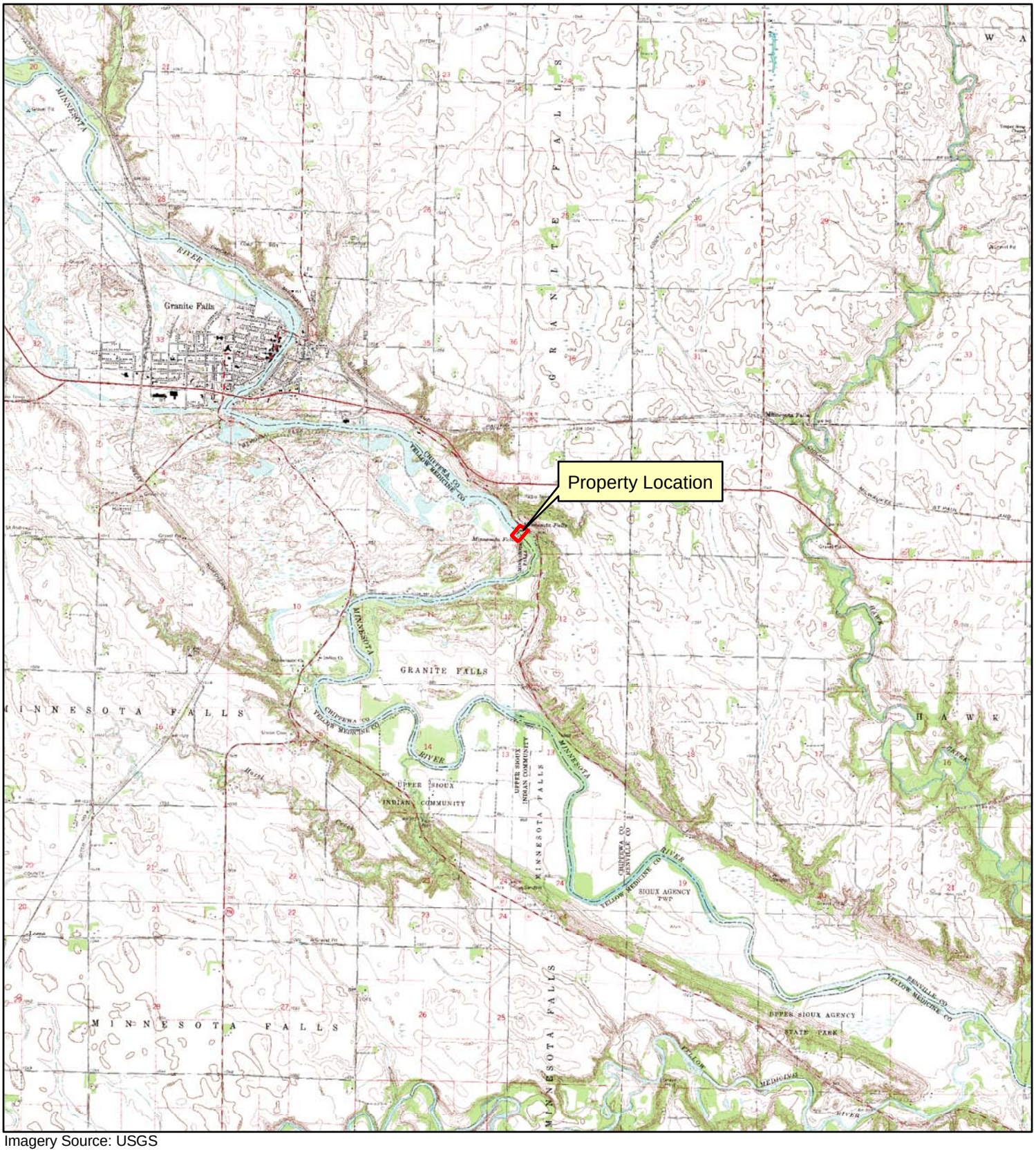
Figure 1. Project Location Map



Barr Footer: Date: 10/13/2009 4:17:33 PM File: I:\Projects\23\87\1003\Maps\Reports\Phase1\Fig01_Property_Location_Map.mxd User: mbs2

Imagery Source: USGS

Property Boundary (Approx.)

