



LOWER MINNESOTA RIVER WATERSHED DISTRICT

Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, May 19, 2021

Agenda Item

Item 6. I. - LMRWD Projects

Prepared By

Linda Loomis, Administrator

Summary

i. **Eden Prairie Study Area #3**

LMRWD staff met with Inter-Fluve on May 6, 2021. A report of the meeting is attached for the Board's information. One of the decisions to come out of the meeting was the determination that bathymetry data needs to be collected to better inform the design alternatives. Bathymetry was not included in the work plan that was submitted to the Board of Water & Soil Resources (BWSR). BWSR has been notified and the work plan is being updated.

ii. **East Chaska Creek Restoration**

On May 6, 2021, LMRWD staff met Chaska officials and the contractor, Blackstone, on-site to inspect the work that remains on the project. A report of the site inspection is attached for the Board's information.

Attachments

Area 3 Minnesota Riverbank Stabilization Project Update
East Chaska Creek Restoration - Construction Update

Recommended Action

No action recommended

Technical Memorandum

To: Linda Loomis, Administrator
Lower Minnesota River Watershed District

From: Katy Thompson, PE, CFM
Della Schall Young, CPESC, PMP

Date: May 13, 2021

Re: Area 3 Minnesota Riverbank Stabilization Project Update

As discussed at the February 17, 2021, board meeting, the Lower Minnesota River Watershed District (LMRWD) approved awarding the Area 3 Minnesota Riverbank Stabilization Project contract to Inter-Fluve as the most qualified and responsive bid. Since the approval, Young Environmental staff have been working with Inter-Fluve as they reviewed the previous studies, completed a site investigation and drone survey, and completed an alternatives review analysis.

On May 6, 2021, Young Environmental and the LMRWD administrator met with Inter-Fluve to review its draft findings and alternative review memorandum. In its evaluation of the site, Inter-Fluve suggested that the riverbank erosion at Area 3 is likely being caused by several factors:

- Natural progression of the river meander is contributing to erosion.
- Several groundwater seeps are present at the base of the slope and have the potential to saturate the soils and weaken the integrity of the bluff, causing erosion.
- Land development on top of the bluff can cause increased runoff from rooftops and sump pump discharges in addition to creating infiltration opportunities from features such as pools and stormwater basins. Inter-Fluve has posited that the increased infiltration on top of the bluff could have increased groundwater pressure and increased the flow at the existing seeps, further destabilizing the riverbank.
- Previous bank stabilization attempts by the City of Eden Prairie to protect the stormwater pond in the floodplain are exacerbating the erosion at Area 3 by

preventing the river from migrating downstream. This armoring of the riverbank at the stormwater pond is pushing the river's forces north and into the Area 3 toe.

Inter-Fluve has not yet recommended a design solution because its findings have been inconclusive as to the primary cause of the erosion. The team has recommended moving up its detailed bathymetric survey from the 100-percent plan development phase to the week of May 17 in an effort to develop an appropriate solution to arrest the river's migration north. Following the collection of the bathymetric survey data, Inter-Fluve will present its findings and recommendations to the LMRWD administrator and Young Environmental on May 24.

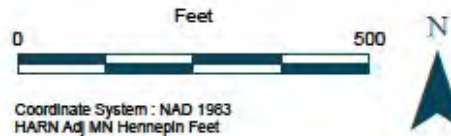
Additionally, the LMRWD administrator and Young Environmental discussed the project with the City of Eden Prairie on April 13, 2021. The City indicated that the proposed Area 3 designs may encroach on private property and could require a temporary easement for construction. When Inter-Fluve makes its design recommendation on May 24, we will then know the extent of the construction and whether a temporary easement will be necessary.

Attachment

Inter-Fluve Site Photos, April 2 and 6, 2021



DRAFT



NOTES:

1. Aerial imagery from 2020.
2. Lidar derived slope data collected in 2011.
3. Parcel and road data downloaded from Hennepin County GIS, April 2021

