Helena Diversion & Boat Chute Improvements - Final Report

Colorado Parks and Wildlife
Southeast Regional Office
4255 Sinton Road
Colorado Springs, CO 80907
4/5/2014

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Executive Summary

Project Title: Helena Diversion & Boat Chute Improvements Project

Project Start Date: November 27, 2012 **Project Completion Date:** January 13, 2014

Funding Summary: Table 1 presents the cash funding summary for the Project.

Table 1. Helena Diversion & Boat Chute Improvements Project Cash Funding Summary

BUDGET TABLE	Fiscal Year-12/13	Fiscal Year-13/14	TOTAL SPENT
CWCB Grant FUNDS			
1)Colorado Water Conservation Board	$0	$290,000	$290,000
2)Arkansas Basin Roundtable	$0	$35,000	$35,000
3)(not billed at final – unencumbered)	$0	(0.26)	($0.26)
Subtotal	*$0*	*$324,999.74*	*$324,999.74*
STATE/LOCAL MATCH			
1) Colorado Parks and Wildlife	$6,780	$4,162.36	$10,942.36
2) Colorado Department of Corrections	$0	$10,000	$10,000
3) Arkansas River Outfitters Association	$0	$1,000	$1,000
4) Wilderness Aware	$0	$1,000	$1,000
Subtotal	*$6,780*	*$16,162.36*	*$22,942.36*
TOTAL SPENT (*not including in-kind contributions)	**$6,780**	**$341,162.10**	***$347,942.10**
***Additional in-kind contributions by State and Local combined for well over $25,000.00.**			

Project Contributors:

Army Corps of Engineers
Arkansas River Outfitters Association
American Adventure Expeditions
Bill Dvorak's Kayak and Rafting Expeditions Inc.
Colorado Department of Corrections (CDOC)
Colorado Parks and Wildlife (CPW)
Colorado Water Conservation Board (CWCB)
Colorado Whitewater Association
Chaffee County Board of Commissioners
Echo Canyon Rafting
Geo Tours Whitewater Raft Trips
Mr. Paul Moltz (ACA Products)
Mr. Joe Cogan
Natural Resource Conservation Service (NRCS)
Upper Arkansas Water Conservancy District (UAWCD)
Wilderness Aware

Summary Accomplishments: Colorado Parks and Wildlife completed the Helena Diversion & Boat Chute Improvements Project (Project) construction in January 2014. This final report describes goals, objectives, and activities related to project planning, engineering design and Construction.

Prepared by:
Shaun Gordon, RLA
Design and Construction Manager
Colorado Parks and Wildlife
Southeast Regional Office
4255 Sinton Road
Colorado Springs, Colorado 80907
(719) 227-5257

1.0 Introduction

This report documents Colorado Parks and Wildlife (CPW) completion of the Helena Diversion & Boat Chute Improvements Project in the Upper Arkansas River Basin in Buena Vista, CO. The project will benefit both consumptive and non-consumptive users. It replaced an existing diversion structure/boat chute, with a new diversion structure/boat chute that will improve water delivery capabilities, enhance boater safety and allow for better fisheries management (fish ladder to allow fish spawning movement upstream). In addition it will greatly enhance the overall recreational experience of visitors to the Arkansas Headwaters Recreation Area.

The Helena Diversion Structure at Buena Vista is currently run by both private and commercial boaters, but was extremely dangerous due to portions of the structure (boat chute & diversion structure) that had shifted over time creating an unpredictable and dangerous spillway. This resulted in a commercial passenger boating fatality during the 2007 summer boating season.

2.0 Project Goals, Objectives, and Activities

Programmatic goals included:

- Implement the selected plan based on the project design and authorizations
- Improve Public Safety by replacing Failing Diversion Structure and Deadly Boat Chute
- Improve Water Delivery by replacing the Failing Headgate structure.
- Reduce Trespass – Build Class II Structure in Class II Water

Environmental goals included:

- Create a sustainable site where human recreation, man-made structures, and natural uses can co-exist and function within this critical area of the Arkansas headwaters
- Improve Fishery – Construct Fish Ladder and obtain SB 40 Wildlife Certification

2.1 Specific Project Tasks

Table 2 identifies the Project tasks for design and construction objectives as contracted and completed.

Table 2. Project Tasks Completed

	Tasks	Associated Costs
	Objective #1: Design & Engineering	
1	Summary of Alternatives Investigations Report: Consultant prepared a summary report which described how the proposed design alternative was selected.	$1,950.00
2	Permitting: CPW was granted an agricultural exemption from the USACE Permitting. The SB 40 Wildlife Certification was completed by CPW staff.	no additional cost
3	60% Design: Consultant completed 60% level design plans for the proposed improvements during an earlier 2010 phase of the project.	no additional cost
4	60% Design Review: Consultant prepared for and attended a meeting of critical stakeholders and provided the 60% design plans for the purpose of explaining the intent of the proposed design and soliciting comments for consideration on the final design.	$4,550.00
5	Public Meeting: Consultant attended a public meeting in Buena Vista in order to describe the proposed work to the public including, but not limited to commercial outfitters, area residents and the local municipality.	$1,950.00
6	HEC-RAS Model Revisions: Consultant revised and updated the preliminary flood model that was completed during the preliminary design phase in 2010. The model findings were summarized in a report form and coordinated with the diversion structure engineer in order to ensure diversion capabilities. The Consultant also submitted a Chaffee County Floodplain Permit with a concurrence of no impact.	$6,500.00
7	90% Design: Following completion of the 60% Design review, the Consultant completed a 90% level design for the proposed improvements. This included design plans, details, specifications and quantities.	$3,900.00
8	90% Design Review: The Consultant facilitated a 90% design review process with critical stakeholders.	$3,250.00
9	Final Design/Construction Plans: Following completion of the 90% Design review, the Consultant completed the final design and construction plans for the proposed improvements. This included design plans, details, specifications and quantities.	$7,800.00
10	Final Design Review: The Consultant facilitated a final design review with critical stakeholders.	$2,600.00
11	Preconstruction: The Consultant assisted CPW during the competitive bidding process including attending the prebid conference, project control and field layout and other technical assistance.	$7,800.00
12	Construction Phase Services: The Consultant oversaw construction of the proposed improvements and work on site with a qualified contractor to complete the improvements. A representative was onsite for all critical construction activities to confirm elevations/dimensions and coordinate with the CPW construction manager.	$27,300.00
	Engineering Subtotal	$67,600.00
	Expenses	$3,600.00
	Total Design and Engineering	**$71,200.00**
	Actual Final Payment	***$71,199.74***

Table 2. Project Tasks Completed

	Tasks	Associated Costs
	Objective #2: Construction	
13	Mobilization	$18,225.85
14	Furnish and Install Complete Temporary Coffer Dam and perform any dewatering for the construction as specified	$23,743.42
15	Furnish and Install Grouted Drop Structure #1 including excavation, concrete cutoff wall, boulders, riprap, grouting, backfill and pool excavation and armoring as specified.	$18,365.18
16	Furnish and Install Grouted Drop Structure #2 including excavation, concrete cutoff wall, boulders, riprap, grouting, backfill and pool excavation and armoring as specified.	$17,976.35
17	Furnish and Install Grouted Drop Structure #3 including excavation, concrete cutoff wall, boulders, riprap, grouting, backfill and pool excavation and armoring as specified.	$12,707.50
18	Furnish and Install Complete Divider Island including excavation, reusing existing boulders, and grouting as specified.	$30,046.73
19	Reconfigure River Left Overflow Channel reusing existing boulders as specified	$14,566.54
20	Furnish and Install Complete Fish Passage including boulders, riprap, grouting and backfill as specified.	$13,877.92
21	Furnish and Install Complete Ungrouted Rock Mattress Extension including cobble/boulder mix, excavation, placement and compaction as specified.	$13,418.00
22	Clean Up and Site Restoration as specified.	$5,693.51
23	Final Boulder Positioning by Heavy Equipment to Achieve Required Grades, Elevations and Slopes as specified.	$12,700.00
24	Remove Existing Diversion including Concrete Weir Wall, Headgate, Channel as specified.	$17,097.74
25	Furnish and Install Complete Concrete Diversion Structure including cast in place Weir Wall, Headgate Wall using Cold Weather Concreting as specified	$63,336.11
26	Furnish and Install 6' wide x 5' tall Complete Headgate as specified.	$12,987.51
27	Additional Contractor performed Concrete Diversion Structure Modification to provide self siltation cleaning of structure at gate.	$2,000.00
	Total Construction	**$276,742.36**

2.2 Supplemental Information

Construction Progress Reports are included in this document as Attachment C. They document the daily project activities with periodic written inspections, assessments and photo documentation.