N

Miles

1 0 1

Figure 2

PROPERTY LOCATION MAP
Minnesota Falls Dam
Granite Falls, MN

1 PLAN: EXISTING CONDITIONS

0 100 200

SCALE IN FEET

N

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UNIT COMMON
DAM REMOVAL

EXISTING CONDITIONS
PLAN

C-01 REV A

Figure 3

1 PLAN: WATER CONTROL
0 30 60
SCALE IN FEET

SEQUENCE OF OPERATIONS

1. CONTRACTOR TO CONSTRUCT ACCESS PAD ACROSS ABANDONED HEAD RACE CANAL AND ONTO EXISTING ROCK OUTCROPPING. PAD WILL BE USED TO ACCESS UPSTREAM SEDIMENT OF THE STOP LOG STRUCTURE AND PROVIDE ACCESS TO REMOVE THE REMAINING STOP LOGS AND CONCRETE PIERS.
2. CONTRACTOR TO REMOVE SEDIMENT UPSTREAM OF THE EXISTING STOP LOG STRUCTURE TO AN ELEVATION BELOW 874.0.
3. CONTRACTOR TO REMOVE HOIST FRAME, STOP LOGS, OPERATOR'S ACCESS BRIDGE, AND THE CONCRETE CENTER PIERS TO MAXIMIZE DISCHARGE CAPACITY OF THE STOP LOG STRUCTURE. WATER SHALL BE DRAWN DOWN BELOW THE PRIMARY SPILLWAY CREST ELEVATION OF 882.75.
4. CONTRACTOR TO INSTALL COFFERDAM IN THE TAILRACE AREA. COFFERDAM SHALL START ON THE RIGHT DOWNSTREAM BANK AND FOLLOW THE EXISTING HIGH GROUND. COFFERDAM SHALL ABUT AGAINST EXISTING PRIMARY SPILLWAY STRUCTURE. ONCE COFFERDAM IS INSTALLED, AREA SHALL BE DEWATERED AND MAINTAINED UTILIZING SUMPS AND DISCHARGE PUMPS.
5. CONTRACTOR TO CONSTRUCT ROCK ACCESS PATH OUT TO THE PRIMARY SPILLWAY. THIS PATH CAN BE INSTALLED IN THE WET IF HIGH FLOWS REQUIRE OPENING THE AREA IN THE ABANDONED FISH WAY BEFORE DRAWING DOWN THE UPSTREAM POOL.
6. CONTRACTOR TO REMOVE SEDIMENT UPSTREAM OF THE EXISTING PRIMARY SPILLWAY, IN AREA KNOWN AS THE ABANDONED FISHWAY, TO EXISTING BEDROCK.
7. CONTRACTOR TO REMOVE APPROXIMATELY 50 FEET WIDE SECTION OF THE PRIMARY SPILLWAY IN AREA KNOWN AS THE ABANDONED FISH WAY. THE CREST TO BE REMOVED IN APPROXIMATE 2 FEET DEEP SECTIONS TO FACILITATE ADDITIONAL POOL DRAW DOWN. CONTRACTOR TO CONTINUE REMOVING DAM SECTIONS UNTIL DAM IS REMOVED TO EXISTING BEDROCK.
8. CONTRACTOR TO INSTALL UPSTREAM COFFERDAM TO ISOLATE SECONDARY SPILLWAY AND RIGHT SIDE OF PRIMARY SPILLWAY. THE UPSTREAM COFFERDAM SHALL CONNECT TO THE PRIMARY SPILLWAY NEAR THE REMAINING PORTION ON THE LEFT SIDE AND EXTEND ONTO THE RIGHT EARTHEN EMBANKMENT. COFFERDAM SHALL BE PLACED UPSTREAM OF DEEP SEDIMENT DEPOSITED AGAINST THE DAM.

CADD USER: Joseph M. Morgan FILE: M:\DESIGN\23871003.00\23871003_C-05_WATER CONTROL PLAN.DWG PLOT SCALE: 1:2 PLOT DATE: 10/15/2010 4:13 PM

