

**RESOLUTION NO. R16-118**

**A RESOLUTION AUTHORIZING THE MAYOR TO SIGN  
CHANGE ORDER NO. 8 WITH WILSON BROTHERS CONSTRUCTION  
FOR THE WATER TREATMENT PLANT INTAKE PROJECT  
CONSTITUTING AN INCREASE OF \$59,068.69.**

WHEREAS, the City Council of the City of Laurel previously authorized the Mayor to approve a contract with Wilson Brothers Construction for the Water Treatment Plant Intake Project through Resolution No. R16-45 on June 21, 2016; and

WHEREAS, the original contract price was \$8,560,901.00 to complete the project; and

WHEREAS, additional work and compensation is required to finish the project as described in the attached Change Order; and

WHEREAS, Great West Engineering and City Staff reviewed Change Order No. 8 and determined that it is correct, reasonable and necessary to complete the project and recommend the Council's approval of the same.

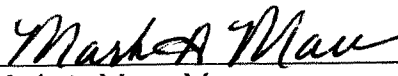
NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Laurel, Montana, that the Mayor is authorized to sign Change Order No. 8, a copy of which is attached, to increase the contract amount by \$59,068.69.

Introduced at a regular meeting of the City Council on December 6, 2016, by Council Member Dickerson.


PASSED and APPROVED by the City Council of the City of Laurel this 6<sup>th</sup> day of December, 2016.

APPROVED by the Mayor this 6<sup>th</sup> day of December, 2016.

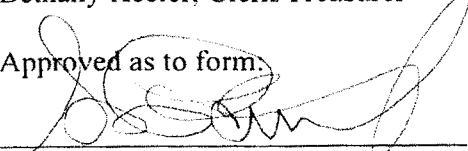
CITY OF LAUREL

  
Mark A. Mace, Mayor

ATTEST:

  
Bethany Keeler, Clerk/Treasurer

Approved as to form:

  
Sam S. Painter, Civil City Attorney

Date of Issuance: November 11, 2016	Effective Date: November 11, 2016
Owner: City of Laurel, Montana	Owner's Contract No.: FEMA: 1996-DR-MT-PW 01679
	SRF: EQ 16-1684
Contractor: Wilson Bros. Construction, Inc.	Contractor's Project No.: MT16-04
Engineer: Great West Engineering, Inc.	Engineer's Project No.: 2-07128-TO26
Project: Water Treatment Plant Intake	Contract Name: N/A

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

Description:

- Communication tower and foundation:
  - The Contractor determined that a 40-foot tall tower is required to be installed at the control building in order to facilitate communication between the control building and the water treatment plant. The Contractor will furnish and install the tower and associated grounding at no cost to the Owner. Refer to the attached meeting minutes for more details. The Owner will be responsible for paying for the reinforced concrete foundation, which has a volume of approximately 4.08 CY. The concrete foundation will be designed by the tower supplier and located by the Owner.
  - Increase *Item No. 315 - SCADA* by \$3,785.00 per lump sum to \$84,785.00 to account for the cost of the concrete foundation.
- Pressure and temperature sensor relocation:
  - The sensor was designed to be located in the intake. The Owner requested that the sensor be installed in the transmission mains with the ability to move it from one line to another to facilitate future O&M. The sensor will be installed at approximately station 30+30. Additional work items include: a 72" diameter manhole, tapping sleeves, PVC rise pipe, miscellaneous fittings, core drilling for the conduit and miscellaneous electrical labor and parts. Refer to the attached cost breakdown for details.
  - Increase *Item No. 307- Level and Temperature Instrumentation* by \$14,175.01 per lump sum to \$32,175.01.
  - Increase the contract quantity for *Item No. 217 – 30" x 4" Tapping Sleeve* from 10 EA to 12 EA. Increase in cost = 2 EA x \$12,375.00/EA = \$24,750.00.
- Valve Extensions:
  - The transmission mains will be installed deeper than the standard bury depth. In order to use a standard valve key on the valves, valve extensions are required.
  - Add *Item No. 235 – Valve Extensions* with a quantity of 25 EA. Increase in cost = 25 EA x \$318.75/EA = \$7,968.75.
- Revised drilled shafts for intake foundation:
  - Additional bedrock investigation during construction determined that the bedrock elevation at the intake is 3 - 8 feet lower than was anticipated during design. The deeper bedrock necessitated that the drilled shafts be lengthened and increased in diameter. In addition, the top portion of each shaft will be encased in steel. Refer to the attached Construction Plans for details of the revision.
  - Add *Item No. 103A – Cased Drilled Shafts, Diameter Varies* with a quantity of 8 EA. Increase in cost = 8 EA x \$10,817.50/EA = \$86,540.00.
  - The contract quantity for *Item No. 103 – 2-ft Diameter Drilled Shafts* will be decreased from 120 LF to 0 LF. Decrease in cost = \$120 LF x \$250.00/LF = (\$30,000).

