



Waukesha Water Utility

SERVING WAUKESHA SINCE 1886

115 DELAFIELD STREET
WAUKESHA, WI 53188-3615

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MEMORANDUM

Date: April 9, 2021
To: Dan Duchniak, P.E.
From: Chris Walter, P.E.
Re: CP2A Work Change Directive

As part of the Great Water Alliance Contract Package 2A (CP2A) – Water Supply Pipeline, Super Excavators has requested the enclosed Work Change Directive. The purpose of the request is to redesign a Horizontal Directional Drill (HDD). Super Excavators is requesting an additional 273 feet of HDD length to reduce installation risk and increase probability of success. The request includes additional length to increase radius of curvature, increase clear spacing from utilities to decrease chance of utilities settling, reduce risk of an inadvertent return, and reduce simultaneous horizontal and vertical curvature of the drill.

The enclosed documentation includes the request along with a plan drawing showing the additional requested length as well as the cost.

Along with our Construction Management team, I have reviewed the request and find it to be in the best interest of the Utility to approve the request. The cost impact is a net increase of \$178,515.00.

Recommended Motion: Move to approve the CP2A Work Change Directive for additional HDD length for a cost of \$178,515.00.

Waukesha Water Utility
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Great Water Alliance
Great Lakes Water Supply Program
CP2A - Water Supply Pipeline Section I, II and III
Station Suction Pipelines

Project No.: 199990-CP2A
File No.: 80.1730

Super Excavators, Inc.
N59 W14601 Bobolink Avenue
Menomonee Falls, WI 53051 USA

WORK CHANGE DIRECTIVE

Work Change Directive No.:	004 Rev.: 0.00
Issue Date:	Monday, March 29, 2021
Subject:	HDD No. 2 Redesign - Additional Length
Reference Drawing / Specification:	C126 and C127
Workflow Status:	Submitted

WORK CHANGE DIRECTIVE TO ACKNOWLEDGE CHANGE TO THE TERMS OF THE CONTRACT:

Work Change Directive Category: **4 - Contractor Initiated**

Work Change Directive Sub-Category: **B - Substitutions and Contractor Initiated Change**

Purpose for this Work Change Directive:

The purpose of Work Change Directive No. 004 is to redesign Horizontal Directional Drill (HDD) Crossing Plan No. 2 based on concerns by Super Excavators, Inc. An additional 273 feet of HDD length are requested by Super Excavators, Inc. to increase radius of curvature, increase clear spacing from utilities to decrease chance of utilities settling, reduce the risk of an inadvertent return, and reduce simultaneous horizontal and vertical curvature of the drill. All of the previously mentioned factors were said to reduce installation risk and increase probability of success.

Description of Change:

Modifications to the Contract include all labor, material, and equipment cost to: Remove 273 LF of Ductile Iron Pipe, Open Cut 30-Inch Water Supply Pipeline Section I, Select Fill related to Contract Item 3-WS-I-B; Remove 208 TON of Base Course for Water Supply Pipeline Section I related to Contract Item 10-WS-I; Remove 93 TON of Water Supply Pipeline Section I, Asphalt related to Contract Item 11-WS-1-A; Add 273 LF of 36-Inch HDPE Pipe Horizontal Directional Drilling installation. Drawing SH-1 is included as an Attachment showing the changes associated with Work Change Directive No. 004.

The acceptance of these changes results in a net increase of \$178,515 to the Contract Price.

There is no anticipated change in the Contract Time.

