

# 16-09: Fort Mandan and North Dakota 4-H Camp Access Road Improvement Project - Revised Budget

| Project Expense Description         | OHF Request                                    | Match Share (Cash) | Match Share (In-Kind) | Match Share (Indirect) | Other Project Sponsor's Share                  | Total Each Project Expense |
|-------------------------------------|--|--------------------|-----------------------|------------------------|--|----------------------------|
| <b>Total Construction</b>           | <del>\$204,167.86</del><br><b>\$266,823.87</b> | \$0.00             | \$0.00                | \$0.00                 | <del>\$207,137.09</del><br><b>\$144,481.07</b> | \$411,304.95               |
| <b>Engineering - Design</b>         | \$7,336.81                                     | \$0.00             | \$0.00                | \$0.00                 | \$23,511.06                                    | \$30,847.87                |
| <b>Engineering - Construction</b>   | \$0.00   | \$0.00             | \$0.00                | \$0.00                 | \$30,847.87                                    | \$30,847.87                |
| <b>Construction - Contingencies</b> | <del>\$0.00</del><br><b>\$82,260.99</b>        | \$0.00             | \$0.00                | \$0.00                 | <del>\$82,260.99</del><br><b>\$0.00</b>        | \$82,260.99                |
| <b>Survey</b>                       | \$0.00   | \$0.00             | \$0.00                | \$0.00                 | \$3,500.00                                     | \$3,500.00                 |
| <b>Permit Costs</b>                 | \$0.00   | \$7,000.00         | \$0.00                | \$0.00                 | \$0.00   | \$7,000.00                 |
| <b>Administrative</b>               | \$0.00   | \$2,000.00         | \$0.00                | \$0.00                 | \$0.00   | \$2,000.00                 |
| <b>Wetland Delineation</b>          | \$0.00   | \$5,000.00         | \$0.00                | \$0.00                 | \$0.00   | \$5,000.00                 |
| <b>Geotechnical Engineering</b>     | \$0.00   | \$6,000.00         | \$0.00                | \$0.00                 | \$0.00   | \$6,000.00                 |
|                                     | <del>\$211,504.67</del><br><b>\$356,421.67</b> | \$20,000.00        | \$0.00                | \$0.00                 | <del>\$347,257.01</del><br><b>\$202,340.00</b> | \$578,761.68               |

# 2746 - Fort Mandan and North Dakota 4-H Camp Access Road Improvement Project

## Application Details

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|                                      |  |                                |                       |
|--------------------------------------|--|--------------------------------|-----------------------|
| <b>Funding Opportunity:</b>          | 1307-Outdoor Heritage Fund March 2020 - Round 16 | <b>Initial Submit Date:</b>    | Mar 12, 2020 12:25 PM |
| <b>Funding Opportunity Due Date:</b> | Mar 16, 2020 3:00 PM                             | <b>Initially Submitted By:</b> | Shannon Jeffers       |
| <b>Program Area:</b>                 | Outdoor Heritage Fund                            | <b>Last Submit Date:</b>       | Mar 16, 2020 11:57 AM |
| <b>Status:</b>                       | Under Review                                     | <b>Last Submitted By:</b>      | Shannon Jeffers       |
| <b>Stage:</b>                        | Final Application                                |                                |                       |

## Contact Information

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### Primary Contact Information

|                      |   |
|----------------------|---|
| <b>Active User*:</b> | Yes   |
| <b>Type:</b>         | External User   |
| <b>Name*:</b>        | Mr. Shannon Middle Name<br>Salutation First Name<br>Jeffers<br>Last Name                      |
| <b>Title:</b>        |   |
| <b>Email*:</b>       | swjeffers@tutanota.com  |
| <b>Address*:</b>     | 533 6th St NE<br><br>Garrison North Dakota<br>City State/Province<br>58540<br>Postal Code/Zip |
| <b>Phone*:</b>       | 701-460-0923 Ext.<br>Phone<br>### ### ####<br>### ### ####                                    |
| <b>Fax:</b>          | ### ### ####  |

### Organization Information

|                              |  |
|------------------------------|--|
| <b>Status*:</b>              | Approved   |
| <b>Name*:</b>                | McLean County Water Resource Board   |
| <b>Organization Type*:</b>   | County Government  |
| <b>Tax Id:</b>               |  |
| <b>Organization Website:</b> | https://www.mcleancountynd.gov/  |
| <b>Address*:</b>             | 712 5th Avenue<br><br>Washburn North Dakota<br>City State/Province<br>58577<br>Postal Code/Zip |
| <b>Phone*:</b>               | 701-462-8541 Ext.<br>### ### ####  |
| <b>Fax:</b>                  | ### ### ####   |

**Comments:**

## Budget

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**Objective of Grant**

**Objective of Grant:**

To eliminate flooding at two adjacent recreation areas created by entrance roads blocking a stream. By eliminating flooding provide improved access to use areas within state owned or managed recreation areas.

**Summary**

**Grant Request:** \$211,504.67

**Matching Funds:** \$367,257.01

**Total Project Costs:** \$578,761.68

You must have at least 25% match

**Percentage of Match:** 63.46%

**Project Expenses**

| Project Expense Description | OHF Request         | Match Share (Cash) | Match           |                        | Other Project Sponsor's Share | Total Each Project Expense |
|-----------------------------|---------------------|--------------------|-----------------|------------------------|-------------------------------|----------------------------|
|                             |                     |                    | Share (In-Kind) | Match Share (Indirect) |                               |                            |
| Total Construction          | \$204,167.86        | \$0.00             | \$0.00          | \$0.00                 | \$207,137.09                  | \$411,304.95               |
|                             | <b>\$211,504.67</b> | <b>\$20,000.00</b> | <b>\$0.00</b>   | <b>\$0.00</b>          | <b>\$347,257.01</b>           | <b>\$578,761.68</b>        |

