Minnehaha Creek Watershed District *REQUEST FOR BOARD ACTION*

MEETING DATE: October 23, 2014

TITLE: Approval of Project Design, Authorization to Solicit Bids, and Approval of Permit 14-430 for Long Lake Creek Corridor Improvements – Phase II Restoration Project

RESOLUTION NUMBER: 14-085

PREPARED BY: Michael Hayman

E-MAIL: mhayman@minnehahacreek.org **TELEPHONE:** 952-471-8226

REVIEWED BY: ☐Administrator ☒ Counsel ☐ Program Mgr. (Name):_____
☐ Board Committee ☐ Engineer ☐ Other

WORKSHOP ACTION:

☐ Advance to Board mtg. Consent Agenda. ☐ Advance to Board meeting for discussion prior to action.

☐ Refer to a future workshop (date):_____ ☐ Refer to taskforce or committee (date):_____

☐ Return to staff for additional work. ☐ No further action requested.

☒ Other (specify): Approve at October 23, 2014 Board Meeting

PURPOSE or ACTION REQUESTED:
Approval of Project Design, Authorization to Solicit Bids, and Approval of Permit 14-430 for Long Lake Creek Corridor Improvements – Phase II Restoration Project

PROJECT/PROGRAM LOCATION:
230 and 240 Orono Orchard Road, Long Lake

PROJECT TIMELINE:
- May 2014 - Award of Final Design Services
- August 2014 – Distribute EAW
- October 2014 – Approval of Record of Decision for EIS
- October 2014 – Review Design and Advertise for Bid
- November 2014 – Site Dewatering and Pre-bid Meeting
- December 2014 – Award Contract and Contractor Notice-to-Proceed
- May 2015 – Substantial Completion

PROJECT/PROGRAM COST:
Fund name and number: Long Lake Creek Restoration, 3142
Current fund balance: $637,000 (includes both Phase I and II)
Requested amount of funding: N/A
Is a budget amendment requested? No
Is additional staff requested? No

PAST BOARD ACTIONS:

- August 8, 2013 – Board review of Feasibility Study for Long Lake Wastewater Treatment Pond Restoration Project (no Board action)
- October 10, 2013 – Public Hearing for Long Lake Wastewater Treatment Pond Restoration Project (no Board action)
- December 19, 2013 – Ordering of Long Lake Wastewater Treatment Pond Restoration Project, Authorization to Execute Agreements, and Authorization to Solicit Design Services (13-110)
- May 22, 2014 – Authorization to execute a contract for design and construction oversight services for the Long Lake Wastewater Treatment Pond Restoration Project (14-046)
- August 14, 2014 – Authorization to distribute the Long Lake Creek Corridor Improvement-Phase II Environmental Assessment Worksheet (EAW) for 30-day comment period (14-063)
- October 9, 2014 – Approve Record of Decision and the Negative Declaration of Need for an Environmental Impact Statement (14-082)
- October 9, 2014 – Board review of 90% Final Design Plans (no action)

SUMMARY:

In December 2013, the Board ordered the Long Lake Creek Corridor Improvement Project-Phase II (Wastewater Treatment Pond Restoration Project). This restoration involves dredging and disposing of excess sediments and reconnecting the basin to Long Lake Creek, resulting in a mixed-type wetland with the creek meandering through it. In May 2014 the Board authorized a contract for design and construction oversight services with RESPEC, contingent upon execution of a cooperative agreement with Metropolitan Council Environmental Services (MCES). Shortly thereafter, in June 2014, the cooperative agreement was executed with MCES which designates the District authority to design and construct the project with reimbursement of costs associated with sediment dredging and disposal being provided by MCES.

On October 9, 2014 the Board made a negative determination on the need for and Environmental Impact Statement (EIS) and reviewed the 90% design plans for the restoration. As discussed at the Board workshop on October 9, the District will benefit from dewatering the site in advance of the public bid process. Late October-early November dewatering will allow the District to 1) address wildlife overwintering concerns previously discussed with the MnDNR, 2) investigate the integrity of the clay liner and potential groundwater seepage, and 3) perform soil borings to determine the type of peat soils present below the clay liner. Staff is actively soliciting quotes to determine the lowest available cost for services. Details will be available at the upcoming Board meeting.

The City of Long Lake, as well as local residents have also reviewed the design plan and provided input. Staff will work with RESPEC to finalize the design (100%) and specifications for the project in preparation for the bidding process. The public bidding process is tentatively scheduled for the second week in November. Bid opening would occur in early December, with the award for construction contract returning to the Board on December 11, 2014.

The District regulatory department has reviewed all project information. The permit report for District permit 14-430 is attached. Staff will be available at the Board meeting to answer any questions associated with the permit review.

Staff will provide a brief presentation regarding this project and is recommending the following action at the October 23, 2014 Board meeting:

- Approve project design for the Long Lake Creek Corridor Improvement – Phase II Restoration
- Authorize the District Administrator to solicit bids for the restoration project
- Approve MCWD Permit 14-430 for erosion control, floodplain alteration, wetland protection, dredging, and shoreline and streambank stabilization

- Authorize the District Administrator to contract for dewatering services in an amount not-to-exceed $15,000

ATTACHMENTS:

1. 90% Final Design Plans
2. Permit Report

RESOLUTION

RESOLUTION NUMBER: 14-085

TITLE: Approval of Project Design, Authorization to Solicit Bids, and Approval of Permit 14-430 for Long Lake Creek Corridor Improvements – Phase II Restoration Project

WHEREAS, the Minnehaha Creek Watershed District (MCWD) has adopted a watershed management plan (WMP) in accordance with Minnesota Statutes §103B.231;

WHEREAS, the WMP identifies both a Stream Restoration project (5.8.5) and a Wetland Restoration project (5.8.2) in the Long Lake Creek corridor as capital improvement projects for the purpose of protecting and improving water quality in Long Lake Creek and Tanager Lake and providing other water resource benefits within the Long Lake Creek subwatershed;

WHEREAS, on December 19, 2013, the MCWD Board of Managers ordered the Long Lake Wastewater Treatment Pond Restoration Project as a second phase to the Long Lake Creek Corridor Improvement Project;

WHEREAS, the Long Lake Creek Corridor Improvement-Phase II project ("Project") involves restoration of the former WWTP including dredge and disposal of excess sediments, reconnection of the creek channel to a more functional, historic alignment, and restoration of wetland and ecological functions throughout the site;

WHEREAS, the City of Long Lake approved a cooperative agreement and associated easement at its December 3, 2013 Council meeting which indemnify the District against claims emanating from existing property conditions and secure the necessary rights for access, construction, and maintenance of the Project;

WHEREAS, the MCWD and Metropolitan Council Environmental Services (MCES) approved a cooperative agreement in June 2014 which designates the District authority to design and construct the project with reimbursement of $200,000 associated with sediment dredging and disposal being provided by MCES;

WHEREAS, the City of Long Lake Council reviewed preliminary design plans for the Project in August 2014;

WHEREAS, a public information meeting was held at the Lake Community Bank on September 30, 2014 to present project plans and schedule;

WHEREAS, on October 9, 2014 the Board of Managers adopted the Record of Decision on the Long Lake Creek Corridor Improvement Project – Phase II, and found and determined that based upon the Record of Decision, no Environmental Impact Statement is required for the Project; and

WHEREAS, the Board of Managers reviewed draft project plans and schedule on October 9, 2014 and discussed the advantages to overwintering wildlife and the District design process by completing site dewatering in advance of the public bidding process;

NOW THEREFORE BE IT RESOLVED, the Minnehaha Creek Watershed District Board of Managers hereby approves the final design for the Long Lake Creek Corridor Improvements – Phase II project and authorize the District Administrator to solicit public bids for construction;

BE IT FURTHER RESOLVED, the Board of Managers hereby approves MCWD Permit 14-430 for erosion control, floodplain alteration, wetland protection, dredging, and shoreline and streambank stabilization for the Long Lake Creek Corridor Improvements – Phase II project;

BE IT FINALLY RESOLVED, the Board of Managers authorizes the District Administrator to execute a contract for dewatering services in an amount not-to-exceed $15,000.

Resolution Number 14-085 was moved by Manager _____, seconded by Manager _____.
Motion to adopt the resolution ___ ayes, ___ nays, ___abstentions. Date: _____.

_____ Date:_____
Secretary

MINNEHAHA CREEK WATERSHED DISTRICT

LONG LAKE CREEK CORRIDOR IMPROVEMENT PROJECT

PHASE II

90% FINAL DESIGN PLANS
OCTOBER 2014

PRELIMINARY
NOT FOR CONSTRUCTION

LOCATION MAP

VICINITY MAP
SCALE: 1" = 1500'

INDEX OF SHEETS

RESPEC
1935 W. COUNTY ROAD B2
SUITE 320
ROSEVILLE, MN 55113
PHONE (651) 788-7813

REVISION

DESIGNED	LDR
DRAWN	AGT
CHECKED	LDR
DATE---	10-3-14

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.

LEE D. ROSEN, P.E. DATE
LICENSE# 51071

811 Know what's below. Call before you dig.

15320 MINNETONKA BLVD.
MINNETONKA, MN 55345
(952) 471-0590
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MINNEHAHA CREEK
WATERSHED DISTRICT

LONG LAKE CREEK CORRIDOR IMPROVEMENT PROJECT - PHASE II

COVER SHEET

SHEET NUMBER:
1

NAME: Z:\MINNESOTA\MCWD\LONG LAKE CREEK\08_CAD\SHEETS\02481-S-COVER.DWG
PLOT DATE: October 2, 2014 2:25 PM , BY: AMY C. TEIGEN

GENERAL NOTES:

1. ALL MATERIALS, WORKMANSHIP, AND CONSTRUCTION OF PUBLIC IMPROVEMENTS SHALL MEET OR EXCEED THE STANDARDS AND SPECIFICATIONS SET FORTH AND APPLICABLE STATE AND FEDERAL REGULATIONS. WHERE THERE IS CONFLICT BETWEEN THESE PLANS AND THE SPECIFICATIONS, OR ANY APPLICABLE STANDARDS, THE HIGHER QUALITY STANDARD SHALL APPLY. IF A STANDARD OR SPECIFICATION DOES NOT EXIST, REFER TO THE MINNESOTA DEPARTMENT OF TRANSPORTATION (MNDOT). ALL REFERENCES TO ANY PUBLISHED STANDARDS SHALL REFER TO THE LATEST REVISION OF SAID STANDARD, UNLESS SPECIFICALLY STATED OTHERWISE. ALL WORK SHALL BE INSPECTED AND APPROVED BY THE ENGINEER OR THE MINNEHAHA CREEK WATERSHED DISTRICT (MCWD PROJECT MANAGER).

2. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES, AS SHOWN ON THESE PLANS, IS BASED ON THE CITY OF LONG LAKE CREEK'S GIS DATABASE AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL GOPHER STATE ONE CALL (651-565-0002 OR TOLL FREE: 1-800-252-1116) AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY PERTINENT LOCATIONS AND ELEVATIONS, ESPECIALLY AT CONNECTION POINTS AND AT POTENTIAL UTILITY CONFLICTS.

3. THE CONTRACTOR SHALL COORDINATE AND COOPERATE WITH THE CITY OF LONG LAKE AND MCWD, AND ALL UTILITY COMPANIES INVOLVED, WITH REGARD TO RELOCATIONS OR ADJUSTMENTS OF EXISTING UTILITIES DURING CONSTRUCTION, AND TO ASSURE THAT THE WORK IS ACCOMPLISHED IN A TIMELY FASHION AND WITH A MINIMUM DISRUPTION OF SERVICE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL PARTIES AFFECTED BY ANY DISRUPTION OF ANY UTILITY SERVICE. ANY UTILITIES DAMAGED BY CONTRACTOR SHALL BE REPAIRED BY CONTRACTOR TO THE SATISFACTION OF THE UTILITY OWNER.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FOR ALL APPLICABLE AGENCIES, NOT ALREADY OBTAINED BY MCWD. THE FOLLOWING PERMITS HAVE OR ARE IN THE PROCESS OF BEING OBTAINED.

PERMITS	
ARMY CORPS OF ENGINEERS	WETLAND AND STREAM RESTORATION
MINNEHAHA CREEK WATERSHED DISTRICT	WETLAND CONSERVATION ACT
CITY OF LONG LAKE	GRADING PERMIT
MINNEHAHA CREEK WATERSHED DISTRICT	EROSION & SEDIMENT CONTROL
MINNEHAHA CREEK WATERSHED DISTRICT	FLOODPLAIN ALTERATION
MINNEHAHA CREEK WATERSHED DISTRICT	WETLAND PROTECTION
MINNEHAHA CREEK WATERSHED DISTRICT	SHORELINE & STREAMBANK STABILIZATION
MINNEHAHA CREEK WATERSHED DISTRICT	WATERBODY CROSSINGS & STRUCTURES
MINNEHAHA CREEK WATERSHED DISTRICT	STORMWATER MANAGEMENT
MN POLLUTION CONTROL AGENCY	NPDES CONSTRUCTION PERMIT
MN DEPARTMENT OF NATURAL RESOURCES	GENERAL PERMIT
MN DEPARTMENT OF TRANSPORTATION	MISC WORK ON A TRUNK HIGHWAY ROW

5. THE CONTRACTOR SHALL NOTIFY MCWD AT LEAST 48 HOURS PRIOR TO THE START OF ANY EARTH DISTURBING ACTIVITY, OR CONSTRUCTION ON ANY AND ALL PUBLIC IMPROVEMENTS.

6. THE CONTRACTOR SHALL HAVE ONE (1) SIGNED COPY OF THE APPROVED PLANS, ONE (1) COPY OF THE APPROPRIATE STANDARDS AND SPECIFICATIONS, AND A COPY OF ANY PERMITS AND EXTENSION AGREEMENTS NEEDED FOR THE JOB, ON-SITE AT ALL TIMES.

7. THE CONTRACTOR IS RESPONSIBLE FOR THE SAFETY OF ALL PERSONNEL, ALL SITE VISITORS, AND THE GENERAL PUBLIC WHO MAY BE AFFECTED BY THE CONSTRUCTION. THIS INCLUDES BUT IS NOT LIMITED TO CHANNEL EXCAVATION, SHORING, TRAFFIC CONTROL, AND SECURITY.

8. THE CONTRACTOR SHALL PROVIDE A CONTINUOUS, ACCESSIBLE AND SAFE PEDESTRIAN WALKWAY THAT MEETS ADA AND MN MUTCD STANDARDS IF WORKING IN A SIDEWALK AREA, AND TRAFFIC CONTROL PER MN MUTCD REQUIREMENTS FOR WORK IN THE PUBLIC RIGHT OF WAY.

9. IF, DURING THE CONSTRUCTION PROCESS, CONDITIONS ARE ENCOUNTERED WHICH COULD INDICATE A SITUATION THAT IS NOT IDENTIFIED IN THE PLANS OR SPECIFICATIONS, THE CONTRACTOR SHALL CONTACT THE MCWD PROJECT MANAGER IMMEDIATELY.

10. ALL CONSTRUCTION TRAFFIC (DAILY OR HAUL ROUTE) SHALL UTILIZE THE ROUTE APPROVED BY THE MCWD AND THE CITY OF LONG LAKE.

11. THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN, IN ACCORDANCE WITH THE MN MUTCD, TO THE MCWD PROJECT MANAGER FOR APPROVAL, PRIOR TO ANY CONSTRUCTION ACTIVITIES WITHIN, OR AFFECTING, THE RIGHT-OF-WAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING, INSTALLING, INSPECTING, MAINTAINING AND REMOVING ANY AND ALL TRAFFIC CONTROL DEVICES AS MAY BE REQUIRED BY THE CONSTRUCTION ACTIVITIES.

12. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL LABOR AND MATERIALS NECESSARY FOR THE COMPLETION OF THE INTENDED IMPROVEMENTS, SHOWN ON THESE DRAWINGS, OR DESIGNATED TO BE PROVIDED, INSTALLED, OR CONSTRUCTED, UNLESS SPECIFICALLY NOTED OTHERWISE.

13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECORDING AS-BUILT INFORMATION ON A SET OF RECORD DRAWINGS KEPT ON THE CONSTRUCTION SITE, AND AVAILABLE TO THE MCWD PROJECT MANAGER AT ALL TIMES.

14. DIMENSIONS FOR LAYOUT AND CONSTRUCTION ARE NOT TO BE SCALED FROM ANY DRAWING. IF PERTINENT DIMENSIONS ARE NOT SHOWN, CONTACT THE MCWD PROJECT MANAGER FOR CLARIFICATION, AND ANNOTATE THE DIMENSION ON THE AS-BUILT RECORD DRAWINGS.

15. THE HOURS OF CONSTRUCTION SHALL BE LIMITED TO THOSE DEFINED IN THE CITY OF LONG LAKE'S ORDINANCES. ANY HOURS OUTSIDE OF THESE MUST BE APPROVED BY THE CITY OF LONG LAKE AND THE MCWD PROJECT MANAGER.

16. ALL REMOVED ITEMS SHALL BECOME THE CONTRACTOR'S PROPERTY TO BE DISPOSED OF IN AN APPROVED MANNER IN ACCORDANCE WITH REGULATION BY THE OWNER AT NO ADDITIONAL EXPENSE TO THE OWNERS, UNLESS SPECIFIED WITHIN THE PLANS. NO CONCRETE OR RUBBLE SHALL BE BACKFILLED ONSITE.

17. ALL EXISTING AND PROPOSED CONTOURS ARE LABELED IN THE 1988 DATUM. ALL SLOPES ARE SHOWN AS DIAGRAMMATIC AND SHALL BE ROUNDED AT THE TOP AND BOTTOM, WHICH PROVIDE POSITIVE DRAINAGE.

18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEANUP ON A DAILY BASIS OF ANY TRASH OR MUD ON THE SITE OR ADJACENT STREETS AS A RESULT OF CONSTRUCTION.

19. THE FOLLOWING ITEMS ARE INCIDENTAL TO THE EARTHWORK PAY ITEM AND SHALL NOT BE MEASURED OR PAID FOR SEPARATELY: ALL LABOR, EQUIPMENT TIME, AND MATERIAL REQUIRED TO BRING THE PROJECT TO ITS FINAL PROPOSED GRADE. LOCATING, SECURING AND HAULING OF ALL CLAY MATERIAL IS INCLUDED IN THE EARTHWORK PAY ITEM.

20. SUITABLE GRADING MATERIAL SHALL CONSIST OF ALL SOIL ENCOUNTERED ON THE SITE WITH EXCEPTION OF TOPSOIL, DEBRIS, ORGANIC MATERIAL AND OTHER UNSTABLE MATERIAL.

21. ALL EMBANKMENT AND SUBGRADE MUST BE COMPACTED TO 95% STANDARD PROCTOR (ASTM D698) AT ±2% OF OPTIMUM MOISTURE AT THE WETLAND SWALE BERM, DIVERSION BERM, AND PRE-TREATMENT BASIN BERM. THE OPTIMUM MOISTURE CONTENT WILL BE DETERMINED BY THE CONTRACTOR, SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE EARTHWORK.

22. EXCAVATION REQUIRED FOR COMPACTION OF SUBBASES FOR CUTS AND FILLS SHALL BE CONSIDERED AS INCIDENTAL TO THAT OPERATION AND WILL NOT BE PAID FOR SEPARATELY.

23. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCEPTANCE AND CONTROL OF ALL SURFACE AND SUBSURFACE FLOWS INCLUDING STORM FLOWS IN AND ENTERING THE CHANNEL OFF-SITE DRAINAGE FLOWS, AND GROUNDWATER FLOWS. THE CONTRACTOR SHALL FURTHER BE RESPONSIBLE FOR DAMAGE TO STRUCTURES, LOSS OF TOPSOIL AND LOSS OF SEED CAUSED BY FLOWS UNTIL THE PROJECT IS ACCEPTED BY THE OWNER. IN ADDITION, THE CONTRACTOR IS RESPONSIBLE FOR DEWATERING AS NECESSARY TO PERFORM WORK IN DRY CONDITIONS. DEWATERING METHODS SHALL BE SHOWN ON A WATER CONTROL PLAN TO BE SUBMITTED BY THE CONTRACTOR TO THE MCWD PROJECT MANAGER FOR REVIEW PRIOR TO CONSTRUCTION.

24. THE FOLLOWING ITEMS ARE INCIDENTAL TO THE WATER CONTROL & DEWATERING PAY ITEM AND SHALL NOT BE MEASURED OR PAID FOR SEPARATELY: ALL LABOR, MATERIALS, AND EQUIPMENT TIME NECESSARY TO INSTALL, MAINTAIN AND REMOVE ANY WATER CONTROL AND DEWATERING WORK.

25. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SAVING AND PROTECTING ALL EXISTING TREES AND VEGETATION WHERE REMOVAL FOR CONSTRUCTION IS NOT MANDATORY. TREES TO BE REMOVED ARE NOTED IN THE PLANS. ALL TREES TO BE REMOVED OR RELOCATED WILL BE MARKED BY THE CONTRACTOR AND APPROVED BY THE OWNER PRIOR TO REMOVAL.

26. MATERIALS STORED ON THE SITE WHICH MIGHT CONTRIBUTE POLLUTANTS TO RUNOFF, WILL BE LOCATED IN AN ENCLOSED, COVERED, AND LOCKABLE CONTAINER. THESE MATERIALS ARE EXPECTED TO CONSIST MAINLY OF FERTILIZERS, FUELS, AND MACHINERY LUBRICANTS.

27. NON-ERODIBLE WASTE MATERIALS ARE REQUIRED TO BE ENCLOSED IN CONTAINERS TO PREVENT WIND OR WATER DISPERSAL OF THE ITEMS. NON-ERODIBLE MATERIALS INCLUDE PACKAGING MATERIALS, SHIPPING MATERIALS, AND CONSTRUCTION DEBRIS.

28. ALL RIPRAP SHALL BE BURIED. MIX EMBANKMENT MATERIAL INTO RIPRAP AT TIME OF INSTALLATION, FILL ROCK VOIDS WITH EMBANKMENT MATERIAL, PLACE 6" OF TOPSOIL ON TOP OF ROCK, SEED AND MULCH. THE COST SHALL NOT BE MEASURED AND PAID FOR SEPARATELY BUT INCLUDED IN THE COST OF THE WORK.

29. THE CONTRACTOR SHALL RESTORE ACCESS AREAS, TO THEIR ORIGINAL GRADES AND PRE-DISTURBANCE STATE OF VEGETATION. THE COST TO RESTORE THESE AREAS SHALL NOT BE MEASURED AND PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE WORK.

30. THE CONTRACTOR SHALL NOT DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE MCWD PROJECT MANAGER AND THE DESIGN ENGINEER. THE CONTRACTOR SHALL CONTACT THE MCWD PROJECT MANAGER IMMEDIATELY UPON DISCOVERY OF ANY ERRORS OR INCONSISTENCIES.

31. CONSTRUCTION SHALL REMAIN WITHIN THE LIMITS OF CONSTRUCTION BOUNDARY DEFINED IN THE PLANS UNLESS OTHERWISE NOTED.

32. ALL WORK SHALL CONFORM TO ALL LOCAL, STATE, AND FEDERAL APPLICABLE LAWS AND REGULATIONS.

33. ALL ESTIMATES OF QUANTITIES SHALL BE VERIFIED BY THE CONTRACTOR / SUBCONTRACTOR, WHO SHALL BE RESPONSIBLE FOR DETERMINING ALL QUANTITIES AND PROVIDING THE WORK AND MATERIALS AS SHOWN ON THESE PLANS.

34. ALL CONSTRUCTION EQUIPMENT, VEHICLE TRAFFIC AND STORAGE AREAS MUST BE LOCATED OUTSIDE OF ANY TREE PROTECTION AREA.

35. IF WOUNDING OF SAVED TREES OCCUR, A NON-TOXIC WOUND DRESSING MUST BE APPLIED IMMEDIATELY. (EXCAVATORS MUST HAVE A NON-TOXIC TREE WOUND DRESSING WITH THEM ON CONSTRUCTION SITES.)

36. CONSTRUCTION STAKING WILL BE A ONE TIME STAKING. ANY RE-STAKING WILL BE CONSIDERED ADDITIONAL SERVICES AND SHALL BE PAID FOR OR COMPLETED BY THE CONTRACTOR.

37. SLOPES AT 3:1 OR STEEPER, AND/OR WHERE INDICATED ON THE PLANS SHALL BE SEEDED AND HAVE A EROSION CONTROL BLANKET INSTALLED.

38. NORMAL WATER LEVEL IS AN ENGINEERING TERM RELATED TO THE VOLUMETRIC CAPACITY OR HYDRAULIC OPERATION OF A PONDING AREA. IT DOES NOT IMPLY A TYPICAL SURFACE ELEVATION WITHIN THE PONDING AREA, OR THAT WATER WILL BE RETAINED IN THE PONDING AREA ON A NORMAL BASIS. ESTIMATED VALUES ARE LISTED IN THE PLANS.

