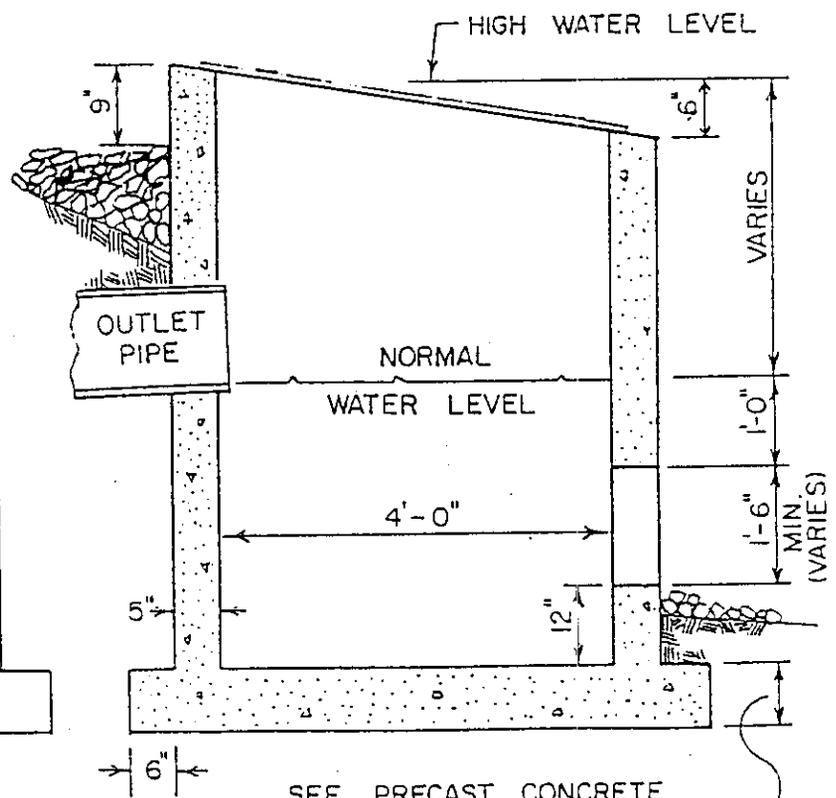
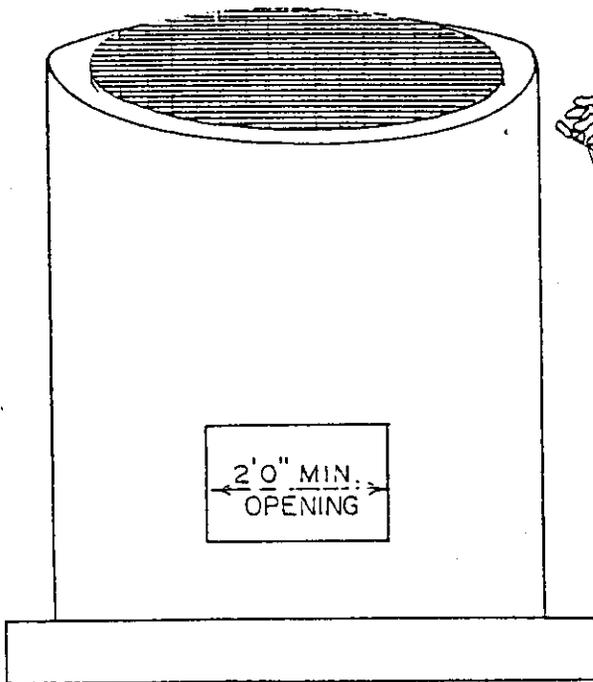
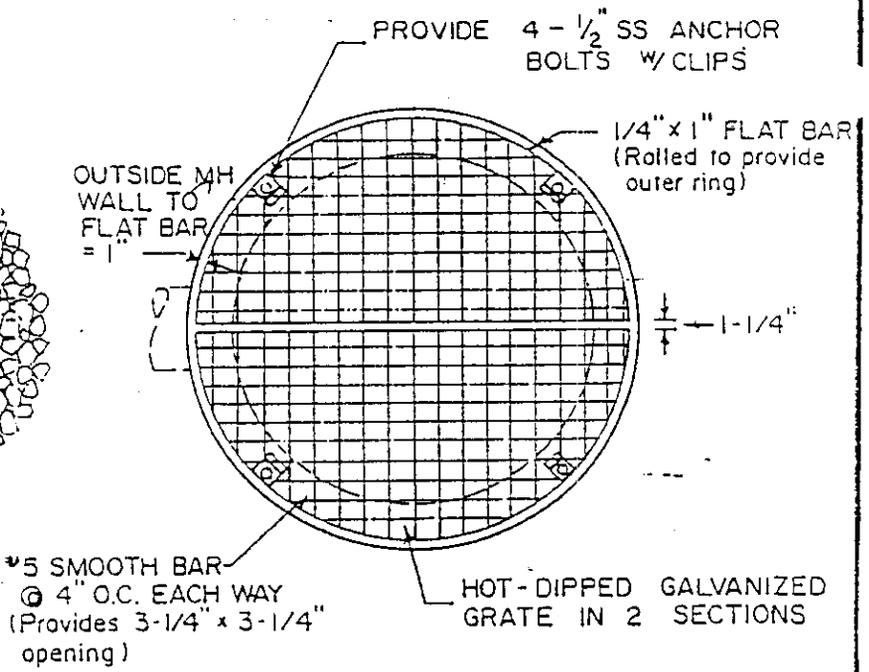
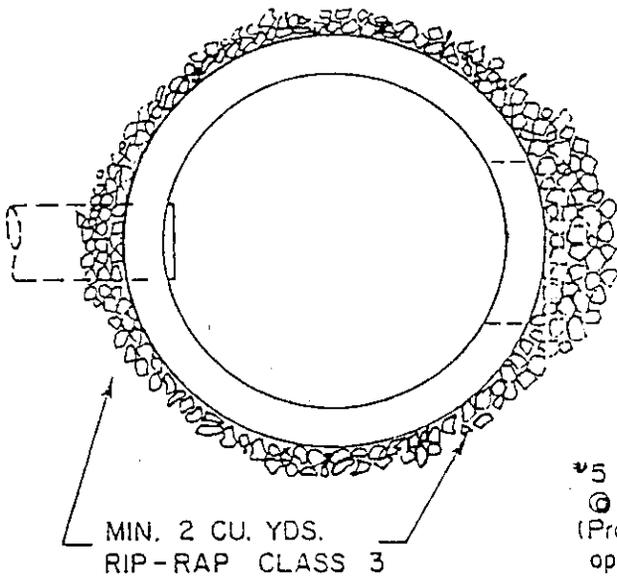


APPENDIX H
Skimmer Detail



PUBLIC WORKS DEPARTMENT

POND OUTLET SKIMMER

REVISED 3-94

standard plate #: 265

APPENDIX I
Pond Maintenance and Landscaping Information
and
Stormwater System Maintenance Plan

STORMWATER SYSTEM MAINTENANCE PLAN

The Stormwater System Maintenance Plan has been developed to assure that the City's system of stormwater retention/treatment basins and stormwater conveyance systems are adequately inspected and maintained to assure that they meet their design functions. Outlined below please find a description of the various inspection and maintenance activities the City intends to undertake in regard to achieving these goals:

1. Stormwater retention and treatment basins and outlets shall be inspected every year to determine if the basin's retention and treatment characteristics are adequate to meet its design function. Based on this inspection, retention basins that are identified for maintenance will be prioritized and maintenance will be performed as funds become available.
2. Sump manholes will be cleaned out annually and more often if needed.
3. The City's storm sewer system will be periodically inspected. During these inspections, debris present at trash grates and catch basins grates will be removed so as to provide reasonable assurances that the system will operate in an unobstructed manner during rainfall events.
4. Storm sewer outfalls will be inspected annually. Inspection shall include evidence of scouring or the presence of significant deposition of silt at the storm sewer outfall. Scouring problem areas will be noted and stabilized. In areas where silt deposition is evident which is indicative of significant erosion upstream, an inspection will be made of the upstream watershed to identify the source of erosion.
5. Manholes and catch basins shall be inspected every 7 years on a rotating basis.
6. On an annual basis, the City will prepare an inspection report that indicates the areas inspected and the maintenance activities completed on the storm water system. This inspection report will be available at the City Offices.
7. The City will sweep the streets at least twice annually.

APPENDIX J
Erosion Control Ordinance

d. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the activity; and

e. Compensating for the impact by replacing or providing approved substitute wetland resources or environments. (Ord. XI.20, 7-21-1998)

10-1-12: EROSION CONTROL:

A. Permit Applications: Every applicant for a building permit, subdivision approval, or a grading permit to allow land-disturbing activities must adhere to erosion control measure standards and specifications contained in the MPCA publication "Protecting Water Quality in Urban Areas" or as approved by the City Engineer.

Proposed erosion control measures may be approved by the City Engineer as part of a grading plan review toward grading or building permit approval. Erosion control may be specified by the City Engineer as part of a site survey for individual building permits. Erosion control may also be specified by the City Engineer as needed and deemed appropriate during the construction and post-construction periods separate from the above.

B. Site Dewatering: Water pumped from the site shall be treated by temporary sedimentation basins, grit chambers, sand filters, upflow chambers, hydro-cyclones, swirl concentrators or other appropriate controls as appropriate. Water may not be discharged in a manner that causes erosion or flooding of the site or receiving channels or a wetland.

C. Waste And Material Disposal: All waste and unused building materials (including garbage, debris, cleaning wastes, waste water, toxic materials or hazardous materials) shall be properly disposed of off-site and not allowed to be carried by runoff into a receiving channel or storm sewer system.

D. Tracking: Each site shall have graveled roads, access drives and parking areas of sufficient width and length to prevent sediment from being tracked onto public or private roadways. Any sediment reaching a public or private road shall be removed by street cleaning (not flushing) before the end of each workday.

E. Drain Inlet Protection: All storm drain inlets shall be protected during construction until control measures are in place with a straw bale, silt fence or equivalent barrier meeting accepted design criteria, standards and specifications contained in the MPCA publication "Protecting Water Quality in Urban Areas".

