Stormwater Pollution Prevention Plan (SWPPP)

Fish Creek Repair/Improvement
Maplewood & St. Paul, Minnesota

Prepared for
Ramsey-Washington Metro Watershed District

July 2006

BARR

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APPENDICES

1.0 Construction Activity Information

1.01 Location of project:

A. This project is located in the southeast corner of Ramsey County in the Cities of Maplewood and St. Paul, Minnesota and is located in the Fish Creek Watershed of Ramsey - Washington Metro Watershed District. Construction activities will take place in and along Fish Creek from Highway 61 to Century Ave. S. the western border of Woodbury and just south and adjacent to Carver Road E. The construction proposed is repair work to the creek bed and banks along sections of Fish Creek and a contributing tributary drainage channel that were washed out and eroded during a large rainstorm event on October 4th of 2005.

B. The site is located in Ramsey County and the proposed construction is within Sections 23 & 24 of Township 28 North, Range 22 West.

1.02 Project Size:

A. This project will disturb approximately 4.0 Acres including staging areas and haul roads for the construction project.

1.03 Project Type:

A. This project is a municipal storm water repair and improvement project by Ramsey-Washington Metro Watershed District.

1.04 Cumulative Impervious Surface:

A. This project will not be generating any new impervious surface and will not require permanent sedimentation basins.

1.05 Receiving Waters:

A. This site is the main tributary (Fish Creek) of the Fish Creek Watershed in Ramsey-Washington Metro Watershed District and drains through the Bluff lands Area and into an Eagle Lake adjacent to North Star Steel and ultimately contributing flow to the Mississippi River Basin. (See appendix A)

1.06 Dates of Construction:

A. Construction will begin in the summer, approximately July 31st, 2006 and will continue into fall till approximately October 31, 2006.

2.0 Contact Information

A. Owner of the Site:

Ramsey-Washington Metro Watershed District
2665 Noel Drive
Little Canada, Minnesota 55117
Phone: (651) 792-7950
Fax: (651) 792-7951

Cliff Aichinger
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Alternate Contacts:
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B. Contractor:

Holst Excavating, Inc.
P.O. Box 36
Prescott, Wisconsin 54021
Federal Tax ID: ----------
State Tax ID: ----------

Contact Person:
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Owner
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Alternate Contacts:
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General Foreman
Phone: (612) 701-2300
Fax: (715) 792-2909
Email: holst@redwing.net

Greg Williams
Project Manager
Phone: (715) 497-2100
Fax: (715) 792-2909
Email: holst@redwing.net

B. Party Responsible for Long Term Operation and Maintenance of the Permanent Stormwater Management System:

Same as Owner

3.0 General Construction Project Information

3.01 Construction Activity

A. The project consists of repairs and improvements to existing Fish Creek and contributing upstream channel.

Work downstream of I-494 in Fish Creek includes:

1. Restoration and repairs to the existing eroded stream banks by recovering and replacing existing riprap, and adding additional riprap.
2. Covering existing exposed flood flow pipe.
3. Improvements to the creek bed channel and installing straight and V-shaped rock vanes.
4. Remove creek flow pipes and embankments No. 1 and No. 2 and replace with rock riffle sections.
5. Remove creek flow pipe from embankment No. 3, restore, raise, and armor existing embankment. Remove existing structures, pipe sections, and trashracks. Construct new creek flow pipe, inlet structure and large trashrack. Regrade channel area and protect with riprap.
6. Alternate to restoring embankment No. 3 is installing 840 feet of flood flow pipe from embankment No. 3 to Henry Place and constructing a large control structure. Removing embankment No. 3 and replacing with rock riffle section.

Work upstream of I-494 in tributary channel includes:

1. Repair washout and erosion on downstream side of the drive for 2620 Carver Rd. and riprap area.
2. Repair embankment No. 4.
3. Remove sediment delta from existing detention basin.

B. The repair work of Fish Creek extends from I-494 to 6 tenths of a mile downstream and repairs, restoration, and improvements will also be made to 2,000 feet of a tributary channel. This work is proposed to be completed during the spring, summer, and fall of 2006 with final restoration of establishing ground cover in the spring of 2007. The purpose of this construction is to repair erosion damage to the existing creek and tributary channel and improve flow characteristics of the creek and channel.

C. Detailed plans and specifications have been enclosed with this SWPPP (See appendix B & C.

3.02 Soil Types

A. The basic soils throughout the proposed project area are granular materials such as fine to medium sands, sandy gravel, and natural stones and boulders. Some of the stone and boulders are imported materials from early work done in the creek bed. The existing stone and boulders will be recovered and reused in the restoration of the creek bed as riprap. Topsoil will be stripped and reused as cover on disturbed areas to establish plant growth and stabilize side slopes.

B. Sand, Gravel, Stones, Boulders, imported Clay in the embankments, Till, Top soils, and Bedrock.

4.0 General Site Information

4.01 General Site Descriptions:

A. The majority of this site is in located within the southern portion of the City of Maplewood, Minnesota with the remainder in St. Paul, Minnesota. The site is in a sparse populated wooded residential area and the creek is in a steep ravine leading to the Mississippi River. Most of the work site in Fish Creek is along sixth tenths of a mile stretch between Highway 61 and I-494. The work will be mainly in and along the creek except for access roads. The work in the tributary channel will be adjacent to Carver Road and adjoining driveways and will have construction access roads from Carver Road to the channel restoration area and detention pond dredging site.

B. The site topography varies from a flatter upper bluff area to a steep ravine descending over a hundred feet to Mississippi River flats areas.

4.02 Locations of Temporary Erosion Control

A. Flood flow outlet structure upstream to haul road access from south (STA. 0+00 to 9+00) will have a combination of erosion control practices using silt fencing, rock filter dikes, inlet protection, seeding /mulching, netless erosion control blanket, riprap, and sedimentation basin. (See erosion control plans for locations) During the construction the regular creek flow will be diverted into the flood flow pipe leaving only the local area drainage in the creek bed to deal with. Rock filter dikes and silt fence will be installed across the creek channel to collect silt in the local drainage and from construction operations. Inlet protection will be installed at the flood flow inlet structures. A siltation basin will be installed at the toe of the access road to collect silt from off of the steep grade. Silt fence will be installed along the haul road and the existing creek bed to keep haul materials out of the creek bed. Netless erosion control blanket will be installed on the side slopes of the removal areas of embankment No. 1. As construction proceeds the disturbed areas that have been completed shall be covered with top soil and seeded and mulched to minimize erosion and establish permanent vegetation.

B. Haul road access from south to Embankment No.2 (STA 9+00 to 14+00) will also have a combination of erosion control practices put inplace. BMP's will be silt fencing, rock filter dikes, inlet protection, riprap, and seeding/mulching. (See erosion control plans for locations) During the construction the regular creek flow will be diverted into the flood flow pipe leaving only the local area drainage in the creek bed to deal with. Rock filter dikes will be installed across the creek channel to collect silt in the local drainage and construction operations. Inlet

protection will be installed at the flood flow inlet structures. Silt fence will be installed along the haul road and the existing creek bed to keep haul materials out of the creek bed. Netless erosion control blanket will be installed on the side slopes of the removal areas of embankment No. 2. As construction proceeds disturbed areas that have been completed shall be covered with top soil and seeded and mulched to minimize erosion and establish permanent vegetation.

C. Embankment No. 2 to Embankment No. 3 (STA. 14+00 to 22+50) will also have a combination of erosion control practices put inplace. BMP's will be silt fencing, rock filter dikes, seeding/mulching, and riprap. (See erosion control plans for locations) As construction proceeds the disturbed areas that have been completed shall be covered with top soil and seeded and mulched to minimize erosion and establish permanent vegetation.