- Increase the contract quantity for *Item No. 104 – Drilled Shaft Concrete* from 14 CY to 54 CY. Increase in cost = 40 CY x \$600.00/CY = \$24,000.00.
- Alternate casing for 18" DIP Casing:
  - The Contractor proposed a value engineering design to use an alternate casing method to replace the casing specified in *Item No. 110 – 18" Inside Diameter Casing Pipe for Air & Hot Water Lines from Intake to Riverbank*. The Contractor will instead use 18" PVC C905 DR25, cut in half longitudinally and then banded back together with stainless steel bands. The casing will only be installed for a length of 300 linear feet extending from the intake. Refer to the attached RFI 019 for further details.
  - Change *Item No. 110 to 18" PVC C905 DR25 Casing Pipe for Air & Hot Water Lines from Intake to Riverbank*, reduce the contract unit price by \$24.30/LF to \$158.35/LF and reduce the contract quantity to 300 LF. The total price for *Item No. 110* will be 300 LF x \$158.35/LF = \$47,505.00. Reduction in contract price = \$119,635.75 – \$47,505.00 = (\$72,130.75.)
- Reconcile unit price for *Item No. 320 – 4" Pre-Insulated Hot Water Line from Control Building to Intake*:
  - This bid item was changed in Change Order No. 1 by reducing the contract quantity from 2,470 LF to 2,362 LF and then adding a lump sum amount of \$3,278.88 for a re-stocking fee for the unused material – total reduction in contract price = \$1,581.12. This change resulted in a unit price that is not divisible to the nearest one cent. Therefore, this change order will set the unit price for *Item No. 320* at \$46.38/LF giving a total price for this item of 2,362 LF x \$46.38/LF = \$109,549.56. This results in a further reduction in total contract price of (\$19.32).

Attachments:

- Itemized cost breakdowns from Wilson Bros. Construction for: Communication Tower & Foundation; Level Sensor Relocation; Valve Extensions; and Drilled Shaft Change.
- Meeting Minutes from conference call regarding communications tower and level and temperature sensor relocation, dated 10/28/2016.
- Revised Construction Plans, sheets G1, S2, S3, S4, S5, S6 and CO8.
- RFI 019 – 18" ID Casing Pipe

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIMES <small>[note changes in Milestones if applicable]</small>
Original Contract Price: <u>\$8,560,901.00</u>	Original Contract Times: Substantial Completion: <u>240</u> Ready for Final Payment: <u>270</u> days
Increase from previously approved Change Orders No. <u>1</u> to No. <u>7</u> : <del>\$293,643.13</del> \$292,685.18 <i>JW NW MAM</i>	Increase from previously approved Change Orders No. <u>1</u> to No. <u>7</u> : Substantial Completion: <u>0</u> Ready for Final Payment: <u>0</u> days
Contract Price prior to this Change Order: <del>\$8,854,544.13</del> \$8,853,586.18 <i>JW NW MAM</i>	Contract Times prior to this Change Order: Substantial Completion: <u>240</u> Ready for Final Payment: <u>270</u> days
Increase of this Change Order: <u>\$ 59,068.69</u>	Increase of this Change Order: Substantial Completion: <u>0</u> Ready for Final Payment: <u>0</u> days
Contract Price incorporating this Change Order: <del>\$8,913,612.82</del> \$8,912,654.87 <i>JW NW MAM</i>	Contract Times with all approved Change Orders: Substantial Completion: <u>240</u> Ready for Final Payment: <u>270</u> Days

<p><b>RECOMMENDED:</b>                  By: <u><i>Jonathan Weaver</i></u>                  Engineer                  Title: <u>Project Engineer</u>                  Date: <u>11/22/2016</u></p>	<p><b>ACCEPTED:</b>                  By: <u><i>Mark Mann</i></u>                  Owner (Authorized                  Signature)                  Title: <u><i>Mayor</i></u>                  Date: <u>12/6/2016</u></p>	<p><b>ACCEPTED:</b>                  By: <u><i>Nick Wilson</i></u>                  Contractor (Authorized                  Signature)                  Title: <u>Ops Manager</u>                  Date: <u>11/22/16</u></p>
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Approved by Funding Agency (if applicable)  
 By: \_\_\_\_\_ Date: \_\_\_\_\_  
 Title: \_\_\_\_\_

**WILSON BROS. CONSTRUCTION, INC.**  
**P.O. BOX 636**  
**COWLEY, WY 82420**  
**TELEPHONE AND FAX 307-548-6559**

11/10/16

**COMMUNICATION TOWER & FOUNDATION**

Laurel Water Treatment Plant Intake  
Laurel, MT

Bid Item No.	Item Description	Units	Qty.	Unit Price	Total Price
	CONCRETE TOWER FOUNDATION - INCLUDES EXCAVATION AND BACKFILL	LS	1	\$ 3,785.00	\$ 3,785.00
				<b>TOTAL COST</b>	<b>\$ 3,785.00</b>

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LEVEL SENSOR RELOCATION

Laurel Water Treatment Plant Intake  
Laurel, MT

Bid Item No.	Item Description	Units	Qty.	Unit Price	Total Price
	CANYON ELECTRIC - SEE ATTACHED FOR DESCRIPTION	LS	1	\$ 4,571.44	\$ 4,571.44
	72" MANHOLE/VAULT	EA	1	\$ 8,500.00	\$ 8,500.00
	TAPPING SLEEVES	EA	2	\$ 12,375.00	\$ 24,750.00
	4" PVC RISER PIPE	LF	20	\$ 20.00	\$ 400.00
	MISC FITTING FROM 4" TO 2" INCLUDING BV	LS	1	\$ 250.00	\$ 250.00
	CORE DRILL CONDUIT	LS	1	\$ 225.00	\$ 225.00
	5% SUBCONTRACTOR MARKUP				\$ 228.57
				<b>TOTAL COST</b>	<b>\$ 38,925.01</b>

WILSON BROS. CONSTRUCTION, INC.  
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11/09/16

Valve Extension

Laurel Water Treatment Plant Intake  
Laurel, MT

Bid Item No.	Item Description	Units	Qty.	Unit Price	Total Price
	PROCURE AND INSTALL VALVE EXTENSIONS - VARYING LENGTHS	EA	25	\$ 225.00	\$ 5,625.00
	SHIPPING	LS	1	\$ 250.00	\$ 250.00
	INSTALL VALVE EXTENSION - LABORER	HR	25	\$ 48.50	\$ 1,212.50
	15% MATERIAL MARKUP (INCLUDING SHIPPING)				\$ 881.25
				<b>TOTAL COST</b>	<b>\$ 7,968.75</b>