3.0 Coordination Efforts (Local, State & Federal)

Colorado Parks and Wildlife (CPW) sponsored, coordinated, and implemented the project. CPW worked in close partnership with the Upper Arkansas Water Conservancy District (UAWCD) and the Colorado Department of Corrections (CDOC) as key stakeholders of the project to coordinate all activities and reports.

CPW contracted with and coordinated the engineering design and construction phases of the project. The AHRA Park Manager and staff provided additional management and support. CPW's Engineering Consultant was Recreation Engineering and Planning (REP). REP completed the tasks shown in Table 2 of this document. Coordination with the UAWCD and their Engineering Consultant, Colorado River Engineering, was necessary to insure proper diversion of the water rights and connectivity of planned improvements to the adjoining diversion structure.

CPW coordinated an internal review and approval process for Colorado Senate Bill 40 Certification. That Certification is included as Attachment A.

CPW coordinated with the USACE of whom found that the proposed activity would be exempted from regulation by a specific provision of the Clean Water Act as implemented by the USACE regulations at 33CFR323.4(a). This is documented in a letter dated March 12, 2013 and included as Attachment B.

4.0 Stakeholder and Public Participation

An important component of this project was to enhance public understanding and encourage early and continued participation in designing, and implementing the project. Two separate meetings were held for Key Stakeholders all other interested parties to voice their opinions. These meetings were held on June 26th, 2013 first in Salida at the UAWCD office and then later in Buena Vista at the Community Center.

Those in attendance at the meeting in Salida were as follows:

- Rob White, CPW – AHRA Park Manager
- Kala Green, CPW
- Shaun Gordon, CPW – Project Manager
- John Fell, CPW – AHRA Park Resource Technician
- Bill Gardiner, NRCS
- Mike Harvey, Recreation Engineering and Planning
- Chris Manera, Colorado River Engineering – Engineering Consultant for UAWCD
- Terry Scanga, UAWCD
- Kevin Coggins, CDOC
- Brian Hardin, CDOC
- Dean Skaret, Property Owner adjacent to the project site
- Joe Cogan, Property Owner
- Paul Moltz, Ditch Owner

Those in attendance at the meeting in Buena Vista were as follows:

- Rob White, CPW – AHRA Park Manager
- Kala Green, CPW
- Shaun Gordon, CPW – Project Manager
- Mike Harvey, Recreation Engineering and Planning
- Earl Richmond, Colorado Kayak
- Brad Kingman, Wilderness Awareness Rafting
- Chris Menges, American Whitewater
- Dale Shoemaker, Property Owner adjacent to the project site

Both meetings focused on discussing the history and current issues of the existing structures and presenting the proposed design and anticipated construction techniques.

5.0 Conclusion and Future Activities

The finished product provides the proper agricultural diversion capabilities for water rights and navigational passage for both recreational users and aquatic species while minimizing maintenance and improving the safety associated with navigation. Colorado Parks and Wildlife will continue to monitor the project site to assess any need for any maintenance or minor adjustments at different waterflows.

ATTACHMENT A
SB 40 CERTIFICATION

COLORADO PARKS & WILDLIFE

4255 Sinton Road • Colorado Springs, Colorado 80907
Phone (719) 227-5200
wildlife.state.co.us • parks.state.co.us

October 21, 2013

Mr. Craig Workman, Project Engineer
Colorado Parks and Wildlife
6060 Broadway
Denver, CO 80216

RE: AHRA Helena Boat Chute and Diversion Project

Dear Mr. Workman:

Colorado Parks and Wildlife has reviewed your request for Senate Bill 40 Certification regarding the proposed construction of the Helena Boat Chute and Diversion Project. Based on our review of the information provided, we hereby grant Senate Bill 40 Certification for the project with the following conditions:

- Best Management Practices (see attached) will be followed to the maximum extent practical to minimize sedimentation/siltation within the river channel during construction.
- With the understanding that boater safety and agricultural diversion of water rights cannot be compromised, adequate fish passage for this project through on-site consultation with CPW Biologists Greg Policky and Matt Kondratieff, and CPW Engineer Tracy Kittell will be expected. On-site design for the fish passage will take into consideration channel slope and sinuosity, acceptable velocities, and proper alignment to ensure adequate flows during low flow periods. Minor realignment of individual fish passage components may also be required once river flows are restored.

We believe the proposed project will provide proper agricultural diversion of water rights, improve recreational navigation, and provide a passageway for aquatic species. This project is supported by both private and commercial boaters, associated water rights owners and adjoining landowners, and will result in a safer boating experience while maintaining an important water diversion structure.

Please feel free to contact me at (719)227-5208 if you have any questions or need additional information regarding this Senate Bill 40 Certification or should this project require any significant modification that might affect the basis upon which this certification has been granted.

Sincerely,

for Dan Prenzlow
Southeast Regional Manager

Senate Bill 40 Best Management Practices:

A. Temporary fills, such as coffer dams and temporary road crossings, using imported material shall utilize clean, chemically-free fill to avoid increasing suspended solids or pollution. Fill material shall not be obtained from the live water area in the stream unless approved by CPW.

B. Discharge of water directly into the stream from coffer dams or new channel construction shall be in accordance with applicable Clean Water Act Sections 401, 402, and 404 regulations and permits. In some instances, such water must be treated prior to discharge.

C. All reasonable measures shall be taken to avoid excess application and introduction of chemicals into aquatic ecosystems and adjacent riparian areas, including wetlands. The use of chemicals such as soil stabilizers, dust palliatives, herbicides, sterilants, growth inhibitors,fertilizers, deicing salts, etc., during construction and maintenance operations shall be in accordance with the manufacturer's recommended application rates, frequency, and instructions. These chemicals shall not be used, stored, or stockpiled within 50 horizontal feet of the ordinary high water mark of any state waters, including wetlands, except when otherwise specified in the project contract.

D. Construction staging areas, including construction and waste material, fill material, equipment, fuel, etc., shall be located outside of the area adjacent to streams, including wetlands and riparian areas. At a minimum, such staging areas and materials shall not be located within 50 horizontal feet of the ordinary high water mark or within the wetland/riparian habitat zone of any water. A greater buffer shall be considered as space permits. Equipment refueling and servicing shall occur only within approved designated areas.

E. All equipment shall be free of noxious weed seed and reproductive vegetative plant parts prior to use of that equipment in aquatic ecosystems and riparian areas, including wetlands. Such equipment shall be maintained in good working order to avoid unnecessary discharge of harmful materials used in the operation of that equipment, including petroleum products, radiator fluid, hydraulic fluid, etc.

F. No wet concrete from placement of forms, washing of trucks or equipment, or concrete saw water shall be allowed in aquatic ecosystems and riparian areas, including wetlands.

G. Erosion control is required on all projects. Project construction activities that result in land disturbance of equal to or greater than one acre require a stormwater construction permit. Erosion control is particularly important around aquatic ecosystems and riparian areas, including wetlands, because of their sensitivity to sediments and pollution in roadway runoff. Temporary and permanent erosion and sediment control measures shall be installed at the earliest practicable time consistent with permit requirements and good construction practices. Such measures shall be properly monitored and maintained throughout the operation of the project per permit requirements.

H. Where instream work is required, such work shall be performed during low- or no-flow periods, and the use of heavy equipment in streambeds, especially in live or flowing water, shall be minimized. The equipment used shall be of such a type that will produce minimal environmental damage, including damage to the stream bottom. Except for authorized instream work, fording streams will be allowed only as authorized by the U.S. Army Corps of Engineers Section 404 Permit.

I. During the planning and construction of a project, all practicable measures shall be taken to avoid disturbance to existing vegetation. The length of time that disturbed areas are left exposed shall be as short as practicable and the extent of such disturbed areas shall be as small as practicable. Limitations on the duration and extent of disturbed areas lessen the potential for erosion and runoff of sediments into adjacent areas. Sensitive areas shall be fenced as necessary. Particular attention shall be paid to

protecting aquatic ecosystems, riparian areas, wetlands, and habitats for threatened and endangered species from such impacts and unnecessary disturbance. Once earthwork has begun on a section, it shall be pursued until complete. Final stabilization shall begin within 48 hours after topsoil placement, soil conditioning, or combination thereof starts and shall be pursued to completion. Disturbed areas where work is temporarily halted shall be temporarily stabilized immediately after the activity ceases for the day. Disturbed surfaces outside the pavement limits slope shall be left in a surface roughened or vertically tracked condition at the end of each shift.

J. All disturbed areas above the ordinary high water mark shall be revegetated with appropriate native plant species to provide bank stabilization, erosion control, and habitat replacement. The opportunity will be given to CPW for review of the seed mix. Temporary seeding shall be done where necessary and all practicable efforts shall be expended to control the spread of weeds. Only certified weed-free hay and straw shall beused.

