



## Recommended Contracting Actions

Date: December 20, 2017

Description	Company	Budget Estimate (\$)
<b>Task Order – Diversion Authority</b>		
<b>Flowage Easements Valuation</b> <b>Task Order 1 – Amendment 0</b> <ul style="list-style-type: none"> <li>• Flowage Easements Valuation – Phase 1</li> </ul>	Crown Appraisals, Inc.	<b>\$500,000.00</b>
<b>Construction Change Orders – Diversion Authority</b>		
<b>WP 42F1N – Flood control, 2<sup>nd</sup> St N, North of Pump Station</b> <b>Change Order 07</b> <ul style="list-style-type: none"> <li>• Final Unit Price quantity balancing</li> <li>• Additional fiber optic conduit and cable</li> <li>• Additional sidewalk traffic control</li> <li>• Additional vibration monitoring</li> </ul>	Industrial Builders, Inc.	<b>\$6,875.42</b>
<b>WP 43CD – OHB ring Levee Phases C &amp; D</b> <b>Change Order 02</b> <ul style="list-style-type: none"> <li>• Incorporate previously approved WCD-001 and WCD-002</li> <li>• Add additional borrow pit stripping</li> <li>• Add additional utility removals, protection, relocations and damage repair</li> <li>• Add temporary access road</li> </ul>	Meyer Contracting	<b>\$508,207.56</b>
<b>WP 42A.2 – 2<sup>nd</sup> St North Pump Station</b> <b>Change Order 12</b> <ul style="list-style-type: none"> <li>• Modify lubrication system</li> <li>• Add a submersible transducer</li> <li>• Furnish track rack guides</li> </ul>	Industrial Builders, Inc.	<b>\$12,898.48</b>
<b>Total</b>		<b>\$527,981.46</b>



## Recommended Contracting Actions

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Date: December 20, 2017

Description	Company	Budget Estimate (\$)
<b><i>Task Order – Diversion Authority</i></b>		
<b>Flowage Easements Valuation Task Order 1 – Amendment 0</b> <ul style="list-style-type: none"><li>Flowage Easements Valuation – Phase 1</li></ul>	Crown Appraisals, Inc.	<b>\$500,000.00</b>

**Technical Advisory Group Recommendation**

Meeting Date: 12/15/2017

**RECOMMENDATION FOR ACTION:**

The Technical Advisory Group has reviewed and recommends approval of the following Contract Action(s).

**SUMMARY OF CONTRACTING ACTION:**

Per the contract review and approval procedures that were adopted by the Diversion Authority on November 10, 2016, the Owner’s Program Management Consultant (PMC) and/or Co-Executive Directors shall submit a proposed Contract relating to engineering, architectural, and other professional services to the Finance Committee for review. The Finance Committee shall then submit its recommendation and the proposed Contract to the Diversion Authority Board for approval. In this instance, the PMC is submitting this professional services contract to TAG for review prior to Finance Committee.

The Owner’s Representative has reviewed and recommends the following Contract Action(s):

<b>Description</b>	<b>Budget Estimate (\$)</b>
<p><b>Crown Appraisals, Inc.</b></p> <p><i>Task Order 1 - Amendment 0</i></p> <ul style="list-style-type: none"> <li>Flowage Easements Valuation – Phase 1</li> </ul>	<p><b>\$500,000</b></p>

**Summary of Contracting History and Current Contract Action:**

Original Agreement or Amendment	Previous Project Cost	Budget (\$) Change	Revised Project Cost	Project Start	Project Completion	Comments
Task Order 1, Amendment 0	0.00	0.00	\$500,000	21-Dec-17	31-Aug-18	Flowage Easements Valuation – Phase 1

**BACKGROUND AND DISCUSSION:**

The Fargo-Moorhead Area Flood Diversion Project (Project) requires retention of flood waters within a staging area upstream of the metro area during extreme events. The upstream retention of flood waters is necessary to mitigate downstream impacts from operation of the Project. The Diversion Authority is required to mitigate the impacts of upstream flood water retention. Part of the mitigation includes purchasing permanent flowage easements for the right to periodically and temporarily store water on the land in the upstream mitigation area.

In recognition of the need to better estimate the value of flowage easements, the Diversion Authority and Cass County Joint Water Resource District (CCJWRD) issued a request for qualifications for appraisal services in July 2017. Four proposals were received and reviewed in September 2017, and the proposal from Crown Appraisals, Inc. was the top ranked. The RFQ and original proposals were developed based on the Project prior to the federal court injunction, and therefore the contracting action was put on hold. Subsequently, with the encouragement from the Governors’ Task Force, additional discussions indicated a strong desire and need to start the process of defining flowage easement values. As such, the original proposal from Crown Appraisals, Inc. was split into phases.

The Diversion Authority recognizes that establishing an appropriate value for the flowage easements is a complex and important task. The Diversion Authority also recognizes that the exact location of the upstream mitigation area will be defined upon further detailed technical analysis, hydraulic modeling, and permitting of changes to the Project resulting from the Flood Diversion Task Force established by the Governors’ of Minnesota and North Dakota. In recognition of these considerations, the Diversion Authority believes it is prudent to start the process of valuing flowage easements by authorizing Consultant to conduct Phase 1 of the flowage easements valuation services.

Phase 2 of the flowage easements valuation services is anticipated to include utilizing the results from Phase 1 to streamline the production of individual property valuation reports. It is anticipated that an Amendment would be issued to authorize Phase 2 services after the exact location, boundaries, and operation of the upstream mitigation area is determined through detailed technical analysis, hydraulic modeling, and permitting. Commencing with Phase 1 now will allow the data gathering and regression model development to proceed in a parallel timeframe to the technical hydraulic modeling.

**FINANCIAL CONSIDERATIONS:**

Crown Appraisals, Inc. provided a proposal for flowage easement valuation services, based on attached draft Task Order 1, Amendment 0. The PMC reviewed the proposed services and fees, and considers them reasonable for the scope of work.

The table below shows the recommended Amendment budgets.

Flowage Easement Valuation	Activity ID	Current Budget (\$)	Change (\$)	Revised Budget (\$)
Phase 1		500,000		
<b>TOTAL</b>		<b>500,000</b>		

This amount of \$500,000 is included in the proposed FY-2018 MFDA budget.

**ATTACHMENT(S):**

1. DRAFT MSA
2. DRAFT Task Order 1 Amendment 0

Submitted by:

*John W. Glatzmaier*  
\_\_\_\_\_  
John Glatzmaier  
CH2M  
Metro Flood Diversion Project

December 15, 2017  
\_\_\_\_\_  
Date

\_\_\_\_\_  
Nathan Boerboom, Diversion Authority Project  
Manager  
Concur: \_\_\_\_\_ Non-Concur: \_\_\_\_\_

\_\_\_\_\_  
Robert Zimmerman, Moorhead City Engineer  
Concur: December 15, 2017 Non-Concur \_\_\_\_\_

\_\_\_\_\_  
Mark Bittner, Fargo Director of Engineering  
Concur: \_\_\_\_\_ Non-Concur: \_\_\_\_\_

\_\_\_\_\_  
Jason Benson, Cass County Engineer  
Concur: December 15, 2017 Non-Concur \_\_\_\_\_

\_\_\_\_\_  
David Overbo, Clay County Engineer  
Concur: \_\_\_\_\_ Non-Concur: \_\_\_\_\_

\_\_\_\_\_  
Jeff Ebsch, Assistant Cass County Engineer, Diversion  
Authority Project Manager  
Concur: December 15, 2017 Non-Concur \_\_\_\_\_

Crown Appraisals, Inc.

# Task Order No. 1, Amendment 0

MFDA Purchase Order No. \_\_\_\_\_

## Flowage Easements Valuation

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In accordance with the Master Agreement for Professional Services between **Metro Flood Diversion Authority** ("Owner") and **Crown Appraisals, Inc.** ("Consultant"), dated December 21, 2017 ("Agreement"), Owner and Consultant agree as follows:

The parties agree that in the event of a conflict between prior versions of this Task Order No. 1 and this Amendment, the terms and conditions in this Amendment shall prevail, provided however, nothing herein shall preclude Consultant from invoicing for work authorized under prior versions of this Task Order and performed prior to effective date of this Amendment, even to the extent such prior work was revised by this Amendment. All other terms and conditions shall remain the same and are hereby ratified and affirmed by the parties.

### 1. Specific Project Data

#### A. Title: **Flowage Easements Valuation**

- B. Background: The Fargo-Moorhead Area Flood Diversion Project (Project) requires retention of flood waters within a staging area upstream of the metro area during extreme events. The upstream retention of flood waters is necessary to mitigate downstream impacts from operation of the Project. The Diversion Authority is required to mitigate the impacts of upstream flood water retention. Part of the mitigation includes purchasing permanent flowage easements for the right to periodically and temporarily store water on the land in the upstream mitigation area.

The Diversion Authority recognizes that establishing an appropriate value for the flowage easements is a complex and important task. The Diversion Authority also recognizes that the exact location of the upstream mitigation area will be defined upon further detailed technical analysis, hydraulic modeling, and permitting for changes to the Project resulting from the Flood Diversion Task Force established by the Governors' of Minnesota and North Dakota. In recognition of these considerations, the Diversion Authority believes it is prudent to start the process of valuing flowage easements by authorizing Consultant to conduct Phase 1 of the flowage easements valuation services.

- C. Summary of Services: In order to define the value of the easements, the services of a qualified appraiser are required to research and evaluate data and produce a valuation of the easements. The appraiser (Consultant) will use a phased approach, as directed by the Diversion Authority, to accomplish this. Phase 1 of the flowage easement analysis includes developing a regression analysis model, and a matched pairs analysis utilizing sales of easement encumbered and unencumbered properties in representative markets from across the country. The model will provide flexibility to compute the diminution in value of encumbered properties. It is expected that the exact location, boundaries, and operation of the upstream mitigation area will be determined through detailed technical analysis, hydraulic modeling, and permitting. Commencing with Phase 1 now will allow the data gathering and regression model development to proceed in a parallel timeframe to the technical hydraulic modeling.

Under future phases of the flowage easements valuation, the regression analysis model will allow the Diversion Authority and Consultant to provide a valuation unique to each parcel and the associated impacts and severity of the impacts that the operation of the Project would have specifically to each parcel contained within the upstream mitigation area, once the exact bounds of the upstream mitigation area has been identified when the staging area is used.

## 2. Services of Consultant

### A. Phase 1 – Flowage Easements Valuation

- I. Participate in a kick-off coordination meeting with Diversion Authority technical team, Program Management Consultant, and NDSU agribusiness research team.
- II. Phase 1 includes both the basic regression analysis and the matched pairs analysis.
  - i. Acquire/purchase/research/analyze sales of flowage or similar easement encumbered and unencumbered properties across the country for use in identifying the range of land value diminution that is associated with flowage easements.
  - ii. This process may result in geographically targeted or localized regression analyses being performed in numerous locations across the country.
  - iii. Through the analyses performed, both a (1) hard dollar value differential and (2) a percentage differential may be indicated. The hard dollar difference may not be applicable to the local Fargo-Moorhead metro area market, but the percentage difference may likely be applicable to values in the Fargo-Moorhead metro area market.
  - iv. Research may identify several different property types (various surface land uses) that are affected by the flowage (or similar) easements—tillable, wooded, commercial, industrial, transitional development land, etc. Greater confidence can be placed on an analysis where more matched pairs of varying land uses are available.
- III. Severity of flowage easements experienced by various property types will be measured by the data analyzed in both the matched pairs analysis and the regression analysis.
- IV. Development of the regression analysis will be a useful valuation tool for the Consultant to compute potential flowage easement acquisition costs across multiple future staging areas.
- V. The matched pair analysis and the regression model will consider the following potential impacts to land from the periodic and temporary retention of flood waters, including:
  - i. Delay in planting due to storage of water in the retention area
  - ii. Failure to plant crop due to storage of water in the retention area
  - iii. Reduction of yield from crops due to storage of water in the retention area
  - iv. Restrictions on ability to develop land or add structures due to its presence in a new 100-year floodway or floodplain, which didn't exist prior to the project
  - v. Actual impacts should be determined based on published material, information gathered from experts in applicable areas of expertise, and on statistical frequency and duration of the projected operation of the project
- VI. Land characteristics that affect parcel value may include:
  - i. Productivity
  - ii. Soil Type
  - iii. Drainage/alkalinity
  - iv. Location
  - v. Existing flood risk
  - vi. Size and shape of parcel relative to current farming practices & equipment size
  - vii. Development potential

VII. Requirements

- i. Appraisers—See MSA
- ii. Valuation documents prepared as a result of the analysis completed will be USPAP compliant.

VIII. Phase 1 deliverables:

- i. Matched pairs analysis
    - a. Isolated sets of matched pairs for various property types will enable the Consultant to establish the degree of diminution for each surface land use potentially affected by the Fargo-Moorhead Diversion project
  - ii. Regression analysis model
    - a. Consultant will provide a brief summary expressing a range of potential diminution rates for various property types, allowing the Owner to estimate acquisition costs for flowage easement areas being considered by the Diversion Authority.
  - iii. Consultant will produce a detailed report providing an explanation of models and results of the matched pairs analysis and of the regression analysis.
  - iv. Consultant will produce sample easement valuation reports for three (3) parcels owned by the Diversion Authority.
  - v. Per MSA Section 34 D, a minimum termination fee of \$50,000 will be paid if Phase 1 is terminated during Phase 1 by the Owner. If Phase 1 is completed and then Phase 2 is cancelled, a termination fee of \$50,000 will be due and payable to Consultant.
- B. Anticipated Future Work (Phase 2): It is anticipated that a future Phase 2 of the flowage easements valuation will include applying the regression analysis model developed in Phase 1 to the specific parcels within the upstream staging area for the revised Project. When the revised upstream mitigation area is fully defined with the depth, duration, and frequency of water retention, parcel specific valuation reports will be generated to support the acquisition of easements. It should be noted that in order to complete Phase 2, the Owner will need to provide Consultant with updated hydraulic model information (depth, duration, and frequency of water in the upstream mitigation area) and ag impact model information from an updated NDSU agribusiness report.
- C. Potential Future Services: If required, potential future services from Consultant may include the production of more detailed appraisal reports for individual parcels to support eminent domain actions, if necessary. This service will be performed at an additional cost. Cost will depend on the level of service requested.
3. Owner's Responsibilities.
- A. Owner shall have those responsibilities set forth in the Agreement.
4. Times for Rendering Services
- A. Initial kick-off meeting shall be held in January 2018
  - B. Project update meetings shall be held approximately every two months during study
  - C. Delivery of the final Phase 1 report shall be **August 31, 2018**.
5. Payments to Consultant
- A. Owner shall pay Consultant for services rendered as follows:
    - I. Phase 1 services outlined above at a cost of \$500,000 inclusive of all expenses.



- II. A \$100,000 retainer is requested upon acceptance of this proposal. Payment should not be made until after January 1, 2018.
  - III. Per MSA Section 14, monthly invoices will be submitted to the Owner.
  - IV. Final payment of the remaining \$200,000 balance will be due upon submission of the final report.
  - V. The total compensation for services identified under the Task Order is defined in the table below.
- B. Consultant shall notify Owner of any out of scope work requested that may result in exceeding the contract amount.
  - C. Consultant will notify Owner when 80 percent of the budget is expended.
  - D. Consultant will submit an amendment for additional compensation when 90 percent of the budget is expended, or confirm to Owner that this Task Order can be completed for the remaining budget.
  - E. Consultant will not perform work beyond 100 percent of the budget for Task Order No. 1 without Owner's authorization by an amendment to this Task Order or Authorized Work Directive.
  - F. The estimated fee for Phase 2 is \$250,000. This fee is based on several assumptions, including (1) production of 3-4 page summary reports for each parcel or ownership group, (2) detailed property inspection visits will not be required, (3) property owner visits will not be required, (4) a reasonable timeframe is allowed to produce the valuation reports, and (5) reporting is based on larger land units as the data allows—not limited to reporting based on assessors parcel numbers. Phase 2 services would be authorized via an amendment. The Phase 2 fee would cover completion of the project in which market value opinions are formed for individual properties within the final staging area that is authorized for the Diversion project. The final fees for Phase 2 will be dependent on the number of reports to be issued, any changes to the assumptions noted above, and the level of reporting detail desired.

<b>Flowage Easements Valuation</b>	<b>Activity ID</b>	<b>Current Budget (\$)</b>	<b>Change (\$)</b>	<b>Revised Budget (\$)</b>
Regression Analysis Model (Phase 1)		\$500,000		
<b>TOTAL</b>		<b>\$500,000</b>		

G. The terms of payment are set forth in Paragraph 15 of the Agreement.

- 6. Subconsultants: Refer to MSA
- 7. Other Modifications to Agreement: None
- 8. Attachments: None
- 9. Documents Incorporated By Reference: None

10. Terms and Conditions: Execution of this Task Order by Owner and Engineer shall make it subject to the terms and conditions of the Agreement (as modified above), which Agreement is incorporated by this reference. Consultant is authorized to begin performance upon its receipt of a copy of this Task Order signed by Owner.

The Effective Date of this Task Order is December 21, 2017.

**CONSULTANT:**

**Crown Appraisals, Inc.**

Signature \_\_\_\_\_ Date \_\_\_\_\_

**Jeffrey Berg**

Name

**Owner**

Title

**DESIGNATED REPRESENTATIVE FOR TASK ORDER:**

**Jeffrey Berg**

Name

**Owner**

Title

602 Front Street North  
Barnesville, MN 56514-3118

Address

[jeffberg@crownappraisalsinc.com](mailto:jeffberg@crownappraisalsinc.com)

E-Mail Address

(218) 354-7000

Phone

**OWNER:**

**Fargo-Moorhead Metro Diversion Authority**

Signature \_\_\_\_\_ Date \_\_\_\_\_

**Tim Mahoney**

Name

**Chairman, Flood Diversion Board of Authority**

Title

**DESIGNATED REPRESENTATIVE FOR TASK ORDER:**

**Michael J. Redlinger**

Name

**City of Fargo, Assistant City Administrator**

Title

200 3rd Street North  
Fargo, ND 58102

Address

[mredlinger@cityoffargo.com](mailto:mredlinger@cityoffargo.com)

E-Mail Address

(701) 476-4135

Phone

# Crown Appraisals, Inc.

November 1, 2017

Eric C. Dodds  
AE2S  
4170 28<sup>th</sup> Avenue South  
Fargo, ND 58104

RE: Valuation of (12) Flowage Easements for Temporary Water Retention

Dear Mr. Dodds,

This letter is in response to your 10-18-17 email request pertaining to valuation of permanent easements for temporary water retention on twelve specific properties. We received a “draft flowage easement scope of work” from Joe Herbst on 10-19-17. This letter is our official response to your request regarding the limited scope flowage easement project.

## Overview:

It is our understanding that the FM Diversion Authority wishes to have twelve properties appraised which have a variety of different land uses and property characteristics. Properties will be located in the current proposed flowage easement staging area. The idea is to have this sample group of properties appraised to yield a potential range of values for flowage easement acquisitions on various property types and locations. This information is intended to serve as a foundation for the FM Diversion Authority to estimate the potential flowage easement acquisition cost for properties located in potential future staging area configurations. At this point in time, future staging area configurations are in question, so the FM Diversion Authority is looking for data upon which to estimate the acquisition cost of flowage easements in a number of scenarios and configurations.

Several avenues are available from which appraisers could approach the problem to yield a range of values that would be reasonably well supported by market data. It is our opinion that the most cost effective approach to this issue is by use of a regression analysis. This method would probably yield the most sound market data support for the valuation conclusions.

**Jeffrey Berg, ARA, ASA, FRICS**

Accredited Rural Appraiser, Accredited Senior Appraiser  
Fellow Royal Institution of Chartered Surveyors

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**American Society of Farm Managers and Rural Appraisers  
American Society of Appraisers**



Matched pairs of sales (with and without flowage easements) are necessary to one degree or another in the valuation process. Flowage easement matched pairs are going to be difficult to locate, analyze and to confirm. The data will be expensive in terms of either acquisition cost; or in terms of labor expended in collection, analysis and confirmation of the data. In reality, this is a nationwide data search. Without a regression analysis, it is our opinion that a considerably larger number of matched pair flowage easement sales needs to be assembled than if a regression analysis is used in conjunction with a smaller number of flowage easement matched pair sales. It is our intent to provide two options to the Diversion Authority that would provide different levels of market analysis and provide the Diversion Authority with two different valuation tools.

Option 1:

The Diversion Authority would like to have twelve different properties appraised. Collection, purchasing, acquisition, analysis or researching of the flowage easement matched pairs data will be time consuming and expensive. A fee quote of \$20,000 to \$25,000 per appraisal for this group of twelve is realistic given the wide range of specific comparable flowage easement matched pairs that are needed. Due to the small number of appraisals, we would not disclose our flowage easement matched pairs data because we want to protect the intellectual property. Due to discovery through potential FOIA requests, we would not include our matched pair data in the reports submitted to the Diversion Authority. Therefore, we would present a set of reports with certain critical portions of the supporting data redacted. Our existing fee schedule with the Diversion Authority pays us about \$8,500 for each “complex” appraisal with multiple land uses. Considering the limited number of appraisals in this limited project; difficulty of the flowage easement assignments; and the obvious challenges and expense in obtaining concrete data; it is reasonable that we double or triple the existing complex fee level. The total fee would be \$240,000 to \$300,000.

Option 2:

A second proposal is development of the regression analysis model we discussed earlier in 2017. It would not be tied to the NDSU hydrologic survey. Rather, it would be based on large databases gathered from across the country. The analysis would essentially develop a range of relationships between “easement encumbered” land and “non-easement encumbered” land. The study would not be linked to a set of specific subject properties. It would allow the Diversion Authority to develop a valuation model based on generic information which could be applied to whatever subject properties the Diversion Authority decided to include in a potential temporary staging area. The model would not be tied to individual specific properties.

Page 3

FM Diversion Authority

11-1-17

In this analysis, we would also acquire/purchase/research/analyze comparable matched pair sales of flowage easement encumbered properties across the country. Flowage easement matched pairs would be factored into the regression analysis to make the analysis applicable to the various severities of flowage easements experienced by various property types. Development of the regression analysis would be a useful valuation tool for the Diversion Authority because it would have greater flexibility and utility to compute potential costs of flowage easement acquisition across multiple future staging areas.

Selection of this option would provide the additional benefit of putting acquisition and analysis of flowage easement matched pair market data and development of the regression analysis in the rear view mirror. This would considerably speed up a future flowage easement valuation project once one or more future staging areas are identified. A new or revised NDSU hydrologic study could then be created and incorporated into the regression analysis to isolate specific values for individual pieces of property within one or more future staging areas.

The Diversion Authority's payment for development of the regression analysis would of course be credited toward completion of a future flowage easement valuation project on individual properties within future staging areas that may be developed by the Diversion Authority. We propose a \$450,000 fee for this type of project.

Goal:

The purpose of this limited scope valuation project is to determine what fair and reasonable market based compensation is applicable to specific property types in the "flowage easement" area. Compensation is based on "before and after" valuations. Land values in the area will be affected by acquisition of "flowage" easements.

Our Team of Experts:

The Fargo Diversion Authority is familiar with Crown Appraisals, Inc., Jeffrey Berg, ARA, ASA, FRICS and Brian Field, ARA because we have performed a significant amount of valuation work for the Authority on other phases of the project. We have extensive experience in easement valuation—including the East Grand Forks Diversion Project and the CapX 2020 electric transmission line project. Refer to the addenda of this report for our qualification pages.

Douglas Hodge, ARA, MAI, CCIM, MRICS is a very experienced appraiser in the valuation of agricultural and agribusiness properties. He has extensive experience in the valuation of properties subject to eminent domain takings having been a lead appraiser in several large projects. His experience in condemnation includes valuation for both property owners and condemning agencies for projects located throughout the United States. Some of Doug's specialized experience is in the valuation of former rail road rights of ways that are being converted to rail/trail corridors for recreational purposes. He also has extensive experience in the valuation of properties that are subject to takings or placement of easements for power lines, pipelines, and other uses.

Timothy R. Hodge, PhD is an Assistant Professor of Economics at Oakland University (Rochester, MI). Tim earned his PhD in Agricultural Economics from Michigan State University in 2013. One of Tim's research interests is real estate economics, particularly using statistical techniques for property valuation. He has been involved in a variety of rural land valuation projects, including the affect ethanol plants have on residential property values, easement valuation in association with a large transmission lines (both residential property and agricultural land), and the impact of flooding on residential property values in Hampton Roads, VA.

Study Completion and Fee Schedule:

We propose to perform the Option 1 project outlined above at a cost of \$240,000 to \$300,000 inclusive of all expenses. Delivery of the final report is estimated to be on or before July 31, 2018 with status updates provided periodically. This assumes that the contract is finalized by December 31, 2017. A \$100,000 retainer is requested upon acceptance of this proposal with final payment of the remaining fee when all twelve appraisal reports are delivered. If necessary, preparation for testimony and testimony in court proceedings will be invoiced at an hourly rate over and above the basic cost of the project.

Page 5  
Flowage Easement Project  
11-1-17

We propose to perform the Option 2 project outlined above at a cost of \$450,000 inclusive of all expenses. Delivery of the final report is estimated to be September 28, 2018 with status updates provided periodically. This assumes that the contract is finalized by December 31, 2017. A \$100,000 retainer is requested upon acceptance of this proposal. An additional \$100,000 payment will be made when databases and comparable flowage easement matched pair sales have been obtained and the data are ready to initiate development of the regression analysis. Final payment of the remaining \$250,000 balance will be due upon submission of the final regression analysis. It is understood that we will provide some training time for the Option 2 end product.

We have assembled a highly qualified team of experts that can handle these projects objectively and based on market data. As questions arise, let's have a conversation regarding this project. Thanks for your consideration of our proposal.

Best regards,



Jeffrey Berg, ARA, ASA, FRICS  
Crown Appraisals, Inc.