WILSON BROS. CONSTRUCTION, INC.  
P.O. BOX 636  
COWLEY, WY 82420  
TELEPHONE AND FAX 307-548-6559

11/10/16

DRILLED SHAFT CHANGE

Laurel Water Treatment Plant Intake  
Laurel, MT

Bid Item No.	Item Description	Units	Qty.	Unit Price	Total Price
103A	CASED DRILLED SHAFTS	EA	8	\$ 10,817.50	\$ 86,540.00
103	2' DIAMETER DRILLED SHAFT	LF	120	\$ (250.00)	\$ (30,000.00)
104A	ADDITIONAL DRILLED SHAFT CONCRETE	CY	40	\$ 600.00	\$ 24,000.00
				<b>TOTAL COST</b>	<b>\$ 80,540.00</b>





## MEETING MINUTES

**Date:** October 28, 2016

**To:** Meeting Attendees

**From:** Great West Engineering

**Cc:** City of Laurel

**Subject:** City of Laurel, Water Treatment Plant Intake  
Conference call to discuss communications tower at the control building and the change in the level and temperature sensor

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A conference call was held on October 28, 2016 to discuss the communications tower at the control building and the change in the design of the level and temperature sensor. A record of the meeting follows.

### Attendees

Chad Hanson, GWE  
Jonathan Weaver, GWE  
Scott Ritter, Ritter Engineering  
Nick Wilson, Wilson Bros. Construction  
Greg Miller, Canyon Electric  
Justin, Cree, Mark and Rick, IC&E

### Discussion on the communications tower and required grounding

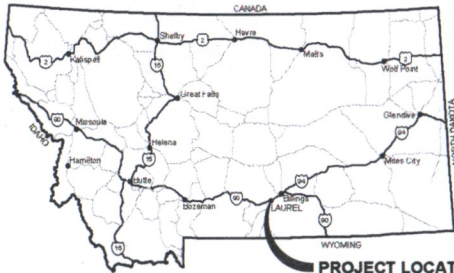
- Materials and installation of the grounding system for the tower will be provided by IC&E.
  - The grounding system will be connected to the electrical disconnect, located on the outside of the building.
  - The materials for the grounding system were included in IC&E's initial quote, and therefore, it is not necessary to include the cost for the supplies in the change order.
- Canyon Electric will cover the cost of the additional core drill that was required for the PVC conduit that is needed for IC&E's radio cable.
- IC&E will cover the cost of the extra 10 feet of tower length.
- Five cameras were included in IC&E's quote. Two cameras will be installed at the control building per plan. The other three cameras will be furnished to the City as spares.

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- The City will be responsible for paying for the concrete foundation. It will be paid for at the contract unit price.
  - The foundation for the tower may be set no closer than 6 inches from the control building foundation to allow for the grounding ring to be installed.
  - The chain link fence does not need to be grounded, since there is at least 10 feet of separation between the building and the fence and between the tower and the fence.
  - Nick will coordinate with IC&E and Great West to determine the location for the tower.

**Discussion on the change in the level and temperature sensor.**

The representatives from IC&E left the call, and the conversation continued with those remaining on the call.

- Canyon will be furnishing the 4-20 mA cable, whereas Clint Camper was to furnish the sensor with factor attached 800 m cable.
- Canyon is proposing to use 16 ga. wire for the sensor wire. Scott Ritter was OK with this.
- Canyon will work with Clint to get a cost breakdown on the reduced costs from a shorter cable length and shorter conduit compared to additional costs associated with the change in the design and location of the sensor.
- Tapping sleeves will be paid for under Item No. 217.



PROJECT LOCATION

**PLANS PREPARED FOR:**

KURT MARKEGARD, DIRECTOR  
OF PUBLIC WORKS  
CITY OF LAUREL, MONTANA



**APPROVED BY:**

JEREMIAH THEYS, P.E.  
GREAT WEST ENGINEERING



**QA/QC BY:**

CHAD E. HANSON, P.E.  
GREAT WEST ENGINEERING



**PLANS PREPARED BY:**

LISA WALTON  
JIM MCGOWAN  
DANIEL KARLIN, P.E.  
JEREMY MORRIS  
JONATHAN WEAVER, P.E.



115 N. BROADWAY, SUITE 500  
BILLINGS, MT 59101  
(406)652-5000

FEMA Project #: 1996-DR-MT-PW 01679  
SRF Project #: E.Q. #16-1684

# CITY OF LAUREL, MONTANA WATER TREATMENT PLANT INTAKE CONSTRUCTION PLANS

SECTIONS 15, 16, 20, 21, 29 & 30, TOWNSHIP 2 SOUTH, AND RANGE 24 EAST



NOT TO SCALE

△ SHEET 75 GOB REVEAL BEDROCK ELEVATION AND DRILLED SHALT PER DEPTHS

## SHEET INDEX

PROJECT 2-07128\_TO36  
DATE MAY 10, 2016

- SHEET 1 G1 COVER
- SHEET 2 G2 GENERAL NOTES, ABBREVIATION AND LEGEND
- SHEET 3 G3 OVERALL SITE PLAN, CONTROL AND GEOTECHNICAL BORINGS
- SHEET 4 G4 PROCESS & INSTRUMENTATION DIAGRAM
- SHEET 5 G5 TEMPORARY BYPASS PUMPING AT WATER TREATMENT PLANT

**CIVIL SHEETS**

- SHEET 6 C1 INTAKE SITE & DEWATERING PLAN
- SHEET 7 C2 CONTROL BUILDING SITE GRADING PLAN
- SHEET 8 C3 WATER TREATMENT PLANT PIPING DEMOLITION PLAN
- SHEET 9 C4 WATER TREATMENT PLANT PIPING CONNECTION PLAN

