

ALL ELEVATIONS ARE IN
NAVD 88 - DATUM

NINE MILE CREEK WATERSHED DISTRICT

SOUTH FORK NINE MILE CREEK

BANK STABILIZATION

PLAN SET SHOULD BE PRINTED
IN COLOR FOR BEST CLARITY

EDEN PRAIRIE & BLOOMINGTON, HENNEPIN COUNTY, MINNESOTA



Sheet List Table	
Sheet Number	Sheet Title
01	TITLE SHEET
02	PROJECT OVERVIEW
03	REACHES 6 - 8 MAP
04	REACHES 6 - 8 - STREAM PROFILE
05	REACHES 6 - 8 - PLAN & PROFILE 1
06	REACHES 6 - 8 - PLAN & PROFILE 2
07	REACHES 6 - 8 - PLAN & PROFILE 3
08	REACHES 6 - 8 - PLAN & PROFILE 4
09	REACHES 6 - 8 - PLAN & PROFILE 5
10	REACHES 6 - 8 - EXISTING CROSS SECTIONS 1
11	REACHES 6 - 8 - EXISTING CROSS SECTIONS 2
12	REACHES 6 - 8 - EXISTING CROSS SECTIONS 3
13	REACHES 16 - 17 MAP
14	REACHES 16 - 17 - STREAM PROFILE
15	REACHES 16 - 17 - PLAN & PROFILE 1
16	REACHES 16 - 17 - PLAN & PROFILE 2
17	REACHES 16 - 17 - PLAN & PROFILE 3
18	REACHES 16 - 17 - PLAN & PROFILE 4
19	REACHES 16 - 17 - EXISTING CROSS SECTIONS 1
20	REACHES 16 - 17 - EXISTING CROSS SECTIONS 2
21	DETAILS - 1
22	DETAILS - 2
23	DETAILS - 3
24	DETAILS - 4

EXISTING UTILITIES

THE LOCATION OF UNDERGROUND FACILITIES AND/OR STRUCTURES AS SHOWN ON THE PLANS ARE BASED ON AVAILABLE RECORDS AT THE TIME THE PLANS WERE PREPARED AND ARE NOT GUARANTEED TO BE COMPLETE OR CORRECT. THE SUBSURFACE UTILITY INFORMATION SHOWN IS UTILITY QUALITY LEVEL D, AS DETERMINED USING THE GUIDELINES OF "CI/ASCE 38-02 STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA." THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL UTILITIES 48 HOURS PRIOR TO CONSTRUCTION TO DETERMINE THE EXACT LOCATION OF ALL FACILITIES AND TO PROVIDE ADEQUATE PROTECTION OF SAID UTILITIES DURING THE COURSE OF WORK.

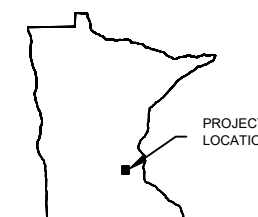
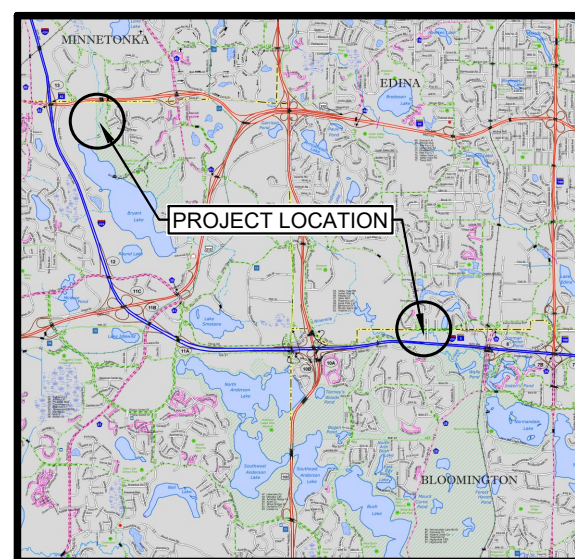
CONSTRUCTION NOTE

CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO MAINTAIN OPERATION OF EXISTING UTILITIES THROUGHOUT THE DURATION OF THE PROJECT. IN THE EVENT THAT AN INTERRUPTION OF SERVICE IS UNAVOIDABLE IN ORDER TO COMPLETE THE WORK, CONTRACTOR SHALL PROVIDE ADEQUATE NOTIFICATION TO ALL AFFECTED BUSINESSES A MINIMUM OF 3 WORKING DAYS IN ADVANCE OF ANY INTERRUPTION.

GOPHER STATE ONE-CALL

IT IS THE LAW THAT ANYONE EXCAVATING AT ANY SITE MUST NOTIFY GOPHER STATE ONE CALL (GSOC) SO THAT UNDERGROUND ELECTRIC, NATURAL GAS, TELEPHONE OR OTHER UTILITY LINES CAN BE MARKED ON OR NEAR YOUR PROPERTY BEFORE ANY DIGGING BEGINS. A 48-HOUR NOTICE, NOT INCLUDING WEEKENDS, IS REQUIRED. CALLS CAN BE MADE TO GSOC AT 1-800-252-1166 OR (651)454-0002, MONDAY THROUGH FRIDAY (EXCEPT HOLIDAYS) FROM 7 A.M. TO 5 P.M.

LOCATION MAP



* THIS PLAN SET CONTAINS 24 PLAN SHEETS

GOVERNING SPECIFICATIONS

THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING FIELD MANUAL FOR TEMPORARY CONTROL ZONE LAYOUTS.

CLIENT

NINE MILE CREEK WATERSHED DISTRICT
12800 GERARD DRIVE
EDEN PRAIRIE, MN 55346

ENGINEER

EMMONS & OLIVIER RESOURCES, INC.
1919 UNIVERSITY AVE W - SUITE 300
ST. PAUL, MINNESOTA 55104
TELEPHONE: (651) 770-8448
FAX: (651) 770-2552
eorinc.com

File Path: U:\14\1923
 Client: MN Dept. of Transportation
 Project: 1695-0002_X-BASE2_1695-0002_SURFACES
 Date: 07/14/2022

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EOR PROJECT NO.
1695-0002

EOR Emmons & Olivier Resources, Inc.
1919 University Ave W,
Suite 300, St Paul, MN 55104
water ecology community
Tele: 651.770.8448
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SOUTH FORK NINE MILE CREEK
BANK STABILIZATION
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HENNEPIN COUNTY, MINNESOTA
STATE PROJECT NO. --- CITY PROJECT NO. ###

TITLE SHEET
SHEET 01 OF 24 SHEETS



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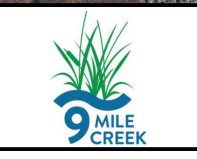
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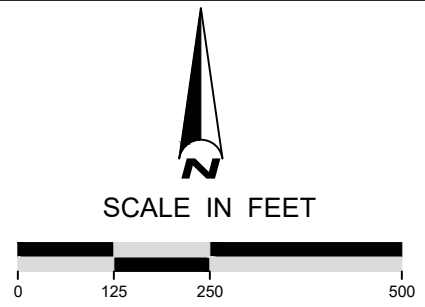
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PROJECT OVERVIEW
 SHEET 02 OF 24 SHEETS



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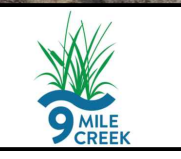
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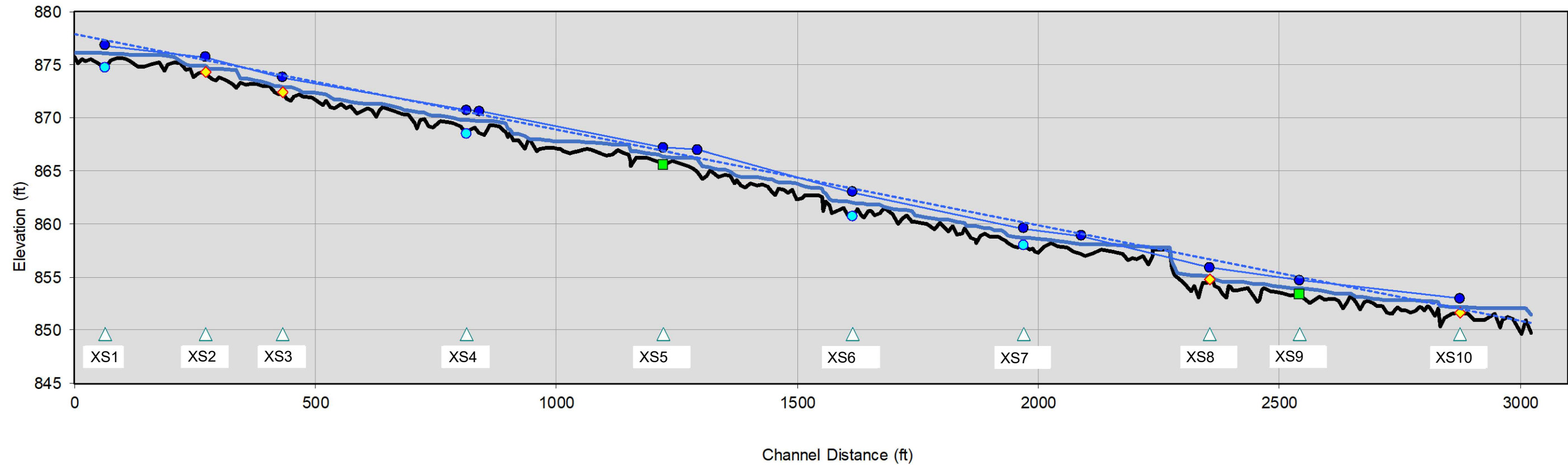
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 HENNEPIN COUNTY, MINNESOTA
 STATE PROJECT NO. --- CITY PROJECT NO. ###

REACHES 6 - 8 MAP
 SHEET 03 OF 24 SHEETS

AVERAGE REACH
SLOPE = 0.82%

Longitudinal Slope Profile

South Fork Nine Mile Creek (Reaches 6-8)



NOTE:
STREAM AND WATER PROFILE
SURVEYED ON APRIL 5 & 7, 2022

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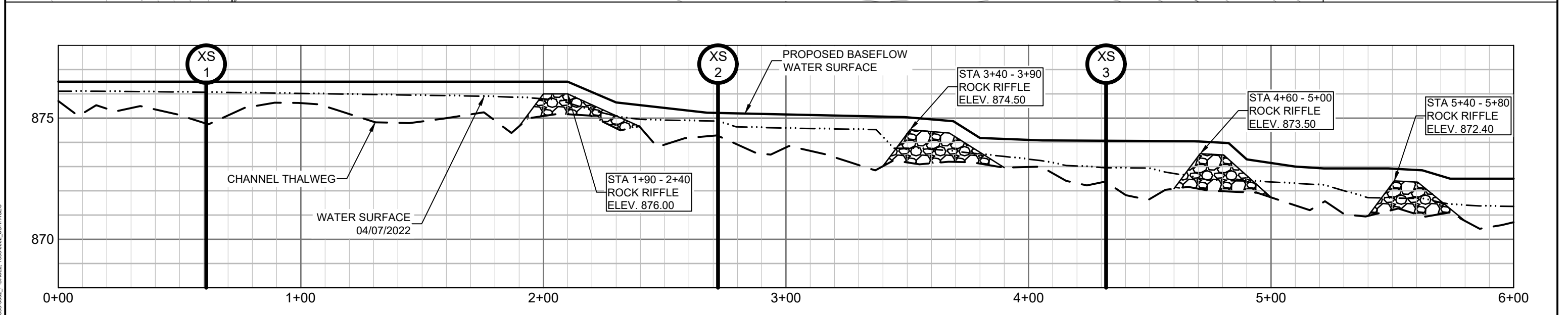
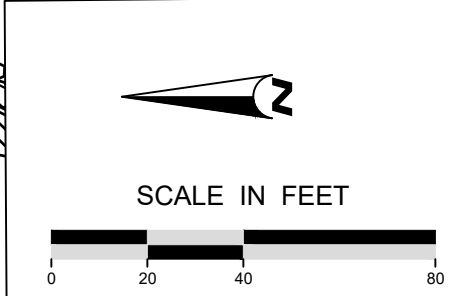
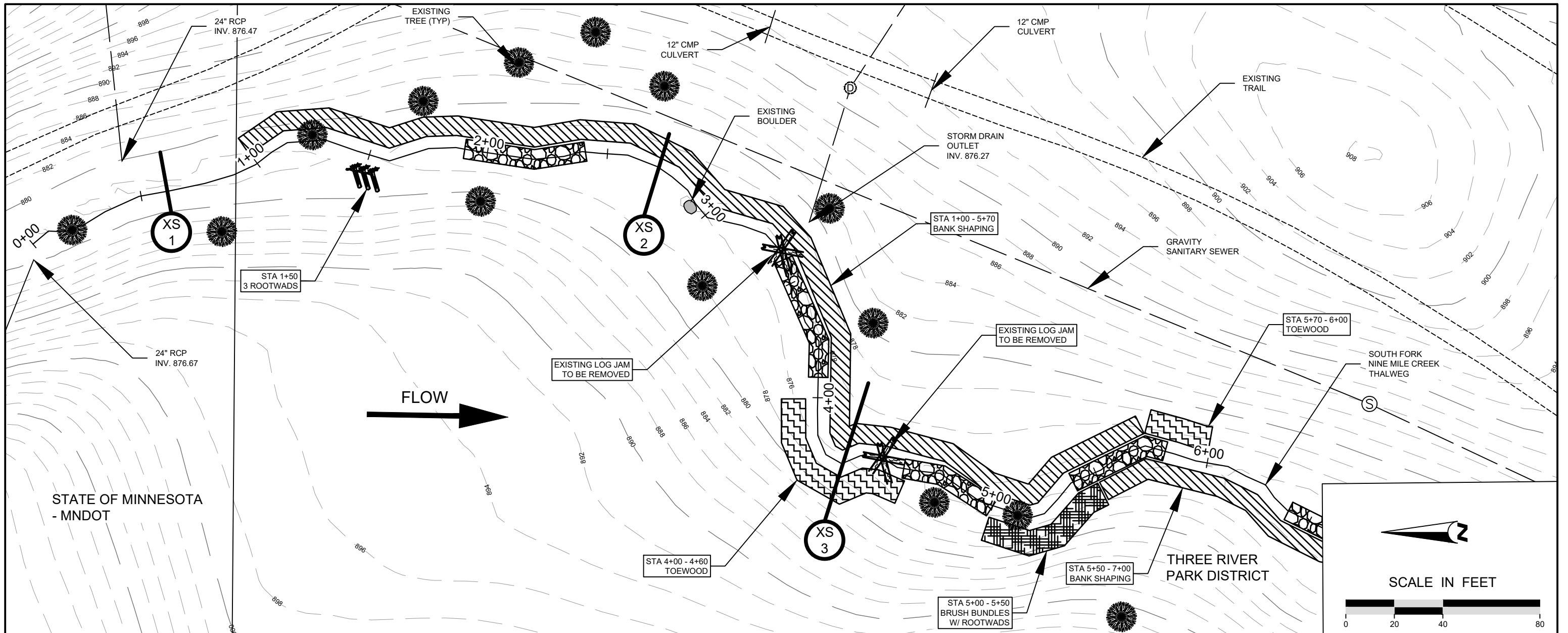
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REACHES 6 - 8 -
 STREAM PROFILE

SHEET 04 OF 24 SHEETS



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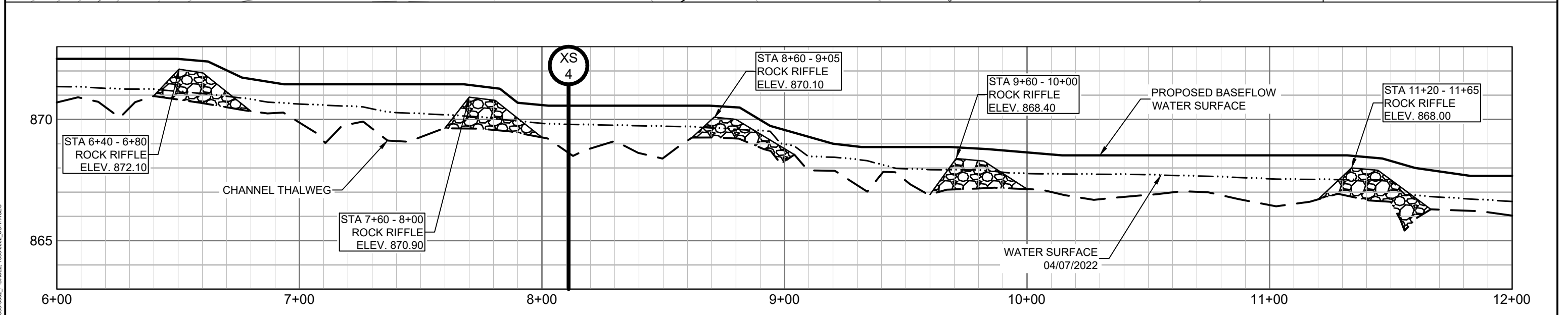
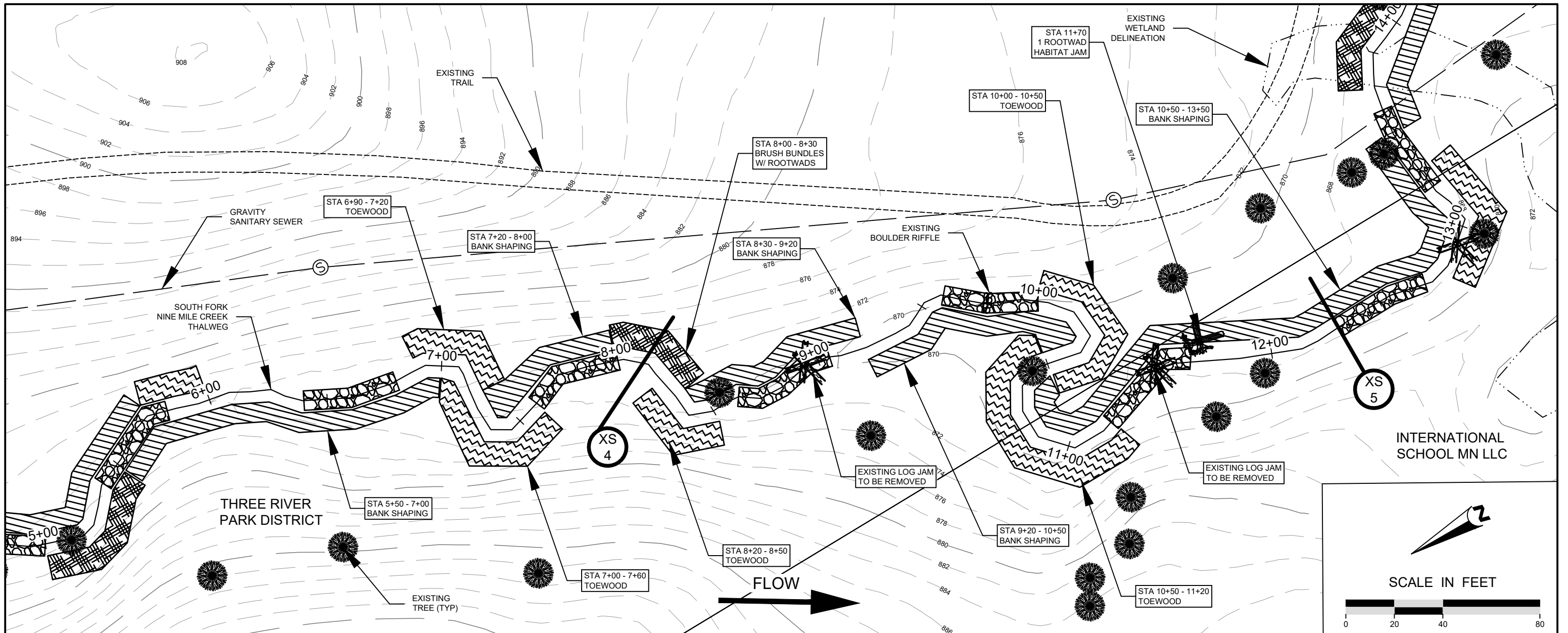
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REACHES 6 - 8 -
 PLAN & PROFILE 1
 SHEET 05 OF 24 SHEETS