K. All practicable effort shall be expended to avoid unnecessary destruction of trees and shrubs in the vicinity of streams and in riparian areas.

L. All practicable efforts shall be expended to avoid and minimize impacts to streams, riparian areas, and wetlands. Because of their importance to wildlife and the environment, all practicable efforts shall be made to replace on site all wetlands and riparian areas impacted by the project.

M. Riprap above the ordinary high water mark shall be covered with topsoil and revegetated. Where appropriate, streamside areas at the ordinary high water mark should be revegetated with brush layer cuttings and/or containerized plantings or other acceptable bioengineering method of planting native riparian species. Supplemental watering may be needed until the plantings have become established.

N. Waste concrete is not acceptable and shall not be used to stabilize channel banks for new construction.

O. Invasive Aquatic Nuisance Species. In order to avoid the spread of invasive aquatic species including but not limited to Eurasian watermilfoil, zebra mussel, quagga mussel, and New Zealand mudsnail, the following BMPs shall be practiced. This guidance is also intended to fulfill requirements set forth under General Condition 11 (Invasive Aquatic Species) for Nationwide Permits under Section 404 of the Clean Water Act. If heavy equipment is used that was previously working in another stream, river, lake, pond, or

wetland one of the following procedures is necessary to prevent the spread of Aquatic Nuisance Species and other pathogens:

- Remove all mud and debris from equipment (tracks, turrets, buckets, drags, teeth, etc.)
- Spray/soak equipment with a solution of commercial grade quaternary ammonium disinfectant compound containing at least 8.0% active ingredient diluted in solution to achieve at least 0.8% concentration (roughly 12 ounces of product per gallon of water). Specifically, a 1:15 solution of Quat 4 or Super HDQ Neutral institutional cleaner and water, could be used for effective treatment.
- Treated equipment should be kept moist for a least 10 minutes, managing rinsate as a solid waste in accordance with local, county, state, or federal regulations, OR
- Remove all mud and debris from equipment (tracks, turrets, buckets, drags, teeth, etc.)
- Spray/soak equipment with water hotter than 140 degrees Fahrenheit for at least 10 minutes.
- Clean hand tools, boots, and any other equipment that will be used in the water with one of the above options as well.

- Do not move water from one water body to another.
- Be sure equipment is dry before use.

P. To reduce wildlife entrapment, all erosion control blankets will be biodegradable and will not contain plastic monofilament netting.

ATTACHMENT B
USACE 404 EXEMPTION LETTER

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS
ALBUQUERQUE DISTRICT
200 S. SANTA FE AVENUE, SUITE 301
PUEBLO, COLORADO 81003

March 12, 2013

REPLY TO
ATTENTION OF:

Regulatory Division

SUBJECT: Action Number SPA-2013-00113-SCO, Helena Ditch diversion structure maintenance

Rob White
Arkansas River Headwaters Recreation Area
307 West Sackett Avenue
Salida, Colorado 81201

Mr. White:

I received of your e-mail dated February 20, 2013 concerning the Helena Ditch irrigation ditch intake replacement project. We have assigned Action No. SPA-2013-00113-SCO to this activity. To avoid delay, please include this number in all future correspondence concerning this project.

We have reviewed this project in accordance with Section 404 of the Clean Water Act (CWA). Under Section 404, the Corps regulates the discharge of dredged and fill material into waters of the United States, including wetlands. Based on your description of the proposed work, and other information available to us, we have determined that your project will involve discharges of dredged or fill material into a water of the United States. However, the specific activity that you propose is currently exempted from regulation by a specific provision of the Clean Water Act as implemented by the USACE regulations at 33 CFR 323.4(a). Therefore, your project will not require Department of the Army authorization under the above laws. However, it is incumbent upon you to remain informed of any changes in the Corps Regulatory Program regulations and policy as they relate to your project.

If you have any questions concerning our regulatory program, please contact me at 719-543-6915 or by e-mail at Van.A.Truan@usace.army.mil. At your convenience,

please complete a Customer Service Survey on-line available at http://per2.nwp.usace.army.mil/survey.html.

Sincerely,

Van Truan
Chief, Southern Colorado
Regulatory Branch

ATTACHMENT C
CONSTRUCTION PROGRESS REPORTS

CONSTRUCTION PROGRESS REPORT

State of Colorado / Department of Natural Resources / Parks and Wildlife

Date: 04 November 2013	**Weather:** ☒ Sunny ☒ Overcast ☐ Raining ☐ Snowing
Project: AHRA – Helena Boat Chute and Diversion (AR301D51)	**Temperature (F):** ☐ 0+ ☐ 10+ ☐ 20+ ☒ 30+ ☒ 40+ ☐ 50+ ☐ 60+ ☐ 70+ ☐ 80+ ☐ 90+
Project Location: Buena Vista, CO;	**Wind:** ☒ Calm ☒ Moderate ☐ High
Contractor: ACA Products, Inc.	**Shutdown Due to Weather:** ☒ No ☐ Yes
Project Engineer: Tracy Kittell	**River Flow:** Gage Off-Line
Project Engineer's: **Arrival:** 09:00 **Departure:** 16:00	**Flow Determination:** ARKNATCO, USGS 07091200 ARKANSAS RIVER NEAR NATHROP, CO
Construction: **Start:** On-Site **End:** 16:00	

Major Equipment:

1. Komatsu PC260LC Excavator w/ Thumb
2. Volvo EC330B Excavator w/ Thumb (inactive)
3. Bobcat T770 w/ Forks

Contractor Personnel:

1. Justin Koch – Supervisor
2. Dean German - Supervisor
3. Dave Collins – Excavator Operator
4. Two Labors (Angelo Delora, Jamie Howell)

Other Personnel/Visitors:

Material Delivered:

1. 118 – 33 CF bag containers (3' X 3' base)

Work Completed Since Project Engineer Last On-Site:

1. Contractor mobilized equipment and job trailer to site (01 November).
2. Project survey control was set (Recreation Engineering and Planning)

Work Completed While Project Engineer On-Site:

1. Installed approximately 125 feet of coffer dam. Dam consisted of two rows of bag containers filled with minus 1-1/2 inch rock. River bed material was placed on upstream side of bag rows.
2. Removed existing large rock from irrigation diversion side of existing structure.

Possible Notice of Changes / Contract Modifications:

None.

Questions / Remarks / Problems / Conservations:

None.

_____ _____

CPW PROJECT ENGINEER **DATE**

CONSTRUCTION PROGRESS REPORT

State of Colorado / Department of Natural Resources / Parks and Wildlife

Description:
Installing coffer dam.

CONSTRUCTION PROGRESS REPORT

State of Colorado / Department of Natural Resources / Parks and Wildlife

Date: 05 November 2013	**Weather:** ☒ Sunny ☒ Overcast ☐ Raining ☐ Snowing
Project: AHRA – Helena Boat Chute and Diversion (AR301D51)	**Temperature (F):** ☐ 0+ ☐ 10+ ☐ 20+ ☒ 30+ ☒ 40+ ☐ 50+ ☐ 60+ ☐ 70+ ☐ 80+ ☐ 90+
Project Location: Buena Vista, CO;	**Wind:** ☒ Calm ☒ Moderate ☐ High
Contractor: ACA Products, Inc.	**Shutdown Due to Weather:** ☒ No ☐ Yes
Project Engineer: Tracy Kittell	**River Flow:** Gage Off-Line
Project Engineer's: **Arrival:** 08:00 **Departure:** 13:00	**Flow Determination:** ARKNATCO, USGS 07091200 ARKANSAS RIVER NEAR NATHROP, CO
Construction: **Start:** On-Site **End:** On-Site	

Major Equipment:

1. Komatsu PC260LC Excavator w/ Thumb
2. Volvo EC330B Excavator w/ Thumb (inactive)
3. Bobcat T770 w/ Forks

Contractor Personnel:

1. Justin Koch – Supervisor
2. Dean German - Supervisor
3. Dave Collins – Excavator Operator
4. Two Labors (Angelo Delora, Jamie Howell)

Other Personnel/Visitors:

1. Mike Harvey (REP)

Material Delivered:

1. 118 – 33 CF bag containers (3' X 3' base)

Work Completed Since Project Engineer Last On-Site:

1. None.

Work Completed While Project Engineer On-Site:

1. Installed additional row of bag containers on top of coffer dam installed 4 November.
2. Started removing existing river right rock and grout.

Possible Notice of Changes / Contract Modifications:

None.

Questions / Remarks / Problems / Conservations:

None.