## APPRAISAL QUALIFICATIONS FOR JEFFREY BERG

### MEMBER:

Accredited Rural Appraiser (ARA) membership designation--the American Society of Farm Managers and Rural Appraisers, Inc.  
Accredited Senior Appraiser (ASA) membership designation--Machinery & Equipment Specialty--American Society of Appraisers  
Fellow Royal Institution of Chartered Surveyors (FRICS)  
Certified Federal General Appraiser License: MN #40360527; ND #CG-1050; SD #118CG-2018; IA #CG03191;  
CO #: 100050561; WI #: 1395-10; IL #: 553.001487; IN #: CG41500069; WY #: AP-1406; OR #: C001223  
Instructor: ASFMRA--Fundamentals, Principles, and Advanced Rural Appraisal Courses and numerous ASFMRA seminars  
Instructor: National Uniform Standards of Professional Appraisal Practice (USPAP) Course, Recertified for 2016/2017 Course  
ASFMRA National Appraisal Education Committee Chairman, 2002-2005; Accreditation Chairman, 2006-2008;  
2005 recipient of H.E. "Buck" Stalcup Excellence in Education Award from ASFMRA  
Recipient of 2008 ASFMRA Appraisal Professional of the Year Award  
National ASFMRA President, 2011/2012

### CORE APPRAISAL EDUCATION:

American Society of Farm Managers and Rural Appraisers, Inc. courses:  
-A-27, Income Capitalization Unleveraged, December 1993, Denver, CO  
-A-20, Principles of Rural Appraisal, August 1988, Rochester, MN  
-A-25, Eminent Domain Seminar, February 1991, Denver, CO  
-A-28, Income Capitalization Leveraged, January 1994, Denver, CO  
-A-30, Advanced Rural Appraisal, February 1991, Wichita, KS  
-A-35, Advanced Appraisal Review, March 2004, St. Cloud, MN  
-A-40, Advanced Rural Appraisal Case Studies, June 1991, St. Paul, MN  
-American Society of Appraisers courses:  
-ME201 Introduction to Machinery and Equipment Valuation, 7-93, Cleveland, OH  
-ME202 Machinery and Equipment Valuation Methodology, 8-93, Atlanta, GA  
-ME203 Machinery & Equipment Valuation: Advanced Topics & Case Studies, 3-94, Atlanta, GA  
-ME204 Machinery & Equipment Valuation: Advanced Topics & Report Writing, 4-94, Washington, DC  
-ME205 Income Approach, Discount Rate Development & Complex Case Studies, 2-98, San Francisco, CA  
Appraisal Institute Courses:  
-Fundamentals of Separating Real Property, Personal Property and Intangible Business Assets, April 2012, St. Paul, MN  
B.A. Agriculture/Business Administration, Ambassador University, Big Sandy, TX, 1972  
ASFMRA, ASA & RICS conduct mandatory programs of continuing education. I am current with the requirements of the programs.  
Continuing education classes are not listed.

### BACKGROUND AND EXPERIENCE:

Crown Appraisals specializes in the appraisal of agricultural and commercial real estate. Commercial appraisal experience includes the following classes of real estate: feed mills, grain elevators, dry edible bean processing plants, seed plants, potato warehouses, food processing facilities, fertilizer facilities, convenience stores, bulk fuel facilities, manufacturing plants and equipment dealerships. Agricultural appraisal experience includes farmland, on-farm grain handling and storage facilities, feedlots, hog confinement facilities, large freestall dairy facilities and general farm buildings. Jeff Berg has extensive experience in the appraisal of aggregate and gravel reserves. Experience includes expert witness testimony in Federal Bankruptcy court, IRS Tax court and various district courts. Equipment appraisal experience includes food processing, grain handling, seed processing, industrial manufacturing, construction and agricultural equipment. Please refer to website at [crownappraisalsinc.com](http://crownappraisalsinc.com).

In 2014 Jeff authored an appraisal course for the ASFMRA titled "Key Elements of Grain Elevator Appraisal". He teaches the class to fellow appraisers throughout the country at various ASFMRA events.

**Jeffrey Berg, ARA, ASA, FRICS**  
Accredited Rural Appraiser, Accredited Senior Appraiser  
Fellow Royal Institution of Chartered Surveyors

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(218) 354-7000 • FAX (218) 354-7100

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[www.crownappraisalsinc.com](http://www.crownappraisalsinc.com)



**American Society of Farm Managers and Rural Appraisers**  
**American Society of Appraisers**







## APPRAISAL QUALIFICATIONS FOR BRIAN FIELD

### **MEMBER:**

Accredited Rural Appraiser (ARA) membership designation--American Society of Farm Managers & Rural Appraisers (ASFMRA)  
Member of both the Minnesota & North Dakota Chapters--American Society of Farm Managers & Rural Appraisers  
ASFMRA Young Professionals Network--District Representative & Chair of the national leadership team 2016/18  
ASFMRA Executive Council member 2015/18  
Candidate for Designation--Appraisal Institute  
Member of North Star Chapter--Appraisal Institute  
Certified General Appraiser Licenses: MN #20586763; ND # CG-21016; SD #1030CG

### **CORE APPRAISAL EDUCATION:**

*American Society of Farm Managers & Rural Appraisers courses:*

Code of Ethics, March 2008, Apple Valley, MN  
A-20, Principles of Rural Appraisal, October 2006, St. Cloud, MN  
A-250, Eminent Domain, March 2011, Denver, CO  
A-290, General Market Analysis and Highest & Best Use, August 2008, St. Cloud, MN  
A-300, Advanced Approaches to Value for Rural Appraisal, October 2008, Denver, CO  
A-360, Introduction to Appraisal Review, October 2007, St. Cloud, MN  
A-370, Appraisal Review Under USPAP, October 2007, St. Cloud, MN  
A-400, Advanced Rural Case Studies, June 2011, Denver, CO

*Appraisal Institute courses:*

Business Practices and Ethics, September 2008, Online  
Basic Appraisal Principles, January 2006, St. Paul, MN  
Basic Appraisal Procedures, January 2006, St. Paul, MN  
Residential Market Analysis and Highest & Best Use, February 2006, St. Paul, MN  
Income Valuation of Small, Mixed-Use Properties, February 2006, St. Paul, MN  
Basic Income Capitalization, March 2007, St. Paul, MN  
General Applications, March 2007, St. Paul, MN  
National 7 Hour USPAP Update, April 2010, St. Cloud, MN  
General Appraiser Report Writing & Case Studies, October 2008, Chicago, IL  
Real Estate Finance Statistics & Valuation Modeling, November 2008, Online  
General Appraiser Income Approach/Part 2, April 2011, Aurora, CO  
Fundamentals of Separating Real Property, Personal Property, & Intangible Business Assets, April 2012, St. Paul, MN  
Advanced Concepts & Case Studies, September 2013, St. Paul, MN  
Advanced Market Analysis and Highest & Best Use, May 2014, St. Paul, MN  
Advanced Income Capitalization, September 2014, Minneapolis, MN

*ProSource course:* National 15 Hour USPAP, May 2006, St. Paul, MN

*American Society of Appraisers courses:*

ME 201, Introduction to Machinery and Equipment Valuation, May 2007, St. Cloud, MN  
ME 202, Machinery and Equipment Valuation Methodology, October 2007, St. Cloud, MN  
ME 203, Machinery and Equipment Valuation-Advanced Topics & Case Studies, August 2008, Minneapolis, MN  
ME 204, Machinery and Equipment Valuation-Advanced Topics & Report Writing, August 2009, Skokie, IL

B.A. Business, Concordia College, Moorhead, MN  
M.Ed. Sports Management, University of Minnesota, Minneapolis, MN

The American Society of Farm Managers & Rural Appraisers and Appraisal Institute conduct mandatory programs of continuing education. I am current with the requirements of the programs. Continuing education classes are not listed. As of the date of this report, I have completed the Standards and Ethics Education Requirement of the Appraisal Institute for Associate Members.

### **BACKGROUND AND EXPERIENCE:**

Appraisal experience includes grain elevators, fertilizer and agronomy facilities, seed plants, bulk fuel facilities, farm headquarters, horse facilities, meat processing plants, bull stud facilities, convenience stores, eminent domain, commercial buildings, manufacturing facilities, farm implement dealerships, gravel reserves, rural residential buildings and bare land including farm, commercial, industrial and hunting, as well as farm and industrial equipment. Brian also co-instructs a course for the ASFMRA titled "Key Elements of Grain Elevator Appraisal". He teaches the class to fellow appraisers throughout the country.

**Jeffrey Berg, ARA, ASA, FRICS**  
Accredited Rural Appraiser, Accredited Senior Appraiser  
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**American Society of Farm Managers and Rural Appraisers**  
**American Society of Appraisers**



# DOUGLAS K. HODGE, MAI, ARA, CCIM, MRICS

2343 Fish Lake Road  
LAPEER, MICHIGAN 48446  
810-516-5339  
Dhodge173@gmail.com

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## EDUCATION

### ***Appraisal Institute - courses completed***

Appraisal Principles, Basic Valuation Procedures, Capitalization Theory & Techniques, Part A and B, Standards of Professional Practice, Case Studies in Real Estate Valuation, Report Writing and Valuation Analysis, Valuation of Conservation Easements Certification Program, Uniform Appraisal Standards for Federal Land Acquisitions (Yellow Book), Seminars and Courses for Continuing Education, USPAP updates on a continuing basis.

### ***American Society of Farm Managers and Rural Appraisers - courses completed***

Report Writing Seminar, Principles of Rural Appraisal Challenge, Advanced Rural Appraisal, Advanced Rural Case Studies and additional courses for continuing education on a continuing basis.

### ***International Right of Way Association - courses completed***

Course 401 – Appraisal of Partial Acquisitions  
Course 403 – Easement Valuation

### ***CCIM Institute - courses completed***

Investment Analysis for Commercial Investment Real Estate  
Financial Analysis for Commercial Investment Real Estate  
Market Analysis for Commercial Investment Real Estate  
User Decision Analysis for Commercial Investment Real Estate

### ***Realtors Land Institute – courses completed***

Land Investment Analysis  
Tax Deferred 1031 Exchanges  
Fundamentals of Land Brokerage

### ***Western Forestry and Conservation Association***

The Basics of Forest Land and Timber Appraisal

1983 **Ferris State University**  
Big Rapids, Michigan  
B.S. Finance

1977 **Delta College**  
University Center, Michigan  
A.A. Business

## **EXPERIENCE**

2017 – Present **Nuveen (formerly TIAA Global Asset Management)**  
Vice President – Risk Management/Appraisal  
Services Group  
Sr. Agricultural Appraisal Reviewer

2012 – 2016 **TIAA**  
Sr. Director – Global Asset Management/Appraisal  
Services Group  
Sr. Agricultural Reviewer

2007 – 2012 **Farmers National Company**  
Eastern District Appraisal Manager

1991 – Present **Capstone Realty Resources (fka Hodge Appraisal  
Group, Ltd.)**  
Lapeer, Michigan  
President and owner

**Agri Analysts, LLC**  
President

**American Society of Farm Managers  
and Rural Appraisers**  
Certified Instructor

1989 - 1991 **Terice Tosto**  
Birmingham, Michigan  
Staff Appraiser

1986 - 1989 **Hodge and Associates, Inc.**  
President

**Provided subcontract appraisal services to:**  
Donald C. Johnson, MAI; Charles R. Green, MAI;  
Malcolm Milks, MAI; and Dean Appraisal Company in  
addition to providing appraisal services to clients of  
Hodge Appraisal and Consulting Service.

1985 - 1986                      **Great Lakes Valuation Service**  
Partner

1985                                **Doane Farm Management Co.**  
Regional Appraiser

1983 - 1985                      **Federal Land Bank Association of Caro**  
Loan Officer/Appraiser  
Certified Appraiser #715

Prior to employment at the Federal Land Bank, self-employed as the owner of a 280 acre dairy farm in Sanilac County, Michigan.

### **MEMBERSHIP AND AFFILIATIONS**

The Appraisal Institute - MAI Designation #9213  
American Society of Farm Management and Rural Appraisers - ARA Designation #797  
CCIM Institute – CCIM Designation  
Royal Institution of Chartered Surveyors – MRICS designation  
Michigan Society of Farm Managers and Rural Appraisers  
State Certified General Appraiser, State of Michigan License #1201001482  
Licensed Real Estate Broker, State of Michigan  
Member of the Commercial Board of Realtors  
Member of Lapeer County Planning Commission, 1991-1994, 2001- 2007  
Member of Lapeer Township Planning Commission, 1993 - 1996, Chairman - 1995/96  
Member of Mayfield Township Planning Commission, 1997 - 2001  
Certified Instructor, American Society of Farm Managers and Rural Appraisers  
Director – Great Lakes Chapter of the Appraisal Institute 1998 – 2001  
Chapter officer – Vice President Great Lakes Chapter of The Appraisal Institute 2003; President 2004  
Member of ASFMRA National Education and Accreditation Committee  
ASFMRA representative to International Building Measurement Standards Committee – 2013 to present  
ASFMRA representative to International Ethics Committee – 2014 to present  
Lapeer County Board of Road Commissioners 2000 – 2012, Vice Chair 2001-2003; Chairman of the Board 2004 – 2012  
District 3 Vice President – ASFMRA 2016 – 2019  
President – Michigan Chapter of ASFMRA – 2016  
Recipient of ASFMRA Stalcup Excellence in Education Award – 2016  
Recipient of Rabo Agri Finance/ASFMRA Appraisal Professional of the Year Award – 2016

## **AREAS OF SPECIALIZATION**

Real estate valuation with emphasis on food processing, agribusiness, large production agriculture, permanent plantings, aggregate properties, right of way for roads, drains, pipeline easements, ad valorem tax appeals, commercial, industrial, multi-family, retail, subdivision analysis, vacant land, wetlands. Valuation studies include fractional interests, partition proceedings, eminent domain, leaseholds, market valuation, and providing expert witness services in accordance with the above types of valuations. Appraisal review services during employment with TIAA/Nuveen including properties in US, Australia, Brazil, Chile, New Zealand and Poland.

## **REPRESENTATIVE APPRAISAL AND CONSULTING CLIENTS**

Aegon USA Realty Advisors	Independent Bank
Aetna Life and Casualty	ITC
Aetna Realty Investors, Inc.	Jaffe, Snyder, Raitt and Heuer
Anderson, Stull and Kraft	Jay S. Kalish, Esq.
Buckeye Egg Farm	Kingston State Bank
Thomas J. Budzynski, Esq.	Lapeer County Road Commission
Butzel, Keidan, Simon, Meyers and Graham	Lambert, Leser, Dahm, Cook and Guinta
Chase Bank	LaSalle Bank
Chelsea Milling Co.	Learman, Peters, Sarow and McQuillan
Cherry-Ke Orchards	Little Forks Land Conservancy
Cigna Investments	Marlette Economic Development Corp.
Citizens First	McKay and McKay
Clark Hill	Mennel Milling, Inc.
Comerica Bank	Michigan Dept. of Natural Resources
Cubitt, Cubitt and Trowhill	Michigan Dept. of Transportation
DayLay Egg Farm, Inc.	Miller, Canfield, Paddock and Stone
Delta Investments	National City Bank
Dorsey and Whitney	Oakland Land Conservancy
Drillock, Rinn and Drillock	Pelavin and Powers
Dykema, Gossett	Providian Capital Management Real Estate Services
Exchange National Bank	RaboAgriFinance
Farm Bureau Ins. Co.	Ransford, Crews and Burgess
Greenstone Farm Credit Services	Sanilac Mutual Insurance Co.
First of America Bank	State of Michigan, Attorney General
First Central Mortgage	TCF Bank
First National Bank of Chicago	Thumb National Bank
Garard, Moehle and Smith	Total Petroleum
Grand Traverse Land Conservancy	United States Government – NRCS, IRS, FmHA, Fish and Wildlife Division, Dept. of Justice
John Hancock Mutual Life Ins. Co.	Wruble Elevator Co.
David Heyboer, Esq.	Zelenka Nursery, Inc.
Herbruck Poultry Farm, Inc.	
Herbruck Foods, Inc.	
Honigman Miller	
Huron County Road Commission	

## **TYPES OF ASSIGNMENT**

Ad Valorem Tax Valuations  
Agribusiness Properties  
Aggregate Mining Operations  
Apartment Buildings  
Appraisal Reviews  
Automobile Dealerships  
Bankruptcy Appraisals  
Branch Bank Facilities  
Condemnation, Eminent Domain  
Conservation Easements  
Corridors for Pipeline & Drainage Easements  
Development Properties  
Department Stores  
Estate Appraisal  
Food Processing Plants  
Farms, specialized (poultry, swine and dairy) and  
general  
Feasibility Studies  
Flour Mills  
Grain Elevators/Feed Mills  
Industrial Plants  
Medical & Dental Clinics  
Office Buildings  
Public Land Acquisitions  
Residential Subdivisions  
Shopping Centers  
Valuation of Development Rights  
Wetlands Valuation

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**Timothy R. Hodge**  
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Rochester, MI 48309

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Office: (248) 370-3524  
Cell: (810) 441-7785

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**EDUCATION**

Ph.D. Michigan State University (2013)  
M.S. Michigan State University (2011)  
B.A. Calvin College (2007)

**PROFESSIONAL EXPERIENCE**

Assistant Professor, Department of Economics, Oakland University (2016-*present*)  
Econometrician, Ford Motor Credit Company, Dearborn, MI (2015-2016)  
Visiting Assistant Professor, Department of Economics, Allegheny College (2013-2014)  
Instructor, Department of Economics, Alma College (2012)  
Graduate Research Assistant, Michigan State University (2007-2013)

**TEACHING EXPERIENCE**

Public Finance (Oakland University)  
Managerial Economics (Oakland University)  
Urban and Regional Economics (Oakland University, Allegheny College)  
Applied Econometrics (Allegheny College)  
Principles of Microeconomics (Oakland University, Allegheny College, Alma College)  
Introduction to Statistical Analysis for Appraisers (ASFMRA)

**FIELDS OF INTEREST**

Urban and Regional Economics, Real Estate Economics, Public Finance, Public Economics, Applied Econometrics

**PEER REVIEWED RESEARCH PAPERS**

Stategraft (with Bernadette Atuahene) – *Southern California Law Review*, Forthcoming  
The Land Value Gradient in a (Nearly) Collapsed Urban Real Estate Market (with Mark Skidmore and Gary Sands), *Land Economics*. Forthcoming.  
Capitalizing on Neighborhood Enterprise Zones: Are Detroit Residents Paying for the NEZ Homestead Exemption? (with Timothy M. Komarek), *Regional Science and Urban Economics*. 61, 2016, pp. 18-25.  
Assessment Inequity in a Declining Housing Market: The Case of Detroit (with Daniel McMillen, Gary Sands, and Mark Skidmore), *Real Estate Economics*. 2016  
Assessment Growth Limits and Mobility: Evidence from Home Sale Data in Detroit, Michigan. (with Mark Skidmore and Gary Sands), *National Tax Journal*. 68(3), 2015, pp. 573-600.  
Tax Base Erosion and Inequity from Michigan's Assessment Growth Limit: The Case of Detroit. (with Mark Skidmore, Gary Sands, and Daniel McMillen), *Public Finance Review*. 43(5), 2015, pp. 636-660.  
Detroit Property Tax Delinquency: Social Contract in Crisis. (with James Alm, Gary

- Sands, and Mark Skidmore), *Public Finance and Management*. 14(3), 2014, pp.280-305.
- The Effect of Ethanol Plants on Residential Property Values: Evidence from Michigan. *Journal of Regional Analysis and Policy*. 41(2), 2011, pp. 148-167.
- Property Value Assessment Growth Limits and Redistribution of Property Tax Payment: Evidence from Michigan. (with Mark Skidmore and Charles Ballard), *National Tax Journal*. 63(3), September 2010, pp. 509-37.

## **WORK IN PROGRESS**

- Assessment Growth Limits and the Redistribution of Property Tax Payments after the Great Recession: Evidence from Michigan (with Charles Ballard and Mark Skidmore)
- Recurrent Flooding, Information Asymmetries and Real Estate Prices: Evidence from Hampton Roads, VA (with Timothy M. Komarek, Larry Filer, and Jon Loftis)
- The Munchies: The Effect of Marijuana Legalization on Convenience Store Sales
- Mitigating Noncompliance through Increased Enforcement and Payment Reductions: Evidence from Property Tax Delinquencies in Detroit, MI
- When Mary Jane Moves to Town: The Effect of Medical Marijuana Provisioning Centers on Local Housing Values (with Justin Sarna and Timothy M. Komarek)
- Up In Smoke? The Effect of Pot Shops on Local Property Values in Seattle, Washington (with Timothy M. Komarek)
- School Spending and Crime: Do Better Schools Lead to Better Citizens? (with Sung Hoon Kang and Timothy M. Komarek)

## **PRESENTATIONS**

- “Economic Overview and Forecast Using the Housing Market” Rochester Area Chamber of Commerce 2017 Economic Outlook Luncheon (March 2017)
- “Capitalizing on Neighborhood Enterprise Zones: Are Michigan Residents Paying for the NEZ Homestead Exemption?” 61<sup>st</sup> Annual North American Meetings of the Regional Science Association International. Washington D.C. (November 2014)
- “Assessment Inequity in a Declining Housing Market: The Case of Detroit.” Urban Affairs Association 44<sup>th</sup> Annual Conference. San Antonio, TX (March 2014)
- “Assessment Growth Limits and Mobility: Evidence from Home Sale Data in Detroit, MI” National Tax Association 106<sup>th</sup> Annual Conference on Taxation. Tampa, FL (November 2013)
- “Assessment Inequity in a Declining Housing Market: The Case of Detroit” Mid-Continent Regional Science Association Annual Conference. Kansas City, MO (May 2013)
- “Not All Property Taxes Are Created Equal: Inequality from Assessment Growth Limits and Tax Abatements” Mid-Continent Regional Science Association Annual Conference. Minneapolis, MN (June 2012)
- “The Effect of Ethanol Plants on Residential Property Values: Evidence from Michigan” Mid-Continent Regional Science Association Annual Conference. Detroit, MI (June 2011)
- “Property Value Assessment Growth Limits and Redistribution of the Property Tax Burden: Evidence from Michigan” Mid-Continent Regional Science Association Annual Conference. Milwaukee, WI (May 2009)



“Who Benefits from Michigan’s Proposal A?” Department of Agricultural Economics  
Graduate Research Symposium. (January 2009)

### **COMMITTEE SERVICE**

Honor’s Thesis Advisor, 2017-18  
Economics Club Faculty Advisor, 2017-*present*  
Honor’s Thesis Advisor, 2016-17

### **PROFESSIONAL SERVICE**

Referee: *Environmental and Planning A, National Tax Journal, Regional Science and Urban Economics (x2), Public Finance Review (x2), Urban Studies, Public Finance and Management, Journal of Urban Affairs (x3), State and Local Government Review*

### **FELLOWSHIPS AND GRANTS**

Oakland University School of Business Administration Summer Research Grant, 2019  
Oakland University School of Business Administration Summer Research Grant, 2018  
Oakland University Faculty Research Fellowship, 2017  
C. Lowell Harriss Dissertation Fellow (Lincoln Institute of Land Policy), 2012

### **AWARDS AND HONORS**

2011 M. Jarvin Emerson Student Paper Competition Winner (Mid-Continent Regional Science Association)

### **OTHER EXPERIENCE**

#### Instructor:

Introduction to Statistical Analysis for Appraisers (ASFMRA), Indian Wells, CA, 2016  
Introduction to Statistical Analysis for Appraisers (ASFMRA), Omaha, NE, 2015

#### Consultant:

Lincoln Land Institute/Center for Community Progress (2016-2017)  
ITC Holding Corp. (2010-2014)  
Crown Appraisals, Inc. (2011-2014)

#### Extension:

Barry County – Barry County Financial Analysis and Forecast Report (2014)  
Lapeer County – The Production and Provision of Public Safety Services (2011)  
Berrien County – Berrien County Migration: Where Are the Residents Going? (2009)

#### Policy Brief:

Memo on Detroit Property Tax System (2017)  
Inventory of State Job Creation and Job Retention Incentives, 2010 (2011)

#### Other:

Tutor and Grader, Department of Economics, Calvin College (2006-2007)

### **COMPUTER SKILLS**

Stata, SAS (EG, VA, VS), R, ArcGIS, Alteryx, QlikView, Teradata, SQL, Microsoft Access, Excel, Word, PowerPoint



## Recommended Contracting Actions

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Date: December 20, 2017

Description	Company	Budget Estimate (\$)
<b><i>Construction Change Orders – Diversion Authority</i></b>		
<b>WP 42F1N – Flood control, 2<sup>nd</sup> St N, North of Pump Station</b> <b>Change Order 07</b> <ul style="list-style-type: none"><li>• Final Unit Price quantity balancing</li><li>• Additional fiber optic conduit and cable</li><li>• Additional sidewalk traffic control</li><li>• Additional vibration monitoring</li></ul>	Industrial Builders, Inc.	<b>\$6,875.42</b>

**Technical Advisory Group Recommendation**

Meeting Date: 12/8/2017

**RECOMMENDATION FOR ACTION:**

The Technical Advisory Group has reviewed and recommends approval of the following Contract Action(s).

**SUMMARY OF CONTRACTING ACTION:**

Per the contract review and approval procedures that were adopted by the Diversion Authority on November 10, 2016, the Owner’s Program Management Consultant (PMC) or Engineer of Record (EOR) shall submit a construction Change Order request to the Technical Advisory Group. The Technical Advisory Group shall review the Change Order request during its next regular meeting after receiving the Change Order request, and make a recommendation as to approval or denial of the Change Order request.

The Owner’s PMC has prepared the following Contract Action(s):

Description	Budget Estimate (\$)
<b>Industrial Builders, Inc.</b>	
<i>WP-42F1N (Flood Control, 2nd St N, North of Pump Station)</i>	
<i>Final Balancing Change Order #7</i>	<b>\$6,875.42</b>
<ul style="list-style-type: none"> <li>• Final Unit Price quantity balancing</li> <li>• Additional fiber optic conduit and cable</li> <li>• Additional sidewalk traffic control</li> <li>• Additional vibration monitoring</li> </ul>	

**Summary of Contracting History and Current Contract Action:**

Industrial Builders, Inc. was award the construction contract for the Metro Flood Diversion Authority’s (MFDA) WP-42F1N (Flood Control, 2nd Street North, North of Pump Station) on April 14, 2016.

The project work has been completed, and this final balancing change order incorporates field verified unit price quantities, the addition of a fiber optic conduit, additional traffic control, and additional vibration monitoring.

Below is a summary of contracting history to date along with the current contracting action.