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UNIT COMMON
DAM REMOVAL

WATER CONTROL PLAN

C-05

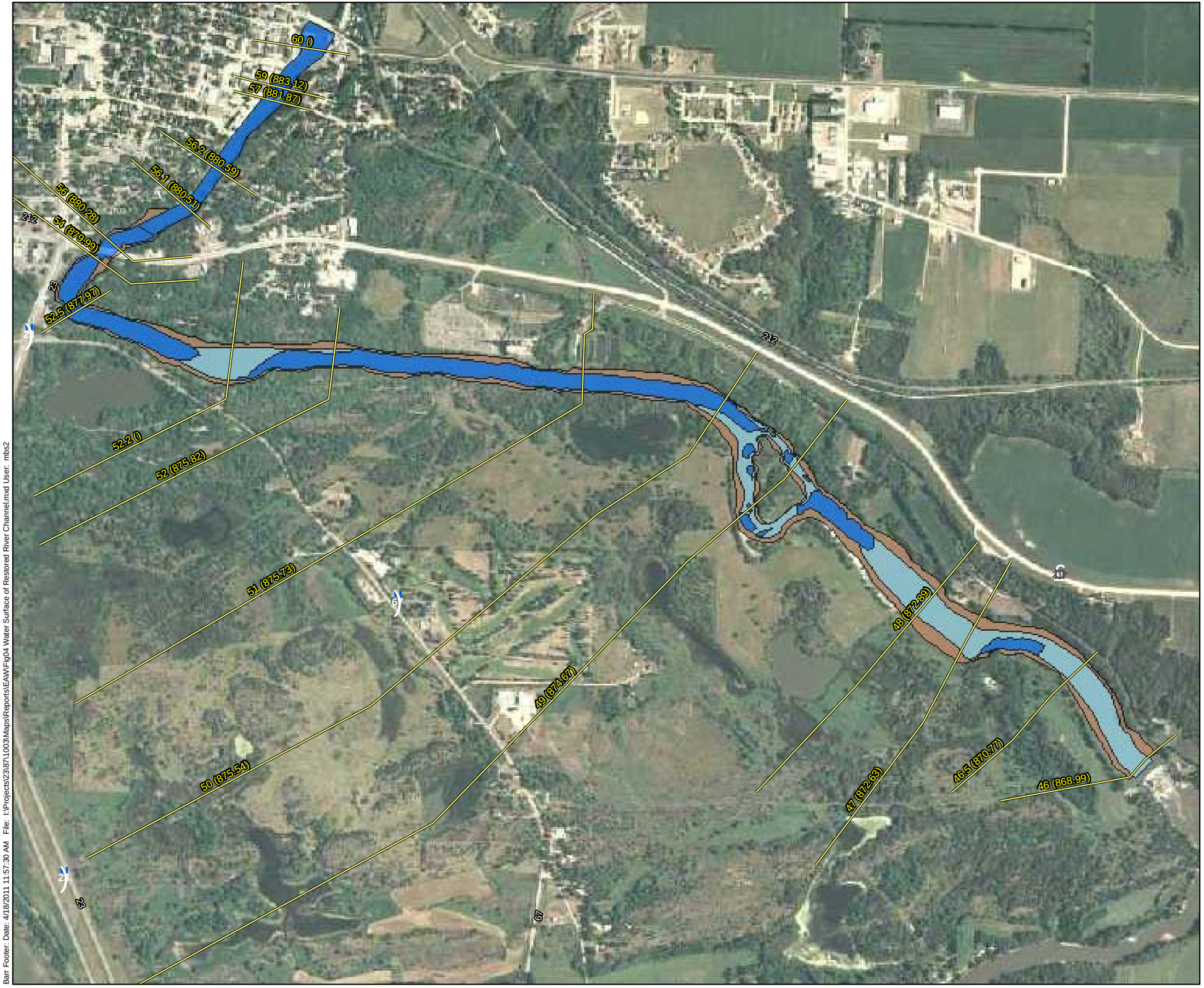
REV A

Figure 4

MN Falls Dam Existing Conditions.jpg

Figure 5

MN Falls Dam Removal Rendering 09-13-10.jpg



HEC-RAS Cross Section
(Expected WSEL (ft) in parentheses)

Estimated Stable
Channel Area (51.2 acres)

Estimated Potential
Scour Area (35.8 acres)

Estimated Newly Exposed
Riverbank (36.6 acres)

N

Feet
1,000 0 1,000

Meters
300 0 300

Figure 6

LIKELY CHANNEL EXTENT
AFTER DAM REMOVAL
(BASED ON EXISTING BATHYMETRY)

Minnesota Falls Dam Removal
Granite Falls, MN

Barr Footer: Date: 4/18/2011 11:57:30 AM File: I:\Projects\23\87\1003\Maps\Reports\EAW\Fig04 Water Surface of Restored River Channel.mxd User: mbs2