_____ _____

CPW PROJECT ENGINEER **DATE**

CONSTRUCTION PROGRESS REPORT

State of Colorado / Department of Natural Resources / Parks and Wildlife

Description:
Installing coffer dam.

Description:
Coffer dam.

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Date: 12 November 2013

Project: AHRA – Helena Boat Chute and Diversion (AR301D51)

Project Location: 28280 County Road 133, Buena Vista, CO
N38° 49' 43.5", E106° 06' 35.5"

Contractor: ACA Products, Inc.

Project Engineer: Tracy Kittell

Project Engineer's: **Arrival:** 09:15 **Departure:** 16:30

Construction: **Start:** On-Site **End:** 16:30

Weather: ☒ Sunny ☐ Overcast ☐ Raining ☐ Snowing

Temperature (F): ☐ 0+ ☐ 10+ ☒ 20+ ☒ 30+ ☒ 40+
☐ 50+ ☐ 60+ ☐ 70+ ☐ 80+ ☐ 90+

Wind: ☒ Calm ☐ Moderate ☐ High

Shutdown Due to Weather: ☒ No ☐ Yes

River Flow: Gage Off Line

Flow Determination: ARKNATCO, USGS 07091200 ARKANSAS RI
NEAR NATHROP, CO (no adjustment for project location)

Major Equipment:
1. Komatsu PC260LC Excavator w/ Thumb
2. Volvo EC330B Excavator w/ Thumb
3. Bobcat T770 w/ Forks
4. Komatsu 320 Front End Loader (inactive)
5. Komatsu PC88MR Excavator w/ Thumb (inactive)

Contractor Personnel:
1. Justin Koch – Supervisor
2. Dean German – Supervisor
3. Dave Collins – Excavator Operator (K 260)
4. Angelo Delora – Excavator Operator (V 330)
5. One Labor - Jamie Howell

Other Personnel/Visitors:
1. Mike Harvey (REP) – On-site to 11:30
   - Directing rock installation

Material Delivered Since Project Engineer Last On-Site:
1. 2" - 4" rounded rock (used for dewatering operations): 15.39 ton (1 load)
2. 3 '- 4'boulders: 357.41 ton (36 loads)
3. 8" – 12" cobble: 142.48 ton (11 loads)

Material Delivered While Project Engineer On-Site:
1. None

Work Completed Since Project Engineer Last On-Site:
1. Completed coffer dam for structure 1 and 2.
2. Installed drop structures' 1 and 2 boulders.
3. Installed divider island rock/boulders to bottom of drop structure 2.

Work Completed While Project Engineer On-Site:
1. Installed divider island base from bottom of Pool 2 downstream for approximately 200'.
2. Installed splash rocks at bottom of drop structure 2.
3. Installed approximately 20' of boulders on boat chute side of divider island and river right bank below drop structure 2.

Possible Notice of Changes / Contract Modifications:
None.

Questions / Remarks / Problems / Conservations:
1. Bottom row of boulders on drop structures do not have footer rock but rather have "splash" rocks. Need to be sure splash rocks are well grouted on place to prevent any undercutting of last row of boulders. Not a major concern because the substrate is highly compacted large cobble and boulders.

Tracy Kittell — **PROJECT ENGINEER**

12 November2013 — **DATE**

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Project Site Looking Downstream

Coffer Dam and Drop #1

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Drop #1 Looking Downstream

Drop #1 With Pool Looking Upstream

Last Row of Boulders at Drops (typical)

Area of Concern – No Footer Rock

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Date: 13 November 2013

Project: AHRA – Helena Boat Chute and Diversion (AR301D51)

Project Location: 28280 County Road 133, Buena Vista, CO
N38° 49' 43.5", E106° 06' 35.5"

Contractor: ACA Products, Inc.

Project Engineer: Tracy Kittell

Project Engineer's: **Arrival:** 07:15 **Departure:** 16:00

Construction: **Start:** On-Site **End:** On-Site

Weather: ☒ Sunny ☐ Overcast ☐ Raining ☐ Snowing

Temperature (F): ☐ 0+ ☐ 10+ ☒ 20+ ☒ 30+ ☒ 40+
☐ 50+ ☐ 60+ ☐ 70+ ☐ 80+ ☐ 90+

Wind: ☒ Calm ☐ Moderate ☐ High

Shutdown Due to Weather: ☒ No ☐ Yes

River Flow: Gage Off-Line

Flow Determination: ARKNATCO, USGS 07091200 ARKANSAS RI
NEAR NATHROP, CO (no adjustment for project location)

Major Equipment:
1. Komatsu PC260LC Excavator w/ Thumb
2. Volvo EC330B Excavator w/ Thumb
3. Bobcat T770 w/ Forks (inactive)
4. Komatsu 320 Front End Loader (inactive)
5. Komatsu PC88MR Excavator w/ Thumb (inactive)

Contractor Personnel:
1. Justin Koch – Supervisor
2. Dean German – Supervisor
3. Dave Collins – Excavator Operator (K 260)
4. Angelo Delora - Excavator Operator (V 330)
5. One laborer

Other Personnel/Visitors:
1. Mike Harvey (REP) – 7:45 to 15:30
   - Directing rock installation.

Material Delivered Since Project Engineer Last On-Site:
1. N/A

Material Delivered While Project Engineer On-Site:
1. 226.66 tons road base to build pad for concrete pump truck.

Work Completed Since Project Engineer Last On-Site:
1. N/A

Work Completed While Project Engineer On-Site:
1. Installed approximately 45 feet of boulders on boat chute side of divider island and river right bank, downstream of drop #2.
2. Constructed pad for concrete pump truck.

Possible Notice of Changes / Contract Modifications:
None.

Questions / Remarks / Problems / Conservations:
1. Large boulders on river right bank from bottom of drop 2 going downstream for about 20 feet do not have footer rocks. Not a major concern because the substrate is highly compacted large cobble.

Tracy Kittell — **PROJECT ENGINEER**

13 November2013 — **DATE**

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Drop Structure 1, Pool 1, and Drop Structure 2 Looking Downstream

Drop Structure 2 and Channel Looking Downstream

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Divider Island Downstream of Drop 2

River Right Bank Downstream of Drop 2

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

River Right Bank Directly Below Drop 2

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Date: 14 November 2013

Project: AHRA – Helena Boat Chute and Diversion (AR301D51)

Project Location: 28280 County Road 133, Buena Vista, CO
N38° 49' 43.5", E106° 06' 35.5"

Contractor: ACA Products, Inc.

Project Engineer: Tracy Kittell

Project Engineer's: **Arrival:** 07:00 **Departure:** 14:30

Construction: **Start:** On-Site **End:** On-Site

Weather: ☒ Sunny ☐ Overcast ☐ Raining ☐ Snowing

Temperature (F): ☐ 0+ ☐ 10+ ☒ 20+ ☒ 30+ ☒ 40+
☐ 50+ ☐ 60+ ☐ 70+ ☐ 80+ ☐ 90+

Wind: ☒ Calm ☐ Moderate ☐ High

Shutdown Due to Weather: ☒ No ☐ Yes

River Flow: Gage Off-Line

Flow Determination: ARKNATCO, USGS 07091200 ARKANSAS RI
NEAR NATHROP, CO (no adjustment for project location)

Major Equipment:
1. Komatsu PC260LC Excavator w/ Thumb (inactive)
2. Volvo EC330B Excavator w/ Thumb (inactive)
3. Bobcat T770 w/ Forks (inactive)
4. Komatsu 320 Front End Loader (inactive)
5. Komatsu PC88MR Excavator w/ Thumb (inactive)

Contractor Personnel:
1. Justin Koch – Supervisor
2. Dean German – Supervisor
3. Four laborers

Other Personnel/Visitors:
1. Mike Harvey (REP) – 11:00 to On-Site:
   - Directing grout operations.

Material Delivered Since Project Engineer Last On-Site:
1. N/A

Material Delivered While Project Engineer On-Site:
1. 40 CY grout.
   a. Pumper truck on site 09:45
   b. Grout operations start 11:00, end 14:30
      1) Truck 1 – 10:45 Truck 3 – 12:00 Truck 5 – 13:30
         Truck 2 – 11:30 Truck 4 – 12:30

Work Completed Since Project Engineer Last On-Site:
1. N/A

Work Completed While Project Engineer On-Site:
1. Build form for drop #1 upstream grout curtain.
2. Grout drop #1, drop#2, divider island to bottom of drop #2, and river right bank rock to top of drop #2.

Possible Notice of Changes / Contract Modifications:
None.

Questions / Remarks / Problems / Conservations:
Grout slump 5" – 9"
Grout air 3% - 5%
Drop #1 upstream grout curtain was 2' – 2.5' deep from approximately 8" below top of boulders.
Drop #2 upstream grout curtain is not quite as deep as the bottom of the boulders.

