

HORSE CREEK FLUME



CONSTRUCTION CLOSEOUT REPORT

MARCH 2016

Prepared for: Fort Lyons Canal Company | 750 Bent Avenue Las Animas, CO 81054



SM&RC INC.

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TABLE OF CONTENTS

Construction Summary Report	1
- 1.0 Introduction and Background	1
- 2.0 Summary of Construction Activities.....	1
- 3.0 Design Changes	9
- 4.0 Summary and Conclusions	9

LIST OF FIGURES

Figure 1 – Pipe Demolition	2
Figure 2 – Pier Installation.....	3
Figure 3 – Joint Weld	4
Figure 4 – Inlet Anchor Block.....	4
Figure 5 – Upper West Inlet Apron Dowels	5
Figure 6 – Pier 6 Base Plate	6
Figure 7 – Completed Pipe Prior to Leak Test	7
Figure 8 – Inlet Apron	7
Figure 9 – Pipe Interior	8
Figure 10 – Outlet Wall and Handrail	8

LIST OF APPENDICIES

Appendix A – Construction Meeting Minutes	10
Appendix B – As-Built Construction Documents	57

Construction Summary Report

1.0 Introduction and Background

The purpose of this report is to certify that all construction activities related to the winter 2015/2016 Horse Creek Flume replacement project were performed in substantial conformance with the final construction plans and contract documents. The Fort Lyons Canal Company (FLCC) is the sole owner of the Horse Creek Flume. SM&RC Structural Engineers Inc. (SM&RC) prepared the final design, construction documents, and final construction contract documents for the project. SM&RC also furnished construction observation services in conjunction with reviewing all QA/QC material throughout project construction. Kumar and Associates, Inc. was responsible for all concrete materials testing throughout the project.

The purpose of the project was to replace the existing 400-foot-long, 10-foot dia. pipe, which has been in operation since 1938. The flume is located approximately 10 miles northeast of La Junta and about 8 miles west of Las Animas. Should a failure occur it would affect the State of Colorado with an economic loss off \$50 million due to potential crop loss in the area. The original pipe suffered from significant erosion and corrosion of the lower half of the steel pipe. Despite extensive efforts by FLCC to weld ¼" steel plates in the bottom of the pipe to extend its service life, these repairs were no longer effective.

2.0 Summary of Construction Activities

The flow of water through Horse Creek Flume was shut down on November 15th 2015 as part of FLCC's normal yearly operating procedure, providing a window of approximately four months to replace the existing pipe. Moltz Construction was the general contractor responsible for all construction activities on the site. Construction operation for the project consisted of the following activities.

- Site preparation including the clearing and grubbing of the area directly adjacent to the pipe to provide access for the demolition of the original pipe and installation of the new pipe. Preparation also included placing crane mats over the bridge structure into the site, to provide additional load capacity so heavy equipment could utilize the structure.
- Removal of the existing pipe by torch cutting through the full diameter of the pipe approximately every 40 feet, loading the sections onto flatbed trailers using a crane as they were cut, and hauling them offsite. As each section of pipe was cut free from the supporting ring girders, each ringer girder was also loaded on a flatbed trailer and hauled offsite.



Figure 1 - Pipe Demolition

- Demolition of the inlet slab, approximately 5 feet of the inlet anchor block, all of pier number 2, upper 3 feet of pier numbers 3 through 6, and the outlet wall. Demolition of the inlet slab was accomplished by saw cutting the limits of demolition and using hand held jackhammers to remove the remaining concrete. The inlet anchor block and outlet wall was done by saw cutting the demolition limits and using a combination of handheld jackhammers and heavier demolition hammers attached to an excavator. Pier #2 and the upper 3 feet of the remaining piers were removed using an excavator and hammer attachment.
- As demolition was occurring and the preparation were made for the installation of the new piers the prefabricated pipe was delivered on site over the course of 4 to 6 weeks. The pipe was fabricated by Northwest Pipe Company in Denver, Colorado. SM&RC visited the fabrication shop several times to ensure proper fabrication practices and QA/QC measures were being followed. The pipe was fabricated in 14 sections and all ring girders, stiffener plates, and the expansion joint were attached in the shop prior to delivery.

- Directly following the demolition of the pipe and existing piers new piers were installed. Piers 3 & 5 were placed first, followed by piers 2 & 4, and lastly pier 6. The pier reinforcement and dowels drilled into the remaining concrete was inspected by SM&RC prior to concrete placement.



Figure 2 - Pier Installation (Pier 2 Rebar - Bottom, Pier 3 In Place – Top)

- The 10-foot diameter pipe was installed starting at the inlet structure and working towards the outlet wall. After the first section of pipe between the inlet and pier 2 was installed, the inlet concrete was placed to establish a fixed point for the pipe. The pipe sections were initially tack welded to establish alignment, and as the pipe was being placed the welding team would follow behind with multiple weld passes on both the inside and outside of the pipe. Gas shielded-arc welding was used for all circumferential weld joints. Each joint was inspected by an independent agency utilizing a combination of magnetic particle, ultrasonic, and x-ray testing. The pipe itself was heated to a minimum of 50° F prior to welding.
- All miscellaneous attachments including the 6 vents and approximately 800 feet of handrail was installed. The handrail will provide access to the outlet structure and allow for inspections of the top of the pipe. Additional handrail was also installed at the inlet walkway to connect with the existing structure.



Figure 3 - Joint Weld (MK-2 to MK-3)



Figure 4 - Inlet Anchor Block

- With the final section of pipe installed, the outlet wall was placed. To install the outlet wall, all the bolts on the expansion joint were loosed to limit any forces on the outlet wall concrete as it was curing. Additionally, the expansion joint was temporarily held in place and a high early strength admixture was used to speed up curing time.
- Approximately 14.5 cubic yards of high strength silica fume concrete was placed at the inlet apron. Prior to concrete placement #4 dowels were installed at 2'-0" o.c. E.W. with a minimum embedment of approximately 3" to help secure the topping to the existing structure. The concrete was placed in 3 separate segments. The lower slab portion was broken into two halves for placement, with the third placement being the vertical portion making up the side walls.



Figure 5 – Upper West Side Inlet Apron Dowels

- After pipe installation 13 Interior joint holdbacks needed to be coated with Tnemec Series 431 Perma-Shield PL. All joints were coated while the interior of the pipe was heated to over 50° F and allowed to cure for at least 72 hours. Thickness testing by Northwest Pipe's subcontractor Coblaco confirmed the coating thickness met the required 70-80 mils in accordance with SSPC-PA2. Additional any coating areas that were damaged during shipping or due to welding during the handrail installation were repaired.

- A leak test was performed with approximately 4' of water at the inlet of the pipe and due to the pipe slope, a full height of water near the outlet. Prior to the leak test all anchor bolts on the expansion joint were tightened. No leaks were observed at the expansion joint or at any other point along the pipe during the test.
- The walkway slab was placed on top of the outlet wall along with additional handrail. Also all exterior painting was completed at the handrail and exterior pipe joints.
- All supporting ring girder base plates were filled with non-shrink grout and each ring girder pin was coated with an anti-seize compound. Additional small holes were drilled in each ring girder I beam brace to allow rainwater to drain.
- Final grading was done per FLCC's direction to help direct any rainwater that may accumulate away from the support piers into horse creek. The majority of the site was regraded to the original condition.



Figure 6 - Pier 6 Base Plate



Figure 7 – Completed Pipe Prior to Leak Test



Figure 8 - Inlet Apron



Figure 9 - Pipe Interior



Figure 10 - Outlet Wall and Handrail

3.0 Design Changes

Several minor design changes were made throughout construction to help with constructability and account for unknown existing conditions.

- The original design to connect the new anchor block with the existing concrete called for keeping the existing longitudinal reinforcement in place, and lapping the new reinforcement with these bars. To facilitate demolition these bars were saw cut and new dowels were drilled directly into the existing concrete.
- During the demolition of pier number 2 much of the rock holding it in place was removed as well. An additional 10 cubic yards of lean concrete was placed around the base of the pier to a depth of about 2 feet to help key it in place with the surrounding shale.
- Demolition extents were reduced at the outlet wall by leaving the lower 2 feet in place. New dowels were drilled into this portion of wall instead of the base slab.
- An additional layer of waterstop was placed at the outlet wall to help protect against leakage.

4.0 Summary and Conclusions

SM&RC's construction observation and administration services were provided on behalf of FLCC, to ensure the contractor completed the project in substantial conformance with the final construction plans and contract documents. SM&RC participated in all phases of construction including:

- Observation of the pipe fabrication
- On site construction meetings including a pre-construction meeting
- Review of all reinforcement and pipe shop drawings
- Observation of the demolition of the original 10-foot diameter pipe
- Observation of reinforcement and epoxy dowels prior to concrete placement
- Periodic observation of the installation of the new 10-foot diameter pipe
- On site monitoring during the leak test
- Interior coating thickness measurements throughout the interior of the pipe
- Final inspection of the project at the conclusion of construction

Given the observations above combined with a review of all QA/QC data for concrete testing, weld testing, pipe fabrication, and coating thickness measurements, SM&RC concludes that the project was completed in substantial conformance with the final construction plans and contract documents.

Appendix A

Construction Meeting Minutes

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

**HORSE CREEK FLUME CONSTRUCTION PROJECT
BENT COUNTY, COLORADO
Meeting No. 1 (October 14, 2015)**

Moderator:	David Blanchette	SM&RC		
Attendees:	Name	Company	Name	Company
	Jerred Hoffman	FLCC	John Lefferdink	Lefferdink Law Office
	Amy Van Horn			
	Josh Weimer			
	Phil Hemphill			
	Mike Spady			
	Dale Maunch			
	Garrett GodFrey			
	David Blanchette	SM&RC		
	Jerry Isler			
	Jeff Blanchette			
	Ken Tunstall	Moltz		
	Jeff Schmitt			

The meeting was held via teleconference. The meeting started at 10:15 am and ended at 11:10 am.

Topics of Discussion

Item No.	Discussion	Respondent or Action Needed By:
Section 1	Project Schedules	
1.1.1	1. Moltz will start moving equipment on site during the last week in October 2015 2. Moltz plans to start earthwork construction on 11/2/2015	FYI by Moltz
2.1.1	1. FLCC will install the 60 inch creek low flow repair pipe before 11/9/2015. Moltz indicated the earlier, the pipe is installed the better for the project schedule because space is tight. There was some discussion around the required cover for the pipe. After the pipe is selected FLCC will forward measurements to include the gage of the pipe wall thickness and the pattern of the flutes to SM&RC. Moltz will forward the weight and tire/track sizes for the vehicles that will pass over the pipe to SM&RC. SM&RC will determine the required earth cover over the pipe	FLCC Moltz SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

Section 2 Plans, Specification, Permits & Design Change Orders		
1.2.1	1. Dave Blanchette indicated that there was a zone of concrete on the intake structure that had less than 6 inches of cover. Moltz indicated they had considered this and were primarily concerned that the 6 inches of cover be over the intake structure slab surface for their demolition methods.	FYI SM&RC
2.2.1	2. Moltz indicated in their bid that the pricing for the installation of pier number 2 was based on drawing detail neat lines. If the pier depth is significantly different and requires additional concrete then the price will be adjusted based on supplemental unit prices within the bid.	
Section 3 Submittals, and RFI's		
Section 4 Moltz - Subcontractors and Vendors		
1.4.1	1. Moltz Contacted Northwest Pipe and they indicated that 3 sections of the pipe would be delivered on November 19 th and an additional 3 sections of the pipe would be delivered November 20 th . The pipe sections will be delivered starting from the inlet structure to the outlet structure.	FYI Moltz
2.4.1	2. Local Ready Mix concrete suppliers do not have NRMCA certification and do not have 5 years of experience with silica flume concrete. SM&RC and Moltz will provide batch plant inspection and input into the mix designs for the project.	Moltz SM&RC
Section 5 Easements, R.O.W.'s and Property Issues		
1.5.1	1. Dale Mauch indicated that the contractor should work closely with the owner of the land around the flume. Moltz indicated they had spoken with the land owner and will take care to work carefully with the land owner.	FYI FLCC
Section 6 Access Roads, Staging Areas & Construction Traffic Patterns		
1.6.1	1. Ken Tunstall asked if they could get keys for the gates for the access road into the project site. Jerred Hoffman will get gate keys for Ken.	FLCC
Section 7 Flume Piping Installation		
Section 8 Flume Concrete Support Installation		
Section 10 Inlet and Outlet Concrete Repairs		
1.10.1	1. Josh Weimer asked that Dave Blanchette comment on the concrete demolition methods. Dave Blanchette noted that it is important to demo the concrete with care so as not to remove excess concrete. It is understood that some of the concrete to remain is in poor condition. Moltz indicated they will take care during the demo of the concrete.	FYI SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

Section 11 <i>Coating of Flume Steel Piping</i>		
1.11.1	1. Moltz is currently evaluating if they will touch up field paint the flume pipe or have Coblaco touchup field paint the flume pipe.	FYI Moltz
2.11.1	2. Moltz Bid estimate reflects painting noncritical areas of the pipe exterior (handrails, pipe joints, vents) when the temperature warms up in May of 2016. Based on SM&RC & FLCC discussions and evaluation this painting schedule substitution to the bid is acceptable.	FYI Moltz SM&RC
Section 12 <i>Progress Payments & Change Orders</i>		
1.12.1	1. A change order for a deduction of \$4000 will be developed for the option of disposing of the demoed concrete on site for use by FLCC as riprap for the canal. The demoed concrete will be stored by the contractor near the laydown area for the project.	SM&RC/FLCC
Section 13 <i>QA/QC Testing</i>		
Section 14 <i>Environmental Issues, Concerns and Reports</i>		
Section 15 <i>Agency Reviews, Visits and Inspections</i>		
1.15.1	1. The CWCB will be at the next meeting on 11/3/2015	FYI SM&RC
Section 16 <i>Health and Safety</i>		
Section 17 <i>Miscellaneous</i>		
1.17.1	1. Moltz asked if they could park some 5 th wheelers on the site for security purpose. FLCC agreed that this would be acceptable.	FYI Moltz

The next scheduled meeting will be on November 3rd 2015 at 10:30 AM and will be located at the site.

Submitted By:

David Blanchette
SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

**HORSE CREEK FLUME CONSTRUCTION PROJECT
BENT COUNTY, COLORADO
Meeting No. 2 (November 3, 2015)**

Moderator:	David Blanchette	SM&RC		
Attendees:	Name	Company	Name	Company
	Jerred Hoffman	FLCC	Derek Johnson	Colorado Water Conservation Board
	David Blanchette	SM&RC		
	Jeff Blanchette			
	Ken Tunstall	Moltz		
	Jeff Schmitt			

The meeting was held at the project site. The meeting started at 10:30 am and ended at 1:30 pm.

Topics of Discussion

Item No.	Discussion	Respondent or Action Needed By:
Section 1	Project Schedules	
1.1.1	1. Moltz plans to start site work construction on 11/9/2015	FYI by Moltz
2.1.1	1. FLCC will install the Horse Creek low flow pipe before 11/9/2015. Moltz proposed using a temporary continuous section of 54 inch HDPE pipe that they were delivering to the site during the construction period. Moltz would prefer this pipe be installed as it will contain the water because there are no joints and it has proven to support high loads on past projects. SM&RC noted that the desired cover on the remaining 60 CMP pipe should be three feet. All agreed that compaction around both the HDPE pipe and CMP pipe needs to be sufficient to support the equipment loads used for construction. This will require dewatering the trench the pipe is installed in and then compaction of the native fill can be made.	FLCC Moltz SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

Section 2 Plans, Specification, Permits & Design Change Orders		
1.2.2	1. There was some discussion on the location and installation of the upstream coffer dam. Locations upstream and downstream of the turnout gates and diversion structure were evaluated. Moltz will evaluate the best position for their means and methods and will select the final location to suit their needs. One of the turnout gates will be opened a small amount to allow for small surface drainage flows of water to bypass the flume pipe during construction.	FYI SM&RC
2.2.2	2. Moltz indicated in their bid that the pricing for the installation of pier number 2 was based on drawing detail neat lines. If the pier depth is significantly different and requires additional concrete, then the price will be adjusted based on supplemental unit prices within the bid.	
3.2.2	3. Moltz requested a full size stamped construction set of plans. SM&RC to provide 1 hard copy and a pdf set to Moltz.	SM&RC
Section 3 Submittals, and RFI's		
	1. Moltz indicated that it was important to receive the reviews of the reinforcement shop drawings as soon as possible. SM&RC indicated they would review the submittals as soon as possible. SM&RC indicated they have reviewed the Concrete Mix design submittal and Foundation Anchor Bolt submittals.	
Section 4 Moltz - Subcontractors and Vendors		
1.4.2	1. Moltz Indicated they had meet with Northwest Pipe to discuss delivery and installation of the pipe. Moltz indicated that Northwest Pipe was interested in coming to the site to observe pipe installation.	FYI Moltz
Section 5 Easements, R.O.W.'s and Property Issues		
1.5.1	1. Sam Turner attended the meeting for a short period and did not have any comment on the proposed Horse Creek pipe installations being discussed. Sam did note that until the canal was shut down and the upstream bypass road was installed over the canal he would need access thru the site on a daily basis. Moltz noted this and will insure that the land owner has continued access.	FYI FLCC
Section 6 Access Roads, Staging Areas & Construction Traffic Patterns		
1.6.1	FLCC indicated that construction traffic should use the canal west side access road and that a grader may come out and improve the road. SM&RC noted to the contractor the deep ruts in the road that would need to be negotiated during construction. These ruts may need to be filled in.	FLCC
2.6.2	Moltz mentioned that the power line running over the access road may need to be temporarily removed to move the crane in place. FLCC indicated this was a possibility and would be evaluated if Moltz determined it needed to be	Moltz

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

	temporarily removed.	
Section 7 <i>Flume Piping Installation</i>		
Section 8 <i>Flume Concrete Support Installation</i>		
Section 9 <i>Existing Structure Demolition</i>		
Section 10 <i>Inlet and Outlet Concrete Repairs</i>		
		FYI SM&RC
Section 11 <i>Coating of Flume Steel Piping</i>		
1.11.2	1. Moltz has decided that Coblaco will perform field touchup painting of the flume pipe.	FYI Moltz
Section 12 <i>Progress Payments & Change Orders</i>		
1.12.1	1. A change order for a deduction of \$4000 will be developed for the option of disposing of the demoed concrete on site for use by FLCC as riprap for the canal. The demoed concrete will be stored by the contractor near the laydown area for the project.	SM&RC/FLCC
Section 13 <i>QA/QC Testing</i>		
Section 14 <i>Environmental Issues, Concerns and Reports</i>		
Section 15 <i>Agency Reviews, Visits and Inspections</i>		
1.15.2	1. The CWCB requested they receive notes of meetings 2. The CWCB noted that the loan & grant contract may not have been signed yet. Derek Johnson is to get back to SM&RC and FLCC with the status of the contract. 3. SM&RC is to keep the CWCB informed on the installation schedule for the pipe so that they might have the opportunity to observe its installation. 4. The CWCB will need to review all change orders.	FYI SM&RC
2.15.2		
3.15.2		
4.15.2		
Section 16 <i>Health and Safety</i>		
1.16.2	1. Moltz indicated that all visitors to the site notify them at their construction trailer before entering the work area. All visitors will be required to have work boots, florescent safety vest, ear protection and safety glasses on before entering the work area.	
2.16.2	2. SM&RC indicated that safety is extremely important and that all procedures will be required to be followed as required by Moltz.	
Section 17 <i>Miscellaneous</i>		
1.17.2	1. There was some discussion on using the bridge to gain access to the	FYI Moltz

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

	project work area. The width of the bridge appears to be wide enough for the main crane to cross. Moltz will look into its use. Strengthening may be required in the form of additional bracing below the deck or by using bridge deck crane mats.	
2.17.2	2. FLCC and Moltz discussed the need to trim some of the tress on the south side of the bridge to allow for a straight length of road for access across the bridge.	FYI SM&RC
3.17.2	3. Dave Blanchette handed out a Pre-Con Meeting Agenda. The Agenda is attached to these notes.	
4.17.2	4. Moltz confirmed/acknowledged items 3-8 on the Pre-Construction meeting agenda.	

The next scheduled meeting will be on November 17th 2015 at 11:00 AM and will be located at the site.

Submitted By:

David Blanchette
SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

**HORSE CREEK FLUME CONSTRUCTION PROJECT
BENT COUNTY, COLORADO
Meeting No. 3 (November 18, 2015)**

Moderator:	David Blanchette	SM&RC		
Attendees:	Name	Company	Name	Company
	Jerred Hoffman	FLCC		
	David Blanchette	SM&RC		
	Jeff Blanchette			
	Ken Tunstall	Moltz		
	Jeff Schmitt			

The meeting was held at the project site. The meeting started at 11:00 am and ended at 1:00 pm.

Topics of Discussion

Item No.	Discussion	Respondent or Action Needed By:
Section 1	Project Schedules	
1.1.3	1. The first pipe delivery has been scheduled for Thursday November 19 th .	FYI by Moltz
2.1.3	2. The concrete placement for piers 2 & 3 has tentatively been moved up to Tuesday December 1 st . SM&RC to inform Kumar.	SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

Section 2 <i>Plans, Specification, Permits & Design Change Orders</i>		
1.2.2	1. There was some discussion on the location and installation of the upstream coffer dam. Locations upstream and downstream of the turnout gates and diversion structure were evaluated. Moltz will evaluate the best position for their means and methods and will select the final location to suit their needs. One of the turnout gates will be opened a small amount to allow for small surface drainage flows of water to bypass the flume pipe during construction.	FYI SM&RC
2.2.2	2. Moltz indicated in their bid that the pricing for the installation of pier number 2 was based on drawing detail neat lines. If the pier depth is significantly different and requires additional concrete, then the price will be adjusted based on supplemental unit prices within the bid.	
3.2.3	3. Moltz & SM&RC discussed saw cutting the inlet and using epoxy to dowel in the inlet rebar. SM&RC indicated this would be acceptable provided there was sufficient number of dowels to match the existing 36#5 bars @ 12" o.c. and they are embedded 12" deep. SM&RC to provide an optional detail.	FYI Moltz SM&RC
4.2.3	4. SM&RC indicated the welds between pipe sections did not need to be ground flat since the spiral pipe welds had not been ground flat. However some minor grinding may be needed to clean the area up for the coating.	FYI Moltz FYI SM&RC
Section 3 <i>Submittals, and RFI's</i>		
1.3.3	1. SM&RC requested the as-builts of the pier/anchor bolt locations & elevations to verify they will matchup with the plans.	Moltz
Section 4 <i>Moltz - Subcontractors and Vendors</i>		
1.4.2	1. Moltz Indicated they had meet with Northwest Pipe to discuss delivery and installation of the pipe. Moltz indicated that Northwest Pipe was interested in coming to the site to observe pipe installation.	FYI Moltz
Section 5 <i>Easements, R.O.W.'s and Property Issues</i>		
Section 6 <i>Access Roads, Staging Areas & Construction Traffic Patterns</i>		
1.6.1	1. The need to drive slow and careful on the access road to the site was reiterated.	
Section 7 <i>Flume Piping Installation</i>		
		SM&RC
Section 8 <i>Flume Concrete Support Installation</i>		
Section 9 <i>Existing Structure Demolition</i>		

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

Section 10 <i>Inlet and Outlet Concrete Repairs</i>		
Section 11 <i>Coating of Flume Steel Piping</i>		
Section 12 <i>Progress Payments & Change Orders</i>		
1.12.1	1. A change order for a deduction of \$4000 will be developed for the option of disposing of the demoed concrete on site for use by FLCC as riprap for the canal. The demoed concrete will be stored by the contractor near the laydown area for the project.	SM&RC/FLCC
1.12.3	2. Moltz indicated there may be some minor additional cost due to the change in waterstop which will be included in a future changed order.	
Section 13 <i>QA/QC Testing</i>		
1.13.3	1. SM&RC confirmed that the weld inspector only needed to be on site for the full circumferential welds and did not need to be on site during the tack welds to fit the pipe.	
Section 14 <i>Environmental Issues, Concerns and Reports</i>		
Section 15 <i>Agency Reviews, Visits and Inspections</i>		
1.15.2	1. The CWCB requested they receive notes of meetings	FYI SM&RC
2.15.2	2. The CWCB noted that the loan & grant contract may not have been signed yet. Derek Johnson is to get back to SM&RC and FLCC with the status of the contract.	
3.15.2	3. SM&RC is to keep the CWCB informed on the installation schedule for the pipe so that they might have the opportunity to observe its installation.	
4.15.2	4. The CWCB will need to review all change orders.	
Section 16 <i>Health and Safety</i>		
1.16.2	1. Moltz indicated that all visitors to the site notify them at their construction trailer before entering the work area. All visitors will be required to have work boots, florescent safety vest, ear protection and safety glasses on before entering the work area.	
2.16.2	2. SM&RC indicated that safety is extremely important and that all procedures will be required to be followed as required by Moltz.	
Section 17 <i>Miscellaneous</i>		

CONSTRUCTION MEETING MINUTES



Fort Lyon Canal Company



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The next scheduled meeting will be on November 24th 2015 at 11:00 AM and will be located at the site.

Submitted By:

Jeff Blanchette
SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

**HORSE CREEK FLUME CONSTRUCTION PROJECT
BENT COUNTY, COLORADO
Meeting No. 4 (December 2, 2015)**

Moderator:	David Blanchette	SM&RC		
Attendees:	Name	Company	Name	Company
	Jerred Hoffman	FLCC		
	David Blanchette	SM&RC		
	Jeff Blanchette			
	Ken Tunstall	Moltz		
	Brian Tilley			

The meeting was held at the project site. The meeting started at 11:00 am and ended at 1:00 pm.

Topics of Discussion

Item No.	Discussion	Respondent or Action Needed By:
<i>Section 1</i>	<i>Project Schedules</i>	
<i>1.1.4</i>	1. 5 Pieces of pipe were on site (MK1-5). MK-6 is scheduled for delivery the evening of Wednesday December 3rd or morning of Thursday December 4 th . MK-8 & 13 is scheduled for delivery on Thursday December 4 th . The remaining pipe sections are tentatively scheduled for the 3 rd week in December.	FYI Moltz
<i>2.1.4</i>	2. The concrete placement for piers 3 & 5 is scheduled for Thursday December 3 rd at 9 am.	FYI SM&RC
<i>3.1.4</i>	3. Piers 2 & 4 are to be placed on Tuesday December 8 th .	FYI SM&RC
<i>4.1.4</i>	4. On schedule to start setting pipe on December 14 th .	FYI SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

Section 2 Plans, Specification, Permits & Design Change Orders		
1.2.4	1. Moltz stated an upstream coffer dam will not be put in place. Moltz to open sandout gate upstream in case of emergency flooding.	FYI SM&RC
2.2.4	2. Pier 2 was excavated to a depth of 5'. The pier will be formed and poured. After removing the formwork, the lower 2' will be backfilled with concrete prior to backfilling the remainder of the pier with soil. Backfill around pier should be properly compacted and consist of onsite soil with shale less than 4" in size.	FYI Moltz FYI SM&RC
3.2.4	3. Moltz sawcut the existing inlet structure and had already drilled holes for epoxy dowels SM&RC to officially submit alternate detail for inlet rebar.	FYI Moltz SM&RC
4.2.3	4. SM&RC indicated the welds between pipe sections did not need to be ground flat since the spiral pipe welds had not been ground flat. However some minor grinding may be needed to clean the area up for the coating.	FYI Moltz FYI SM&RC
Section 3 Submittals, and RFI's		
1.3.3	1. SM&RC requested the as-builts of the pier/anchor bolt locations & elevations to verify they will matchup with the plans.	Moltz
2.3.4	2. SM&RC requested photos of the anchor bolts and dowels in place prior to placing piers 2 & 5.	Moltz
Section 4 Moltz - Subcontractors and Vendors		
1.4.2	1. Moltz Indicated they had meet with Northwest Pipe to discuss delivery and installation of the pipe. Moltz indicated that Northwest Pipe was interested in coming to the site to observe pipe installation.	FYI Moltz
Section 5 Easements, R.O.W.'s and Property Issues		
Section 6 Access Roads, Staging Areas & Construction Traffic Patterns		
1.6.1	1. The need to drive slow and careful on the access road to the site was reiterated.	
Section 7 Flume Piping Installation		
1.7.4	1. SM&RC to evaluate what type of grease/anti-seize coating to place on the pins.	
Section 8 Flume Concrete Support Installation		
Section 9 Existing Structure Demolition		
1.9.4	1. Moltz to provide quote on constructing new trash rack at the outlet structure. FLCC to discuss with board.	Moltz FLCC
2.9.4	2. SM&RC to inspect inlet foundation after removal of lose debris and provide recommendations for the inlet base slab support.	SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

3.9.4	3. All existing pipe has been removed and piers 2, 3, 4, & 5 have been demoed.	
4.9.4	4. The demo of the inlet and out has been started.	
Section 10 Inlet and Outlet Concrete Repairs		
Section 11 Coating of Flume Steel Piping		
1.11.4	3. Some exterior paint was damaged during shipping. Touch ups to be done during final painting in May.	Moltz
Section 12 Progress Payments & Change Orders		
1.12.1	1. A change order for a deduction of \$4000 will be developed for the option of disposing of the demoed concrete on site for use by FLCC as riprap for the canal. The demoed concrete will be stored by the contractor near the laydown area for the project.	SM&RC/FLCC
2.12.3	2. Moltz indicated there may be some minor additional cost due to the change in waterstop which will be included in a future changed order.	
Section 13 QA/QC Testing		
1.13.4	1. SM&RC confirmed that the weld inspector only needed to be on site for the full circumferential welds and did not need to be on site during the tack welds to fit the pipe. Moltz to submit all weld and paint field QA/QC testing documentation.	Moltz
Section 14 Environmental Issues, Concerns and Reports		
1.14.4	1. No environmental issues to report.	
Section 15 Agency Reviews, Visits and Inspections		
1.15.2	1. The CWCB requested they receive notes of meetings	FYI SM&RC
2.15.2	2. The CWCB noted that the loan & grant contract may not have been signed yet. Derek Johnson is to get back to SM&RC and FLCC with the status of the contract.	
3.15.2	3. SM&RC is to keep the CWCB informed on the installation schedule for the pipe so that they might have the opportunity to observe its installation.	
4.15.2	4. The CWCB will need to review all change orders.	
5.15.4	5. The CWCB will be on site December 15 th .	
Section 16 Health and Safety		
1.16.2	1. Moltz indicated that all visitors to the site notify them at their construction trailer before entering the work area. All visitors will be required to have work boots, florescent safety vest, ear protection and safety glasses on before entering the work area.	
2.16.2	2. SM&RC indicated that safety is extremely important and that all procedures will be required to be followed as required by Moltz.	

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

<i>Section 17</i>	<i>Miscellaneous</i>	
1.17.4	1. Moltz to collect concrete truck tickets at concrete pour and give to SM&RC.	Moltz

The next scheduled meeting will be on December 8th or 9th 2015 (Dave Blanchette to confirm in email) at 11:00 AM and will be located at the site.

Submitted By:

Jeff Blanchette
SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

**HORSE CREEK FLUME CONSTRUCTION PROJECT
BENT COUNTY, COLORADO
Meeting No. 5 (December 8, 2015)**

Moderator:	David Blanchette	SM&RC		
Attendees:	Name	Company	Name	Company
	Jerred Hoffman	FLCC		
	David Blanchette	SM&RC		
	Jeff Blanchette			
	Jeff Schmitt	Moltz		

The meeting was held at the project site. The meeting started at 11:00 am and ended at 1:00 pm.

Topics of Discussion

Item No.	Discussion	Respondent or Action Needed By:
<i>Section 1</i>	<i>Project Schedules</i>	
1.1.5	1. 8 Pieces of pipe were on site (MK1-6, 8, 13).	FYI SM&RC
2.1.5	2. Piers 3 & 5 have been placed and piers 2 & 4 were being placed directly after the meeting.	FYI SM&RC
3.1.5	3. Scheduled to start setting pipe Friday December 11 th .	FYI SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

Section 2 <i>Plans, Specification, Permits & Design Change Orders</i>		
1.2.4	1. Moltz stated an upstream coffer dam will not be put in place. Moltz to open sandout gate upstream in case of emergency flooding.	FYI SM&RC
2.2.5	2. SM&RC confirmed with Moltz that 10 cubic yards of concrete (1 full truck) was to be used as backfill around pier #2.	FYI Moltz FYI SM&RC
3.2.5	3. SM&RC decided to add second layer of water stop at the outlet structure. SM&RC to provide revised details for Moltz.	FYI Moltz SM&RC
4.2.3	4. SM&RC indicated the welds between pipe sections did not need to be ground flat since the spiral pipe welds had not been ground flat. However some minor grinding may be needed to clean the area up for the coating.	FYI Moltz FYI SM&RC
5.2.5	5. SM&RC stated the pipe should be filled to a minimum of 7' at the inlet for the leak test.	FYI Moltz
Section 3 <i>Submittals, and RFI's</i>		
1.3.3	1. SM&RC requested the as-builts of the pier/anchor bolt locations & elevations to verify they will matchup with the plans.	Moltz
2.3.5	2. SM&RC to provide detail to Moltz for added waterstop.	SM&RC
3.3.5	3. SM&RC has received exterior paint submittal from Moltz and is in the process of reviewing it.	SM&RC
Section 4 <i>Moltz - Subcontractors and Vendors</i>		
1.4.2	1. Moltz Indicated they had meet with Northwest Pipe to discuss delivery and installation of the pipe. Moltz indicated that Northwest Pipe was interested in coming to the site to observe pipe installation.	FYI Moltz
Section 5 <i>Easements, R.O.W.'s and Property Issues</i>		
Section 6 <i>Access Roads, Staging Areas & Construction Traffic Patterns</i>		
1.6.1	1. The need to drive slow and careful on the access road to the site was reiterated.	
Section 7 <i>Flume Piping Installation</i>		
1.7.4	1. SM&RC to evaluate what type of grease/anti-seize coating to place on the pins.	SM&RC
Section 8 <i>Flume Concrete Support Installation</i>		
Section 9 <i>Existing Structure Demolition</i>		
1.9.4	1. Moltz to provide quote on constructing new trash rack at the outlet structure. FLCC to discuss with board.	Moltz FLCC
2.9.5	2. Moltz to confirm with SM&RC that inlet has been demoed to a solid piece	Moltz

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

	of concrete prior to drilling dowels and placing pipe. SM&RC to provide direction for the inlet dowel installation after discussion with Moltz.	SM&RC
3.9.5	3. Remaining concrete at outlet structure looks to be solid and in good condition. Outlet demo complete to top of outlet pier. Some minor demo to cut the outlet wall flush with the joint near the adjacent gates and flush with the outlet slab is needed.	FYI SM&RC FYI Moltz
Section 10 <i>Inlet and Outlet Concrete Repairs</i>		
Section 11 <i>Coating of Flume Steel Piping</i>		
1.11.5	1. Moltz to provide photos to SM&RC of damages during pipe shipping. Further discussion will be needed to determine how Northwest Pipe will repair damage to the pipe coating. Moltz stated when moving pipe sections on site only pick points at the ends of the pipe are used.	Moltz
Section 12 <i>Progress Payments & Change Orders</i>		
1.12.1	1. A change order for a deduction of \$4000 will be developed for the option of disposing of the demoed concrete on site for use by FLCC as riprap for the canal. The demoed concrete will be stored by the contractor near the laydown area for the project.	SM&RC/FLCC
2.12.3	2. Moltz indicated there may be some minor additional cost due to the change in waterstop which will be included in a future changed order.	
2.12.4	3. Due to added waterstop at inlet by SM&RC, Moltz to include extra waterstop cost in change order.	Moltz
2.12.5	4. Additional cost to be included in change order for the concrete added around pier #2 as backfill.	Moltz
Section 13 <i>QA/QC Testing</i>		
1.13.4	1. SM&RC confirmed that the weld inspector only needed to be on site for the full circumferential welds and did not need to be on site during the tack welds to fit the pipe. Moltz to submit all weld and paint field QA/QC testing documentation.	Moltz
2.13.5	2. SM&RC to conduct independent thickness testing on pipe coatings.	SM&RC
Section 14 <i>Environmental Issues, Concerns and Reports</i>		
1.14.5	1. Moltz to provide containment around fuel tank.	Moltz
Section 15 <i>Agency Reviews, Visits and Inspections</i>		
1.15.2	1. The CWCB requested they receive notes of meetings	FYI SM&RC
2.15.2	2. The CWCB noted that the loan & grant contract may not have been signed yet. Derek Johnson is to get back to SM&RC and FLCC with the status of the contract.	
3.15.2	3. SM&RC is to keep the CWCB informed on the installation schedule for the pipe so that they might have the opportunity to observe its installation.	

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

4.15.2	4. The CWCB will need to review all change orders.	
5.15.4	5. The CWCB will be on site December 15 th .	
Section 16		Health and Safety
1.16.2	1. Moltz indicated that all visitors to the site notify them at their construction trailer before entering the work area. All visitors will be required to have work boots, florescent safety vest, ear protection and safety glasses on before entering the work area.	
2.16.2	2. SM&RC indicated that safety is extremely important and that all procedures will be required to be followed as required by Moltz.	
Section 17		Miscellaneous
1.17.4	1. Moltz to collect concrete truck tickets at concrete pour and give to SM&RC.	Moltz
1.17.5	2. No meeting will be held the week of December 21 st .	FYI Moltz FYI SM&RC FYI FLCC

The next scheduled meeting will be on December 15th 2015 at 11:00 AM and will be located at the site.

Submitted By:

Jeff Blanchette
SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

**HORSE CREEK FLUME CONSTRUCTION PROJECT
BENT COUNTY, COLORADO
Meeting No. 6 (December 16, 2015)**

Moderator:	David Blanchette	SM&RC		
Attendees:	Name	Company	Name	Company
	Jerred Hoffman	FLCC	Zach Mashek	Intermountain Testing
	David Blanchette	SM&RC		
	Jeff Blanchette			
	Ken Tunstall	Moltz		

The meeting was held at the project site. The meeting started at 11:00 am and ended at 1:00 pm.

Topics of Discussion

Item No.	Discussion	Respondent or Action Needed By:
Section 1	Project Schedules	
1.1.6	1. 11 Pieces of pipe were on site. MK-11&12 to be delivered Thursday December 17 th . MK-14 to be delivered Friday December 18 th .	FYI SM&RC
2.1.6	2. Piers 2-5 have been placed. The outlet pier is to be poured Friday December 18 th . SM&RC has notified Kumar.	FYI SM&RC
3.1.6	3. Four sections of pipe had been set. Should start setting pipe to pier 5 around Thursday December 17 th .	FYI SM&RC
4.1.6	4. Moltz indicated the lower half of the inlet is to be poured on Tuesday December 22 nd .	FYI SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

Section 2 <i>Plans, Specification, Permits & Design Change Orders</i>		
1.2.4	1. Moltz stated an upstream coffer dam will not be put in place. Moltz to open sandout gate upstream in case of emergency flooding.	FYI SM&RC
2.2.6	2. Moltz indicated the 10 cubic yards of concrete placed as backfill around pier #2 provided about 2' of fill on three sides of the pier.	FYI SM&RC
3.2.6	3. SM&RC decided to add second layer of water stop at the outlet structure. SM&RC to provide revised details for Moltz. This submittal will also include an updated outlet detail for the revised concrete demo extents.	FYI Moltz SM&RC
4.2.3	4. SM&RC indicated the welds between pipe sections did not need to be ground flat since the spiral pipe welds had not been ground flat. However some minor grinding will be needed to clean the area up for the coating.	FYI Moltz FYI SM&RC
5.2.6	5. SM&RC stated the pipe should be filled to a minimum of 7' at the inlet for the leak test. SM&RC will evaluate coffer dam proposal by Moltz	FYI Moltz SM&RC
Section 3 <i>Submittals, and RFI's</i>		
1.3.3	1. SM&RC requested the as-builts of the pier/anchor bolt locations & elevations to verify they will matchup with the plans.	Moltz
2.3.6	2. SM&RC to provide detail to Moltz for added waterstop at outlet and changes to rebar for reduced demo.	SM&RC
Section 4 <i>Moltz - Subcontractors and Vendors</i>		
1.4.2	1. Moltz Indicated they had meet with Northwest Pipe to discuss delivery and installation of the pipe. Moltz indicated that Northwest Pipe was interested in coming to the site to observe pipe installation.	FYI Moltz
Section 5 <i>Easements, R.O.W.'s and Property Issues</i>		
Section 6 <i>Access Roads, Staging Areas & Construction Traffic Patterns</i>		
1.6.1	1. The need to drive slow and careful on the access road to the site was reiterated.	
Section 7 <i>Flume Piping Installation</i>		
1.7.6	1. Moltz to recommend anti-seize for use around the support pins.	Moltz
Section 8 <i>Flume Concrete Support Installation</i>		
Section 9 <i>Existing Structure Demolition</i>		
1.9.4	1. Moltz to provide quote on constructing new trash rack at the outlet structure. FLCC to discuss with board.	Moltz FLCC
2.9.6	2. Inlet anchor section demo has been completed. Moltz will continue demoing on the upstream inlet slab.	FYI Moltz FYI SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

3.9.6	3. All demo of piers and the outlet structure concrete has been completed.	FYI SM&RC FYI Moltz
Section 10 <i>Inlet and Outlet Concrete Repairs</i>		
Section 11 <i>Coating of Flume Steel Piping</i>		
1.11.5	1. Moltz to provide photos to SM&RC of damages during pipe shipping. Further discussion will be needed to determine how Northwest Pipe will repair damage to the pipe coating. Moltz stated when moving pipe sections on site only pick points at the ends of the pipe are used.	Moltz
Section 12 <i>Progress Payments & Change Orders</i>		
1.12.1	1. A change order for a deduction of \$4000 will be developed for the option of disposing of the demoed concrete on site for use by FLCC as riprap for the canal. The demoed concrete will be stored by the contractor near the laydown area for the project.	SM&RC/FLCC
2.12.3	2. Moltz indicated there may be some minor additional cost due to the change in waterstop which will be included in a future change order.	
2.12.4	3. Due to added waterstop at inlet by SM&RC, Moltz to include extra waterstop cost in change order.	Moltz
2.12.5	4. Additional cost to be included in change order for the concrete added around pier #2 as backfill.	Moltz
Section 13 <i>QA/QC Testing</i>		
1.13.4	1. SM&RC confirmed that the weld inspector only needed to be on site for the full circumferential welds and did not need to be on site during the tack welds to fit the pipe. Moltz to submit all weld and paint field QA/QC testing documentation.	Moltz
2.13.5	2. SM&RC to conduct independent thickness testing on pipe coatings.	SM&RC
3.13.6	3. Intermountain testing confirmed 100 % Magnetic Particle testing will be done on the finish joint along with 100% Ultrasonic testing.	FYI SM&RC
4.13.6	4. Moltz confirmed the pipe would be tented and heated if necessary prior too welding to maintain the required pipe material temperature during welding of 50 degrees F.	FYI SM&RC
5.13.6	5. SM&RC confirmed too Intermountain testing that the circumferential welds did not need to be ground flat. Intermountain confirmed this would not impact their weld testing.	FYI SM&RC
Section 14 <i>Environmental Issues, Concerns and Reports</i>		
1.14.6	1. Moltz provided containment around the fuel tank no other environmental concerns were noted.	FYI SM&RC
Section 15 <i>Agency Reviews, Visits and Inspections</i>		
1.15.2	1. The CWCB requested they receive notes of meetings	FYI SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

2.15.2	2. SM&RC is to keep the CWCB informed on the installation schedule for the pipe so that they might have the opportunity to observe its installation.	
3.15.2	3. The CWCB will need to review all change orders.	
4.15.6	4. The CWCB (Derek Johnson) was on site on 12/15/2015.	FYI SM&RC
Section 16 <i>Health and Safety</i>		
1.16.2	1. Moltz indicated that all visitors to the site notify them at their construction trailer before entering the work area. All visitors will be required to have work boots, florescent safety vest, ear protection and safety glasses on before entering the work area.	
2.16.2	2. SM&RC indicated that safety is extremely important and that all procedures will be required to be followed as required by Moltz.	
Section 17 <i>Miscellaneous</i>		
1.17.4	1. Moltz to collect concrete truck tickets at concrete pour and give to SM&RC.	Moltz
1.17.5	2. No meeting will be held the week of December 21 st .	FYI Moltz FYI SM&RC FYI FLCC

The next scheduled meeting will be on December 29th 2015 at 11:00 AM and will be located at the site.