**Area 3 Minnesota River
Bank Stabilization Project**

Hennepin County
Minnesota



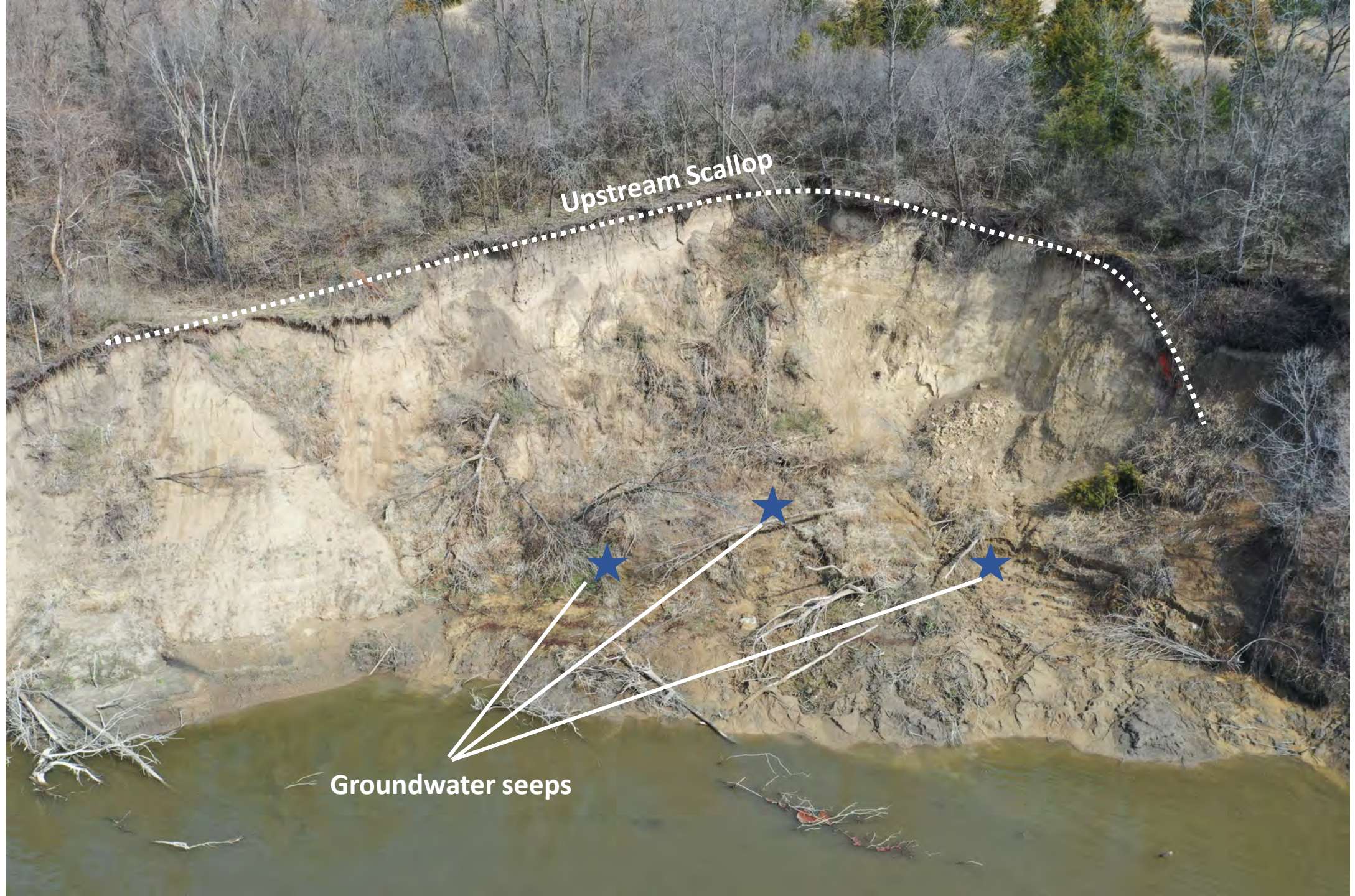
UPPER BLUFF

BLUFF

BLUFF-TOE
(EXTENDS TO CHANNEL BOTTOM)

Upstream Scallop





Upstream Scallop

Groundwater seeps



An aerial photograph showing a grassy bank on the left side of a body of water. A channel, labeled 'Incised Channel', runs parallel to the water's edge. To the right of this channel, a stormwater outfall, labeled 'Stormwater Outfall', is visible, consisting of a series of rocks and a metal grate. The grass is dry and yellowish-brown. The water is a murky, brownish-green color.