| Project Expense Description  | OHF Request         | Match Share (Cash) | Match           |                        | Other Project Sponsor's Share | Total Each Project Expense |
|------------------------------|---------------------|--------------------|-----------------|------------------------|-------------------------------|----------------------------|
|                              |                     |                    | Share (In-Kind) | Match Share (Indirect) |                               |                            |
| Engineering - Design         | \$7,336.81          | \$0.00             | \$0.00          | \$0.00                 | \$23,511.06                   | \$30,847.87                |
| Engineering - Construction   | \$0.00              | \$0.00             | \$0.00          | \$0.00                 | \$30,847.87                   | \$30,847.87                |
| Construction - Contingencies | \$0.00              | \$0.00             | \$0.00          | \$0.00                 | \$82,260.99                   | \$82,260.99                |
| Survey                       | \$0.00              | \$0.00             | \$0.00          | \$0.00                 | \$3,500.00                    | \$3,500.00                 |
| Permit Costs                 | \$0.00              | \$7,000.00         | \$0.00          | \$0.00                 | \$0.00                        | \$7,000.00                 |
| Administrative               | \$0.00              | \$2,000.00         | \$0.00          | \$0.00                 | \$0.00                        | \$2,000.00                 |
| Wetland Delineation          | \$0.00              | \$5,000.00         | \$0.00          | \$0.00                 | \$0.00                        | \$5,000.00                 |
| Geotechnical Engineering     | \$0.00              | \$6,000.00         | \$0.00          | \$0.00                 | \$0.00                        | \$6,000.00                 |
|                              | <b>\$211,504.67</b> | <b>\$20,000.00</b> | <b>\$0.00</b>   | <b>\$0.00</b>          | <b>\$347,257.01</b>           | <b>\$578,761.68</b>        |

**Budget Narrative**

**Budget Narrative:**

This is a cooperative effort between the McLean County Water Resource Board, North Dakota Parks and Recreation Department, NDSU Extension Center for 4-H Youth Development and the North Dakota 4-H Foundation to provide safe access to the adjacent Fort Mandan State Recreation Area and North Dakota 4-H Camp facilities. These facilities are important to North Dakota on a state wide basis. They share similar needs and whose managers must jointly address adequate drainage associated with Buffalo Creek which the access roads for both facilities substantially block. Significant flooding results from the blockage that is detrimental to recreation access and area public and private lands.

These organizations funded, along with partial support from the State Water Commission, a study that identified a preferred solution for addressing the problem. This grant request is for support needed to implement the preferred solution. The budget represents the multiagency nature of the project. An additional partial support for the construction of the access road improvements to the Fort Mandan Recreation Area was received from the Special Road Fund in January 2020. This grant program managed by the North Dakota Department of Transportation supports needed improvements to dead end access roads for historic and recreation areas.

**Bid Attachments**

| Description        | File Name | Type | Size | Upload Date |
|--------------------|-----------|------|------|-------------|
| No files attached. |           |      |      |             |

**Match Funding**

| Match Amount        | Funding Source                     | Match Type |
|---------------------|------------------------------------|------------|
| \$20,000.00         | McLean County Water Resource Board | Cash       |
| <b>\$367,257.01</b> |                                    |            |

**Match Amount Funding Source**

**Match Type**

\$212,913.01 ND State Water Commission

Cash

\$134,344.00 NDDOT Special Road Fund

Cash

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**\$367,257.01**

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***In-Kind***

**In-Kind Total:**

**Description**

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***Directives***

**Major Directive\*:**

Directive C  
Choose One

**Additional Directive:**

Choose All That Apply

**Type of Agency\*:**

Political Subdivision  
Choose One

***Abstract/Executive Summary***

**Abstract/Executive Summary\*:**

Fort Mandan and the 4-H Camp are neighboring facilities with similar issues related to their respective access roads. Design standards used when the roads were constructed about 50 years ago resulted in grossly inadequate centerline culverts at crossings of Buffalo Creek. The presence of the significantly undersized culverts has led to frequent and substantial flooding of public recreation land and neighboring private lands.

The objective of the project is to provide reliable access to important recreation facilities by constructing adequate stream crossings for the access roads. A relatively short design and construction program (5 months duration) will provide the drainage needed to meet the objective for a total cost of \$578,761.69.

This is a cooperative effort between the McLean County Water Resource Board, North Dakota Parks and Recreation, NDSU Extension Center for 4-H Youth Development and the North Dakota 4-H Foundation to provide safe access to the adjacent Fort Mandan and 4-H Camp facilities. Additional financial support has also been obtained through the North Dakota Department of Transportation Special Road Fund and has been requested from the State Water Commission.

At Fort Mandan, visitors can step back in time at the reconstructed Fort Mandan, a fully furnished, full-size replica of the fort in which the Lewis and Clark Expedition overwintered in 1804-1805. Their time here was characterized by the hospitality of the Mandan and Hidatsa peoples. In fact, this is where they met and built friendships with such important figures as Sacagawea, Toussaint Charbonneau, and Sheheke-Shote. Self-guided and interpreter-led tours are part of the experience.

Many great learning experiences are available at Fort Mandan. Guided tours depart at regular intervals throughout the day. Interpretive staff are always on hand to bring the stories of that winter to life through programs on a wide array of related topics.

The North Dakota 4-H Camp is owned by the North Dakota 4-H Foundation, Inc. The camp has been in existence at this site since the late 1960s with its ownership transferred to the Foundation in 2011. The camp underwent a renovation program in 2014 to modernize all of the existing buildings and to add a new multi-season complex named the Johnsrud 4-H Education Center. The modest complex provided additional meeting and sleeping capabilities.

NDSU Extension is responsible for all educational programming at the 4-H camp. 4-H Youth education creates supportive learning environments for all youth and adults to reach their full potential as capable, competent and caring citizens. In support of this mission, NDSU Extension Service 4-H Youth Development programs provide the following actions:

- Reach out to all segments of our diverse population
- Provide experiential learning
- Provide opportunities to develop skills and values that benefit youth throughout life
- Foster leadership and volunteerism in youth and adults

### ***Project Duration***

#### **Project Duration\*:**

Final design would occur in late June and July of 2020. Project bidding would occur in August of 2020. Construction would occur in September and October of 2020, with final completion in November 2020. Total expected duration of the project from the start of design to the end of construction would be five months.

# Narrative

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## **Narrative**

Briefly summarize your organization's history, mission, current programs and activities. Include an overview of your organizational structure, including board, staff and volunteer involvement.

### **Organization Information\*:**

The McLean County Water Resource District (McLean WRD) has been in existence for many decades and is governed by a three person board. It has the responsibility within McLean County to manage, conserve, protect, develop and control waters of the state, both navigable and non-navigable, surface or subsurface, the control of floods, the prevention of damage to property therefrom, all to the benefit of public purposes. It is the policy of the McLean WRD to provide for management, conservation, protection, development and control of water resources on a watershed basis, to work cooperatively with other resource agencies to strengthen and mutually support related programs, and to protect and promote the health, safety and general welfare of the people of North Dakota.

