATION STANDARDS

NOT TO SCALE



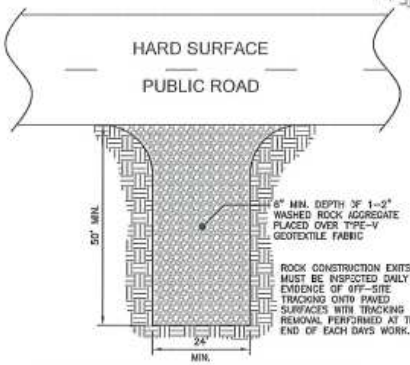
ROCK CHECK

TYPE I SPEC. 3601 , NOT TO SCALE



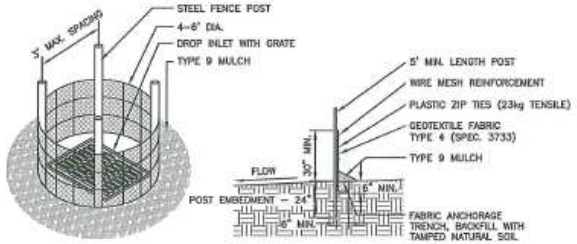
BIOROLL BLANKET SYSTEM

TYPE 2 SPEC. 3886 , NOT TO SCALE



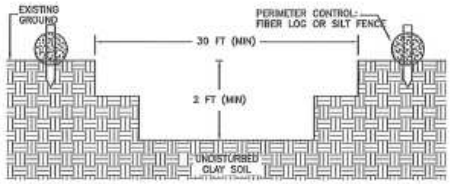
TEMPORARY ROCK CONSTRUCTION ENTRANCE

NOT TO SCALE



TYPE "A" INLET PROTECTION

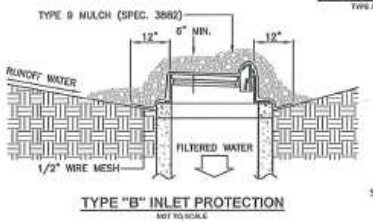
(SILT FENCE TO PROTECT DROP INLETS)
USE WHERE INLET DRAINS AN AREA WITH SLOPES AT 1:3 or LESS.
TYPE A SPEC. 3891 NOT TO SCALE



PERIMETER CONTROL SHALL BE INSTALLED ON THREE SIDES NOT ABUTTING DUMP ENTRANCE.

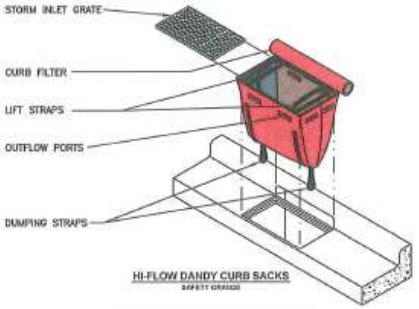
ALL LIQUID AND SOLID WASTES GENERATED BY CONCRETE WASHOUT OPERATIONS MUST BE CONTAINED IN A LEAK PROOF CONTAINMENT FACILITY OR CLAY SOIL PIT (AS SHOWN). INSTALLATION, MAINTENANCE, AND REMOVAL OF CONCRETE WASHOUT SHALL BE INCIDENTAL TO CONSTRUCTION.

TYPICAL CONCRETE WASHOUT



TYPE "B" INLET PROTECTION

NOT TO SCALE



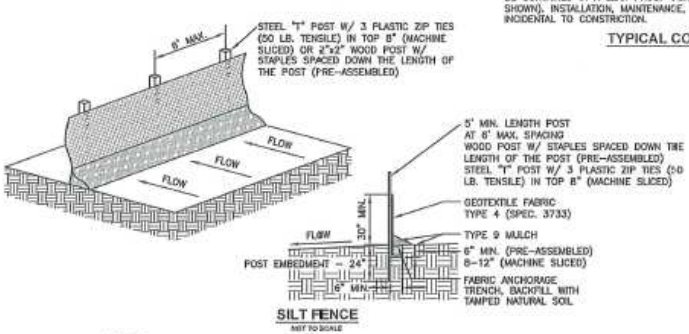
HI-FLOW DANDY CURB SACKS

SAFETY ORANGE

TYPE "C" INLET PROTECTION

NOT TO SCALE

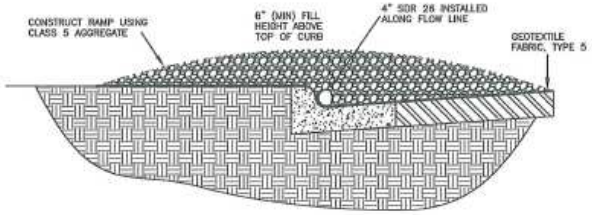
NOTES:
- DANDY SACKS OR AN EQUAL "BEST MANAGEMENT PRACTICE" DEVICE (BMP), AS APPROVED BY THE ENGINEER, SHALL BE USED AND MUST BE EQUIPPED WITH EMERGENCY OVERFLOWS.
- BMP DEVICES SHALL BE MAINTAINED AND REPLACED AT THE DIRECTION OF THE ENGINEER; NON FUNCTIONING BMP'S MUST BE REPAIRED, REPLACED, OR SUPPLEMENTED WITHIN 24 HOURS AFTER DISCOVERY OF VIOLATION.
- THE CONTRACTOR WILL REMOVE ALL ACCUMULATED SEDIMENT AND DEBRIS FROM VICINITY OF INLETS AND WITHIN DANDY SACKS AFTER EACH STORM EVENT OR WHEN GREATER THAN ½ FULL.
- CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED IN THE DANDY SACK DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.



SILT FENCE

NOT TO SCALE

NOTES:
1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY
2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED
3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY
4. INSTALLATION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH Mn/DOT 3886 FOR THE TYPE OF SILT FENCE INSTALLED (PRE-ASSEMBLED OR MACHINE SLICED)



TEMPORARY CONSTRUCTION RAMP OVER CURB & GUTTER:

CITY OF WOODBURY MINNESOTA
ENGINEERING DEPARTMENT

DRAWN BY	CHECKED BY	APPROVED BY
TAO	MED	TET

S.P. No. 13-A6-3 ENG. No. A6-3-2013 LEGAL No.

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Signature - Project Engineer — January 29, 2013 Date

Thomas E. Trowbridge — 25771 License No.

Name - Project Engineer

Erosion Control Detail Sheet

Prairie Meadows 4th Addition Street and Underground Utility Improvements
15th Street South, 16th Street South and 46th Avenue South
Curb & Gutter, Asphalt Paving, and Underground Utilities

SHEET 30 OF 44

SWPPP AMENDMENT LOG

Project Name:
Project Number:
EC Supervisor/SWPPP Contact:

Amendment No.	Description of the Amendment	Date of Amendment	Amendment Prepared by [Name(s) and Title]

SWPPP INSPECTION LOG

Project Name:
Project Number:
EC Supervisor/SWPPP Contact:

Inspection Date	Inspector Name(s)	BMPs Inspected	Description of BMP Deficiency	Corrective Action Needed (including planned date/responsible person)	Date Action Taken/Responsible Person

GRADING and STABILIZATION ACTIVITIES LOG

Project Name:
Project Number:
EC Supervisor/SWPPP Contact:

Date Grading Activity Initiated	Description of Grading Activity	Date Grading Activity Ceased (Indicate Temporary or Permanent)	Date When Stabilization Measures are Initiated	Description of Stabilization Measures and Location