39. THE ORDINARY HIGH WATER LEVEL (OHWL) IS AN ELEVATION DELINEATING THE HIGHEST WATER LEVEL THAT HAS BEEN MAINTAINED FOR A SUFFICIENT PERIOD OF TIME TO LEAVE EVIDENCE UPON THE LANDSCAPE, COMMONLY THE POINT WHERE THE NATURAL VEGETATION CHANGES FROM PREDOMINANTLY AQUATIC TO PREDOMINATELY TERRESTRIAL. THE DNR DID NOT HAVE ESTABLISHED OHLW'S, SO THEY WERE ESTIMATED USING DNR GUIDELINES WITH AERIALS, SURVEY, AND SITE VISITS AND ARE LISTED ON SHEET 3.

40. ADDITIONAL GRADING AND EROSION CONTROL NOTES & REQUIREMENTS ARE INCLUDED IN THE SWPPP SHEET 14.

41. PLANTING PLAN NOTES AND SEED MIXES ARE INCLUDED ON SHEET 21.

QUANTITIES:

Contract Item Number	Contract Item	Quantity	Unit
1	Mobilization & Demobilization	1	LS
2	Water Control & Dewatering	1	LS
3	Traffic Control	1	LS
4	Clearing & Grubbing	1	LS
5	Invasive Control	1	LS
6	Remove Outlet Structure & Pipe	1	LS
7	Remove Chain Link Fence	1272	LF
8	Earthwork - Cut, Haul Offsite	3320	CY
9	Earthwork - Cut, Fill Onsite	4840	CY
10	24" RC Pipe Culvert DES 3006 CL III	67	LF
11	Soil Riprap	62	CY
12	Turf Reinforcement Mat	538	SY
13	Temporary Rock Construction Entrance	1	EA
14	Stabilized Staging Area	608	SY
16	Storm Drain Inlet Protection	9	EA
15	Silt Fence	665	LF
17	Sediment Control Log (Coir)	999	LF
18	Reinforced Check Dam	64	LF
19	Reinforced Rock Berm for Culvert Protection	75	LF
20	Erosion Control Blanket	5456	SY
21	Fabric Encapsulated Soil Lifts	1050	LF
22	Seeding	7.4	AC
23	Plantings - No. 5 Pots	260	EA
24	Plantings - Plugs/Bare Root	30975	EA
25	Plantings - Vegetated Mat	4000	SF
26	Extended Vegetation Maintenance - Year 1	1.0	LS
27	Extended Vegetation Maintenance - Year 2	1.0	LS
28	Extended Vegetation Maintenance - Year 3	1.0	LS

BENCHMARK:

HENNEPIN COUNTY COORDINATES NAD83(2007 ADJ) VERTICAL DATUM NAVD88, HELD TO MNDOT "2713AD". NORTHING=169069.6 EASTING=453494.9 ELEV=955.69. LOCATED NEAR THE CORNER OF ORONO ORCHARD ROAD AND STONERIDGE CIRCLE.

PRELIMINARY
NOT FOR CONSTRUCTION

LEGEND

- XXXX — EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- XXXX — PROPOSED MAJOR CONTOURS
- PROPOSED MINOR CONTOURS
- ALIGNMENT CENTERLINE
- ROAD CENTERLINE
- PARCEL
- 100-YR WSEL
- 1-YR WSEL
- EX WETLAND BOUNDARY
- EX EDGE OF WATER (06/11/2014)
- EX VEGETATION
- EX FENCE
- EX STORM
- EX FIBER OPTIC
- EX WATER
- EX WATER SERVICE
- EX OVERHEAD ELECTRIC
- EX SANITARY SEWER
- EX GAS
- EX RIPRAP
- EX CONCRETE
- EX CLAY LINER
- PR SOIL RIPRAP
- PR CLAY LINER
- BM — BENCHMARK

ABBREVIATIONS

AC	ACRES
BM	BENCHMARK
CBC	CONCRETE BOX CULVERT
CBMH	CATCH BASIN MANHOLE
CFS	CUBIC FEET PER SECOND
CL	CENTERLINE
CLR	CLEAR
CMP	CORRUGATED METAL PIPE
CONC	CONCRETE
CP	CONTROL POINT
CY	CUBIC YARDS
DND	DO NOT DISTURB
EA	EACH
ESMT	EASEMENT
ELEV	ELEVATION
EX	EXISTING
FES	FLARED END SECTION
FL	FLOW LINE
FT	FEET
HGL	HYDRAULIC GRADE LINE
HWL	HIGH WATER LEVEL
IN	INCH
INV	INVERT
LF	LINEAL FEET
LS	LUMP SUM
MAX	MAXIMUM
ME	MATCH EXISTING ELEVATION
MIN	MINIMUM
NTS	NOT TO SCALE
NWL	NORMAL WATER LEVEL
OHWL	ORDINARY HIGH WATER LEVEL
PR	PROPOSED
PVC	POLYVINYL CHLORIDE PIPE
Q100	100 YEAR PEAK DISCHARGE
RCP	REINFORCED CONCRETE PIPE
ROW	RIGHT-OF-WAY
STA	STATION
STMH	STORM MANHOLE
SWMP	STORMWATER MANAGEMENT PLAN
SY	SQUARE YARDS
TBC	TOP BACK OF CURB
TBR	TO BE REMOVED
TOB	TOP OF BOX
TOHW	TOP OF HEADWALL
TOW	TOP OF WALL/WINGWALL
TRM	TURF REINFORCING MAT
TYP	TYPICAL
W	WIDTH
WSEL	WATER SURFACE ELEVATION
YR	YEAR

RESPEC
1935 W. COUNTY ROAD B2
SUITE 320
ROSEVILLE, MN 55113
PHONE (651) 788-7813

REVISION

DESIGNED	LDR	CHECKED	LDR
DRAWN	AGT	DATE---	10-3-14

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.

LEE D. ROSEN, P.E. DATE
LICENSE # 51071

811 Know what's below. Call before you dig.

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(952) 471-0590
www.minnehahacreek.org
MINNEHAHA CREEK WATERSHED DISTRICT

LONG LAKE CREEK CORRIDOR IMPROVEMENT PROJECT - PHASE II

NOTES & QUANTITIES

SHEET NUMBER: 2

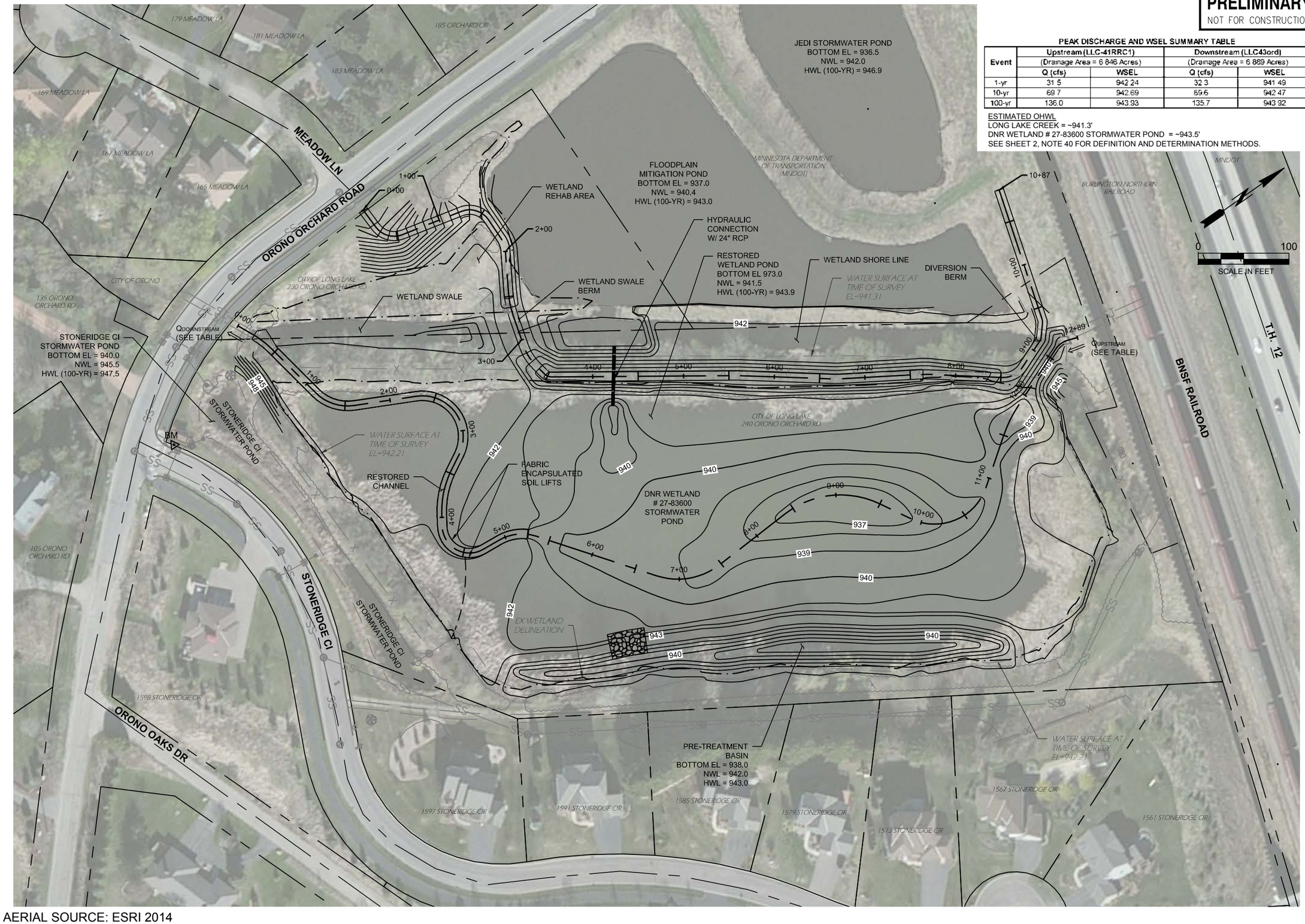
NAME: Z:\MINNESOTA\MCWD\LONG LAKE CREEK\08_CAD\SHEETS\02481-S-COVER.DWG
PLOT DATE: October 2, 2014 2:28 PM , BY: AMY C. TEIGEN

PRELIMINARY
NOT FOR CONSTRUCTION

PEAK DISCHARGE AND WSEL SUMMARY TABLE

Event	Upstream (LLC-41RRC1) (Drainage Area = 6 846 Acres)		Downstream (LLC43ord) (Drainage Area = 6 889 Acres)	
	Q (cfs)	WSEL	Q (cfs)	WSEL
1-yr	31 5	942 24	32 3	941 49
10-yr	69 7	942.69	69.6	942 47
100-yr	136.0	943.93	135.7	943 92

ESTIMATED OHWL
LONG LAKE CREEK = ~941.3'
DNR WETLAND # 27-83600 STORMWATER POND = ~943.5'
SEE SHEET 2, NOTE 40 FOR DEFINITION AND DETERMINATION METHODS.



AERIAL SOURCE: ESRI 2014

NAME: Z:\MINNESOTA\MCWD\LONG LAKE CREEK\08_CAD\SHEETS\02481-S-OVERALL.DWG
PLOT DATE: October 2, 2014 2:53 PM, BY: AMY C. TEIGEN

RESPEC
1935 W. COUNTY ROAD B2
SUITE 320
ROSEVILLE, MN 55113
PHONE (651) 788-7813

REVISION

DESIGNED LDR
DRAWN AGT
CHECKED LDR
DATE--- 10-3-14

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LEE D. ROSEN, P.E. DATE
LICENSE # 51071

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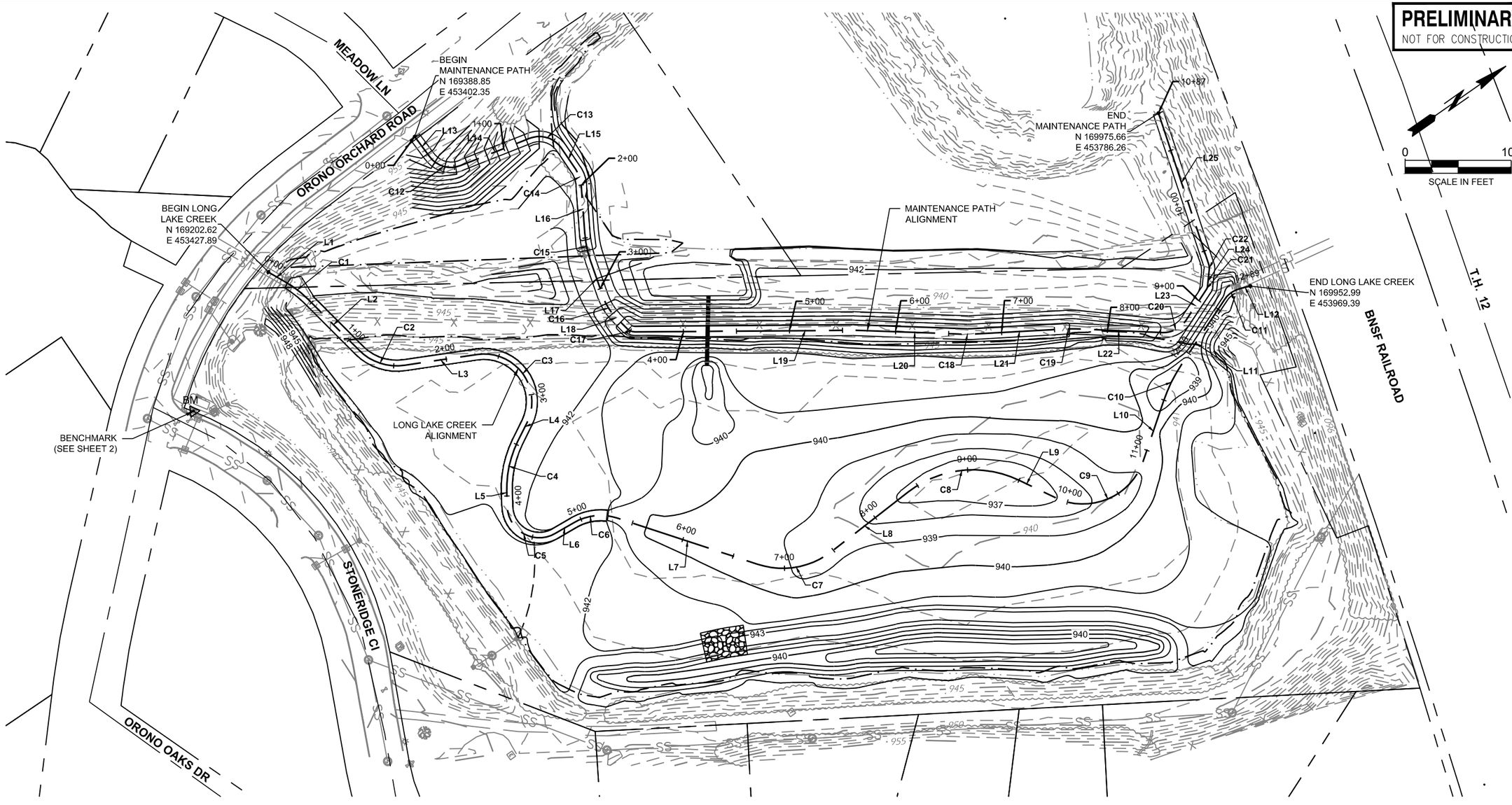
MINNEHAHA CREEK
WATERSHED DISTRICT

LONG LAKE CREEK CORRIDOR IMPROVEMENT PROJECT - PHASE II

OVERALL SITE PLAN

SHEET NUMBER:
3



PRELIMINARY
NOT FOR CONSTRUCTION

LINE TABLE		
LINE #	LENGTH	BEARING
L1	18.90	N64.540071E
L2	68.39	N79.583392E
L3	69.24	N26.342359E
L4	19.39	S28.374442E
L5	13.87	S57.083524E
L6	20.51	N04.514015E
L7	139.54	N53.122925E
L8	91.20	N02.520825W
L9	38.18	N60.370672E
L10	59.12	N36.184234W
L11	73.25	N21.302518W
L12	9.74	N21.060263E
L13	23.60	N88.253572E

LINE TABLE		
LINE #	LENGTH	BEARING
L14	69.88	N13.262720E
L15	24.43	S89.001040E
L16	45.08	S59.073396E
L17	37.09	S74.094640E
L18	15.26	N79.560829E
L19	205.76	N34.343308E
L20	104.38	N37.004684E
L21	86.57	N31.483803E
L22	81.96	N37.233800E
L23	35.61	N21.302518W
L24	16.54	N48.490386W
L25	150.68	N73.221800W

CURVE TABLE				
CURVE #	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD LENGTH
C1	26.31	100.00	015°04'33"	26.24
C2	46.60	50.00	053°24'10"	44.93
C3	98.02	45.00	124°47'52"	79.76
C4	49.77	100.00	028°30'51"	49.25
C5	61.78	30.00	117°59'45"	51.43
C6	42.19	50.00	048°20'49"	40.95
C7	73.40	75.00	056°04'37"	70.51
C8	110.81	100.00	063°29'15"	105.22
C9	101.51	60.00	096°55'49"	89.83
C10	38.76	150.00	014°48'17"	38.65
C11	18.59	25.00	042°36'28"	18.17

CURVE TABLE				
CURVE #	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD LENGTH
C12	32.72	25.00	074°59'09"	30.43
C13	33.84	25.00	077°33'22"	31.32
C14	15.64	30.00	029°52'36"	15.47
C15	26.24	100.00	015°02'12"	26.17
C16	22.60	50.00	025°54'05"	22.41
C17	7.92	10.00	045°21'35"	7.71
C18	9.08	100.00	005°12'09"	9.08
C19	9.74	100.00	005°35'00"	9.74
C20	25.70	25.00	058°54'03"	24.58
C21	2.38	5.00	027°18'39"	2.36
C22	4.29	10.00	024°33'14"	4.25

LONG LAKE CREEK ALIGNMENT
FROM BM 148.95' AT A BEARING OF N 26° 44' 18" W
TO THE POINT OF BEGINNING STATION 0+00.

MAINTENANCE PATH ALIGNMENT
FROM BM 332.39' AT A BEARING OF N 16° 10' 03" W
TO THE POINT OF BEGINNING STATION 0+00.

REVISION

RESPEC
1935 W. COUNTY ROAD B2
SUITE 320
ROSEVILLE, MN 55113
PHONE (651) 788-7813

DESIGNED	LDR	
DRAWN	AGT	
CHECKED	LDR	10-3-14
DATE---		

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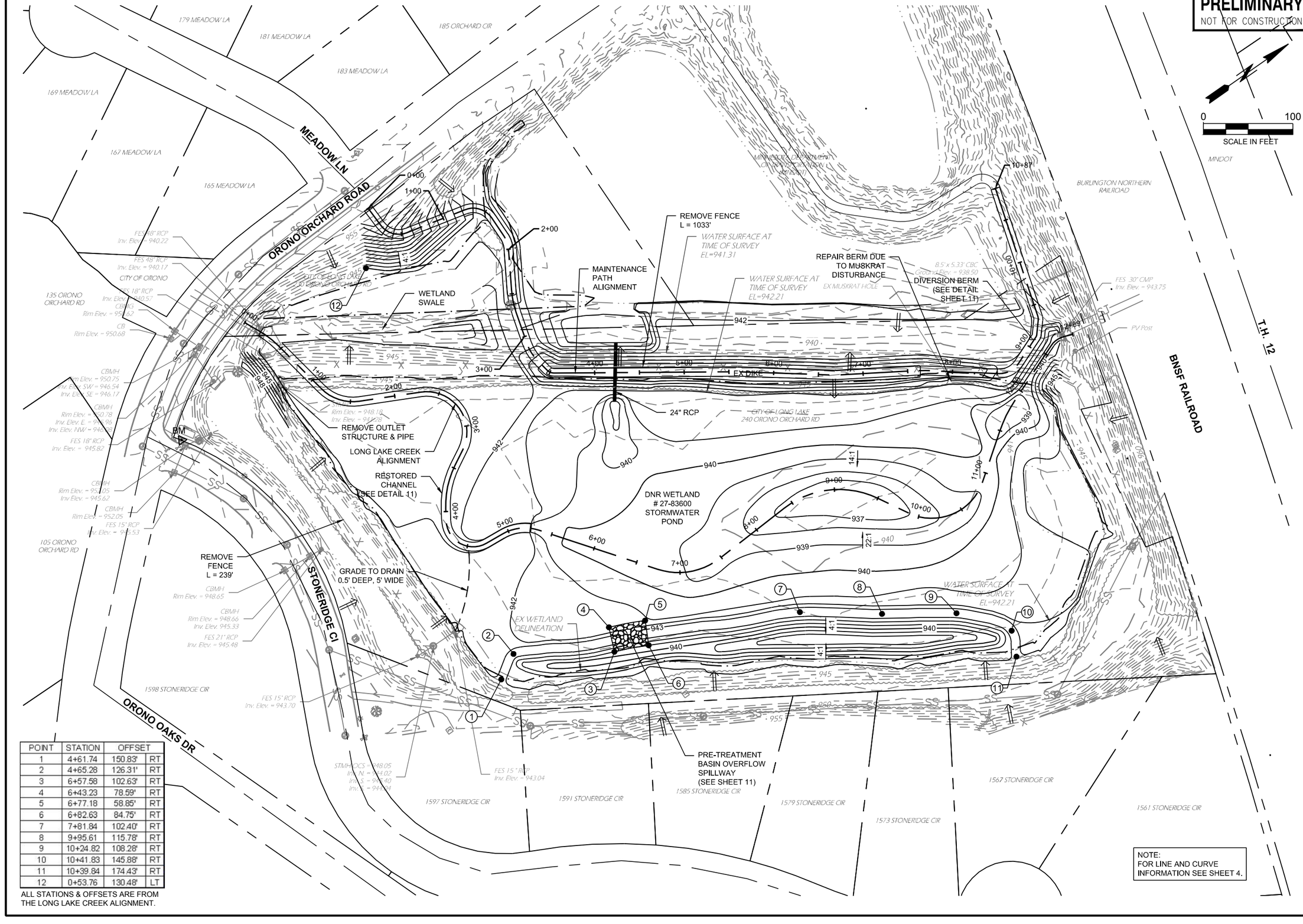
WATERSHED DISTRICT

LONG LAKE CREEK CORRIDOR IMPROVEMENT PROJECT - PHASE II

HORIZONTAL CONTROL

SHEET NUMBER:
4

NAME: Z:\MINNESOTA\MCWD\LONG LAKE CREEK\08_CAD\SHEETS\02481-S-CONTROL.DWG
PLOT DATE: October 2, 2014 2:51 PM , BY: AMY C. TEIGEN



POINT	STATION	OFFSET	
1	4+61.74	150.83'	RT
2	4+65.28	126.31'	RT
3	6+57.58	102.63'	RT
4	6+43.23	78.59'	RT
5	6+77.18	58.85'	RT
6	6+82.63	84.75'	RT
7	7+81.84	102.40'	RT
8	9+95.61	115.78'	RT
9	10+24.82	108.28'	RT
10	10+41.83	145.88'	RT
11	10+39.84	174.43'	RT
12	0+53.76	130.48'	LT

ALL STATIONS & OFFSETS ARE FROM THE LONG LAKE CREEK ALIGNMENT.

NOTE:
FOR LINE AND CURVE INFORMATION SEE SHEET 4.

