



**BISMARCK CITY COMMISSION
PUBLIC MEETING NOTICE**

TO: Board of City Commissioners
Media

FROM: Keith Hunke, City Administrator

DATE: September 30, 2021

SUBJECT: Special Meeting Notice

Board of City Commissioners
Thursday, September 30, 2021
12:30 p.m.
City/County Building
221 N. 5th Street, Mayor's Conference Room
Bismarck, ND 58503

AGENDA

Consider and approve a change order for the landfill cell #1 construction project.

ADJOURN



Public Works Service Operations Department

DATE: 9/30/2021

FROM: Jeff Heintz, Public Works Service Operations Director

ITEM: Approve Change Order 2 to the agreement with Northern Improvement Company for the solid waste management facility cell 1 expansion project

REQUEST:

Approve Change Order 2 to the agreement with Northern Improvement Company for the solid waste management facility cell 1 expansion project.

Please place this item on the 9/30/2021 City Commission meeting agenda.

BACKGROUND INFORMATION:

Change Order 2 is to address an unforeseen condition in the excavation of the sump for cell 1 construction. Because of this, we are unable to install the liner. Final completion of the contract is also increased to November 30, 2021. Change Order 2 is \$109,088.05.

RECOMMENDED CITY COMMISSION ACTION:

Approve Change Order 2 for \$109,088.05 to the Agreement with Northern Improvement Company for the Solid Waste Management Facility - Cell 1 Expansion Project.

STAFF CONTACT INFORMATION:

Jeff Heintz | Public Works Service Operation Director, 355-1700 or jheintz@bismarcknd.gov
Sherwin Wanner | Houston Engineering, 701-751-6284 or swanner@houstoneng.com
Dennis McAlpine | Houston Engineering, 763-493-6660 or dmcalpine@houstoneng.com

CONTRACT CHANGE ORDER FORM

DEPARTMENT

City Department	Public Works - Service		
Contractor	Northern Improvement Company		
Contract Number	2021-0037	Change Order Number	2
Project Number		Change Order Date	09.30.21
Project Description	SWDUTIL.WASTE.MSWCELL		
Original Contract Amount	\$2,816,187.63	Approved Contract Budget	
Previous Contract Amount	\$ 2,816,187.63		
Change Order Amount	\$109,088		#VALUE!
Proposed Contract Amount	\$ 2,925,275.68		
Within Project Scope	YES	Within Project Funding	YES
Completion Date	10.30.21	Change in Completion Date	YES
Revised Completion Date*	11.30.21	REV COMP DATE REQ'D	*If completion date changed on this Change Order
Type of Change Order	Non Design-related	Work Order No(s).	

Description:

Change Order 2 is to address an unforeseen condition in the excavation of the sump for cell 1 construction. Because of this, we are unable to install the liner. Final completion of the contract is also increased to November 30, 2021. Change Order 2 is \$109,088.05.

Project Manager Signature (≤\$15,000)

SIGN HERE

Send to Fiscal if change is ≤\$15,000, completion date ≤5 days, no scope change or no revised budget

Date

Department Head Signature (≤\$25,000)

SIGN HERE

Send to Fiscal if change is ≤\$25,000, completion date ≤15 days, no scope change or no revised budget

Date

ADMINISTRATION

City Administrator Signature (≤\$50,000)

Add to Commission Agenda

Date

COMMISSION APPROVAL

Commission Approval Date

Attach Commission approval memo and send to Fiscal

#VALUE!

FISCAL

Comments

CHANGE ORDER NO.: 2

Owner:	City of Bismarck	Owner's Project No.:	LF2021-001
Engineer:	Houston Engineering Inc.	Engineer's Project No.:	4489-0042
Contractor:	Northern improvement Company	Contractor's Project No.:	21226
Project:	City of Bismarck Solid Waste Management Facility Cell 1 Construction		
Contract Name:	City of Bismarck Solid Waste Management Facility Cell 1 Construction		
Date Issued:	September 30, 2021	Effective Date of Change Order:	September 30, 2021

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

Description:

This change order details the work associated with the installation and maintenance of a secondary (temporary) underdrain system. This system is necessary to remove accumulated water near the Cell 1 leachate collection sump to support completion of the landfill base grade liner system. This change order also includes work to install a temporary pump within the project specified underdrain riser piping until the project specified control panel and permanent/dedicated pumping equipment is available.

Additional supporting information detailing the purpose and need for this work is including in the attachments per the list below. A copy of the Contractors Proposal to complete the work is also included as an attachment.