Submitted By:

Jeff Blanchette
SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

**HORSE CREEK FLUME CONSTRUCTION PROJECT
BENT COUNTY, COLORADO
Meeting No. 7 (December 29, 2015)**

Moderator:	David Blanchette	SM&RC		
Attendees:	Name	Company	Name	Company
	Jerred Hoffman	FLCC		
	David Blanchette	SM&RC		
	Jeff Blanchette			
	Ken Tunstall	Moltz		

The meeting was held at the project site. The meeting started at 11:00 am and ended at 1:00 pm.

Topics of Discussion

Item No.	Discussion	Respondent or Action Needed By:
<i>Section 1</i>	<i>Project Schedules</i>	
<i>1.1.7</i>	1. All pieces of pipe are on site and the last piece is to be set Monday 1/4 or Tuesday 1/5.	FYI SM&RC
<i>2.1.7</i>	2. The remainder of the concrete around the inlet is to be poured Tuesday 1/5.	FYI SM&RC
<i>3.1.7</i>	3. The outlet wall is to be poured on Friday 1/15.	FYI SM&RC
<i>4.1.7</i>	4. Coblaco is scheduled to be on site 1/11.	FYI SM&RC
<i>5.1.7</i>	5. The leak test is tentatively scheduled for the last week of January.	FYI SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

Section 2 <i>Plans, Specification, Permits & Design Change Orders</i>		
1.2.4	1. Moltz stated an upstream coffer dam will not be put in place. Moltz to open sandout gate upstream in case of emergency flooding.	FYI SM&RC
2.2.6	2. Moltz indicated the 10 cubic yards of concrete placed as backfill around pier #2 provided about 2' of fill on three sides of the pier.	FYI SM&RC
3.2.7	3. After evaluating Moltz's coffer dam proposal for the leak test SM&RC indicated it would not be possible due to the additional load placed on the outlet structure. SM&RC indicated up to 8' of soil could be placed on the outlet slab and revised the required water height at the inlet to 5' down from the original 7'.	FYI Moltz FYI SM&RC
4.2.3	4. SM&RC indicated the welds between pipe sections did not need to be ground flat since the spiral pipe welds had not been ground flat. However, some minor grinding will be needed to clean the area up for the coating.	FYI Moltz FYI SM&RC
5.2.7	5. SM&RC & FLCC to further evaluate grading around pier 5 after Moltz conducts survey.	SM&RC FLCC Moltz
Section 3 <i>Submittals, and RFI's</i>		
1.3.3	1. SM&RC requested the as-builts of the pier/anchor bolt locations & elevations to verify they will matchup with the plans.	Moltz
2.3.7	2. SM&RC to send an email to Moltz confirming the drill hole diameter for the relocation of the anchor bolts at the outlet pier.	SM&RC
Section 4 <i>Moltz - Subcontractors and Vendors</i>		
1.4.7	1. Northwest Pipe will be performing touchups to the paint damage on the exterior of the pipe.	FYI SM&RC
Section 5 <i>Easements, R.O.W.'s and Property Issues</i>		
Section 6 <i>Access Roads, Staging Areas & Construction Traffic Patterns</i>		
1.6.1	1. The need to drive slow and careful on the access road to the site was reiterated.	
Section 7 <i>Flume Piping Installation</i>		
1.7.6	1. Moltz to recommend anti-seize for use around the support pins.	Moltz

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

Section 8 <i>Flume Concrete Support Installation</i>		
Section 9 <i>Existing Structure Demolition</i>		
1.9.4	1. Moltz to provide quote on constructing new trash rack at the outlet structure. FLCC to discuss with board.	Moltz FLCC
2.9.6	2. Inlet anchor section demo has been completed. Moltz will continue demoing on the upstream inlet slab.	FYI Moltz FYI SM&RC
3.9.6	3. All demo of piers and the outlet structure concrete has been completed.	FYI SM&RC FYI Moltz
Section 10 <i>Inlet and Outlet Concrete Repairs</i>		
Section 11 <i>Coating of Flume Steel Piping</i>		
1.11.5	1. Moltz to provide photos to SM&RC of damages during pipe shipping. Further discussion will be needed to determine how Northwest Pipe will repair damage to the pipe coating. Moltz stated when moving pipe sections on site only pick points at the ends of the pipe are used.	Moltz
2.11.7	1. FLCC indicated some concerns about possible coating loss on the spiral weld profiles. SM&RC indicated the coating loss due to the silt load should not be any greater than the other portions of the pipe and that recoating of the pipe may be required on a regular basis (every 3-5 years).	FYI SM&RC FYI FLCC
Section 12 <i>Progress Payments & Change Orders</i>		
1.12.1	1. A change order for a deduction of \$4000 will be developed for the option of disposing of the demoed concrete on site for use by FLCC as riprap for the canal. The demoed concrete will be stored by the contractor near the laydown area for the project.	SM&RC/FLCC
2.12.3	2. Moltz indicated there may be some minor additional cost due to the change in waterstop which will be included in a future change order.	
2.12.4	3. Due to added waterstop at inlet by SM&RC, Moltz to include extra waterstop cost in change order.	Moltz
2.12.5	4. Additional cost to be included in change order for the concrete added around pier #2 as backfill.	Moltz
Section 13 <i>QA/QC Testing</i>		
1.13.4	1. SM&RC confirmed that the weld inspector only needed to be on site for the full circumferential welds and did not need to be on site during the tack welds to fit the pipe. Moltz to submit all weld and paint field QA/QC testing documentation.	Moltz
2.13.5	2. SM&RC to conduct independent thickness testing on pipe coatings.	SM&RC
3.13.6	3. Intermountain testing confirmed 100 % Magnetic Particle testing will be done on the finish joint along with 100% Ultrasonic testing.	FYI SM&RC
4.13.6	4. Moltz confirmed the pipe would be tented and heated if necessary prior too welding to maintain the required pipe material temperature during welding of 50 degrees F.	FYI SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

5.13.6	5. SM&RC confirmed too Intermountain testing that the circumferential welds did not need to be ground flat. Intermountain confirmed this would not impact their weld testing.	FYI SM&RC
6.13.7	6. SM&RC indicated they would like to be on site during the leak test.	FYI Moltz
7.13.7	7. Mountain Man is going to conduct a weld coupon test for the joints where pipe’s alignment is not within the code tolerance. SM&RC has already submitted documentation on the weld test geometry. Moltz indicated Northwest would be sending material to the site.	FYI Moltz FYI SM&RC FYI FLCC
Section 14Environmental Issues, Concerns and Reports		
1.14.7	1. No concerns were noted.	FYI SM&RC
Section 15Agency Reviews, Visits and Inspections		
1.15.2	1. The CWCB requested they receive notes of meetings	FYI SM&RC
2.15.2	2. SM&RC is to keep the CWCB informed on the installation schedule for the pipe so that they might have the opportunity to observe its installation.	
3.15.2	3. The CWCB will need to review all change orders.	
4.15.6	4. The CWCB (Derek Johnson) was on site on 12/15/2015.	FYI SM&RC
Section 16Health and Safety		
1.16.2	1. Moltz indicated that all visitors to the site notify them at their construction trailer before entering the work area. All visitors will be required to have work boots, florescent safety vest, ear protection and safety glasses on before entering the work area.	
2.16.2	2. SM&RC indicated that safety is extremely important and that all procedures will be required to be followed as required by Moltz.	
3.16.7	3. No safety issues were reported.	
Section 17Miscellaneous		
1.17.4	1. Moltz to collect concrete truck tickets at concrete pour and give to SM&RC.	Moltz

The next scheduled meeting will be on January 5th 2016 at 11:00 AM and will be located at the site.

Submitted By:

Jeff Blanchette
SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

**HORSE CREEK FLUME CONSTRUCTION PROJECT
BENT COUNTY, COLORADO
Meeting No. 8 (January 5, 2016)**

Moderator:	David Blanchette	SM&RC		
Attendees:	Name	Company	Name	Company
	Jerred Hoffman	FLCC	Derek Johnson	CWCB
	David Blanchette	SM&RC		
	Jeff Blanchette			
	Ken Tunstall	Moltz		
	Jeff Scmitt			

The meeting was held at the project site. The meeting started at 11:00 am and ended at 1:00 pm.

Topics of Discussion

Item No.	Discussion	Respondent or Action Needed By:
Section 1	Project Schedules	
1.1.8	1. Grading under the flume is to tentatively begin Thursday/Friday the 7 th & 8 th .	FYI SM&RC
2.1.8	2. The high strength concrete at the inlet is scheduled to be poured January 14 th and 19 th .	FYI SM&RC
3.1.7	3. The outlet wall is to be poured on Friday 1/15.	FYI SM&RC
4.1.8	4. Coblaco is scheduled to be on site 1/11 and will be there for approximately 3 weeks.	FYI SM&RC
5.1.7	5. The leak test is tentatively scheduled for the last week of January.	FYI SM&RC
6.1.8	6. The expansion joint is tentatively scheduled to be adjusted on Friday the 8 th .	FYI SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

Section 2 <i>Plans, Specification, Permits & Design Change Orders</i>		
1.2.4	1. Moltz stated an upstream coffer dam will not be put in place. Moltz to open sandout gate upstream in case of emergency flooding.	FYI SM&RC
2.2.6	2. Moltz indicated the 10 cubic yards of concrete placed as backfill around pier #2 provided about 2' of fill on three sides of the pier.	FYI SM&RC
3.2.7	3. After evaluating Moltz's coffer dam proposal for the leak test SM&RC indicated it would not be possible due to the additional load placed on the outlet structure. SM&RC indicated up to 8' of soil could be placed on the outlet slab and revised the required water height at the inlet to 5' down from the original 7'.	FYI Moltz FYI SM&RC
4.2.3	4. SM&RC indicated the welds between pipe sections did not need to be ground flat since the spiral pipe welds had not been ground flat. However, some minor grinding will be needed to clean the area up for the coating.	FYI Moltz FYI SM&RC
5.2.7	5. SM&RC & FLCC to further evaluate grading around pier 5 after Moltz conducts survey.	SM&RC FLCC Moltz
Section 3 <i>Submittals, and RFI's</i>		
1.3.3	1. SM&RC requested the as-builts of the pier/anchor bolt locations & elevations to verify they will matchup with the plans.	Moltz
2.3.8	2. SM&RC is to review grout submittal provided by Moltz. SM&RC noted the holes for the outlet pier anchor bolt relocation should be roughened prior to installation.	SM&RC FYI Moltz
Section 4 <i>Moltz - Subcontractors and Vendors</i>		
1.4.8	1. SM&RC to coordinate with northwest on interior paint thickness coating. Moltz is going to notify SM&RC after weld testing on Friday the 8 th to schedule thickness testing for the interior of the pipe coating.	SM&RC Moltz
Section 5 <i>Easements, R.O.W.'s and Property Issues</i>		
Section 6 <i>Access Roads, Staging Areas & Construction Traffic Patterns</i>		
1.6.1	1. The need to drive slow and careful on the access road to the site was reiterated.	
Section 7 <i>Flume Piping Installation</i>		
1.7.6	1. Moltz to recommend anti-seize for use around the support pins.	Moltz
2.7.8	2. Moltz indicated concerns about the expansion and contraction of the pipe on the outlet wall prior to the concrete gaining strength.	FYI SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

3.7.8	3. SM&RC indicated that the slide plates at the outlet slide support plates needed to be installed prior to placing the last pipe section.	FYI Moltz
Section 8 <i>Flume Concrete Support Installation</i>		
Section 9 <i>Existing Structure Demolition</i>		
1.9.4	1. Moltz to provide quote on constructing new trash rack at the outlet structure. FLCC to discuss with board.	Moltz FLCC
2.9.8	2. Demo on the upstream inlet slab to be completed by Friday the 8 th .	FYI Moltz FYI SM&RC
3.9.6	3. All demo of piers and the outlet structure concrete has been completed.	FYI SM&RC FYI Moltz
Section 10 <i>Inlet and Outlet Concrete Repairs</i>		
Section 11 <i>Coating of Flume Steel Piping</i>		
1.11.5	1. Moltz to provide photos to SM&RC of damages during pipe shipping. Further discussion will be needed to determine how Northwest Pipe will repair damage to the pipe coating. Moltz stated when moving pipe sections on site only pick points at the ends of the pipe are used.	Moltz
2.11.7	1. FLCC indicated some concerns about possible coating loss on the spiral weld profiles. SM&RC indicated the coating loss due to the silt load should not be any greater than the other portions of the pipe and that recoating of the pipe may be required on a regular basis (every 3-5 years).	FYI SM&RC FYI FLCC
Section 12 <i>Progress Payments & Change Orders</i>		
1.12.1	1. A change order for a deduction of \$4000 will be developed for the option of disposing of the demoed concrete on site for use by FLCC as riprap for the canal. The demoed concrete will be stored by the contractor near the laydown area for the project.	SM&RC/FLCC
2.12.3	2. Moltz indicated there may be some minor additional cost due to the change in waterstop which will be included in a future change order.	
2.12.4	3. Due to added waterstop at inlet by SM&RC, Moltz to include extra waterstop cost in change order.	Moltz
2.12.5	4. Additional cost to be included in change order for the concrete added around pier #2 as backfill.	Moltz
Section 13 <i>QA/QC Testing</i>		
1.13.4	1. SM&RC confirmed that the weld inspector only needed to be on site for the full circumferential welds and did not need to be on site during the tack welds to fit the pipe. Moltz to submit all weld and paint field QA/QC testing documentation.	Moltz
2.13.5	2. SM&RC to conduct independent thickness testing on pipe coatings.	SM&RC
3.13.6	3. Intermountain testing confirmed 100 % Magnetic Particle testing will be done on the finish joint along with 100% Ultrasonic testing.	FYI SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

4.13.6	4. Moltz confirmed the pipe would be tented and heated if necessary prior too welding to maintain the required pipe material temperature during welding of 50 degrees F.	FYI SM&RC
5.13.6	5. SM&RC confirmed too Intermountain testing that the circumferential welds did not need to be ground flat. Intermountain confirmed this would not impact their weld testing.	FYI SM&RC
6.13.7	6. SM&RC indicated they would like to be on site during the leak test.	FYI Moltz
7.13.8	7. Mountain Man is going to conduct a weld coupon test for the joints where pipe’s alignment is not within the code tolerance. SM&RC has already submitted documentation on the weld test geometry. Moltz indicated Northwest has provided the material for the coupon test. SM&RC requested Moltz provide photos of the test sample.	Moltz FYI SM&RC FYI FLCC
Section 14Environmental Issues, Concerns and Reports		
1.14.7	1. No concerns were noted.	FYI SM&RC
Section 15Agency Reviews, Visits and Inspections		
1.15.2	1. The CWCB requested they receive notes of meetings	FYI SM&RC
2.15.2	2. SM&RC is to keep the CWCB informed on the installation schedule for the pipe so that they might have the opportunity to observe its installation.	
3.15.2	3. The CWCB will need to review all change orders.	
Section 16Health and Safety		
1.16.2	1. Moltz indicated that all visitors to the site notify them at their construction trailer before entering the work area. All visitors will be required to have work boots, florescent safety vest, ear protection and safety glasses on before entering the work area.	
2.16.2	2. SM&RC indicated that safety is extremely important and that all procedures will be required to be followed as required by Moltz.	
3.16.7	3. No safety issues were reported.	
4.16.8	4. SM&RC requested no welding be done inside the pipe while Coblaco is applying the interior coating.	
Section 17Miscellaneous		
1.17.4	1. Moltz to collect concrete truck tickets at concrete pour and give to SM&RC.	Moltz

The next scheduled meeting will be on Tuesday January 12th 2016 at 11:00 AM and will be located at the site.

Submitted By:

Jeff Blanchette
SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

**HORSE CREEK FLUME CONSTRUCTION PROJECT
BENT COUNTY, COLORADO
Meeting No. 9 (January 12, 2016)**

Moderator:	David Blanchette	SM&RC		
Attendees:	Name	Company	Name	Company
	Jerred Hoffman	FLCC		
	David Blanchette	SM&RC		
	Jeff Blanchette			
	Ken Tunstall	Moltz		
	Jeff Scmitt			

The meeting was held at the project site. The meeting started at 11:00 am and ended at 1:00 pm.

Topics of Discussion

Item No.	Discussion	Respondent or Action Needed By:
Section 1	Project Schedules	
1.1.9	1. Grading under the flume is to tentatively begin the week of the 18th.	FYI SM&RC
2.1.9	2. The first placement for the high strength concrete at the inlet is scheduled for Wednesday 1/20.	FYI SM&RC
3.1.9	3. The outlet wall is to be poured on Tuesday 1/19.	FYI SM&RC
4.1.9	4. Coblaco is scheduled to be on site Monday 1/18 and will be there for approximately 3 weeks.	FYI SM&RC
5.1.9	5. The leak test is tentatively scheduled for the second week of February.	FYI SM&RC
6.1.9	6. Moltz indicated they would start demobing some equipment starting the week of the 18 th .	FYI SM&RC
7.1.9	7. Mountain Man welding is tentatively scheduled to be done welding the inside of the pipe on 1/13 and plans to finish up the outside by 1/15.	FYI SM&RC
8.1.9	8. Moltz indicated the earliest FLCC could potentially pass water is after February 12 th however it could be later than this depending on when the leak test occurs.	FYI SM&RC FYI FLCC
9.1.9	9. The top slab over the outlet wall is scheduled to be poured on the 21 st .	FYI SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

Section 2 <i>Plans, Specification, Permits & Design Change Orders</i>		
1.2.4	1. Moltz stated an upstream coffer dam will not be put in place. Moltz to open sandout gate upstream in case of emergency flooding.	FYI SM&RC
2.2.6	2. Moltz indicated the 10 cubic yards of concrete placed as backfill around pier #2 provided about 2' of fill on three sides of the pier.	FYI SM&RC
3.2.9	3. After evaluating Moltz's coffer dam proposal for the leak test SM&RC indicated it would not be possible due to the additional load placed on the outlet structure. SM&RC indicated up to 8' of soil could be placed on the outlet slab and revised the required water height at the inlet to 5' down from the original 7'. Moltz indicated they would be using a wood bulkhead to conduct the leak test.	FYI Moltz FYI SM&RC
4.2.3	4. SM&RC indicated the welds between pipe sections did not need to be ground flat since the spiral pipe welds had not been ground flat. However, some minor grinding will be needed to clean the area up for the coating.	FYI Moltz FYI SM&RC
5.2.7	5. SM&RC & FLCC to further evaluate grading around pier 5 after Moltz conducts survey.	SM&RC FLCC Moltz
Section 3 <i>Submittals, and RFI's</i>		
1.3.3	1. SM&RC requested the as-builts of the pier/anchor bolt locations & elevations to verify they will matchup with the plans.	Moltz
2.3.8	2. SM&RC is to review grout submittal provided by Moltz. SM&RC noted the holes for the outlet pier anchor bolt relocation should be roughened prior to installation.	SM&RC FYI Moltz
Section 4 <i>Moltz - Subcontractors and Vendors</i>		
1.4.8	1. SM&RC to coordinate with northwest on interior paint thickness coating. Moltz is going to notify SM&RC after weld testing on Friday the 8 th to schedule thickness testing for the interior of the pipe coating.	SM&RC Moltz
Section 5 <i>Easements, R.O.W.'s and Property Issues</i>		
Section 6 <i>Access Roads, Staging Areas & Construction Traffic Patterns</i>		
1.6.1	1. The need to drive slow and careful on the access road to the site was reiterated.	
Section 7 <i>Flume Piping Installation</i>		
1.7.9	1. Moltz indicated concerns about the expansion and contraction of the pipe on the outlet wall prior to the concrete gaining strength. SM&RC recommended	FYI SM&RC FYI Moltz

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

	Moltz heat the inside of the pipe for the first 72 hours after concrete placement and add an accelerator to the concrete mix when placing the outlet wall.	
2.7.9	2. Moltz indicated they would work with northwest to clean the strap marks that occurred during shipping off the pipe.	FYI SM&RC FYI FLCC
3.7.9	3. Due to large changes in temperature experienced throughout the year causing expansions/contraction some minor leakage may be present at the expansion joint over the summer. Moltz indicated that FLCC may have to tighten the bolts around the expansion joint at some point to stop this leakage.	FYI FLCC FYI SM&RC
Section 8 <i>Flume Concrete Support Installation</i>		
Section 9 <i>Existing Structure Demolition</i>		
1.9.9	1. FLCC indicated they would not have Moltz construct a new trash rack at the outlet.	FYI SM&RC FYI Moltz
2.9.9	2. Demo on the upstream inlet slab is still on going.	FYI Moltz FYI SM&RC
3.9.6	3. All demo of piers and the outlet structure concrete has been completed.	FYI SM&RC FYI Moltz
Section 10 <i>Inlet and Outlet Concrete Repairs</i>		
Section 11 <i>Coating of Flume Steel Piping</i>		
1.11.9	1. After meeting with Northwest Pipe & Coblaco, Northwest indicated they would be working with Coblaco to install outside coating where rust was showing along with other areas that were damaged during shipping. They also indicated they would be repairing some interior coating areas and would send their SSPC-PA 2 thickness test data gathered on 1/11/16 to SM&RC. Coblaco indicated this data confirmed their coating meets the specifications. SM&RC requested Moltz notify them when all interior coating is done so independent thickness testing can be done.	FYI SM&RC FYI FLCC Moltz
2.11.7	2. FLCC indicated some concerns about possible coating loss on the spiral weld profiles. SM&RC indicated the coating loss due to the silt load should not be any greater than the other portions of the pipe and that recoating of the pipe may be required on a regular basis (every 3-5 years).	FYI SM&RC FYI FLCC
3.11.9	3. SM&RC to verify the cure time of the interior coating being applied in the field with Tnemec.	SM&RC
Section 12 <i>Progress Payments & Change Orders</i>		
1.12.1	1. A change order for a deduction of \$4000 will be developed for the option of disposing of the demoed concrete on site for use by FLCC as riprap for the canal. The demoed concrete will be stored by the contractor near the laydown area for the project.	SM&RC/FLCC
2.12.3	2. Moltz indicated there may be some minor additional cost due to the change in waterstop which will be included in a future change order.	
2.12.4	3. Due to added waterstop at inlet by SM&RC, Moltz to include extra	Moltz

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

	waterstop cost in change order.	
2.12.5	4. Additional cost to be included in change order for the concrete added around pier #2 as backfill.	Moltz
Section 13 <i>QA/QC Testing</i>		
1.13.4	1. SM&RC confirmed that the weld inspector only needed to be on site for the full circumferential welds and did not need to be on site during the tack welds to fit the pipe. Moltz to submit all weld and paint field QA/QC testing documentation.	Moltz
2.13.5	2. SM&RC to conduct independent thickness testing on pipe coatings.	SM&RC
3.13.6	3. Intermountain testing confirmed 100 % Magnetic Particle testing will be done on the finish joint along with 100% Ultrasonic testing.	FYI SM&RC
4.13.6	4. Moltz confirmed the pipe would be tented and heated if necessary prior too welding to maintain the required pipe material temperature during welding of 50 degrees F.	FYI SM&RC
5.13.6	5. SM&RC confirmed too Intermountain testing that the circumferential welds did not need to be ground flat. Intermountain confirmed this would not impact their weld testing.	FYI SM&RC
6.13.7	6. SM&RC indicated they would like to be on site during the leak test.	FYI Moltz
7.13.9	7. Mountain Man is going to conduct a weld coupon test for the joints where pipe’s alignment is not within the code tolerance. SM&RC has already submitted documentation on the weld test geometry. Moltz indicated Northwest has provided the material for the coupon test. SM&RC requested Moltz provide photos of the test sample. Moltz indicated they would follow up with Mountain Man on the test results.	Moltz FYI SM&RC FYI FLCC
8.13.9	8. Moltz indicated all X-ray weld tests had pass up to this point.	FYI SM&RC
Section 14 <i>Environmental Issues, Concerns and Reports</i>		
1.14.7	1. No concerns were noted.	FYI SM&RC
Section 15 <i>Agency Reviews, Visits and Inspections</i>		
1.15.2	1. The CWCB requested they receive notes of meetings	FYI SM&RC
2.15.2	2. SM&RC is to keep the CWCB informed on the installation schedule for the pipe so that they might have the opportunity to observe its installation.	
3.15.2	3. The CWCB will need to review all change orders.	
Section 16 <i>Health and Safety</i>		
1.16.2	1. Moltz indicated that all visitors to the site notify them at their construction trailer before entering the work area. All visitors will be required to have work boots, florescent safety vest, ear protection and safety glasses on before entering the work area.	
2.16.2	2. SM&RC indicated that safety is extremely important and that all procedures will be required to be followed as required by Moltz.	
3.16.7	3. No safety issues were reported.	
4.16.8	4. SM&RC requested no welding be done inside the pipe while Coblaco is	

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

	applying the interior coating.	
<i>Section 17</i>	<i>Miscellaneous</i>	

The next scheduled meeting will be on Tuesday January 19th 2016 at 11:00 AM and will be located at the site.

Submitted By:

Jeff Blanchette
SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

**HORSE CREEK FLUME CONSTRUCTION PROJECT
BENT COUNTY, COLORADO
Meeting No. 10 (January 19, 2016)**

Moderator:	David Blanchette	SM&RC		
Attendees:	Name	Company	Name	Company
	Jerred Hoffman	FLCC		
	David Blanchette	SM&RC		
	Jeff Blanchette			
	Ken Tunstall	Moltz		

The meeting was held at the project site. The meeting started at 11:00 am and ended at 1:00 pm.

Topics of Discussion

Item No.	Discussion	Respondent or Action Needed By:
Section 1	Project Schedules	
1.1.10	1. Grading under the flume is to tentatively begin the week of the 25th.	FYI SM&RC
2.1.9	2. The first placement for the high strength concrete at the inlet is scheduled for Wednesday 1/20.	FYI SM&RC
3.1.10	3. The outlet wall is to be poured on Thursday 1/21.	FYI SM&RC
4.1.10	4. Coblaco is scheduled to be on site Monday 1/18 and will be there for approximately 3 weeks. Coblaco had begun sand blasting the interior joints.	FYI SM&RC
5.1.9	5. The leak test is tentatively scheduled for the second week of February.	FYI SM&RC
6.1.9	6. Moltz indicated they would start demobing some equipment starting the week of the 18 th .	FYI SM&RC
7.1.9	7. Moltz indicated they were planning on doing exterior painting prior to leaving site.	FYI SM&RC
8.1.9	8. Moltz indicated the earliest FLCC could potentially pass water is after February 12 th however it could be later than this depending on when the leak test occurs.	FYI SM&RC FYI FLCC
9.1.9	9. The top slab over the outlet wall is scheduled to be poured on the 21 st .	FYI SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

Section 2 <i>Plans, Specification, Permits & Design Change Orders</i>		
1.2.4	1. Moltz stated an upstream coffer dam will not be put in place. Moltz to open sandout gate upstream in case of emergency flooding.	FYI SM&RC
2.2.6	2. Moltz indicated the 10 cubic yards of concrete placed as backfill around pier #2 provided about 2' of fill on three sides of the pier.	FYI SM&RC
3.2.10	3. After evaluating Moltz's coffer dam proposal for the leak test SM&RC indicated it would not be possible due to the additional load placed on the outlet structure. SM&RC indicated up to 8' of soil could be placed on the outlet slab and revised the required water height at the inlet to 5' down from the original 7'. Moltz indicated they would be using a wood bulkhead to conduct the leak test. SM&RC to evaluate steel & wood bulkhead proposal.	FYI Moltz FYI SM&RC
4.2.3	4. SM&RC indicated the welds between pipe sections did not need to be ground flat since the spiral pipe welds had not been ground flat. However, some minor grinding will be needed to clean the area up for the coating.	FYI Moltz FYI SM&RC
5.2.7	5. SM&RC & FLCC to further evaluate grading around pier 5 after Moltz conducts survey.	SM&RC FLCC Moltz
Section 3 <i>Submittals, and RFI's</i>		
1.3.3	1. SM&RC requested the as-builts of the pier/anchor bolt locations & elevations to verify they will matchup with the plans.	Moltz
2.3.8	2. SM&RC is to review grout submittal provided by Moltz. SM&RC noted the holes for the outlet pier anchor bolt relocation should be roughened prior to installation.	SM&RC FYI Moltz
Section 4 <i>Moltz - Subcontractors and Vendors</i>		
1.4.8	1. SM&RC to coordinate with northwest on interior paint thickness coating. Moltz is going to notify SM&RC after weld testing on Friday the 8 th to schedule thickness testing for the interior of the pipe coating.	SM&RC Moltz
Section 5 <i>Easements, R.O.W.'s and Property Issues</i>		
Section 6 <i>Access Roads, Staging Areas & Construction Traffic Patterns</i>		
1.6.1	1. The need to drive slow and careful on the access road to the site was reiterated.	
Section 7 <i>Flume Piping Installation</i>		
1.7.10	1. Moltz indicated concerns about the expansion and contraction of the pipe on	FYI SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

	the outlet wall prior to the concrete gaining strength. SM&RC recommended Moltz heat the inside of the pipe for the first 72 hours after concrete placement and add an accelerator to the concrete mix when placing the outlet wall. Moltz has provided support to the embedded sleeve to hold it in place during placement.	FYI Moltz
2.7.9	2. Moltz indicated they would work with northwest to clean the strap marks that occurred during shipping off the pipe.	FYI SM&RC FYI FLCC
3.7.9	3. Due to large changes in temperature experienced throughout the year causing expansions/contraction some minor leakage may be present at the expansion joint over the summer. Moltz indicated that FLCC may have to tighten the bolts around the expansion joint at some point to stop this leakage.	FYI FLCC FYI SM&RC
Section 8 <i>Flume Concrete Support Installation</i>		
Section 9 <i>Existing Structure Demolition</i>		
1.9.9	1. FLCC indicated they would not have Moltz construct a new trash rack at the outlet.	FYI SM&RC FYI Moltz
2.9.9	2. Demo on the upstream inlet slab is still on going.	FYI Moltz FYI SM&RC
3.9.6	3. All demo of piers and the outlet structure concrete has been completed.	FYI SM&RC FYI Moltz
Section 10 <i>Inlet and Outlet Concrete Repairs</i>		
1.10.10	After the meeting SM&RC request the inlet slab be wetted for 24 hours and be cleaned prior to placing the overlay. Also the area next to the pipe may need to be roughened and some missing dowels added.	FYI SM&RC FYI Moltz
Section 11 <i>Coating of Flume Steel Piping</i>		
1.11.9	1. After meeting with Northwest Pipe & Coblaco, Northwest indicated they would be working with Coblaco to install outside coating where rust was showing along with other areas that were damaged during shipping. They also indicated they would be repairing some interior coating areas and would send their SSPC-PA 2 thickness test data gathered on 1/11/16 to SM&RC. Coblaco indicated this data confirmed their coating meets the specifications. SM&RC requested Moltz notify them when all interior coating is done so independent thickness testing can be done.	FYI SM&RC FYI FLCC Moltz
2.11.7	2. FLCC indicated some concerns about possible coating loss on the spiral weld profiles. SM&RC indicated the coating loss due to the silt load should not be any greater than the other portions of the pipe and that recoating of the pipe may be required on a regular basis (every 3-5 years).	FYI SM&RC FYI FLCC
3.11.10	3. SM&RC to verified the cure time of the interior coating at 55° F is 72 hours.	FYI SM&RC FYI Moltz
Section 12 <i>Progress Payments & Change Orders</i>		
1.12.1	1. A change order for a deduction of \$4000 will be developed for the option of disposing of the demoed concrete on site for use by FLCC as riprap for	SM&RC/FLCC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

	the canal. The demoed concrete will be stored by the contractor near the laydown area for the project.	
2.12.3	2. Moltz indicated there may be some minor additional cost due to the change in waterstop which will be included in a future change order.	
2.12.4	3. Due to added waterstop at inlet by SM&RC, Moltz to include extra waterstop cost in change order.	Moltz
2.12.5	4. Additional cost to be included in change order for the concrete added around pier #2 as backfill.	Moltz
Section 13 <i>QA/QC Testing</i>		
1.13.4	1. SM&RC confirmed that the weld inspector only needed to be on site for the full circumferential welds and did not need to be on site during the tack welds to fit the pipe. Moltz to submit all weld and paint field QA/QC testing documentation.	Moltz
2.13.5	2. SM&RC to conduct independent thickness testing on pipe coatings.	SM&RC
3.13.6	3. Intermountain testing confirmed 100 % Magnetic Particle testing will be done on the finish joint along with 100% Ultrasonic testing.	FYI SM&RC
4.13.6	4. Moltz confirmed the pipe would be tented and heated if necessary prior too welding to maintain the required pipe material temperature during welding of 50 degrees F.	FYI SM&RC
5.13.6	5. SM&RC confirmed too Intermountain testing that the circumferential welds did not need to be ground flat. Intermountain confirmed this would not impact their weld testing.	FYI SM&RC
6.13.7	6. SM&RC indicated they would like to be on site during the leak test.	FYI Moltz
7.13.9	7. Mountain Man is going to conduct a weld coupon test for the joints where pipe's alignment is not within the code tolerance. SM&RC has already submitted documentation on the weld test geometry. Moltz indicated Northwest has provided the material for the coupon test. SM&RC requested Moltz provide photos of the test sample. Moltz indicated they would follow up with Mountain Man on the test results.	Moltz FYI SM&RC FYI FLCC
8.13.9	8. Moltz indicated all X-ray weld tests had pass up to this point.	FYI SM&RC
9.13.10	9. Moltz confirmed Holiday testing would be performed by Coblaco on interior coating at the weld joints. All welding has been completed and tested with the exception of the hand rails.	FYI SM&RC
Section 14 <i>Environmental Issues, Concerns and Reports</i>		
1.14.7	1. No concerns were noted.	FYI SM&RC
Section 15 <i>Agency Reviews, Visits and Inspections</i>		
1.15.2	1. The CWCB requested they receive notes of meetings	FYI SM&RC
2.15.2	2. SM&RC is to keep the CWCB informed on the installation schedule for the pipe so that they might have the opportunity to observe its installation.	
3.15.2	3. The CWCB will need to review all change orders.	

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

Section 16		Health and Safety
1.16.2	1. Moltz indicated that all visitors to the site notify them at their construction trailer before entering the work area. All visitors will be required to have work boots, florescent safety vest, ear protection and safety glasses on before entering the work area.	
2.16.2	2. SM&RC indicated that safety is extremely important and that all procedures will be required to be followed as required by Moltz.	
3.16.7	3. No safety issues were reported.	
4.16.8	4. SM&RC requested no welding be done inside the pipe while Coblaco is applying the interior coating.	
Section 17		Miscellaneous

The next scheduled meeting will be on Tuesday January 26th 2016 at 10:00 AM and will be located at the site.

Submitted By:

Jeff Blanchette
SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

**HORSE CREEK FLUME CONSTRUCTION PROJECT
BENT COUNTY, COLORADO
Meeting No. 11 (January 26, 2016)**

Moderator:	David Blanchette	SM&RC		
Attendees:	Name	Company	Name	Company
	Jerred Hoffman	FLCC		
	David Blanchette	SM&RC		
	Jeff Blanchette			
	Jeff Schmitt	Moltz		
	Matt Huffington			

The meeting was held at the project site. The meeting started at 11:00 am and ended at 1:00 pm.

Topics of Discussion

Item No.	Discussion	Respondent or Action Needed By:
Section 1	Project Schedules	
1.1.10	1. Grading under the flume is to tentatively begin the week of the 25th.	FYI SM&RC
2.1.11	2. The leak test is tentatively scheduled for Tuesday 2/9/16.	FYI SM&RC
3.1.11	3. Moltz indicated they would work with FLCC to switch out the first section of pipe currently being used to provide flow for horse creek.	FYI SM&RC
4.1.11	4. Coblaco has begun coating the interior joints and is tentatively scheduled to be done by Friday 1/29/16.	FYI SM&RC
5.1.9	5. The leak test is tentatively scheduled for the second week of February.	FYI SM&RC
6.1.9	6. Moltz indicated they would start demobing some equipment starting the week of the 18 th .	FYI SM&RC
7.1.11	7. Moltz indicated they were planning on doing exterior painting prior to leaving site. This would be done after the water test has been completed.	FYI SM&RC
8.1.9	8. Moltz indicated the earliest FLCC could potentially pass water is after February 12 th however it could be later than this depending on when the leak test occurs.	FYI SM&RC FYI FLCC
9.1.11	9. The top slab over the outlet wall is scheduled to be poured on Thursday 1/28/16.	FYI SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

Section 2 Plans, Specification, Permits & Design Change Orders		
1.2.4	1. Moltz stated an upstream coffer dam will not be put in place. Moltz to open sandout gate upstream in case of emergency flooding.	FYI SM&RC
2.2.6	2. Moltz indicated the 10 cubic yards of concrete placed as backfill around pier #2 provided about 2' of fill on three sides of the pier.	FYI SM&RC
3.2.10	3. After evaluating Moltz's coffer dam proposal for the leak test SM&RC indicated it would not be possible due to the additional load placed on the outlet structure. SM&RC indicated up to 8' of soil could be placed on the outlet slab and revised the required water height at the inlet to 5' down from the original 7'. Moltz indicated they would be using a wood bulkhead to conduct the leak test. SM&RC to evaluate steel & wood bulkhead proposal.	FYI Moltz FYI SM&RC
4.2.3	4. SM&RC indicated the welds between pipe sections did not need to be ground flat since the spiral pipe welds had not been ground flat. However, some minor grinding will be needed to clean the area up for the coating.	FYI Moltz FYI SM&RC
5.2.7	5. SM&RC & FLCC to further evaluate grading around pier 5 after Moltz conducts survey.	SM&RC FLCC Moltz
Section 3 Submittals, and RFI's		
1.3.3	1. SM&RC requested the as-builts of the pier/anchor bolt locations & elevations to verify they will matchup with the plans.	Moltz
2.3.8	2. SM&RC is to review grout submittal provided by Moltz. SM&RC noted the holes for the outlet pier anchor bolt relocation should be roughened prior to installation.	SM&RC FYI Moltz
Section 4 Moltz - Subcontractors and Vendors		
1.4.8	1. SM&RC to coordinate with northwest on interior paint thickness coating. Moltz is going to notify SM&RC after weld testing on Friday the 8 th to schedule thickness testing for the interior of the pipe coating.	SM&RC Moltz
Section 5 Easements, R.O.W.'s and Property Issues		
Section 6 Access Roads, Staging Areas & Construction Traffic Patterns		
1.6.1	1. The need to drive slow and careful on the access road to the site was reiterated.	
Section 7 Flume Piping Installation		
1.7.10	1. Moltz indicated concerns about the expansion and contraction of the pipe on	FYI SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

	the outlet wall prior to the concrete gaining strength. SM&RC recommended Moltz heat the inside of the pipe for the first 72 hours after concrete placement and add an accelerator to the concrete mix when placing the outlet wall. Moltz has provided support to the embedded sleeve to hold it in place during placement.	FYI Moltz
2.7.9	2. Moltz indicated they would work with northwest to clean the strap marks that occurred during shipping off the pipe.	FYI SM&RC FYI FLCC
3.7.9	3. Due to large changes in temperature experienced throughout the year causing expansions/contraction some minor leakage may be present at the expansion joint over the summer. Moltz indicated that FLCC may have to tighten the bolts around the expansion joint at some point to stop this leakage.	FYI FLCC FYI SM&RC
Section 8 <i>Flume Concrete Support Installation</i>		
Section 9 <i>Existing Structure Demolition</i>		
1.9.11	1. FLCC indicated they would not have Moltz construct a new trash rack at the outlet. Moltz is to place old trash rack on after the leak test	FYI SM&RC FYI FLCC Moltz
2.9.11	2. Demo on the upstream inlet slab has been completed.	FYI Moltz FYI SM&RC
3.9.6	3. All demo of piers and the outlet structure concrete has been completed.	FYI SM&RC FYI Moltz
Section 10 <i>Inlet and Outlet Concrete Repairs</i>		
1.10.10	After the meeting SM&RC request the inlet slab be wetted for 24 hours and be cleaned prior to placing the overlay. Also the area next to the pipe may need to be roughened and some missing dowels added.	FYI SM&RC FYI Moltz
Section 11 <i>Coating of Flume Steel Piping</i>		
1.11.9	1. After meeting with Northwest Pipe & Coblaco, Northwest indicated they would be working with Coblaco to install outside coating where rust was showing along with other areas that were damaged during shipping. They also indicated they would be repairing some interior coating areas and would send their SSPC-PA 2 thickness test data gathered on 1/11/16 to SM&RC. Coblaco indicated this data confirmed their coating meets the specifications. SM&RC requested Moltz notify them when all interior coating is done so independent thickness testing can be done.	FYI SM&RC FYI FLCC Moltz
2.11.7	2. FLCC indicated some concerns about possible coating loss on the spiral weld profiles. SM&RC indicated the coating loss due to the silt load should not be any greater than the other portions of the pipe and that recoating of the pipe may be required on a regular basis (every 3-5 years).	FYI SM&RC FYI FLCC
3.11.10	3. SM&RC to verified the cure time of the interior coating at 55° F is 72 hours.	FYI SM&RC FYI Moltz
4.11.11	4. SM&RC requested Moltz try and place paint on the interior of the handrail near the drainage holes.	FYI SM&RC Moltz

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

Section 12			Progress Payments & Change Orders
1.12.1	1. A change order for a deduction of \$4000 will be developed for the option of disposing of the demoed concrete on site for use by FLCC as riprap for the canal. The demoed concrete will be stored by the contractor near the laydown area for the project.		SM&RC/FLCC
2.12.3	2. Moltz indicated there may be some minor additional cost due to the change in waterstop which will be included in a future change order.		
2.12.4	3. Due to added waterstop at inlet by SM&RC, Moltz to include extra waterstop cost in change order.		Moltz
2.12.5	4. Additional cost to be included in change order for the concrete added around pier #2 as backfill.		Moltz
Section 13			QA/QC Testing
1.13.4	1. SM&RC confirmed that the weld inspector only needed to be on site for the full circumferential welds and did not need to be on site during the tack welds to fit the pipe. Moltz to submit all weld and paint field QA/QC testing documentation.		Moltz
2.13.11	2. SM&RC to conduct independent thickness testing on pipe coatings. SM&RC requested Moltz notify them when Coblaco has finished the interior coating so they can conduct these tests prior to the leak test.		SM&RC Moltz
3.13.6	3. Intermountain testing confirmed 100 % Magnetic Particle testing will be done on the finish joint along with 100% Ultrasonic testing.		FYI SM&RC
4.13.6	4. Moltz confirmed the pipe would be tented and heated if necessary prior too welding to maintain the required pipe material temperature during welding of 50 degrees F.		FYI SM&RC
5.13.6	5. SM&RC confirmed too Intermountain testing that the circumferential welds did not need to be ground flat. Intermountain confirmed this would not impact their weld testing.		FYI SM&RC
6.13.7	6. SM&RC indicated they would like to be on site during the leak test.		FYI Moltz
7.13.11	7. Mountain Man is going to conduct a weld coupon test for the joints where pipe's alignment is not within the code tolerance. SM&RC has already submitted documentation on the weld test geometry. Moltz indicated Northwest has provided the material for the coupon test. SM&RC requested Moltz provide photos of the test sample. Moltz has provided SM&RC with the results		FYI Moltz FYI SM&RC FYI FLCC
8.13.9	8. Moltz indicated all X-ray weld tests had pass up to this point.		FYI SM&RC
9.13.10	9. Moltz confirmed Holiday testing would be performed by Coblaco on interior coating at the weld joints. All welding has been completed and tested with the exception of the hand rails.		FYI SM&RC

CONSTRUCTION MEETING MINUTES**Fort Lyon Canal Company**

Section 14 <i>Environmental Issues, Concerns and Reports</i>		
1.14.7	1. No concerns were noted.	FYI SM&RC
Section 15 <i>Agency Reviews, Visits and Inspections</i>		
1.15.2	1. The CWCB requested they receive notes of meetings	FYI SM&RC
2.15.2	2. SM&RC is to keep the CWCB informed on the installation schedule for the pipe so that they might have the opportunity to observe its installation.	
3.15.2	3. The CWCB will need to review all change orders.	
Section 16 <i>Health and Safety</i>		
1.16.2	1. Moltz indicated that all visitors to the site notify them at their construction trailer before entering the work area. All visitors will be required to have work boots, florescent safety vest, ear protection and safety glasses on before entering the work area.	
2.16.2	2. SM&RC indicated that safety is extremely important and that all procedures will be required to be followed as required by Moltz.	
3.16.7	3. No safety issues were reported.	
4.16.8	4. SM&RC requested no welding be done inside the pipe while Coblaco is applying the interior coating.	
Section 17 <i>Miscellaneous</i>		
1.17.11	1. SM&RC requested the concrete truck tickets from the inlet concrete placement.	Moltz
2.17.11	2. SM&RC indicated they would provide a punch list of items for Moltz finish prior to leaving the site.	SM&RC

There will be no meeting on Tuesday February 2nd 2016. SM&RC will provide an email notification with the time and date of the next construction meeting.