The McLean WRD 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 McLean WRD does not have staff, but does obtain financial management services from the McLean County Auditor. To accomplish the program goals the McLean WRD retains professional services for legal and engineering needs when necessary.

Important ongoing projects include the Painted woods Lake Flood Damage Reduction Project, management of the Yanktonai Dam which is rated as having significant hazard, and formulating drainage management in the Upper Turtle Creek Watershed.

### **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.

If your project involves an extenuating circumstance to exempted activities please explain.

### **Purpose of Grant\*:**

The purpose of the grant is to eliminate flooding at two adjacent recreation areas created by entrance roads blocking a stream. By eliminating flooding provide improved access to use areas within state owned or managed recreation areas. Secondary benefits of the project include restoring streamflows to a natural channel and eliminating gulying by overland flows on public and private lands.

Fort Mandan and the 4-H Camp are neighboring facilities with similar issues related to their respective access roads. Age, design standards used when the roads were constructed and inadequate centerline culverts are the factors creating the need for the Project. The 4-H camp access road was constructed in 1968 and the access road to Fort Mandan was constructed in 1972. With the roads being about 50-years old, there is a need for them to be improved.

The major issue is flooding which is greatly aggravated by the access roads to Fort Mandan and the 4-H Camp. Buffalo Creek has a watershed area more than 43 square miles, which generates substantial flood flows. For example, for township class roads, which these access roads are, the present design standard is to size culverts to convey a 10-year peak flow. At the Project site the 10-year peak flow is 460 cubic feet per second (cfs). Both access road have a hydraulic capacity significantly lower than needed (less than half) to convey the typical design flood flows of the watershed.

There are 3 road crossings of Buffalo Creek in the Project area, including County Road 17, which is the upstream of the Fort Mandan and 4-H Camp access roads. The access road to Fort Mandan is the middle crossing of the three, and the 4-H Camp access road the lower crossing. The county road has a 17-ft wide by 8-ft high open bottom arch culvert. In comparison, the Fort Mandan access road has two 48-inch corrugated metal pipe (CMP) culverts and the 4-H Camp access road has a single 24-inch CMP culvert on the stream. At the 4-H Camp access road there are also two 48-inch CMP culverts at the edge of the Buffalo Creek floodplain approximately 230-ft south of the channel. During periods when Buffalo Creek is flooding the access roads block the stream and force water to leave the channel on the upstream side of the roads. Floodwaters then flow south into the respective facilities where repetitive damages occur. A detailed description of the flooding issue is found in the supporting documentation, where a 2018 memorandum regarding the flooding is found.

For the Fort Mandan access road the preliminary design calls for the existing CMP culverts to be replaced with a 12-ft wide by 4-ft high reinforced concrete box culvert which has been designed to adequately convey a 10-year recurrence interval peak flow. The box culvert will have a bend on the upstream side to orient the culvert with the upstream channel. There will be flared end sections on both ends of the culvert to improve the hydraulic efficiency of the culvert. Rip rap will be placed on upstream and downstream sides of the road embankment and at the culvert entrance and exit to prevent scour and erosion at the stream channel. The entrance section of the road ditch leading into the recreation area will be filled.

Based on the preliminary design the 4-H Camp access road embankment will be excavated at the culvert location to remove the existing 24-inch diameter culvert and replace it with a 12-ft wide by 4-ft high reinforced concrete box culvert. This size box culvert was selected because it adequately conveys the 10-year peak flow and prevents overflow into the area of the camp with structures. End sections will be installed on the ends of the new box culvert to improve its hydraulic efficiency. Rip rap will be placed on upstream and downstream sides of the road embankment and at the culvert entrance and exit to prevent scour and erosion at the stream channel.

**Please list the counties that would be impacted by this project:**

**Counties\*:** McLean

**Is This Project Part of a** No

**Comprehensive Conservation**

**Plan?\***



**Does Your Project Involve an Extenuating Circumstance?\*** No

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.

**Management of Project\*:**

Management of the final design and construction would be by the McLean WRD, supported by the services of an engineering firm selected following the requirements of the North Dakota Century Code 54-44.7. This grant application is being prepared with the assistance of Ulteig Engineering and led by their Project Manager Roger Clay, PE. Mr. Clay was the principal author of the feasibility study completed for this project, and has been completing surface water management engineering projects for over 30 years.

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.

**Sustainability\*:**

The nature of the project results in an outcome that requires little maintenance. Maintenance of the Fort Mandan Park Access Road is completed by the McLean County Highway Department. Maintenance of the 4-H Camp Access Road is completed by the 4-H Foundation.

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

**Partial Funding\*:**

The requested grant would support the final design and construction of improved access roads to the two recreation areas. Additional project partners would be sought if less funding is available than that requested.

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

**Partnership Recognition\*:**

The project will provide signage near the access road entrances that names all project sponsors. The annual visitation received at the two facilities, which is approximately 40,000, will result in high visibility of the project and signage, with the Outdoor Heritage Fund listed as a project partner.

Do you have any supporting documents, such as maps or letters of support that you would like to provide? If so, please provide them in a single file.

**Supporting Documents\*:** Yes

**If Yes, Please Provide Copies in a Single File:** McLean OHF Grant Application Supporting doc.pdf

Awarding of Grants - Review the appropriate sample contract for your organization. Sample Contract

**Can You Meet All the Provisions of the Sample Contract?\*** Yes

## Tasks

### Tasks

| <b>Task</b>          | <b>Start Date</b> | <b>Completion Date</b> |
|----------------------|-------------------|------------------------|
| Design and Bidding   | 09/21/2020        | 11/13/2020             |
| Project Construction | 06/22/2020        | 08/28/2020             |

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### ***Description of Tasks***

#### **Please Describe Tasks:**

1. Final Design and Bidding

Final design will involve preparation of plans and specifications. Construction contract documents will be combined with the plans and specifications to create a bid package. Resultant bids will be reviewed by all project sponsors for selection of a qualified low bidder.

2. Construction

Construction will be completed in the fall to correspond with the least disruptive time to ongoing facility activities and favorable streamflow conditions.