F. Site Erosion Control:

1. Channelized runoff from adjacent areas passing through the site shall be diverted around disturbed areas, if practical. Otherwise, the channel shall be protected as described below. Sheetflow runoff from adjacent areas greater than 900 square meters (10,000 square feet) in area shall also be diverted around disturbed areas, unless shown to have resultant runoff rates of less than 0.02 m³/s (0.5 feet ³/s) across the disturbed area for the 1-year storm. Diverted runoff shall be conveyed in a manner that will not erode the conveyance and receiving channels.

2. All activities on the site shall be conducted in a logical sequence to minimize the area of bare soil exposed at any one time.

3. Runoff from the entire disturbed area on the site shall be controlled by meeting either subsection F3a and F3b or F3a and F3c of this Section.

a. All disturbed ground left inactive for fourteen (14) or more days shall be stabilized by seeding

or sodding or by mulching or covering or other equivalent control measure.

b. For sites with more than four (4) hectares (10 acres) disturbed at one time, or if a channel originates in the disturbed area, one or more temporary or permanent sedimentation basins shall be constructed. Each sedimentation basin shall have a surface area of at least one percent (1%) of the area draining to the basin and at least one meter (3 feet) of depth and constructed in accordance with accepted design specifications. Sediment shall be removed to maintain a depth of one meter (3 feet). The basin discharge rate shall also be sufficiently low as to not cause erosion along the discharge channel or the receiving water.

c. For sites with less than four (4) hectares (10 acres) disturbed at one time, silt fences, straw bales, or equivalent control measures shall be placed along all sideslope and downslope sides of the site. If a channel or area of concentrated runoff passes through the site, silt fences shall be placed along the channel edges to reduce sediment reaching the channel. The use of silt fences, straw bales, or equivalent control measures must include a maintenance and inspection schedule.

4. Any soil or dirt storage piles containing more than eight (8) cubic meters (13 cubic yards) of material should not be located with a downslope drainage length of less than eight (8) meters (26.2 feet) from the toe of the pile to a roadway or drainage channel. If remaining for more than seven (7) days, they shall be stabilized by mulching, vegetative cover, tarps or other means. Erosion from piles which will be in existence for less than seven (7) days shall be controlled by placing straw bales or silt fence barriers around the pile. In-street utility repair or construction soil or dirt storage piles located closer than eight (8) meters (26.2 feet) of a roadway or drainage channel must be covered with tarps or suitable alternative control, if exposed for more than seven (7) days, and the storm drain inlets must be protected with straw bale or other appropriate filtering barriers.

5. All temporary erosion control devices, including silt fence, gravel, hay bales or other measures, shall be removed from the construction site and properly disposed of or recycled. This removal and disposal must occur within thirty (30) days of the establishment of permanent vegetative cover on the disturbed area. (Ord. XI.20, 7-21-1998)

10-1-13: LAWN FERTILIZER REGULATIONS:

A. Use Of Impervious Surfaces: No person shall apply fertilizer to or deposit grass clippings, leaves, or other vegetative materials on impervious surfaces, or within storm water drainage systems, natural drainageways, or within wetland buffer areas.

B. Lawn Fertilizer Content: Except for the first growing season for newly established turf areas, no person shall apply liquid fertilizer which contains more than one-half percent (1/2%) by weight of phosphorus, or granular fertilizer which contains more than three percent (3%) by weight of phosphorus, unless the single application is less than or equal to one-tenth (1/10) pound of phosphorus per one thousand (1,000) square feet. Annual application amount shall not exceed one-half (1/2) pound of phosphorus per one thousand (1,000) square feet of lawn area.

C. Buffer Zone: Fertilizer applications shall not be made adjacent to any water body or wetland to a distance which is the larger of: five (5) meters (16.5 feet) or any buffer width as specified for individual wetlands in the Rosemount comprehensive wetland management plan. (Ord. XI.20, 7-21-1998)

10-1-14: PENALTY:

A. Violation of any provision of this chapter is a misdemeanor and is subject to the penalty as

APPENDIX K
Shoreline Stabilization Guidelines



Memorandum

To: *Utility Commission, City of Rosemount*

From: *Peter R. Willenbring, P.E., WSB & Associates
Lee Marlowe, WSB & Associates*

Date: *August 9, 2001*

Re: *Shoreline Stabilization Design Guidelines
WSB Project No. 1237-10*

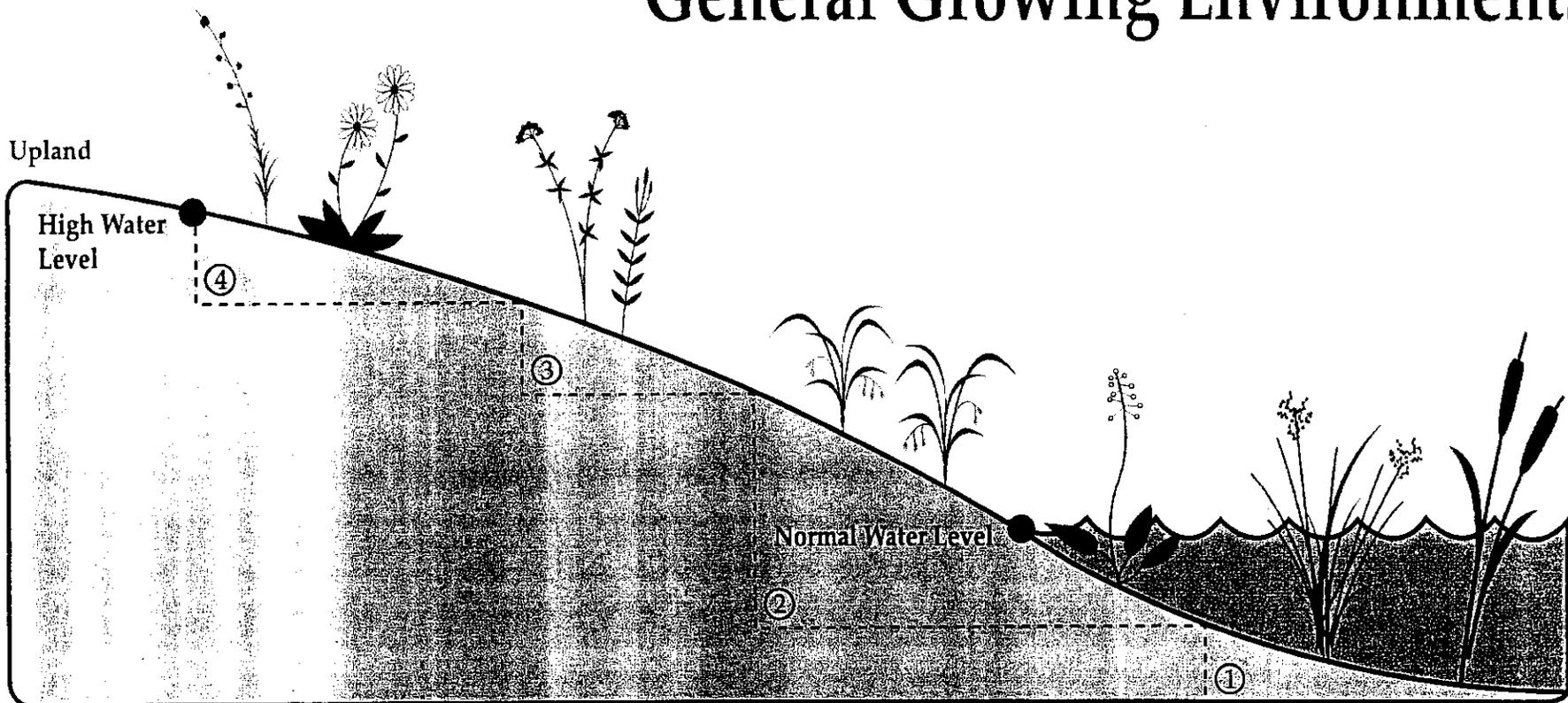
As a follow-up to our Utility Commission meeting last month, attached please find guidelines that the City could adopt to provide guidance to City staff, developers, and residents regarding shoreline stabilization practices around ponds.

4156 Olson
Memorial Highway
Suite 300
Mpls
ota
55422
763-541-4800
763-541-1700 FAX

W:\Rosemount Plants\RosemountGuidelines.wpd

MINNEAPOLIS PLANNING DEPARTMENT

General Growing Environments



1. Deep Water - Typically inundated 14" - 5'
2. Shallow Water - Typically inundated to 14", saturated soil
3. Saturated Soil - Typically not inundated, moist year-round
4. Moist Soil - Rarely inundated, not saturated, periodically dry

Design Guidelines for Pond Shoreline Stabilization Practices in the City of Rosemount, Minnesota

I. Introduction and Background

The City of Rosemount contains numerous depressional areas that vary in size, shape, depth, and water regime. The City has received complaints, comments, and concerns regarding erosion, water fluctuations, and management of vegetation in these areas. In response to public concerns and in an effort to address the variety of issues involved, guidelines for shoreline design practices have been developed.

II. Design Options

Prior to selection of a design option, specific design considerations need to be recognized, evaluated, and addressed in the design. Design considerations commonly encountered include the effect of water level fluctuations within the water body resulting from runoff or storm sewer inlets, and erosion of shoreline resulting from steep slopes, lack of vegetation, ice movement, and wave action. Two basic design options for projects involving shorelines are available and they include methods utilizing vegetation or hard armoring. There are advantages and disadvantages associated with each option for particular applications. Vegetating and hard armoring can each be utilized to address the issues described above. In many cases, a combination of them can be effectively and efficiently utilized in the design of a project. *Appendix A* includes a table outlining design considerations associated with these two options, and a description of each option follows.

A. Vegetated Stabilization Practices

Vegetated stabilization practices refers to the installation of plants and bioengineered products along shorelines in an attempt to prevent erosion. A vegetated shoreline (also called a buffer) provides habitat for wildlife and improves water quality by filtering out sediment, pollutants, and excess nutrients. Plants stabilize the soil and prevent erosion by intercepting raindrops, binding soil particles with their root systems, and reducing soil exposure to wind. Emergent plants prevent shoreline erosion by absorbing the impact of wave action.