Tracy Kittell _____ 14 November2013 _____

PROJECT ENGINEER **DATE**

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Drop Structure 1 Upstream Grout Curtain Forming

Drop Structure 1 Upstream Grout Curtain

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

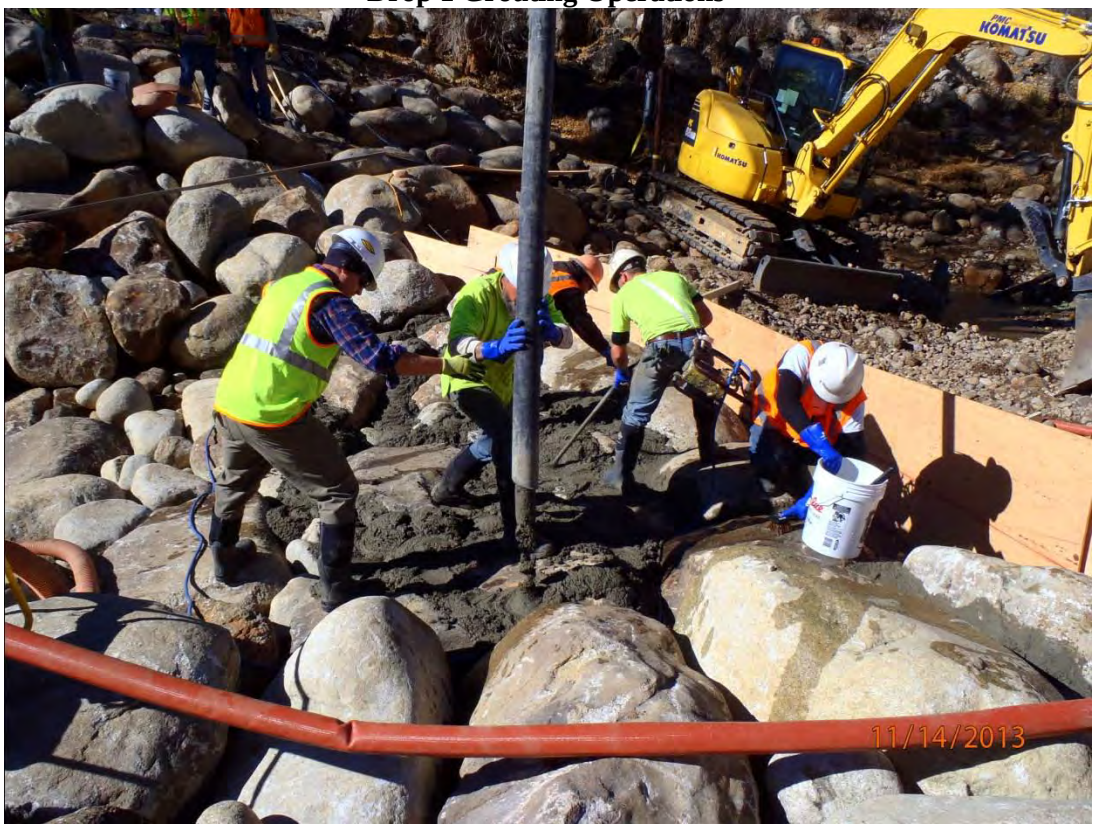
Drop Structure 2 Upstream Grout Curtain Trench

Drop Structure 2 Upstream Grout Curtain

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Best Management Practice for Dewatering Below Grouting Operations

Drop 1 Grouting Operations



CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Drop 1 Grouting Operations

Drop 1 with Grout

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Divider Island Below Drop 1

Placing Grout Drop 2

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Date: 19 November 2013

Project: AHRA – Helena Boat Chute and Diversion (AR301D51)

Project Location: 28280 County Road 133, Buena Vista, CO
N38° 49' 43.5", E106° 06' 35.5"

Contractor: ACA Products, Inc.

Project Engineer: Tracy Kittell

Project Engineer's: **Arrival:** 07:15 **Departure:** 16:00

Construction: **Start:** On-Site **End:** On-Site

Weather: ☒ Sunny ☒ Overcast ☐ Raining ☐ Snowing

Temperature (F): ☐ 0+ ☐ 10+ ☒ 20+ ☒ 30+ ☒ 40+
☐ 50+ ☐ 60+ ☐ 70+ ☐ 80+ ☐ 90+

Wind: ☒ Calm ☐ Moderate ☐ High

Shutdown Due to Weather: ☒ No ☐ Yes

River Flow: Gage Off-Line

Flow Determination: ARKNATCO, USGS 07091200 ARKANSAS RI
NEAR NATHROP, CO (no adjustment for project location)

Major Equipment:
1. Komatsu PC260LC Excavator w/ Thumb
2. Volvo EC330B Excavator w/ Thumb
3. Bobcat T770 w/ Forks (inactive)
4. Komatsu 320 Front End Loader (inactive)
5. Komatsu PC88MR Excavator w/ Thumb (inactive)

Contractor Personnel:
1. Justin Koch – Supervisor
2. Dean German – Supervisor
3. Dave Collins – Excavator Operator (K 260)
4. Angelo Delora – Excavator Operator (V 330)
5. Two laborers

Other Personnel/Visitors:
1. None

Material Delivered Since Project Engineer Last On-Site:
1. 8" – 12" cobble

Material Delivered While Project Engineer On-Site:
1. 14 CY grout (NEED TO CONFIRM QUANTITY WITH ACA).
   a. Used concrete hopper to place grout.
   b. Grout operations start 13:30, end 15:30
      1) Truck 1 – 13:30
         Truck 2 – 14:30

Work Completed Since Project Engineer Last On-Site:
1. Set drop #3. Mike Harvey (REP) set elevations and watched rock placement for upstream and downstream rows (15 Nov).
2. Completed divider island to bottom of drop #3.
3. Complete coffer dam to bottom of project.

Work Completed While Project Engineer On-Site:
1. Grouted Drop 3.

Possible Notice of Changes / Contract Modifications:
None.

Questions / Remarks / Problems / Conservations:
1. Pool 2 is 18' longer than design drawings show. Per Mike Harvey (REP) structure was moved down because bedrock at design point made the channel too narrow.
2. Asked Dean German to place additional large cobble at end of Drop 2 to protect the toe.
3. Pool 3 has large boulders at drop 3's end. Left large boulders in place for stability.
4. Pool 2 needs to be shaped with glide to lessen impact of upstream grout curtain on Drop 3 (discussed with Mike Harvey 25 Nov.)

Tracy Kittell — **PROJECT ENGINEER**

19 November2013 — **DATE**

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Drop 3 Upstream Grout Curtain Form

Drop 3 Grout Placement

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Drop 3 Upstream Prior To Grout Placement

Drop 3 Upstream Post Grout Placement and Form Removal

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Drop 3 Downstream Prior To Grout Placement

Drop 3 Downstream Post Grout Placement

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Drop 3 Post Grout Placement

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Date: 20 November 2013

Project: AHRA – Helena Boat Chute and Diversion (AR301D51)

Project Location: 28280 County Road 133, Buena Vista, CO
N38° 49' 43.5", E106° 06' 35.5"

Contractor: ACA Products, Inc.

Project Engineer: Tracy Kittell

Project Engineer's: **Arrival:** 07:30 **Departure:** 16:00

Construction: **Start:** On-Site **End:** On-Site

Weather: ☒ Sunny ☒ Overcast ☐ Raining ☐ Snowing

Temperature (F): ☐ 0+ ☐ 10+ ☐ 20+ ☒ 30+ ☒ 40+
☒ 50+ ☐ 60+ ☐ 70+ ☐ 80+ ☐ 90+

Wind: ☒ Calm ☐ Moderate ☐ High

Shutdown Due to Weather: ☒ No ☐ Yes

River Flow: Gage Off-Line

Flow Determination: ARKNATCO, USGS 07091200 ARKANSAS RI
NEAR NATHROP, CO (no adjustment for project location)

Major Equipment:
1. Komatsu PC260LC Excavator w/ Thumb
2. Volvo EC330B Excavator w/ Thumb
3. Bobcat T770 w/ Forks (inactive)
4. Komatsu 320 Front End Loader (inactive)
5. Komatsu PC88MR Excavator w/ Thumb (inactive)

Contractor Personnel:
1. Justin Koch – Supervisor
2. Dean German – Supervisor
3. Six laborers

Other Personnel/Visitors:
1. None

Material Delivered Since Project Engineer Last On-Site:
1. N/A

Material Delivered While Project Engineer On-Site:
1. 31 CY grout (NEED TO CONFIRM QUANTITIES WITH ACA).
   a. Concrete pump truck on-site 09:30 – 16:00
   b. Grout operations start 13:30, end 15:30
      Truck 1 – 10:30 to 11:30
      Truck 2 – 12:00 to 12:40
      Truck 3 – 12:45 to 13:45
      Truck 4 – 13:45 to 14:45
      Truck 5 – 15:00 to 15:30 (4 CY)

Work Completed Since Project Engineer Last On-Site:
1. N/A

Work Completed While Project Engineer On-Site:
1. Grouted divider island from bottom of drop 2 to bottom of drop 3.
2. Grouted river right bank from top of drop 2 to bottom of drop 3.

