



November 3, 2016

Derek Johnson
Colorado Water Conservation Board
1313 Sherman St. Room 718
Denver, CO 80203

RE: Big Evans Reservoir Bypass Flume Project
CWCB CMS: 83652/CORE: CT2016-2004

Dear Mr. Johnson:

On behalf of my client, Parkville Water District, I wish to confirm that the Big Evans Reservoir Bypass Flume Project has been completed and the stream is now running through the new flume. I understand you met with Greg Teter at the site on October 25, 2016 and were satisfied with the final result. In accordance with the Colorado Water Conservation Board (CWCB) contract requirements, Enclosed is a copy of the Record Drawings and the Close-out Report.

The Project was constructed in general conformance to the Project Drawings, Specifications and Change Orders (two total). The Contractor (Mountain Structures Inc.) did a good job of constructing the Project and it was completed as of October 25, 2016. The final cost of the project from Mountain Structures was \$407,926.49 (\$399,871.74 Original Bid plus \$8054.75 in change orders). The Change Orders were required for the addition of studs to be used to connect the flange adapters and backing rings added to the pipeline to improve constructability, and an additional brace at the concrete outlet structure that was added after the Contract was issued. The Change Orders were approved by the Project Engineer and Project Owner. Parkville also paid additional expenses for the Project such as Engineering Construction Observation and meetings, concrete testing, pipe flanges and backing rings, etc. These costs were not part of the contract price with the Contractor and therefore were not paid for with CWCB funding.



Derek Johnson
November 3, 2016
Page 2

The Parkville Water District greatly appreciates the funding provided by the Colorado Water Conservation Board: this made the project feasible for Parkville.

Please contact Wheeler with any questions you may have about the Project, or if you need additional information.

Sincerely,
W. W. Wheeler & Associates, Inc.

A handwritten signature in black ink, appearing to read "Doug MacLaren".

Doug MacLaren, P.E.

Enclosures

CC: Greg Teter

**Big Evans Reservoir
Bypass Flume Replacement Project
Evans Gulch Dam
Dam ID No. 110106, C-1796B
Division 2, District 11
Project Closeout Report**



Prepared for
Parkville Water District
2015 N. Poplar
Leadville, CO 80416



November 7, 2016

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Project Summary

The Big Evans Reservoir Bypass Flume was originally built sometime between 1885 and 1905 (exact date unknown) as a means of bypassing contaminated water from Evans Gulch around the Big Evans Reservoir, which is used as the primary drinking water source for the City of Leadville. Previous years had seen repeated outbreaks of cholera and similar water-borne diseases in Leadville. The flume collected contaminated gulch water from above the fresh-water reservoir and bypassed it around the reservoir. The reservoir has a separate inlet upstream of most of the sources of contamination (which have since been mostly eliminated). The reservoir operation still needs the bypass flume to prevent muddy spring run-off water from entering the reservoir. The reservoir is located in what was the original stream location, requiring the stream to be diverted around it. The original flume was constructed using approximately 2"x10" wooden planks to form a rectangular structure for the stream water to flow in. The wood structure required constant maintenance and was of barely sufficient capacity. Recent large snow melt events caused the flume to operate at maximum capacity and resulted in occasional damage to the nearby groin of Big Evans Reservoir Dam. Emergency call-outs were sometimes required to repair damage before it became a serious threat to the dam's earth structure.

Parkville Water District contracted with W. W. Wheeler and Assoc. (Wheeler) to analyze the existing flume for capacity and to research designs for a replacement structure. Wheeler considered several alternatives to the existing flume and concluded that the most practical and economic replacement would be to use High Density Polyethylene (HDPE) pipes buried in the ground, with associated concrete inlet and outlet structures. There was limited space to install the replacement flume and this reduced the options available.

The final design selected for the replacement flume consisted of two 48" diameter HDPE pipes laid side by side along the (approximate) existing path of the previous wood flume, with a concrete inlet structure and a modified (for two pipes) reinforced concrete baffle outlet based on a US Bureau of Reclamation design.

Because of the location of the flume near the existing dam, it was necessary to obtain permission from the State Engineering Office (SEO) to construct the project, and great care was taken to insure that the existing dam structure was not impacted by the project.

Also, because of the project location next to wetlands, the U.S. Corp. of Engineers (USACE) was contacted. It was determined that the construction could be considered a "maintenance" activity and so a Section 404 Nationwide Permit #3 was required. Care was taken to insure that the work was done in accordance with that permit.

One additional complication to the project was that the old flume was designated as a Historical Landmark, and the Colorado Office of Archeological and Historic Preservation (OAHP) required the existing flume be researched, documented, and a representative section of the existing flume be preserved and displayed on the nearby Mineral Belt Bike Trail. These requirements were fulfilled. The sign to be located near the display section has not yet been installed, but is

on order by Parkville Water District and will be installed when it is received (expected to be completed in the next couple of weeks).

The stream flow has been re-routed through the new bypass flume structure and everything appears to be operating as designed. An actual test of the flume operation under high-flow condition will not be possible until the spring of 2017, when the snow in the Evans Gulch basin will again melt and creates a large flow in the stream. Streamflow in the fall is minimal and does not allow for a test of the new flume at high flow rates.

Schedule

The initial design of the replacement flume was initiated in winter 2015/spring 2016. Actual project construction began in July, 2016 and achieved substantial completion by mid-October, 2016. Final completion was achieved a few days later, and the stream has been routed through the new flume. The original wooden flume was documented by photography before being removed, and a section was preserved and placed near the Mineral Bike Trail, per the requirements of the State Office of Archeological and Historic Preservation. The trench created by the removal of the original flume was enlarged for the new 48" HDPE pipes, and the HDPE pipes were fused together from 50' sections and fittings. The fused pipe sections were moved into position and backfilled and compacted. The concrete inlet and outlet structures were formed around the pipe after it was installed in the enlarged trench. The ground slope near the pipeline route was laid back to form a more gradual slope, and the entire area disturbed by the Project was mulched, fertilized and seeded with a high-altitude seed mix. The stream has been diverted back into its original channel and is now running through the new bypass flume.

Project Team

Doug Maclaren, P.E., Engineer with Wheeler, was the Project Engineer for the Big Evans Reservoir Bypass Flume Project. Teams that assisted with the Project included the following:

Parkville Water District is the Owner of the project and provided funding not obtained from CWCB to complete the project. Greg Teter, Parkville Water District General Manager was the Project Manager for the Project. Parkville employees helped with a few minor work tasks, such as installing the ductile iron pipe from the Elk Horn Pump Station.

W. W. Wheeler and Associates, Inc. performed the analysis of the existing flume structure and determined its flow capacity, reviewed new flume replacement alternatives, made a design recommendation to Parkville Water District, and generated the Project Drawings for the new bypass flume. Wheeler personnel performed as the Project Engineer and also performed the construction observation during the construction process.

Colorado Water Conservation Board (CWCB) provided funding assistance for the project.

ERO Resources Corp. was contracted to determine if the wood flume was a historic landmark and what level of preservation and documentation was required to meet the requirements of the State Office of Archaeology and Historic Preservation (OAHP). ERO documented the flume per the OAHP requirements. ERO also helped obtain the required US Army Corps of Engineers (USACE) Nationwide permit required to replace the flume.

Mountain Structures Inc. was awarded the project based on the bid provided and performed the construction of the Bypass Flume Replacement Project.

Project Cost

The cost of the project billed by the Contractor was per the winning bid received: \$399,872. There were two relatively minor Change Orders that increased the cost over the bid price. These were required to improve the project constructability and were modest in cost (\$8054.75 total). There were some work items included in the bid form that were not required in the actual construction, but these were offset by some additional work that was not included in the bid. This mostly involved the transport of material from the upper reservoir to provide topsoil to cover the work area. The Contractor was able to recover enough topsoil from the work area that additional material did not have to be imported. This reduction in cost was offset by the additional work required to move the excavated trench material away from the project area, which was not planned for in the original Scope of Work.

In addition to the actual Contract cost, there were additional Owner costs associated with the project that totaled several thousand dollars over and above the bid cost. These costs include: design engineering (approximately \$40,000), concrete testing (estimated at \$4000), Engineering site visits and meetings, submittal review and approval, reports, emails, letters, etc. (approximately \$40,000), the addition of flange adapters and backing rings not included in the original Scope of Work (\$12,300 total), Mineral belt sign purchase and installation (\$2400), and other miscellaneous work required by the Owner that was not included in the Project bid cost. The Owner also directly purchased the 48" diameter HDPE pipe and fittings and provided them to the Contractor for installation. This was done, in part, because of the uncertain lead-time for the materials. The cost of the HDPE materials was approximately \$95,000.

Reference Appendix D for additional cost data.

Project Quality Testing

Quality control and assurance testing were performed for the Big Evans Reservoir Bypass Flume Project. This testing included the following:

The fusion joints in the installed HDPE discharge pipeline were visually inspected by the Wheeler Project Engineer and the fusion parameters were recorded using a data logger and reviewed by Wheeler. These tests confirmed that the pipeline was well-constructed and safe for use transferring water. These fusion processes were performed by certified employees provided by the fusion machine vendor.

One additional test of the quality of the HDPE fusion joints was a “bent-strap” test. Three test coupons were cut from a representative fused section. These coupons were placed into a test device and bent to a severe angle. Any defect in the fusion weld would have shown up as a crack or break at the fusion. All three test coupons were found to be well made and no cracks or breaks were found. This verifies that the fusion process used produced a strong weld.

Concrete strength testing was performed by HP Kumar for the concrete inlet and outlet structures. Not every batch of concrete was tested, but one batch from each of the structures was tested for quality. The test results indicated the concrete mix met the Project Specifications. Concrete test results are included in Appendix E of this report.

Issues

In general, this project went very well. The flume was replaced without any environmental or safety issues.

A few construction issues that did occur are noted:

1. It was difficult to move the 48" HDPE pipe into position. The pipe and the fittings were fused together at a location near the project and moved into position after fusing. It was difficult to move the large sections of pipe, which were approximately 175' long (there were two pipe sections for each pipe run of approximately 350'). In part to make the pipe sections easier to install, it was decided that the two pipe sections would be further split into two sections and the sections joined in the pipe trench by use of flange adapters and backing rings. This change made the pipe sections to be handled even smaller and therefore relatively easier to place into position, but this was still a somewhat difficult process due to the limited work area. The use of the flange adapters required the purchase of stud sets to connect the flanges, as well as a gasket at each connection to seal the flanges. The cost for these items, which were purchased by the Contractor, was the cause of one of the two change orders received from the Contractor.
2. Another issue that occurred involved the thermal movement of the HDPE pipe. Due to the material properties, HDPE has a very high thermal expansion coefficient. This made it difficult to install the pipe and have it stay in position.
3. One other difficulty with the HDPE pipe was accurately determining the pipe length required. Although the pipes were installed parallel to each other, the lay length was slightly different between the two pipes. This meant the ends did not come out exactly as planned. This was compensated for by increasing the wall thickness at the outlet structure so that the pipe anchor rings were captured properly. This was not a significant problem, but did add some difficulty to the construction.
4. The ground slope on the uphill side of the pipeline was not laid back as much as originally planned. This was due in large part to the limited work area for the project. The Owner wanted to minimize tree clearing and avoid any impact on the neighboring

property, so the finished slope was somewhat steeper than originally planned. The steeper slope also made it somewhat more difficult to re-seed. The Owner accepts the final slope created for the project.

In general, the project went well, with only minor changes from the original design. The actual work area was very limited due to the close proximity of the reservoir on one side of the pipeline and a steep hillside on the other side. This limited the movement of equipment around the project area and required that excavated material be handled more than would be preferred. Despite these difficulties, the Contractor performed the work in compliance with the project plans and schedule.

APPENDIX A

PHOTOS



Original Flume



Original Flume Interior



Straw Waddles Placed at Project Boundaries



Trench Material Being Removed



Inlet Structure Under Construction



Concrete Truck Placing Concrete at Inlet



Concrete Being Placed at Inlet



View of Rough Pipe Trench



HDPE Pipe and Fittings



48" HDPE Pipe Being Fused



Bent Strap Test Coupon Showing Good Weld



48" HDPE Being Staged Before Installation



Pipe Trench Bedding Being Placed



48" HDPE Pipes Being Placed In Trench



48" HDPE Pipes Placed in Trench



48" HDPE at Discharge



HDPE Flanges Being Made



Final Bolting Of Flanges



Lean Concrete Fill Area at Dam Abutment



48" HDPE Pipes Being Positioned In Trench



Manway Access Hatches in Pipeline



Close-up of Manway Hatches



Outlet Structure Rebar Being Placed



Forms Around Outlet Structure



Initial Backfill Over Pipeline



Final Finishing of Concrete at Outlet



48" HDPE Elbows Upstream of Outlet



Top Soil Staged for Placement at Trench



Hatches Over Access Manways



View Inside of Hatches



Fill Being Placed Over Pipes



Slope Being Re-contoured



Reservoir Intake Slide Gate



Straw Placed At Work Area for Reclamation



Completed Outlet Structure



End View of Outlet Structure



Trashrack at Inlet Structure



Completed Inlet Structure



Water in Stream Entering Inlet Structure



Display Section of Old Flume



Steam Water Exiting Pipes at Outlet Structure



Water Flowing Out of Outlet Structure



Water Being Diverted From Stream Into Reservoir



Trashrack at Inlet With Water Flow

APPENDIX B

PROJECT CLOSE OUT LETTER



PROJECT CLOSE OUT LETTER

Project: Big Evans Reservoir Bypass Flume

Contractor: Mountain Structures Inc.

The Big Evans Reservoir Bypass Flume Project has been completed as of October 25, 2016, is in general conformance with the Project Drawings, Specifications and Change Orders, and is operating as designed. This statement is based, in part, on information provided by others.

Signed: 
Steve Maly, P.E., Colorado PE No. 29123

Date: November 4, 2016



APPENDIX C

CERTIFICATION OF COMPLIANCE

**Certification of Compliance
with Department of the Army Nationwide Permit**

Action Number: SPA-2014-00476-SCO, Big Evans Bypass Aqueduct Replacement

Name of Permittee: Greg Teter, Parkville Water District

Nationwide Permit: No. 3 for Maintenance

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

Christopher Grosso
Albuquerque District, U.S. Army Corps of Engineers
200 South Santa Fe Avenue, Suite 301
Pueblo, Colorado 81003-4270

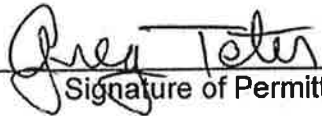
Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit, you are subject to permit suspension, modification, or revocation.

Please enclose photographs showing the completed project (if available).

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit conditions.

Date Work Started 7/20/2016

Date Work Completed 10/25/2016


Signature of Permittee

10/25/2016
Date

APPENDIX D

PROJECT COST DATA

PARKVILLE WATER DISTRICT - BIG EVANS RESERVOIR PROJECT
SCHEDULE OF VALUES - OCTOBER PAY REQUEST SUMMARY

By: FC, Mountain Structures Company

Date: 10-20-16

Item No.	Description of Work	Billing 1 July 15th	Billing 2 August 15th	Billing 3 September 15th	Billing 4 October 20th	Percent Complete To Date	QTY	Unit	Contract Unit Price	Contract Total Cost	Amount Remaining	
1.0: General Work												
1.1	Mobilization		\$ 3,491.64	\$0.00		100%	1	LS	\$40,562.04	\$ 40,562.04	\$ 0.00	
	Project Bonds and Environmental/Umbrella Insurance	27354										
	Mobize Equipment and Job Trailer	8444.4										
	Project Permitting, BMP Plans,	1272										
	Set up dewatering	0										
1.2	Demobilize	0	0	\$0.00	\$25,437.12	100%	1	LS	\$25,437.12	\$ 25,437.12	\$ -	
	General Work Subtotal									\$ 65,999.16		
2.0: Site Work												
2.1	Clear and Grub Project Area (0.3 acre)	0	\$ 6,947.52	\$0.00		100%	1	LS	\$6,947.52	\$ 6,947.52	\$ -	
2.2	Remove and Stockpile Soil (0.3 acre)	0	\$ 4,253.76	\$0.00		100%	1	LS	\$4,253.76	\$ 4,253.76	\$ -	
2.3	Furnish and Install Environmental Controls	796.72	\$ 2,522.96	\$0.00		100%	1	LS	\$3,319.68	\$ 3,319.68	\$ -	
2.4	Provide Dust Control Measures.	0	\$ 8,288.89	\$8,288.89	\$4,144.45	100%	1	LS	\$20,722.23	\$ 20,722.23	\$ (0.00)	
2.5	Furnish and Install Diversion and Dewatering Facilities.	0	\$ 12,345.48	\$0.00		100%	1	LS	\$12,345.48	\$ 12,345.48	\$ -	
	Site work Subtotal									\$ 47,588.67		
3.0: Demolition Work												
3.2	Demolish and Dispose Existing Flume		\$ 19,432.80	\$0.00		100%	1	LS	\$19,432.80	\$ 19,432.80	\$ -	
3.3	Remove and Stockpile Existing Riprap			\$1,932.48		100%	1	LS	\$1,932.48	\$ 1,932.48	\$ -	
	Demolition Work Subtotal									\$ 21,365.28		
4.0 Earthwork												
4.1	Re-Grade Stream Approach	0		\$0	\$1,428.48	100%	1	LS	\$1,428.48	\$ 1,428.48	\$ -	
4.2	Re-Grade Plunge Pool Area	0		\$0	\$5,845.80	100%	1	LS	\$5,845.80	\$ 5,845.80	\$ -	
4.3	Haul and Compact Fill to Raise Existing Berm (100 CY)	0		\$0	\$4,120.92	100%	1	LS	\$4,120.92	\$ 4,120.92	\$ -	
4.4	Haul and Spread Topsoil Over Disturbed Area (200CY)	0		\$0	\$2,790.96	100%	1	LS	\$2,790.96	\$ 2,790.96	\$ -	
4.5	Haul and Place Topsoil From Diamond Lake (250 CY)	0		\$0	\$4,636.20	100%	1	LS	\$4,636.20	\$ 4,636.20	\$ -	
4.5	Re-Vegetate Disturbed Area (0.6 Acre)	0		\$0	\$3,512.88	100%	1	LS	\$3,512.88	\$ 3,512.88	\$ -	
	Earthwork Subtotal									\$ 22,335.24		
5.0 Bypass Flume												
5.1	Install New Bypass Flume Pipeline and Fittings	0	\$ 39,045.86	\$78,091.71	\$13,015.29	100%	1	LS	\$130,152.85	\$ 130,152.85	\$ (0.00)	
5.2	Furnish and Install Concrete Inlet Structure	0	\$ 15,521.93	\$15,521.93		100%	1	LS	\$31,043.86	\$ 31,043.86	\$ (0.00)	
5.3	Furnish and Install the Trashrack	0		\$1,693.34	\$6,773.38	100%	1	LS	\$8,466.72	\$ 8,466.72	\$ (0.00)	
5.4	Furnish and Install Concrete Outlet Structure	0		\$4,786.17	\$43,075.51	100%	1	LS	\$47,861.68	\$ 47,861.68	\$ 0.00	
5.5	Furnish and Install Access Manholes	0		\$5,217.36	\$5,217.36	100%	1	LS	\$10,434.72	\$ 10,434.72	\$ -	
5.6	Furnish and Install Lean Concrete Pipe Encasement	0		\$12,788.88		100%	1	LS	\$12,788.88	\$ 12,788.88	\$ -	
5.7	Furnish and Install the Elk Horn Pump Station Outlet Pipe	0		\$0.00	\$1,834.68	100%	1	LS	\$1,834.68	\$ 1,834.68	\$ -	
	Total for Month:	37867.12	#####	\$128,320.76	\$121,833.02	100%				\$ 242,583.39		
	Total Contract Value:										\$ 399,871.74	\$ -

Notes:

BILLED TO DATE: #####
REMAINING TO BILL: \$ 0.00
Amount due October: **\$121,833.02**
Change Number One Total: **\$8,054.75** See attached T&M
Total Due Including Change Order: **\$129,887.77**

reconcile \$ 399,871.74
reconcile \$ 399,871.74

APPENDIX E

TEST DATA

H-P KUMAR

Geotechnical Engineering | Engineering Geology
Materials Testing | Environmental

SEP 16 2016
RECEIVED
W. W. Wheeler & Associates, Inc.

