

Information for File #2013-01462-SEW

Applicant: Shellrock River Watershed District, c/o Mr. Andy Henschel

Corps Contact: Sarah Wingert, U.S. Army Corps of Engineers, 180 5th Street East, Suite 700, St. Paul, MN, 55101-1678; 651-290-5358; sarah.e.wingert@usace.army.mil

Primary County: Freeborn

Location: Section 25, Township 102N., Range 21W.

Information Complete On: August 12, 2013

Posting Expires On: August 23, 2013

Authorization Type: Section 404 Letter of Permission (LOP-05-MN)

This application is being reviewed in accordance with the practices for documenting Corps jurisdiction under Sections 9 & 10 of the Rivers and Harbor Act of 1899 and Section 404 of the Clean Water Act identified in Regulatory Guidance Letter 07-01. We have made a preliminary determination that the aquatic resources that would be impacted by the proposed project are regulated by the Corps of Engineers under Section 404 of the Clean Water Act. Our jurisdictional review and final jurisdictional determination could result in modifications to the scope of the project's regulated waterbody/wetland impacts and compensatory mitigation requirements identified above.

PROJECT INVOLVES:

- 1) *A Listed State-Impaired Water:* According to the MPCA's Final 2012 TMDL List, the following impaired waters are within the project area: a) the Shell Rock River's aquatic life use between Albert Lea Lake and Goose Creek is impaired for aquatic macroinvertebrate bioassessments, fishes bioassessments, dissolved oxygen, pH, and turbidity, and b) Albert Lea Lake's aquatic recreation use is impaired for nutrient and eutrophication biological indicators.
- 2) *FEMA 100-Year Floodplain:* The FEMA Flood Insurance Rate Map (panel number 270134-0185 B) shows the project area is within the 100-year floodplain of the Shell Rock River.

PROJECT DESCRIPTION AND PURPOSE:

The Shellrock River Watershed District proposes to modify the existing outlet of Albert Lea Lake through the removal of the existing dam and abandoned CR 19 bridge, and installation of a rock riffle spillway, concrete drawdown structure, and an electric fish barrier. The existing Shell Rock Dam is a concrete fixed-crest gravity dam located at the headwaters of the Shell Rock River. It is classified as a medium hazard dam and consists of timber piles, timber stop logs, a concrete overflow weir, concrete apron, and concrete abutment wing walls. The crest of the dam would be approximately 1209.0 feet (NGVD 29), and under moderate flow conditions, the

upstream pool is approximately 1209.4 (NGVD29). Above the dam, a concrete and steel bridge rests on three concrete piers that form the four bays of the dam. The dam was constructed in 1922, and then modified and doubled in size to 114 feet in 1945. The bridge provided a crossing for CR 19 between 1922 and 1958 before the CR 19 bridge was relocated upstream at the outlet of Albert Lea Lake. A 25-foot breach of the eastern-most bay of the dam was repaired in 1998 with riprap and a concrete cofferdam that extends about 15 feet upstream. The bridge and dam are both deteriorating and in need of replacement to prevent downstream flooding and to maintain water levels in Albert Lea Lake. The dam also presents a public safety hazard referred to as a “drowning machine”: under certain flow conditions, the dam can develop dangerous submerged hydraulic conditions.

The applicant proposes to completely remove the bridge and dam with the exception of the timber support piles, which would be left in place below an elevation of 1200 (NGVD29). A rock riffle spillway, spanning an approximately 120-foot wide by 80-foot long area, would be installed immediately upstream of the existing dam location. The rock riffle spillway would consist of three rows of arched boulder weirs, with the upstream weir placed at the same elevation of the existing dam (1209, NGVD29). The other two weirs would be placed 0.8 feet lower than the previous weir. The rock riffle spillway would span the river from the east bank to a proposed concrete drawdown structure on the west bank. The concrete drawdown structure would be approximately 30 feet wide and 70 feet long, and include three 8-foot wide stoplog bays with aluminum stop logs placed to a minimum elevation of 1209 (NGVD 29). The drawdown structure would include a vegetated roof. A steel sheet pile seepage wall would be installed immediately adjacent to the upstream boulder weir, extending bank to bank to a minimum toe elevation of 1188.5 (NGVD29). An approximately 130-foot wide by 33-foot long electric fish barrier with concrete wing walls would be installed in the location of the existing dam, immediately downstream of the rock riffle spillway and the drawdown structure. To access the site for construction and future maintenance, the former existing roadbed of CR 19 would be utilized. The access road would be raised to an elevation of 1215.9 (NGVD29), have a top width of 18 feet, and sideslopes of 1V:4H. The electric fish barrier vertical wing walls and raised access road on either side would allow the containment and passage of the 500-year flood event (1215.6, NGVD 29). The project also includes the installation of a building on the west bank to house the electric fish barrier controls, fencing and signage to block access to the fish barrier, and stream excavation to facilitate the installation of installation of the drawdown structure, rock riffle spillway, and electric fish barrier. Mechanical excavation would occur using a backhoe. Excavated material would be re-used as fill for the project, or disposed in an off-site location. Work would occur in dewatered conditions during fall and winter low-flow periods, utilizing temporary cofferdams constructed to an elevation of 1210.5 (NGVD29) and temporary bypass pipes.

The purposes of the project are to: 1) reduce public safety hazards associated with the deteriorating dam, and the dam design itself; 2) provide an ability to manipulate Albert Lea Lake levels for habitat management purposes, and; 3) prevent the possibility of invasion of Albert Lea Lake by Asian carp.

NAME, AREA AND TYPES OF WATERS (INCLUDING WETLANDS) SUBJECT TO LOSS:

As proposed, the project would impact a total of approximately 6,803 square feet (0.16 acre) of wetlands adjacent to Albert Lea Lake and the Shell Rock River, and up to 0.87 acre of

the Shell Rock River, for a total aquatic resource impact of 1.03 acres. Specifically, wetland impacts would result from the following:

- 1) Approximately 4,225 square feet (0.097 acre) of a shallow marsh wetland (“Wetland 1”) adjacent to a backwater of the Shell Rock River would be permanently filled for improvements to construct the entrance of the proposed eastern access road. The road would provide access during construction, as well as maintenance and emergency access to the electric fish barrier and rock riffle spillway in the future. A culvert would be installed to maintain westerly flow to the wetland.
- 2) Approximately 1,397 square feet (0.032 acre) of a wet meadow wetland (“Wetland 2”) adjacent to the Shell Rock River would be permanently filled for the construction of the water control structure adjacent to the proposed rock riffle spillway.
- 3) Approximately 1,181 square feet (0.027 acre) of a floodplain forest wetland (“Wetland 3”) adjacent to the Shell Rock River would be permanently filled for the construction of a 10-foot wide wood chip or gravel boat portage trail. According to the applicant, the portage trail is a safety requirement of the Minnesota Department of Natural Resources that would allow boat traffic to safely pass the dam and electric fish barrier.

The demolition and construction work would be split into two phases, consisting of the installation of four temporary cofferdams to isolate various portions of the work area. See attached Figure 7 for details. The proposed Shell Rock River excavation and fill impacts for the construction of the rock riffle spillway, drawdown structure, electric fish barrier, and temporary water control structures are provided on the attached Table 1.

ALTERNATIVES CONSIDERED:

The applicant considered the following alternatives to the proposed project outlined above:

- 1) *The no-build:* The “no-build” alternative would allow the existing dam to remain in place with no improvements. This alternative would avoid the proposed wetland and river impacts. The applicant rejected this alternative because it would result in the continuance of public safety hazards associated with the possible breaching of the dam and the drowning machine phenomenon. It would also allow the risk of invasion of Albert Lea Lake by Asian carp to continue.
- 2) *Installation of the rock riffle spillway downstream of the existing dam:* The applicant considered the construction of the rock riffle spillway downstream of the existing dam. This alternative would involve increasing river bank heights for the construction of the electric fish barrier, resulting in additional wetland impacts. Thus, this alternative was rejected because it would result in more river and wetland impacts due to the need to raise the banks, and provide access to the outlet structure.
- 3) *Relocate the drawdown structure to east bank:* This alternative would include the downstream location of the rock riffle spillway as outlined in Alternative 2, and would also locate the drawdown structure on the east bank. Due to the existence of a wetland complex that extends south down the east bank, wetland impacts would have increased. This alternative was rejected due to an increase in wetland and river impacts.

The applicant has reduced proposed impacts by locating staging areas and the electric fish barrier control house in the available upland areas, and utilizing the previous CR 19 road bed for the proposed access roads on either side of the new outlet structures. Wetland 1 impacts have been reduced by locating the road in the narrowest portion of the wetland within the parcel owned by the Shell Rock Watershed District. Work would be constructed in low flow conditions to reduce construction impacts to the river.

COMPENSATORY MITIGATION: The applicant proposes to compensate for 0.16 acre of unavoidable adverse wetland impacts occurring in major watershed 49 (Shell Rock River watershed), Bank Service Area 8, by debiting 0.34 acres of wetland credits from the South Industrial Park wetland area, which is located in major watershed 49, Bank Service Area 8.