Possible Notice of Changes / Contract Modifications:
None.

Questions / Remarks / Problems / Conservations:
1. None.

Tracy Kittell
PROJECT ENGINEER

20 November2013
DATE

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Grout Placement On Divider Island Below Drop 2

Grout Placement River Right Bank Above Drop 3

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Date: 02 December 2013

Project: AHRA – Helena Boat Chute and Diversion (AR301D51)

Project Location: 28280 County Road 133, Buena Vista, CO
N38° 49' 43.5", E106° 06' 35.5"

Contractor: ACA Products, Inc.

Project Engineer: Tracy Kittell

Project Engineer's: **Arrival:** 09:00 **Departure:** 11:30

Construction: **Start:** On-Site **End:** On-Site

Weather: ☐ Sunny ☒ Overcast ☐ Raining ☐ Snowing

Temperature (F): ☐ 0+ ☐ 10+ ☐ 20+ ☒ 30+ ☒ 40+
☐ 50+ ☐ 60+ ☐ 70+ ☐ 80+ ☐ 90+

Wind: ☐ Calm ☒ Moderate ☐ High

Shutdown Due to Weather: ☒ No ☐ Yes

River Flow: Gage Off-Line

Flow Determination: ARKNATCO, USGS 07091200 ARKANSAS RI
NEAR NATHROP, CO (no adjustment for project location)

Major Equipment:
1. Komatsu PC260LC Excavator w/ Thumb
2. Volvo EC330B Excavator w/ Thumb (inactive)
3. Bobcat T770 w/ Forks (inactive)
4. Komatsu 320 Front End Loader (inactive)
5. Komatsu PC88MR Excavator w/ Thumb (inactive)
6. Komatsu PC800LC Excavator w/ Hammer

Contractor Personnel:
1. Justin Koch – Supervisor
2. Two Equipment Operators
3. One laborers

Other Personnel/Visitors:
1. Greg Policky (CPW)

Material Delivered Since Project Engineer Last On-Site:
1. None

Material Delivered While Project Engineer On-Site:
1. None

Work Completed Since Project Engineer Last On-Site:
1. Removed boat chute upstream coffer dam. Left center coffer dam in-place.
2. Placed coffer dam upstream of diversion structure and dewatered area.
3. All water now running through boat chute.

Work Completed While Project Engineer On-Site:
1. Removing/adjusting rock wall north adjacent to ditch inlet structure.

Possible Notice of Changes / Contract Modifications:
None.

Questions / Remarks / Problems / Conservations:
1. See attached copy of email in regards to visible concrete.
2. Drop 2 has a lateral wave that may potentially push boats to river left.
3. Drop 2's hydraulic jump may be an issue for boaters.

Tracy Kittell — **PROJECT ENGINEER**

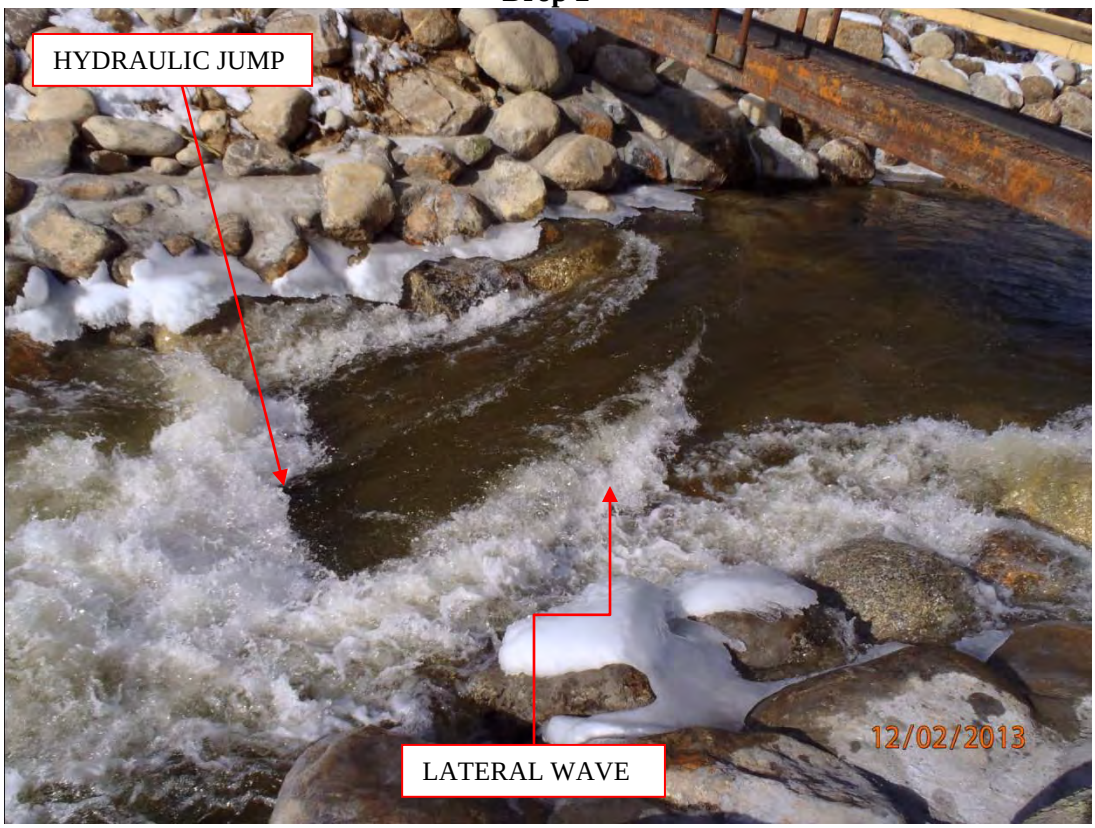
02 December 2013 — **DATE**

CONSTRUCTION PROGRESS REPORT

State of Colorado / Department of Natural Resources / Parks and Wildlife

Drop 1

Drop 2



CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Drop 3

Existing Diversion Weir and Headgate

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

From: **my88keez** <my88keez@earthlink.net>
Date: Fri, Nov 29, 2013 at 8:57 PM
Subject: Re: Helena construction reports
To: "White - DNR, Rob" <rob.white@state.co.us>

Hi Rob. I am presuming that the cement we see under the water is not going to stay that way-- that you are going to put rocks over it so it looks natural. Not like a construction site. That was my initial and enduring question to you and you said that the cement work would not show. Please tell me that has not changed and that those big sheets of cement will not show.

Linda and Dean

PROJECT PROGRESS AND COORDINATION MEETING
State of Colorado / Department of Natural Resources / Parks and Wildlife

PROJECT: **Helena Boat Chute and Diversion**
DATE/TIME: **09 December 2013; 10:00 – 12:00**
LOCATION: Project Site and ACA Headquarters
ATTENDEES:

Tracy Kittell (CPW)	Rob White (CPW)	Stew Pappenfort (CPW)
Tom Waters (CPW)	John Fell (CPW)	Greg Policky (CPW)
Shaun Gordon (CPW	John Hollenbeck (ACA)	Mike Coleman (ACA)
Justin Koch (ACA)	Dean German (ACA)	Mike Harvey (REP)
Chris Manera (CRE)	Tom Moltz (Moltz Const.)	Scott Canchola (Motz)

1. Project Site Visit

1.1. Group met on-site to review work to date and look at Drop 2 issues (refer to 02 Dec. Construction Report).

2. Boat Chute

2.1. Subject – Drop 2 lateral wave and end hydraulic:

2.1.1. Drop 2 has a lateral wave that may push boats into dividing island (river left) and the hydraulic at end of drop tends to hold boats (sticky).

2.1.2. Discussion:

2.1.2.1. Mike Harvey does not see the lateral wave as an issue but the hydraulic needs to be addressed.

2.1.2.2. Mike Harvey proposes to extend a flat concrete pad from the end of the drop downstream for six to eight feet. Mike feels that this will force the hydraulic jump further downstream from the drop and thereby remove the "stickiness" of it.

2.1.2.2.1. CPW has concerns with extending a concrete slab further downstream because of the adjacent property owners issue with being able to see concrete slabs (drops) in the channel.