H-P Kumar
P.O. Drawer 1887
240 Annie Road
Silverthorne, Colorado 80498
Phone: (970) 468-1989
Fax: (970) 468-5891
hpksummit@kumarsusa.com

Report of Concrete Cylinder Test Data

Client: **W.W. Wheeler & Associates, Inc.**
Attn: Doug MacLaren
3700 South Inca Street
Englewood, CO 80110

Job No.: **16-9-166** Date: **08/15/2016**
Sheet No.: **1** of **1**
Lab #: **495**

Project: **Big Evans Reservoir, Bypass Flume Project, County Road 3, Leadville, Colorado.**

Placement Location: **Intake Flume Structure, Floor Slab**

Test Location: **Southwest Corner of the Placement Area**

Truck: **10-07** Time Batch: **9:51 am** Supplier: **ACA Products**
Ticket: **68165** Time Arrived: **10:50 am** Yards: **6** of **18**
Mix: **794** Time Placed: **11:17 am** Method of Placement: **Conveyor**

Physical Properties:		Water/Cement: 0.40		Specifications:	
Sample Point:	From Conveyor	Water added:	-0- Gal.	Slump:	3 +/- 1 Inches
Time Sampled:	11:08 am	Slump:	3.0 Inches	Air Content:	6 +/- 1 %
Air Temp.:	68 °F	Air Content:	5.1 %	Water / Cement:	0.45 Max
Concrete Temp.:	70 °F	Wet Unit Wt.:	144.9 pcf	Design Strength:	4,500 psi @ 28 days

Time Cyl. Cast: **11:23 am** Initial Cure: **Field** Field Storage: **Cure Box**
Diameter: **4** Inches Area: **12.57** Inches² Max / Min: **NA** °F to **NA** °F

Compressive Strength Data

Age (Days)	Date	Load (lbs.)	Compressive Strength (psi)
7	08/22/2016	51,044	4,060
28	09/12/2016	62,354	4,960
28	09/12/2016	63,411	5,040
Hold			

Preliminary Observations and / or Testing Results Verbally Reported To: **Wheeler & Associates, Mountain Structures, ACA Products**
Progress Report:

Copies:

Andrew McWilliams
Field Observer

Jared Cohen
Reviewed By

H-P KUMAR

Geotechnical Engineering | Engineering Geology
Materials Testing | Environmental

H-P Kumar
P.O. Drawer 1887
240 Annie Road
Silverthorne, Colorado 80498
Phone: (970) 468-1989
Fax: (970) 468-5891
hpksummit@kumarsusa.com

Report of Concrete Cylinder Test Data

Client: **W.W. Wheeler & Associates, Inc.**
Attn: **Doug MacLaren**
3700 South Inca Street
Englewood, CO 80110

Job No.: **16-9-166** Date: **10/07/2016**
Sheet No.: **1** of **1**
Lab #: **545**

Project: **Big Evans Reservoir, Bypass Flume Project, County Road 3, Leadville, Colorado.**

Placement Location: **Outlet Structure, Foundation Walls**

Test Location: **Southwest Corner of the Placement Area, Up 2 Feet From Bottom**

Truck: **10-10** Time Batch: **9:12 am** Supplier: **ACA Products**
Ticket: **68948** Time Arrived: **10:15 am** Yards: **15** of **29.5**
Mix: **4,500 20% Fly Ash Class D** Time Placed: **10:41 am** Method of Placement: **Conveyor**

Physical Properties:		Water/Cement: 0.41		Specifications:	
Sample Point:	From Chute	Water added:	-0- Gal.	Slump:	3 +/- 1 Inches
Time Sampled:	10:26 am	Slump:	6 1/2 Inches	Air Content:	6 +/- 1 %
Air Temp.:	37 °F	Air Content:	5.3 %	Water / Cement:	0.45 Max
Concrete Temp.:	72 °F	Wet Unit Wt.:	142.3 pcf	Design Strength:	4,500 psi @ 28 days

Time Cyl. Cast: **10:38 am** Initial Cure: **Field** Field Storage: **Cure Box**
Diameter: **4** Inches Area: **12.57** Inches² Max / Min: **NA** °F to **NA** °F

Compressive Strength Data

Age (Days)	Date	Load (lbs.)	Compressive Strength (psi)
7	10/14/2016	49,158	3,910
28	11/04/2016	58,383	4,640
28	11/04/2016	57,176	4,550
Hold	-----		

Preliminary Observations and / or Testing Results Verbally Reported To: **Doug MacLaren with Wheeler & Associates**

Progress Report:

Copies:

Andrew McWilliams
Field Observer

Jared Cohen
Reviewed By

APPENDIX F

RECORD DRAWINGS
(under separate cover)

BIG EVANS RESERVOIR
BYPASS FLUME REPLACEMENT

WATER DIVISION 2, DISTRICT 11
LAKE COUNTY, CO

PREPARED FOR
PARKVILLE WATER DISTRICT
BY
W. W. WHEELER AND ASSOCIATES, INC.

Evans Gulch Dam
Dam ID 110106
C-1796B
Division No. 2, District No. 11
Lake County, Colorado

I hereby declare that these plans for the Big Evans Reservoir
Bypass Flume Replacement were prepared under my direct
supervision.

RESPONSIBLE DESIGN ENGINEER:
W. W. Wheeler & Associates, Inc.
Steven M. Maly 29123 Colo. PE No. 29123



STATE ENGINEER APPROVAL:
Approved on the 15th day of February, 2016.

Dick Wolfe
State Engineer
By: William T. McCormick, III, P.E., P.G.
Chief, Dam Safety Branch
CO PE 29127

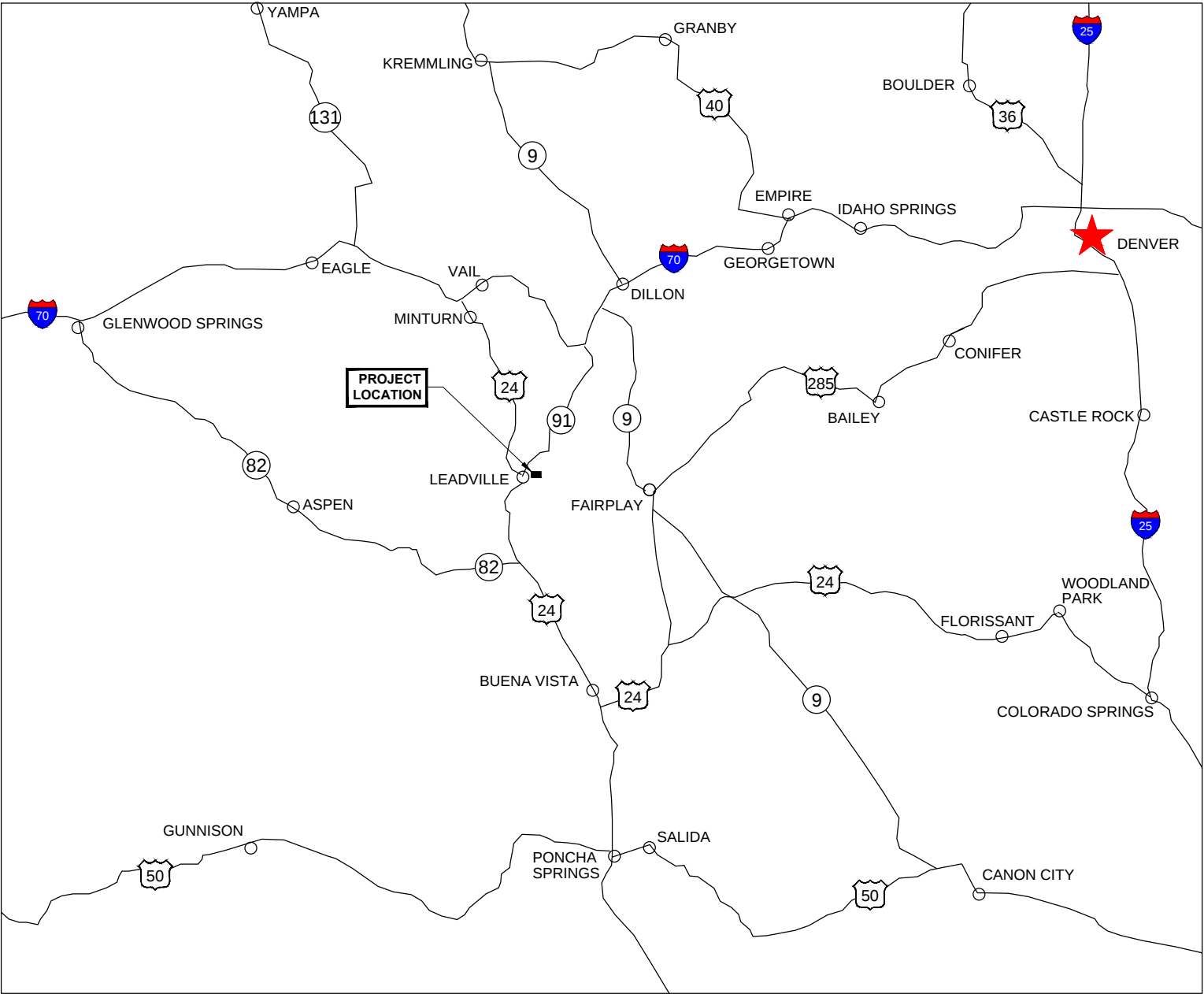


These plans represent the AS-CONSTRUCTED conditions of the
Big Evans Reservoir Bypass Flume to the best of our knowledge
and judgment, based in part on information furnished by others as
of the 28th day of October, 2016.

Steven M. Maly 29123 Colo. PE No. 29123



SEO C-1796B



DRAWING INDEX	
DWG NO.	DRAWING TITLE
SHEET 1	PROJECT COVER SHEET
GENERAL ARRANGEMENT	
SHEET 2	OVERALL SITE PLAN - GENERAL ARRANGEMENT
CIVIL	
SHEET 3	SRPE PIPE FLUME - PLAN AND PROFILE - 0+00 TO END
SHEET 4	SRPE PIPE FLUME - DETAILS AND SECTIONS
SHEET 5	INSTALLATION DETAILS
CONCRETE	
SHEET 6	INLET STRUCTURE - GENERAL ARRANGEMENT AND DETAILS
SHEET 7	OUTLET STRUCTURE - GENERAL ARRANGEMENT AND DETAILS
WATER	
SHEET 8	STORM WATER MANAGEMENT/BMP's - PLAN VIEW
STRUCTURAL	
SHEET 9	TRASHRACK AND STOPLOG BRACKETS

REVISIONS	NO.	DATE	MADE BY	CHKD. BY	REMARKS
	1	6/10/16	DCM	SMM	ISSUED FOR CONSTRUCTION
	2	10/28/16	DCM	SMM	RECORD DRAWING
	3				
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	5				
	6				

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REFERENCE DWGS	DRAWING NO.	REFERENCE

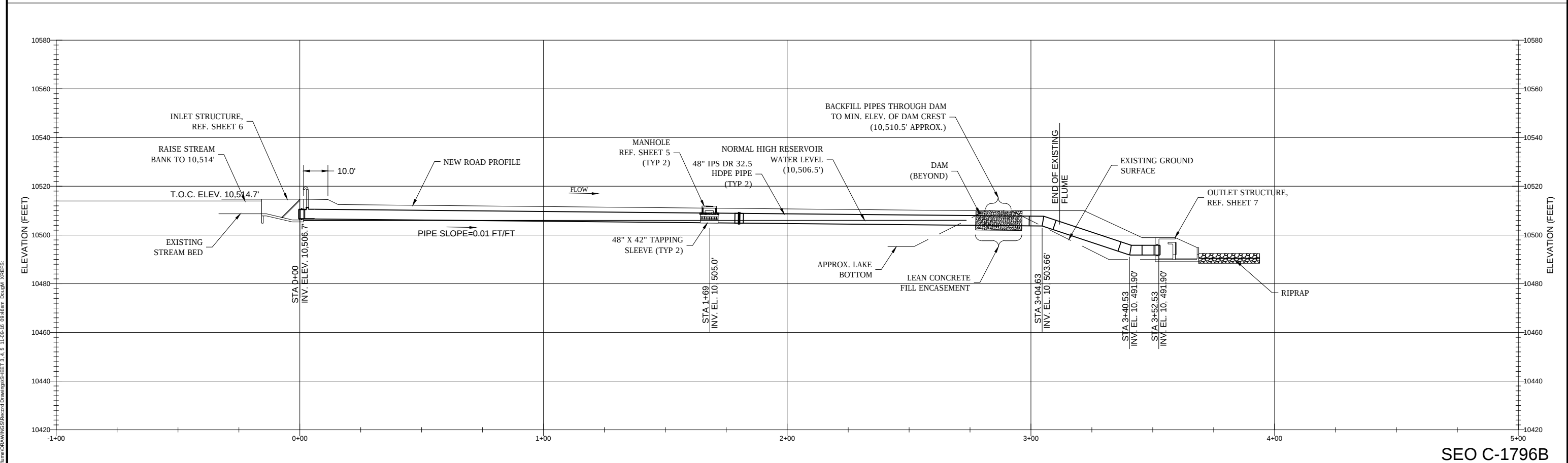
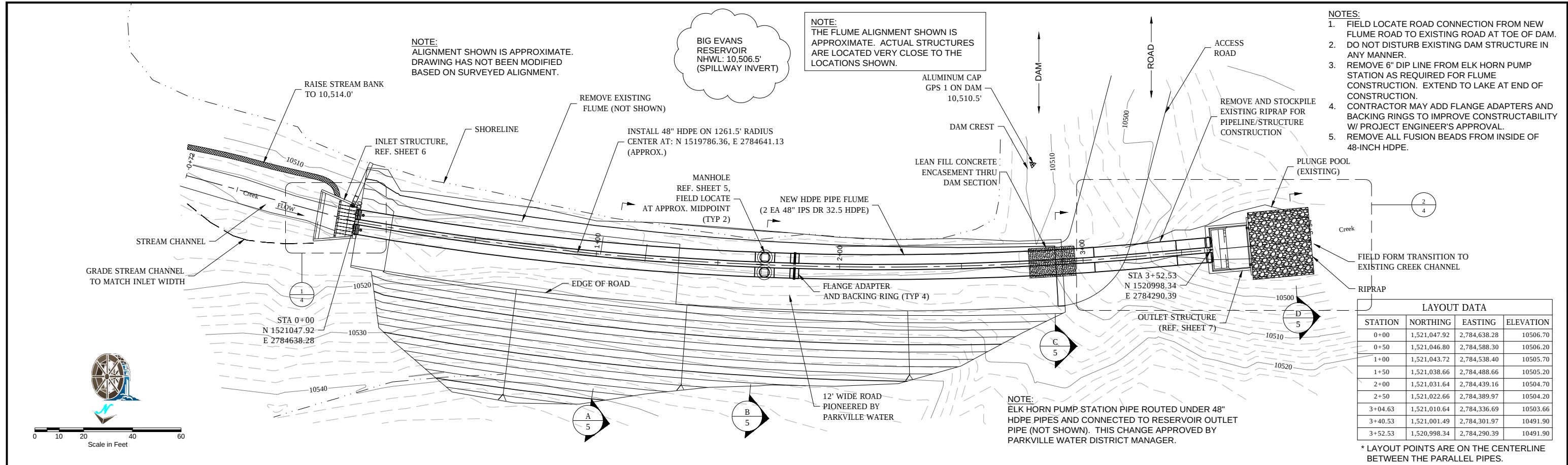
PARKVILLE WATER DISTRICT		BIG EVANS RESERVOIR		Parkville Water District	
		BYPASS FLUME REPLACEMENT		Leadville, CO	
		COVER SHEET		MADE BY DCM	1/21/15
				CHECKED BY SMM	1/21/15
				ACCEPTED BY ...	As Noted
				DRAWING NO. SHEET 1	

W. W. WHEELER & ASSOCIATES, INC.
Water Resources Engineers
3700 S. INDA STREET
ENGLEWOOD, CO 80110-3405
303-761-4130
FAX 303-761-2802



SEO C-1796B

REVISIONS	NO.	DATE	MADE BY	CHKD. BY	REMARKS	REFERENCE DWGS	DRAWING NO.	REFERENCE	PARKVILLE WATER DISTRICT		BIG EVANS RESERVOIR		Parkville Water District Leadville, CO		
	1	6/10/16	DCM	SMM	ISSUED FOR CONSTRUCTION						BYPASS FLUME REPLACEMENT		MADE BY DCM	1/21/15	SCALE As Noted
	2	10/28/16	DCM	SMM	RECORD DRAWING				SITE MAP		CHECKED BY SMM	1/21/15	DRAWING NO.		
	3										ACCEPTED BY ...		SHEET 2		
	4														
	5														
	6														
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REVISIONS