Stormwater
Outfall

Incised Channel



Technical Memorandum

To: Linda Loomis, Administrator
Lower Minnesota River Watershed District

From: Katy Thompson, PE, CFM
Della Schall Young, CPESC, PMP

Date: May 13, 2021

Re: East Chaska Creek Restoration—Construction Update

At the December 13, 2019, board meeting, the Lower Minnesota River Watershed District (LMRWD) approved awarding the East Chaska Creek Restoration Project contract to Blackstone as the validated low bidder. Since contract award, Young Environmental and Barr Engineering Co. (Barr) staff have been working with the City of Chaska and Blackstone through final project permitting in 2020 and construction beginning in January 2021.

Blackstone was issued a Notice to Proceed on January 18, 2021, and construction began on January 26, 2021. Because of the extreme cold weather in February, the project was delayed for two weeks but was substantially completed by March 5, 2021. The cold weather conditions during construction meant that Blackstone was unable to properly compact the excavated material on the slopes. In addition, the stream restoration work at Crosstown Boulevard was put on hold until the ground thawed in the spring because a gas main in the construction area was determined to be in the frost layer.

Site Visit

On May 6, 2021, Young Environmental and the LMRWD administrator met with the City of Chaska, Barr, and Blackstone on site to identify locations for plantings and additional restoration and to review the work to be completed at Crosstown Boulevard.

During the site walk, it was apparent that the dormant seed placed in March to stabilize the disturbed areas had a poor germination rate and that the frozen material placed on the banks gave a bumpy and rather messy appearance (Attachment 1, Photos 1 and 3).

After discussion with the City and Blackstone, Barr directed Blackstone to return to the site to compact the lumpy areas and reseed if necessary. The City has provided stakes indicating where plants (red twig dogwood and swamp white oak) will be placed. Several banks were noted to be too steep, especially near the City stormwater outfall, and Blackstone said its crew would return and flatten the slope to prevent further erosion.

Several of the in-channel rock structures appeared to have caused bank erosion as a result of improper elevations of the header rocks and/or footer logs. These locations were noted by Barr and will be reviewed by the design engineer to determine what actions need to be taken (Attachment 1, Photos 2, 4, and 5).

At Crosstown Boulevard, the previous utility locate flag showing the location of the high-pressure gas main downstream from the bridge was still present (Attachment 1, Photo 6). Given the location of the main directly underneath the proposed plunge pool, it was agreed that the plunge pool would be shifted downstream, past the gas main, so that no excavation would occur immediately on top of the main. Sand, filter fabric, and salvaged riprap would be placed on top of the gas main location to extend the bridge apron elevation beyond the gas main, at which point the plunge pool and final boulder weir could be constructed.

Fiber-Optic Line

Following the site walk, Blackstone called in a new utility location survey and returned to the site on Friday May 7, 2021, to complete the majority of the finish grading, confirmed by the City of Chaska. The utility locate showed the presence of a fiber-optic line approximately five to ten feet downstream from the gas main. The City discussed adjusting the design further by shifting the plunge pool another ten feet, beyond the fiber-optic line. This alternative would increase the amount of riprap needed, but the additional amount needed will have to be determined based on the proposed solution.

Young Environmental met with Barr on May 12, 2021 to discuss the proposed field fit and whether altering the design would present any issues with the permits. Barr has developed a solution that continues to meet the permit obligations while also protecting the existing utilities (Attachment 2). Further coordination is expected to continue this week, and staff will be prepared to provide an update to the managers as needed.

Attachments

Attachment 1—May 6, 2021, Site Photos and Locations

Attachment 2—Crosstown Boulevard Design Adjustments



Figure 1: East Creek Restoration May 6, 2021 Photo Locations



LEGEND

- | | |
|---------------------------|---------------------|
| Construction Limits | City Trails |
| In-Stream Features | MnDNR 2-ft Contours |
| Rip Rap | City Parcels |
| Rock Vane | Public Waters |
| Rock Weir | LMRWD Boundary |
| Rootwad | |

LMRWD Watershed Map



Photo Location #1: Right bank spoils pile and poor vegetation establishment before final grading.



Photo Location #2: Right bank rootwad and vertical bank before final grading.



Photo Location #3: Left bank spoil pile and poor vegetation establishment before final grading.



Photo Location #4: Example of right bank erosion at cross vane.



Photo Location #5: Bank erosion at cross vane.