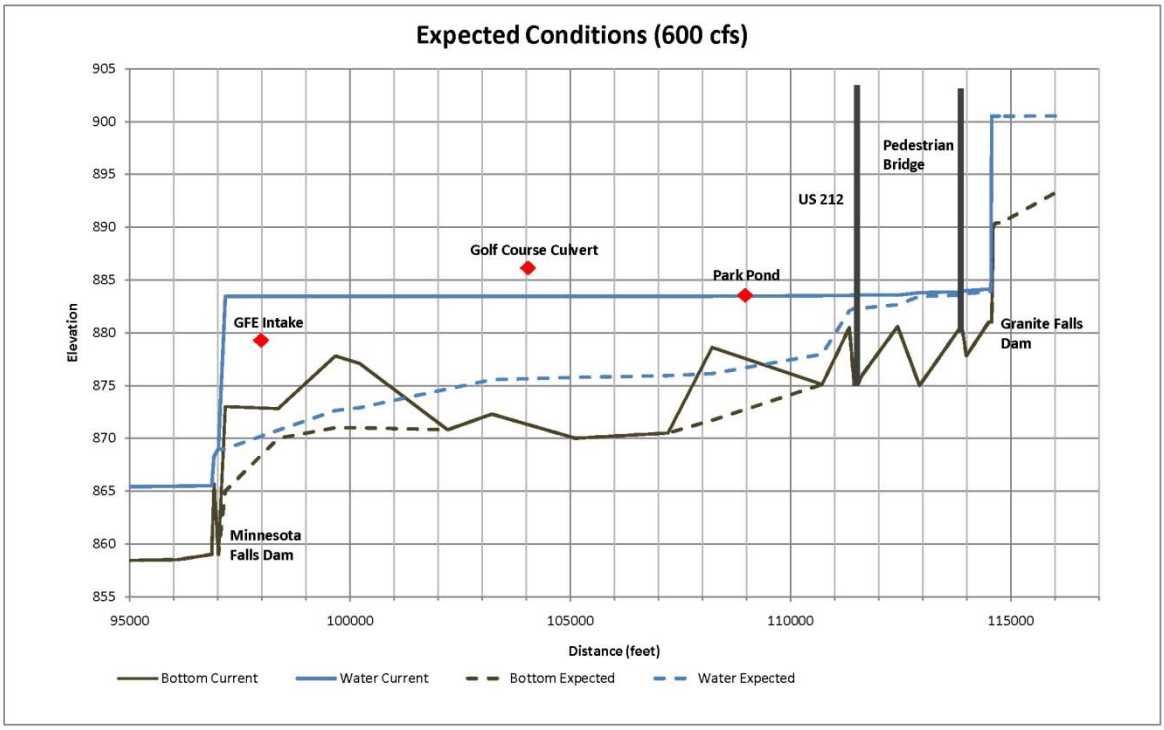


Figure 7. Expected River Levels for 600 cfs (typical summertime flow)

