

October 1, 2018

North Dakota Industrial Commission  
Attn: Outdoor Heritage Fund Program  
State Capitol – Fourteenth Floor  
600 East Boulevard Avenue, Dept. 405  
Bismarck, ND 58505

Subject: North Dakota Outdoor Heritage Fund Grant Application – Karey Dam Rehabilitation Project  
Hettinger County Water Resource Board

Dear Outdoor Heritage Advisory Board,

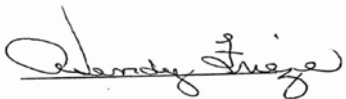
The Hettinger County Water Resource Board is pleased to submit the attached Outdoor Heritage Fund Grant Application Request for the Karey Dam Rehabilitation Project.

This is a new project which will allow for upstream fish passage, improved river connectivity, and will provide enhanced fish habitat. Angler access will be enhanced by improved site access, boulder walkways and a walking trail. Removal of the existing dam and replacement with engineered rock ramp will significantly improve various recreational opportunities at the facility. Additionally, maintaining existing crest elevation will allow City of New England to continue holding effective perfected water use permit for irrigation of New England Golf Course, which will further improve regional recreational opportunities. Removal of the existing dam will also improve safety and liability exposure of the Board by eliminating the existing hydraulic roller conditions.

In summary, the project objectives are closely aligned with the specific directives of the Outdoor Heritage Fund Program.

We look forward to a successful outcome from your review. If you have any questions, please let me know.

Sincerely,

A handwritten signature in cursive script, appearing to read "Wendy Frieze". The signature is written in black ink and is positioned above the typed name.

Wendy Frieze  
Secretary/Treasurer  
Hettinger County Water Resource Board

# Outdoor Heritage Fund Grant Application



## Instructions

After completing the form, applications and supporting documentation may be submitted by mail to North Dakota Industrial Commission, ATTN: Outdoor Heritage Fund Program, State Capitol – Fourteenth Floor, 600 East Boulevard Ave. Dept. 405, Bismarck, ND 58505 or by e-mail to [outdoorheritage@nd.gov](mailto:outdoorheritage@nd.gov). It is preferred that both a hard copy and electronic copy are submitted.

You are not limited to the spacing provided, except in those instances where there is a limit on the number of words. If you need additional space, please indicate that on the application form, answer the question on a separate page, and include with your submission.

The application and all attachments must be received or postmarked by the application deadline. You will be sent a confirmation by e-mail of receipt of your application. You may submit your application at any time prior to the application deadline. **Applicants are strongly encouraged to submit applications prior to the deadline for staff review in order ensure that proposals will be complete when submitted on deadline date.** Incomplete applications may not be considered for funding.

**Please review the back of this form to determine project eligibility, definitions, budget criteria, and statutory requirements.**

Project Name **Karey Dam Rehabilitation Project**

Name of Organization Hettinger County Water Resource Board

Federal Tax ID# 45-0304487

Contact Person/Title: Wendy Frieze, Secretary/Treasurer

Address: 336 Pacific Avenue

City: Mott

State: ND

Zip Code: 58646

E-mail Address: [Goober58646@yahoo.com](mailto:Goober58646@yahoo.com)

Web Site Address (Optional)

Phone: (701) 290-8434

Fax # (if available)

List names of co-applicants if this is a joint proposal

**MAJOR Directive:**

Choose only one response

**Directive A.** Providing access to private and public lands for sportsmen, including projects that create fish and wildlife habitat and provide access for sportsmen;

**Directive B.** Improving, maintaining and restoring water quality, soil conditions, plant diversity, animal systems and by supporting other practices of stewardship to enhance farming and ranching;

**Directive C.** Developing, enhancing, conserving and restoring wildlife and fish habitat on private and public lands; and

**Directive D.** Conserving natural areas and creating other areas for recreation through the establishment and development of parks and other recreation areas.

**Additional Directive:**

Choose all that apply

**Directive A.**

**Directive B.**

**Directive C.**

**Directive D.**

**Type of organization:**

State Agency

Political Subdivision

Tribal Entity

Tax-exempt, nonprofit corporation.

**Abstract/Executive Summary.**

Summarize the project, including its objectives, expected results, duration, total project costs and participants. (no more than 500 words)

Located on the Cannonball River, Karey Dam (Dam) is a low-head dam under the jurisdiction of Hettinger County Water Resource Board (Board) according to NDCC § 61-16.1-39 and § 61-16.1-40. The Dam was built in 1930 by the Civilian Conservation Corps (CCC) for irrigation purposes with recreation as a secondary benefit. Currently, the Dam serves as a popular regional recreational facility accessed by local residents and area visitors alike.

In its current condition, the Dam creates a dangerous hydraulic roller, which poses imminent risk to anglers, boaters and other recreational users for potential loss of life. There have been two reported fatalities on the Cannonball River during the early 1980s. There are large cracks in the concrete

structure and the abutments, erosion around the abutments, spalling of the gunite surfacing, and detachment of the wind wall. The right abutment was washed out during spring 2018 due to runoff from a high flow event. The only update was the Dam received gunite surfacing in the mid 1980's. Dam inspections have been conducted by the North Dakota State Water Commission (SWC) Office of the State Engineer (OSE) and the state of the Dam has been described as "poor".

The Board completed a feasibility study in May 2018 that examined three alternatives to address the failing structure. As part of the feasibility study, the Board hosted two well-attended public meetings in New England, ND. The desire to maintain the existing impounded storage for irrigation and associated recreational uses were important considerations in the Board's decision for selection of an engineered rock ramp as the preferred alternative. Maintaining the current storage pool is important as the permitted storage will be used for irrigation of the New England Golf Course. Access to the Dam is through an existing public easement owned by City of New England, and the City fully endorses ongoing project. This access will be improved as necessary. The engineered rock ramp will eliminate the existing risk posed by the hydraulic roller, improve river connectivity, enhanced recreational opportunities, improve fish passage and reduce the long-term maintenance requirements at the Dam. The Board is currently developing final design of the Dam. Permits will be secured by spring 2019.

**Project Duration:**

Construction to begin in summer 2019 and will be completed by fall 2020.

**Indicate the intended schedule for drawing down OHF funds.**

The Board intends to drawdown OHF funds during construction period of the project between fiscal year 2019 and 2020.

**Amount of Grant request: \$180,000**

**Total Project Costs: \$1,189,000**

Note: in-kind and indirect costs can be used for matching funds.

**Amount of Matching Funds: \$ 1,009,000**

**A minimum of 25% Match Funding is required.** Indicate if the matching funds will be in-kind, indirect or cash. Please provide verification that these matching funds are available for your project. Note that effective as of July 1, 2015 no State General Fund dollars can be used for a match unless funding was legislatively appropriated for that purpose.

Amount of Match	Funding Source	Type of Match
\$891,750	ND State Water Commission	<input type="checkbox"/> Cash <input type="checkbox"/> In-Kind <input type="checkbox"/> Indirect
\$50,000	US Fish and Wildlife Services	<input type="checkbox"/> Cash <input type="checkbox"/> In-Kind <input type="checkbox"/> Indirect
\$67,250	Hettinger County Water Resource Board	<input type="checkbox"/> Cash <input type="checkbox"/> In-Kind <input type="checkbox"/> Indirect

## **Certifications**

- I certify that this application has been made with the support of the governing body and chief executive of my organization.
  