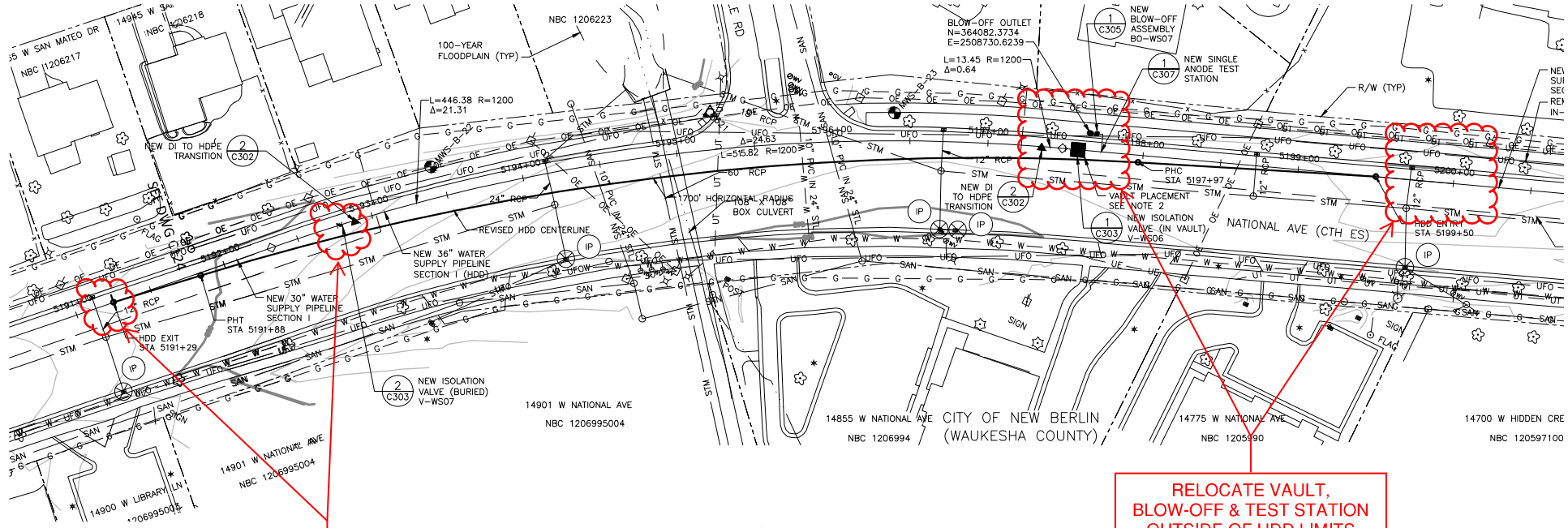
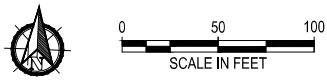
Item No.	Description	Proposed Qty.	Unit Price	Total	Days
1	Ductile Iron Pipe (Open Cut) - 30-Inch Water Supply Pipeline Section I, Common Fill (Item No. 3-WS-I-B)	-273.00 LF	\$340.00	\$-92,820.00	0.00
2	Base Course - Water Supply Pipeline Section I (Item No. 10-WS-I)	-208.00 Ton	\$24.00	\$-4,992.00	0.00
3	Asphalt - Water Supply Pipeline Section I (Item No. 11-WS-I-A)	-93.00 Ton	\$111.00	\$-10,323.00	0.00
4	36-Inch HDPE Pipe Horizontal Directional Drilling - Water Supply Pipeline Section I	273.00 LF	\$1,050.00	\$286,650.00	0.00
TOTAL: \$178,515.00					

Method of determining change in Contract Price	Original Contract Price:	\$33,934,739.00
	Previous Approved Changes to Contract Price:	\$0.00
Unit Price	Proposed Change to Contract Price:	\$178,515.00

Per the Standard General Conditions of the Construction Contract, this Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by this Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.04 regarding Change of Contract Price.

Workflow Approvals:

Submit	Tuesday, April 06, 2021	Submit	Erin Wells
1	Tuesday, April 06, 2021	Approve	Jeff Champion