Submitted By:

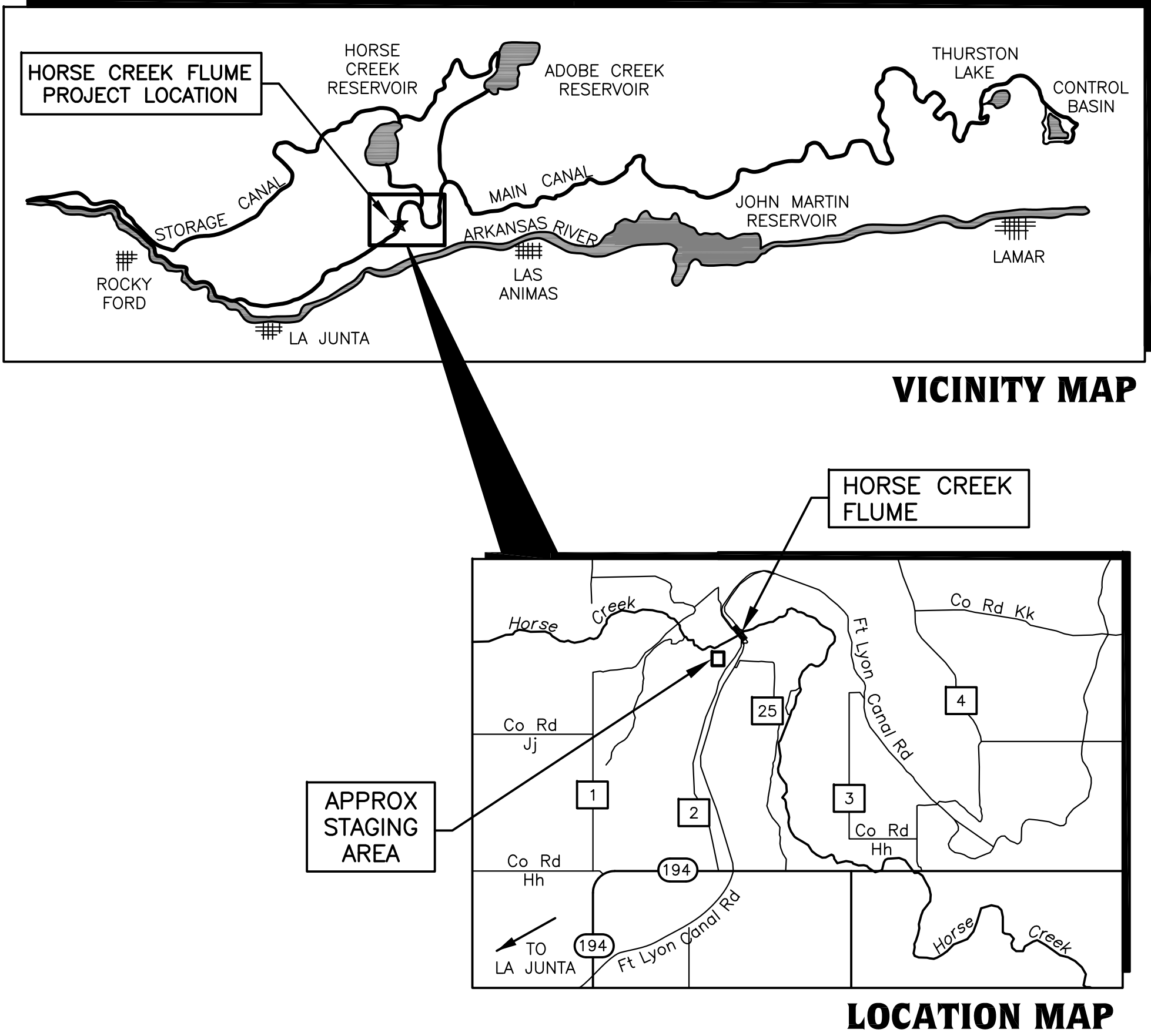
Jeff Blanchette
SM&RC

Appendix B

As-Built Construction Documents

HORSE CREEK FLUME REHABILITATION PROJECT CONSTRUCTION DRAWINGS

LAS ANIMAS, COLORADO
BENT COUNTY, COLORADO



ISSUED FOR CONSTRUCTION

DRAWING LIST – HORSE CREEK FLUME CONSTRUCTION DRAWINGS

SHEET NO.	DRAWING NO.	TITLE
1	–	COVER SHEET, VICINITY AND LOCATION MAPS AND DRAWING LIST
2	G–1	LEGEND, ABBREVIATIONS AND GENERAL NOTES
3	PG–1	OVERALL SITE PLAN
4	PG–2	SITE PLAN
5	PG–3	DEMOLITION – PIPE ELEVATION, INLET AND OUTLET PLANS
6	PG–4	GENERAL ARRANGEMENT AND MISCELLANEOUS DETAILS
7	PG–5	INLET STRUCTURE PLAN AND MISCELLANEOUS DETAILS
8	PG–6	INLET STRUCTURE SECTIONS
9	PG–7	INLET STRUCTURE SECTIONS AND DETAILS
10	PG–8	CONCRETE PIER NO. 2 PLANS AND SECTIONS
11	PG–9	CONCRETE PIER NO. 3, 4 & 5 PLANS AND SECTIONS
12	PG–10	OUTLET STRUCTURE PLAN AND SECTIONS
13	PG–11	OUTLET STRUCTURE SECTIONS AND DETAILS
14	PG–12	OUTLET STRUCTURE REINFORCEMENT PLAN AND DETAIL

ISSUED FOR FIELD INSTALLATION OF PIPE

DRAWING LIST – PIPE, STRUCTURAL STEEL AND MISCELLANEOUS STEEL DRAWINGS

SHEET NO.	DRAWING NO.	TITLE
1	–	COVER SHEET, VICINITY AND LOCATION MAPS AND DRAWING LIST
2	G–1	ABBREVIATIONS, LEGEND AND STRUCTURAL STEEL AND PIPE NOTES
3	PS–1	PIPE ELEVATION AND SUPPORT ELEVATION SR–2/BP–3 AND AND SB–1/BP–2/SR–3
4	PS–2	PIPE ELEVATIONS SB–2/BP–2/SR–3 AND DETAILS
5	PS–3	SUPPORT RING 2 (SR–2) DETAILS
6	PS–4	SUPPORT RING 3 (SR–3) DETAILS
7	PS–5	STEEL BENT SUPPORTS SB–1 AND SB–2 DETAILS
8	PS–6	SUPPORT DETAILS
9	PS–7	EXPANSION JOINT DETAILS
10	PS–8	PIPE PIECE MARK DETAILS
11	PS–9	HANDRAIL DETAILS

Prepared For:
FT LYON CANAL COMPANY

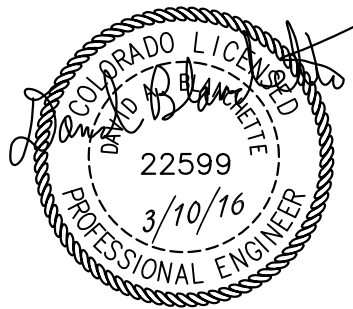
750 Bent Ave, Las Animas, CO 81054
(719) 456–0720

Prepared By:

SM&C

Structural Engineers Inc.

215 S. Wadsworth Blvd. Suite 320
Lakewood, CO 80226
ph 303.274.8656 fax 303.484.3777



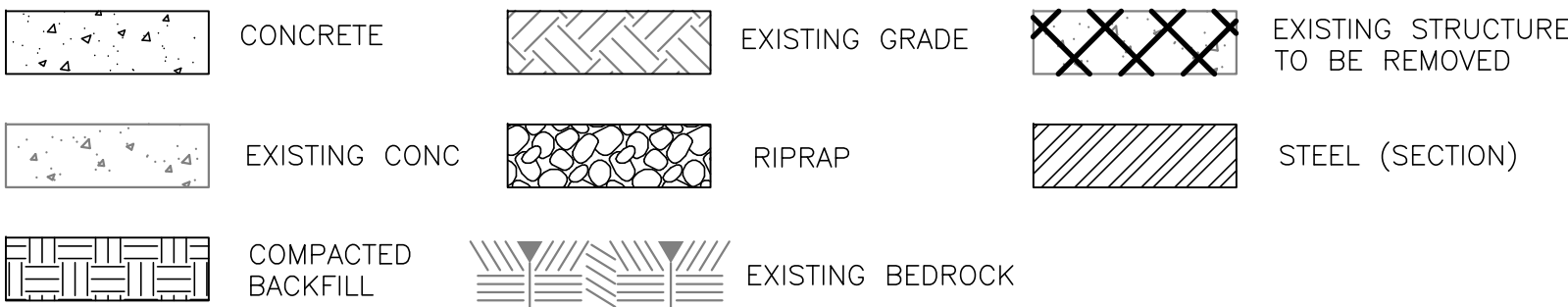
AS-BUILT DRAWINGS
3/10/16

Sheet 1 of 14

ABBREVIATIONS/LEGEND

NOT ALL ABBREVIATIONS MAY APPLY TO THIS PROJECT

AB	ANCHOR BOLT	NO.	NUMBER
ADDL	ADDITIONAL	NTS	NOT TO SCALE
APPROX	APPROXIMATE	OC	ON CENTER
B	BOTTOM	OD	OUTSIDE DIAMETER
BC	BOLT CIRCLE	OPNG	OPENING
BOT	BOTTOM	R/P	PLATE
BTWN	BETWEEN	PROJ	PROJECTION
CL	CENTERLINE	PLCS	PLACES
CJ	CONSTRUCTION JOINT	PS	PIPE STEEL
CLR	CLEAR	PSI	POUNDS PER SQUARE INCH
CONC	CONCRETE	R/RAD	RADIUS
CONT	CONTINUED/CONTINUOUS	REINF	REINFORCEMENT
CTR	CENTER	REQD	REQUIRED
DEMO	DEMOLITION	SB	STEEL BENT
DET	DETAIL	SCH	SCHEDULE
DIA	DIAMETER	SECT	SECTION
DWG	DRAWING	SIM	SIMILAR
DWLS	DOWELS	SQ	SQUARE
EA	EACH	SR	SUPPORT RING
EF	EACH FACE	SS	STAINLESS STEEL
EW	EACH WAY	STA	STATION
EL	ELEVATION	STD	STANDARD
EQ SP	EQUAL SPACE/EQUALLY SPACED	STL	STEEL
EXIST	EXISTING	SYM	SYMMETRICAL
EXP JT	EXPANSION JOINT	TOP	TOP
FL	FLOW LINE	T	TOP AND BOTTOM
GALV	GALVANIZED	T&B	THICKNESS
GR	GRADE	THRD	THREADED
ID	INSIDE DIAMETER	(TYP)	TYPICAL
IE	INVERT ELEVATION	UNO	UNLESS NOTED OTHERWISE
JTS	JOINTS	VERT	VERTICAL
MIN	MINIMUM	WS	WATERSTOP
MAX	MAXIMUM	W/	WITH



GENERAL NOTES

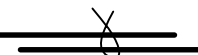
- CALL UTILITY NOTIFICATION CENTER OF COLORADO AT 1-800-922-1987 AT LEAST 48 HOURS BEFORE STRIPPING, OR EXCAVATING.
- THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FROM REGULATORY AUTHORITIES NECESSARY TO PERFORM THE PROPOSED WORK A MINIMUM OF 48 HOURS BEFORE THE START OF CONSTRUCTION.
- THE CONTRACTOR SHALL NOT SCALE DRAWINGS FOR CONSTRUCTION PURPOSES. ANY MISSING DIMENSIONS OR DISCREPANCIES IN THE DRAWINGS OR PHYSICAL FEATURES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION. IF THE CONTRACTOR PROCEEDS PRIOR TO OBTAINING THE ENGINEERS RESOLUTION, HE DOES SO AT HIS OWN RISK.
- OBSERVATIONS OF THE WORK IN PROGRESS AND ON-SITE VISITS BY THE ENGINEER OR OWNER ARE NOT TO BE CONSTRUED AS ACCEPTANCE OR WARRANTIES OF THE CONTRACTOR'S CONTRACTUAL OBLIGATIONS.
- CONSTRUCTION SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE ENGINEER IS NOT RESPONSIBLE FOR SAFETY IN, ON OR ABOUT THE PROJECT SITE, NOR FOR COMPLIANCE BY THE APPROPRIATE PARTY WITH ANY REGULATIONS RELATING THERETO.
- THE CONTRACTOR SHALL MAINTAIN A SET OF THE CONSTRUCTION DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES. ONE SET OF THE CONSTRUCTION DRAWINGS SHALL BE MAINTAINED SOLELY TO DOCUMENT ANY CHANGES IN THE WORK AS A RESULT OF CHANGE ORDERS OR FIELD CONDITIONS THAT MAY REQUIRE ALTERNATIVE CONSTRUCTION DETAILS. ALL SUCH CHANGES SHALL BE MARKED ON THE RECORD SET OF DRAWINGS IN PERMANENT INK.
- NOTIFY THE ENGINEER AT LEAST 48 HOURS IN ADVANCE OF ANY CONCRETE PLACEMENTS.
- CONCRETE TESTS FOR CONCRETE DELIVERED TO THE SITE SHALL BE PROVIDED BY THE OWNER.
- THE CONTRACTOR IS RESPONSIBLE FOR SURVEYS TO LAYOUT AND CONSTRUCT THE WORK, OR FOR QUANTITY DETERMINATIONS FOR UNIT PRICE ITEMS.
- ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE INTERNATIONAL BUILDING CODE, 2012 EDITION (I.B.C.) AS AMENDED BY THE STATE OF COLORADO AND LOCAL AGENCIES.
- ALL FOUNDATION SURFACES SHALL BE INSPECTED BY A SOILS ENGINEER PRIOR TO PLACEMENT OF REINFORCING STEEL. NOTIFY ENGINEER AT LEAST TWO DAYS IN ADVANCE.
- CONSTRUCTION SHORING AND BRACING OF FORMWORK SHALL BE IN ACCORDANCE WITH ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE" AND ACI 347R "GUIDE TO FORMWORK FOR CONCRETE".
- THE STRUCTURES SHOWN ON THE DRAWINGS HAVE BEEN DESIGNED FOR STABILITY UNDER FINAL CONDITIONS ONLY. THESE PLANS DO NOT INCLUDE THE NECESSARY COMPONENTS OR EQUIPMENT FOR THE STRUCTURES DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR ALL WORK RELATING TO CONSTRUCTION ERECTION METHODS, BRACING, SHORING, RIGGING, GUYS, SCAFFOLDING, FORMWORK, AND OTHER WORK AIDS REQUIRED TO SAFELY PERFORM THE WORK SHOWN.
- EXCAVATIONS SHALL BE SHORED AS REQUIRED TO PREVENT SUBSIDENCE OR DAMAGE TO ADJACENT EXISTING STRUCTURES, UTILITIES, SIDEWALKS ETC.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR CONCRETE REINFORCEMENT AND MISCELLANEOUS STEEL PRIOR TO FABRICATION.

CONCRETE NOTES

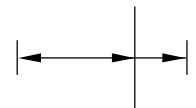
- ALL CONCRETE IS DESIGNED IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE, ACI 350 AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
- CONCRETE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 4500 PSI UNLESS NOTED OTHERWISE. CONCRETE USED FOR WALL AND SLAB REPAIRS AT INLET STRUCTURE SHALL BE TYPE BB.
- CONCRETE WORK SHALL CONFORM TO ACI 301.
- REINFORCEMENT STEEL SHALL BE DEFORMED BARS CONFORMING IN QUALITY TO THE REQUIREMENTS OF ASTM A-615, "SPECIFICATIONS FOR DEFORMED AND PLAIN CARBON-STEEL BARS FOR CONCRETE REINFORCEMENT", GRADE 60.
- ALL DETAILING, FABRICATION AND PLACING OF REINFORCING BARS, UNLESS OTHERWISE INDICATED, SHALL BE IN ACCORDANCE WITH ACI-315, "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", LATEST EDITION.
- CONSTRUCTION TOLERANCES SHALL BE IN ACCORDANCE WITH ACI 347
- METAL CLIPS OR SUPPORTS SHALL NOT BE PLACED IN CONTACT WITH THE FORMS OR THE SUBGRADE. CONCRETE BLOCKS (OR DOBIES) SUPPORTING BARS ON SUBGRADE SHALL BE IN SUFFICIENT NUMBERS TO SUPPORT THE BARS WITHOUT SETTLEMENT, BUT IN NO CASE SHALL SUCH SUPPORT BE CONTINUOUS.
- REINFORCING BARS AND ACCESSORIES SHALL NOT BE IN CONTACT WITH PIPE, PIPE FLANGE OR METAL PARTS EMBEDDED IN CONCRETE, A MINIMUM OF 2 INCHES CLEARANCE SHALL BE PROVIDED AT ALL TIMES.
- UNLESS OTHERWISE SHOWN ON THE DRAWINGS CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS:
 - FOR CONCRETE PLACED AGAINST EARTH: 3"
 - FOR CONCRETE FORMED BUT EXPOSED TO EARTH, WATER OR WEATHER: 2"
- UNLESS OTHERWISE NOTED, WALLS AND SLABS SHOWN WITH A SINGLE LAYER OF REINFORCEMENT SHALL HAVE THAT REINFORCEMENT CENTERED.
- PLACING OF CONCRETE SHALL CONFORM TO ACI 304R. HOT WEATHER CONCRETE SHALL BE PLACED PER ACI 305R. COLD WEATHER CONCRETE SHALL BE PLACED PER ACI 306R.

- ALL DIMENSIONS TO A JOINT ARE TO THE CENTERLINE OF THE JOINT.
- DIMENSIONS NOT SHOWN ARE THE SAME AS DIMENSIONS FOR IDENTICAL DETAILS SHOWN ELSEWHERE.
- BEFORE PLACING CONCRETE ON GRADE, CARE SHALL BE TAKEN THAT ALL BURIED MATERIAL BELOW GRADE IS IN PLACE.
- PIPE SLEEVES AND EMBEDDED PIPING 12" IN DIAMETER AND LARGER ARE ALWAYS SHOWN ON THE CONCRETE OUTLINE DRAWINGS. SMALLER DIAMETER PIPE SLEEVES OR PIPING MAY OR MAY NOT BE SHOWN ON THE CONCRETE OUTLINE DRAWINGS.
- CHAMFER EDGES OF PERMANENTLY EXPOSED CONCRETE SURFACES WITH A 45 DEGREE BEVEL, 3/4"x3/4".
- DRAWINGS ARE NOT TO BE SCALED FOR ESTIMATING OR ANY OTHER PURPOSE.
- ALL REINFORCEMENT BENDS AND LAPS, UNLESS OTHERWISE NOTED, SHALL SATISFY THE FOLLOWING MINIMUM REQUIREMENT:

DETAIL OF REINFORCEMENT – LAP LENGTHS								
BAR SIZE	#4	#5	#6	#7	#8	#9	#10	#11
CONCRETE DESIGN STRENGTH		4500 PSI						
GR 60	TOP BAR *	2'-6"	3'-2"	3'-9"	5'-6"	6'-4"	7'-1"	8'-0"
	OTHER BAR	1'-11"	2'-5"	2'-11"	4'-3"	4'-10"	5'-6"	6'-2"

- * TOP BARS SHALL BE DEFINED AS ANY HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12" FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE BAR, IN ANY SINGLE PLACEMENT. HORIZONTAL WALL BARS ARE CONSIDERED TOP BARS.
- WHEN SPICING BARS OF DIFFERENT SIZE, THE LENGTH OF LAP SHALL BE GOVERNED BY THE LARGER DIAMETER BAR.
 - NON-CONTACT LAP SPLICES SHALL NOT BE SPACED FARTHER APART THAN THE SMALLER OF ONE-FIFTH THE REQUIRED LENGTH OF LAP OR 6 INCHES.
 - SPLICES ARE TO BE MADE SO THAT THE GIVEN DISTANCES TO FACE OF CONCRETE WILL BE MAINTAINED.
 - DIMENSIONS ARE TO THE CENTERLINES OF THE BARS UNLESS SHOWN OTHERWISE.
 - REINFORCEMENT PARALLELING CONSTRUCTION JOINTS SHALL HAVE A MINIMUM OF 2" CLEAR COVER.
 - REINFORCEMENT AT SMALL OPENINGS (MAX 1'-6") IN WALLS AND SLABS MAY BE SPREAD APART NOT MORE THAN 1 1/2 TIMES THE BAR SPACING.
 - REINFORCEMENT MAY BE ADJUSTED Laterally TO MAINTAIN A CLEAR DISTANCE OF AT LEAST 1" BETWEEN THE REINFORCEMENT AND WATERSTOPS, ANCHOR BOLTS, FORM TIES, CONDUITS, AND OTHER EMBEDDED MATERIAL. IN HEAVILY REINFORCED AREAS RELOCATION OF THE EMBEDDED MATERIAL MUST BE CONSIDERED.
 - IN NO CASE SHOULD BARS BE FIELD BENT TO GREATER THAN 6 TO 1 SLOPE.
 - BARS SHOWN WITH BENDS NOT DIMENSIONED SHALL BE ASSUMED TO END WITH A STANDARD HOOK AS DEFINED IN ACI 318.
 - THE  SYMBOL DESIGNATES THE BAR CALLOUTS ARE THE SAME SIZE AND SPACING.

CONCRETE NOTES (CONT)

- REINFORCEMENT PARALLEL TO ANCHOR BOLTS OR OTHER EMBEDDED MATERIAL SHALL BE PLACED TO MAINTAIN A CLEAR DISTANCE OF AT LEAST 1-1/3 TIMES THE MAXIMUM SIZE AGGREGATE.
- THE FIRST AND LAST BARS IN WALLS AND SLABS, STIRRUPS IN BEAMS, AND TIES IN COLUMNS ARE TO START AND END AT A MAXIMUM OF ONE HALF OF THE ADJACENT BAR SPACING.
- BARS SHOWN THUS  #8@12, INDICATE A GROUP OF THE SAME SIZE BARS EQUALLY SPACED.
- DOWELS INDICATED ON THE DRAWINGS, SUCH AS #5 (DWL), SHALL HAVE AN EMBEDMENT EQUAL TO THE DEVELOPMENT LENGTH FOR TENSION REQUIRED BY ACI 318, AND A PROJECTION EQUAL TO THAT REQUIRED FOR LAP SPLICING A BAR OF THE SAME DIAMETER.
- SPLICES SHALL BE STAGGERED TO GIVE 12 INCHES CLEAR BETWEEN ENDS OF ADJACENT SPLICES, IF BARS ARE SPACED CLOSER THAN 6 INCHES OR 6 BAR DIAMETERS.
- EPOXY DOWELS SHALL BE HILTI HIT HY 200 OR APPROVED EQUAL, AND SHALL HAVE MINIMUM DRILLED EMBEDMENTS AS FOLLOWS, UNLESS NOTED OTHERWISE:

DRILLED EMBEDMENT DEPTHS FOR EPOXY DOWELS					
BAR SIZE	#4	#5	#6	#7	#8
MIN. DEPTH	4 1/2"	5 1/2"	6 1/2"	8"	9"

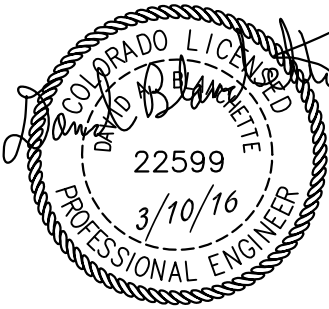
- AT ALL LOCATIONS WHERE NEW CONCRETE IS PLACED AGAINST EXISTING CONCRETE, EXISTING SURFACES SHALL BE CLEAN, FREE OF LOOSE CONCRETE AND ROUGHENED TO 1/4" AMPLITUDE, UNLESS NOTED OTHERWISE.
- DOWELS SHALL BE WIRED OR OTHERWISE HELD IN POSITION. THEY SHALL NOT BE SHOVED INTO FRESHLY PLACED CONCRETE.
- WATERSTOPS ARE TO BE MADE CONTINUOUS BY SPLICING AND CONNECTING TO OTHER WATERSTOPS AS RECOMMENDED BY THE MANUFACTURER.

STRUCTURAL STEEL AND MISCELLANEOUS METALS NOTES

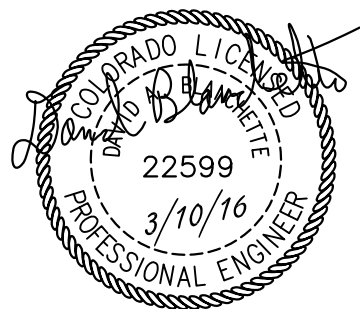
- ALL STRUCTURAL AND MISCELLANEOUS STEEL SHALL BE DESIGNED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST CODES AND SPECIFICATIONS OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) AND IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
- ALL BARS, PLATES AND ANGLES SHALL BE OF STEEL MEETING ASTM A36 SPECIFICATIONS UNLESS NOTED OTHERWISE. STRUCTURAL SHAPES SHALL CONFORM TO ASTM A992.
- WELDING OPERATORS AND PROCEDURES SHALL BE QUALIFIED UNDER SECTION IX OF THE ANSI/ASME BOILER AND PRESSURE VESSEL CODE OR UNDER AWS B2.1.
- ALL WELDS FOUND DEFECTIVE SHALL BE REPAIRED AND/OR REPLACED AND RETESTED FOR ADEQUACY AT THE CONTRACTOR'S EXPENSE.
- ALL MATERIAL SHALL BE FABRICATED STRAIGHT AND TRUE AND FREE FROM ALL TWISTS AND WARPS.
- POST AND HANDRAIL PIPE SHALL BE ASTM A53 GRADE B AND SHALL BE PAINTED AS SPECIFIED. WELD FILLER METAL FOR WELDING OF HANDRAIL AT INLET AND OUTLET STRUCTURES SHALL BE AWS A5.1 OR A5.5 E70XX SERIES ELECTRODES UNLESS NOTED OTHERWISE.
- ANCHOR BOLTS SHALL BE GALVANIZED AND CONFORM TO ASTM A307.

INLET STRUCTURE WALL AND SLAB REPAIR NOTES

- PRIOR TO DEMOLITION OF THE SLAB AND WALLS AT THE INLET STRUCTURE, THE CONTRACTOR SHALL PROVIDE BRACING FOR THE WEST WALL OF THE STRUCTURE AS REQUIRED SO THAT THE WALL IS STABLE DURING CONSTRUCTION OF THE PROPOSED REPAIRS. THE WALL BRACING SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER IN THE STATE OF COLORADO. THE CONTRACTOR SHALL SUBMIT STAMPED DRAWINGS OF THE BRACING TO THE ENGINEER. THE BRACING SHALL REMAIN IN PLACE UNTIL THE REPAIRS SHOWN ON THE DRAWINGS HAVE BEEN COMPLETED AND THE CONCRETE REACHED ITS SPECIFIED 28 DAY STRENGTH.
- THE EXISTING WALLS AND SLAB OF THE INLET STRUCTURE SHALL BE DEMOLISHED TO THE LIMITS SHOWN. CONCRETE REMOVAL TECHNIQUES SHALL NOT CAUSE MICROFRACTURED SURFACES. THE MAXIMUM SIZE OF JACK HAMMERS SHALL BE LIMITED TO 60 POUNDS DURING DEMOLITION. SUBMIT DEMOLITION METHODS TO ENGINEER FOR APPROVAL. THE EDGE OF THE CONCRETE REMOVAL SHALL BE MADE USING A 1 1/2" DEEP SAW CUT. MAINTAIN THIS EDGE UNDAMAGED DURING REMOVAL OF ADJACENT CONCRETE. ONCE THE DEMOLITION HAS BEEN COMPLETED, THE ENGINEER SHALL BE NOTIFIED TO INSPECT THE SURFACE OF THE CONCRETE FOR SOUNDNESS.
- IF REINFORCEMENT IS ENCOUNTER AND MORE THAN HALF OF THE DIAMETER OF THE BAR IS EXPOSED, THE CONTRACTOR SHALL CHIP OUT THE CONCRETE BEHIND IT TO A DEPTH OF NOT LESS THAN 1" IN PREPARATION FOR THE NEW CONCRETE PLACEMENT. THE EXISTING REINFORCEMENT SHALL NOT BE CUT OR DAMAGED AT ANY TIME.
- ALL CONCRETE SURFACES TO RECEIVE NEW CONCRETE SHALL BE ROUGHENED TO A 0.25" AMPLITUDE AND THOROUGHLY CLEANED WITH A HIGH PRESSURE WASH OF ALL DUST, LOOSE CONCRETE AND OTHER FOREIGN MATTER.MECHANICALLY CLEAN EXPOSED REINFORCEMENT TO REMOVE RUST OR OTHER CONTAMINANTS.
- THE MINIMUM TEMPERATURE OF THE CONCRETE SURFACE SHALL NOT BE LESS THAN 40° F PRIOR TO PLACEMENT OF NEW CONCRETE.
- SURFACES OF CONCRETE TO RECEIVE REPLACEMENT CONCRETE SHALL BE SATURATED WITH POTABLE WATER PRIOR TO PLACEMENT OF THE CONCRETE FOR 24 HOURS. MAINTENANCE OF THE PREPARED SURFACES SHALL BE DONE TO PREVENT THEM FROM FREEZING AND TO KEEP THEM IN A CLEAN SATURATED SURFACE DRY (SSD) CONDITION. NEXT BRUSH ON A 1/16-IN LAYER OF CEMENT AND WATER MIXED TO A CONSISTENCY OF A HEAVY PASTE. IMMEDIATELY AFTER APPLICATION OF THE CEMENT PASTE, PLACE NEW CONCRETE.
- CONCRETE PLACED ON THE SLAB AND WALLS SHALL BE A DENSE HIGH STRENGTH CONCRETE, TYPE 'BB' AS SPECIFIED AND HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 8000 PSI.
- SURFACE OF THE CONCRETE SHALL RECEIVE A FLOATED FINISH.
- NEW CONCRETE SHALL BE MOISTURE CURED FOR A MINIMUM OF 14 DAYS.

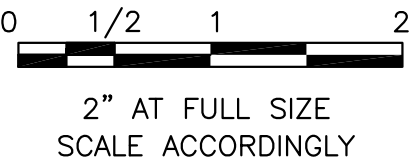


REVISIONS			<div><div><div>01/21</div><div>12</div><div>1</div><div>2</div></div><div>2" AT FULL SIZE SCALE ACCORDINGLY</div></div>	CONSULTANT: <div><div><div>SM&RC</div><div>Structural Engineers Inc.</div><div>215 S. Wadsworth Blvd., Suite 320 Lakewood, CO 80226</div><div>ph 303.274.8656 fax 303.484.3777</div></div></div>	CLIENT: <div><div><div>FT LYON CANAL COMPANY</div><div>750 Bent Ave, Las Animas, CO 81054 (719) 456-0720</div></div></div>	HORSE CREEK FLUME REHABILITATION PROJECT		SMRC PROJECT NO. FL-2015-01	DRAWING NO.
							LEGEND, ABBREVIATIONS AND GENERAL NOTES	DESIGN BY: JWI	G-1
								DRAWN BY: RC	
								CHECKED BY: DAB/JWI	
REV	DATE	DESCRIPTION				APPROV BY			
	3/10/16	AS-BUILT DRAWINGS		DAB					
	11/11/15	ISSUED FOR CONSTRUCTION		DAB					
	9/14/15	ISSUED FOR BID		DAB					



- NOTES:
1. FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES SEE G-1.
 2. LOAD RATING FOR TRAFFIC ON DIVERSION STRUCTURE AND BRIDGE IS UNKNOWN. MEANS AND METHODS FOR GETTING EQUIPMENT, MATERIALS AND OTHER CONSTRUCTION RELATED ITEMS SAFELY ACROSS THESE STRUCTURES WITHOUT DAMAGING THEM IS THE RESPONSIBILITY OF THE CONTRACTOR.
 3. SOME OF THE AREAS IN THE VICINITY OF THE CONSTRUCTION SITE ARE OPEN RANGE. LIVESTOCK MAY BE PRESENT ON THE ROADS AT TIMES. CAUTION AND SLOW SPEEDS ARE RECOMMENDED.
 4. CONTRACTOR SHALL KEEP FORT LYON CANAL ROAD, BRIDGE AND DIVERSION STRUCTURE OPEN AT ALL TIMES FOR LOCAL LAND OWNER.
 5. ACCESS FOR CONTRACTOR TO WORK SITE SHALL BE ALONG COUNTY ROAD 2.

REVISIONS			
3/10/16	AS-BUILT DRAWINGS	DAB	
11/11/15	ISSUED FOR CONSTRUCTION	DAB	
9/25/15	ADDENDUM No. 2	DAB	
9/14/15	ISSUED FOR BID	DAB	
REV	DATE	DESCRIPTION	APPROVED BY



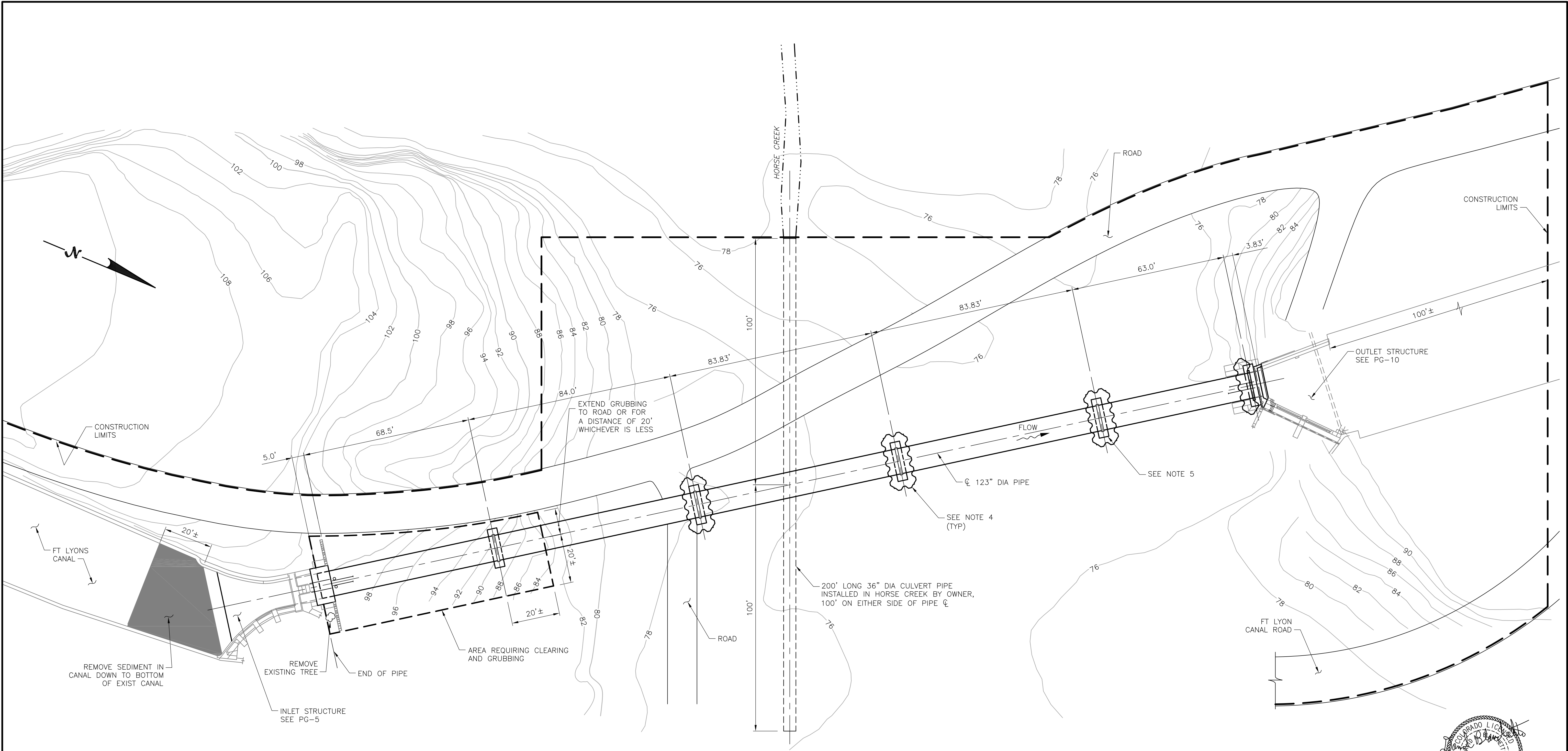
CONSULTANT:

SM&C
Structural Engineers Inc.
215 S. Wadsworth Blvd., ph 303.274.8656
Suite 320 Lakewood, CO 80226 fax 303.484.3777

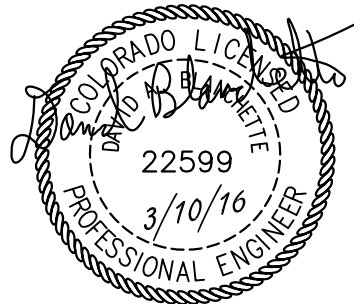
CLIENT:

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CANAL COMPANY**
750 Bent Ave, Las Animas, CO 81054
(719) 456-0720

HORSE CREEK FLUME REHABILITATION PROJECT		SMRC PROJECT NO. FL-2015-01	DRAWING NO.
OVERALL SITE PLAN		DESIGN BY: JWI	PG-1
		DRAWN BY: RC	
		CHECKED BY: DAB/JWI	SHEET: 3 OF 14



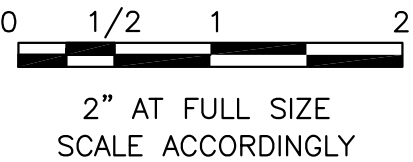
PLAN
SCALE: 1"=20'



NOTES:

- FOR LEGEND, ABBREVIATIONS AND NOTES SEE G-1.
- CONTOURS COME FROM EXISTING DRAWING 1978-C, FIELD VERIFY PRIOR TO CONSTRUCTION.
- PROVIDE STEEL SHEETING, SHORING OR OTHER MEANS AND METHODS TO DEWATER AREA AROUND EXISTING CONCRETE PIERS AND OUTLET STRUCTURE SO THAT THE PROPOSED REPAIRS CAN BE CONSTRUCTED IN DRY CONDITIONS.
- CONCRETE PIER NO. 5 HAS APPROXIMATELY 3'-9" OF FILL ON TOP OF IT. PROVIDE REGRADING AROUND PIER AFTER REPAIRS HAVE BEEN MADE AS REQUIRED. MAXIMUM EARTHEN SLOPES SHALL BE 2 HORIZONTAL : 1 VERTICAL.
- CONTRACTOR SHALL KEEP OPEN AT ALL TIMES THE ACCESS ROAD AND THE FORT LYON CANAL ROAD FOR ACCESS BY THE LOCAL LANDOWNER..