- I certify that if awarded grant funding none of the funding will be used for any of the exemptions noted in the back of this application.

## **Narrative**

### **Organization Information – Briefly summarize your organization’s history, mission, current programs and activities.**

Include an overview of your organizational structure, including board, staff and volunteer involvement. (no more than 300 words)

The Hettinger County Water Resource Board (Board) is a political subdivision of the State that has been in existence for decades. The Board is governed by a three member board of managers and a secretary/treasurer appointed by the Hettinger County Commission. It has the responsibility within Hettinger County to manage, conserve, protect, develop and control waters of the state for the benefit of the public. It is the policy of the Board to provide management, conservation, protection, development and control of water resources, to work cooperatively with other resource agencies to strengthen and mutually support related programs, and protect and promote the health, safety and general welfare of the people of North Dakota.

The Board manages a variety of programs including those related to drainage permits, legal drains, maintaining, protecting and controlling streamflow, protection and maintenance of water bodies, managing flooding issues, protection and maintenance of water quality and construction, operation and maintenance of a variety of dams.

The Board has minimal staff. To accomplish program goals, the Board retains professional services for legal and engineering needs when necessary.

Karey Dam Rehabilitation Project is an important ongoing project for the Board, which has a strong local support and involvement from area residents.

### **Purpose of Grant – Describe the proposed project identifying how the project will meet the specific directive(s) of the Outdoor Heritage Fund Program**

Identify project goals, strategies and benefits and your timetable for implementation. Include information about the need for the project and whether there is urgency for funding. Indicate if this is a new project or if it is replacing funding that is no longer available to your organization. Identify any innovative features or processes of your project. Note: if your proposal provides funding to an individual, the names of the recipients must be reported to the Industrial Commission/Outdoor Heritage Fund. These names will be disclosed upon request.

For tree/shrub/grass plantings: provide a planting plan describing the site design, planting methods, number of trees/shrubs by species and stock size, grass species and future maintenance. A statement certifying that the applicant will adhere to USDA-NRCS tree/shrub/grass planting specifications along with the name of the governmental entity designing the planting may be substituted for a planting plan.

For projects including Section 319 funding: provide in detail the specific best management practices that will be implemented and the specific projects for which you are seeking funding.

For projects including fencing: A minimum cost share of 40% by the recipient is preferred. Include detailed information on the type of fencing to be installed, whether funding is requested for boundary fencing, new or replacement of existing fencing, and/or cross fencing.

This is a new project that will remove an existing dangerous dam and replace it with an engineered rock ramp. This project will improve connectivity of the river and allow for upstream fish passage. Removal of the existing dam and replacement with engineered rock ramp will significantly improve local recreational activities. The shallow pools between the arch-shaped rock weirs will allow for easy angler access. The lower velocities through the series of rock arches that comprise the ramp will also allow for improved angler access and recreational wading activities as well as providing for canoe/kayak passage immediately adjacent to the New England golf course.

The North Dakota State Water Commission (SWC) Office of the State Engineer (OSE) has issued a Conditional Water Use Permit # 5630 to the City of New England for irrigation of the New England Golf Course. Since the design of the rock riffle structure is not expected to significantly change the water surface elevation this will not impact the golf course's ability to draw irrigation water from the river. The golf course is immediately south of the existing dam and will increase local recreation.

Replacing the existing dam with an engineered rock ramp will eliminate the existing hydraulic roller conditions and associated safety risks. Low-head dams create a recirculating current below the spillway that is known to be deceptive and cause fatal accidents. The ongoing safety risk creates a sense of urgency to assemble funding and begin construction.

The final design and permitting is expected to be completed by the summer of 2019. Construction is anticipated to be completed by fall 2020.

Is this project part of a Comprehensive Conservation Plan?  Yes  No

If yes, provide a copy with the application.

*Note: Projects involving buildings and infrastructure will only be considered if part of a Comprehensive Conservation Plan. Please refer to the "Definitions" section at the back of the form for more details.*

**Management of Project – Provide a description of how you will manage and oversee the project to ensure it is carried out on schedule and in a manner that best ensures its objectives will be met.**

Include a brief background and work experience for those managing the project.

The Board, as project sponsor, has retained Barr Engineering Co. (Barr) to complete engineering, design, and permitting of these projects and to assist the Board with public and stakeholder engagement. Barr has extensive experience in similar projects, with successful design, permitting and construction of similar projects on time and on budget. Barr will provide bid preparation and construction engineering services for the project, including meetings with the contractors QA/QC of construction

activities, managing the schedule, and holding the contractor accountable for most efficient use of taxpayer funds for completion of the project on time and on budget.

**Evaluation – Describe your plan to document progress and results.**

Please be specific on the methods you will utilize to measure success. Note that regular reporting, final evaluation and expenditure reports will be required for every grant awarded.

The Board will develop a formal construction management plan for the project, including records and invoice management framework. A monthly progress report will be submitted to the OHF that would also include copies of the invoices accrued and proposed activities until the next progress report.

## **Financial Information**

**Project Budget – Use the table below to provide an itemized list of project expenses and describe the matching funds being utilized for this project.**

Indicate if the matching funds are in the form of cash, indirect costs or in-kind services. The budget should identify all other committed funding sources and the amount of funding from each source. **A minimum of 25% match funding is required.** An application will be scored higher the greater the amount of match funding provided. (See Scoring Form.)

Certain values have been identified for in-kind services as detailed under “Budget Information” at the back of this form. Refer to that section and utilize these values in identifying your matching funds.

**NOTE: No indirect costs will be funded. Supporting documentation for project expenses, including bids, must be included or application will be considered incomplete.**

Please review attached Project Budget summary Table in the Appendix, which describes breakdown of itemized project costs and proposed cost share assistance anticipated from partners and the Board.

Note: Costs for seeding, fencing, pipelines, wells, and cover crops cannot exceed NRCS Field Office Tech Guide without justification. Projects involving perimeter fencing must follow NRCS eligibility standards.

**Budget Narrative – Use the space below to provide additional detail regarding project expenses.**

As noted in the Project Budget Summary Table provided in the Appendix, the Board anticipates 75% cost share assistance under eligible Dam Safety category from the ND State Water Commission. The remaining 25% budget is anticipated to be funded by the Board, OHF, and USFWS. The expenses outlined in this request do not factor in legal and administrative fees, as the Board expects to cover them on its own.

**Sustainability – Indicate how the project will be funded or sustained in future years.**

Include information on the sustainability of this project after OHF funds have been expended and whether the sustainability will be in the form of ongoing management or additional funding from a different source.

The preferred alternative of engineered rock ramp, apart from eliminating the safety risk associated with the hydraulic roller, also requires minimal annual maintenance unlike a concrete structure. The Board will fund future operations and maintenance of the project through their general fund and through

cost share support from partnering agencies. The cost share support and role from partnering agencies will be established post-construction.

**Partial Funding – Indicate how the project will be affected if less funding is available than that requested.**

If funding from the Outdoor Heritage Fund is not obtained, the project will be delayed until such time that adequate funding is secured. If adequate funding is not obtained, the Board may not be able to afford the project and could be forced to breach the dam to eliminate the existing hazards around the failing dam. Breaching the dam would significantly reduce the existing recreational opportunities around the dam, and will also cause City of New England to forfeit existing perfected water use permit for irrigation of New England Golf Course, which will adversely impact recreation further within the region.