Plant species selection for stabilization projects should depend on site conditions and the specific goals of the project. Native plant species should be chosen because they are adapted to local environments. Effective strategies incorporate diversity by using multiple native species. Improved success can be accomplished by including native species that are present on or near the site in the plant list for the project. Elimination of invasive non-native species from the site prior to revegetating it will also improve the

success of native vegetation establishment. The most common invasive non-native species that are problematic in Minnesota's wetlands include buckthorn (*Rhamnus cathartica*, *Rhamnus frangula*), reed canary grass (*Phalaris arundinacea*), and purple loosestrife (*Lythrum salicaria*). A maintenance program should be incorporated into the revegetation plan for weed control and any necessary plant replacement during the establishment period. Three years is typically the amount of time required for successful establishment of many native species, and control of invasive non-native species during this period will provide a better opportunity for establishment of those native species. Some plants will not survive the first year, and this may create large gaps or areas susceptible to erosion. These areas should be replanted as quickly as possible with any of the native species that appear to be successful on the site.

Both seeding and planting strategies should be incorporated in the revegetation plan to allow for a greater chance of successful revegetation of the site. Numerous bioengineered products exist that can aid in the stabilization of the soil and allow better plant establishment. An effective strategy may include planting shrubs in clumps in selected areas of the shoreline, planting plugs of emergent vegetation in clumps in selected shallow water areas and protecting them with bioengineered products, and seeding the remaining shoreline areas to create a native vegetation buffer.

When planting below the Normal Water Level (NWL), temporary wave-breaking devices provide protection for establishing plants. Bioengineered temporary wave-breaking products that have been successful include coconut fiber logs, hardwood brush, rock within filter fabric, or plywood. Double layers of plastic fence also work well as temporary wave-breaking devices. Plant-anchoring methods have also been successful at protecting establishing plants below the NWL. Coconut fiber and jute are commonly used materials for plant-anchoring.

Bioengineered products may be helpful when planting above the NWL. Most bioengineering methods require a slope no greater than 2:1 (horizontal: vertical). Erosion control can be accomplished using bioengineered fabrics of jute, coir, and wood fiber. Mulches can be used to hold seed in place and retain moisture. Wattles, live stakes, brush layers, and brush mattresses are other types of bioengineering products that may assist in erosion control and plant establishment.

A table of Recommended Plants for Vegetation of Shorelines in the City of Rosemount is included in *Appendix B* to assist in selection of plant species. The recommended plant species were selected due to their native ecological region and growing environments, as well as specific characteristics that

allow them to stabilize the soil or withstand inundation. Sample specifications for seeding and planting are included in *Appendix D*. General recommendations regarding seeding along pond shorelines in Rosemount are described below:

1. For seed installation below the High Water Level (HWL)
Mn/DOT 25A Modified (25B) - Native Wetland
Sedge Meadow at a rate of 30 lbs/acre. This diverse native species seed mix was developed for use on hydric soils and for wetland restoration.
2. For seed installation above the HWL
Mn/DOT 38A Modified (38B) - Dry Mixed-height/Bluff Prairie at a rate of 30 lbs/acre. This diverse native species seed mix works well state-wide and in many soil types.

B. Hard Armoring

Hard armoring refers to the use of materials like riprap (large rock) and concrete along shorelines. Hard armoring provides immediate stabilization of soil, and is useful for preventing erosion caused by wave action, ice action, high water velocities, and extreme water fluctuations.

To provide sufficient shoreline protection for individual projects, existing technical methods should be used to determine appropriate rock size, placement geometry, and elevation.

Rip rap is the most common type of hard armoring utilized for shore protection. Rock that has been crushed or blasted is typically more stable than rounded boulders because this type of rock locks together better. Geotextile fabric is typically placed below the rip rap to reduce soil loss. The *Minnesota Department of Transportation (Mn/DOT) Standard Specifications for Construction, 2000 Edition* should be referred to for rip rap specifications (Section 2511).

C. Combination

Both vegetating and hard armoring can be utilized in the design of a project to suit individual site conditions. For example, hard armoring may be placed in areas that experience high water velocities or along steep slopes, and vegetation may be installed in the remaining areas. Each site will have unique conditions, and a combination of the options described might be the most effective and efficient design strategy.

III. Selection of Design Option

A number of variables should be considered for selection of the appropriate design option for a project. Each project will have distinct issues that should be addressed in the design. A list of possible topics for consideration follows.

A. Other Agency Approval

In some instances, the Department of Natural Resources (DNR) and/or the US Army Corps of Engineers (ACOE) may have jurisdiction over shoreline projects. All work involving existing wetlands must be in compliance with the Wetland Conservation Act.

B. Compatibility with Wetland Management Plan

The *City of Rosemount Comprehensive Wetland Management Plan* classifies existing wetlands within the City, and each classification has specific requirements regarding buffer widths, management strategies, storm water management, and mitigation. Copies of the wetland management categories and descriptions from the Plan are included in *Appendix C*. Buffer requirements range from 15' - 75' dependent on the designated management class for each wetland. Because buffers are composed of vegetation by definition, the use of vegetation on shorelines is preferred and meets the City requirements.

C. Design Considerations

A table outlining characteristics associated with vegetating and hard armoring is included in *Appendix A* and describes the following design considerations:

1. Installation cost
2. Maintenance
3. Aesthetics
4. Wildlife habitat
5. Water quality
6. Erosion control
7. Water fluctuations

D. Design Selection

Prior to design option selection, pertinent issues need to be recognized, evaluated, and addressed. The design should address all issues of concern and result in a shoreline stabilization project with good chances of success.

IIIA. Design Option Selection Recommendations for the City of Rosemount

Based on the issues described in Section III above, it is recommended that vegetated

designs be utilized along shorelines within the City where such designs are feasible. Vegetated shorelines are compatible with the *City of Rosemount Comprehensive Wetland Management Plan*, and are more likely to be supported by the Department of Natural Resources and US Army Corps of Engineers.

Utilization of hard armoring practices could be considered based on a review of the following conditions:

- steep slopes (steeper than 2:1 [horizontal:vertical])
- intense wave, wind, or ice action on the shoreline
- extreme bounce for long duration within a water body

Such conditions may limit plant establishment and survival, and the presence of these conditions may necessitate hard armoring for specific projects.

IV Applicability of Guidelines

These recommendations are provided to serve as general guidelines for projects involving shorelines in the City of Rosemount, MN. Professional assistance is recommended for the design and installation of shoreline projects. All projects involving existing wetlands within the City should comply with the Wetland Conservation Act, the *City of Rosemount Comprehensive Wetland Management Plan*, and any agency having jurisdiction.

APPENDIX A

Design Considerations for Shoreline Projects in the City of Rosemount

Design Considerations for Shoreline Projects in the City of Rosemount, MN

DESIGN CONSIDERATIONS	NATURAL INSTALLATIONS	HARD ARMORING
Installation Cost	<ul style="list-style-type: none"> • Dependent on strategy (seeding is typically less expensive than planting) and diversity of species (expense typically increases with diversity) • Approximately \$600 - \$9,000 per acre for seed installation and annual maintenance* 	<ul style="list-style-type: none"> • Dependent on material • Rip rap and Geotextile necessary - approximately \$40,000 - \$100,000 per acre for rip rap material and installation; approximately \$15,000 - \$20,000 per acre for Geotextile material and installation**
Maintenance	<ul style="list-style-type: none"> • A minimum 3-year maintenance plan should be included to assist plant establishment • Low maintenance for weed control (once established) 	<ul style="list-style-type: none"> • Routine maintenance for weed control
Aesthetics	<ul style="list-style-type: none"> • Natural appearance • Flowers, fruits, and foliage create year-round interest 	<ul style="list-style-type: none"> • Institutional appearance • appearance does not change
Wildlife Habitat	<ul style="list-style-type: none"> • Provides habitat - diversity of wildlife increases with diversity of plants 	<ul style="list-style-type: none"> • Provides minimal wildlife habitat
Water Quality	<ul style="list-style-type: none"> • Acts as a buffer (once established) - improves water quality by capturing sediment and nutrients 	<ul style="list-style-type: none"> • No buffer - can negatively impact water quality by increasing water temperature and runoff rate
Erosion Control	<ul style="list-style-type: none"> • Requires plant establishment period • Strengthens with time • Appropriate species should be chosen*** 	<ul style="list-style-type: none"> • Immediate stabilization • Can be installed practically anywhere • Variety of materials
Water Fluctuations (bounce)	<ul style="list-style-type: none"> • Few species can tolerate long-term inundation to depth greater than 3'; Appropriate species should be chosen*** 	<ul style="list-style-type: none"> • Can be installed to suit particular levels of bounce