Original Agreement or Amendment	Previous Project Cost	Budget (\$) Change	Revised Project Cost	Project Start	Project Completion	Comments
Original Contact	0.00	12,969,699.05	12,969,699.05	25-Apr-16	1-Jul-17	Contract Award recommended to lowest responsive bidder, Industrial Builders, Inc.
Change Order No. 1	12,969,699.05	8,122.00	12,977,821.05	25-Apr-16	1-Jul-17	Water Main Insulation, Floodwall Caps Modification
Change Order No. 2	12,977,821.05	206,380.00	13,184,201.05	25-Apr-16	1-Jul-17	Differing Subsurface Conditions, Fire Hydrants and Vault 3A Relocation, Temporary Water for Area Businesses, Howard Johnson

Original Agreement or Amendment	Previous Project Cost	Budget (\$) Change	Revised Project Cost	Project Start	Project Completion	Comments
						Foundation Removal, & BNSF Project Delay
Change Order No. 3	13,184,201.05	(22,030.50)	13,162,170.55	25-Apr-16	1-Jul-17	Plansheet Updates, Retaining Wall Column, 6" Impressed Concrete, Additional Bridge Lighting
Change Order No. 4	13,162,170.55	8,648.00	13,170,818.55	25-Apr-16	1-Jul-17	8" Plaza Concrete, Additional Pull Boxes, Milestone Changes
Change Order No. 5	13,170,818.55	127,282.10	13,298,100.65	25-Apr-16	1-Jul-17	Temporary Striping and Quantity Balancing
Change Order No. 6	13,298,100.65	55,605.75	13,353,706.40	25-Apr-16	1-Jul-17	Asphalt Paving, BNSF Railroad Ties, Balance Quantities, and other items
Change Order No. 7	13,353,706.40	6,875.42	13,360,581.82	25-Apr-16	1-Jul-17	Final unit price quantity balancing, add fiber optic conduit/cable, add additional traffic control, add addition vibration monitoring

**DISCUSSION**

Change Order No. 7 modifies unit price quantities, adds a COF requested fiber optic conduit, additional traffic control, and additional vibration monitoring. These changes result in a Contract Price increase of \$6,875.42 and no change to the Contract Time. The Change Order consists of the following items:

1. Final Unit Price Quantity Balancing: Installed quantities for Unit Price Bid Items were verified by the Engineer, resulting in the following quantity and price changes. The attached Change Order 7 Unit Price Schedule dated 12/7/2017 shows the change to each bid item. The sum of these unit price changes is a price decrease of (\$11, 178.58). There is no schedule change associated with these change items.
  - a. Bid Item 0046, *F&I Storm Pipe w/GB 48" Dia Reinf Conc*: Increase the quantity 0.5 LF at the Contract Unit Price of \$410.00 per LF for a price increase of \$205.00.
  - b. Bid Item 0047, *Remove Pavement All Thicknesses All Types*: Increase the quantity 502 SY at the Contract Unit Price of \$12.00 per SY for a price increase of \$6,024.00.
  - c. Bid Item 0048, *Remove Sidewalk All Thicknesses All Types*: Increase the quantity 130 SY at the Contract Unit Price of \$7.50 per SY for a price increase of \$975.00.
  - d. Bid Item 0054, *F&I Class 5 Agg - 12" Thick*: Decrease the quantity (192) SY at the Contract Unit Price of \$18.90 per SY for a price decrease of (\$3,628.80).
  - e. Bid Item 0056, *F&I Curb & Gutter Standard (Type II)*: Decrease the quantity (37) LF at the Contract Unit Price of \$30.00 per LF for a price decrease of (\$1,110.00).
  - f. Bid Item 0058, *Remove Curb & Gutter*: Increase the quantity 39 LF at the Contract Unit Price of \$7.35 per SY for a price increase of \$286.65.
  - g. Bid Item 0059, *F&I Pavement 9" Thick Doweled Conc*: Decrease the quantity (6) SY at the Contract Unit Price of \$88.00 per SY for a price decrease of (\$528.00).
  - h. Bid Item 0061, *F&I Aggregate for Asph Pavement FAA 43*: Decrease the quantity (82.5) TON at the Contract Unit Price of \$92.00 per TON for a price decrease of (\$7,590.00).
  - i. Bid Item 0062, *F&I Asphalt Cement PG 58-28*: Decrease the quantity (2,578.6) GAL at the Contract Unit Price of \$2.05 per GAL for a price decrease of (\$5,286.13).

- j. Bid Item 0063, *F&I Sidewalk 4" Thick Reinf Conc*: Decrease the quantity (105) SY at the Contract Unit Price of \$55.00 per SY for a price decrease of (\$5,775.00).
- k. Bid Item 0064, *F&I Sidewalk 6" Thick Reinf Conc*: Increase the quantity 279 SY at the Contract Unit Price of \$65.00 per SY for a price increase of \$18,135.00.
- l. Bid Item 0065, *Temp Construction Entrance*: Decrease the quantity (1) EA at the Contract Unit Price of \$4,200.00 per EA for a price decrease of (\$4,200.00).
- m. Bid Item 0068, *F&I Det Warn Panels Cast Iron*: Decrease the quantity (27) SF at the Contract Unit Price of \$60.00 per SF for a price decrease of (\$1,620.00).
- n. Bid Item 0074, *F&I Grooved Plastic Film Message*: Decrease the quantity (16) SF at the Contract Unit Price of \$37.00 per SF for a price decrease of (\$592.00).
- o. Bid Item 0075, *F&I Grooved Plastic Film 4" Wide*: Decrease the quantity (53) LF at the Contract Unit Price of \$5.70 per LF for a price decrease of (\$302.10).
- p. Bid Item 0076, *F&I Grooved Plastic Film 8" Wide*: Decrease the quantity (3) LF at the Contract Unit Price of \$12.00 per LF for a price decrease of (\$36.00).
- q. Bid Item 0077, *F&I Grooved Contrast Film 7" Wide*: Decrease the quantity (22) LF at the Contract Unit Price of \$11.00 per LF for a price decrease of (\$242.00).
- r. Bid Item 0078, *F&I Methacrylate 6" Wide*: Decrease the quantity (10) LF at the Contract Unit Price of \$27.00 per LF for a price decrease of (\$270.00).
- s. Bid Item 0079, *F&I Methacrylate 16" Wide*: Increase the quantity 2 LF at the Contract Unit Price of \$44.00 per LF for a price increase of \$88.00.
- t. Bid Item 0082, *4" Special Concrete 3*: Decrease the quantity (11) SY at the Contract Unit Price of \$400.00 per SY for a price decrease of (\$4,400.00).
- u. Bid Item 0083, *6" Special Concrete 1*: Increase the quantity 1 SY at the Contract Unit Price of \$165.00 per SY for a price increase of \$165.00.
- v. Bid Item 0086, *Temp Fence - Safety*: Decrease the quantity (773) LF at the Contract Unit Price of \$14.00 per LF for a price decrease of (\$10,822.00).
- w. Bid Item 0089, *Remove Fence All Sizes All Types*: Decrease the quantity (279) LF at the Contract Unit Price of \$10.00 per LF for a price decrease of (\$2,790.00).
- x. Bid Item 0090 *F&I Chain Link Fence*: Decrease the quantity (604) LF at the Contract Unit Price of \$16.00 per LF for a price decrease of (\$9,664.00).
- y. Bid Item 0094, *Remove Tree*: Decrease the quantity (4) EA at the Contract Unit Price of \$840.00 per EA for a price decrease of (\$3,360.00).
- z. Bid Item 0097, *Sediment Control Log 10" to 15" Dia*: Decrease the quantity (1,141) LF at the Contract Unit Price of \$3.15 per LF for a price decrease of (\$3,594.15).
- aa. Bid Item 0098, *F&I Erosion Control Blanket*: Increase the quantity 121 SY at the Contract Unit Price of \$2.10 per SY for a price increase of \$254.10.
- bb. Bid Item 0099, *Inlet Protection - New Inlet*: Decrease the quantity (6) EA at the Contract Unit Price of \$155.00 per EA for a price decrease of (\$930.00).
- cc. Bid Item 0100, *Inlet Protection - Existing Inlet*: Decrease the quantity (16) EA at the Contract Unit Price of \$120.00 per EA for a price decrease of (\$1,920.00).
- dd. Bid Item 0102, *Street Lighting*: Decrease the quantity (0.02375) LS at the Contract Unit Price of \$120,000.00 per LS for a price decrease of (\$2,850.00).

- ee. Bid Item 0107, *Remove and Plug BNSF Utility "Diesel Oil Line"*: Decrease the quantity (1) LS at the Contract Unit Price of \$3,045.00 per LS for a price decrease of (\$3,045.00).
  - ff. Bid Item 0108, *Remove and Plug BNSF Utility "Diesel Water Line"*: Decrease the quantity (1) LS at the Contract Unit Price of \$3,045.00 per LS for a price decrease of (\$3,045.00).
  - gg. Bid Item 0112, *Topsoil - Strip*: Decrease the quantity (191) CY at the Contract Unit Price of \$4.20 per CY for a price decrease of (\$802.20).
  - hh. Bid Item 0113, *Topsoil - Import*: Increase the quantity 323 CY at the Contract Unit Price of \$42.00 per CY for a price increase of \$13,566.00.
  - ii. Bid Item 0114, *Topsoil - Spread*: Decrease the quantity (191) CY at the Contract Unit Price of \$5.25 per CY for a price decrease of (\$1,002.75).
  - jj. Bid Item 0115, *Embankment*: Increase the quantity 7,311 CY at the Contract Unit Price of \$10.00 per CY for a price increase of \$73,110.00.
  - kk. Bid Item 0116, *Embankment Import*: Decrease the quantity (3,795) CY at the Contract Unit Price of \$17.85 per CY for a price decrease of (\$67,740.75).
  - ll. Bid Item 0119, *Mulching Type 1 - Hydro*: Increase the quantity 15,815 SY at the Contract Unit Price of \$0.37 per SY for a price increase of \$5,851.55.
  - mm. Bid Item 0120, *Seeding Type B*: Increase the quantity 4,321 SY at the Contract Unit Price of \$0.32 per SY for a price increase of \$1,382.72.
  - nn. Bid Item 0121, *Overseeding*: Decrease the quantity (18,687) SY at the Contract Unit Price of \$0.09 per SY for a price decrease of (\$1,681.83).
  - oo. Bid Item 0122, *Weed Control Type B*: Decrease the quantity (18,687) SY at the Contract Unit Price of \$0.07 per SY for a price decrease of (\$1,308.09).
  - pp. Bid Item 0124, *F&I Retaining Wall Reinf Bars - Epoxy Coated Steel*: Increase the quantity 13 LB at the Contract Unit Price of \$1.50 per LB for a price increase of \$19.50.
  - qq. Bid Item 0131, *F&I Floodwall Reinf Bars - Steel*: Increase the quantity 4,333 LB at the Contract Unit Price of \$1.30 per LB for a price increase of \$5,632.90.
  - rr. Bid Item 0132, *F&I Floodwall Reinf Bars - Epoxy Coated Steel*: Increase the quantity 1,114 LB at the Contract Unit Price of \$1.50 per LB for a price increase of \$1,671.00.
  - ss. Bid Item 0133, *F&I Floodwall - Structural Conc*: Increase the quantity 14.6 CY at the Contract Unit Price of \$1,060.00 per CY for a price increase of \$15,476.00.
  - tt. Bid Item 0141, *F&I Impressed 6" Thick Reinf Conc*: Decrease the quantity (14) SY at the Contract Unit Price of \$269.50 per SY for a price decrease of (\$3,773.00).
  - uu. Bid Item 0143, *F&I Sidewalk 8" Thick Reinf Conc*: Decrease the quantity (1) SY at the Contract Unit Price of \$112.20 per SY for a price decrease of (\$112.20).
2. Add Fiber Optic Conduit and Cable: The City of Fargo requested the installation of a fiber optic conduit and cable along 4<sup>th</sup> Ave. North to the traffic control signals at the intersection of 4<sup>th</sup> Ave. N and 2<sup>nd</sup> St. N. The City of Fargo specified the conduit and cable, and the Contractor provided a unit price proposal. The Engineer reviewed the unit price proposal and found it to be acceptable. There is no schedule change associated with this change item.
- a. Add unit price bid item *0149 Install Fiber Optic Pipe*: add the quantity of 200 LF of fiber optic conduit and cable at the Contract Unit Price of \$8.00 per LF for a price increase of \$1,600.00.
3. Additional Sidewalk Traffic Control: Additional traffic control was needed due to an extended construction schedule. The sidewalk installation on the west side of 2<sup>nd</sup> St. N was not completed in

2016 due winter weather conditions. Traffic control measures were needed in 2017 to provide safe working conditions to complete the sidewalk installation. The Engineer reviewed the Contractor’s proposed cost to provide the additional traffic control and found it to be acceptable. The Contractor was able to complete this work in 2017 before the scheduled final completion of the project. There is no schedule change associated with this change item.

- a. Add lump sum bid item *0150 Additional Sidewalk Traffic Control*: add the quantity of 1 LS at the rate of \$1,800.00 per LS for a price increase of \$1,800.00.
- 4. Additional Vibration Monitoring: Additional vibration monitoring was needed on two properties for six months in 2017 due to an extended construction schedule caused by railroad permitting delays. The Engineer reviewed the Contractor’s proposed cost to provide the additional vibration monitoring and found it to be acceptable. The Contractor was able to complete this work in 2017 before the scheduled final completion of the project. There is no schedule change associated with this change item.
  - a. The cost includes the subcontractor cost of \$13,956.00 to monitoring 2 properties for 6 months (a total of 12 months of monitoring in 2017) and a Contractor 5 percent mark-up of subcontractor costs.
  - b. Add lump sum bid item *0151 Additional Vibration Monitoring*: add the quantity of 1 LS at the rate of \$14,654.00 per LS for a price increase of \$14,654.00.

The PMC and HMG have reviewed CO-7 and feel the proposed costs and level of effort are reasonable.

**ATTACHMENT(S):**

1. Draft Change Order 7
2. Change Order 7 Unit Price Schedule
3. Contractor change proposal date June 7, 2017

**Submitted by:**

*John W. Glatzmaier*  
 \_\_\_\_\_  
 John Glatzmaier  
 CH2M  
 Metro Flood Diversion Project

December 8, 2017  
 \_\_\_\_\_  
 Date

\_\_\_\_\_  
 Nathan Boerboom, Diversion Authority Project  
 Manager  
 Concur: \_\_\_\_\_ Non-Concur: \_\_\_\_\_

\_\_\_\_\_  
 Robert Zimmerman, Moorhead City Engineer  
 Concur: \_\_\_\_\_ Non-Concur: \_\_\_\_\_

\_\_\_\_\_  
 Mark Bittner, Fargo Director of Engineering  
 Concur: \_\_\_\_\_ Non-Concur: \_\_\_\_\_

\_\_\_\_\_  
 Jason Benson, Cass County Engineer  
 Concur: \_\_\_\_\_ Non-Concur: \_\_\_\_\_

\_\_\_\_\_  
 David Overbo, Clay County Engineer  
 Concur: \_\_\_\_\_ Non-Concur: \_\_\_\_\_

\_\_\_\_\_  
 Jeff Ebsch, Assistant Cass County Engineer,  
 Diversion Authority Project Manager  
 Concur: \_\_\_\_\_ Non-Concur: \_\_\_\_\_



Change Order No. 07

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Date of Issuance:	<u>12/21/2017</u>	Effective Date:	<u>12/21/2017</u>
Owner:	<u>Metro Flood Diversion Authority</u>	Owner's Contract No.:	<u>WP-42F.1N</u>
Owner's Representative:	<u>CH2M HILL Engineers, Inc.</u>	Owner's Representative Project No.:	<u>435534</u>
Contractor:	<u>Industrial Builders, Inc.</u>	Contractor's Project No.:	<u></u>
Engineer:	<u>Houston-Moore Group, LLC</u>	Work Package No.:	<u>WP-42F.1N</u>

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Project: Fargo-Moorhead Area Diversion Contract Name: Flood Control, 2<sup>nd</sup> Street North, North of Pump Station

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The Contract is modified as follows upon execution of this Change Order:

**Description:**

1. Unit Price Quantity Balancing
  - a. Adjust multiple project unit price bid items quantities to the "as installed" and field verified quantities. The attached Change Order 7 Unit Price Schedule dated 12/7/2017 shows the change to each bid item.
  - b. This change is a price decrease of (\$11, 178.58).
  - c. There is no schedule change associated with this change item.
2. Install Fiber Optic Pipe
  - a. The City of Fargo requested the installation of the fiber optic pipe along the south side of 4<sup>th</sup> Ave N.
  - b. Add unit price bid item *0149 Install Fiber Optic Pipe*: add the quantity of 200 LF of fiber optic conduit at the Contract Unit Price of \$8.00/LF for a price increase of \$1,600.00.
  - c. There is no schedule change associated with this change item.
3. Additional Sidewalk Traffic Control
  - a. Additional sidewalk traffic control was required for installation of the sidewalk along the west side of 2<sup>nd</sup> St N due to the extended construction schedule.
  - b. Add lump sum bid item *0150 Additional Sidewalk Traffic Control*: add the quantity of 1 LS at the rate of \$1,800.00/LS for a price increase of \$1,800.00.
  - c. There is no schedule change associated with this change item.
4. Additional Vibration Monitoring
  - a. Additional vibration monitoring needed on the properties around the project site due to the extended construction schedule.
  - b. Add lump sum bid item *0151 Additional Vibration Monitoring*: add the quantity of 1 LS at the rate of \$14,654.00 /LS for a price increase of \$14,654.00.
  - c. There is no schedule change associated with this change item.



**Attachments:**

Change Order 7 Unit Price Schedule Dated 12/7/2017

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES <i>[note changes in Milestones if applicable]</i>
Original Contract Price:  <b>12,969,699.05</b>	Original Contract Times: Milestone 1: <u>October 15, 2016</u> Milestone 2: <u>20 calendar days after road closure</u> Substantial Completion: <u>October 15, 2016</u> Ready for Final Payment: <u>July 1, 2017</u>
[Increase] [ <del>Decrease</del> ] from previously approved Change Orders No.:  <b>384,007.35</b>	[Increase] [ <del>Decrease</del> ] from previously approved Change Orders No. : Milestone 1: November 23, 2016 Milestone 2: 20 calendar days after road closure Milestone 3: December 23, 2016 Substantial Completion: November 23, 2016 Ready for Final Payment: July 1, 2017
Contract Price prior to this Change Order:  <b>13,353,706.40</b>	Contract Times prior to this Change Order: Milestone 1: November 23, 2016 Milestone 2: 20 calendar days after road closure Milestone 3: December 23, 2016 Substantial Completion: November 23, 2016 Ready for Final Payment: July 1, 2017
[Increase] [ <del>Decrease</del> ] of this Change Order:  <b>6,875.42</b>	[Increase] [ <del>Decrease</del> ] of this Change Order: Milestone 1: Milestone 2: Milestone 3: Substantial Completion: Ready for Final Payment:
Contract Price incorporating this Change Order:  <b>13,360,581.82</b>	Contract Times with all approved Change Orders: Milestone 1: <u>November 23, 2016</u> Milestone 2: <u>20 calendar days after road closure</u> Milestone 3: <u>December 23, 2016</u> Substantial Completion: <u>November 23, 2016</u> Ready for Final Payment: <u>July 1, 2017</u>

RECOMMENDED:		ACCEPTED:		ACCEPTED:	
By: _____	By: _____	By: _____	By: _____	By: _____	By: _____
Owner's Representative <small>(Authorized Signature)</small>	Owner <small>(Authorized Signature)</small>	Owner <small>(Authorized Signature)</small>	Owner <small>(Authorized Signature)</small>	Contractor <small>(Authorized Signature)</small>	Contractor <small>(Authorized Signature)</small>
Name: <u>Nathan Boerboom</u>	Name: <u>Michael J. Redlinger</u>	Name: <u>Michael J. Redlinger</u>	Name: <u>Michael J. Redlinger</u>	Name: <u>Kerry Meske</u>	Name: <u>Kerry Meske</u>
Title: <u>Project Manager</u>	Title: <u>Co-Executive Director</u>	Title: <u>Co-Executive Director</u>	Title: <u>Co-Executive Director</u>	Title: <u>Project Manager</u>	Title: <u>Project Manager</u>
Date: _____	Date: _____	Date: _____	Date: _____	Date: _____	Date: _____

**WP-42F.1N**  
**2nd Street/Downtown Area - In-Town Levees**

Change Order 7 Unit Price Schedule  
 DATE: 12/7/2017



WP-42F.1N - 2nd Street/Downtown Area - In-Town Levees											
ITEM	DESCRIPTION	UNIT	Current Budget			Net Change			New Budget		
			QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT
0001	Remove Sanitary Manhole	EA	3	\$ 735.00	\$ 2,205.00				3	735.00	\$ 2,205.00
0002	F&I Sanitary Manhole 4' Dia Reinf Conc	EA	3	\$ 7,035.00	\$ 21,105.00				3	7,035.00	\$ 21,105.00
0003	F&I Sanitary Manhole w/Ext Drop 4' Dia Reinf Conc	EA	1	\$ 10,290.00	\$ 10,290.00				1	10,290.00	\$ 10,290.00
0004	Connect Sewer Service Option C	EA	2	\$ 1,260.00	\$ 2,520.00				2	1,260.00	\$ 2,520.00
0005	F&I Sanitary Pipe w/GB SDR 26 - 6" Dia PVC	LF	119	\$ 115.00	\$ 13,685.00				119	115.00	\$ 13,685.00
0006	F&I Sanitary Pipe w/GB SDR 26 - 12" Dia PVC	LF	243	\$ 170.00	\$ 41,310.00				243	170.00	\$ 41,310.00
0007	F&I Sanitary Pipe w/GB SDR 35 - 12" Dia PVC	LF	304	\$ 130.00	\$ 39,520.00				304	130.00	\$ 39,520.00
0008	F&I DI Force Main - Fittings	LB	6,280	\$ 6.30	\$ 39,564.00				6280	6.30	\$ 39,564.00
0009	F&I Clean-out Manhole 5' Dia Reinf Conc	EA	1	\$ 54,000.00	\$ 54,000.00				1	54,000.00	\$ 54,000.00
0010	F&I Manhole Type E Reinf Conc	EA	1	\$ 65,000.00	\$ 65,000.00				1	65,000.00	\$ 65,000.00
0011	F&I Valve 30" Dia - Plug Valve	EA	1	\$ 54,000.00	\$ 54,000.00				1	54,000.00	\$ 54,000.00
0012	F&I Pipe w/GB DR 25 - 30" Dia PVC	LF	1,067	\$ 285.00	\$ 304,095.00				1067	285.00	\$ 304,095.00
0013	Remove Sanitary Pipe All Sizes All Types	LF	735	\$ 11.00	\$ 8,085.00				735	11.00	\$ 8,085.00
0014	Plug Sanitary Pipe 8" Diameter	EA	0	\$ 340.00	\$ -				0	340.00	\$ -
0015	Plug Sanitary Pipe 10" Diameter	EA	6	\$ 420.00	\$ 2,520.00				6	420.00	\$ 2,520.00
0016	Plug Sanitary Pipe 12" Diameter	EA	2	\$ 525.00	\$ 1,050.00				2	525.00	\$ 1,050.00
0017	F&I 5" Hydrant	EA	3	\$ 8,505.00	\$ 25,515.00				3	8,505.00	\$ 25,515.00
0018	Remove Hydrant	EA	2	\$ 767.00	\$ 1,534.00				2	767.00	\$ 1,534.00
0019	F&I Watermain Pipe w/GB C900 DR 18 - 6" Dia PVC	LF	51	\$ 88.00	\$ 4,488.00				51	88.00	\$ 4,488.00
0020	F&I Watermain Pipe w/GB C900 DR 18 - 8" Dia PVC	LF	40	\$ 92.00	\$ 3,680.00				40	92.00	\$ 3,680.00
0021	F&I Watermain Pipe w/GB C900 DR 18 - 10" Dia PVC	LF	1,386	\$ 103.00	\$ 142,758.00				1386	103.00	\$ 142,758.00
0022	F&I Gate Valve 6" Dia	EA	5	\$ 2,060.00	\$ 10,300.00				5	2,060.00	\$ 10,300.00
0023	F&I Gate Valve 10" Dia	EA	2	\$ 4,410.00	\$ 8,820.00				2	4,410.00	\$ 8,820.00

WP-42F.1N - 2nd Street/Downtown Area - In-Town Levees											
ITEM	DESCRIPTION	UNIT	Current Budget			Net Change			New Budget		
			QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT
0024	Remove Watermain Pipe All Sizes All Types	LF	247	\$ 11.00	\$ 2,717.00				247	11.00	\$ 2,717.00
0025	Plug Watermain Pipe 6" Diameter	EA	2	\$ 1,345.00	\$ 2,690.00				2	1,345.00	\$ 2,690.00
0026	Transfer Water Service	LS	1	\$ 1,680.00	\$ 1,680.00				1	1,680.00	\$ 1,680.00
0027	F&I Watermain Fittings Ductile Iron	LBS	3,805	\$ 2.10	\$ 7,990.50				3805	2.10	\$ 7,990.50
0028	F&I Storm Manhole 4' Dia Reinf Conc	EA	4	\$ 6,090.00	\$ 24,360.00				4	6,090.00	\$ 24,360.00
0029	F&I Storm Manhole 5' Dia Reinf Conc	EA	5	\$ 7,665.00	\$ 38,325.00				5	7,665.00	\$ 38,325.00
0030	F&I Storm Manhole 6' Dia Reinf Conc	EA	3	\$ 7,980.00	\$ 23,940.00				3	7,980.00	\$ 23,940.00
0031	F&I Storm Manhole 7' Dia Reinf Conc	EA	3	\$ 14,000.00	\$ 42,000.00				3	14,000.00	\$ 42,000.00
0032	F&I Inlet - Manhole (MHI) 4' Dia Reinf Conc	EA	1	\$ 3,885.00	\$ 3,885.00				1	3,885.00	\$ 3,885.00
0033	F&I Inlet - Single Box (SBI) Reinf Conc	EA	10	\$ 3,255.00	\$ 32,550.00				10	3,255.00	\$ 32,550.00
0034	F&I Inlet - Double Box (DBI) Reinf Conc	EA	3	\$ 5,460.00	\$ 16,380.00				3	5,460.00	\$ 16,380.00
0035	F&I Inlet - Round Inlet (RDI) Reinf Conc	EA	2	\$ 1,890.00	\$ 3,780.00				2	1,890.00	\$ 3,780.00
0036	Modify East Bridge Inlet	EA	1	\$ 5,670.00	\$ 5,670.00				1	5,670.00	\$ 5,670.00
0037	Remove Storm Manhole	EA	8	\$ 756.00	\$ 6,048.00				8	756.00	\$ 6,048.00
0038	Remove Storm Inlet	EA	18	\$ 640.00	\$ 11,520.00				18	640.00	\$ 11,520.00
0039	Remove Storm Pipe All Sizes All Types	LF	1,680	\$ 11.00	\$ 18,480.00				1680	11.00	\$ 18,480.00
0040	F&I Storm Pipe 15" Dia Reinf Conc	LF	278	\$ 59.00	\$ 16,402.00				278	59.00	\$ 16,402.00
0041	F&I Storm Pipe w/GB 15" Dia Reinf Conc	LF	357	\$ 93.00	\$ 33,201.00				357	93.00	\$ 33,201.00
0042	F&I Storm Pipe w/GB 18" Dia Reinf Conc	LF	34	\$ 98.00	\$ 3,332.00				34	98.00	\$ 3,332.00
0043	F&I Storm Pipe w/GB 24" Dia Reinf Conc	LF	83	\$ 121.00	\$ 10,043.00				83	121.00	\$ 10,043.00
0044	F&I Storm Pipe w/GB 27" Dia Reinf Conc	LF	383	\$ 153.00	\$ 58,599.00				383	153.00	\$ 58,599.00
0045	F&I Storm Pipe w/GB 36" Dia Reinf Conc	LF	214	\$ 283.00	\$ 60,562.00				214	283.00	\$ 60,562.00
0046	F&I Storm Pipe w/GB 48" Dia Reinf Conc	LF	103.5	\$ 410.00	\$ 42,435.00	0.5	\$ 410.00	\$ 205.00	104.0	410.00	\$ 42,640.00
0047	Remove Pavement All Thicknesses All Types	SY	13,647	\$ 12.00	\$ 163,764.00	502	\$ 12.00	\$ 6,024.00	14149	12.00	\$ 169,788.00
0048	Remove Sidewalk All Thicknesses All Types	SY	3,528	\$ 7.50	\$ 26,460.00	130	\$ 7.50	\$ 975.00	3658	7.50	\$ 27,435.00
0049	Remove Gravel Surfacing All Thicknesses All Types	SY	133	\$ 8.00	\$ 1,064.00				133	8.00	\$ 1,064.00