**Partnership Recognition - If you are a successful recipient of Outdoor Heritage Fund dollars, how would you recognize the Outdoor Heritage Fund partnership? \* *There must be signage at the location of the project acknowledging OHF funding when appropriate.***

The Board will provide signage at the facility identifying the names of all the project sponsors. The project vicinity is noted for its fishing, and outdoor recreation opportunities. The signage with the Outdoor Heritage Fund listed as a project sponsor will be viewed and appreciated by all who visit. The Board will develop a media campaign centered on the project and the Outdoor Heritage Fund w will be identified as a critical partner in the project.

**Awarding of Grants - Review the appropriate sample contract for your organization on the website at <http://www.nd.gov/ndic/outdoor-infopage.htm>.**

Can you meet all the provisions of the sample contract?  Yes  No

If there are provisions in that contract that your organization is unable to meet, please indicate below what those provisions would be:

**ABOUT OHF:**

The purpose of the North Dakota Outdoor Heritage Fund is to provide funding to state agencies, tribal governments, political subdivisions, and nonprofit organizations, with higher priority given to projects that enhance **conservation** practices in this state by:

**Directive A.** Providing access to private and public lands for sportsmen, including projects that create fish and wildlife habitat and provide access for sportsmen;

**Directive B.** Improving, maintaining and restoring water quality, soil conditions, plant diversity, animal systems and by supporting other practices of stewardship to enhance farming and ranching;

**Directive C.** Developing, enhancing, conserving and restoring wildlife and fish habitat on private and public lands; and



**Directive D.** Conserving natural areas and creating other areas for recreation through the establishment and development of parks and other recreation areas.

## **EXEMPTIONS**

Outdoor Heritage Fund grants may not be used to finance the following:

- Litigation;
- Lobbying activities;
- Any activity that would interfere, disrupt, or prevent activities associated with surface coal mining operations; sand, gravel, or scoria extraction activities; oil and gas operations; or other energy facility or infrastructure development;
- The acquisition of land or to encumber any land for a term longer than twenty years; or
- Projects outside this state or projects that are beyond the scope of defined activities that fulfill the purposes of Chapter 54-17.8 of the North Dakota Century Code.

OHF funds may not be used, except after a finding of exceptional circumstances by the Industrial Commission, to finance:

- A completed project or project commenced before the grant application is submitted;
- A feasibility or research study;
- Maintenance costs;
- A paving project for a road or parking lot;
- A swimming pool or aquatic park;
- Personal property that is not affixed to the land;
- Playground equipment, except that grant funds may be provided for up to 25% of the cost of the equipment not exceeding \$10,000 per project and all playground equipment grants may not exceed 5% of the total grants per year (see Definitions/Clarifications for how this will be calculated);
- Staffing or outside consultants except for costs for staffing or an outside consultant to design and implement an approved project based on the documented need of the applicant and the expenditures may not exceed 5% of the grant to a grantee if the grant exceeds \$250,000 and expenditures may not exceed 10% of the grant to a grantee if the grant is \$250,000 or less (see Definitions/Clarifications for how this will be calculated);
- A building except for a building that is included as part of a comprehensive conservation plan for a new or expanded recreational project (see Definitions/Clarifications for definition of comprehensive conservation plan and new or expanded recreational project); or
- A project in which the applicant is not directly involved in the execution and completion of the project.

The goal of the Industrial Commission is that at a minimum 15% of the funding received for a biennium will be given priority for recreation projects that meet Directive D.

The following projects are not eligible for funding, unless there is a finding of exceptional circumstances by the Industrial Commission include:

- Construction or refurbishment of indoor/outdoor ice rinks,

- Construction or refurbishment of indoor/outdoor athletic courts and sports fields,
- Other substantially similar facilities.
- Infrastructure that is not part of a comprehensive conservation plan.
- Projects not meeting a minimum funding request of \$2,500.

## Budget Information

In-kind services used to match the request for Outdoor Heritage Fund dollars shall be valued as follows:

- Labor costs \$15.00 an hour
- Land costs Average rent costs for the county as shown in the most recent publication of the USDA, National Agricultural Statistics Services, North Dakota Field Office
- Permanent Equipment Any equipment purchased must be listed separately with documentation showing actual cost. (For example: playground equipment)
- Equipment usage Actual documentation
- Seed & Seedlings Actual documentation
- Transportation Mileage at federal rate
- Supplies & materials Actual documentation

More categories will be added as we better understand the types of applications that will be submitted. We will use as our basis for these standards other State and Federal programs that have established rates. For example, the North Dakota Nonpoint Source Pollution Management Program has established rates. If your project includes work that has an established rate under another State Program, please use those rates and note your source.

## Definitions/Clarifications:

Building - Defined as "A structure with a roof either with walls or without walls and is attached to the ground in a permanent nature."

Comprehensive Conservation Plan - Defined as "A detailed plan that has been formally adopted by the governing board which includes goals and objectives--both short and long term, must show how this building will enhance the overall conservation goals of the project and the protection or preservation of wildlife and fish habitat or natural areas." This does not need to be a complex multi-page document. It could be included as a part of the application or be an attachment.

New and Expanded Recreational Project means that the proposed building cannot be a replacement of a current building. The proposed building must also be related to either a new or expanded recreational project--either an expansion in land or an expansion of an existing building or in the opportunities for recreation at the project site.

Playground equipment calculation - Only the actual costs of the playground equipment (a bid or invoice showing the amount of the equipment costs must be provided) - cannot include freight or installation or surface materials or removal of old equipment, etc.

Staffing/Outside Consultants Costs - If you are requesting OHF funding for staffing or for an outside consultant, you must provide information in your application on the need for OHF funding to cover these costs. For example, if you are an entity that has engineering staff you must explain why you don't have sufficient staff to do the work or if specific expertise is needed or whatever the reason is for your entity to retain an outside consultant. If it is a request for reimbursement for staff time then a written explanation is required in the application of why OHF funding is needed to pay for the costs of that staff member(s)' time. **The budget form must reflect on a separate line item the specific amount that is being requested for staffing and/or the hiring of an outside consultant.** This separate line item will then be used to make the calculation of 5% or 10% as outlined in the law. Note that the calculation will be made on the grant less the costs for the consultant or staff.

## **Scoring of Grants**

**Oral Presentation.** Please note that you will be given an opportunity to make a ten-minute Oral Presentation at a meeting of the Outdoor Heritage Fund Advisory Board. These presentations are strongly encouraged.

**Open Record.** Please note that your application and any attachments will be open records as defined by law and will be posted on the Industrial Commission/Outdoor Heritage Fund website.

All applications will be scored by the Outdoor Heritage Fund Advisory Board after your ten-minute oral presentation. The ranking form that will be used by the Board is available on the website at <http://www.nd.gov/ndic/outdoor-infopage.htm> .

## **Awarding of Grants**

All decisions on requests will be reported to applicants no later than 30 days after Industrial Commission consideration. The Commission can set a limit on duration of an offer on each application or if there isn't a specific date indicated in the application for implementation of the project, then the applicant has until the next Outdoor Heritage Fund Advisory Board regular meeting to sign the contract and get the project underway or the commitment for funding will be terminated and the applicant may resubmit for funding. Applicants whose proposals have been approved will receive a contract outlining the terms and conditions of the grant.

## **Responsibility of Recipient**

The recipient of any grant from the Industrial Commission must use the funds awarded for the specific purpose described in the grant application and in accordance with the contract. The recipient cannot use any of the funds for the purposes stated under Exemptions on the first page of this application.