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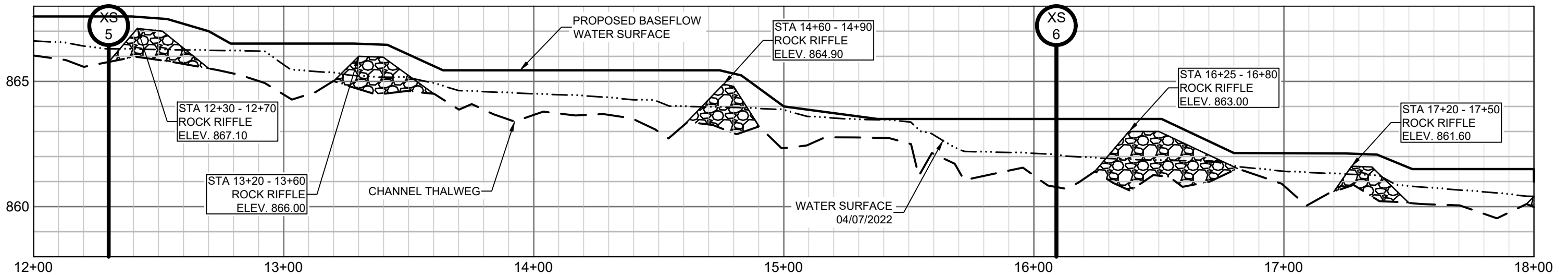
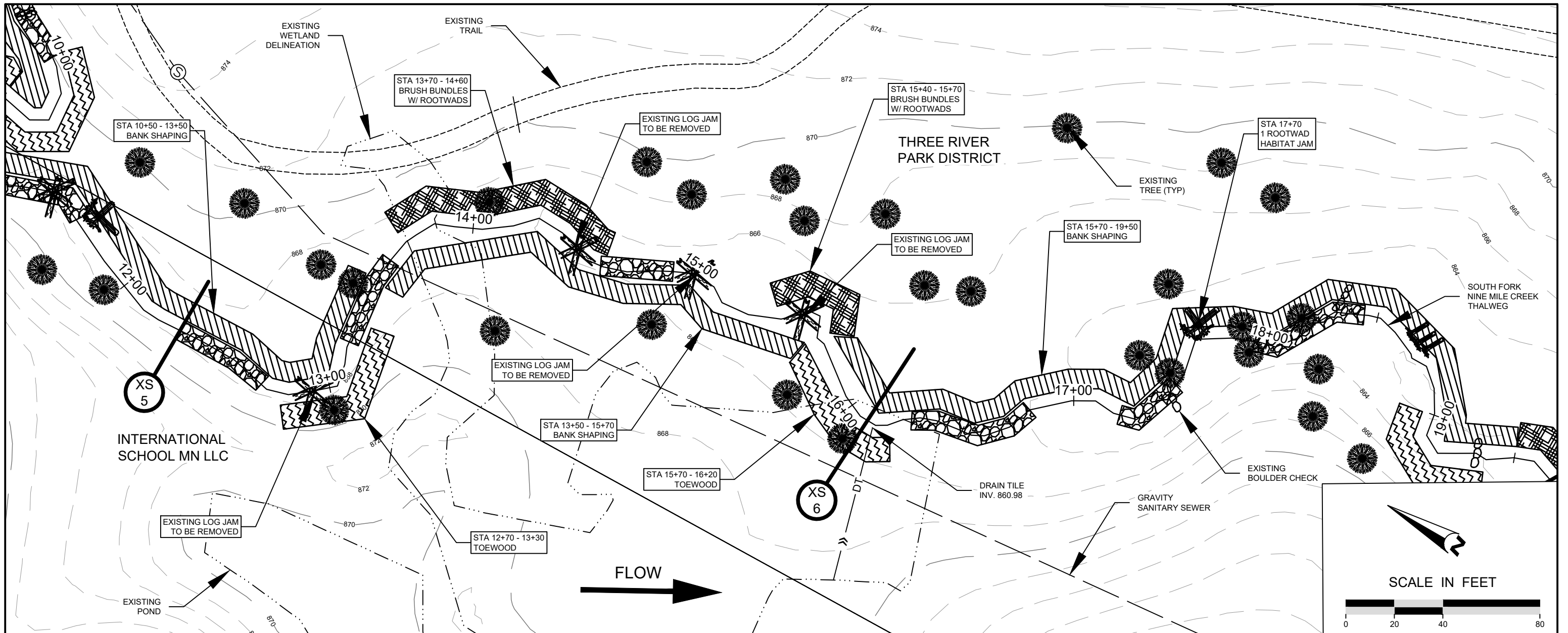


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REACHES 6 - 8 -
PLAN & PROFILE 2

SHEET 06 OF 24 SHEETS



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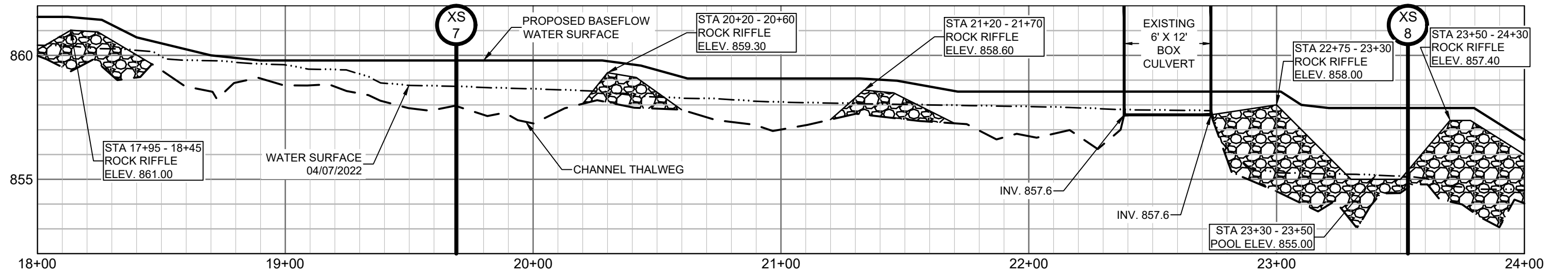
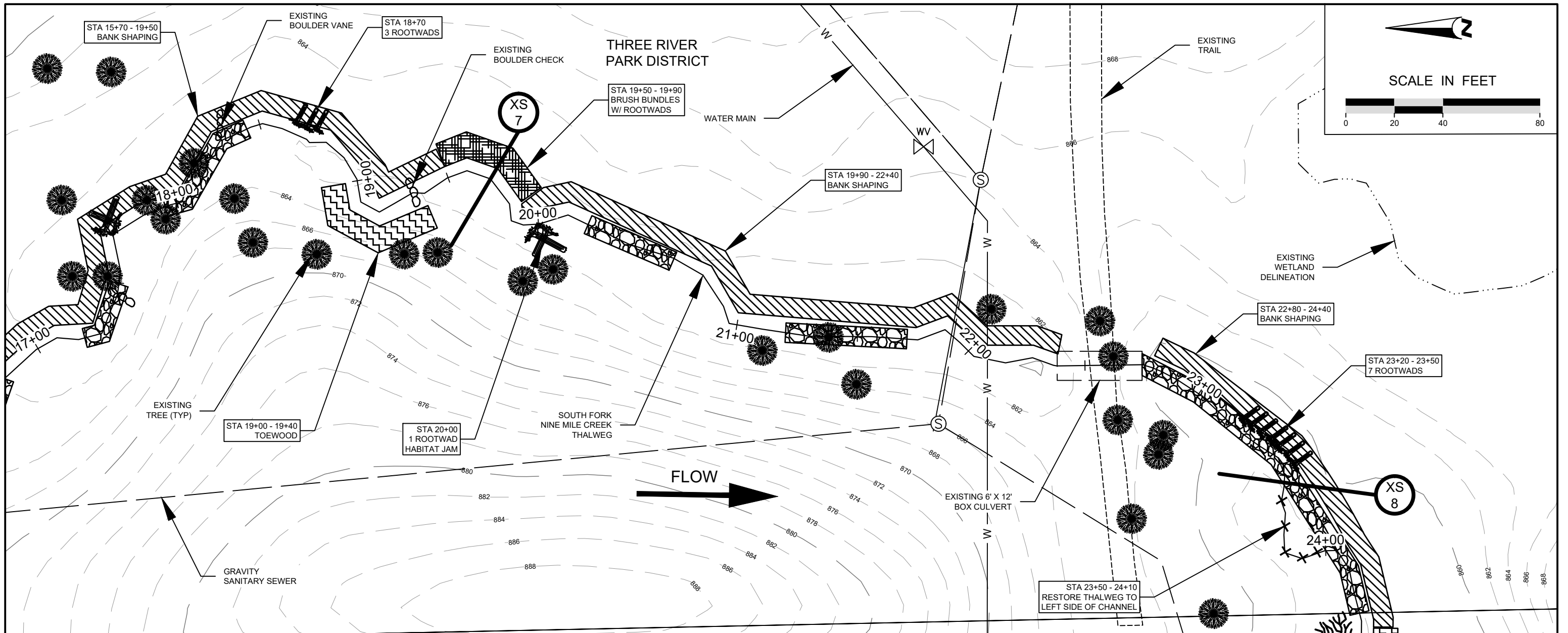
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REACHES 6 - 8 -
PLAN & PROFILE 3

SHEET 07 OF 24 SHEETS



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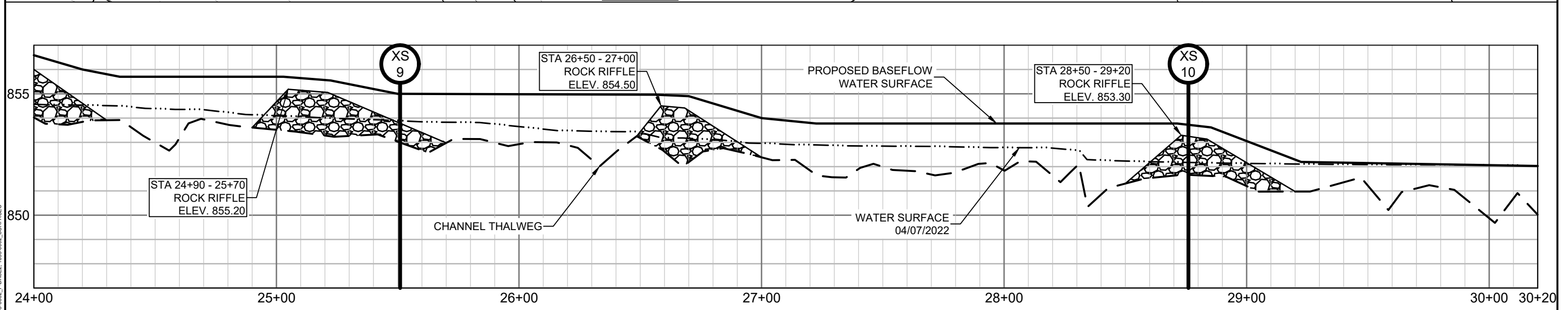
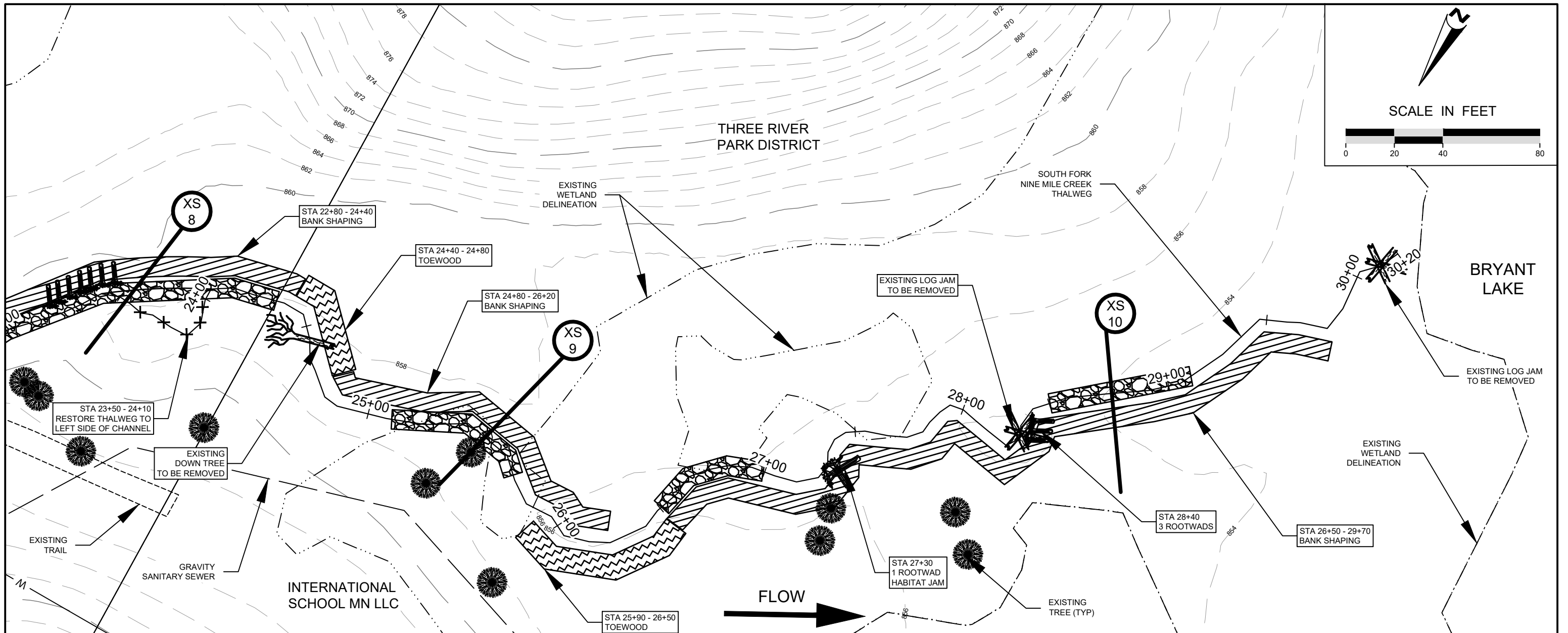
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SOUTH FORK NINE MILE CREEK BANK STABILIZATION
 EDEN PRAIRIE & BLOOMINGTON, HENNEPIN COUNTY, MINNESOTA

REACHES 6 - 8 - PLAN & PROFILE 4
 SHEET 08 OF 24 SHEETS



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GSOC 811
 Gopher State One Call
 Know what's below. Call before you dig.

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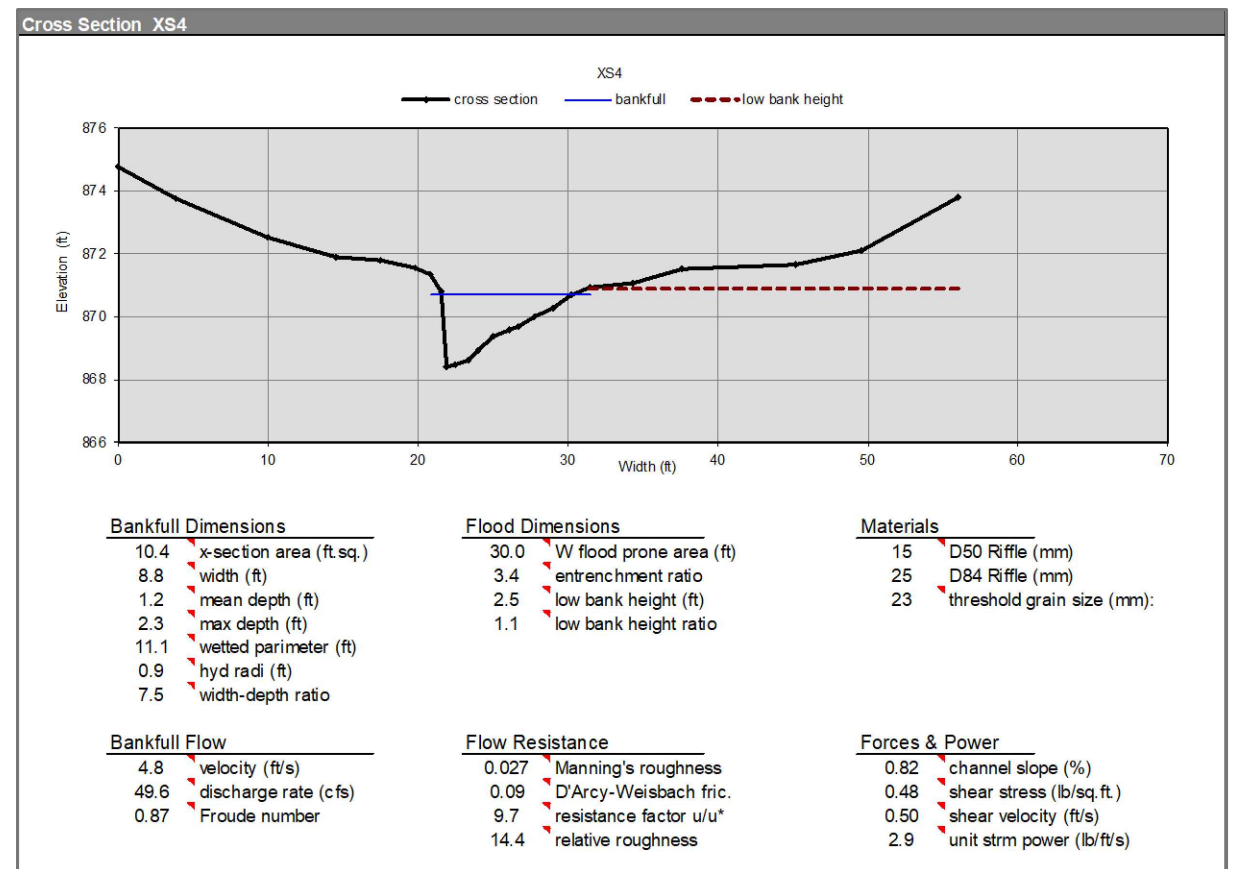
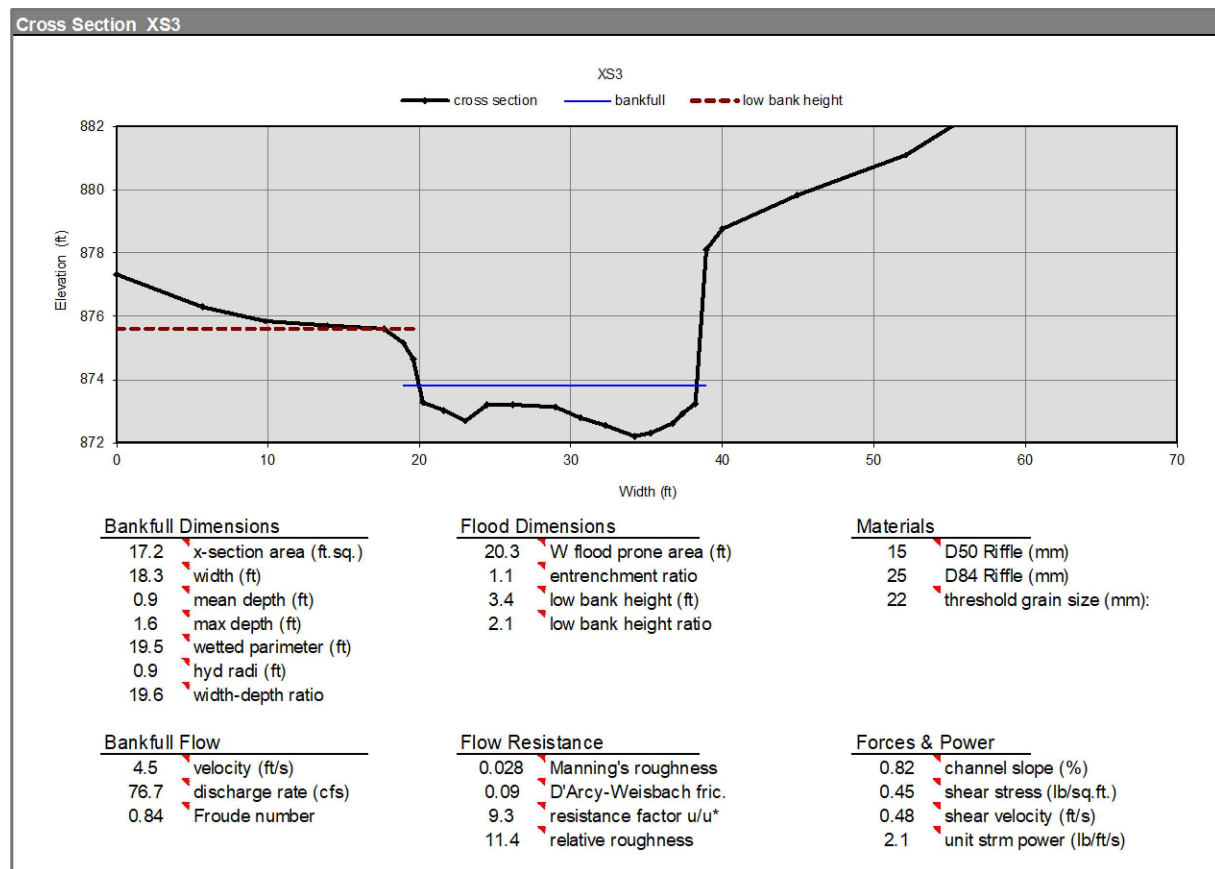
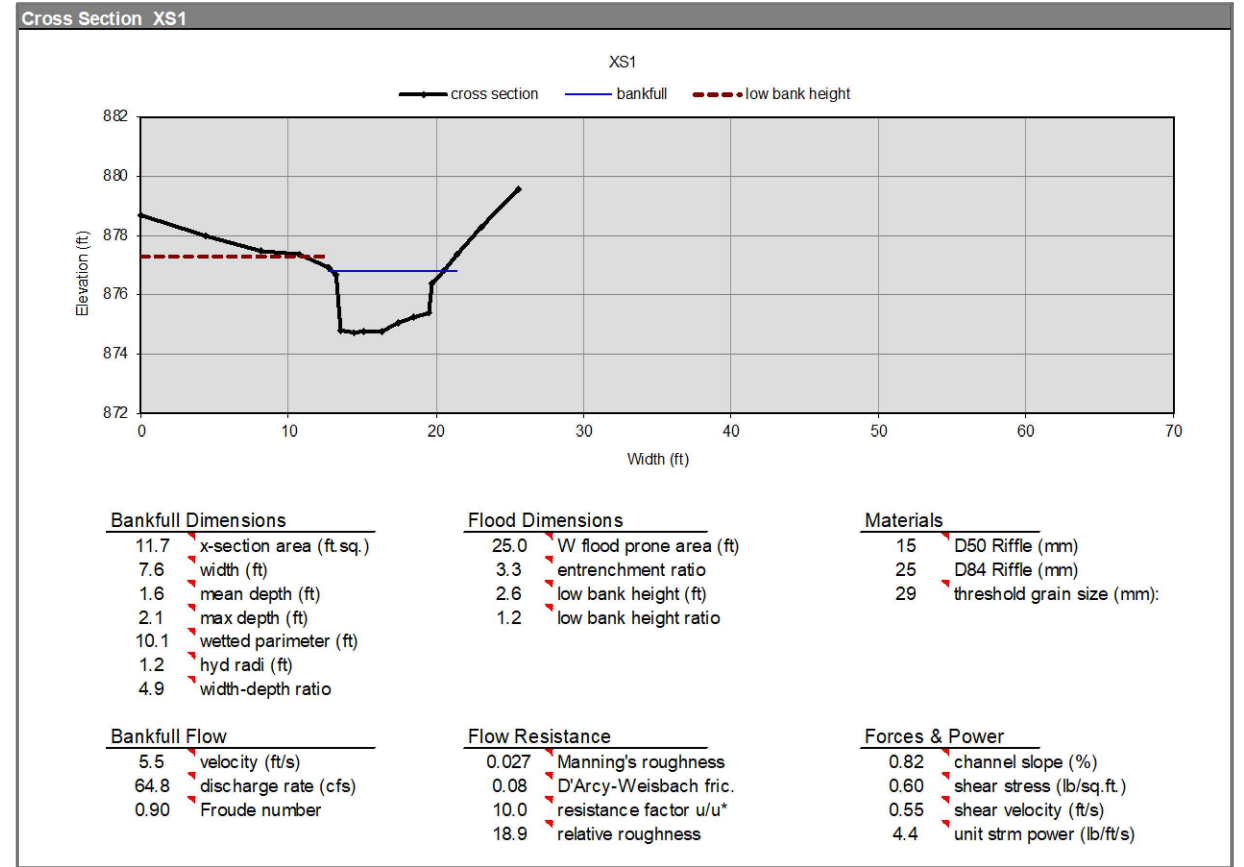
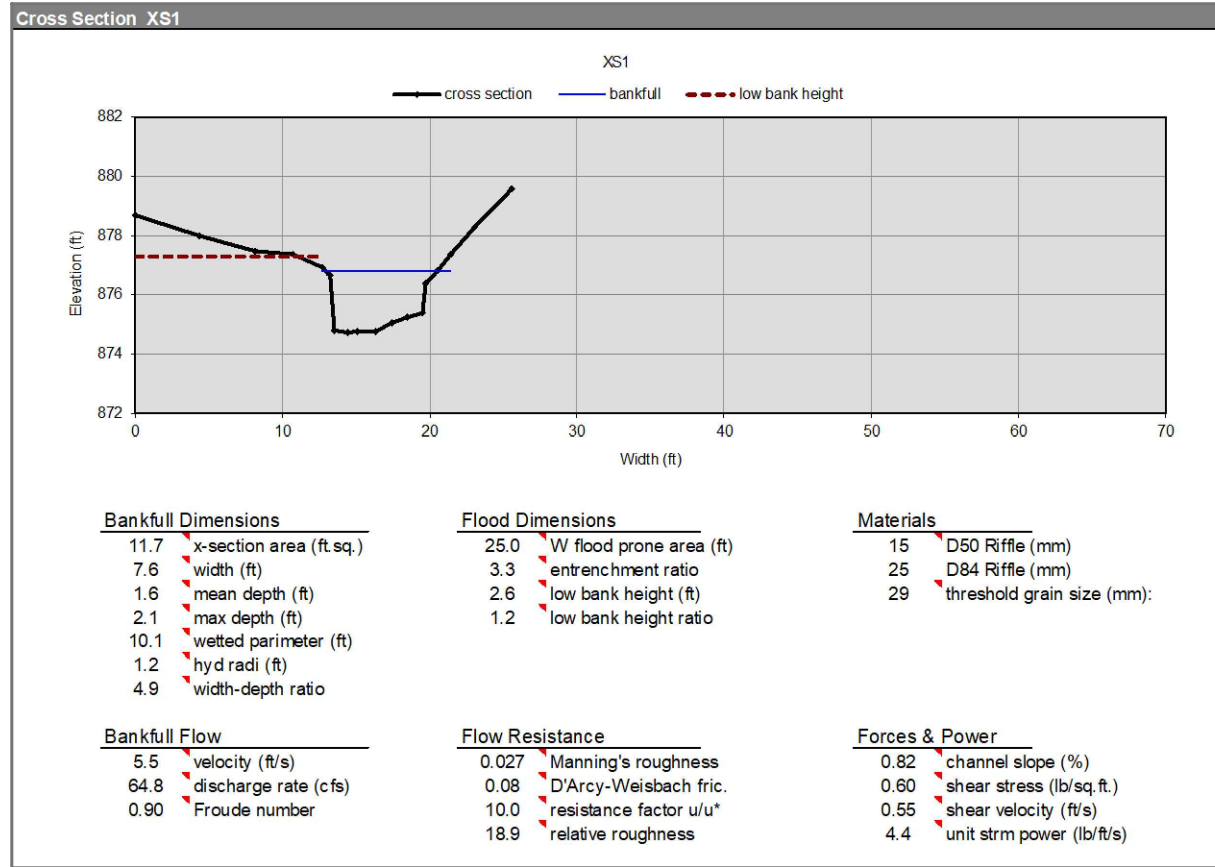
9 MILE CREEK