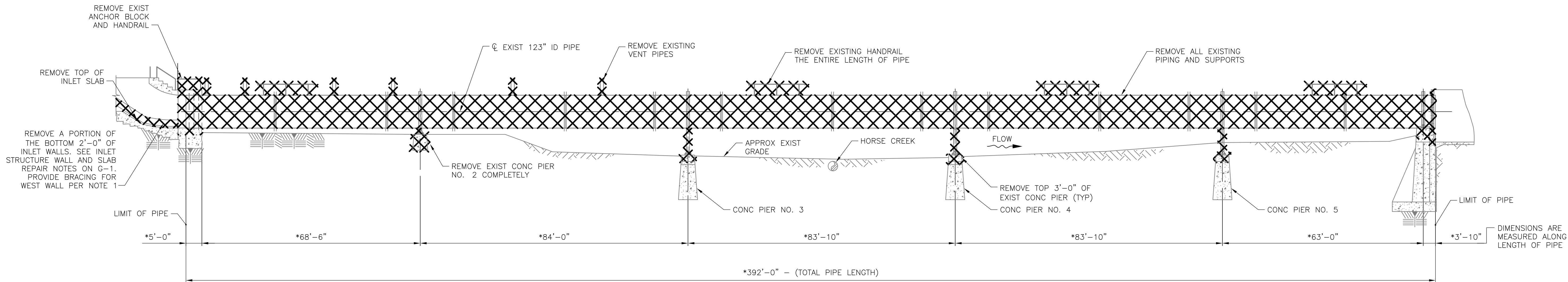
REVISIONS			
3/10/16	AS-BUILT DRAWINGS	DAB	
11/11/15	ISSUED FOR CONSTRUCTION	DAB	
9/25/15	ADDENDUM No. 2	DAB	
9/14/15	ISSUED FOR BID	DAB	
REV	DATE	DESCRIPTION	APPROVED BY



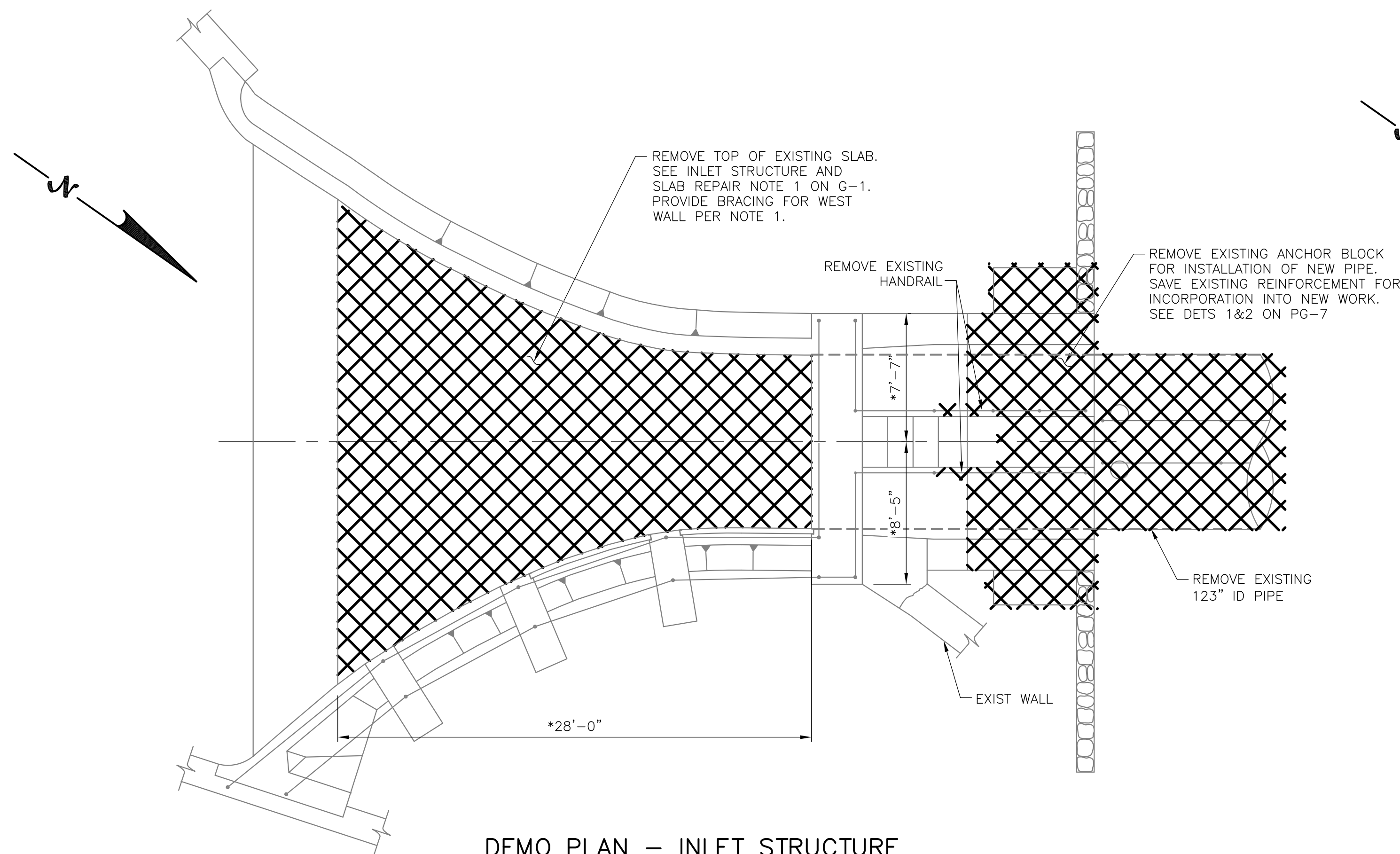
CONSULTANT:
SM&C
Structural Engineers Inc.
215 S. Wadsworth Blvd., ph 303.274.8656
Suite 320 Lakewood, CO 80226 fax 303.484.3777

CLIENT:
**FT LYON
CANAL COMPANY**
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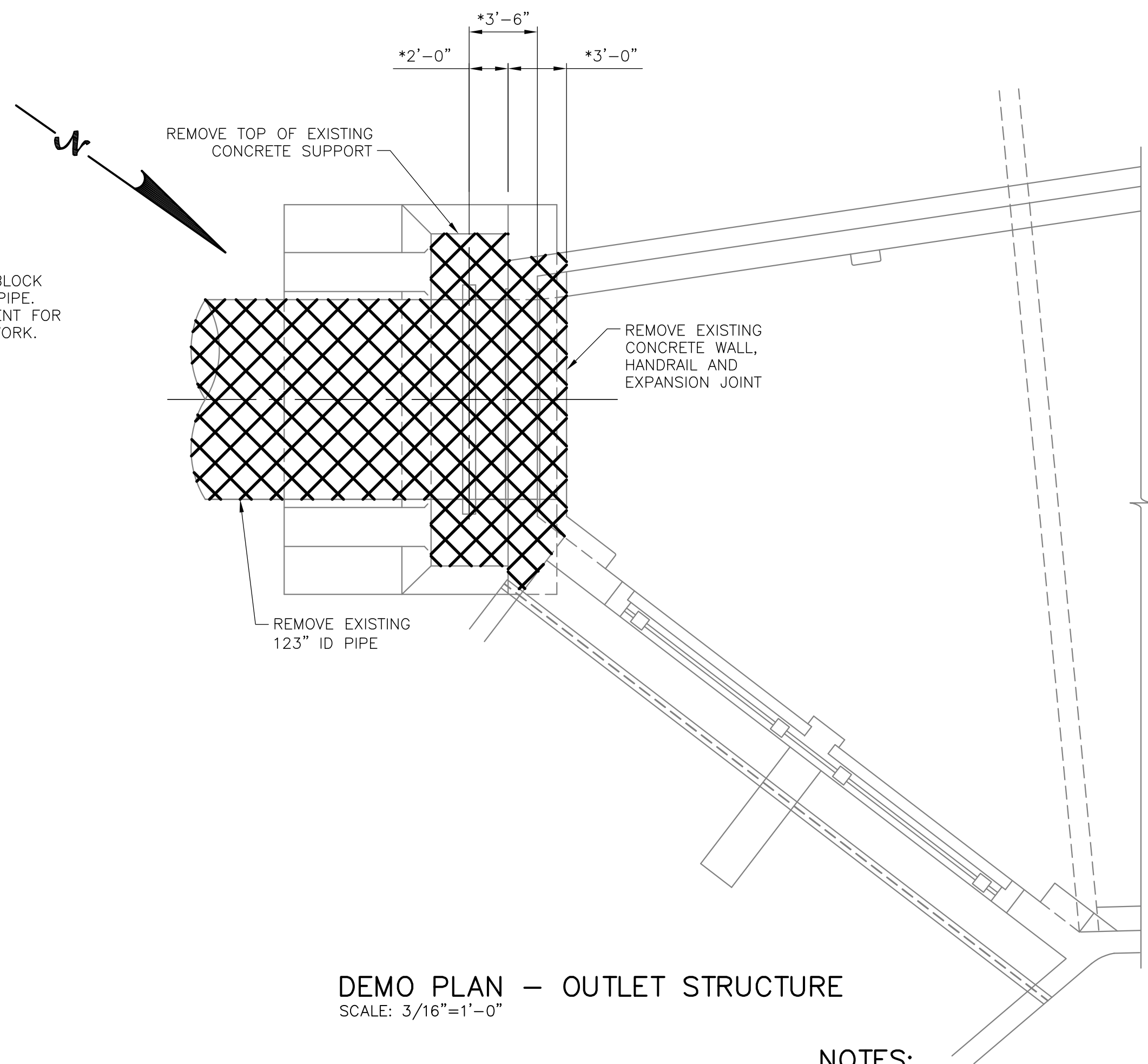
HORSE CREEK FLUME REHABILITATION PROJECT		SMRC PROJECT NO. FL-2015-01	DRAWING NO. PG-2
SITE PLAN		DESIGN BY: JWI	
		DRAWN BY: RC	
		CHECKED BY: DAB/JWI	SHEET: 4 OF 14



DEMO — ELEVATION
SCALE: 1/16"=1'-0"



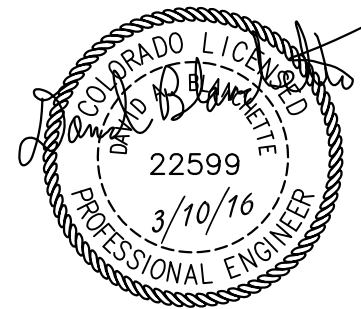
DEMO PLAN — INLET STRUCTURE
SCALE: 3/16"=1'-0"



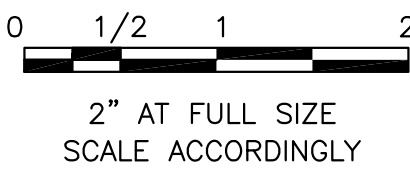
DEMO PLAN — OUTLET STRUCTURE
SCALE: 3/16"=1'-0"

NOTES:

- FOR LEGEND AND ABBREVIATIONS AND GENERAL NOTES SEE G-1.
- * DENOTES INFORMATION ON EXISTING FLOW LINE. FIELD VERIFY PRIOR TO CONSTRUCTION.
- A LEAD TEST KIT INDICATED THAT THE PAINT FOR THE EXISTING PIPE, STRUCTURAL STEEL SUPPORTS AND OTHER MISCELLANEOUS METALS TO BE DEMOLISHED HAS LEAD BASED PAINT. SEE SPECIFICATION SECTION 02410.



REVISIONS			
REV	DATE	DESCRIPTION	APPROVED BY
	3/10/16	AS-BUILT DRAWINGS	DAB
	11/11/15	ISSUED FOR CONSTRUCTION	DAB
	9/14/15	ISSUED FOR BID	DAB



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Lakewood, CO 80226

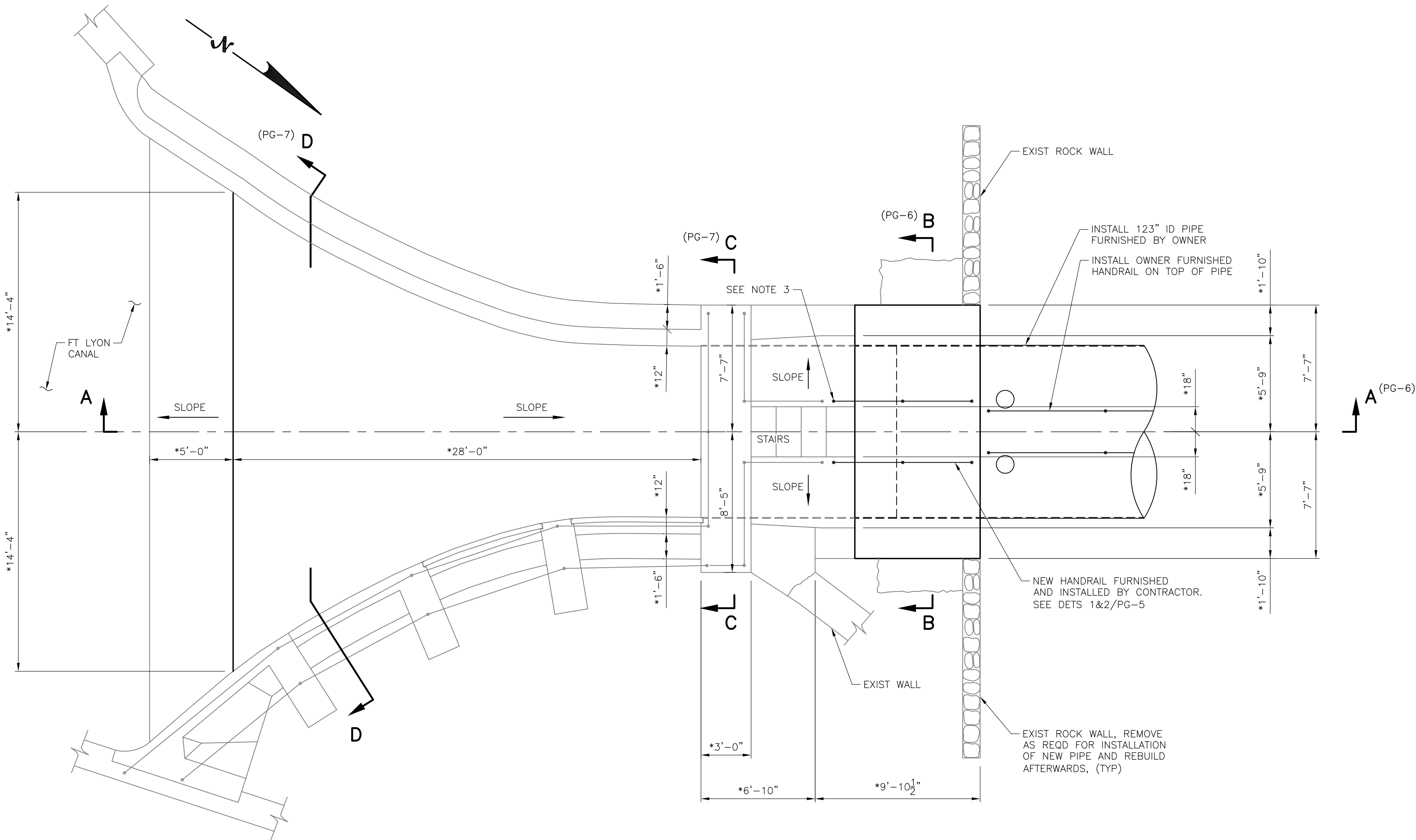
ph 303.274.8656
fax 303.484.3777

CLIENT:

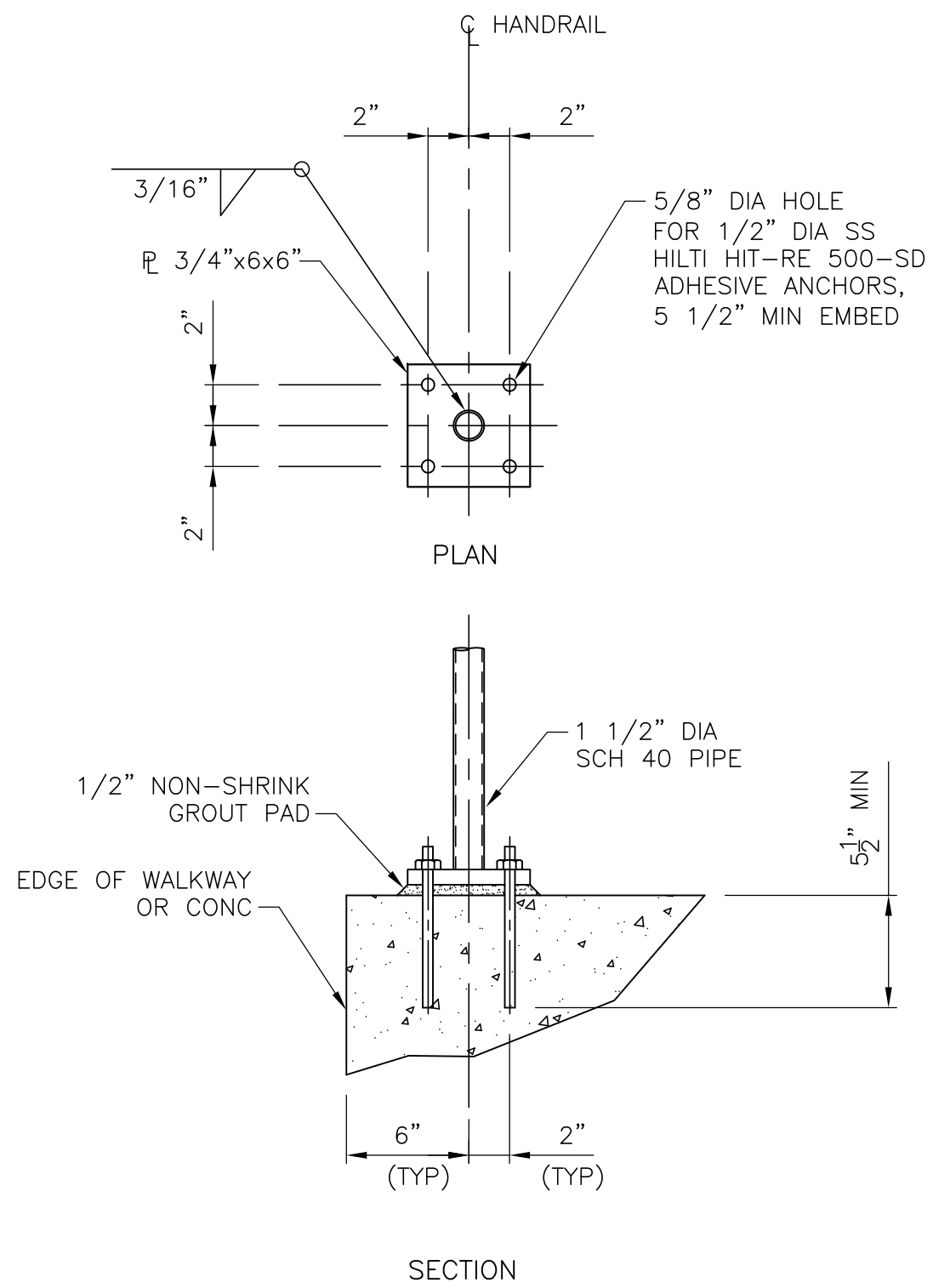
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(719) 456-0720

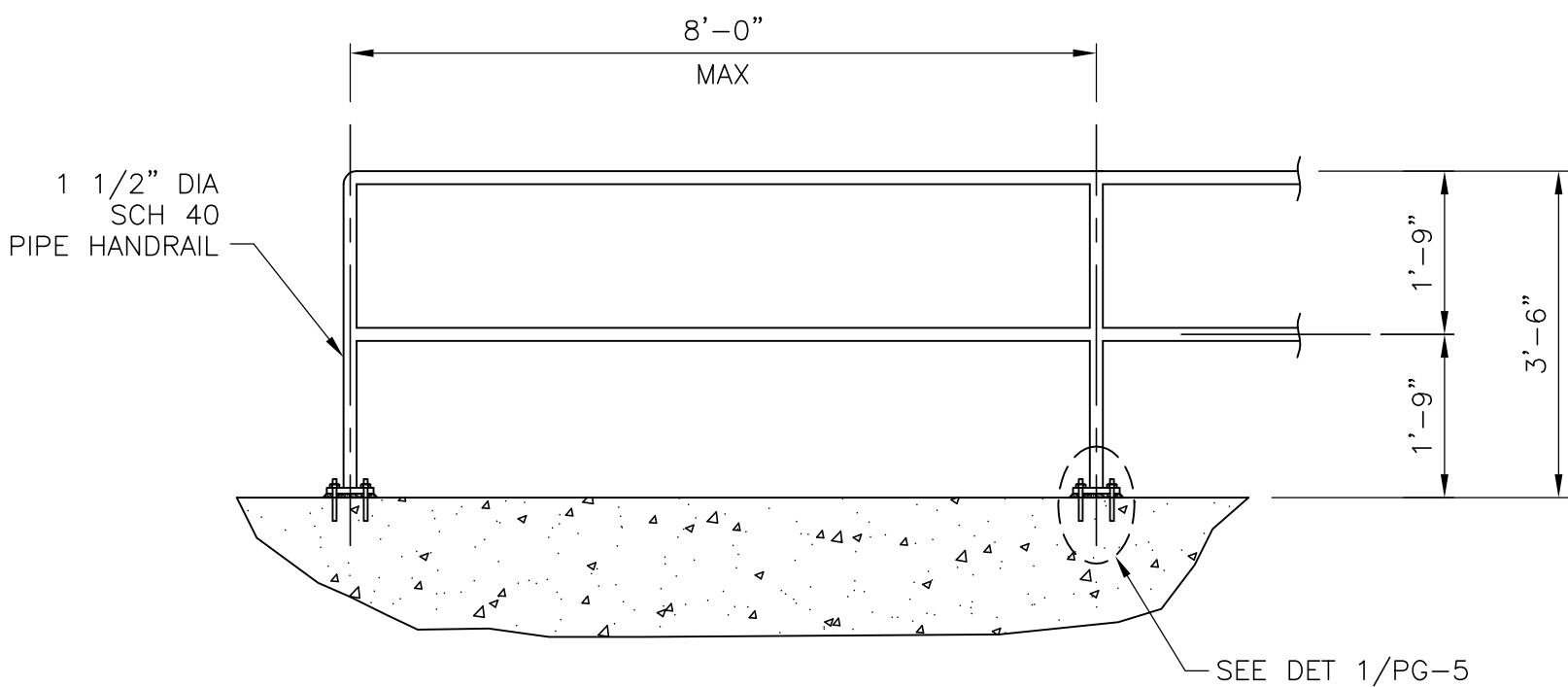
HORSE CREEK FLUME REHABILITATION PROJECT		SMRC PROJECT NO. FL-2015-01	DRAWING NO. PG-3
DEMOLITION — PIPE ELEVATION, INLET AND OUTLET STRUCTURE PLANS		DESIGN BY: JWI	
		DRAWN BY: RC	
		CHECKED BY: DAB/JWI	SHEET: 5 OF 14



PLAN — INLET STRUCTURE
SCALE: 1/4"=1'-0"



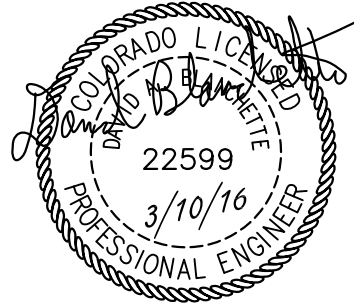
DETAIL 1 — HANDRAIL
SCALE: 1 1/2" = 1'-0"



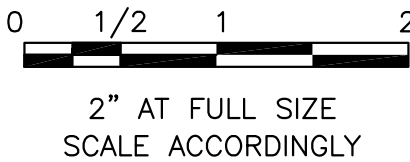
DETAIL 2 — HANDRAIL ELEVATION
SCALE: 1/2" = 1'-0"

NOTES:

- FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES SEE G-1.
- * DENOTES DIMENSION, ELEVATION OR OTHER INFORMATION TAKEN FROM EXISTING AS-BUILT CONSTRUCTION DRAWINGS. FIELD VERIFY PRIOR TO CONSTRUCTION.
- AT POST ON SLOPED SURFACE, PROVIDE CONNECTION DETAIL SIMILAR TO DETAIL 1 WITH A SKEWED PLATE OR PROPOSE AN ALTERNATIVE CONNECTION DETAIL.



REVISIONS			
REV	DATE	DESCRIPTION	APPROVED BY



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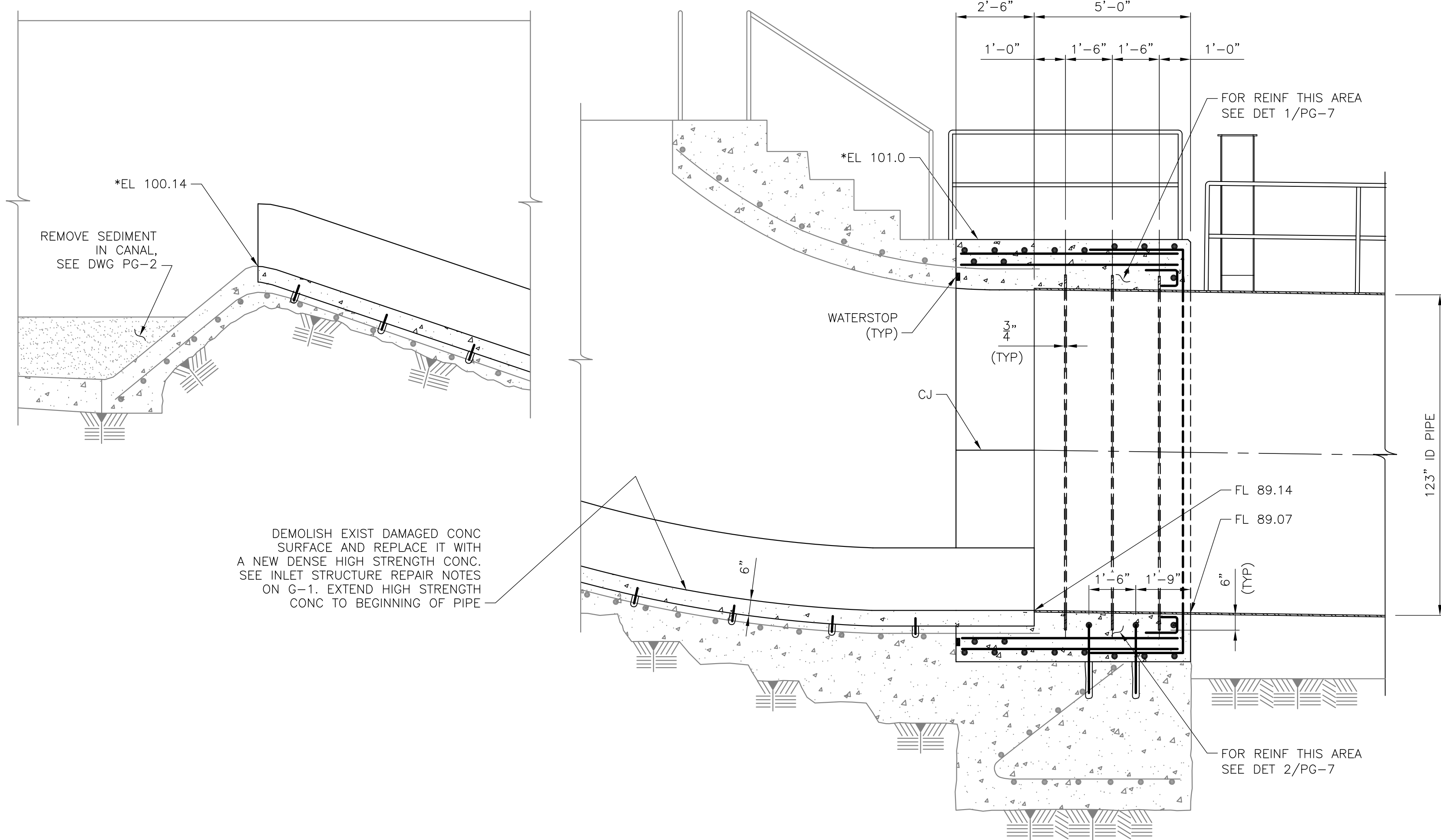
CLIENT:
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CANAL COMPANY
750 Bent Ave, Las Animas, CO 81054
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HORSE CREEK FLUME REHABILITATION PROJECT

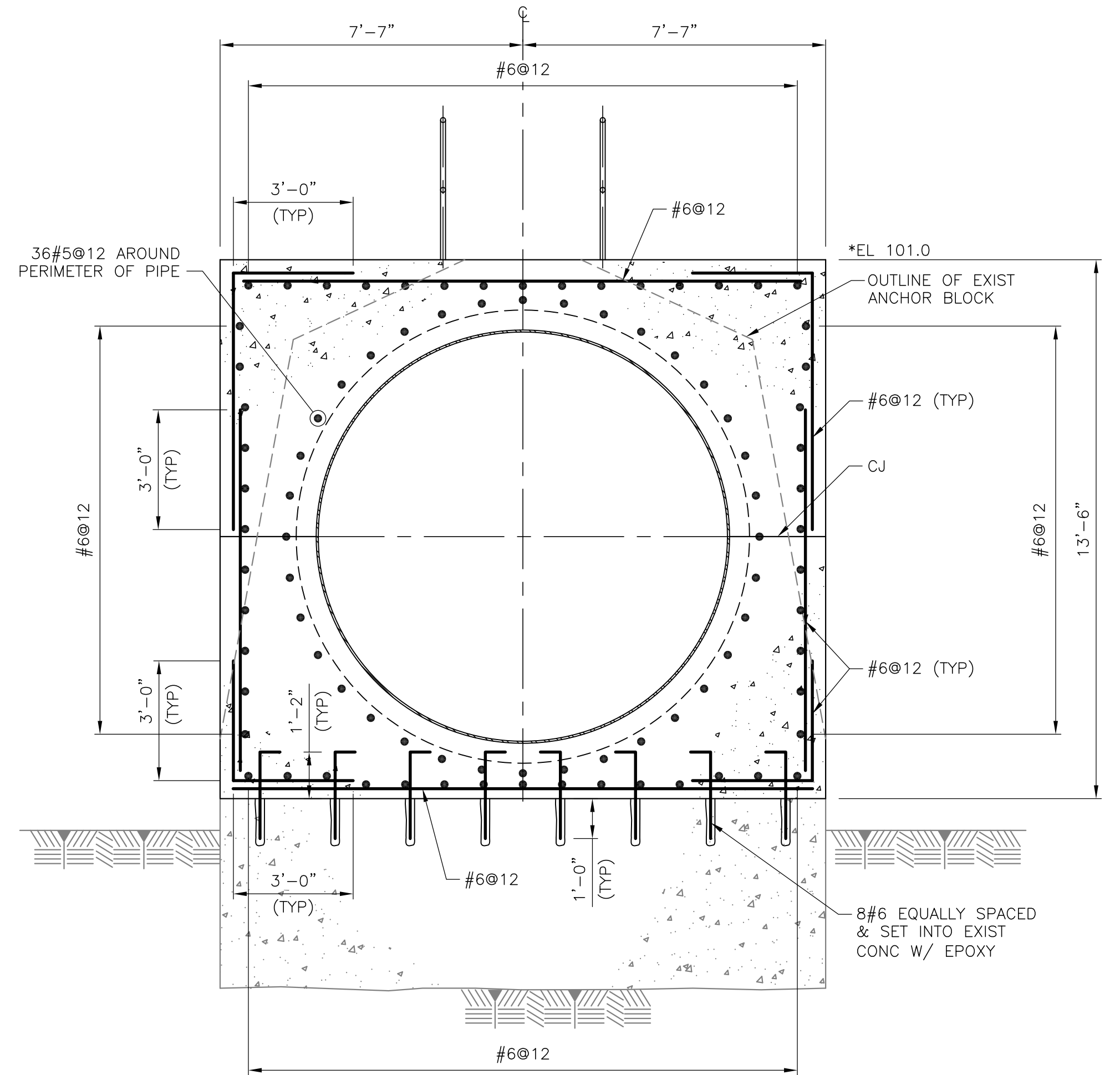
INLET STRUCTURE PLAN
AND MISCELLANEOUS DETAILS

SMRC PROJECT NO.
FL-2015-01
DESIGN BY:
JWI
DRAWN BY:
RC
CHECKED BY:
DAB/JWI

DRAWING NO.
PG-5
SHEET:
7 OF 14



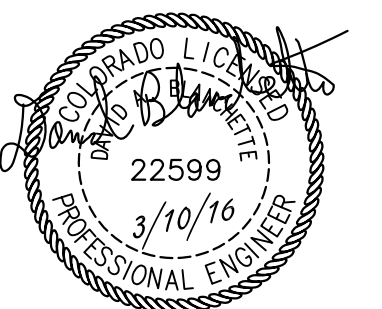
SECTION A-A (PG-5)
SCALE: 3/8"=1'-0"



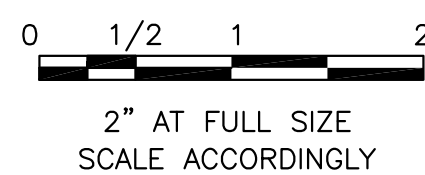
SECTION B-B (PG-5)
SCALE: 3/8"=1'-0"

NOTES:

1. FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES SEE G-1.
2. * DENOTES DIMENSION, ELEVATION OR OTHER INFORMATION TAKEN FROM EXISTING AS-BUILT CONSTRUCTION DRAWINGS. FIELD VERIFY PRIOR TO CONSTRUCTION.



REVISIONS			
REV	DATE	DESCRIPTION	APPROVED BY

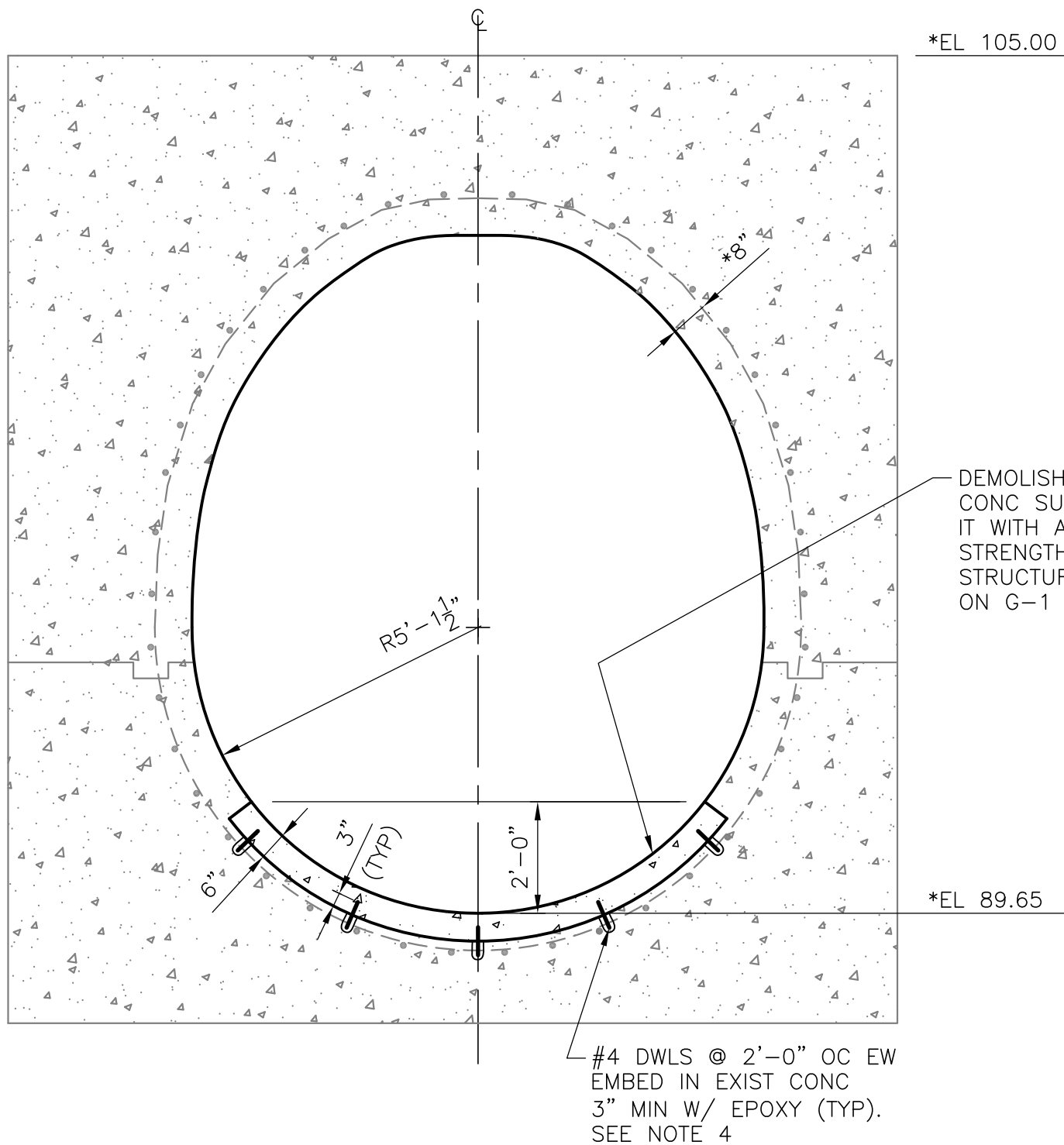


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Lakewood, CO 80226
ph 303.274.8656 fax 303.484.3777

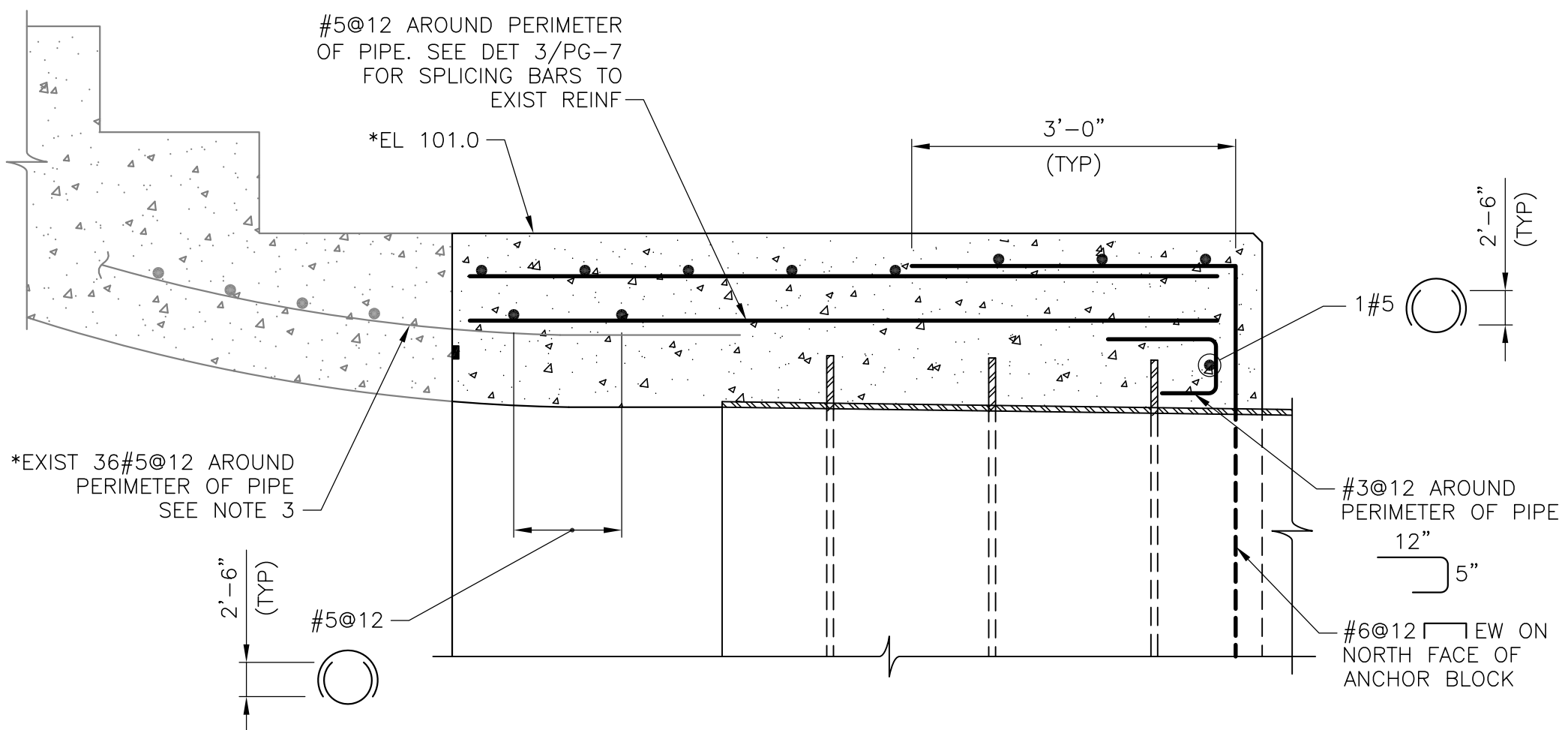
CLIENT:
**FT LYON
CANAL COMPANY**
750 Bent Ave, Las Animas, CO 81054
(719) 456-0720

HORSE CREEK FLUME REHABILITATION PROJECT
**INLET STRUCTURE
SECTIONS**

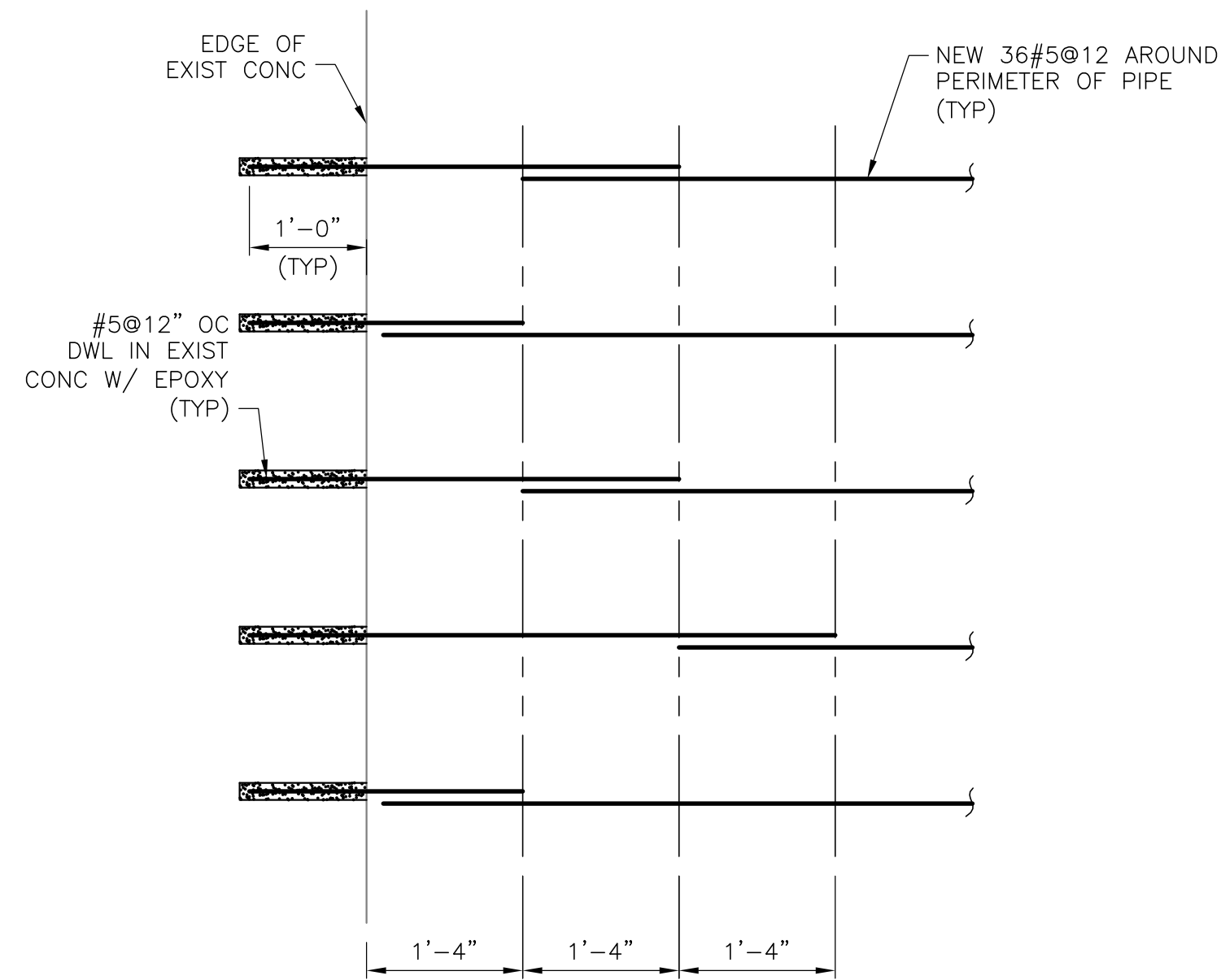
SMRC PROJECT NO.
FL-2015-01
DESIGN BY:
JWI
DRAWN BY:
RC
CHECKED BY:
DAB/JWI
DRAWING NO.
PG-6
SHEET:
8 OF **14**



SECTION C-C (PG-5)
SCALE: 3/8"=1'-0"

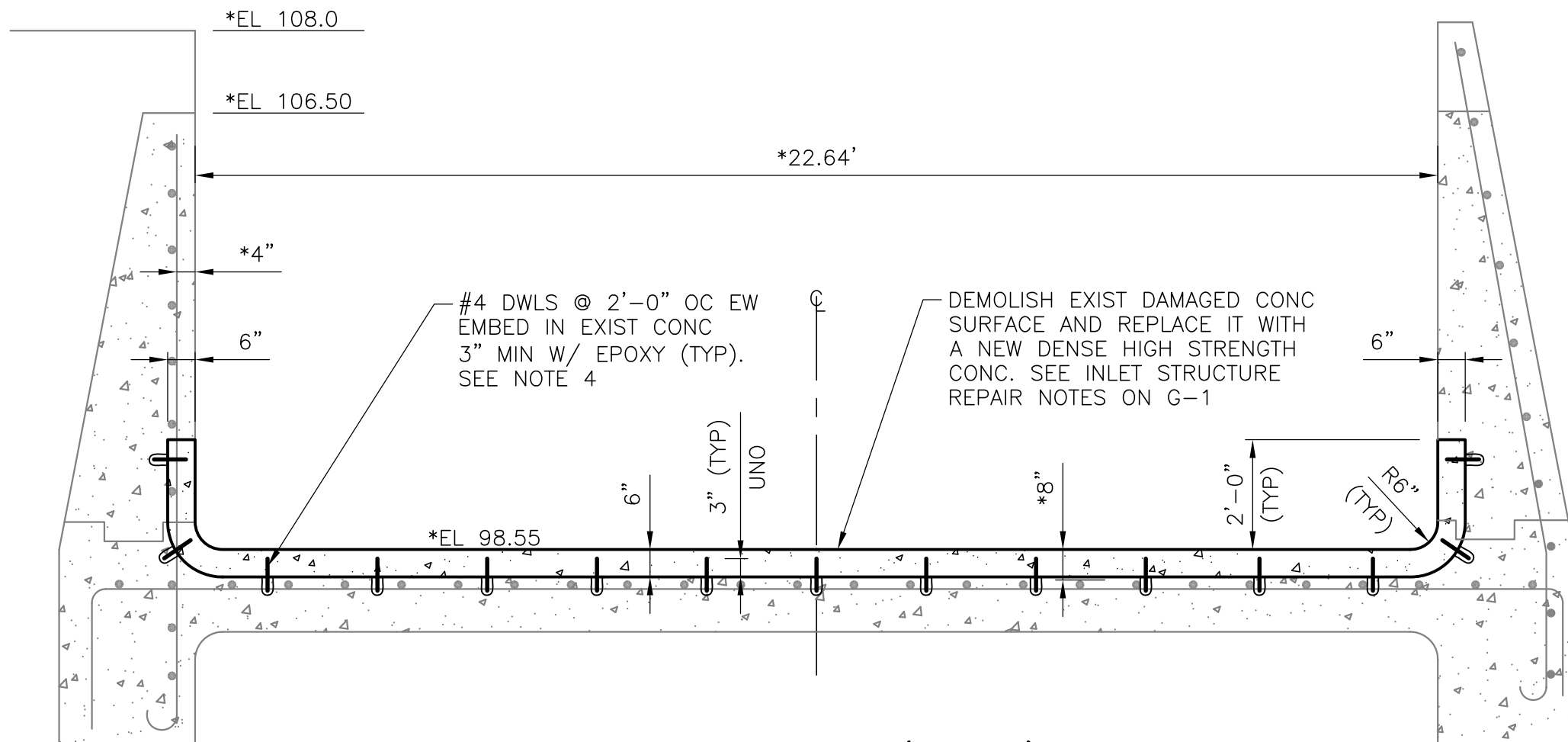


DETAIL 1 (PG-6)
SCALE: 3/4"=1'-0"

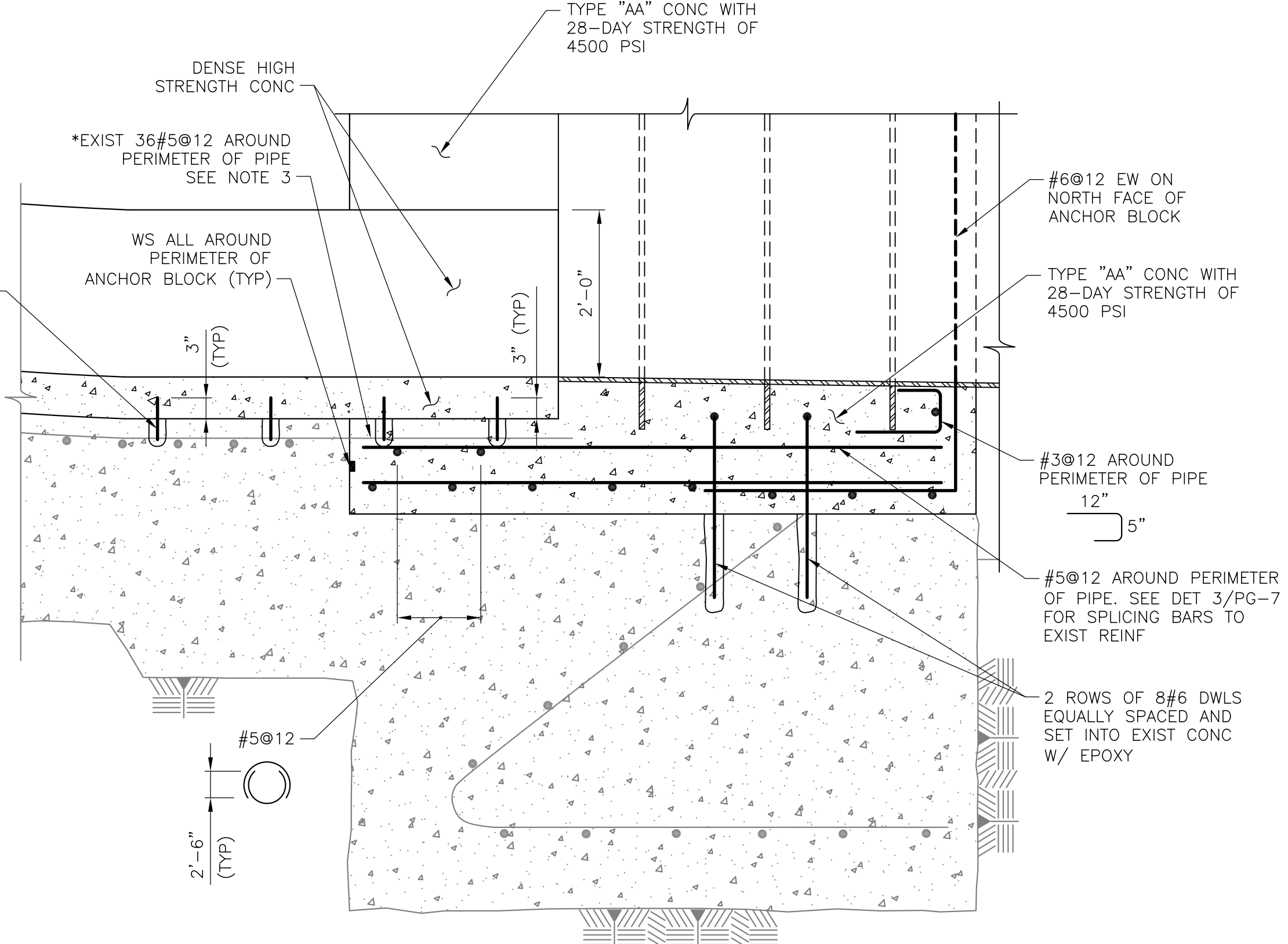


SPLICES BETWEEN EXISTING AND NEW REINFORCEMENT SHALL BE STAGGERED AS SHOWN AND SHALL NOT COINCIDE IN VERTICAL ARRAYS MORE FREQUENTLY THAN EVERY THIRD BAR

DETAIL 3 (PG-7)
SCALE: 3/4"=1'-0"



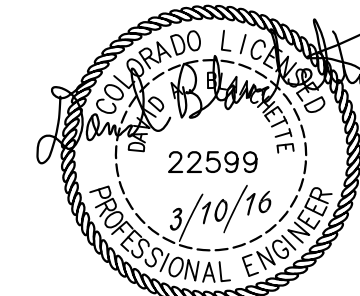
SECTION D-D (PG-5)
SCALE: 3/8"=1'-0"



DETAIL 2 (PG-6)
SCALE: 3/4"=1'-0"

NOTES:

1. FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES SEE G-1.
2. * DENOTES DIMENSION, ELEVATION OR OTHER INFORMATION TAKEN FROM EXISTING AS-BUILT CONSTRUCTION DRAWINGS. FIELD VERIFY PRIOR TO CONSTRUCTION.
3. SAVE EXISTING REINFORCEMENT DURING DEMOLITION FOR INCORPORATION INTO NEW WORK. BARS SHALL NOT BE DAMAGED DURING DEMOLITION. BARS SHALL BE CLEANED SO THAT THEY ARE FREE OF ALL EXISTING CONCRETE, DUST, RUST AND OTHER FOREIGN MATTER.
4. EXISTING REINFORCEMENT IN SLAB AND WALLS OF INLET STRUCTURE SHALL NOT BE CUT OR DAMAGED DURING DEMOLITION OR INSTALLATION OF DOWELS.