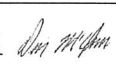
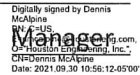
Change Order No. 2 Total = \$109,088.05 (per Northern Improvement Company Proposal dated 9/28/21)

Attachments:

- **Field Order #9 dated September 14, 2021**
- **Northern Improvement Company Proposal dated 9/28/21**
- **Northern Improvement Company Support Email dated 9/29/21**
- **Houston Engineering Technical Memorandum dated 9/30/21**

Change in Contract Times
[State Contract Times as either a specific date or a number of days]

Change in Contract Price		Change in Contract Times	
Original Contract Price:		Original Contract Times:	
\$ 2,816,187.63		Substantial Completion:	October 30, 2021
		Ready for final payment:	November 15, 2021
Increase from previously approved Change Orders No. 1		Increase from previously approved Change Orders No.1	
\$ 4,591.25		Substantial Completion:	None
		Ready for final payment:	None
Contract Price prior to this Change Order:		Contract Times prior to this Change Order:	
\$ 2,820,778.88		Substantial Completion:	October 30, 2021
		Ready for final payment:	November 15, 2021
Increase this Change Order:		Increase this Change Order:	
\$ 109,088.05		Substantial Completion:	November 15, 2021
		Ready for final payment:	November 30, 2021
Contract Price incorporating this Change Order:		Contract Times with all approved Change Orders:	
\$ 2,929,866.93		Substantial Completion:	November 15, 2021
		Ready for final payment:	November 30, 2021

Recommended by Engineer (if required) By: <u>Dennis McAlpine</u> Title: <u>Houston Engineering Manager</u>   Date: <u>September 30, 2021</u> Authorized by Owner By: <u>Stere Bakken</u> Title: <u>President of Board of City Commissioners</u> Date: <u>9.30.21</u>	Accepted by Contractor _____ _____ _____ Approved by Funding Agency (if applicable) _____ _____ _____
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FIELD ORDER NO.: 9

Owner:	The City of Bismarck, ND	Owner's Project No.:	LF 2021-01
Engineer:	Houston Engineering, Inc.	Engineer's Project No.:	4489-0042
Contractor:	Northern Improvement Company	Contractor's Project No.:	
Project:	Cell 1 Construction		
Contract Name:	Cell 1 Construction LF 2021-01		
Date Issued:	9/14/2021	Effective Date of Field Order:	9/14/2021

Contractor is hereby directed to promptly perform the Work described in this Field Order, issued in accordance with the General Conditions, for minor changes in the Work without changes in Contract Price or Contract Times. If Contractor considers that a change in Contract Price or Contract Times is required, submit a Change Proposal before proceeding with this Work.

Reference:

Specification Section(s): NA

Drawing(s) / Details (s): Plan Sheet PP-7

Description:

Water seepage into/thru the clay barrier layer of the leachate sump and east leachate collection trench will necessitate the installation of a temporary underdrain extraction system support further clay barrier layer placement and subsequent liner installation. This system will utilize materials/components of the leachate and underdrain systems detailed within the proposed project. The system will involve the installation of a riser/stand-pipe and the placement of a temporary submersible water well pump to remove accumulated groundwater. Attached is a cut-sheet of an example submersible water well pump for use in the proposed temporary system. The pump installation should include the following components:

- 1-inch diameter rigid drop-pipe. Threaded 1-inch PVC Sch 80 preferred. Pump to be set within 6-inches of sump bottom.
- Pump/drop-pipe and submersible wire to terminate at the top of riser/stand-pipe via use of appropriated sized water well seal and/or fitted cap with drilled penetrations for piping/wiring.
- Prior to discharge the system shall be fitted with a pressure gage (0-60 psi) and a gate or ball valve to restrict pump flow.
- Discharge piping (1-inch SDR 11.5 or greater). The discharge piping shall extent up the south slope adjacent Cell 1 and be directed towards existing drainage routes/outlets.

A portion of the water seepage into the leachate sump and trench may be the result of accumulated water in the underdrain slope well (Detail C on Sheet D-2) producing a head pressure in the adjacent in-situ soils. To alleviate the current head condition a temporary pump, similar to the pumping infrastructure detailed above for the temporary underdrain shall be provided.

The work associated with this field order shall be estimated to include furnishing and installing the pumping equipment as specified and operation/maintenance of the temporary underdrain system until permanent controls and infrastructure is installed. The cost estimate for this work should provide a separate line item for additional submersible pumps if pump failure occurs as result of changed conditions.