NAME: Z:\MINNESOTA\MCWD\LONG LAKE CREEK\08_CAD\SHEETS\02481-S-GRADING.DWG
PLOT DATE: October 2, 2014 2:31 PM, BY: AMY C. TEIGEN

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DRAWN	AGT	
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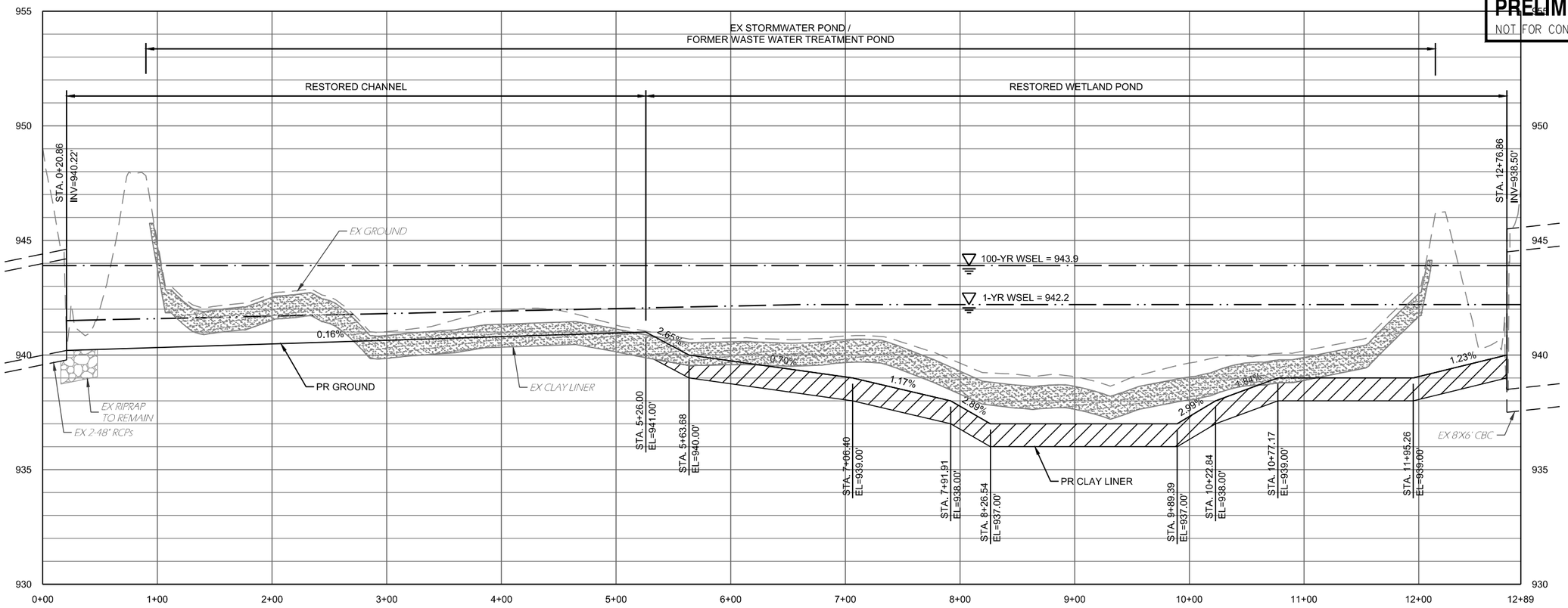
LONG LAKE CREEK CORRIDOR IMPROVEMENT PROJECT - PHASE II

GRADING PLAN

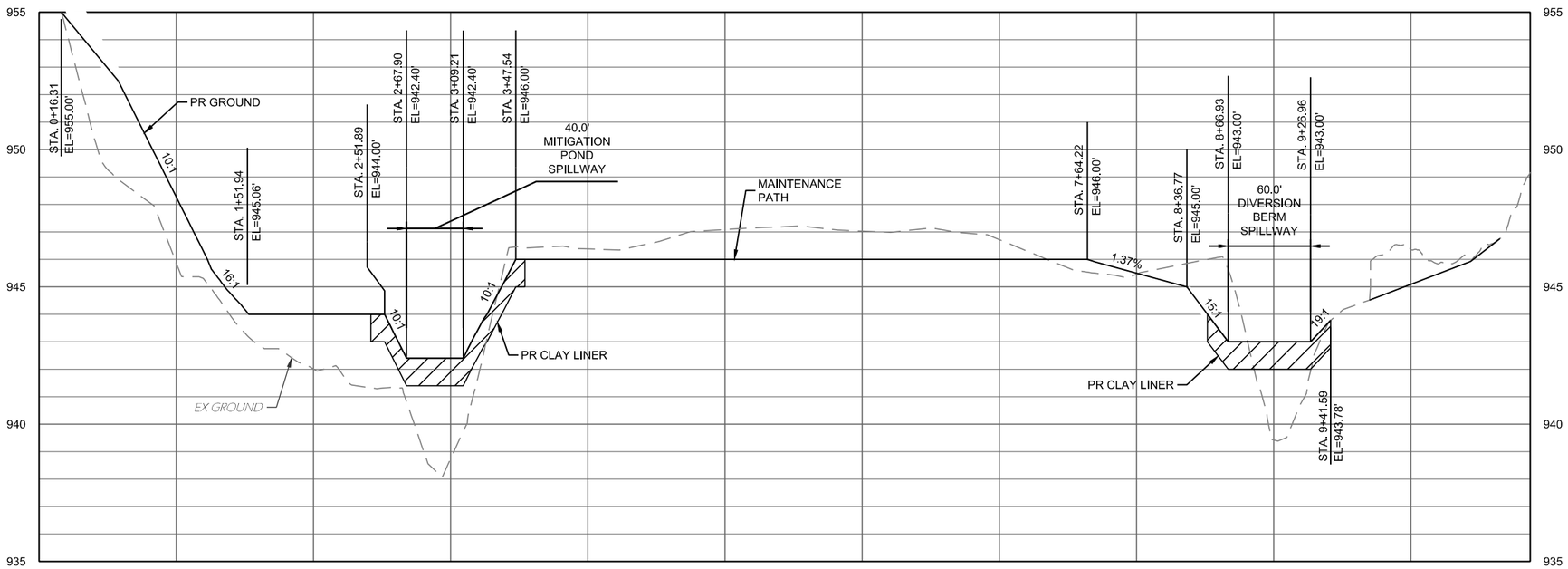
SHEET NUMBER:
5

PRELIMINARY
NOT FOR CONSTRUCTION



LONG LAKE CREEK
PROFILE

HORZ 0 100
VERT 0 SCALE IN FEET 5



MAINTENANCE PATH
PROFILE

HORZ 0 100
VERT 0 SCALE IN FEET 5

NAME: Z:\MINNESOTA\MCWD\LONG LAKE CREEK\08_CAD\SHEETS\02481-S-PROFILE & SECTIONS.DWG
PLOT DATE: October 2, 2014 2:37 PM , BY: AMY C. TEIGEN

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CHECKED	LDR	
DATE--	10-3-14	

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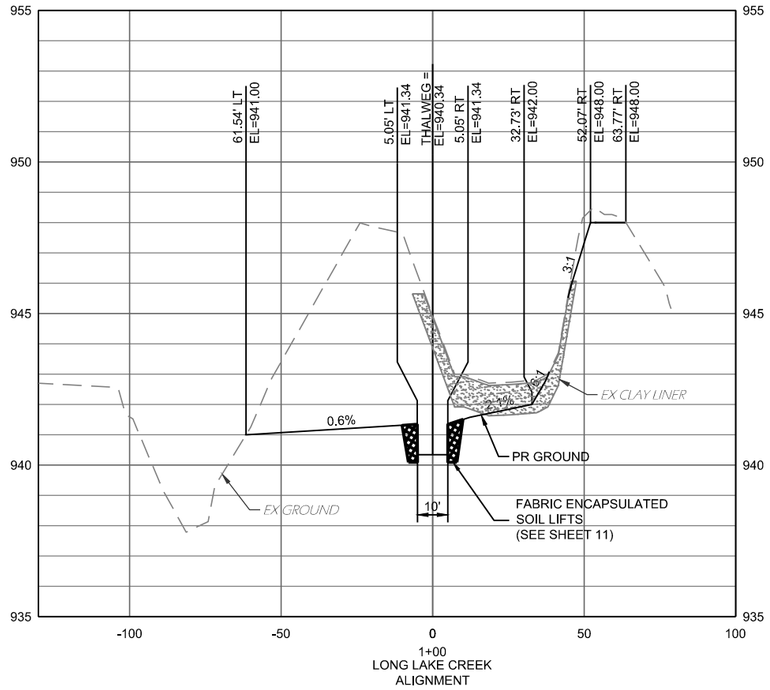
LONG LAKE CREEK CORRIDOR IMPROVEMENT PROJECT - PHASE II

LONG LAKE CREEK & MAINTENANCE PATH PROFILE

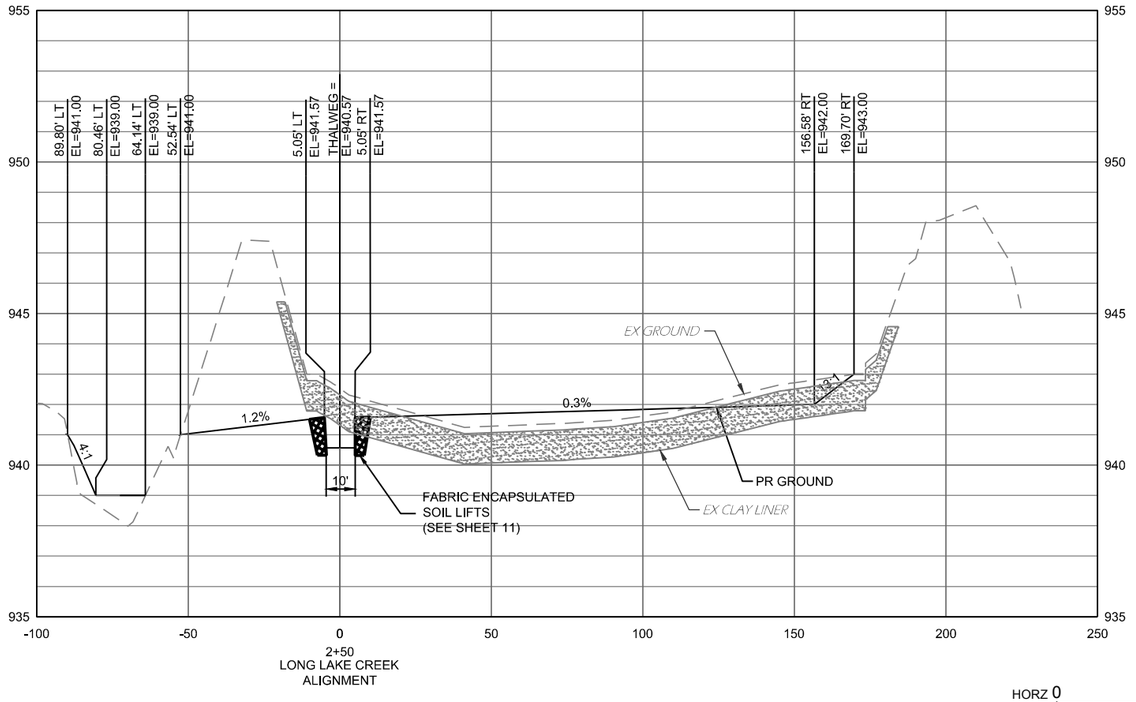
SHEET NUMBER:
6

NOTE:
1. CROSS SECTIONS CUT LEFT TO RIGHT LOOKING UPSTATION.
2. SEE DETAILS (SHEET 11) FOR RESTORED CHANNEL GEOMETRY.
3. SEE PLANTING PLAN (SHEET 20) FOR VEGETATION.
4. CLAY LINER DEPTHS WERE APPROXIMATED DURING SEDIMENT SAMPLING AND THE THICKNESS WAS ASSUMED TO BE 1 FOOT THICK. ACTUAL DEPTHS & THICKNESSES MAY VARY.

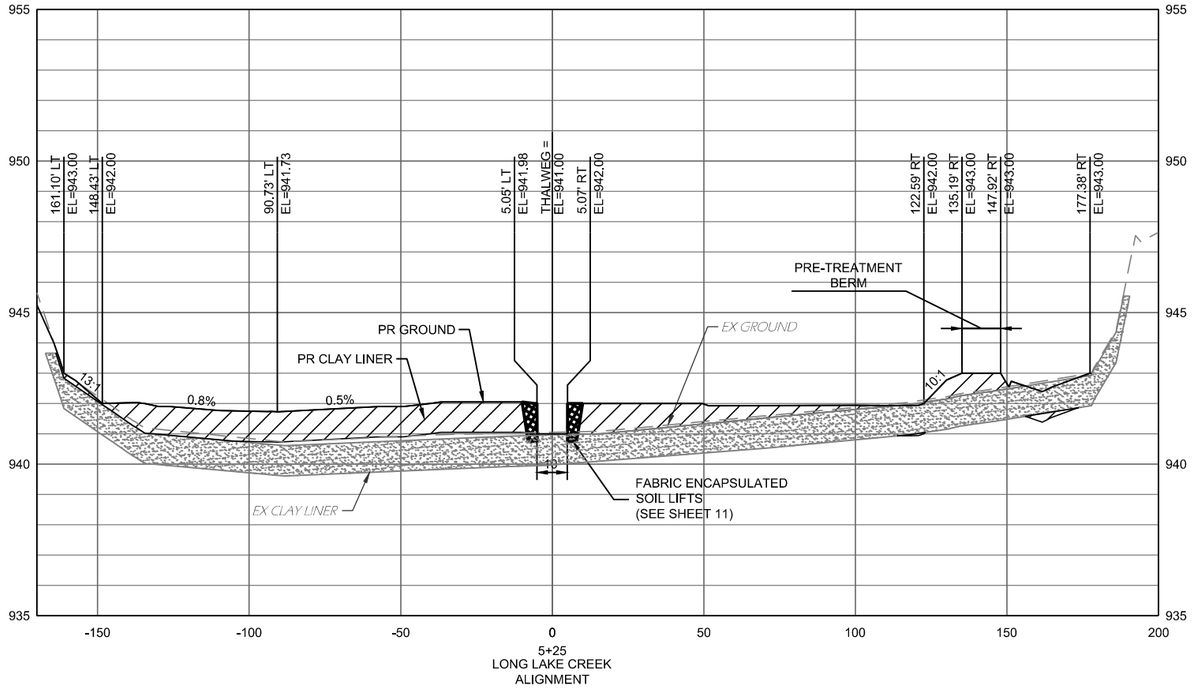
PRELIMINARY
NOT FOR CONSTRUCTION



1+00
LONG LAKE CREEK
ALIGNMENT



2+50
LONG LAKE CREEK
ALIGNMENT



5+25
LONG LAKE CREEK
ALIGNMENT

HORZ 0 50
VERT 0 5
SCALE IN FEET

NAME: Z:\MINNESOTA\MCWD\LONG LAKE CREEK\08_CAD\SHEETS\02481-S-SECTIONS.DWG
PLOT DATE: October 2, 2014 1:39 PM , BY: AMY C. TEIGEN

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SUITE 320
ROSEVILLE, MN 55113
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DRAWN	ACT	
CHECKED	LDR	
DATE	10-2-14	

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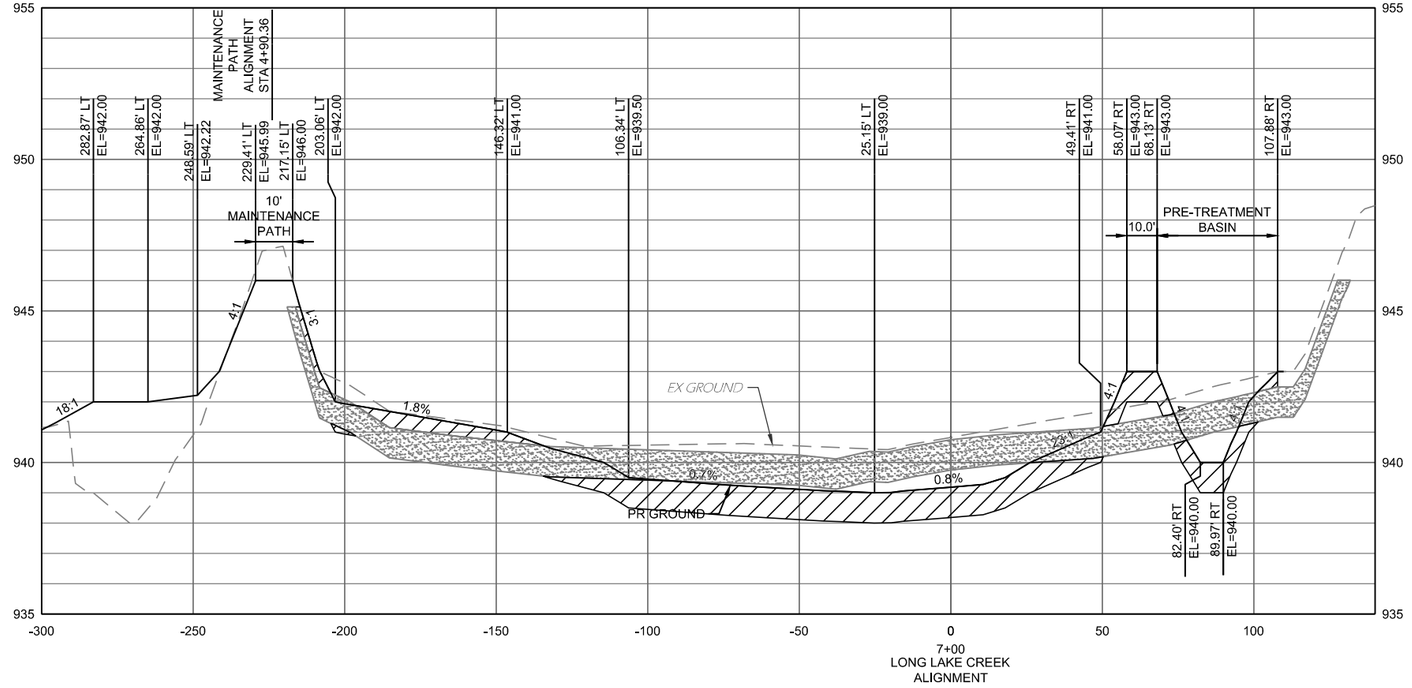
LONG LAKE CREEK CORRIDOR IMPROVEMENT PROJECT - PHASE II

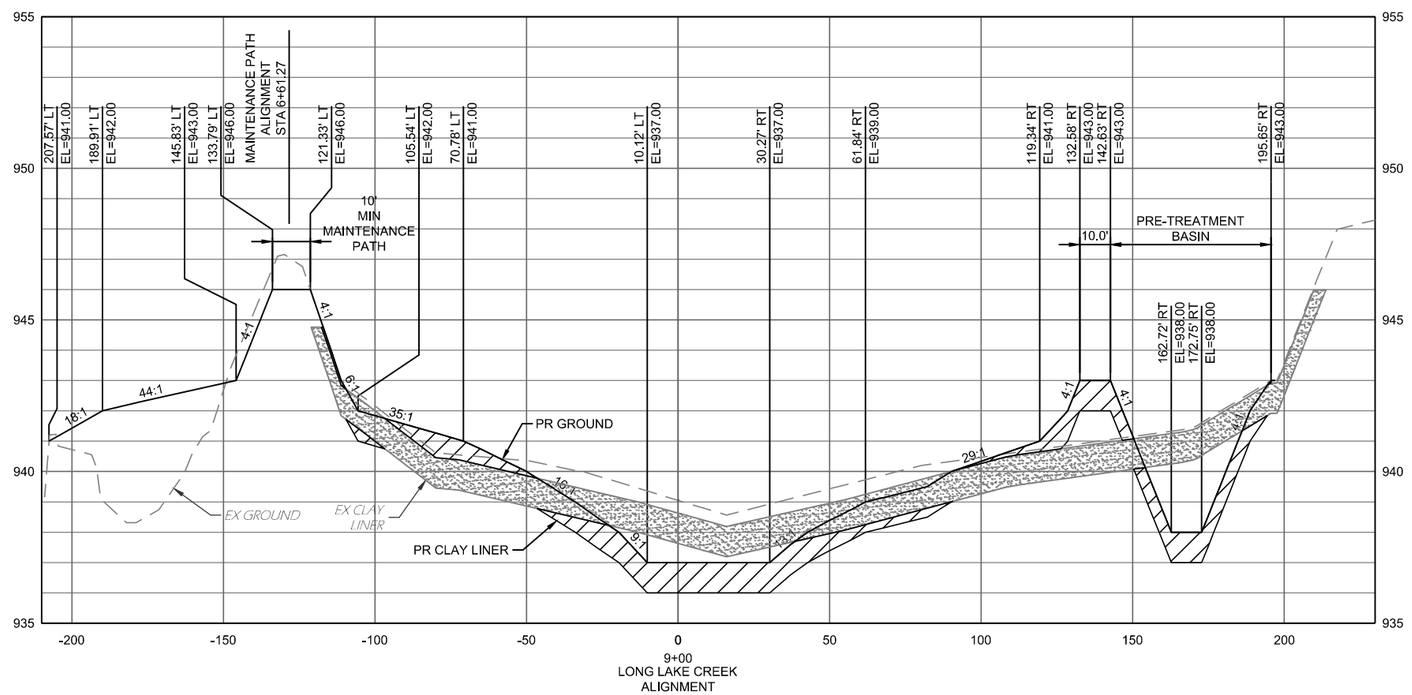
SECTIONS (1 OF 4)

SHEET NUMBER:
7

NOTE:
1. CROSS SECTIONS CUT LEFT TO RIGHT LOOKING UPSTATION.
2. SEE DETAILS (SHEET 11) FOR RESTORED CHANNEL GEOMETRY.
3. SEE PLANTING PLAN (SHEET 20) FOR VEGETATION.
4. CLAY LINER DEPTHS WERE APPROXIMATED DURING SEDIMENT SAMPLING AND THE THICKNESS WAS ASSUMED TO BE 1 FOOT THICK. ACTUAL DEPTHS & THICKNESSES MAY VARY.

PRELIMINARY
NOT FOR CONSTRUCTION





HORZ 0 50
VERT 0 5
SCALE IN FEET

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DRAWN	ACT		
CHECKED	LDR		
DATE---	10-2-14		

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LONG LAKE CREEK CORRIDOR IMPROVEMENT PROJECT - PHASE II

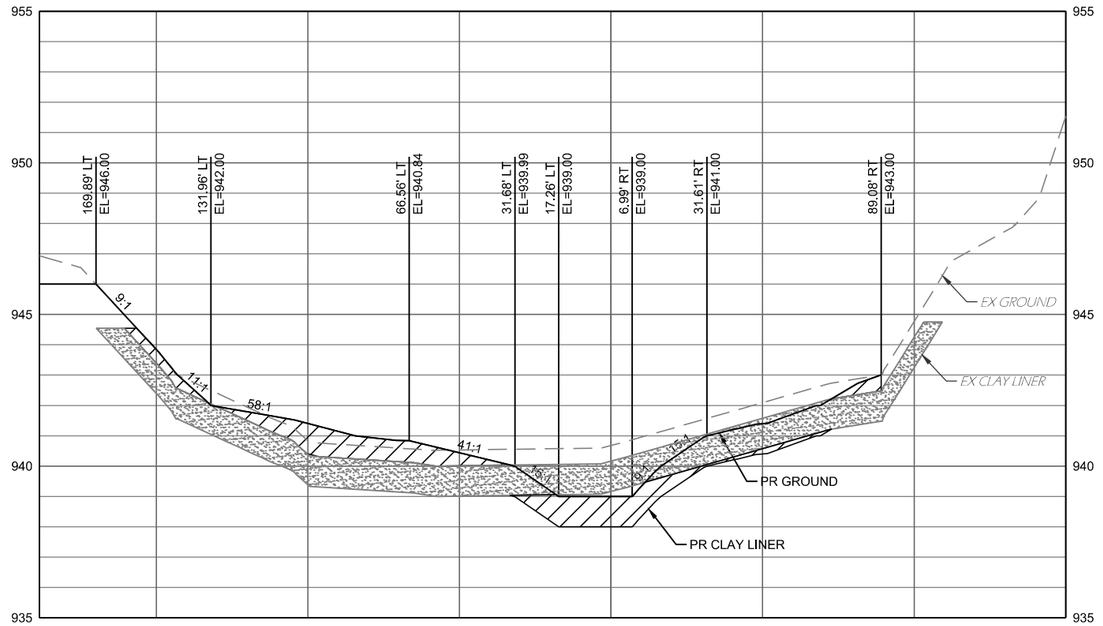
SECTIONS (2 OF 4)

SHEET NUMBER:
8

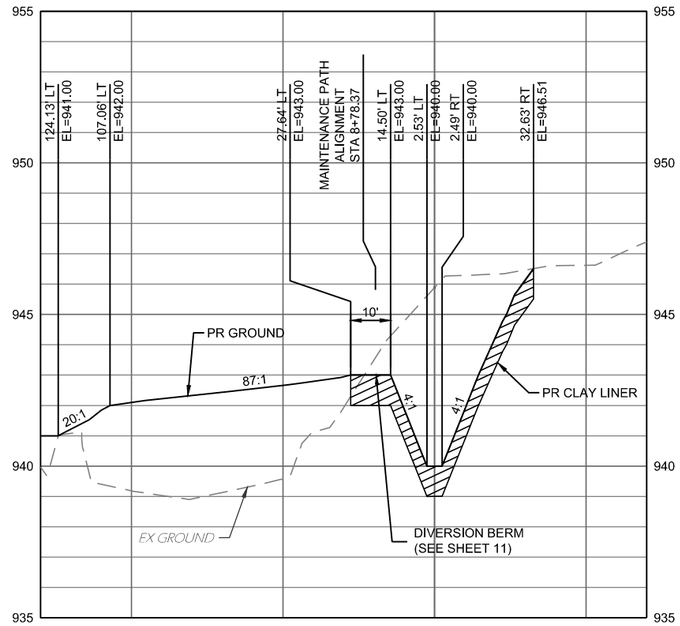
NAME: Z:\MINNESOTA\MCWD\LONG LAKE CREEK\08_CAD\SHEETS\02481-S-SECTIONS.DWG
PLOT DATE: October 2, 2014 1:39 PM BY: AMY C. TEIGEN

NOTE:
1. CROSS SECTIONS CUT LEFT TO RIGHT LOOKING UPSTATION.
2. SEE DETAILS (SHEET 11) FOR RESTORED CHANNEL GEOMETRY.
3. SEE PLANTING PLAN (SHEET 20) FOR VEGETATION.
4. CLAY LINER DEPTHS WERE APPROXIMATED DURING SEDIMENT SAMPLING AND THE THICKNESS WAS ASSUMED TO BE 1 FOOT THICK. ACTUAL DEPTHS & THICKNESSES MAY VARY.