**WP-42F.1N - 2nd Street/Downtown Area - In-Town Levees**

ITEM	DESCRIPTION	UNIT	Current Budget			Net Change			New Budget		
			QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT
0050	Subgrade Preparation	SY	9,533	\$ 5.25	\$ 50,048.25				9533	5.25	\$ 50,048.25
0051	F&I Woven Geotextile	SY	8,207	\$ 3.15	\$ 25,852.05				8207	3.15	\$ 25,852.05
0052	F&I Class 5 Agg - 6" Thick	SY	1,558	\$ 13.65	\$ 21,266.70				1558	13.65	\$ 21,266.70
0053	F&I Class 5 Agg - 8" Thick	SY	1,062	\$ 15.75	\$ 16,726.50				1062	15.75	\$ 16,726.50
0054	F&I Class 5 Agg - 12" Thick	SY	5,587	\$ 18.90	\$ 105,594.30	(192)	\$ 18.90	\$ (3,628.80)	5395	18.90	\$ 101,965.50
0055	F&I Edge Drain 4" Dia PVC	LF	2,659	\$ 9.50	\$ 25,260.50				2659	9.50	\$ 25,260.50
0056	F&I Curb & Gutter Standard (Type II)	LF	2,659	\$ 30.00	\$ 79,770.00	(37)	\$ 30.00	\$ (1,110.00)	2622	30.00	\$ 78,660.00
0057	F&I Variable Height Curb	LF	36	\$ 57.00	\$ 2,052.00				36	57.00	\$ 2,052.00
0058	Remove Curb & Gutter	LF	2,797	\$ 7.35	\$ 20,557.95	39	\$ 7.35	\$ 286.65	2836	7.35	\$ 20,844.60
0059	F&I Pavement 9" Thick Doweled Conc	SY	4,650	\$ 88.00	\$ 409,200.00	(6)	\$ 88.00	\$ (528.00)	4644	88.00	\$ 408,672.00
0060	F&I Pavement 11" Thick Doweled Conc	SY	208	\$ 90.00	\$ 18,720.00				208	90.00	\$ 18,720.00
0061	F&I Aggregate for Asph Pavement FAA 43	TON	922	\$ 92.00	\$ 84,824.00	(82.5)	\$ 92.00	\$ (7,590.00)	839.5	92.00	\$ 77,234.00
0062	F&I Asphalt Cement PG 58-28	GAL	13,261	\$ 2.05	\$ 27,185.05	(2578.6)	\$ 2.05	\$ (5,286.13)	10682.4	2.05	\$ 21,898.92
0063	F&I Sidewalk 4" Thick Reinf Conc	SY	2,426	\$ 55.00	\$ 133,430.00	(105)	\$ 55.00	\$ (5,775.00)	2321	55.00	\$ 127,655.00
0064	F&I Sidewalk 6" Thick Reinf Conc	SY	751	\$ 65.00	\$ 48,815.00	279	\$ 65.00	\$ 18,135.00	1030	65.00	\$ 66,950.00
0065	Temp Construction Entrance	EA	1	\$ 4,200.00	\$ 4,200.00	(1)	\$ 4,200.00	\$ (4,200.00)	0	4,200.00	\$ -
0066	F&I Impressioned 4" Thick Reinf Conc	SY	621	\$ 218.00	\$ 135,378.00				621	218.00	\$ 135,378.00
0067	F&I Driveway 6" Thick Reinf Conc	SY	22	\$ 105.00	\$ 2,310.00				22	105.00	\$ 2,310.00
0068	F&I Det Warn Panels Cast Iron	SF	123	\$ 60.00	\$ 7,380.00	(27)	\$ 60.00	\$ (1,620.00)	96	60.00	\$ 5,760.00
0069	Reset Sign Assembly	EA	1	\$ 260.00	\$ 260.00				1	260.00	\$ 260.00
0070	F&I Sign Assembly	EA	19	\$ 240.00	\$ 4,560.00				19	240.00	\$ 4,560.00
0071	F&I Engineering Grade	SF	74.5	\$ 25.00	\$ 1,862.50				74.5	25.00	\$ 1,862.50
0072	F&I Diamond Grade Cubed	SF	28.6	\$ 42.00	\$ 1,201.20				28.6	42.00	\$ 1,201.20
0073	F&I High Intensity Prismatic	SF	17.5	\$ 37.00	\$ 647.50				17.5	37.00	\$ 647.50
0074	F&I Grooved Plastic Film Message	SF	223.5	\$ 37.00	\$ 8,269.50	(16)	\$ 37.00	\$ (592.00)	207.5	37.00	\$ 7,677.50
0075	F&I Grooved Plastic Film 4" Wide	LF	2,998	\$ 5.70	\$ 17,088.60	(53)	\$ 5.70	\$ (302.10)	2945	5.70	\$ 16,786.50

WP-42F.1N - 2nd Street/Downtown Area - In-Town Levees											
ITEM	DESCRIPTION	UNIT	Current Budget			Net Change			New Budget		
			QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT
0076	F&I Grooved Plastic Film 8" Wide	LF	391	\$ 12.00	\$ 4,692.00	(3)	\$ 12.00	\$ (36.00)	388	12.00	\$ 4,656.00
0077	F&I Grooved Contrast Film 7" Wide	LF	723	\$ 11.00	\$ 7,953.00	(22)	\$ 11.00	\$ (242.00)	701	11.00	\$ 7,711.00
0078	F&I Methacrylate 6" Wide	LF	339	\$ 27.00	\$ 9,153.00	(10)	\$ 27.00	\$ (270.00)	329	27.00	\$ 8,883.00
0079	F&I Methacrylate 16" Wide	LF	79	\$ 44.00	\$ 3,476.00	2	\$ 44.00	\$ 88.00	81	44.00	\$ 3,564.00
0080	Traffic Control - Type 2	LS	1	\$ 65,000.00	\$ 65,000.00				1	65,000.00	\$ 65,000.00
0081	4" Special Concrete 1	SY	0	\$ 160.00	\$ -				0	160.00	\$ -
0082	4" Special Concrete 3	SY	22	\$ 400.00	\$ 8,800.00	(11)	\$ 400.00	\$ (4,400.00)	11	400.00	\$ 4,400.00
0083	6" Special Concrete 1	SY	155	\$ 165.00	\$ 25,575.00	1	\$ 165.00	\$ 165.00	156	165.00	\$ 25,740.00
0084	6" Special Concrete 2	SY	84	\$ 265.00	\$ 22,260.00				84	265.00	\$ 22,260.00
0085	Mobilization	LS	1	\$ 657,665.00	\$ 657,665.00				1	657,665.00	\$ 657,665.00
0086	Temp Fence - Safety	LF	1,471	\$ 14.00	\$ 20,594.00	(773)	\$ 14.00	\$ (10,822.00)	698	14.00	\$ 9,772.00
0087	Remove Retaining Wall	LS	1	\$ 200,000.00	\$ 200,000.00				1	200,000.00	\$ 200,000.00
0088	Remove Guard Rail	LF	57	\$ 10.00	\$ 570.00				57	10.00	\$ 570.00
0089	Remove Fence All Sizes All Types	LF	579	\$ 10.00	\$ 5,790.00	(279)	\$ 10.00	\$ (2,790.00)	300	10.00	\$ 3,000.00
0090	F&I Chain Link Fence	LF	985	\$ 16.00	\$ 15,760.00	(604)	\$ 16.00	\$ (9,664.00)	381	16.00	\$ 6,096.00
0091	Temp Pumping	LS	1	\$ 63,000.00	\$ 63,000.00				1	63,000.00	\$ 63,000.00
0092	Remove Howard Johnson Inn Pool	LS	1	\$ 15,750.00	\$ 15,750.00				1	15,750.00	\$ 15,750.00
0093	Clear & Grub	LS	1	\$ 5,040.00	\$ 5,040.00				1	5,040.00	\$ 5,040.00
0094	Remove Tree	EA	13	\$ 840.00	\$ 10,920.00	(4)	\$ 840.00	\$ (3,360.00)	9	840.00	\$ 7,560.00
0095	Remove Parking Lot Concrete Bumpers	EA	34	\$ 262.00	\$ 8,908.00				34	262.00	\$ 8,908.00
0096	Silt Fence - Standard	LF	827	\$ 2.65	\$ 2,191.55				827	2.65	\$ 2,191.55
0097	Sediment Control Log 10" to 15" Dia	LF	1,406	\$ 3.15	\$ 4,428.90	(1141)	\$ 3.15	\$ (3,594.15)	265	3.15	\$ 834.75
0098	F&I Erosion Control Blanket	SY	301	\$ 2.10	\$ 632.10	121	\$ 2.10	\$ 254.10	422	2.10	\$ 886.20
0099	Inlet Protection - New Inlet	EA	23	\$ 155.00	\$ 3,565.00	(6)	\$ 155.00	\$ (930.00)	17	155.00	\$ 2,635.00
0100	Inlet Protection - Existing Inlet	EA	22	\$ 120.00	\$ 2,640.00	(16)	\$ 120.00	\$ (1,920.00)	6	120.00	\$ 720.00
0101	Remove Traffic Lighting	LS	1	\$ 6,000.00	\$ 6,000.00				1	6,000.00	\$ 6,000.00

WP-42F.1N - 2nd Street/Downtown Area - In-Town Levees											
ITEM	DESCRIPTION	UNIT	Current Budget			Net Change			New Budget		
			QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT
0102	Street Lighting	LS	1	\$ 120,000.00	\$ 120,000.00	(0.02375)	\$ 120,000.00	\$ (2,850.00)	0.97625	120,000.00	\$ 117,150.00
0103	Remove Outfall Including Adjacent Concrete Structures	EA	1	\$ 15,750.00	\$ 15,750.00				1	15,750.00	\$ 15,750.00
0104	Remove and Salvage Traffic Signal Equipment - System A (2nd St / 4th Ave N)	LS	1	\$ 6,000.00	\$ 6,000.00				1	6,000.00	\$ 6,000.00
0105	Traffic Signal System "A" (2 St / 4th Ave N)	LS	1	\$ 195,000.00	\$ 195,000.00				1	195,000.00	\$ 195,000.00
0106	Remove and Salvage Traffic Signal Equipment - System "B" (2nd St / 3rd Ave N)	LS	1	\$ 6,000.00	\$ 6,000.00				1	6,000.00	\$ 6,000.00
0107	Remove and Plug BNSF Utility "Diesel Oil Line"	LS	1	\$ 3,045.00	\$ 3,045.00	(1)	\$ 3,045.00	\$ (3,045.00)	0	3,045.00	\$ -
0108	Remove and Plug BNSF Utility "Diesel Water Line"	LS	1	\$ 3,045.00	\$ 3,045.00	(1)	\$ 3,045.00	\$ (3,045.00)	0	3,045.00	\$ -
0109	Remove and Plug BNSF Utility "Watermain"	LS	1	\$ 3,045.00	\$ 3,045.00				1	3,045.00	\$ 3,045.00
0110	Jersey Barrier Formed	LF	180	\$ 320.00	\$ 57,600.00				180	320.00	\$ 57,600.00
0111	F&I Sheet Piling - Steel	SF	472	\$ 50.00	\$ 23,600.00				472	50.00	\$ 23,600.00
0112	Topsoil - Strip	CY	365	\$ 4.20	\$ 1,533.00	(191)	\$ 4.20	\$ (802.20)	174	4.20	\$ 730.80
0113	Topsoil - Import	CY	1,810	\$ 42.00	\$ 76,020.00	323	\$ 42.00	\$ 13,566.00	2133	42.00	\$ 89,586.00
0114	Topsoil - Spread	CY	365	\$ 5.25	\$ 1,916.25	(191)	\$ 5.25	\$ (1,002.75)	174	5.25	\$ 913.50
0115	Embankment	CY	2,871	\$ 10.00	\$ 28,710.00	7311	\$ 10.00	\$ 73,110.00	10182	10.00	\$ 101,820.00
0116	Embankment Import	CY	16,475	\$ 17.85	\$ 294,078.75	(3795)	\$ 17.85	\$ (67,740.75)	12680	17.85	\$ 226,338.00
0117	Subcut	CY	2,770	\$ 15.00	\$ 41,550.00				2770	15.00	\$ 41,550.00
0118	Excavation	CY	2,871	\$ 6.30	\$ 18,087.30				2871	6.30	\$ 18,087.30
0119	Mulching Type 1 - Hydro	SY	18,687	\$ 0.37	\$ 6,914.19	15815	\$ 0.37	\$ 5,851.55	34502	0.37	\$ 12,765.74
0120	Seeding Type B	SY	18,687	\$ 0.32	\$ 5,979.84	4321	\$ 0.32	\$ 1,382.72	23008	0.32	\$ 7,362.56
0121	Overseeding	SY	18,687	\$ 0.09	\$ 1,681.83	(18687)	\$ 0.09	\$ (1,681.83)	0	0.09	\$ -
0122	Weed Control Type B	SY	18,687	\$ 0.07	\$ 1,308.09	(18687)	\$ 0.07	\$ (1,308.09)	0	0.07	\$ -
0123	F&I Retaining Wall Reinf Bars - Steel	LB	100,899	\$ 1.30	\$ 131,168.70				100899	1.30	\$ 131,168.70
0124	F&I Retaining Wall Reinf Bars - Epoxy Coated Steel	LB	126,896	\$ 1.50	\$ 190,344.00	13	\$ 1.50	\$ 19.50	126909	1.50	\$ 190,363.50
0125	F&I Retaining Wall - Structural Conc	CY	1,125	\$ 1,100.00	\$ 1,237,500.00				1125	1,100.00	\$ 1,237,500.00
0126	F&I Handrail/Ornamental Fence	LF	425	\$ 300.00	\$ 127,500.00				425	300.00	\$ 127,500.00
0127	Lean Mix Backfill	CY	222	\$ 300.00	\$ 66,600.00				222	300.00	\$ 66,600.00

WP-42F.1N - 2nd Street/Downtown Area - In-Town Levees											
ITEM	DESCRIPTION	UNIT	Current Budget			Net Change			New Budget		
			QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT
0128	Retaining Wall Drainage	LS	1	\$ 50,000.00	\$ 50,000.00				1	50,000.00	\$ 50,000.00
0129	Retaining Wall Shoring	LS	1	\$ 350,000.00	\$ 350,000.00				1	350,000.00	\$ 350,000.00
0130	Removable Floodwall	SF	369	\$ 140.00	\$ 51,660.00				369	140.00	\$ 51,660.00
0131	F&I Floodwall Reinf Bars - Steel	LB	549,137	\$ 1.30	\$ 713,878.10	4333	\$ 1.30	\$ 5,632.90	553470	1.30	\$ 719,511.00
0132	F&I Floodwall Reinf Bars - Epoxy Coated Steel	LB	211,746	\$ 1.50	\$ 317,619.00	1114	\$ 1.50	\$ 1,671.00	212860	1.50	\$ 319,290.00
0133	F&I Floodwall - Structural Conc	CY	4,325	\$ 1,060.00	\$ 4,584,500.00	14.6	\$ 1,060.00	\$ 15,476.00	4339.6	1,060.00	\$ 4,599,976.00
0134	Concrete Surface Stain	LS	1	\$ 325,000.00	\$ 325,000.00				1	325,000.00	\$ 325,000.00
0135	BNSF Bridge Modifications	LS	1	\$ 85,000.00	\$ 85,000.00				1	85,000.00	\$ 85,000.00
0136	F&I 4" Watermain Insulation	SY	20	\$ 55.00	\$ 1,100.00				20	55.00	\$ 1,100.00
0137	F&I Revised Floodwall Caps	LS	1	\$ 7,572.00	\$ 7,572.00				1	7,572.00	\$ 7,572.00
0138	Differing Subsurface Conditions	LS	1	\$ 219,351.20	\$ 219,351.20				1	219,351.20	\$ 219,351.20
0139	Temporary Water Service	LS	1	\$ 1,980.00	\$ 1,980.00				1	1,980.00	\$ 1,980.00
0140	Howard Johnson Foundation Removal	LS	1	\$ 4,400.00	\$ 4,400.00				1	4,400.00	\$ 4,400.00
0141	F&I Impressed 6" Thick Reinf Conc	SY	25	\$ 269.50	\$ 6,737.50	(14)	\$ 269.50	\$ (3,773.00)	11	269.50	\$ 2,964.50
0142	Additional Bridge Lighting	LS	1	\$ 5,967.00	\$ 5,967.00				1	5,967.00	\$ 5,967.00
0143	F&I Sidewalk 8" Thick Reinf Conc	SY	90	\$ 112.20	\$ 10,098.00	(1)	\$ 112.20	\$ (112.20)	89	112.20	\$ 9,985.80
0144	F&I Pull Box	EA	4	\$ 1,100.00	\$ 4,400.00				4	1,100.00	\$ 4,400.00
0145	Winter Suspension Striping	LS	1	\$ 6,182.00	\$ 6,182.00				1	6,182.00	\$ 6,182.00
0146	F&I Railroad Ties - 8"x12"	LS	1	\$ 1,395.00	\$ 1,395.00				1	1,395.00	\$ 1,395.00
0147	F&I Tapered Floodwall Cap	LS	1	\$ 2,545.00	\$ 2,545.00				1	2,545.00	\$ 2,545.00
0148	Sidewalk Traffic Control	LS	1	\$ 3,600.00	\$ 3,600.00				1	3,600.00	\$ 3,600.00
0149	Install Fiber Optic Pipe	LF			\$ -	200	\$ 8.00	\$ 1,600.00	200	8.00	\$ 1,600.00
0150	Additional Sidewalk Traffic Control	LS			\$ -	1	\$ 1,800.00	\$ 1,800.00	1	1,800.00	\$ 1,800.00
0151	Additional Vibration Monitoring	LS			\$ -	1	\$ 14,654.00	\$ 14,654.00	1	14,654.00	\$ 14,654.00
<b>WP-42F.1N - TOTAL AMOUNT</b>			<b>CURRENT BUDGET</b>		<b>\$ 13,353,706.40</b>	<b>NET CHANGE</b>		<b>\$ 6,875.42</b>	<b>NEW BUDGET</b>		<b>\$ 13,360,581.82</b>

# CHANGE ORDER REQUEST

Industrial Builders, Inc.  
16169- - 2nd Street North Floodwall WP-42F.1N

DATE: 06/07/2017  
PCO#: 10

**To:** Randy Engelstad  
Houston Engineering, Inc.  
1401 21<sup>st</sup> Ave. North  
Fargo, ND 58102  
**Phone:** 701-237-5065  
**Fax:**  
**Email:** rengelstad@houstoneng.com  
**CC:**

**From:** Kerry M. Meske  
Industrial Builders, Inc.  
PO Box 406  
Fargo, ND 58107-0406  
**Phone:** 701-282-4977  
**Fax:**  
**Email:** kmeske@industrialbuilders.com

Below is the detail for our proposal to complete the following changes in contract work:

## PCO: Additional Vibration Monitoring Services

- Proposed Scope of Work: 2017 Vibration Monitoring resulting from project delays in 2016.

PCO Item	Status	Change (in Days)	Quantity	UM	Unit Price	Amount
1: Additional Vibration Monitoring Services	Initiated	None	1	LS	\$14,654.00	\$14,654.00
Total						\$14,654.00

Notes: See attached Braun Intertec's 2017 vibration monitoring cost breakdown.

Submitted By:

Approved By:

*Kerry M. Meske*

06/07/2017

Kerry M. Meske  
Industrial Builders, Inc.

Date

Randy Engelstad  
Houston Engineering, Inc

Date



## Kerry Meske

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**Subject:** FW: WP42F1N vibration monitoring, Change Order No. 1

**From:** Haugstad, Matthew [mailto:MHaugstad@braunintertec.com]  
**Sent:** Tuesday, June 06, 2017 11:09 AM  
**To:** Kerry Meske <kmeske@industrialbuilders.com>  
**Subject:** RE: WP42F1N vibration monitoring, Change Order No. 1

Kerry,

These tables are in reference to the **vibration monitoring only**. We expect the Post-Construction Condition Surveys will be completed within the proposed scope for Phase 1 as discussed within our Change Order No. 1.

	Monitoring Months	Vibration Monitoring Invoiced	
2016	34	\$36,832.00	
2017	*12	\$13,956.00	
Total	*46	\$50,788.00	
<b>2017 Breakdown</b>			
	Months/Hours	Unit Cost	Totals
Staff Engineer	20 hrs	\$130.00	\$2,600.00
Senior Engineer	5 hrs	\$176.00	\$880.00
Vibration Monitor	12 months	\$873.00	\$10,476.00
		Total	\$13,956.00
* Based on Vibration Monitoring completion date of June 6, 2017.			
Estimated Costs Based on 2017 Projections.			

I hope this helps. Call me with any questions and let me know if you are looking for something different.

Regards,  
**Matt Haugstad**  
Braun Intertec  
701.630.1245  
[mhaugstad@braunintertec.com](mailto:mhaugstad@braunintertec.com)



## Recommended Contracting Actions

Date: December 20, 2017

Description	Company	Budget Estimate (\$)
<b><i>Construction Change Orders – Diversion Authority</i></b>		
<p><b>WP 43CD – OHB ring Levee Phases C &amp; D</b></p> <p><b>Change Order 02</b></p> <ul style="list-style-type: none"> <li>• Incorporate previously approved WCD-001 and WCD-002</li> <li>• Add additional borrow pit stripping</li> <li>• Add additional utility removals, protection, relocations and damage repair</li> <li>• Add temporary access road</li> </ul>	Meyer Contracting	<b>\$508,207.56</b>



METRO FLOOD DIVERSION PROJECT

**Technical Advisory Group Recommendation**

Meeting Date: 12/13/2017

**RECOMMENDATION FOR ACTION:**

The Technical Advisory Group has reviewed and recommends approval of the following Contract Action(s).

**SUMMARY OF CONTRACTING ACTION:**

Per the contract review and approval procedures that were adopted by the Diversion Authority on November 10, 2016, the Owner’s Program Management Consultant (PMC) or Engineer of Record (EOR) shall submit a construction Change Order request to the Technical Advisory Group. The Technical Advisory Group shall review the Change Order request during its next regular meeting after receiving the Change Order request, and make a recommendation as to approval or denial of the Change Order request.

The Owner’s Representative has prepared the following Contract Action(s):

Description	Budget Estimate (\$)
<b>WP-43CD: Meyer Contracting, Inc.</b>	
<i>Change Order #02</i>	<b><i>\$508,207.56</i></b>
<ul style="list-style-type: none"> <li>• Incorporate WCD-001 and WCD-002</li> <li>• Add additional borrow pit stripping</li> <li>• Add additional utility removals, protection, adjustments, relocations, and damage repair</li> <li>• Add temporary access road</li> </ul>	

**Summary of Contracting History and Current Contract Action:**

The MFDA awarded the WP-43CD (OHB Ring Levee – Phases C and D) construction contract to Meyer Contracting, Inc. on July 13, 2017.

Since the start of construction, several contract change items have been identified. Change Order No. 2: incorporates WCD-001 and WCD-002; adds additional borrow pit stripping; adds additional utility removals, protection, adjustments, relocations, and damage repair; and adds a temporary access road.

Below is a summary of contracting history to date along with the current contracting action.

Original Agreement or Amendment	Budget (\$) Change	Original Project Cost	Revised Project Cost	Project Start	Project Completion	Comments
Original Contract	\$0.00	\$10,399,476.21		09-Aug-17	31-Oct-18	Contract Award to Meyer Consulting, Inc.
Change Order No. 1	\$7,383.47		\$10,406,859.68	09-Aug-17	31-Oct-18	Add heat-shrink sleeves, additional steel pipe bedding, backfill, and time.
Change Order No. 2	\$508,207.56		\$10,915,067.24	09-Aug-17	31-Oct-18	Incorporate WCD-001 and WCD-002; add additional borrow pit stripping;

Original Agreement or Amendment	Budget (\$) Change	Original Project Cost	Revised Project Cost	Project Start	Project Completion	Comments
						utility work; and a temporary access road.

**Financial Considerations:**

Attached for your review and action is draft CO-02. The PMC and the EOR have reviewed CO-02 and feel the proposed costs and level of effort are reasonable. This change order increases the total Contract Price \$508,207.56. The change order consists of the following items:

1. Removing utilities outside of scope: Several small utilities along the footprint of the WP-43C levee were not included in a demolition or construction contract and needed to be removed to construct the levee.
  - a. Work Change Directive No. 1 (WCD-001) authorized removal of utilities under the footprint of the WP-43C levee that were not included in other contracts.
  - b. This work was done on a time and material basis and the EOR concurred with Contractor’s submittal.
  - c. This change adds Bid Item 0149, *CO-2: Removing utilities outside of scope*: lump sum quantity 1.0 LS at the Contract Unit Price of \$31,932.01 per LS for a price increase of \$31,932.01.
  
2. Additional borrow pit stripping: During topsoil stripping operations, unsuitable material was discovered that could not be used for levee or roadway embankment material. A disposal site was not available at the time of the discovery and to minimize cost and schedule impacts the material was placed adjacent to the borrow site until a decision could be made on where to dispose of it.
  - a. This change includes removal and stockpiling of the material.
  - b. As construction of the levee was nearing completion and the OCC golf course construction followed, it was determined that the OCC golf course could be used as a spoil area.
    - i. This site was close to the project site and significantly reduce the hauling cost to the Owner, versus hauling it miles away to an offsite spoil area. WCD No. 2 authorized Meyer to place and spread this material in the OCC golf course grading area.
  - c. This work was done on a time and material basis and the EOR concurred with Contractor’s submittal.
  - d. This change adds Bid Item 0150, *CO-2: Additional borrow pit stripping*: lump sum quantity 1.0 LS at the Contract Unit Price of \$38,606.86 per LS for a price increase of \$38,606.86.
  