REVISIONS			
REV	DATE	DESCRIPTION	APPROVED BY
	3/10/16	AS-BUILT DRAWINGS	DAB
	11/23/15	ADDED ALTERNATE OPTION DETAIL	DAB
	11/11/15	ISSUED FOR CONSTRUCTION	DAB
	9/14/15	ISSUED FOR BID	DAB

0 1/2 1 2
2" AT FULL SIZE
SCALE ACCORDINGLY

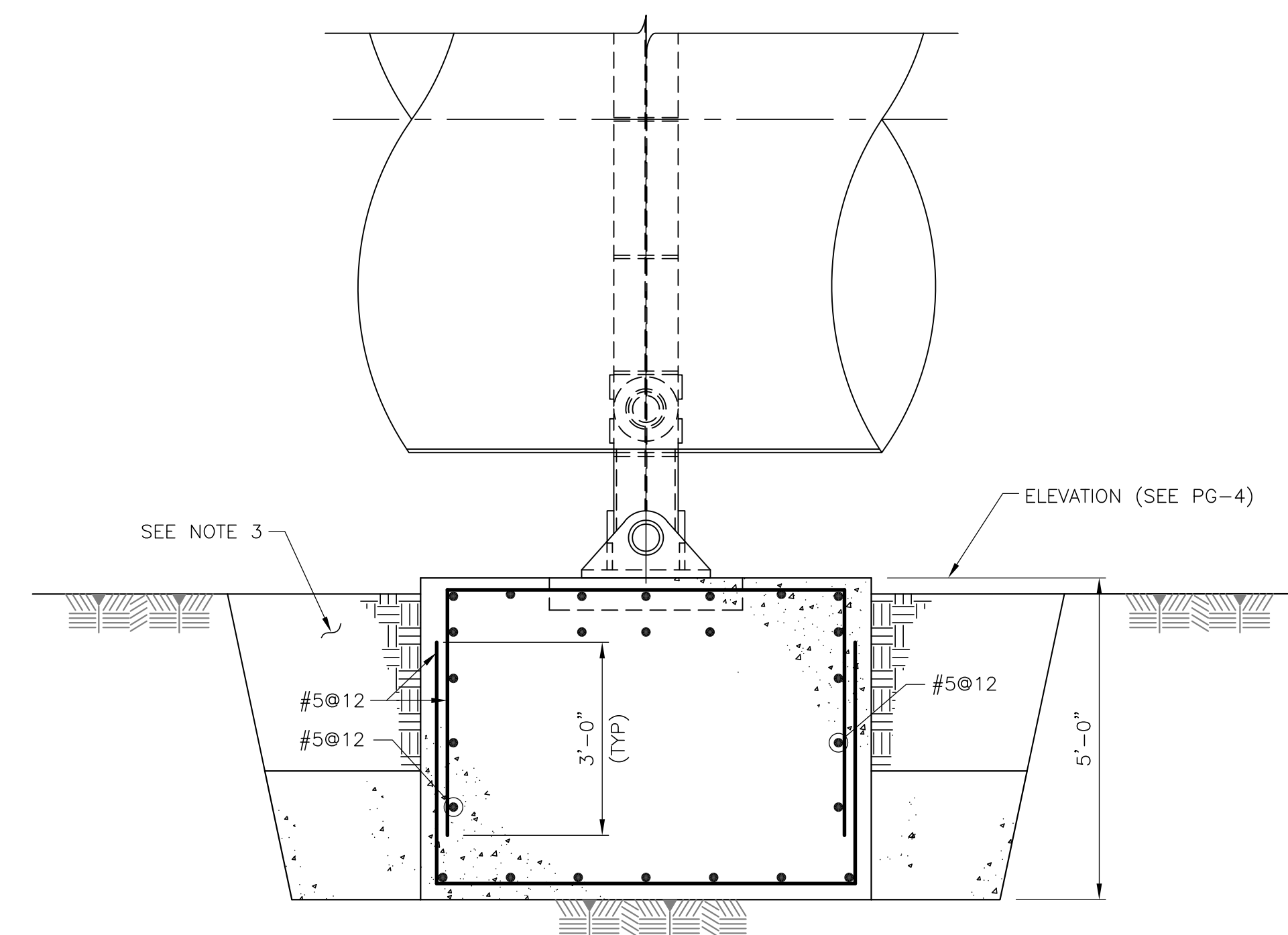
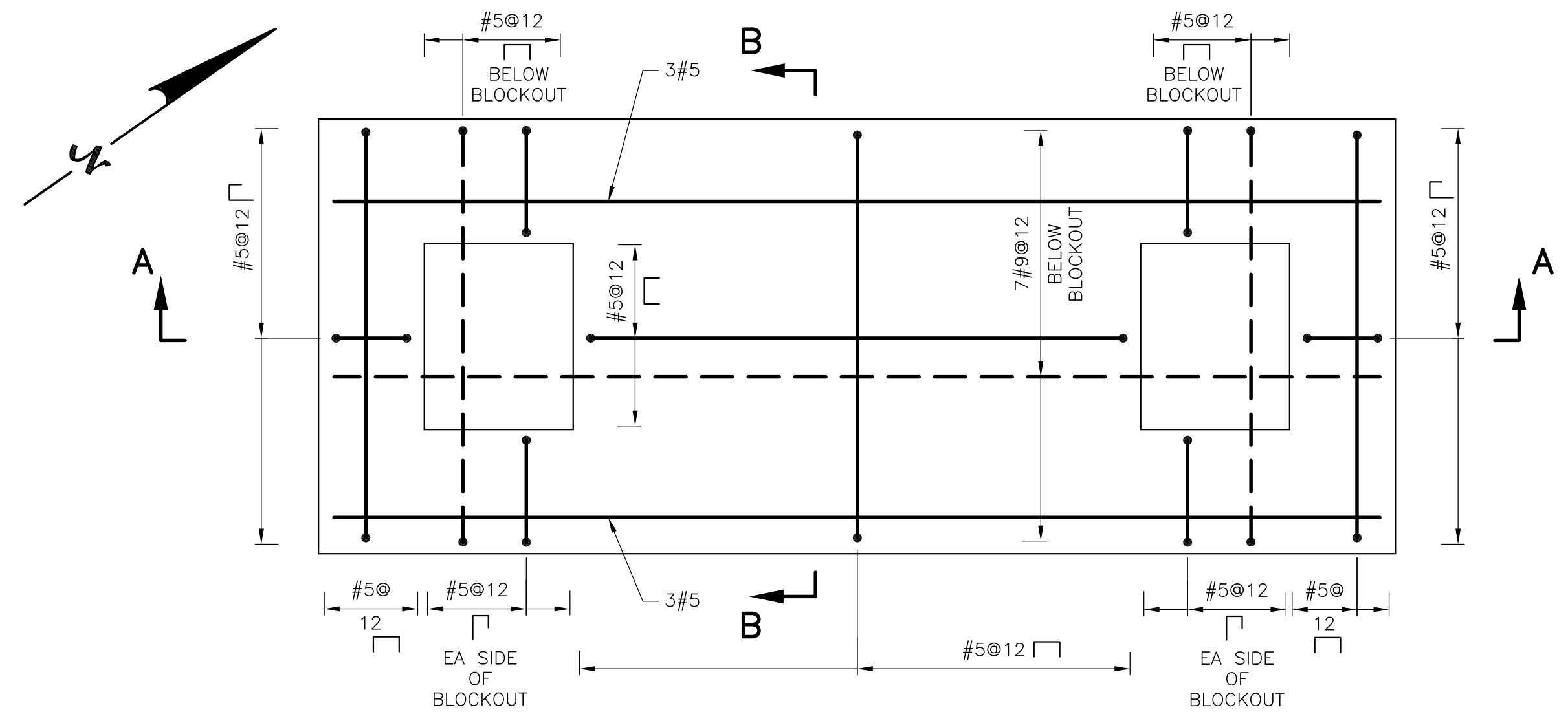
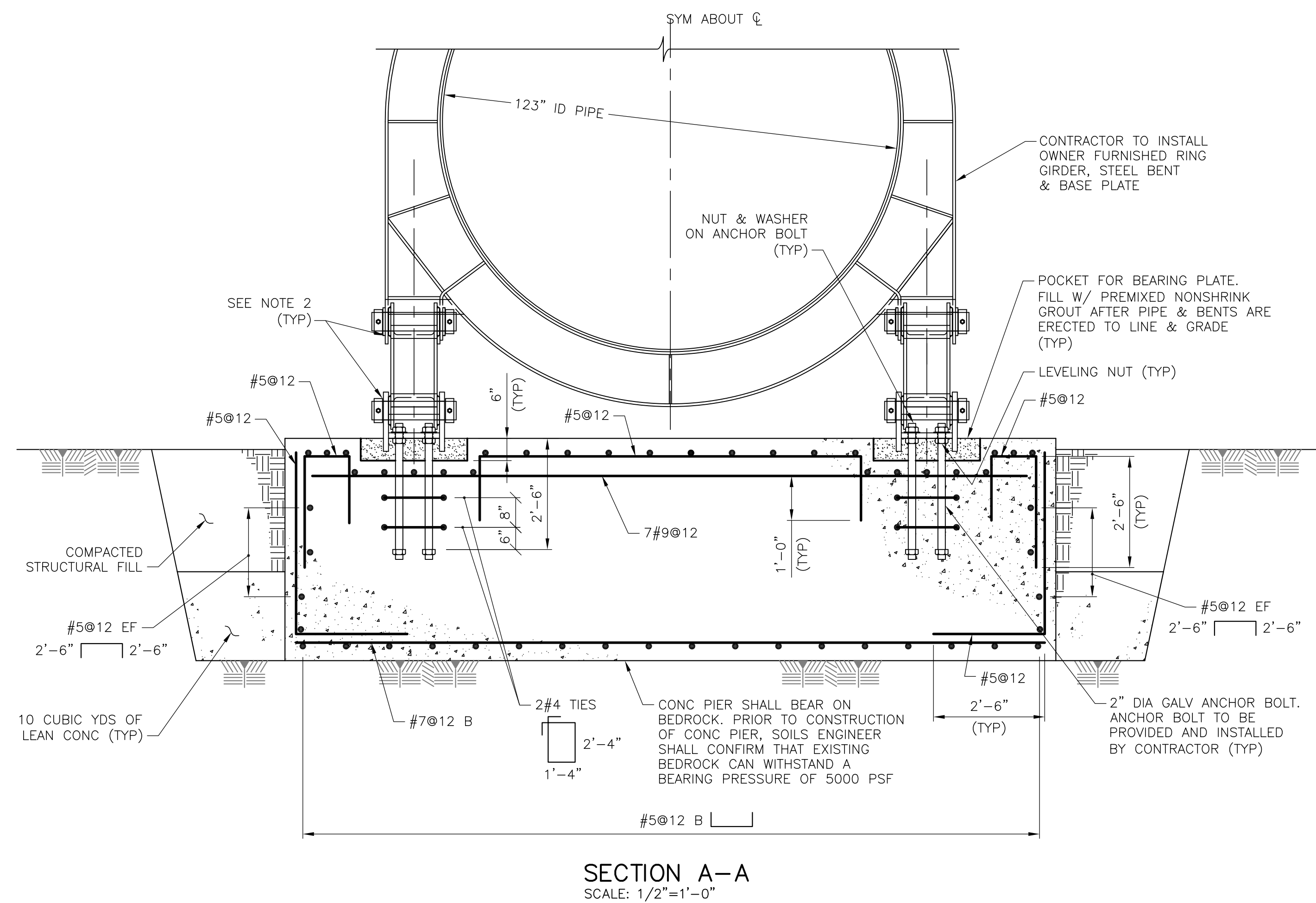
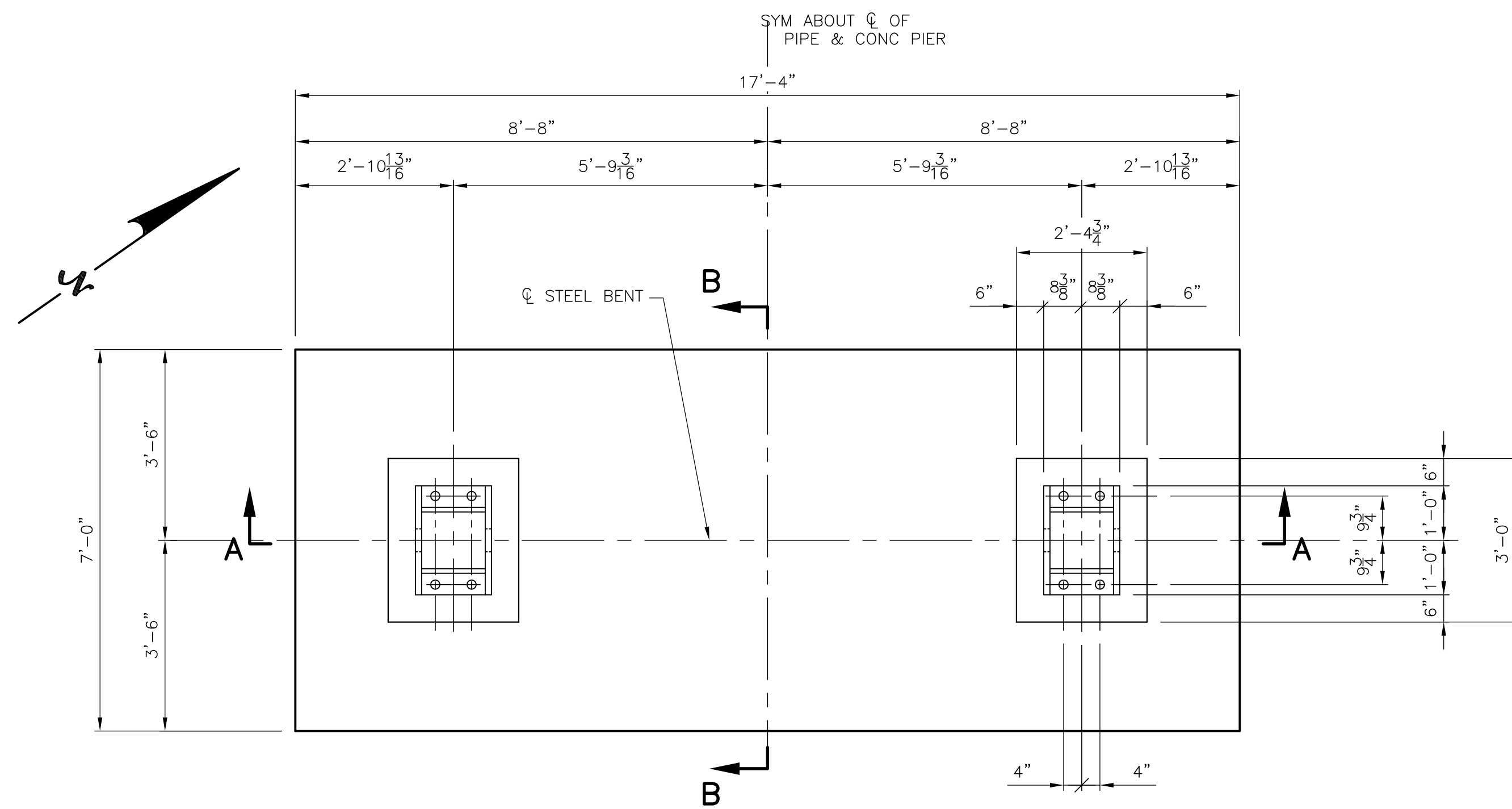
CONSULTANT:
SM&C
Structural Engineers Inc.
215 S. Wadsworth Blvd., Suite 320
Lakewood, CO 80226
ph 303.274.8656 fax 303.484.3777

CLIENT:
**FT LYON
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750 Bent Ave, Las Animas, CO 81054
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HORSE CREEK FLUME REHABILITATION PROJECT

**INLET STRUCTURE
SECTIONS AND DETAILS**

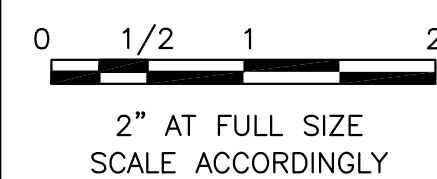
SMRC PROJECT NO. FL-2015-01	DRAWING NO. PG-7
DESIGN BY: JWI	
DRAWN BY: RC	
CHECKED BY: DAB/JWI	SHEET: 9 OF 14



NOTES:

1. FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES SEE G-1.
2. PINS FOR ALL STEEL BENTS SHALL BE INSTALLED WITH GREASE. GREASE SHALL BE A LITHIUM BASED EXTREME PRESSURE GREASE WITH OXIDATION AND RUST INHIBITORS. PROVIDE MOBILUX EP2 GREASE BY MOBILE CORPORATION OR EQUAL. OWNER SHALL ROUTINELY GREASE PINS AFTER CONSTRUCTION.
3. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL FIELD DETERMINE THE LIMITS OF EXCAVATION REQUIRED IN BEDROCK. OVEREXCAVATION IS NOT REQUIRED IF BEDROCK IS STABLE. SIDES OF CONCRETE FOUNDATION BLOCK MAY BE PLACED AGAINST BEDROCK, BUT MINIMUM DIMENSIONS OF FOUNDATION BLOCK SHALL BE PROVIDED.

REVISIONS			
REV	DATE	DESCRIPTION	APPROVED BY
	3/10/16	AS-BUILT DRAWINGS	DAB
	11/11/15	ISSUED FOR CONSTRUCTION	DAB
	9/14/15	ISSUED FOR BID	DAB



CONSULTANT:

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HORSE CREEK FLUME REHABILITATION PROJECT

CONCRETE PIER NO. 2 PLANS AND SECTIONS

SMRC PROJECT NO.

FI-2015-01

DESIGN BY:

JWI

DRAWN BY:
RC

CHECKED BY:

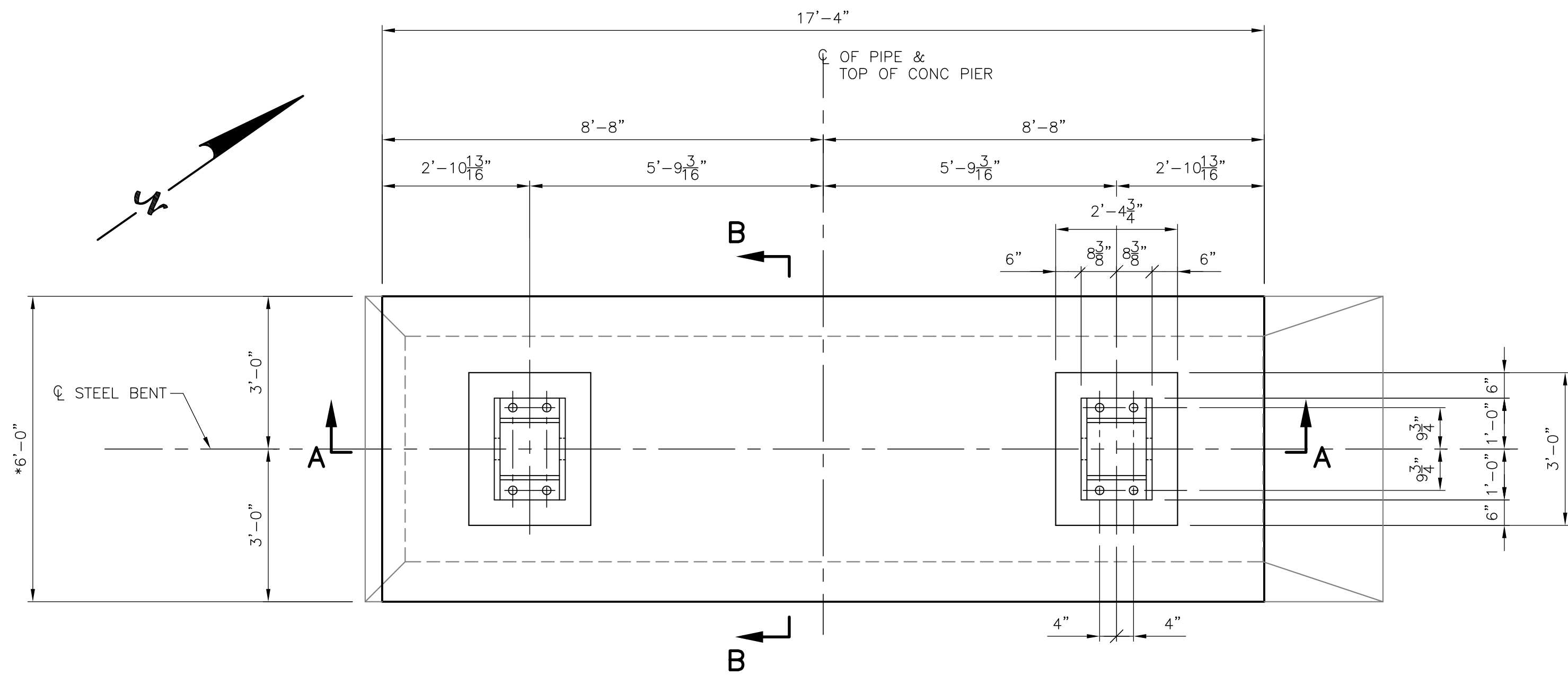
DAB/JW

ING NO.

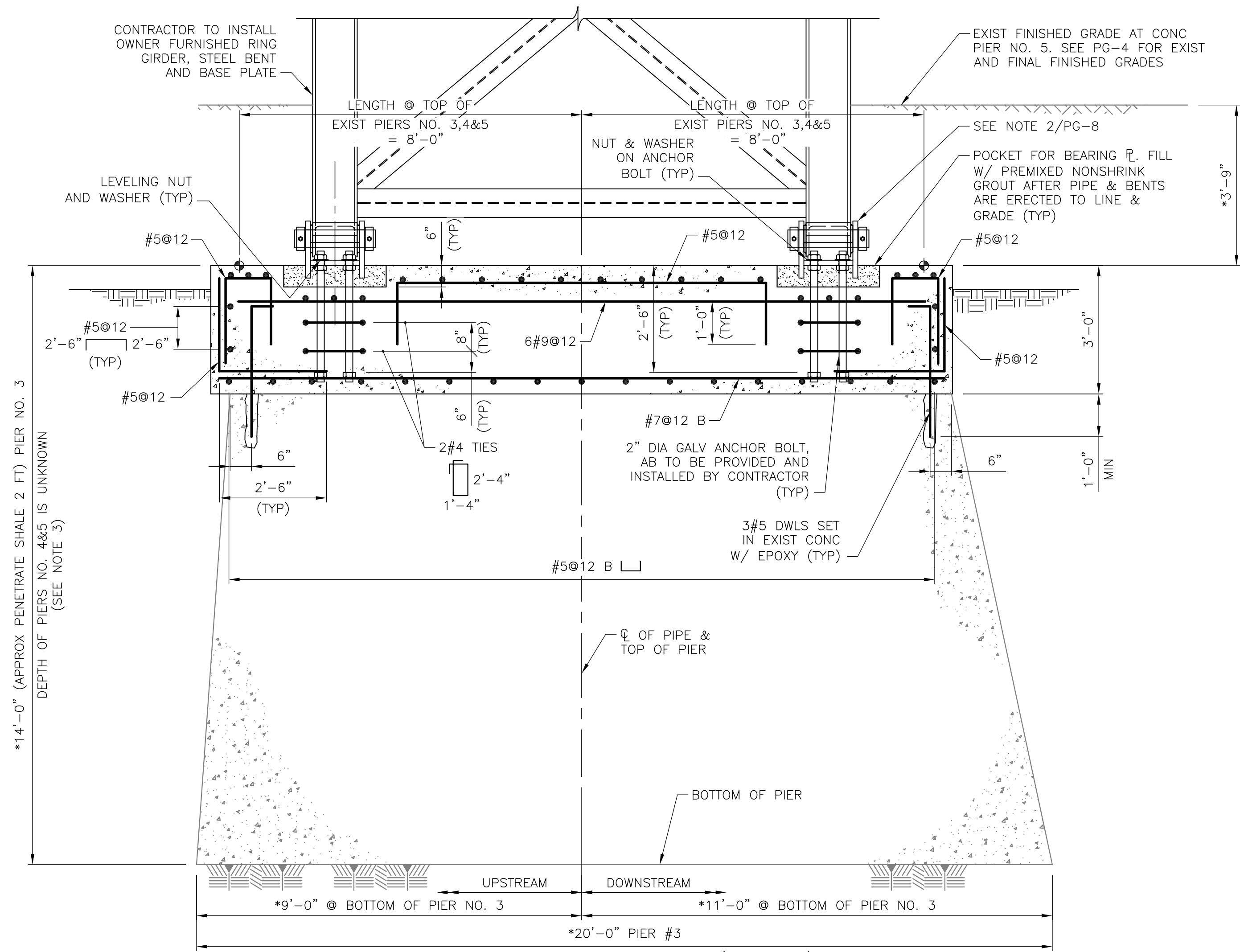
PG-8

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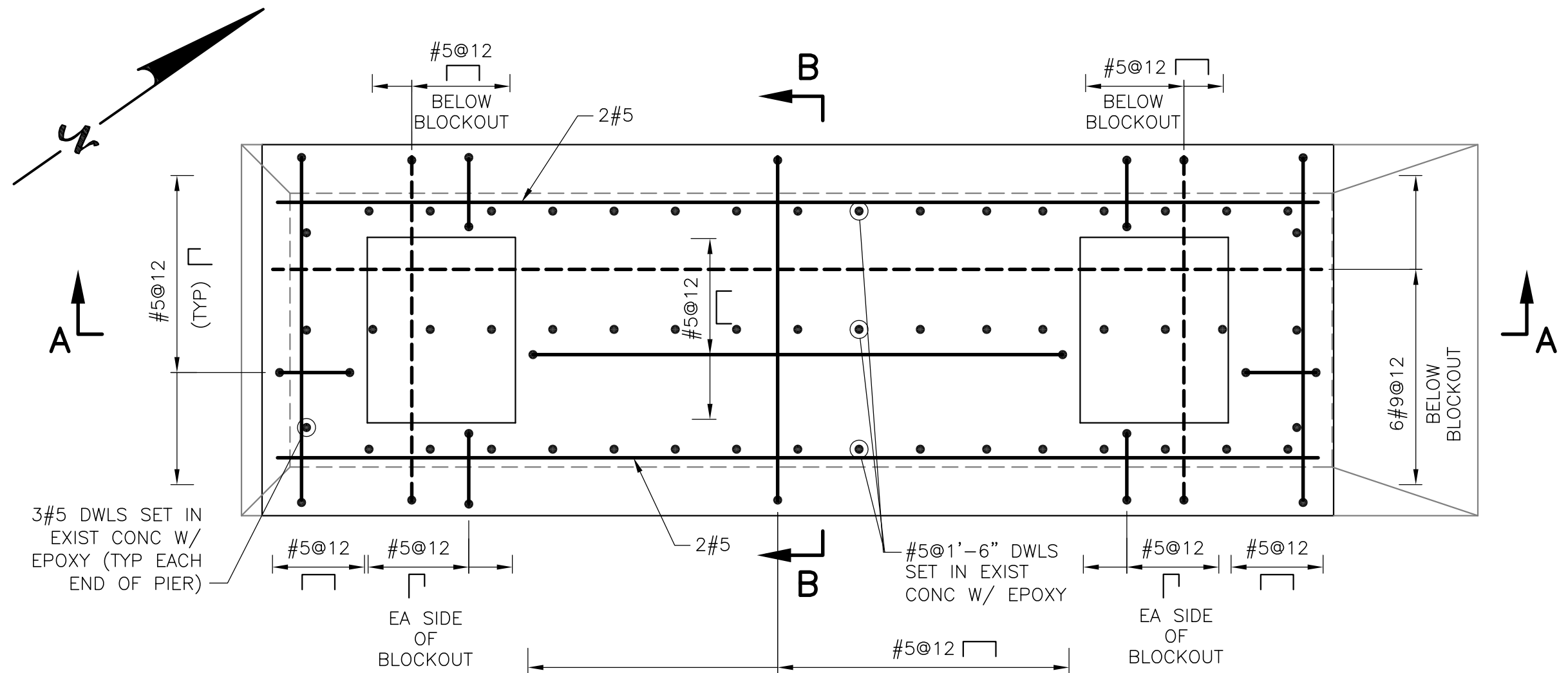
10 OF 14



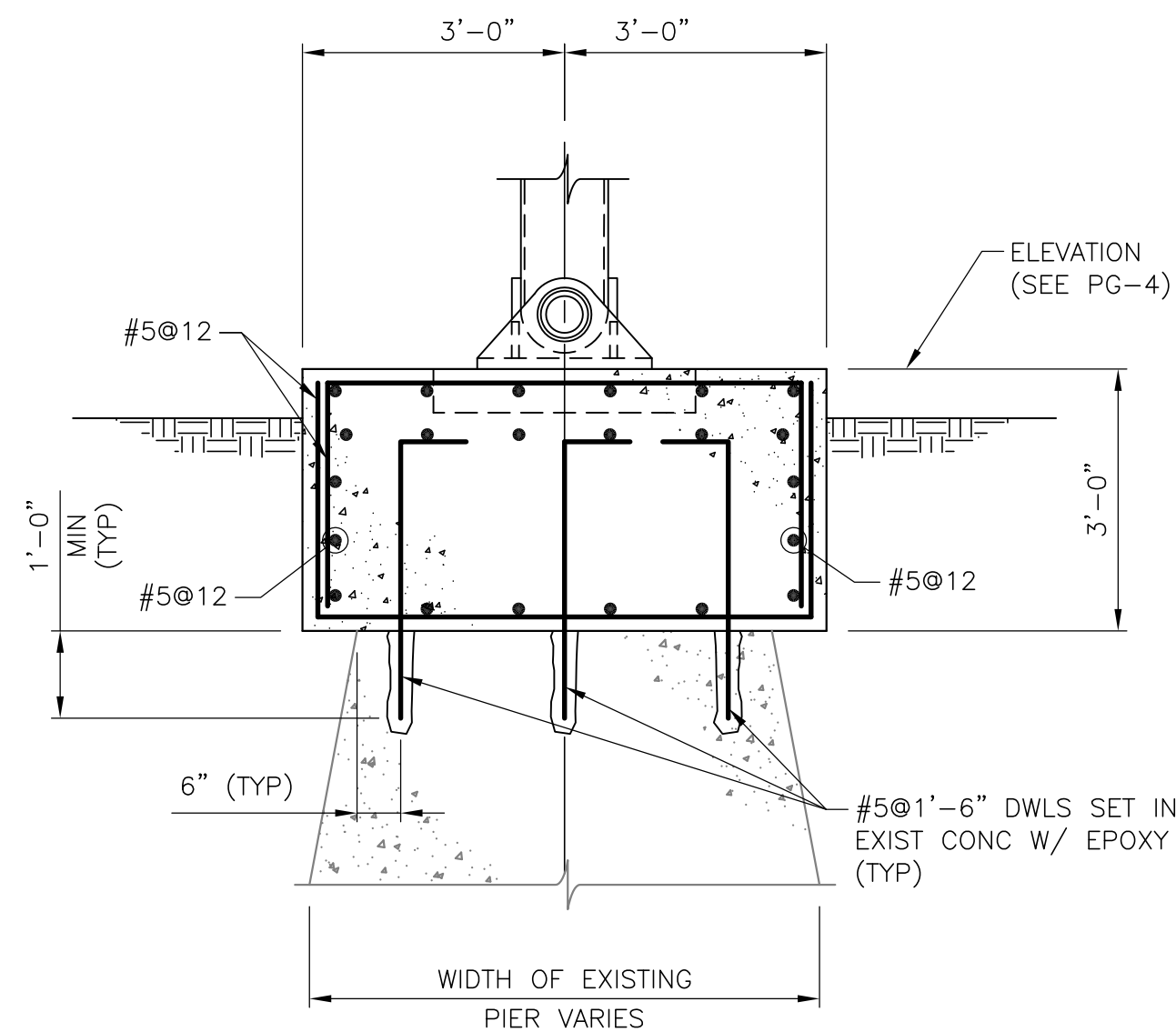
PLAN — CONCRETE PIER NO. 3, 4 & 5
SCALE: 1/2"=1'-0"



SECTION A-A
SCALE: 1/2"=1'-0"



TOP REINFORCEMENT PLAN
SCALE: 1/2"=1'-0"



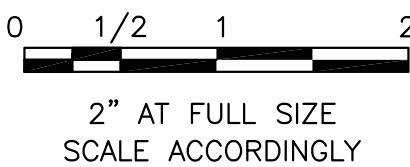
SECTION B-B
SCALE: 1/2"=1'-0"

NOTES:

- FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES SEE G-1.
- * DENOTES DIMENSION, ELEVATION OR OTHER INFORMATION TAKEN FROM EXISTING AS-BUILT CONSTRUCTION DRAWINGS. FIELD VERIFY PRIOR TO CONSTRUCTION.
- THE DEPTH OF PIERS NO. 4 & 5 BELOW GRADE IS UNKNOWN. THE WIDTH AND LENGTH AT THE BOTTOM OF PIERS NO. 4 & 5 ARE UNKNOWN. CONTRACTOR SHALL CONFIRM WITH ENGINEER THAT PROPOSED REPAIRS WILL ADEQUATELY FIT ON EXISTING PIERS NO. 4 & 5 PRIOR TO CONSTRUCTION.
- CONTRACTOR SHALL REMOVE TOP OF EXISTING CONCRETE PIER. ONCE THE DEMOLITION HAS BEEN COMPLETED, THE ENGINEER SHALL BE NOTIFIED TO INSPECT THE SURFACE OF THE EXISTING CONCRETE FOR SOUNDNESS.