### **Deliverables**

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#### ***Deliverables***

| <b>Deliverable</b>   | <b>Quantity</b> | <b>Unit of Measurement, if applicable</b> |
|----------------------|-----------------|---|
| Final Design         | 1.000           | Bid Documents Complete                    |
| Project Bidding      | 1.000           | Selection of Qualified Low Bidder         |
| Project Construction | 1.000           | Project Construction Complete             |

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### **Certification**

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#### ***Certification***

**Certification:** Yes

**Name:** Shannon Jeffers  
First Name Last Name

**Title:** McLean County Water Board Mngr.  
Title

**Date:** 03/16/2020

#### ***Internal Application Number***

**#/ID:** 16-09

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# **Fort Mandan and North Dakota 4-H Camp Access Roads Improvement Project**

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Prepared by

McLean County Water Resource Board

North Dakota Parks and Recreation Department

NDSU Extension – Center for 4-H Youth Development

North Dakota 4H Foundation

March 2020



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### Appendices

- Appendix A – February 14, 2018 Memorandum regarding flooding of Lower Buffalo Creek
- Appendix B – Detailed Budget Breakdown and Opinion of Cost for Combined Project

## SECTION A – BASIC INFORMATION

### 1. Project Name

The Project Name is Fort Mandan and 4-H Camp Access Roads Improvement Project (Project).

This is a cooperative effort between the McLean County Water Resource Board, North Dakota Parks and Recreation, NDSU Extension Center for 4-H Youth Development and the North Dakota 4-H Foundation to provide safe access to the adjacent Fort Mandan and 4-H Camp facilities. These facilities are important to North Dakota on a state wide basis and share similar needs and whose managers need to jointly address adequate drainage associated with Buffalo Creek which the access roads for both facilities cross.

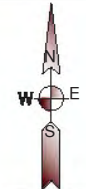


4-H Camp – Johnsrud Education Center

### 2. Project Location

The project is located approximately 2 miles west of the City of Washburn on McLean County Road 17, which is also known as 8<sup>th</sup> Street SW (see Figure 1). The access road to the North Dakota 4-H Camp is 1.4 miles west of State Trunk Highway (STH) 200 and the access road to Fort Mandan State Park is 2.4 miles west of STH 200. Both access roads dead end at the respective facilities and provide the only way to enter and leave these park and recreation facilities.





**Figure 1**  
Project Location

Special Road Fund  
Grant Application  
Mclean County, North Dakota

### **3. & 4. Project Contacts and Sponsors**

The following are the project contacts and sponsors:

- a. McLean County – coordinating sponsor

Shannon Jeffers, Member  
McLean County Water Resource Board  
Garrison, ND 58540  
701-460-0923, [shannonw\\_jeffers@yahoo.com](mailto:shannonw_jeffers@yahoo.com)

- b. Fort Mandan State Park Access Road

Ryan Gardner  
North Dakota Parks and Recreation Department  
1600 E. Century Avenue, Suite 3  
Bismarck, ND 58503  
701-328-3190, [rjgardner@nd.gov](mailto:rjgardner@nd.gov)

<https://www.parkrec.nd.gov/lewis-clark-interpretive-center>

- c. North Dakota 4-H Camp Access Road

Terry Gisvold  
North Dakota 4-H Camp  
2702 8<sup>th</sup> Street SW  
Washburn, ND 58577  
701-737-9390, [Terry.gisvold@ndsu.com](mailto:Terry.gisvold@ndsu.com)

[https://www.ndsu.edu/4h/website\\_master/camp/](https://www.ndsu.edu/4h/website_master/camp/)

- d. Engineer

Roger A. Clay, PE  
Ulteig Engineers  
3350 38<sup>th</sup> Avenue S  
Fargo, ND 58104  
701-451-8387, [roger.clay@ulteig.com](mailto:roger.clay@ulteig.com)



## SECTION B – DETAILED INFORMATION

### 5. Project Description

#### a. Introduction

Fort Mandan and the 4-H Camp are neighboring facilities with similar issues related to their respective access roads. Age, design standards used when the roads were constructed and significantly inadequate centerline culverts are the factors creating the need for the Project. The 4-H camp access road was constructed in 1968 and the access road to Fort Mandan was constructed in 1972. With the roads being about 50-years old, there is a need for them to be improved.

The major issue is flooding which is greatly aggravated by the access roads to Fort Mandan and the 4-H Camp. Buffalo Creek has a watershed area more than 43 square miles, which generates substantial flood flows. For example, for township class roads, which these access roads are, the present design standard is to size culverts to convey a 10-year peak flow. At the Project site the 10-year peak flow is 460 cubic feet per second (cfs). Both access road have a hydraulic capacity significantly lower than needed to convey even the 10-year peak flow.

There are 3 road crossings of Buffalo Creek in the Project area, including County Road 17, which is the upstream of the Fort Mandan and 4-H Camp access roads (Figure 1). The access road to Fort Mandan is the middle crossing of the three, and the 4-H Camp access road the lower crossing. The county road has a 17-ft wide by 8-ft high open bottom arch culvert. In comparison, the Fort Mandan access road has two 48-inch corrugated metal pipe (CMP) culverts and the 4-H Camp access road has a single 24-inch CMP culvert on the stream. At the 4-H Camp access road there are also two 48-inch CMP culverts at the edge of the Buffalo Creek floodplain approximately 230-ft south of the channel. During periods when Buffalo Creek is flooding the access roads block the stream and force water to leave the channel on the upstream side of the roads. Floodwaters then flow south into the respective facilities where repetitive



Floodwaters Flowing Into Fort Mandan Park On Upstream Side of Access Road



damages occur. A detailed description of the flooding issue is found in Appendix A, where a 2018 memorandum regarding the flooding is found.



Example Flood Damages In Fort Mandan Park

The Project will involve providing clear zones and improving the center line culverts for both access roads. A description of the work for each access road is found in the following sections.

b. Fort Mandan State Park Access Road

Presently the centerline road profile of the Fort Mandan access road is relatively flat. Improvements will not include raising the centerline profile elevation of the road embankment. The side slopes of the road embankment at the Buffalo Creek channel are approximately 2:horizontal to 1:vertical or less and will be increased to 3:horizontal to 1:vertical. An Army Corps of Engineers Section 404 Permit will be required to allow the side slope work. The asphalt road surface will be removed in the area where the culverts are replaced and road embankment side slopes improved. The road will be repaved with asphalt where the road surface is removed.