3. Subcut in levee footprint: Field identified unsuitable material in the footprint of the WP-43C levee is required to be remove per the project specifications.
  - a. WCD-001 authorized removal and placement of unsuitable levee material in the golf course spoil area at an agreed to unit rate \$4.00 per CY.
  - b. The Engineer verified quantity removed was 9,990 CY.
  - c. This change adds Bid Item 0151, *CO-2: Subcut in levee footprint*: unit rate quantity of 9,990 CY at the Contract Unit Price of \$4.00 per CY for a price increase of \$39,960.00.

4. Repair unmarked water pipe: A 3-inch PVC water line was damaged due to inaccurate utility location markings, and the Contractor repaired the damage on a time and materials basis.
  - a. The Engineer agreed that this is a reimbursable cost and concurred with the Contractor's proposed costs.
  - b. This change adds Bid Item 0152, *CO-2: Repair unmarked water pipe*: unit rate quantity of 1.0 LS at the Contract Unit Price of \$3,534.25 per LS for a price increase of \$3,534.25.
5. Golf course pond dirt: To minimize costs and schedule delays, and also allowing the Contractor to use a portion of Oxbow Drive as a haul road, this pond excavation work was deducted from Landscapes Unlimited golf course contract and added to this contract at a negotiated unit rate.
  - a. WCD-001 authorized removal and placement in the golf course spoil area of golf course pond material at an agreed to unit rate \$4.00 per CY. The Engineer verified quantity removed was 3,725 CY.
  - b. This change adds Bid Item 0153, *CO-2: Golf course pond dirt*: unit rate quantity of 3,725 CY at the Contract Unit Price of \$4.00 per CY for a price increase of \$14,900.00.
6. Pothole & protect unmarked Oxbow utilities: During installation of the 8-inch sanitary sewer line on Oxbow Drive the Contractor encountered several unmarked utilities. The Contractor pothole marked the utilities and protected them during construction, and requested reimbursement of costs to mark and protect these utility lines.
  - a. The Engineer agreed that this is a reimbursable cost and concurred with the Contractor's proposed costs.
  - b. This change adds Bid Item 0154, *CO-2: Pothole & protect unmarked Oxbow utilities*: unit rate quantity of 1.0 LS at the Contract Unit Price of \$1,927.60 per LS for a price increase of \$1,927.60.
7. Additional traffic control: Additional traffic control signage was coordinated with the Cass County Highway Department and ND DOT, and was added to better control and direct traffic around the project site.
  - a. WCD-001 authorized additional traffic control at an agreed to lump sum rate.
  - b. This change adds Bid Item 0155, *CO-2: Additional traffic control*: unit rate quantity of 1.0 LS at the Contract Unit Price of \$3,885.00 per LS for a price increase of \$3,885.00.
8. Adjust STMH-1 to match ex. 18" RCP: During installation of manhole STMH-1, it was determined that the existing 18-inch diameter RCP storm sewer pipe was approximately 5-feet higher than indicated and could not be lowered. Because the manhole had already been cast and delivered to the site, the Contractor had to modify it in the field to fit field conditions. The Contractor requested reimbursement of their time and material costs to field modify STMH-1.
  - a. The Engineer agreed that this is a reimbursable cost and concurred with the Contractor's proposed costs.
  - b. This change adds Bid Item 0156, *CO-2: Adjust STMH-1 to match ex. 18" RCP*: unit rate quantity of 1.0 LS at the Contract Unit Price of \$4,706.46 per LS for a price increase of \$4,706.46.
9. Oxbow watermain realignment: A utility conflict was identified in the field during installation of the new storm sewer on Oxbow Drive. The existing water main conflicted with the new storm sewer.
  - a. It was determined that it would be easier and less expensive to relocate the water line, and the Contractor was directed to do the work. The Contractor requested reimbursement of their time and material costs to reroute a portion of the water main on Oxbow Drive.

- b. The Engineer agreed that this is a reimbursable cost and concurred with the Contractor's proposed time and materials costs.
  - c. This change adds Bid Item 0157, *CO-2: Oxbow watermain realignment*: unit rate quantity of 1.0 LS at the Contract Unit Price of \$17,027.45 per LS for a price increase of \$17,027.45.
10. Redirect 3IN WM to 6IN WM: A utility installation scheduling conflict was identified during construction of the Highway 81 roadway embankment. To minimize cost and schedule impacts to the Highway 81 roadway embankment work, the Contractor incurred costs to redirect a 3-inch water main into an existing 6-inch water main to maintain service and free-up the space for installation of a communications utility.
- a. The Contractor requested reimbursement of their time and material costs to reroute a portion of the 3-inch water main into a 6-inch water main.
  - b. The Engineer agreed that this is a reimbursable cost and concurred with the Contractor's proposed time and materials costs.
  - c. This change adds Bid Item 0158, *CO-2: Redirect 3IN WM to 6IN WM*: unit rate quantity of 1.0 LS at the Contract Unit Price of \$5,644.72 per LS for a price increase of \$5,644.72.
11. Move unsuitable material to golf course: During topsoil stripping operations, unsuitable material was discovered that could not be used for levee or roadway embankment material. A disposal site was not available at the time of the discovery and to minimize cost and schedule impacts the material was placed adjacent to the borrow site until a decision could be made on where to place it.
- a. After at disposal site was identified, Work Change Directive No. 2 (WCD-002) authorized the loading and hauling of the 14,875 CY of unsuitable material to the golf course disposal site at a negotiated unit rate cost.
  - b. This change adds Bid Item 0159, *CO-2: Move unsuitable material to golf course*: unit price quantity 14,875 CY at the Contract Unit Price of \$4.75 per CY for a price increase of \$70,656.25.
12. Additional ARVs: The contract includes relocation of two (2) existing City of Fargo sanitary sewer force mains. Two (2) Air Release Valves (ARVs) that are required by the City of Fargo were not included on the plans.
- a. The Contractor provided a cost proposal to added the City of Fargo specified valves and associated equipment and the Engineer concurred with the Contractor's proposed costs.
  - b. This change adds Bid Item 0160, *CO-2: Additional ARVs*: unit rate quantity of 1.0 LS at the Contract Unit Price of \$7,189.16 per LS for a price increase of \$7,189.16.
13. Temporary access road south of Riverbend Road: Due to a project site access conflict between the WP-43CD Contractor and the WP-43E2F contractor for a portion of Riverbend Road and as a compromise to maintain the access and work schedule for both contractors, an agreement was reached such that the WP-43CD Contractor would provide a temporary work access route to complete the remaining WP-43E2F work in exchange for access to Riverbend Road to continue levee construction.
- a. The lump sum cost was negotiated between the Contractor and the Engineer.
  - b. This change adds Bid Item 0161, *CO-2: Temporary access road south of Riverbend Road*: unit rate quantity of 1.0 LS at the Contract Unit Price of \$37,000.00 per LS for a price increase of \$37,000.00.

14. Cass Rural Water Casing Pipe Install: To minimize cost and schedule impacts to the Highway 81 roadway embankment work, the Contractor was requested to install a portion of a Cass Rural Water utility relocation.
  - a. WCD-001 authorized the installation of the segment of the Cass Rural Water casing pipe under the WP-43C levee.
  - b. This change adds Bid Item 0162, *CO-2: Cass Rural Water Casing Pipe Install*: unit rate quantity of 1.0 LS at the Contract Unit Price of \$242,908.80 per LS for a price increase of \$242,908.80.
15. NCN No. 3 Owner testing cost set-off: Per NCN #3, a discontinuity in the WP-43CD pump station slab was observed and the Diversion Authority incurred \$11,671 in consulting and non-destructive concrete impact echo testing costs to determine the extent of the damage. Per the General Conditions of the Agreement, Section 14.03F, Defective Work, Costs and Damages, the Diversion Authority is deducting these testing costs from the contract price.
  - a. This change adds Bid Item 0163, *CO-2: NCN No. 3 Owner testing cost set-off*: unit rate quantity of 1.0 LS at the Contract Unit Price of (\$11,671.00) per LS for a price increase of (\$11,671.00).
16. Time Extension: Due to the changes above, the Contractor has requested and the Engineer agrees to the following contract time changes:
  - a. Milestone 5 - Levee 43C Station C15+00 to C0+00:
    - i. Add six (6) days, extending the completion date to October 16, 2017.
  - b. Milestone 6 - Oxbow Drive (Phase 2):
    - i. Add four (4) days, extending the completion date to October 19, 2017.
  - c. Milestone 6 - Highway 81 paving:
    - i. Add five (5) days, extending the completion date to October 22, 2017.
  - a. Milestone 8 - All work, except Pump Station mechanical and electrical components and finishes; bituminous road wear course:
    - a. Add one (1) day, extending the completion date to January 1, 2018.

This change amount of \$508,207.56 is included within the FY-2017 MFDA budget.

**ATTACHMENT(S):**

- 1. Draft Change Order No. 02 with unit price schedule and back-up documentation

**Submitted by:**

*John W. Glatzmaier*  
\_\_\_\_\_  
John Glatzmaier  
CH2M  
Metro Flood Diversion Project

December 13, 2017  
\_\_\_\_\_  
Date

\_\_\_\_\_  
Nathan Boerboom, Diversion Authority Project  
Manager  
Concur: \_\_\_\_\_ Non-Concur: \_\_\_\_\_

\_\_\_\_\_  
Robert Zimmerman, Moorhead City Engineer  
Concur: \_\_\_\_\_ Non-Concur: \_\_\_\_\_

\_\_\_\_\_  
Mark Bittner, Fargo Director of Engineering  
Concur: \_\_\_\_\_ Non-Concur: \_\_\_\_\_

\_\_\_\_\_  
Jason Benson, Cass County Engineer  
Concur: \_\_\_\_\_ Non-Concur: \_\_\_\_\_

\_\_\_\_\_  
David Overbo, Clay County Engineer  
Concur: \_\_\_\_\_ Non-Concur: \_\_\_\_\_

\_\_\_\_\_  
Jeff Ebsch, Assistant Cass County Engineer, Diversion  
Authority Project Manager  
Concur: \_\_\_\_\_ Non-Concur: \_\_\_\_\_





Change Order No. 02

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Date of Issuance:	<u>12/21/2017</u>	Effective Date:	<u>12/21/2017</u>
Owner:	<u>FM-Flood Diversion Authority</u>	Owner's Contract No.:	<u>WP-43CD</u>
Owner's Representative:	<u>CH2M HILL Engineers, Inc.</u>	Owner's Representative Project No.:	<u>435534</u>
Contractor:	<u>Meyer Contracting, Inc</u>	Contractor's Project No.:	<u></u>
Engineer:	<u>Houston-Moore Group, LLC</u>	Work Package No.:	<u>WP-43CD</u>
Project:	<u>OHB-Ring Levee-Phases C and D</u>	Contract Name:	<u>Oxbow-Hickson-Bakke Ring Levee</u>

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The Contract is modified as follows upon execution of this Change Order:

**Description:**

This change order increases the contract price by \$508,207.56 as shown in the attached Change Order No. 2 Unit Price Schedule, and extends the contract time for Milestones 5, 6, 7, and 8. The Engineer reviewed these change items and recommends approval. The following items are included in this change order:

1. Removing utilities outside of scope: Several small utilities along the footprint of the WP-43C levee were not included in a demolition or construction contract and needed to be removed to construct the levee. Work Change Directive No. 1 (WCD-001) authorized removal of utilities under the footprint of the WP-43C levee that were not included in other contracts.
  - a. ADD Bid Item 0149, *CO-2: Removing utilities outside of scope*: lump sum quantity 1.0 LS at the Contract Unit Price of \$31,932.01 per LS for a price increase of \$31,932.01.
2. Additional borrow pit stripping: During topsoil stripping operations, unsuitable material was discovered that could not be used for levee or roadway embankment material. A disposal site was not available at the time of the discovery and to minimize impacts to construction scheduling the material was placed adjacent to the borrow site until a decision could be made on where to place it. This change includes removal and stockpiling of the material. Later, a disposal site became available and item #11 of this change order includes placement of this material in a golf course spoil area.
  - a. ADD Bid Item 0150, *CO-2: Additional borrow pit stripping*: lump sum quantity 1.0 LS at the Contract Unit Price of \$38,606.86 per LS for a price increase of \$38,606.86.
3. Subcut in levee footprint: Field identified unsuitable material in the footprint of the WP-43C levee is required to be removed per the project specifications. WCD-001 authorized removal and placement of unsuitable levee material in the golf course spoil area at an agreed to unit rate \$4.00 per CY. The Engineer verified quantity removed was 9,990 CY.
  - a. ADD Bid Item 0151, *CO-2: Subcut in levee footprint*: unit rate quantity of 9,990 CY at the Contract Unit Price of \$4.00 per CY for a price increase of \$39,960.00.

4. Repair unmarked water pipe: A 3-inch PVC water line was damaged due to inaccurate utility location markings, and the Contractor repaired the damage on a time and materials basis. The Engineer agreed that this is a reimbursable cost and concurred with the Contractor's proposed costs.
  - a. ADD Bid Item 0152, *CO-2: Repair unmarked water pipe*: unit rate quantity of 1.0 LS at the Contract Unit Price of \$3,534.25 per LS for a price increase of \$3,534.25.
5. Golf course pond dirt: To minimize costs and schedule delays and also allowing the Contractor to use a portion of Oxbow Drive as a haul road, this pond excavation work was deducted from Landscapes Unlimited golf course contract and added to this contract at a negotiated unit rate. WCD-001 authorized removal and placement in the golf course spoil area of golf course pond material at an agreed to unit rate \$4.00 per CY. The Engineer verified quantity removed was 3,725 CY.
  - a. ADD Bid Item 0153, *CO-2: Golf course pond dirt*: unit rate quantity of 3,725 CY at the Contract Unit Price of \$4.00 per CY for a price increase of \$14,900.00.
6. Pothole & protect unmarked Oxbow utilities: During installation of the 8-inch sanitary sewer line on Oxbow Drive the Contractor encountered several unmarked utilities. The Contractor requested reimbursement of costs to mark and protect these utility lines. The Engineer agreed that this is a reimbursable cost and concurred with the Contractor's proposed costs.
  - a. ADD Bid Item 0154, *CO-2: Pothole & protect unmarked Oxbow utilities*: unit rate quantity of 1.0 LS at the Contract Unit Price of \$1,927.60 per LS for a price increase of \$1,927.60.
7. Additional traffic control: Additional traffic control signage, as coordinated with the Cass County Highway Department and ND DOT, was added to better control and direct traffic around the project site. WCD-001 authorized additional traffic control at an agreed to lump sum rate.
  - a. ADD Bid Item 0155, *CO-2: Additional traffic control*: unit rate quantity of 1.0 LS at the Contract Unit Price of \$3,885.00 per LS for a price increase of \$3,885.00.
8. Adjust STMH-1 to match ex. 18" RCP: During installation of manhole STMH-1, it was determined that the existing 18-inch diameter RCP storm sewer pipe was approximately 5-feet higher than indicated and could not be lowered. Because the manhole had already been cast and delivered to the site, the Contractor had to modify it in the field to fit field conditions. The Contractor requested reimbursement of their time and material costs to field modify STMH-1. The Engineer agreed that this is a reimbursable cost and concurred with the Contractor's proposed costs.
  - a. ADD Bid Item 0156, *CO-2: Adjust STMH-1 to match ex. 18" RCP*: unit rate quantity of 1.0 LS at the Contract Unit Price of \$4,706.46 per LS for a price increase of \$4,706.46.
9. Oxbow watermain realignment: A utility conflict was identified in the field during installation of the new storm sewer on Oxbow Drive. The existing water main conflicted with the new storm sewer. It was determined that it would be easier and less expensive to relocate the water line, and the Contractor was directed to do the work. The Contractor requested reimbursement of their time and material costs to reroute a portion of the water main on Oxbow Drive. The Engineer agreed that this is a reimbursable cost and concurred with the Contractor's proposed time and materials costs.

- a. ADD Bid Item 0157, *CO-2: Oxbow watermain realignment*: unit rate quantity of 1.0 LS at the Contract Unit Price of \$17,027.45 per LS for a price increase of \$17,027.45.
10. Redirect 3IN WM to 6IN WM: A utility installation scheduling conflict was identified during construction of the Highway 81 roadway embankment. To minimize cost and schedule impacts to the Highway 81 roadway embankment work, the Contractor incurred costs to redirect a 3-inch water main into an existing 6-inch water main to maintain service and free-up the space for installation of a communications utility. The Contractor requested reimbursement of their time and material costs to reroute a portion of the 3-inch water main into a 6-inch water main. The Engineer agreed that this is a reimbursable cost and concurred with the Contractor's proposed time and materials costs.
  - a. ADD Bid Item 0158, *CO-2: Redirect 3IN WM to 6IN WM*: unit rate quantity of 1.0 LS at the Contract Unit Price of \$5,644.72 per LS for a price increase of \$5,644.72.
11. Move unsuitable material to golf course: During topsoil stripping operations, unsuitable material was discovered that could not be used for levee or roadway embankment material. A disposal site was not available at the time of the discovery and to minimize impacts to construction scheduling the material was placed adjacent to the borrow site until a decision could be made on where to place it. After a disposal site was identified, Work Change Directive No. 2 (WCD-002) authorized loading and hauling of the 14,875 CY of unsuitable material at a negotiated unit rate cost.
  - a. ADD Bid Item 0159, *CO-2: Move unsuitable material to golf course*: unit price quantity 14,875 CY at the Contract Unit Price of \$4.75 per CY for a price increase of \$70,656.25.
12. Additional ARVs: The contract includes relocation of two (2) existing City of Fargo sanitary sewer force mains. Two (2) Air Release Valves (ARVs) that are required by the City of Fargo were not included on the plans. The Contractor provided a cost proposal to add the valves and associated equipment and the Engineer concurred with the Contractor's proposed costs.
  - a. ADD Bid Item 0160, *CO-2: Additional ARVs*: unit rate quantity of 1.0 LS at the Contract Unit Price of \$7,189.16 per LS for a price increase of \$7,189.16.
13. Temporary access road south of Riverbend Road: Due to a project site access conflict between the WP-43CD Contractor and the WP-43E2F contractor for a portion of Riverbend Road and as a compromise to maintain the access and work schedule for both contractors, an agreement was reached such that the WP-43CD Contractor would provide a temporary work access route to complete the remaining WP-43E2F work in exchange for access to Riverbend Road to continue levee construction prior to freeze up. The lump sum cost was negotiated between the Contractor and the Engineer.
  - a. ADD Bid Item 0161, *CO-2: Temporary access road south of Riverbend Road*: unit rate quantity of 1.0 LS at the Contract Unit Price of \$37,000.00 per LS for a price increase of \$37,000.00.
14. Cass Rural Water Casing Pipe Install: To minimize cost and schedule impacts to the Highway 81 roadway embankment work, the Contractor was requested to install a portion of a Cass Rural Water utility relocation. WCD-001 authorized the installation of the segment of the Cass Rural Water casing pipe under the WP-43C levee.

- a. ADD Bid Item 0162, *CO-2: Cass Rural Water Casing Pipe Install*: unit rate quantity of 1.0 LS at the Contract Unit Price of \$242,908.80 per LS for a price increase of \$242,908.80.
15. NCN No. 3 Owner testing cost set-off: Per NCN #3, a discontinuity in the WP-43CD pump station slab was observed and the Diversion Authority incurred \$11,671 in consulting and non-destructive concrete impact echo testing costs to determine the extent of the damage. Per the General Conditions of the Agreement, Section 14.03F, Defective Work, Costs and Damages, the Diversion Authority is deducting these testing costs from the contract price.
- a. ADD Bid Item 0163, *CO-2: NCN No. 3 Owner testing cost set-off*: unit rate quantity of 1.0 LS at the Contract Unit Price of (\$11,671.00) per LS for a price decrease of (\$11,671.00).
16. Time Extension: The Contractor has requested and the Engineer agrees to the following contract time changes:
- a. Milestone 5 - Levee 43C Station C15+00 to C0+00:
    - i. Add six (6) days, extending the completion date to October 16, 2017.
  - b. Milestone 6 - Oxbow Drive (Phase 2):
    - i. Add four (4) days, extending the completion date to October 19, 2017.
  - c. Milestone 6 - Highway 81 paving:
    - i. Add five (5) days, extending the completion date to October 22, 2017.
  - a. Milestone 8 - All work, except Pump Station mechanical and electrical components and finishes; bituminous road wear course:
    - a. Add one (1) day, extending the completion date to January 1, 2018.

**Attachments:**

1. Change Order No. 2 Unit Price Schedule dated 12/12/2017
2. HMG revised Change Order No. 2 recommendation memorandum dated 11/29/2017
3. NCN No. 3 Notice of Cost Set-off dated 12/6/17

<b>CHANGE IN CONTRACT PRICE</b>	<b>CHANGE IN CONTRACT TIMES</b> <i>[note changes in Milestones if applicable]</i>
Original Contract Price:  <b>10,399,476.21</b>	Original Contract Times:  Substantial Completion: <u>July 31, 2018</u> Ready for Final Payment: <u>October 31, 2018</u>
Contract Price prior to this Change Order:  <b>10,406,859.68</b>	Contract Times prior to this Change Order:  Substantial Completion: <u>August 01, 2018</u> Ready for Final Payment: <u>October 31, 2018</u>
[Increase] [ <del>Decrease</del> ] of this Change Order:  <b>508,207.56</b>	[Increase] [ <del>Decrease</del> ] of this Change Order:
Contract Price incorporating this Change Order:  <b>10,915,067.24</b>	Contract Times with all approved Change Orders:  Substantial Completion: <u>August 01, 2018</u> Ready for Final Payment: <u>October 31, 2018</u>

<p>RECOMMENDED:</p> <p>By: _____ Owner's Representative (Authorized Signature)</p> <p>Name: <u>Nathan Boerboom</u> Title: <u>Project Manager</u> Date: _____</p>	<p>ACCEPTED:</p> <p>By: _____ Owner (Authorized Signature)</p> <p>Name: <u>Robert W. Wilson</u> Title: <u>Co-Executive Director</u> Date: _____</p>	<p>ACCEPTED:</p> <p>By: _____ Contractor (Authorized Signature)</p> <p>Name: <u>Verlyn Schoep</u> Title: <u>President</u> Date: _____</p>
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**WP-43CD**  
**Oxbow-Hickson-Bakke Ring Levee-Phases C and D**

Change Order 2 Unit Price Schedule  
 DATE: 12/12/2017



WP-43CD - Oxbow-Hickson-Bakke Ring Levee-Phases C and D											
ITEM	DESCRIPTION	UNIT	Current Budget			Net Change			New Budget		
			QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT
0001	Mobilization	LS	1	\$544,802.00	\$ 544,802.00				1	\$544,802.00	\$ 544,802.00
0002	Demolition	LS	1	\$324,840.00	\$ 324,840.00				1	\$324,840.00	\$ 324,840.00
0003	Clearing and Grubbing	LS	1	\$29,057.00	\$ 29,057.00				1	\$29,057.00	\$ 29,057.00
0004	Temporary Erosion Protection	LS	1	\$66,363.00	\$ 66,363.00				1	\$66,363.00	\$ 66,363.00
0005	Traffic Control	LS	1	\$8,422.00	\$ 8,422.00				1	\$8,422.00	\$ 8,422.00
0006	Care of Water	LS	1	\$44,037.00	\$ 44,037.00				1	\$44,037.00	\$ 44,037.00
0007	Health and Safety	LS	1	\$228,608.00	\$ 228,608.00				1	\$228,608.00	\$ 228,608.00
0008	Work Limit Fencing	LF	33,682	\$1.50	\$ 50,523.00				33682	\$1.50	\$ 50,523.00
0009	Turf Establishment - Zone 1	AC	26	\$304.50	\$ 7,977.90				26	\$304.50	\$ 7,977.90
0010	Turf Establishment - Zone 3	AC	33	\$1,254.00	\$ 41,758.20				33	\$1,254.00	\$ 41,758.20
0011	Turf Establishment - Zone 4	AC	10	\$1,452.00	\$ 14,520.00				10	\$1,452.00	\$ 14,520.00
0012	Topsoil Stripping	SY	143,910	\$1.20	\$ 172,692.00				143910	\$1.20	\$ 172,692.00
0013	Excavation – Common (North Pond)	CY	158,915	\$5.50	\$ 874,032.50				158915	\$5.50	\$ 874,032.50
0014	Inspection Trench	LF	5,274	\$11.00	\$ 58,014.00				5274	\$11.00	\$ 58,014.00
0015	Topsoil	SY	116,850	\$1.00	\$ 116,850.00				116850	\$1.00	\$ 116,850.00
0016	Aggregate Base - Levee top	LF	5,306	\$13.25	\$ 70,304.50				5306	\$13.25	\$ 70,304.50
0017	Aggregate Base - Pump Station Access Road	LF	1,450	\$24.00	\$ 34,800.00				1450	\$24.00	\$ 34,800.00
0018	Low Flow Channel And Pond Access	LF	1,742	\$160.00	\$ 278,720.00				1742	\$160.00	\$ 278,720.00
0019	Levee Access Gate	EA	2	\$12,216.00	\$ 24,432.00				2	\$12,216.00	\$ 24,432.00
0020	Installation of Electrical Conduit furnished by others	LF	855	\$2.90	\$ 2,479.50				855	\$2.90	\$ 2,479.50
0021	Imported fill for backfilling 829 Riverbend Rd	CY	1,500	\$7.30	\$ 10,950.00				1500	\$7.30	\$ 10,950.00
0022	Remove and Replace Unstable Subgrade Material	CY	500	\$74.00	\$ 37,000.00				500	\$74.00	\$ 37,000.00
0023	Gravity Drain Inlet Structure	LS	1	\$59,057.00	\$ 59,057.00				1	\$59,057.00	\$ 59,057.00