**PIPELINE SHEETS**

- SHEET 10 P1 INTAKE CONNECTION MAIN PLAN & PROFILE, STA 23+50 TO STA 33+50
- SHEET 11 P2 INTAKE TRANSMISSION MAIN #1 PLAN & PROFILE, STA 33+00 TO STA 40+00
- SHEET 12 P3 INTAKE TRANSMISSION MAIN #1 PLAN & PROFILE, STA 40+00 TO STA 50+00
- SHEET 13 P4 INTAKE TRANSMISSION MAIN #1 PLAN & PROFILE, STA 50+00 TO STA 60+00
- SHEET 14 P5 INTAKE TRANSMISSION MAIN #1 PLAN & PROFILE, STA 60+00 TO STA 70+00
- SHEET 15 P6 INTAKE TRANSMISSION MAIN #1 PLAN & PROFILE, STA 70+00 TO STA 80+00
- SHEET 16 P7 INTAKE TRANSMISSION MAIN #1 PLAN & PROFILE, STA 80+00 TO STA 90+00
- SHEET 17 P8 INTAKE TRANSMISSION MAIN #1 PLAN & PROFILE, STA 90+00 TO STA 100+00
- SHEET 18 P9 INTAKE TRANSMISSION MAIN #1 PLAN & PROFILE, STA 100+00 TO STA 110+00
- SHEET 19 P10 INTAKE TRANSMISSION MAIN #1 PLAN & PROFILE, STA 110+00 TO STA 120+00
- SHEET 20 P11 INTAKE TRANSMISSION MAIN #1 PLAN & PROFILE, STA 120+00 TO STA 130+00
- SHEET 21 P12 INTAKE TRANSMISSION MAIN #1 PLAN & PROFILE, STA 130+00 TO STA 140+00
- SHEET 22 P13 INTAKE TRANSMISSION MAIN #1 PLAN & PROFILE, STA 140+00 TO STA 150+00
- SHEET 23 P14 INTAKE TRANSMISSION MAIN #1 PLAN & PROFILE, STA 150+00 TO STA 160+00
- SHEET 24 P15 INTAKE TRANSMISSION MAIN #1 PLAN & PROFILE, STA 160+00 TO STA 170+00
- SHEET 25 P16 INTAKE TRANSMISSION MAIN #1 PLAN & PROFILE, STA 170+00 TO STA 180+00
- SHEET 26 P17 INTAKE TRANSMISSION MAIN #1 PLAN & PROFILE, STA 180+00 TO STA 190+00
- SHEET 27 P18 AIR & HOT WATER TRENCH PLAN & PROFILE, STA 200+00 TO STA 210+00
- SHEET 28 P19 AIR & HOT WATER TRENCH PLAN & PROFILE, STA 210+00 TO STA 220+00
- SHEET 29 P20 WTP RELOCATING AND CONNECTION PLAN & PROFILE, STA 0+00 TO STA 5+00
- △ SHEET 29 P21 ~~INTAKE TRANSMISSION MAIN #1 PLAN & PROFILE, STA 300+00 TO STA 310+00~~
- SHEET 31 P22 INTAKE STRUCTURE PIPING & SCREEN CONFIGURATION DETAIL
- SHEET 32 P23 INTAKE STRUCTURE AIR & HOT WATER LINES CONFIGURATION DETAIL
- SHEET 33 P24 WATER TREATMENT PLANT DEMOLITION PLAN
- SHEET 34 P25 WATER TREATMENT PLANT CONNECTION DETAIL

**MECHANICAL SHEETS**

- SHEET 35 M1 INTAKE LOW PROFILE HALF SCREEN DETAILS
- SHEET 36 M2 CONTROL BUILDING HVAC AND PLUMBING PLAN
- SHEET 37 M3 CONTROL BUILDING BOILER SYSTEM HYDRONIC PIPING FLOW DIAGRAM AND SCHEDULES

**STRUCTURAL SHEETS**

- SHEET 38 S1 INTAKE ISOMETRIC VIEWS
- SHEET 39 S2 INTAKE FOUNDATION PLAN AND DETAILS
- SHEET 40 S3 INTAKE SHAFT DETAILS
- SHEET 41 S4 INTAKE FOOTING REINFORCEMENT
- SHEET 42 S5 INTAKE BASE & CIP LID REINFORCEMENT
- SHEET 43 S6 INTAKE WALL REINFORCEMENT
- SHEET 44 S7 INTAKE ROOF PANEL DETAILS AND NOTES
- SHEET 45 S8 INTAKE ROOF PANEL DETAILS AND NOTES
- SHEET 46 S9 CONTROL BUILDING FOUNDATION PLAN
- SHEET 47 S10 CONTROL BUILDING STRUCTURAL NOTES
- SHEET 48 S11 STRUCTURAL DETAILS

**ARCHITECTURAL SHEETS**

- SHEET 49 A1 CONTROL BUILDING FLOOR PLAN
- SHEET 50 A2 CONTROL BUILDING ELEVATIONS
- SHEET 51 A3 CONTROL BUILDING SECTIONS
- SHEET 52 A4 CONTROL BUILDING ROOF FRAMING PLAN AND DETAILS
- SHEET 53 A5 CONTROL BUILDING SCHEDULES & TYPICAL DETAILS

**DETAIL SHEETS**

- SHEET 54 D1 STANDARD DETAILS
- SHEET 55 D2 STANDARD DETAILS
- SHEET 56 D3 STANDARD DETAILS
- SHEET 57 D4 STANDARD DETAILS
- SHEET 58 D5 STANDARD DETAILS
- SHEET 59 D6 SHORING DETAILS
- SHEET 60 D7 REMOVAL OF EXISTING 1995 INTAKE