Attachments:

Revised Plan Sheet PP-7 dated 9/13/2021

Submersible Pump (Example) Cut Sheet

Issued by Engineer

By: Dennis McAlpine

Title: Project Manager

Date: 9/14/2021



SUBMERSIBLE WELL PUMPS

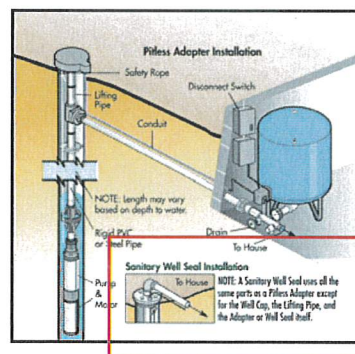
MODELS 2860G, 2855G, 2850G, 2845G

2-WIRE 4" SUBMERSIBLE WELL PUMPS



MODEL 2860G	230 VOLT	1 HP	10 GPM
MODEL 2855G	230 VOLT	3/4 HP	10 GPM
MODEL 2850G	230 VOLT	1/2 HP	10 GPM
MODEL 2845G	115 VOLT	1/2 HP	10 GPM

- High capacity heavy duty design. High-impact discharge head and base. Strong stainless-steel shell on pump end and motor
- 10 GPM rated models for maximum efficiency in most homes
- 1-1/4" corrosion-resistant thermoplastic discharge head outlives conventional metals even in the harshest environments
- Built-in check valve to prevent back flow
- High-efficiency motor for fewer energy dollars
- NEMA-standard motor
- Complete installation instructions included
- All units are built with a green ground wire per National Electric Code specifications for ground protection
- Fits inside any 4" opening



PERFORMANCE

Model	HP	Warranty	GPM	Voltage	GPM Pumped at Different Depths to Water*								
					20'	40'	60'	80'	100'	150'	200'	250'	300'
2860G	1	3-year	10	230	15.8	15.4	14.7	14	13.4	11.7	9.7	7.3	4.4
2855G	3/4	3-year	10	230	14.8	14.2	13.4	12.6	11.7	8.8	5.2	—	—
2850G	1/2	3-year	10	230	14.3	13.2	12.2	10.9	9.6	5	—	—	—
2845G	1/2	3-year	10	115	14.3	13.2	12.2	10.9	9.6	5	—	—	—

*All performances shown in gallons per minute at 40 PSI (pound per square inch) discharge pressure at top of well.

ORDERING INFORMATION

Model	UPC	Carton (L x W x H)	Cube	Pallet Qty.	Weight
2860G	0 22315 31273 9	34.8" x 4.4" x 4.2"	.372	44	27 lbs.
2855G	0 22315 31271 5	34.8" x 4.4" x 4.2"	.372	44	29 lbs.
2850G	0 22315 31268 5	34.8" x 4.4" x 4.2"	.372	44	26.3 lbs.
2845G	0 22315 31267 8	34.8" x 4.4" x 4.2"	.372	44	21 lbs.

P.O. Box 1254
3320 East Century Avenue
BISMARCK, NORTH DAKOTA 58502
(701) 223-6695

PROPOSAL SUBMITTED TO City of Bismarck Landfill		PHONE	DATE 9/28/2021
STREET		JOB NAME Underdrain 2 System	
CITY, STATE AND ZIP CODE Bismarck, ND		JOB LOCATION Bismarck Landfill	
ARCHITECT	Attn: Jeff Heinz	FAX	JOB PHONE

[illegible]

Signature _____

Dennis McAlpine

From: Derek Dame <ddame@nicnd.com>
Sent: Wednesday, September 29, 2021 2:00 PM
To: Dennis McAlpine
Cc: Chris Roen
Subject: RE: Underdrain 2

[External Email]

Dennis,

To follow up from our phone conversation earlier today, I will provide a work list of all items included in the Install Underdrain System.

1. We anticipate this installation to take 3 days.
2. Pricing includes the mobilization, installation, and materials of the pumps and wiring from our well driller subcontractor to make the pumping system operational.
3. We are left with a very tight area to complete this work now that the Geomembrane liner has been installed. Work will begin by excavating out the trench for the underdrain system. A fair bit of this excavation will need to be hauled out with trucks versus just placing material off to the side of the excavation. This will be an open pit excavation. The side slopes will be benched back to allow for a safe excavation. The work excludes using a trench box or unstable ground for the excavation.
4. The underdrain trench will be constructed 4 feet wide by 2 feet deep with underdrain aggregate and wrapped in filter fabric. We have provided an option to use Geocomposite as well to help capture the groundwater. We plan on using the 8" pipe from the leachate system to keep this project moving along. We will purchase pipe to replace our leachate pipe as part of this price.
 - a. At the beginning of this project, we rushed everything along to get all of the materials ordered as soon as possible. We have seen very large increases in pipe since we have ordered the materials. For example, the perforated pipe needed for this additional underdrain system has increased by a factor of 2.5X
5. Once the system is installed and operational, we will leave the excavation open for a short period of time to monitor the groundwater inflows through the system and ensure that it is working properly.
6. The trench will be backfilled and compacted with clay liner like materials after Houston Engineering provides us with the okay to do so. The close dirt will be put in with the excavator and the longer dirt will need to be hauled back in with trucks. Depending on the condition/type of the soil, we may need to bring in additional fill dirt. The cell will be reshaped to the grades provided for the top of clay liner, smooth rolled, and prepped for Geomembrane installation.