**WP-43CD - Oxbow-Hickson-Bakke Ring Levee-Phases C and D**

ITEM	DESCRIPTION	UNIT	Current Budget			Net Change			New Budget		
			QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT
0024	Pump Station Structure	LS	1	\$1,392,662.00	\$ 1,392,662.00				1	\$1,392,662.00	\$ 1,392,662.00
0025	Pump Station Process Equipment	LS	1	\$60,000.00	\$ 60,000.00				1	\$60,000.00	\$ 60,000.00
0026	Forcemain Piping	LF	575	\$262.50	\$ 150,937.50				575	\$262.50	\$ 150,937.50
0027	Gatewell	LS	1	\$561,313.00	\$ 561,313.00				1	\$561,313.00	\$ 561,313.00
0028	Storm Sewer RCP w/ Catch Basins, Manholes and Connections	LS	1	\$852,711.00	\$ 852,711.00				1	\$852,711.00	\$ 852,711.00
0029	Transition Structure 1 and Appurtenances	LS	1	\$25,898.00	\$ 25,898.00				1	\$25,898.00	\$ 25,898.00
0030	Pre-Construction Pipe Repair	SF	1,000	\$4.40	\$ 4,400.00				1000	\$4.40	\$ 4,400.00
0031	Install Storm Sewer 42-inch Steel Pipe Sections Furnished by Others	LS	1	\$97,059.00	\$ 97,059.00				1	\$97,059.00	\$ 97,059.00
0032	Cathodic Protection System for Steel Pipe	LS	1	\$31,173.00	\$ 31,173.00				1	\$31,173.00	\$ 31,173.00
0033	Transition Structure 2 and Appurtenances	LS	1	\$26,265.00	\$ 26,265.00				1	\$26,265.00	\$ 26,265.00
0034	Gravity Drain Outlet Structure with Duckbill Check Valve	LS	1	\$129,038.00	\$ 129,038.00				1	\$129,038.00	\$ 129,038.00
0035	Excavation – Common (Gravity Outfall)	CY	44,500	\$6.90	\$ 307,050.00				44500	\$6.90	\$ 307,050.00
0036	Riprap with Filter	TN	1,500	\$114.00	\$ 171,000.00				1500	\$114.00	\$ 171,000.00
0037	Pump Station Electrical System	LS	1	\$488,000.00	\$ 488,000.00				1	\$488,000.00	\$ 488,000.00
0038	Pump Station Communications System	LS	1	\$1,600.00	\$ 1,600.00				1	\$1,600.00	\$ 1,600.00
0039	Gatewell Electrical System	LS	1	\$12,000.00	\$ 12,000.00				1	\$12,000.00	\$ 12,000.00
0040	Pump Station HVAC Mechanical System	LS	1	\$30,303.00	\$ 30,303.00				1	\$30,303.00	\$ 30,303.00
0041	Topsoil Stripping	SY	5,950	\$1.90	\$ 11,305.00				5950	\$1.90	\$ 11,305.00
0042	Sign - Remove & Reinstall	EA	8	\$100.00	\$ 800.00				8	\$100.00	\$ 800.00
0043	Mailbox - Remove & Reinstall	EA	5	\$315.00	\$ 1,575.00				5	\$315.00	\$ 1,575.00
0044	Temporary Mailbox	LS	1	\$1,575.00	\$ 1,575.00				1	\$1,575.00	\$ 1,575.00
0045	Curb & Gutter - Remove	LF	3,550	\$0.95	\$ 3,372.50				3550	\$0.95	\$ 3,372.50
0046	Asphalt - Remove	SY	4,800	\$4.50	\$ 21,600.00				4800	\$4.50	\$ 21,600.00
0047	Concrete Driveway - Remove	SY	205	\$6.00	\$ 1,230.00				205	\$6.00	\$ 1,230.00
0048	Asphalt Driveway - Remove	SY	45	\$8.80	\$ 396.00				45	\$8.80	\$ 396.00
0049	Sanitary Sewer - Remove	LF	1,380	\$12.00	\$ 16,560.00				1380	\$12.00	\$ 16,560.00

WP-43CD - Oxbow-Hickson-Bakke Ring Levee-Phases C and D											
ITEM	DESCRIPTION	UNIT	Current Budget			Net Change			New Budget		
			QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT
0050	Sanitary Sewer Manhole - Remove	EA	2	\$515.50	\$ 1,031.00				2	\$515.50	\$ 1,031.00
0051	Sanitary Sewer - 8" PVC SDR 35	LF	2,175	\$58.50	\$ 127,237.50				2175	\$58.50	\$ 127,237.50
0052	Sanitary Sewer Main - Televisé	LF	2,175	\$1.50	\$ 3,262.50				2175	\$1.50	\$ 3,262.50
0053	Steel Casing - 10"	LF	32	\$123.00	\$ 3,936.00				32	\$123.00	\$ 3,936.00
0054	Sanitary Sewer Service Connection	EA	7	\$2,770.00	\$ 19,390.00				7	\$2,770.00	\$ 19,390.00
0055	Sanitary Sewer – Connect to Existing	EA	2	\$1,905.00	\$ 3,810.00				2	\$1,905.00	\$ 3,810.00
0056	Sanitary Sewer Manhole	EA	12	\$6,602.00	\$ 79,224.00				12	\$6,602.00	\$ 79,224.00
0057	Water Main – Remove	LF	460	\$8.90	\$ 4,094.00				460	\$8.90	\$ 4,094.00
0058	Water Main – Connect to Existing	EA	1	\$2,730.00	\$ 2,730.00				1	\$2,730.00	\$ 2,730.00
0059	Water Main – 6"	LF	10	\$103.00	\$ 1,030.00				10	\$103.00	\$ 1,030.00
0060	Hydrant – Remove & Replace	EA	1	\$6,561.00	\$ 6,561.00				1	\$6,561.00	\$ 6,561.00
0061	Gate Valve & Box – 6"	EA	1	\$1,698.00	\$ 1,698.00				1	\$1,698.00	\$ 1,698.00
0062	Temporary Bypass Pumping	LS	1	\$3,781.00	\$ 3,781.00				1	\$3,781.00	\$ 3,781.00
0063	Subgrade Preparation	SY	4,970	\$6.80	\$ 33,796.00				4970	\$6.80	\$ 33,796.00
0064	Reinforcement Fabric	SY	4,970	\$1.30	\$ 6,461.00				4970	\$1.30	\$ 6,461.00
0065	Aggregate Base Course - 7"	SY	4,970	\$3.00	\$ 14,910.00				4970	\$3.00	\$ 14,910.00
0066	Perforated PVC Drain Tile - 4"	LF	2,980	\$5.30	\$ 15,794.00				2980	\$5.30	\$ 15,794.00
0067	Sump Pump - Connect to Drain Tile	EA	6	\$365.50	\$ 2,193.00				6	\$365.50	\$ 2,193.00
0068	Curb & Gutter - 24" Highback	LF	2,820	\$16.50	\$ 46,530.00				2820	\$16.50	\$ 46,530.00
0069	Curb & Gutter - 24" Mountable	LF	160	\$24.50	\$ 3,920.00				160	\$24.50	\$ 3,920.00
0070	Asphalt Base Course - 5"	SY	3,920	\$19.75	\$ 77,420.00				3920	\$19.75	\$ 77,420.00
0071	Asphalt Wear Course - 2"	SY	3,920	\$8.50	\$ 33,320.00				3920	\$8.50	\$ 33,320.00
0072	Concrete Driveway - 6"	SY	250	\$64.75	\$ 16,187.50				250	\$64.75	\$ 16,187.50
0073	Topsoil Replacement	SY	7,310	\$2.30	\$ 16,813.00				7310	\$2.30	\$ 16,813.00
0074	Turf Establishment - Zone 2	AC	1.5	\$3,026.00	\$ 4,539.00				2	\$3,026.00	\$ 4,539.00
0075	Temporary Access	LS	1	\$12,106.00	\$ 12,106.00				1	\$12,106.00	\$ 12,106.00



**WP-43CD - Oxbow-Hickson-Bakke Ring Levee-Phases C and D**

ITEM	DESCRIPTION	UNIT	Current Budget			Net Change			New Budget		
			QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT
0076	Portable Traffic Signals	EA	2	\$6,000.00	\$ 12,000.00				2	\$6,000.00	\$ 12,000.00
0077	Storm Sewer 15-inch RCP	LF	211	\$49.25	\$ 10,391.75				211	\$49.25	\$ 10,391.75
0078	Storm Sewer 18-inch RCP	LF	13	\$65.75	\$ 854.75				13	\$65.75	\$ 854.75
0079	Storm Sewer 24-inch RCP	LF	209	\$86.50	\$ 18,078.50				209	\$86.50	\$ 18,078.50
0080	Storm Sewer 27-inch RCP	LF	617	\$103.50	\$ 63,859.50				617	\$103.50	\$ 63,859.50
0081	Storm Sewer 30-inch RCP	LF	291	\$113.50	\$ 33,028.50				291	\$113.50	\$ 33,028.50
0082	Storm Sewer 36-inch RCP	LF	454	\$155.50	\$ 70,597.00				454	\$155.50	\$ 70,597.00
0083	Storm Sewer 42-inch RCP	LF	34	\$210.50	\$ 7,157.00				34	\$210.50	\$ 7,157.00
0084	Storm Sewer 54-inch RCP	LF	935	\$307.00	\$ 287,045.00				935	\$307.00	\$ 287,045.00
0085	Storm Sewer 66-inch RCP	LF	352	\$417.50	\$ 146,960.00				352	\$417.50	\$ 146,960.00
0086	Storm Sewer 72-inch RCP	LF	97	\$482.50	\$ 46,802.50				97	\$482.50	\$ 46,802.50
0087	Flared End Section – 72" RCP	EA	1	\$3,726.00	\$ 3,726.00				1	\$3,726.00	\$ 3,726.00
0088	Trash Rack – 72"	EA	1	\$3,952.00	\$ 3,952.00				1	\$3,952.00	\$ 3,952.00
0089	Storm Sewer Control Structure – 60-inch Precast	EA	1	\$21,712.00	\$ 21,712.00				1	\$21,712.00	\$ 21,712.00
0090	Storm Sewer Manhole – 60-inch Precast	EA	6	\$7,364.00	\$ 44,184.00				6	\$7,364.00	\$ 44,184.00
0091	Storm Sewer Manhole – 72-inch Precast	EA	3	\$9,922.00	\$ 29,766.00				3	\$9,922.00	\$ 29,766.00
0092	Storm Sewer Manhole – 96-inch Precast	EA	1	\$15,564.00	\$ 15,564.00				1	\$15,564.00	\$ 15,564.00
0093	Junction Storm Sewer Manhole – 144-inch Precast	EA	2	\$31,801.00	\$ 63,602.00				2	\$31,801.00	\$ 63,602.00
0094	Storm Sewer Curb Inlets – 2' x 3'	EA	8	\$3,084.00	\$ 24,672.00				8	\$3,084.00	\$ 24,672.00
0095	Storm Sewer - Remove	LF	2,280	\$18.50	\$ 42,180.00				2280	\$18.50	\$ 42,180.00
0096	Storm Sewer Manhole - Remove	EA	2	\$564.00	\$ 1,128.00				2	\$564.00	\$ 1,128.00
0097	Storm Sewer Catch Basin - Remove	EA	8	\$564.00	\$ 4,512.00				8	\$564.00	\$ 4,512.00
0098	Storm Sewer – Connect to Existing	EA	1	\$1,808.00	\$ 1,808.00				1	\$1,808.00	\$ 1,808.00
0099	Removal Of Pavement	TON	11,410	\$6.80	\$ 77,588.00				11410	\$6.80	\$ 77,588.00
0100	Removal Of Culverts-All Types & Sizes	LF	136	\$13.75	\$ 1,870.00				136	\$13.75	\$ 1,870.00
0101	Common Excavation-Type A	CY	8,411	\$3.20	\$ 26,915.20				8411	\$3.20	\$ 26,915.20

WP-43CD - Oxbow-Hickson-Bakke Ring Levee-Phases C and D											
ITEM	DESCRIPTION	UNIT	Current Budget			Net Change			New Budget		
			QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT
0102	Topsoil	CY	6,812	\$5.80	\$ 39,509.60				6812	\$5.80	\$ 39,509.60
0103	Borrow-Excavation	CY	59,746	\$3.90	\$ 233,009.40				59746	\$3.90	\$ 233,009.40
0104	Water	M GAL	883	\$15.00	\$ 13,245.00				883	\$15.00	\$ 13,245.00
0105	Subgrade Preparation- Type A	STA	4	\$882.00	\$ 3,528.00				4	\$882.00	\$ 3,528.00
0106	Seeding Class II	ACRE	10	\$472.00	\$ 4,918.24				10	\$472.00	\$ 4,918.24
0107	Temporary Cover Crop	ACRE	10	\$127.00	\$ 1,323.34				10	\$127.00	\$ 1,323.34
0108	Straw Mulch	ACRE	21	\$304.50	\$ 6,345.78				21	\$304.50	\$ 6,345.78
0109	Fiber Rolls 12in	LF	1,160	\$2.30	\$ 2,668.00				1160	\$2.30	\$ 2,668.00
0110	Remove Fiber Rolls 12in	LF	385	\$0.35	\$ 134.75				385	\$0.35	\$ 134.75
0111	Salvaged Base Course	TON	9,439	\$18.50	\$ 174,621.50				9439	\$18.50	\$ 174,621.50
0112	Tack Coat	GAL	1,366	\$4.90	\$ 6,693.40				1366	\$4.90	\$ 6,693.40
0113	Superpave FAA 42	TON	5,028	\$41.00	\$ 206,148.00				5028	\$41.00	\$ 206,148.00
0114	Cored Sample	EA	21	\$85.00	\$ 1,785.00				21	\$85.00	\$ 1,785.00
0115	Pg. 58-28 Asphalt Cement	TON	302	\$450.00	\$ 135,900.00				302	\$450.00	\$ 135,900.00
0116	Traffic Control Signs	UNIT	3,923	\$2.00	\$ 7,846.00				3923	\$2.00	\$ 7,846.00
0117	Type III Barricade	EA	23	\$115.00	\$ 2,645.00				23	\$115.00	\$ 2,645.00
0118	Delineator Drums	EA	25	\$10.00	\$ 250.00				25	\$10.00	\$ 250.00
0119	Tubular Markers	EA	81	\$3.00	\$ 243.00				81	\$3.00	\$ 243.00
0120	Traffic Control	LSUM	1	\$3,496.00	\$ 3,496.00				1	\$3,496.00	\$ 3,496.00
0121	Portable Changeable Message Sign	EA	2	\$3,000.00	\$ 6,000.00				2	\$3,000.00	\$ 6,000.00
0122	Geosynthetic Material Type R1	SY	16,100	\$1.40	\$ 22,540.00				16100	\$1.40	\$ 22,540.00
0123	Pipe Conc Reinf 24in CL III	LF	110	\$88.75	\$ 9,762.50				110	\$88.75	\$ 9,762.50
0124	End Sect-Conc Reinf 24in	EA	2	\$1,017.00	\$ 2,034.00				2	\$1,017.00	\$ 2,034.00
0125	Pipe Corr Steel .0641n 24in	LF	102	\$73.00	\$ 7,446.00				102	\$73.00	\$ 7,446.00
0126	End Sect Corr Steel .0641n 24in	EA	4	\$372.00	\$ 1,488.00				4	\$372.00	\$ 1,488.00
0127	Flat Sheet For Signs-Type XI Refl Sheeting	SF	6	\$22.00	\$ 138.60				6	\$22.00	\$ 138.60

WP-43CD - Oxbow-Hickson-Bakke Ring Levee-Phases C and D											
ITEM	DESCRIPTION	UNIT	Current Budget			Net Change			New Budget		
			QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT
0128	Steel Galv Posts-Telescoping Perforated Tube	LF	17	\$16.00	\$ 270.40				17	\$16.00	\$ 270.40
0129	Pvmt Mk Painted 4in Line	LF	11,012	\$0.35	\$ 3,854.20				11012	\$0.35	\$ 3,854.20
0130	Pvmt Mk Painted 8in Line	LF	260	\$0.35	\$ 91.00				260	\$0.35	\$ 91.00
0131	Dust Palliative Material	GAL	5,452	\$3.30	\$ 17,991.60				5452	\$3.30	\$ 17,991.60
0132	Force Main - 6" PVC	LF	2,700	\$20.00	\$ 54,000.00				2700	\$20.00	\$ 54,000.00
0133	Force Main - 8" PVC	LF	2,700	\$24.25	\$ 65,475.00				2700	\$24.25	\$ 65,475.00
0134	Sanitary Manhole - Type "E"	EA	2	\$21,368.00	\$ 42,736.00				2	\$21,368.00	\$ 42,736.00
0135	Remove SS Force Main	EA	2	\$1,804.00	\$ 3,608.00				2	\$1,804.00	\$ 3,608.00
0136	Force Main - Connect to Existing	EA	4	\$2,154.00	\$ 8,616.00				4	\$2,154.00	\$ 8,616.00
0137	Plug Valve - 6"	EA	2	\$1,659.00	\$ 3,318.00				2	\$1,659.00	\$ 3,318.00
0138	Plug Valve - 8"	EA	2	\$2,011.00	\$ 4,022.00				2	\$2,011.00	\$ 4,022.00
0139	Sanitary Sewer Force Main Fittings	LBS	326	\$40.00	\$ 13,040.00				326	\$40.00	\$ 13,040.00
0140	15" RCP ST	LF	40	\$121.00	\$ 4,840.00				40	\$121.00	\$ 4,840.00
0141	Gravel - Class 5	CY	25	\$81.25	\$ 2,031.25				25	\$81.25	\$ 2,031.25
0142	4" Insulation	SY	45	\$87.25	\$ 3,926.25				45	\$87.25	\$ 3,926.25
0143	18" Steel Casing Pipe w/ CLSM	LF	460	\$229.50	\$ 105,570.00				460	\$229.50	\$ 105,570.00
0144	Cathodic Protection System	LS	1	\$40,036.00	\$ 40,036.00				1	\$40,036.00	\$ 40,036.00
0145	Topsoil Stripping	SY	19000	\$0.40	\$ 7,600.00				19000	\$0.40	\$ 7,600.00
0146	Topsoil Spread	SY	19000	\$0.95	\$ 18,050.00				19000	\$0.95	\$ 18,050.00
0147	Turf Establishment - Zone 3	AC	3.9	\$1,254.00	\$ 4,890.60				4	\$1,254.00	\$ 4,890.60
0148	Chang Order #1	EA	1.0	\$7,383.47	\$ 7,383.47				1	\$7,383.47	\$ 7,383.47
0149	CO-2: Removing utilities outside of scope	LS				1	\$ 31,932.01	\$ 31,932.01	1	\$ 31,932.01	\$ 31,932.01
0150	CO-2: Additional borrow pit stripping	LS				1	\$ 38,606.86	\$ 38,606.86	1	\$ 38,606.86	\$ 38,606.86
0151	CO-2: Subcut in levee footprint	CY				9990	\$ 4.00	\$ 39,960.00	9990	\$ 4.00	\$ 39,960.00
0152	CO-2: Repair unmarked water pipe	LS				1	\$ 3,534.25	\$ 3,534.25	1	\$ 3,534.25	\$ 3,534.25
0153	CO-2: Golf course pond dirt	CY				3725	\$ 4.00	\$ 14,900.00	3725	\$ 4.00	\$ 14,900.00

WP-43CD - Oxbow-Hickson-Bakke Ring Levee-Phases C and D											
ITEM	DESCRIPTION	UNIT	Current Budget			Net Change			New Budget		
			QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT
0154	CO-2: Pothole & protect unmarked Oxbow utilities	LS				1	\$ 1,927.60	\$ 1,927.60	1	\$ 1,927.60	\$ 1,927.60
0155	CO-2: Additional traffic control	LS				1	\$ 3,885.00	\$ 3,885.00	1	\$ 3,885.00	\$ 3,885.00
0156	CO-2: Adjust STMH-1 to match ex. 18" RCP	LS				1	\$ 4,706.46	\$ 4,706.46	1	\$ 4,706.46	\$ 4,706.46
0157	CO-2: Oxbow watermain realignment	LS				1	\$ 17,027.45	\$ 17,027.45	1	\$ 17,027.45	\$ 17,027.45
0158	CO-2: Redirect 3IN WM to 6IN WM	LS				1	\$ 5,644.72	\$ 5,644.72	1	\$ 5,644.72	\$ 5,644.72
0159	CO-2: Move unsuitable material to golf course	CY				14875	\$ 4.75	\$ 70,656.25	14875	\$ 4.75	\$ 70,656.25
0160	CO-2: Additional ARVs	LS				1	\$ 7,189.16	\$ 7,189.16	1	\$ 7,189.16	\$ 7,189.16
0161	CO-2: Temporary access road south of Riverbend Road	LS				1	\$ 37,000.00	\$ 37,000.00	1	\$ 37,000.00	\$ 37,000.00
0162	CO-2: Cass Rural Water Casing Pipe Install	LS				1	\$ 242,908.80	\$ 242,908.80	1	\$ 242,908.80	\$ 242,908.80
0163	CO-2: NCN No. 3 Owner testing cost set-off	LS				1	\$ (11,671.00)	\$ (11,671.00)	1	\$ (11,671.00)	\$ (11,671.00)
<b>WP-43CD - TOTAL AMOUNT</b>			<b>CURRENT BUDGET</b>		<b>\$ 10,406,859.68</b>	<b>NET CHANGE</b>		<b>\$ 508,207.56</b>	<b>NEW BUDGET</b>		<b>\$ 10,915,067.24</b>

# Memorandum

## OHB 43CD Change Order No. 2 Recommendation

**To:** John Glatzmaier, PE; CH2M Project Manager  
**From:** Christopher M. Gross, PE; HMG Project Manager  
**Date:** November 29, 2017  
**Project:** OHB Work Package 43CD

### 1. Description

OHB Work Package 43CD is the phase of construction on the Oxbow-Hickson-Bakke Ring Levee mitigation project of the overall FM Diversion Project. WP-43CD included 5,550 LF of earthen levee, Pump Station and Gatewell Structure with Outfall, 5,400 LF of Storm Sewer, 2,300 LF of Gravity Sanitary Sewer, 5,400 LF of Sanitary Forcemain, 3,475 LF of City Street, 3,165 LF of Cass County Highway 81 Road Raise, and other components in Cass County, North Dakota. A construction contract in the amount of \$10,399,476.21 was awarded to Meyer Contracting, Inc. on July 14, 2017. Construction on WP-43CD began on August 9, 2017 and will continue until the summer of 2018. To date, approximately 60% of the overall project is completed.

### 2. Change Order Requests from Meyer Contracting

Meyer COR Code	WCD Appr.	Description	Qty	Unit	Unit Price	Total
9000003	1	Removing utilities outside of scope	1	LS	\$31,932.01	\$31,932.01
9000004		Additional borrow pit stripping	1	LS	\$38,606.86	\$38,606.86
9000005	1	Subcut in levee footprint	9,990	CY	\$4.00	\$39,960.00
9000007		Repair unmarked water pipe	1	LS	\$3,534.25	\$3,534.25
9000010	1	Golf course pond dirt	3,725	CY	\$4.00	\$14,900.00
9000011		Pothole & protect unmarked Oxbow utilities	1	LS	\$1,927.60	\$1,927.60
9000014	1	Additional traffic control	1	LS	\$3,885.00	\$3,885.00
9000015		Adjust STMH-1 to match ex. 18" RCP	1	LS	\$4,706.46	\$4,706.46
9000016		Oxbow watermain realignment	1	LS	\$17,027.45	\$17,027.45
9000018		Redirect 3IN WM to 6IN WM	1	LS	\$5,644.72	\$5,644.72
9000021	2	Move unsuitable material to golf course	14,875	CY	\$4.75	\$70,656.25
9000026		Additional ARVs	1	LS	\$7,189.16	\$7,189.16
9000027		Temporary access road south of Riverbend Road	1	LS	\$37,000.00	\$37,000.00
					<b>TOTAL</b>	<b>\$ 276,969.76</b>

The change order requests listed above have been reviewed by the HMG design team and are being recommended for approval. Some of the work items have been authorized by prior Contract Documents (ie. work change directives) while the remaining items have not been authorized but were completed by Meyer and are being requested for Owner approval. A short summary of each item is below. The complete supporting documentation provided by Meyer Contracting is also attached to this Memo.

COR 9000003 - Removing utilities outside of scope – this work included removing utilities under the 43C levee footprint that were not removed by the demolition contractors. This work was included in Work Change Directive No. 1 approved on September 20, 2017 by the Diversion Authority. This work was done on a T & M basis with HMG concurring with the T & M submitted by Meyer Contracting.

COR 9000004 - Additional borrow pit stripping – this work included removing material from the borrow pit area that was not suitable for levee or roadway embankment. This work was done on a T & M basis with HMG concurring with the T & M submitted by Meyer Contracting.

COR 9000005 - Subcut in levee footprint – this work included removing material from the 43C levee footprint area that was not suitable for levee embankment. This work was included in Work Change Directive No. 1 approved on September 20, 2017 by the Diversion Authority. This work was done on a negotiated unit price basis with HMG surveying the area of unsuitable material prior to and after removal of the material to determine the actual volume removed.

COR 9000007 - Repair unmarked water pipe – this work included repairing unmarked Cass Rural Water lines that were located in the wrong location. This work was done on a T & M basis with HMG concurring with the T & M submitted by Meyer Contracting.

COR 9000010 - Golf course pond dirt – this work included excavating a portion of the golf course pond in lieu of Landscapes Unlimited to allow Meyer Contracting to use Oxbow Drive as a haul road. This work was included in Work Change Directive No. 1 approved on September 20, 2017 by the Diversion Authority. This work was done on a negotiated unit price basis with HMG surveying the area of unsuitable material prior to and after excavation of the material to determine the actual volume excavated.

COR 9000011 - Pothole & protect unmarked Oxbow utilities – this work included additional potholing work that was required for utilities not located by the City of Oxbow utility company. This work was done on a T & M basis with HMG concurring with the T & M submitted by Meyer Contracting.

COR 9000014 – Additional traffic control – this work included installing additional traffic control measures along Cass County Highway 81 and Interstate 29 along the detour route that were not included in the initial traffic control plan. This was coordinated with the Cass County Highway Department and the ND Department of Transportation. This work was included in Work Change Directive No. 1 approved on September 20, 2017 by the Diversion Authority. This work was done on a negotiated unit price basis. HMG concurs with the costs submitted by Meyer Contracting.

COR 9000015 - Adjust STMH-1 to match ex. 18" RCP – this work included modification to STMH-1 to match the existing invert of the 18" RCP pipe from Sunset Drive. Work included adding manhole cinder blocks to raise the manhole elevation as well as filling in the opening of the manhole on the lower section. This work was done on a T & M basis with HMG concurring with the T & M submitted by Meyer Contracting.

COR 9000016 - Oxbow watermain realignment – this work included the removal and relocation of 200 LF of existing City of Oxbow watermain along Oxbow Drive that was in a different location than what was shown on the record drawings used during design of the project. This work was done on a T & M basis with HMG concurring with the T & M submitted by Meyer Contracting.

COR 9000018 - Redirect 3IN WM to 6IN WM – this work included redirecting a portion of Cass Rural Water's 3 inch water transmission line in order to accommodate construction in order to minimize any delay in levee and roadway completion prior to winter weather. This work was done on a T & M basis with HMG concurring with the T & M submitted by Meyer Contracting.

COR 9000021 - Move unsuitable material to golf course – this work included excavating, hauling, and placing unsuitable material from the north borrow pit into the spoil area of the Oxbow Country Club. The leveling and the shaping/grading of this material was completed by the Oxbow County Club. This work was included in Work Change Directive No. 2 approved on October 19, 2017 by the Diversion Authority. This work was done on a negotiated unit price basis with HMG surveying the area of unsuitable material prior to excavation of the material to determine the actual volume excavated, hauled, and placed.