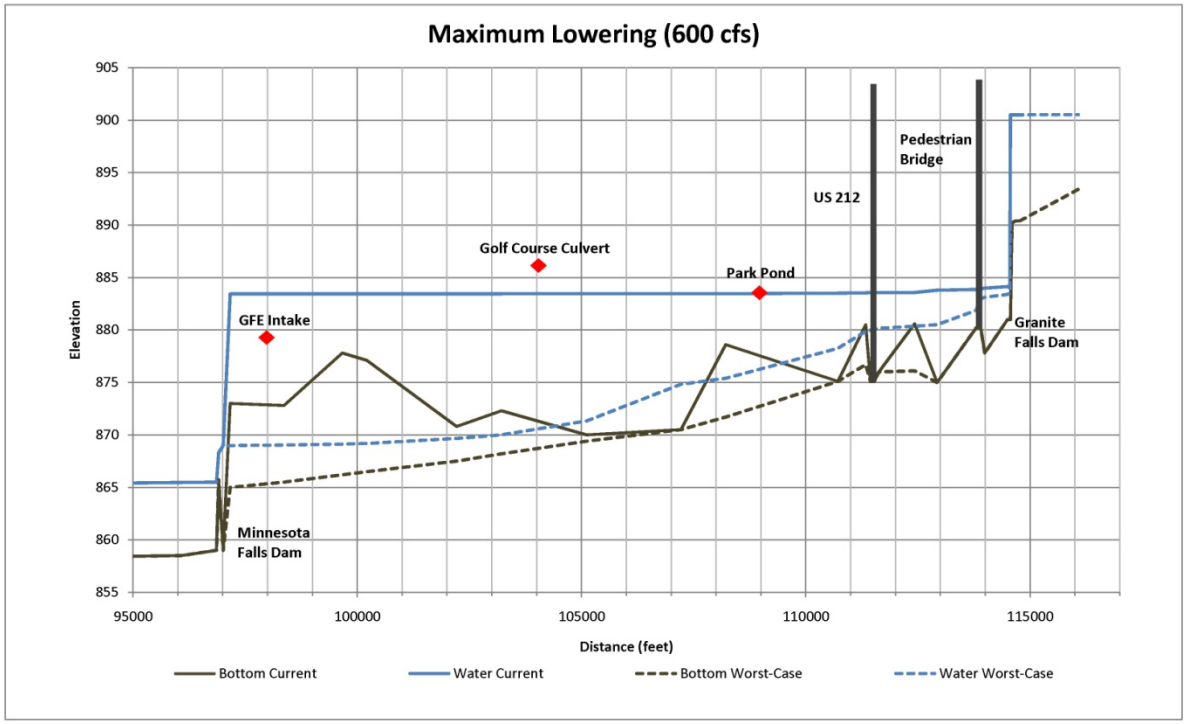


Figure 8. Minimum River Levels for 600 cfs (typical summertime flow)