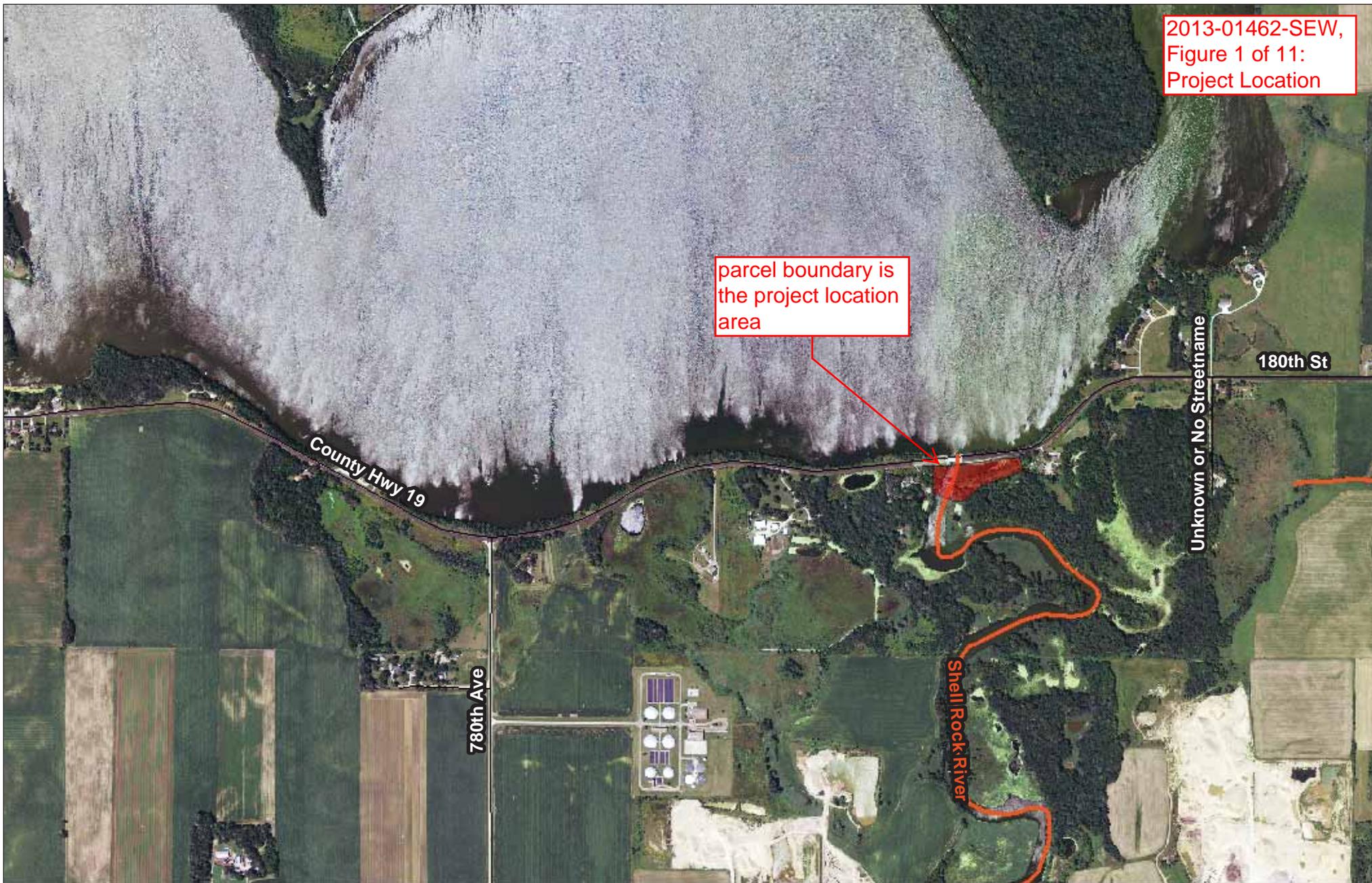
DRAWINGS: See attached drawings labeled “2013-01462-SEW, Figures 1-11 of 11”, and table labeled “2013-01462-SEW, Table 1 of 1”.

2013-01462-SEW, Table 1 of 1:

Proposed Impacts to Shell Rock River and Albert Lea Lake for the Construction of the Rock Riffle Spillway, Drawdown Structure, and Electric Fish Barrier

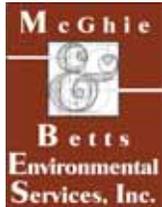
| Impact Source | Approximate Excavation Volume (CY) | Approximate Area Impacted Within River Channel (SF) | Type of Impact | Duration of Impact |
|--------------------------------|---|--|-----------------------|---------------------------|
| Rock Riffles | 1200 | 13,300 | Excavation and Fill | Permanent |
| Drawdown Structure | 600 | 2300 | Excavation and Fill | Permanent |
| Upstream of Drawdown Structure | 100 | 2000 | Excavation Only | Permanent |
| Fish Barrier | 600 | 4500 | Excavation and Fill | Permanent |
| Downstream of Fish Barrier | 200 | 5000 | Excavation and Fill | Permanent |
| Water Control Upstream of CR19 | 0 | 10,800 | Fill Only | Temporary |
| Total | 2700 | 37,900 | | |

*Table from Barr Engineering, June 2013.



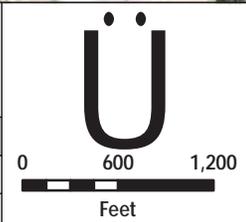
Legend

-  Stream
-  Parcel_Boundary
-  County Roadways

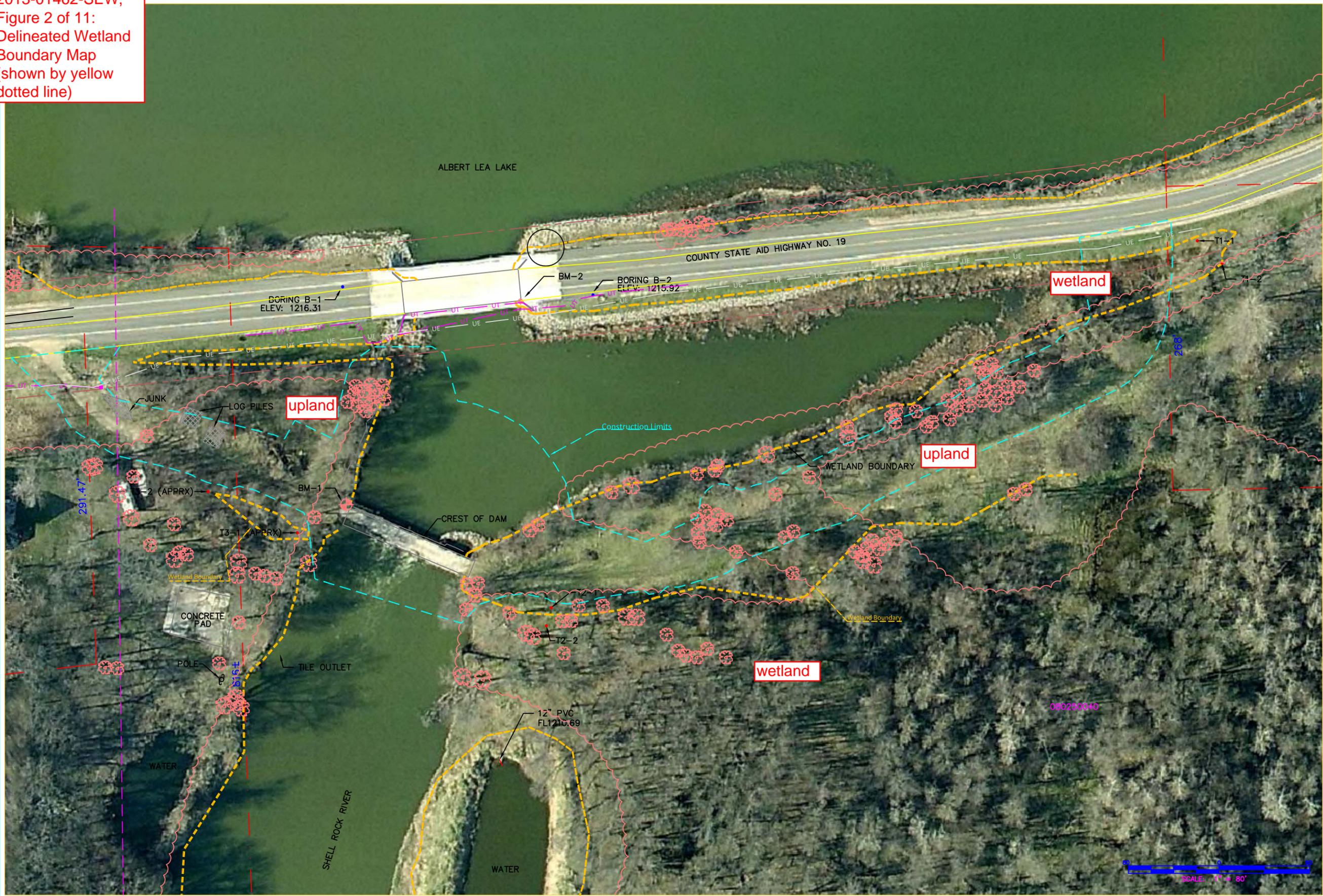
| | | |
|---|--|--|
| <p>GIS Mapping & Spatial Analysis</p> <p>Wetland Delineation & Permitting</p> <p>Geologic Hazards</p> <p>Environmental Assessment Worksheet & Impact Statements</p> |  | <p>Environmental Site Investigations, Mgt. & Design</p> <p>Indoor Air Quality</p> <p>Landscape Architecture</p> <p>1648 Third Ave. S.E. Tel. 507.289.3919 Fax. 507.289.7333 email: mbi@meghiebetts.com</p> |
|---|--|--|