COR 9000026 - Additional ARVs – this work included the addition of 2 air relief valves at the request of the City of Fargo, owner of sanitary forcemain. The 2 valves were installed in a manhole already included in the project design. This work was done on a T & M basis with HMG concurring with the T & M submitted by Meyer Contracting.

COR 9000027 - Temporary access road south of Riverbend Road – this work included the installation of a temporary access road on the south end of the 43C levee to accommodate the removal of Riverbend Road to allow construction of the last portion of the 43C levee but to also maintain the demolition contractor's access to their work areas. This work was done on a Lump Sum basis with HMG concurring with the Lump Sum submitted by Meyer Contracting.

The total change order amount being requested is \$276,969.76. This amounts to 2.66% of the original contract amount which HMG believes is within the reasonable range of change order amounts for this size of project.

The updated completion dates of the affected Milestones are as follows:

- Milestone 5 – increased to October 16, 2017
- Milestone 6 (Oxbow Drive) – increased to October 19, 2017
- Milestone 6 (Highway 81) – increased to October 22, 2017
- Milestone 8 – increased to January 1, 2018

**3. Utility Work Completed by Meyer Contracting**

Meyer COR Code	Description	Qty	Unit	Unit Price	Total
	Cass Rural Water Casing Pipe Install	1	LS	\$242,908.08	\$242,908.08

As part of Work Change Directive No. 1 approved on September 20, 2017 by the Diversion Authority, Meyer Contracting was directed to furnish and install a portion of the Cass Rural Water utility relocation work, specifically, the portion of work under the levee footprint. By allowing Meyer Contracting to complete this work, Meyer Contracting was able to determine and control the overall construction schedule in this area since Cass Rural Water had a 1-2 month lead time. This work included furnishing and installing 300 LF of 16” steel casing pipe, 400 LF of 8” fusible PVC carrier pipe, cathodic protection, welding, and other associated work.

The total change order amount being requested is \$242,908.08. This amount is being reported separately and not as a percentage of the original contract amount since this is work is part of the utility relocation costs. However, as explained above, in order to maintain a tight construction schedule; it was in the best interest of the project to have Meyer Contracting complete the work.





October 20, 2017

Mr. Christopher M Gross, Project Manager  
Moore Engineering, Inc.  
925 10<sup>th</sup> Ave E  
West Fargo, ND 58078

Subject: Oxbow – Hickson – Bakke Ring Levee – Phases C and D; Work Package 43CD  
Change Order Request – Removing Utilities Outside of Scope

Dear Mr. Gross,

We have been required to remove utilities in the levee footprint that were not in the scope of our contract. This extra work was performed as directed to prepare the footprint of the levee to enable us to perform our contract work.

Please understand that delays in giving us access to the site such as this one have and will continue to cause a substantial negative impact on our schedule and our costs. We have invested substantial equipment and manpower in this project; we estimate our daily cost to be approximately \$75,000 per day. Anything that can be done to mitigate additional delays is appreciated and is necessary to reduce and eliminate any additional costs related to standby and decreased productivity.

Based on the aforementioned information and calculation of cost impact we hereby request additional compensation in the amount of \$31,932.01. Additionally, we believe this had a schedule impact of four calendar days and we request that the contract time be adjusted as such.

Thank you.

Respectfully,

A handwritten signature in blue ink, appearing to read 'Jeremy Gibbs', is written over a light blue rectangular background.

Jeremy Gibbs  
Meyer Contracting, Inc.



## Recommended Contracting Actions

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Date: December 20, 2017

Description	Company	Budget Estimate (\$)
<b><i>Construction Change Orders – Diversion Authority</i></b>		
<b>WP 42A.2 –2<sup>nd</sup> St North Pump Station</b> <b>Change Order 12</b> <ul style="list-style-type: none"><li>• Modify lubrication system</li><li>• Add a submersible transducer</li><li>• Furnish track rack guides</li></ul>	Industrial Builders, Inc.	<b>\$12,898.48</b>

**Technical Advisory Group Recommendation**

Meeting Date: 12/05/2017

**RECOMMENDATION FOR ACTION:**

The Technical Advisory Group has reviewed and recommends approval of the following Contract Action(s).

**SUMMARY OF CONTRACTING ACTION:**

Per the contract review and approval procedures that were adopted by the Diversion Authority on November 10, 2016, the Owner’s Program Management Consultant (PMC) or Engineer of Record (EOR) shall submit a construction Change Order request to the Technical Advisory Group. The Technical Advisory Group shall review the Change Order request during its next regular meeting after receiving the Change Order request, and make a recommendation as to approval or denial of the Change Order request.

The Owner’s PMC has prepared the following Contract Action(s):

Description	Budget Estimate (\$)
<b>Industrial Builders, Inc.</b>	
<i>WP-42A.2, 2nd Street North Pump Station – Change Order #12</i>	<b>\$12,898.48</b>
<ul style="list-style-type: none"> <li>• Modify lubrication system</li> <li>• Add a submersible transducer</li> <li>• Furnish track rack guides</li> </ul>	

**Summary of Contracting History and Current Contract Action:**

During start-up and testing of the 2<sup>nd</sup> Street North pump station, several modifications to pump station systems and facilities were identified. These modifications are required in order to complete and closeout the WP-42A.2 construction project.

This change order includes reprogramming of the lubrication system, adding a submersible transducer, and furnishing a trash rack modification.

Below is a summary of contracting history to date along with the current contracting action.

Original Agreement or Amendment	Previous Project Cost	Budget (\$) Change	Revised Project Cost	Project Start	Project Completion	Comments
Original Contract	0.00	8,069,000.00	8,069,000.00	9-Oct-14	31-Jan-16	Contract Award recommended to lowest responsive bidder, Industrial Builders, Inc.
Change Order 1	8,069,000.00	66,920.00	8,135,920.00	9-Oct-14	31-Jan-16	Revisions to traffic control
Change Order 2	8,135,920.00	67,397.00	8,203,317.00	9-Oct-14	31-Jan-16	Accommodate unforeseen subsurface conditions (remove concrete structure and dispose of contaminated soil)
Change Order 3	8,203,317.00	225,056.00	8,428,373.00	9-Oct-14	16-Feb-16	Change in design requirements for backfill of structure
Change Order 4	8,428,373.00	238,871.75	8,667,244.75	9-Oct-14	25-Apr-16	Baffle wall, sheeting, and 2 <sup>nd</sup> Street road closure

Change Order 5	8,667,244.75	7,614.93	8,674,859.68	9-Oct-14	25-Apr-16	Physical model tests, vacuum line, pump station veneer, and cold weather construction costs.
Change Order 6	8,674,859.68	43,488.99	8,718,348.67	9-Oct-14	7-Dec-16	Completion Milestone Changes, Extended Warranty Duration, Modifications to Trash Rack and Rake, and Check Valve Replacement.
Change Order 7	8,718,348.67	1,870.32	8,720,218.99	9-Oct-14	7-Dec-16	Pump Station Beacons
Change Order 8	8,720,218.99	(47,876.36)	8,672,342.63	9-Oct-14	7-Dec-16	Deduct unused budget for hazardous material removal
Change Order 9	8,672,342.63	5,486.80	8,677,829.43	9-Oct-14	7-Dec-16	Sluice Gate Operator Covers
Change Order 10	5,677,829.43	42,312.57	8,720,142.00	9-Oct-14	7-Dec-16	Decorative Fence Moderations and Differing Subsurface Conditions - removals
Change Order 11	8,720,142.00	(36,492.02)	8,683,649.98	9-Oct-14	7-Dec-16	Final Project Cost Adjustment and Decorative Fence De-Scope
Change Order 12	8,683,649.98	12,898.48	8,696,548.46	9-Oct-14	7-Dec-16	Modify lubrication system, add a submersible transducer, and furnish track rack guides

**DISCUSSION**

Change Order No. 12 (CO #12) increases the Contract Price \$12,898.48 and includes reprogramming of the lubrication system, adding a submersible transducer, and furnishing a trash rack guide modification. There is no change to the Contract Time. The Contractor’s CO #12 cost proposal is attached, and consists of the following items:

1. **Modify Lubrication System:** The lubrication system was originally programmed assuming the pumps may sit for long periods without running, so a shot of grease was provided at each startup. During testing of the lift station, the pumps had numerous startups resulting in excess grease being used. This change in programming was requested by the Owner to reduce the grease usage. The following items are proposed to furnish and install materials, and reprogram the lubrication system, at a cost of \$8,634.56:
  - a. **Project Manager:** add eight (8) hours of project manager time at a cost of \$946.56 (\$118.32 per hour).
  - b. **IBI Equipment:** add eight (8) hours of pick-up truck equipment time at a cost of \$120.00 (\$15.00 per hour).
  - c. **Subcontractor work:** (Moorhead Electric, Inc. (MEI) and Sweeney Controls)
    - i. MEI labor: add twelve (12) hours of labor at a cost of \$900.00 (\$75.00 per hour).
    - ii. MEI materials: add \$316.25 for materials (conduit, wires, paint).
    - iii. Subcontractor work: add \$4,925.00 for Sweeney Controls to furnish a PLC output card, terminal blocks, internal wiring, drawing updates, and labor for on-site programming modifications and commissioning.
    - iv. Subcontractor mark-up: MEI’s fifteen (15) percent mark-up on their subcontracted work at a cost of \$738.75.

- d. Subcontractor markup: IBI's ten (10) percent mark-up of subcontracted work at a cost of \$688.00.
2. Submersible Transducer: During testing of the pump station, the ultrasonic water level readings were inconsistent especially at high water levels. The inconsistent water level readings made it difficult to trouble shoot the pump station during testing. This change replaces one of the ultrasonic transducers with a submersible transducer to help trouble shoot faults and provide confidence in reported water levels during future flood events. The replaced ultrasonic transducer will become a spare part. The following items are proposed to furnish and install the submersible transducer at a cost of \$3,187.25:
    - a. Subcontractor work:
      - i. MEI labor: add ten (10) hours of labor at a cost of \$750.00 (\$75.00 per hour).
      - ii. MEI materials: add \$20.00 for materials.
      - iii. Subcontractor work: add \$1,850.00 for Sweeney Controls to furnish the submersible transducer, drawing updates, and labor for on-site programming modifications.
      - iv. Subcontractor mark-up: MEI's fifteen (15) percent mark-up on their subcontracted work at a cost of \$277.50.
    - b. Subcontractor markup: IBI's ten (10) percent mark-up of subcontracted work at a cost of \$289.75.
  3. Furnish Trash Rack Guides: During start-up testing and operation, the trash rack rake jammed when the trash rack rake was operated with a heavy, imbalanced load. The Owner requested a modification to keep the rake from jamming. The 4th Street Pump Station had a similar issue and these guide wheels eliminated the problem. Only the materials are being provided in this change order. The guides will be installed by the Owner during regular maintenance. The following items are proposed to furnish the trash rack guides at a cost of \$1,076.67:
    - a. Project Manager: add two (2) hours of project manager time at a cost of \$236.64 (\$118.32 per hour).
    - b. Truck Driver: add two (2) hours of driver time at a cost of \$161.00 (\$80.50 per hour).
    - c. IBI Equipment: add two (2) hours of pick-up truck equipment time at a cost of \$30.00 (\$15.00 per hour).
    - d. Subcontractor work:
      - i. MidAmerica Steel: add the lump sum cost of \$525.00 for the trash rack guides.
    - e. Sales tax: seven and a half (7.5) percent sales tax on materials at a cost of \$39.38.
    - f. Subcontractor markup: fifteen (15) percent mark-up of subcontractor materials at a cost of \$84.66.

The PMC has reviewed Change Order No. 12 and feels the proposed costs and level of effort are reasonable. This change amount of \$12,898.48 is included in the FY-2017 MFDA budget.

**ATTACHMENT(S):**

1. Draft Change Order No. 12 with Unit Price Schedule
2. Contractor quote dated October 26, 2017

**Submitted by:**

*John W. Glatzmaier*

\_\_\_\_\_  
John Glatzmaier  
CH2M  
Metro Flood Diversion Project

November 28, 2017

\_\_\_\_\_  
Date

\_\_\_\_\_  
Nathan Boerboom, Diversion Authority Project  
Manager

Concur: November 28, 2017 Non-Concur: \_\_\_\_\_

\_\_\_\_\_  
Robert Zimmerman, Moorhead City Engineer

Concur: November 28, 2017 Non-Concur \_\_\_\_\_

\_\_\_\_\_  
Mark Bittner, Fargo Director of Engineering

Concur: November 29, 2017 Non-Concur: \_\_\_\_\_

\_\_\_\_\_  
Jason Benson, Cass County Engineer

Concur: November 28, 2017 Non-Concur \_\_\_\_\_

\_\_\_\_\_  
David Overbo, Clay County Engineer

Concur: November 28, 2017 Non-Concur: \_\_\_\_\_

\_\_\_\_\_  
Jeff Ebsch, Assistant Cass County Engineer, Diversion  
Authority Project Manager

Concur: November 28, 2017 Non-Concur \_\_\_\_\_



Change Order No. 12

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Date of Issuance:	<u>12/21/2017</u>	Effective Date:	<u>12/21/2017</u>
Owner:	<u>Metro Flood Diversion Authority</u>	Owner's Contract No.:	<u>WP-42A.2</u>
Owner's Representative:	<u>CH2M HILL Engineers, Inc.</u>	Owner's Representative Project No.:	<u>435534</u>
Contractor:	<u>Industrial Builders, Inc.</u>	Contractor's Project No.:	<u></u>
Engineer:	<u>Houston-Moore Group, LLC</u>	Work Package No.:	<u>WP-42A.2</u>

Project: Fargo-Moorhead Area Diversion Contract Name: 2<sup>nd</sup> Street/Downtown – In-Town Levees, 2<sup>nd</sup> Street N Pump Station, Fargo ND

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The Contract is modified as follows upon execution of this Change Order:

**Description:**

1. PROGRAM LUBRICATION SYSTEM

- a. Add Bid Item *0042 CO-12: Program Lubrication System* as shown in attached Change Order 12 Unit Price Schedule dated 11/20/2017 in the lump sum amount of \$8,634.56 to address the excessive grease applications by the pump lubrication system.
  - i. The lubrication system was originally programmed with the understanding that the pumps may sit for long periods without running, so the system was programmed to lubricate the pumps at each startup. During testing of the pump station, the pumps had numerous startups resulting in excessive grease usage. This change in programming was requested by the Owner to reduce the grease usage, and includes furnishing and installing materials and equipment and reprogramming the lubrication system.
  - ii. No time extension is granted for this change item.

2. SUBMERSIBLE TRANSDUCER

- a. Add Bid Item *0043 CO-12: F&I Submersible Transducer* as shown in attached Change Order 12 Unit Price Schedule dated 11/20/2017 in the lump sum amount of \$3,187.25 for a submersible transducer to better control the pumps.
  - i. During testing of the pump station, the ultrasonic water level readings were inconsistent especially at high water levels. The inconsistent water level readings made it difficult to trouble shoot the pump station during testing. This change replaces one of the ultrasonic transducers with a submersible transducer to help trouble shoot the faults and provide confidence in reported water levels during future flood events. The replaced ultrasonic transducer will become a spare part.
  - ii. No time extension is granted for this change item.

3. FURNISH TRASH RACK GUIDES

- a. Add Bid Item *0043 CO-12: Furnish Trash Rack Modification* as shown in attached Change Order 12 Unit Price Schedule dated 11/20/2017 in the lump sum amount of \$1,076.67 to address trash rack operational issues.
  - i. During start-up testing and operation, the trash rack rake jammed when the trash rack rake was operated with a heavy, imbalanced load. The Owner requested a modification to keep the rake from jamming. The 4<sup>th</sup> Street Pump Station had a similar issue and these guide wheels eliminated the problem. Only the materials are being provided in this change order. The guides will be installed by the Owner during regular maintenance.
  - ii. No time extension is granted for this change item.

DRAFT



**Attachments:**

- Change Order 12 Unit Price Schedule dated 11/20/2017

<b>CHANGE IN CONTRACT PRICE</b>	<b>CHANGE IN CONTRACT TIMES</b> <i>[note changes in Milestones if applicable]</i>
Original Contract Price:  <b>8,069,000.00</b>	Original Contract Times: Substantial Completion: <u>November 30, 2015</u> Ready for Final Payment: <u>January 31, 2016</u>
[Increase] [ <del>Decrease</del> ] from previously approved Change Orders No. <u>01</u> thru <u>11</u> :  <b>614,649.98</b>	[Increase] [ <del>Decrease</del> ] from previously approved Change Orders No. <u>01</u> thru <u>10</u> : Substantial Completion: <u>October 7, 2016</u> Ready for Final Payment: <u>December 7, 2016</u>
Contract Price prior to this Change Order:  <b>8,683,649.98</b>	Contract Times prior to this Change Order: Substantial Completion: <u>October 7, 2016</u> Ready for Final Payment: <u>December 7, 2016</u> days or dates
[Increase] [ <del>Decrease</del> ] of this Change Order:  <b>12,898.48</b>	[Increase] [ <del>Decrease</del> ] of this Change Order: Substantial Completion: Ready for Final Payment:
Contract Price incorporating this Change Order:  <b>8,696,548.46</b>	Contract Times with all approved Change Orders: Substantial Completion: <u>October 7, 2016</u> Ready for Final Payment: <u>December 7, 2016</u>

<p><b>RECOMMENDED:</b></p> <p>By: _____  Owner's Representative  <small>(Authorized Signature)</small></p> <p>Name: <u>Nathan Boerboom</u>  Title: <u>Project Manager</u>  Date: _____</p>	<p><b>ACCEPTED:</b></p> <p>By: _____  Owner  <small>(Authorized Signature)</small></p> <p>Name: <u>Michael J. Redlinger</u>  Title: <u>Co-Executive Director</u>  Date: _____</p>	<p><b>ACCEPTED:</b></p> <p>By: _____  Contractor  <small>(Authorized Signature)</small></p> <p>Name: <u>David Goulet</u>  Title: <u>Project Manager</u>  Date: _____</p>
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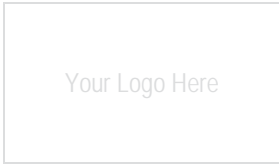
**WP-42A.2**  
**2nd Street N Pump Station**

Change Order 12 Unit Price Schedule  
 DATE: 11/20/2017



WP-42A.2 - 2nd Street N Pump Station											
ITEM	DESCRIPTION	UNIT	Current Budget (thru CO-10)			Net Change			New Budget		
			QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT
0001	Mobilization	LS	1	400,200.00	\$ 400,200.00				1	400,200.00	\$ 400,200.00
0002	Demolition – Pavement Removal, Miscellaneous	LS	1	20,000.00	\$ 20,000.00				1	20,000.00	\$ 20,000.00
0003	Site Civil	LS	1	500.00	\$ 500.00				1	500.00	\$ 500.00
0004	Erosion and Sediment Control	LS	1	8,000.00	\$ 8,000.00				1	8,000.00	\$ 8,000.00
0005	Traffic Control	LS	1	116,920.00	\$ 116,920.00				1	116,920.00	\$ 116,920.00
0006	Fencing	LF	794	25.00	\$ 19,850.00				794	25.00	\$ 19,850.00
0007	Pump Station – Structural and Architectural	LS	1	3,645,000.00	\$ 3,645,000.00				1	3,645,000.00	\$ 3,645,000.00
0008	Stormwater Pumps and Motors	LS	1	1,301,944.14	\$ 1,301,944.14				1	1,301,944.14	\$ 1,301,944.14
0009	Sump Pumps	LS	1	90,000.00	\$ 90,000.00				1	90,000.00	\$ 90,000.00
0010	Trash Racks and Miscellaneous Metals	LS	1	357,489.51	\$ 357,489.51				1	357,489.51	\$ 357,489.51
0011	Sluice Gates and Wall Thimbles	LS	1	200,000.00	\$ 200,000.00				1	200,000.00	\$ 200,000.00
0012	F&I Floodwall Reinforced Bars - Steel	LB	13,000	2.30	\$ 29,900.00				13,000	2.30	\$ 29,900.00
0013	F&I Floodwall Reinforced Bars - Epoxy Coated Steel	LB	12,000	1.80	\$ 21,600.00				12,000	1.80	\$ 21,600.00
0014	F&I Floodwall - Structural Concrete	CY	165	1,200.00	\$ 198,000.00				165	1,200.00	\$ 198,000.00
0015	F&I Floodwall – Misc.	LS	1	50,000.00	\$ 50,000.00				1	50,000.00	\$ 50,000.00
0016	Sheetpiling	LS	1	1,125,000.00	\$ 1,125,000.00				1	1,125,000.00	\$ 1,125,000.00
0017	Switchboard SWBDA, Motor Control Center MCCA, Automatic Transfer Switch, Panel LP1	LS	1	128,000.00	\$ 128,000.00				1	128,000.00	\$ 128,000.00
0018	Electrical-Interior	LS	1	156,000.00	\$ 156,000.00				1	156,000.00	\$ 156,000.00
0019	Electrical-Exterior	LS	1	28,870.32	\$ 28,870.32				1	28,870.32	\$ 28,870.32
0020	Instrumentation and Controls	LS	1	99,000.00	\$ 99,000.00				1	99,000.00	\$ 99,000.00
0021	Programming	LS	1	5,500.00	\$ 5,500.00				1	5,500.00	\$ 5,500.00
0022	HVAC – General	LS	1	90,000.00	\$ 90,000.00				1	90,000.00	\$ 90,000.00
0023	Plumbing General	LS	1	5,300.00	\$ 5,300.00				1	5,300.00	\$ 5,300.00

WP-42A.2 - 2nd Street N Pump Station											
ITEM	DESCRIPTION	UNIT	Current Budget (thru CO-10)			Net Change			New Budget		
			QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT	QUANTITY	UNIT PRICE	AMOUNT
0024	Health and Safety	LS	1	50,000.00	\$ 50,000.00				1	50,000.00	\$ 50,000.00
0025	Remove Subsurface Concrete Structure	LS	1	7,397.00	\$ 7,397.00				1	7,397.00	\$ 7,397.00
0026	Hazardous Fill Removal and Disposal - T&M, Not to Exceed	LS	1	12,123.64	\$ 12,123.64				1	12,123.64	\$ 12,123.64
0027	Backfill Below 882'	LS	1	158,293.32	\$ 158,293.32				1	158,293.32	\$ 158,293.32
0028	Backfill Above 882'	LS	1	61,324.68	\$ 61,324.68				1	61,324.68	\$ 61,324.68
0029	Electric Unit Heater (RFI-029A)	LS	1	1,472.00	\$ 1,472.00				1	1,472.00	\$ 1,472.00
0030	Louvers (RFI-043)	LS	1	3,966.00	\$ 3,966.00				1	3,966.00	\$ 3,966.00
0031	Install Baffle Wall	LS	1	\$ 176,792.50	\$ 176,792.50				1	176,792.50	\$ 176,792.50
0032	Leave Sheeting in Place	LS	1	\$ 64,179.25	\$ 64,179.25				1	64,179.25	\$ 64,179.25
0033	Close 2nd Street North	LS	1	\$ 3,950.00	\$ 3,950.00				1	3,950.00	\$ 3,950.00
0034	Reduced Vacuum Line Size	LS	1	\$ (516.99)	\$ (516.99)				1	(516.99)	\$ (516.99)
0036	Substitute Utility Brick Veneer for Stone Veneer	LS	1	\$ (12,750.00)	\$ (12,750.00)				1	(12,750.00)	\$ (12,750.00)
0037	Cold Weather Construction	LS	1	\$ 14,831.92	\$ 14,831.92				1	14,831.92	\$ 14,831.92
0038	Warranty Extended Duration	LS	1	\$ 34,055.34	\$ 34,055.34				1	34,055.34	\$ 34,055.34
0039	F&I Actuator Parts for Sluice Gate Operators	LS	1	\$ 5,486.80	\$ 5,486.80				1	5,486.80	\$ 5,486.80
0040	F&I Decorative Fence Modification	LS	0	\$ 36,342.02	\$ -				0	36,342.02	\$ -
0041	Differing Subsurface Condition - Removals	LS	1	\$ 5,970.55	\$ 5,970.55				1	5,970.55	\$ 5,970.55
0042	CO-12: Program Lubrication System	LS				1	\$ 8,634.56	\$ 8,634.56	1	8,634.56	\$ 8,634.56
0043	CO-12: F&I Submersible Transducer	LS				1	\$ 3,187.25	\$ 3,187.25	1	3,187.25	\$ 3,187.25
0044	CO-12: Furnish Trash Rack Modification	LS				1	\$ 1,076.67	\$ 1,076.67	1	1,076.67	\$ 1,076.67
			<b>CURRENT BUDGET</b>		<b>\$ 8,683,649.98</b>	<b>NET CHANGE</b>		<b>\$ 12,898.48</b>	<b>NEW BUDGET</b>		<b>\$ 8,696,548.46</b>



# CHANGE ORDER REQUEST

**Industrial Builders Inc.**  
14321- - WP42A.2 - Metro Flood/2nd St. Pump Station

**DATE:** 10/26/2017

**PCO#:**

**To:** Greg Baisch  
CH2M Hill Engineer's Inc  
657 2nd Ave N  
Fargo, ND 58105-5405  
**Phone:** 701-566-5470  
**Fax:**  
**Email:** Greg.baisch@ch2m.com  
**CC:**

**From:** David Goulet  
Industrial Builders Inc.  
PO Box 406  
Fargo, ND 58107-0406  
**Phone:** 701-356-9827  
**Fax:**  
**Email:** dgoulet@industrialbuilders.com

Below is the detail for our proposal to complete the following changes in contract work:

- **Lubrication System**
  - **Letter and change order (CO) for grease recommendation and reprogramming options are attached**
- **Submersible Transducer**
- **Trash Rack Material ONLY**

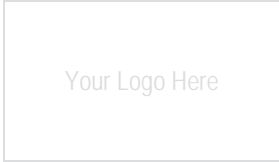
PCO Item	Status	Change (in Days)	Quantity	UM	Unit Price	Amount
Program Grease System to PLC	Initiated		1.00	L S	8,634.56	8,634.56
Submersible Transducer	Initiated		1.00	L S	3,187.25	3,187.25
Trash Rack – Material Only	Initiated		1.00	L S	1,076.67	1,076.67
<b>TOTAL:</b>						<b>\$12,898.48</b>

**Terms and Conditions:**

- 1) No retainage to be held and full payment when complete.
- 2) Work to be performed in December due to subcontractors work load.
- 3) Excludes builders risk, traffic control, or any additional permits that may be required.
- 4) Release of retainage not to be determined by this change order
- 5) Material lead time will be determined at the time the order is placed
- 6) Quote good for fifteen (15) days.