* Source: 2001 Prairie Restorations Cost Estimates

** Source: Mn/DOT 2000 Average Bid Prices; Geotextile Manufacturers Average Sale Price

*** See Recommended Plants for Vegetation of Shorelines in the City of Rosemount (**Appendix B**)

APPENDIX B

Recommended Plants for Vegetation of Shorelines in the City of Rosemount

Recommended Plants for Vegetation of Shoreline Areas in the City of Rosemount

Growing Environment	Stratum	Common Name	Scientific Name	Height (ft)	Spacing (ft)	Bloom Period	Notes
1 Deep Water - Typically Inundated 14" - 5'	Grass/forb/ sedge/rush	Horsetail	<i>Equisetum fluviatile</i>	0.5-3.0	1.0-2.0		spreads quickly; bank stabilizer
		Water smartweed	<i>Polygonum amphibium (natans)</i>	1.0-5.0	3	June-Aug	terrestrial or aquatic; spreads quickly; pink flower
		Hardstem bulrush	<i>Scirpus acutus</i>	3.0-9.0	1.0-3.0		wave buffer
		Broad-leaved cattail	<i>Typha latifolia</i>	3.0-9.0	2.0-4.0		spreads readily; forms floating mats
2 Shallow Water - Typically Inundated from 0" - 14"	Grass/forb/ sedge/rush	Sweet Flag	<i>Acorus calamus</i>	2.0-3.5	2.5	May - July	establishes quickly
		Water plantain	<i>Alisma plantago-aquatica</i>	2.0-3.0	2.0-3.0	May-Sept	tolerates inundation; white flowers
		Water sedge	<i>Carex aquatilis</i>	2.0-5.0	2		forms hummocks
		Lake sedge	<i>Carex lacustris</i>	2.0-4.0	1.5-3		spreads strongly by rhizomes
		Whooly needle sedge	<i>Carex lasiocarpa</i>	2.0-3.5	2.0-3.0		spreads by rhizomes
		Retrose sedge	<i>Carex retrorsa</i>	1.0-3.5	1.0-2.0		showy spikes
		Needle rush	<i>Eleocharis acicularis</i>	0.2-1.0	1.0-2.0		establishes voluntarily; spreads by rhizomes
		Blunt spike rush	<i>Eleocharis obtusa</i>	0.5-2.0	1.0-2.0		establishes voluntarily; spreads by rhizomes
		Sneezeweed	<i>Helenium autumnale</i>	2.0-5.0	3	Aug-Oct	yellow flowers
		Blue flag iris	<i>Iris versicolor</i>	1.5-3.5	2	June - July	bank stabilizer; tolerates drier conditions
		Soft rush	<i>Juncus effusus</i>	1.5-4.0	1.0-2.0		tolerates inundation
		Green bulrush	<i>Scirpus atrovirens</i>	2.0-5.0	2.0-3.0		can tolerate flood & drought for short periods
		Woolgrass	<i>Scirpus cyperinus</i>	3.0-5.0	2.0-3.0		tolerates inundation; rhizomatous
		River bulrush	<i>Scirpus fluviatilis</i>	4.0-8.0	1.0-3.0		spreads by rhizomes
		Three-square bulrush	<i>Scirpus pungens</i>	2.0-4.0	2.0-4.0		spreads by rhizomes
	Softstem bulrush	<i>Scirpus validus</i>	3.0-9.0	1.0-3.0		tolerates inundation; establishes readily from seed	
	Giant bur-reed	<i>Spartanium eurycarpum</i>	2.0-3.5	3	June - July	spreads readily	
	Prairie cordgrass	<i>Spartina pectinata</i>	3.0-6.0	2.0-3.0		spreads by rhizomes; yellow fall color	
	Tree/shrub	Buttonbush	<i>Cephalanthus occidentalis</i>	6.0-12		August	tolerates inundation; white flowers
		Red-osier dogwood	<i>Cornus sericea(stolonifera)</i>	6.0-12		May-June	tolerates inundation; white flowers, red twigs
Eastern cottonwood		<i>Populus deltoides</i>	90			tolerates inundation; fruits are messy in early summer	
Sandbar willow		<i>Salix exigua</i>	4.5-9.0			tolerates inundation; rhizomatous; transplants easily	
Black willow		<i>Salix nigra</i>	35-50			tolerates inundation; yellow fall color	
Meadowsweet		<i>Spiraea alba</i>	2.0-5.0		July-Sept	fragrant; orange fall color	

Sources. Adapted from 1) C.L. Henderson, C.J. Dindorf, and F.J. Rozamalski. *Lakescaping for Wildlife and Water Quality*. Department of Natural Resources. Appendix A.
2) D.B. Shaw. 2000. *Native Vegetation in Restored and Created Wetlands*. Minnesota Board of Water and Soil Resources. Appendix D.

Recommended Plants for Vegetation of Shorelines in the City of Rosemount

Growing Environment	Stratum	Common Name	Scientific Name	Height (ft)	Spacing (ft)	Bloom Period	Notes		
3 Saturated Soil - Typically Not Inundated, Moist Year-round	Grass/forb/ sedge/rush	Canada blue-joint grass	<i>Calamagrostis canadensis</i>	3.0-6.0	1.5	fall	spreads quickly		
		Fox sedge	<i>Carex vulpinoidea</i>	1.0-3.0	1.5		grows readily from seed; colonizer		
		Creeping spike rush	<i>Eleocharis smallii (palustris)</i>	1.5-3.0	1.0-2.0		establishes readily		
		Joe pye weed	<i>Eupatorium maculatum</i>	3.0-6.0	3	July-Sept	pink flower		
		Boneset	<i>Eupatorium perfoliatum</i>	2.0-4.0	2.0-3.0	July-Oct	white flowers		
		Grass-leaved goldenrod	<i>Euthamia graminifolia</i>	1.0-3.0	2	Aug-Sept	yellow flower		
		Sawtooth sunflower	<i>Helianthus grosseserratus</i>	3.0-10	4	Aug-Oct	aggressively spreads; yellow flower		
		Soft rush	<i>Juncus effusus</i>	1.5-4.0	1.0-2.0		tolerates inundation		
		Path rush	<i>Juncus tenuis</i>	0.5-2.0	1.0-2.0		tolerates drought and compacted soil		
		Rice cut grass	<i>Leersia oryzoides</i>				tolerates inundation; blades are sharp		
		Cardinal flower	<i>Lobelia cardinalis</i>	2.0-4.0	1.5	July-Sept	red flowers; short-lived		
		Switchgrass	<i>Panicum virgatum</i>	3.0-5.0	2.0-3.0		grows readily from seed; tolerates dry conditions		
		Virginia mountain mint	<i>Pycnanthemum virginianum</i>	1.0-3.0	2	July-Aug	aromatic; rhizomatous; white flower		
		Woolgrass	<i>Scirpus cyprenus</i>	3.0-5.0	2.0-3.0		tolerates inundation; rhizomatous;		
		Prairie cordgrass	<i>Spartina pectinata</i>	3.0-6.0	2.0-3.0		spreads by rhizomes; yellow fall color		
		Blue vervain	<i>Verbena hastata</i>	2.0-5.0	1.0-2.0	July-Sept	blue-purple flowers		
		Ironweed	<i>Vernonia fasciculata</i>	3.0-6.0	2.0-3.0	July-Sept	magenta flowers		
Tree/shrub		Red-osier dogwood	<i>Cornus sericea(stolonifera)</i>	6.0-12		May-June	tolerates inundation; white flowers, red twigs		
		Eastern cottonwood	<i>Populus deltoides</i>	90			tolerates inundation; fruits are messy in early summer		
4 Moist Soil - Rarely Inundated, Not Saturated, Periodically Dry	Grass/forb/ sedge/rush	Giant hyssop	<i>Agastache foeniculum</i>	3.0-4.0	2	July-Aug	lavender-blue flowers; establishes readily from seed		
		Big Bluestem	<i>Andropogon gerardii</i>	2.0-6.0	3	July-Oct	grows under many condition		
		Heath aster	<i>Aster ericoides</i>	1.0-3.0	2.0-3.0	July-Oct	full sun; white flowers		
		Side-oats grama	<i>Bouteloua curtipendula</i>	1.0-3.0	1		establishes quickly		
		Canada tick trefoil	<i>Desmodium canadense</i>	3.0-6.0	3	July-Aug	reddish-pink flowers; self sows; aggressive		
		Flowering spurge	<i>Euphorbia corollata</i>	1.5-2.5	3	July-Sept	self-sows; white flower		
		Maximilian sunflower	<i>Helianthus maximiliani</i>	2.0-9.0	5	Aug-Oct	aggressively spreads; yellow flower		
		Rough blazing star	<i>Liatris aspera</i>	1.5-4.0	1.5	Aug-Sept	purple flower		
		Wild bergamot	<i>Monarda fistulosa</i>	2-3.5	3	July-Aug	aggressively spreads; lavender flower		
		Bracken fern	<i>Pteridium aquilinum</i>	1.5-3.0	3		rhizomatous, aggressively spreads		
		Gray-headed coneflower	<i>Ratibida pinnata</i>	3.0-5.0	2	July-Aug	self-sows; yellow flower		
		Black-eyed Susan	<i>Rudbeckia hirta</i>	1.0-3.0	5	July-Aug	self-sows; establishes readily from seed; yellow flower		
		Prairie cordgrass	<i>Spartina pectinata</i>	3.0-6.0	2.0-3.0		spreads by rhizomes; yellow fall color		
		Tree/shrub		Gray dogwood	<i>Cornus racemosa</i>	6.0-15		May-June	dense thickets; yellow fall color
				Red-osier dogwood	<i>Cornus sericea(stolonifera)</i>	6.0-12		May-June	tolerates inundation; white flowers, red twigs
				American hazel	<i>Corylus americana</i>	8.0-15			dense thickets; yellow fall color
				Beaked hazel	<i>Corylus cornuta</i>	10			dense thickets; white flowers; maroon fall color
Bush honeysuckle	<i>Diervilla lonicera</i>			1.0-4.0			shady conditions; spreads readily		
Eastern cottonwood	<i>Populus deltoides</i>			90			tolerates inundation; fruits are messy in early summer		

Sources: Adapted from 1) C.L. Henderson, C.J. Dindorf, and F.J. Rozamalski. *Lakescaping for Wildlife and Water Quality*. Department of Natural Resources. Appendix A.
2) D.B. Snaw. 2000. *Native Vegetation in Restored and Created Wetlands*. Minnesota Board of Water and Soil Resources. Appendix D.

APPENDIX C

Wetland Management Categories and Descriptions from City of Rosemount Comprehensive Wetland Management Plan

TABLE 1. WETLAND MANAGEMENT CATEGORIES AND DESCRIPTIONS.

Management Class	Function Score	Buffer Required	Management Strategy	Stormwater Management	Mitigation Requirement
PRESERVE	660 - 425	75 feet	Maintain functionality to greatest degree possible. Enhanced WCA avoidance and sequencing standards. Minimum development impacts. Maximize monitoring and education.	Sediment and nutrient pretreatment, consider diversion.	Maximum protection under state and federal law. Replacement of function/values and buffer in kind.
MANAGE I	420 - 280 Wetlands selected for special value.	50 feet	Maintain or improve functionality. Apply WCA sequencing standards. Monitoring and education.	Sediment and nutrient pretreatment.	Maximum protection under state and federal law. Replacement of function/values.
MANAGE II	420 - 280	30 feet	Maintain functionality. Apply some WCA sequencing flexibility.	Sediment pretreatment.	WCA sequencing and replacement.
UTILIZE	275 - 0	15 feet for non-ag areas only	Allow utilization for stormwater. Allow maximum WCA sequencing flexibility.	No pretreatment.	WCA sequencing and replacement flexibility.