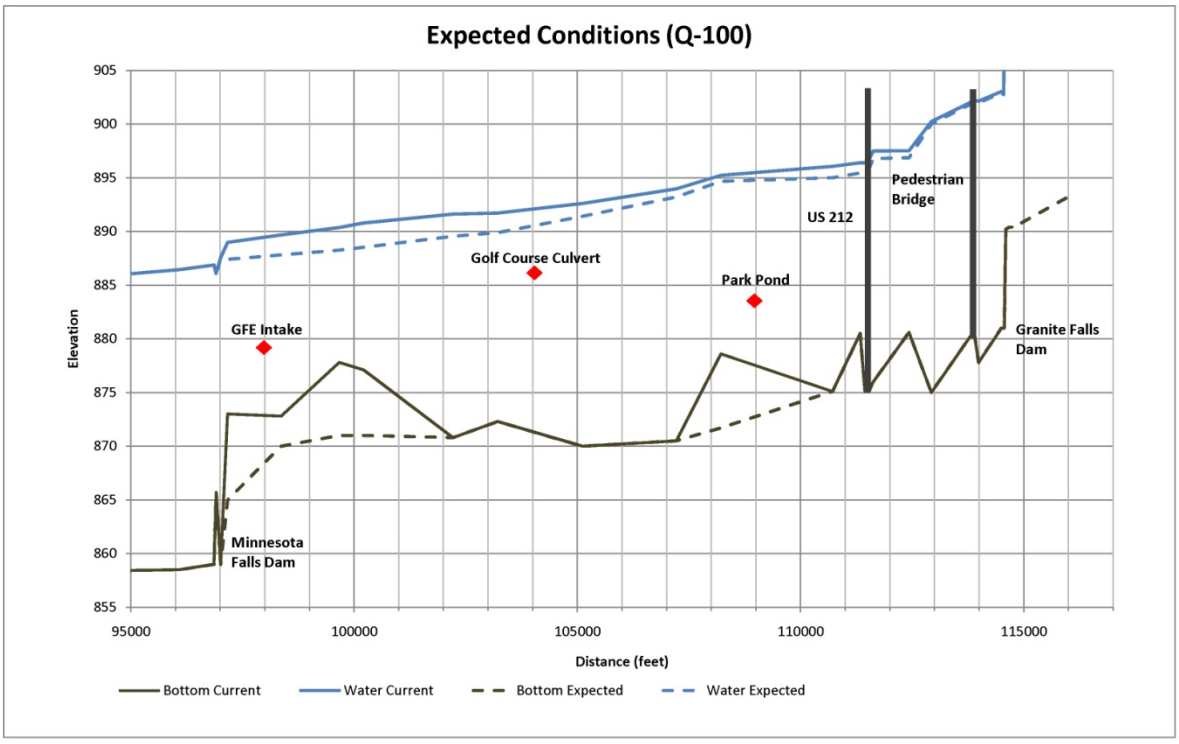


Figure 9. Expected River Levels for 100-year Flood

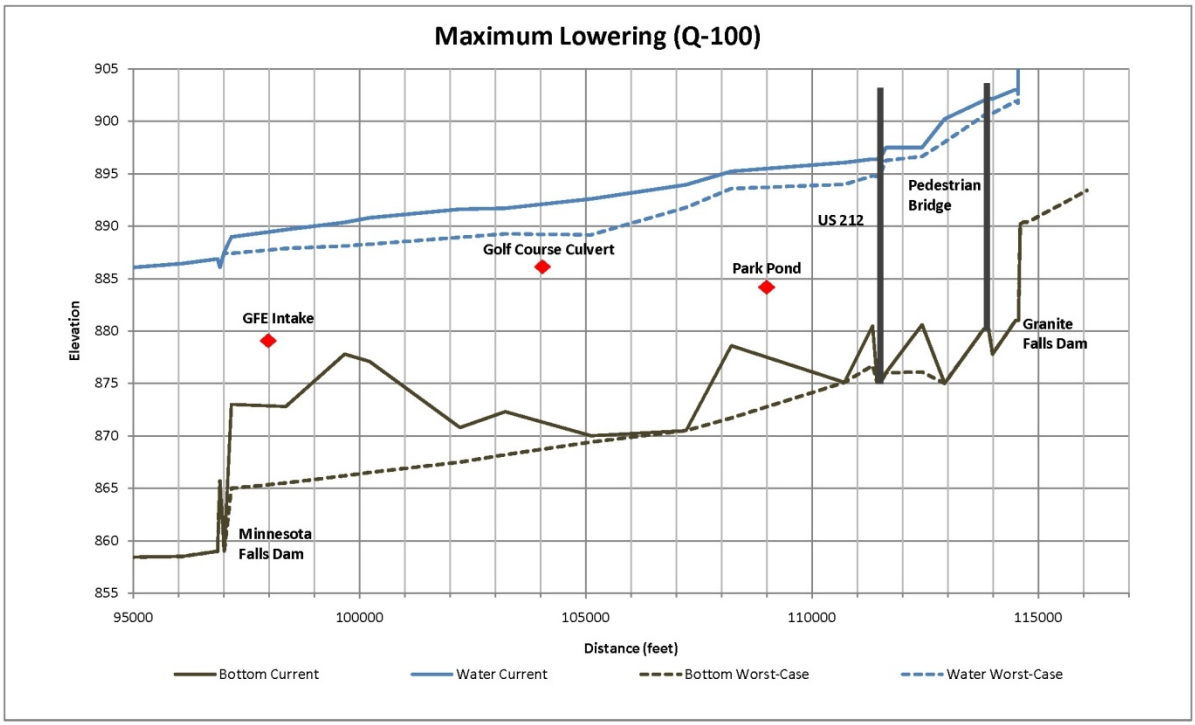
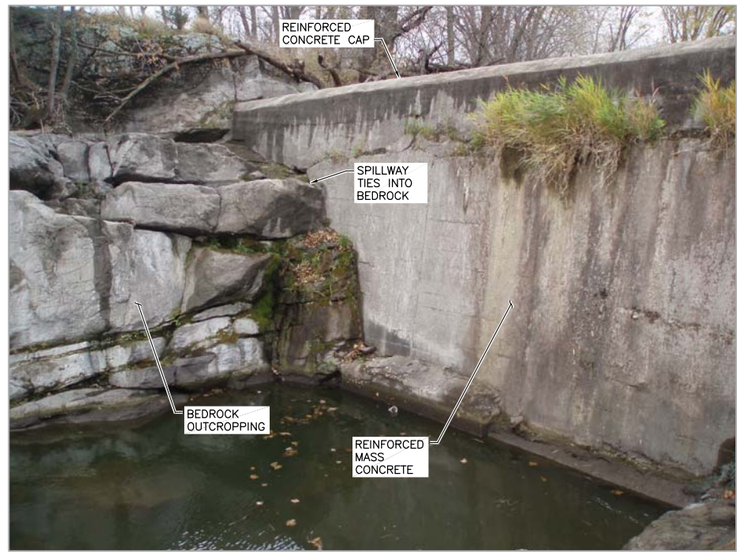