This summary includes all the work needed to install the underdrain system per Field Order #9 as provided by Houston Engineering. The work excludes any engineered excavations or excavations requiring a trench box. We still have not received any revised pricing on the new control panel with the additional underdrain pump and this is excluded. We are ready to begin this work as soon as possible to get the Bismarck Landfill Cell 1 project completed in a timely manner.

Thank you,

Derek Dame
Project Manager/Estimator
Northern Improvement Company
1721 Burlington Drive
Bismarck, ND 58504

Office: (701) 223-6695
Fax: (701) 224-0937

From: Derek Dame
Sent: Tuesday, September 28, 2021 2:34 PM
To: Dennis McAlpine <dmcalpine@houstoneng.com>
Cc: Chris Roen <croen@nicnd.com>
Subject: Underdrain 2

Good afternoon Dennis,

Here is the pricing for FO #9 with the Underdrain 2 System. Let me know when we can proceed with this work. We are ready to start immediately.

Thanks,

Derek Dame
Project Manager/Estimator
Northern Improvement Company
1721 Burlington Drive
Bismarck, ND 58504
Office: (701) 223-6695
Fax: (701) 224-0937

Technical Memorandum

To: Jeff Heintz
Director of Public Works - Service Operations

From: Dennis McAlpine, P.E.
Houston Engineering, Inc.

Subject: Bismarck Cell 1 Construction LF 2021-001 Change Order #2 Purpose & Need

Date: September 30, 2021

Project: 4489-0042

The initial phase of construction for Cell 1 (City Project LF 2020-001) was completed in the Fall of 2020. This work included excavation of Cell 1 to the proposed landfill base grades in preparation for the placement of the base grade liner system and associated leachate collection infrastructure. The initial excavation removed underlying clay and partially saturated sand materials. The in-situ sand materials overlie a fractured silty, clayey shale near the base grades of Cell 1. The subsurface clay was a low permeable material and in place testing of compacted clay indicated it is well within the specification standards for use as clay barrier layer material. The clayey material beneath the onsite sand is characterized as a low permeability aquitard – meaning the upper sand seam is expected to dewater and dry over a period.

Following the initial excavation project completed in 2020, groundwater was observed to drain from the exposed sand seam during the Fall of 2020 into the Spring of 2021. The drainage from the sand seam was consistent with the Hydrogeological Reports and observations indicating that the sand seam was dewatering as expected. To provide an outlet for groundwater that could potentially recharge the sand seam and jeopardize the integrity of the proposed base liner system, a dedicated/permanent groundwater underdrain system was designed and installed with the current phase of the project.

Construction operations associated with the current phase of work initiated in May of 2021. The Contractor pumped accumulated water from the Cell bottom to the adjacent stormwater pond as planned. The Contractor proceeded to install the underdrain and base liner system above the in-situ sand layer. While this work was being conducted the underlying clayey materials coinciding with the Cell floor were removed and stockpiled. Following an initial effort to dry the base grade clay materials, accumulated water was observed near the location of the proposed Cell 1 leachate collection sump. This area represents the lowest portion of the landfill Cell. Upon discovery it was initially believed that the accumulated water was a result of hydrologic connectivity with groundwater from the overlying sand seam and associated temporary pumping activities with the proposed groundwater underdrain system. The Contractor proceeded to pump accumulated water from the leachate sump area for use during construction to support moisture conditioning of the clay liner materials and dust control onsite. This effort continued until the clay barrier layer construction was completed on September 9, 2021. Crews successfully worked to complete the clay barrier layer throughout the Cell leaving the leachate sump area as the last portion to be placed. The in-situ clay materials were highly impermeable as observed

and confirmed with numerous density and permeability testing operations. It was expected that the planned over excavation and compaction of the clay material, near the sump, would provide the intended barrier to complete placement of clay barrier layer. Upon completion of the clay barrier layer water was observed penetrating/seeping within the leachate sump approximately 12 hours after placement. The discovery of the water near the leachate sump forced the ongoing HDPE Liner installation to cease until the clay barrier could be installed and maintained in a dry condition.

Given the persistent nature of the water near the leachate sump the placement of an underdrain system will be required to effectively drain the underlying clay materials and allow for installation of the clay barrier layer in dry condition thus maintaining the integrity of the liner system. In lieu of the discovery of a water bearing source near the leachate sump we believe the pumping operations for the proposed underdrain system will function on a temporary basis. The in-situ clay materials are highly impermeable as observed and confirmed with conformance testing. Additional information detailing the specifics of the proposed temporary system was provided in the narrative of Field Order #9 dated 9/14/2021.