**A) Program Grease System**

- 7) Sweeney controls to re-program the PLC, will not be available till December
- 8) MEI to hook up the controller to the PLC as described in the letter attached



# CHANGE ORDER REQUEST

Industrial Builders Inc.  
14321- - WP42A.2 - Metro Flood/2nd St. Pump Station

DATE: 10/26/2017

PCO#:

**B) Submersible Transducer**

- 9) Supply and install new submersible transducer in wet well
- 10) Sweeney controls to re-program for the transducer
- 11) Owner to have pump station cleaned out for installation

**C) Trash Rack**

- 12) Quote is for material ONLY
- 13) Based on the attached drawing and only one set to be made
- 14) Dissimilar metal barrier NOT included. With the current application in water and not having an installation drawing of where this will be located, IBI cannot determine what will be the best material to supply. If an exact amount and type of material is provided we can add it to the quote.
- 15) Material will be delivered to the site, and owner shall be present to receive.

Submitted By:

10/26/2017

David Goulet

Date

Approved By:

Greg Baisch  
CH2M Hill Engineer's Inc

Date

### Lube System Change Order

	Total Hours	Regular Hours	Overtime Hours (20%)	Total
1 Project Manager	8	116	6.4 127.6	1.6 \$ 946.56
				<b>Total: \$ 946.56</b>

**IBI Equipment Rates**

<i>Qty</i>		<i>Hourly Rate</i>	<i>Hours</i>	<i>Total</i>
1	Pickup Truck	\$ 15.00	8	\$ 120.00
				<b>Total IBI Equipment: \$ 120.00</b>

**Misc Disposal**

	<i>Qty</i>	<i>Units</i>	<i>Price</i>	<i>Total</i>
1 MEI Lube system program/connection - Includes wire, conduit, painting, and hook up	1	LS	\$ 6,880.00	\$ 6,880.00
				\$ -
				10% \$ 688.00
				<b>Subcontractor \$ 7,568.00</b>

<b>Total Change Order: \$ 8,634.56</b>
--

## David Goulet

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**From:** Baltes, Jim [<mailto:jbates@moorheadelectric.com>]  
**Sent:** Wednesday, October 04, 2017 2:52 PM  
**To:** David Goulet  
**Subject:** FW: Fargo 2nd Street Pump Station SCC:01301319

David

Here is sweeneys price.

Put 15% on top

Plus our price of 12 hrs labor \$ 900 labor and \$ 316.25 for material.

Includes installation of conduit, paint conduit, wires, run wires, and hook up.

Let me know if you have any questions.

Thanks

Jim

---

**From:** Mike Phillips [<mailto:mphillips@sweeneycontrols.com>]  
**Sent:** Wednesday, October 04, 2017 2:23 PM  
**To:** Baltes, Jim <[jbates@moorheadelectric.com](mailto:jbates@moorheadelectric.com)>  
**Cc:** Steven M. Crumby <[scrumby@sweeneycontrols.com](mailto:scrumby@sweeneycontrols.com)>  
**Subject:** Fargo 2nd Street Pump Station SCC:01301319

Jim,

Attached is our proposal to provide programming/hardware for the 2<sup>nd</sup> Street Pump Station Grease System. Please let myself or Steven know if you have any questions.

Sweeney Controls Company

Fargo, ND | Sioux Falls, SD

T. 701-232-3644 | F. 701-232-3635 | [mphillips@sweeneycontrols.com](mailto:mphillips@sweeneycontrols.com)

[www.sweeneycontrols.com](http://www.sweeneycontrols.com) | [LinkedIn](#)



234 28<sup>th</sup> Street S  
Fargo ND 58103

T. 701-232-3644  
F. 701-232-3635

[www.sweeneycontrols.com](http://www.sweeneycontrols.com)

October 4, 2017

Mr. Jim Baltes  
Moorhead Electric  
3030 24th Ave.  
Moorhead, MN 56560

Quote Number: 2709

RE: Programming Additions to Grease System  
Fargo, ND

Jim,

We propose to supply the following equipment and services for the above referenced project.

One (1) Programming additions to PLC and HMI for desired operations and a setpoint added to the OIT for pump runtime until grease setpoint. PLC shall provide a signal to grease controller which will send shot of grease anytime a pump in its group hits a cumulative 1hr of runtime.

- One (1) Supply and installation of PLC output card
- One (1) Lot terminal blocks and internal panel wiring
- One (1) Lot drawing updates

One (1) On-site trip for panel modifications and commissioning.

Total lump sum price.....\$ 4,925.00 including taxes

Prices **do not** include installation unless specifically stated, conduit, field wiring, or shipping. Electrical contractor will be required to pull the additional wires from the SCP to the grease controllers as needed.

By accepting this quotation you agree to our terms and conditions. Pricing will be honored for 60 days from above quoted date.



## 42A2 Pump Station 23

### Pending Change Order

#### Lubrication System

Through further research of the current pump stations lubrication system the manufacture has recommended different grease along with two options for setting the greasing intervals.

The type of grease currently being used is adequate and was recommended by the pump installer. The pump supplier and grease system manufacture did suggested a different type of grease that may work better for this application. They recommend switching to a Lithium Complex General Purpose NLGI 1 or 0 Grade for the water lift pumps.

In terms of the automatic greasing system there are two different directions to help reduce the amount of grease being used. The first is to reset the parameters to eliminate the pre-lube cycle which currently greases the units every time it starts up. The setting can be set to grease every 60 minutes of run time, or any other specified duration. The issue with this setting is if the motor has short runs and does not run continuous for the set duration it may not be greased.

The second option is to have Sweeney Controls and MEI reprogram the PLC along with hardwiring the SS2200 controller. The PLC would have a counter for each motor and send an active relay for 1 to 2 seconds telling the grease system to grease the water pumps.

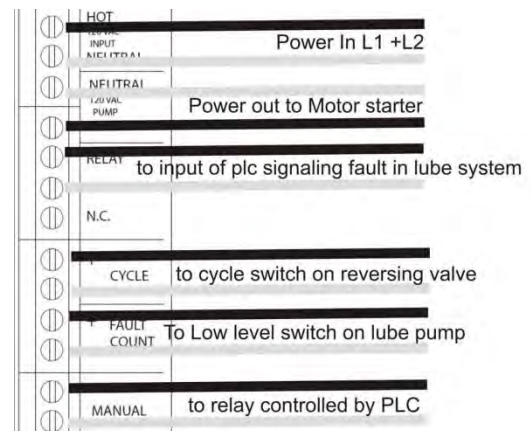
Here is the comments from the Bijur Delimon Internaional :

*Assuming your PLC keeps track of the on time of the pumps when they are in motion or you could set up a rung in the logic to do so the following is how I would do it.*

*Set P3 to a longer time like 120 min or as much as 999 min so you are essential making sure the system will not trigger unless you want it to. Then using a relay to connect terminal 12 +13 together (12 to com 13 to N.O.) this relay would then be triggered by the plc when the total on time reaches one hour of operation. You would then activate the relay for 1 to 2 seconds the remove power. This will start a manual cycle of the lubrication system. When this happens (provided there is a motor starter used here) the aux dry contacts on the motor starter (if equipped) will close while the pump motor is on. You can use these as a trigger signal to send back to the PLC that the lube system is running. This signal I would then use to reset the rung that accrues run time of the water pumps. Once the lube cycle runs and goes off the clock resets essentially.*

*P1 0 = TIME  
P2 0 = MIN  
P3 999 MIN  
P4 3 MIN FAULT TIME  
P5 2 CYCLE SWITCH TRANSITIONS ( 1 full cycle of a dual line block)  
P6 1 Continuous operation (not pulsed)  
P7 0  
P8 0 NO PRE-LUBE ( COMING ON FROM NO POWER)  
P9 1  
P10 1*

*In the case that your motor starter has no aux contacts you can add a 110v relay in line with the outputs to the starter itself this will provide the lube system on/ timer reset signal you need.*



The previous pages showed the change order if the second option to reprogram the PLC is desired. Please let me know if you have any additional questions.

Thank you,

David Goulet  
Industrial Builders, Inc.



**MOORHEAD  
ELECTRIC**

INDUSTRIAL BUILDERS

ATTN: DAVID GOULET

PROJECT: 2 ND STREET PUMP

**M.E.I. CHANGE PROPOSAL C14424-809**

Add transducer in well. Moorhead Electric will furnish and install a transducer in the well, provided by Sweeney controls and they will do the re-programming for the transducer.

Sweeney controls	1850 x 15%	=	\$ 2127.50
Labor	10 hrs	=	750.00
Material		=	20.00

Total      \$ 2,897.50

Add 10% for IBI Markup

Respectfully submitted

James Baltes

Date 6/26/17



234 28<sup>th</sup> Street S  
Fargo ND 58103

T. 701-232-3644  
F. 701-232-3635

[www.sweeneycontrols.com](http://www.sweeneycontrols.com)

June 26, 2017

Mr. Jim Baltes  
Moorhead Electric  
3030 24th Ave.  
Moorhead, MN 56560

Quote Number: 2641

RE: 2nd St. Pump Station -Submersible Level Transducer  
Fargo, ND

Jim,

We propose to supply the following equipment and services for the above referenced project.

**Supplied by SCC but installed by others**

One (1) Submersible Level Transducer 90

One (1) Lot programming and drawing updates for addition of submersible level transducer.

Total lump sum price.....\$ 1,850.00 including taxes

Prices **do not** include installation, conduit, field wiring, or shipping.

By accepting this quotation you agree to our terms and conditions. Pricing will be honored for 60 days from above quoted date.

If you have any questions or comments, please feel free to contact me at 1-800-743-6536.

Sincerely,

*Mike Phillips*

Mike Phillips | [mphillips@sweeneycontrols.com](mailto:mphillips@sweeneycontrols.com)

**Contract Acceptance:**

# LTB Level Transducer

- Submersible Level Transducer
- Municipal and Industrial Applications
- Wide Mouth Non-fouling Protective Cage
- 2.75" PTFE Flexible Diaphragm

The **LTB Level Transducer** is a submersible hydrostatic level transducer specifically designed to meet the rigorous environments encountered in wastewater and liquid level measurements and control.

## FEATURES

### Standard

- 0.25% FSO Accuracy
- Welded 316 Stainless Steel Enclosure
- One Year Warranty
- Pre-calibrated Pressure Ranges

### Optional

- Two Year Warranty
- Custom Pressure Ranges
- Intrinsically Safe
- Lightning Protection

## APPLICATIONS

- Lift Station Monitoring
- Pump Control
- Slurry Tank Liquid Level
- Wastewater

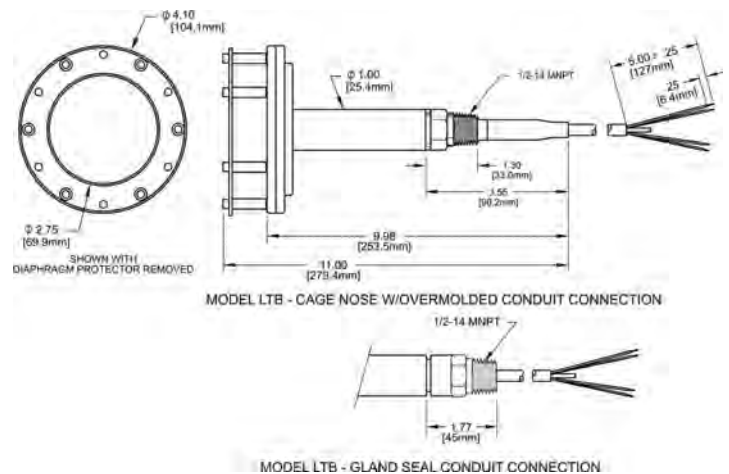
Standard Certifications:



Optional Certifications:



## dimensions



## standard pressure ranges

Pressure Range (PSI)	Feet H <sub>2</sub> O	LTB Vented
0-005	11.5 ft	X
0-010	23.1 ft	X
0-015	34.6 ft	X
0-030	69.2 ft	X
0-050	115.4 ft	X
Custom Ranges Available		

# LTB Level Transducer



## specifications

### STATIC PERFORMANCE

Static Accuracy (combined effects of non-linearity, hysteresis and repeatability, best fit straight line method)	±0.25% FSO	BFSL method
Resolution	+0.0001% FS	

### ENVIRONMENTAL

Wetted Materials	316 SS; POM; polyurethane or FKM	
Compensated Temp Range	0 to 50°C	
Thermal Error (maximum allowable deviation from the Best Fit Straight Line due to a change in temperature)	±0.1% FSO/°C	
Operating Temp Range	-20 to 60 °C	when attached to polyurethane cable
Protection Rating	IP 68, NEMA 6P	

### ELECTRICAL

Excitation	9-28V – VDC output	0-5V, 0-2.5V, 0-4V
	9-28V – mA output	4-20
	15-28V – VDC output	0-10V
	10-28V – VDC output	1.5-7.5V
Input Current	20 mA max	for mA output
	3.5 mA max	for VDC output
Output	4-20mA, 0-5 VDC, 0-2.5VDC, 0-4VDC, 0-10VDC, 1.5-7.5VDC	for ranges < 5 ft (1.5m) H <sub>2</sub> O, only 4-20mA output is available
Zero Offset	±0.25 mA for mA output < 0.25 VDC for VDC output	
Output Impedance	See loop diagram for mA output 20 ohm for VDC output	
Insulation Resistance	100 mega ohm at 50 VDC	
Circuit Protection	Polarity, surge/shorted output	

### CERTIFICATIONS

Standard – WEEE/RoHS, CE compliant	EN 61326-1:2001 and 61326-2-3:2006 Waste from Electrical and Electronic Equipment (WEEE) and Restrictions on the use of Hazardous Substances (RoHS)
Optional - UL, CUL and FM	Class I, II, III, Div 1, Groups A,B,C,D,E,F&G

### PHYSICAL

Approximate Weight	3.5 lbs (1588 g) transducer 0.05 lbs/ft (79 g/m) cable	
Cable Jacket Material	Polyurethane (standard) ETFE (optional)	
Cable Pull Strength	200 lbs (90 kg)	
Cable Number of Conductors	4	
Cable Conductor Size	22 AWG	
Cable Seal	Molded Polyurethane FKM Gland	for polyurethane cable for ETFE cable

### TEMPERATURE OUTPUT OPTION (not intrinsically safety approved)

Temperature Range	-20 to 60°C	available for 4-20mA output versions only
Output Signal	4-20mA	

### LIGHTNING PROTECTION (power supply needs to be limited to 150mA to avoid lock up of the gas tube after a suppression event)

Life Expectancy	>1,000 Operations
Peak Clamping Voltage	36 Volts
Response Time	<10 nsecs
Shunts	20,000 Amperes

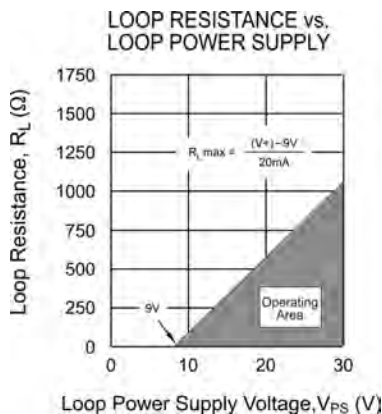
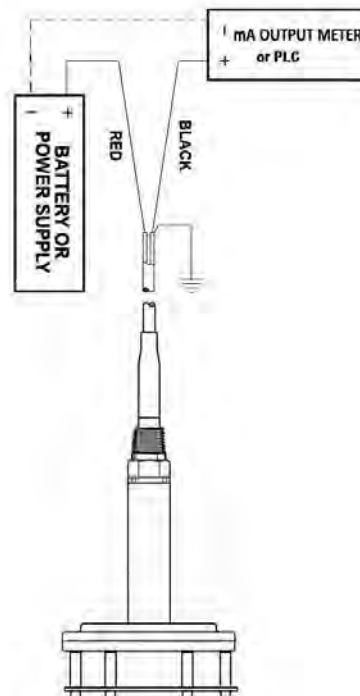
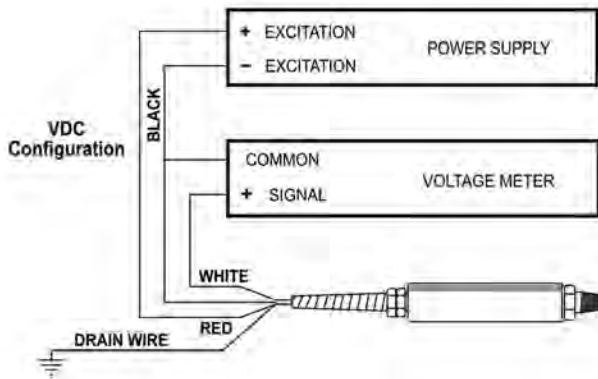
# LTB Level Transducer

## ordering info

<b>TRANSDUCER</b>																			
<b>L</b>	<b>T</b>	Submersible Level Transducer																	
↓	↓	<b>PRESSURE PORT</b>																	
		<b>B</b>	Cage																
		↓	<b>OUTPUT</b>																
			<b>8</b>	4 – 20 mA															
			1	0 – 2.5 VDC															
			2	0 – 4 VDC															
			3	0 – 5 VDC															
			4	0 – 10 VDC															
			5	1.5 – 7.5 VDC															
			G	4-20 mA w/Lightning															
			A	0-2.5 VDC w/Lightning															
			B	0-4 VDC w/Lightning															
			C	0-5 VDC w/Lightning															
			D	0-10 VDC w/Lightning															
			E	1.5-7.5 VDC w/Lightning															
		↓	<b>CABLE TYPE</b>																
			<b>A</b>	Polyurethane															
			B	ETFE															
			D	None															
		↓	<b>ACCURACY</b>																
			<b>B</b>	±0.25% FS															
		↓	<b>INTRINSIC SAFETY APPROVALS</b>																
			<b>B</b>	UL, FM & CUL															
			D	None															
		↓	<b>WARRANTY</b>																
			<b>A</b>	Standard one year Warranty															
			J	Extended two year Warranty															
		↓	<b>MATERIAL</b>																
			<b>S</b>	Stainless Steel															
		↓	<b>ELECTRICAL CONNECTION</b>																
			<b>A</b>	Overmold															
			B	Gland Seal (ETFE jacketed cable)															
			D	Overmold w/ 1/2" – 14 NPT Conduit															
			F	Gland Seal w/ 1/2" – 14 NPT Conduit															
		↓	<b>PRESSURE RANGE</b>																
			x	x	x	Refer to chart page 1													
			↓	↓	↓														
			<b>0</b>	<b>1</b>	<b>5</b>														
			<b>UNITS</b>																
			<b>P</b>	PSI															
			↓																
			<b>PRESSURE REFERENCE</b>																
			<b>G</b>	Vented Gage															
			↓																
			<b>CABLE LENGTH (FT)</b>																
			x	x	x	Cable length in feet													
			↓	↓	↓														
			<b>0</b>	<b>6</b>	<b>0</b>														
L	T	B				B				S				P	G				

# LTB Level Transducer

## electrical termination/loop resistance



### ELECTRICAL TERMINATION

22AWG CONDUCTORS IN A SHIELDED CABLE WITH VENT TUBE

4-20 mA	RED BLACK	+ EXCITATION - EXCITATION
0-5 VDC	RED BLACK WHITE	+ EXCITATION - EXCITATION + SIGNAL
ALL	DRAIN WIRE	SHIELD

### NORTH AMERICA

Measurement Specialties, Inc.  
1000 Lucas Way  
Hampton, VA 23666  
USA  
Tel: 1-757-766-1500  
Fax: 1-757-766-4297  
Toll Free: 1-800-745-8008  
Sales: [WL.sales@meas-spec.com](mailto:WL.sales@meas-spec.com)

### EUROPE

Measurement Specialties  
(Europe), Ltd.  
26 Rue des Dames  
78340 Les Clayes-sous-Bois, France  
Tel: +33 (0) 130 79 33 00  
Fax: +33 (0) 134 81 03 59  
Sales: [pfg.cs.emea@meas-spec.com](mailto:pfg.cs.emea@meas-spec.com)

### ASIA

Measurement Specialties  
(China), Ltd.  
No. 26 Langshan Road  
Shenzhen High-Tech Park (North)  
Nanshan District, Shenzhen 518057  
China  
Tel: +86 755 3330 5088  
Fax: +86 755 3330 5099  
Sales: [pfg.cs.asia@meas-spec.com](mailto:pfg.cs.asia@meas-spec.com)

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### Trash Rack Change Order

	Total Hours	Regular Hours	Overtime Hours (20%)	Total	
1 Project Manager	2	116	1.6	127.6	0.4 \$ 236.64
1 Truck Driver	2	77.65	1.6	91.9	0.4 \$ 161.00
					<b>Total: \$ 397.64</b>
<b><u>IBI Equipment Rates</u></b>					
<i>Qty</i>		<i>Hourly Rate</i>		<i>Hours</i>	<i>Total</i>
1 Pickup Truck		\$ 15.00		2	\$ 30.00
					<b>Total IBI Equipment: \$ 30.00</b>
<b><u>Material</u></b>					
1 MidAmerica Steel Trash Rack Parts	Qty	Units		Price	Total
	1	LS		\$ 525.00	\$ 525.00
				7.50%	\$ 39.38
				15%	\$ 84.66
				<b>Material</b>	<b>\$ 649.03</b>
<b>Total Change Order:</b>					<b>\$ 1,076.67</b>



## David Goulet

---

**Subject:** FW: 2nd Street Trash Rack Quote

**From:** Cody Johnson [<mailto:cjohnson@midamsteel.com>]

**Sent:** Thursday, October 26, 2017 3:55 PM

**To:** David Goulet

**Subject:** RE: 2nd Street Trash Rack Quote

\$525 **\*no tax included\***

Cody Johnson  
*Sales/Estimating*



---

**From:** David Goulet

**Sent:** Tuesday, October 17, 2017 11:42 AM

**To:** Cody Johnson ([cjohnson@midamsteel.com](mailto:cjohnson@midamsteel.com))

**Subject:** RE: 2nd Street Trash Rack Quote

Good Morning Cody,

Could you provide me a complete price for the following items:

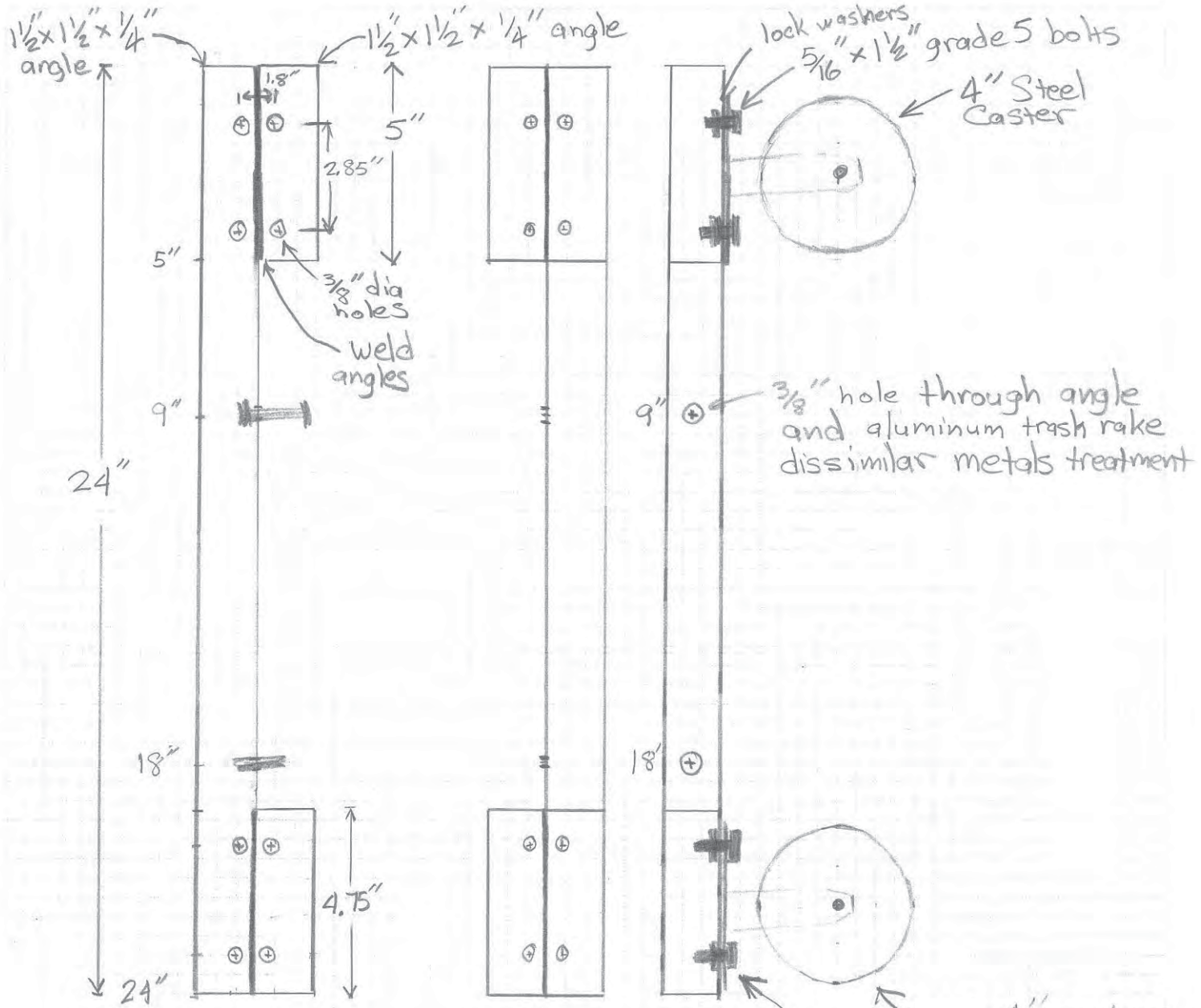
- One set of the attached drawing.
  - The current drawing was for 4<sup>th</sup> Street which identifies four sets. For 2<sup>nd</sup> Street we just need one set.
- One set of the welded angles, with holes, and hot dip galvanized.
- 4 - casters - 4inch 1000lb rigid (ID number STF-04RSC)
  - Can you provide these in your quote with a spec sheet?
- 16 - 1.5 inch by 5/16" zinc plated bolts
- 4 - 2.5 inch by 5/16" zinc plated bolts
- 20 – 5/16" zinc plated nuts and lock washers

Thank you,

**David Goulet**  
*Senior Project Manager*  
*Industrial Builders, Inc*

Project:  
 Subject:  
 Task: Trash Rack Adjustment  
 Job #:

Computed: *[Signature]* Date: 12-7-16  
 Checked: Date:  
 Page: of:  
 No:



4 pieces galvanized  
 4 pieces galvanized

- 4 casters  
1000 lb STF-04RSC
- 5/16 grade 5  
2 1/2" long bolts
- 5/16 nuts
- 5/16 lock washers

zinc coated  
 #20  
 #20