SOUTH FORK NINE MILE CREEK BANK STABILIZATION
 EDEN PRAIRIE & BLOOMINGTON, HENNEPIN COUNTY, MINNESOTA

STATE PROJECT NO. --- CITY PROJECT NO. ###

REACHES 6 - 8 - PLAN & PROFILE 5

SHEET 09 OF 24 SHEETS



NOTE:
ALL CROSS SECTIONS ARE ORIENTED DOWNSTREAM W/ RIVER LEFT ON THE LEFT AND RIVER RIGHT ON THE RIGHT.

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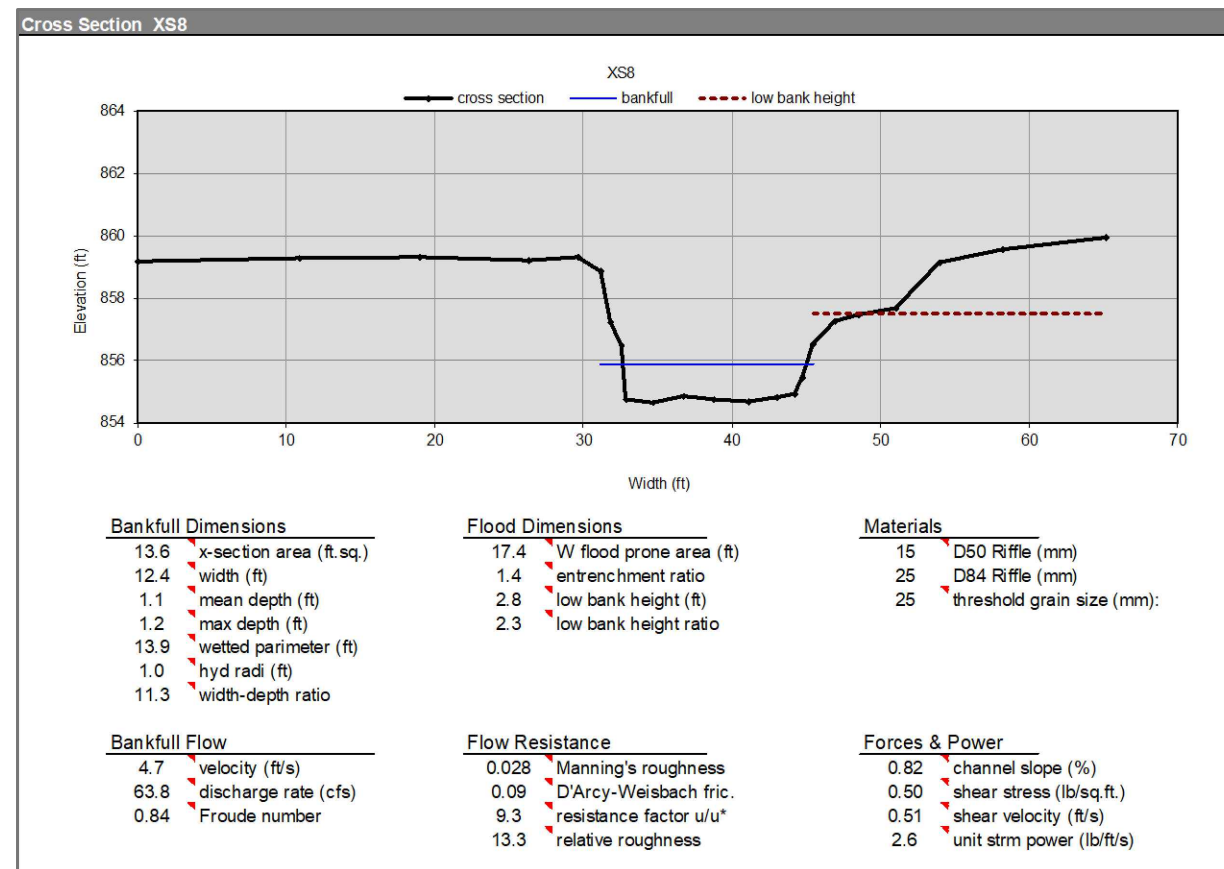
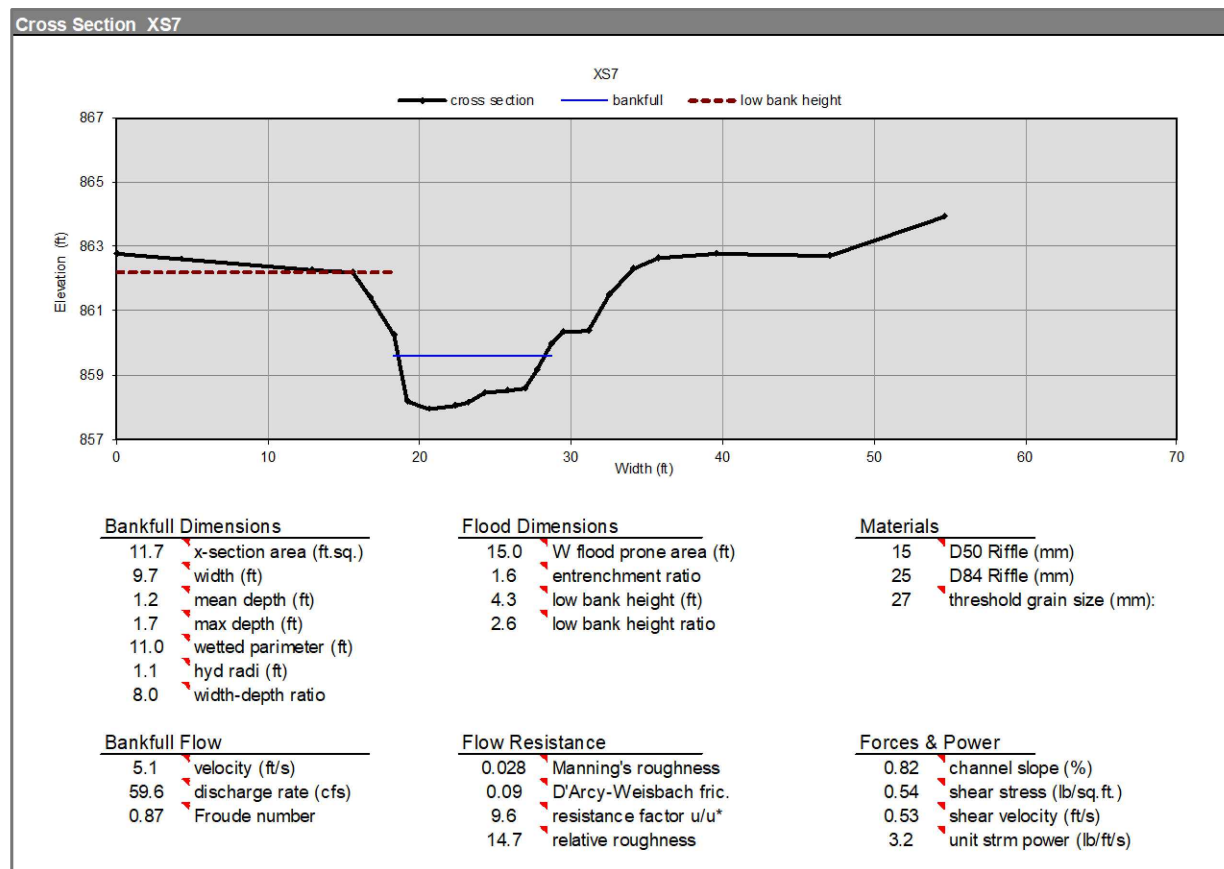
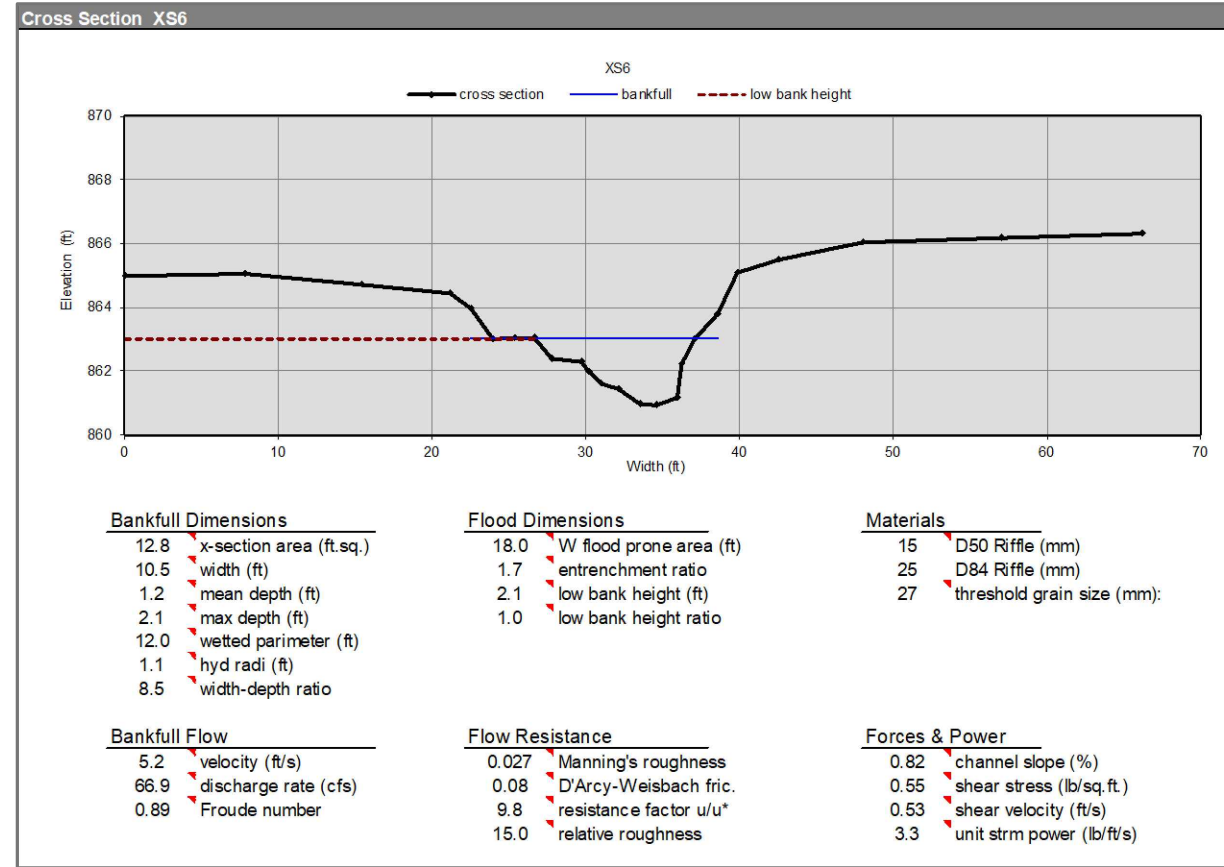
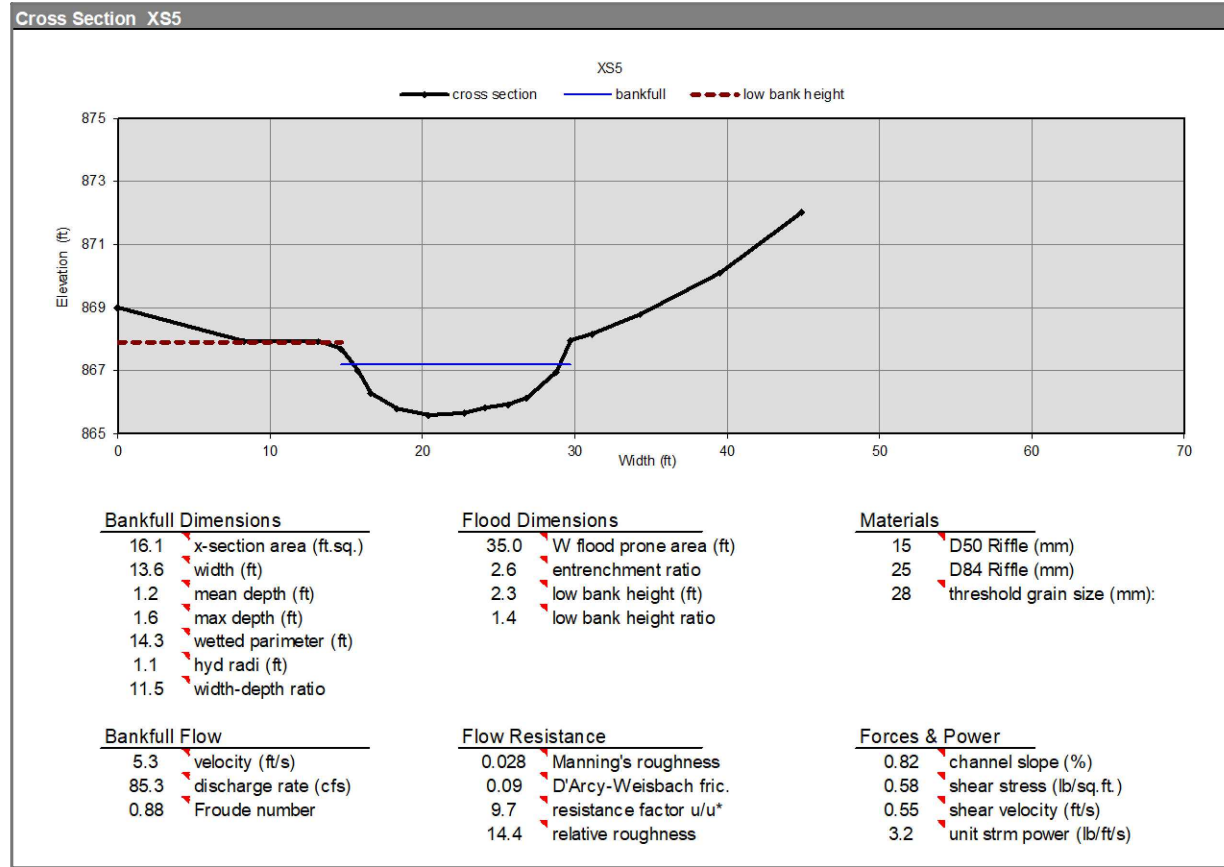


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REACHES 6 - 8 - EXISTING
 CROSS SECTIONS 1