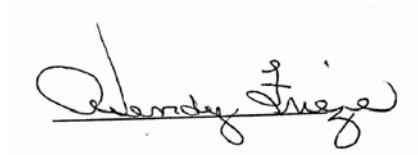
If you have any questions about the application or have trouble submitting the application, please contact Andrea Pfennig at 701-328-3786 or [apfennig@nd.gov](mailto:apfennig@nd.gov).

Revised: September 14, 2018

## Certification

The information contained in this grant application has been developed under the authority of the Hettinger County Water Resource District who will meet the financial and other program requirements of the Outdoor Heritage Fund Program. Technical support was provided by Mandar Nangare, of Barr Engineering Co., who is available to answer engineering and other technical related questions. Mr. Nangare can be contacted at (701) 255-5474

Signed:

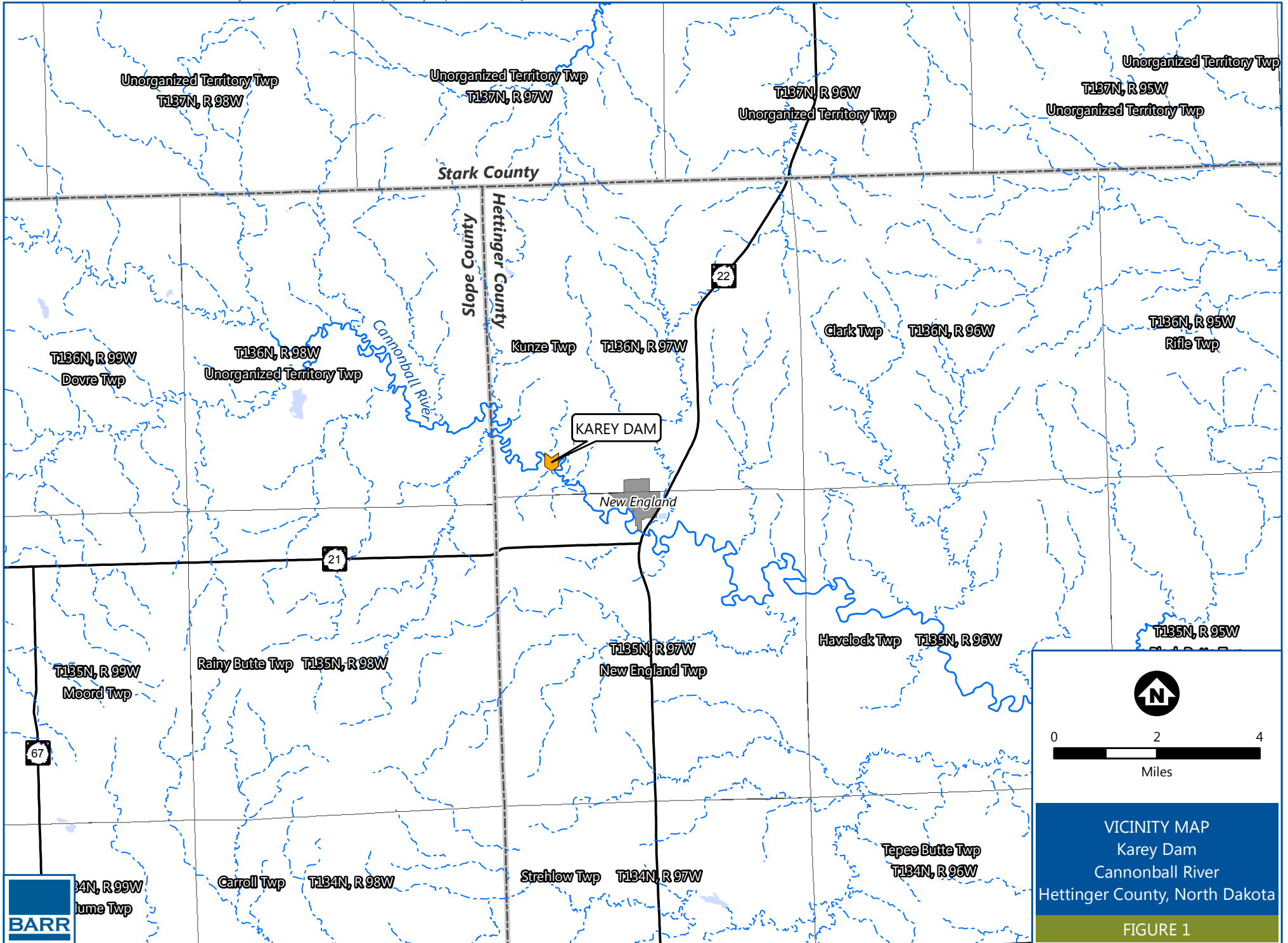
A handwritten signature in black ink, appearing to read "Wendy Frieze", written over a horizontal line.

Wendy Frieze,  
Secretary-Treasurer  
Hettinger County Water  
Resource Board

Date:

October 1, 2018

## **Appendix A Vicinity Map**



VICINITY MAP  
Karey Dam  
Cannonball River  
Hettinger County, North Dakota

FIGURE 1



**Appendix B**  
**Project Budget and**  
**Budget Breakdown**



**Proposed Budget – Outdoor Heritage Grant Application**  
**Karey Dam Rehabilitation**  
**Hettinger County Water Resource Board**  
 Hettinger County, North Dakota

Engineered Rock Ramp

Project Expense	Total	SWC Cost Share (75%)	OHF Request (\$180,000)	US FWS (\$50,000)	Hettinger County WRB (\$67,250)	Total Each Project Expense
Mobilization & Demobilization	\$ 85,000	\$ 63,750	\$ 11,250			\$ 85,000
Water Control	\$ 50,000	\$ 37,500	\$ 11,250			\$ 50,000
Temporary Erosion Control	\$ 20,000	\$ 15,000	\$ 11,250			\$ 20,000
Remove Existing Dam	\$ 130,000	\$ 97,500	\$ 11,250			\$ 130,000
Sediment Removal	\$ 60,000	\$ 45,000	\$ 11,250			\$ 60,000
Geotextile Fabric	\$ 7,500	\$ 5,625	\$ 11,250			\$ 7,500
Granular Filter for Rock Riffles	\$ 65,600	\$ 49,200	\$ 11,250			\$ 65,600
Base Rock for Rock Riffles	\$ 165,000	\$ 123,750	\$ 11,250			\$ 165,000
Boulders for Rock Riffles	\$ 108,500	\$ 81,375	\$ 11,250			\$ 108,500
Cobbles and Chinking Rock for Rock Riffles	\$ 10,400	\$ 7,800	\$ 11,250			\$ 10,400
Install Upstream Sheetpile Cutoff	\$ 50,000	\$ 37,500	\$ 11,250			\$ 50,000
Install Downstream Sheetpile Cutoff	\$ 50,000	\$ 37,500	\$ 11,250			\$ 50,000
Bank Grading and Miscellaneous Earthwork	\$ 30,000	\$ 22,500	\$ 11,250			\$ 30,000
Site Restoration	\$ 30,000	\$ 22,500	\$ 11,250			\$ 30,000
15% Construction Contingency	\$ 129,000	\$ 96,750	\$ 11,250			\$ 129,000
20% Engineering and Permitting	\$ 198,000	\$ 148,500	\$ 11,250			\$ 198,000
<b>Total Costs</b>	<b>\$ 1,189,000</b>	<b>\$ 891,750</b>	<b>\$ 180,000</b>	<b>\$ 50,000</b>	<b>\$ 67,250</b>	<b>\$ 1,189,000</b>