**FIGURE 1
Vicinity Map**

Map By: LWL
Map Scale: 1" equals 1,200'
Date: Friday, June 7, 2013



2013-01462-SEW,
 Figure 2 of 11:
 Delineated Wetland
 Boundary Map
 (shown by yellow
 dotted line)



SHELL ROCK RIVER
 WATERSHED DISTRICT
 214 MAIN STREET W
 ALBERT LEA, MN 56007

Designed By: LWL
 Drawn By: LWL
 Checked By:
 Scale: 1" = 80'
 Date: 06/7/13
 File No. Y3184/Y1313

Geotechnical Engineering
 Construction Material Testing
 Landscape Architecture

McGhie
 Betts, Inc.

1648 Third Ave. S.E.
 Rochester, MN 55904

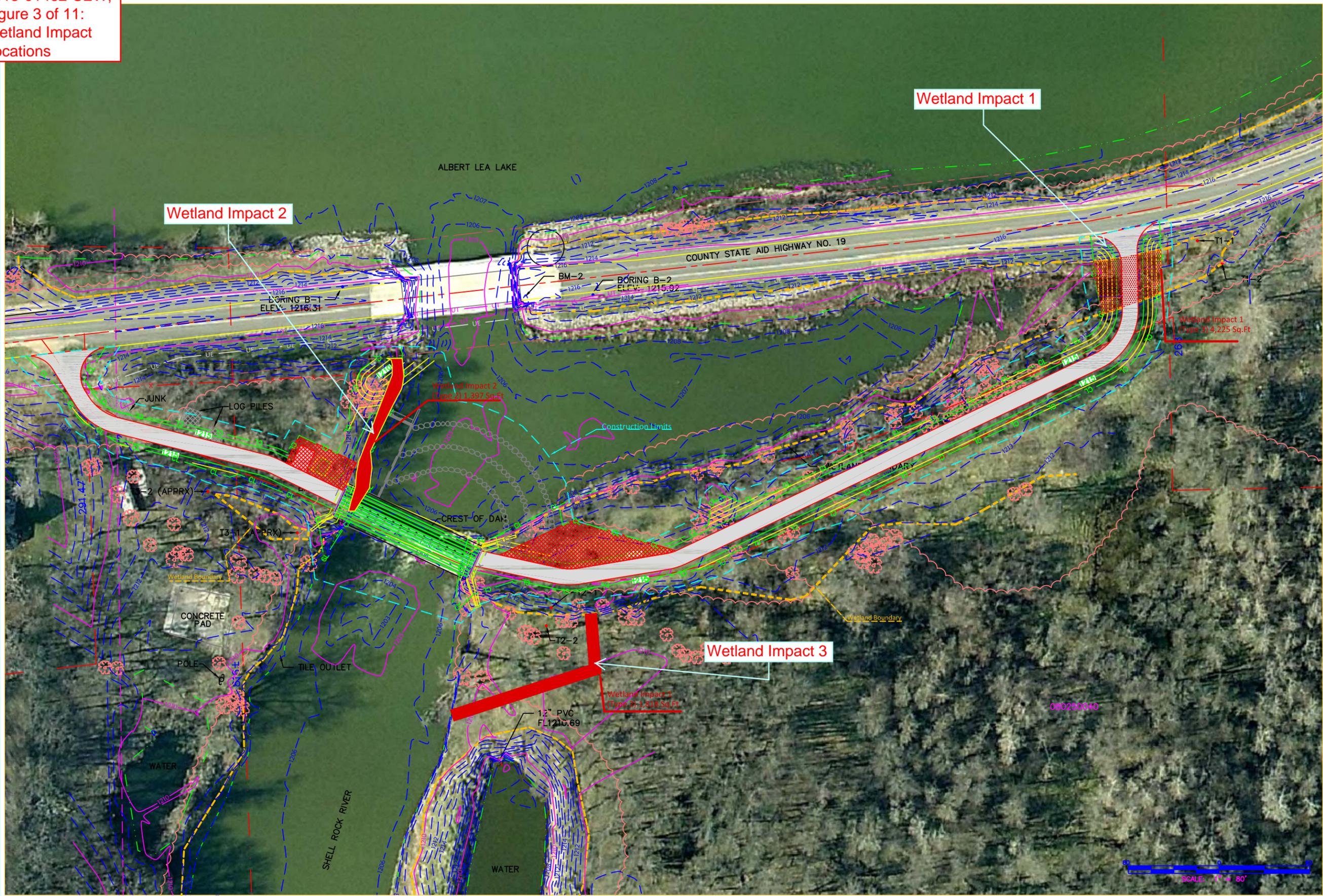


Land Surveying
 Urban-Land Planning
 Consulting - Civil
 Engineering

FIGURE 2 - SITE MAP
 ALBERT LEA DAM AND FISH BARRIER
 ALBERT LEA, MN



2013-01462-SEW,
Figure 3 of 11:
Wetland Impact
Locations



SHELL ROCK RIVER
WATERSHED DISTRICT
214 MAIN STREET W
ALBERT LEA, MN 56007

Designed By: LWL
Drawn By: LWL
Checked By:
Scale: 1" = 80'
Date: 06/7/13
Cadd No.
File No. Y3184/Y1313

Geotechnical Engineering
Construction Material Testing
Landscape Architecture

McGhie
Betts, Inc.

1648 Third Ave. S.E.
Rochester, MN 55904

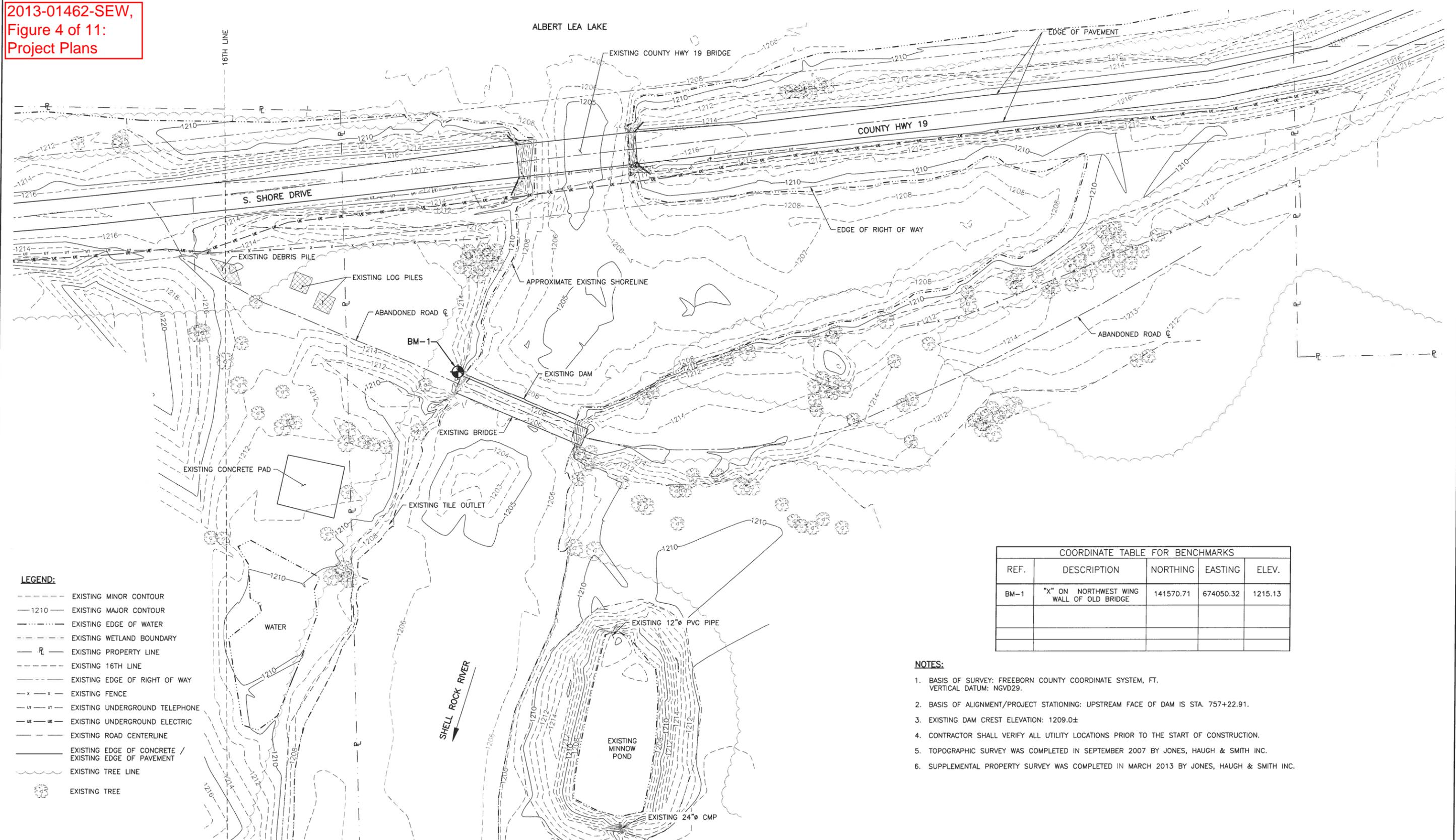


Land Surveying
Urban-Land Planning
Consulting - Civil Engineering

FIGURE 12 - MINIMIZATION B
ALBERT LEA DAM AND FISH BARRIER
ALBERT LEA, MN

SCALE: 1" = 80'