**ELECTRICAL SHEETS**

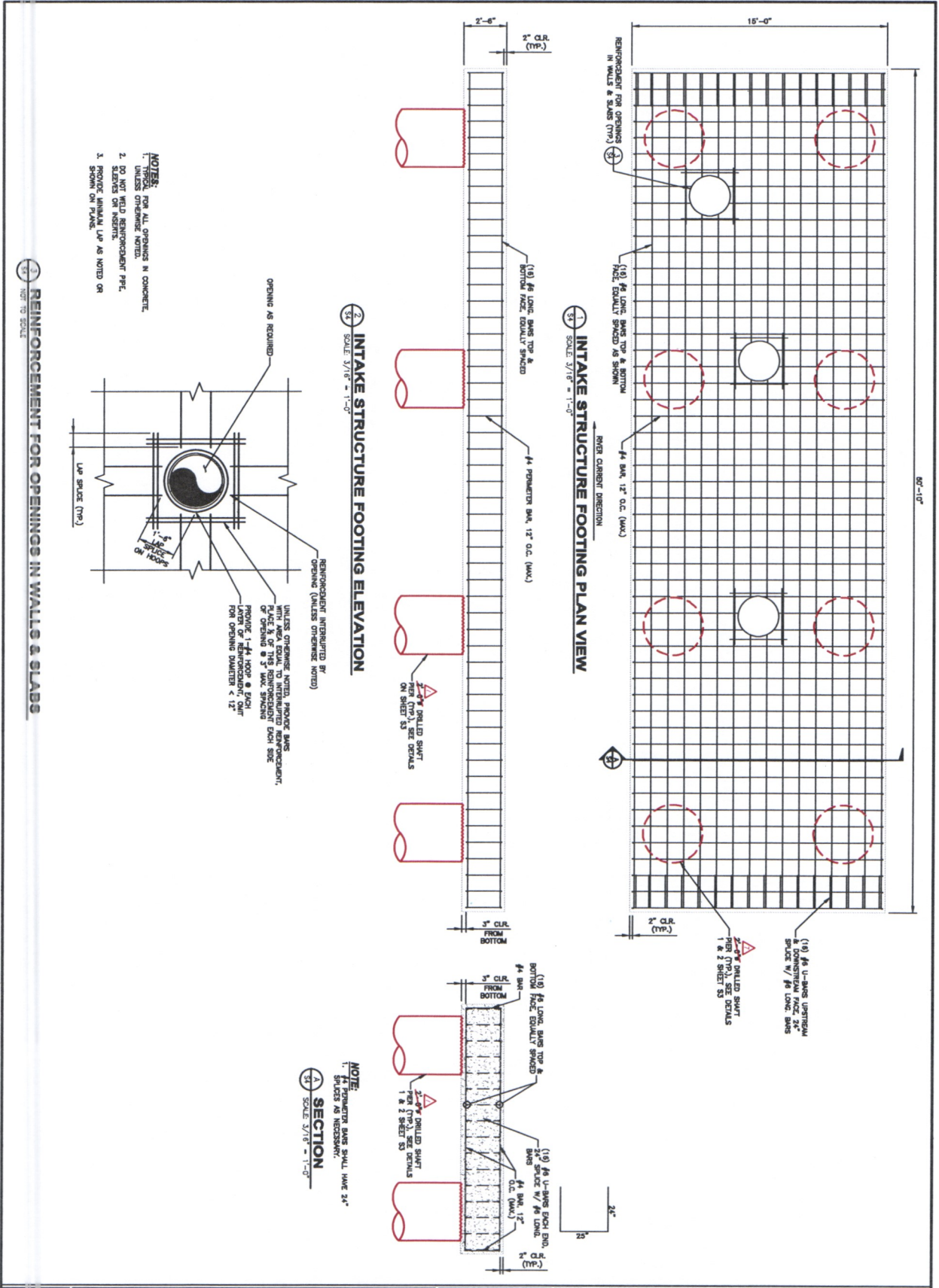
- SHEET 61 E1 ELECTRICAL SITE PLAN - CONTROL BUILDING
- SHEET 62 E2 ELECTRICAL SITE PLAN - INTAKE STRUCTURE
- SHEET 63 E1 CONTROL BUILDING LIGHTING PLAN
- SHEET 64 E2 CONTROL BUILDING POWER PLAN
- SHEET 65 E3 ONE LINE DIAGRAM - CONTROL BUILDING
- SHEET 66 E4 HYDROBUST FIELD WIRING DIAGRAM
- SHEET 67 E5 SCADA SYSTEM NETWORK AND I/O DIAGRAM
- SHEET 68 E6 MOTOR CONTROL SCHEMATICS - MCC PHASE MONITOR
- SHEET 69 E7 MOTOR CONTROL SCHEMATICS - BOILER PUMP AND WELL PUMP
- SHEET 70 E8 EQUIPMENT SCHEDULE
- SHEET 71 E9 MOTOR CONTROL CENTER SCHEDULE AND EMERGENCY GENERATOR SCHEDULE
- SHEET 72 E10 ELECTRICAL SCHEDULES
- SHEET 73 E11 P&ID LIST
- SHEET 74 E12 ELECTRICAL DETAILS AND LEGEND

- △ SHEET 75 GOB REVEAL BEDROCK ELEVATION AND DRILLED SHALT PER DEPTHS
- △ SHEET 76 GOB WTP BYPASS LINE ALIGNMENT PLAN & PROFILE - STA 10+00 TO STA 19+00
- △ SHEET 76 GOB BURRED WATER STORAGE TANK SITE PLAN
- △ SHEET 77 GOB BURRED WATER STORAGE TANK DETAILS AND SECTIONS
- △ SHEET 78 GOB BOOSTER PUMP AT TRANSMISSION MAIN