2.1.2.2.1.1. Discussed pressing cobble in the top of the concrete but this may provide enough channel roughness that will make the jump occur too far up in the channel.

2.1.2.2.1.2. Discussed washing the concrete surface to expose the aggregate. The concern with this approach was that the sharp aggregate may adversely impact boats. Mike feels that boats should never come into contact with the concrete surface.

2.1.2.3. The coffer dam may be affecting the flow pattern and impacting Drop 2 causing or exacerbating the lateral wave issue.

2.1.3. Conclusions:

2.1.3.1. The issues with Drop 2 will be evaluated again after ACA removes the upstream cofferdam for the project. This will allow personnel to see how the boat chute will operate under normal low flow conditions. Rob White would like to see the lateral wave issue addressed should it still be an issue. The coffer dam should not be affecting the hydraulic jump issue.

2.1.4. Action Item(s):

2.1.4.1. Mike Harvey will provide ACA with a detail drawing of the proposed concrete slab below Drop 2. *Completed 10 Dec.*

2.2. Subject – Concrete visibility:

2.2.1. Adjoining property owners are dissatisfied with the amount of concrete that is visible in the drops and the island. Refer to 02 Dec. Construction Report.

2.2.2. Discussion:

2.2.2.1. Rob White presented his concerns with the amount of concrete showing between the boulders on the drops. He envisioned that the drops would look similar to cobble fireplaces. Mike Harvey explained that at low flows a smooth concrete floor is needed. Also, the exposed cobble will tend to pop out over time.

2.2.2.2. Mike explained that the concrete will stain over time and not be as visible. He recommended that the property owners look at the Buena Vista and/or the Salida Play Park(s) to see how the concrete naturally stains.

2.2.2.3. At this point in construction it would be very difficult to add additional rock to cover more of the exposed concrete. The only viable option would be to stain with a concrete stain. It was felt by the group that this may look worse in the long run. It was suggested that maybe instead of a concrete stain that soil be placed on the structure to maybe accelerate the natural staining.

2.2.3. Conclusion:

2.2.3.1. There is no feasible way to add more rock to the surface of the exposed concrete to "hide" it.

2.2.3.2. Concrete staining may cause more of an ascetic issue in the long run.

2.2.3.3. Natural staining process is the only feasible option this time.

2.2.4. Action Item(s):

2.2.4.1. Note: After the meeting Rob White expressed to Tracy Kittell that he would like to have excavated material from the channel and/or excess material that was brought in for the concrete pump stuck leveling be placed on the exposed concrete to help accelerate the natural staining process.

3. Fish Passage

3.1. Subject - Construction sequencing:

3.1.1. Discussion:

3.1.1.1. Mike Harvey went over the construction details for the fish passage and Tracy Kittell and Greg Policky presented the intent behind the fish passage and criteria to allow fish to pass.

3.1.1.2. It was discussed whether to construct from the bottom up, top down, wet or dry.

3.1.1.3. Tracy, Greg, and Mike stressed to ACA that there may need to be some adjustment to the structures once water is put in them since we are dealing with natural materials. The current project specifications state for the contractor to expect some structure adjustment.

3.1.1.4. CPW will provide personnel for on-site consultation and technical advice as needed. REP will coordinate CPW on-site time requests. REP has any final decisions on the fish passage layout.

3.1.2. Conclusion(s):

3.1.2.1. It was decided by ACA to construct from bottom up and in the dry.

3.1.3. Action Items(s):

3.1.3.1. *Mike Harvey* - provide ACA with a detail for the lower end of the fish passage and how it ties into the termination pool. *Completed 10 Dec.*

4. Diversion Structure

4.1. Subject - General Overview and Coordination:

4.1.1. Chris Manera, Moltz Constructors, and ACA had no specific items at this time. Chris will go over what has been done and upcoming items with Moltz Constructors on-site.

4.2. Conclusion(s):

4.2.1. None required.

4.3. Action Item(s):

4.3.1. None required.

5. Administration and Scheduling Items:

5.1. Subject – Schedule:

5.1.1. Discussion:

5.1.1.1. Per the contract, Phase 1 of the project is to be substantially complete by 30 December.

5.1.1.1.1. Contract time may be extended due to weather days but CPW need to receive a request for these days.

5.1.1.1.2. Some final site clean-up items may need to be completed in the spring. Contractually this will be coordinated with ACA and Shaun Gordon.

5.1.1.1.3. Fish passage construction will start this Wednesday, 11 Dec.

5.1.1.2. Phase 2's construction is waiting on final contract signatures.

5.1.2. Conclusion(s):

5.1.2.1. None required.

5.1.3. Action Item(s):

5.1.3.1. *ACA* – request for weather days sent to Tracy Kittell. *Completed 11 Dec.*

5.2. Subject – As-Built Records:

5.2.1. Discussion:

5.2.1.1. Tracy Kittell reminded ACA that they need to keep a set of As-Built drawings. The As-Builts do not need to have a complete survey but any deviations from the plans need to be documented and critical elevations taken.

5.2.2. Conclusion(s):

5.2.2.1. None required.

5.2.3. Action Item(s):

5.2.3.1. *ACA* – keep As-Built documents to turn in to CPW (Tracy Kittell) at the conclusion of the project.

Tracy Kittell — 10 December 2013

MEETING RECORDER **DATE**

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Date: 09 December 2013

Project: AHRA – Helena Boat Chute and Diversion (AR301D51)

Project Location: 28280 County Road 133, Buena Vista, CO
N38° 49' 43.5", E106° 06' 35.5"

Contractor: ACA Products, Inc.

Project Engineer: Tracy Kittell

Project Engineer's: **Arrival:** 13:00 **Departure:** 16:30

Construction: **Start:** On-Site **End:** On-Site

Weather: ☐ Sunny ☒ Overcast ☐ Raining ☐ Snowing

Temperature (F): ☒ 0+ ☒ 10+ ☐ 20+ ☐ 30+ ☒ 40+
☐ 50+ ☐ 60+ ☐ 70+ ☐ 80+ ☐ 90+

Wind: ☐ Calm ☒ Moderate ☒ High

Shutdown Due to Weather: ☒ No ☐ Yes

River Flow: Gage Off-Line

Flow Determination: ARKNATCO, USGS 07091200 ARKANSAS RI
NEAR NATHROP, CO (no adjustment for project location)

Major Equipment:
1. Komatsu PC260LC Excavator w/ Thumb
2. Volvo EC330B Excavator w/ Thumb (inactive)
3. Bobcat T770 w/ Forks (inactive)
4. Komatsu 320 Front End Loader (inactive)
5. Komatsu PC88MR Excavator w/ Thumb (inactive)
6. Komatsu PC800LC Excavator w/ Hammer (inactive)

Contractor Personnel:
1. Justin Koch – Supervisor
2. One Equipment Operators
3. One laborer

Other Personnel/Visitors:
1. Chris Manera (Colorado River Engineering)
13:30 – 14:30

Material Delivered Since Project Engineer Last On-Site:
1. None

Material Delivered While Project Engineer On-Site:
1. None

Work Completed Since Project Engineer Last On-Site:
1. Removed existing headgate structure and concrete channel.
2. Poured floor of headgate 06 Dec (3 CY Class D CDOT mix).

Work Completed While Project Engineer On-Site:
1. Placed and compacted sand leveling course for concrete channel phase 1 of diversion portion of project.

Possible Notice of Changes / Contract Modifications:
1. Refer to attached email in regards to corrective action for Drop 2 hydraulic jump issue (02 Dec Construction Report).

Questions / Remarks / Problems / Conservations:
1. Refer December 9 construction progress/coordination meeting notes (separate document).

Tracy Kittell — **PROJECT ENGINEER**

09 December 2013 — **DATE**

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Floor of Headgate

boat chute revisions

Mike Harvey <harvey@boaterparks.com> Thu, Dec 5, 2013 at 2:54 PM
To: Tracy Kittell - DNR <tracy.kittell@state.co.us>
Cc: Gary Lacy <gary@boaterparks.com>

Tracy, as we discussed on the phone on Monday Gary and I think we should take the opportunity to revise drop #2 in the boat chute while the contractor is on site. As I noted on the phone I ran the boat chute in a kayak 4 times on Wednesday November 26th and while the drop is probably in character with the rapids above and below the diversion, we believe it is prudent to do some minor revisions while it is feasible to do so and ACA is mobilized on site.

We would propose building a horizontal scour pad, 6" below the exit of the drop, for a distance of 8' in a longitudinal direction. The intent would be to deflect the hydraulic downstream and flatten the hydraulic jump that is currently being formed.