D. Embankment No. 3 to just up stream (STA. 22+50 to 25+00) will also have a combination of erosion control practices put inplace. BMP's will be silt fencing, rock filter dikes, inlet protection, riprap, and seeding/mulching. (See erosion control plans for locations) During the construction the regular creek flow will be diverted into the flood flow pipe leaving only the local area drainage in the creek bed to deal with. Rock filter dikes will be installed across the creek channel to collect silt in the local drainage and from construction operations. Inlet protection will be installed at the flood flow inlet structures. Silt fence will be installed along the haul road and the existing creek bed to keep haul materials out of the creek bed. Netless erosion control blanket will be installed on the side slopes of the repair areas of Embankment No. 3. As construction proceeds disturbed areas that have been completed shall be covered with top soil and seeded and mulched to minimize erosion and establish permanent vegetation.

E. **(Alternate)** Embankment No. 3 to Henry Road (STA. 22+50 to 31+40) if the alternate is chosen a combination of erosion control practices shall be put inplace. BMP's will be silt fencing, inlet protection, riprap, netless erosion control blanket, and seeding/mulching. (See erosion control plans for locations) Inlet protection will be installed at the flood flow inlet structure. Silt fence will be installed between the pipe trenching operations and the existing creek bed to keep trenching materials out of the creek bed. Netless erosion control blanket will be installed on the side slopes of the trenching operations. As construction proceeds disturbed areas that have been completed shall be covered with top soil and seeded and mulched to minimize erosion and establish permanent vegetation.

F. **(Upper Tributary Channel)** Fish Creek to Carver Road Sedimentation Basin will also have a combination of erosion control practices put inplace. BMP's will be silt fencing, rock filter dikes, seeding/mulching, and riprap. Rock erosion control construction entrances shall be installed at Embankment No. 4 and at the sediment basin accesses. (See erosion control plans for locations) As construction proceeds the disturbed areas that have been completed shall be covered with top

soil and seeded and mulched to minimize erosion and establish permanent vegetation.

4.03 Locations of Permanent Erosion Control

A. The entire project is a permanent erosion control project to reduce the change of bank erosion along the creek from a variety of flashy storm events that occur from the increased suburban development in the watershed. The repairs to the existing conveyance systems such as flood flow inlets, flood flow pipe, control structures, and diversions are all part of permanent erosion control.

B. Sta. 3+00 to 4+00: Rock riffle section with V-type rock/boulder vanes will replace the existing inplace embankment No. 1.

C. Sta. 6+00 to 7+50: Rock/boulder vanes and natural boulder riprap bank restoration.

D. Sta. 9+00 to 10+75: V-shaped rock/boulder vanes, boulder riprap bank restoration, and rock/boulder retaining wall.

E. Sta. 12+75 to 16+00: Rock riffle section with V-type rock/boulder vanes will replace the existing inplace embankment No. 2, rock/boulder retaining walls, and natural boulder riprap bank restoration.

F. Sta. 17+00 to 20+50: Rock/boulder riprap bank restoration, rock/boulder retaining walls, and V-type rock/boulder vanes.

G. Sta. 22+50 to 24+50: Cable concrete embankment overflow armor and rock/boulder riprap channel protection.

H. Tributary channel: Rock/boulder riprap bank restoration and permanent turf reinforcement mat on embankment No. 4.

4.03 Discharges to Impaired Waters

A. Carver Lake in the Carver Lake Sub-Watershed is listed as an impaired lake and outlets into Fish Creek that is not listed as impaired water. Also Fish Creek drains west under Highway 61 to Eagle Lake adjacent to North Star Steel, Eagle Lake is listed as an impaired water. Repair construction on Fish Creek will begin approximately 2,500 feet upstream of Eagle Lake lake. Eagle Lake is listed as impaired water but is not listed on the present total maximum daily load (TMDL) allocations list and does not have an implementation plan. The distance from the nearest discharge point of the construction site to Eagle Lake is further than the 2,000 feet limit requiring special practices.

5.0 Selection of a Permanent Stormwater Management System

5.01 Permanent Stormwater Management

A. This project is a permanent Stormwater Management System designed to reduce erosion in the existing creek for a variety of storm events. The existing creek receives contributing flow from an expanding community and will experience larger volumes of runoff. The system will allow normal flows to remain in the repaired rock/boulder creek bed and divert high flows to a flood flow conveyance pipe under the creek bed. Additional riprap repairs, riffle drop sections, and armor protection on embankments will protect the creek bed for large overflow storm events.

B. This project will not be generating any new impervious surface and will not require permanent sedimentation basins.

6.0 Erosion Prevention Practices

6.01 Construction Phasing

A. This project shall be executed in a manner to minimize erosion by using appropriate construction practices and built in phases to minimize the amount of disturbed soils exposed at any one time. After rock/boulder riffles, retaining walls, and vanes have been installed and completed in sections of the creek and channel final grading shall be done and topsoil shall be placed on the slopes and seeded and mulched as soon as possible to stabilize these slopes. When construction activities have been completed on any part of the site, the final turf establishment shall be installed. (See Specifications for turf establishment Section 02370)

B. Sediment control practices shall be established on all down gradient perimeters prior to any land disturbing activities. At the beginning of the project, silt fence, rock check dams shall be installed to prevent sediment from leaving disturbed areas.

6.02 Temporary Slope Stabilization

A. Horizontal slope grading, perpendicular equipment tracking, shelving and other construction practices to minimize erosion shall be used during the construction.

B. Straw mulch shall be used as temporary cover to decrease the amount of exposed soils at any given time.

6.03 Stabilizing Disturbed Areas

A. Once construction activities begin, temporary seeding /mulching of exposed soil areas shall take place according to the MPCA guidelines for cover on exposed soils as stated below.

Type of Slope	Time	(Maximum time an area can Remain open when the area is not actively being worked.)
Steeper than 3:1	7 days	
10:1 to 3:1	14 days	
Flatter than 10:1	21 days	

Weekly inspections of the site will take place and or within 24 hours of a storm event of 1/4 inch or greater. Any repairs or corrective measures necessary to solve erosion problems will be completed within 24 hours. All erosion and sediment control practices shall remain in-place until final stabilization has been established. They shall be checked weekly to assure they are in proper working condition and not obstructing drainage or causing flooding.

7.0 Sediment Control Practices

7.01 Rock Construction Entrance

A. Rock construction entrances shall be installed before the start of construction activities at the locations shown on the drawings and shall meet the specification and dimensions of the detail drawings.

B. The rock construction entrances shall be removed at the completion of the project and the area restored

7.02 Rock Filter Dike/Check Dams

A. Rock Filter Dikes/Check dams shall be used to minimize flow velocities and capture sediment from stormwater runoff during construction and constructed of ¾" to 1 ½" washed river rock with Mn/DOT Type 2 Filter Fabric.

B. Check dams shall be installed in the creek bed and channel such that the sides are at a higher elevation and dipped in the middle to allow high flows over the rock filter dike/check dam without scouring out the sides of the banks.

C. Straw wattles, excelsior logs, siltation socks, and other approved devices may be use as temporary ditch checks and to make repairs.

D. Rock filters dikes/ check dams shall be removed after the upstream restoration has been completed

7.03 Silt Fence

A. Silt fence shall be placed at locations as shown on the erosion control drawings to retain and prevent off-site sheet flow sedimentation. Locations of the silt fencing shall be field verified and changes made to ensure there maximum protection.