NO.	DATE	MADE BY	CHK. BY	REMARKS
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2	10/28/16	DCM	SMM	RECORD DRAWING

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Water Resources Engineers

3700 S. INDA STREET
ENGLEWOOD, CO 80110-3405
303-761-4130
FAX 303-761-2802

PARKVILLE WATER DISTRICT

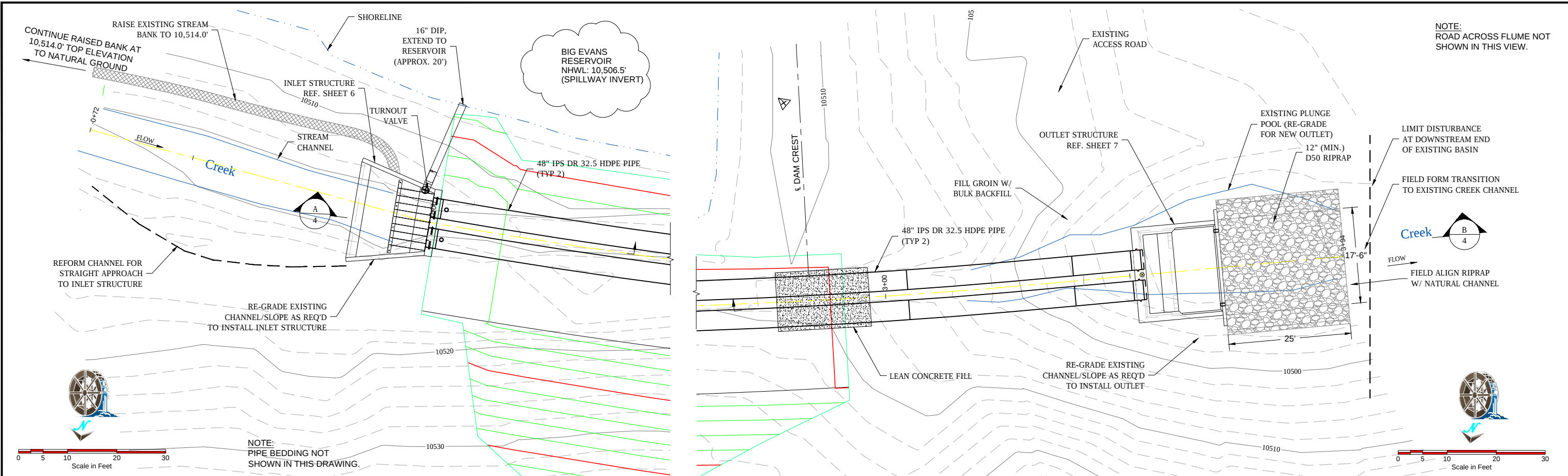
BIG EVANS RESERVOIR

48" HDPE PIPE FLUME

PLAN AND PROFILE

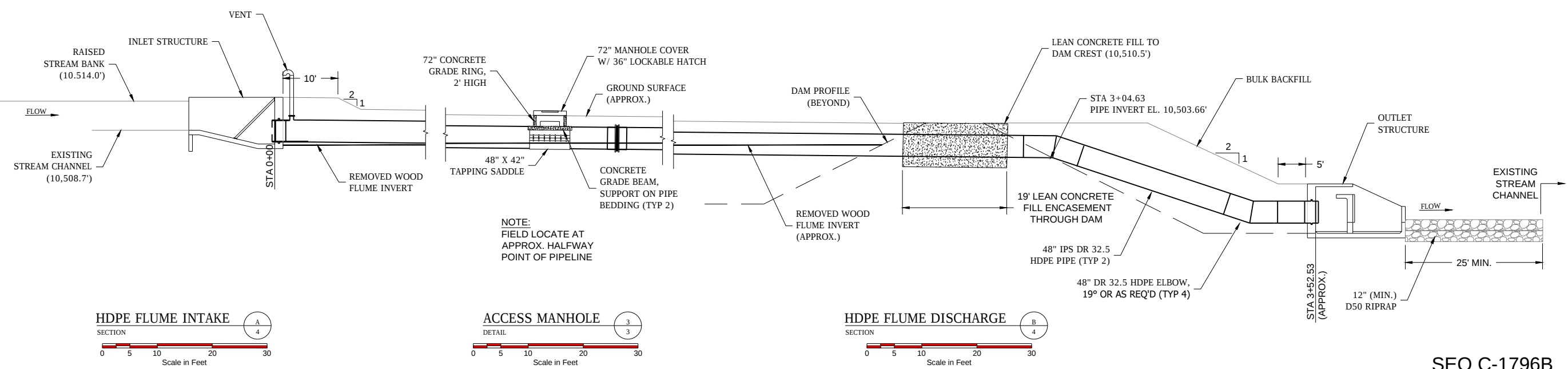
Parkville Water District
Leadville, CO

MADE BY	DATE	SCALE
DCM	1/21/15	As Noted
CHECKED BY	1/21/15	DRAWING NO.
ACCEPTED BY		SHEET 3



HDPE FLUME INTAKE
DETAIL

HDPE FLUME DISCHARGE
DETAIL



HDPE FLUME INTAKE
SECTION

ACCESS MANHOLE
DETAIL

HDPE FLUME DISCHARGE
SECTION

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NO.	DATE	MADE BY	CHK. BY	REMARKS
1	6/10/15	DCM	SMM	ISSUED FOR CONSTRUCTION
2	10/28/16	DCM	SMM	RECORD DRAWING
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DRAWING NO.	REFERENCE

PARKVILLE WATER DISTRICT

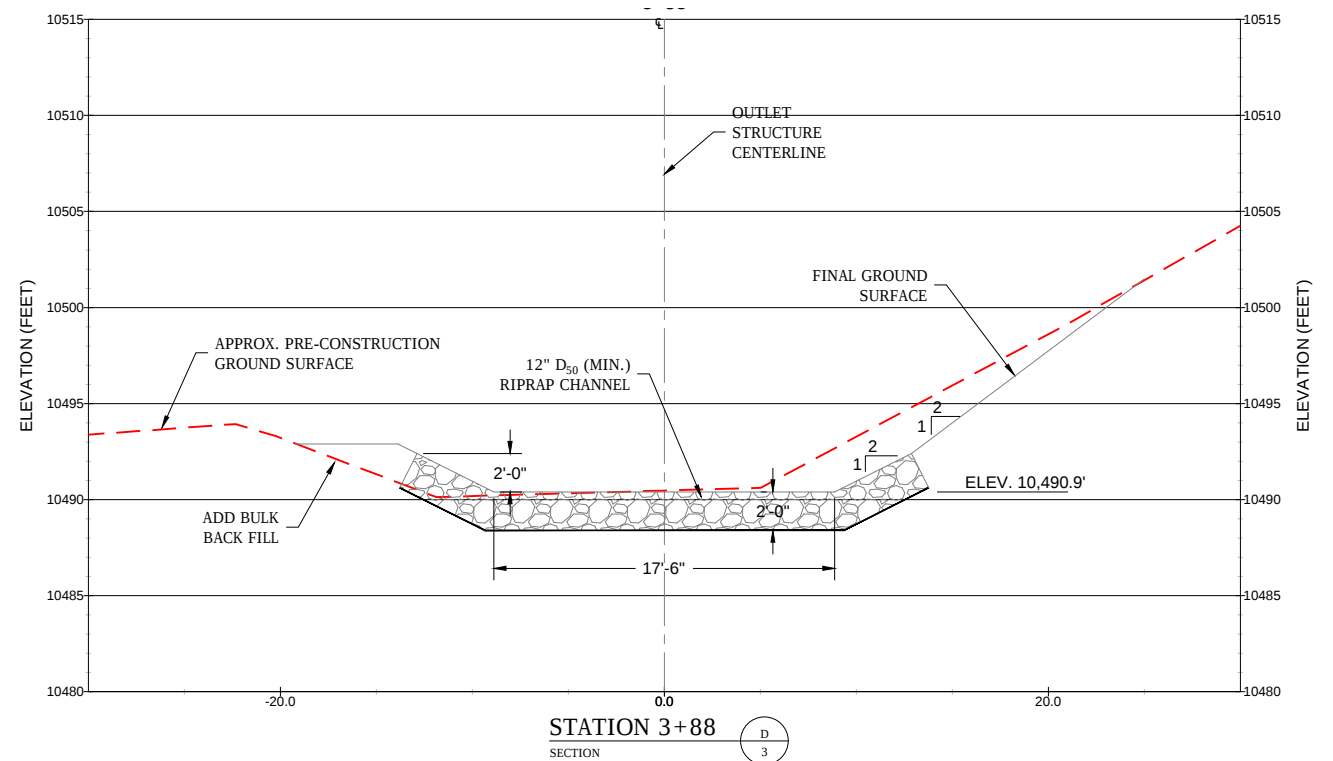
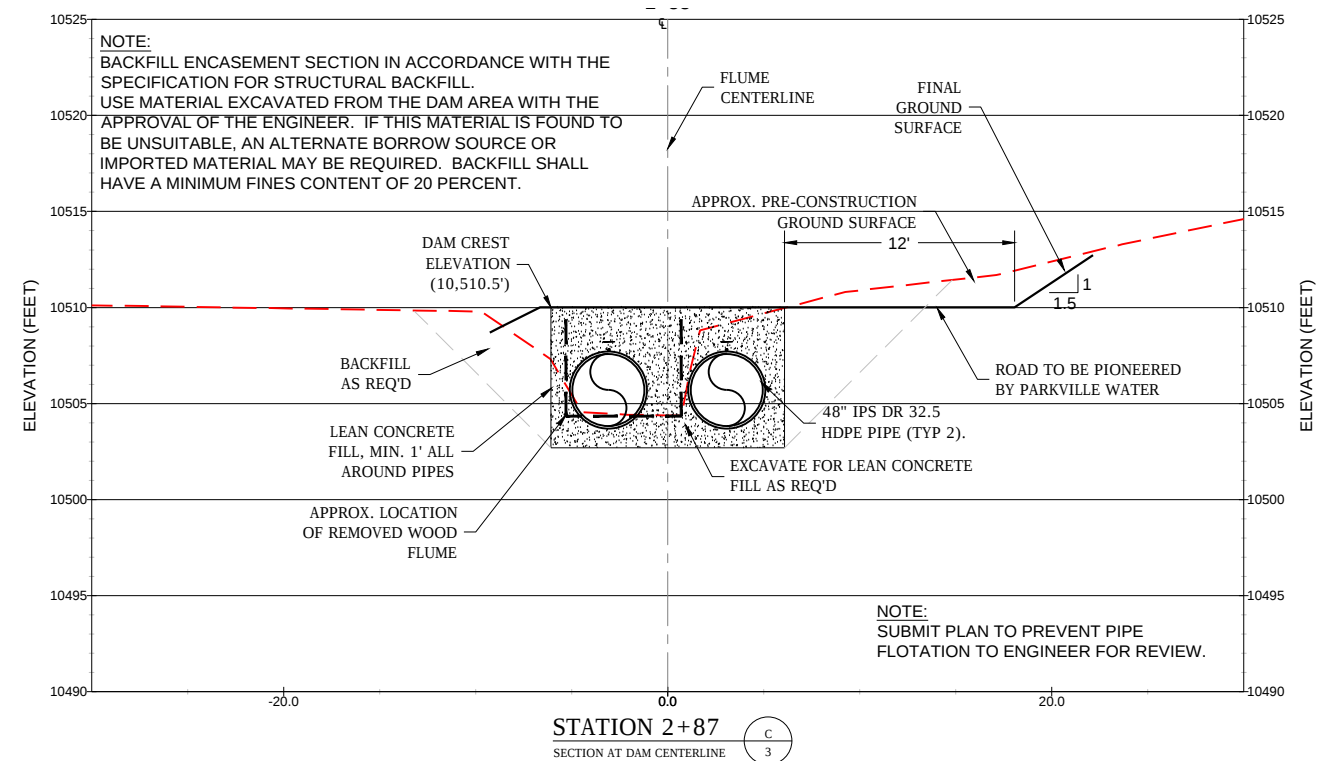
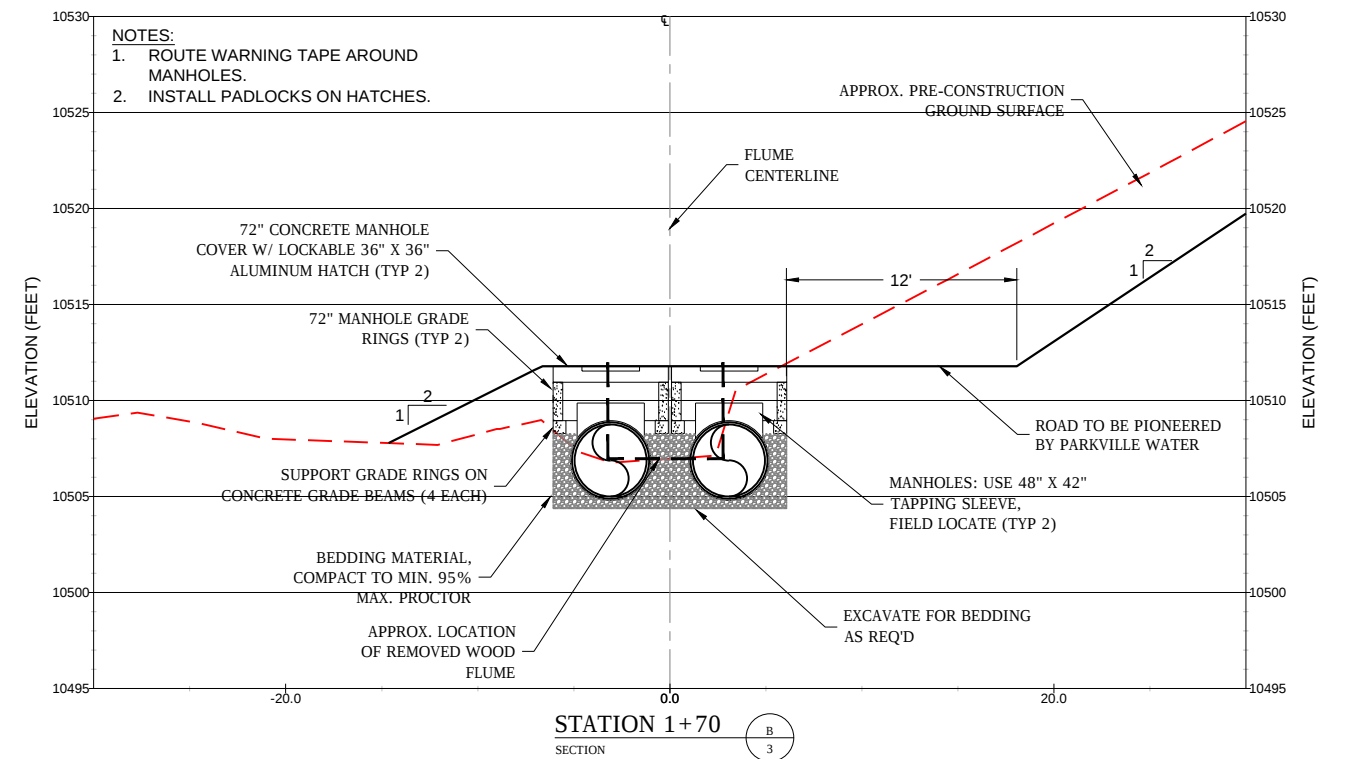
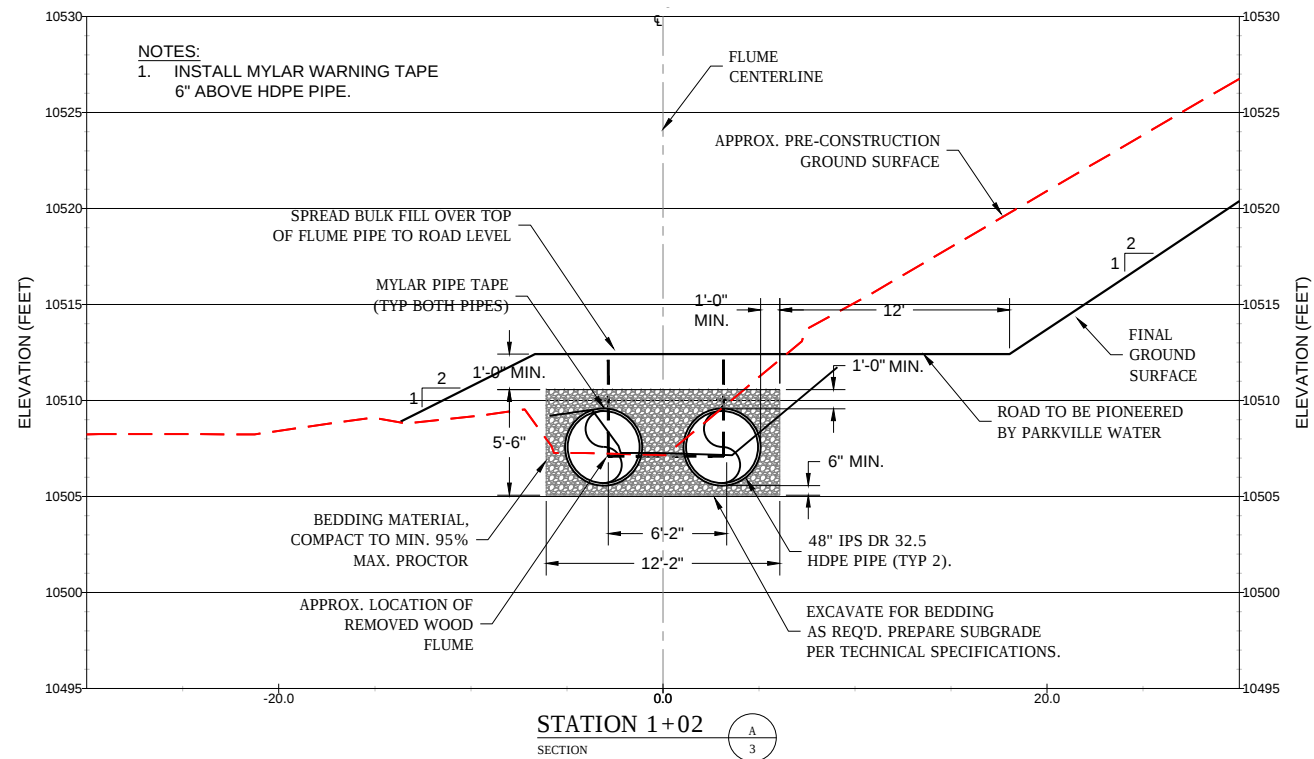
W. W. WHEELER & ASSOCIATES, INC.
Water Resources Engineers

3700 S. INDA STREET
ENGLEWOOD, CO 80110-3405
303-761-4130
FAX 303-761-2802

BIG EVANS RESERVOIR	
48" HDPE PIPE FLUME INLET AND OUTLET	
DETAILS AND SECTIONS	

Parkville Water District Leadville, CO	
MADE BY DCM	1/21/15
CHECKED BY SMM	1/21/15
ACCEPTED BY ...	