NO	REVISION DESCRIPTION	BY	DATE	NO	REVISION DESCRIPTION	BY	DATE	SHEET NO
△	CHANGE ORDER NO. 7 WATER STORAGE TANK AT CONTROL BUILDING	LMW	10-19-16	△	ADDENDUM NO. 1 BEDDING AND AIR RELEASE VAULT REVISIONS	LMW	5-20-16	SHEET NO
△	CHANGE ORDER NO. 8 INTAKE UNLINED SNAP-IT REVISIONS	LMW	11-02-16	△	ADDENDUM NO. 2 MISCELLANEOUS REVISIONS	LMW	6-2-16	
△				△	CHANGE ORDER NO. 1 CONTROL BUILDING RELOCATION	LMW	6-28-16	G1
△				△	CHANGE ORDER NO. 2 WTP BYPASS LINE CLARIFICATIONS SHEET P&ID	LMW	7-21-16	
△				△	REQUEST FOR INFORMATION - 003	JDM	7-22-16	1 OF 74



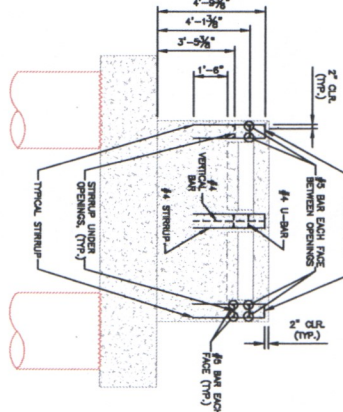
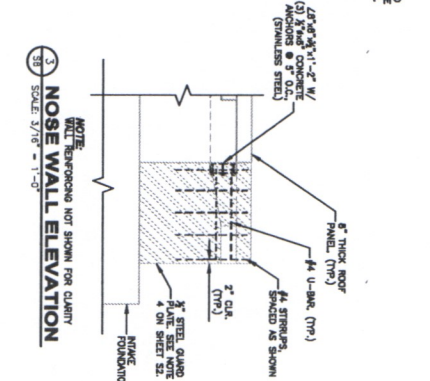
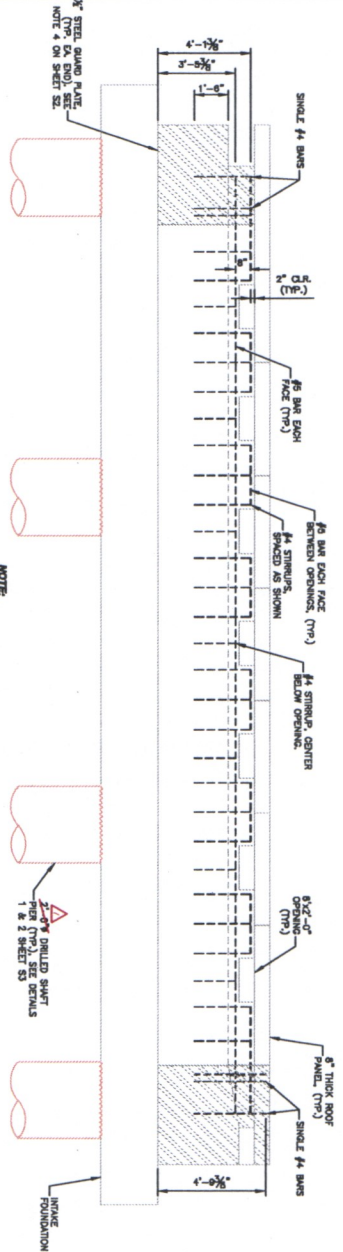
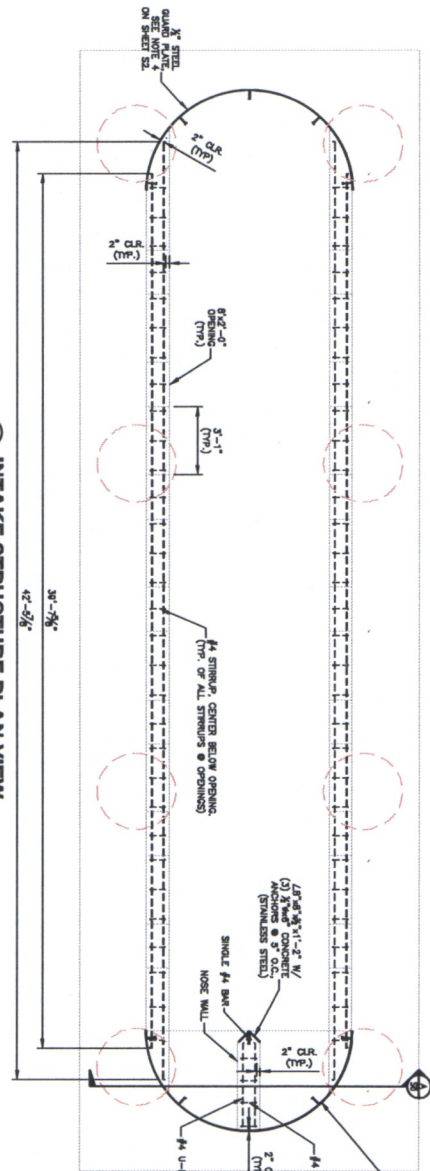