B. Silt fences shall be installed approximately 6 feet off of the toe of the slope where the drainage area is less than 2 acres. The maximum uncontrolled slope length above the silt fence is 150 feet and where the water reaches the silt fence as sheet flow.

C. Silt fence shall be installed on the contour and so that flow cannot bypass the ends. Long section should incorporate "J-hooking" for increased sediment capture.

D. Most of the silt fencing can be standard machine sliced for general use. Heavy duty shall be used where extra strength is required, such as near water bodies, unstable wetland soils, steep slopes, highly erodible areas, areas inaccessible to slicing equipment, and high run-off areas.

E. All silt fences shall be removed at the completion of the project after the areas disturbed by construction have been stabilized. Any captured silt shall be removed from the site.

7.04 Inlet Protection

A. Inlet protection shall be placed on all flood flow inlets.

B. Silt fence barriers may be installed at the flood flow inlets and shall be made with heavy duty materials. They shall be a minimum of 5 feet square and installed such that flow shall not by-pass around them.

7.05 Netless Erosion Control Blanket

A. Netless erosion control blankets shall be the types specified in the Erosion and Sediment Control specifications Section 02370 and installed as shown on the drawings or in areas as directed by the Engineer.

7.06 Cable Concrete (Precast articulated concrete block mat)

A. Cable concrete shall be the types specified in the Erosion and Sediment Control specifications Section 02370 and installed as shown on the drawings or in areas as directed by the Engineer.

7.07 Permanent Turf Reinforcement Mat

A. Placement area shall be graded smooth and seeded prior to placement of permanent turf mat. Permanent turf reinforcement mat shall be installed and anchored inplace in accordance to manufacturers specifications

B. Seed shall be Mn/Dot seed mixtures and applied as specified in the plan specifications.

7.08 Seeding and Mulching

C. After sections of the creek bed and channel repairs have been completed the disturbed area shall be graded and covered with the top soil and the slopes seeded and they shall be mulched within 24 hours.

D. Seed shall be Mn/Dot seed mixtures and applied as specified in the plan specifications.

E. Mulch shall be the types specified in the plan specifications.

7.09 Staging Areas, Haul Roads, and Stock Piles

A. All temporary stockpiles and staging areas will have silt fence installed at their limits to prevent sediment from leaving the area. All stockpiles that remain undisturbed for a period greater than one month shall be protected by covering with mulch, erosion mats, or plastic sheeting.

B. All haul roads shall have erosion control practices applied to them, such as silt fencing, rock checks, ditches, and grading that prevents erosion and sediment transfer.

7.10 Sweeping of Paved Road

A. Any paved State Highways, County Road, or local streets used as haul roads during construction shall be checked daily for evidence of off-site sediment tracking onto the paved surfaces. These surfaces will be swept clean of any tracked materials as soon as possible and this work shall be completed within 24 hours of discovery. Sweeping shall extend to the extremity of any sediment tracking that occurs off site.

8.0 Dewatering and Basin Draining

8.01 Basin Draining:

A. There is no anticipated basin draining during construction on this project

8.02 Dewatering:

A. Dewatering will only take place for construction practices requiring dewatering such as installation of storm sewer culverts, or installing BMPs.

B. During any pumping operations the contractor shall treat any sediment laden water with sediment containment or filter system before discharging to a downstream system.

9.0 Additional BMPs for Special Waters and Discharges to Wetlands

9.01 Special Waters:

A. This project does not drain directly to any special waters and won't require additional BMPs or enhanced runoff controls.

9.02 Wetlands

A. This project will not be discharging stormwater to any wetland areas and have no or little impact on existing wetlands.

B. The project is proposing the dredging of accumulated silt from an existing detention basin in the contributing tributary channel chain. This detention basin adjacent to Carver Road is classified as a class 4 wetland (those with moderate value impacts). The accumulated siltation plume will be dredged from the detention basin but the dredging shall not exceed the original design bottom contours.

10.0 Inspections and Maintenance

10.01 Site Inspections

A. The Contractor, Owner, and Project Engineer shall routinely inspect the construction site once every seven days during active construction and within 24 hours after a rain storm event of greater than ¼ inch within a 24 hour period. All erosion prevention and sediment control BMPs must be inspected to ensure integrity and their effectiveness.

B. Inspections shall include all areas of the project including stabilized areas, erosion prevention, sediment control BMPs.

C. All inspections and maintenance conducted during construction will be recorded in writing and kept with the SWPPP until the end of the project. Records of each

inspection and maintenance activities shall include the following and as specified in (Section 02373 Erosion Control) of the project specifications.

1. Date and time of inspection:
2. Names of persons conducting inspection:
3. Findings of inspection, including recommendations for corrective actions:
4. Corrective actions taken (including dates, time, party completing maintenance activities):
5. Date and amount of all rainfall events of greater than 1/4 inch in 24 hours:
6. Documentation of changes made to the SWPPP:

10.02 Maintenance

A. Silt fences will be repaired, replaced, or supplemented when they become nonfunctional or sediment has reached 1/3 the height of the fence. Accumulated silt will be removed and either is transported off-site or placed in protected areas that will not permit the sediment to impact other areas in the project. These repairs shall be made within 24 hours of discovery, or as soon as field conditions permit.

B. Rock check dams shall be inspected and accumulated silts removed when they have become inundated and are no longer effective in controlling sediment. Any damaged check dams shall be repaired.

C. Slide slopes shall be checked for riling and any damage areas repaired.

10.03 Inspection Log

A. Minnesota Pollution Control Agency's form Inspectors Log for MPCA Stormwater Construction Permit may be used to record required inspections and rainfall events and is attached as (Appendix D). Other forms may be used to record data but must contain documentation as stated in 10.01B of the SWPPP.

11.0 Pollution Prevention Management Measures

11.01 Management and Disposal of Solid Waste:

A. Solid waste and trash shall be managed by using dumpsters for refuse and trash containers for trash. Any floating debris, paper, plastic fabric, construction and demolition debris, and other wastes must be disposed of properly and comply with MPCA disposal requirements.

B. The site shall be kept clean and neat and all debris and trash removed from the site. Any debris or clutter discovered during weekly site inspections shall be

noted in the inspection report and the Contractor shall take action to remedy the problem.

11.02 Hazardous Materials:

A. Minimal amounts of hazardous materials will be used at the construction site. All chemical and hazardous materials will be stored inside of vehicle storage or other means of secondary containment. Hazardous material will be used in a manner so as to prevent their exposure to stormwater water run-off.

B. No concrete wash materials shall enter receiving waters downstream of the construction site.

11.03 Spill Prevention:

A. The greatest potential for significant spills is associated with fueling or performing maintenance on heavy equipment. All fueling and maintenance will be performed in an area where the existing topography allows for containment of accidental spills. Spill supplies and absorbent materials will be available during all fueling or oil transfer operations.

B. Fueling operators shall maintain constant visual contact with vehicles and fueling equipment during fueling operations. They shall be aware of the location of spill supplies and absorbent materials and how to use them.

11.04 Sanitary and Septic Waste:

A. The Contractor shall have portable restroom facilities (Satellites), available on site.

12.0 Final Stabilization

12.01 Final Stabilization:

A. After the completion of construction activities, all areas of the project that were disturbed shall be checked including those that received previous erosion prevention practices. Any areas that are damaged shall be repaired and final turf re-established. All remaining disturbed areas; side slopes, drainage ditches, and staging areas shall be stabilized with the specified turf establishment per the plans and specifications. All disturbed areas shall have a uniform perennial vegetative cover with a minimum density of 70 percent over the entire pervious surface area, or equivalent means necessary to prevent soil failure under erosive conditions.