SHEET 10 OF 24 SHEETS



NOTE:
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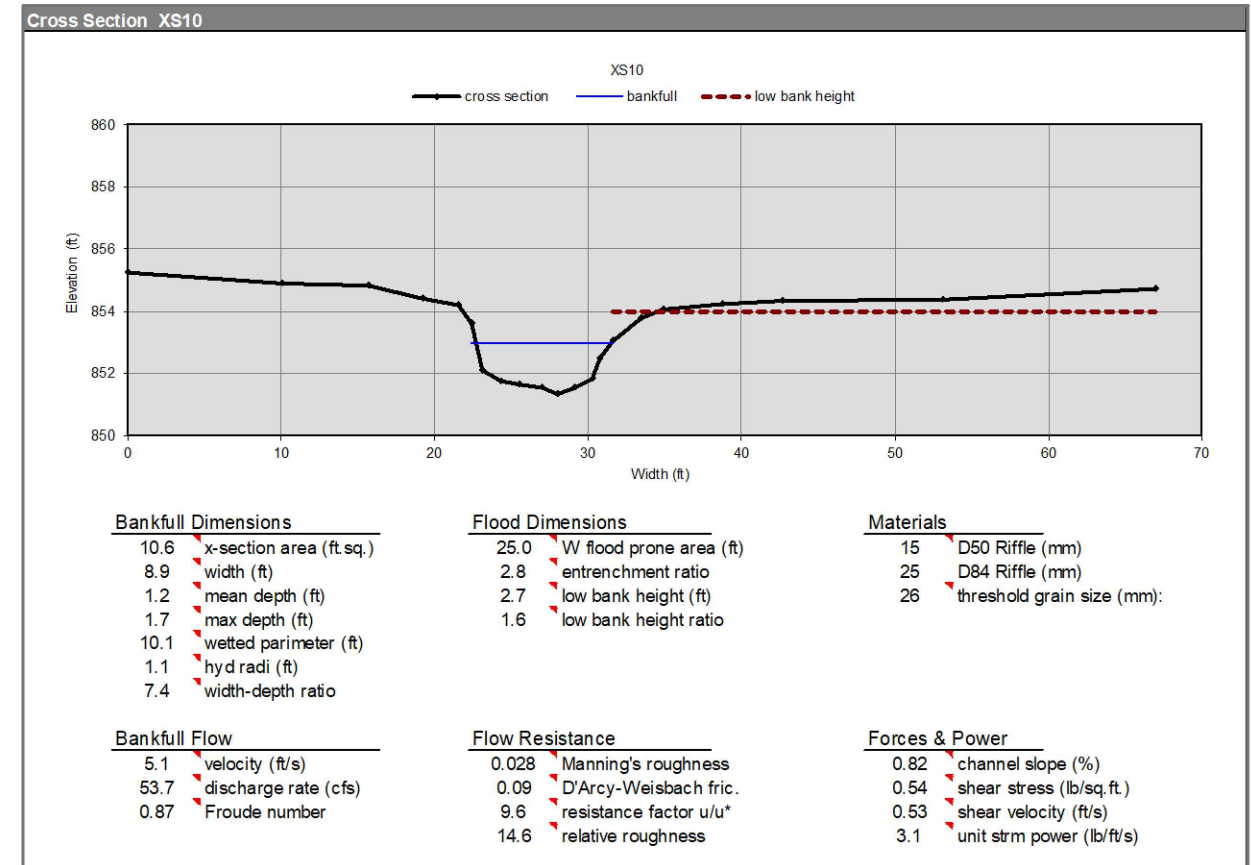
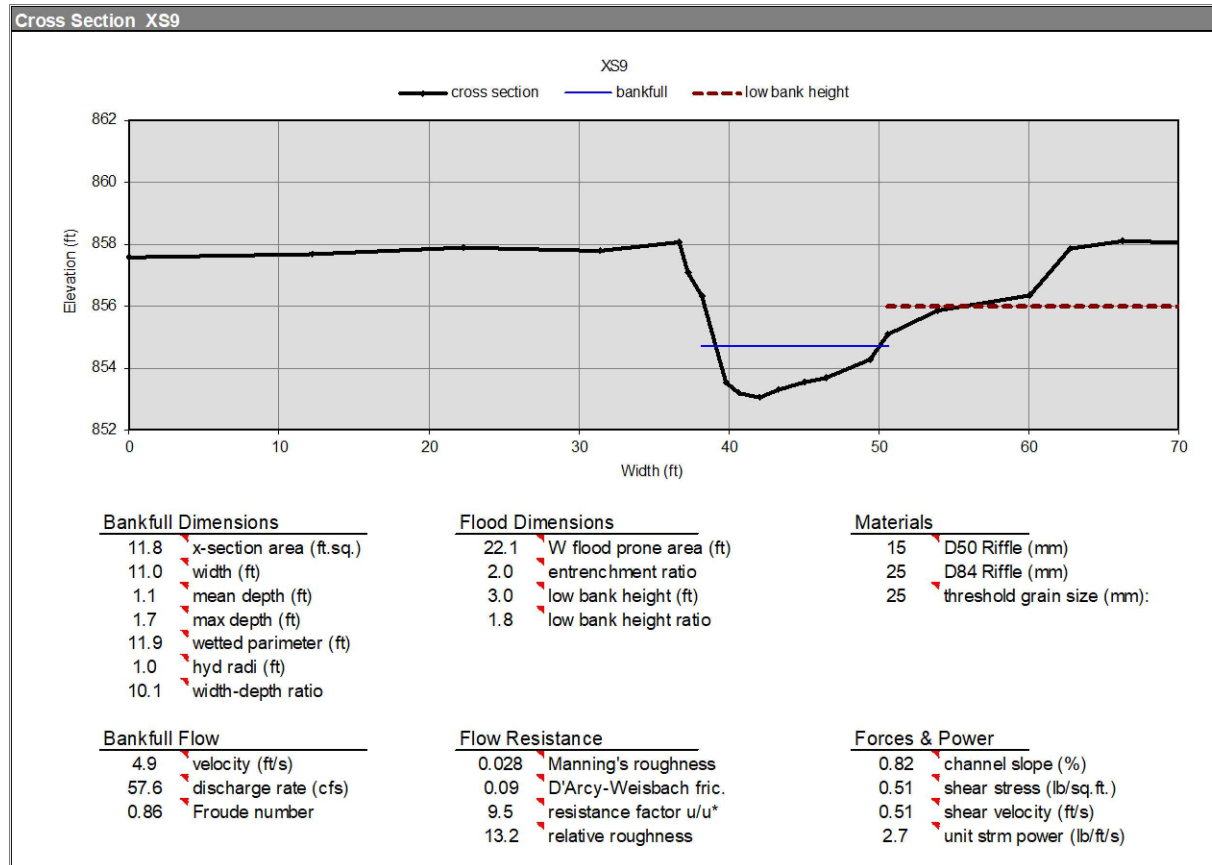
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REACHES 6 - 8 - EXISTING
CROSS SECTIONS 2
SHEET 11 OF 24 SHEETS



NOTE:

ALL CROSS SECTIONS ARE ORIENTED DOWNSTREAM W/ RIVER LEFT ON THE LEFT AND RIVER RIGHT ON THE RIGHT.

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REACHES 6 - 8 - EXISTING
 CROSS SECTIONS 3

SHEET 12 OF 24 SHEETS



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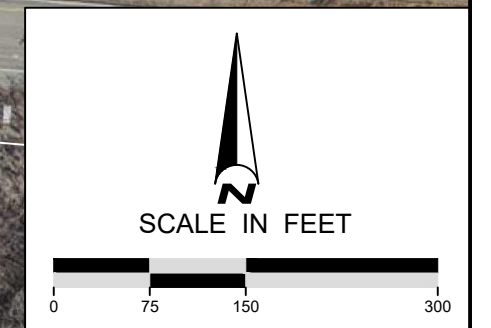
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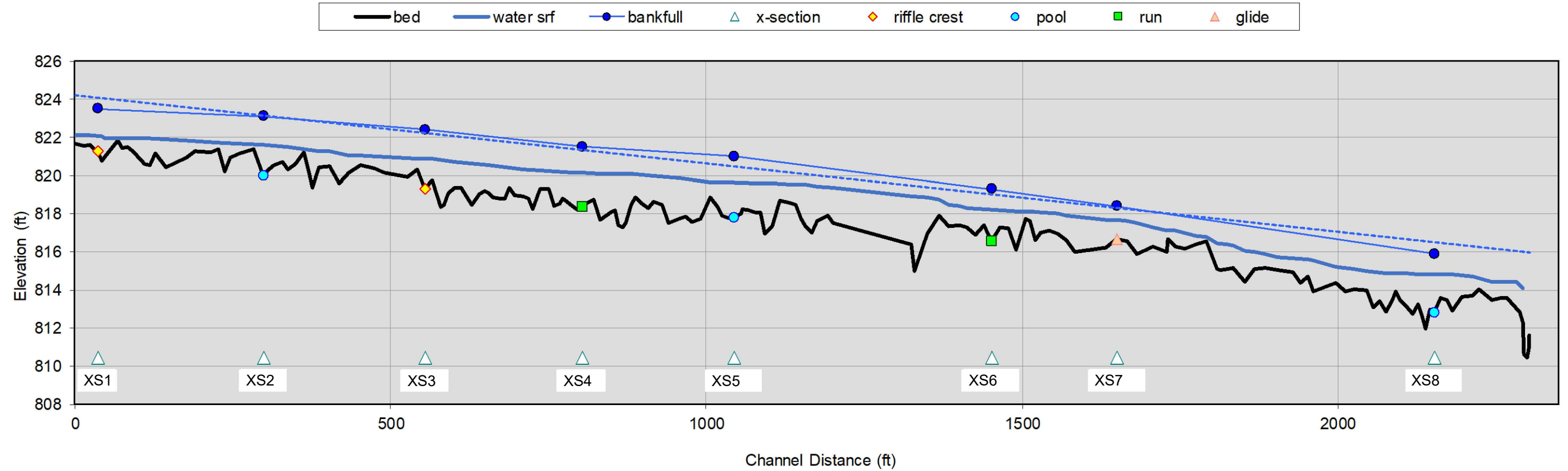


REACHES 16 - 17 MAP
 SHEET 13 OF 24 SHEETS

AVERAGE REACH
SLOPE = 0.35%

Longitudinal Slope Profile

South Fork Nine Mile Creek (Reaches 16-17)



NOTE:
STREAM AND WATER PROFILE SURVEYED
ON MARCH 23 & APRIL 5, 2022

File Path: U:\171\171923
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 Project: 1695-0002_X-BASE2_1695-0002_SURFACE2
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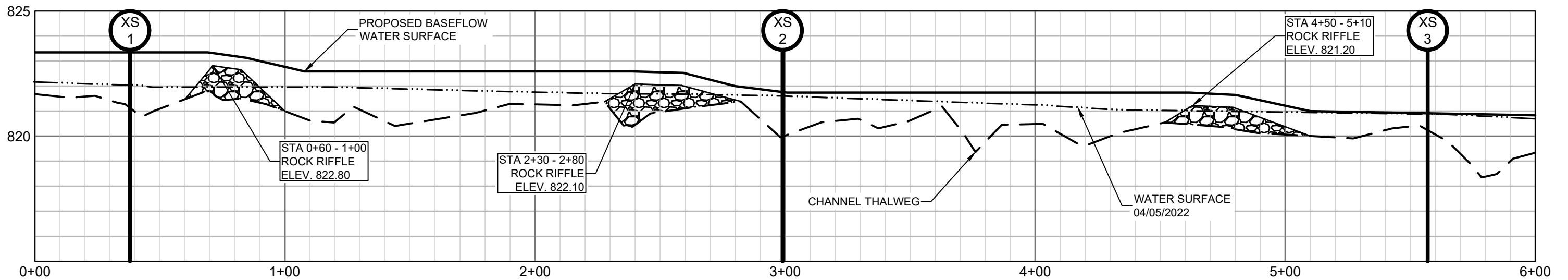
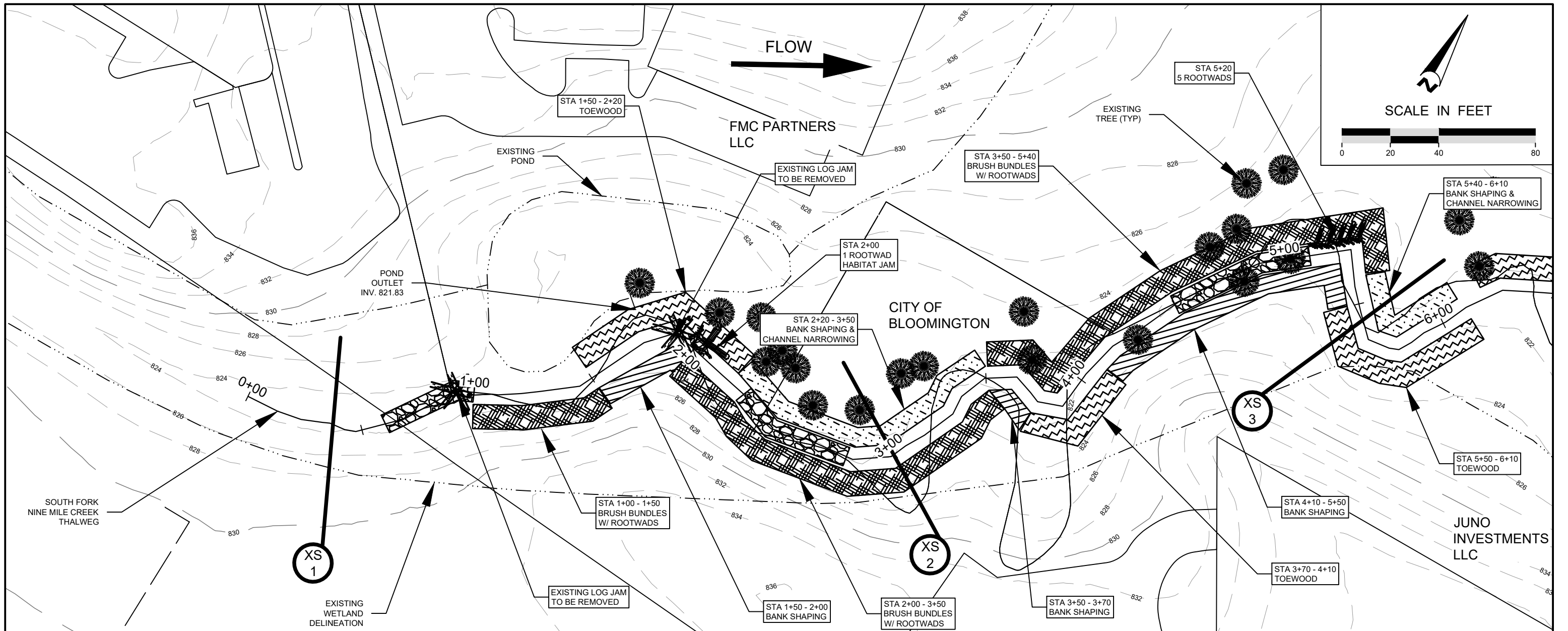
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07/14/2022
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CHECKED BY: XXX
EOR PROJECT NO.
1695-0002

EOR Emmons & Olivier
Resources, Inc.
1919 University Ave W,
Suite 300, St Paul, MN 55104
water ecology community
Tele: 651.770.8448
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SOUTH FORK NINE MILE CREEK
BANK STABILIZATION
EDEN PRAIRIE & BLOOMINGTON,
HENNEPIN COUNTY, MINNESOTA
STATE PROJECT NO. --- CITY PROJECT NO. ###

REACHES 16 - 17 -
STREAM PROFILE
SHEET 14 OF 24 SHEETS



File Path: U:\1714\171423
 Client: City of Bloomington, MN
 Project: SOUTH FORK NINE MILE CREEK BANK STABILIZATION
 Drawing: 1695-0002_P-BASE2_1695-0002_SURFACES

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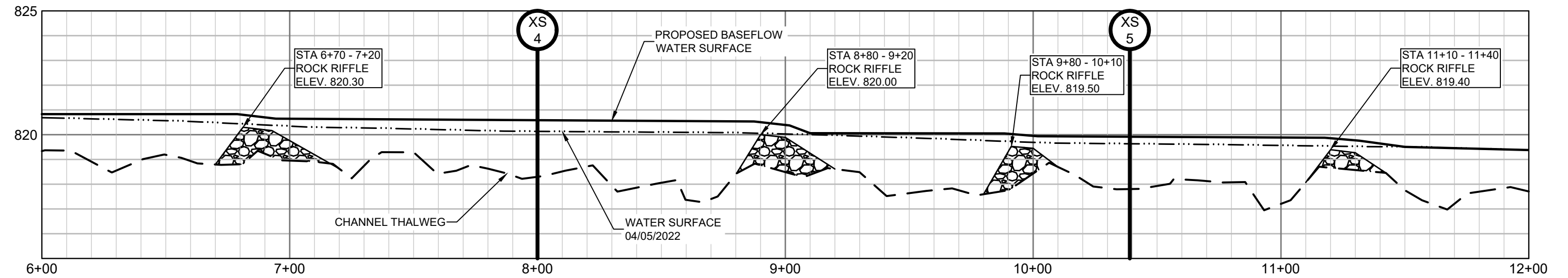
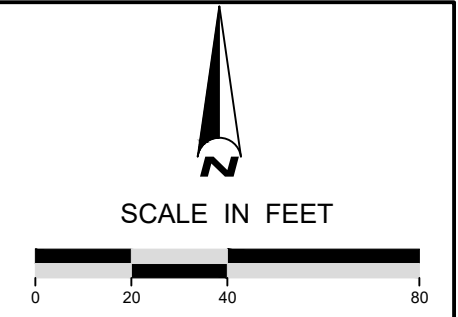
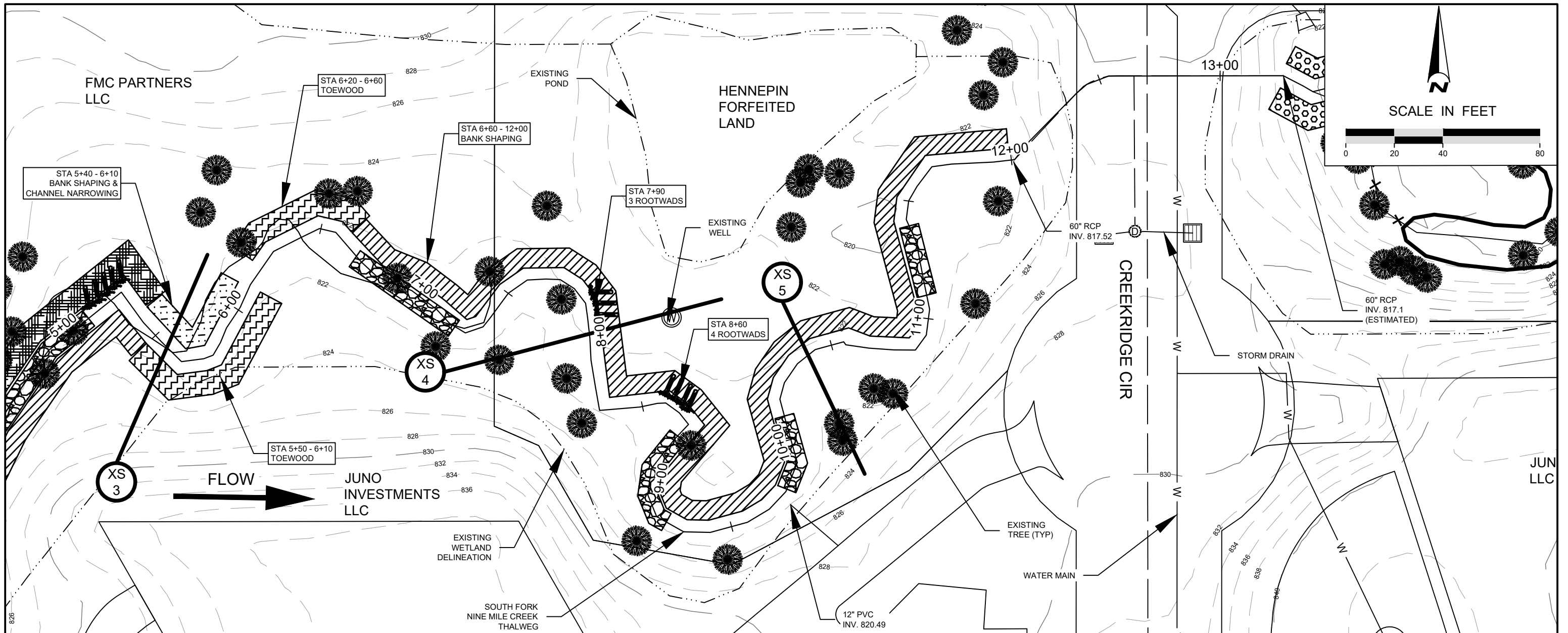
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 07/14/2022
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 STATE PROJECT NO. --- CITY PROJECT NO. ###