**Karey Dam Rehabilitation**  
**Hettinger County Water Resource Board**  
Hettinger County, North Dakota

*Engineer's Opinion of Probable Cost*  
Engineered Rock Ramp

	ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL COST
1	Mobilization & Demobilization	LS	1	\$ 85,000	\$ 85,000
2	Water Control	LS	1	\$ 50,000	\$ 50,000
3	Temporary Erosion Control	LS	1	\$ 20,000	\$ 20,000
4	Remove Existing Dam	LS	1	\$ 130,000	\$ 130,000
5	Sediment Removal	CY	3000	\$ 20	\$ 60,000
6	Geotextile Fabric	SY	2500	\$ 3	\$ 7,500
7	Granular Filter for Rock Riffles	CY	820	\$ 80	\$ 65,600
8	Base Rock for Rock Riffles	CY	2200	\$ 75	\$ 165,000
9	Boulders for Rock Riffles	EA	310	\$ 350	\$ 108,500
10	Cobbles and Chinking Rock for Rock Riffles	CY	130	\$ 80	\$ 10,400
11	Install Upstream Sheetpile Cutoff	SF	2000	\$ 25	\$ 50,000
12	Install Downstream Sheetpile Cutoff	SF	2000	\$ 25	\$ 50,000
13	Bank Grading and Miscellaneous Earthwork	LS	1	\$ 30,000	\$ 30,000
14	Site Restoration	LS	1	\$ 30,000	\$ 30,000
	Construction Cost Subtotal				\$ 862,000
	15% Construction Cost Contingency				\$ 129,000
	20% Engineering and Permitting				\$ 198,000
<b>Total</b>					<b>\$ 1,189,000</b>

**Appendix C**  
**Site Photos**



Photo 1: Karey Dam 04-26-2016 Cracking in right abutment



Photo 2: Karey Dam 06-08-2018 Collapsed right abutment



Photo 3: Karey Dam 06-08-2018 Spillway and eroded left abutment



Photo 4: Karey Dam 06-08-2018 Washed out spillway and eroding / collapsed abutments

## **Appendix D Preliminary Plans**

# KAREY DAM REHABILITATION PROJECT

## HETTINGER COUNTY WATER RESOURCE DISTRICT

### CANNONBALL RIVER

### NEW ENGLAND, NORTH DAKOTA

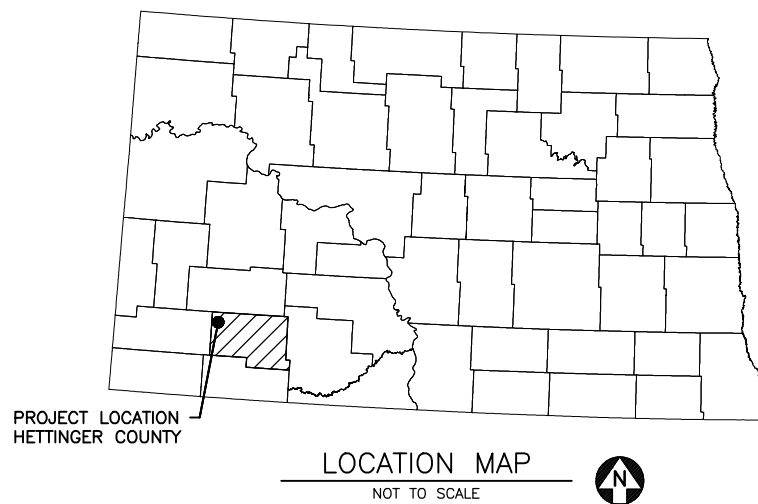


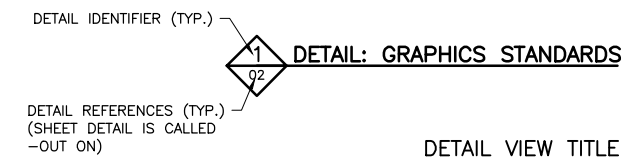
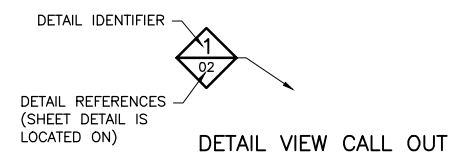
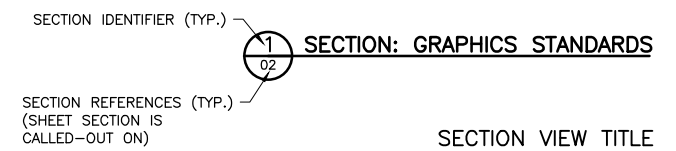
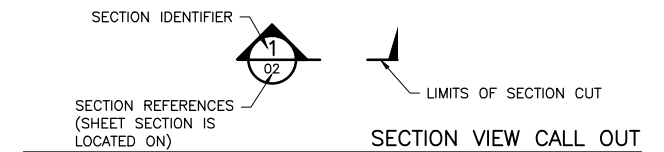
TABLE C-01

ABBREVIATIONS	
ABBREVIATION	DESCRIPTION
APPROX.	APPROXIMATE
AVE	AVENUE
ELEV.	ELEVATION
FT	FEET
NAVD	NORTH AMERICAN VERTICAL DATUM
NAD	NORTH AMERICAN DATUM
ND	NORTH DAKOTA
SW	SOUTH WEST
SF	SQUARE FEET
STA	STATION
TBD	TO BE DETERMINED
T.O.	TOP OF
TYP	TYPICAL
WSE	WATER SURFACE ELEVATION



**GENERAL NOTES:**

- LEFT BANK AND RIGHT BANK NOMENCLATURE IN THIS DRAWING SET REFERS TO THE LEFT AND RIGHT RIVER BANKS WHEN LOOKING DOWNSTREAM



SHEET INDEX

SHEET NUMBER	TITLE
C-01.....	TITLE SHEET
C-02.....	EXISTING CONDITIONS PLAN
C-03.....	PROJECT LAYOUT PLAN
C-04.....	DEMOLITION PLAN, ELEVATION AND SECTION
C-05.....	ROCK RIFFLE PLAN AND PROFILE
C-06.....	ROCK RIFFLE AND EARTHWORK SECTION AND DETAILS



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CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD-LOCATING ALL SITE UTILITIES,  
PRIVATE AND PUBLIC, PRIOR TO STARTING THE WORK. ALL UTILITIES SHOWN ON  
THE PLANS ARE APPROXIMATE. ANY UTILITIES DAMAGED BY CONTRACTOR SHALL  
BE REPAIRED BY CONTRACTOR TO THE SATISFACTION OF THE UTILITY OWNER.