B. The planned erosion control measures shall be in-place at all inlet and outlet structures until final stabilization has been achieved. All permanent drainage culverts shall be checked and any accumulated sediment shall be removed from the culverts or receiving waters.

C. Contractor shall remove all temporary synthetic and structural erosion prevention and sediment control BMPs. All silt fences and other sediment controls shall be removed from the project site. Any accumulated sediment along silt fence shall be removed and placed in protected areas that shall not permit the sediment to impact other areas in the project or discharge to surface waters. After all areas have been cleared ground cover shall be established to preconstruction conditions.

13.0 Records Retention

13.01 Records:

A. A copy of the SWPPP shall be kept with the Contractor at the site during construction either in a field office or in an on site vehicle. Additional copies shall be kept with the Owner and the Project Observation Engineer. Inspection and maintenance records shall be kept with the SWPPPs along with any changes to the SWPPP. The SWPPP and the records shall be kept throughout the duration of the project.

B. The SWPPP, along with any drainage calculations for either temporary or permanent storm water management system, erosion control plans, or any additional records must be kept on file by the owner for three years after the date of the submittal of the Notice of Termination.

14.0 Notice of Termination

14.01 Notice of Termination:

A. A **Notice of Termination** shall be submitted to the MPCA once the project has been completed and within 30 days after final stabilization of all disturbed areas has been achieved.

B. Both the Owner and the Contractor are required to sign the **Notice of Termination**.

C. A copy of the **Notice of Termination** form is attached (Appendix E).

15.0 Form of Agreement

I certify that I have read, understood and accepted all the terms and conditions of this Storm Water Pollution Prevention Plan (SWPPP) and I understand that as a permittee, I am accountable to comply with the terms and conditions of this SWPPP.

OWNER:

BRAD LINDAMAN — DISTRICT ENGINEER

Printed Name — Title

Authorized Signature — 07/21/06 Date

CONTRACTOR:

Larry Johnson / Holst Excavating — President of Oper.