<p><b>CITY OF LAUREL, MONTANA</b></p> <p><b>WATER TREATMENT PLANT INTAKE</b></p> <p>INTAKE FOOTING REINFORCEMENT</p>	<p>115 N. BROADWAY, SUITE 500 BILLINGS, MT 59101 (406) 253-7000</p>		PROJECT: 2-07128, TO 26	NO.	REVISION DESCRIPTION	BY	DATE
			DESIGNED: JRW, SKH, CEB, MFF	1	CHANGE ORDER NO 8	MM	11-2-16
			DRAWN: LMW, LUK, JUM, JM	2			
			CHECKED: JJI & CCH	3			
			APPROVED: JJI & CCH	4			
			DATE: MAY 10, 2016				

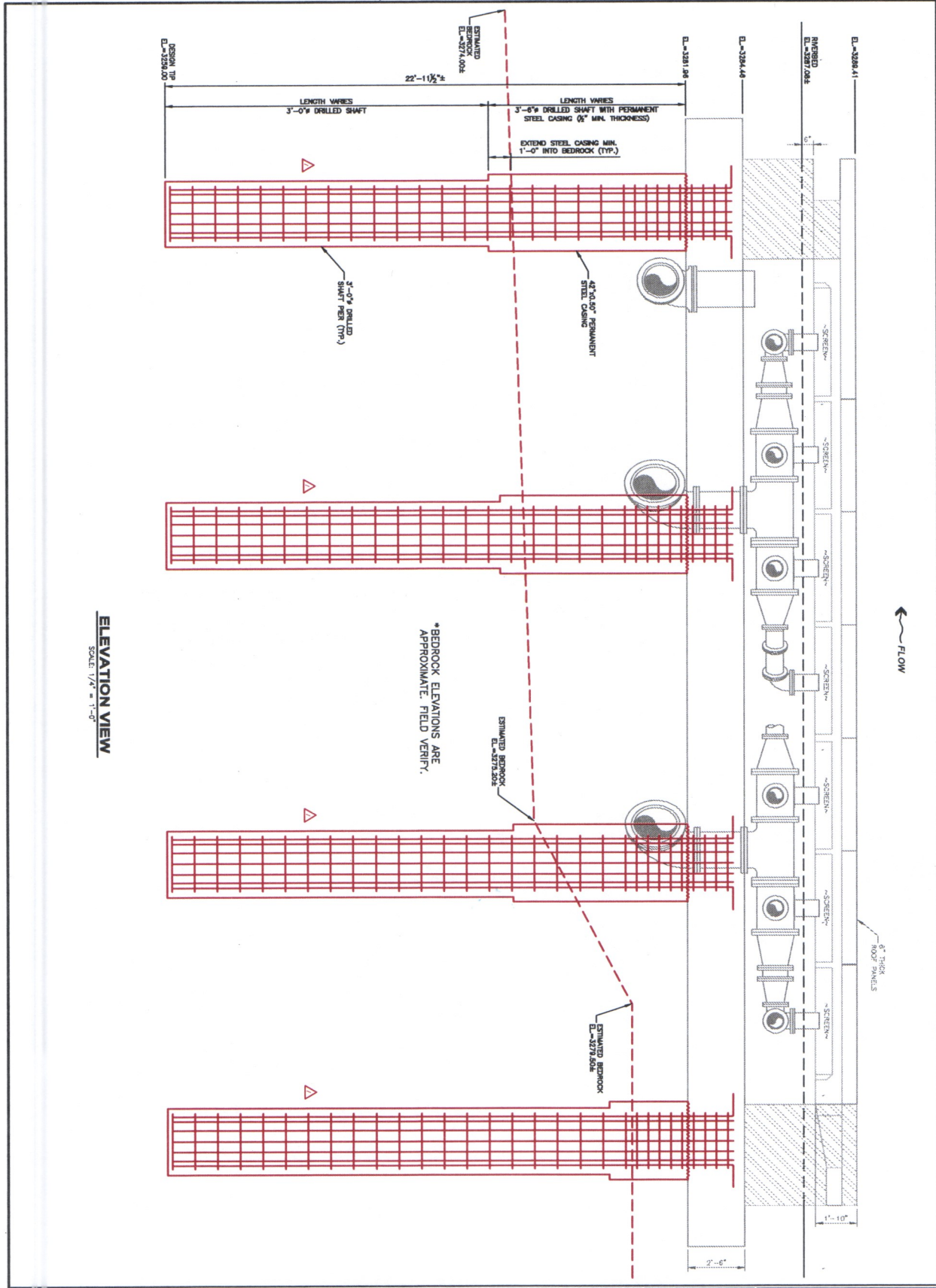
SHEET NO. **S4**  
41 OF 74





<p>43 OF 74</p>	<p>CITY OF LAUREL, MONTANA</p> <p><b>WATER TREATMENT PLANT INTAKE</b></p> <p>INTAKE WALL REINFORCEMENT</p>	<p>115 N BROADWAY, SUITE 500 BILLINGS, MT 59101 (406) 253-5000</p>		PROJECT: 2-07128, TO 26	NO.:	REVISION DESCRIPTION	BY:	DATE:
	DESIGNED: JRW, SKH, CEB, KFY			CHANGE ORDER NO 8	JMW	11-2-16		
	UNKNOWN: LMK, LUK, JLM, JM							
	CHECKED: JJJ & LCH							
	APPROVED: JJJ & CEB							
DATE: MAY 10, 2016								





<b>CITY OF LAUREL, MONTANA</b> <b>WATER TREATMENT PLANT INTAKE</b> REVISED BEDROCK ELEVATION AND DRILLED SHAFT PIER DEPTHS		 115 N. BROADWAY, SUITE 500 BILLINGS, MT 59101 (406) 533-9100				PROJECT: 2-07126, TO 26 DESIGNED: JRW, SKH, CEB, KFY DRAWN: LMW, LUK, JUM, JM CHECKED: JJI & UCH APPROVED: JTI & CBH DATE: MAY 10, 2016	<table border="1"> <thead> <tr> <th>NO.</th> <th>REVISION DESCRIPTION</th> <th>BY</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>CHANGE ORDER NO 8</td> <td>LMW</td> <td>11-2-16</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO.	REVISION DESCRIPTION	BY	DATE	1	CHANGE ORDER NO 8	LMW	11-2-16												
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SHEET NO.  
**008**  
 79 OF 74