SCALE As Noted
DRAWING NO. SHEET 4



SEO C-1796B

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NO.	DATE	MADE BY	CHK. BY	REMARKS
1	6/10/16	DCM	SMM	ISSUED FOR CONSTRUCTION
2	10/28/16	DCM	SMM	RECORD DRAWING
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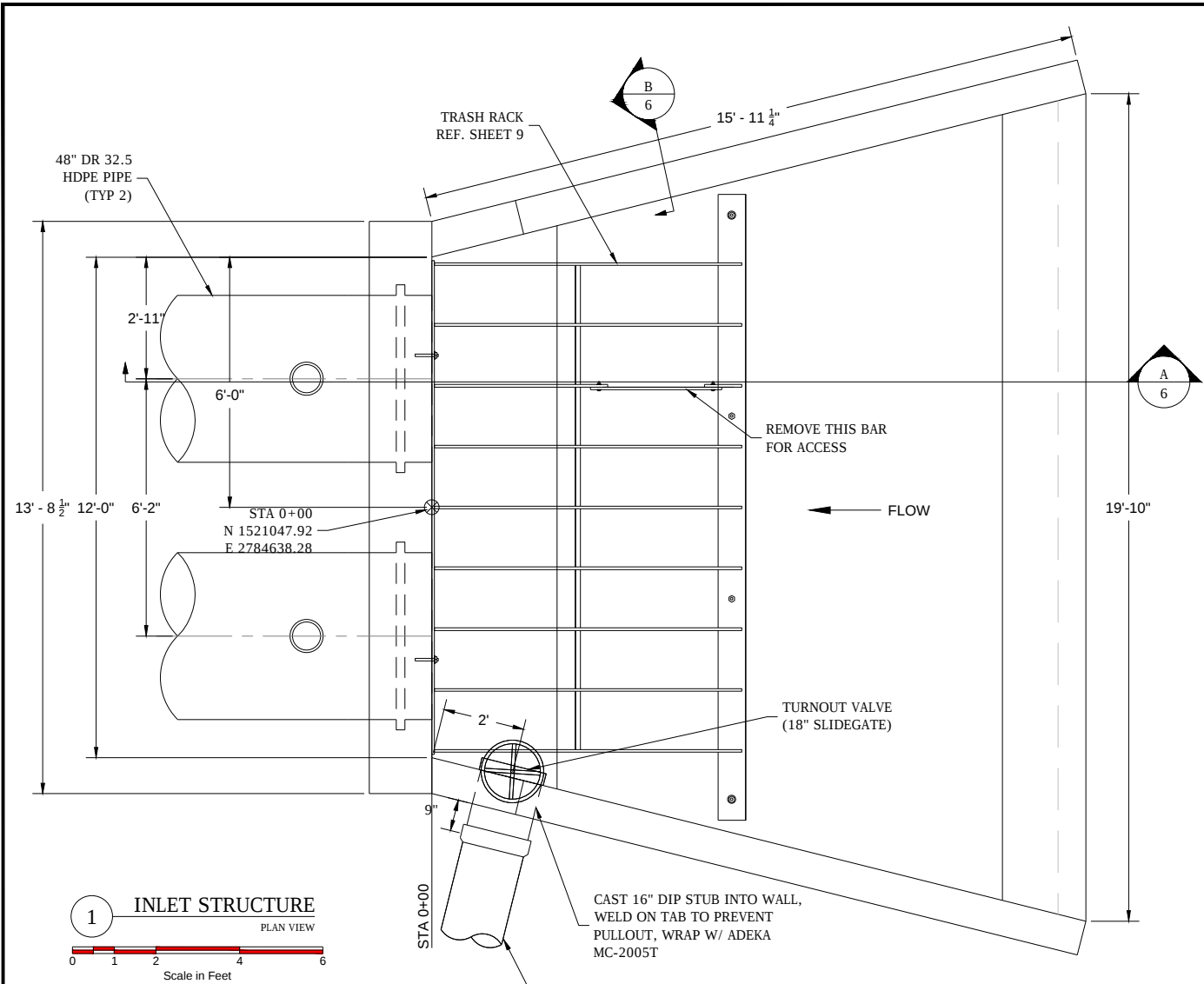
"This drawing together with any and all additions, corrections, changes and alterations thereof is the property of Parkville Water District and is furnished on the express condition that it shall not be reproduced, copied, lent, or disposed of directly or indirectly, nor used for any other purpose than for which it is specifically furnished without the prior written consent of said Parkville Water District."

DRAWING NO.	REFERENCE

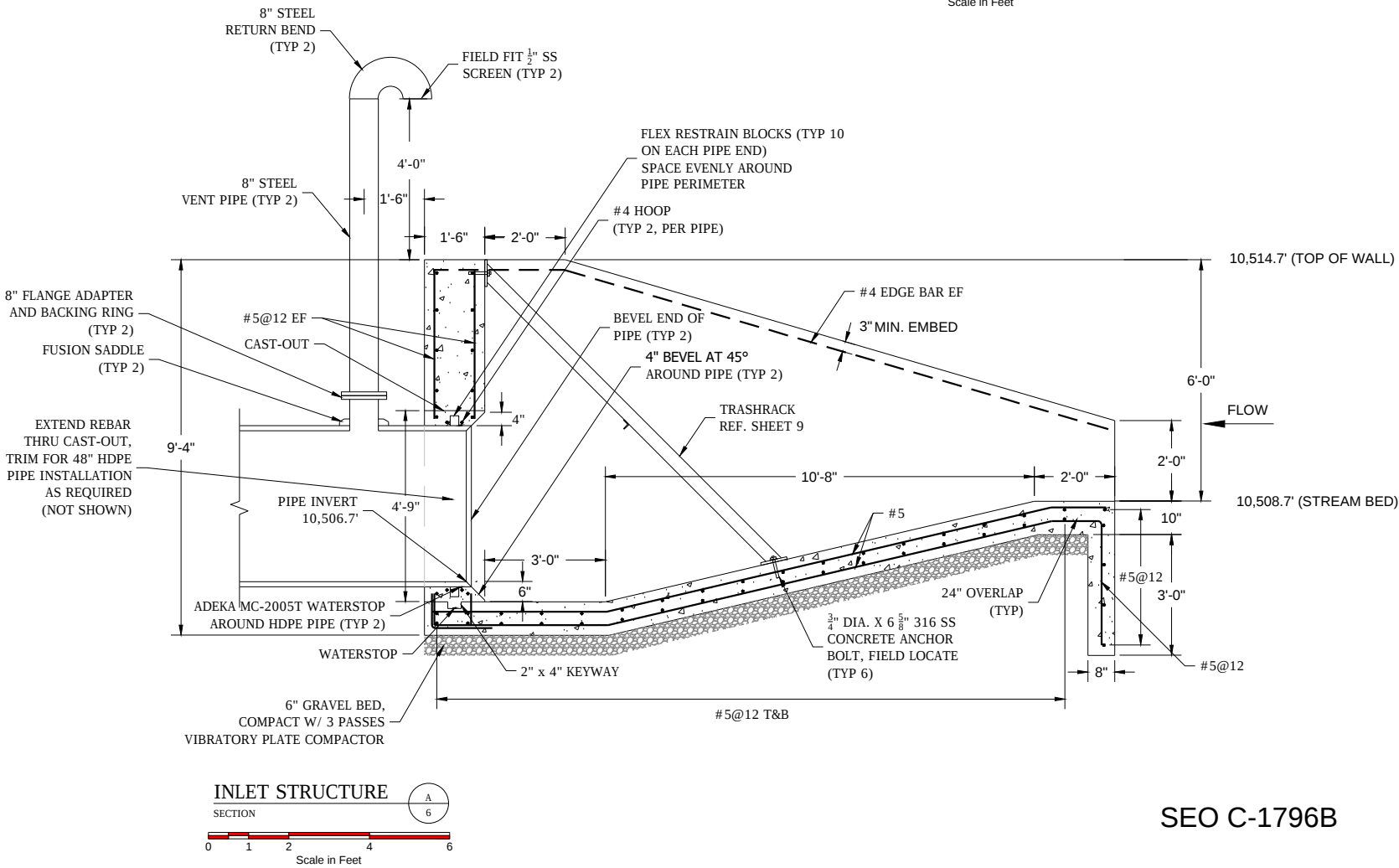
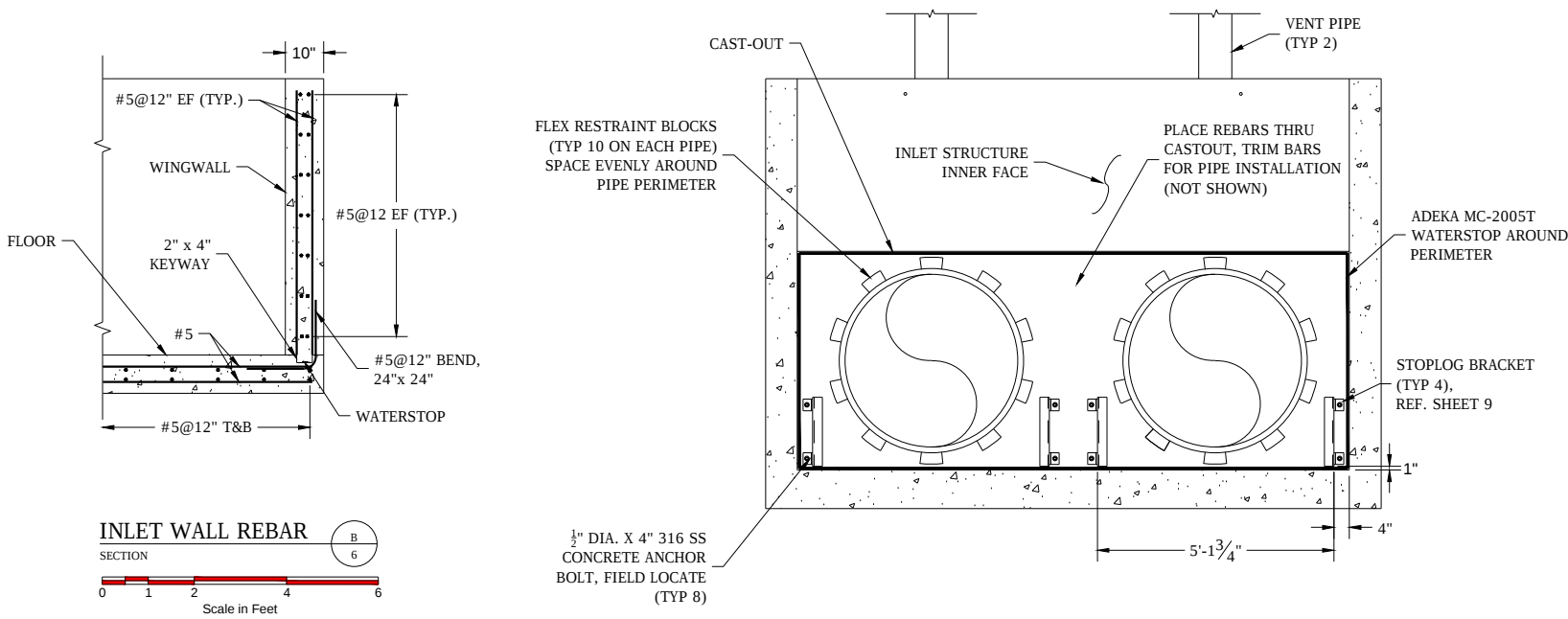
PARKVILLE WATER DISTRICT		BIG EVANS RESERVOIR		Parkville Water District	
		48" HDPE PIPE FLUME		Leadville, CO	
		SECTIONS		MADE BY DCM	1/21/15
				CHECKED BY SMM	1/21/15
				ACCEPTED BY ...	SCALE As Noted
				DRAWING NO. SHEET 5	



3700 S. INDA STREET
ENGLEWOOD, CO 80110-3405
303-761-4130
FAX 303-761-2802



- NOTES:
1. CONSTRUCT FROM 4500 PSI CONCRETE.
 2. CONSTRUCT WITH 60 KSI REBAR.
 3. CONSTRUCT IN ACCORDANCE WITH ACI 318.
 4. CHAMFER ALL CORNERS $\frac{3}{4}$ " (NOT SHOWN).
 5. NOT ALL REBAR SHOWN FOR CLARITY.
 6. USE 316 SS CONCRETE ANCHORS.
 7. TURNOUT VALVE TO BE WALL-MOUNTED 18" SLIDE GATE W/ ALUMINUM FRAME AND 16" HANDWHEEL, OVERALL HEIGHT OF 114"; HALLIDAY MODEL G1A SLIDE GATE, OR ENGINEER-APPROVED EQUAL.
 8. STOPLOGS (2" X 8" X 5") BY PARKVILLE WATER DISTRICT.
 9. CAST-OUT BOTTOM OF BACK WALL TO ALLOW FOR LATER INSTALLATION OF 48" HDPE PIPE. EXTEND REBAR THRU CAST-OUT AND TRIM LATER AS REQUIRED FOR HDPE PIPE INSTALLATION.
 10. INSTALL ADEKA MC-2005T WATERSTOP AROUND PERIMETER OF CAST-OUT BEFORE PLACING CONCRETE.



SEO C-1796B

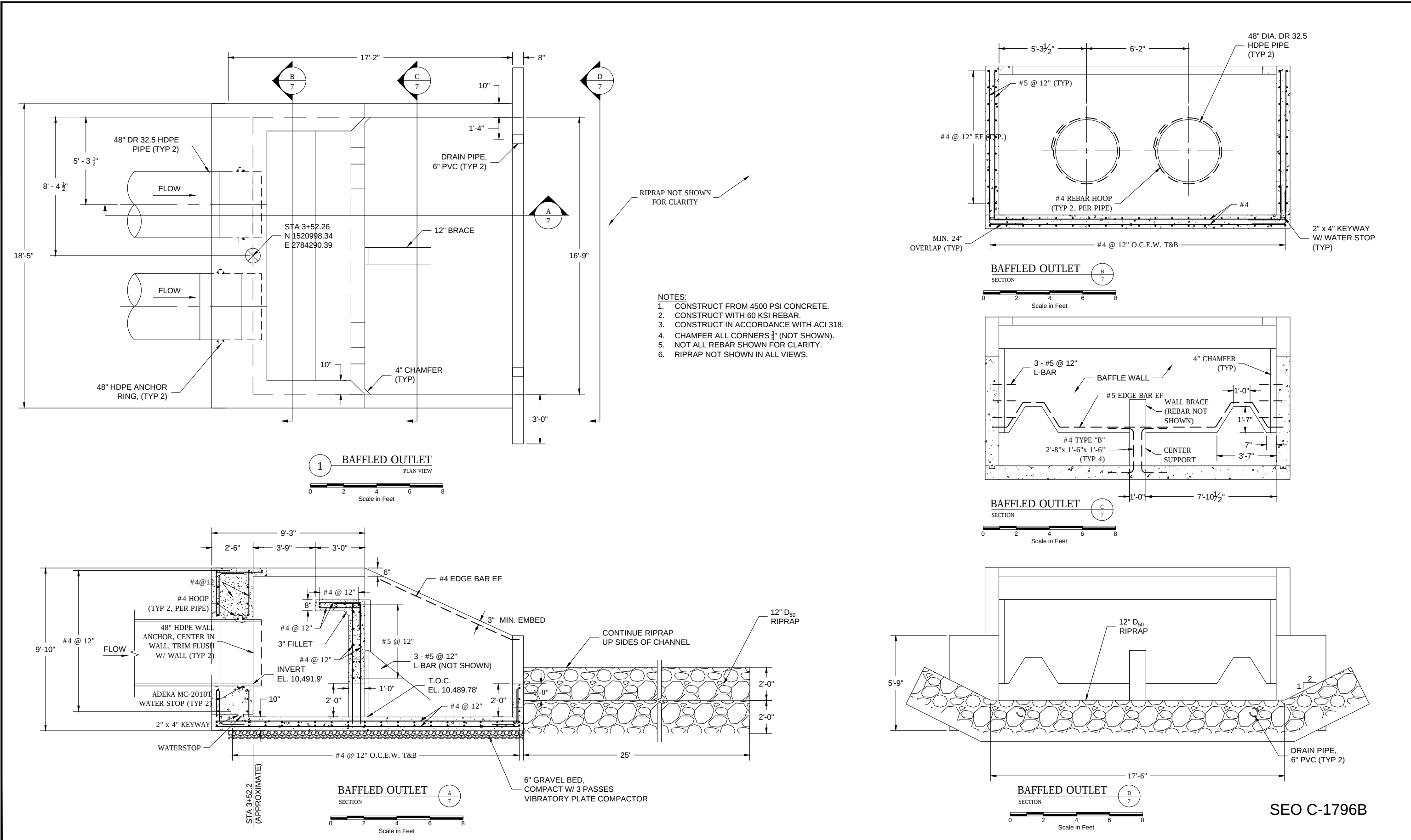
REVISIONS	NO.	DATE	MADE BY	CHKD. BY	REMARKS
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	2	7/25/15	DCM	SMM	ADD CAST-OUT DETAIL, CHANGE VENT DETAILS
	3	10/20/15	DCM	SMM	RECORD DRAWING
	4				
	5				
	6				

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REFERENCE DWGS	DRAWING NO.	REFERENCE