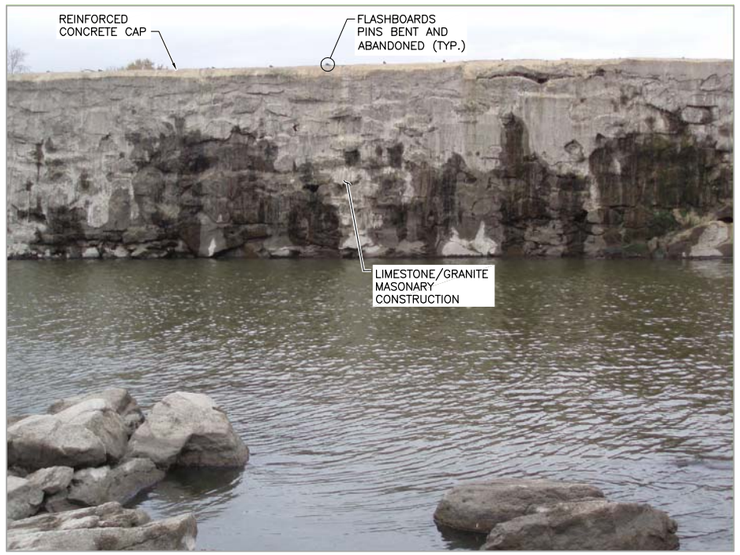
Figure 10. Minimum River Levels for 100-year Flood

1 C-07 PHOTO: STOPLOG STRUCTURE (2009)
NOT TO SCALE

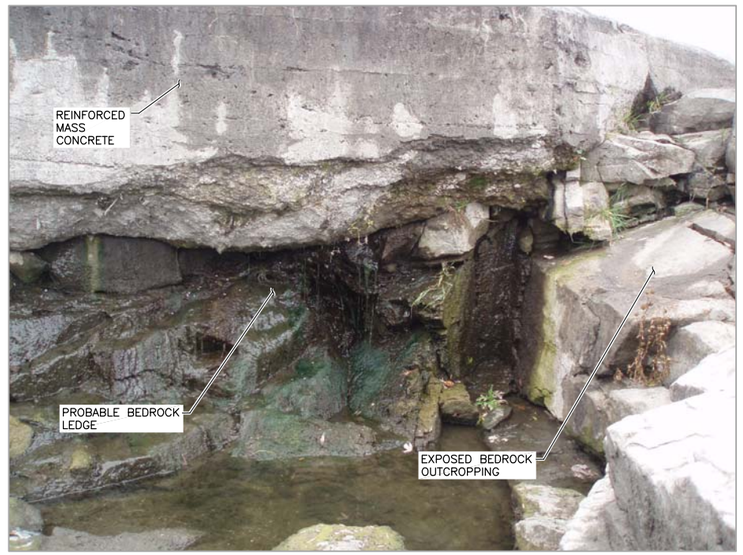


3 C-07 PHOTO: SECONDARY SPILLWAY (2006 DRAWDOWN)
NOT TO SCALE

5 C-07 PHOTO: PRIMARY SPILLWAY AND SPILLWAY/STOPLOG ABUTMENT (2006 DRAWDOWN)
NOT TO SCALE



2 C-07 PHOTO: PRIMARY SPILLWAY (2006 DRAWDOWN)
NOT TO SCALE



4 C-07 PHOTO: SECONDARY SPILLWAY (2006 DRAWDOWN)
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6 C-07 PHOTO: SECONDARY SPILLWAY (2006 DRAWDOWN)
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DEMOLITION PHOTOS

C-09

REV A

CADD USER: Joseph M. Morgan FILE: M:\DESIGN\23871003.00\23871003_C-09_DEMOLITION PHOTOS.DWG PLOT SCALE: 1:2 PLOT DATE: 10/15/2010 4:14 PM