<b>BARR</b>	Project Office:	Scale	AS SHOWN
	BARR ENGINEERING CO. 234 WEST CENTURY AVENUE BISMARCK, ND 58503	Date	8/23/2017
Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277 Fax: (701) 222-6371 www.barr.com	Drawn	ZJN	
	Checked	MTP2	
	Designed	MTP2	
	Approved	-	

**HETTINGER COUNTY WATER  
RESOURCE DISTRICT**  
MOTT, NORTH DAKOTA

**KAREY DAM REHABILITATION  
HETTINGER COUNTY, ND**  
TITLE SHEET

BARR PROJECT No. <b>34211001.00</b>	
CLIENT PROJECT No.	
DWG. No. <b>C-01</b>	REV. No. <b>A</b>

**30% DRAFT  
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NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
A	ZJN	MTP2	-	5/23/18	PRELIMINARY DRAFT - 30% DESIGN

CLIENT	5/23/18						
BID							
CONSTRUCTION							
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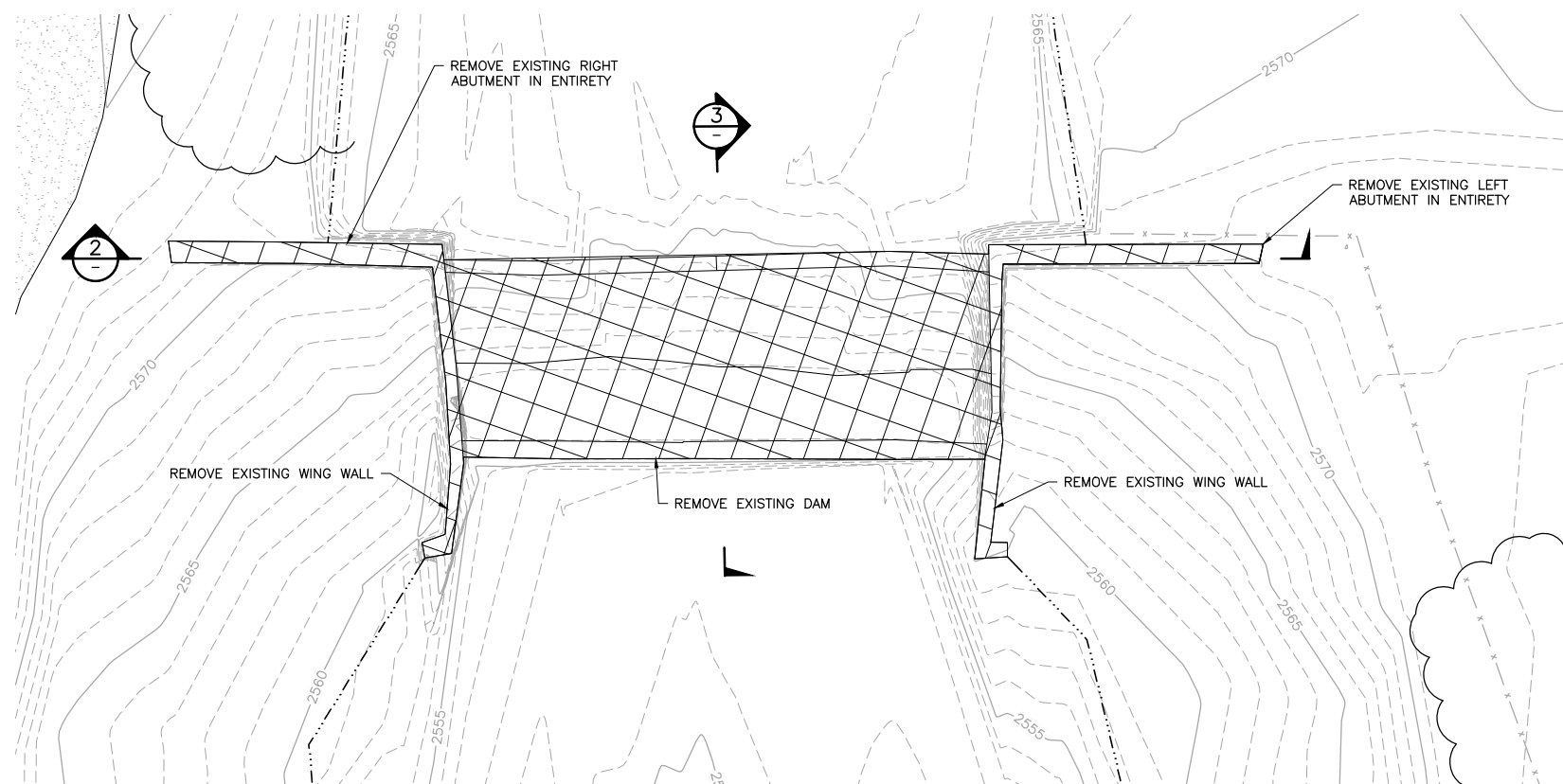




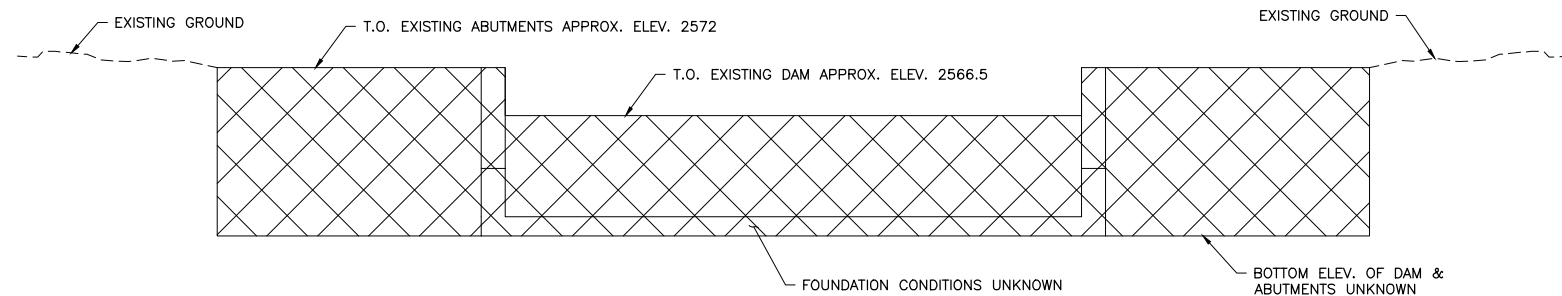


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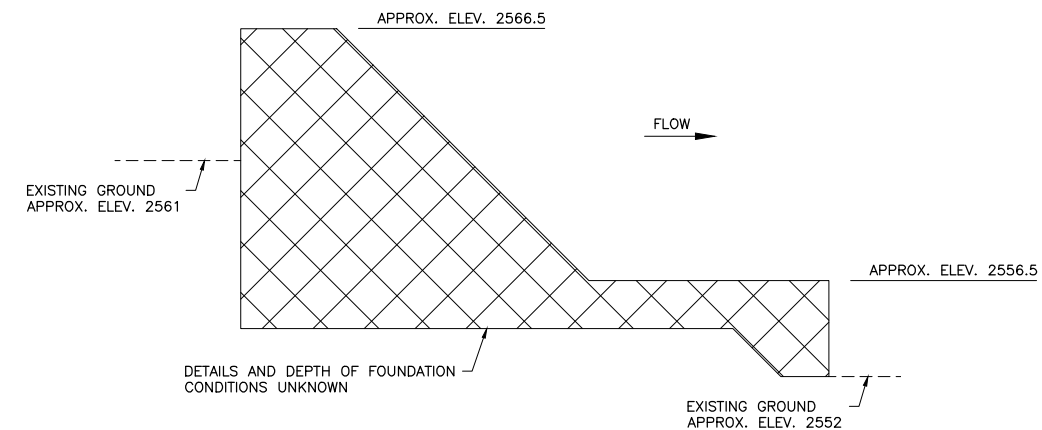
- 2560 — EXISTING MAJOR CONTOUR
- - - - - EXISTING MINOR CONTOUR
- x x x x x EXISTING FENCE
- ~ ~ ~ ~ ~ EXISTING TREE/BRUSH LINE
- · - · - · - EXISTING SHORELINE
- ▲ EXISTING CONTROL POINT
- ▨ EXISTING GRAVEL ROAD
- ▩ PROPOSED DEMOLITION/REMOVAL