PRELIMINARY
NOT FOR CONSTRUCTION

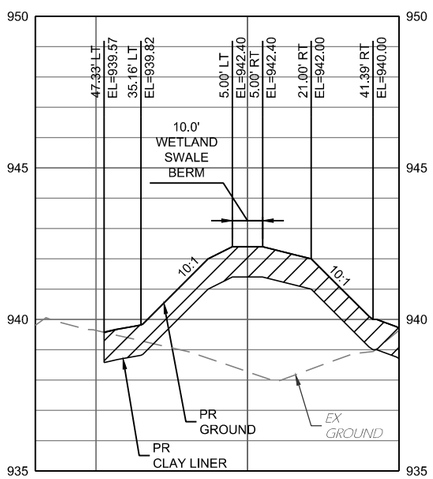


11+50
LONG LAKE CREEK
ALIGNMENT

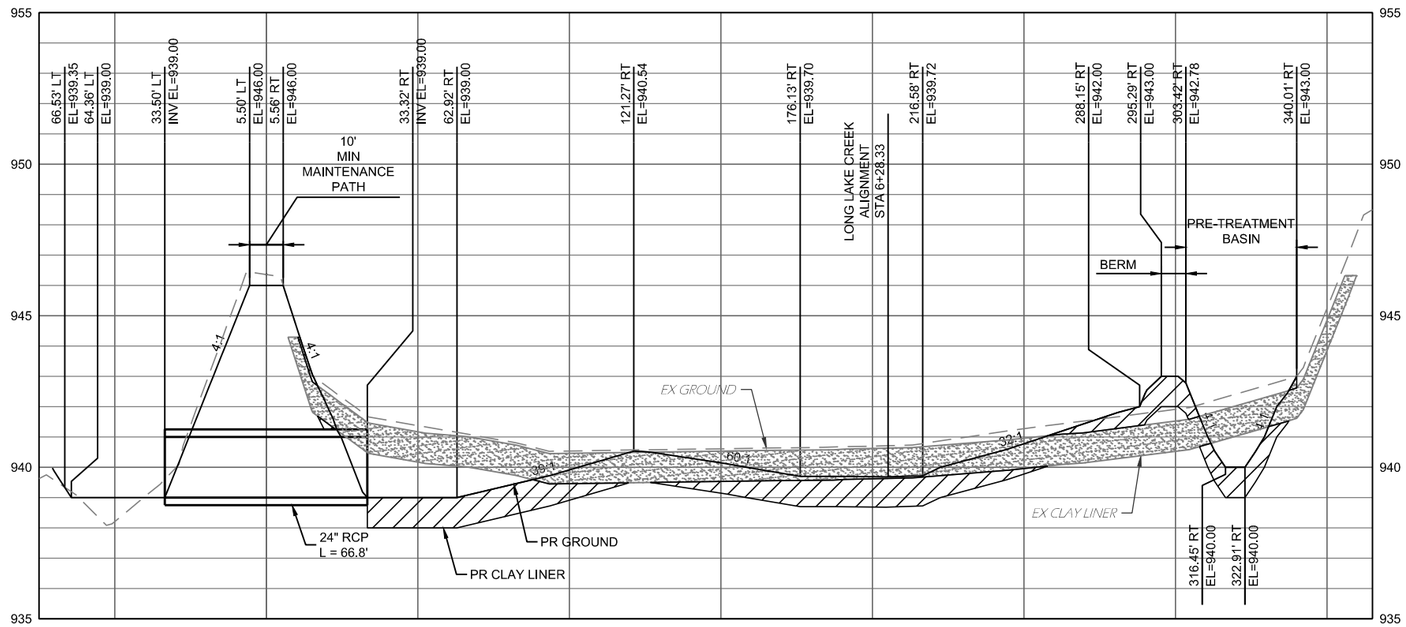


12+25
LONG LAKE CREEK
ALIGNMENT

HORZ 0 50
VERT 0 5
SCALE IN FEET



2+90
MAINTENANCE PATH ALIGNMENT
THROUGH WETLAND SWALE BERM



4+25
MAINTENANCE PATH
ALIGNMENT

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ROSEVILLE, MN 55113
PHONE (651) 788-7813

REVISION			

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DRAWN	ACT	
CHECKED	LDR	
DATE	10-2-14	

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LONG LAKE CREEK CORRIDOR IMPROVEMENT PROJECT - PHASE II

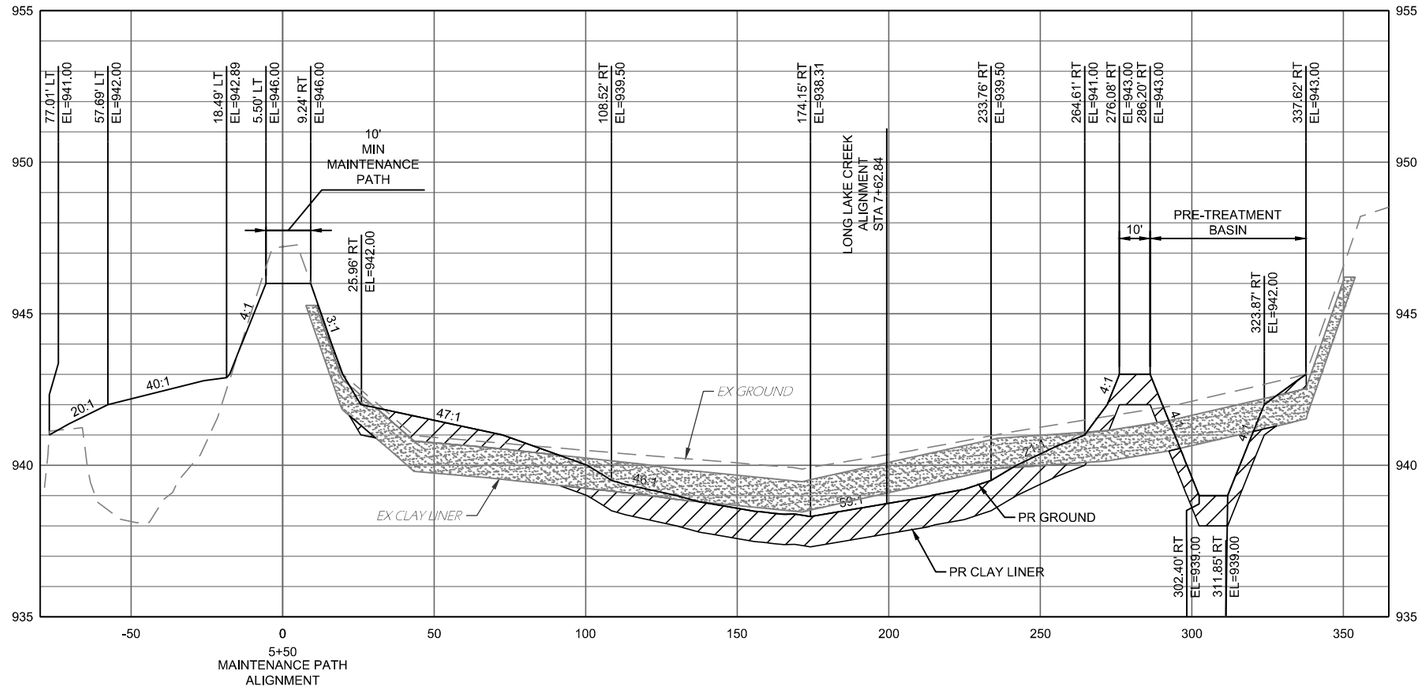
SECTIONS (3 OF 4)

SHEET NUMBER:
9

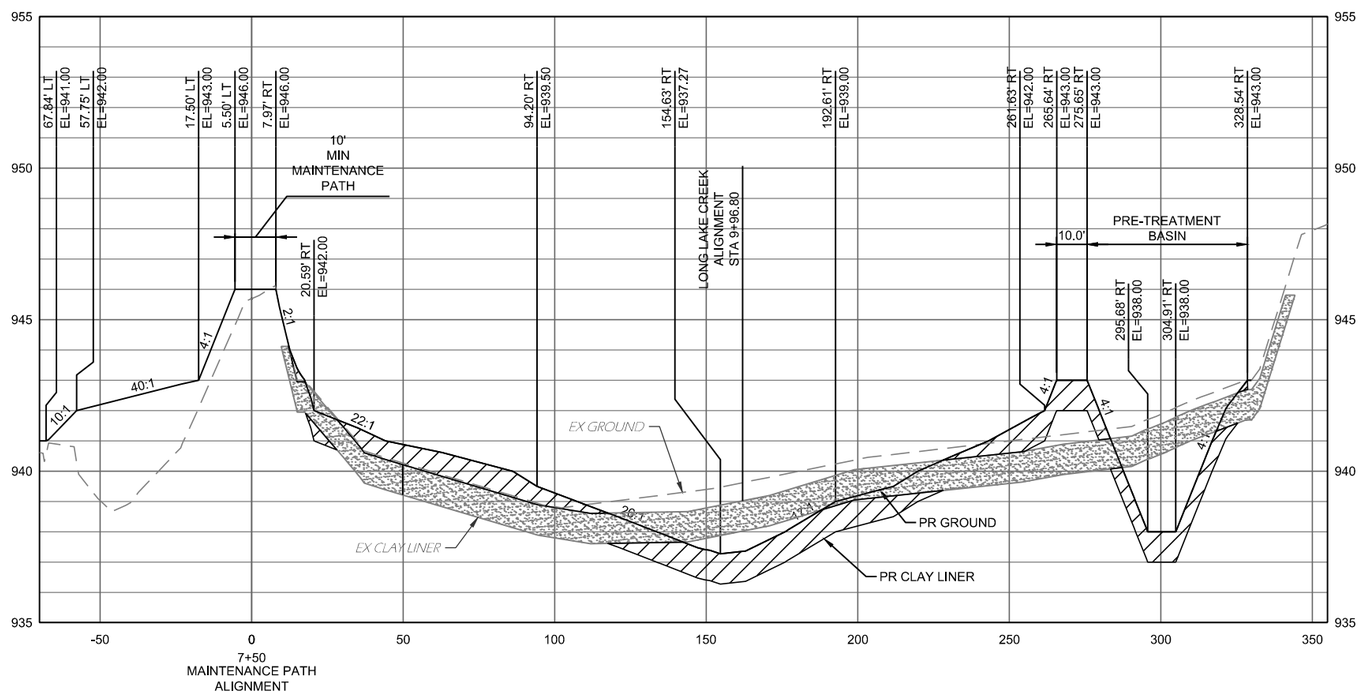
NAME: Z:\MINNESOTA\MCWD\LONG LAKE CREEK\08_CAD\SHEETS\02481-S-SECTIONS.DWG
PLOT DATE: October 2, 2014 1:39 PM BY: AMY C. TEIGEN

NOTE:
1. CROSS SECTIONS CUT LEFT TO RIGHT LOOKING UPSTATION.
2. SEE DETAILS (SHEET 11) FOR RESTORED CHANNEL GEOMETRY.
3. SEE PLANTING PLAN (SHEET 20) FOR VEGETATION.
4. CLAY LINER DEPTHS WERE APPROXIMATED DURING SEDIMENT SAMPLING AND THE THICKNESS WAS ASSUMED TO BE 1 FOOT THICK. ACTUAL DEPTHS & THICKNESSES MAY VARY.

PRELIMINARY
NOT FOR CONSTRUCTION



HORZ 0 50
VERT 0 5
SCALE IN FEET



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DATE	10-2-14	

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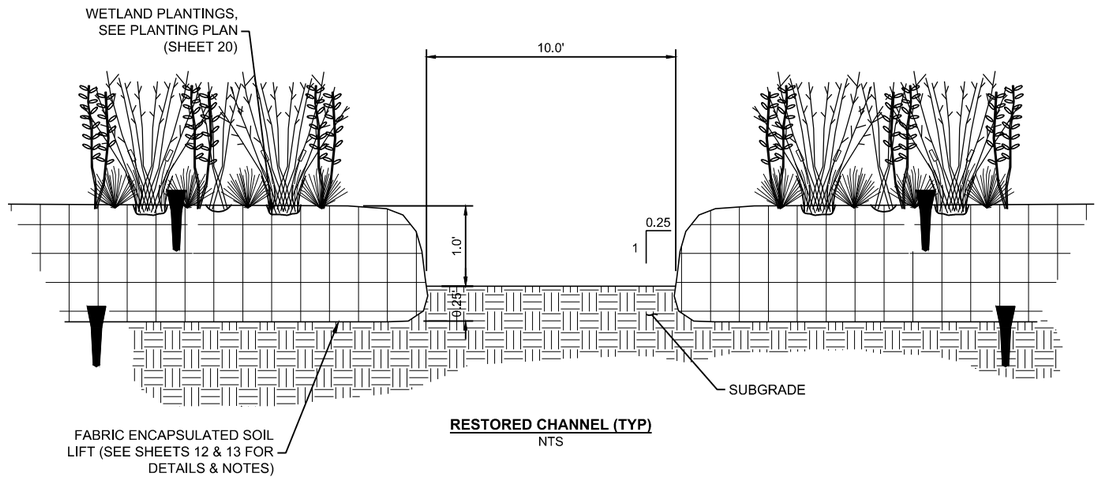
LONG LAKE CREEK CORRIDOR IMPROVEMENT PROJECT - PHASE II

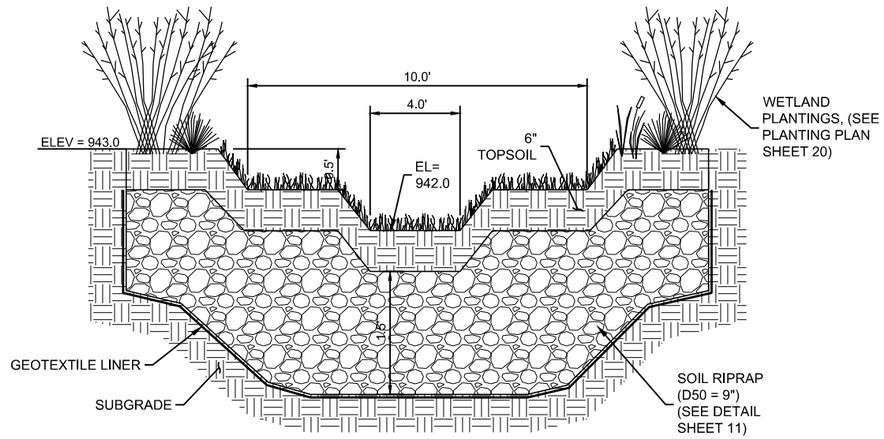
SECTIONS (4 OF 4)

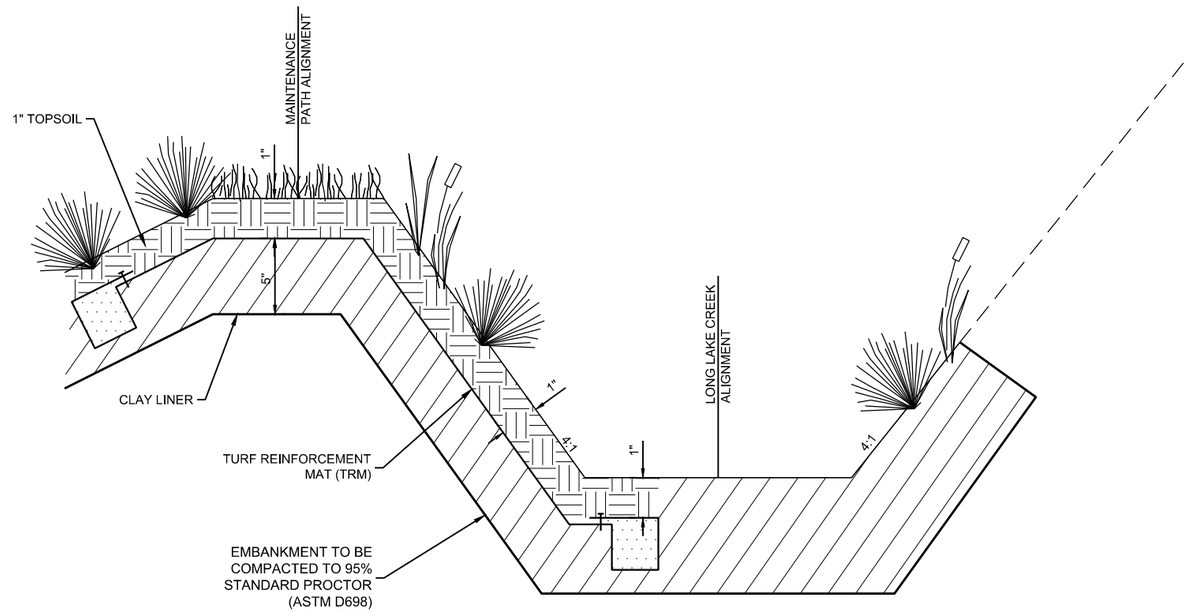
SHEET NUMBER:
10

NAME: Z:\MINNESOTA\MCWD\LONG LAKE CREEK\08_CAD\SHEETS\02481-S-SECTIONS.DWG
PLOT DATE: October 2, 2014 1:39 PM BY: AMY C. TEIGEN

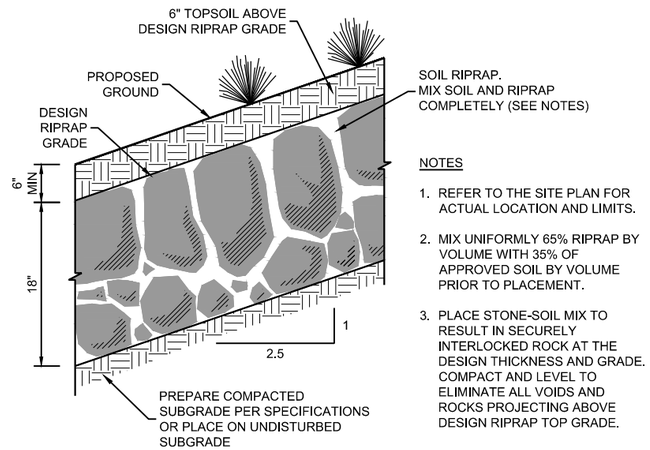


RESTORED CHANNEL (TYP)
NTS





DIVERSION BERM DETAIL
NTS



NOTES

1. REFER TO THE SITE PLAN FOR ACTUAL LOCATION AND LIMITS.
2. MIX UNIFORMLY 65% RIPRAP BY VOLUME WITH 35% OF APPROVED SOIL BY VOLUME PRIOR TO PLACEMENT.
3. PLACE STONE-SOIL MIX TO RESULT IN SECURELY INTERLOCKED ROCK AT THE DESIGN THICKNESS AND GRADE. COMPACT AND LEVEL TO ELIMINATE ALL VOIDS AND ROCKS PROJECTING ABOVE DESIGN RIPRAP TOP GRADE.

CLASSIFICATION AND GRADATION OF ORDINARY RIPRAP			
RIPRAP DESIGNATION	% SMALLER THAN GIVEN SIZE BY WEIGHT	INTERMEDIATE ROCK DIMENSION (INCHES)	D50 (INCHES)*
TYPE L	70-100	15	9**
	50-70	12	
	35-50	9	
	2-10	3	

*D50 = MEAN PARTICLE SIZE (INTERMEDIATE DIMENSION) BY WEIGHT.
** MIX TYPE L RIPRAP WITH 35% TOPSOIL (BY VOLUME) AND BURY IT WITH 4 TO 6 INCHES OF TOPSOIL, ALL VIBRATION COMPACTED, AND REVEGETATE.

SOIL RIPRAP DETAIL
NTS

PRELIMINARY
NOT FOR CONSTRUCTION

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LONG LAKE CREEK CORRIDOR IMPROVEMENT PROJECT - PHASE II

DETAILS

SHEET NUMBER:
11

NAME: Z:\MINNESOTA\MCWD\LONG LAKE CREEK\08_CAD\SHEETS\02481-S-DETAILS.DWG
PLOT DATE: October 2, 2014 2:40 PM, BY: AMY C. TEIGEN

PRELIMINARY
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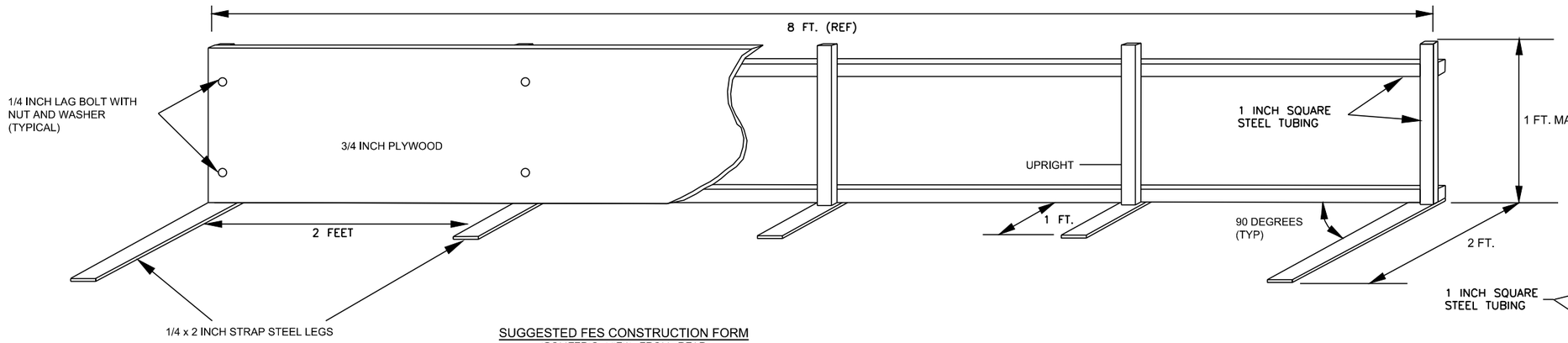
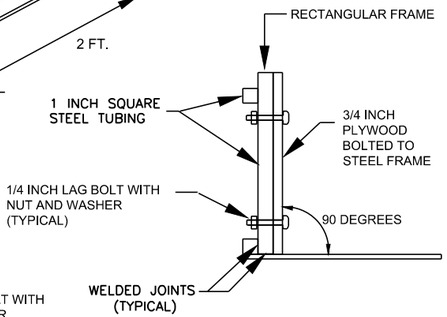
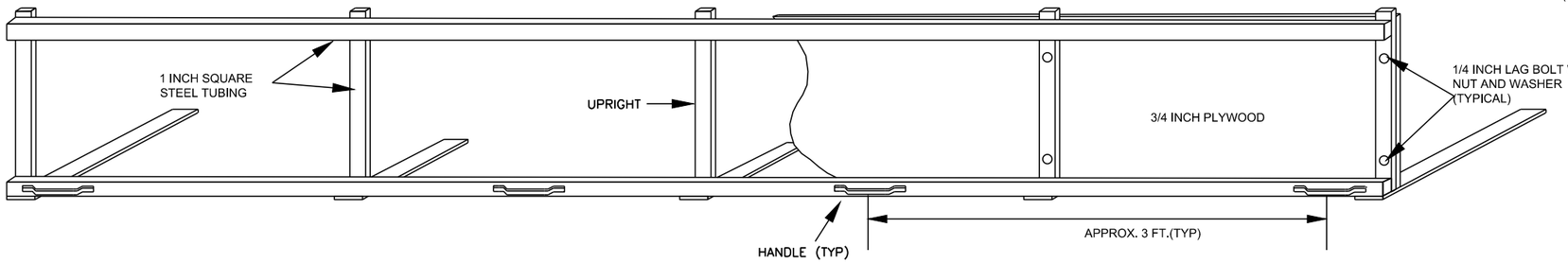


SUGGESTED FES CONSTRUCTION FORM
ISOMETRIC VIEW FROM REAR



SUGGESTED (FES) BANK CONSTRUCTION FORM
END VIEW



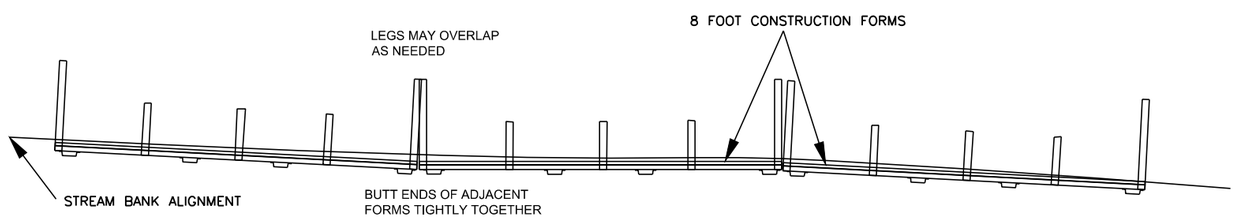
SUGGESTED FES CONSTRUCTION FORM
ISOMETRIC VIEW FROM FRONT

GENERAL NOTES ON FABRICATION OF SUGGESTED FORMS FOR FABRIC ENCAPSULATED SOIL LIFT CONSTRUCTION

1. FABRICATE FORMS BY WELDING 1 INCH TUBULAR STEEL TOGETHER TO CREATE A 1x8 FOOT RECTANGULAR FRAMEWORK.
2. WELD LENGTHS OF 1/4x2 INCH STEEL STRAP AT 90 DEGREES TO THE FRAME EVERY 2 FEET.
3. ATTACH A PIECE OF 3/4 INCH PLYWOOD TO THE FRAME USING 1/4 INCH DIAMETER LAG BOLTS OR EQUIVALENT.
4. REMOVAL AND TRANSPORT OF THE FORMS IS FACILITATED IF HEAVY DUTY HANDLES ARE ATTACHED TO THE FRAME AS SHOWN.