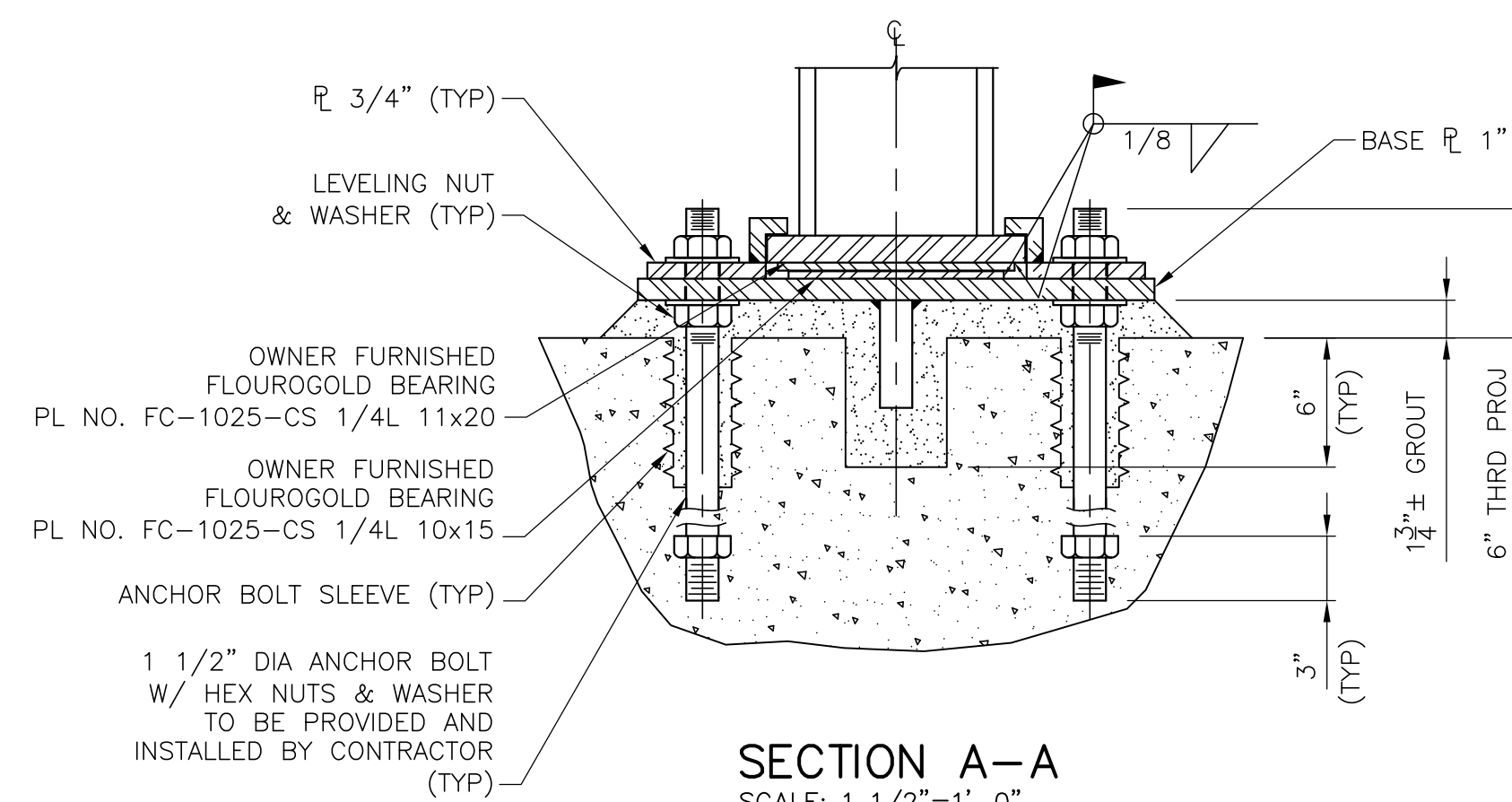
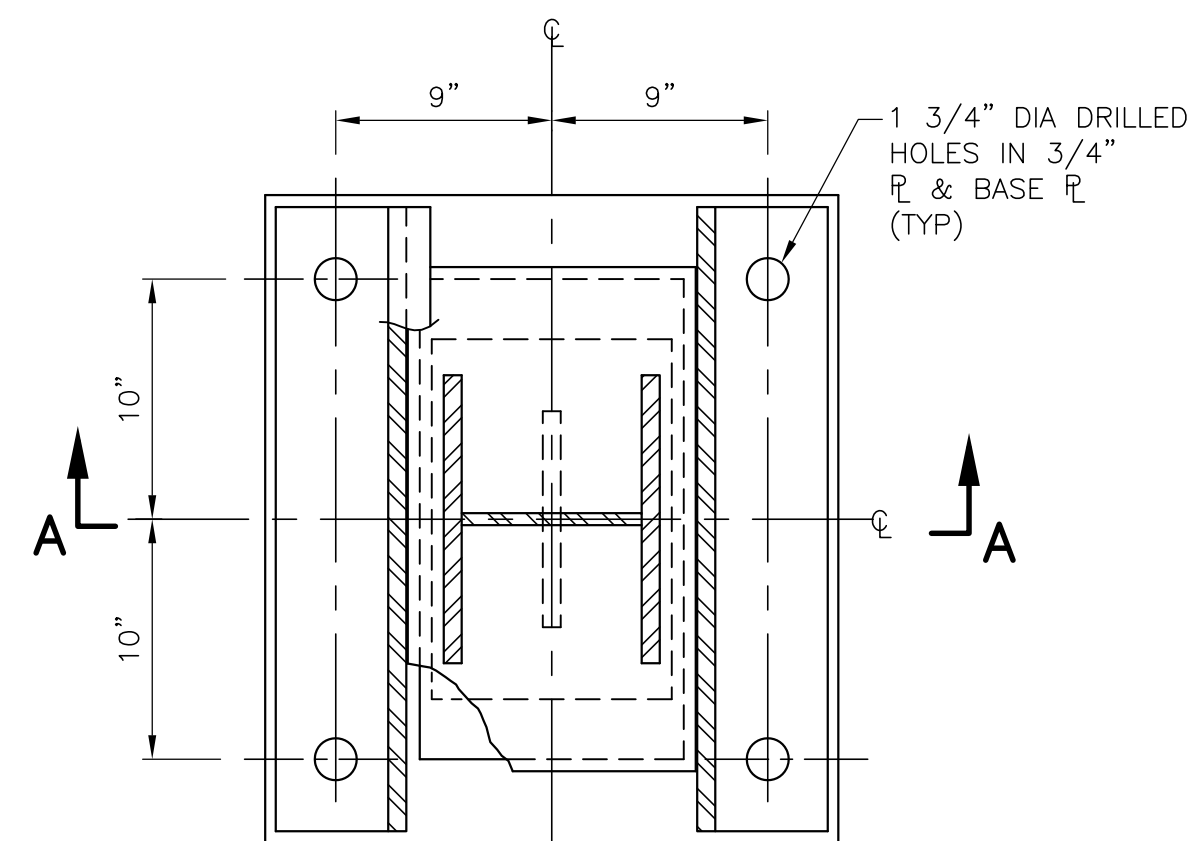
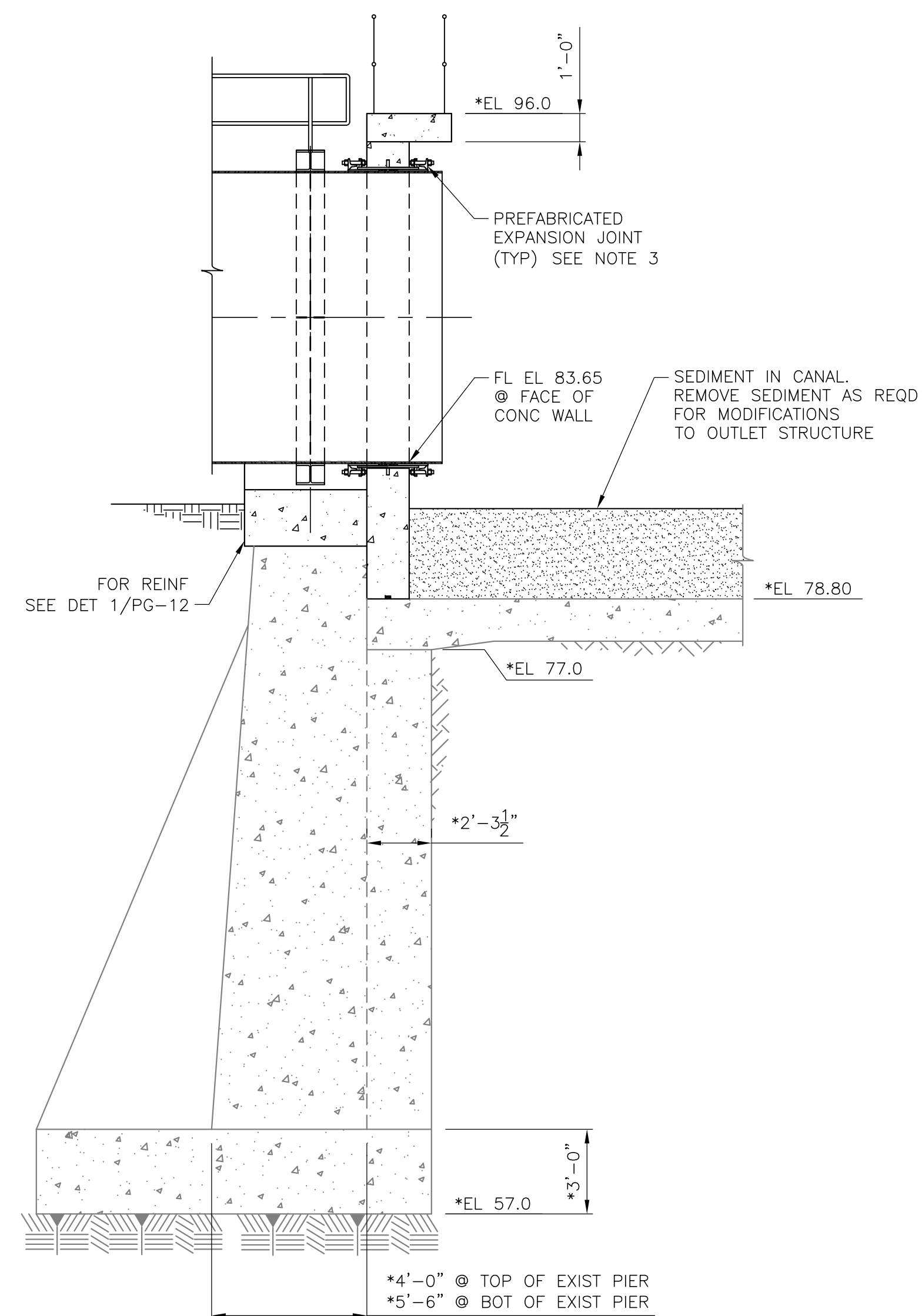
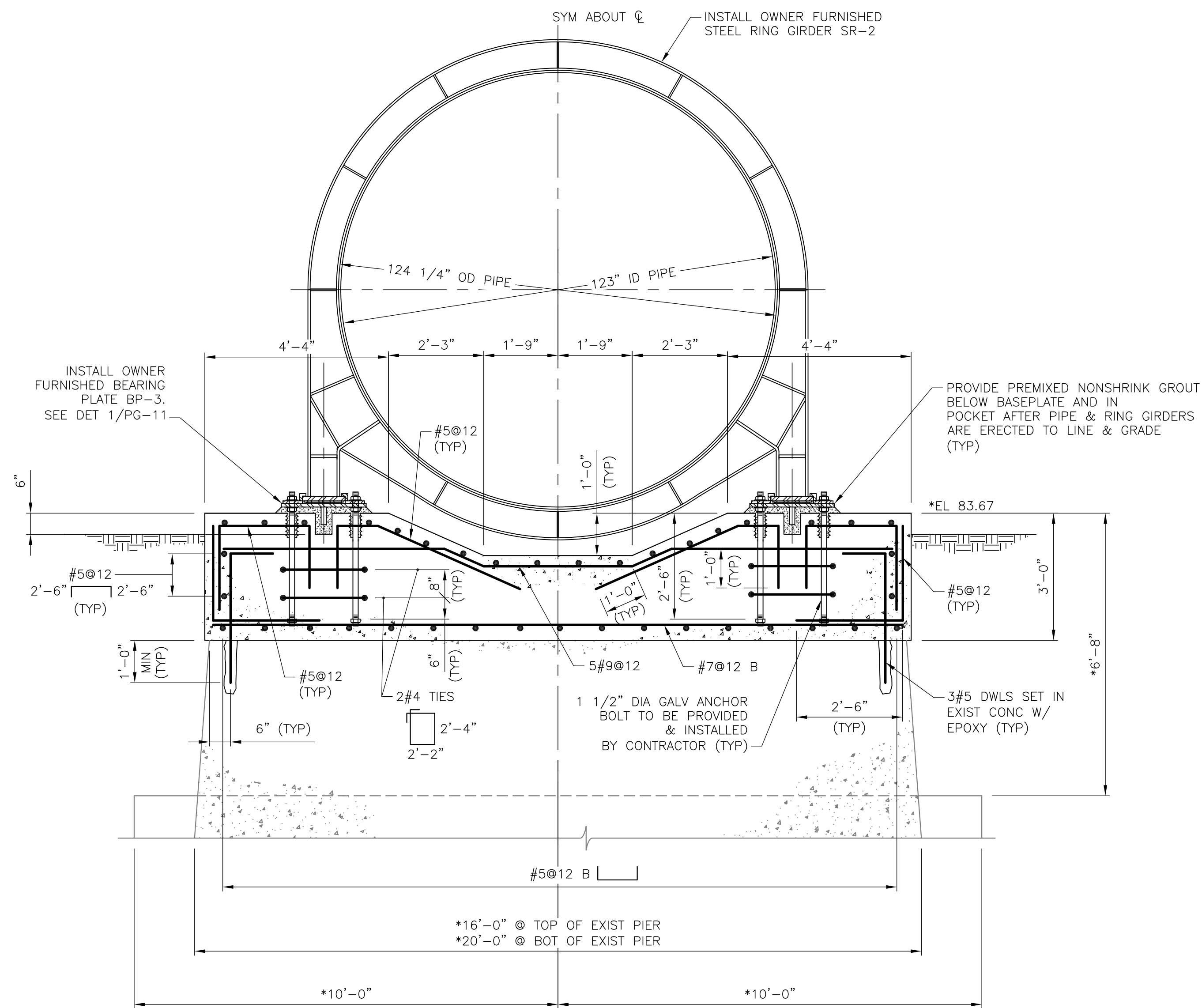
REVISIONS			
REV	DATE	DESCRIPTION	APPROVED BY



CONSULTANT:
SM&C
Structural Engineers Inc.
215 S. Wadsworth Blvd., ph 303.274.8656
Suite 320 Lakewood, CO 80226 fax 303.484.3777

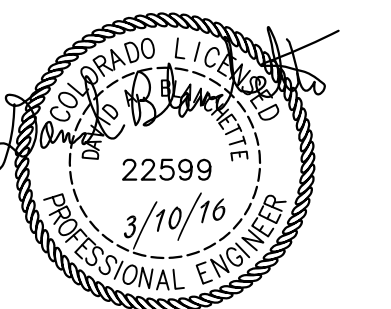
CLIENT:
**FT LYON
CANAL COMPANY**
750 Bent Ave, Las Animas, CO 81054
(719) 456-0720

HORSE CREEK FLUME REHABILITATION PROJECT		SMRC PROJECT NO. FL-2015-01	DRAWING NO. PG-9
CONCRETE PIER NO. 3, 4 & 5 PLANS AND SECTIONS		DESIGN BY: JWI	
		DRAWN BY: RC	
		CHECKED BY: DAB/JWI	SHEET: 11 OF 14

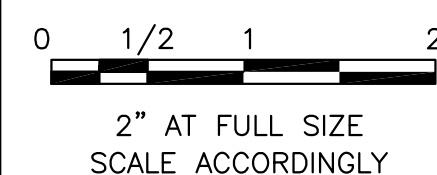


- NOTES:

1. FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES SEE G-1.
2. * DENOTES DIMENSION, ELEVATION OR OTHER INFORMATION TAKEN FROM EXISTING AS-BUILT CONSTRUCTION DRAWINGS. FIELD VERIFY PRIOR TO CONSTRUCTION.
3. THE EXPANSION JOINT SHALL BE LEFT ENTIRELY LOOSE UNTIL THE CONCRETE HAS REACHED IT'S SPECIFIED STRENGTH.



REVISIONS			
REV	DATE	DESCRIPTION	APPROVED BY
	3/10/16	AS-BUILT DRAWINGS	DAB
	11/11/15	ISSUED FOR CONSTRUCTION	DAB
	9/14/15	ISSUED FOR BID	DAB



CONSULTANT:

SMRC 
Structural Engineers Inc.

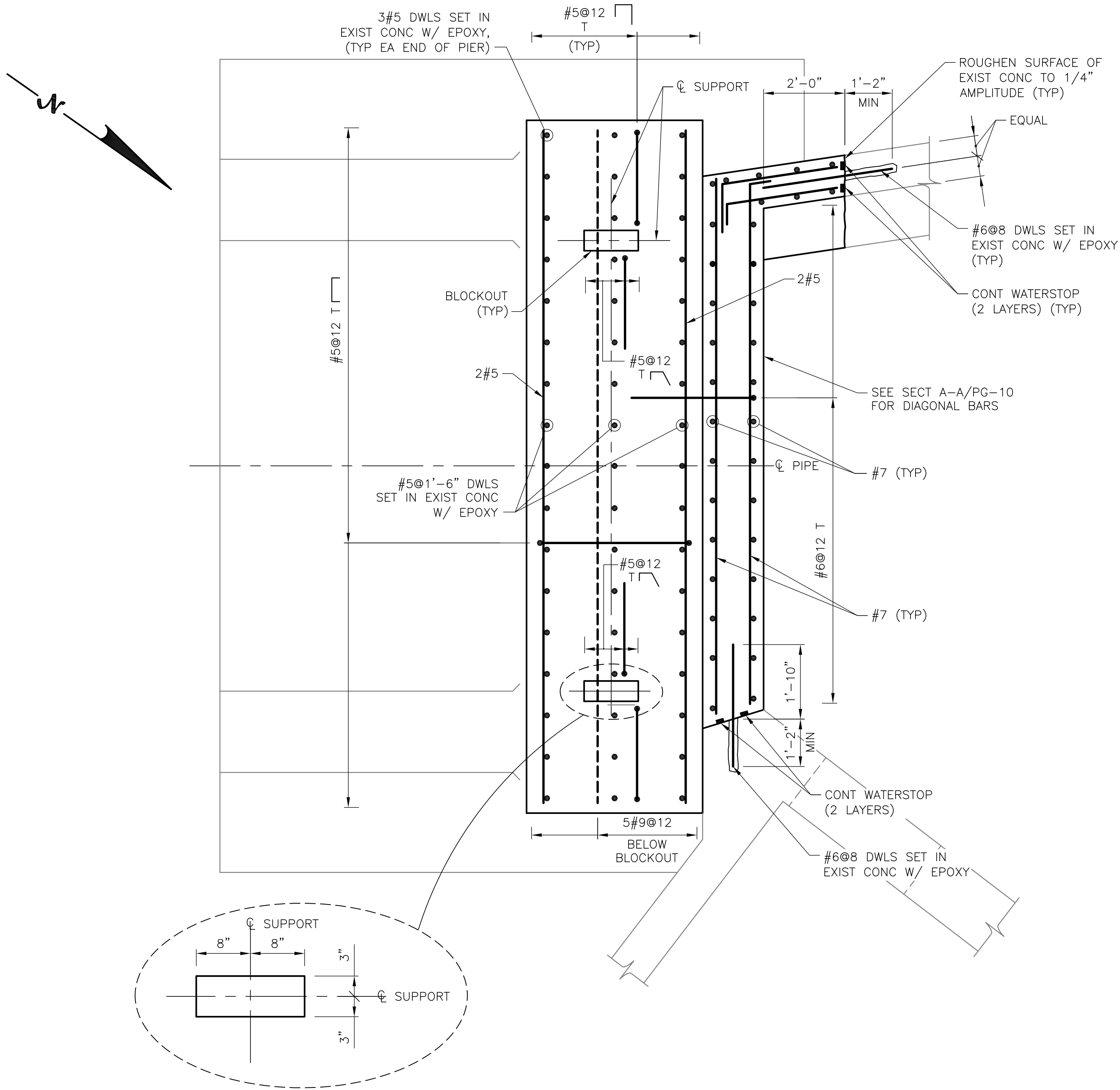
215 S. Wadsworth Blvd.,
Suite 320 ph 303.274.8656
Lakewood, CO 80226 fax 303.484.3777

CLIENT:

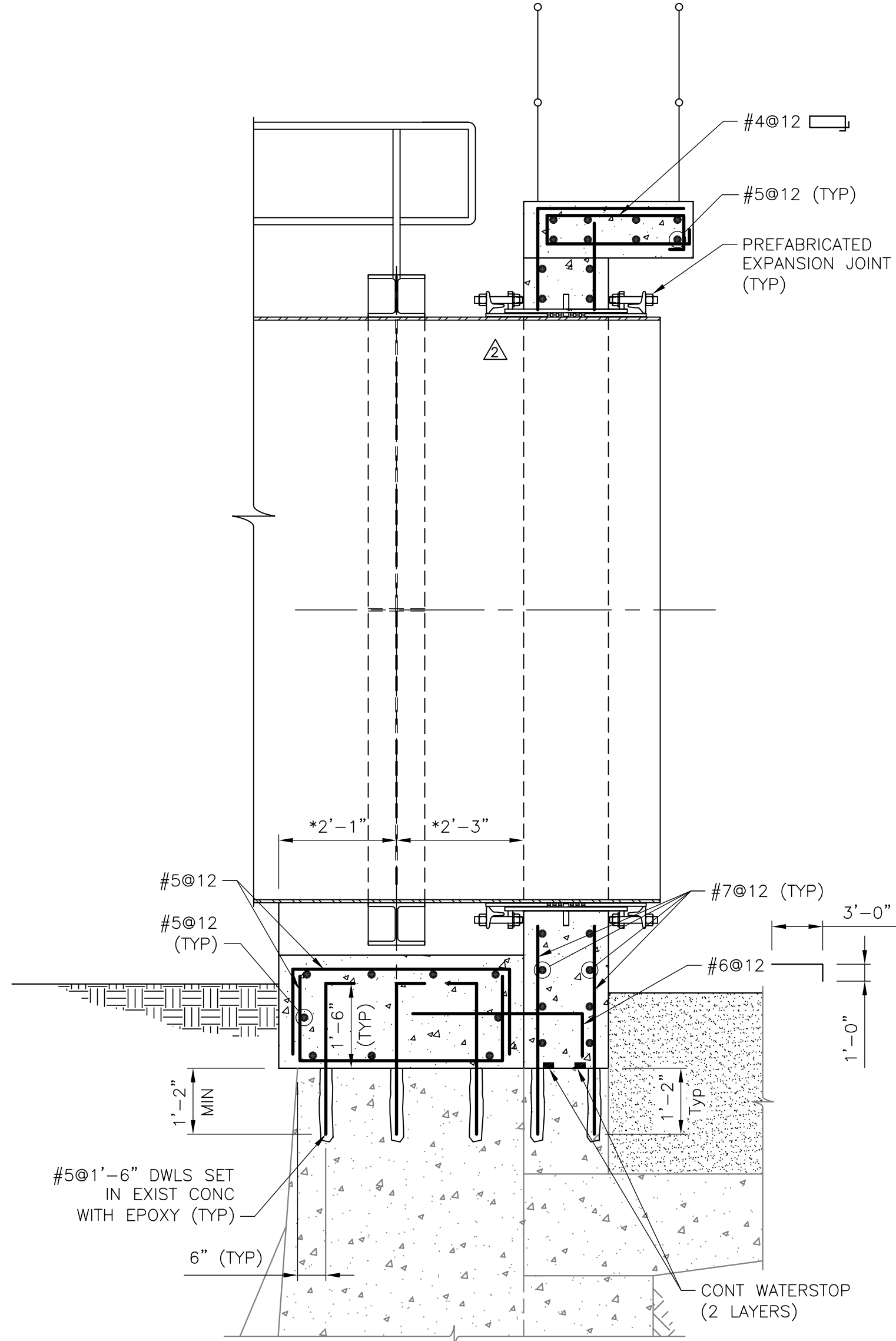
FT LYON
CANAL COMPANY

750 Bent Ave, Las Animas, CO 81054
(719) 456-0720

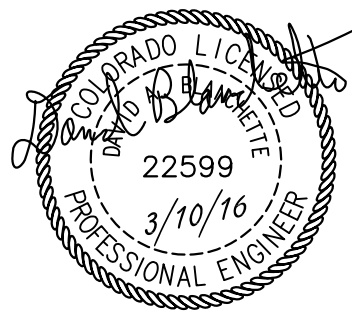
<div style="text-align: center;"> <h1>HORSE CREEK FLUME REHABILITATION PROJECT</h1> <h2>OUTLET STRUCTURE SECTIONS AND DETAILS</h2> </div>	SMRC PROJECT NO. FL-2015-01	<div style="text-align: center;"> <h1>PG-11</h1> </div>
	DESIGN BY: JWI	
	DRAWN BY: RC	
	CHECKED BY: DAB/JWI	
		SHEET: 13 OF 14



PLAN — OUTLET STRUCTURE REINFORCEMENT
SCALE: 1/2"=1'-0"



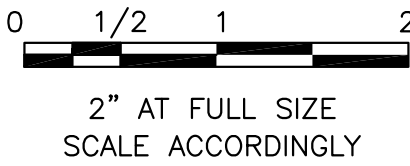
DETAIL 1
SCALE: 1/2"=1'-0"



NOTES:

- FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES SEE G-1.
- * DENOTES DIMENSION, ELEVATION OR OTHER INFORMATION TAKEN FROM EXISTING AS-BUILT CONSTRUCTION DRAWINGS. FIELD VERIFY PRIOR TO CONSTRUCTION.

REVISIONS			
3/10/16	AS-BUILT DRAWINGS	DAB	
12/23/15	OUTLET WALL DEMO REVISION, MINOR REVISIONS	DAB	
12/14/15	ADDL WATERSTOPS ADDED	DAB	
11/11/15	ISSUED FOR CONSTRUCTION	DAB	
9/14/15	ISSUED FOR BID	DAB	
REV	DATE	DESCRIPTION	APPROVED BY



CONSULTANT:

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Structural Engineers Inc.

215 S. Wadsworth Blvd., ph 303.274.8656
Suite 320 Lakewood, CO 80226 fax 303.484.3777

CLIENT:

**FT LYON
CANAL COMPANY**

750 Bent Ave, Las Animas, CO 81054
(719) 456-0720

HORSE CREEK FLUME REHABILITATION PROJECT		SMRC PROJECT NO. FL-2015-01	DRAWING NO.
OUTLET STRUCTURE REINFORCEMENT PLAN AND DETAIL		DESIGN BY: JIWI	PG-12
		DRAWN BY: RC	
		CHECKED BY: DAB/JIWI	
			SHEET: 14 OF 14

HORSE CREEK FLUME

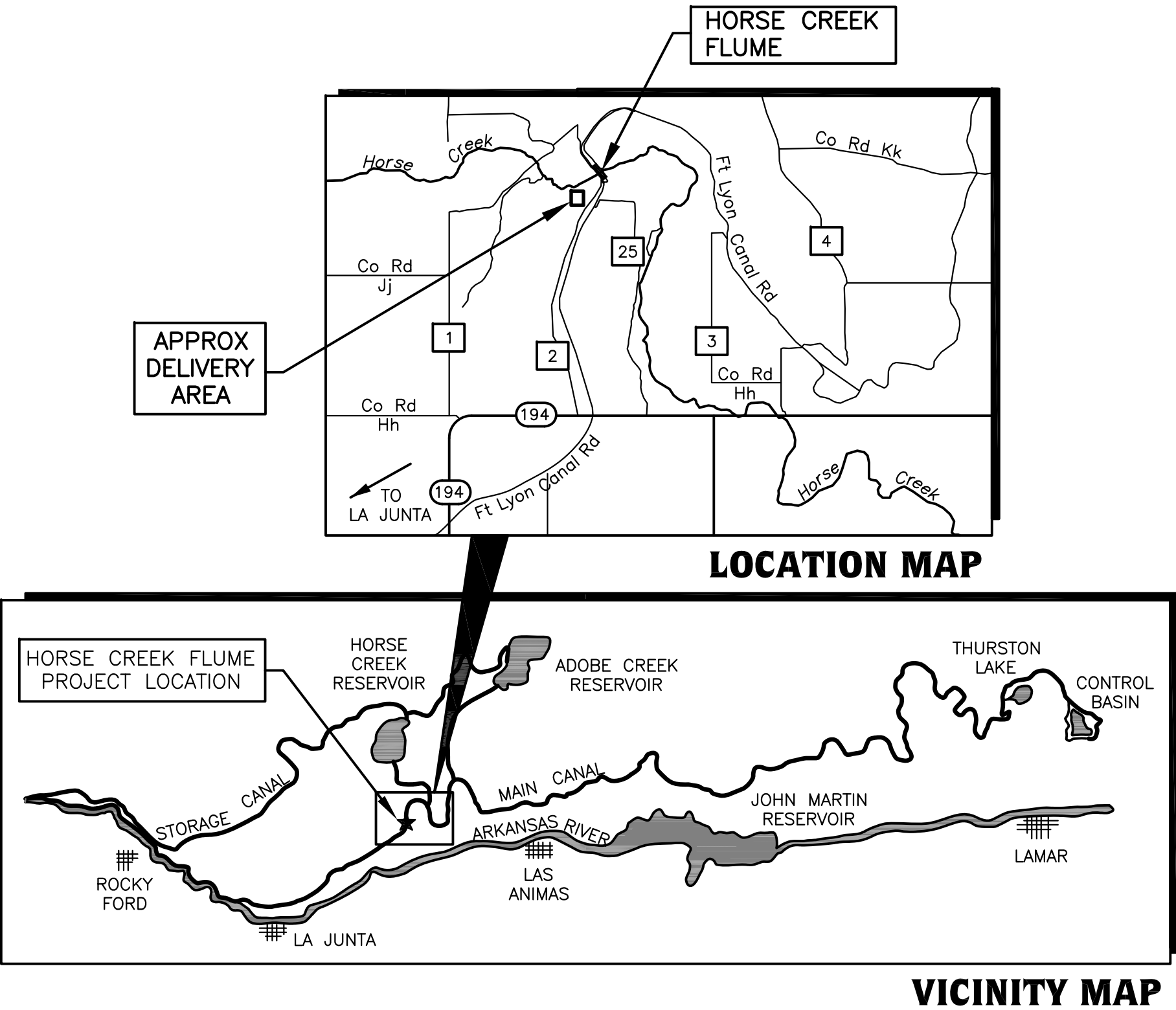
REHABILITATION PROJECT

PIPE, STRUCTURAL STEEL AND

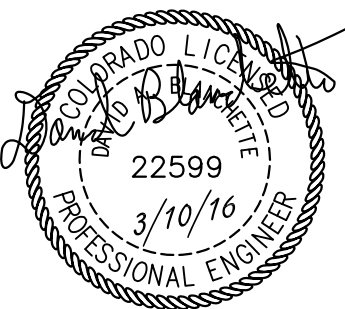
MISCELLANEOUS STEEL DRAWINGS

LAS ANIMAS, COLORADO

BENT COUNTY, COLORADO



AS-BUILT DRAWINGS
3/10/16



Prepared For:

FT LYON CANAL COMPANY

750 Bent Ave, Las Animas, CO 81054
(719) 456-0720

ISSUED FOR FIELD INSTALLATION OF PIPE		
DRAWING LIST – PIPE, STRUCTURAL STEEL AND MISCELLANEOUS STEEL DRAWINGS		
SHEET NO.	DRAWING NO.	TITLE
1	—	COVER SHEET, VICINITY AND LOCATION MAPS AND DRAWING LIST
2	G-1	ABBREVIATIONS, LEGEND AND STRUCTURAL STEEL AND PIPE NOTES
3	PS-1	PIPE ELEVATION AND SUPPORT ELEVATION SR-2/BP-3 AND AND SB-1/BP-2/SR-3
4	PS-2	PIPE ELEVATIONS SB-2/BP-2/SR-3 AND DETAILS
5	PS-3	SUPPORT RING 2 (SR-2) DETAILS
6	PS-4	SUPPORT RING 3 (SR-3) DETAILS
7	PS-5	STEEL BENT SUPPORTS SB-1 AND SB-2 DETAILS
8	PS-6	SUPPORT DETAILS
9	PS-7	EXPANSION JOINT DETAILS
10	PS-8	PIPE PIECE MARK DETAILS
11	PS-9	HANDRAIL DETAILS

Prepared By:

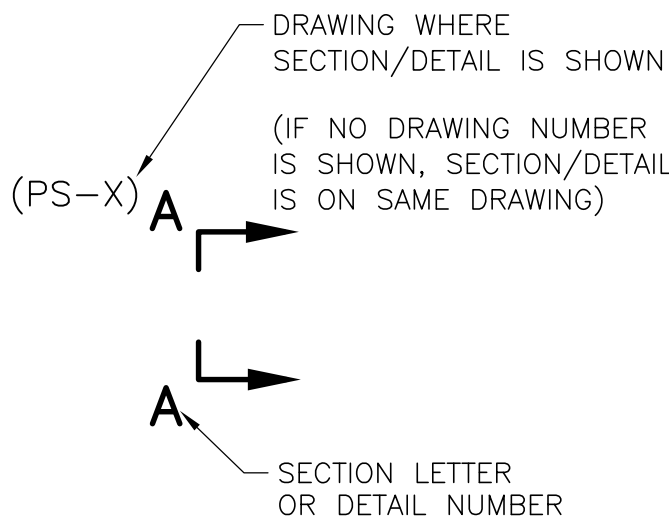
SM&C
Structural Engineers Inc.

215 S. Wadsworth Blvd. Suite 320
Lakewood, CO 80226

ph 303.274.8656 fax 303.484.3777

ABBREVIATIONS/LEGEND

NOT ALL ABBREVIATIONS MAY APPLY TO THIS PROJECT			
ADDL	ADDITIONAL	OC	ON CENTER
BC	BOLT CIRCLE	OD	OUTSIDE DIAMETER
BTWN	BETWEEN	OPNG	OPENING
CL	CENTERLINE	PL/P	PLATE
CJ	CONSTRUCTION JOINT	PROJ	PROJECTION
CLR	CLEAR	PLCS	PLACES
CONC	CONCRETE	PS	PIPE STEEL
CONT	CONTINUED/CONTINUOUS	PSI	POUNDS PER SQUARE INCH
CTR	CENTER	R/RAD	RADIUS
DET	DETAIL	REINF	REINFORCEMENT
DIA Ø	DIAMETER	REQD	REQUIRED
DWG	DRAWING	SB	STEEL BENT
DWLS	DOWELS	SCH	SCHEDULE
EA	EACH	SECT	SECTION
EF	EACH FACE	SIM	SIMILAR
EW	EACH WAY	SQ	SQUARE
EL	ELEVATION	SR	SUPPORT RING
EQ SP	EQUAL SPACE/EQUALLY SPACED	SS	STAINLESS STEEL
EXIST	EXISTING	STD	STANDARD
EXP JT	EXPANSION JOINT	STL	STEEL
ID	INSIDE DIAMETER	SYM	SYMMETRICAL
IE	INVERT ELEVATION	T&B	TOP AND BOTTOM
GALV	GALVANIZED	THKNSS	THICKNESS
GR	GRADE	THRD	THREADED
JTS	JOINTS	(TYP)	TYPICAL
MIN	MINIMUM	UNO	UNLESS NOTED OTHERWISE
MAX	MAXIMUM	VERT	VERTICAL
NO	NUMBER	W/	WITH
NTS	NOT TO SCALE		



	CONCRETE		EXISTING GRADE		EXISTING STRUCTURE TO BE REMOVED
	EXISTING CONC		RIPRAP		
	COMPACTED BACKFILL		EXISTING BEDROCK		

STRUCTURAL STEEL NOTES

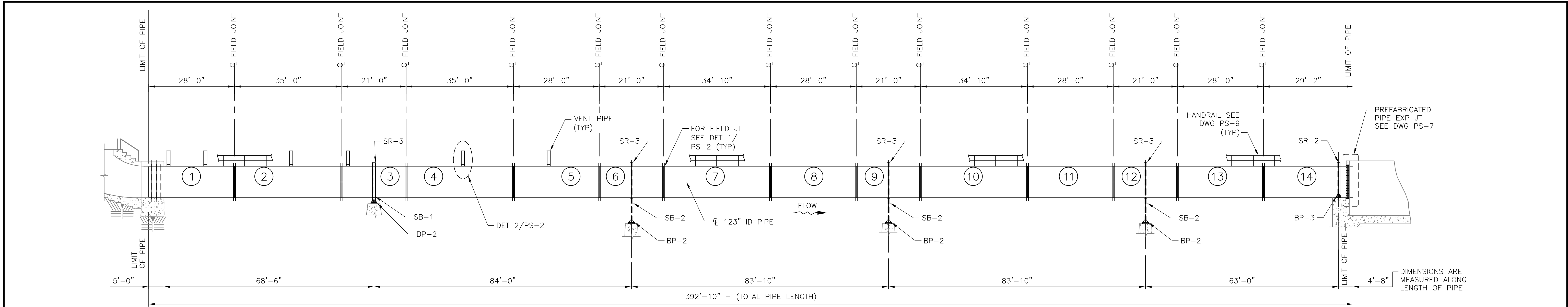
1. ALL STRUCTURAL AND MISCELLANEOUS STEEL SHALL BE DESIGNED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST CODES AND SPECIFICATIONS OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) AND IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
2. ALL BARS, PLATES AND SHEETS SHALL BE OF STEEL MEETING ASTM A516 GRADE 70 SPECIFICATIONS UNLESS NOTED OTHERWISE. STRUCTURAL SHAPES SHALL CONFORM TO ASTM A992.
3. WELDING OPERATORS AND PROCEDURES SHALL BE QUALIFIED UNDER SECTION IX OF THE ANSI/ASME BOILER AND PRESSURE VESSEL CODE OR UNDER AWS B2.1.
4. ALL WELDS FOUND DEFECTIVE SHALL BE REPAIRED AND/OR REPLACED AND RETESTED FOR ADEQUACY AT THE CONTRACTOR'S EXPENSE.
5. ALL MATERIAL SHALL BE FABRICATED STRAIGHT AND TRUE AND FREE FROM ALL TWISTS AND WARPS.
6. POST AND HANDRAIL PIPE SHALL BE ASTM A53. PIPES USED FOR VENTS SHALL CONFORM TO ASTM A53, GRADE B.
7. STAINLESS STEEL BOLTS SHALL CONFORM TO ASTM 193, TYPE 304.
8. CONNECTIONS NOT DETAILED SHALL BE IN ACCORDANCE WITH THE SPECIFICATION OR AS DIRECTED BY THE ENGINEER.

STEEL PIPE NOTES

1. STEEL PIPE SHALL CONFORM TO AWWA C200, "STEEL WATER PIPE – 6 INCH AND LARGER".
2. STEEL PIPE SHALL BE MADE OF STEEL PLATE MATERIAL THAT CONFORMS TO ASTM A516 GRADE 70 WITH A MINIMUM YIELD STRENGTH OF 38,000 PSI AND A TENSILE STRENGTH OF 70,000 PSI. SPIRAL SEAM PIPE SHALL BE ALLOWED THAT CONFORMS TO AWWA C200. STEEL USED IN THE FABRICATION OF SPIRAL SEAM PIPE SHALL CONFORM TO ASTM STANDARD A516, GRADE 70, AT ANY POINT WITHIN THE COIL.

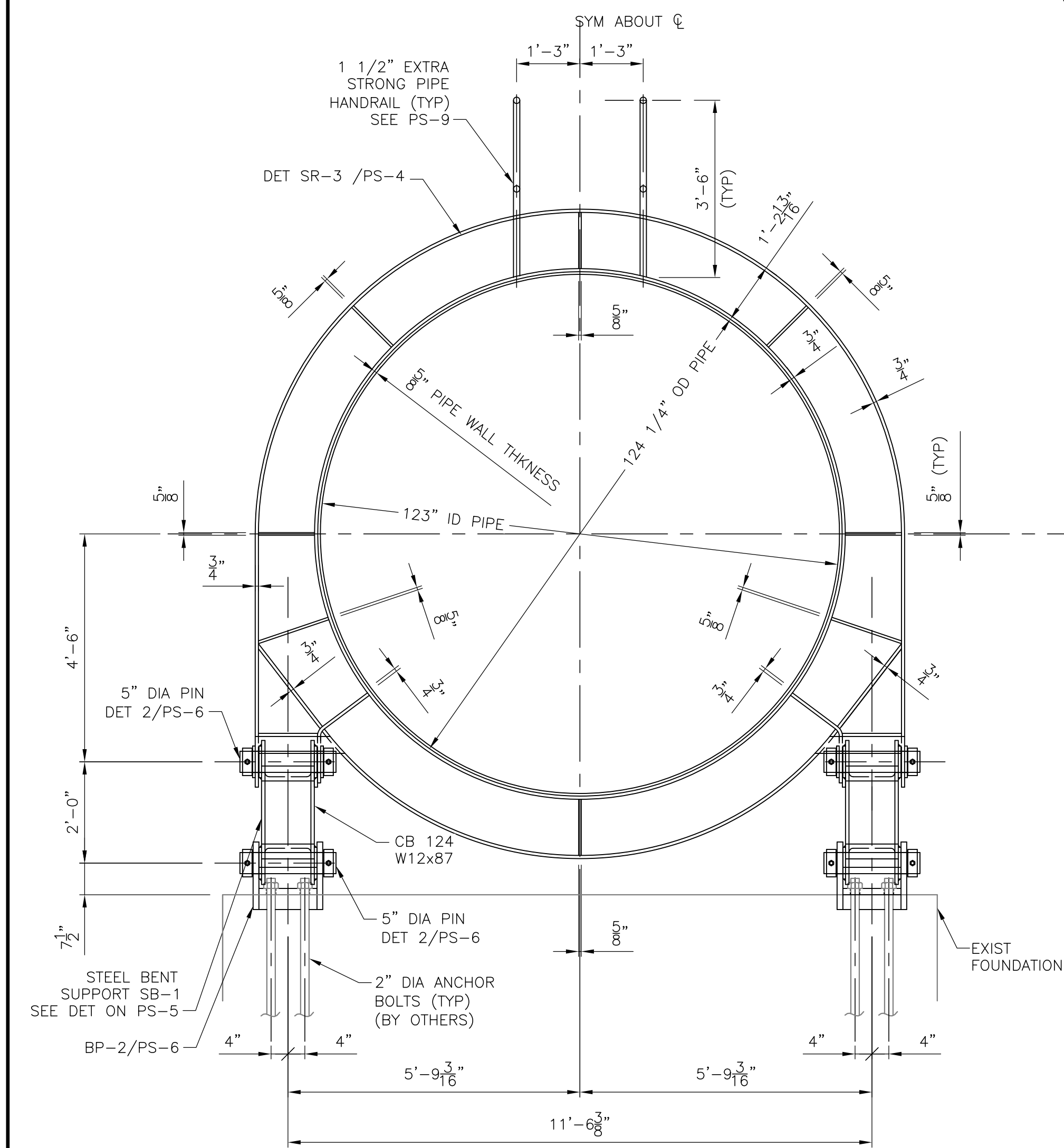


REVISIONS					CONSULTANT: SM&C Structural Engineers Inc. 215 S. Wadsworth Blvd., Suite 320 Lakewood, CO 80226 ph 303.274.8656 fax 303.484.3777	CLIENT: FT LYON CANAL COMPANY 750 Bent Ave, Las Animas, CO 81054 (719) 456-0720	HORSE CREEK FLUME REHABILITATION PROJECT		SMRC PROJECT NO. FL-2015-01	DRAWING NO.
							ABBREVIATIONS, LEGEND AND STRUCTURAL STEEL AND PIPE NOTES		DESIGN BY: JWI	G-1
									DRAWN BY: RC	
REV	DATE		DESCRIPTION						CHECKED BY: DAB/JWI	
										SHEET: 2 OF 11



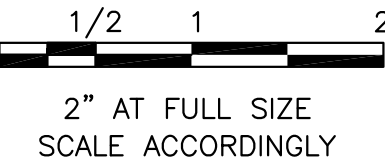
REFERS TO PIPE
PIECE MARK NUMBERS,
SEE DWG PS-8

ELEVATION - 123" ID PIPE
SCALE: 1/16"=1'-0"



ELEVATION - SB-1/SR-3/BP-2 (1 PLC)
SCALE: 1/2"=1'-0"

SIDE ELEVATION - SB-1/SR-3/BP-2 (1 PLC)
SCALE: 1/2"=1'-0"



CONSULTANT:
SM&C
Structural Engineers Inc.
215 S. Wadsworth Blvd., Suite 320
Lakewood, CO 80226 ph 303.274.8656 fax 303.484.3777

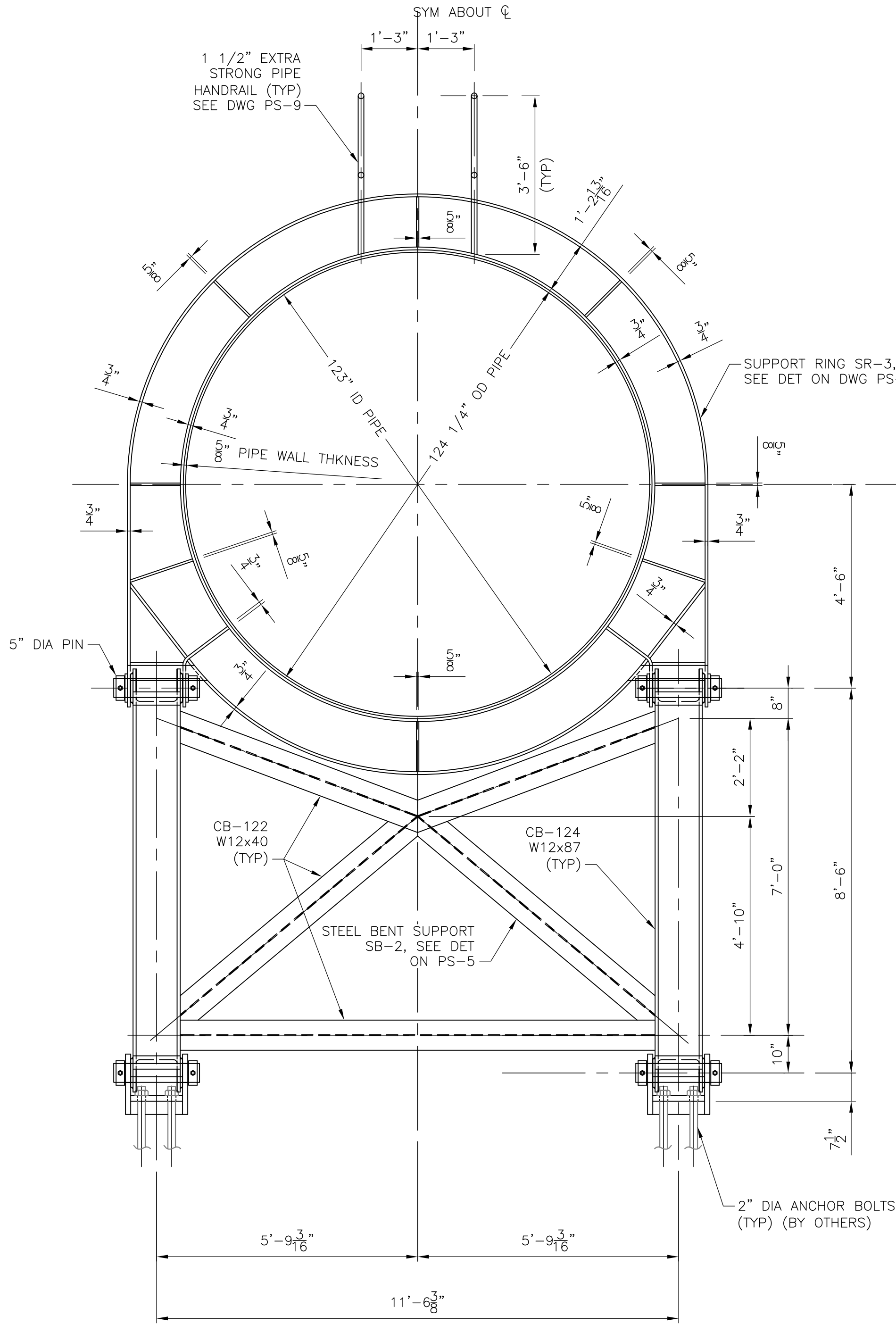
CLIENT:
**FT LYON
CANAL COMPANY**
750 Bent Ave, Las Animas, CO 81054
(719) 456-0720

HORSE CREEK FLUME REHABILITATION PROJECT
PIPE ELEVATION AND SUPPORT ELEVATIONS
SB-1/BP-2/SR-3 AND SR-2/BP-3

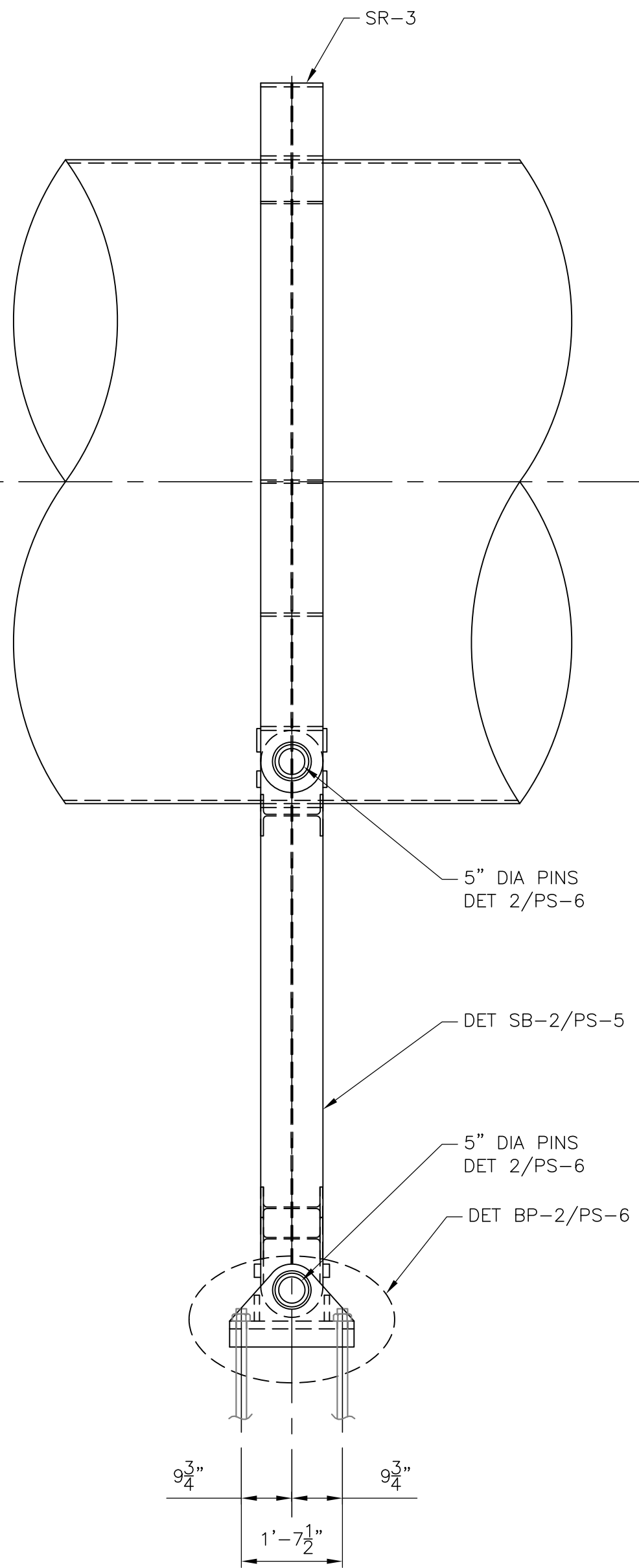
SMRC PROJECT NO.
FL-2015-01
DESIGN BY:
JWI
DRAWN BY:
RC
CHECKED BY:
DAB/JWI
SHEET:
PS-1
3 OF 11

- NOTES:
- FOR LEGEND, ABBREVIATIONS AND NOTES SEE G-1.
 - CONTRACTOR SHALL ASSEMBLE AND CHECK THE FIT OF ALL FABRICATED PIECES PRIOR TO DELIVERING THEM TO THE WORK SITE.