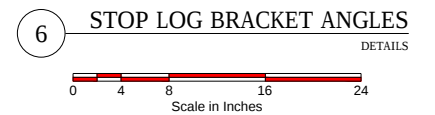
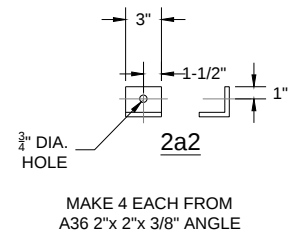
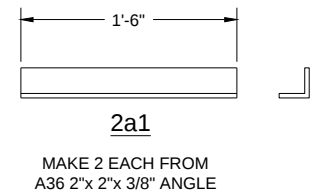
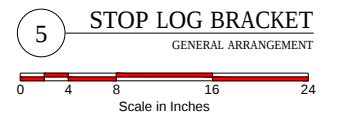
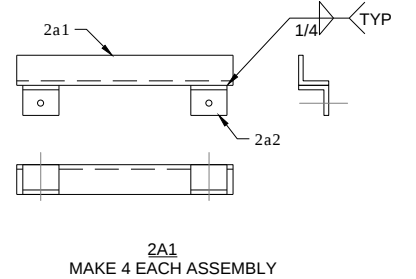
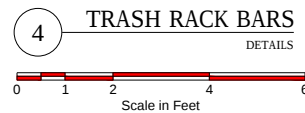
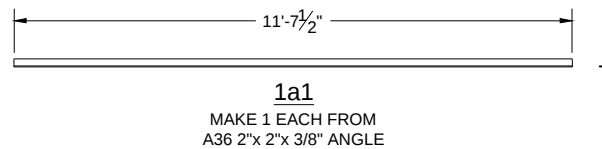
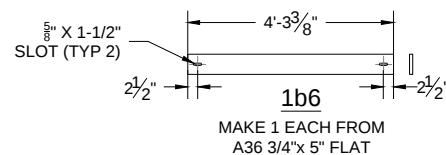
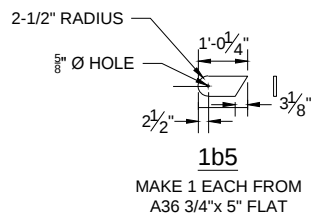
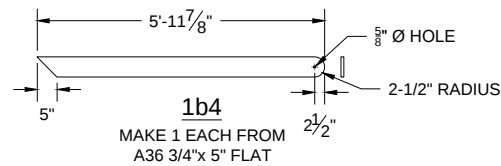
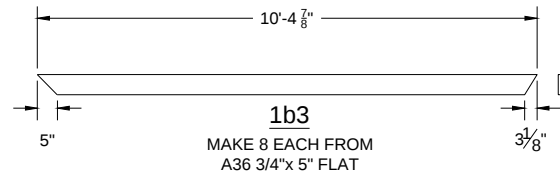
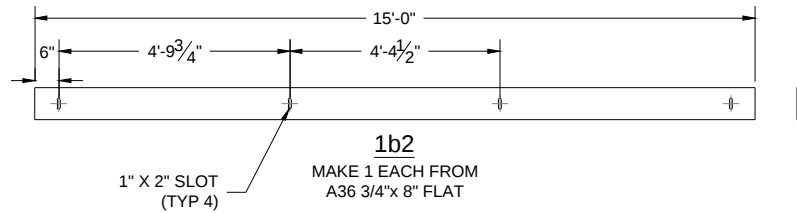
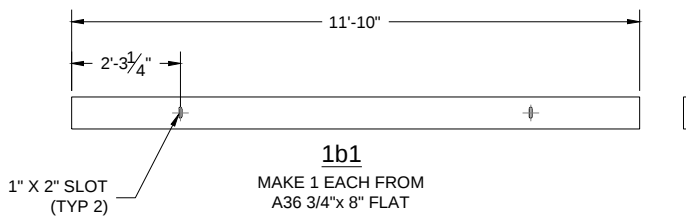
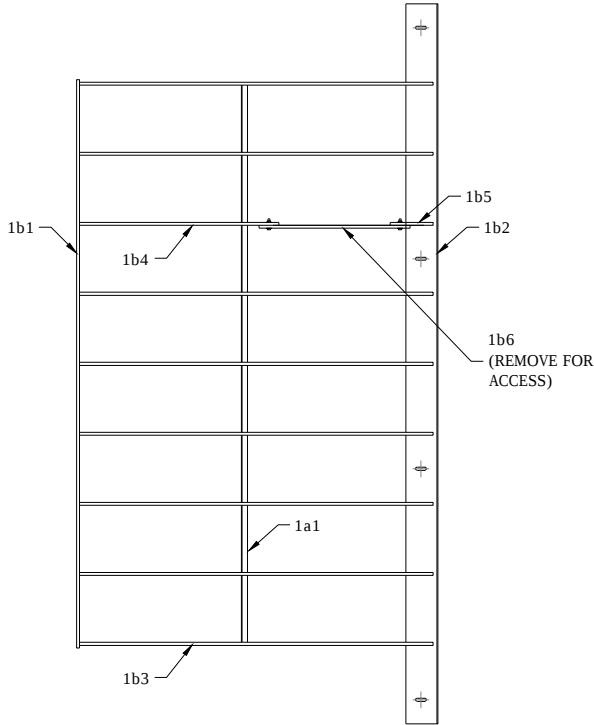
PARKVILLE WATER DISTRICT		BIG EVANS RESERVOIR			Parkville Water District		
		CONCRETE - INLET STRUCTURE			Leadville, CO		
		GENERAL ARRANGEMENT AND DETAILS			MADE BY DCM	1/21/15	SCALE As Noted
					CHECKED BY SMM	1/21/15	DRAWING NO.
					ACCEPTED BY ...		SHEET 6

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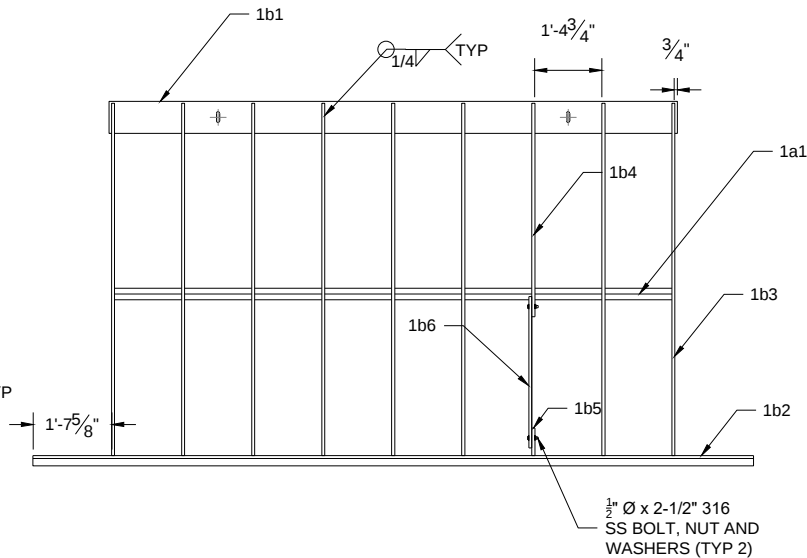
REVISIONS	NO.	DATE	MADE BY	CHKD. BY	REMARKS	This drawing together with any and all additions, corrections, changes and alterations thereof is the property of Parkville Water District and is furnished on the express condition that it shall not be reproduced, copied, lent, or disposed of directly or indirectly, nor used for any other purpose than for which it is specifically furnished without the prior written consent of said Parkville Water District."	REFERENCE DWGS	DRAWING NO.	REFERENCE		PARKVILLE WATER DISTRICT	 W. W. WHEELER & ASSOCIATES, INC. Water Resources Engineers	3700 S. INDA STREET ENGLEWOOD, CO 80110-3405 303-761-4130 FAX 303-761-2802	BIG EVANS RESERVOIR		Parkville Water District Leadville, CO	
	1	6/10/16	DCM	SMM	ISSUED FOR CONSTRUCTION					CONCRETE - BAFFLED OUTLET				MADE BY DCM	1/21/15	SCALE As Noted	
	2	10/20/16	DCM	SMM	RECORD DRAWING					GENERAL ARRANGEMENT AND DETAILS				CHECKED BY SMM	1/21/15	DRAWING NO.	
	3													ACCEPTED BY ...		SHEET 7	
	4																
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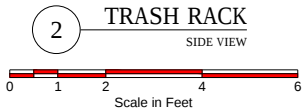
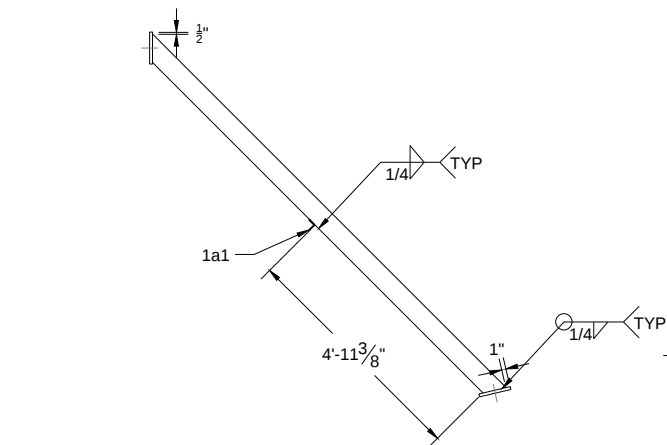
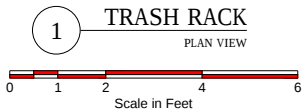
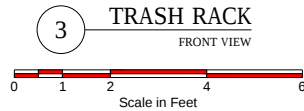


- NOTES:
- ALL WELDED CONSTRUCTION.
 - USE E70XX ELECTRODES.
 - USE ASTM A36 STEEL.
 - HOT DIP GALVANIZE ENTIRE ASSEMBLY AFTER FABRICATION.

NOTE:
TRASHRACK WAS FABRICATED IN TWO
PIECES TO MAKE SHIPPING AND
HANDLING EASIER. DIMENSIONS
CHANGED SLIGHTLY.



1A1
MAKE 1 EACH ASSEMBLY



SEO C-1796B

NO.	DATE	MADE BY	CHK. BY	REMARKS
1	6/10/15	DCM	SMM	ISSUED FOR CONSTRUCTION
2	7/12/15	DCM	SMM	ADDED DIMENSIONAL INFORMATION
3	10/20/15	DCM	SM	RECORD DRAWING
4				
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DRAWING NO.	REFERENCE

PARKVILLE WATER DISTRICT



W. W. WHEELER
& ASSOCIATES, INC.
Water Resources Engineers

3700 S. INDA STREET
ENGLEWOOD, CO 80110-3405
303-761-4130
FAX 303-761-2802

BIG EVANS RESERVOIR

STEEL - TRASHRACK AND STOPLOG BRACKET

GENERAL ARRANGEMENT AND DETAILS

Parkville Water District
Leadville, CO

MADE BY	DATE	SCALE
DCM	1/21/15	As Noted
CHECKED BY	DATE	DRAWING NO.
SMM	1/21/15	SHEET 9
ACCEPTED BY	...	

BIG EVANS RESERVOIR
BYPASS FLUME REPLACEMENT

WATER DIVISION 2, DISTRICT 11
LAKE COUNTY, CO

PREPARED FOR
PARKVILLE WATER DISTRICT
BY
W. W. WHEELER AND ASSOCIATES, INC.

Evans Gulch Dam
Dam ID 110106
C-1796B
Division No. 2, District No. 11
Lake County, Colorado

I hereby declare that these plans for the Big Evans Reservoir
Bypass Flume Replacement were prepared under my direct
supervision.

RESPONSIBLE DESIGN ENGINEER:
W. W. Wheeler & Associates, Inc.
Steven M. Maly 29123 Colo. PE No. 29123



STATE ENGINEER APPROVAL:
Approved on the 15th day of February, 2016.

Dick Wolfe
State Engineer
By: William T. McCormick, III, P.E., P.G.
Chief, Dam Safety Branch
CO PE 29127

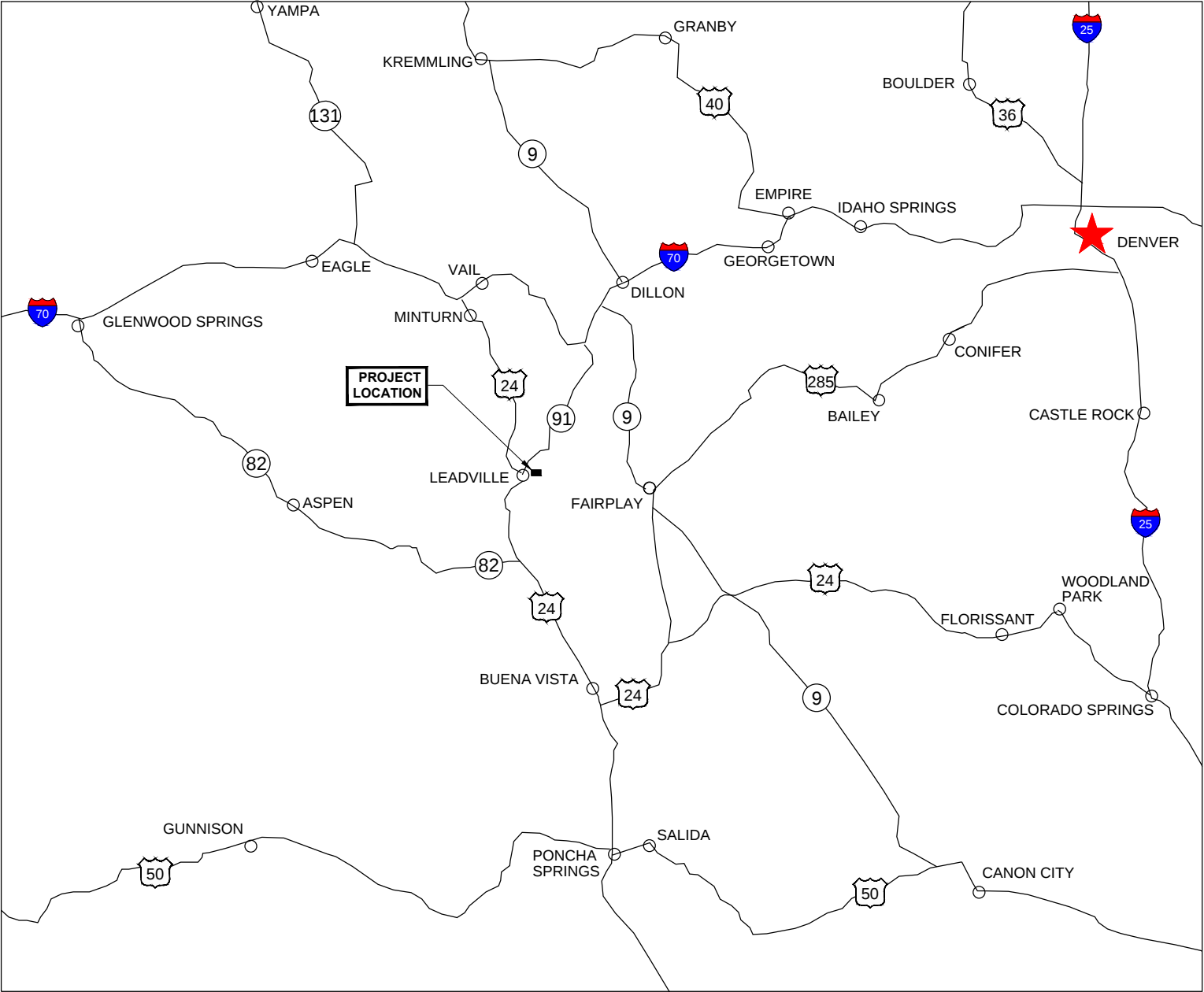


These plans represent the AS-CONSTRUCTED conditions of the
Big Evans Reservoir Bypass Flume to the best of our knowledge
and judgment, based in part on information furnished by others as
of the 28th day of October, 2016.

Steven M. Maly 29123 Colo. PE No. 29123



SEO C-1796B



DRAWING INDEX	
DWG NO.	DRAWING TITLE
SHEET 1	PROJECT COVER SHEET
GENERAL ARRANGEMENT	
SHEET 2	OVERALL SITE PLAN - GENERAL ARRANGEMENT
CIVIL	
SHEET 3	SRPE PIPE FLUME - PLAN AND PROFILE - 0+00 TO END
SHEET 4	SRPE PIPE FLUME - DETAILS AND SECTIONS
SHEET 5	INSTALLATION DETAILS
CONCRETE	
SHEET 6	INLET STRUCTURE - GENERAL ARRANGEMENT AND DETAILS
SHEET 7	OUTLET STRUCTURE - GENERAL ARRANGEMENT AND DETAILS
WATER	
SHEET 8	STORM WATER MANAGEMENT/BMP's - PLAN VIEW
STRUCTURAL	
SHEET 9	TRASHRACK AND STOPLOG BRACKETS