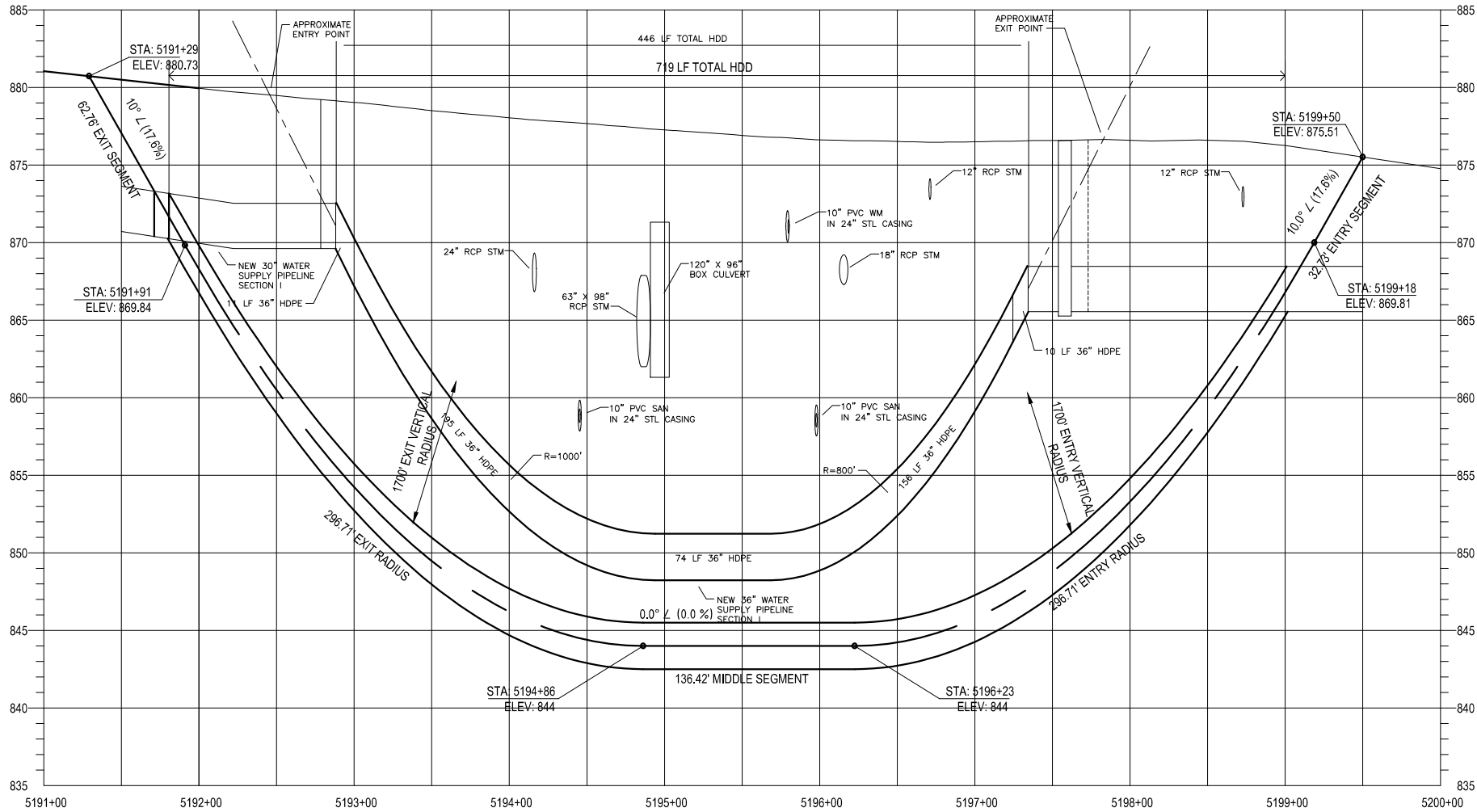


RELOCATE ISOLATION VALVE
OUTSIDE OF HDD LIMITS

RELOCATE VAULT,
BLOW-OFF & TEST STATION
OUTSIDE OF HDD LIMITS

HDD PLAN
1" = 100'

HDD PROFILE
1:10 VERTICAL EXAGGERATION



HORIZONTAL DIRECTIONAL DRILLING (HDD) GENERAL NOTES:

1. HORIZONTAL DIRECTIONAL DRILLING MATERIALS
 - 1.1. THE PRODUCT PIPE SHALL BE APPROXIMATELY 719 FEET OF 36-INCH DIAMETER IPS DR 9 HDPE PIPE, BETWEEN DUCTILE IRON PIPE CONNECTION POINTS.
 - 1.2. DRILLING MUD SHALL BE DESIGNED TO MAINTAIN BOREHOLE STABILITY AND FACILITATE MATERIAL EXCAVATION AND CIRCULATION THROUGHOUT PILOT BORE INSTALLATION, REAMING, AND FINAL PRODUCT PIPE PULL IN.
 - 1.3. SPECIFIC HDD EQUIPMENT AND TOOLING SHOULD BE SELECTED IN ORDER TO SUCCESSFULLY COMPLETE THE PROPOSED INSTALLATION.
2. HDD GEOMETRIC CONSTRAINTS
 - 2.1. THE HDD ALIGNMENTS WERE DESIGNED TO INCORPORATE A MINIMUM COMBINED BENDING RADII OF GREATER THAN 1200 FEET.
 - 2.2. POTHOLES AND/OR A SUBSURFACE UTILITY ENGINEERING (SUE) INVESTIGATION WAS NOT COMPLETED AS PART OF THIS STUDY AND IT HAS BEEN ASSUMED THAT INFORMATION SHOWN ON THE CONTRACT DRAWINGS IS ACCURATE AND CAN BE RELIED UPON. WE ANTICIPATE OTHERS WILL COMPLETE ANY NECESSARY UTILITY INVESTIGATION(S) PRIOR TO CONSTRUCTION. IF UTILITY CONFLICTS ARE IDENTIFIED, LITHOS SHOULD BE CONTACTED TO REVIEW AND APPROVE MODIFICATIONS TO THE PRESENTED PLAN OR PROFILE ALIGNMENTS.
 - 2.3. A GROUND SURFACE SURVEY ALONG THE PROPOSED PIPELINE ALIGNMENT WAS NOT COMPLETED AS PART OF THIS STUDY. LITHOS ASSUMES GROUND INFORMATION SHOWN ON THE CONTRACT DRAWINGS IS ACCURATE AND CAN BE RELIED UPON.
 - 2.4. "ENTRY" AND "EXIT" CURVE DESIGNATIONS ARE DESCRIPTIVE TO THE PILOT BORE DIRECTION OF INSTALLATION AND DO NOT APPLY TO REAM PASSES OR PIPE PULL IN.
3. HORIZONTAL DIRECTIONAL DRILLING DESIGN:
 - 3.1. HDD DRILL PIPE CENTERLINE SHOWN. STATIONING AND ELEVATION ARE FOR DRILL PIPE CENTERLINE.
 - 3.2. A GEOTECHNICAL SUBSURFACE INVESTIGATION WAS COMPLETED BY GREELEY & HANSON INCLUDING BORINGS GENERALLY LOCATED NEAR THE ENTRY AND EXIT LOCATIONS OF THE HDD ALIGNMENT OF WHICH LITHOS HAS RELIED ON FOR DESIGN.
 - 3.3. AN ENGINEERING EVALUATION OF PIPE STRESS AND INADVERTENT FLUID RETURNS HAS BEEN COMPLETED FOR THIS ALIGNMENT AND HAS BEEN SUBMITTED AS A SEPARATE DELIVERABLE PACKAGE FOR THE PROJECT.
4. SPECIAL PROVISIONS AND SITE SAFETY
 - 4.1. THE HDD ALIGNMENT AS PRESENTED IS ONLY VALID FOR THE SPECIFIC SITE.
 - 4.2. HDD ENTRY STATIONING SET TO STA 5199+50, PER CONTRACT DESIGN STATIONING. HDD WILL EXIT AT STA 5191+29 PER STATIONING REVISED TO FOLLOW REVISED HDD ALIGNMENT, OR STA 5191+25 PER CONTRACT DESIGN STATIONING.
 - 4.3. LITHOS HAS NOT CONSIDERED THE FOLLOWING WHICH IS EXPECTED TO BE COMPLETED BY THE CONTRACTOR PRIOR TO CONSTRUCTION:
 - 4.3.1. FIELD LOCATING OF UTILITIES AND NEARBY STRUCTURES.
 - 4.3.2. PERMITS OR EASEMENTS NECESSARY TO COMPLETE THE PROPOSED CONSTRUCTION.
 - 4.4. LITHOS HAS NOT EVALUATED THE SITE FOR POTENTIAL ENVIRONMENTAL CONTAMINATION OR HAZARDOUS MATERIALS.
 - 4.5. LITHOS IS NOT RESPONSIBLE AND HAS NOT CONSIDERED SITE SAFETY DURING DESIGN, INCLUDING BUT NOT LIMITED TO:
 - 4.5.1. SAFETY CONSIDERATIONS IN ACCORDANCE WITH RELEVANT OSHA REQUIREMENTS FOR EXCAVATIONS.
 - 4.5.2. THE CONTRACTOR SHALL DESIGNATE AN ONSITE "COMPETENT PERSON", AS DEFINED BY OSHA, TO EVALUATE TEMPORARY EXCAVATIONS FOR STABILITY AND FOR COHERENCE WITH THE ASSUMED SOIL PARAMETERS USED IN THE DESIGN.

HDD ALIGNMENT GEOMETRY AND LENGTH TABLE			
ENTRY TANGENT (FT)	32.7	TOTAL PLAN DISTANCE (FT)	820.8
ENTRY CURVE (FT)	296.7	HORIZONTAL RADIUS (FT)	1700
BOTTOM TANGENT (FT)	136.4	VERTICAL RADII (FT)	1700
EXIT CURVE (FT)	296.7	COMPOUND RADIUS (FT)	1202
EXIT TANGENT (FT)	62.8	ENTRY/EXIT ANGLES	10.0°
BORE PATH/PIPE LENGTH (FT)	825.3	MIDDLE SEGMENT ANGLE	0.0°

¹ DISTANCE AS MEASURED HORIZONTALLY, ON CENTER, BETWEEN ENTRY AND EXIT POINTS AT A CONSTANT ELEVATION

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970.373.3195

WAUKESHA WATER UTILITY
RJ UNDERGROUND, INC.

GWA 2A HDD

HORIZONTAL DIRECTIONAL DRILLING (HDD) PLAN AND PROFILE

MS	MO	BS	DATE
DRAWN BY	DESIGNED BY	CHECKED BY	1/6/21

SH-1
SHEET 1 OF 1