1. PLACE A ROW OF CONSTRUCTION FORMS ALONG DESIRED BANK ALIGNMENT FOR FIRST LIFT.

SUGGESTED SEQUENCE FOR PLACEMENT OF FORMS
PROFILE VIEW LOOKING INTO BANK



FABRIC ENCAPSULATED SOIL CONSTRUCTION FORM SUGGESTED PLACEMENT
PLAN VIEW

RESPEC
1935 W. COUNTY ROAD B2
SUITE 320
ROSEVILLE, MN 55113
PHONE (651) 788-7813

REVISION

DESIGNED	LDR
DRAWN	ACT
CHECKED	LDR
DATE	10-2-14

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.

LEE D. ROSEN, P.E.
LICENSE # 51071
DATE

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MINNETONKA, MN 55345
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MINNEHAHA CREEK WATERSHED DISTRICT

LONG LAKE CREEK CORRIDOR IMPROVEMENT PROJECT - PHASE II

FABRIC ENCAPSULATED LIFT FORM DETAILS

SHEET NUMBER:
12

NAME: Z:\MINNESOTA\MCWD\LONG LAKE CREEK\08_CAD\SHEETS\02481-S-DETAILS.DWG
PLOT DATE: October 2, 2014 1:41 PM , BY: AMY C. TEIGEN

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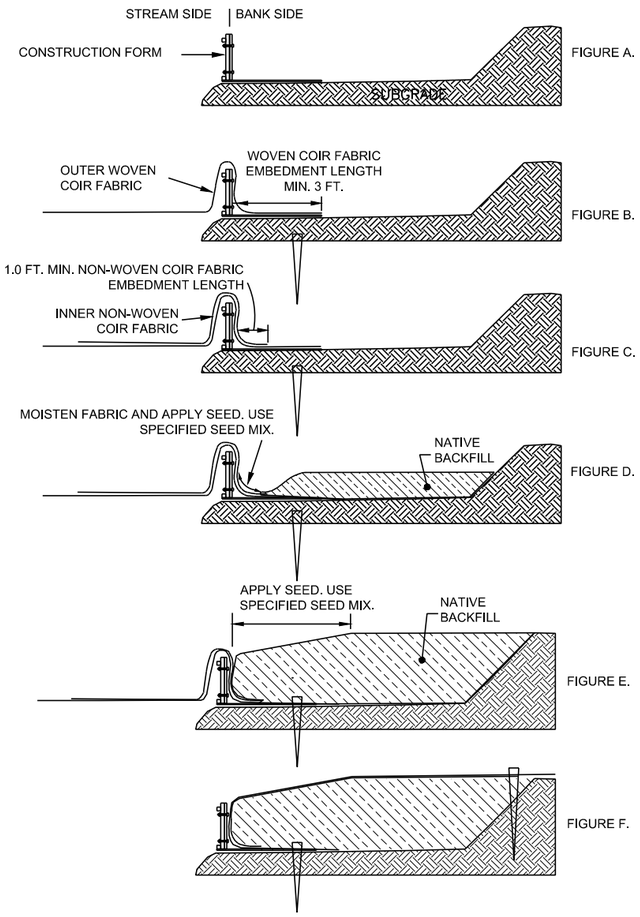
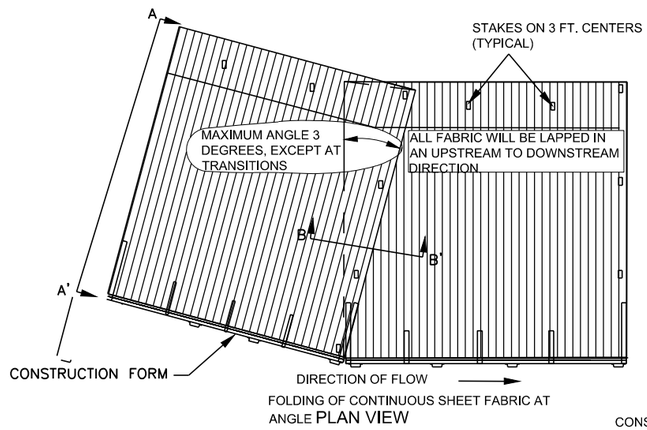
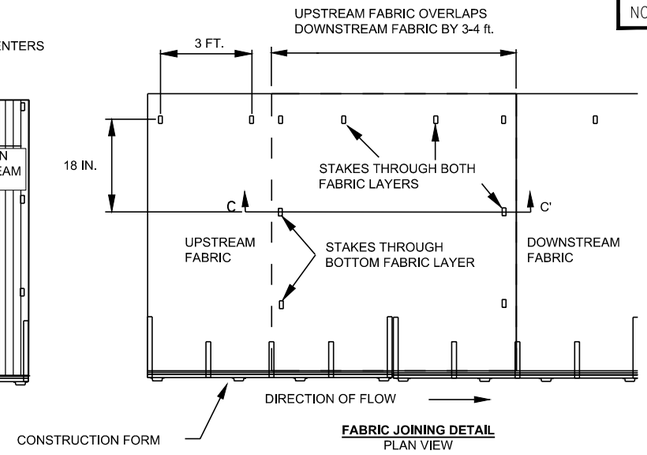
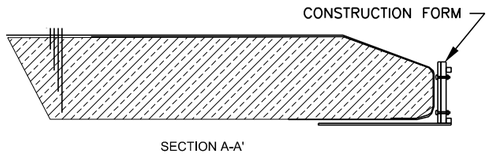
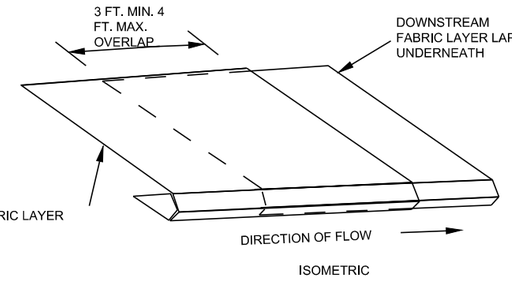
SUGGESTED CONSTRUCTION SEQUENCE FOR FABRIC WRAPPED SOIL LIFT

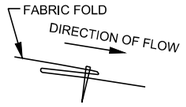


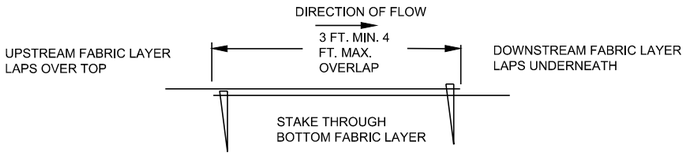












GENERAL NOTES FOR CONSTRUCTING FABRIC WRAPPED SOIL LIFTS

1. BANKS MAY BE CONSTRUCTED IN EITHER AN UPSTREAM OR DOWNSTREAM DIRECTION, AS LONG AS THE FABRIC IS OVERLAPPED IN THE PROPER DIRECTION.
2. PLACE A SERIES OF THREE OR MORE FORMS ON THE SUBGRADE SO THAT THE FORMS FOLLOW THE PROPOSED STREAM BANK ALIGNMENT (FIG. A). BUTT THE ENDS OF THE FORMS TIGHTLY TOGETHER.
3. UNROLL THE OUTER WOVEN COIR FABRIC, PARALLEL TO THE CHANNEL AND POSITION IT SO THAT 3 FT. EXTENDS FOR EMBEDMENT ON THE BANK SIDE OF THE FORMS (FIG. B). DRAPE THE REMAINDER OF THE FABRIC OVER THE TOP OF THE FORMS ON THE STREAM SIDE (FIG. B).
4. UNROLL THE INNER NON-WOVEN COIR FABRIC, OVER THE TOP OF THE OUTER FABRIC AND POSITION IT SO THAT AT LEAST 1 FT. OF THE INNER FABRIC EXTENDS AS AN EMBEDMENT LENGTH ON THE BANK SIDE OF THE FORMS (FIG. C). DRAPE THE REMAINDER OF THE FABRIC OVER THE TOP OF THE FORMS ON THE STREAM SIDE AND ALIGN THE LONG EDGES OF THE INNER AND OUTER FABRICS. STRETCH AND PULL THE FABRIC LAYERS TO REMOVE WRINKLES.
5. PLACE NATIVE BACKFILL MATERIAL OVER THE FABRIC ON THE BANK SIDE OF THE FORMS, LEAVING ROOM FOR SEED AS SHOWN IN FIGURE D. MOISTEN FABRIC AND SPRINKLE SEED ON FABRIC IN AREA INDICATED IN FIGURE D. LEVEL THE NATIVE BACKFILL MATERIAL ACROSS THE WIDTH OF THE SOIL LIFT AND COMPACT TO 75 PERCENT STANDARD DRY DENSITY (SPDD). PLACE AND COMPACT ADDITIONAL NATIVE BACKFILL MATERIAL IN LIFTS THAT ARE APPROXIMATELY 6 IN. THICK UNTIL MEETING THE SPECIFIED HEIGHT OF THE SOIL LIFT (FIG. E). SEED THE BANK SLOPES OF THE SOIL LIFT PRIOR TO WRAPPING THE FABRIC AS SHOWN IN FIG. E.
6. FOLD THE LOOSE ENDS OF THE TWO FABRIC LAYERS BACK OVER THE COMPACTED TOPSOIL MATERIAL AND STRETCH TIGHTLY TO REMOVE WRINKLES (FIG. F). SECURE WITH WOODEN STAKES AT A SPACING OF 3 FT.

GENERAL NOTES ON SECURING FABRIC FOR FES LIFT TREATMENT

1. FORMS MAY BE ANGLED TO CREATE BENDS IN THE LIFTS AS NEEDED. FABRIC SHALL BE FOLDED AT EACH BEND AS SHOWN IN PLAN VIEW. NO BEND SHALL EXCEED A 3 DEGREE ANGLE, EXCEPT AT TRANSITIONS. FOLDS SHALL BE MADE IN AN UPSTREAM TO DOWNSTREAM DIRECTION. STAKE THE FOLDS AS SHOWN IN SECTION B-B'.
2. OUTER FABRIC ENDS SHALL BE JOINED BY LAPPING THE UPSTREAM PIECE OF FABRIC OVER THE DOWNSTREAM PIECE AS SHOWN IN PLAN VIEW. OVERLAPS SHALL BE A MINIMUM OF 3 FT. INNER FABRIC ENDS SHALL BE BUTTED TOGETHER, NOT OVERLAPPED. OVERLAPS SHALL BE STAGGERED FROM LIFT TO LIFT BY A MINIMUM OF 15 FT.
3. SECURE THE BANK SIDE EDGE OF THE OUTER FABRIC (WOVEN), WITH A WOODEN STAKE THROUGH THE FABRIC ON 3 FT. CENTERS (SEE PLAN VIEWS). NOTE: THE HOLES FOR STAKES SHALL NOT BE PRECUT. ALLOW THE STAKE TO BREAK THE MINIMUM NUMBER OF STRANDS AS IT IS BEING DRIVEN. DRIVE STAKES SO THAT A MAXIMUM OF 2 IN. IS LEFT EXPOSED.
4. WOODEN STAKES FOR INSTALLATION OF FABRIC ENCAPSULATED SOIL LIFTS SHALL BE 24 INCHES LONG, AND SHALL CONSIST OF A 2" X 4" PIECE OF LUMBER, RIPPED DIAGONALLY TO FORM A WEDGE SHAPED STAKE.

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PHONE (651) 768-7813

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LEE D. ROSEN, P.E. LICENSE # 51071 — DATE

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MINNEHAHA CREEK WATERSHED DISTRICT

LONG LAKE CREEK CORRIDOR IMPROVEMENT PROJECT - PHASE II

FABRIC ENCAPSULATED LIFT DETAILS

SHEET NUMBER: 13

NAME: Z:\MINNESOTA\MCWD\LONG LAKE CREEK\08_CAD\SHEETS\02481-S-DETAILS.DWG
PLOT DATE: October 2, 2014 1:41 PM, BY: AMY C. TEIGEN

PRELIMINARY
NOT FOR CONSTRUCTION

STORMWATER POLLUTION PREVENTION PLAN (SWPPP):

PROJECT DESCRIPTION:
THE LONG LAKE CREEK IMPROVEMENT PROJECT - PHASE II WILL RETURN LONG LAKE CREEK TO ITS HISTORIC ALIGNMENT AND RESTORE THE DECOMMISIONED WASTE WATER TREATMENT POND (WWTP) INTO A MIXED TYPE WETLAND. THE PROJECT IS LOCATED IN THE CITY OF LONG LAKE, MN ON CITY-OWNED PROPERTIES (230 AND 240 ORONO ORCHARD ROAD). THE PROJECT IS BOUND BY ORONO ORCHARD ROAD, THE HOMES ALONG STONERIDGE CIRCLE AND THE BURLINGTON NORTHERN RAILROAD. THE PROJECT WILL INCLUDE REMOVAL OF AN EXISTING OUTLET STRUCTURE, A CHAINLINK FENCE, AND SEDIMENT, GRADING OF A MEANDERING CHANNEL AND A STEPPED POND, AND THE PLANTING OF A DIVERSE GROUPING OF NATIVE WETLAND VEGETATION.

ROLES & RESPONSIBILITIES:
OWNER: MINNEHAHA CREEK WATERSHED DISTRICT
PROJECT CONTRACTOR:_____(TO BE DETERMINED)
EROSION CONTROL SUPERVISOR:_____(TO BE DETERMINED)
CONTRACTOR WILL PROVIDE THE EROSION CONTROL SUPERVISOR (ECS) IN ACCORDANCE WITH THE MNDOT SPECIFICATION 2573.3 A1.
LONG TERM MAINTENANCE: MINNEHAHA CREEK WATERSHED DISTRICT

PROPOSED SCHEDULE:
DEWATER POND: FALL 2014
CONSTRUCTION START DATE: WINTER 2015
FINAL COMPLETION DATE: SPRING 2015
LONG TERM MAINTENANCE: A MINIMUM OF 3 YEARS AFTER COMPLETION DATE

PROPOSED SEQUENCING:
1. INSTALLATION OF INITIAL EROSION CONTROL BEST MANAGEMENT PRACTICES (BMPS) AS SHOWN ON THE PLANS.
2. POND WILL BE DEWATERED.
3. IMPLEMENT INTERIM EROSION CONTROL BMPS AS WORK IS BEING COMPLETE.
4. REMOVAL OF SEDIMENT AND CLAY LINER.
5. REMOVAL OF THE OUTLET STRUCTURE AND FENCE.
6. GRADING OPERATIONS WITHIN THE WWTP.
7. GRADING OF CHANNEL BETWEEN ORONO ORCHARD ROAD CULVERTS AND WWTP.
8. CONSTRUCTION OF THE BERM TO DIVERT LONG LAKE CREEK INTO RESTORED WETLAND.
9. FINAL STABILIZATION AND PLANTINGS.
10. REMOVAL OF BMPS.
11. LONG TERM MAINTENANCE.

AREA OF DISTURBANCE & IMPERVIOUS SURFACES:
TOTAL AREA OF CONSTRUCTION SITE: 10.0 ACRES
TOTAL AREA OF SEEDING: 7.4 ACRES
PRE-CONSTRUCTION IMPERVIOUS AREA: 0.0 (NOT INCLUDING WATER SURFACE)
POST-CONSTRUCTION IMPERVIOUS AREA: 0.0 (NOT INCLUDING WATER SURFACE)

EXISTING SOIL DATA:
WITHIN THE PROPOSED WETLAND RESTORATION AREA CONSISTS OF 0 - 1.5' OF SEDIMENT, A 1-2' THICK CLAY LINER, AND FIBROUS PEAT FOR AT LEAST 15 FEET BELOW THE CLAY LINER. SOILS IN UPLAND AREAS ARE PREDOMINANTLY LOAMY GLACIAL TILL WITH LENSES OF STRATIFIED SEDIMENT. GLACIAL TILL IS GREATER THAN 20 FEET IN THICKNESS. HIGHLY DECOMPOSED ORGANIC MATERIAL DOMINATES THE LOW LYING AREAS. ORGANIC SOIL DEPOSITS ARE GREATER THAN 10 FEET IN THICKNESS. NO SUSCEPTIBLE GEOLOGIC FEATURES SUCH AS SINKHOLES, SHALLOW LIMESTONE FORMATIONS, KARST FEATURES OR UNCONFINED AQUIFERS WERE NOTED. GROUNDWATER DEPTH IS LESS THAN 10 FEET DEEP IN THE LOW-LYING AREAS.

EXISTING VEGETATION:
THE EXISTING VEGETATION WITHIN THE PROJECT SITE CONSISTS OF A MIX OF RIPARIAN AND UPLAND. WETLANDS INCLUDE SHALLOW OPEN WATER COMMUNITIES, SHALLOW MARSH TYPE 3 AND UPLAND BUFFER. A FEW INVASIVE SPECIES SUCH AS REED CANARY GRASS AND BUCKTHORN HAVE BEEN IDENTIFIED WITHIN THE PROJECT LIMITS. ADJACENT TO THE ROADWAY IS TURF GRASS. THE VEGETATIVE COVER CAN BE ESTIMATED AT APPROXIMATELY 95%.

RECEIVING WATER:
THE PROJECT INVOLVES LONG LAKE CREEK, WHICH IS THE RECEIVING WATER FOR ANY RUNOFF FROM THE SITE. LONG LAKE CREEK FLOWS APPROXIMATELY 2 MILES DOWNSTREAM TO TANAGER LAKE. THERE ARE NO SPECIAL OR IMPAIRED BODIES OF WATER WITHIN ONE MILE FOR THE PROJECT DISCHARGE AND THEREFORE APPENDIX A REQUIREMENTS DO NOT APPLY TO THIS PROJECT.

STORMWATER DISCHARGE DESIGN REQUIREMENTS:
THIS PROJECT DOES NOT ADD ANY IMPERVIOUSNESS. THE FORMER WWTP WILL BE MODIFIED INTO A WETLAND TO PROVIDE REGIONAL WATER QUALITY, BUT A PRE-TREATMENT BASIN WILL BE CONSTRUCTED TO CAPTURE THE DIRECT RUNOFF. THE DESIGN GRADING, CROSS SECTIONS AND DETAILS ARE INCLUDED WITHIN THE PLAN SET. DETAILED PLANTING PLANS AND SEED MIXES ARE INCLUDED IN THE PLAN SET TO ESTABLISH A DIVERSE SET OF WETLANDS WITHIN THE PROJECT AREA TO IMPROVE WATER QUALITY AND PROVIDE HABITAT.

CONSTRUCTION ACTIVITY REQUIREMENTS:
PERIMETER CONTROLS AND OTHER INITIAL BMPS SHALL BE INSTALLED AND APPROVED BY THE MCWD PROJECT MANAGER PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THE PROPOSED LOCATIONS OF THE BMPS FOR THE INITIAL, INTERIM AND FINAL STAGES OF CONSTRUCTION ARE INCLUDED IN THE PLAN SET. ADDITIONAL BMPS MAY BE REQUIRED TO MAINTAIN COMPLIANCE BASED ON THE MEANS AND METHODS OF THE CONTRACTOR AND SHALL BE INSTALLED TO MEET NPDES PERMIT REQUIREMENTS. IN SOME CASES, MULTIPLE APPLICATIONS OF BMPS MAY BE NECESSARY. THE BMPS SHALL BE INSTALLED ACCORDING TO THE EROSION CONTROL DETAILS INCLUDED WITHIN THE PLAN SET OR IF NOT AVAILABLE, THE MNDOT STANDARD PLANS AND SPECIFICATIONS. ALL WORK IS TO BE COMPLETED IN COMPLIANCE WITH THE DNR'S BEST PRACTICES MANUAL FOR MEETING DNR GENERAL PUBLIC WATERS WORK PERMIT GP 2004-0001. THE SWPPP QUANTITIES ARE SPECIFICALLY BROKEN OUT WITHIN THE OVERALL QUANTITIES.

INSPECTION AND RECORD KEEPING NOTES:

1. THE SWPPP MUST BE KEPT AT THE SITE DURING CONSTRUCTION AND INCLUDE ALL CHANGES, INSPECTIONS AND MAINTENANCE RECORD.

2. THE EROSION CONTROL SUPERVISOR SHALL ROUTINELY INSPECT THE ENTIRE CONSTRUCTION SITE AT LEAST ONCE EVERY SEVEN (7) DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS. FOLLOWING AN INSPECTION THAT OCCURS WITHIN 24 HOURS AFTER A RAINFALL EVENT, THE NEXT INSPECTION MUST BE CONDUCTED WITHIN SEVEN (7) DAYS AFTER THE RAINFALL EVENT. RAINFALL AMOUNTS MUST BE OBTAINED BY A PROPERLY MAINTAINED RAIN GAUGE INSTALLED ON SITE OR BY A WEATHER STATION LOCATED WITHIN ONE MILE OF THE SITE OR BY A WEATHER REPORTING SYSTEM.

3. ALL INSPECTIONS AND MAINTENANCE CONDUCTED DURING CONSTRUCTION MUST BE RECORDED WITHIN 24 HOURS IN WRITING AND SHALL INCLUDE:
   a. DATE AND TIME OF INSPECTIONS
   b. NAME OF PERSON(S) CONDUCTING INSPECTIONS
   c. FINDINGS OF INSPECTIONS, INCLUDING THE SPECIFIC LOCATION WHERE CORRECTIVE ACTIONS ARE NEEDED
   d. CORRECTIVE ACTIONS TAKEN (INCLUDING DATES, TIMES, AND PARTY COMPLETING MAINTENANCE ACTIVITIES)
   e. DATE AND AMOUNT OF ALL RAINFALL EVENTS GREATER THAN 1/2 INCH (0.5 INCHES) IN 24 HOURS.
   f. IF ANY DISCHARGE IS OBSERVED TO BE OCCURRING DURING THE INSPECTION, A RECORD OF ALL POINTS OF THE PROPERTY FROM WHICH THERE IS A DISCHARGE MUST BE MADE, AND THE DISCHARGE SHOULD BE DESCRIBED (I.E., COLOR, ODOR, FLOATING, SETTLED, OR SUSPENDED SOLIDS, FOAM, OIL SHEEN, AND OTHER OBVIOUS INDICATORS OF POLLUTANTS) AND PHOTOGRAPHED.
   g. ANY AMENDMENTS TO THE SWPPP PROPOSED AS A RESULT OF THE INSPECTION MUST BE DOCUMENTED AS REQUIRED IN PART III.B. WITHIN SEVEN (7) CALENDAR DAYS.

4. ANY AMENDMENTS TO THE SWPPP SHALL BE APPROVED BY THE PROJECT ENGINEER.

BMP INSTALLATION AND MAINTENANCE NOTES:

1. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH CITY, WATERSHED DISTRICT AND N.P.D.E.S. PERMITS.

2. STABILIZATION MUST BE INITIATED IMMEDIATELY TO LIMIT SOIL EROSION WHENEVER ANY CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS. STABILIZATION MUST BE COMPLETED NO LATER THAN 14 CALENDAR DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.

3. TRACKED SEDIMENT MUST BE REMOVED FROM ALL PAVED SURFACES BOTH ON AND OFF SITE WITHIN 24 HOURS OF DISCOVERY. STREET SWEEPING SHALL BE REQUIRED IF VEHICLE TRACKING BMPS ARE NOT ADEQUATE TO PREVENT SEDIMENT FROM BEING TRACKED ONTO THE STREET.

4. ALL PERIMETER CONTROL DEVICES MUST BE REPAIRED, REPLACED, OR SUPPLEMENTED WHEN THEY BECOME NONFUNCTIONAL OR THE SEDIMENT REACHES ONE-HALF (1/2) OF THE HEIGHT OF THE DEVICE. THESE REPAIRS MUST BE MADE BY THE END OF THE NEXT BUSINESS DAY AFTER DISCOVERY, OR THEREAFTER AS SOON AS FIELD CONDITIONS ALLOW ACCESS.

5. SURFACE WATERS MUST BE INSPECTED FOR EVIDENCE OF EROSION AND SEDIMENT DEPOSITION DURING EACH INSPECTION. THE REMOVAL AND STABILIZATION MUST TAKE PLACE WITHIN SEVEN (7) DAYS OF DISCOVERY UNLESS PRECLUDED BY LEGAL, REGULATORY, OR PHYSICAL ACCESS CONSTRAINTS.

6. ANY EXCESS SEDIMENT IN PROPOSED BASINS SHALL BE REMOVED BY THE CONTRACTOR.

7. STORM DRAIN INLET PROTECTION SHALL BE REQUIRED FOR ALL CATCH BASINS IMMEDIATELY ADJACENT TO AND DOWNSTREAM OF THE WORK, AND SHALL BE INSTALLED PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL INSPECT STORM DRAIN INLET PROTECTION EVERY 7 DAYS AND WITHIN 24 HOURS AFTER EVERY RAIN EVENT. CONTRACTOR SHALL REPLACE OR CLEAN IF IT BECOMES NONFUNCTIONAL. CONTRACTOR SHALL CLEAN SUMP IF SEDIMENT IS WITHIN 12 INCHES OF OUTLET PIPE.