REACHES 16 - 17 -
 PLAN & PROFILE 1
 SHEET 15 OF 24 SHEETS



File Path: U:\1714\171423
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 Project: SOUTH FORK NINE MILE CREEK BANK STABILIZATION PROJECT
 Drawing: 1695-0002_SURFACES

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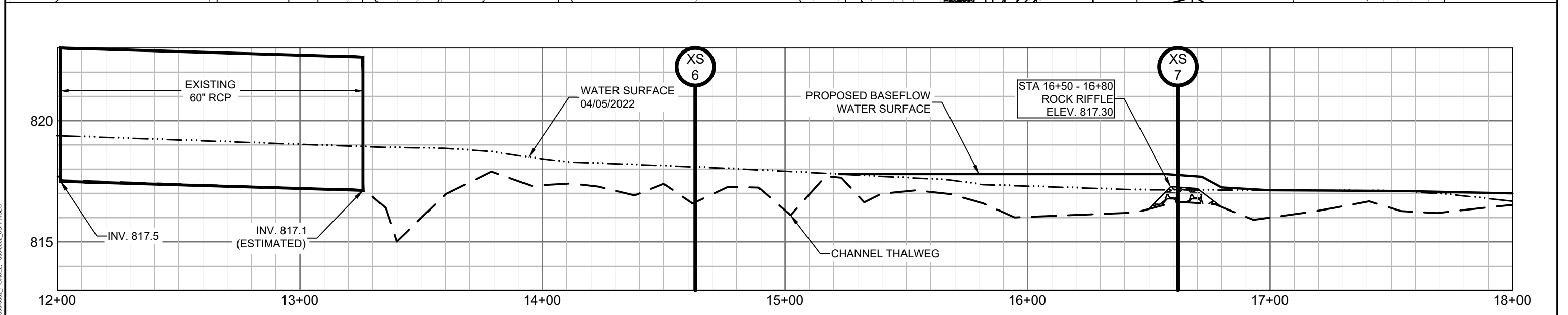
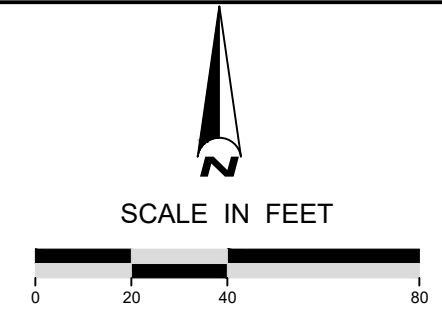
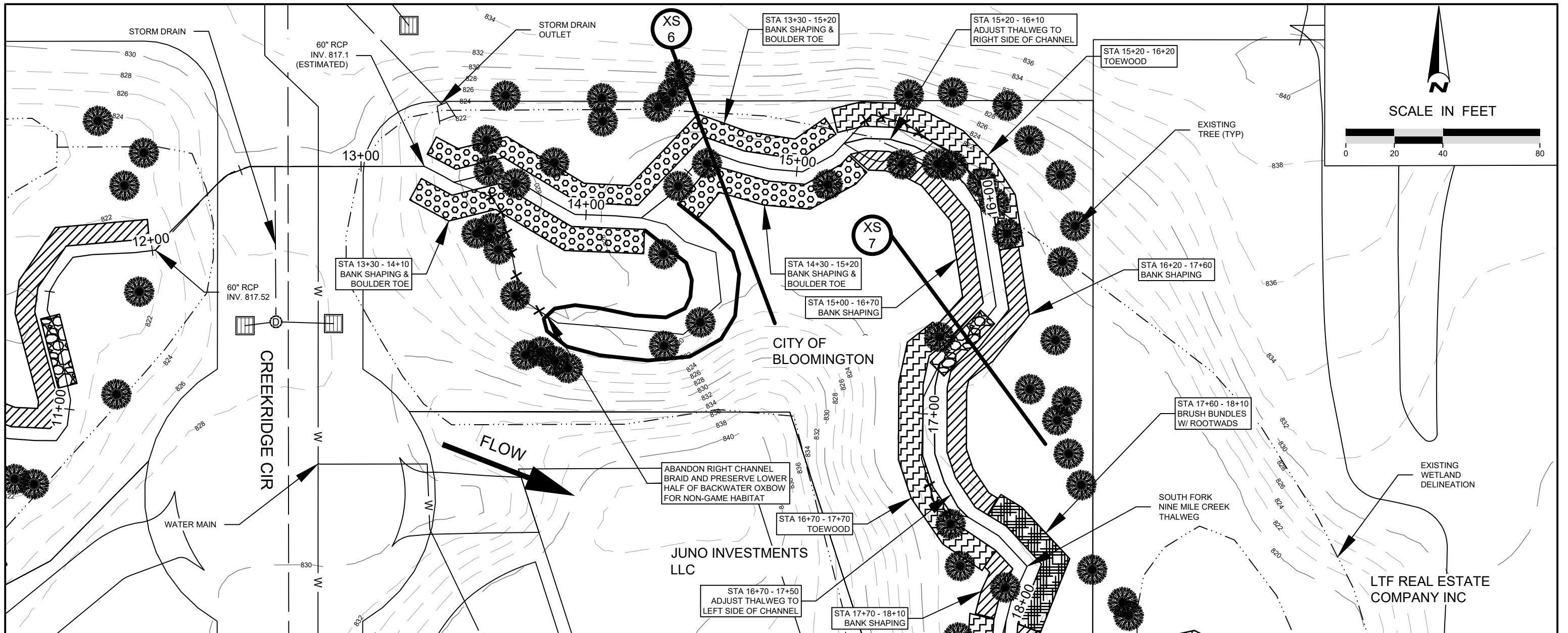
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 STATE PROJECT NO. --- CITY PROJECT NO. ###

REACHES 16 - 17 -
 PLAN & PROFILE 2
 SHEET 16 OF 24 SHEETS



File Path: U:\1714\171423
 Client: City of Bloomington, MN
 Project: SOUTH FORK NINE MILE CREEK BANK STABILIZATION
 Drawing: PLAN & PROFILE 3

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GSOC 811
 Gopher State One Call
 Know what's below.
 Call before you dig.

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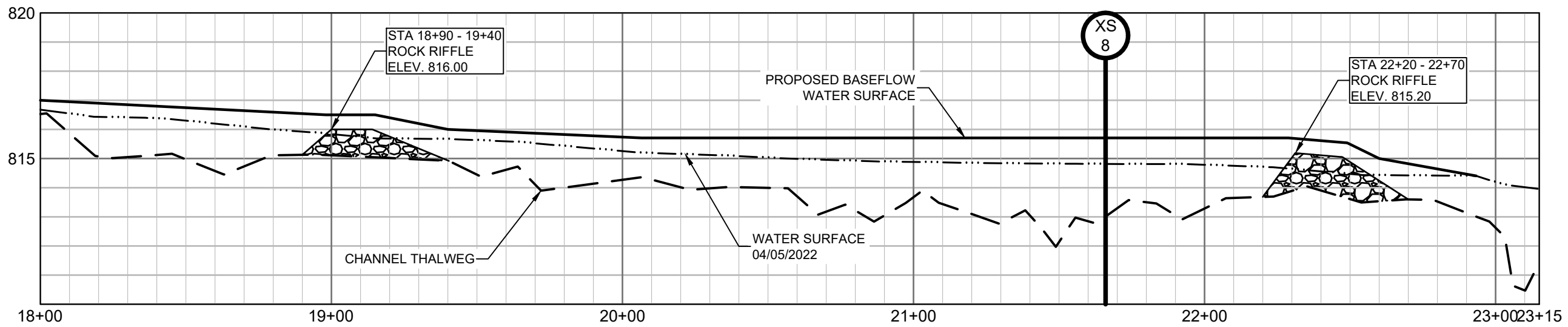
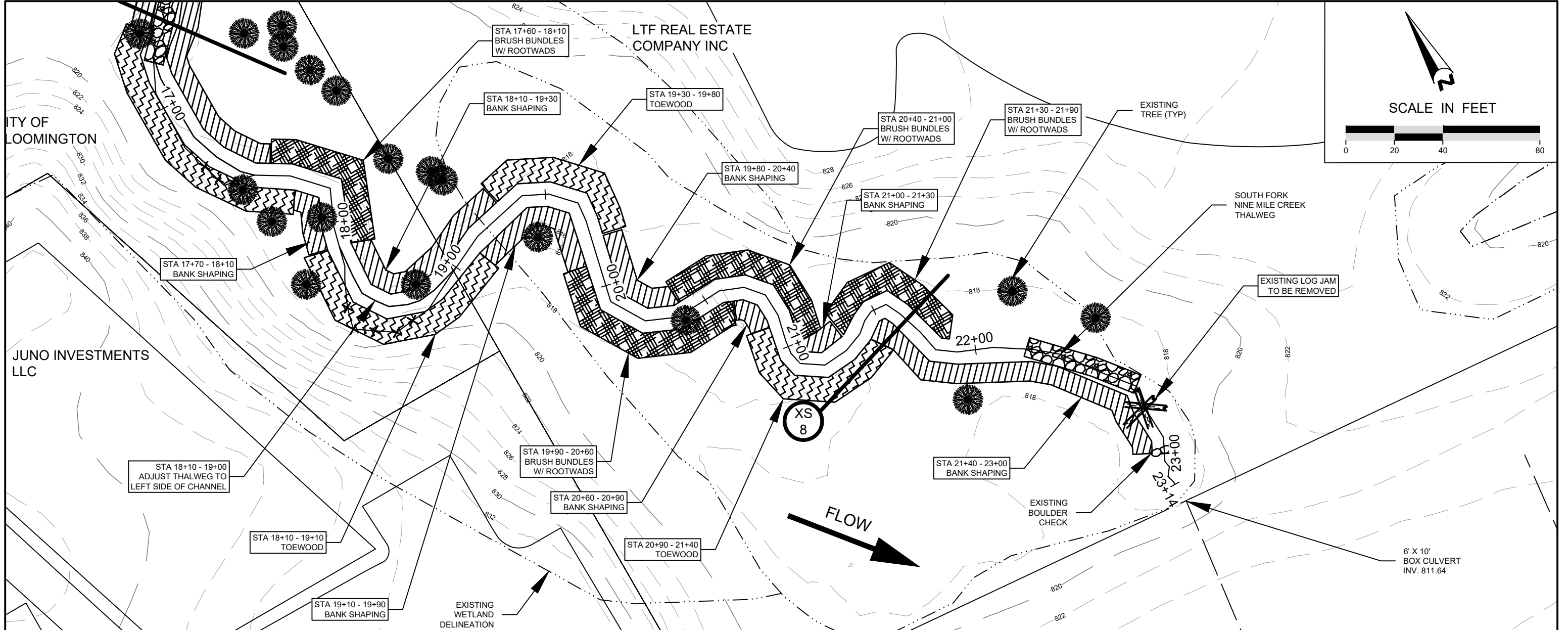


SOUTH FORK NINE MILE CREEK
 BANK STABILIZATION
 EDEN PRAIRIE & BLOOMINGTON,
 HENNEPIN COUNTY, MINNESOTA

STATE PROJECT NO. --- CITY PROJECT NO. ###

REACHES 16 - 17 -
 PLAN & PROFILE 3

SHEET 17 OF 24 SHEETS



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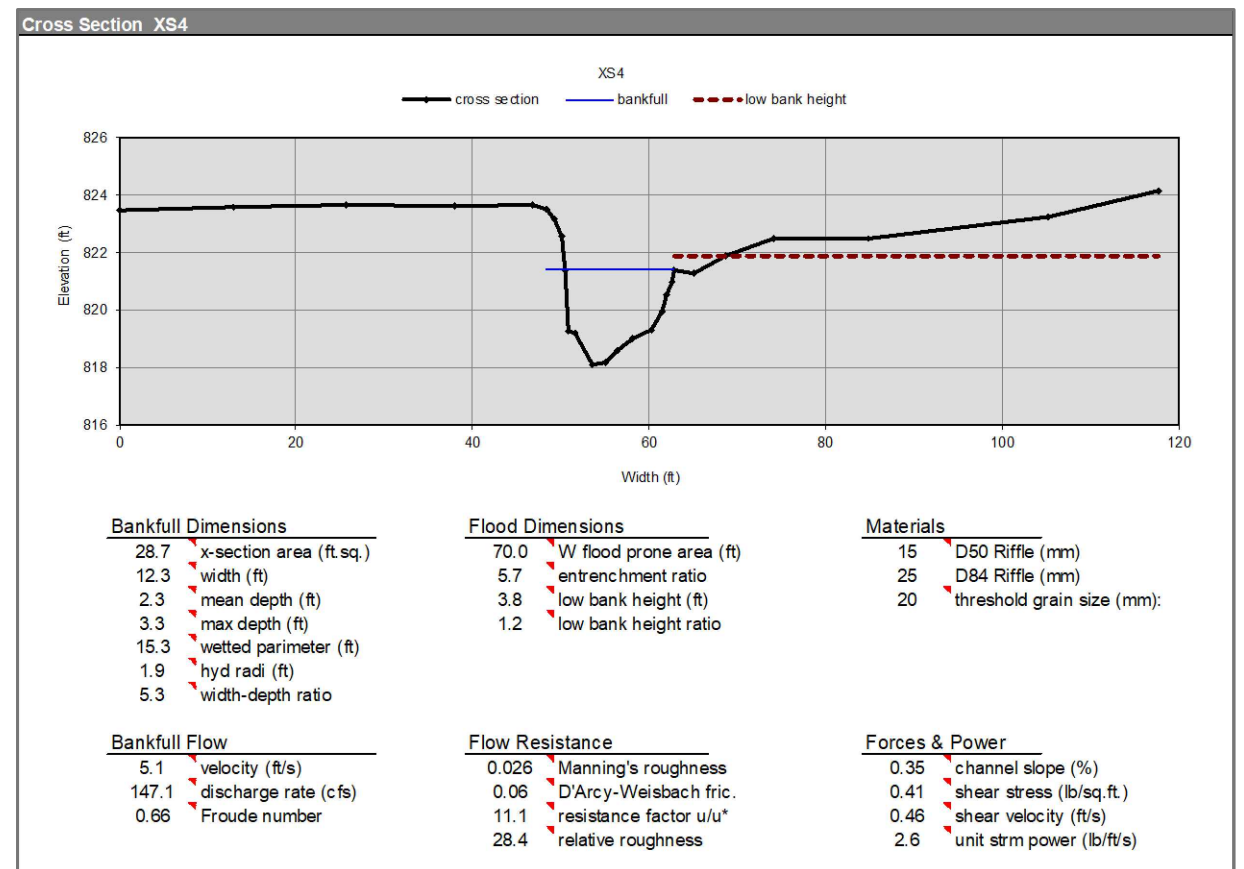
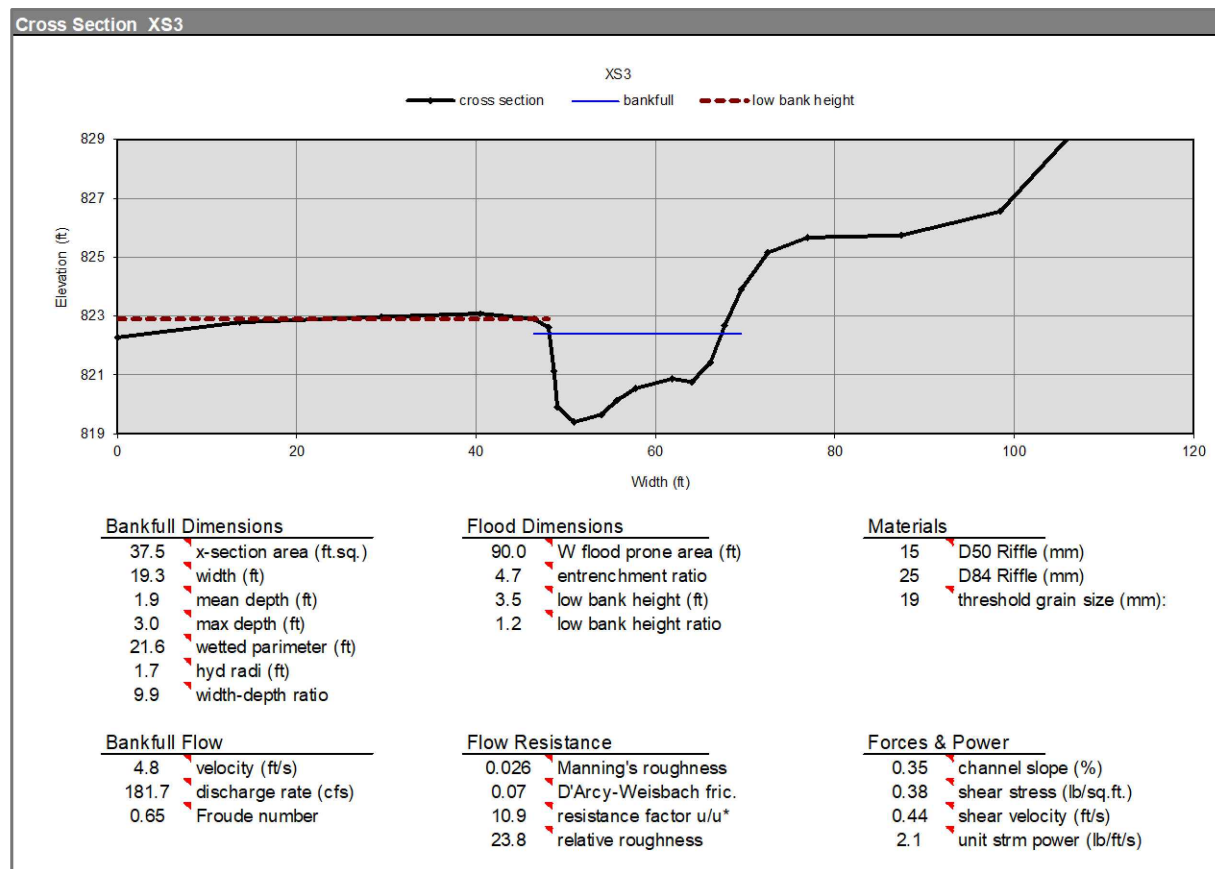
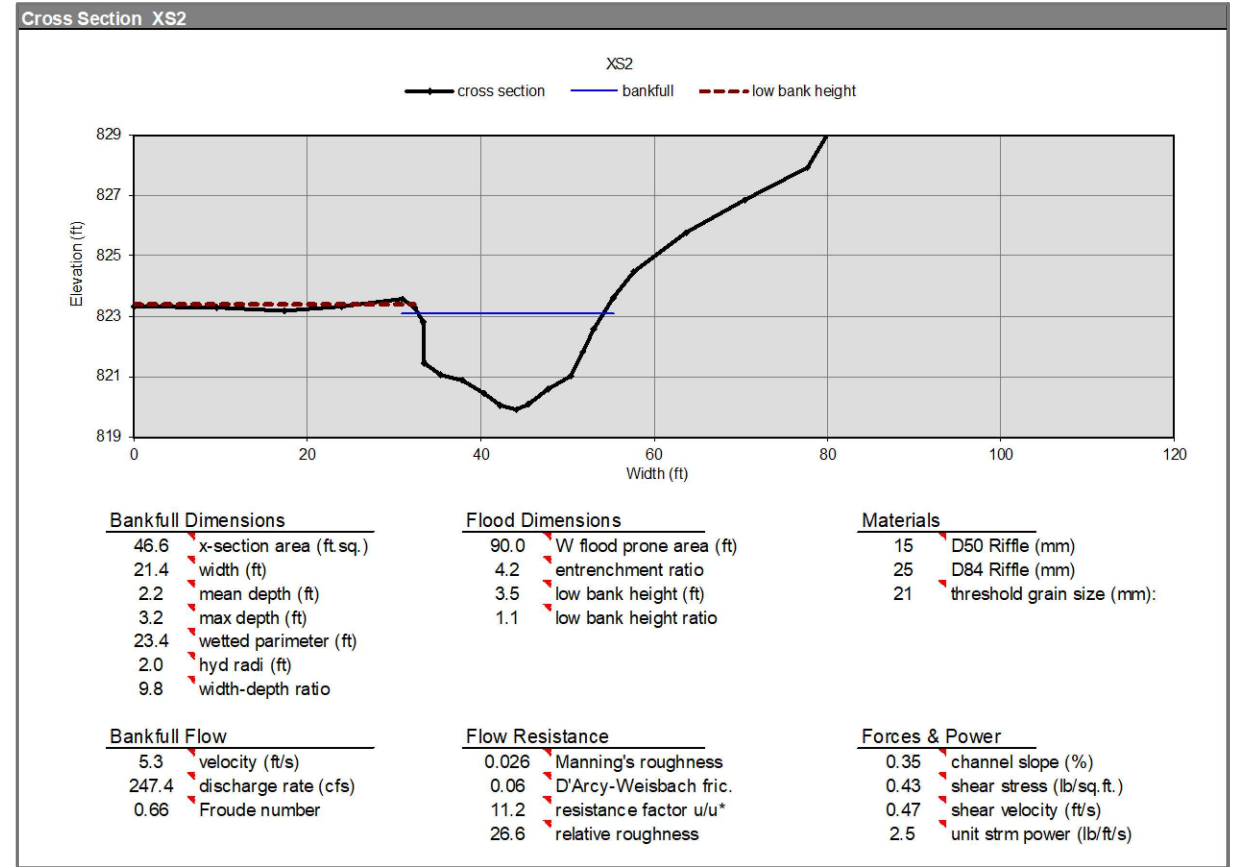
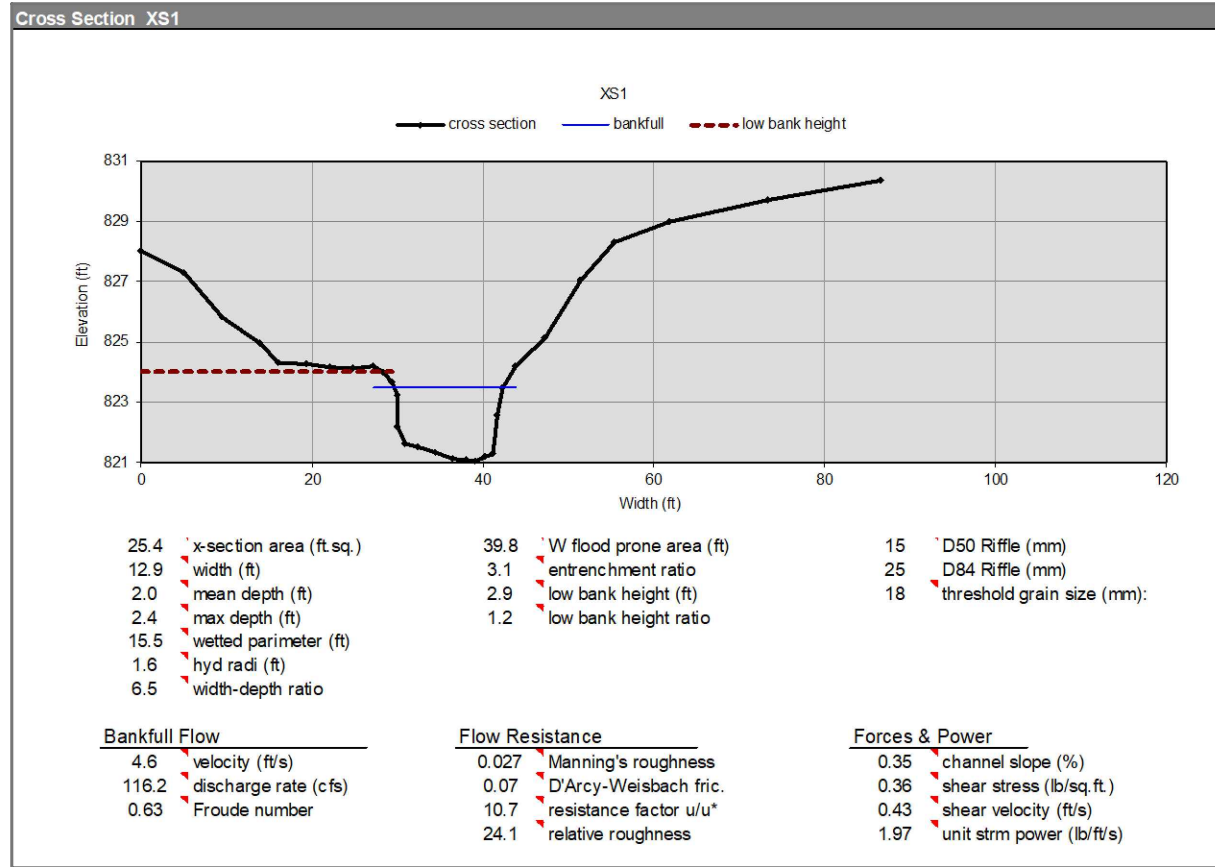
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 STATE PROJECT NO. --- CITY PROJECT NO. ###