Figure 11

Feet

1,000 0 1,000

Figure 12

Nearby Public Water Basins

Minnesota Falls Dam Removal
Granite Falls, MN

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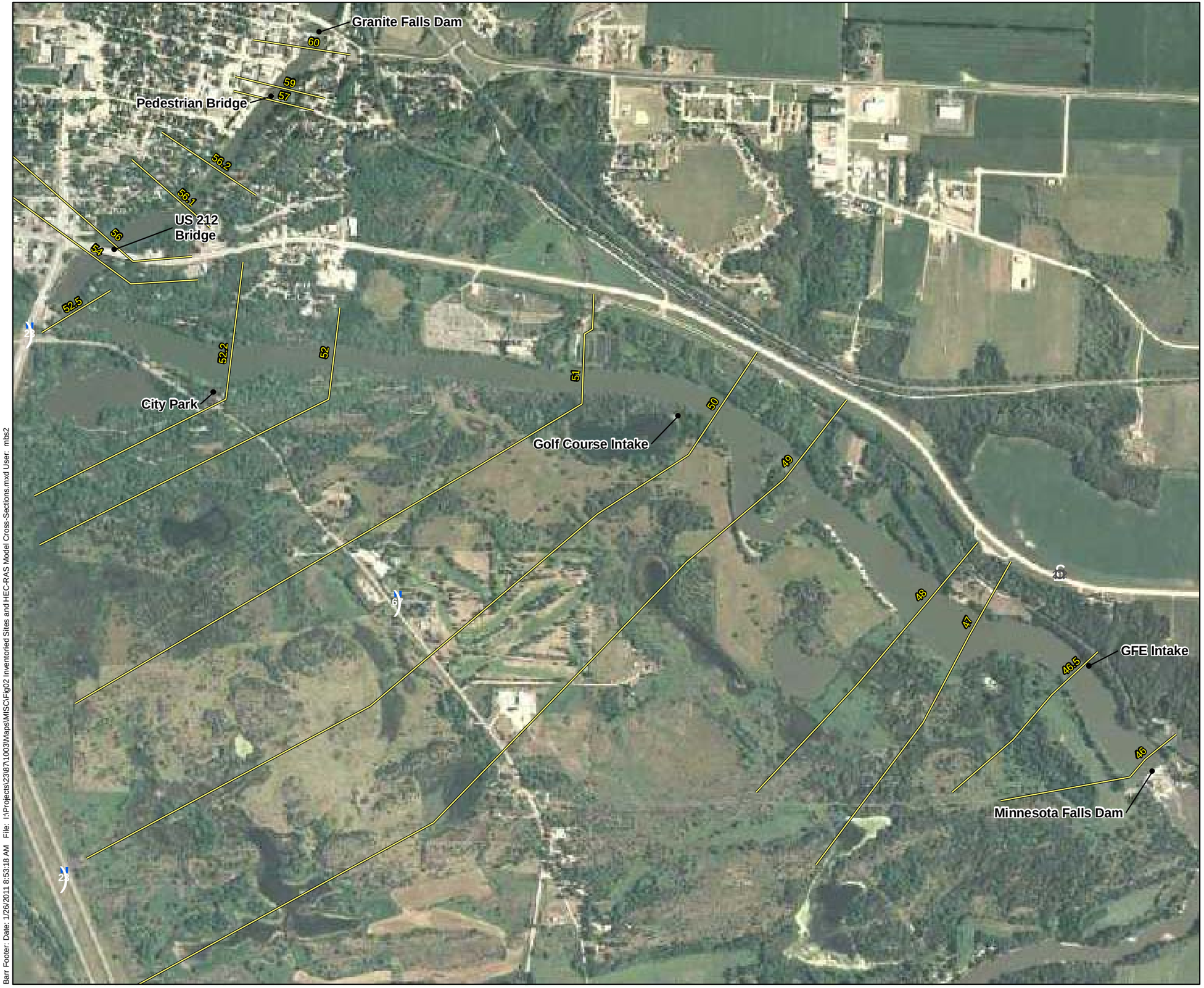

HEC-RAS Cross Section

Feet

1,000 0 1,000

Figure 13

INVENTORIED SITES AND HEC-RAS MODEL CROSS-SECTIONS

Minnesota Falls Dam Removal
Granite Falls, MN

Barr Footer: Date: 1/26/2011 8:53:18 AM File: I:\Projects\23\87\1003\Maps\MISC\Fig02 Inventoried Sites and HEC-RAS Model Cross-Sections.mxd User: mbs2

Barr Footer: Date: 6/14/2011 10:59:13 AM File: I:\Projects\2387\1003\Maps\Reports\EAW\Wells_and_SWUDS_Figure14.mxd User: TEM

Legend

- ! CWI (with well label)
- CWI - Unlocated Well (with well label)
- SWUDS Surface Water Withdrawal (with permit number)

***Potentially impacted well**

CWI = County Well Index
SWUDS = State Water Use Data System

0 0.25 0.5 1 Miles

1:22,000

Figure 14

CWI AND SWUDS DATA

Minnesota Falls Dam Removal
Feasibility Study

Xcel Energy