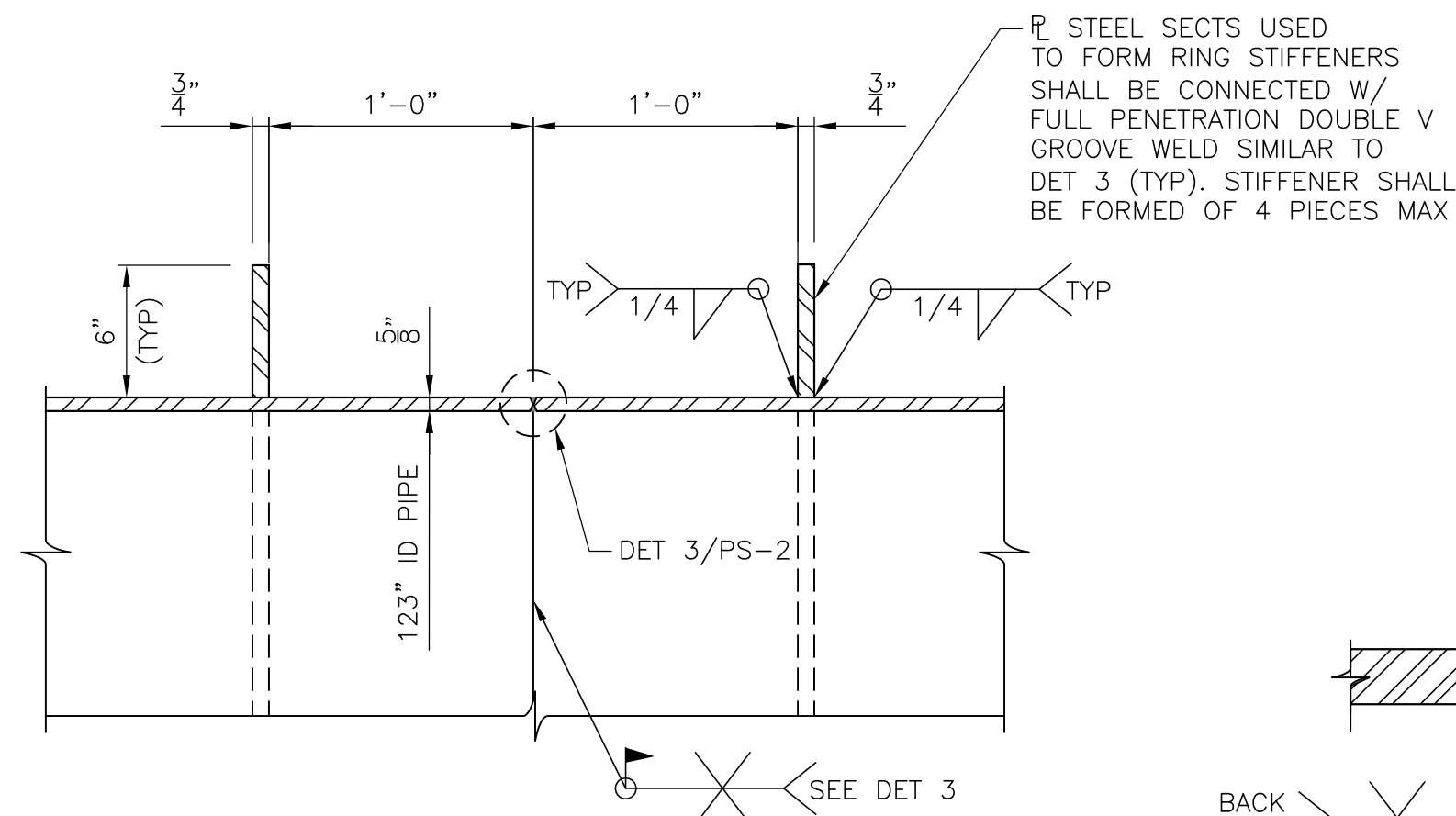




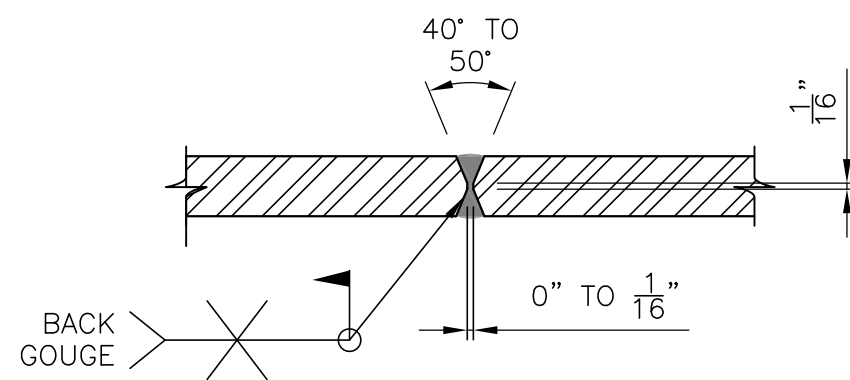
ELEVATION - SB-2/BP-2/SR-3 (3 PLCS)
SCALE: 1/2"=1'-0"



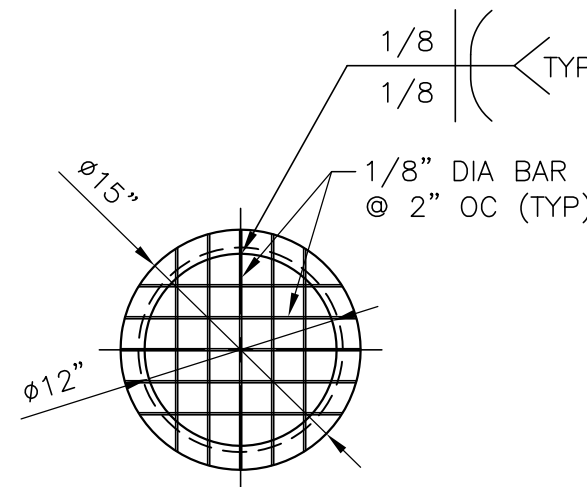
SIDE ELEVATION - SB-2/BP-2/SR-3 (3 PLCS)
SCALE: 1/2"=1'-0"



DETAIL 1
FIELD WELDED JOINTS
SCALE: 1 1/2"=1'-0"



DETAIL 3
HALF SCALE

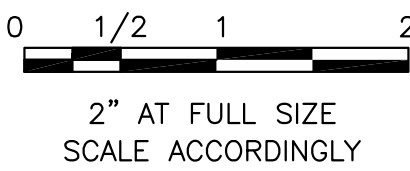


DETAIL 2 - VENT PIPE (7 REQD)
SCALE: 1"=1'-0"

NOTES:

1. FOR LEGEND, ABBREVIATIONS AND NOTES SEE G-1.

REVISIONS			
REV	DATE	DESCRIPTION	APPROVED BY



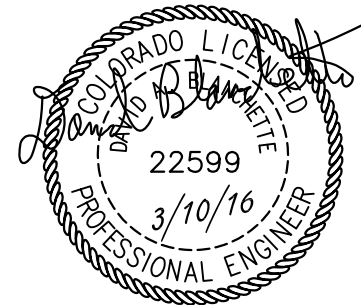
CONSULTANT:
SM&C
Structural Engineers Inc.
215 S. Wadsworth Blvd., Suite 320
Lakewood, CO 80226
ph 303.274.8656
fax 303.484.3777

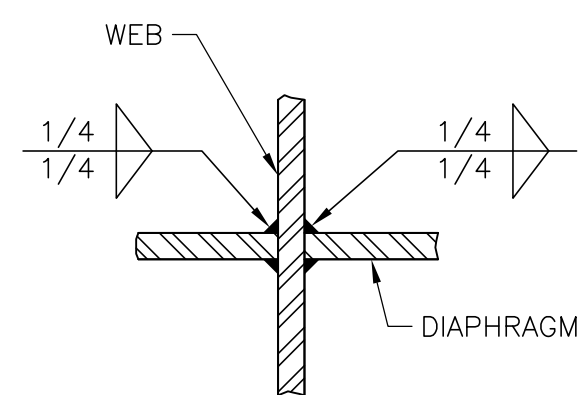
CLIENT:
**FT LYON
CANAL COMPANY**
750 Bent Ave, Las Animas, CO 81054
(719) 456-0720

HORSE CREEK FLUME REHABILITATION PROJECT
**SUPPORT ELEVATIONS SB-2/BP-2/SR-3
AND DETAILS**

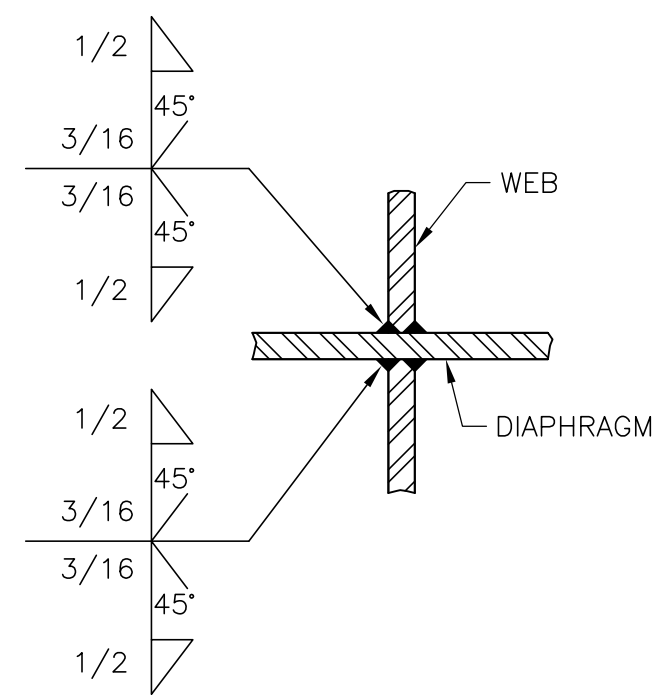
SMRC PROJECT NO.
FL-2015-01
DESIGN BY:
JWI
DRAWN BY:
RC
CHECKED BY:
DAB/JWI

DRAWING NO.
PS-2
SHEET:
4 OF **11**

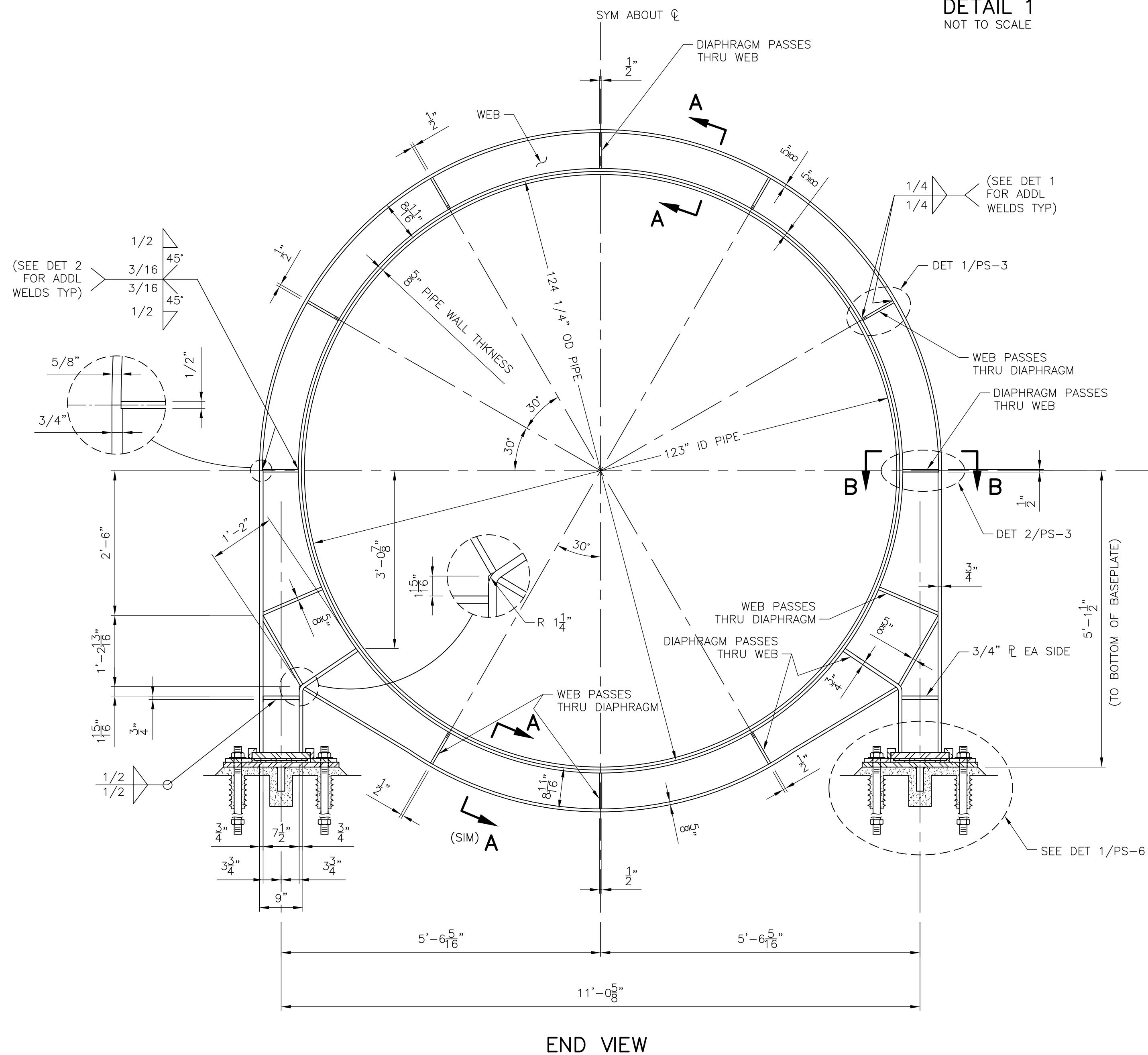




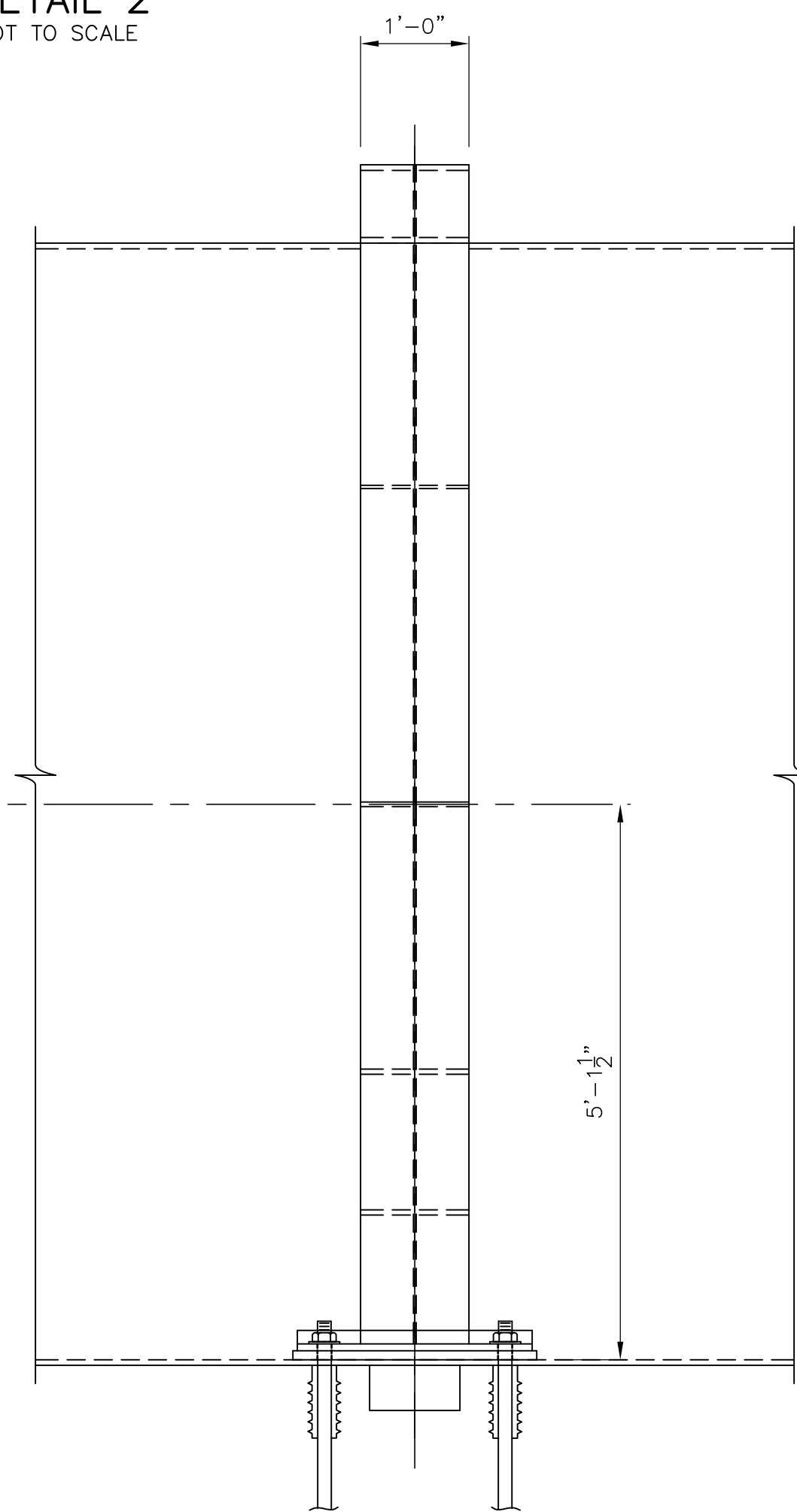
DETAIL 1
NOT TO SCALE



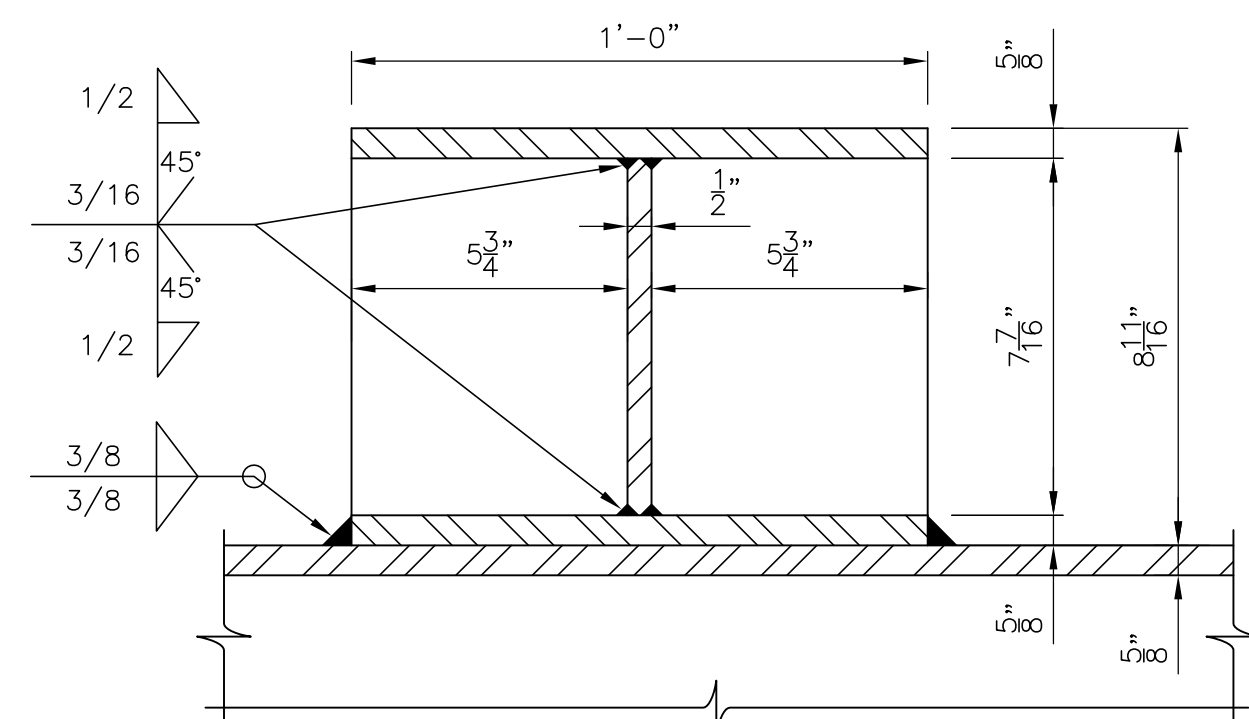
DETAIL 2
NOT TO SCALE



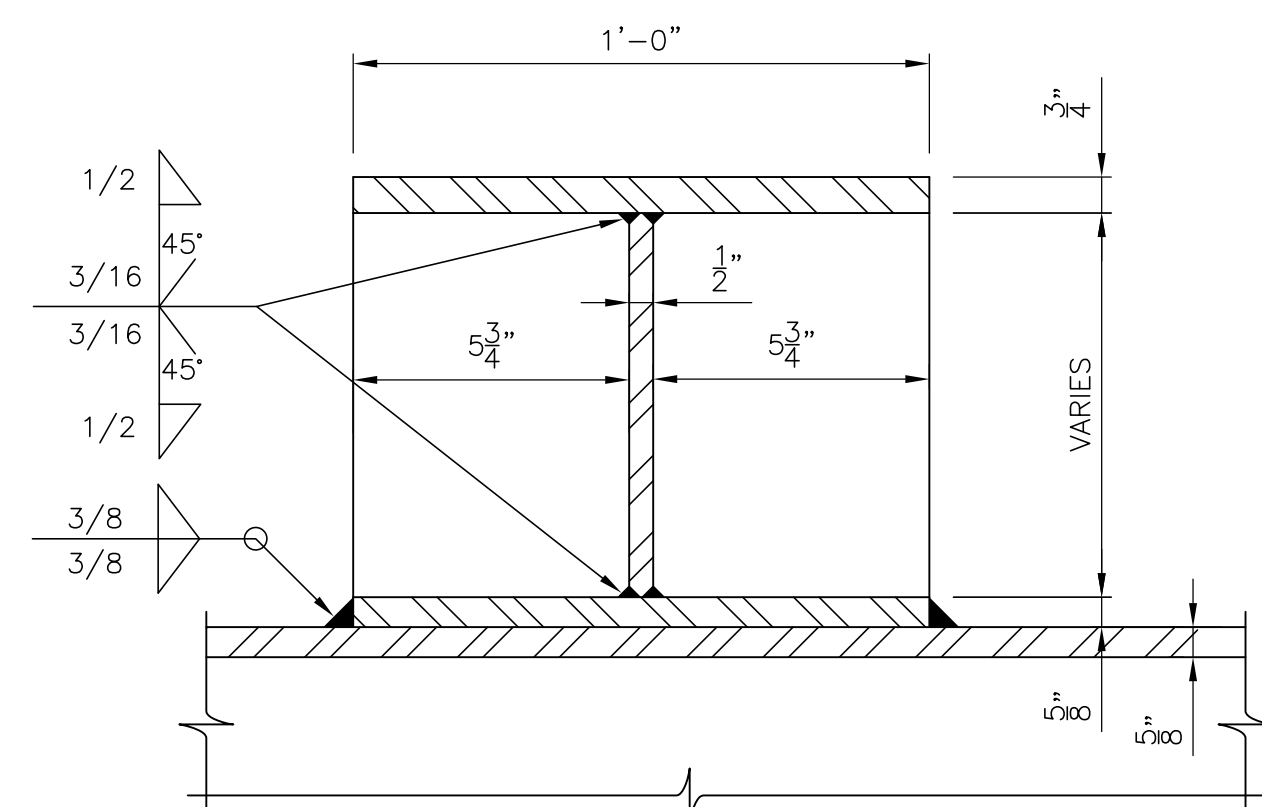
SUPPORT RING SR-2 DETAIL
SCALE: 3/4" = 1'-0"



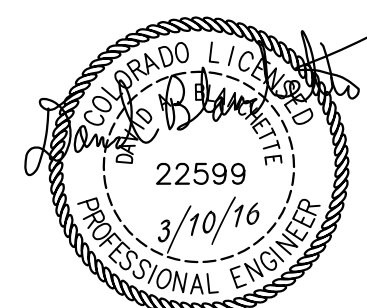
SIDE VIEW



SECTION A-A
SCALE: 3"=1'-0"



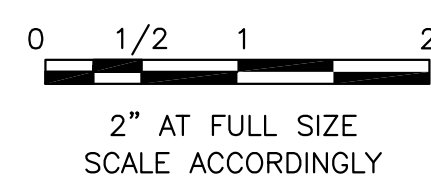
SECTION B-B
SCALE: 3"=1'-0"



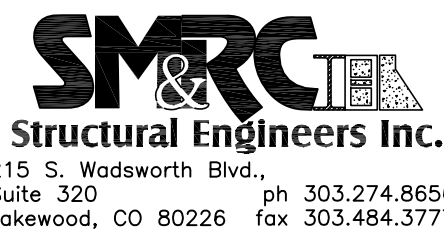
NOTES:

1. FOR LEGEND, ABBREVIATIONS AND NOTES SEE G-1.

REVISIONS			
REV	DATE	DESCRIPTION	APPROVED BY
	3/10/16	AS-BUILT DRAWINGS	DAB
	11/11/15	ISSUED FOR FIELD INSTALLATION OF PIPE	DAB
	6/26/15	ISSUED FOR BID	DAB



CONSULTANT:



CLIENT:	
---------	--

**FT LYON
CANAL COMPANY**
750 Bent Ave., Las Animas, CO 81054
(719) 456-0720

HORSE CREEK FLUME REHABILITATION PROJECT

SUPPORT RING 2 (SR-2)
DETAILS

SMRC PROJECT NO.

FL-2015-01

DESIGN BY:
JWI

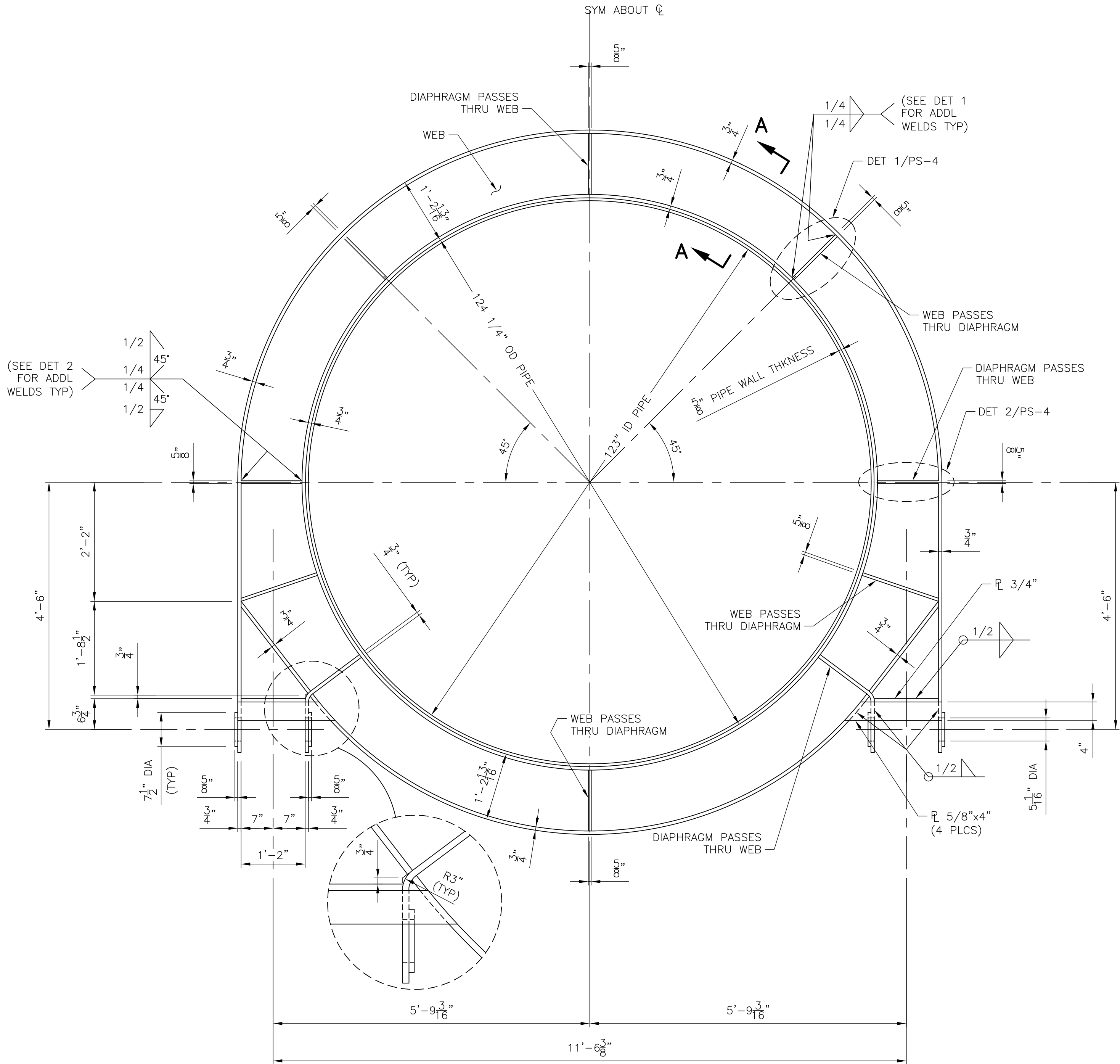
DRAWN BY:
DO

DRAWING NO.

PS-3

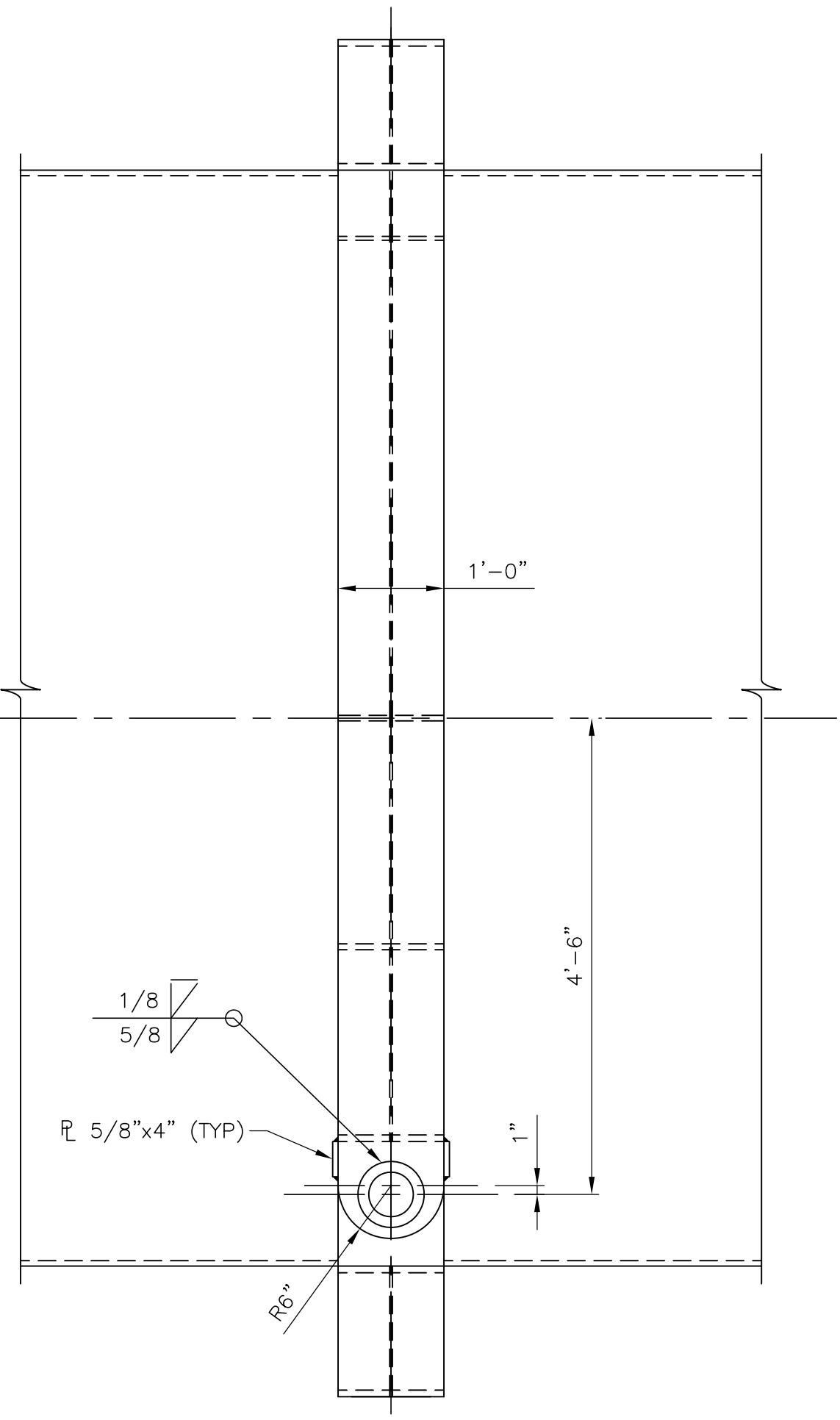
SHEET: 5 OF 11

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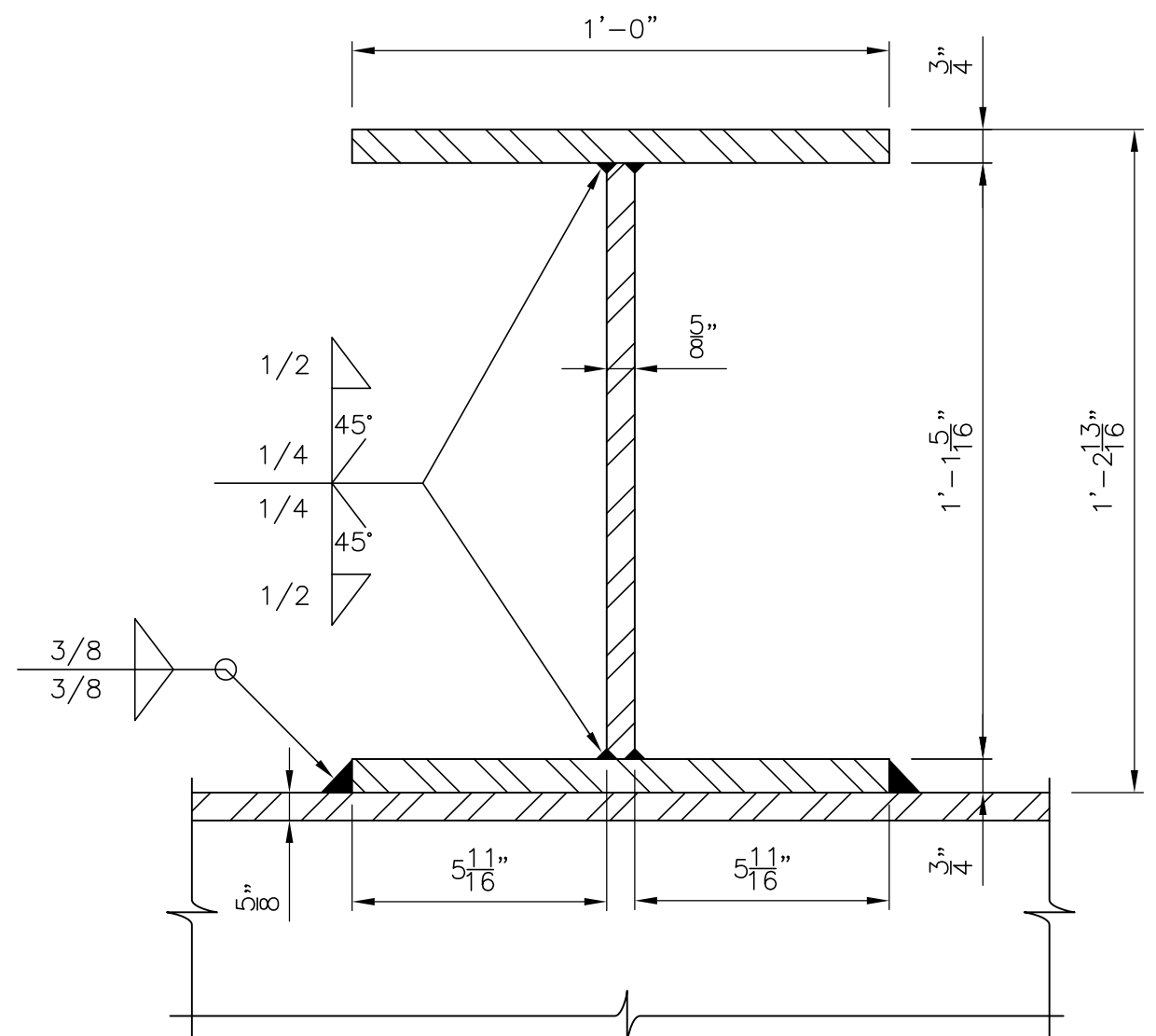


END VIEW

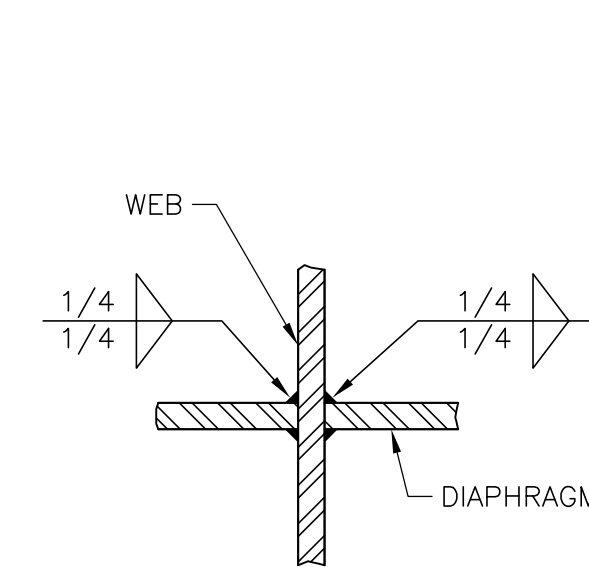
SUPPORT RING SR-3 DETAIL (4 REQD)
SCALE: 3/4" = 1'-0"



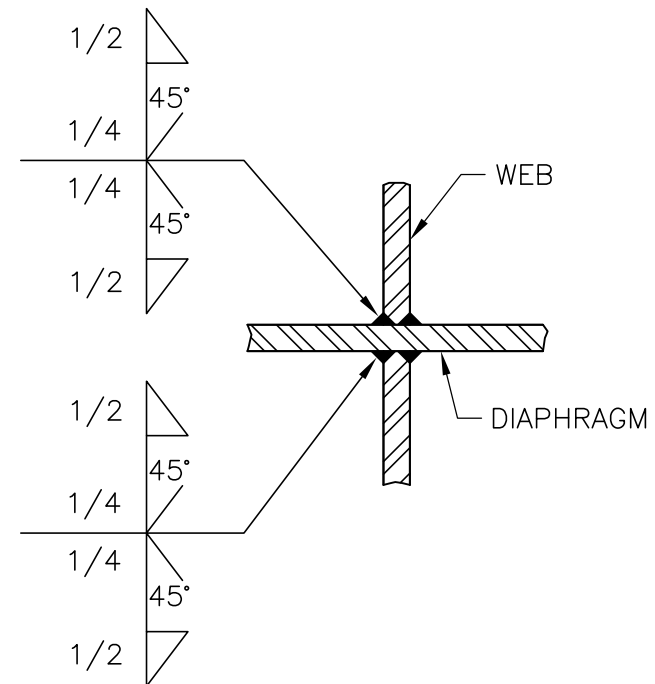
SIDE VIEW



SECTION A-A
SCALE: 3"=1'-0"



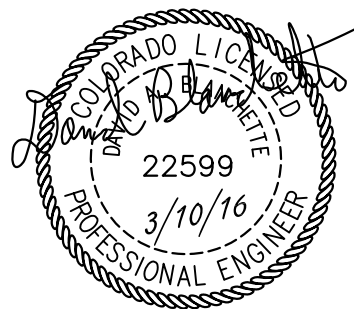
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NOT TO SCALE



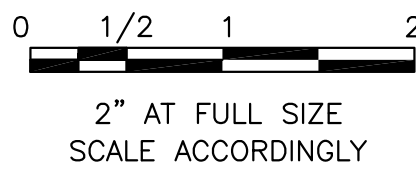
DETAIL 2
NOT TO SCALE

NOTES:

1. FOR LEGEND, ABBREVIATIONS AND NOTES SEE G-1.



REVISIONS			
REV	DATE	DESCRIPTION	APPROVED BY



CONSULTANT:
SM&C
Structural Engineers Inc.
215 S. Wadsworth Blvd., ph 303.274.8656
Suite 320 Lakewood, CO 80226 fax 303.484.3777