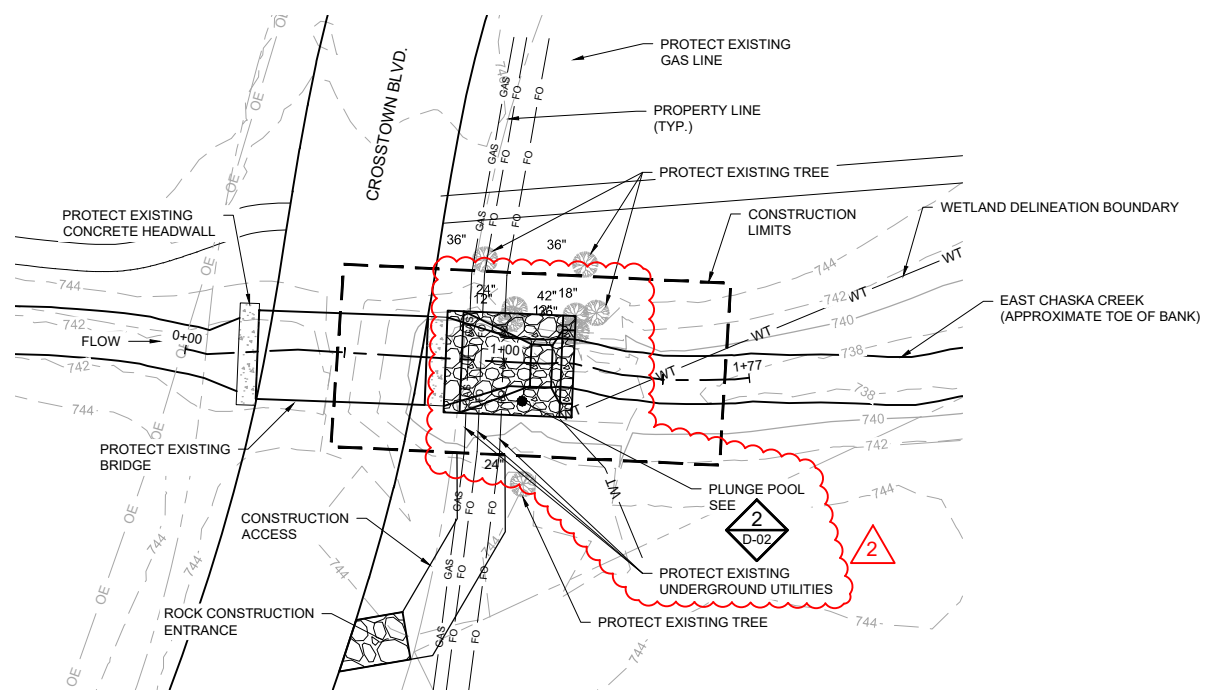


Photo Location #6: View downstream from Crosstown Boulevard bridge and approximate locations of the gas and fiber-optic utilities.

Approximate location of fiber-optic line

Approximate location of gas line



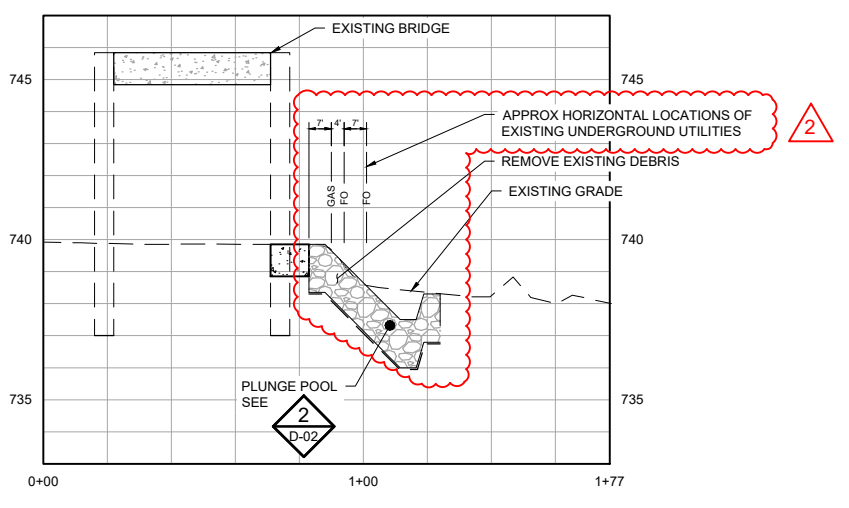


SYMBOL AND PATTERN LEGEND

	EXISTING 10' CONTOUR
	EXISTING 2' CONTOUR
	CONSTRUCTION LIMITS
	EXISTING PROPERTY LINE
	EXISTING OVERHEAD ELECTRIC
	EXISTING STORM SEWER
	EXISTING GAS LINE
	WETLAND DELINEATION BOUNDARY
	RIPRAP