For the Fort Mandan access road the preliminary design calls for the existing CMP culverts to be replaced with a 12-ft wide by 4-ft high reinforced concrete box culvert which has been designed to adequately convey a 10-year recurrence interval peak flow. The box culvert will have a bend on the upstream side to orient the culvert with the upstream channel. There will be flared end sections



Fort Mandan Access Road at Buffalo Creek

on both ends of the culvert to improve the hydraulic efficiency of the culvert. Rip rap will be placed on upstream and downstream sides of the road embankment and at the culvert entrance and exit to prevent scour and erosion at the stream channel. Entrance section of the road ditch leading into the recreation area will be filled to further reduce break out flows into park areas.

c. North Dakota 4-H Camp Access Road

The access road to the 4-H camp starts on a hill side above the camp and slopes down to the elevation of the camp. The road embankment has a gravel surface and is up to 20-ft high with side slopes steeper than 3: horizontal to 1: vertical.

Based on the preliminary design the access road embankment will be excavated at the culvert location to remove the existing 24-inch diameter culvert and replace it with a 12-ft wide by 4-ft high reinforced concrete box culvert. This size box culvert was selected because it adequately conveys the 10-year peak flow and prevents overflow into the area of the camp with structures. End sections will be installed on the ends of the new box culvert to improve its hydraulic efficiency. Rip rap will be placed on upstream and downstream sides of the road embankment and at the culvert entrance and exit to prevent scour and erosion at the stream channel.





Debris Screen For Existing 24-Inch CMP at 4-H Camp

Material excavated from the road embankment will be salvaged and used to rebuild the embankment. The road surface will be restored using Class 5 surface course.

## 6. Project Cost

A combined detailed Opinion of Probable Construction Cost for the improvements at both sites is found in Appendix B. The improvements for the two sites will be bid as one project. Table 1 on page 10 provides details of the proposed budget for the project.

## 7. Supporting Data

### a. Fort Mandan State Recreation Area

#### a1. Historical Context and Programs

Visitors can step back in time at the reconstructed Fort Mandan, a fully furnished, full-size replica of the fort in which the Lewis and Clark Expedition overwintered in 1804-1805. Their time here was characterized by the hospitality of the Mandan and Hidatsa peoples. In fact, this is where they met and built friendships with such important figures as Sacagawea, Toussaint Charbonneau, and Sheheke-Shote.

Many great learning experiences are available at Fort Mandan. Guided tours depart at regular intervals throughout the day. Interpretive staff are always on hand to bring the stories of that winter to life through programs on a wide array of related topics.

**Table 1 - Proposed Budget - Outdoor Heritage Fund Grant Application**

March 2020

Fort Mandan and North Dakota 4-H Camp Access Roads Improvement Project

McLean County Water Resource District

|                                  | Engineer's Opinion of Probable Cost | Funding Contribution |                              |                         |             |               |
|----------------------------------|-------------------------------------|----------------------|------------------------------|-------------------------|-------------|---------------|
| Project Expense                  | Access Road Improvements            | OHF Request          | State Water Commission Grant | NDDOT Special Road Fund | Local Match | Total Funding |
| Total Construction               | \$411,304.95                        | \$204,167.86         | \$72,793.09                  | \$134,344.00            |             | \$411,304.95  |
| Engineering - Design             | \$30,847.87                         | \$7,336.81           | \$23,511.06                  |                         |             | \$30,847.87   |
| Engineering - Construction       | \$30,847.87                         |                      | \$30,847.87                  |                         |             | \$30,847.87   |
| Construction Contingencies (20%) | \$82,260.99                         |                      | \$82,260.99                  |                         |             | \$82,260.99   |
| Survey                           | \$3,500.00                          |                      | \$3,500.00                   |                         |             | \$3,500.00    |
| Permit Costs                     | \$7,000.00                          |                      |                              |                         | \$7,000.00  | \$7,000.00    |
| Administrative                   | \$2,000.00                          |                      |                              |                         | \$2,000.00  | \$2,000.00    |
| Wetland Delineation              | \$5,000.00                          |                      |                              |                         | \$5,000.00  | \$5,000.00    |
| Geotechnical Engineering         | \$6,000.00                          |                      |                              |                         | \$6,000.00  | \$6,000.00    |
| Totals                           | \$578,761.68                        | \$211,504.67         | \$212,913.01                 | \$134,344.00            | \$20,000.00 | \$578,761.68  |

At Fort Mandan, self-guided and interpreter-led tours take you back in time to Lewis & Clark’s winter home nestled in the Cottonwood forest along the Missouri River.

a2. Visitation

Visitation data show Fort Mandan to be a truly national and international destination. Almost 80 percent of the visitation is from outstate and international users. The paid admission numbers (actual visitors at Fort Mandan) and demographic percentages are based on data collected through point of sale system and the total use is a formula using physical observations of vehicle traffic.

Table 2  
Fort Mandan Visitation Statistics

| Category         | Year  |       |
|------------------|-------|-------|
|                  | 2017  | 2018  |
| Total Visitation | 33152 | 39303 |
| Paid Admissions  | 13131 | 12812 |
| % in state       | 22    | 28    |
| % out of state   | 73    | 66    |
| % international  | 5     | 6     |

b. North Dakota 4-H Camp Access Road

b1. Programs

NDSU Extension is responsible for all educational programming on the 4-H camp property. 4-H Youth Development education creates supportive learning environments for all youth and adults to reach their full potential as capable, competent and caring citizens. In support of this mission, NDSU Extension Service 4-H Youth Development programs provide the following actions:

- Reach out to all segments of our diverse population
- Provide experiential learning

- Provide opportunities to develop skills and values that benefit youth throughout life
- Foster leadership and volunteerism in youth and adults
- Strengthen families and communities
- Use science and research based knowledge and the land grant university system
- Build internal and external partnerships for programming and funding

The North Dakota 4-H Camp is owned by the North Dakota 4-H Foundation, Inc. The camp has been in existence at this site since the late 1960s with its ownership transferred to the Foundation in 2011. The camp underwent a renovation program in 2014 to modernize all of the existing buildings and to add a new multi-season complex named the Johnsrud 4-H Education Center. The modest complex provided additional meeting and sleeping capabilities. Private and public funds for the renovations and the new complex were raised including \$950,000 appropriated by the North Dakota Legislature in 2013 and over \$1.4 million in private donations raised by the North Dakota 4-H Foundation. Construction was completed in 2015. A new multi-use pole building was added in 2016 to support livestock, shooting sports and other outdoor activities.

b2. Visitation

Recent visitation for the facility is provided in Table 2.