Printed Name — Title

Larry Johnson — 7/20/06

Authorized Signature — Date

Appendices

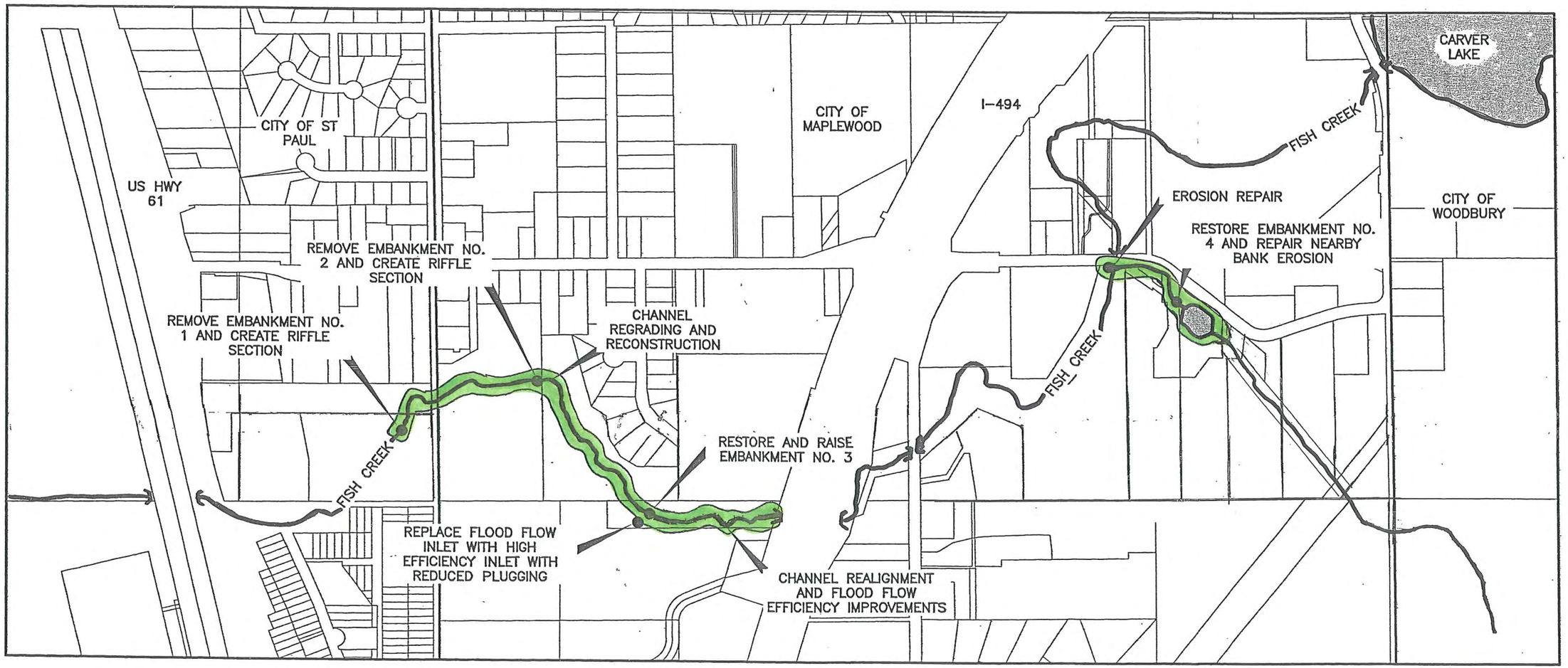
Appendix A

Area Vicinity Map

RAMSEY-WASHINGTON METRO WATERSHED DISTRICT

FISH CREEK REPAIR/IMPROVEMENT

MAPLEWOOD, MINNESOTA

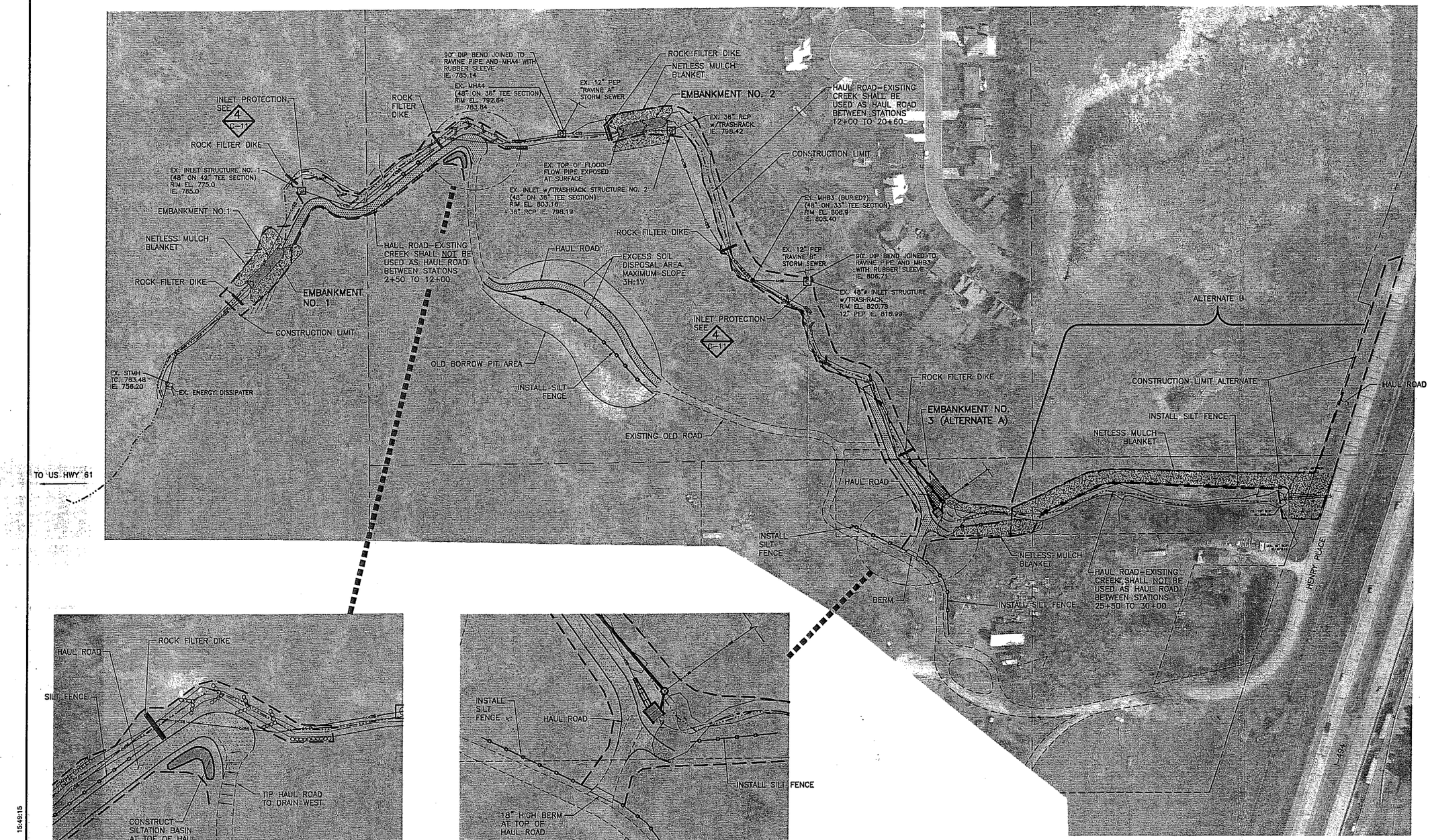


VICINITY MAP

LOCATION OF PROPOSED WORK

Appendix B

Copy Reduced Size Erosion Control Plan Sheets G-02 & C-07



NOTE:

TREE REMOVAL WITHIN CONSTRUCTION LIMITS WILL BE MINIMAL. ONLY TREES IDENTIFIED BY ENGINEER AND CONTRACTOR, AND APPROPRIATELY MARKED REMOVED. CONTRACTOR SHALL PROTECT ALL OTHER TREES.

NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION

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

PRINTED NAME BRADLEY J. LINDAMAN

DATE REG. NO. 22178

CLIENT BID CONSTRUCTION

RELEASED TO/FOR

A B C 0 1 2 3 DATE RELEASED

BARR
Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277

Project Office: BARR ENGINEERING CO. 4700 WEST 77TH STREET MINNEAPOLIS, MN. 55435-4803 Ph: 1-800-632-2277 Fax: (952) 832-2601 www.barr.com

Scale	AS SHOWN
Date	12-JUNE-06
Drawn	NRD
Checked	JNB
Designed	
Approved	BJL

RAMSEY-WASHINGTON METRO WATERSHED DISTRICT

LITTLE CANADA, MINNESOTA

FISH CREEK REPAIR/IMPROVEMENT
MAPLEWOOD, MINNESOTA

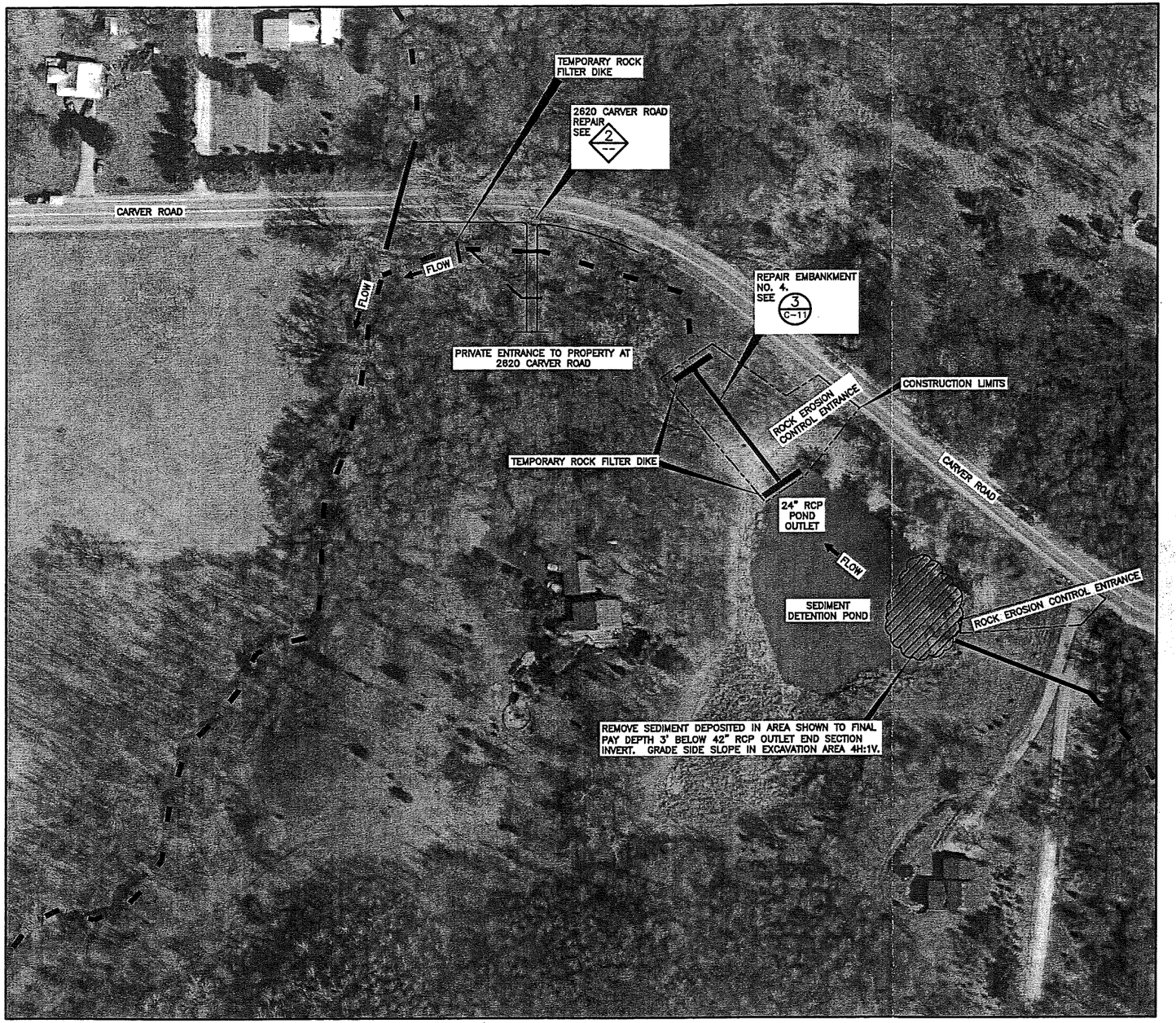
CONSTRUCTION LIMITS, ACCESS, HAUL ROADS AND EROSION CONTROL PLAN

BARR PROJECT No. 23/62-282

CLIENT PROJECT No.

DWG. No. G-02

REV. No.