POLLUTION PREVENTION MANAGEMENT MEASURES:

1. PRODUCTS THAT HAVE THE POTENTIAL TO LEACH POLLUTANTS MUST BE UNDER COVER (E.G., PLASTIC SHEETING OR TEMPORARY ROOFS) TO PREVENT THE DISCHARGE OF POLLUTANTS OR PROTECTED BY A SIMILARLY EFFECTIVE MEANS DESIGNED TO MINIMIZE CONTACT WITH STORMWATER.

2. PESTICIDES, HERBICIDES, INSECTICIDES, FERTILIZERS, TREATMENT CHEMICALS, AND LANDSCAPE MATERIALS MUST BE UNDER COVER (E.G., PLASTIC SHEETING OR TEMPORARY ROOFS) TO PREVENT THE DISCHARGE OF POLLUTANTS OR PROTECTED BY SIMILARLY EFFECTIVE MEANS DESIGNED TO MINIMIZE CONTACT WITH STORMWATER.

3. HAZARDOUS MATERIALS, TOXIC WASTE, (INCLUDING OIL, DIESEL FUEL, GASOLINE, HYDRAULIC FLUIDS, PAINT SOLVENTS, PETROLEUM-BASED PRODUCTS, WOOD PRESERVATIVES, ADDITIVES, CURING COMPOUNDS, AND ACIDS) MUST BE PROPERLY STORED IN SEALED CONTAINERS TO PREVENT SPILLS, LEAKS OR OTHER DISCHARGE. RESTRICTED ACCESS STORAGE AREAS MUST BE PROVIDED TO PREVENT VANDALISM. STORAGE AND DISPOSAL OF HAZARDOUS WASTE OR HAZARDOUS MATERIALS MUST BE IN COMPLIANCE WITH MINN. R. CH. 7045 INCLUDING SECONDARY CONTAINMENT AS APPLICABLE.

4. SOLID WASTE MUST BE STORED, COLLECTED AND DISPOSED OF PROPERLY IN COMPLIANCE WITH MINN. R. CH. 7035.

5. PORTABLE TOILETS MUST BE POSITIONED SO THAT THEY ARE SECURE AND WILL NOT BE TIPPED OR KNOCKED OVER. SANITARY WASTE MUST BE DISPOSED OF PROPERLY IN ACCORDANCE WITH MINN. R. CH. 7041.

6. FUELING SHALL BE CONDUCTED IN A CONTAINED AREA UNLESS INFEASIBLE. THE CONTRACTOR SHALL TAKE REASONABLE STEPS TO PREVENT THE DISCHARGE OF SPILLED OR LEAKED CHEMICALS, INCLUDING FUEL, FROM ANY AREA WHERE CHEMICALS OR FUEL WILL BE LOADED OR UNLOADED INCLUDING THE USE OF DRIP PANS OR ABSORBENTS UNLESS INFEASIBLE

7. TRUCK AND CONSTRUCTION VEHICLE WASHING IS PROHIBITED ON SITE. ENGINE DEGREASING IS ALSO PROHIBITED ON SITE.

SPILL RESPONSE MEASURES:

1. ADEQUATE SUPPLIES SHALL BE AVAILABLE AT ALL TIMES TO CLEAN UP DISCHARGED MATERIALS AND THAT AN APPROPRIATE DISPOSAL METHOD IS AVAILABLE FOR RECOVERED SPILLED MATERIALS.

2. ALL WORK ON THE SITE SHALL CEASE ON THE SITE UNTIL ADEQUATE CLEANUP HAS BEEN ACHIEVED.

3. SPILLS MUST BE REPORTED TO THE OWNER, PROJECT ENGINEER, AND THE STATE DUTY OFFICER (1-800-422-0798) AND CLEANED UP IMMEDIATELY AS REQUIRED BY MINN. STAT. § 115.061.

4. DRY CLEAN UP MEASURES SHALL BE USED WHERE POSSIBLE.

PERMIT CLOSEOUT:

1. ALL SOIL DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED AND ALL SOILS ARE STABILIZED BY A UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70 PERCENT OF ITS EXPECTED FINAL GROWTH DENSITY OVER THE ENTIRE PERVIOUS SURFACE AREA, OR OTHER EQUIVALENT MEANS NECESSARY TO PREVENT SOIL FAILURE UNDER EROSIVE CONDITIONS.

2. THE PERMANENT STORMWATER MANAGEMENT SYSTEM IS CONSTRUCTED, MEETS ALL REQUIREMENTS AND IS OPERATING AS DESIGNED. TEMPORARY OR PERMANENT SEDIMENTATION BASINS THAT ARE TO BE USED AS PERMANENT WATER QUALITY MANAGEMENT BASINS HAVE BEEN CLEANED OF ANY ACCUMULATED SEDIMENT. ALL SEDIMENT HAS BEEN REMOVED FROM CONVEYANCE SYSTEMS AND DITCHES ARE STABILIZED WITH PERMANENT COVER.

3. ALL TEMPORARY SYNTHETIC AND STRUCTURAL BMPS (SUCH AS SILT FENCE) SHALL BE REMOVED FROM THE SITE. BMPS DESIGNED TO DECOMPOSE ON SITE (SUCH AS SOME COMPOST LOGS) MAY BE LEFT IN PLACE.

4. ANY SEDIMENT REMAINING IN PLACE AFTER THE EROSION CONTROL DEVICE IS NO LONGER REQUIRED SHALL BE REMOVED TO CONFORM WITH THE EXISTING GRADE, PREPARED, AND SEEDED WITH THE APPROPRIATE SEED MIX AS DIRECTED BY THE OWNER.

5. SUBMIT THE NOTICE OF TERMINATION (NOT) TO THE MPCA.

OTHER DOCUMENTS:

THE DESIGN MANUAL AND PROJECT SPECIFICATIONS ARE HEREBY INCLUDED AS PART OF THIS SWPPP.

ENDANGERED SPECIES NOTICE:

1. IT SHOULD BE NOTED THAT THE BLANDING'S TURTLE HAS BEEN SPOTTED IN THE VICINITY OF THIS PROJECT. IF ONE SHOULD BE FOUND DURING CONSTRUCTION, IT SHOULD BE MOVED BY HAND TO THE JEDI POND. LOCATED NORTHWEST OF THE CONSTRUCTION LIMITS.

2. THE CONTRACTOR SHALL POST PICTURES OF THE TURTLE AT THE SITE.

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DRAWN ACT
CHECKED LDR
DATE 10-3-14

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LEE D. ROSEN, P.E. DATE
LICENSE # 51071

811 Know what's below. Call before you dig.

15320 MINNETONKA BLVD.
MINNETONKA, MN 55345
(952) 471-0590
www.minnehahacreek.org

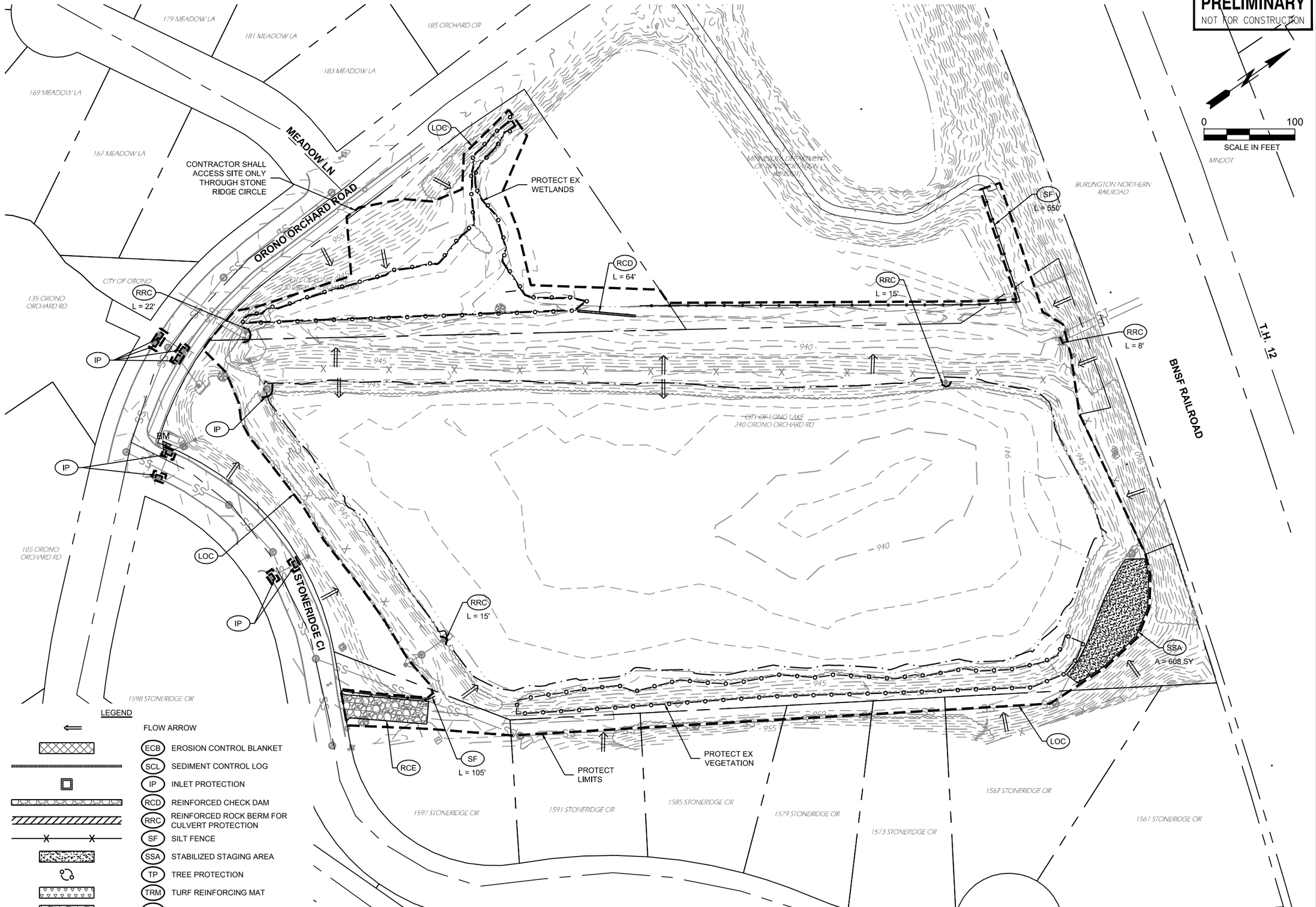
MINNEHAHA CREEK WATERSHED DISTRICT

LONG LAKE CREEK CORRIDOR IMPROVEMENT PROJECT - PHASE II

SWPPP

SHEET NUMBER:
14

PRELIMINARY
NOT FOR CONSTRUCTION



LEGEND

⇐	FLOW ARROW
ECB	EROSION CONTROL BLANKET
SCL	SEDIMENT CONTROL LOG
IP	INLET PROTECTION
RCD	REINFORCED CHECK DAM
RRC	REINFORCED ROCK BERM FOR CULVERT PROTECTION
SF	SILT FENCE
SSA	STABILIZED STAGING AREA
TP	TREE PROTECTION
TRM	TURF REINFORCING MAT
RCE	ROCK CONSTRUCTION ENTRANCE

NAME: Z:\MINNESOTA\MCWD\LONG LAKE CREEK\08_CAD\SHEETS\02481-S-EROSION.DWG
PLOT DATE: October 2, 2014 2:58 PM , BY: AMY C. TEIGEN

RESPEC
1935 W. COUNTY ROAD B2
SUITE 320
ROSEVILLE, MN 55113
PHONE (651) 788-7813

REVISION

DESIGNED	LDR	
DRAWN	AGT	
CHECKED	LDR	10-3-14
DATE---		

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MINNEHAHA CREEK WATERSHED DISTRICT

LONG LAKE CREEK CORRIDOR IMPROVEMENT PROJECT - PHASE II

EROSION CONTROL PLAN (INITIAL)

SHEET NUMBER:
15

PRELIMINARY
NOT FOR CONSTRUCTION

0 100
SCALE IN FEET

MEADOW LN
ORONO ORCHARD ROAD
STONERIDGE CI
T.H. 12
BNSF RAILROAD
BURLINGTON NORTHERN RAILROAD
MINNESOTA DEPARTMENT OF TRANSPORTATION (MNDOT)
CITY OF LONG LAKE 240 ORONO ORCHARD RD
CITY OF ORONO 30 ORONO ORCHARD RD

CONTRACTOR SHALL ACCESS SITE ONLY THROUGH STONE RIDGE CIRCLE

PROTECT EX WETLANDS

PROTECT LIMITS

PROTECT EX VEGETATION

179 MEADOW LA
181 MEADOW LA
183 MEADOW LA
185 ORCHARD CIR
169 MEADOW LA
167 MEADOW LA
135 ORONO ORCHARD RD
105 ORONO ORCHARD RD
1598 STONERIDGE CIR
1597 STONERIDGE CIR
1591 STONERIDGE CIR
1585 STONERIDGE CIR
1579 STONERIDGE CIR
1573 STONERIDGE CIR
1567 STONERIDGE CIR
1561 STONERIDGE CIR

SCL L = 48'
SCL L = 139'
SCL L = 288'
ECB A = 387 SY
ECB A = 583 SY
SCL L = 37'
SCL L = 25'
SCL L = 35'
SCL L = 282'
RRC L = 22'
RCD L = 64'
RRC L = 15'
RRC L = 15'
SCL L = 105'
TRM A = 538 SY
RRC L = 8'
ECB A = 185 SY
SCL L = 10'
SCL L = 10'
SCL L = 10'
SCL L = 10'
RRC L = 15'
SF L = 105'
SF L = 650'
SSA A = 668 SY
ECB A = 3,763 SY
LOC
IP
RM

NOTE:
SEE PLANTING PLAN SHEET 20 FOR SEEDING.

LEGEND

⇐	FLOW ARROW
ECB	EROSION CONTROL BLANKET
SCL	SEDIMENT CONTROL LOG
IP	INLET PROTECTION
RCD	REINFORCED CHECK DAM
RRC	REINFORCED ROCK BERM FOR CULVERT PROTECTION
SF	SILT FENCE
SSA	STABILIZED STAGING AREA
TP	TREE PROTECTION
TRM	TURF REINFORCING MAT
RCE	ROCK CONSTRUCTION ENTRANCE

NAME: Z:\MINNESOTA\MCWD\LONG LAKE CREEK\08_CAD\SHEETS\02481-S-EROSION.DWG
PLOT DATE: October 2, 2014 2:58 PM , BY: AMY C. TEIGEN

REVISION

RESPEC
1935 W. COUNTY ROAD B2
SUITE 320
ROSEVILLE, MN 55113
PHONE (651) 788-7813

DESIGNED LDR
DRAWN AGT
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DATE--- 10-3-14

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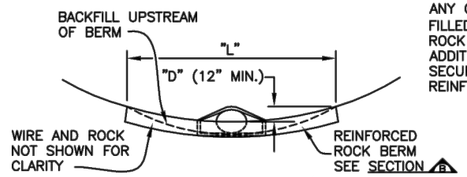
MINNEHAHA CREEK WATERSHED DISTRICT

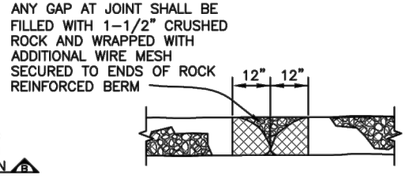
LONG LAKE CREEK CORRIDOR IMPROVEMENT PROJECT - PHASE II

EROSION CONTROL PLAN (INTERIM & FINAL)

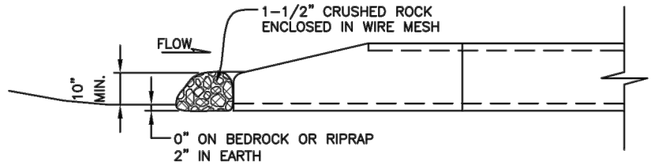
SHEET NUMBER:
16



SECTION A
SCALE: 1" = 10'-0"

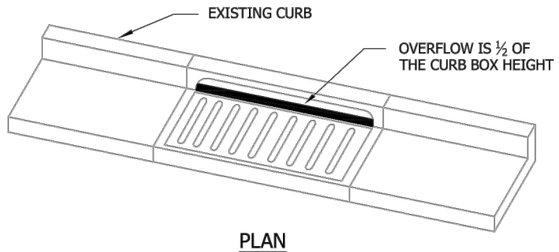


JOINT DETAIL
SCALE: 1/4" = 1'-0"



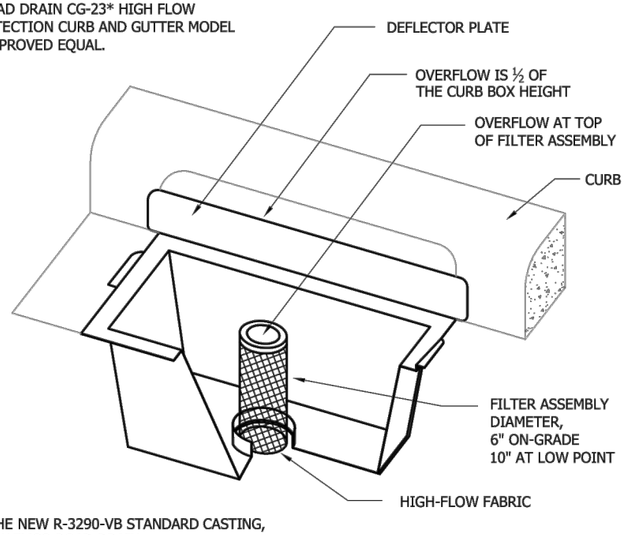
SECTION B
SCALE: 1/4" = 1'-0"

REINFORCED ROCK BERM FOR CULVERT PROTECTION
SCALE: NTS



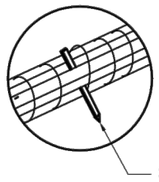
PLAN

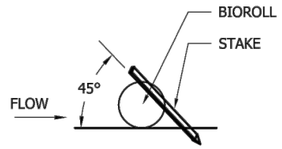
WIMCO ROAD DRAIN CG-23* HIGH FLOW
INLET PROTECTION CURB AND GUTTER MODEL
OR CITY APPROVED EQUAL.



* FOR THE NEW R-3290-VB STANDARD CASTING,
INSTALL WIMCO ROAD DRAIN
CG-3290 OR CITY APPROVED EQUAL.

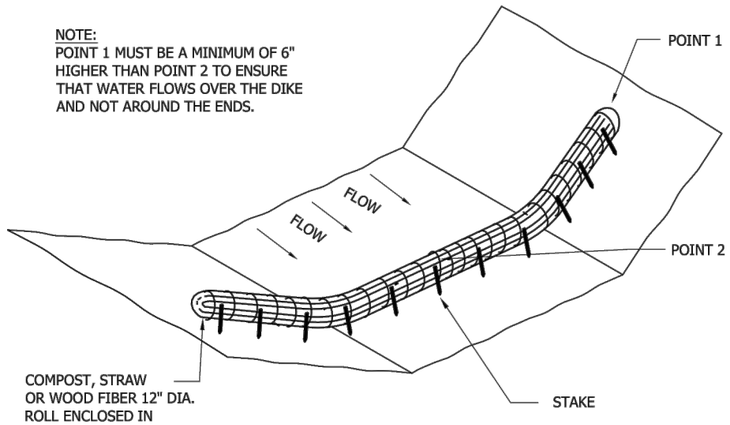
INLET PROTECTION *
SCALE: NTS



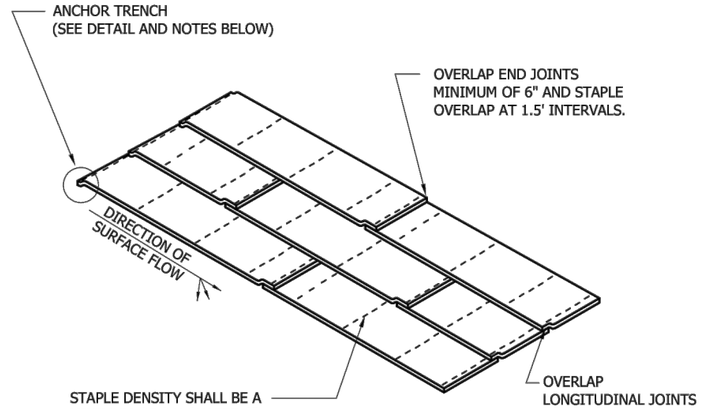


2" x 2" x 16" LONG WOODEN STAKES
AT 1'-0" SPACING MINIMUM. STAKES
SHALL BE DRIVEN THROUGH THE
BACK HALF OF THE COMPOST LOG AT
AN ANGLE OF 45° WITH THE TOP OF
THE STAKE POINTING UPSTREAM.

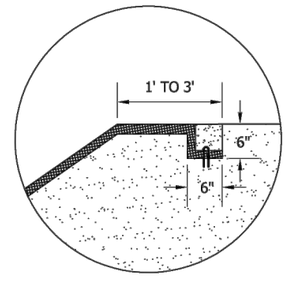
NOTE:
POINT 1 MUST BE A MINIMUM OF 6"
HIGHER THAN POINT 2 TO ENSURE
THAT WATER FLOWS OVER THE DIKE
AND NOT AROUND THE ENDS.



SEDIMENT CONTROL LOG *
SCALE: NTS



ANCHOR TRENCH
1. DIG 6" X 6" TRENCH
2. LAY BLANKET IN TRENCH
3. STAPLE AT 1.5' INTERVALS
4. BACKFILL WITH NATURAL SOIL AND COMPACT
5. BLANKET LENGTH SHALL NOT EXCEED 100'
WITHOUT AN ANCHOR TRENCH



EROSION CONTROL BLANKET *
SCALE: NTS

EROSION DETAILS CAME FROM THE FOLLOWING:
* CITY OF WOODBURY STANDARD DETAILS
**MnDOT STANDARD DETAILS

NAME: Z:\MINNESOTA\MCWD\LONG LAKE CREEK\08_CAD\SHEETS\02481-S-EROSION DETAILS.DWG
PLOT DATE: October 2, 2014 1:42 PM. BY: AMY C. TEIGEN

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NOT FOR CONSTRUCTION

REVISION

RESPEC
1935 W. COUNTY ROAD B2
SUITE 320
ROSEVILLE, MN 55113
PHONE (651) 788-7813

DESIGNED LDR
DRAWN ACT
CHECKED LDR
DATE 10-2-14

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LICENSE # 51071

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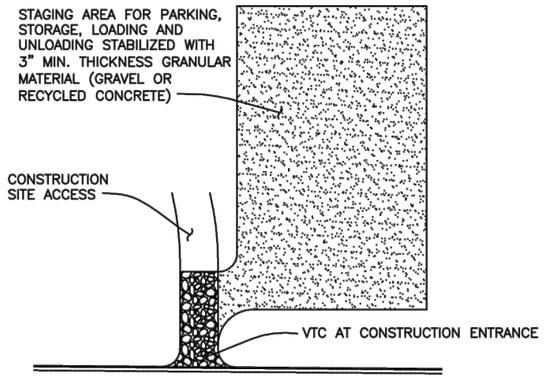
MINNEHAHA CREEK
WATERSHED DISTRICT

LONG LAKE CREEK
CORRIDOR
IMPROVEMENT
PROJECT - PHASE II

EROSION CONTROL
DETAILS (1 OF 3)

SHEET NUMBER:
17

PRELIMINARY
NOT FOR CONSTRUCTION



PLAN
SCALE: N.T.S.

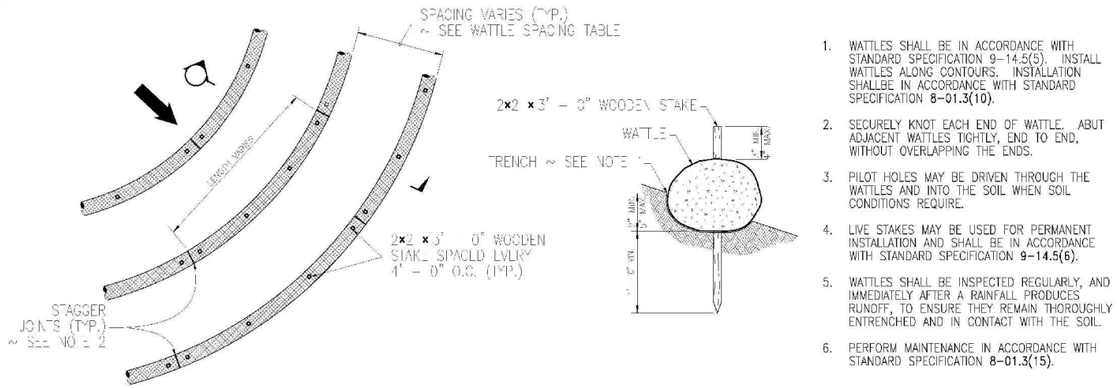
STABILIZED STAGING AREA INSTALLATION NOTES

1. SEE PLAN VIEW FOR GENERAL LOCATION OF STAGING AREA. CONTRACTOR MAY MODIFY LOCATION AND SIZE OF STABILIZED STAGING AREA WITH COUNTY APPROVAL.
2. STABILIZED STAGING AREA SHALL BE LARGE ENOUGH TO FULLY CONTAIN PARKING, STORAGE, AND UNLOADING AND LOADING OPERATIONS.
3. IF REQUIRED BY THE COUNTY, SITE ACCESS ROADS SHALL BE STABILIZED IN THE SAME MANNER AS THE STAGING AREA.
4. STAGING AREA SHALL BE STABILIZED PRIOR TO ANY OTHER OPERATIONS ON THE SITE.
5. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM OF 3" OF GRANULAR MATERIAL (GRAVEL OR RECYCLED CONCRETE).