Source: The City of Rosemount Comprehensive Wetland Management Plan (July, 1998)

Rosemount wetlands.

The primary differences in management strategies are outlined in Table 1 below. Philosophically the management strategies call for increasing levels of protection for wetlands that score high in the functional assessment. In terms of actual management practices these different levels are implemented through buffer zones, stormwater treatment, and education.

Buffer Zones

Buffer zones are non-wetland areas which extend some specified distance from the border of the wetland itself, within which no grading or altering of the natural vegetation is allowed. For example, a 50 foot buffer around a wetland means that no grading, filling or alteration of vegetation through application of seed or herbicide or mowing is allowed within 50 feet of the wetland boundary in any direction. The wetland boundary used is the edge of the area defined as wetland in the definition of Section 3.

Buffer zones have been widely used as effective management practices toward protecting the integrity of wetland systems. The buffers provide a margin of natural vegetation. This margin serves a range of benefits including:

- ▶ a filter for trash in runoff
- ▶ uptake of runoff pollutants
- ▶ cover/nesting areas for wildlife
- ▶ protection for the intermittently flooded and sensitive outer margin of the wetland from erosion and excessive human traffic
- ▶ protection of vegetative diversity.

To determine appropriate buffer widths a survey of research information and current standards at other governmental units was done. Generally, widths range from 15 feet, seen as a minimum toward some benefit, to 100 feet, where benefit with increasing length seems to diminish. For this plan a buffer range of 15-75 feet is used. This range was deemed an optimal balance between buffer effectiveness and land required. Effective protection is attained without undue impacts to property owners. Buffer widths were assigned to management categories as follows:

- ▶ 75 feet for the Preserve Category
- ▶ 50 feet for the Manage I Category
- ▶ 30 feet for the Manage II Category
- ▶ 15 feet for Utilize Category wetlands in non-agricultural areas.
- ▶ 0 feet for Utilize Category wetlands in active agricultural areas.

Where possible wetland buffers should be included as part of existing or proposed ponding easement. Generally, wetlands and buffers will be part of private property and the responsibility for maintaining buffer requirements lies with the property owner.

For all new developments subsequent to passage of this plan, the developer shall be responsible for installation of monuments which mark the outer edge of the wetland buffer zones. Markers shall be of a durable material and clearly state their purpose. Markers shall generally be placed at the intersections of lot lines and the buffer boundary. All markers and their placement shall be per city specification or approved by the City Engineer.

Buffers in Areas Previously Developed

Delineating and enforcing buffer zones in developing areas promises to be straight forward. In areas where residential neighborhoods are well established, habitual lawn care practices have become entrenched. Here, wetland buffer requirements will mean persistent education directed toward property owners who live adjacent to and near wetlands. The contributors to this plan do not believe that strict enforcement of buffer areas in developed areas would prove effective. Rather, it is intended that education resources be focused toward areas where buffers do not exist in accordance with the plan. It is believed that most Rosemount residents will respond when the benefits are understood and toward that end this plan recommends an intensive educational effort.

Previously developed areas are defined as areas where final plats have been approved before the adoption of this plan and the accompanying ordinance.

Markers in developed areas shall be installed by the City and shall be done as resources are available and property owners agree. Monuments will mark the outer edge of the wetland buffer zones. Markers shall be of a durable material and clearly state their purpose. Markers shall generally be placed at the intersections of lot lines and the buffer boundary. All markers and their placement shall be per city specification or as approved by the City Engineer.

Storm Water Pre-Treatment

Storm water has major detrimental impact on indigenous wetlands. To alleviate the sediment and nutrient loading such input places on wetlands, this plan includes various levels of stormwater pretreatment as follows:

- ▶**PRESERVE:** Sediment and nutrient pretreatment required, consider diversion possibility.
- ▶**MANAGE I:** Sediment and nutrient pretreatment recommended.
- ▶**MANAGE II:** Sediment pretreatment recommended.
- ▶**UTILIZE:** No pretreatment.

The above requirements are left somewhat open as to the particular method selected for each case. This will allow some flexibility, especially to incorporate new technologies and techniques. Final approval of treatment methods shall in all cases be left to the Public Works Director.

Impact Mitigation

Impacts due to development or other construction activity are regulated under the Minnesota Wetland Conservation Act (WCA). In terms of impact mitigation, the WCA serves as a baseline for evaluation of impacts and associated wetland replacement plans. This Plan then, specifies guidelines for City Staff and Commission/Council review and recommendations for individual wetlands to insure resources allocation is optimized. The guidelines are as follows:

- ▶PRESERVE: Maximum protection under state and federal law. Replacement of the wetland function/values as assessed by the methodology of Section 8, and replacement of the buffer in kind.
- ▶MANAGE I: Maximum protection under state and federal law. Replacement of the wetland function/values as assessed by the methodology of Section 8.
- ▶MANAGE II: WCA sequencing and replacement.
- ▶UTILIZE: WCA sequencing and replacement flexibility.

Except for transportation projects, all wetland mitigation done for wetlands impacted in Rosemount, shall be done within the city limits of Rosemount. Wetlands created as mitigation for impacted wetlands shall be monitored for five years after completion of construction. The monitoring shall be designed to determine the success in replacing impacted wetland values and functions. This monitoring shall include at minimum: a yearly Rosemount function/value assessment as used for this plan, a biological survey including both plant and animal counts and sechi disk readings if applicable. To insure that follow-up monitoring is performed a performance bond shall be required. Twenty percent of this bond shall be returned to the developer with city approval of each yearly monitoring report.

“New” Wetlands

“New wetlands” include wetlands deliberately created where none existed at the time this plan was adopted. This might include wetlands created as part of a wetland mitigation/creation project or storm ponds created as part of development. Wet areas created by human activity not intended to produce a pond or wetland shall not become part of this plan. When non-agricultural surface water bodies are initially formed they shall come into the plan as part of the Utilize category or as otherwise specified by the City Engineer. The City Engineer may place a created wetland in any category that is appropriate before the functionality has reached the level required by this plan.

Because these kinds of projects take time to develop into functioning wetlands the functional assessment, if done immediately, would not provide a reasonable indicator of the quality of the wetland as intended. Rather a functional based categorization should be undertaken when the wetland has reached the fully developed functionality intended. Normally it could take 5-10 years for a created wetland to become established. A full functional assessment shall be done 5 years after its creation and scores stored in the wetlands database. Upon review of the new wetland’s progress and score, the City Engineer shall place it in the category appropriate to the score.

APPENDIX D

Sample Specifications

SECTION 1000 - PLANT INSTALLATION

01 SCOPE OF SERVICES

This work consists of furnishing all materials, equipment, and labor required for the planting, maintenance, guarantee, and replacement of plant materials designated in the Plan or as designated by the Engineer.

Work of this section shall conform to the requirements of all laws, ordinances, rules, regulations, and orders of public authorities having jurisdiction. The Contractor shall secure and pay for all permits, fees, and licenses necessary for the proper execution of the described work.

02 REFERENCES

All references herein referring to MnDOT specifications are *Minnesota Department of Transportation Standard Specifications for Construction, 2000 Edition*.

03 MATERIALS

A. Mulch

All planted trees and shrubs shall be mulched following planting. MnDOT Type 1 (consisting of grain straw only), Type 7B, or Type 8B shall be used.

B. Water

Water shall be furnished by the Contractor for the execution of all work specified in this contract. The Contractor shall provide water to the site. Contractor is responsible for watering all plants until the guarantee period expires.

C. Seedling shelters

Shelters for seedling trees shall be from the approved list on file with the MnDOT Landscape Unit.

D. Tree wrapping

Tree wrapping shall be first quality, four inch wide material specifically manufactured for tree wrapping, and having qualities to resist insect infestation.

E. Burlap and Wire Baskets

All material used for plants that are ball and burlap type shall be biodegradable. The burlap and rope shall have no synthetic fibers and the wire used for the basket shall not be galvanized.

F. Nursery plant stock

All plant stock indicated on the list of plants shall be supplied by the Contractor.

Any substitution must be approved by the Engineer prior to installation.

04 PLANT MATERIAL STANDARDS

A. Plant Stock

All plant stock shall meet MnDOT Specification Section 3861.

B. Quality

All plants shall be true to type; plants shall be healthy and free from defects, disfiguring knots, sun scald injuries, abrasions of the bark, disease, insect eggs, borers, and all forms of infestation. All plants shall be nursery grown, and shall have been growing in USDA Plant Hardiness Zone 3 or 4 for at least two years prior to the date of this contract.

C. Ball and Burlap (B&B)

All balls shall be of natural earth in which the plant has been growing. No manufactured or artificially produced or mudded-in-balls shall be accepted. Balls shall be firm and unbroken, and of appropriate size to adequately enclose the plant's fibrous root system. B&B plants may be rejected due to their failure to meet good digging practices.

D. Plant List

Dimensions described in the list of plants are minimum requirements. Plants indicated as B&B are to be dug with a ball of earth and wrapped in burlap.

E. Inspection

Contractor shall be responsible for all inspection and approval of plant material that may be required by federal, state, and other authorities. Contractor shall secure any permits and certificates that may be required. Any inspection certificates required by law shall be submitted to the Engineer. All plants shall be inspected upon delivery for quality and size. Plants are subject to rejection during progress of work due to size, condition, defects, or injuries. All rejected plants shall be removed from the project site immediately.

F. Time of Planting

Deciduous potted plants:	April 1-June 1; August 21- November 15
Deciduous B&B:	April 1-June 1; October 10-November 15
Evergreen potted plants:	April 7-May 17; August 25-October 15
Evergreen B&B:	April 7-May 17; August 25-October 15

G. Digging and Handling

Protection from extremes in exposure and rough handling shall be provided for all plant materials

during transport, while being stored, and during planting. All plant materials shall be assembled in one location on the project site to permit inspection and approval by the Engineer. The Contractor shall notify the Engineer five (5) working days prior to planting in order to make arrangements for inspection. All plant materials rejected by the Engineer shall be removed from the project site immediately and replaced with plant materials meeting the Specifications at the Contractors expense. Plants shall not be pruned prior to approval by the Engineer.