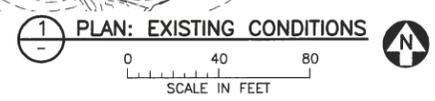
2013-01462-SEW,
Figure 4 of 11:
Project Plans



- LEGEND:**
- - - - - EXISTING MINOR CONTOUR
 - 1210 — EXISTING MAJOR CONTOUR
 - - - - - EXISTING EDGE OF WATER
 - - - - - EXISTING WETLAND BOUNDARY
 - P — EXISTING PROPERTY LINE
 - - - - - EXISTING 16TH LINE
 - - - - - EXISTING EDGE OF RIGHT OF WAY
 - x - x - EXISTING FENCE
 - ut - ut - EXISTING UNDERGROUND TELEPHONE
 - ue - ue - EXISTING UNDERGROUND ELECTRIC
 - - - - - EXISTING ROAD CENTERLINE
 - - - - - EXISTING EDGE OF CONCRETE / EXISTING EDGE OF PAVEMENT
 - - - - - EXISTING TREE LINE
 - EXISTING TREE

| COORDINATE TABLE FOR BENCHMARKS | | | | |
|---------------------------------|--|-----------|-----------|---------|
| REF. | DESCRIPTION | NORTHING | EASTING | ELEV. |
| BM-1 | "X" ON NORTHWEST WING WALL OF OLD BRIDGE | 141570.71 | 674050.32 | 1215.13 |
| | | | | |
| | | | | |

- NOTES:**
- BASIS OF SURVEY: FREEBORN COUNTY COORDINATE SYSTEM, FT. VERTICAL DATUM: NGVD29.
 - BASIS OF ALIGNMENT/PROJECT STATIONING: UPSTREAM FACE OF DAM IS STA. 757+22.91.
 - EXISTING DAM CREST ELEVATION: 1209.0±
 - CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO THE START OF CONSTRUCTION.
 - TOPOGRAPHIC SURVEY WAS COMPLETED IN SEPTEMBER 2007 BY JONES, HAUGH & SMITH INC.
 - SUPPLEMENTAL PROPERTY SURVEY WAS COMPLETED IN MARCH 2013 BY JONES, HAUGH & SMITH INC.



ISSUED FOR
PERMITTING

CADD USER: John M. Warner FILE: M:\DESIGN\23241013\00\23241013\00_C-03_EXISTING CONDITIONS.DWG PLOT SCALE: 1:2 PLOT DATE: 6/7/2013 12:00 PM

| NO. | BY | CHK. | APP. | DATE | REVISION DESCRIPTION |
|-----|------|------|------|---------|-----------------------|
| A | MTP2 | JDA | | 4/26/13 | 30% DESIGN DRAWINGS |
| B | MTP2 | JDA | | 5/10/13 | 60% DESIGN DRAWINGS |
| D | MTP2 | JDA | JDA | 6/12/13 | ISSUED FOR PERMITTING |

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: *[Signature]*
PRINTED NAME: JON D. AUDEMORE
DATE: JUNE 12, 2013 REG. NO. 45654

| CLIENT | PERMITTING | BID | CONSTRUCTION |
|---------|------------|---------|--------------|
| 4/26/13 | 5/10/13 | 6/12/13 | |

| RELEASED TO/FOR | A | B | C | 0 | 1 | 2 | 3 |
|-----------------|---|---|---|---|---|---|---|
| | | | | | | | |

Project Office:
BARR ENGINEERING CO.
4700 WEST 77TH STREET
MINNEAPOLIS, MN 55435

Ph: 1-800-632-2277
Fax: (952) 832-2601
www.barr.com

| Scale | AS SHOWN |
|----------|----------|
| Date | 02/19/13 |
| Drawn | MTP2 |
| Checked | JDA |
| Designed | BARR |
| Approved | JDA |

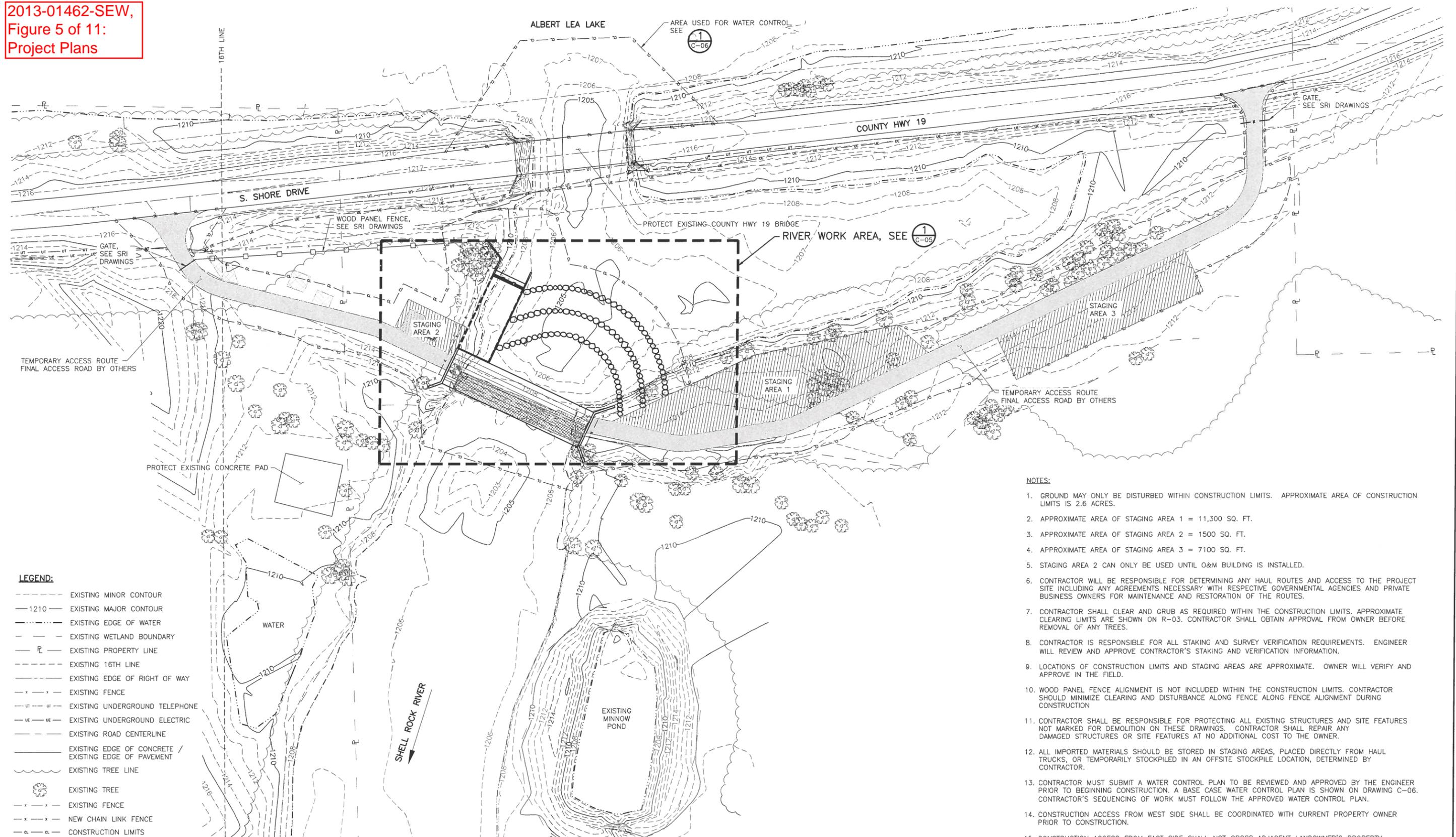
SHELL ROCK RIVER WATERSHED DISTRICT
ALBERT LEA, MINNESOTA

ALBERT LEA LAKE OUTLET MODIFICATIONS
ALBERT LEA, MINNESOTA

EXISTING CONDITIONS
PLAN

| | |
|--------------------|-------------|
| BARR PROJECT No. | 23241013.00 |
| CLIENT PROJECT No. | |
| DWG. No. | C-03 |
| REV. No. | 0 |