STABILIZED STAGING AREA MAINTENANCE NOTES

1. THE MANAGER SHALL INSPECT THE STABILIZED STAGING AREA WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.
2. MANAGER SHALL PROVIDE ADDITIONAL THICKNESS OF GRANULAR MATERIAL IF ANY RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.
3. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING AND LOADING OPERATIONS.
4. ANY ACCUMULATED DIRT OR MUD SHALL BE REMOVED FROM THE SURFACE OF THE STABILIZED STAGING AREA.
5. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE COUNTY, USED ON SITE, AND THE AREA TOPSOILED, DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED.

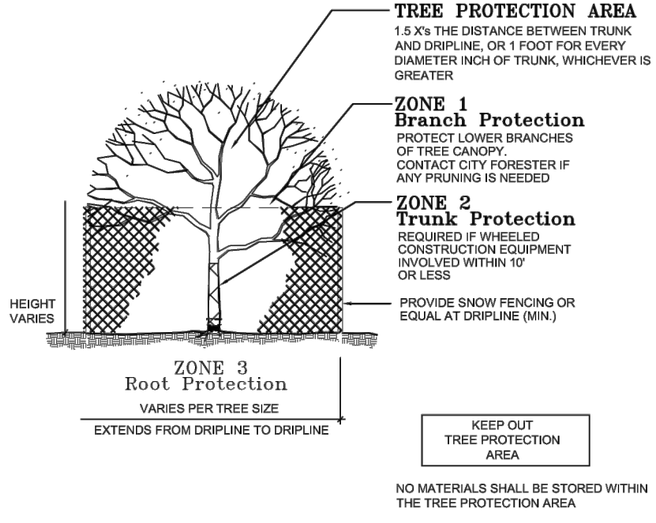
STABILIZED STAGING AREA
SCALE: NTS



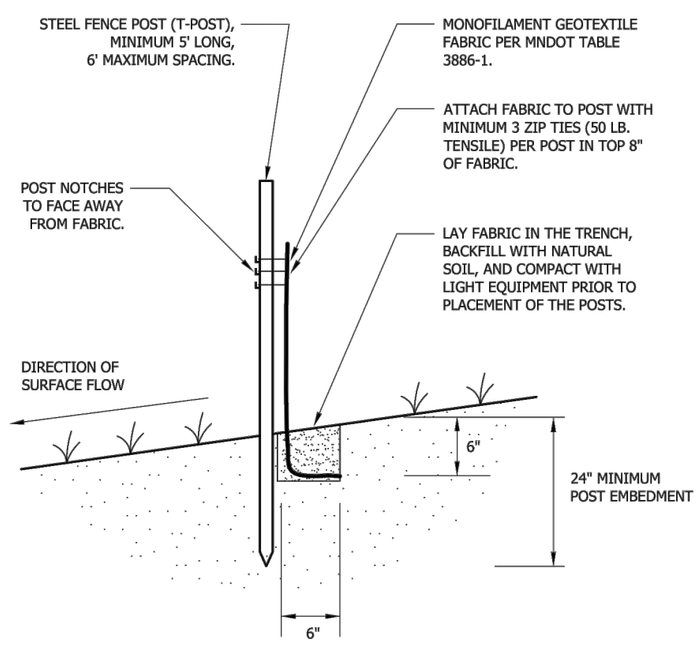
1:1	10' - 0"
2:1	20' - 0"
3:1	30' - 0"
4:1	40' - 0"

1. WATTLES SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION 9-14.5(5). INSTALL WATTLES ALONG CONTOURS. INSTALLATION SHALLBE IN ACCORDANCE WITH STANDARD SPECIFICATION 8-01.3(10).
2. SECURELY KNOT EACH END OF WATTLE. ABUT ADJACENT WATTLES TIGHTLY, END TO END, WITHOUT OVERLAPPING THE ENDS.
3. PILOT HOLES MAY BE DRIVEN THROUGH THE WATTLES AND INTO THE SOIL WHEN SOIL CONDITIONS REQUIRE.
4. LIVE STAKES MAY BE USED FOR PERMANENT INSTALLATION AND SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION 9-14.5(6).
5. WATTLES SHALL BE INSPECTED REGULARLY, AND IMMEDIATELY AFTER A RAINFALL PRODUCES RUNOFF, TO ENSURE THEY REMAIN THOROUGHLY ENTRENCHED AND IN CONTACT WITH THE SOIL.
6. PERFORM MAINTENANCE IN ACCORDANCE WITH STANDARD SPECIFICATION 8-01.3(15).

SEDIMENT CONTROL LOGS**
SCALE: NTS



TREE PROTECTION DETAIL
SCALE: NTS



SILT FENCE *
SCALE: NTS

EROSION DETAILS CAME FROM THE FOLLOWING:
* CITY OF WOODBURY STANDARD DETAILS
**MnDOT STANDARD DETAILS

RESPEC
1935 W. COUNTY ROAD B2
SUITE 320
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PHONE (651) 788-7813

REVISION

DESIGNED	LDR
DRAWN	AGT
CHECKED	LDR
DATE---	10-3-14

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MINNEHAHA CREEK
WATERSHED DISTRICT

LONG LAKE CREEK CORRIDOR IMPROVEMENT PROJECT - PHASE II

EROSION CONTROL DETAILS (2 OF 3)

SHEET NUMBER:
18

NAME: Z:\MINNESOTA\MCWD\LONG LAKE CREEK\08_CAD\SHEETS\02481-S-EROSION DETAILS.DWG
PLOT DATE: October 2, 2014 1:45 PM , BY: AMY C. TEIGEN

PRELIMINARY
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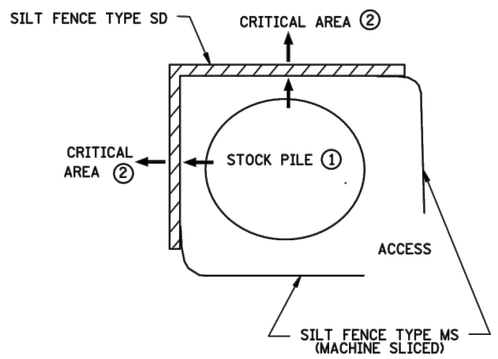
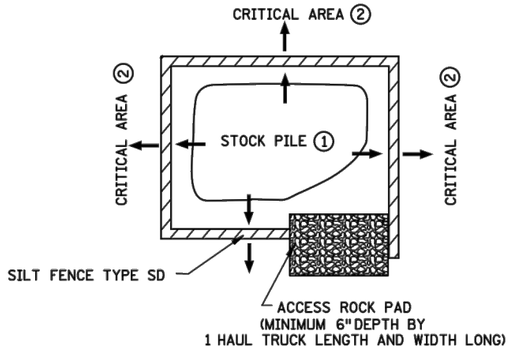
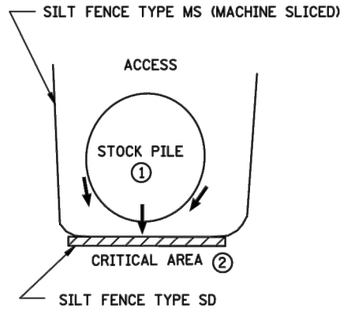
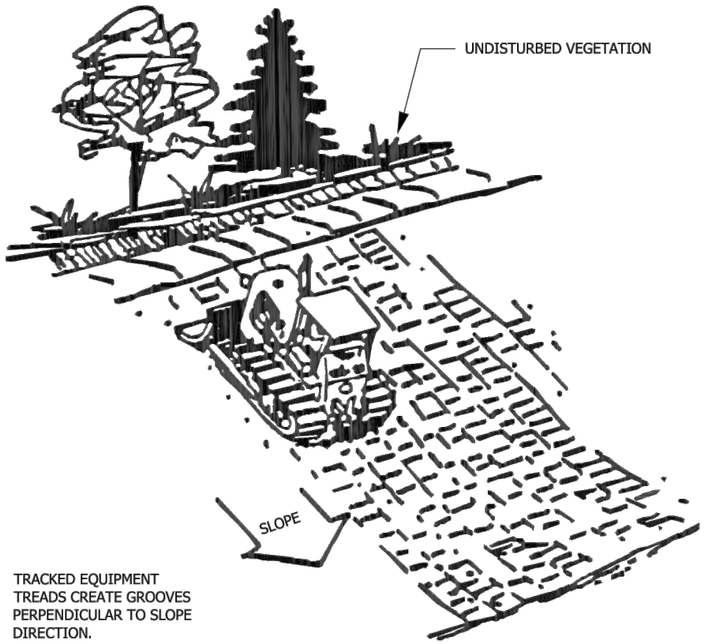






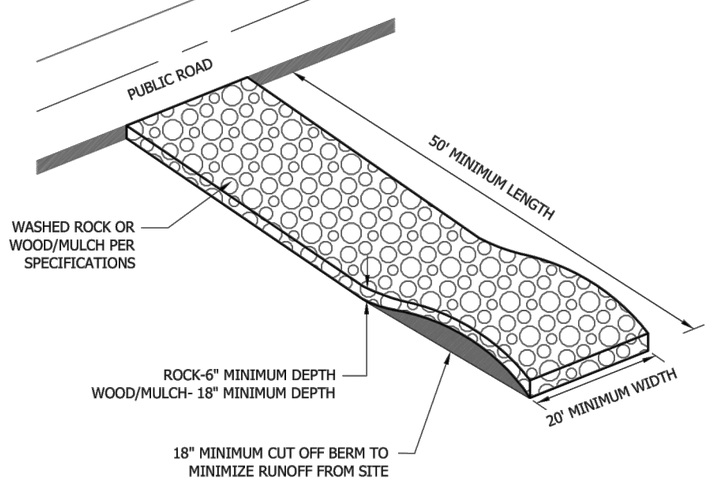
STOCKPILE CONTAINMENT **
SCALE: NTS



TRACKED EQUIPMENT
TREADS CREATE GROOVES
PERPENDICULAR TO SLOPE
DIRECTION.

NOTE:
ALL SLOPES WITH A GRADE EQUAL TO OR STEEPER THAN 3:1 REQUIRE SLOPE TRACKING. SLOPES WITH A GRADE MORE GRADUAL THAN 3:1 REQUIRE SLOPE TRACKING IF THE STABILIZATION METHOD IS EROSION CONTROL BLANKET OR HYDROMULCH.

SLOPE TRACKING *
SCALE: NTS



NOTES:
1. FILTER FABRIC SHALL BE PLACED UNDER ROCK OR MULCH TO STOP MUD MIGRATION THROUGH MATERIAL.
2. ENTRANCE MUST BE MAINTAINED REGULARLY TO PREVENT SEDIMENTATION ON PUBLIC ROADWAYS. FUGITIVE ROCK OR MULCH WILL BE REMOVED FROM ADJACENT ROADWAYS DAILY OR MORE FREQUENTLY AS NECESSARY.

TEMPORARY ROCK CONSTRUCTION ENTRANCE *
SCALE: NTS

EROSION DETAILS CAME FROM THE FOLLOWING:
* CITY OF WOODBURY STANDARD DETAILS
**MnDOT STANDARD DETAILS

NAME: Z:\MINNESOTA\MCW\DWG\LONG LAKE CREEK\08_CADSHEETS\02481-S-EROSION DETAILS.DWG
PLOT DATE: October 2, 2014 1:43 PM , BY: AMY C. TEIGEN

RESPEC
1935 W. COUNTY ROAD B2
SUITE 320
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PHONE (651) 768-7813

REVISION

DESIGNED	LDR		
DRAWN	ACT		
CHECKED	LDR		
DATE--	10-2-14		

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WATERSHED DISTRICT

LONG LAKE CREEK
CORRIDOR
IMPROVEMENT
PROJECT - PHASE II

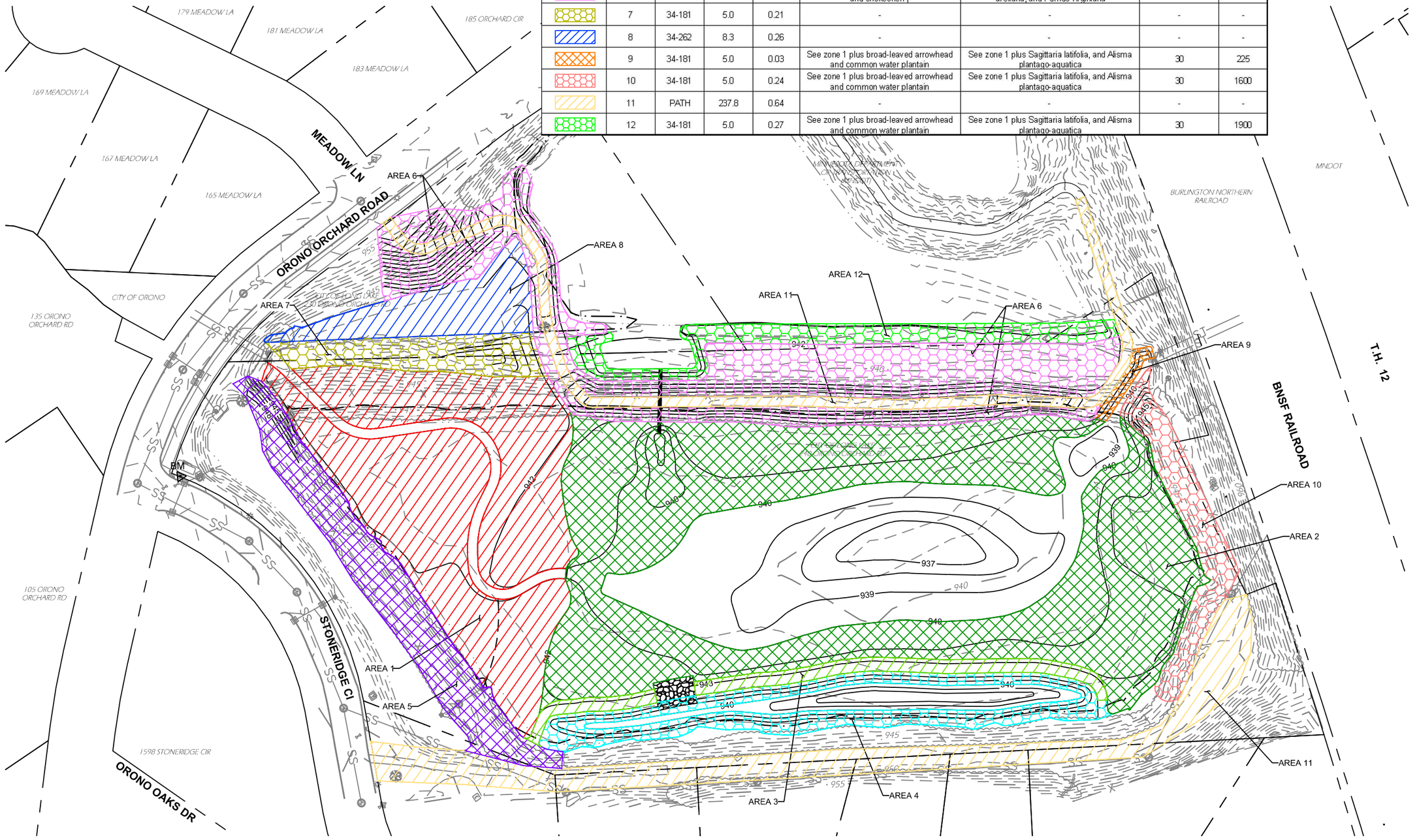
EROSION CONTROL
DETAILS (3 OF 3)

SHEET NUMBER:
19

NOTES:
1. THE SEEDING RATE INCLUDES GRASSES, SEDGES, RUSHES AND FORBS FROM SEED MIX.
2. THE SEEDING RATES FOR MIX 34-261 AND PATH INCLUDE COVER CROP (OATS OR WINTER WHEAT). THE SEEDING RATES FOR MIX 34-262 DO NOT INCLUDE COVER CROP.
3. THE "SPACING ON CENTER" FOR THE PLANTINGS ARE FOR PLUGS AND NO. 5 POTTED PLANTS. ALL POTTED PLANTS SHALL BE SIZE 5 OR GREATER AND PLACED AT THE DIRECTION OF THE MCWD PROJECT MANAGER OR ENGINEER IN THE FIELD.
4. THE SPACING FOR EMERGENT PLANTINGS IS A COMPROMISE BETWEEN A RECOMMENDED 24 INCH SPACING FOR SWEET FLAG AND A 36 INCH SPACING FOR GIANT BUR-REED.
5. VEGETATED MATS ARE INCLUDED IN THE BID TAB AND WILL BE LOCATED AT THE DIRECTION OF THE MCWD PROJECT MANAGER OR ENGINEER.
6. SEE PLANTING NOTES & SEED MIXES ON SHEET 21.

PLANTING SUMMARY TABLE

HATCH	AREA	MIX NUMBER	SEEDING RATE (LBS/AC)	AREA (ACRES)	PLANTING SPECIES	SCIENTIFIC NAME	APPROX PLANTING SPACING (INCHES ON CENTER)	APPROX TOTAL PLANTINGS
	1	34-181	5.0	1.36	Three-square bulrush, river bulrush, giant bur-reed and sweet flag	Scirpus pungens, Scirpus fluviatilis, Sparganuim eurycarpum, and Acorus calamus	30	9500
	2	34-181	5.0	2.25	See zone 1 plus broad-leaved arrowhead and common water plantain	See zone 1 plus Sagittaria latifolia, and Alisma plantago-aquatica	30	15000
	3	34-261	31.5	0.18	Gray dogwood, red-osier dogwood, hazelnut and chokecherry	Cornus racemosa, Cornus sericea, Corylus avellana, and Purnus virginiana	120	50
	4	34-181	5.0	0.39	Three-square bulrush, river bulrush, giant bur-reed and sweet flag	Scirpus pungens, Scirpus fluviatilis, Sparganuim eurycarpum, and Acorus calamus	30	2750
	5	34-261	31.5	0.45	Gray dogwood, red-osier dogwood, hazelnut and chokecherry	Cornus racemosa, Cornus sericea, Corylus avellana, and Purnus virginiana	120	60
	6	34-261	31.5	1.06	Gray dogwood, red-osier dogwood, hazelnut and chokecherry	Cornus racemosa, Cornus sericea, Corylus avellana, and Purnus virginiana	120	150
	7	34-181	5.0	0.21	-	-	-	-
	8	34-262	8.3	0.26	-	-	-	-
	9	34-181	5.0	0.03	See zone 1 plus broad-leaved arrowhead and common water plantain	See zone 1 plus Sagittaria latifolia, and Alisma plantago-aquatica	30	225
	10	34-181	5.0	0.24	See zone 1 plus broad-leaved arrowhead and common water plantain	See zone 1 plus Sagittaria latifolia, and Alisma plantago-aquatica	30	1600
	11	PATH	237.8	0.64	-	-	-	-
	12	34-181	5.0	0.27	See zone 1 plus broad-leaved arrowhead and common water plantain	See zone 1 plus Sagittaria latifolia, and Alisma plantago-aquatica	30	1900



0 100
SCALE IN FEET

PRELIMINARY
NOT FOR CONSTRUCTION

RESPEC
1935 W. COUNTY ROAD B2
SUITE 320
ROSEVILLE, MN 55113
PHONE (651) 788-7813

REVISION

DESIGNED	LDR	
DRAWN	AGT	
CHECKED	LDR	10-3-14
DATE---		

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.

LEE D. ROSEN, P.E. DATE
LICENSE # 51071

811 Know what's below. Call before you dig.

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MINNETONKA, MN 55345
(952) 471-0590
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MINNEHAHA CREEK
WATERSHED DISTRICT

LONG LAKE CREEK CORRIDOR IMPROVEMENT PROJECT - PHASE II

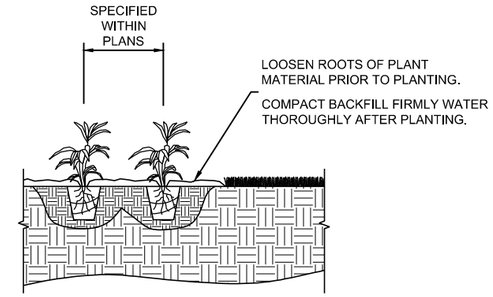
PLANTING PLAN

SHEET NUMBER:
20

NAME: Z:\MINNESOTA\MCWD\LONG LAKE CREEK\08_CAD\SHEETS\02481-S-PLANTING.DWG
PLOT DATE: October 2, 2014 2:47 PM, BY: AMY C. TEIGEN

PLANTING NOTES (FROM BWSR - MN WETLAND RESTORATION GUIDE TECHNICAL GUIDANCE DOCUMENT) **:**

1. DUE TO LIMITED COMMERCIAL AVAILABILITY OF MANY WETLAND PLANT SPECIES, THE CONTRACTOR SHALL CHECK WITH SUPPLIERS AS EARLY AS POSSIBLE REGARDING AVAILABILITY OF THE SPECIFIED SEED MIXES, PLUGS AND CONTAINERIZED PLANTS.
2. A FIRM SEEDBED IS NEEDED TO ENSURE THAT SEED IS NOT BURIED TOO DEEP. WETLAND GRASSES AND OTHER SPECIES WITH LARGER SEEDS SHALL BE HARROWED INTO THE SOIL 1/8-1/4 INCHES DEEP BEFORE SMALLER WETLAND SEEDS ARE BROADCAST. WETLAND SEDGES, RUSHES, GRASSES, AND FORBS SHOULD BE PLACED ON THE SOIL SURFACE, AS THEY REQUIRE LIGHT TO GERMINATE.
3. WHEN BROADCAST-SEEDING, CARRIERS SUCH AS CRACKED CORN, ANNUAL GRAINS, VERMICULITE, OR SAND CAN BE ADDED TO SEED MIXES TO DILUTE THE RELATIVELY SMALL VOLUME OF WETLAND SEED AND TO MAKE IT EASIER TO SEE WHERE SEED HAS BEEN SPREAD.
4. WETLAND MIXES SHALL OVERLAP A FEW FEET WITH UPLAND MIXES AS MOISTURE CONDITIONS CAN BE VARIABLE. THE SEED SHOULD BE DISTRIBUTED EVENLY ON THE SOIL SURFACE OVER THE ENTIRE SITE.
5. SPRING SEEDING SHOULD BE CONDUCTED AROUND MID-MAY AFTER ANY GERMINATING WEEDS ARE CONTROLLED AND BEFORE JULY WHEN MOISTURE LEVELS MAY DECREASE IN WETLANDS.
6. AQUATIC PLANTS SHALL BE ESTABLISHED IN MAY OR JUNE. PLUGS NEED TO BE GROWN THROUGH MAY IN GREENHOUSES TO BE LARGE ENOUGH FOR TRANSPLANTING INTO RESTORATION PROJECTS. CONTAINERIZED PLANTS CAN BE PLANTED THROUGH JUNE IF THE WEATHER IS FAVORABLE.
7. IF WATERING IS INFEASIBLE A GEL-LIKE SUBSTANCE MAY BE APPLIED TO THE ROOTS OF THE PLANTS BEFORE PLANTING TO HELP THE PLANT RETAIN WATER (SUCH AS TERRASORB® AND SOILMOIST®).
8. TO MEET THE PERFORMANCE STANDARDS, HERBIVORE CONTROL MAY BE REQUIRED TO PREVENT GRAZING BY CARP, GEESE, AND MUSKRATS AS DIRECTED BY THE MCWD PROJECT MANAGER.
9. WHEN GROWN IN CONTAINERS, PLANTS SHOULD HAVE ROOTS VISIBLE AT THE EDGE OF THE ROOT BALL PRIOR TO PLANTING. ROOTS SHOULD BE VISIBLE WHEN PLANTS ARE REMOVED FROM CONTAINERS. IF ROOT MASSES ARE TOO SMALL, THE PLANTS MAY HAVE DIFFICULTY ESTABLISHING. IF POTTED PLANTS BECOME ROOT BOUND, CUT OR TEAR THE ROOT MASS BEFORE PLANTING TO ALLOW THE ROOTS TO GROW NATURALLY.
10. ROOTS SHALL BE KEPT MOIST DURING THE PLANTING PROCESS AND TO SET THEM FIRMLY INTO THE GROUND. A TREE-PLANTING BAR OR TILE SPADE CAN BE USED TO PLANT PROPAGULES ABOVE GROUND AND UNDERWATER. PLANT AT A DEPTH SO THAT THE PREVIOUS SOIL LINE ON THE PLANT MATCHES THE NEW SOIL LINE.
11. WETLAND PLUGS SHOULD BE SPACED ACCORDING TO THE GROWTH RATE OF THE PLANTS. FOR EXAMPLE, RIVER BULRUSH, WHICH GROWS QUICKLY, SHOULD BE SPACED FOUR TO FIVE FEET APART WHILE THE SLOWER-GROWING HARD STEM BULRUSH SHOULD BE PLANTED TWO FEET APART.
12. EMERGENT PLANTS MUST BE PLANTED WITH THEIR TOPS OUT OF THE WATER. EXCEPTIONS INCLUDE SPECIES SUCH AS WATER LILIES, ARROWHEAD, AND PICKEREL WEED THAT SPEND PART OF THEIR LIFE CYCLE UNDER WATER.
13. SUBMERSED AQUATICS SHOULD BE PLANTED IN SHELTERED AREAS UNDER TWO TO FOUR INCHES OF WATER. MATS OF ALGAE SHOULD BE REMOVED TO ALLOW SUNLIGHT TO REACH THE PLANTS. SUBMERGENT PLANTS CAN BE ESTABLISHED AS LIVE PLANTS, TUBERS, OR PLANT FRAGMENTS, DEPENDING ON THE SPECIES. INSTALL FOUR TO SIX SPECIES (MINIMUM), MORE IF POSSIBLE.
14. THE BASE ROOT AND CONTAINERIZED PLANTS SHALL BE INSTALLED BY CREWS USING SHOVELS OR AUGERS AND SHOVELS. HOLES WILL DUG LARGE ENOUGH TO ACCOMMODATE THE ENTIRE ROOT MASS OF THE BARE-ROOT OR CONTAINERIZED PLANTS TO THE EXTENT POSSIBLE. EXACT LOCATIONS FOR SHRUB PLANTINGS MAY BE FLAGGED BY THE MCWD PROJECT MANAGER OR DESIGN ENGINEER.