05 GENERAL PLANTING

Plant communities shall be planted as defined in the planting plan.

The boundaries of plant communities shall be marked in the field by the Engineer.

Planting shall be conducted as specified in the plans and shall not take place when the ground or overlying water is frozen or when conditions are otherwise unfavorable.

When all required mulching and disc anchoring is complete, the entire area shall be watered such that the upper 1.5 inches of soil is saturated. Water shall be applied such that surface erosion or displacement of mulch and seed do not occur.

06 TREE PLANTING

A. Layout

All tree locations will be staked by the Contractor in the field to conform to the Plan. All locations shall be approved by the Engineer prior to digging and placement. Where planting in accordance with the Plan is not possible, a new location must be approved by the Engineer prior to digging and placement.

B. Planting Pit

Planting pits shall be circular with a diameter two feet greater than the diameter of the ball of the tree. The depth of the pit shall be such that the flare of the tree is set at its original grade.

C. Setting Trees

Trees shall be set on undisturbed native soil or thoroughly compacted backfill soil at the same depth it was grown in the nursery. The flare of the tree shall not be set below grade.

B&B trees shall be placed in the planting pit with burlap and wire basket, if used, intact. The tree shall then be backfilled halfway and watered. The burlap shall be cut or folded back off the top of the root ball. The tree shall then be backfilled to grade and watered. After the tree has settled, backfill any voids and construct a 3" depth watering basin such that no roots of the tree are exposed.

D. Second Watering

All trees shall be watered within two hours of planting. If soils contain excessive moisture, the second watering is not required.

E. Mulching

Mulch shall be placed in a minimum 1-foot-diameter circle around the trunk at a minimum 4 inch thickness within 48 hours of planting. Mulch shall be pulled away from the base of the tree such that no mulch is directly touching that portion of the tree.

F. Pruning

Only dead or damaged branches shall be removed from the trees. No leaders shall be cut. All pruning shall be done with clean, sharp tools.

G. Tree Wrapping

All deciduous trees shall be wrapped with specified tree wrap. The wrap shall be secured at the base and the top of the trunk such that the entire surface of the trunk is covered to the height of the first branch. Trees shall be wrapped after November 1 and the wrapping shall be removed by the following April 15.

SECTION 2000 - NATIVE GRASS AND FORB SEEDING

01 SCOPE OF SERVICES

This Section describes the work required for areas to be seeded with native species. This work includes site preparation, seed mixes, the materials and methods to be used, and maintenance.

Work of this section shall conform to the requirements of all laws, ordinances, rules, regulations, and orders of public authorities having jurisdiction. The Contractor shall secure and pay for all permits, fees, and licenses necessary for the proper execution of the described work.

02 REFERENCES

All references herein referring to MnDOT specifications are *Minnesota Department of Transportation Standard Specifications for Construction, 2000 Edition*.

03 REQUIREMENTS

A. General Requirements

All native seeds used shall be certified to be of Minnesota origin by the Minnesota Crop Improvement Association (MCIA) at the Yellow Tag level. Documentation verifying the origin of the seed shall be provided to the Engineer at least 30 days prior to installation. In the event that required species may not be available as certified, those species may be supplied by a MCIA Certified Approved Collector/Producer along with documentation demonstrating the origin of those materials. All substitutions must be approved by the Engineer. All seed requiring special pregermination treatment shall be so treated prior to installation. Seed shall be stored at room temperature no higher than 60°F and a relative humidity between 20 and 40 percent.

Written certification from the suppliers of the native grass and wildflower seed shall be submitted to the Engineer and shall include:

1. Name and location of seed supplier(s)
2. Amount of seed purchased
3. Origin and date of harvest for each type or species of seed
4. Germination rate and percent purity for each type or species of seed

Contractor is responsible for successful establishment of the seed and shall replace all unsuccessful seeding until adequate establishment of the seeded vegetation as determined by the Engineer.

Wetland areas shall be seeded throughout the growing season as long as the seedlings have sufficient water. Upland areas shall be seeded in the spring or summer before August 1 or in the

fall between September 20 and freeze-up.

Seed mixtures shall be sown in all portions of the plan that specify seeding as a strategy.

04 MATERIALS

A. Seed Mixture Designations

The seed mixture used shall be MnDOT Mixture 25A Modified (25B) - Prairie Sedge Meadow at a rate of 30 lbs per acre for areas below the High Water Level (HWL) of 899.2. The seed mixture used shall be MnDOT Mixture 38A Modified (38B) - Dry Mixed-height/Bluff Prairie at a rate of 30 lbs per acre for areas above the HWL.

B. Cover Crop

Cover crop seed shall consist of oats for spring planting and winter wheat for fall planting at a rate of 20lbs/acre.

C. Mulch

Slopes that are 3:1 and gentler shall be mulched and disc anchored following seeding. MnDOT Type 1 (consisting of grain straw only), Type 7B, or Type 8B shall be used at an application rate of 2 tons per acre. Seeded areas shall be mulched within 24 hours after seeding is completed.

All planted trees and shrubs shall be mulched following planting. MnDOT Type 1 (consisting of grain straw only), Type 7B, or Type 8B shall be used. Mulch shall be placed in a minimum 1-foot-diameter circle around the trunk at a minimum 4 inch thickness within 48 hours of planting. Mulch shall be pulled away from the base of the tree or shrub such that no mulch is directly touching that portion of the tree or shrub.

Mulch used shall be certified by the Minnesota Crop Improvement Association (MCIA) to be free of noxious weed seeds, seed bearing stalks, and/or other reproductive propagules as defined by rules and regulations of the Minnesota Department of Agriculture. Documentation verifying that the mulch has passed MCIA field inspections shall accompany the material upon delivery to the job site. The mulch shall be in air dried condition upon delivery to the job site.

D. Erosion Control Blankets

Erosion control blanket shall be used on slopes that are steeper than 3:1 and areas where runoff may be channeled onto the seeded areas. Straw/Coconut 2S shall be used where seeding is done in a ditch or swale that will receive moderate water flows and in areas where runoff may be channeled onto the seeded areas. Straw 2S shall be used for all other slopes steeper than 3:1.

05 SITE PREPARATION

Prior to seeding, any existing non-native ground cover in the area to be seeded shall be eliminated with herbicide. In areas where herbicide can come into contact with water, Rodeo™ shall be used.

The topsoil should be loosened to a minimum depth of 3 inches.

06 SEED INSTALLATION

Seeding shall occur after the installation of trees and shrubs on site.

Seed shall be installed with a seed drill that will accurately meter the types of seed to be planted and keep all seeds uniformly mixed during the drilling (Truax-type). The drill should contain a minimum of two seed boxes; a fine seed box, and a seed box for large/fluffy seeds. The drill should be equipped with disc furrow openers and packer assembly to compact the soil directly over the drill rows. Maximum row spacing should be 8 inches. Small and fine seeds should be drop-seeded onto the ground surface from the fine seed box. Large/fluffy seed should be placed to obtain a final planting depth of 1/4 to 1/2 inch. All drill seeding should be done at a right angle to surface drainage.

For areas inaccessible by a seed drill, seed shall be broadcast by hand or with a mechanical spreader.

The site should be lightly harrowed or raked following seeding. The site should be packed following harrowing to ensure a firm seed bed. The site should be mulched and disc anchored following packing.

07 THREE YEAR MAINTENANCE PROGRAM

Year 1

Establishment - spring seeding:

5. Prepare site: late April - May
6. Seed: May 1 - July 1

Maintenance:

1. Mow (6-10 inches): July 15 - August 15
2. Mow: September 1 (optional)
3. Weed control: mowing should keep annual weeds down; spot spray reed canary grass, thistle, and other invasive non-native species

Establishment - fall seeding

1. Prepare site: late August - early September
2. Seed: late September - to freeze-up

Maintenance (following season):

1. Mow (6-10 inches): June 15 - August 15
2. Mow: September 1 (optional)
3. Weed control: mowing should keep annual weeds down; spot spray reed canary grass, thistle, and other invasive non-native species

Evaluation:

1. Cover crop growing within 2 weeks of planting (except dormant seedings)
2. Seedlings spaced 1-6 inches apart in drill rows
3. Native grass seedlings may only be 4-6 inches tall
4. If there is a flush of growth from foxtail etc., mow more often

Year 2

Maintenance:

1. Mow (6-10 inches): June 1 - August 15
2. Mow: September 1 (optional)
3. Weed control: mowing should keep annual weeds down; spot spray reed canary grass, thistle, and other invasive non-native species
4. Some sites may not require much maintenance the second year

Evaluation:

1. Cover crop will be gone unless winter wheat was used in a fall planting
2. Grasses forming slumps 1-6 inches apart in drill rows, but still short
3. Some flowers should be blooming (Black-eyed Susan, Bergamot, etc.)
4. If there is a flush of growth of foxtail etc., mow site

Year 3

Maintenance:

1. Mow only if necessary
2. Weed control: spot spray reed canary grass, thistle, and other invasive non-native species
3. Sites usually do not require much maintenance the third year

Evaluation:

1. Planting should begin looking like a prairie - tall grasses, flowers, etc.

08 QUALITY CONTROL

Plantings will be accepted by the City of Rosemount after inspection at the end of the first growing season, provided the nurse crop shows a reasonably even distribution and seedlings of early germinating prairie species are present in a reasonable density.

APPENDIX L
National Pollution Discharge Elimination System (NPDES) Information



Minnesota
Pollution
Control
Agency

General Stormwater Permit (MN R 040000) Application for Small Municipal Separate Storm Sewer Systems (MS4s)

RETURN THIS APPLICATION TO:

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

NO FEE

Application deadline: **June 1, 2006**

PLEASE READ: As you complete this form, read the instructions carefully. Use your keyboard's "Tab" key to move through the fields of this form. Select check-boxes and enter text as indicated. Save, and print.