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REVISIONS	NO.	DATE	MADE BY	CHKD. BY	REMARKS
	1	6/10/16	DCM	SMM	ISSUED FOR CONSTRUCTION
	2	10/28/16	DCM	SMM	RECORD DRAWING
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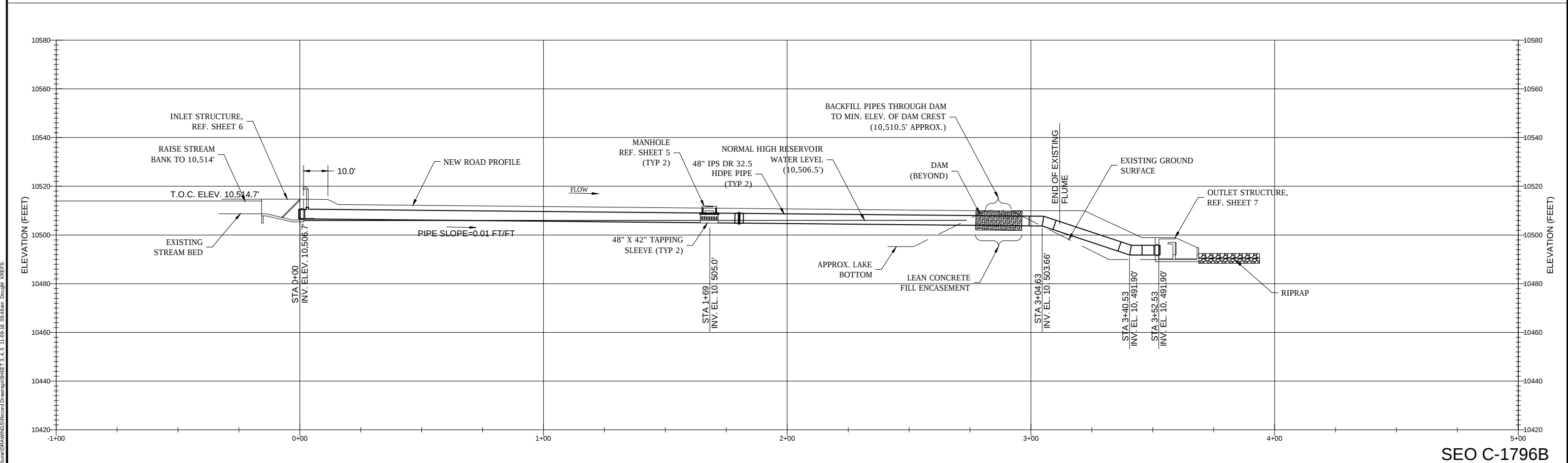
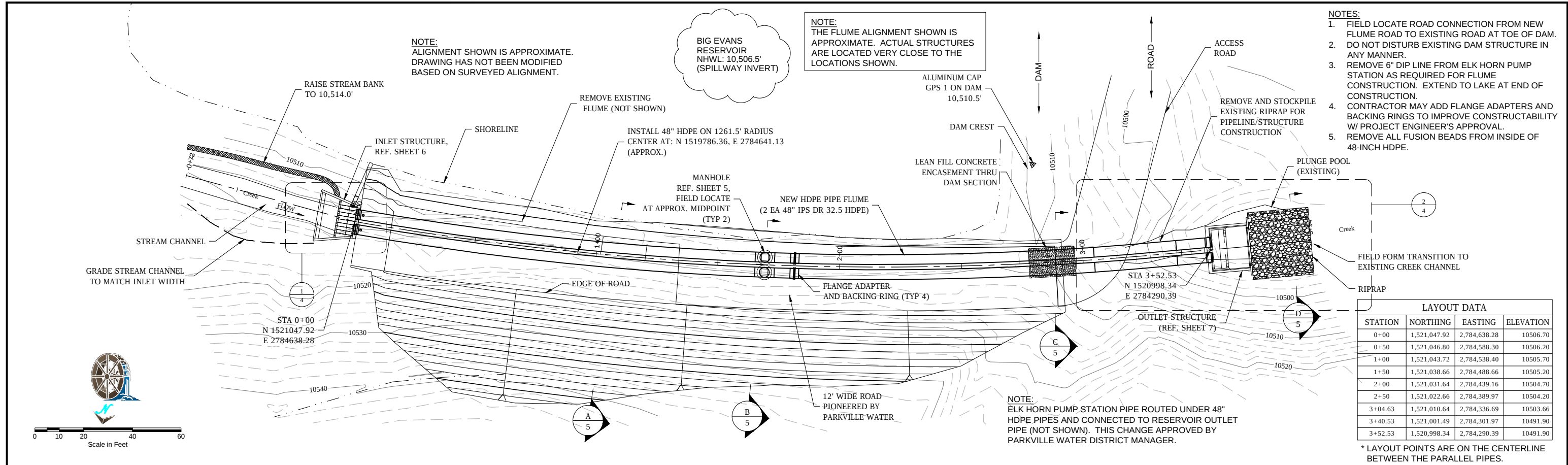
PARKVILLE WATER DISTRICT		BIG EVANS RESERVOIR		Parkville Water District	
		BYPASS FLUME REPLACEMENT		Leadville, CO	
		COVER SHEET		MADE BY DCM	1/21/15
				CHECKED BY SMM	1/21/15
				ACCEPTED BY ...	As Noted
				DRAWING NO. SHEET 1	

W. W. WHEELER & ASSOCIATES, INC.
Water Resources Engineers
3700 S. INDA STREET
ENGLEWOOD, CO 80110-3405
303-761-4130
FAX 303-761-2802



SEO C-1796B

REVISIONS	NO.	DATE	MADE BY	CHKD. BY	REMARKS	REFERENCE DWGS	DRAWING NO.	REFERENCE	PARKVILLE WATER DISTRICT			BIG EVANS RESERVOIR			Parkville Water District Leadville, CO								
	1	6/10/16	DCM	SMM	ISSUED FOR CONSTRUCTION													"This drawing together with any and all additions, corrections, changes and alterations thereof is the property of Parkville Water District and is furnished on the express condition that it shall not be reproduced, copied, lent, or disposed of directly or indirectly, nor used for any other purpose than for which it is specifically furnished without the prior written consent of said Parkville Water District."	3700 S. INCA STREET ENGLEWOOD, CO 80110-3405 303-761-4130 FAX 303-761-2802	W. W. WHEELER & ASSOCIATES, INC. Water Resources Engineers	MADE BY DCM	1/21/15	As Noted
	2	10/28/16	DCM	SMM	RECORD DRAWING																		
	3																						
	4																						
	5																						
						PARKVILLE WATER DISTRICT			BYPASS FLUME REPLACEMENT			SCALE As Noted											
						PARKVILLE WATER DISTRICT			SITE MAP			DRAWING NO.											
						PARKVILLE WATER DISTRICT			SHEET 2			SHEET 2											



REVISIONS

NO.	DATE	MADE BY	CHK. BY	REMARKS
1	6/10/15	DCM	SMM	ISSUED FOR CONSTRUCTION
2	10/28/16	DCM	SMM	RECORD DRAWING

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PARKVILLE WATER DISTRICT

SEO C-1796B

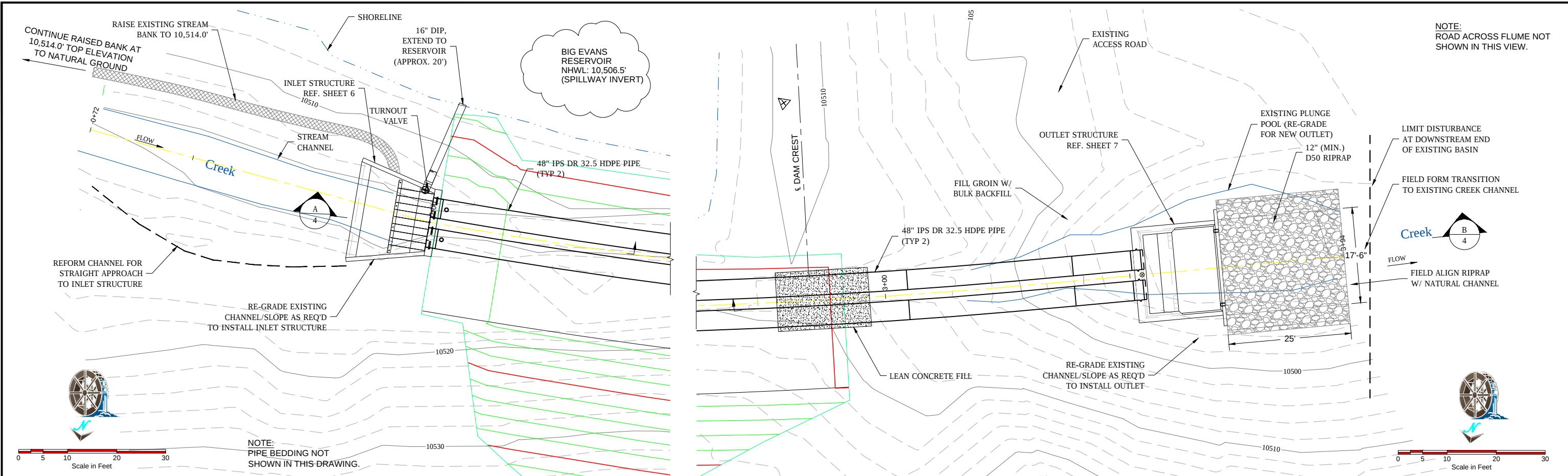
BIG EVANS RESERVOIR

48" HDPE PIPE FLUME

PLAN AND PROFILE

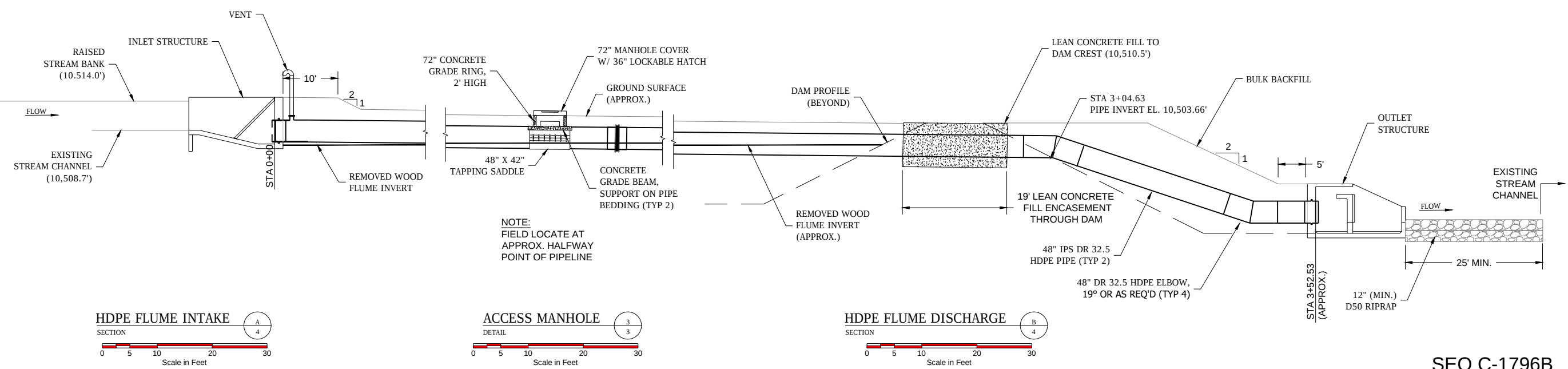
Parkville Water District
Leadville, CO

MADE BY	DATE	SCALE
DCM	1/21/15	As Noted
CHECKED BY	DATE	DRAWING NO.
SMM	1/21/15	SHEET 3
ACCEPTED BY		



HDPE FLUME INTAKE
DETAIL

HDPE FLUME DISCHARGE
DETAIL



HDPE FLUME INTAKE
SECTION

ACCESS MANHOLE
DETAIL

HDPE FLUME DISCHARGE
SECTION

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NO.	DATE	MADE BY	CHK. BY	REMARKS
1	6/10/15	DCM	SMM	ISSUED FOR CONSTRUCTION
2	10/28/16	DCM	SMM	RECORD DRAWING
3				
4				
5				
6				

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DRAWING NO.	REFERENCE

PARKVILLE WATER DISTRICT

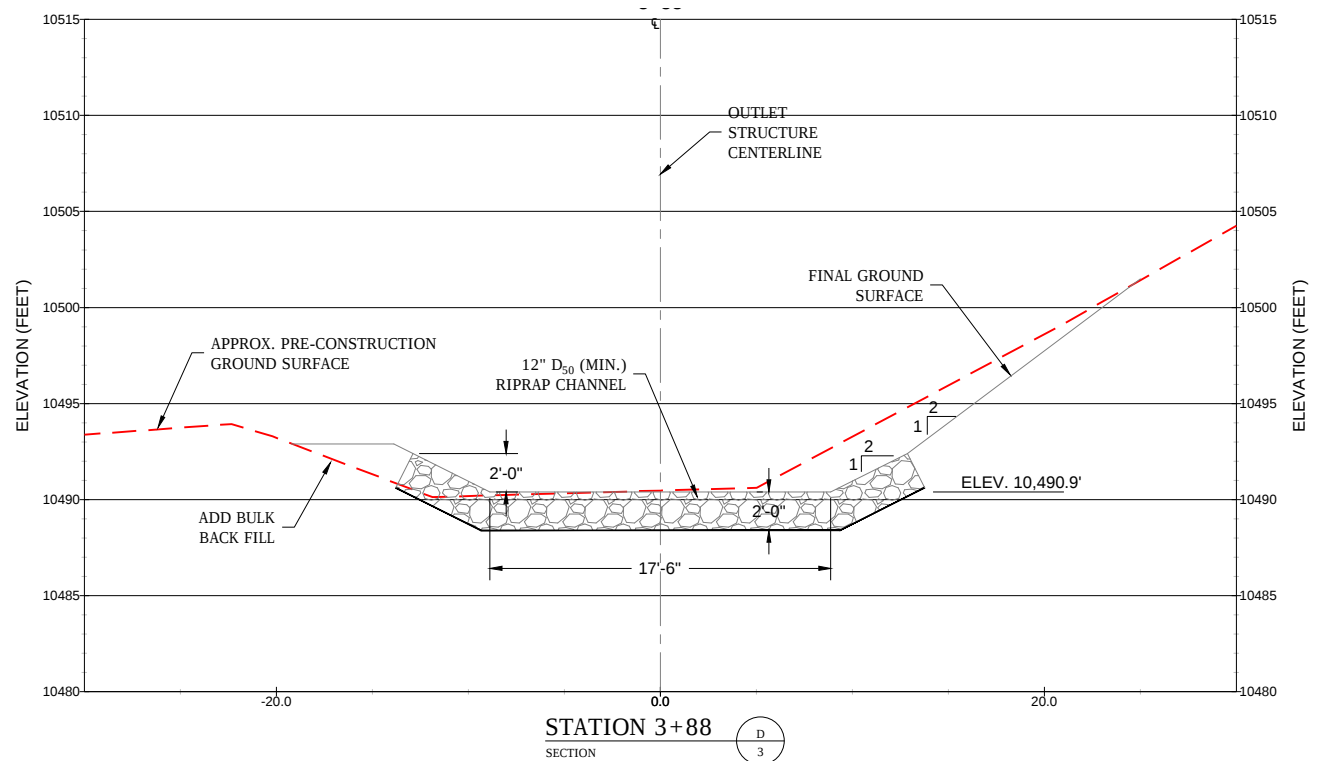
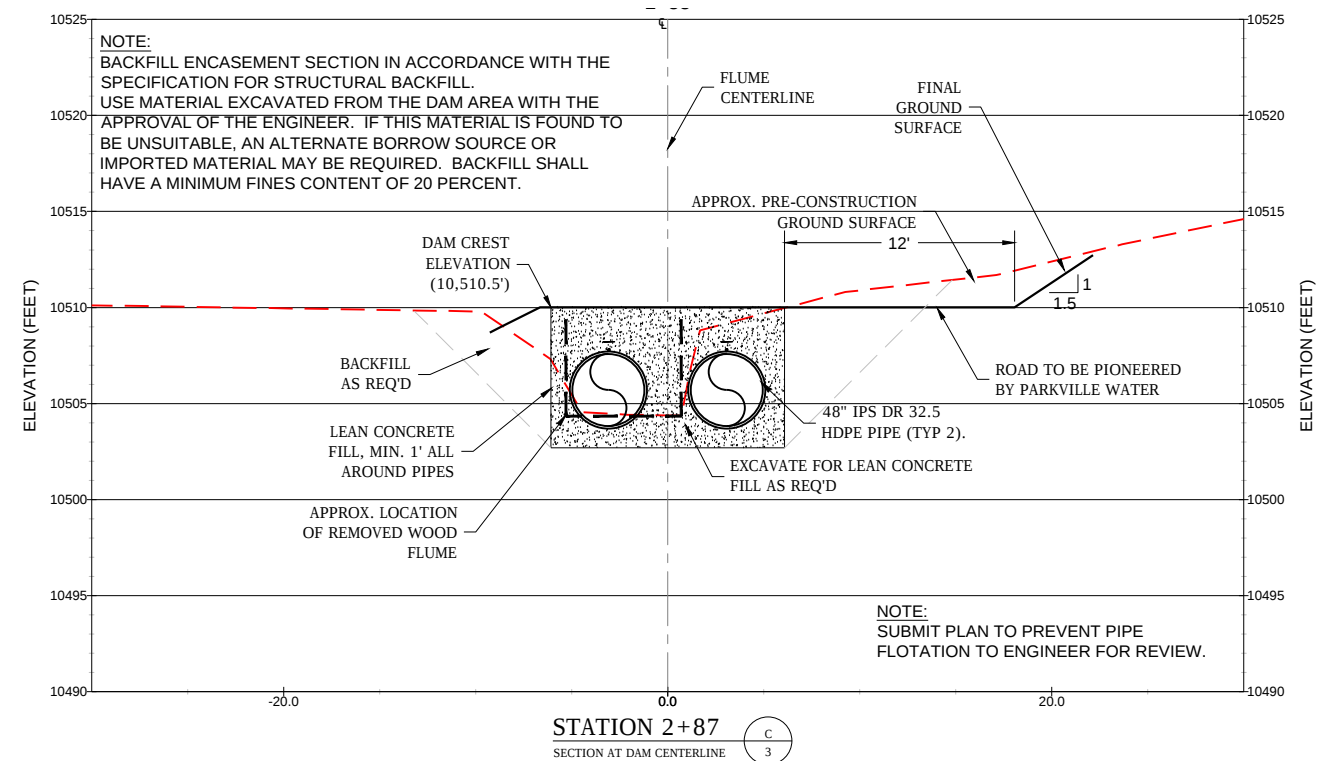
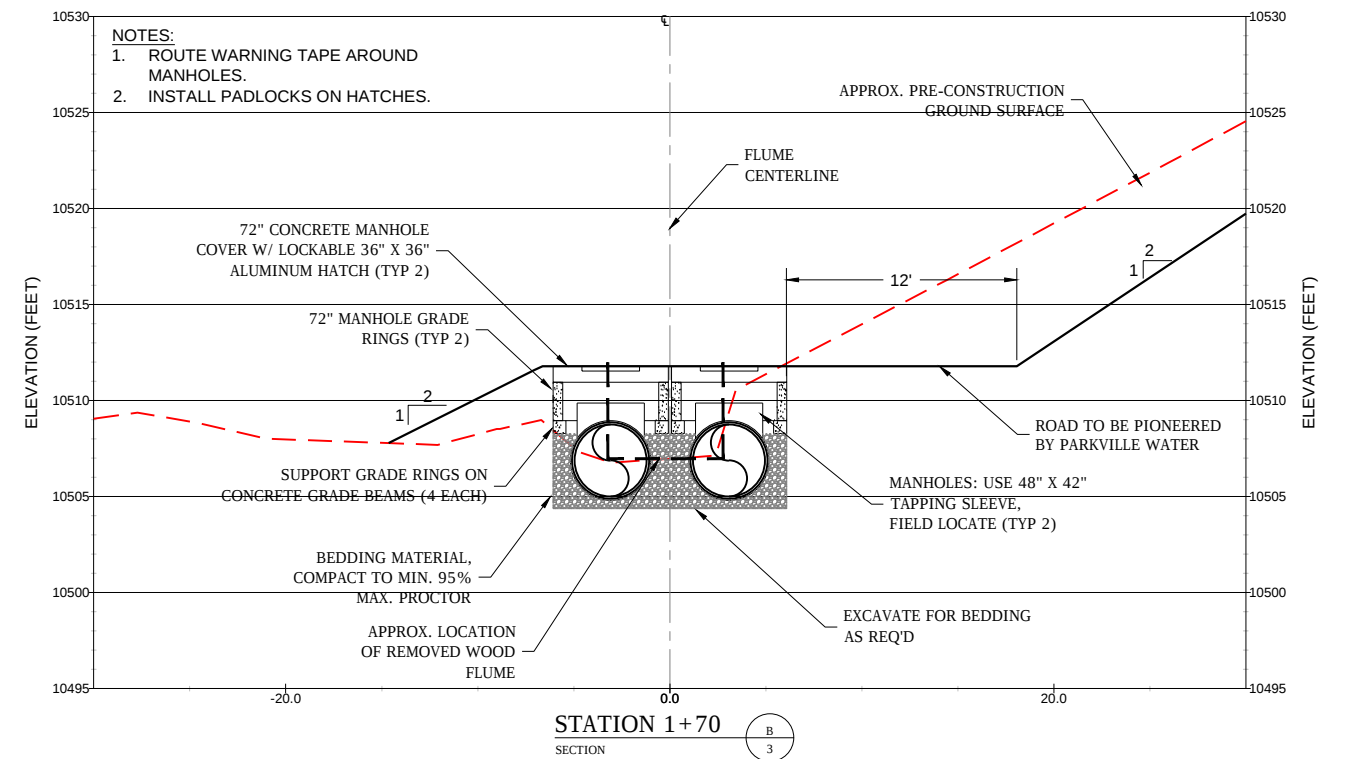
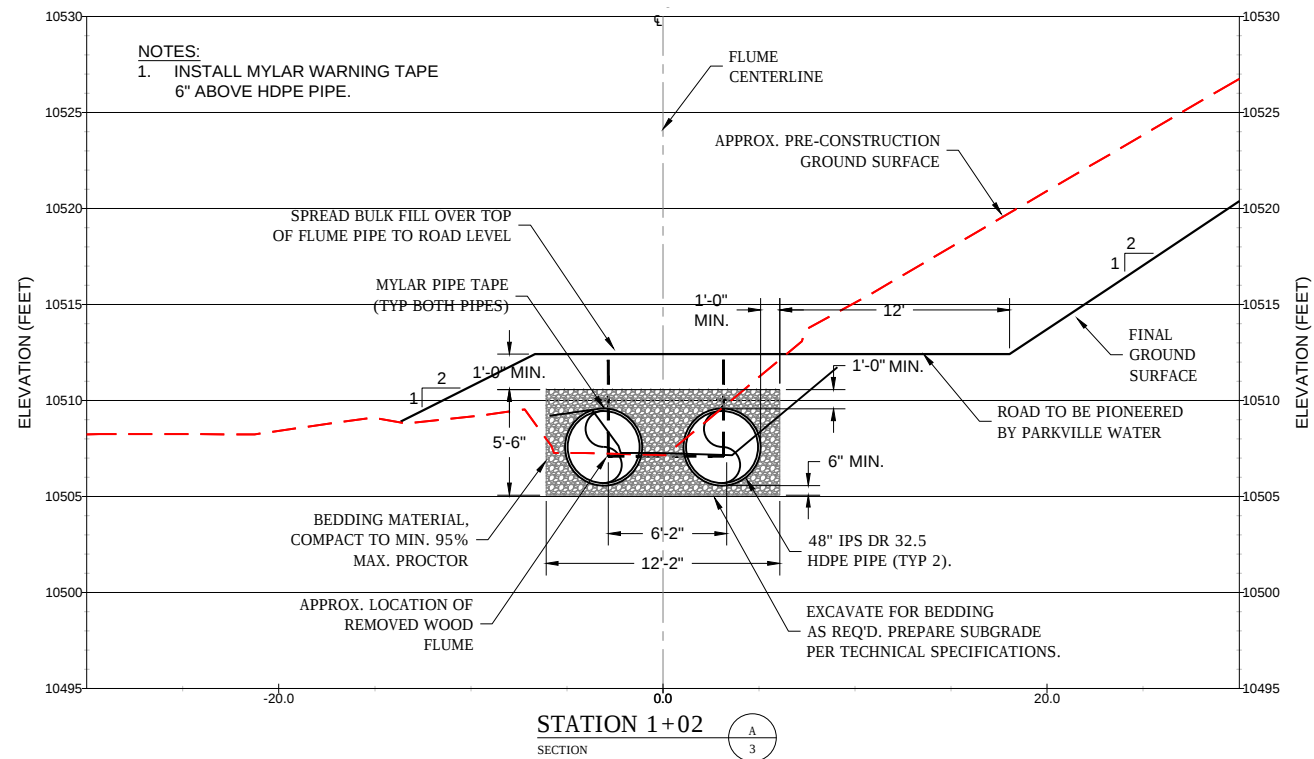
W. W. WHEELER & ASSOCIATES, INC.
Water Resources Engineers