PLANTING DETAIL
NTS

34-261 **Riparian South & West**

Common Name	Scientific Name	Rate (kg/ha)	Rate (lb/ac)	% of Mix (% by wt)	Seeds/ sq ft
American slough grass	*Beckmannia syzigachne*	1.52	1.36	4.30%	24.90
riverbank wild rye	*Elymus riparius*	0.56	0.50	1.58%	0.53
Virginia wild rye	*Elymus virginicus*	1.96	1.75	5.56%	2.70
tall manna grass	*Glyceria grandis*	0.28	0.25	0.80%	6.50
fowl manna grass	*Glyceria striata*	0.10	0.09	0.29%	3.00
rice cut grass	*Leersia oryzoides*	0.18	0.16	0.51%	2.00
fowl bluegrass	*Poa palustris*	0.94	0.84	2.66%	40.00
prairie cordgrass	*Spartina pectinata*	0.34	0.30	0.96%	0.74
	Total Grasses	**5.88**	**5.25**	**16.66%**	**80.37**
tussock sedge	*Carex stricta*	0.04	0.04	0.13%	0.80
pointed broom sedge	*Carex scoparia*	0.07	0.06	0.21%	2.00
fox sedge	*Carex vulpinoidea*	0.22	0.20	0.65%	7.50
path rush	*Juncus tenuis*	0.03	0.03	0.09%	10.00
dark green bulrush	*Scirpus atrovirens*	0.13	0.12	0.38%	20.00
woolgrass	*Scirpus cyperinus*	0.06	0.05	0.15%	30.00
	Total Sedges and Rushes	**0.56**	**0.50**	**1.61%**	**70.30**
marsh milkweed	*Asclepias incarnata*	0.13	0.12	0.38%	0.21
common boneset	*Eupatorium perfoliatum*	0.03	0.03	0.11%	2.00
spotted Joe pye weed	*Eutrochium maculatum*	0.07	0.06	0.18%	2.00
autumn sneezeweed	*Helenium autumnale*	0.06	0.05	0.17%	2.50
giant sunflower	*Helianthus giganteus*	0.08	0.07	0.22%	0.25
spotted touch-me-not	*Impatiens capensis*	0.06	0.05	0.17%	0.08
great lobelia	*Lobelia siphilitica*	0.03	0.03	0.09%	5.00
blue monkey flower	*Mimulus ringens*	0.01	0.01	0.02%	5.07
Virginia mountain mint	*Pycnanthemum virginianum*	0.06	0.05	0.16%	4.00
tall coneflower	*Rudbeckia laciniata*	0.06	0.05	0.15%	0.25
giant goldenrod	*Solidago gigantea*	0.02	0.02	0.07%	2.00
blue vervain	*Verbena hastata*	0.17	0.15	0.46%	5.00
bunched ironweed	*Vernonia fasciculata*	0.07	0.06	0.18%	0.50
	Total Forbs	**0.84**	**0.75**	**2.36%**	**28.86**
Oats or winter wheat (see note at beginning of list for recommended dates)		28.02	25.00	79.37%	11.14
	Total Cover Crop	**28.02**	**25.00**	**79.37%**	**11.14**
	Totals:	**35.31**	**31.50**	**100.00%**	**190.66**
Purpose:	Native riparian and floodplain plantings for wetland mitigation, ecological restoration, or general permanent cover after culvert or bridge work. Tolerates partial shade.				
Planting Area:	Tallgrass Aspen Parklands, Prairie Parkland, and Eastern Broadleaf Forest Provinces. Mn/DOT Districts 2(west), 3B, 4, Metro, 6, 7 & 8.				

34-262 **Wet Prairie**

Common Name	Scientific Name	Rate (kg/ha)	Rate (lb/ac)	% of Mix (% by wt)	Seeds/ sq ft
big bluestem	*Andropogon gerardii*	1.12	1.00	6.89%	3.67
fringed brome	*Bromus ciliatus*	1.68	1.50	10.38%	6.08
bluejoint	*Calamagrostis canadensis*	0.04	0.04	0.27%	4.00
Virginia wild rye	*Elymus virginicus*	1.96	1.75	12.07%	2.70
tall manna grass	*Glyceria grandis*	0.17	0.15	1.02%	3.80
fowl manna grass	*Glyceria striata*	0.12	0.11	0.73%	3.50
switchgrass	*Panicum virgatum*	0.84	0.75	5.16%	3.85
fowl bluegrass	*Poa palustris*	0.22	0.20	1.39%	9.60
Indian grass	*Sorghastrum nutans*	0.56	0.50	3.44%	2.20
prairie cordgrass	*Spartina pectinata*	0.56	0.50	3.41%	1.20
	Total Grasses	**7.29**	**6.50**	**44.76%**	**40.60**
wooly sedge	*Carex pellita*	0.06	0.05	0.32%	0.47
tussock sedge	*Carex stricta*	0.02	0.02	0.17%	0.48
fox sedge	*Carex vulpinoidea*	0.11	0.10	0.66%	3.50
dark green bulrush	*Scirpus atrovirens*	0.11	0.10	0.72%	17.74
woolgrass	*Scirpus cyperinus*	0.03	0.03	0.18%	16.00
	Total Sedges and Rushes	**0.34**	**0.30**	**2.05%**	**38.19**
Canada anemone	*Anemone canadensis*	0.03	0.03	0.21%	0.09
marsh milkweed	*Asclepias incarnata*	0.09	0.08	0.55%	0.14
Canada tick trefoil	*Desmodium canadense*	0.56	0.50	3.41%	1.00
flat-topped aster	*Doellingeria umbellata*	0.06	0.05	0.34%	1.20
common boneset	*Eupatorium perfoliatum*	0.03	0.03	0.23%	2.00
grass-leaved goldenrod	*Euthamia graminifolia*	0.02	0.02	0.11%	2.00
spotted Joe pye weed	*Eutrochium maculatum*	0.04	0.04	0.30%	1.50
autumn sneezeweed	*Helenium autumnale*	0.06	0.05	0.35%	2.39
sawtooth sunflower	*Helianthus grosseserratus*	0.06	0.05	0.38%	0.30
great blazing star	*Liatris pycnostachya*	0.02	0.02	0.17%	0.10
great lobelia	*Lobelia siphilitica*	0.01	0.01	0.05%	1.40
blue monkey flower	*Mimulus ringens*	0.01	0.01	0.05%	6.40
Virginia mountain mint	*Pycnanthemum virginianum*	0.09	0.08	0.55%	6.50
red-stemmed aster	*Symphyotrichum puniceum*	0.09	0.08	0.56%	2.40
blue vervain	*Verbena hastata*	0.17	0.15	1.06%	5.25
bunched ironweed	*Vernonia fasciculata*	0.03	0.03	0.23%	0.30
Culver's root	*Veronicastrum virginicum*	0.02	0.02	0.14%	6.00
golden alexanders	*Zizia aurea*	0.28	0.25	1.76%	1.03
	Total Forbs	**1.68**	**1.50**	**10.45%**	**40.00**
Oats or winter wheat (see note at beginning of list for recommended dates)		6.95	6.20	42.74%	2.76
	Total Cover Crop	**6.95**	**6.20**	**42.74%**	**2.76**
	Totals:	**16.25**	**14.50**	**100.00%**	**121.55**
Purpose:	Wet prairie reconstruction for wetland mitigation or ecological restoration.				
Planting Area:	Tallgrass Aspen Parklands, Prairie Parkland, and Eastern Broadleaf Forest Provinces. Mn/DOT Districts 2(west), 3B, 4, Metro, 6, 7 & 8.				

Path **Maintenance Path**

Common Name	Scientific Name	Rate (kg/ha)	Rate (lb/ac)	% of Mix (% by wt)	Seeds/ sq ft
Red fescue	*Festuca rubra*	244.12	217.80	91.59%	1750.00
	Total Grasses	**244.12**	**217.80**	**91.59%**	1750.00
Oats	*Avena sativa*	22.42	20.00	8.41%	5.83
	Total Cover Crop	**22.42**	**20.00**	**8.41%**	5.83
	Totals:	**266.54**	**237.80**	**100.00%**	1755.83
Purpose:	Maintenance path mix that is a native, drought tolerant and will withstand mowing and foot traffic.				
Planting Area:	Statewide				

34-181 **Emergent Wetland**

Common Name	Scientific Name	Rate (kg/ha)	Rate (lb/ac)	% of Mix (% by wt)	Seeds/ sq ft
American slough grass	*Beckmannia syzigachne*	0.78	0.70	14.07%	12.92
tall manna grass	*Glyceria grandis*	0.28	0.25	4.98%	6.40
rice cut grass	*Leersia oryzoides*	0.34	0.30	5.93%	3.70
	Total Grasses	**1.40**	**1.25**	**24.98%**	**23.02**
river bulrush	*Bolboschoenus fluviatilis*	0.85	0.76	15.20%	1.20
bristly sedge	*Carex comosa*	0.20	0.18	3.63%	2.00
lake sedge	*Carex lacustris*	0.07	0.06	1.19%	0.24
tussock sedge	*Carex stricta*	0.04	0.04	0.77%	0.75
least spikerush	*Eleocharis acicularis*	0.11	0.10	1.94%	2.50
marsh spikerush	*Eleocharis palustris*	0.11	0.10	2.03%	1.90
Torrey's rush	*Juncus torreyi*	0.04	0.04	0.85%	25.00
Three-square bulrush	*Schoenoplectus pungens*	0.26	0.23	4.54%	1.00
soft stem bulrush	*Schoenoplectus tabernaemontani*	0.49	0.44	8.78%	5.00
woolgrass	*Scirpus cyperinus*	0.06	0.05	1.02%	32.00
	Total Sedges and Rushes	**2.24**	**2.00**	**39.95%**	**71.59**
Sweet flag	*Acorus americanus*	0.31	0.28	5.53%	0.67
common water plantain	*Alisma triviale*	0.45	0.40	8.00%	9.70
marsh milkweed	*Asclepias incarnata*	0.31	0.28	5.67%	0.50
broad-leaved arrowhead	*Sagittaria latifolia*	0.34	0.30	6.07%	6.80
giant bur reed	*Sparganium eurycarpum*	0.55	0.49	9.80%	0.09
	Total Forbs	**1.96**	**1.75**	**35.07%**	**17.76**
	Totals:	**5.60**	**5.00**	**100.00%**	**112.37**
Purpose:	Emergent wetland restoration for use in wetland mitigation, shoreline restoration, wet stormwater ponds where emergent vegetation is desired.				
Planting Area:	Statewide				

PRELIMINARY
NOT FOR CONSTRUCTION

RESPEC
1935 W. COUNTY ROAD B2
SUITE 320
ROSEVILLE, MN 55113
PHONE (651) 768-7813

REVISION

DESIGNED LDR
DRAWN ACT
CHECKED LDR
DATE 10-2-14

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.

LEE D. ROSEN, P.E. DATE
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MINNEHAHA CREEK
WATERSHED DISTRICT

LONG LAKE CREEK CORRIDOR IMPROVEMENT PROJECT - PHASE II

PLANTING NOTES & SEED MIXES

SHEET NUMBER:
21

NAME: Z:\MINNESOTA\MCWD\LONG LAKE CREEK\08_CADSHEETS\02481-S-LANDSCAPE DETAILS.DWG
PLOT DATE: October 2, 2014 1:43 PM , BY: AMY C. TEIGEN

Permit Report

Permit Application No.: **14-430** Rule: **Erosion Control, Floodplain Alteration, Wetland Protection, Dredging, Shoreline & Streambank Stabilization**

Applicant: **Minnehaha Creek Watershed District**
Project: **Long Lake Creek Corridor Improvement** Received: **8/27/2014**
Location: **230 & 240 Orono Orchard Rd, Long Lake** Complete: **10/20/2014**
Noticed: **9/10/2014**

Recommendation:
Approval with conditions:

- Location of spoils and stabilization practices once bid has been awarded.
- NPDES Permit Number

Background:
The Minnehaha Creek Watershed District conducted a feasibility study in 2011 that identified a suite of improvements for Long Lake Creek. The creek flows from Long Lake to Tanager Lake (which is impaired for nutrients) and then drains into Lake Minnetonka at Browns Bay. The Long Lake Creek Corridor Improvements – Phase II project is an opportunity to restore approximately 10 acres of open space owned by the City of Long Lake similar to historical conditions, providing numerous benefits to water quality and wildlife habitat. In the 1960's, Long Lake Creek was channelized to construct a wastewater treatment pond (WWTP), but was later decommissioned in 1978. This WWTP has been formally closed and is currently operating as a stormwater pond. The project will include the establishment of a more natural, sinuous channel that will be aligned through the former WWTP and will be surrounded by restored wetlands. A portion of the dike originally constructed to separate the creek from the WWTP will be removed, along with the WWTP outlet structure, allowing the two to become reconnected. Implementation of the project as designed will result in improvements to stream geomorphology, increased habitat, restored wetland and ecological functions, and increased floodplain storage.

The Minnehaha Creek Watershed District has applied for a permit for Erosion Control, Floodplain Alteration, Wetland Protection, Dredging, and Shoreline & Streambank Stabilization.

Erosion Control
The Erosion Control Rule is triggered for any project involving 5,000 square feet of soil disturbance or 50 cubic yards of excavation or stockpiling of soil. The proposed project involves approximately 10 acres of disturbance within the City of Long Lake, therefore triggering the Erosion Control Rule. The proposed erosion control practices meet District standards. Construction BMP's provided include rock construction entrances, bio-rolls, grass filter strips, silt fence, ditch checks, inlet protection, native seeding, reinforced rock berms for culvert protection, tree protection, turf reinforcing mats, grading to reduce flow velocities during construction, street sweeping, and erosion control blankets. All disturbed areas will be stabilized with vegetation upon project completion. All erosion control requirements have been met.

Floodplain Alteration
The Floodplain Alteration Rule is triggered for any project involving the alteration or filling of land within the projected 100-year high water elevation of a waterbody. The proposed project involves the alteration of a public water wetland below the projected 100-year high water elevation of DNR wetland #27-83600**,** therefore triggering the Floodplain Alteration Rule. Floodplain excavation will result in additional flood storage capacity onsite of 3,315 CY. The project will also not unduly restrict flood flows, as it creates additional flood storage onsite. Criteria 3(c), (d), (e), (f) of the floodplain rule do not apply. Homes within the vicinity of the project will meet the 2-foot freeboard standard, adhering to section 3(g) of the Floodplain Alteration rule requirements. The applicant has met all the criteria of the rule.

Wetland Protection and Wetland Conservation Act (WCA)
The Wetland Protection Rule is triggered for any project that impacts a wetland. Projects that qualify as a No-Loss under the WCA do not require a permit under this rule. Wetlands subject to this rule do not include DNR Public Water Wetlands.

Wetland Boundary Determination
The District serves as the Local Government Unit for the WCA in the City of Long Lake. A wetland delineation was conducted by RESPEC on June 16, 2014. There were two wetland basins delineated within the project limits. Wetland 1 was classified as a Type 5 Shallow Open Water wetland with Type 3 Shallow Marsh fringe. Wetland 1 is DNR Public Water Wetland #27083600. Wetland 2 was classified as a Type 2 Fresh (Wet) Meadow. The delineation was reviewed in the field by MCWD staff on September 12, 2014. The delineation for the proposed project was approved on 10/16/2015.

DNR has jurisdiction over all wetland area located below the Ordinary High Water level of Public Water Wetlands. All wetland areas within the delineated boundaries of Wetland 1 are located below the OHW. Therefore, Wetland 1 is not under WCA jurisdiction and is excluded from the District's Wetland Protection Rule. Work occurring within Wetland 1 is permitted under the DNR General Public Waters Work Permit (#2001-6009) issued to MCWD.

No Loss
No-Loss under the WCA means no permanent loss of, or impact to, wetlands from an activity meeting the criteria of MN Rules 8420.0415. There are no proposed impacts (filling or draining) to Wetland 2. Work proposed in Wetland 2 is limited to vegetative restoration of the wetland plant community. The proposed activities in Wetland 2 were approved as meeting No-Loss criteria (MN Rules 8420.0415 Subp A) on 10/16/2015. Therefore, activities within Wetland 2 do not require a District Wetland Protection permit.

Wetland Buffers
Wetland buffers are required when there are proposed impacts to WCA jurisdictional wetlands. There are no proposed impacts to WCA jurisdictional wetlands. Wetland buffers are required on DNR Public Water Wetlands when the wetlands are located downgradient from construction activities that increase impervious surface of the subject parcel. There are no proposed increases in impervious surface. Therefore, no wetland buffers are required.

Dredging
The Dredging rule is triggered for any project that excavates or dredges in the beds, banks, or shores of any public water or public waters wetland. The proposed project involves dredging approximately 9,500 cubic yards from a public water wetland, therefore triggering the Dredging rule.

All permits triggering the Dredging rule must adhere to the General Standards outlined in Section 3. The proposed project will reuse all clay based soils and transport all non-reusable sediments off-site to a location to be determined by the contractor upon bid award. To minimize sediment deposition, the proposed restoration project has been scheduled during frozen conditions. This project was evaluated by the applicant and determined to be the least impact solution as it restores a seriously degraded stream channel habitat within a decommissioned wastewater treatment pond.

This project meets the District's standards for Dredging as it will improve the public recreational use, wildlife habitat, and re-establish fisheries. This project has been proposed to remediate the LLWWTP, which was identified in the Comprehensive Long Lake Creek Feasibility Study as a potential source of elevated phosphorus loads to Tanager Lake via Long Lake Creek. Criteria 4(c(1-5)) are not applicable to this project.

The proposed project is not: enlarging a natural watercourse landward for navigational purposes; altering the natural shoreline of a lake; increasing seepage or resulting in subsurface drainage; or dredge in areas that contain slopes steeper than 3:1 (H:V). Section 3(g) of the Dredging rule is not applicable as this project will not be hydraulically dredged. Additionally, the proposed project will not adversely impact ecologically sensitive areas nor will the project dredge in a public water between April 1st thru June 30th. The applicant has met all criteria of the rule.

Shoreline & Streambank Stabilization:
The Shoreline & Streambank Stabilization rule is triggered for any project that proposes the installation or alteration of shoreline of a water basin or the bank of a watercourse, including but not limited to bioengineered installation, rip-rap, a retaining wall, a sandblanket, or a boat ramp. This project proposes to stabilize and establish approximately 1,000 feet of streambank, therefore triggering the Shoreline & Streambank Stabilization rule.

The project has been designed to restore the current LLWWTP to a natural wetland complex. The proposed project provides multiple benefits such as improving water quality, restoring the floodplain, establishing more diverse wetlands, adding floodplain storage, and providing recreational opportunities. The current state of Long Lake Creek

resembles a channelized ditch used strictly for conveyance. The project proposes to add 250 linear feet of streambank with associated floodplain and stabilization practices. The finished slope of the project will be maintained at a 3:1 or flatter. Horizontal encroachment is not applicable, as this streambank has no OHW. The restoration of Long Lake Creek will increase the cross-sectional area of the stream channel. The proposed project will also restore the natural alignment of the creek from its current channelized design. Based upon the results of the sediment sampling analysis provided by the applicant, the design reflects the engineering properties of the underlying soils. The Department of Natural Resources has confirmed that this project is permitted under the issued General Permit. The use of floating silt curtain is not applicable since this project will be taking place in frozen conditions of the winter months, minimizing sediment deposition. The applicant has provided all necessary submittals required by the rule.

Live plantings and treatment practices have been verified against the NRCS "Engineering Field Handbook: Chapter 16" and DNR specifications for wetland rehabilitation. Sections 6(b)(3), 6(b)(4), and 6(c) is not applicable to this project.

Summary:
This project triggers the Erosion Control, Floodplain Alteration, Dredging, and Shoreline & Streambank Stabilization rules. All submitted criteria meet District requirements.

Attachments:

- Permit Application

_____

Brandon Wisner Date: 10-23-2014

Print Form

WATER RESOURCE PERMIT APPLICATION FORM

Use this form to notify/apply to the Minnehaha Creek Watershed District (MCWD) of a proposed project or work which may fall within their jurisdiction. Fill out this form completely and submit with your site plan, maps, etc. to the MCWD at:
15320 Minnetonka Blvd. Minnetonka, MN 55345.
Keep a copy for your records.

YOU MUST OBTAIN ALL REQUIRED AUTHORIZATIONS BEFORE BEGINNING WORK.

1. Name of each property owner: City of Long Lake (Marv Wurzer, Public Works Department)
Mailing Address: PO Box 606 (450 Virginia Avenue) City: Long Lake State: MN Zip: 55356
Email Address: mwurzer@longlakemn.gov Phone: 952.476.2855 Fax: 952.476.9622

2. Property Owner Representative Information (not required) (licensed contractor, architect, engineer, etc…)
Business Name: Minnehaha Creek Watershed District Representative Name: Michael Hayman
Business Address: 15320 Minnetonka Blvd City: Minnetonka State: MN Zip: 55345
Email Address: MHayman@minnehahacreek.org Phone: 952.471.8226 Fax: 952.471.0682

3. Project Address: 230 and 240 Orono Orchard Road City: Long Lake
State: MN Zip: 55113 Qtr Section(s): SW Section(s): 35 Township(s): T118N Range(s): R23W
Lot: _____ Block: _____ Subdivision: _____ PID: 35-118-23-33-0035 and -0036

4. Size of project parcel (square feet or acres): 10 acres
Area of disturbance (square feet): up to 435,600 SF Volume of excavation/fill (cubic yards): 9,500cy removed
Area of existing impervious surface: 0.0 acres Area of proposed impervious surface: 0.0 acres
Length of shoreline affected (feet): 1,000-creek Waterbody (& bay if applicable): Long Lake Creek

5. Type of permit being applied for (Check all that apply):

- ☑ EROSION CONTROL
- ☑ FLOODPLAIN ALTERATION
- ☑ WETLAND PROTECTION
- ☑ DREDGING
- ☑ SHORELINE/STREAMBANK STABILIZATION
- ☐ WATERBODY CROSSINGS/STRUCTURES
- ☐ STORMWATER MANAGEMENT
- ☑ APPROPRIATIONS
- ☐ ILLICIT DISCHARGE

6. Project purpose (Check all that apply):

- ☐ SINGLE FAMILY HOME
- ☐ ROAD CONSTRUCTION
- ☐ UTILITIES
- ☐ DREDGING
- ☑ SHORELINE/STREAMBANK STABILIZATION
- ☐ MULTI FAMILY RESIDENTIAL (apartments)
- ☐ COMMERCIAL or INSTITUTIONAL
- ☐ SUBDIVISIONS (include number of lots)
- ☐ LANDSCAPING (pools, berms, etc.)
- ☐ OTHER (DESCRIBE):

7. NPDES/SDS General Stormwater Permit Number (if applicable): to be determined

8. Waterbody receiving runoff from site: Long Lake Creek, Tanager Lake

9. Project Timeline: Start Date: Winter 2014-2015 Completion Date: Spring 2015 + 3 years maintenance

Permits have been applied for: City ☐ County ☐ MN Pollution Control Agency ☐ DNR ☒ COE ☒
Permits have been received: City ☐ County ☐ MN Pollution Control Agency ☐ DNR ☐ COE ☐

By signing below, I hereby request a permit to authorize the activities described herein. I certify that I am familiar with MCWD Rules and that the proposed activity will be conducted in compliance with these Rules. I am familiar with the information contained in this application and, to the best of my knowledge and belief, all information is true, complete and accurate. I understand that proceeding with work before all required authorizations are obtained may be subject to federal, state and/or local administrative, civil and/or criminal penalties.

Michael Hayman — 8/27/2014

Signature of Each Property Owner — Date