**2013-01462-SEW,
Figure 5 of 11:
Project Plans**



1 PLAN: PROJECT LAYOUT
SCALE IN FEET
0 40 80

- NOTES:**
- GROUND MAY ONLY BE DISTURBED WITHIN CONSTRUCTION LIMITS. APPROXIMATE AREA OF CONSTRUCTION LIMITS IS 2.6 ACRES.
 - APPROXIMATE AREA OF STAGING AREA 1 = 11,300 SQ. FT.
 - APPROXIMATE AREA OF STAGING AREA 2 = 1500 SQ. FT.
 - APPROXIMATE AREA OF STAGING AREA 3 = 7100 SQ. FT.
 - STAGING AREA 2 CAN ONLY BE USED UNTIL O&M BUILDING IS INSTALLED.
 - CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING ANY HAUL ROUTES AND ACCESS TO THE PROJECT SITE INCLUDING ANY AGREEMENTS NECESSARY WITH RESPECTIVE GOVERNMENTAL AGENCIES AND PRIVATE BUSINESS OWNERS FOR MAINTENANCE AND RESTORATION OF THE ROUTES.
 - CONTRACTOR SHALL CLEAR AND GRUB AS REQUIRED WITHIN THE CONSTRUCTION LIMITS. APPROXIMATE CLEARING LIMITS ARE SHOWN ON R-03. CONTRACTOR SHALL OBTAIN APPROVAL FROM OWNER BEFORE REMOVAL OF ANY TREES.
 - CONTRACTOR IS RESPONSIBLE FOR ALL STAKING AND SURVEY VERIFICATION REQUIREMENTS. ENGINEER WILL REVIEW AND APPROVE CONTRACTOR'S STAKING AND VERIFICATION INFORMATION.
 - LOCATIONS OF CONSTRUCTION LIMITS AND STAGING AREAS ARE APPROXIMATE. OWNER WILL VERIFY AND APPROVE IN THE FIELD.
 - WOOD PANEL FENCE ALIGNMENT IS NOT INCLUDED WITHIN THE CONSTRUCTION LIMITS. CONTRACTOR SHOULD MINIMIZE CLEARING AND DISTURBANCE ALONG FENCE ALIGNMENT DURING CONSTRUCTION.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING STRUCTURES AND SITE FEATURES NOT MARKED FOR DEMOLITION ON THESE DRAWINGS. CONTRACTOR SHALL REPAIR ANY DAMAGED STRUCTURES OR SITE FEATURES AT NO ADDITIONAL COST TO THE OWNER.
 - ALL IMPORTED MATERIALS SHOULD BE STORED IN STAGING AREAS, PLACED DIRECTLY FROM HAUL TRUCKS, OR TEMPORARILY STOCKPILED IN AN OFFSITE STOCKPILE LOCATION, DETERMINED BY CONTRACTOR.
 - CONTRACTOR MUST SUBMIT A WATER CONTROL PLAN TO BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO BEGINNING CONSTRUCTION. A BASE CASE WATER CONTROL PLAN IS SHOWN ON DRAWING C-06. CONTRACTOR'S SEQUENCING OF WORK MUST FOLLOW THE APPROVED WATER CONTROL PLAN.
 - CONSTRUCTION ACCESS FROM WEST SIDE SHALL BE COORDINATED WITH CURRENT PROPERTY OWNER PRIOR TO CONSTRUCTION.
 - CONSTRUCTION ACCESS FROM EAST SIDE SHALL NOT CROSS ADJACENT LANDOWNER'S PROPERTY. CONTRACTOR MAY CONSTRUCT A TEMPORARY ACCESS ROUTE IF NECESSARY.

LEGEND:

| | |
|----------------|---|
| --- | EXISTING MINOR CONTOUR |
| -1210- | EXISTING MAJOR CONTOUR |
| - - - | EXISTING EDGE OF WATER |
| - - - | EXISTING WETLAND BOUNDARY |
| P | EXISTING PROPERTY LINE |
| - - - | EXISTING 16TH LINE |
| - - - | EXISTING EDGE OF RIGHT OF WAY |
| - x - x - | EXISTING FENCE |
| - u - u - | EXISTING UNDERGROUND TELEPHONE |
| - e - e - | EXISTING UNDERGROUND ELECTRIC |
| - - - | EXISTING ROAD CENTERLINE |
| - - - | EXISTING EDGE OF CONCRETE / EXISTING EDGE OF PAVEMENT |
| - - - | EXISTING TREE LINE |
| (Tree symbol) | EXISTING TREE |
| - x - x - | EXISTING FENCE |
| - x - x - | NEW CHAIN LINK FENCE |
| - p - p - | CONSTRUCTION LIMITS |
| - o - o - | NEW WOOD PANEL FENCE |
| (Hatched area) | STAGING AREA |

ISSUED FOR PERMITTING

CADD USER: Matt Peterson FILE: M:\DESIGN\23241013\00\2324101300_C-04_PROJECT_LAYOUT.DWG PLOT SCALE: 1:2 PLOT DATE: 6/12/2013 4:34 PM BAR M:\AutoCAD 2011\Support\enu\Template\Barr_2011_Template.dwt Plot at: 1 10/06/2010 14:03:50

| NO. | BY | CHK | APP. | DATE | REVISION DESCRIPTION |
|-----|------|-----|------|---------|-----------------------|
| A | MTP2 | JDA | | 4/26/13 | 30% DESIGN DRAWINGS |
| B | MTP2 | JDA | | 5/10/13 | 60% DESIGN DRAWINGS |
| C | MTP2 | JDA | JDA | 6/12/13 | ISSUED FOR PERMITTING |

HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: *[Signature]*
 PRINTED NAME: JOHN D. AUSDEMORE
 DATE: JUNE 12, 2013 REG. NO.: 45654

| CLIENT | PERMITTING | CONSTRUCTION |
|---------|------------|--------------|
| 5/25/13 | 6/10/13 | 6/12/13 |

RELEASED TO/FOR: A B C O 1 2 3
DATE RELEASED

Project Office:
BARR ENGINEERING CO.
 4700 WEST 77TH STREET
 MINNEAPOLIS, MN 55435

Corporate Headquarters:
 Minneapolis, Minnesota
 Ph: 1-800-632-2277
 Fax: (952) 832-2601
 www.barr.com

| Scale | AS SHOWN |
|----------|----------|
| Date | 02/20/13 |
| Drawn | MTP2 |
| Checked | JDA |
| Designed | BARR |
| Approved | JDA |