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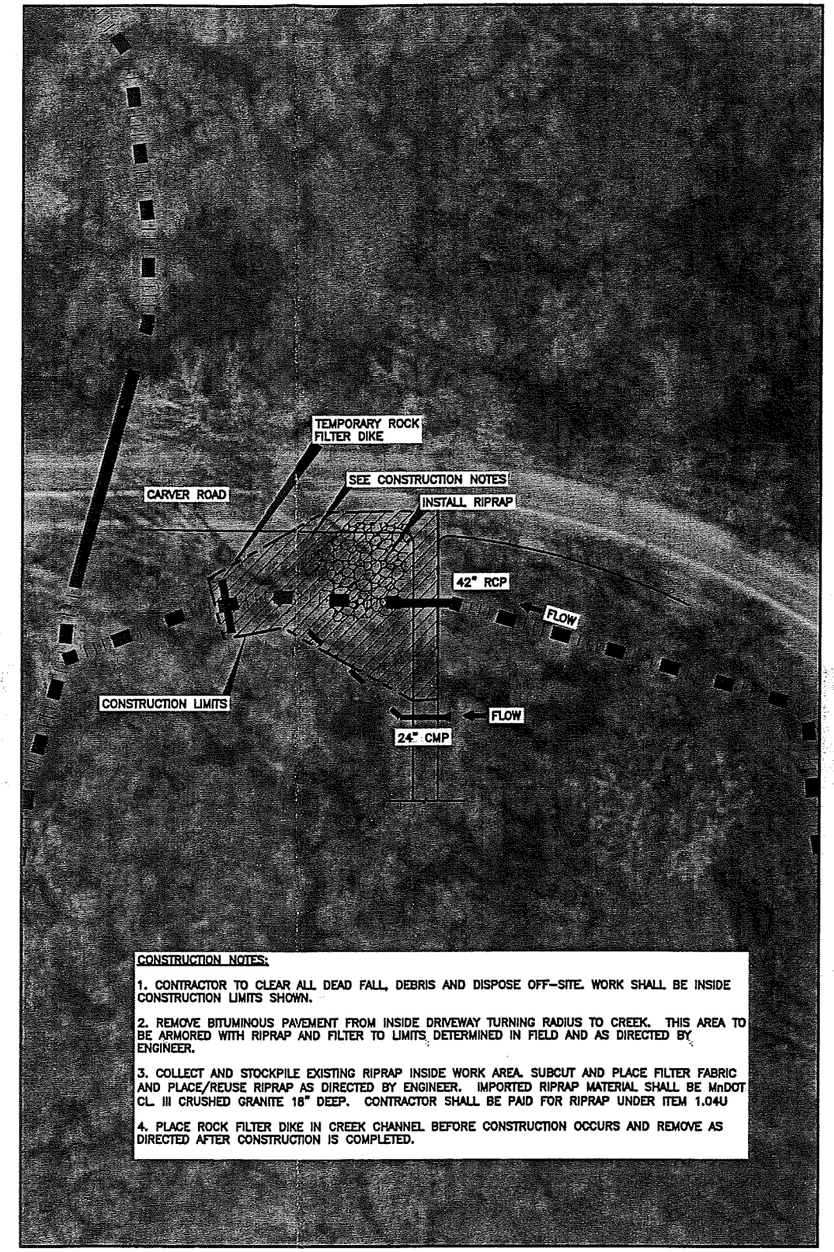
SCALE IN FEET



CONSTRUCTION NOTES:

1. CONTRACTOR TO CLEAR ALL DEAD FALL, DEBRIS AND DISPOSE OFF-SITE. WORK SHALL BE INSIDE CONSTRUCTION LIMITS SHOWN.

2. REMOVE BITUMINOUS PAVEMENT FROM INSIDE DRIVEWAY TURNING RADIUS TO CREEK. THIS AREA TO BE ARMORED WITH RIPRAP AND FILTER TO LIMITS DETERMINED IN FIELD AND AS DIRECTED BY ENGINEER.

3. COLLECT AND STOCKPILE EXISTING RIPRAP INSIDE WORK AREA. SUBCUT AND PLACE FILTER FABRIC AND PLACE/REUSE RIPRAP AS DIRECTED BY ENGINEER. IMPORTED RIPRAP MATERIAL SHALL BE MnDOT CL. III CRUSHED GRANITE 18" DEEP. CONTRACTOR SHALL BE PAID FOR RIPRAP UNDER ITEM 1.04U

4. PLACE ROCK FILTER DIKE IN CREEK CHANNEL BEFORE CONSTRUCTION OCCURS AND REMOVE AS DIRECTED AFTER CONSTRUCTION IS COMPLETED.

2 -- DETAIL: 2620 CARVER ROAD
0 30 60
SCALE IN FEET

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

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
PRINTED NAME BRADLEY J. LINDAMAN
DATE ____ REG. NO. 22178

CLIENT
BID
CONSTRUCTION
RELEASED TO/FOR
A B C 0 1 2 3
DATE RELEASED

BARR
Corporate Headquarters: Minneapolis, Minnesota
Ph: 1-800-632-2277
Project Office:
BARR ENGINEERING CO.
4700 WEST 77TH STREET
MINNEAPOLIS, MN.
55435-4803
Ph: 1-800-632-2277
Fax: (952) 832-2601
www.barr.com

Scale	AS SHOWN
Date	14-JUNE-06
Drawn	GGN
Checked	ECB
Designed	
Approved	BJL

RAMSEY-WASHINGTON METRO WATERSHED DISTRICT
LITTLE CANADA, MINNESOTA

FISH CREEK REPAIR/IMPROVEMENT
MAPLEWOOD, MINNESOTA

EROSION REPAIR AND SEDIMENT REMOVAL PLAN

BARR PROJECT No. 23/62-282
CLIENT PROJECT No.
DWG. No. C-07
REV. No.

Appendix C

Section 02370 General Erosion Control Specifications

SECTION 02370

EROSION AND SEDIMENTATION CONTROL

PART 1: GENERAL

1.01 DESCRIPTION

A. All Work included in this Section shall be performed in accordance with the following paragraphs, the General Requirements set forth in Division 1 of these Specifications, and the provisions of the other Contract Documents.

B. Work covered under this Section includes providing all materials, equipment, and labor to protect slopes including, but not limited to:

1. Provide temporary erosion control to meet the requirements of Minnesota Pollution Control Agency, General Permit No. MN R100001.

2. Provide temporary erosion control to meet the requirements of the Local Governing Agents and the Ramsey-Washington Metro Watershed District.

3. Prevent transport of soil materials from the sites of the Work in compliance with this Section of the Specifications.

4. Construction of rock erosion control construction entrances.

5. Treat any sediment laden water with a sediment containment or filter system before discharging to a downstream system.

6. Installation of silt fence, siltation sock, check dams, siltation basins, inlet protection, temporary and permanent erosion control mat, cable concrete, temporary and permanent ground cover as specified on the plans and in the SWPPP.

7. Maintain all sediment and erosion control devices throughout the length of the project.

1.02 REFERENCES

A. Minnesota Department of Transportation Standard Specifications for Construction, 2000 Edition, hereafter referred to as Mn/DOT Standard Specifications.

B. American Society for Testing and Materials, Current Edition, hereafter referred to as ASTM.

C. Minnesota Pollution Control Agency, General Permit No. MN R100001.

D. Minnesota Pollution Control Agency, Storm Water Manual.

E. Ramsey-Washington Metro Watershed District Permit.

F. Best Management Practices (BMP's) for erosion control.

1.03 SEQUENCING AND SCHEDULING

A. Construct erosion control measures specified in this Section or as directed by the Engineer prior to commencing construction excavation activities.

B. This project shall be executed in a manner to minimize erosion by using appropriate construction practices and built in phases to minimize the amount of disturbed soils exposed at any one time.

C. Maintain and replace the erosion controls for the duration of the construction as necessary in accordance with this Section of the Specifications as directed by the Engineer.

D. Removal of temporary erosion controls after the completion of the project and the permanent ground cover has been established.