3700 S. INDA STREET
ENGLEWOOD, CO 80110-3405
303-761-4130
FAX 303-761-2802

BIG EVANS RESERVOIR	
48" HDPE PIPE FLUME INLET AND OUTLET	
DETAILS AND SECTIONS	

MADE BY DCM	1/21/15	SCALE As Noted
CHECKED BY SMM	1/21/15	DRAWING NO.
ACCEPTED BY ...		SHEET 4

SEO C-1796B



SEO C-1796B

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NO.	DATE	MADE BY	CHKD. BY	REMARKS
1	6/10/16	DCM	SMM	ISSUED FOR CONSTRUCTION
2	10/28/16	DCM	SMM	RECORD DRAWING
3				
4				
5				
6				
7				

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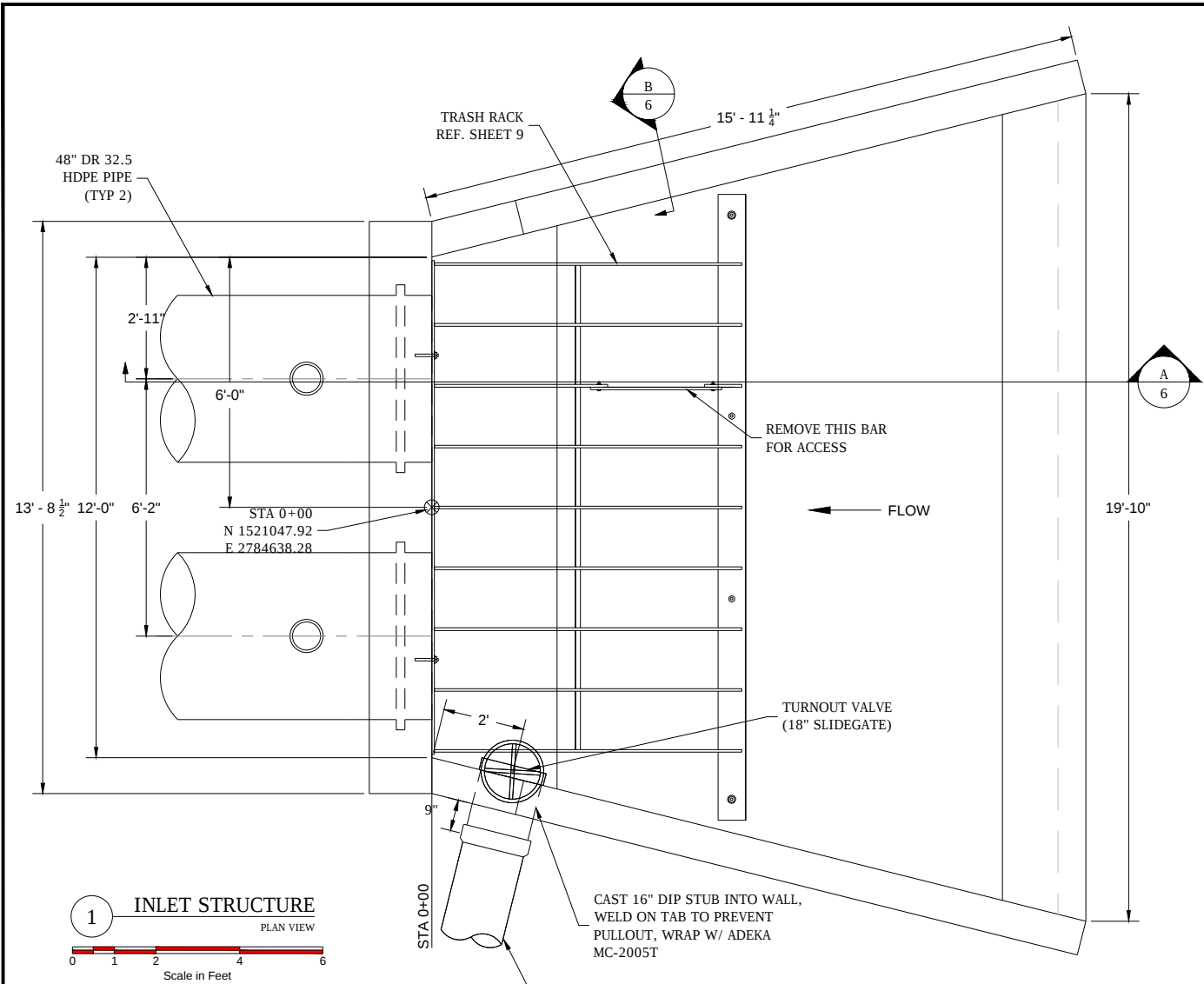
DRAWING NO.	REFERENCE

PARKVILLE WATER DISTRICT

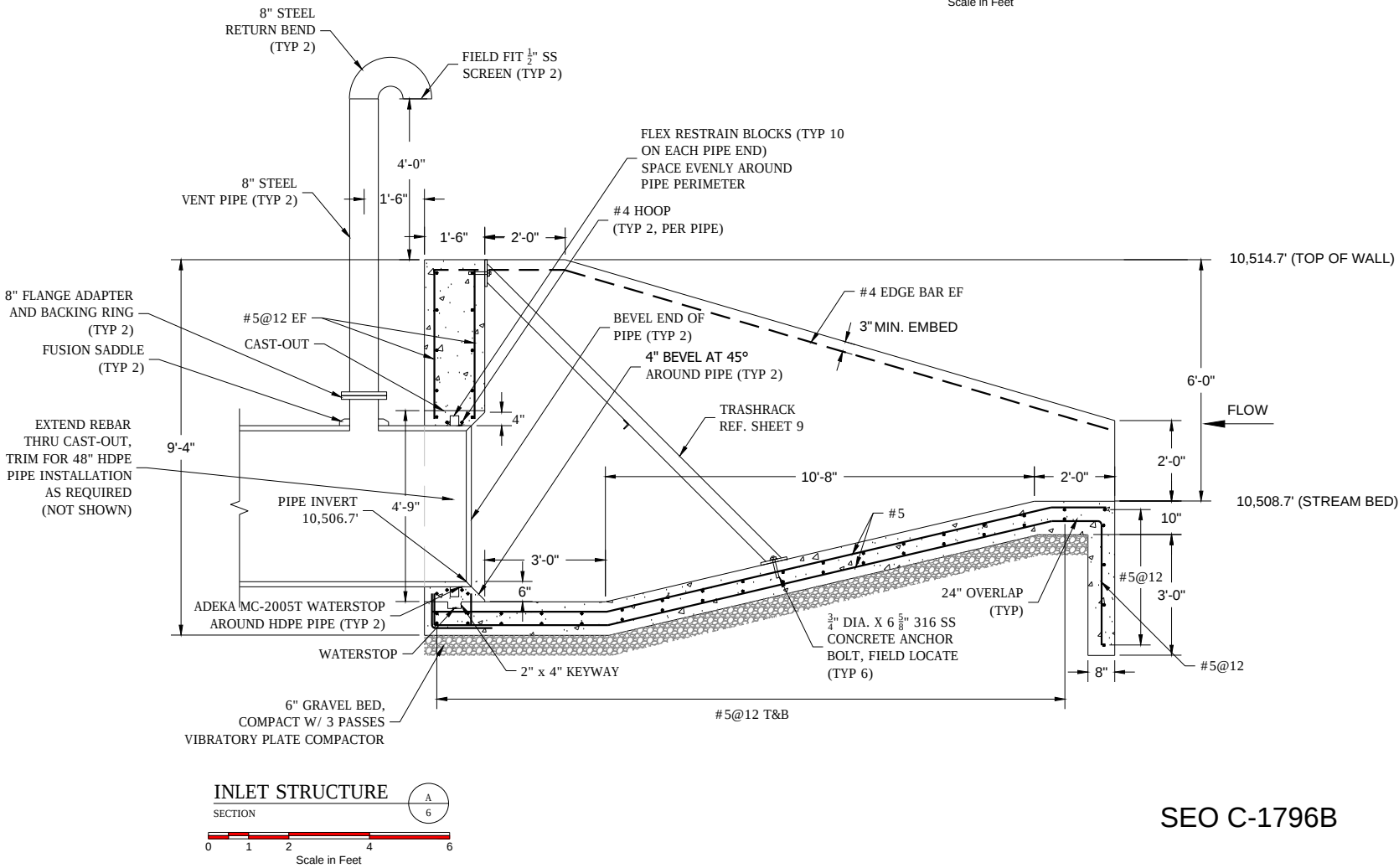
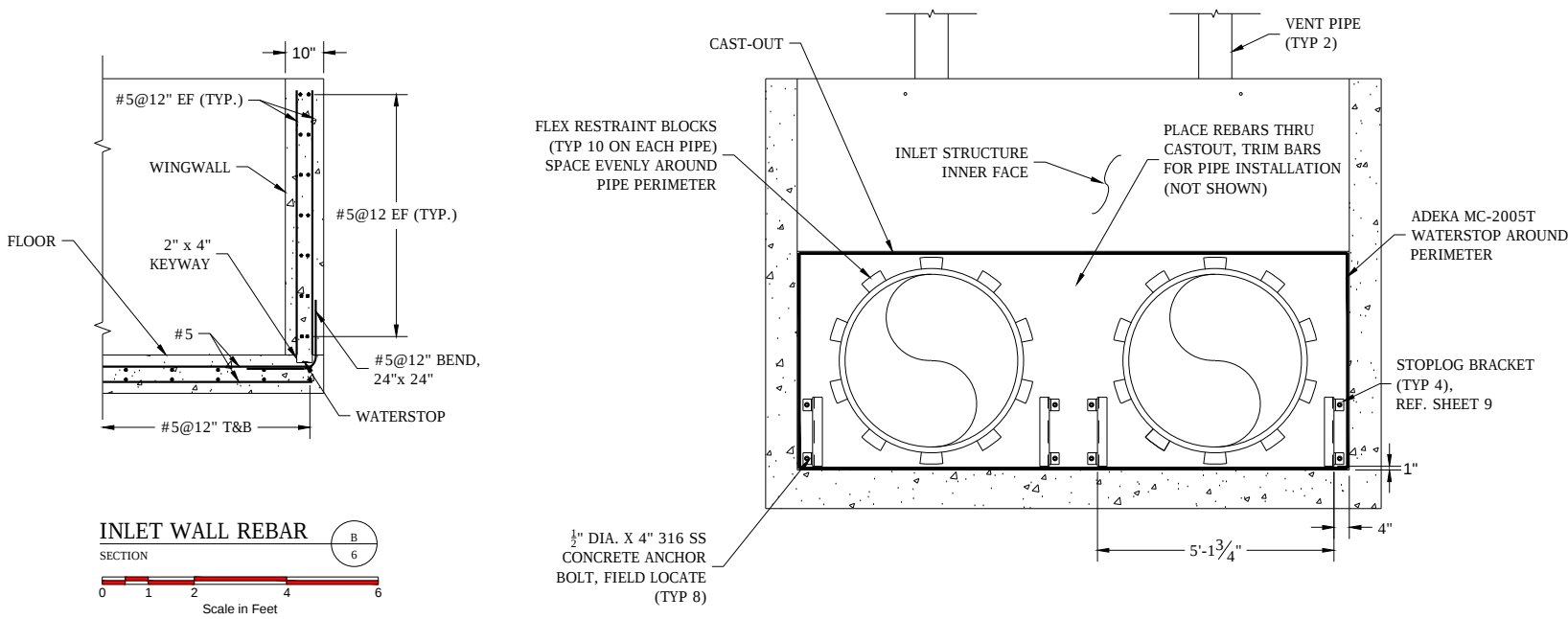
W. W. WHEELER & ASSOCIATES, INC.
Water Resources Engineers

3700 S. INDA STREET
ENGLEWOOD, CO 80110-3405
303-761-4130
FAX 303-761-2802

BIG EVANS RESERVOIR		Parkville Water District	
48" HDPE PIPE FLUME		Leadville, CO	
SECTIONS		MADE BY DCM	1/21/15
		CHECKED BY SMM	1/21/15
		ACCEPTED BY ...	SCALE As Noted
		DRAWING NO. SHEET 5	



- NOTES:
1. CONSTRUCT FROM 4500 PSI CONCRETE.
 2. CONSTRUCT WITH 60 KSI REBAR.
 3. CONSTRUCT IN ACCORDANCE WITH ACI 318.
 4. CHAMFER ALL CORNERS $\frac{3}{4}$ " (NOT SHOWN).
 5. NOT ALL REBAR SHOWN FOR CLARITY.
 6. USE 316 SS CONCRETE ANCHORS.
 7. TURNOUT VALVE TO BE WALL-MOUNTED 18" SLIDE GATE W/ ALUMINUM FRAME AND 16" HANDWHEEL, OVERALL HEIGHT OF 114"; HALLIDAY MODEL G1A SLIDE GATE, OR ENGINEER-APPROVED EQUAL.
 8. STOPLOGS (2" X 8" X 5") BY PARKVILLE WATER DISTRICT.
 9. CAST-OUT BOTTOM OF BACK WALL TO ALLOW FOR LATER INSTALLATION OF 48" HDPE PIPE. EXTEND REBAR THRU CAST-OUT AND TRIM LATER AS REQUIRED FOR HDPE PIPE INSTALLATION.
 10. INSTALL ADEKA MC-2005T WATERSTOP AROUND PERIMETER OF CAST-OUT BEFORE PLACING CONCRETE.