SHELL ROCK RIVER WATERSHED DISTRICT
 ALBERT LEA, MINNESOTA

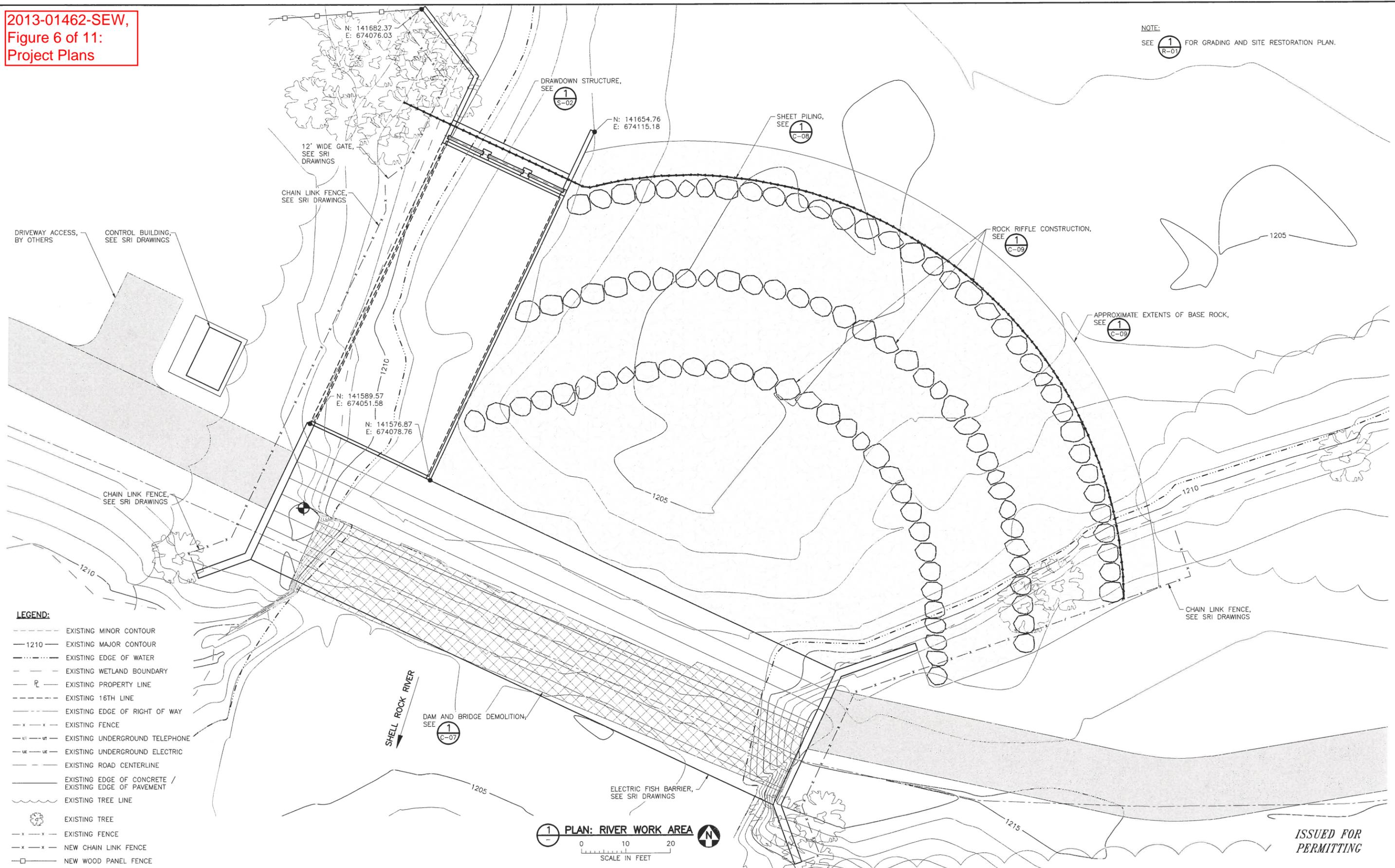
ALBERT LEA LAKE OUTLET MODIFICATIONS
 ALBERT LEA, MINNESOTA

PROJECT LAYOUT PLAN

| | |
|--------------------|-------------|
| BARR PROJECT No. | 23241013.00 |
| CLIENT PROJECT No. | |
| DWG. No. | C-04 |
| REV. No. | 0 |

**2013-01462-SEW,
Figure 6 of 11:
Project Plans**

NOTE:
SEE **1** FOR GRADING AND SITE RESTORATION PLAN.
1
R-01



- LEGEND:**
- 1210 --- EXISTING MINOR CONTOUR
 - 1210 --- EXISTING MAJOR CONTOUR
 - - - - - EXISTING EDGE OF WATER
 - - - - - EXISTING WETLAND BOUNDARY
 - - - - - EXISTING PROPERTY LINE
 - - - - - EXISTING 16TH LINE
 - - - - - EXISTING EDGE OF RIGHT OF WAY
 - x - x - EXISTING FENCE
 - - - - - EXISTING UNDERGROUND TELEPHONE
 - - - - - EXISTING UNDERGROUND ELECTRIC
 - - - - - EXISTING ROAD CENTERLINE
 - - - - - EXISTING EDGE OF CONCRETE / EXISTING EDGE OF PAVEMENT
 - - - - - EXISTING TREE LINE
 - ⊗ EXISTING TREE
 - x - x - EXISTING FENCE
 - x - x - NEW CHAIN LINK FENCE
 - □ - □ - NEW WOOD PANEL FENCE

1 PLAN: RIVER WORK AREA

0 10 20
SCALE IN FEET

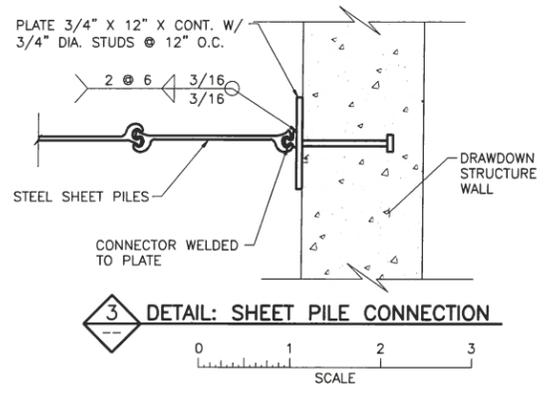
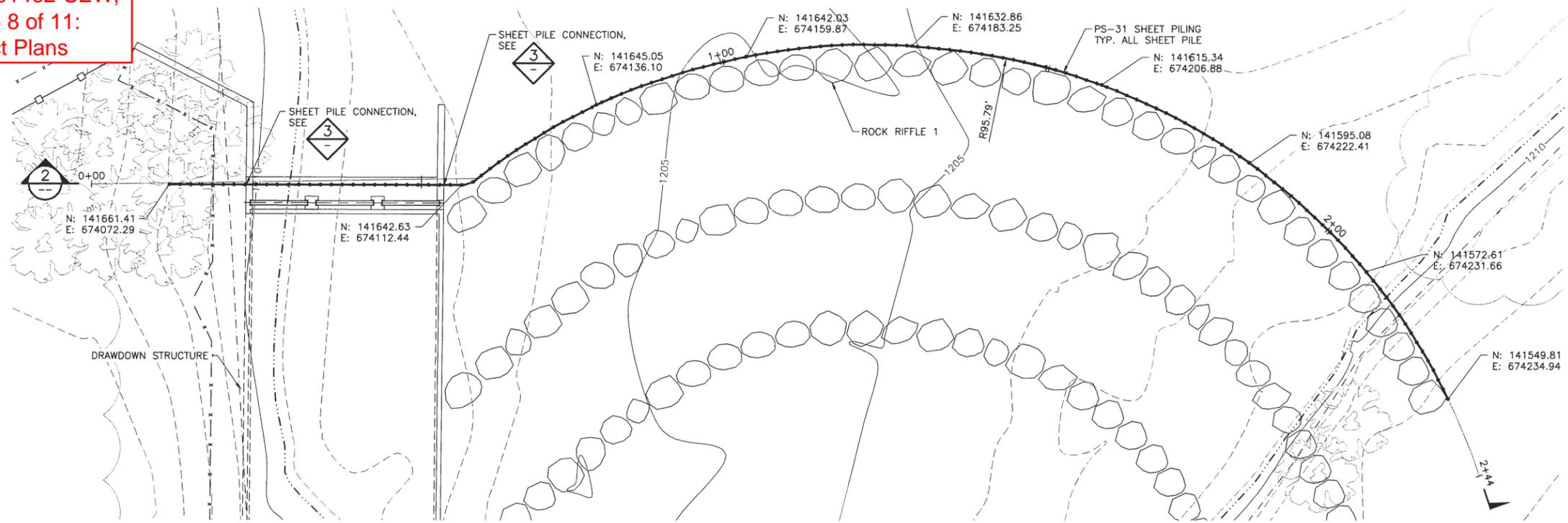
1
N

ISSUED FOR PERMITTING

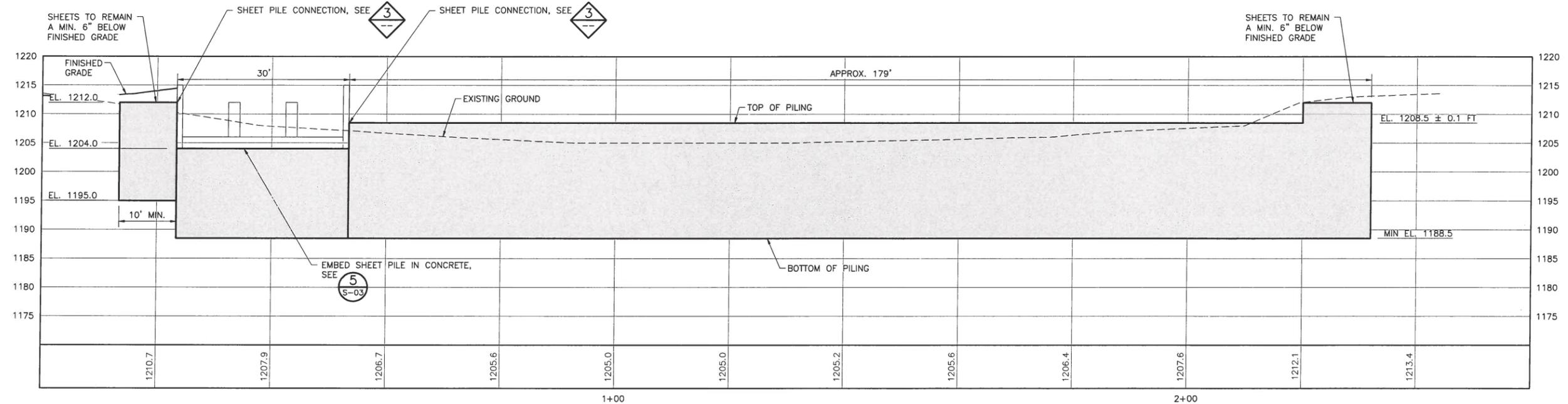
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BARR M:\AutoCAD 2011\AutoCAD 2011 Support\enu\Template\Barr_2011_Template.dwt Plot at 1 10/05/2010 14:03:50

| | | | | | | | | | | | | | | | |
|---|--|---|--|---|--|--|--|---|--|--|--|--|--|-------------------------|----------------------|
| 0 MTP2 JDA JDA 06/12/13 ISSUED FOR PERMITTING | | 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 PERMITTING BID CONSTRUCTION | | Project Office: BARR ENGINEERING CO. 4700 WEST 77TH STREET MINNEAPOLIS, MN 55435 | | Scale AS SHOWN Date 02/20/13 Drawn MTP2 Checked JDA Designed BARR Approved JDA | | ALBERT LEA LAKE OUTLET MODIFICATIONS ALBERT LEA, MINNESOTA | | BARR PROJECT No. 23241013.00 CLIENT PROJECT No. | | | |
| NO. BY CHK. APP. DATE REVISION DESCRIPTION | | SIGNATURE PRINTED NAME JON D. AUSDEMORE DATE JUNE 12, 2013 REG. NO. 45654 | | RELEASED TO/FOR A B C O 1 2 3 DATE RELEASED | | Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277 Fax: (952) 832-2601 www.barr.com | | | | SHELL ROCK RIVER WATERSHED DISTRICT ALBERT LEA, MINNESOTA | | RIVER WORK AREA PLAN | | DWG. No. C-05 | REV. No. 0 |