1.04 SUBMITTALS

A. A NPDES Permit is required by Laws and Regulations, Contractor shall complete and sign Section V. of the Application for General Stormwater Permit for Construction Activity (MNR100001). The permit application must be delivered to the Owner at least seven (7) days prior to commencement of work on the site. The commencement of any construction activity is prohibited until permit coverage is effective. Permit coverage will become effective seven (7) days after the postmark date indicating when the Owner has mailed the completed application form to the MPCA.

B. All inspection records completed by the Contractor as a part of the NPDES Permit shall be submitted to the Owner at the end of the project.

1.05 QUALITY ASSURANCE

A. The Owner may stop work on the project if the Contractor is operating in violation of the NPDES Permit. Contractor shall, within 24 hours, commence to diligently restore the project to conform to the conditions of the NPDES Permit. If, in Owner's option, Contractor has not, within 24 hours after to work stoppage, commenced to diligently restore the project to conform to the conditions of the NPDES Permit, then Owner may, without further notice to Contractor, take actions to immediately restore the project to the conditions of the NPDES Permit. The cost of actions by the Owner required to restore the project to the conditions of the NPDES Permit will be paid by the Contractor.

1.06 PROJECT CONDITIONS

A. The project Contract Documents and inspection records include the NPDES permit and shall be available at the construction site in either the field office, or the inspector's vehicle, or the Contractor's vehicle, for inspection by federal, state, and local officials as required by the permit for the duration of the Project.

B. The Contractor shall maintain a record of all inspections of the site as required by the permit, and shall include:

1. Date and time of inspections

2. Findings of inspections

3. Corrective actions taken (including date and time)

4. Documentation of changes to the Temporary Erosion and Sediment Control Plan made during construction.

5. Date of all rainfall events (including total precipitation)

C. The Contractor shall post a "Notice of Stormwater Permit Coverage" at the construction site entrance or at the construction field office and shall be visible from the nearest public road.

D. The Contractor shall be responsible for submitting a "Notice of Termination" to the Owner after final stabilization of the site, and completion of the project.

1.07 BASIS FOR COMPENSATION

A. Compensation for all Work covered under this Section of these Specifications shall be as set forth in Section 01270, Unit Price Measurement and Payment.

PART 2: PRODUCTS

2.01 MATERIALS

A. Silt Fence: Silt fence shall conform to Mn/DOT Standard Specification 3886 for heavy duty silt fence, except that support posts shall be no further than (4 feet) apart.

B. Rock Erosion Control Construction Entrance: Shall be coarse 2-1/2" washed rock placed to the limits and thicknesses shown on the Drawings.

C. Temporary seeding or mulching of disturbed areas as Specified in Mn/DOT Standard Specification 2573.3B1 & B2b2.

D. Street Sweeping: Street sweeping shall be performed with an approved mechanical vacuum assisted sweeper.

E. Inlet protection: Shall be approved devices and methods to prevent the transportation of sediments into the storm sewer system. Devices used shall conform with those shown on the Drawings or be approved by the Engineer or Owner.

F. Turf Establishment/Mulch: Shall conform to Mn/DOT Standard Specification 2575 for ground cover and turf establishment.

G. Netless Erosion Control Blanket: Shall conform to the manufactures specifications for Futerra F4 Netless Erosion Control Blanket or equal.

H. Permanent turf reinforcement mat: Shall conform to Mn/DOT Standard Specification 3888 for erosion stabilization mats.

I. Cable Concrete: Shall conform to Mn/DOT Standard Specification 3604.1A, 2005 Edition for precast articulated concrete block mat.

PART 3: EXECUTION

3.01 TEMPORARY EROSION AND SEDIMENT CONTROL

A. Temporary erosion and sediment control activities will be required through the duration of the project. Contractor shall use BMP's for erosion control.

Unless precluded by snow cover, all exposed soil areas with a continuous positive slope within 100 lineal feet from a surface water body, or from a curb, gutter, storm sewer inlet, temporary or permanent drainage ditch or other storm water conveyance system, which is connected to a surface water, shall have temporary protection or permanent cover for the exposed soil areas within the following time frames:

Type of Slope	Temporary protection or permanent cover where the area has not been, or will not be, worked by the Contractor for:
Steeper than 3:1	7 days
10:1 to 3:1	14 days
Flatter than 10:1	21 days

* For the purposes of this provision, exposed soil areas do not include stockpiles of sand, gravel, aggregate, concrete or bituminous.

The bottom of any temporary or permanent drainage ditch constructed to drain water from a construction site must be stabilized within 100 lineal feet from a surface water state. Stabilization must be initiated within 24 hours of connecting the drainage ditch to a water of the state, existing gutter, storm sewer inlet, drainage ditch, or other storm water conveyance system which discharges to surface water and be completed within five calendar days.

Prior to connecting any pipe to a surface water or drainage ditch, the pipe's outlet must be provided with temporary or permanent energy dissipation to prevent erosion.

B. Perform temporary erosion control to conform to the requirements of Owner, and any NPDES Construction Stormwater Runoff permit that may apply to the Site, including:

1. Furnish, install, and maintain temporary erosion controls necessary to prevent the erosion and transport of soils, silt, mud, and debris off site or to other areas of the site where damage could result.

2. Temporary erosion controls include silt fences, hay bales, siltation sock, flotation silt curtain, inlet protection, and other means necessary to control erosion. Silt fence shall be installed according to Mn/DOT Specification 3886 and according to manufacturer's recommendations.

3. Construct temporary erosion controls where there is evidence that sediment is being transported from the work area, where drainageways flow from the work area, and elsewhere as required to control erosion.

4. Schedule operations to minimize the amount of area disturbed and thus susceptible to erosion at any given time.

5. Remove and dispose of all temporary erosion controls when turf has been fully established or when earthwork such as diversion dikes have eliminated the possibility of sediment transport from the work area.

C. Maintain the appearance and functionality of the temporary erosion control measures throughout the duration of the Work.

D. Silt fence shall be installed at locations shown on the Drawings, or as modified in the field by the Engineer.

E. Street sweeping shall be performed on a daily basis when construction activities are being performed on the Site and twice a day during hauling operations or periods of heavy construction

traffic that may track sediment off of Site. Street sweeping shall also be performed when, in the opinion of the Engineer, street sweeping is required as a result, directly or indirectly, of Contractor's operations.

F. Removal of silt fencing shall be performed:

1. As sod is placed to the construction limits. No silt fencing or portion of the silt fencing shall be removed more than 4 hours prior to time and on the same day as sod will be placed at that location within the construction limits.

2. Generally not less than 30 growing days or more than 60 growing days after seed and mulch is installed, however, never before it is determined that germination of seed has resulted in acceptable coverage rate and does not need to be reseeded.

3.02 ROCK EROSION CONTROL CONSTRUCTION ENTRANCE

A. Rock Erosion Control Construction Entrances to be constructed at locations shown on the Drawings and may be modified in the field by Engineer.

B. Rock Erosion Control Construction Entrances shall be constructed to the dimensions and material thicknesses shown on the Drawings.

C. Rock Erosion Control Construction Entrances shall be removed at the completion of the project and the area restored to preconstruction conditions. The restoration shall include grading and establishing ground cover in these areas.

END OF SECTION 02370

Appendix D

MPCA Stormwater Permit Inspection Log

Inspectors Log for MPCA Storm Water Permit

Initials of Inspector	Type of Inspection		Date of Inspection				Time of Inspection			Areas to be Inspected*				Comments:
	Routine weekly	24 hours after a rain event	Month	Day	Year	Insignificant rainfall, no inspection needed.		AM	PM	All erosion and sediment control BMPP	Temporary Sedimentation basins	Drainage ditches and other waters of the state	Construction site exits	

Inspectors should enter their initials, type, date, and time of the inspection in the blanks provided. After inspecting each shaded area*, inspectors should check each box, and make any necessary comments regarding their findings in the blanks provided below and on the back of this sheet.