1 PLAN: STREAM RESTORATION (AREA 1)

Scale: 0 30 60 FEET



2 PROFILE: STREAM RESTORATION (AREA 1)

Horizontal Scale: 0 30 60 FEET
Vertical Scale: 0 3 6 FEET

- NOTES:**
- CONTRACTOR IS RESPONSIBLE TO LOCATE AND FIELD VERIFY ALL EXISTING UTILITIES PRIOR TO WORK.
 - ALL EXISTING ROADS, PARKING LOTS, TRAILS, FENCES, SIGNS, OR SIMILAR SHALL BE PROTECTED DURING CONSTRUCTION. CONTRACTOR RESPONSIBLE TO COORDINATE SURVEYS WITH THE CITY AND/OR OWNER TO DOCUMENT PRE-CONSTRUCTION EXISTING CONDITION ISSUES.
 - CONTRACTOR SHALL INSTALL AND MAINTAIN ALL EROSION CONTROL BMPs PRIOR TO COMMENCEMENT OF GRADING FOR EACH LOCATION DURING CONSTRUCTION. EROSION CONTROL PLANS ARE PROVIDED INSIDE THE PROJECT STORMWATER POLLUTION PREVENTION PLAN (SWPPP).
 - ALL GROUND DISTURBANCE GENERATED FROM GRADING ACTIVITIES SHALL BE STABILIZED AND RESTORED WITH A MINIMUM OF 6 INCHES OF TOPSOIL, SEED W/COVER CROP AND EROSION CONTROL BLANKET OR STRAW MULCH. THE TOPSOIL USED FOR RESTORATION MAY BE STOCKPILED FROM GRADING AREAS.
 - CONSTRUCTION LIMITS AS SHOWN ARE APPROXIMATE. CONSTRUCTION LIMITS SHALL BE WITHIN THE CHANNEL BANKS. CONTRACTOR TO COORDINATE WITH ENGINEER AND CITY OF CHASKA TO STAKE CONSTRUCTION LIMITS.
 - CLEARING AND GRUBBING TO BE PERFORMED ONLY WITHIN GRADING LIMITS AND ACCESS ROUTES UNLESS DIRECTED BY ENGINEER.
 - COMPACTED SOIL MUST BE DECOMPACTED TO A SOIL COMPACTION TESTING PRESSURE OF LESS THAN 1,400 KILOPASCALS OR 200 POUNDS PER SQUARE INCH IN THE UPPER 12 INCHES OF SOIL.
 - STREAM STABILIZATION FEATURES WILL BE PLACED SUCH THAT THE CONVEYANCE CAPACITY OF THE CHANNEL IS MAINTAINED, AS DIRECTED BY THE ENGINEER.

ISSUED FOR CONSTRUCTION

CADD USER: Patrick.E. Brockamp FILE: M:\DESIGN\2310\028\028_C-02.DWG PLOT SCALE: 1:2 PLOT DATE: 5/11/2021 6:02 PM

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.		CLIENT BID CONSTRUCTION	07/08/19 10/23/19 03/02/20 05/11/21	Project Office: BARR ENGINEERING CO. 4300 MARKETPOINTE DRIVE Suite 200 MINNEAPOLIS, MN 55435 Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277 Fax: (952) 832-2601 www.barr.com	Scale: AS SHOWN Date: 05/11/2021 Drawn: PEB Checked: JJW2 Designed: BARR Approved: JOH	LOWER MINNESOTA RIVER WATERSHED DISTRICT CHASKA, MINNESOTA	EAST CHASKA CREEK RESTORATION CHASKA, MINNESOTA PLAN AND PROFILE, REMOVALS AREA 1	BARR PROJECT No. 23/10-1028.02	
NO. BY CHK. APP. DATE REVISION DESCRIPTION	PRINTED NAME: JOHN P. HANSON SIGNATURE: [Signature] DATE: 05/11/2021 LICENSE #: 24678	RELEASED TO/FOR DATE RELEASED	A B C 0 1 2 3		DWG. No. C-02 REV. No. 2				