2013-01462-SEW,
Figure 8 of 11:
Project Plans



1 PLAN: SHEET PILING
 SCALE IN FEET



2 PROFILE: SHEET PILING
 SCALE IN FEET

ISSUED FOR PERMITTING

CADD USER: John M. Worner FILE: M:\DESIGN\23241013\00\2324101300_C-08_SHEET PILING PLAN.DWG PLOT SCALE: 1:2 PLOT DATE: 6/12/2013 1:10 PM
 BAR: M:\AutoCAD 2011\AutoCAD 2011 Support\enu\Template\Barr_2011_Template.dwt Plot at 1 10/05/2010 14:03:50

| NO. | BY | CHK | APP. | DATE | REVISION DESCRIPTION |
|-----|------|-----|------|---------|-----------------------|
| A | MTP2 | JDA | | 5/10/13 | 60% DESIGN DRAWINGS |
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SIGNATURE: *[Signature]*
 PRINTED NAME: JON D. AUSDEMORE
 DATE: JUNE 12, 2013 REG. NO. 45654

| CLIENT | PERMITTING | BID | CONSTRUCTION |
|---------|------------|---------|--------------|
| 5/10/13 | | 6/12/13 | |

RELEASED TO/FOR: A B C O 1 2 3
 DATE RELEASED

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

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

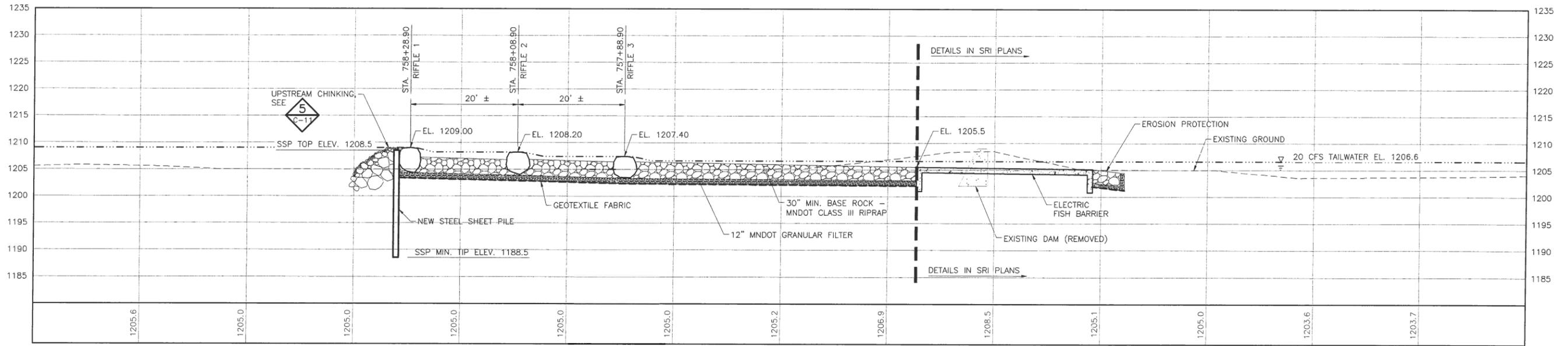
| Scale | Date | Drawn | Checked | Designed | Approved |
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| AS SHOWN | 03/20/13 | MTP2 | JDA | BARR | JDA |

SHELL ROCK RIVER WATERSHED DISTRICT
 ALBERT LEA, MINNESOTA

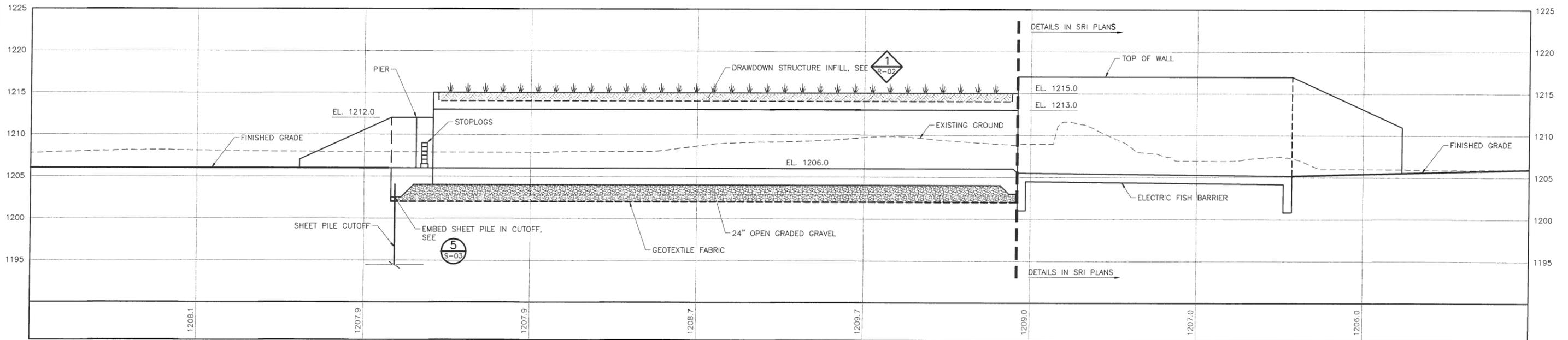
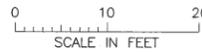
ALBERT LEA LAKE OUTLET MODIFICATIONS
 ALBERT LEA, MINNESOTA

SHEET PILING
 PLAN AND PROFILE

| | |
|---------------------------------|--------------------|
| BARR PROJECT No. 23241013.00 | CLIENT PROJECT No. |
| DWG. No. C-08 | REV. No. 0 |



1 PROFILE: ROCK RIFLE CONSTRUCTION



2 PROFILE: DRAWDOWN STRUCTURE

SCALE: AS SHOWN

ISSUED FOR PERMITTING

| NO. | BY | CHK | APP | DATE | REVISION DESCRIPTION |
|-----|------|-----|-----|---------|-----------------------|
| A | MTP2 | JDA | | 4/26/13 | 30% DESIGN DRAWINGS |
| B | MTP2 | JDA | | 5/10/13 | 60% DESIGN DRAWINGS |
| O | MTP2 | JDA | JDA | 6/12/13 | ISSUED FOR PERMITTING |

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 DATE: JUNE 12, 2013 REG. NO. 45654

| CLIENT | PERMITTING | BID | CONSTRUCTION |
|---------|------------|---------|--------------|
| 4/26/13 | 5/10/13 | 6/12/13 | |

| RELEASED TO/FOR | A | B | C | 0 | 1 | 2 | 3 |
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| DATE RELEASED | | | | | | | |