I. MS4 Information

A. Application Type

- New applicant (this MS4 has no previous application for MS4 coverage on file at MPCA)
- Application for re-issuance of coverage (this MS4 applied in 2003)

B. MS4 Owner General Contact (the community, municipality, agency or other party having ownership or operation control of the MS4)

City of Rosemount

Community, municipality, agency or other party having ownership or operational control of the MS4

2875- 145th St. W

Mailing Address

Rosemount

MN

55068-4997

City

State

Zip Code

Dakota

County

41-6005501

70716421

Federal Tax ID

State Tax ID

C. General Contact (official, staff member, consultant or other) for all general correspondence about Permit compliance issues between the MPCA and your MS4

Brotzler, P.E.

Andy

City
Engineer

Last Name

First Name

Title

2875- 145th St. W

Mailing Address

Rosemount

MN

55068-4997

City

State

Zip Code

651-322-2022

andy.brotzler@ci.rosemount.mn.us

Telephone (include area code)

E-mail Address

II. Certification of the Storm Water Pollution Prevention Program (SWPPP)

- A. Have you developed a Storm Water Pollution Prevention Program for your MS4?** Yes
 Municipalities must demonstrate how their Storm Water Pollution Prevention Program will be implemented and enforced over the term of the five-year Permit. SWPPPs must incorporate appropriate educational components, all required BMPs and the measurable goals associated with each. Storm Water Pollution Prevention Programs must address the specific requirements contained in Part V. G. of the Permit. SWPPPs must outline how the six minimum control measures will be addressed, the contact person, department in charge, timeline and measures that will be implemented to meet the schedules required by the Permit. Attach a BMP Summary Sheet to this application for *each* BMP in your SWPPP.
- B. Does your SWPPP address all of the six Minimum Control Measures as outlined in the Permit?** Yes
 The General Permit requires that you incorporate all six of the defined Minimum Control Measures in your Stormwater Pollution Prevention Program. You are required to implement mandatory BMPs which are directly associated to each of the Six Minimum Control Measures.
- C. Have you attached the included BMP Summary Sheets, one for each of the Best Management Practices required by the Permit?** Yes
 There are 34 required BMPs all of which require that the provided BMP Summary Sheet be filled out completely and included with your Storm Water Pollution Prevention Program. If any of these required sheets are missing, your application will not be considered complete and will be returned to you.

III. Reporting and Recordkeeping

- A. I have read and understand Part VI *Evaluating, Recordkeeping, and Reporting* of the MS4 General Permit and certify that we intend to comply with the applicable requirements of those sections as well as the Permit as a whole.** Yes

B. Where will your SWPPP be available to the public for review?

Rosemount City Hall	www.ci.rosemount.mn.us
<i>Name of Location</i>	<i>If your SWPPP is available electronically, indicate location</i>
2875- 145th St. W	
<i>Street Address</i>	
Rosemount	MN
<i>City</i>	<i>State</i>
Andy Brotzler, P.E.	55068-4997
<i>Contact Name</i>	<i>ZIP Code</i>
Monday-Friday, 8am to 4:30pm	651-322-2022
<i>Hours of Availability</i>	<i>Contact Phone Number</i>

IV. Limitations of Coverage

- A. Part II Limitations on Coverage and Appendix C** Yes
 I have read and understand Part II *Coverage Under This Permit* and Appendix C *Limitations on Coverage* of the MS4 General Permit and certify that we intend to comply with the applicable requirements of those sections as well as the Permit as a whole.
- B. Outstanding Resource Value Waters (ORVWs)**
 Please refer to the *Guidance Manual for Small Municipal Separate Storm Sewer Systems (MS4s)* to complete this section. An interactive map is available on the MPCA Web site that identifies Special Waters: <http://pca-gis04.pca.state.mn.us>

1. Prohibited Waters

Does the MS4 discharge into **Prohibited Waters** as defined in Minn. R. 7050.0180, subp. 3, 4, and 5? See Attachment Four of the *Guidance Manual for Small Municipal Separate Storm Sewer Systems (MS4s)* for further information.

Yes No

2. Restricted Discharge

Does the MS4 discharge into waters with a **Restricted Discharge** as defined in Minn. R. 7050.0180, subp. 6, 6a, and 6b? If yes, please list below and comply with Part IX, Appendix C, Item B. See Attachment Four of the *Guidance Manual for Small Municipal Separate Storm Sewer Systems (MS4s)* for further information.

Yes No

3. Prohibited or Restricted Waters

If you answered "yes" to either Question 1 or 2, have you included a map that outlines, at a minimum, the DNR minor sub-watersheds in your jurisdiction with ANY discharges to Prohibited or Restricted Waters? You are required by the Permit to provide this map along with your application. [IX.B.2.b]

Yes No

Identify all discharges to Outstanding Resource Value Waters (ORVWs) from your MS4:

Name of Water Body	Type (lake, stream, river)

4. If you answered "yes" to either Question 1 or 2, who is the person responsible for ensuring compliance with this Permit condition?

Name: _____ Position: _____ Phone: _____

Special Waters

1. Trout Waters

Does the MS4 discharge into **Trout Waters** as defined in Minn. R. 6264.0050 subp. 2 & 4? If yes, please list below and comply with Part IX, Appendix C, Item C. See Attachments Two and Three of the *Guidance Manual for Small Municipal Separate Storm Sewer Systems (MS4s)* for further information.

Yes No

2. Wetlands

Does the MS4 discharge into **Wetlands** as defined in Minn. R. 7050.0130, subp. F? See Attachment Four of the *Guidance Manual for Small Municipal Separate Storm Sewer Systems (MS4s)* for further information.

Yes No

3. Environmental Review

Does the MS4 have a process to assure coordination with appropriate Agencies and to evaluate discharges that require applicable **Environmental Review** as required by State or federal laws? See Part IX of the *Guidance Manual for Small Municipal Separate Storm Sewer Systems (MS4s)* for further information.

Yes No

Who is the person responsible for ensuring compliance with this Permit condition?

Name: Andy Brotzler, P.E. Position: City Engineer Phone: 651-322-2022

4. Endangered or Threatened Species

Does the MS4 have a process to assure coordination with appropriate Agencies and to evaluate discharges whose direct, indirect, interrelated, interconnected, or independent impacts may jeopardize a listed **Endangered or Threatened Species** or adversely modify a designated critical habitat? See Part IX of the *Guidance Manual for Small Municipal Separate Storm Sewer Systems (MS4s)* for further information.

Yes No

Who is the person responsible for ensuring compliance with this Permit condition?

Name: Andy Brotzler, P.E. Position: City Engineer Phone: 651-322-2022

5. Historic Places and Archeological Sites

Does the MS4 have a process to assure coordination with appropriate Agencies and to evaluate discharges which may adversely affect properties listed or eligible for listing in the National Register of **Historic Places** or affecting known or discovered **archeological sites**? Yes No
See Part IX of the *Guidance Manual for Small Municipal Separate Storm Sewer Systems (MS4s)* for further information.

Who is the person responsible for ensuring compliance with this Permit condition?

Name: Andy Brotzler, P.E. Position: City Engineer Phone: 651-322-2022

6. Drinking Water Sources

Does the MS4 have any discharges that may affect Source Water Protection as defined in part **IX.H** of the General Permit? Yes No
If "yes," does the MS4 have BMPs incorporated into the SWPPP to protect drinking water sources that the MS4 discharge may affect? Yes No

V. Owner or Operator Certification

The person with overall, MS4 legal responsibility must sign the application. This person shall be duly authorized to sign the application and may be either a principal executive officer or ranking elected official. (see Minn. R. 7001.0060).

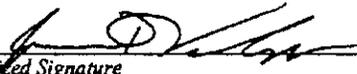
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons, who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete (Minn. R. 7001.0070).

I also certify under penalty of law that I have read, understood, and accepted all terms and conditions of the National Pollutant Discharge Elimination System (NPDES) General Storm Water Permit for MS4s that authorizes storm water discharges identified in this application form.

I understand that as a Permittee, I am legally accountable under the Clean Water Act to ensure compliance with the terms and conditions of the NPDES General Storm Water Permit for MS4s.

I also understand that MPCA enforcement actions (pursuant to Minn. Stat. §115.07, 116.072, and Section 309 of the Clean Water Act) may be taken against me or the MS4 if the terms and conditions of the NPDES General Storm Water Permit for MS4s are not met.

C. General Contact (official, staff member, consultant or other) for all general correspondence about Permit compliance issues between the MPCA and your MS4

X  5/30/06
Authorized Signature Date

Verbrugge. Jamie City Administrator
Last Name First Name Title

2875- 145th St. W
Mailing Address

Rosemount MN 55068-4997
City State ZIP Code

651-423-4411 jamie.verbrugge@ci.rosemount.mn.us
Telephone (include area code) E-mail Address