Table 3  
4-H Camp Visitation Statistics

| Category                           | Year |      |      |
|------------------------------------|------|------|------|
|                                    | 2017 | 2018 | 2019 |
| Campers                            | 556  | 447  | 559  |
| Adult Staff                        | 113  | 91   | 113  |
| Archery Tournament                 |      |      |      |
| Archers                            | 153  | 137  | 147  |
| Adults/other                       | 370  | 325  | 350  |
| Ambassador Retreat (Youth 16-20yr) |      |      |      |
| Youth                              | 24   |      | 75   |
| Adult                              | 4    |      | 6    |

There are also rentals of facilities available to the general public, which typically range from 11-13 per rentals per year. Statistics are not kept on the number of people participating in the rentals. However, some of the rentals involve large groups such as a touring bicycling group (approximately 300 people) and reunions as large as 500 people.

## **8. Matching Funds**

Matching funds have been obtained through the Special Road Fund (\$134,344) for construction cost for the Fort Mandan access road, another \$212,913 has been requested from the State Water Commission, and there is a local match of \$20,000. The total matching funds are \$367,257.

## **9. Right of Way Needs**

Both access roads have the right-of-way or own the property needed for construction and maintenance of the roads. No additional right-of-way is needed for either access road.

## **10. Maintenance of Project**

### **a. Fort Mandan State Park Access Road**

Maintenance of the Fort Mandan Park Access Road is completed by the McLean County Highway Department. Contact information for the county highway department is as follows:

James Grey, Highway Superintendent  
McLean County Courthouse  
712 5<sup>th</sup> Avenue  
Washburn, ND 58577  
701-462-8541

[jagrey@nd.gov](mailto:jagrey@nd.gov)

### **b. North Dakota 4-H Camp Access Road**

Maintenance of the 4-H Camp Access Road is completed by the 4-H Foundation. Contact information for the maintenance activities at the 4-H Camp is as follows:

Terry Gisvold  
North Dakota 4-H Camp  
2702 8<sup>th</sup> Street SW  
Washburn, ND 58577  
701-737-9390

## **11. Letters of Reference**



By resolution the McLean County Commission approves and supports the Lower Buffalo Creek Flood Mitigation Projects that include the Fort Mandan access road project and the ND 4-H Camp Road improvement and drainage projects.

The McLean County Commission will act as a sponsor to the McLean County Water Resource Board for securing grants for these projects thru The North Dakota Department of Transportation Special Road Fund projects. These grant funds along with other granting agencies will help complete the pre engineering, design and construction phases of these projects.

By this directive the McLean County Commission as the sponsor will sign the cost participation agreement with the NDDOT Special Road Fund. The McLean County Water Resource Board will sign other participating grant agreements, Engineering, and Contractor work forms.

Dated 11-5-2019

By  Chairman

August 30, 2019

Pam Wenger  
Local Government Division  
North Dakota Department of Transportation  
608 East Boulevard Avenue  
Bismarck, ND 58505-0700

Subject: Fort Mandan and 4-Camp Access Roads Improvement Project

Dear Grant Application Reviewer,

McLean County is a strong supporter of the Fort Mandan Park Area and North Dakota 4-H Camp Access Roads Improvement Project. Fort Mandan, which is associated with the Lewis and Clark Interpretive Center, is a historically important facility to North Dakota. The North Dakota 4-H Camp provides recreational and learning opportunities for North Dakota youth. Both of these facilities are economically important to McLean County because they are enjoyed by county residents and because they draw visitors from all over North Dakota and other nearby states. In the case of Fort Mandan, visitors come to our community from every state and internationally.

McLean County has concerns with the existing access roads to these facilities because they block the normal flow of Buffalo Creek, and because they do not meet safety requirements for clear zones. The access roads were constructed about 50-years ago and culverts were installed that are considerably too small to convey the flows from the Buffalo Creek watershed, which is over 40 square miles in size. During flood conditions water is forced from the creek by inadequate culverts and diverted into park and camp property where damages occur. In the case of Fort Mandan, flood damages are occurring every year. There are many vehicles accessing these two facilities every year and the access roads side slopes in the area of Buffalo Creek are over steep, and a hazard to visitors

McLean County supports the proposed improvements to the two access roads which would control the flooding issues and provide visitors to the two facilities a safe environment as they enter and leave. Fort Mandan and the 4-H Camp are outstanding assets to McLean County and we believe the proposed work is of high importance, and deserving Special Road Fund grant support.

Sincerely,



Steve Lee

Chairperson McLean County Commission  
367 11<sup>th</sup> Avenue NW  
Mercer, ND 58559

August 30, 2019

Pam Wenger  
Local Government Division  
North Dakota Department of Transportation  
608 East Boulevard Avenue  
Bismarck, ND 58505-0700

Subject: Fort Mandan and 4-Camp Access Roads Improvement Project

Dear Grant Application Reviewer,

I am a strong supporter of the Fort Mandan Park Area and North Dakota 4-H Camp Access Roads Improvement Project. Fort Mandan, which is associated with the Lewis and Clark Interpretive Center, is a historically important facility to North Dakota. The North Dakota 4-H Camp provides recreational and learning opportunities for North Dakota youth. Both of these facilities are economically important to the District I serve because they are enjoyed by area residents and because they draw visitors from all over North Dakota and other nearby states. In the case of Fort Mandan, visitors come to our community from every state and internationally.

Our community has concerns with the existing access roads to these facilities because they block the normal flow of Buffalo Creek, and because they do not meet safety requirements for clear zones. The access roads were constructed about 50-years ago and culverts were installed that are considerably too small to convey the flows from the Buffalo Creek watershed, which is over 40 square miles in size. During flood conditions water is forced from the creek by inadequate culverts and diverted into park and camp property where damages occur. In the case of Fort Mandan, flood damages are occurring every year. There are many vehicles accessing these two facilities every year and the access roads side slopes in the area of Buffalo Creek are over steep, and a hazard to visitors

I support the proposed improvements to the two access roads which would control the flooding issues and provide visitors to the two facilities a safe environment as they enter and leave. Fort Mandan and the 4-H Camp are outstanding assets to our community and we believe the proposed work is of high importance and deserving Special Road Fund grant support.