REACHES 16 - 17 -
 PLAN & PROFILE 4
 SHEET 18 OF 24 SHEETS



NOTE:
ALL CROSS SECTIONS ARE ORIENTED DOWNSTREAM W/ RIVER LEFT ON THE LEFT AND RIVER RIGHT ON THE RIGHT.

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 Drawing: SURFACES
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 Sheet: SHEET 19 OF 24 SHEETS

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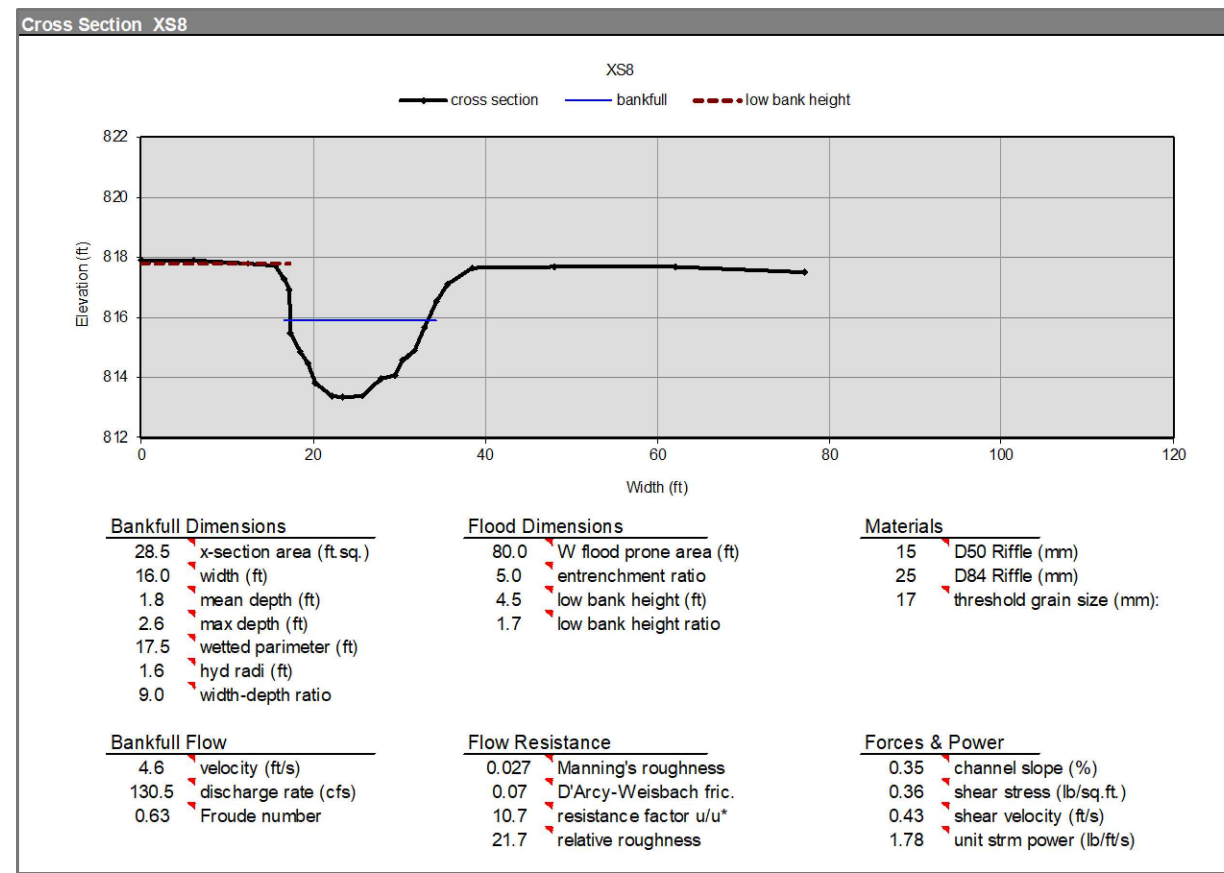
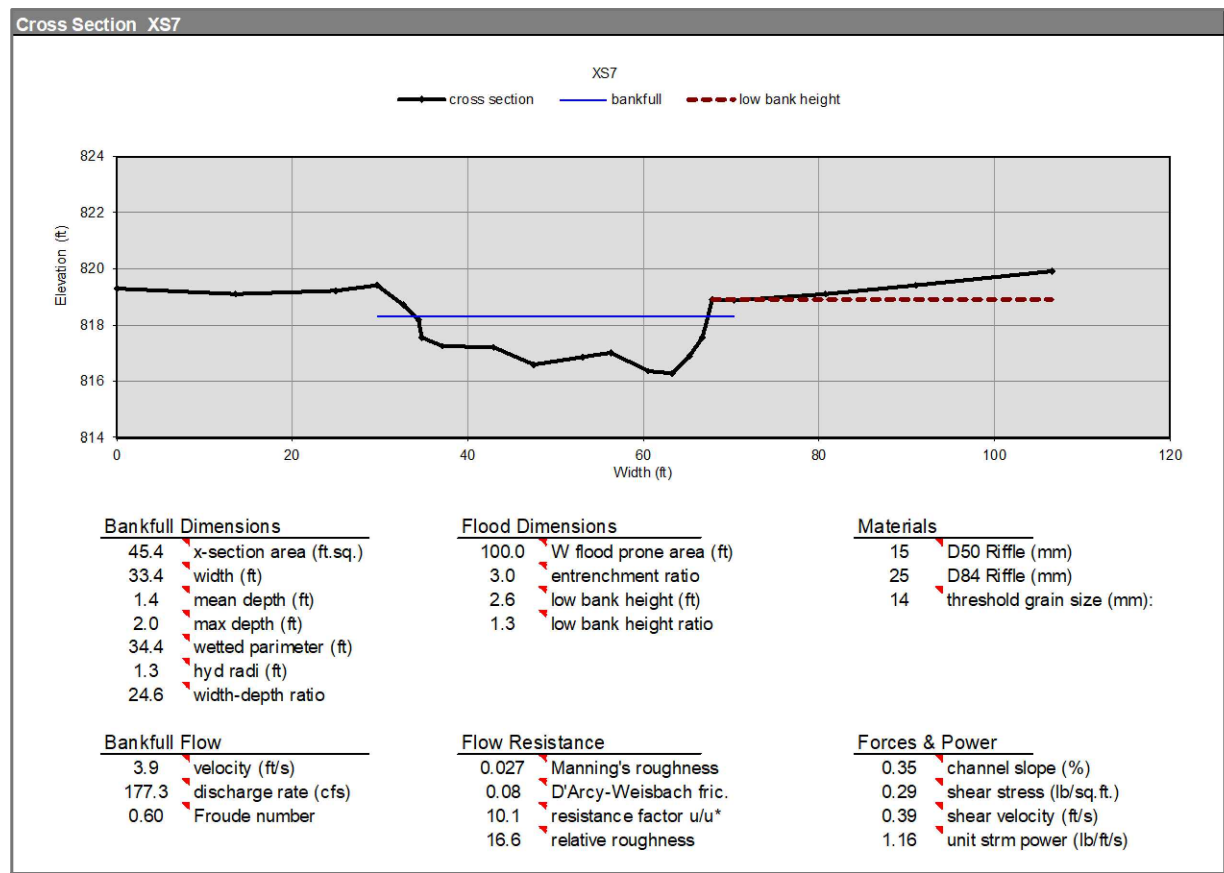
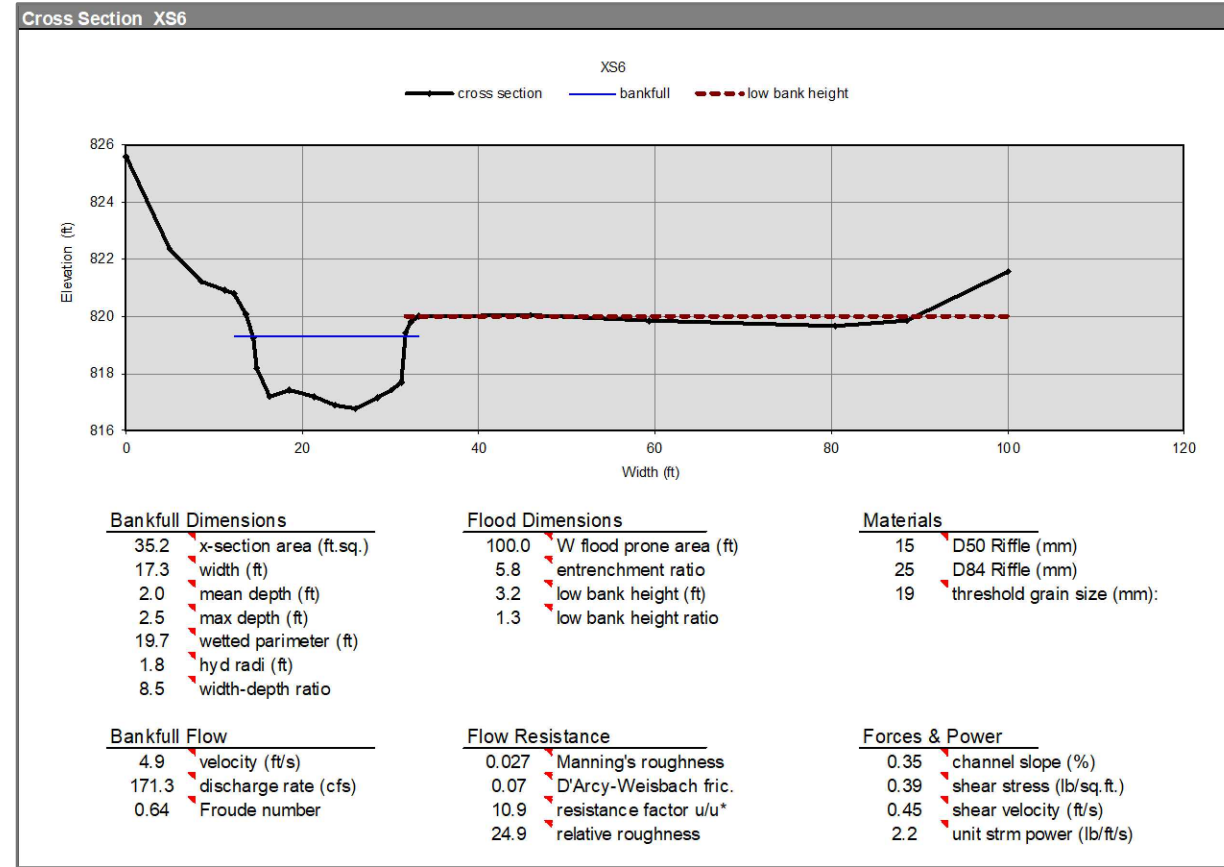
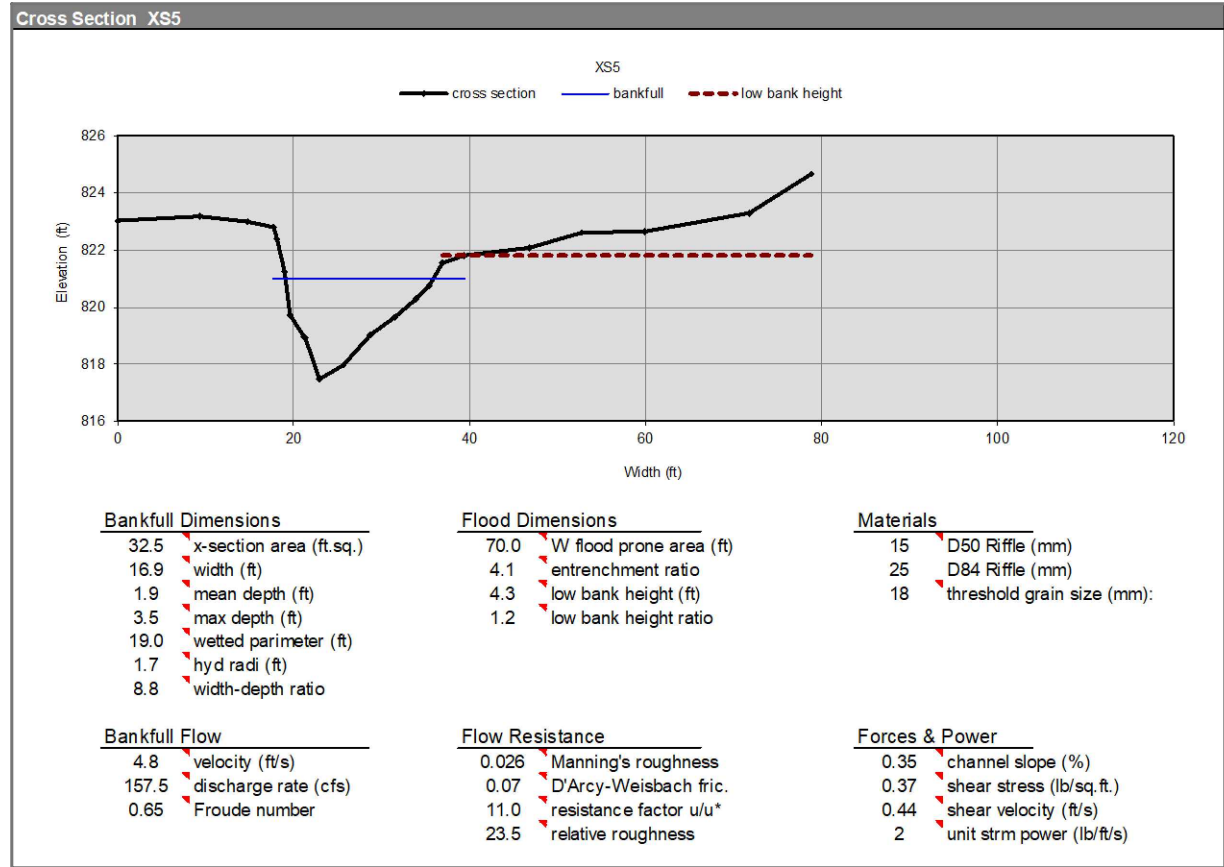
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1919 University Ave W,
Suite 300, St Paul, MN 55104
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SOUTH FORK NINE MILE CREEK
BANK STABILIZATION
EDEN PRAIRIE & BLOOMINGTON,
HENNEPIN COUNTY, MINNESOTA
STATE PROJECT NO. --- CITY PROJECT NO. ###

REACHES 16 - 17 - EXISTING
CROSS SECTIONS 1
SHEET 19 OF 24 SHEETS



NOTE:
ALL CROSS SECTIONS ARE ORIENTED DOWNSTREAM W/ RIVER LEFT ON THE LEFT AND RIVER RIGHT ON THE RIGHT.