REQUEST FOR INFORMATION (RFI)

RFI # 019

Project: Laurel WTP Intake Project

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Title: 18" ID Casing Pipe

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To: Great West Engineering, Inc.  
Attn: Jonathan Weaver, P.E.  
115 N Broadway, Suite 500  
Billings, MT 59101  
[jweaver@greatwesteng.com](mailto:jweaver@greatwesteng.com)

From: Wilson Bros. Construction  
Attn: Nick Wilson  
980 Rd. 7  
Cowley, WY 82420  
[nwilson@wilson-bros.com](mailto:nwilson@wilson-bros.com)

Created Date: 10/17/16

Status: Closed

Location: Intake

Due Date: 10/20/16

Reference: \_\_\_\_\_

Drawing No. D4

Spec Section: SP-32

Attachments: No

**Contractor Question:**

The 18" ID Casing pipe called for on sheet D4 and SP-32 (in Addendum #1), is required to be ductile iron pipe. After considerable review of the constructability of installing the DIP casing and then installing the required 4" Pre-Insulated HW Line and 16-2" HDPE Air Lines, Wilson Bros. has developed an alternative method that we believe will meet the intent of the design, provide a cost savings to the owner, and aid in the constructability of the intake structure. Wilson Bros. plan would be to replace the 18" DIP casing with 18" PVC DR51. The PVC pipe would cut neatly longitudinally along the entire length of the casing. This allows the 4" and 2" lines to be installed in the line without pulling through the casing. Once the HDPE pipelines are placed inside the casing, the PVC pipe would be bound back together using stainless steel strapping and then encased in lean concrete. The PVC would have a less abrasive interior than the DIP that would ensure less wear on the HDPE pipe if minor movement occurs due to temperature changes.

The 18" DIP pipe onsite would be re-stocked and the 18" PVC pipe procured. If this method of casing is allowed the cost savings would amount to \$38.50/LF or \$25,217.50. Another option would be to remove the casing from station 217+98 to the end of the concrete encasement (Station 29+00 on the mainline). This would reduce the quantity of the casing from 655' to 305' thereby saving an additional \$50,452.50. Please review this proposal and respond.

**Owner/Engineer Reply:**

Please provide a revised cost savings proposal if C900 PVC were used instead of PVC DR51.

**Contractor Reply:**

The cost difference between the 18" C905 DR25 and 18" C905 DR51 pipe is \$14.20/LF. This would reduce the credit to \$24.30/LF or \$15,916.50. By reducing the quantity to 300' of 18" C905 DR25 casing the total savings would be \$72,130.75.

See attached spreadsheet.

**Owner/Engineer Reply:**

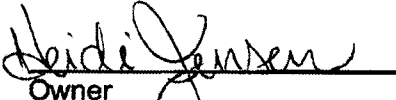

Using 18" PVC C905 DR25 cut in half and banded back together with stainless steel bands is an acceptable alternate to the 18" DI casing. The cost savings proposal above is also acceptable. We will process a change order to account for the cost savings. The following paragraphs provide justifications for our decision.

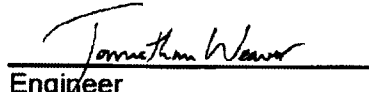
Using a casing of some sort is necessary to allow for contraction and expansion of the HDPE air and hot water lines, where they are encased in concrete. A casing will also provide support for the concrete encasement, where if no casing were used, the concrete would have to "bridge" over the bundle of air and water lines.

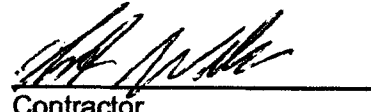
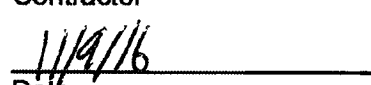
We have verified that using the proposed alternate casing will not alter the heat loss calculations for the 4" insulated line.

Since the air and hot water lines will be encased in concrete at the intake, there is no feasible way to remove and replace them by pulling them through a casing.

Once the air and hot water lines reach the riverbank, they will be buried at a sufficient depth and will not be susceptible to scour. Beginning at Station 29+00, the casing may be eliminated altogether and the air and hot water lines buried adjacent to the transmission mains.

  
\_\_\_\_\_  
Owner  
  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Engineer  
11/2/2016  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Contractor  
  
\_\_\_\_\_  
Date

WILSON BROS. CONSTRUCTION, INC.  
P.O. BOX 636  
COWLEY, WY 82420  
TELEPHONE AND FAX 307-548-6559

10/31/16

Laurel Water Treatment Plant Intake  
Laurel, MT

Bid Item No.	Item Description	Units	Qty.	Unit Price	Total Price
110	18" ID CASING PIPE FOR AIR & HOT WATER LINES FROM INTAKE TO RIVERBANK - CURRENT	LF	655	\$ 182.65	\$ 119,635.75
110	18" ID CASING PIPE FOR AIR & HOT WATER LINES FROM INTAKE TO RIVERBANK - REDUCED	LF	655	\$ 158.35	\$ 103,719.25
110	18" ID CASING PIPE FOR AIR & HOT WATER LINES FROM INTAKE TO RIVERBANK - REDUCED	LF	300	\$ 158.35	\$ 47,505.00
				<b>TOTAL COST</b>	