SEO C-1796B

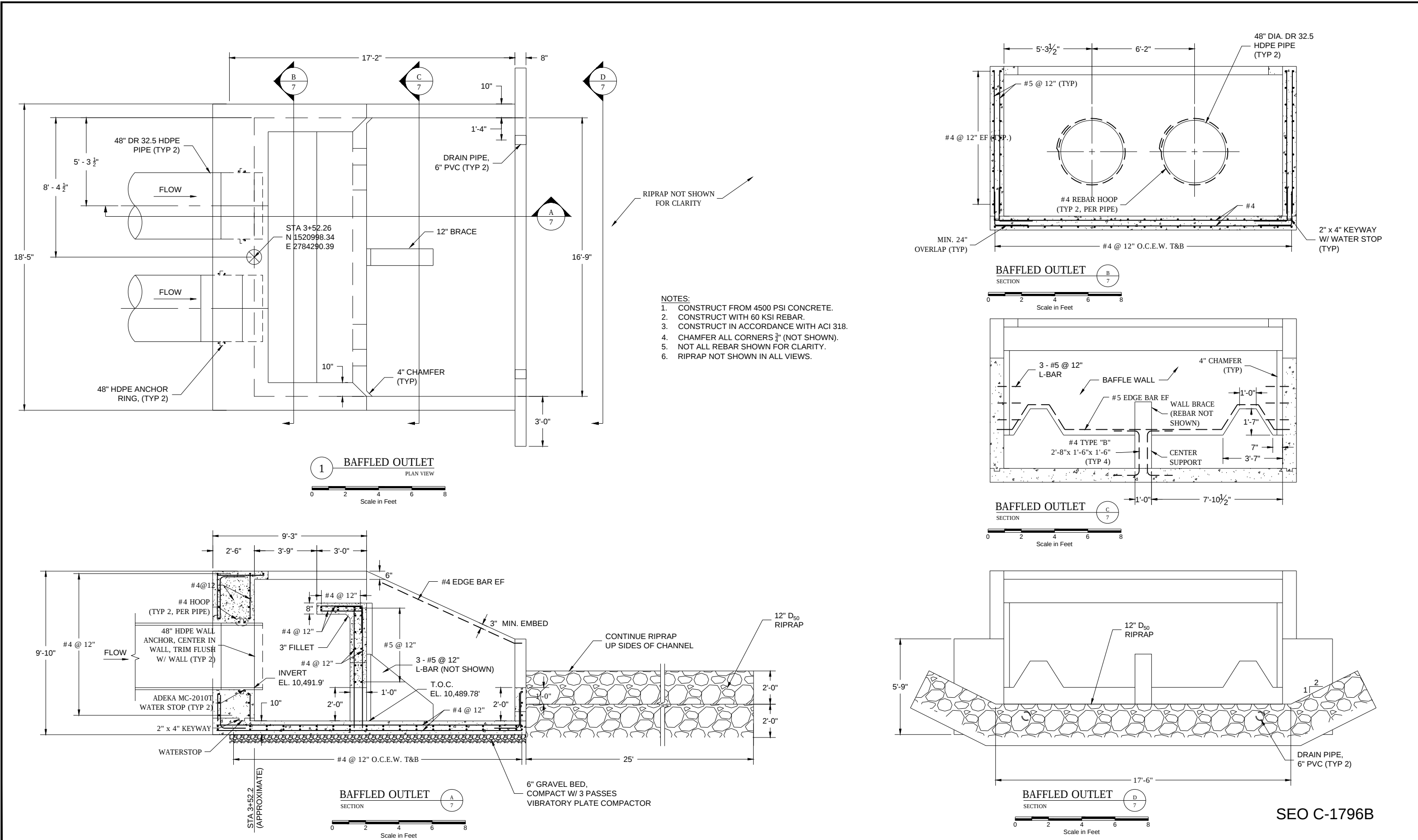
REVISIONS	NO.	DATE	MADE BY	CHKD. BY	REMARKS
	1	6/10/15	DCM	SMM	ISSUED FOR CONSTRUCTION
	2	7/25/15	DCM	SMM	ADD CAST-OUT DETAIL, CHANGE VENT DETAILS
	3	10/20/15	DCM	SMM	RECORD DRAWING
	4				
	5				
	6				

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REFERENCE DWGS	DRAWING NO.	REFERENCE

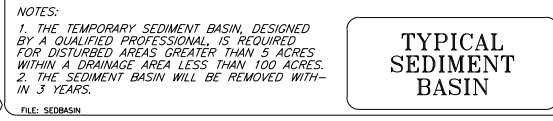
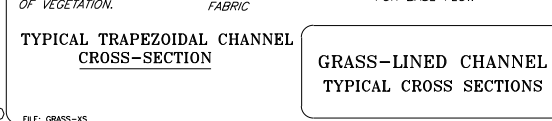
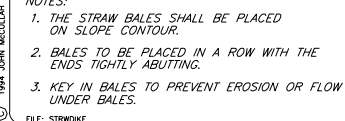
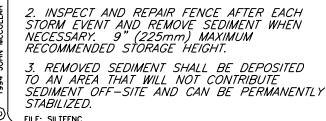
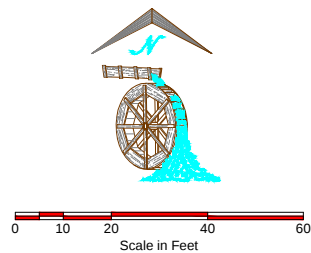
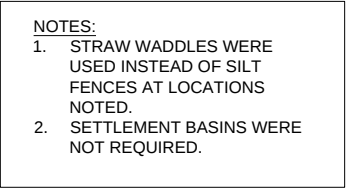
PARKVILLE WATER DISTRICT		BIG EVANS RESERVOIR			Parkville Water District		
		CONCRETE - INLET STRUCTURE			Leadville, CO		
		GENERAL ARRANGEMENT AND DETAILS			MADE BY DCM	1/21/15	SCALE As Noted
					CHECKED BY SMM	1/21/15	DRAWING NO.
					ACCEPTED BY ...		SHEET 6

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SEO C-1796B

REVISIONS	NO.	DATE	MADE BY	CHKD. BY	REMARKS	This drawing together with any and all additions, corrections, changes and alterations thereof is the property of Parkville Water District and is furnished on the express condition that it shall not be reproduced, copied, lent, or disposed of directly or indirectly, nor used for any other purpose than for which it is specifically furnished without the prior written consent of said Parkville Water District."	REFERENCE DWGS	DRAWING NO.	REFERENCE	PARKVILLE WATER DISTRICT	 W. W. WHEELER & ASSOCIATES, INC. Water Resources Engineers	3700 S. INCA STREET ENGLEWOOD, CO 80110-3405 303-761-4130 FAX 303-761-2802	BIG EVANS RESERVOIR		Parkville Water District Leadville, CO	
	1	6/10/16	DCM	SMM	ISSUED FOR CONSTRUCTION			CONCRETE - BAFFLED OUTLET	MADE BY DCM				1/21/15	SCALE As Noted		
	2	10/20/16	DCM	SMM	RECORD DRAWING			GENERAL ARRANGEMENT AND DETAILS	CHECKED BY SMM				1/21/15	DRAWING NO.		
	3								ACCEPTED BY ...					SHEET 7		
	4															
	5															



- NOTES:**
1. BMP LOCATIONS SHOWN ARE ESTIMATED BASED ON SLOPES AND DRAINAGES. FIELD LOCATING DURING CONSTRUCTION WILL BE REQUIRED.
 2. INSTALL SILT FENCE AROUND ANY SOIL/BEDDING STOCKPILES.
 3. CONTRACTOR WILL BE RESPONSIBLE FOR ACQUIRING AND IMPLEMENTING THE CONSTRUCTION STORM WATER PERMIT.
 4. NOT ALL ENVIRONMENTAL CONTROLS SHOWN ARE REQUIRED. EXTRA CONTROL DETAILS ARE PROVIDED FOR REFERENCE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL ENVIRONMENTAL CONTROLS FOR THE PROJECT, WHETHER SHOWN OR NOT.

 = SILT FENCE
 = STRAW BALE DIKES
 = SETTLING POND

SEO C-1796B

REVISIONS	NO.	DATE	MADE BY	CHK. BY	REMARKS
	△	6/10/16	DCM	SMM	ISSUED FOR CONSTRUCTION
	△	10/20/16	DCM	SMM	RECORD DRAWING
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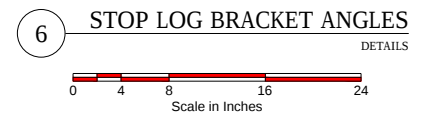
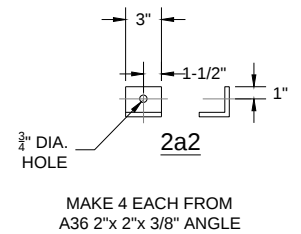
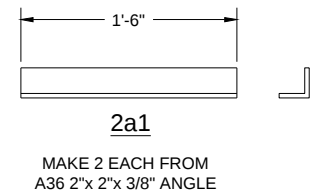
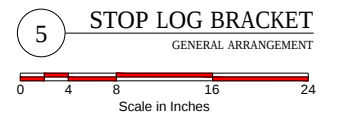
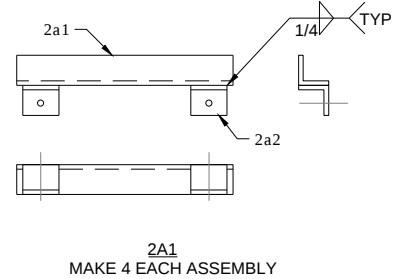
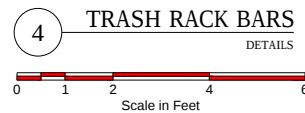
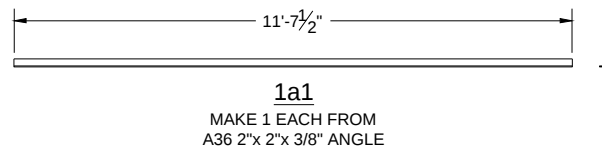
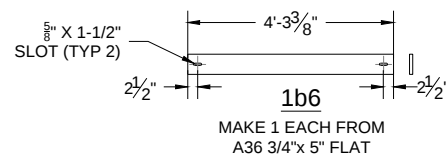
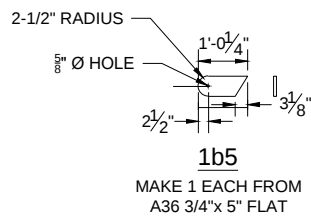
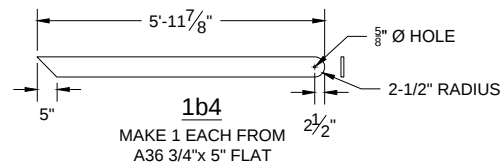
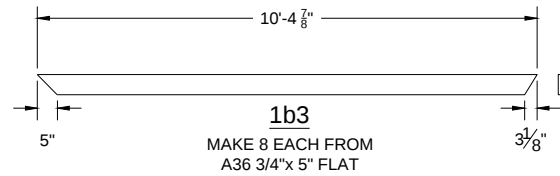
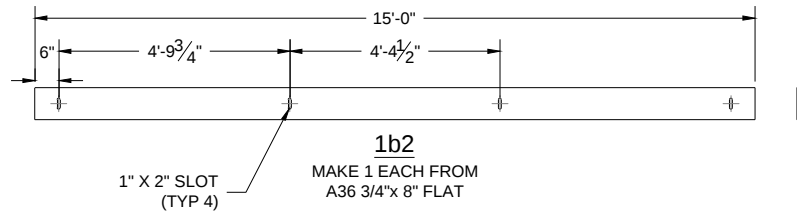
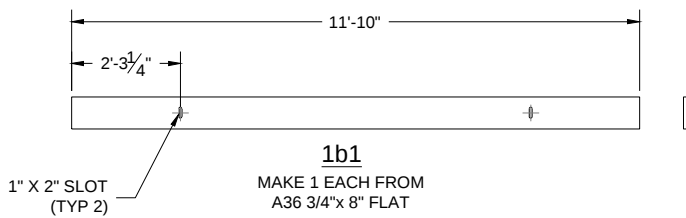
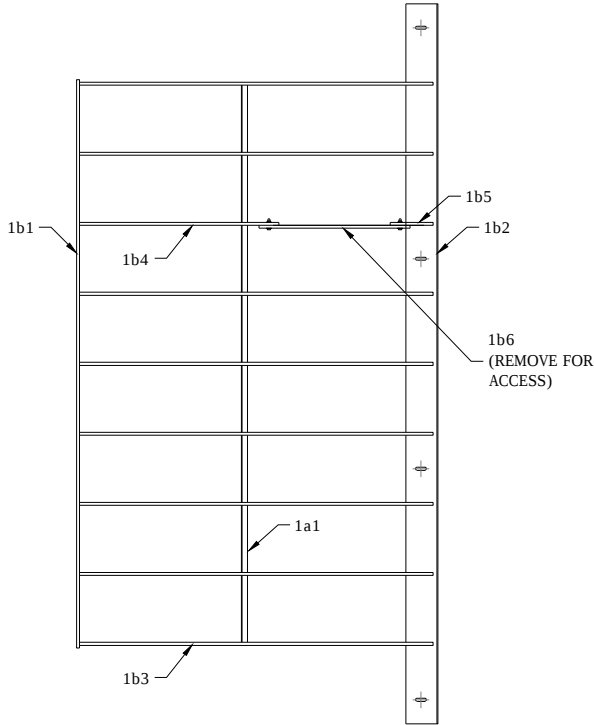
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PARKVILLE WATER DISTRICT

 <u>W. W. WHEELER</u> & ASSOCIATES, INC <i>Water Resources Engineers</i>	3700 S. INGA STREET ENLEWOOD, CO 80110-3405 303-761-4130 FAX 303-761-2802
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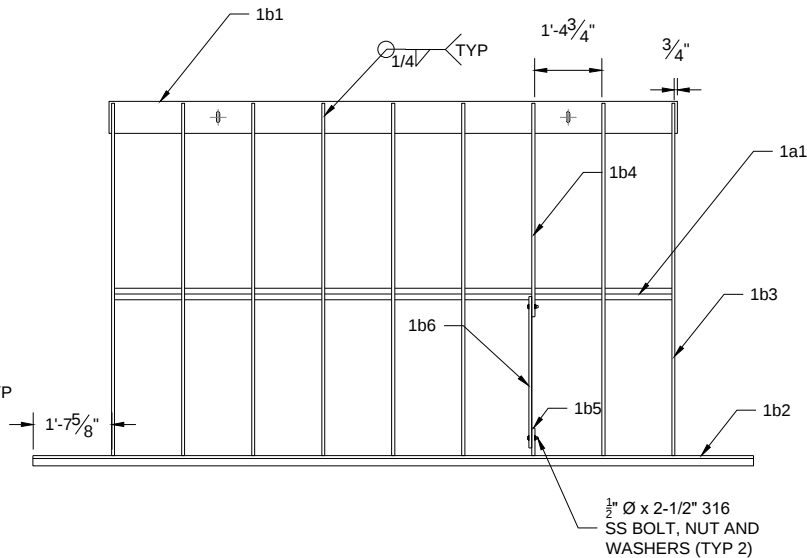
BIG EVANS RESERVOIR	Parkville Water District Leadville, CO		
BYPASS FLUME REPLACEMENT	MADE BY DCM	1/21/15	SCALE As Noted
STORMWATER MANAGEMENT/ BMP's	CHECKED BY SMM	1/21/15	DRAWING NO.
PLAN VIEW AND DETAILS	ACCEPTED BY ...		SHEET 8 

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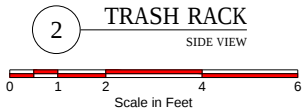
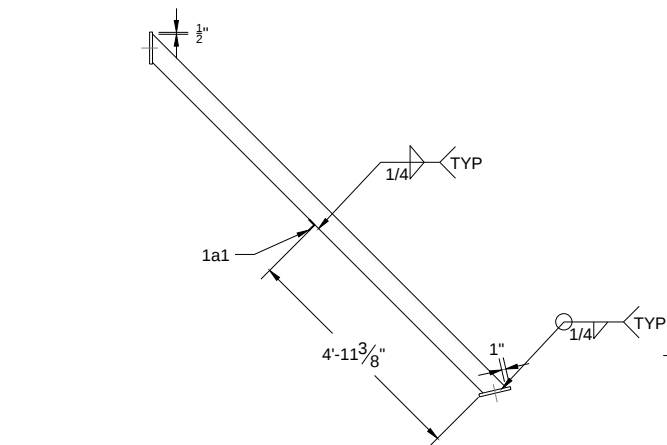
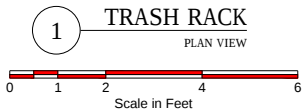
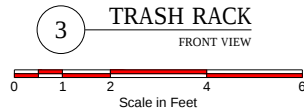


- NOTES:
1. ALL WELDED CONSTRUCTION.
 2. USE E70XX ELECTRODES.
 3. USE ASTM A36 STEEL.
 4. HOT DIP GALVANIZE ENTIRE ASSEMBLY AFTER FABRICATION.

NOTE:
TRASHRACK WAS FABRICATED IN TWO
PIECES TO MAKE SHIPPING AND
HANDLING EASIER. DIMENSIONS
CHANGED SLIGHTLY.



1A1
MAKE 1 EACH ASSEMBLY



SEO C-1796B

NO.	DATE	MADE BY	CHK. BY	REMARKS
1	6/10/15	DCM	SMM	ISSUED FOR CONSTRUCTION
2	7/12/15	DCM	SMM	ADDED DIMENSIONAL INFORMATION
3	10/20/15	DCM	SM	RECORD DRAWING
4				
5				
6				

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DRAWING NO.	REFERENCE

PARKVILLE WATER DISTRICT



W. W. WHEELER
& ASSOCIATES, INC.
Water Resources Engineers

3700 S. INDA STREET
ENGLEWOOD, CO 80110-3405
303-761-4130
FAX 303-761-2802

BIG EVANS RESERVOIR

STEEL - TRASHRACK AND STOPLOG BRACKET

GENERAL ARRANGEMENT AND DETAILS

Parkville Water District
Leadville, CO

MADE BY	DATE	SCALE
DCM	1/21/15	As Noted
CHECKED BY	DATE	DRAWING NO.
SMM	1/21/15	SHEET 9
ACCEPTED BY	...	