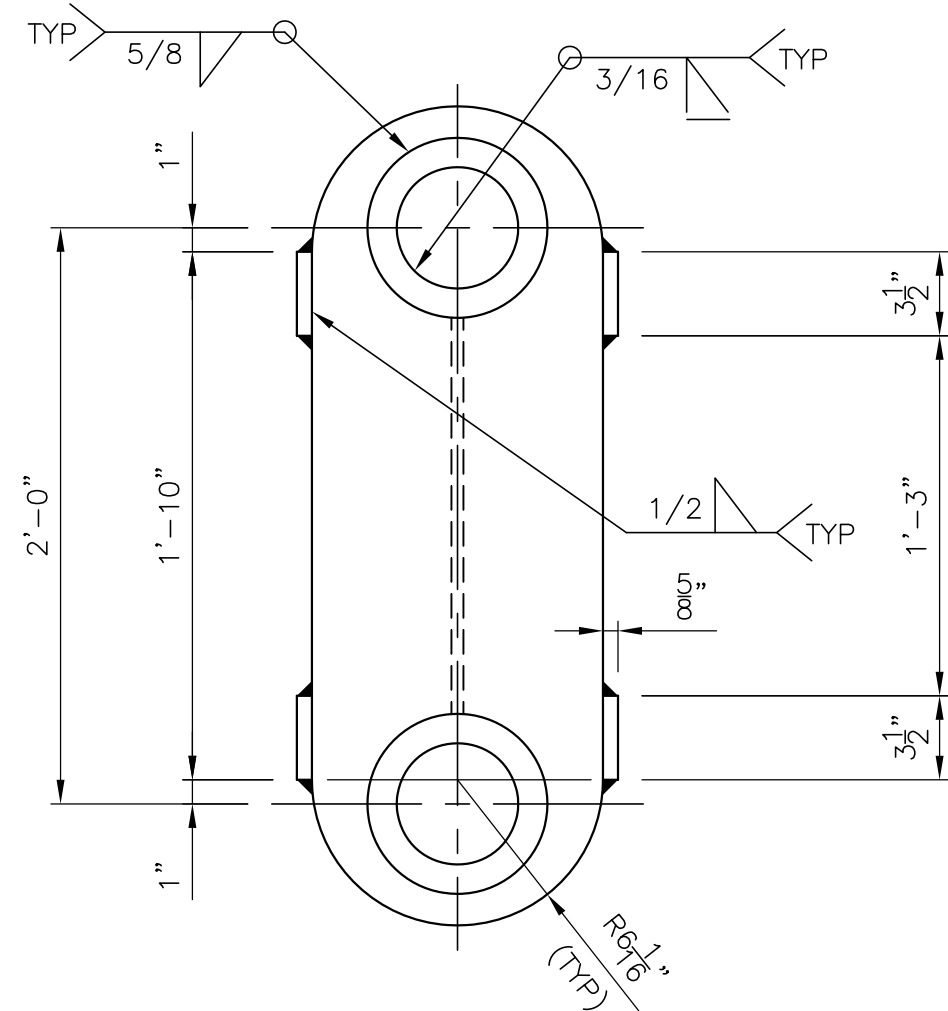
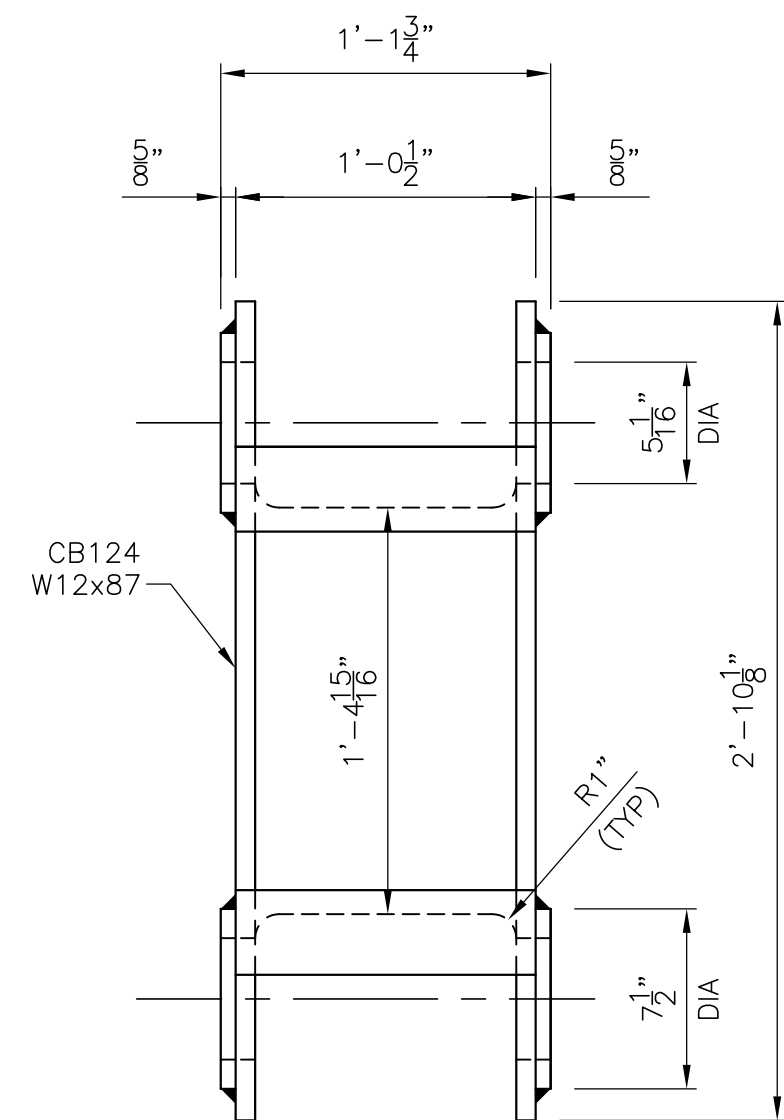
CLIENT:
**FT LYON
CANAL COMPANY**
750 Bent Ave, Las Animas, CO 81054
(719) 456-0720

HORSE CREEK FLUME REHABILITATION PROJECT

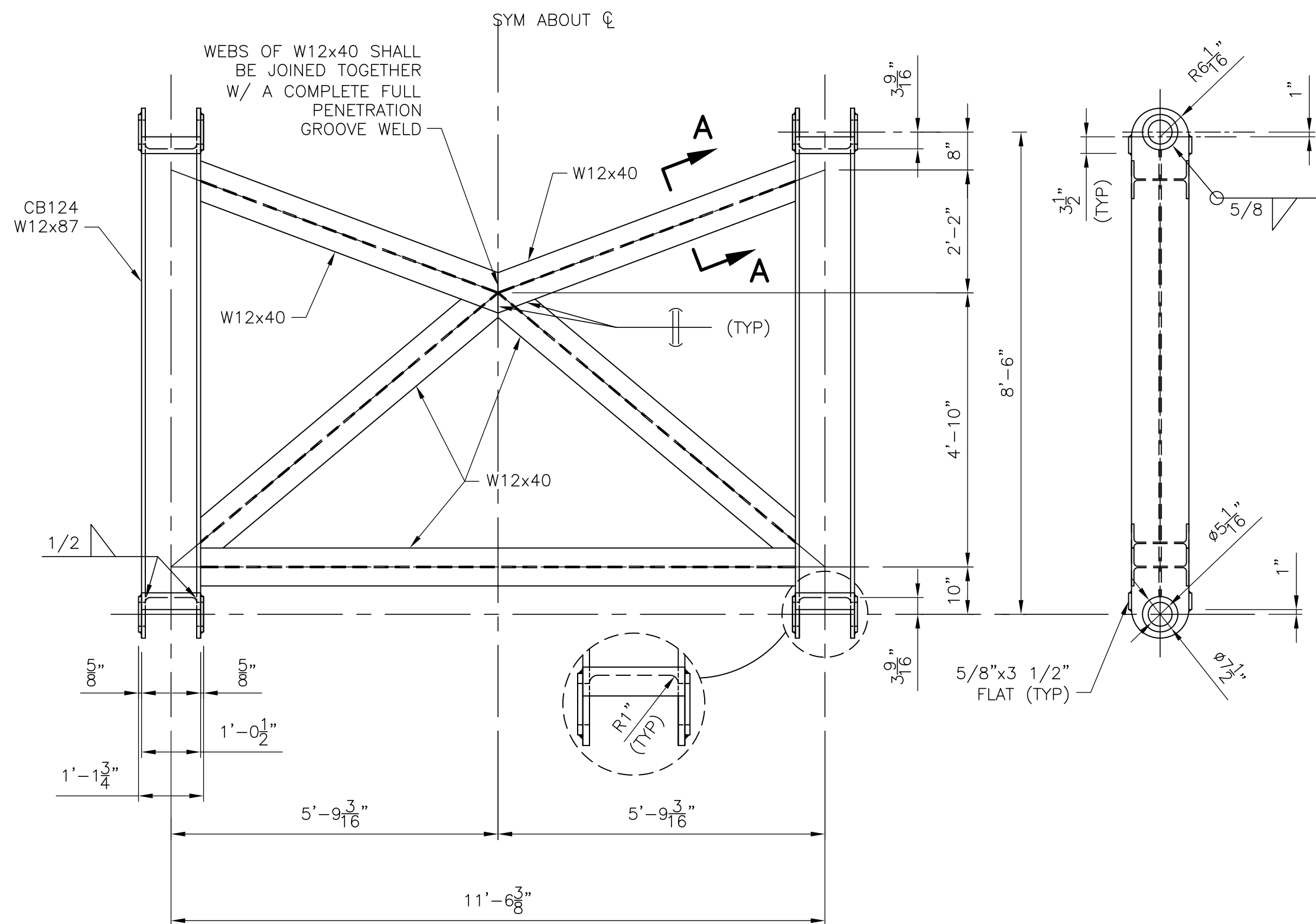
**SUPPORT RING 3 (SR-3)
DETAILS**

SMRC PROJECT NO.
FL-2015-01
DESIGN BY:
JWI
DRAWN BY:
RC
CHECKED BY:
DAB/JWI

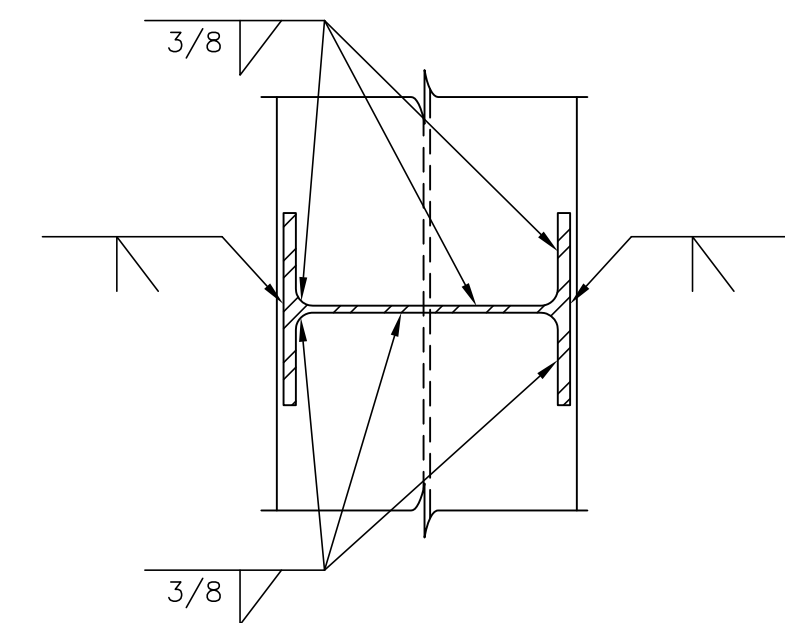
DRAWING NO.
PS-4
SHEET:
6 OF 11



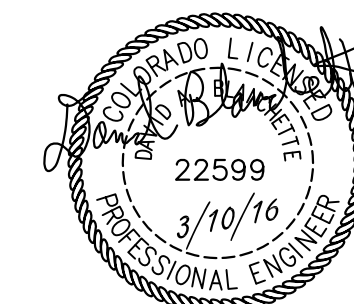
DETAIL — STEEL LINK SUPPORT SB-1
SCALE: 1 1/2"=1'-0"



DETAIL — STEEL BENT SUPPORT SB-2 (3 REQD)
SCALE: 1/2" = 1'-0"



SECTION A-A
SCALE: 1 1/2"=1'-0"



NOTES:

1. FOR LEGEND, ABBREVIATIONS AND NOTES SEE G-1.

REVISIONS			
REV	DATE	DESCRIPTION	APPROVED BY

0 1/2 1 2
2" AT FULL SIZE
SCALE ACCORDINGLY

CONSULTANT:
SM&C
Structural Engineers Inc.
215 S. Wadsworth Blvd., ph 303.274.8656
Suite 320 Lakewood, CO 80226 fax 303.484.3777

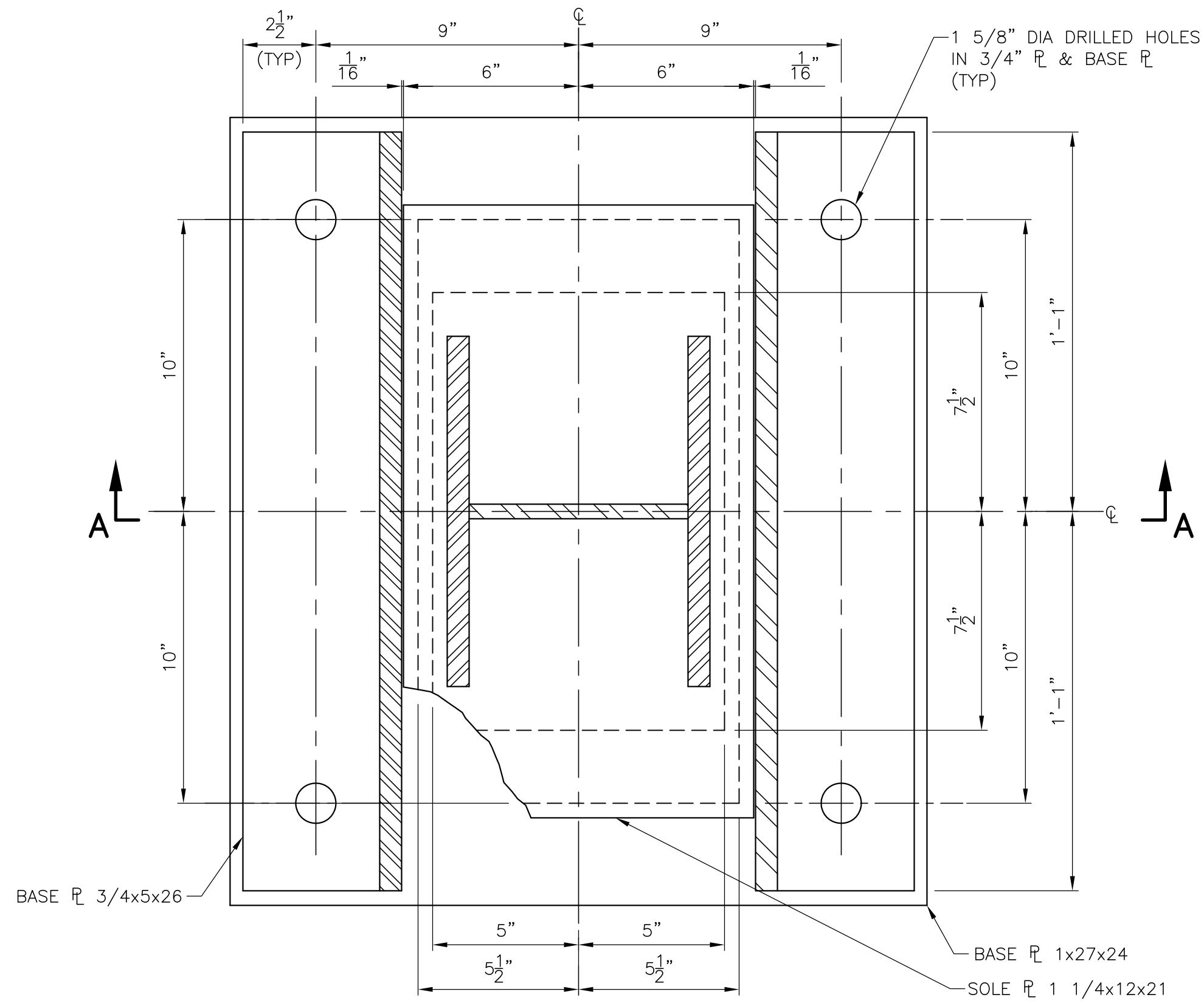
CLIENT:
**FT LYON
CANAL COMPANY**
750 Bent Ave, Las Animas, CO 81054
(719) 456-0720

HORSE CREEK FLUME REHABILITATION PROJECT

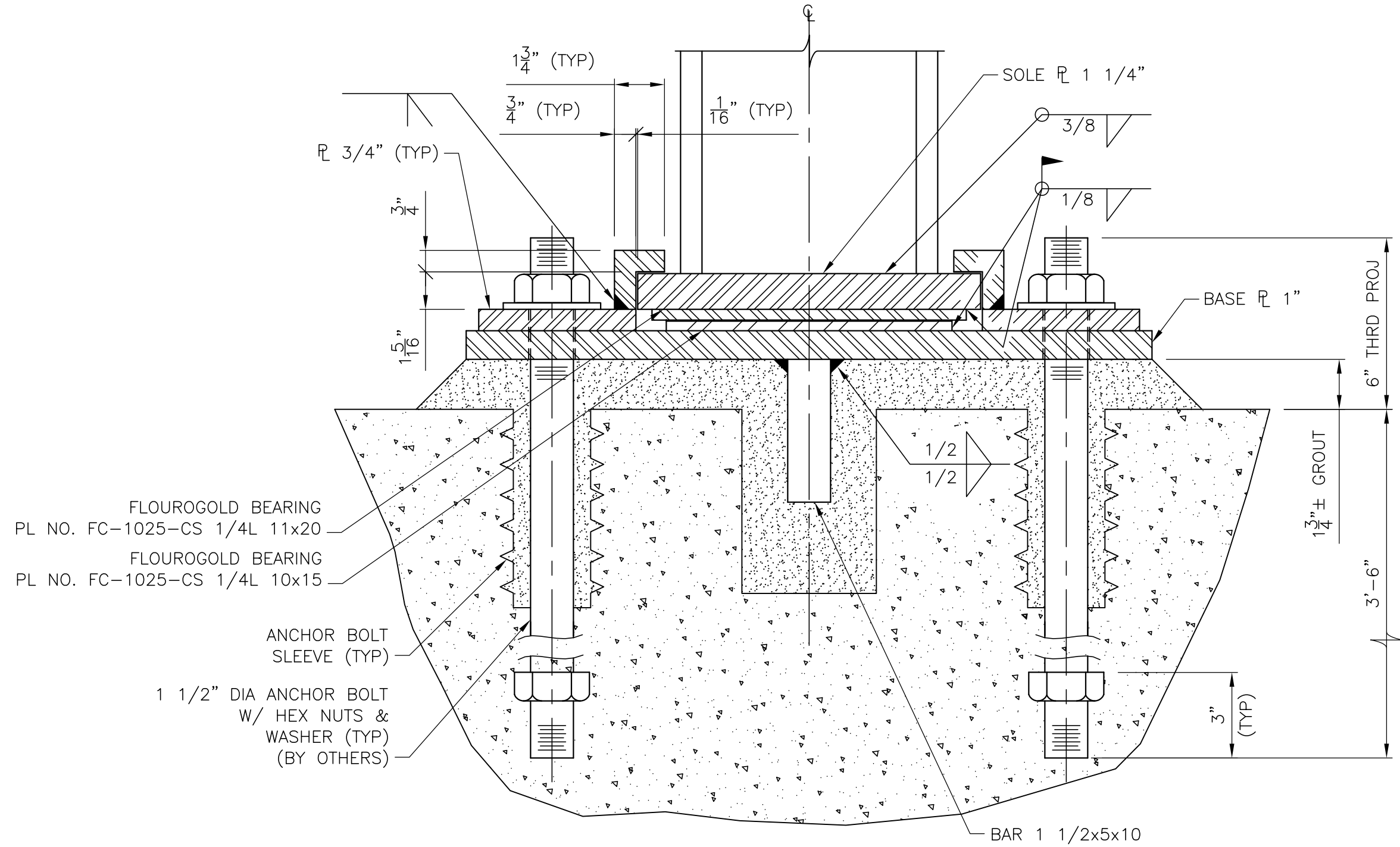
**STEEL BENT SUPPORTS
SB-1 AND SB-2 DETAILS**

SMRC PROJECT NO.
FL-2015-01
DESIGN BY:
JWI
DRAWN BY:
RC
CHECKED BY:
DAB/JWI

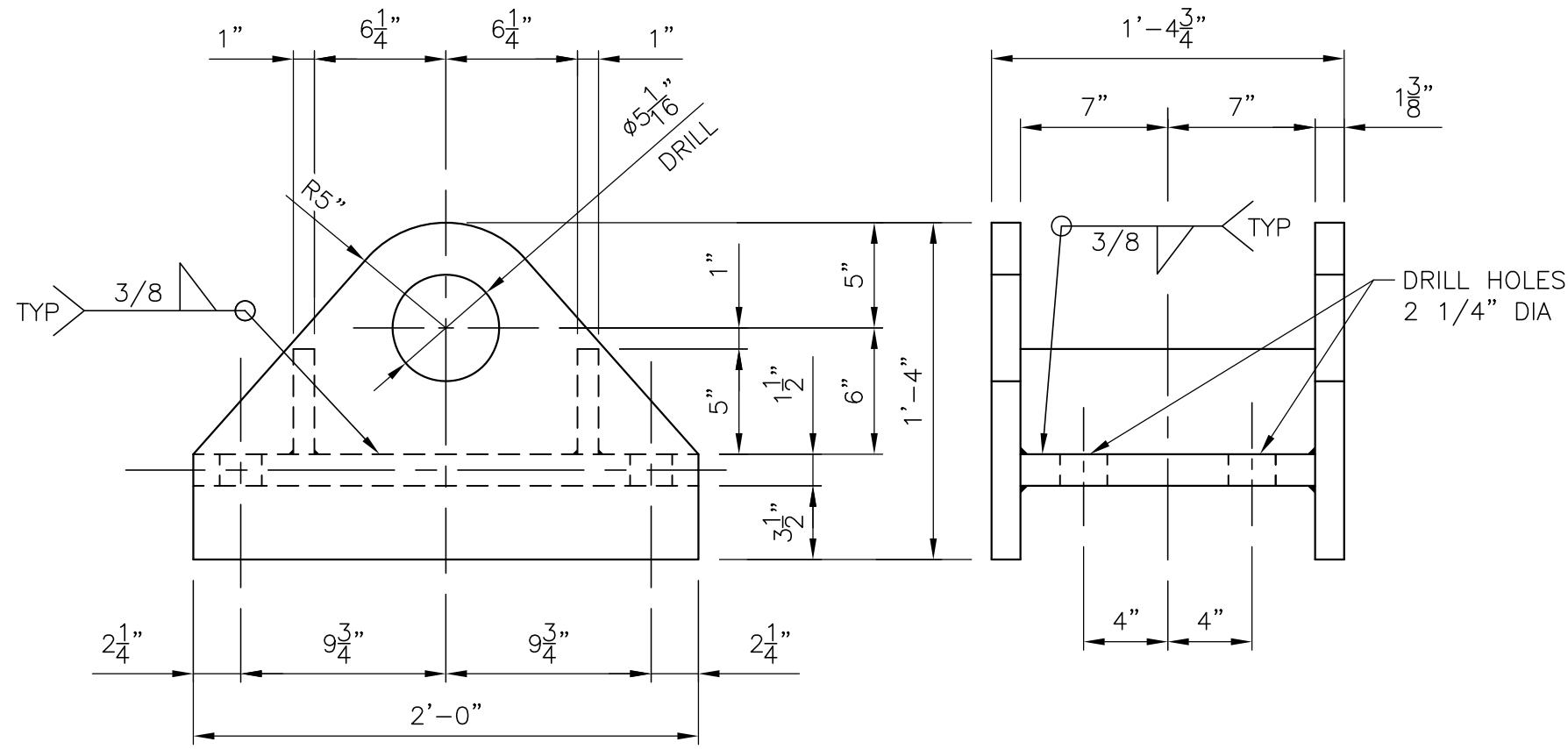
DRAWING NO.
PS-5
SHEET:
7 OF 11



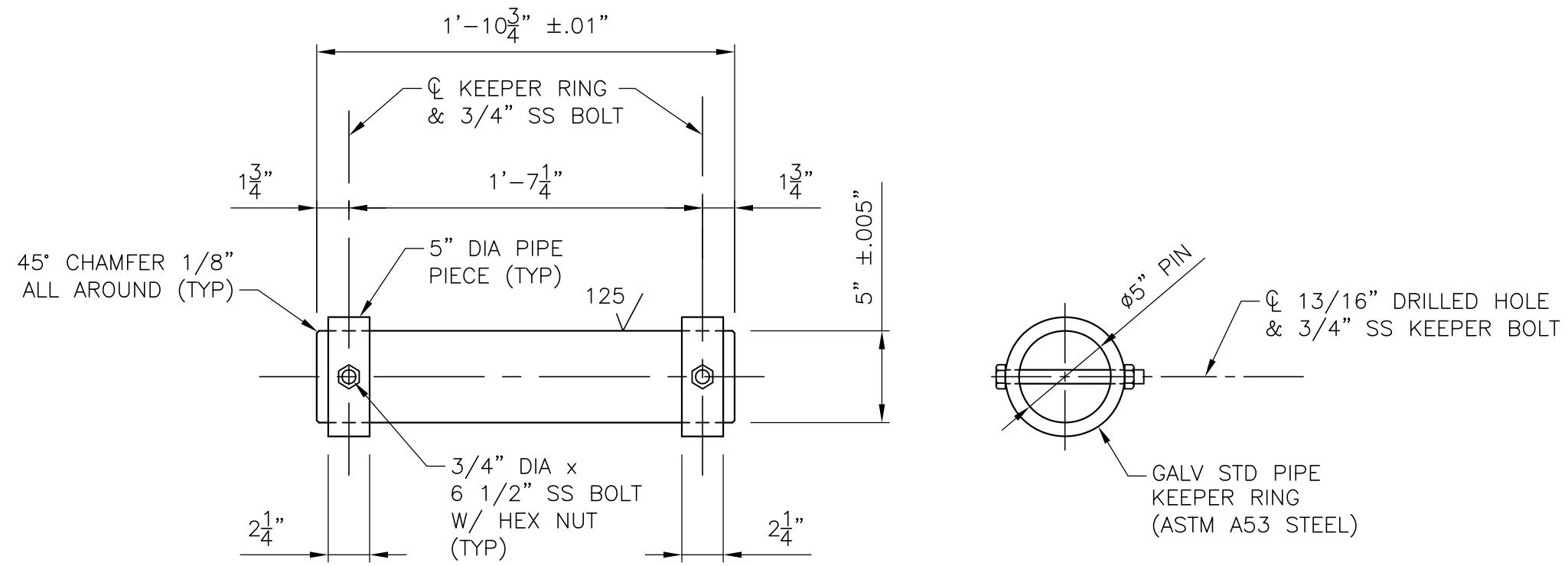
DETAIL 1
SCALE: 3\"/>



SECTION A-A
SCALE: 3\"/>



DETAIL BP-2 (8 REQD)
SCALE: 1 1/2\"/>

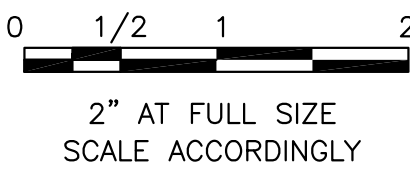


DETAIL 2 - 5\"/>

NOTES:

- FOR LEGEND, ABBREVIATIONS AND NOTES SEE G-1.
- PIN STEEL SHALL BE ASTM A572 GRADE 42 STEEL.
- PIPE INSTALLATION CONTRACTOR SHALL GREASE PINS AS DIRECTED BY ENGINEER.

REVISIONS			
3/10/16	AS-BUILT DRAWINGS		DAB
11/11/15	ISSUED FOR FIELD INSTALLATION OF PIPE		DAB
10/15	RFI #1, #3 - RFI SKETCHES WERE SUBMITTED		DAB
6/26/15	ISSUED FOR BID		DAB
REV	DATE	DESCRIPTION	APPROVED BY

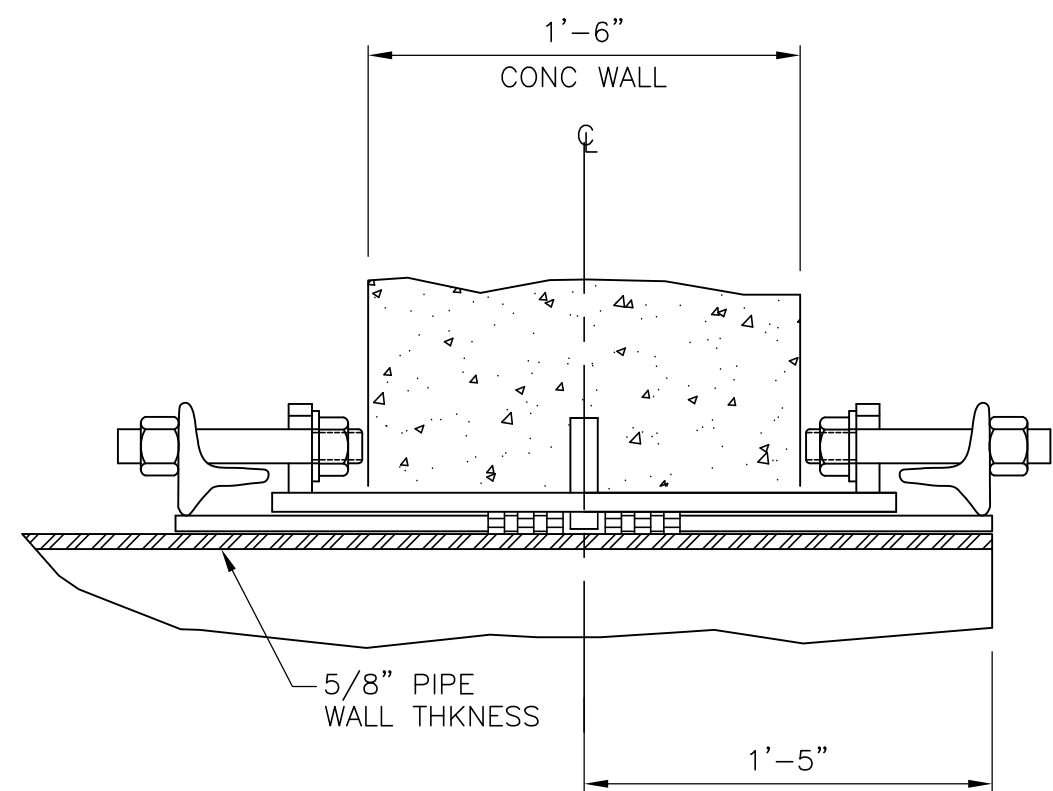


CONSULTANT:
SM&C
Structural Engineers Inc.
215 S. Wadsworth Blvd., ph 303.274.8656
Suite 320 Lakewood, CO 80226 fax 303.484.3777

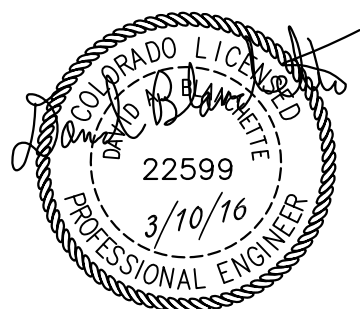
CLIENT:
FT LYON
CANAL COMPANY
750 Bent Ave, Las Animas, CO 81054
(719) 456-0720

HORSE CREEK FLUME REHABILITATION PROJECT
SUPPORT DETAILS

SMRC PROJECT NO. FL-2015-01	DRAWING NO. PS-6
DESIGN BY: JWI	
DRAWN BY: RC	
CHECKED BY: DAB/JWI	SHEET: 8 OF 11



PREFAB BAKER SPECIAL 124.25 EXPANSION JOINT
IN OUTLET WALL (1 REQD)
SECTIONAL ASSEMBLY DRAWING
SCALE: 1 1/2" = 1'-0"



- NOTES:
- 1. FOR LEGEND, ABBREVIATIONS AND NOTES SEE G-1.
 - 2. BAKER SPECIAL 124.25 EXPANSION JOINT TO BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.

REVISIONS				<div>01/21/2025 10:42:22 AM</div> <div>Z:\SMRC Projects\WV Wheeler Associates\FT Lyon Canal Pipe Inspection\Shop\Steel.dwg\G1 PS-7 to PS-9.dwg</div>
3/10/16	AS-BUILT DRAWINGS	DAB		
11/11/15	ISSUED FOR FIELD INSTALLATION OF PIPE - BAKER SPECIAL EXPANSION JOINT	DAB		
6/26/15	ISSUED FOR BID	DAB		
REV	DATE	DESCRIPTION	APPROV BY	

2" AT FULL SIZE
SCALE ACCORDINGLY

01/21/2025 10:42:22 AM

CONSULTANT:

SM&RC

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HORSE CREEK FLUME REHABILITATION PROJECT

PREFAB EXPANSION JOINT DETAILS

SMRC PROJECT NO.
FL-2015-01

DESIGN BY:
JIWI

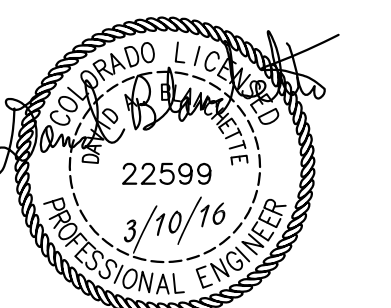
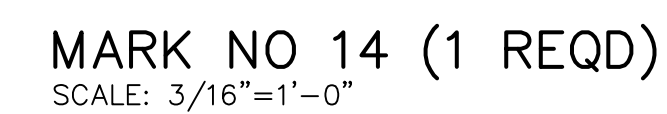
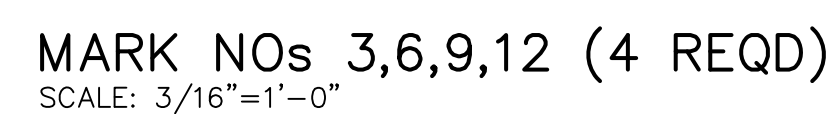
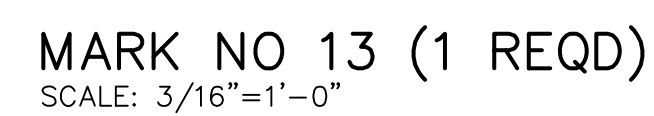
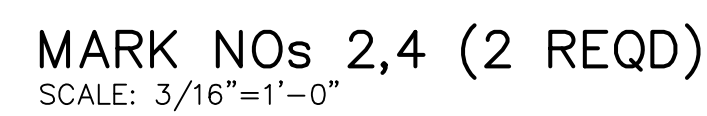
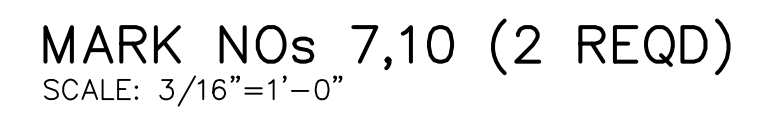
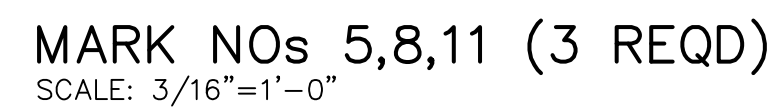
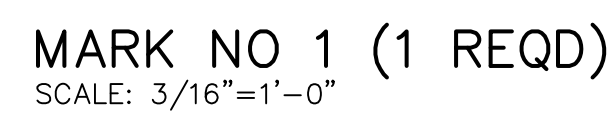
DRAWN BY:
RC

CHECKED BY:
DAB/JIWI

DRAWING NO.

PS-7

SHEET:
9 OF 11



1. FOR LEGEND, ABBREVIATIONS AND NOTES SEE G-1.
2. PIECE MARK DETAILS ARE PLAN VIEWS SHOWING TOP OF PIPE.

REVISIONS				
	3/10/16	AS-BUILT DRAWINGS	DAB	
	11/11/15	ISSUED FOR FIELD INSTALLATION OF PIPE	DAB	
	6/26/15	ISSUED FOR BID	DAB	
REV	DATE	DESCRIPTION	APPROV BY	

0

1/2

1

2

2" AT FULL SIZE
SCALE ACCORDINGLY

CONSULTANT:

SMRC

Structural Engineers Inc.

215 S. Wadsworth Blvd.,
Suite 320
Lakewood, CO 80226

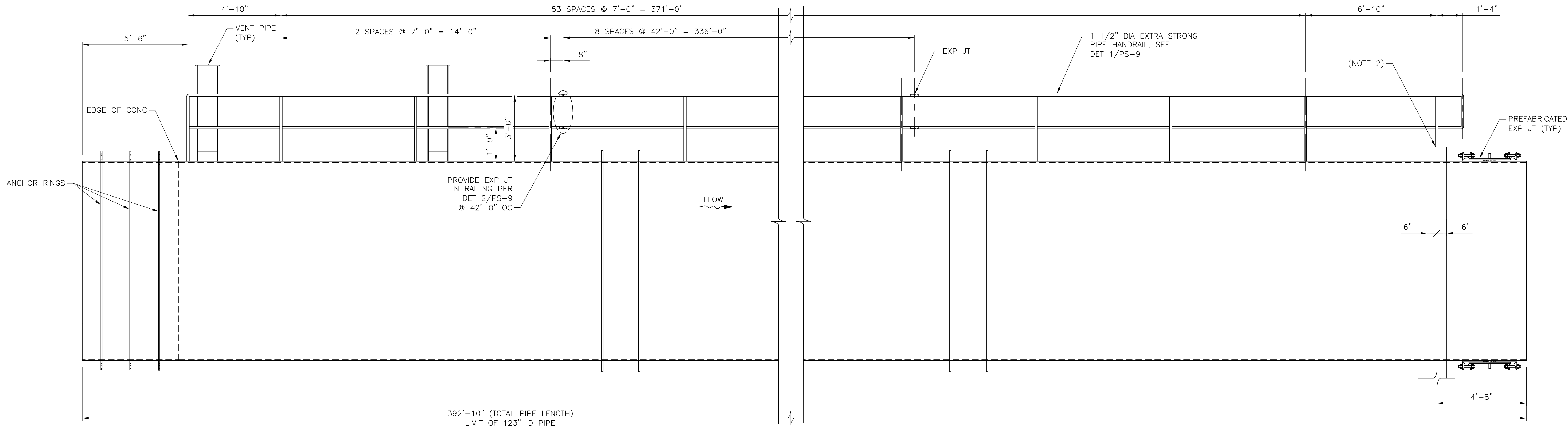
ph 303.274.8656
fax 303.484.3777

CLIENT:

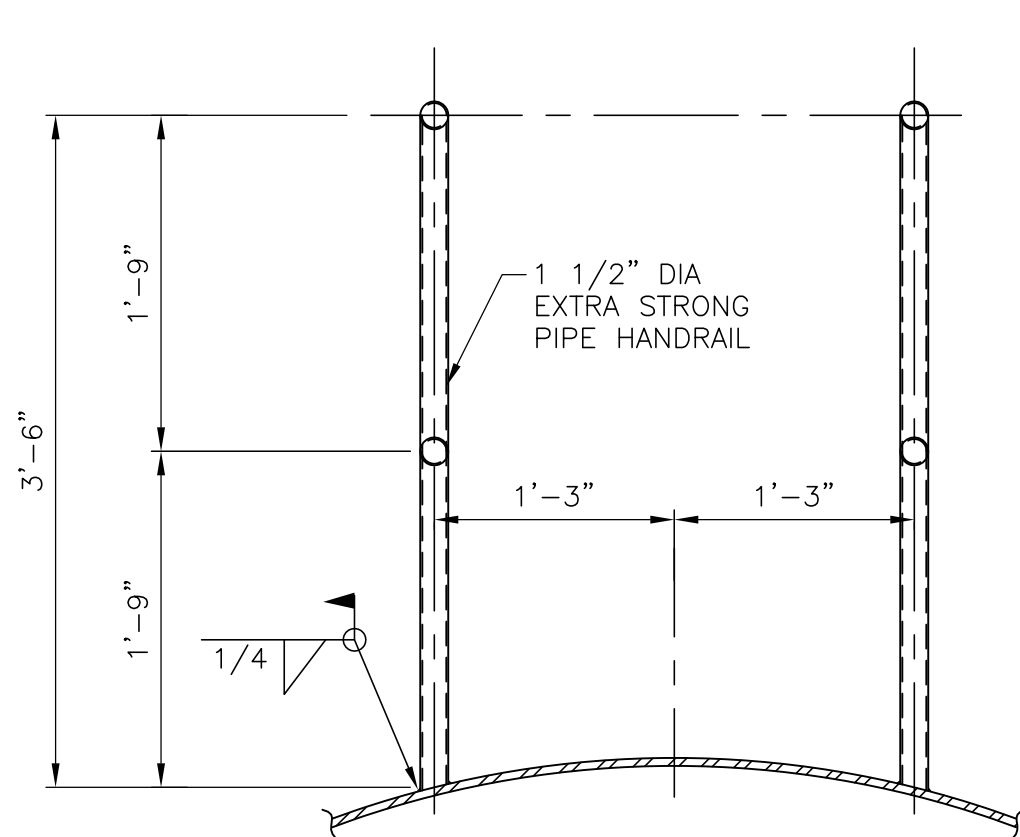
FT LYON
CANAL COMPANY

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(719) 456-0720

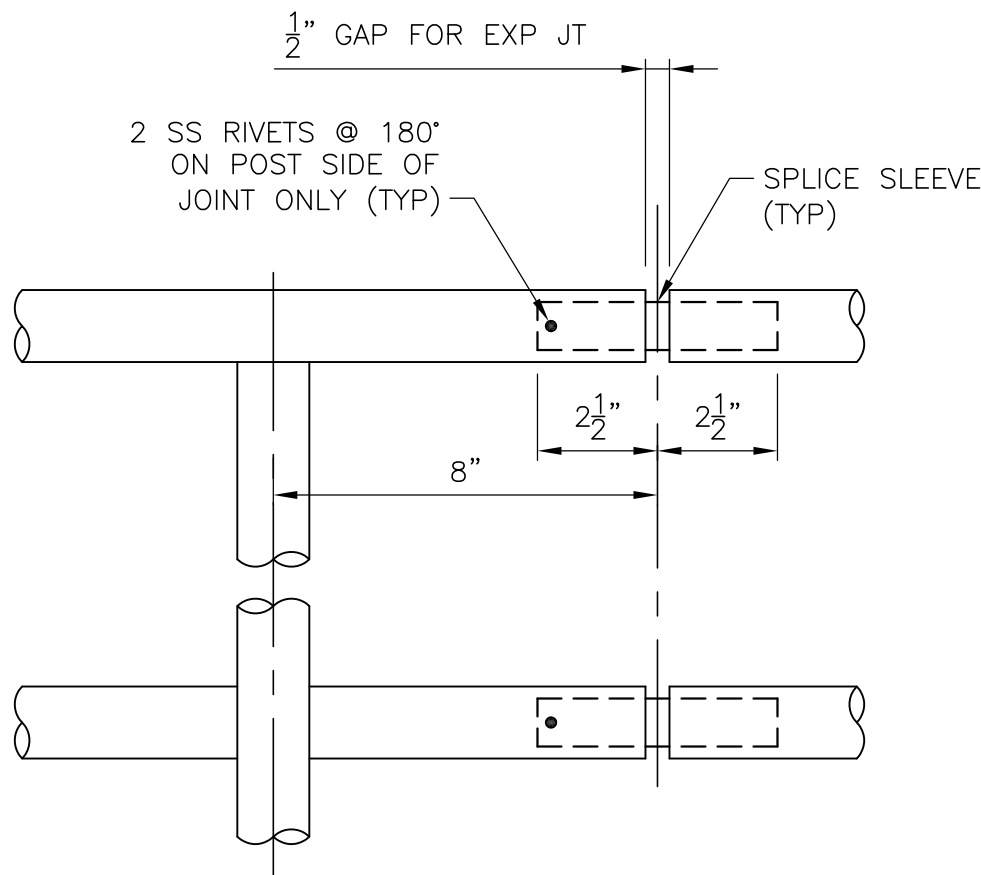
HORSE CREEK FLUME REHABILITATION PROJECT		SMRC PROJECT NO. FL-2015-01	DRAWING NO.
PIPE PIECE MARK DETAILS		DESIGN BY: JWI	PS-8
		DRAWN BY: RC	
		CHECKED BY: DAB/JWI	
		SHEET: 10 OF 11	



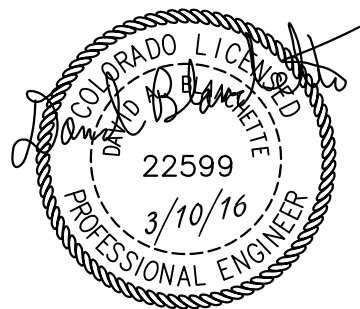
HANDRAIL — ELEVATION
SCALE: 3/8"=1'-0"



DETAIL 1
SCALE: 1"=1'-0"

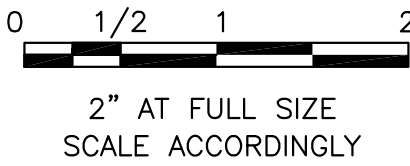


DETAIL 2 — HANDRAIL EXPANSION JOINT
SCALE: 3"=1'-0"



- NOTES:
- FOR LEGEND, ABBREVIATIONS AND NOTES SEE G-1.
 - HANDRAIL POSTS WILL BE ATTACHED TO THE RING GIRDERS. FIELD TRIM POSTS AT RING GIRDERS AS REQUIRED.

REVISIONS			
REV	DATE	DESCRIPTION	APPROVED BY
	3/10/16	AS-BUILT DRAWINGS	DAB
	11/11/15	ISSUED FOR FIELD INSTALLATION OF PIPE	DAB
	6/26/15	ISSUED FOR BID	DAB



CONSULTANT:

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CLIENT:

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HORSE CREEK FLUME REHABILITATION PROJECT

HANDRAIL DETAILS

SMRC PROJECT NO.
FL-2015-01

DESIGN BY:
JWI

DRAWN BY:
RC

CHECKED BY:
DAB/JWI

DRAWING NO.
PS-9

SHEET:
11 OF 11