* Refer to the MPCA's *Compliance Guide for Erosion and Sediment Control* during inspection of these areas at the construction site.

Initials of Inspector	Type of Inspection		Date of Inspection			Time of Inspection			Additional comments:
	Routine weekly	24 hours after a rain event	Month	Day	Year		AM	PM	

Inspectors Log for MPCA Storm Water Permit

Initials of Inspector	Type of Inspection		Date of Inspection			Insignificant rainfall, no inspection needed.	Time of Inspection			Areas to be Inspected*				Comments:
	Routine weekly	24 hours after a rain event	Month	Day	Year			AM	PM	All erosion and sediment control BMPP	Temporary Sedimentation basins	Drainage ditches and other waters of the state	Construction site exits	

Inspectors should enter their initials, type, date, and time of the inspection in the blanks provided. After inspecting each shaded area*, inspectors should check each box, and make any necessary comments regarding their findings in the blanks provided below and on the back of this sheet.

* Refer to the MPCA's *Compliance Guide for Erosion and Sediment Control* during inspection of these areas at the construction site.

Initials of Inspector	Type of Inspection		Date of Inspection			Time of Inspection			Additional comments:
	Routine weekly	24 hours after a rain event	Month	Day	Year		AM	PM	

Appendix E

MPCA form Notice of Termination

Notice of Termination

Termination of Coverage Under The National Pollutant Discharge Elimination System (NPDES) General Permit (MNR110000) for Storm Water Discharges Associated With A Construction Activity

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

I. Construction Site Information

1. Name of project: _____
   For the following questions, please refer to the NPDES General Storm Water Permit (MNR110000).
2. Has the entire construction site undergone final stabilization? **Yes** ☐ **No** ☐
3. Are all maintenance activities required in Part I.E. of the Permit complete? **Yes** ☐ **No** ☐
4. Have all **Permanent Erosion and Sediment Control Best Management Practices** (to be used after construction is complete) been installed in accordance with Appendix B of the Permit? **Yes** ☐ **No** ☐

A "No" to any of the above will result in this request for termination being denied.

II. Owner Information

Name _____ Telephone _____

Address _____

City _____ State _____ Zip Code _____

Contact Person _____ Telephone _____

Project Identification Number: _____

III. Owner Certification

"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 (MNR110000)."

"I understand that by submitting this Notice of Termination I am no longer authorized to discharge storm water associated with the construction activity identified on this form under the terms and condition of the NPDES General Storm Water Permit (MNR110000), and that discharging storm water associated with a construction activity to waters of the state is unlawful under the Clean Water Act unless the discharge is authorized by an NPDES permit. I understand the submittal of this Notice of Termination does not release my company or agency from liability for any violations of the NPDES General Storm Water Permit (MNR110000) or the Clean Water Act."

"I certify under penalty of law that the answers to the questions in Section I, 'Construction Site Information', above, are true and correct, and this information is based on my own assessment, or on my inquiry of the person or persons responsible for gathering the information."

Printed Name _____ Title (Manager, CEO, etc.) _____

Authorized Signature _____ Date _____

Form PQ00651-01(2/99)

IV. General Contractor Certification

"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 (MNR110000)."

"I understand that by signing this Notice of Termination I am no longer authorized to discharge storm water associated with the construction activity identified on this form under the terms and condition of the NPDES General Storm Water Permit (MNR110000), and that discharging storm water associated with a construction activity to waters of the state is unlawful under the Clean Water Act unless the discharge is authorized by an NPDES permit. I understand the submittal of this Notice of Termination does not release my company from liability for any violations of the NPDES General Storm Water Permit (MNR110000) or the Clean Water Act."

"I certify under penalty of law that the answers to the questions in Section I, 'Construction Site Information', above, are true and correct, and this information is based on my own assessment, or on my inquiry of the person or persons responsible for gathering the information."

Company or Firm | Telephone

Printed Name | Title (Manager, CEO, etc.)

Authorized Signature | Date

Address

City | State | Zip Code

Contact Person | Telephone

Submit to: **MPCA, Metro District, Community and Area-wide Programs, 520 Lafayette Road North, St. Paul, MN 55155-4194**

Instructions for completing a Notice of Termination

This Notice of Termination means the permittees identified on this form are terminating coverage under the NPDES General Storm Water Permit (MNR110000) for construction activities.

Section I - Construction Site Information

1. List the construction project's name. If the project does not have a name, list the type of project and a brief description (e.g. "I-35E/I-494 Interchange" or "Highway 169 bridge replacement (#79605) at the Rum River").

   For **questions 2, 3 and 4,** please refer to the NPDES General Storm Water Permit (MNR11000)

2. Indicate if the entire construction site has undergone **final stabilization** (see "Definitions", i.e. page 16 of the permit) by answering "Yes" or "No".

3. Indicate if all maintenance activities required in Part I.E. are complete (see pages 7-8 of the permit) by answering "Yes" or "No".

4. Indicate if all **Permanent Erosion and Sediment Control** BMPs to be used after the project is complete have been installed in accordance with Appendix B (see pages 11-12 of the permit) by answering "Yes" or "No".

   A "No" answer to **questions 2, 3 or 4** will result in this request for termination being denied by the MPCA.

Section II - Owner Information

Provide the name, telephone number, address, city, state, and zip code of the owner of the company, organization, or other entity for which the construction project in Section I is being done. The owner is the party responsible for the **design** of the temporary and permanent Erosion and Sediment Control Plans and overall **management** of the project's operations (for example, Stearns County Highway Department, City of Duluth, Summit Developers Inc., etc). The contact person should be the owner's representative in charge of the project (for example, Sandy Smith, County Engineer; Joe Smith, Project Manager; etc).

The "Project Identification Number" is the nine-digit number taken from the project's "Notice of Storm Water Permit Coverage" card.

Section III - Owner Certification

The Notice of Termination must be signed by either a principal executive officer, vice president, representative agent responsible for overall operations, general partner, or a proprietor. If the activity is being conducted by a unit of government (state, county, municipality, or township) the Notice of Termination must be signed by a principal executive officer, ranking elected official, administrator, manager, coordinator, or engineer. (For additional information, see Minnesota Rules 7001.0060.) Print the name of the individual signing the form, his or her title, and the date of signature.

Continued on back

Instructions for completing a Notice of Termination *(Continued)*

Section IV - General Contractor Certification

After the Notice of Termination has been completed by the owner, the general contractor must certify it with a signature from an individual authorized to sign the form. The Notice of Termination must be signed by either a principal executive officer, vice president, representative agent responsible for overall operations, general partner, or a proprietor. If the general contractor is a unit of government (state, county, municipality, or township) the Notice of Termination must be signed by a principal executive officer, ranking elected official, administrator, manager, coordinator, or engineer. (For additional information reference Minnesota Rules 7001.0060.) After signing, print the name of the person signing the Notice of Termination, title, and date of signature. The contact person should be the general contractor's representative in charge of the project (for example, Jim Williams, Head Foreman; Ann Johnson, Project Manager, etc). In the cases where one company or agency signed both certifications on the original permit application form acting as the owner and the general contractor, the company or agency should do the same on this form.

Send the Notice of Termination form to:

Minnesota Pollution Control Agency
Metro District, Community and Area-wide Programs
520 Lafayette Road North
St. Paul, Minnesota 55155-4194