CITY OF ROSEMOUNT MS4 SWPPP

**Table 1
BMP IMPLEMENTATION PROGRAM**

Best Management Practices	Description of BMP & Goal	Schedule
MCM 1 Public Education and Outreach		
<p>1a-1 <u>Distribute Educational Materials</u> Brochures, Handouts, and Newsletters, SWPPP Web Page, Annual Public Meeting</p>	<p>Distribute a minimum of 3 educational publications via City mailings, workshops, presentations, website postings, or newsletters. Begin working collaboratively with the Dakota SWCD and VRWMO in distributing educational materials and promoting/supporting outreach programs.</p>	<p>Begin September 1, 2007. Implement activities in 2008. Review and revise educational activities schedule and funding January 1, 2009 through 2011.</p>
<p>1b-1 Implement an Education Program</p>	<p>Implement educational activities and coordinate with the Dakota SWCD and VRWMO. Record attendance, web site visits, keep minutes, record statements/requests, and written comments.</p>	<p>Begin September 1, 2007. Implement activities in 2008. Review and revise educational activities schedule and funding January 1, 2009 through 2011.</p>
<p>1c-1 Education Program: Public Education and Outreach Program</p>	<p>Update the City website devoted to water resource related issues. Distribute 2 water resource related articles in the City newsletter per year. Continue to implement the WHEP.</p>	<p>Begin September 1, 2007. Implement by January 1, 2008.</p>
<p>1c-2 Education Program: Public Participation</p>	<p>Encourage public participation to public presentations, outreach programs, the WHEP, and the City's website.</p>	<p>Begin September 1, 2007. Implement by January 1, 2008.</p>
<p>1c-3 Education Program: Illicit Discharge Detection and Elimination</p>	<p>Distribute a minimum of one illicit discharge related publication to residents per year. Provide illicit discharge education to City staff.</p>	<p>Begin distributing educational material to residents in 2008 through May 31, 2011. Provide staff education in 2007 through May 31, 2011.</p>
<p>1c-4 Education Program: Construction Site Run-off Control</p>	<p>Meet with contractors and residents prior to the start of construction to discuss implementing project specific BMP's. Provide erosion control education to City staff.</p>	<p>Continue the plan review process/pre-construction meetings. Provide staff education in 2007 through May 31, 2011.</p>
<p>1c-5 Education Program: Post-Construction Stormwater Management in New Development and Redevelopment</p>	<p>Distribute a minimum of one post-construction stormwater management related publication to residents per year.</p>	<p>Begin distributing educational material to residents in 2008 through May 31, 2011.</p>
<p>1c-6 Education Program: Pollution Prevention/Good Housekeeping for Municipal Operations</p>	<p>Provide a minimum of one pollution prevention related training opportunity to City staff per year.</p>	<p>Continue through the expiration of this permit, May 31, 2011.</p>
<p>1d-1 Coordination of Educational Programming</p>	<p>Coordinate educational components, programming, and schedule with the Dakota SWCD and VRWMO.</p>	<p>2007 or as specified in each BMP of MCM 1.</p>
<p>1e-1 Annual Public Meeting</p>	<p>Hold an annual public meeting to distribute educational materials and present an overview of the MS4 program and City's SWPPP</p>	<p>Minimum of once/year, annually through May 31, 2011.</p>

CITY OF ROSEMOUNT MS4 SWPPP

Best Management Practices	Description of BMP & Goal	Schedule
MCM 2 Public Participation and Involvement		
2a-1 Comply with Public Notice Requirements	Notice the annual public meeting in the official newspaper 30 days prior to the meeting date	Annually through May 31, 2011
2b-1 Solicit Public Input and Opinion on the Adequacy of the SWPPP	Hold an annual public meeting and host a web page to solicit public opinion on the SWPPP	Minimum of once/year, annually through 2011.
2c-1 Consider Public Input	Record attendance, keep minutes, record statements, and written comments and document changes made to the SWPPP	Minimum of once/year, annually through 2011.
MCM 3 Illicit Discharge Detection and Elimination		
3a-1 Storm Sewer System Map	Update storm sewer system map, as needed.	Annually through May 31, 2011
3b-1 Regulatory Control Program	Review existing ordinances, develop a specific city ordinance related to illicit and non-stormwater discharges (if needed).	Develop ordinance in 2007. Implement ordinance by April 1, 2008.
3c-1 Illicit Discharge Detection and Elimination Plan	Develop and implement a program to detect and reduce non-storm water discharges.	Develop program in 2007. Implement program and document inspections starting in 2008. Review and revise program as necessary, 2009 to May 31, 2011.
3d-1 Public and Employee Illicit Discharge Information Program	Distribute educational materials to residents and provide illicit discharge educational activities to City staff a minimum of one time annually.	Begin January 1, 2008. Review annually through May 31, 20011.
3e-1 Identification of Non Stormwater Discharges and Flows	The City has identified and evaluated all non-storm water discharges (as defined in Part V.G.3.e) to be insignificant pollutant contributors.	Completed
MCM 4 Construction Site Storm Water Runoff Control		
4a-1 Ordinance or other Regulatory Mechanism	Continue to implement the construction site inspection program. Review all applicable city codes and permit stipulations for conformance to any new NPDES construction permit requirements and add additional requirements (if necessary).	Continue construction site inspection program through May 31, 2011. Review City codes and permit stipulations for conformance to new NPDES construction permit requirements (if any) in 2008.
4b-1, 4c-1 Construction Site Implementation of Erosion and Sediment Control BMP's: Waste Controls for Construction Site Operators	Construction site operators must conform to NPDES Phase II, soil & water conservation district, and City ordinances pertaining to erosion and sediment controls and waste controls.	Continue to implement through May 31, 2011. Add new NPDES requirements (if necessary) through May 31, 2011.
4d-1 Procedure for Site Plan Review	No City permit to allow land disturbing activities shall be issued until approval of storm water management plan (if applicable) and/or erosion control plan or waiver has been obtained.	Continue to implement through May 31, 2011.

CITY OF ROSEMOUNT MS4 SWPPP

Best Management Practices	Description of BMP & Goal	Schedule
<p>4e-1 Establishment of Procedures for the Receipt and Consideration of Reports of Stormwater Noncompliance</p>	<p>Provide a phone number, website, and point of contact for the public to report storm water pollution issues.</p>	<p>Begin developing September 1, 2007. Implementation and record keeping January 1, 2008 through May 31, 2011.</p>
<p>4f-1 Establishment of Procedures for Site Inspections and Enforcement</p>	<p>Continue to enforce the City's erosion control and waste disposal standards. Add additional procedures or requirements as necessary.</p>	<p>Please refer to BMP Summary sheets 4a-1 through 4e-1.</p>
<p>MCM 5 Post Construction Storm Water Management Measures</p>		
<p>5a-1 Development and Implementation of Structural and/or Non-Structural BMP's</p>	<p>The City will evaluate all structural and non-structural BMP's during the plan review process for the potential of new and/or revised BMP's. The City will also actively look for non-structural opportunities where prudent and feasible.</p>	<p>Continue through May 31, 2011.</p>
<p>5b-1 Regulatory Mechanism to Address Post Construction Runoff from New Development and Redevelopment</p>	<p>The City will implement the requirements of the Comprehensive Stormwater Management Plan and applicable City ordinances.</p>	<p>Continue through May 31, 2011</p>
<p>5c-1 Long-term Operation and Maintenance of BMP's</p>	<p>The City will continue to annually inspect a minimum of 20% of all its MS4 outfalls, sediment basins, and ponds, then evaluate and record the number of proposed maintenance projects and successful funding of each project (if applicable). Success of this BMP is defined as achieving the measurable goals of minimum control measure 6.</p>	<p>Continue through May 31, 2011</p>
<p>MCM 6 Pollution Prevention/Good Housekeeping Measures</p>		
<p>6a-1 Municipal Operations and Maintenance Program</p>	<p>City staff will implement the Comprehensive Stormwater Management Plan; conform to all BMP's within MCM #6.</p>	<p>Review and revise in 2009 through May 31, 2011.</p>
<p>6a-2 Street Sweeping Program</p>	<p>Street sweep twice annually. Record the annual number of times streets are swept as well as document any additional activities that were undertaken regarding this program.</p>	<p>Sweep twice per year; record annually through May 31, 2011.</p>
<p>6b-2 Annual Inspection of All Structural Pollution Control Devices</p>	<p>Inspect and document all structural pollution control devices a minimum of once per year.</p>	<p>Continue a minimum of once/year, annually through May 31, 2011.</p>

CITY OF ROSEMOUNT MS4 SWPPP

Best Management Practices	Description of BMP & Goal	Schedule
<p>6b-3 Inspection of a Minimum of 20% of the MS4 Outfalls, Sediment Basins and Ponds Each Year on a Rotating Basis.</p>	<p>The City will inspect all mapped outfalls, sediment basins, and ponds a minimum of 20% each year (on a rotating schedule during permit coverage) and record the number inspected, and rate the condition of each outfall.</p>	<p>Continue inspecting a minimum of 20% per year through May 31, 2011 or until 100% complete prior to May 31, 2011.</p>
<p>6b-4 Annual Inspection of All Exposed Stockpile, Storage, and Material Handling Areas.</p>	<p>Locate and inspect all exposed stockpile, storage and material handling areas located on City-owned properties, record inspections, correct and document all remedial actions a minimum of once per year.</p>	<p>Begin in 2007 through May 31, 2011.</p>
<p>6b-5 Inspection Follow-up, Including the Determination of Whether Repair, Replacement, or Maintenance Measures are Necessary and the Implementation of the Corrective Measures.</p>	<p>Determinations of repair, replacement, or maintenance measures will be directed by the City Engineer. All corrective maintenance, repair, and/or replacement measures will be recorded in the City's SWPPP.</p>	<p>Continue to implement through May 31, 2011.</p>
<p>6b-6 Record Reporting and Retention of All Inspections and Responses to the Inspections</p>	<p>The City will record the number of inspection record requests and distributed materials. The City will retain all records for a period of three years.</p>	<p>Continue to implement through May 31, 2011.</p>
<p>6b-7 Evaluation of Inspection Frequency</p>	<p>Record all stormsewer and pond inspections completed annually. Evaluate inspection records every 2 years.</p>	<p>Continue annually through May 31, 2011.</p>
<p>6b-8 Landscaping & Lawn Care Practices Review</p>	<p>Continue to evaluate current practices of fertilizer, pesticide, and herbicide application, mowing operations, grass clipping collection, mulching, and composting.</p>	<p>Minimum of one/year, annually through May 31, 2011.</p>
<p>6b-9 Road Salt Application Review</p>	<p>Continue to evaluate current practices of road salt applications, alternative products, calibration of equipment, inspection of vehicles and staff training.</p>	<p>Minimum of one/year, annually through May 31, 2011.</p>
Additional BMPS		
<p>7 Nondegradation for Selected MS4s</p>	<p>The City will prepare a Loading Assessment, Nondegradation Report, and comply to the public participation process as per Part X. Appendix D of the MS4 General Permit.</p>	<p>Submit by February 1, 2008</p>
<p>8 Evaluation of Proposed Storm Water Infiltration Projects for Impacts within Source Water Protection Areas</p>	<p>The City will use the Minnesota Department of Health's "Evaluating Proposed Storm Water Infiltration Projects in Vulnerable Wellhead Protection Areas" (Draft- July 19, 2006) as a guidance manual.</p>	<p>Begin January 1, 2008</p>
<p>9 Section 303(d) Impaired Waters Listings and Total Maximum Daily Load (TMDL)</p>	<p>The City will work cooperatively with the Minnesota Pollution Control Agency and other outside organizations to develop and implement future TMDL implementation plan(s) and Part IV.D of this MS4 permit.</p>	<p>To Be Determined</p>