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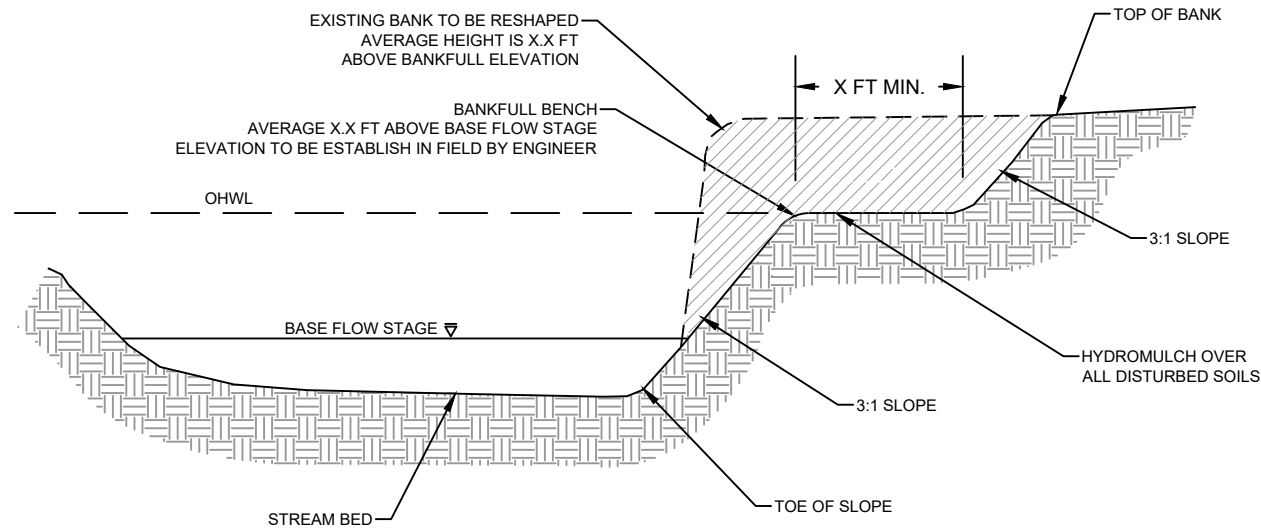
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BANK STABILIZATION
EDEN PRAIRIE & BLOOMINGTON,
HENNEPIN COUNTY, MINNESOTA
STATE PROJECT NO. --- CITY PROJECT NO. ###

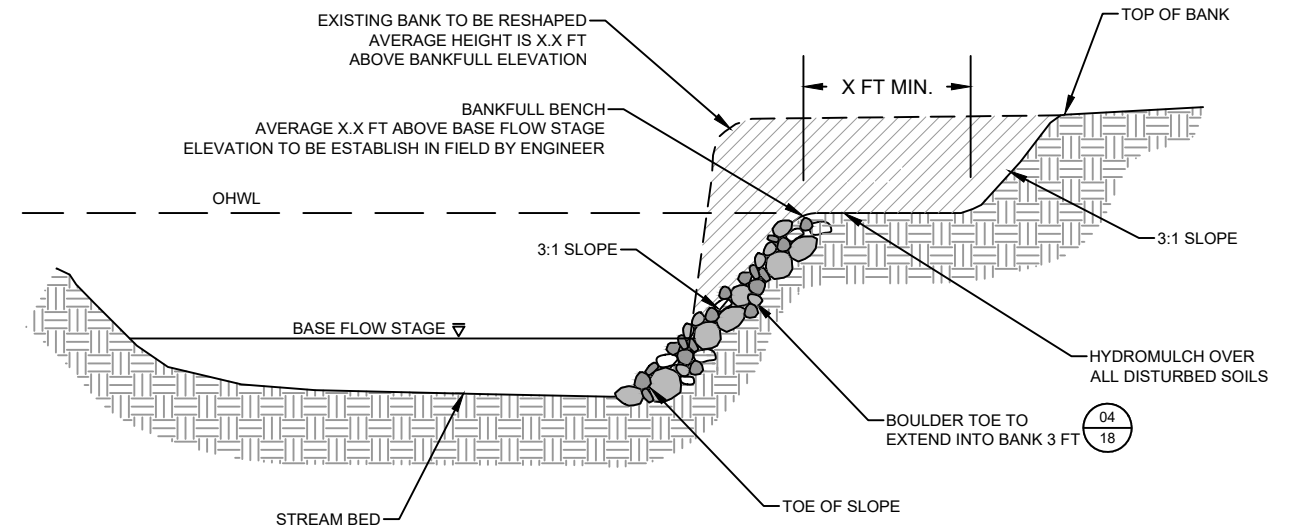
REACHES 16 - 17 - EXISTING
CROSS SECTIONS 2
SHEET 20 OF 24 SHEETS



NOTES:

1. SEED BANK WITH STATE SEED MIX 34-261 AND INSTALL HYDROMULCH AT A RATE OF 2,500 LBS/ACRE

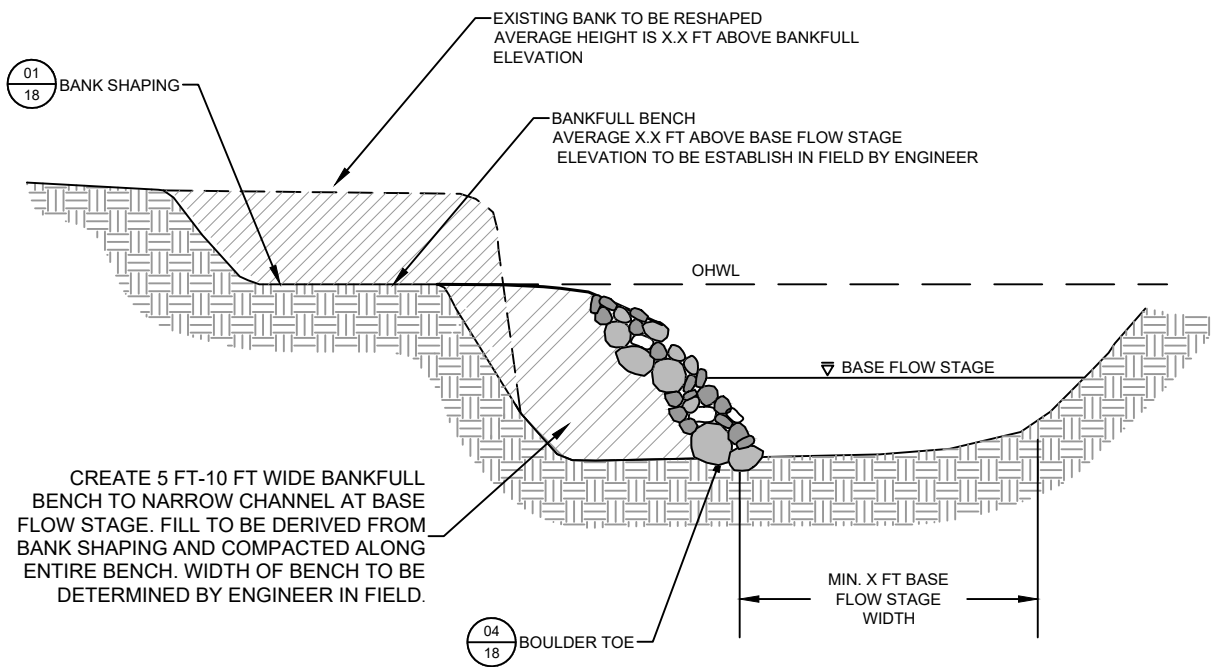
01 BANK SHAPING
21 NOT TO SCALE



NOTES:

1. SEED BANK WITH STATE SEED MIX 34-261 AND INSTALL HYDROMULCH AT A RATE OF 2,500 LBS/ACRE

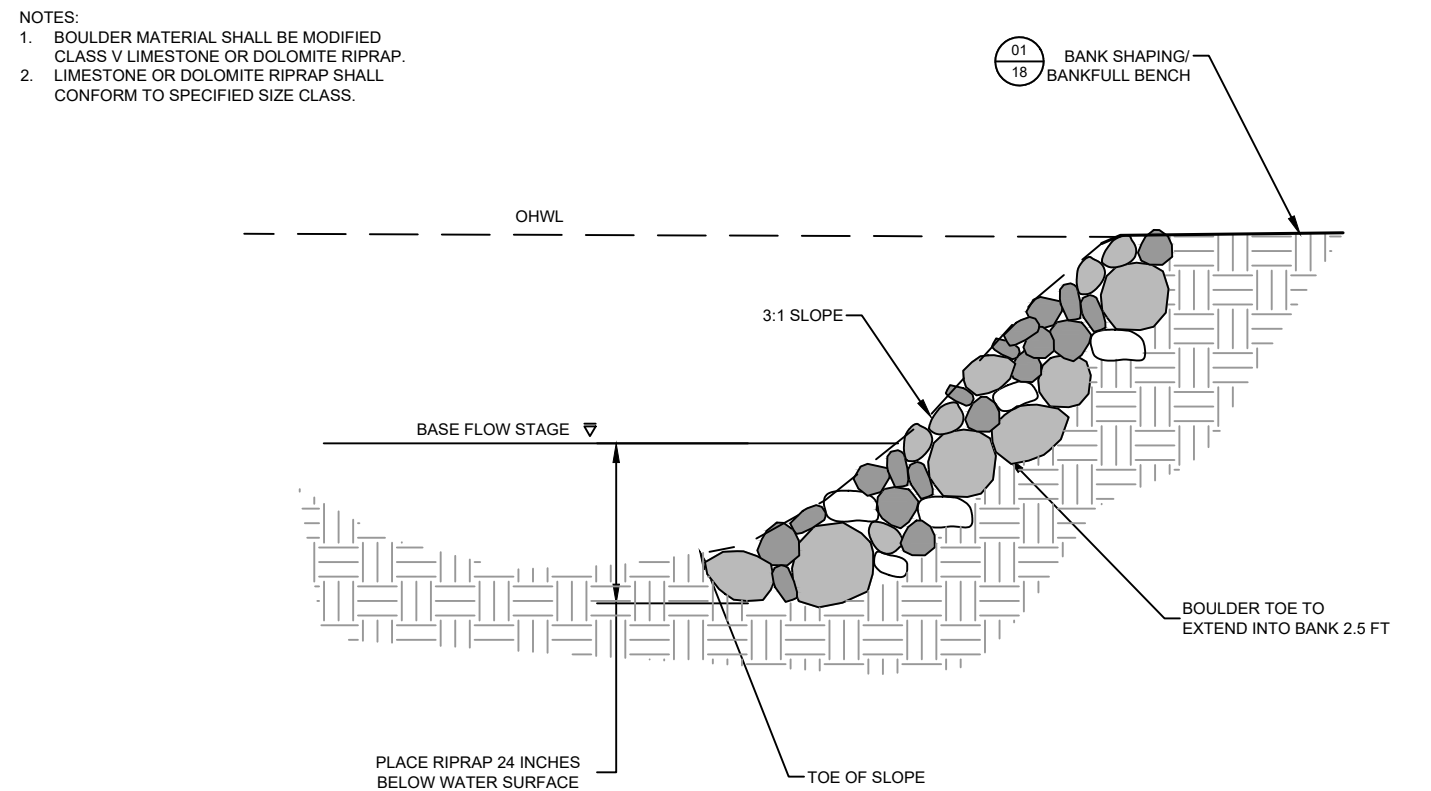
02 BANK SHAPING W/ BOULDER TOE
21 NOT TO SCALE



NOTES:

1. SEED BANK WITH STATE SEED MIX 34-261 AND INSTALL HYDROMULCH AT A RATE OF 2,500 LBS/ACRE

03 BANK SHAPING W/ CHANNEL NARROWING
21 NOT TO SCALE



04 BOULDER TOE
21 NOT TO SCALE

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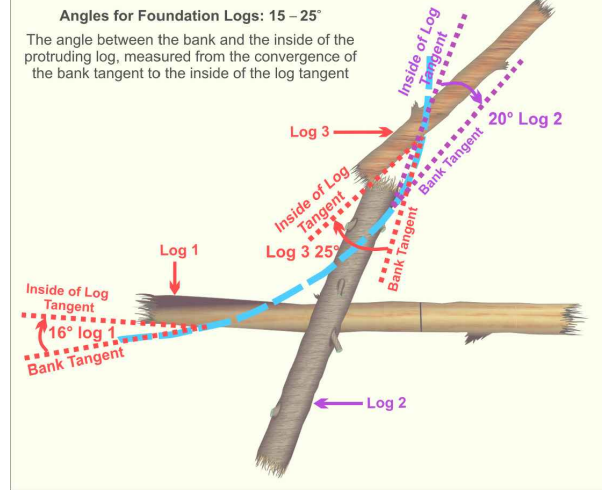


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HENNEPIN COUNTY, MINNESOTA

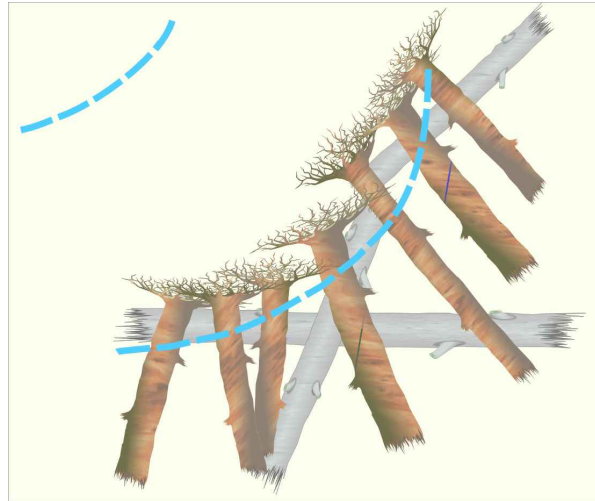
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STATE PROJECT NO. --- CITY PROJECT NO. ###
SHEET 21 OF 24 SHEETS

STEP 1. DIG CHANNEL AND VOID FOR TOE WOOD BANK PROTECTION.

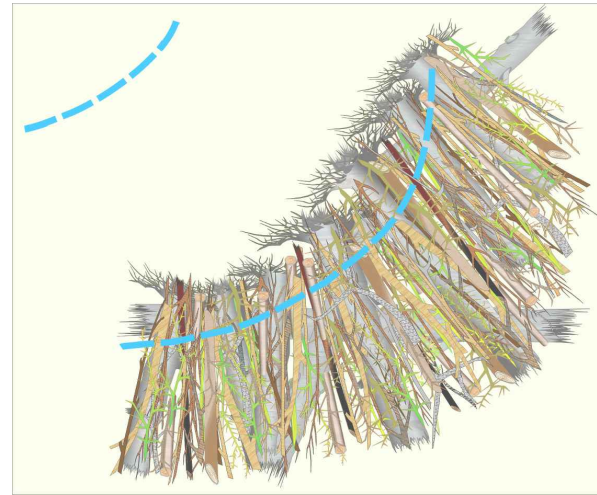
STEP 2. PLACE FOOTER LOGS (FOUNDATION).



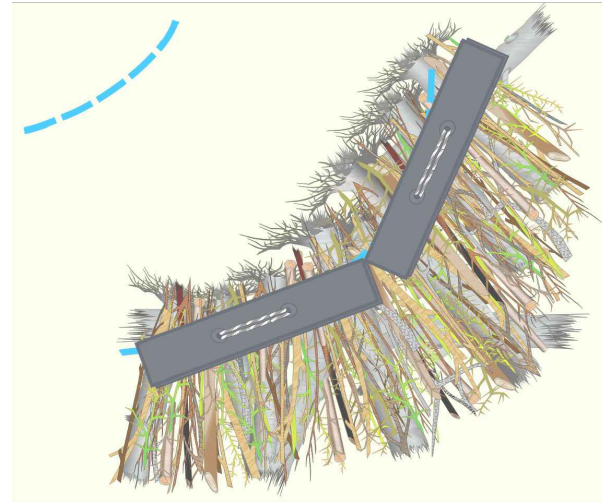
STEP 3. PLACE ROOT WAD LOGS CANTILEVERED OVER FOUNDATION LOGS.



STEP 4. PLACE FILLER MATERIAL (SMALL LOGS & BRUSH) PARALLEL TO ROOT WAD.



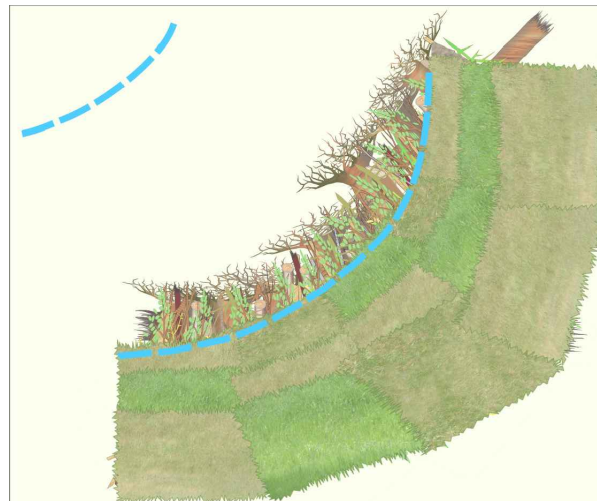
STEP 5. ADD TEMPORARY COUNTER WEIGHT TO SUBMERGE LOGS.



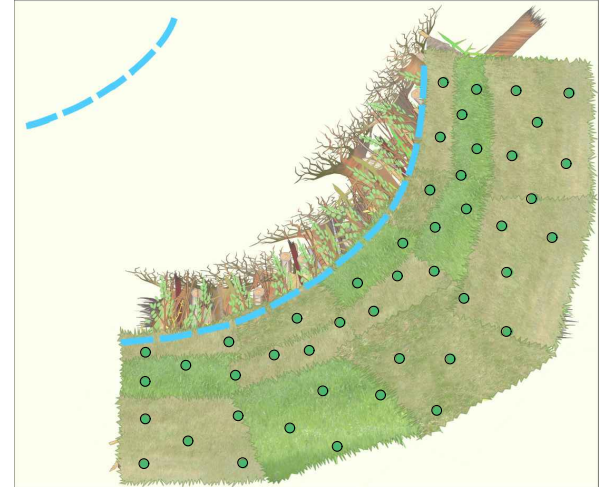
STEP 6. PLACE BACKFILL WITH EROSION CONTROL BLANKET.



STEP 7. REMOVE TEMPORARY WEIGHT & INSTALL SOIL LIFT UP TO BANKFULL STAGE. INSTALL NATIVE SEED.



STEP 8. SECURE EROSION CONTROL BLANKET WITH DEAD STOUT STAKES 3 FT O.C.



FOOTER LOGS & ROOT WADS:

- TO BE HARVESTED ONSITE BY CONTRACTOR
- SHALL BE HARDWOOD SPECIES FROM A SOURCE FREE OF DECAY OR ROT. BOX ELDER ARE ACCEPTABLE.
- MINIMUM 10 INCH TRUNK DIAMETER
- ROOT WAD ROOT FLARE MUST BE INTACT AND HAVE A MINIMUM DIAMETER OF 4 FEET

FILLER MATERIAL:

- TO BE HARVESTED ONSITE BY CONTRACTOR
- SMALL LOGS, LIMBS AND TREE TOPS LESS THAN 6 INCHES DIAMETER
- MATERIAL SHALL BE WORKED AND WOVEN INTO ROOT WADS TO ACHIEVE MAXIMUM STEM DENSITY

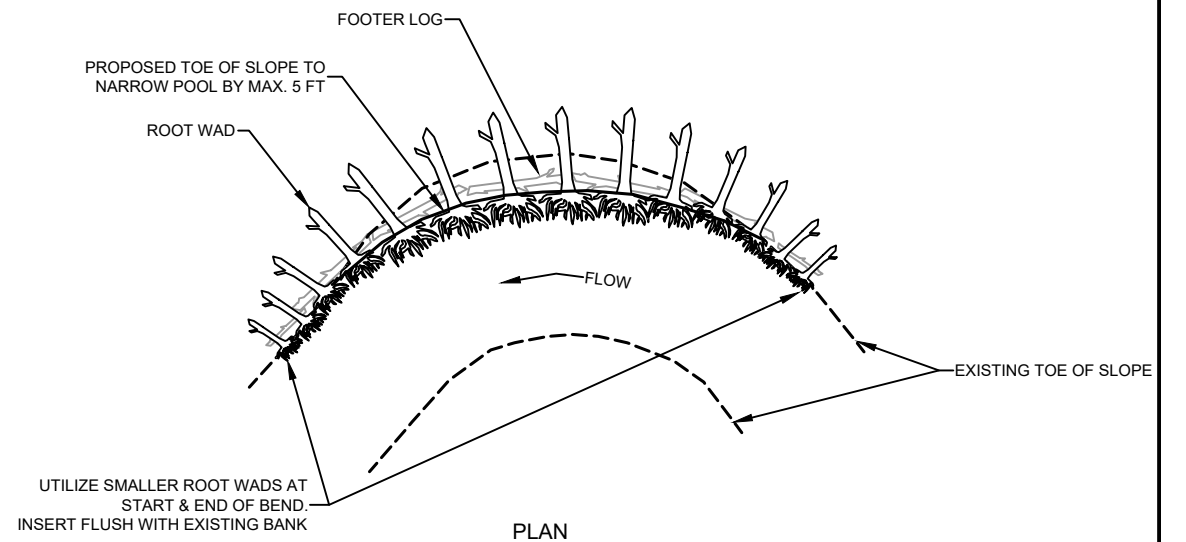
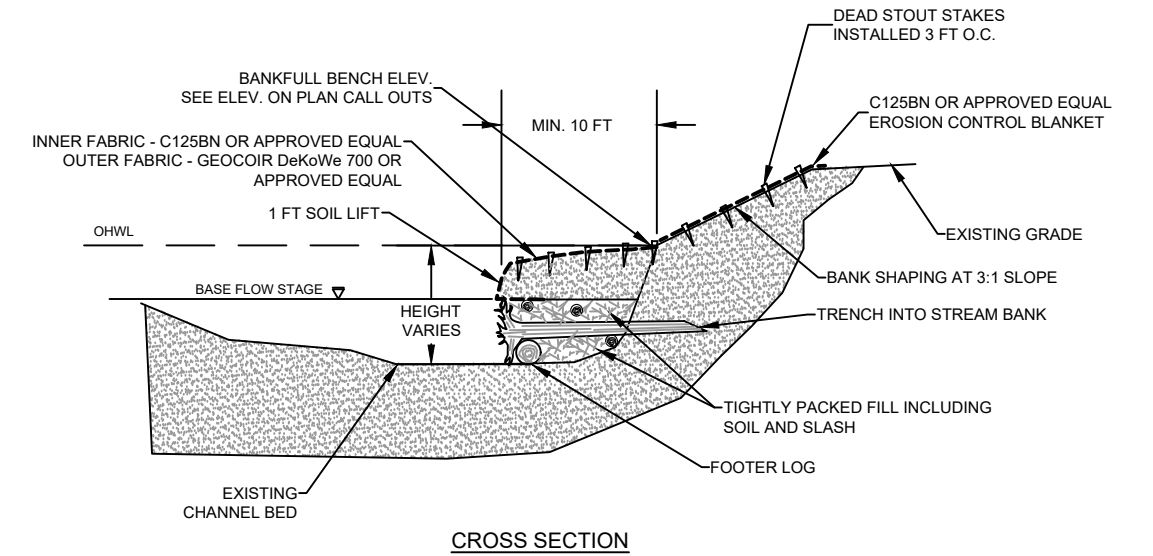
SOIL LIFT:

- MAXIMUM 1 FT HEIGHT PER LIFT.
- SHALL BE COMPOSED OF BLACK DIRT, TO BE APPROVED BY ENGINEER IN FIELD
- NATIVE SEED SHALL BE STATE MIX 34-261

GENERAL DESIGN DETAILS AND IMAGES ARE FROM "THE TOE WOOD STRUCTURE" BY DAVE ROSGEN OF WILDLAND HYDROLOGY.