Sincerely,



Howard C. Anderson, Jr.  
District 8 Senator  
2107 Seventh Street NW  
Turtle Lake, ND 58575-9667

## Appendix A

### Memorandum Describing Feasibility of Alternatives



Consulting Engineering • Land Surveying  
925 10<sup>th</sup> Avenue East, West Fargo, ND 58078  
T: 701-282-4692 F: 701-282-4530

# Memorandum

**Date:** February 14, 2018

**To:** File: 19834 100.04

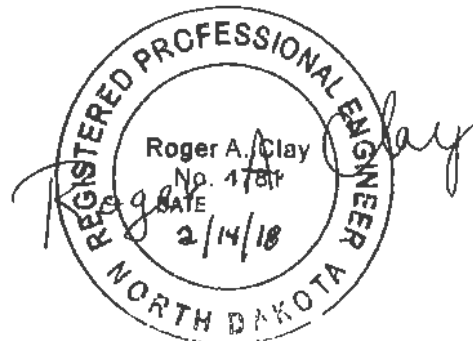
**From:** Roger Clay, PE

**RE:** Lower Buffalo Creek Flood Mitigation Project  
Project 19834, McLean County Water Resource District

I hereby certify that this report was prepared by me or under my direct supervision, and that I am a duly Registered Professional Engineer under the laws of the State of North Dakota.

Roger A. Clay, PE  
ND Registration No. PE-4781

Date: Feb 14, 2018



## 1. Introduction

Fort Mandan State Park and the 4H Camp just west of Washburn suffer from recurrent flood damages from Buffalo Creek, particularly after winters of moderate to heavy snowfall. Buffalo Creek is a significant stream having a watershed over 40 square miles in size. The access roads for both facilities cross Buffalo Creek. Flooding from Buffalo Creek causes damages at Fort Mandan when flood waters leave the channel and flow south along the west side of the park access road. Damages at Fort Mandan State Park include flooding of park facilities such as access roads, parking and picnic areas, and hiking trails. Park buildings can become surrounded by flood waters. At the 4H Camp flood waters flow across the southern end of the access road temporarily blocking access to the camp and flooding areas used for program activities.

Flood waters leave the stream channel just upstream of the access roads at both locations because of significantly undersized culverts. The result is severe gully and erosion damage at multiple locations. The flood damages are associated with and aggravated by the access road embankments to these two

2.10 A field review of the Buffalo Creek channel downstream of the 4H Camp access road in July 2017 showed the channel to be in good condition. No obstructions to flow at the 4H Camp access road were observed.

### **3. Discussion of flooding at Fort Mandan**

- 3.1 When Buffalo Creek floods, high water overflows south along the west side of the Fort Mandan access road, past the road to the playground area, to the area of the trail system. From there floodwaters goes west and south to the Missouri River. There has been erosion in the road ditch, severe washout of trails, and head cutting of a new channel starting at the Missouri River and up into the trail system.
- 3.2 The overflow south along the Fort Mandan Road has occurred during spring snow melt flooding every year at least since 2002. One reason for the overflow is that one culvert is submerged and the other largely submerged and water freezes in the pipes. Spring flooding occurs prior to the culverts thawing.
- 3.3 The county highway department has indicated they plan to add end sections to the 48-inch culverts under the access road and remove sediment accumulated in them.
- 3.4 Riprap has been placed in the inlet area of west road side ditch on the south side of the Buffalo Creek crossing. The riprap helps prevent erosion damage when water overflows from the creek into the west road side ditch.
- 3.5 Ravine head cutting has continued to occur every year, with the head cut progressing on the order of 10 feet per year. A trail was moved over 20-30-ft in 2015, and the head cut has progressed up to the trail since then.
- 3.6 Park staff believe the west road side ditch has partially filled with sediment over time.
- 3.7 In 2011, when the Missouri River was flooding, some flood waters flowed west from Buffalo Creek from the Fort Mandan access road. Flood waters from the Missouri River flowed north along the Fort Mandan access road to Buffalo Creek.
- 3.8 Changing the invert elevations to be used for the new culvert(s) can result in improved hydraulic capacity of the crossing, but the new invert elevations must be in balance with the elevation of the road ditch on the west side of the access road south of Buffalo Creek.
- 3.9 Creation of an earthen "wing wall" with rip rap protection just south of the culverts would improve the hydraulics of the culverts and inhibit the flow of water down the access road ditch.
- 3.10 In filling of the west side access road ditch south of Buffalo Creek will have raised its grade (elevation). Leaving the sediment in place will inhibit floodwater from flowing down the access road.

### **4. Discussion of flooding at the 4H Camp**

- 4.1 Buildings have not been flooded, but the creek channel upstream of the 24-inch culvert can hold water a long time. The 24-inch culvert is subject to plugging with branches and other debris.

6.5 While there will need to be some fill in wetlands adjacent to the Fort Mandan access road preliminary calculations indicate the fill will impact less than 0.1 acres, the threshold for wetland mitigation requirements. It is therefore anticipated that wetland restoration will not need to be included in the project.

Lower Buffalo Creek Flood Management Alternatives

10/31/2017

| No. | Alternative   | Priority | Complexity | Benefits                                     | Constraints                                  | Relative Costs | Specifics       | Other Considerations   |
|-----|---|----------|------------|--|--|----------------|-----------------|--|
| 1   | Replace culverts at Ft Mandan entrance road   | High     | Low        | Maximize flow east down Buffalo Creek        | Construction Easement                        | Mod High       | Concrete Box    | Provide capacity for 10-year peak flow, water freezes in existing culverts, box culvert provides greatest capacity per foot of height, adjust culvert invert elevations from existing conditions, 40-ft long |
| 2   | Replace 2-ft diameter culvert at 4H Camp entrance road  | High     | Low        | Maximize flow east down Buffalo Creek        | Construction Easement                        | High           | Arch/3 sided    | Provide capacity for 10-year peak flow, natural downstream channel capacity is still present, plenty of cover so can use arch/3 sided pipe, CMP has lower capital cost but shorter life span, 170-ft long    |
| 3   | Excavate channel between Ft Mandan to 4H camp roads   | Low      | Moderate   | Minimal                                      | 404 Permit, easements, disposing waste soil  | High           |                 | If upsize culverts channel will naturally enlarge  |
| 4   | Excavate channel south along Ft Mandan road to Missouri River - straight south to river           | Low      | Moderate   | Provides second outlet                       | Restricted right-of-way                      | High           |                 | Enlarging channel would encourage water to flow this route, loss of trees  |
| 5   | Excavate channel south along Ft Mandan road to Missouri River - bend west at road to day use area | Low      | Moderate   | Provides second outlet                       | Restricted right-of-way                      | Higher than 4  |                 | Enlarging channel would encourage water to flow this route, greater loss of trees  |
| 6   | Reconstruct Ft Mandan Road to adjust profile  | Moderate | Low        | Limit ability of water to freeze in culverts | Construction easement                        | Moderate       | + or - one foot | Raise invert elevation of culverts, must be balanced with elevation of road side ditch   |
| 7   | Regrade west side Ft Mandan Rd ditch from creek to road   | Low/Mod. | Low        | Clean out ditch                              |  | Low            |                 | Leaving accumulated sediment in place will inhibit southward flow of flood waters  |
| 8   | Excavate channel from 8th St SW to former western Buffalo Creek outlet                            | Low      | High       | Provides second outlet                       | Easement, land owner may view as detrimental | Very high      |                 |  |
| 9   | Repair gully erosion and put preventive measures in place   | High     | Medium     | Prevent further gully erosion                | Identifying flow routes                      | Moderate       |                 | May need to grade or place berms to direct flow to desired location(s). Potential loss of trees.   |