**1 PLAN: DAM DEMOLITION**  
 C-03  
 0 10 20  
 SCALE IN FEET



**2 ELEVATION: DAM DEMOLITION**  
 0 10 20  
 SCALE IN FEET



**3 SECTION: EXISTING DAM**  
 0 2 4 6 8  
 SCALE IN FEET

- NOTES:**
1. REMOVE EXISTING DAM AND APPURTENANCES IN ENTIRETY UNLESS NOTED OTHERWISE.
  2. DAM WAS ORIGINALLY CONSTRUCTED OF ROCK MASONRY IN 1930. A GUNNITE SURFACING WAS ADDED IN THE MID 1980'S.
  3. ELEVATIONS AND DIMENSIONS SHOWN ARE APPROXIMATE AND BASED ON SURVEY DATA, HISTORIC PHOTOGRAPHS, AND RECENT SITE PHOTOGRAPHS.

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Project Office: <b>BARR ENGINEERING CO.</b> 234 WEST CENTURY AVENUE BISMARCK, ND 58503	Scale: AS SHOWN Date: 8/23/2017 Drawn: ZJN Checked: MTP2 Designed: MTP2 Approved: -
Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277 Fax: (701) 222-6371 www.barr.com	

**HETTINGER COUNTY WATER  
 RESOURCE DISTRICT**  
 MOTT, NORTH DAKOTA

**KAREY DAM REHABILITATION  
 HETTINGER COUNTY, ND**  
**DEMOLITION  
 PLAN, ELEVATION, AND SECTION**

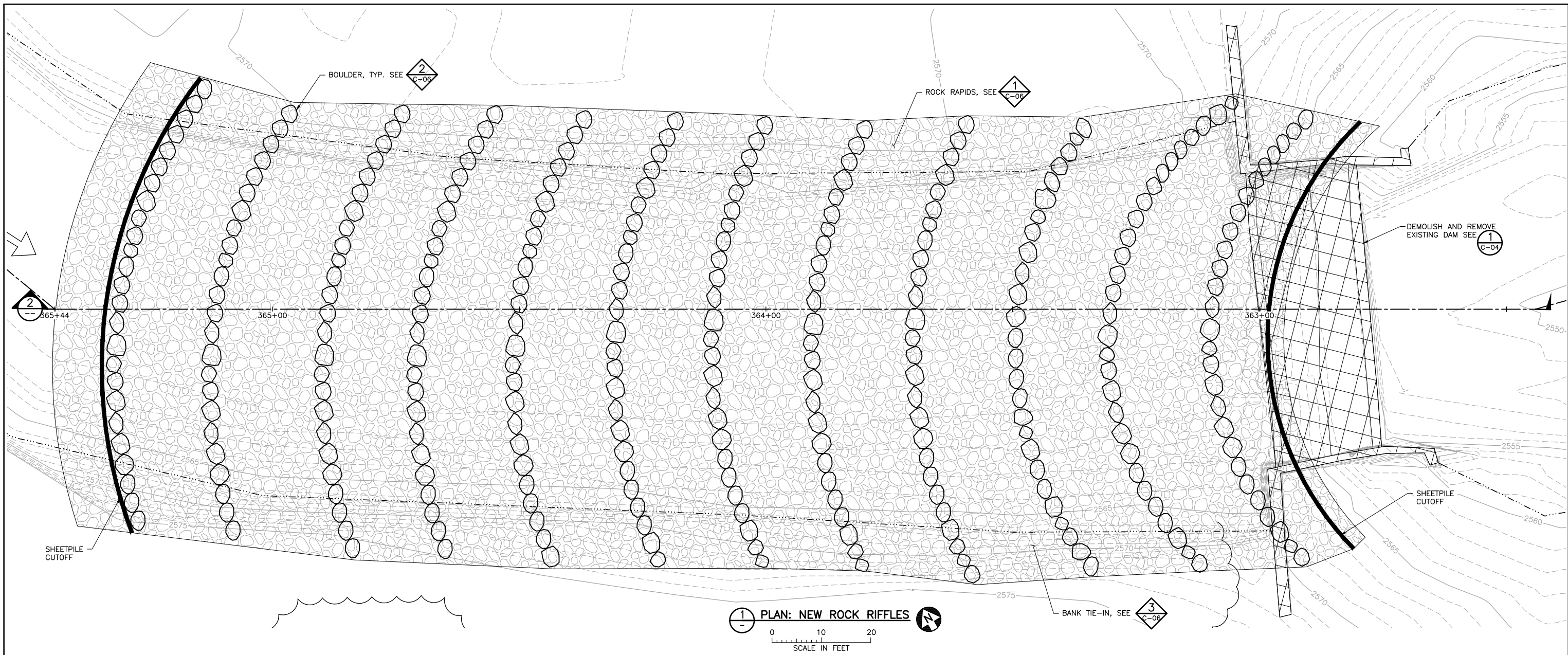
BARR PROJECT No. <b>34211001.00</b>	
CLIENT PROJECT No.	
DWG. No. <b>C-04</b>	REV. No. <b>A</b>

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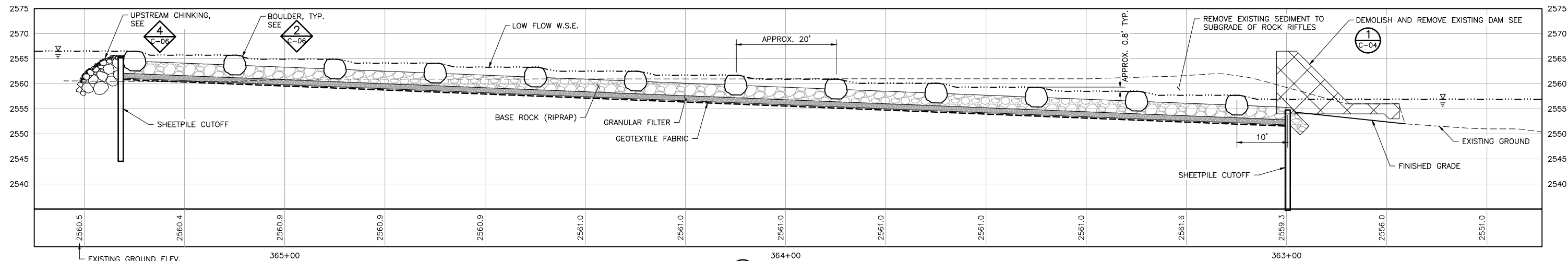
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CONSTRUCTION							
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CADD USER: Matt Peterson FILE: M:\DESIGN\34211001\34211001\_C-05.DWG PLOT SCALE: 1:2 PLOT DATE: 5/16/2018 8:48 AM  
 BAR M:\AutoCAD 2011\Support\enu\Template\Barr\_2011\_Template.dwt Plot at 1 10/05/2010 14:03:50