BACKFILL MATERIAL:

- ONSITE MATERIALS TO BE UTILIZED WHERE SUITABLE AS APPROVED BY THE ENGINEER
- IF ADDITIONAL MATERIAL IS REQUIRED, IT SHALL BE A MINERAL SOIL AND/OR NATURAL AGGREGATE MEETING THE REQUIREMENTS FOR MnDOT 3149 SELECT GRANULAR BORROW. SALVAGED BITUMINOUS MIXTURE OR CRUSHED CONCRETE WILL NOT BE ALLOWED
- MATERIAL SHALL BE WORKED INTO FILLER MATERIAL BELOW. THE EXPOSED FRONT FACE OF THE BACKFILL MATERIAL SHALL BE RESTRAINED AND PROTECTED BY WRAPPING AND STAKING INNER FABRIC - C125BN OR APPROVED EQUAL; OUTER FABRIC - GEOCOIR DeKoWe 700 OR APPROVED EQUAL. BLANKET SHALL BE STAKED AND SECURED WITH 2 FT DEAD STOUT STAKES 3 FT O.C.



NOTES:

- 1) SPECIFIC ORIENTATION OF LOGS AND BALLAST MATERIALS MAY VARY FROM TYPICAL DRAWINGS DEPENDING ON SIZE AND SHAPE OF MATERIAL DELIVERED OR SALVAGED.
- 2) BUILD OUT TOE WOOD MAXIMUM 5 FEET FROM CENTER OF EXISTING BANK. BLEND UPSTREAM AND DOWNSTREAM ENDS OF THE TOE WOOD INTO THE EXISTING BANK TO PREVENT SCOUR/EDDYING.
- 3) WOOD PLACEMENT TO BE DIRECTED BY THE OWNERS REPRESENTATIVE IN THE FIELD AT THE TIME OF CONSTRUCTION. EXACT PLACEMENT LOCATION AND NUMBER OF PIECES PER WALL TO BE DICTATED BASED ON FIELD CONDITIONS AND LOCALIZED GEOMORPHOLOGY.
- 4) NO SEAMS WILL BE PERMITTED IN OUTER OR INNER SOIL LIFT ENCAPSULATION.
- 5) HYDRAULIC SOIL STABILIZER MAY BE SUBSTITUTED FOR EROSION CONTROL NETTING AND DEAD STOUT STAKES

01 TOEWOOD
22 NOT TO SCALE

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 On: 07/14/2022 10:43:45 AM
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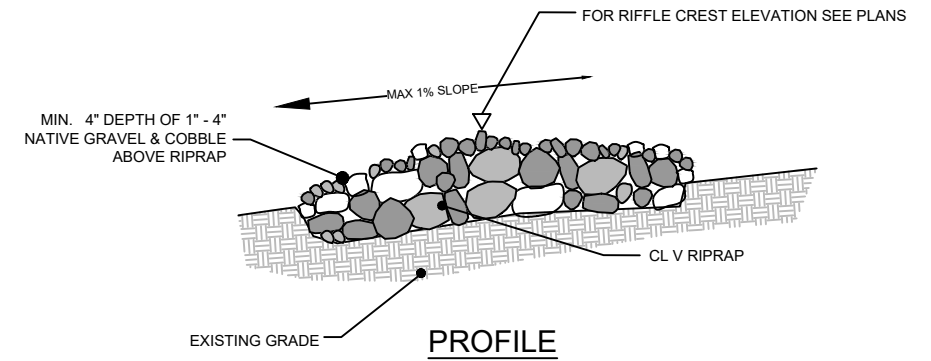
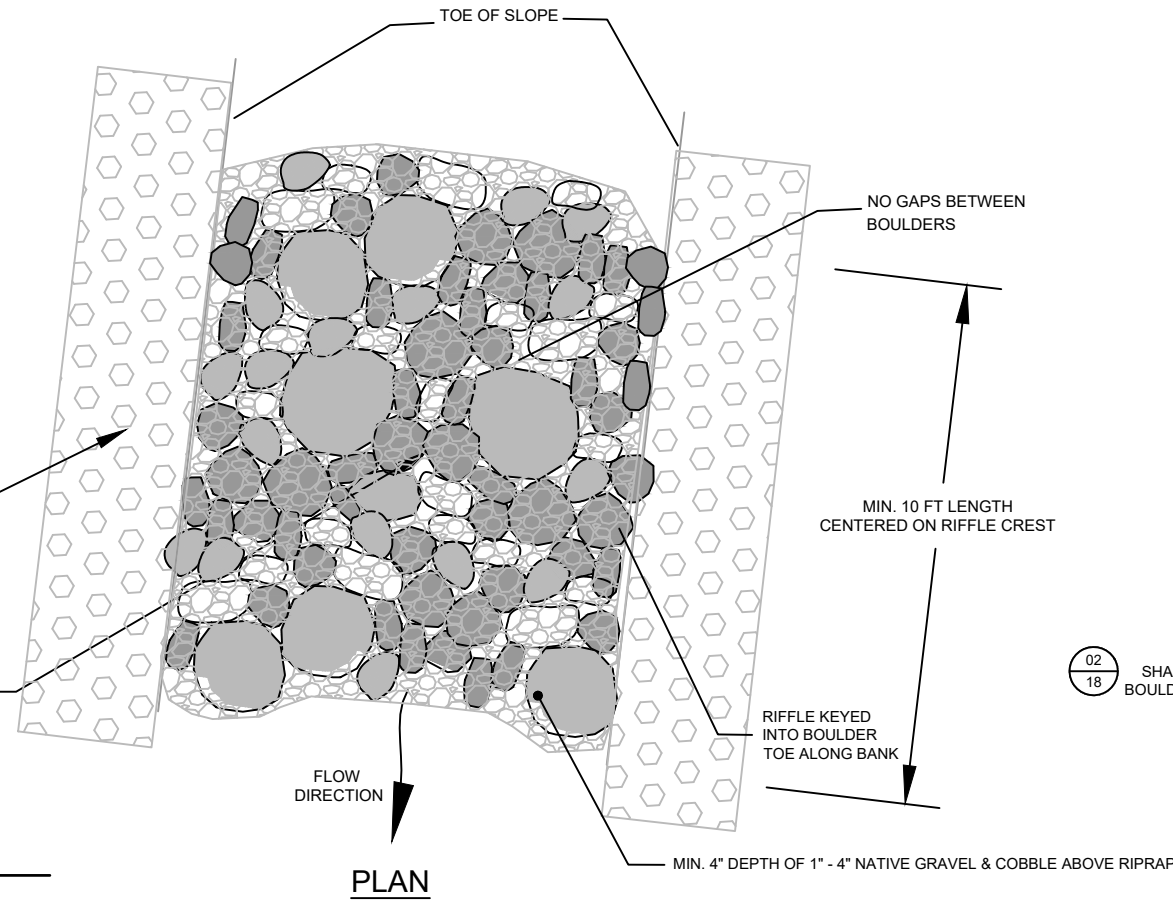
DETAILS - 2
 SHEET 22 OF 24 SHEETS

GENERAL NOTES:

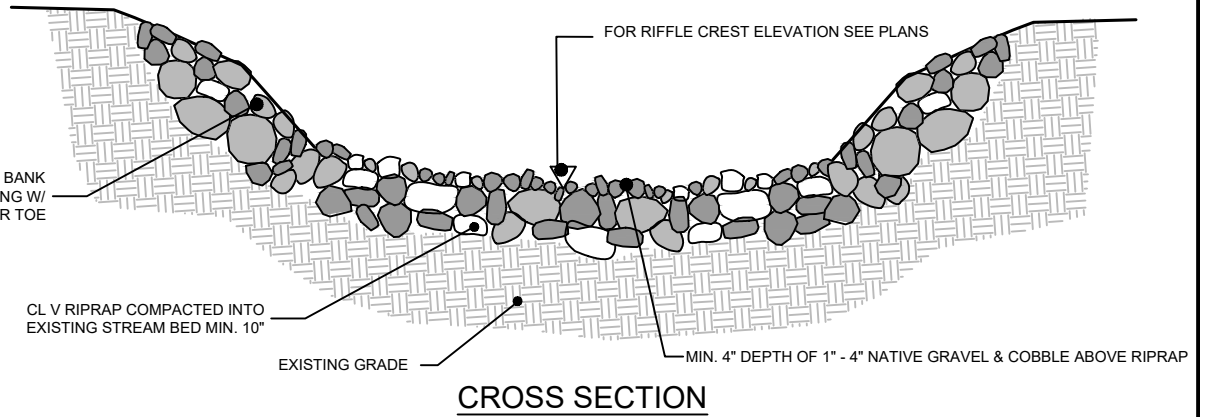
1. RIFFLE MATERIAL SHALL BE CL V RIPRAP - LIMESTONE AND 1" - 4" NATIVE GRAVEL & COBBLE; MEETING MNDOT 3601.2 SPECIFICATIONS (SEE CROSS SECTION).
2. LIMESTONE SHALL CONFORM TO SPECIFIED SIZE CLASS V.
3. POSITION OF ROCK CHECK TO BE APPROVED BY PROJECT OWNERS REPRESENTATIVE/ ENGINEER.
4. FOR RIFFLE CREST ELEVATIONS, SEE PLAN CALL OUTS.
5. ROCK RIFFLE INSTALLATION REQUIRES METICULOUS ROCK PLACEMENT AND DIRECTION BY PROJECT OWNERS REPRESENTATIVE/ ENGINEER.

02
18 BANK SHAPING W/
BOULDER TOE

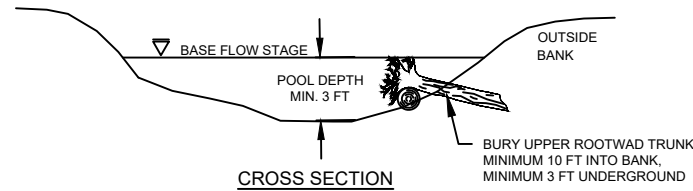
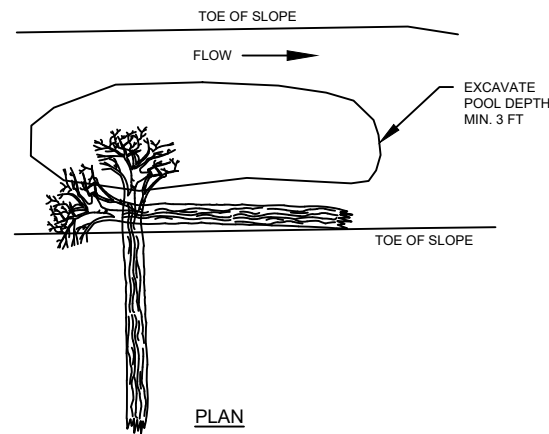
FOR RIFFLE CREST
ELEVATION SEE PLANS



02
18 BANK SHAPING W/
BOULDER TOE

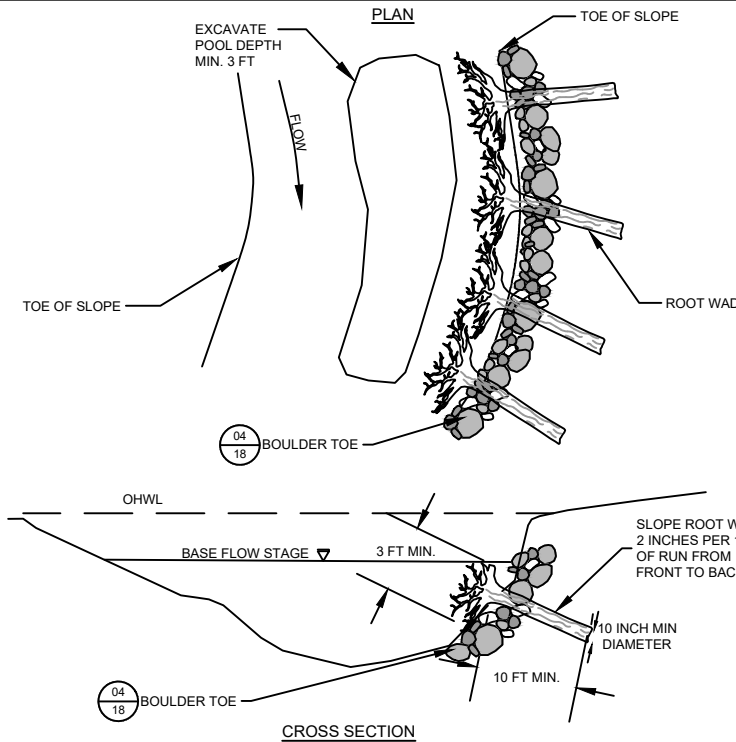


01
23 ROCK RIFFLE
NOT TO SCALE



- NOTES:**
1. WOOD PLACEMENT TO BE DIRECTED BY PROJECT ENGINEER IN THE FIELD AT THE TIME OF CONSTRUCTION.
 2. ROOTWAD TRUNK MINIMUM 10 INCH DIA, 15 FT IN LENGTH.
 3. UPSTREAM FACING ROOTWAD MUST BE INSTALLED UNDER PERPENDICULAR ROOTWAD TO ANCHOR IN PLACE.
 4. EXCAVATION OF POOL INCIDENTAL TO ROOTWAD HABITAT JAM

02
23 ROOTWAD HABITAT JAM
NOT TO SCALE



- NOTES:**
1. POOL DEPTH MIN. 3 FT
 2. EXCAVATION OF POOL INCIDENTAL TO ROOTWADS

03
23 ROOTWAD
NOT TO SCALE

File Path: 0714/2022
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07/14/2022

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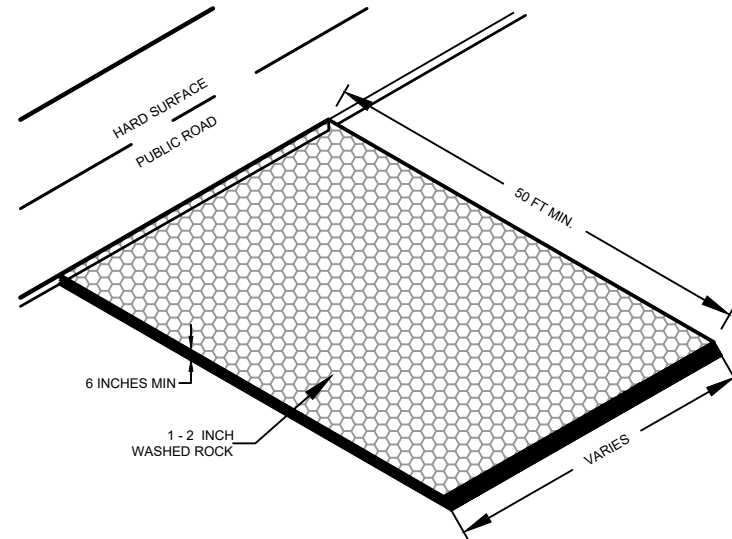


SOUTH FORK NINE MILE CREEK
BANK STABILIZATION
EDEN PRAIRIE & BLOOMINGTON,
HENNEPIN COUNTY, MINNESOTA

DETAILS - 3

SHEET 23 OF 24 SHEETS

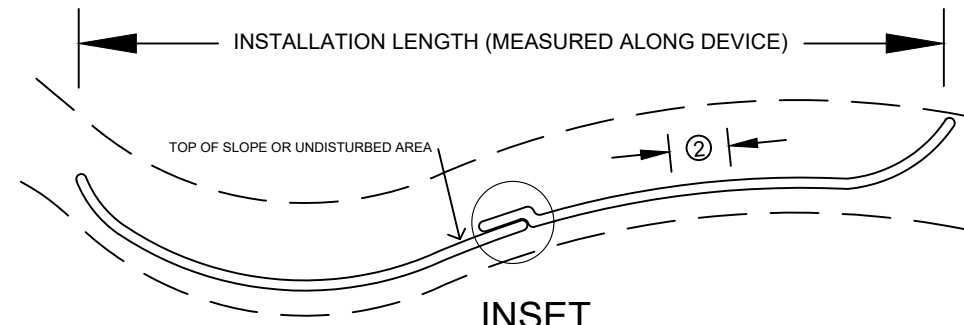
STATE PROJECT NO. --- CITY PROJECT NO. ###



NOTES:

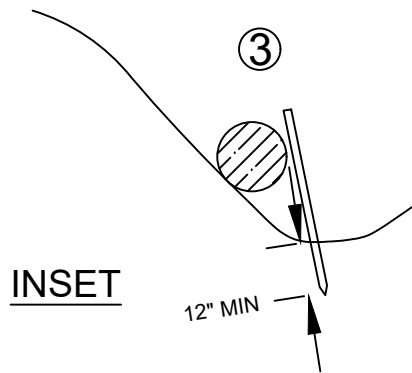
1. IF STABILIZED CONSTRUCTION EXITS ARE LOCATED IN SATURATED SOILS, CONTRACTOR SHALL PLACE GEOTEXTILE FABRIC UNDERNEATH ROCK TO PREVENT SETTLING.
2. CONTRACTOR IS RESPONSIBLE FOR REMOVAL & RESTORATION AT COMPLETION OF PROJECT.

01 ROCK CONSTRUCTION EXIT
24 NOT TO SCALE



INSET

1. SEDIMENT CONTROL LOGS MAY BE REQUIRED ALONG ACCESS ROUTES AS DEEMED NECESSARY BY ENGINEER. INCIDENTAL TO TEMPORARY EROSION & SEDIMENT CONTROL.
2. SPACE STAKES AS FOLLOWS:
 FILTER SOCKS: 2"X2" NOMINAL WOOD STAKES AT 8 FOOT MAXIMUM STAKING.
 WOOD EXCELSIOR LOGS AND STRAW WATTLES: 1"X1" NOMINAL WOOD STAKES AT 8 FOOT MAXIMUM SPACING.
3. INSTALL SLOPE PROTECTION PERPENDICULAR TO SLOPE (PARALLEL TO CONTOURS). OVERLAP JOINTS PER DETAIL 'A'. RUN THE LAST 10 FEET OF EACH DEVICE UP THE SLOPE TO PREVENT FLOW RUNAROUND.
4. STAKES ARE NOT TO PROTRUDE THROUGH LOGS, BUT RATHER PLACED ON THE DOWNSTREAM SIDE AT A 45 DEGREE ANGLE SO AS TO "PINCH" THE LOG TIGHT TO THE GROUND SURFACE.
5. COMPOST LOGS 9" DIA. ROLL ENCLOSED IN PLASTIC OR POLYESTER NETTING W/ MAXIMUM OF 3/8" NET OPENING



INSET

02 SEDIMENT CONTROL LOG
24 NOT TO SCALE

Plot Date: 07/14/2022
 C:\Users\kcc\OneDrive\Documents\WD011695_NAC\WD00002_SF\NAC_Bank_Stab_Ph2\09_GI\MS\dwg\1695-002_CD.dwg
 Xrefs: 1695-002_X-BASE2, 1695-002_P-BASE2, 1695-002_SURFACES

6			
5			
4			
3			
2			
1	07/14/2022	DEM	CONCEPT PLAN
NO	DATE	BY	REVISION



NOT FOR CONSTRUCTION

SUBMISSION DATE:
07/14/2022

DESIGN BY: EOR DRAWN BY: DEM CHECKED BY: XXX

EOR PROJECT NO.
1695-0002

EOR Emmons & Olivier Resources, Inc.
 1919 University Ave W,
 Suite 300, St Paul, MN 55104
 water ecology community Tele: 651.770.8448 www.eorinc.com



SOUTH FORK NINE MILE CREEK
 BANK STABILIZATION
 EDEN PRAIRIE & BLOOMINGTON,
 HENNEPIN COUNTY, MINNESOTA

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DETAILS - 4

SHEET 24 OF 24 SHEETS