# Appendix B

Detailed Budget Breakdown and Opinion of Probable Cost for Combined Project

**Fort Mandan and 4-H Camp Access Roads Improvement Project**  
**Fort Mandan Access Road Improvements**  
**Washburn, ND**

9/25/2019

Engineer's Opinion of Probable Cost

| Bid Item Number                            | Description                              | Unit  | Quantity | Unit Price  | Total               |
|--|--|-------|----------|-------------|---------------------|
| 260.0100                                   | Silt Fence Unsupported                   | LF    | 300      | \$2.10      | \$630.00            |
| 262.0100                                   | Floatation Silt Screen                   | LF    | 100      | \$12.60     | \$1,260.00          |
| 702.0100                                   | Mobilization                             | L SUM | 1        | \$21,000.00 | \$21,000.00         |
| 201.0331                                   | Clearing and Grubbing-Site 1             | L SUM | 1        | \$2,100.00  | \$2,100.00          |
| 201.0332                                   | Clearing and Grubbing-Site 2             | L SUM | 1        | \$2,100.00  | \$2,100.00          |
| 202.0132                                   | Removal of Bituminous Surface-Full Depth | SY    | 106      | \$5.25      | \$556.50            |
| 202.0153                                   | Saw Bituminous Surfacing-Full Depth      | LF    | 38       | \$6.30      | \$239.40            |
| 202.0170                                   | Removal of Culverts-All Types & Sizes    | LF    | 211      | \$21.00     | \$4,431.00          |
| 203.0125                                   | Remove & Salvage Topsoil                 | CY    | 285      | \$31.50     | \$8,977.50          |
| 260.0101                                   | Remove Silt Fence Unsupported            | LF    | 300      | \$0.37      | \$110.25            |
| 262.0101                                   | Remove Flotation Silt Curtain            | LF    | 100      | \$1.68      | \$168.00            |
| 210.0051                                   | Box Culvert Excavation - Site 1          | CY    | 4700     | \$4.20      | \$19,740.00         |
| 210.0210                                   | Foundation Fill                          | CY    | 61       | \$31.50     | \$1,921.50          |
| 230.0300                                   | Subgrade Preparation-Type A              | STA   | 0.5      | \$1,050.00  | \$525.00            |
| 256.0200                                   | Riprap Grade II                          | CY    | 50       | \$57.75     | \$2,887.50          |
| 302.0121                                   | Aggregate Base Course CI 5               | CY    | 20       | \$42.00     | \$840.00            |
| 302.0321                                   | Aggregate Surface Course CI 5            | CY    | 10       | \$42.00     | \$420.00            |
| 302.0405                                   | Salvage & Relay Aggregate Surface Course | CY    | 72       | \$31.50     | \$2,268.00          |
| 302.0410                                   | Salvage & Relay Aggregate Base Course    | CY    | 36       | \$31.50     | \$1,134.00          |
| 312213.1300                                | Embankment - Import                      | CY    | 810      | \$42.00     | \$34,020.00         |
| 706.1024                                   | Riprap-Loose Rock-Salvaged               | CY    | 10       | \$21.00     | \$210.00            |
| 401.0050                                   | Tack Coat                                | GAL   | 6        | \$2.10      | \$12.60             |
| 430.5828                                   | Pg 58-28 Asphalt Cement                  | TON   | 35       | \$420.00    | \$14,700.00         |
| 606.0804                                   | 6Ft X 4Ft Precast Rcb Culvert            | LF    | 168      | \$663.60    | \$111,484.80        |
| 606.2704                                   | 12Ft X 4Ft Precast Rcb Culvert           | LF    | 60       | \$964.95    | \$57,897.00         |
| 606.4804                                   | 6Ft X 4Ft Precast Rcb End Section        | EA    | 2        | \$16,800.00 | \$33,600.00         |
| 606.6704                                   | 12Ft X 4Ft Precast Rcb End Section       | EA    | 2        | \$21,000.00 | \$42,000.00         |
| 752.0920                                   | Fence Remove & Reset                     | L SUM | 1        | \$2,100.00  | \$2,100.00          |
| 764.0115                                   | 3-Cable Guardrail                        | LF    | 1320     | \$21.00     | \$27,720.00         |
| 253.0100                                   | Straw Mulch                              | SY    | 3380     | \$0.11      | \$354.90            |
| 255.0102                                   | Ecb Type 2                               | SY    | 3380     | \$3.15      | \$10,647.00         |
| 704.1100                                   | Traffic Control                          | L SUM | 1        | \$5,250.00  | \$5,250.00          |
| Total Construction                         |  |       |          |             | \$411,304.95        |
| Design & Construction Engineering (15%)    |  |       |          |             | \$61,695.74         |
| Permits - NDDOT Utility & Hydraulic Report |  |       |          |             | \$5,000.00          |
| Storm Water Pollution Prevention Plan      |  |       |          |             | \$2,000.00          |
| Boundary Survey                            |  |       |          |             | \$3,500.00          |
| Advertising & Publishing                   |  |       |          |             | \$2,000.00          |
| Soil Borings & Geotechnical Report         |  |       |          |             | \$6,000.00          |
| Wetland Delineation                        |  |       |          |             | \$5,000.00          |
| Construction Contingencies (20%)           |  |       |          |             | \$82,260.99         |
| <b>Total Site 1 Project Cost</b>           |  |       |          |             | <b>\$578,761.68</b> |