1 PLAN: NEW ROCK RIFFLES  
 0 10 20  
 SCALE IN FEET



2 PROFILE: NEW ROCK RIFFLES  
 0 10 20  
 SCALE IN FEET

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CONSTRUCTION	
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DATE RELEASED	

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 234 WEST CENTURY AVENUE  
 BISMARCK, ND 58503

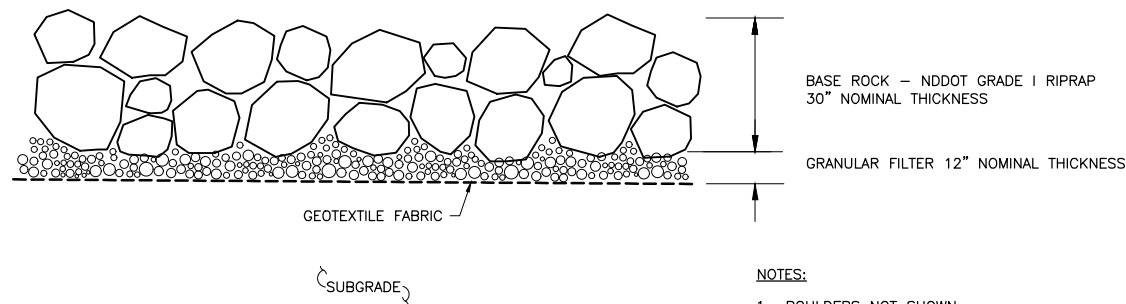
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 Date 8/23/2017  
 Drawn ZJN  
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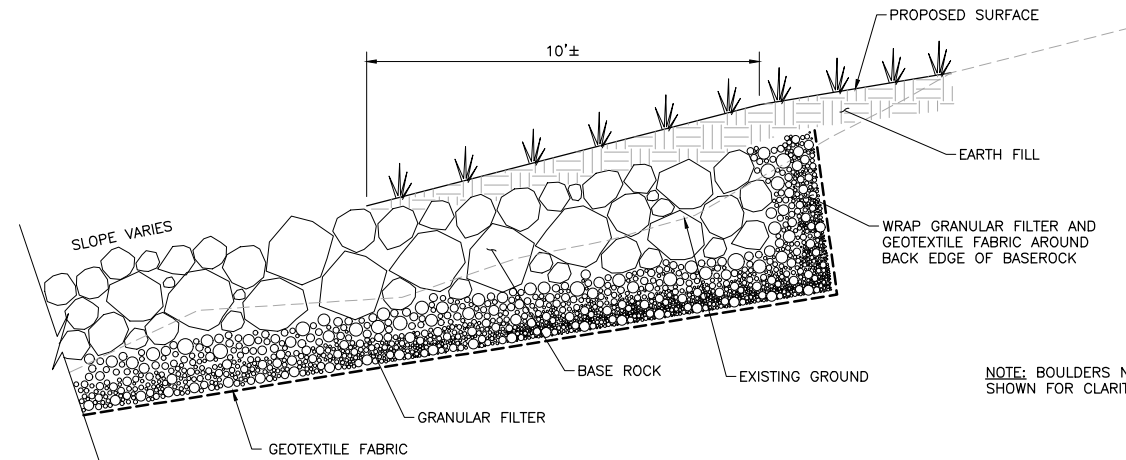
KAREY DAM REHABILITATION  
 HETTINGER COUNTY, ND  
 ROCK RIFFLE  
 PLAN AND PROFILE

BARR PROJECT No.	34211001.00
CLIENT PROJECT No.	
DWG. No.	C-05
REV. No.	A



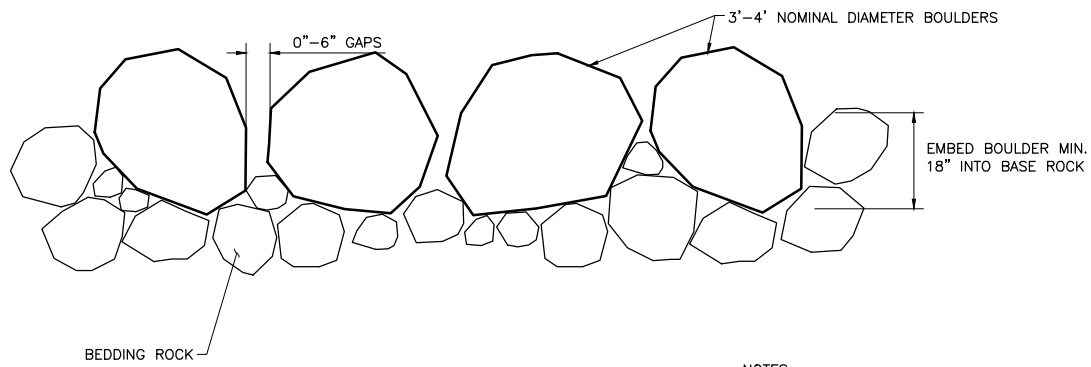
**1** **DETAIL: ROCK RAPIDS (TYP.)**  
C-05 N.T.S.

- NOTES:**
- BOULDERS NOT SHOWN
  - ENGINEER SHALL INSPECT THE SUBGRADE FOR APPROVAL BEFORE PLACEMENT OF GEOTEXTILE FABRIC.



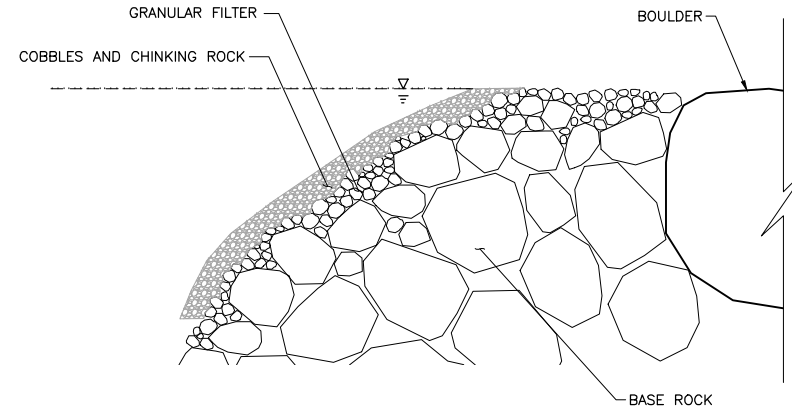
**3** **DETAIL: BANK TIE-IN (TYP.)**  
C-05 N.T.S.

NOTE: BOULDERS NOT SHOWN FOR CLARITY.



**2** **DETAIL: BOULDERS**  
C-05 N.T.S.

- NOTES:**
- BOULDER GAPS WILL BE ADJUSTED UNDER FLOW CONDITIONS AFTER ORIGINAL PLACEMENT UNDER THE DIRECTION OF THE ENGINEER
  - BOULDERS SHALL BE 4' - 5' NOMINAL DIAMETER FOR MOST UPSTREAM RIFFLE



**4** **DETAIL: UPSTREAM CHINKING**  
C-05 N.T.S.

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BISMARCK, ND 58503

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Approved	-

**HETTINGER COUNTY WATER  
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MOTT, NORTH DAKOTA

**KAREY DAM REHABILITATION  
HETTINGER COUNTY, ND**  
**ROCK RIFFLE AND EARTHWORK  
SECTION AND DETAILS**

BARR PROJECT No. <b>34211001.00</b>	
CLIENT PROJECT No.	
DWG. No. <b>C-06</b>	REV. No. <b>A</b>