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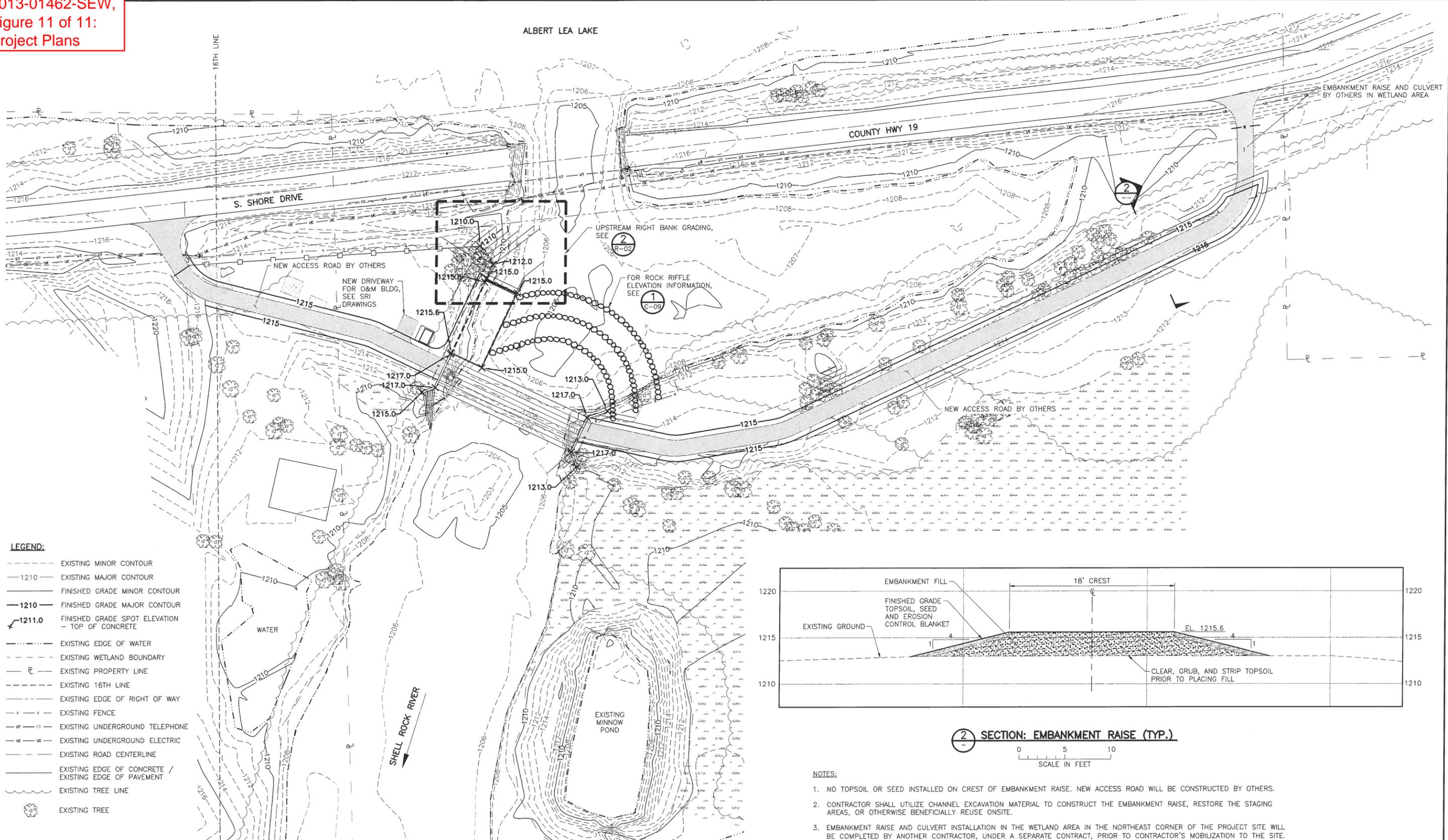
| Scale | AS SHOWN |
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| Date | 03/20/13 |
| Drawn | MTP2 |
| Checked | JDA |
| Designed | BARR |
| Approved | JDA |

SHELL ROCK RIVER WATERSHED DISTRICT
 ALBERT LEA, MINNESOTA

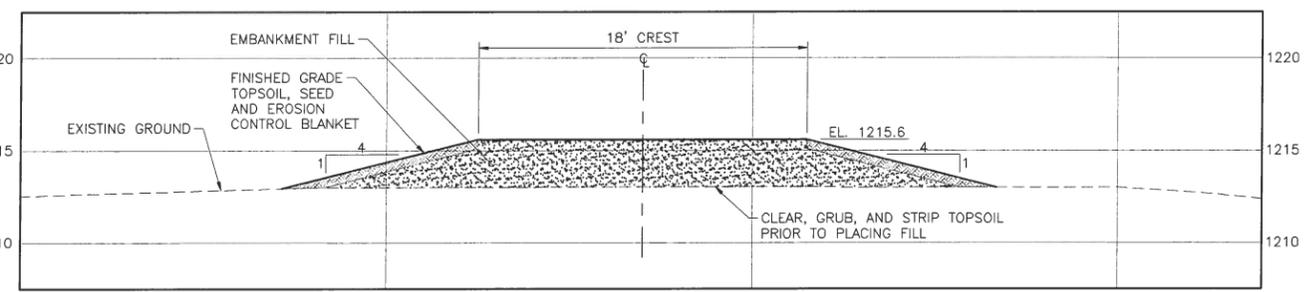
ALBERT LEA LAKE OUTLET MODIFICATIONS
 ALBERT LEA, MINNESOTA
 ROCK RIFLE CONSTRUCTION AND
 DRAWDOWN STRUCTURE PROFILES

| | |
|--------------------|-------------|
| BARR PROJECT No. | 23241013.00 |
| CLIENT PROJECT No. | |
| DWG. No. | C-10 |
| REV. No. | 0 |

CADD USER: Matt Peterson FILE: M:\DESIGN\23241013\00\2324101300_C-10_RIFLE AND DRAWDOWN STRUCTURE PROFILES.DWG PLOT SCALE: 1:2 PLOT DATE: 6/12/2013 2:27 PM
 BAR: M:\AutoCAD 2011\AutoCAD 2011 Support\enu\template\Barr_2011_template.dwt Plot at: 10/05/2010 14:03:50



- LEGEND:**
- - - - - EXISTING MINOR CONTOUR
 - 1210 — EXISTING MAJOR CONTOUR
 - 1210 — FINISHED GRADE MINOR CONTOUR
 - 1210 — FINISHED GRADE MAJOR CONTOUR
 - 1211.0 — FINISHED GRADE SPOT ELEVATION — TOP OF CONCRETE
 - - - - - EXISTING EDGE OF WATER
 - - - - - EXISTING WETLAND BOUNDARY
 - P — EXISTING PROPERTY LINE
 - - - - - EXISTING 16TH LINE
 - - - - - EXISTING EDGE OF RIGHT OF WAY
 - x - x - EXISTING FENCE
 - - - - - EXISTING UNDERGROUND TELEPHONE
 - - - - - EXISTING UNDERGROUND ELECTRIC
 - - - - - EXISTING ROAD CENTERLINE
 - - - - - EXISTING EDGE OF CONCRETE / EXISTING EDGE OF PAVEMENT
 - - - - - EXISTING TREE LINE
 - ⊗ EXISTING TREE



2 SECTION: EMBANKMENT RAISE (TYP.)

- NOTES:**
1. NO TOPSOIL OR SEED INSTALLED ON CREST OF EMBANKMENT RAISE. NEW ACCESS ROAD WILL BE CONSTRUCTED BY OTHERS.
 2. CONTRACTOR SHALL UTILIZE CHANNEL EXCAVATION MATERIAL TO CONSTRUCT THE EMBANKMENT RAISE, RESTORE THE STAGING AREAS, OR OTHERWISE BENEFICIALLY REUSE ONSITE.
 3. EMBANKMENT RAISE AND CULVERT INSTALLATION IN THE WETLAND AREA IN THE NORTHEAST CORNER OF THE PROJECT SITE WILL BE COMPLETED BY ANOTHER CONTRACTOR, UNDER A SEPARATE CONTRACT, PRIOR TO CONTRACTOR'S MOBILIZATION TO THE SITE.
 4. FINAL ACCESS ROAD WILL BE CONSTRUCTED BY ANOTHER CONTRACTOR, UNDER A SEPARATE CONTRACT, AFTER SUBSTANTIAL COMPLETION OF THE OUTLET MODIFICATIONS PROJECT. THE CONTRACTOR AWARDED THE WORK SHOWN IN THESE PLANS IS RESPONSIBLE FOR RAISING THE EMBANKMENT GRADES TO ELEVATION 1215.6.

1 PLAN: GRADING AND SITE RESTORATION

0 40 80
SCALE IN FEET

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PERMITTING

CADD USER: Mct. Peterson FILE: M:\DESIGN\23241013\00\2324101300_R-01_GRADING PLAN.DWG PLOT SCALE: 1:2 PLOT DATE: 6/12/2013 4:31 PM
 BARR M:\AutoCAD 2011\Support\enu\template\Barr_2011_Template.dwg Plot at: 1 10/05/2010 14:03:50

| NO. | BY | CHK. | APP. | DATE | REVISION DESCRIPTION |
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| A | MTP2 | JDA | | 4/26/13 | 30% DESIGN DRAWINGS |
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SIGNATURE: *[Signature]*
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| CLIENT | DATE | PERMITTING | BID | CONSTRUCTION |
|----------------------|----------|------------|-----|--------------|
| BARR ENGINEERING CO. | 04/26/13 | 06/12/13 | | |

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 MINNEAPOLIS, MN 55435

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| Designed | BARR |
| Approved | JDA |

SHELL ROCK RIVER WATERSHED DISTRICT
 ALBERT LEA, MINNESOTA

ALBERT LEA LAKE OUTLET MODIFICATIONS
 ALBERT LEA, MINNESOTA
 GRADING AND SITE RESTORATION
 PLAN

| BARR PROJECT No. | 23241013.00 |
|--------------------|-------------|
| CLIENT PROJECT No. | |
| DWG. No. | R-01 |
| REV. No. | 0 |