Based on hourly and daily rates provided by ACA we believe this work can be completed for $4,000-$6,000. Please let us know how you would like to proceed. This work should be completed after completion of the fish passage/overflow channel. Thank you. Mike

Mike Harvey, REP Project Manager

719-221-1710

Skype: mikeharvey19

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Date: 11 December 2013

Project: AHRA – Helena Boat Chute and Diversion (AR301D51)

Project Location: 28280 County Road 133, Buena Vista, CO
N38° 49' 43.5", E106° 06' 35.5"

Contractor: ACA Products, Inc.

Project Engineer: Tracy Kittell

Project Engineer's: **Arrival:** 07:30 **Departure:** 16:00

Construction: **Start:** On-Site **End:** On-Site

Weather: ☐ Sunny ☒ Overcast ☐ Raining ☐ Snowing

Temperature (F): ☒ 0+ ☒ 10+ ☒ 20+ ☐ 30+ ☒ 40+
☐ 50+ ☐ 60+ ☐ 70+ ☐ 80+ ☐ 90+

Wind: ☒ Calm ☐ Moderate ☐ High

Shutdown Due to Weather: ☒ No ☐ Yes

River Flow: Gage Off-Line

Flow Determination: ARKNATCO, USGS 07091200 ARKANSAS RI
NEAR NATHROP, CO (no adjustment for project location)

Major Equipment:
1. Komatsu PC260LC Excavator w/ Thumb
2. Volvo EC330B Excavator w/ Thumb (inactive)
3. Bobcat T770 (inactive)
4. Komatsu 320 Front End Loader (inactive)
5. Komatsu PC88MR Excavator w/ Thumb (inactive)

Contractor Personnel:

ACA
1. Justin Koch – Supervisor
2. One Equipment Operator
3. One Laborer

Motz Constructors (concrete sub)
1. Scott Canchola – Foreman
2. Three Laborers

Other Personnel/Visitors:
1. Mike Harvey (REP)
2. Greg Policky (CPW)

Material Delivered Since Project Engineer Last On-Site:
1. None.

Material Delivered While Project Engineer On-Site:
1. 8 CY CDOT Class D concrete, air 5.8%, slump 3.5", concrete temperature 61°F
   a. Truck 1 – 6.5 CY, 11:00
   b. Truck 2 – 1.5 CY, 11:45

Work Completed Since Project Engineer Last On-Site:
1. N/A

Work Completed While Project Engineer On-Site:
1. Placed concrete for Phase 1 irrigation channel floor. Placed hot water circulating hose on concrete for curing.
2. Place lowest drop boulders for fish passage.
3. Prepared overflow and fish passage area for rock installation.

Possible Notice of Changes / Contract Modifications:
1. None.

Questions / Remarks / Problems / Conservations:
1. Water in fish passage and overflow portion of river channel has too much water to adequately see how rocks are being placed.
2. There is potential for recirculation (eddy) water in the overflow channel behind the bedrock adjacent to downstream side of irrigation headgate. Contractor placing large boulders on bank to protect.

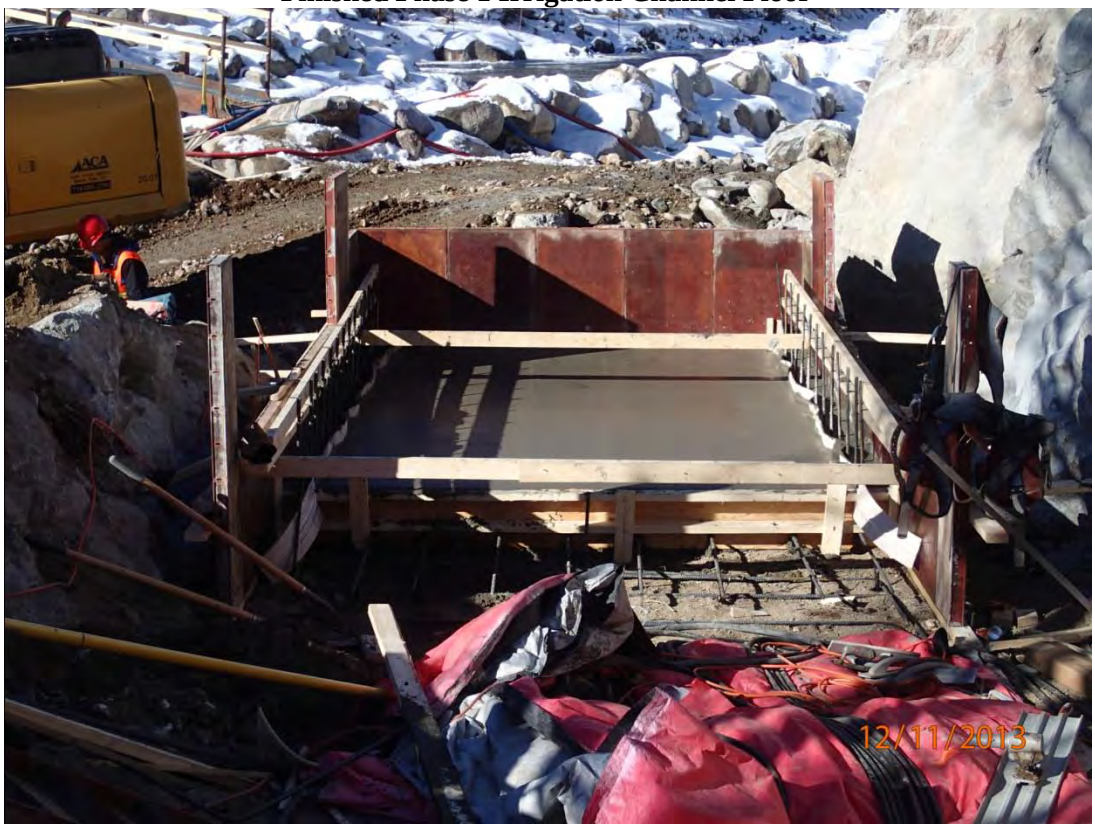
Tracy Kittell — **PROJECT ENGINEER**

11 December 2013 — **DATE**

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Concrete Placement

Finished Phase 1 Irrigation Channel Floor



CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Date: 12 December 2013

Project: AHRA – Helena Boat Chute and Diversion (AR301D51)

Project Location: 28280 County Road 133, Buena Vista, CO
N38° 49' 43.5", E106° 06' 35.5"

Contractor: ACA Products, Inc.

Project Engineer: Tracy Kittell

Project Engineer's: **Arrival:** 08:00 **Departure:** 15:30

Construction: **Start:** On-Site **End:** On-Site

Weather: ☒ Sunny ☐ Overcast ☐ Raining ☐ Snowing

Temperature (F): ☐ 0+ ☒ 10+ ☒ 20+ ☒ 30+ ☐ 40+
☐ 50+ ☐ 60+ ☐ 70+ ☐ 80+ ☐ 90+

Wind: ☒ Calm ☐ Moderate ☐ High

Shutdown Due to Weather: ☒ No ☐ Yes

River Flow: Gage Off-Line

Flow Determination: ARKNATCO, USGS 07091200 ARKANSAS RI
NEAR NATHROP, CO (no adjustment for project location)

Major Equipment:

1. Komatsu PC260LC Excavator w/ Thumb
2. Volvo EC330B Excavator w/ Thumb (inactive - broken)
3. Bobcat T770 w/ Forks (inactive)
4. Komatsu 320 Front End Loader (inactive)
5. Komatsu PC88MR Excavator w/ Thumb (inactive)
6. Komatsu PC800LC Excavator w/ Hammer (inactive)

Contractor Personnel:

1. Justin Koch – Supervisor
2. Two Equipment Operators
3. Two Laborers

Motz Constructors (concrete sub)

1. Scott Canchola – Foreman
2. Three Laborers

Other Personnel/Visitors:

1. Greg Policky (CPW) – 09:15 to 15:30
2. Mike Harvey (REP) – 11:00 to on-site

Material Delivered Since Project Engineer Last On-Site:

1. N/A

Material Delivered While Project Engineer On-Site:

1. None

Work Completed Since Project Engineer Last On-Site:

1. N/A

Work Completed While Project Engineer On-Site:

1. Remove concrete forms.
2. Install Rock Weir 1, 2, 3, and 4 (counting from bottom up) and associated pools.

Possible Notice of Changes / Contract Modifications:

None.

Questions / Remarks / Problems / Conservations:

1. Pool length was increased from 4'-6' on plans to 10'.
2. Rock Weir drop from upstream to downstream structure was increased to 1' from the 8" on the plans.
3. Weir 3 length was constrained by existing bedrock to 12'

Tracy Kittell — **PROJECT ENGINEER**

12 December 2013 — **DATE**

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Irrigation Control Structure

Fish Ladder Weirs 1 - 3

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Fish Passage (River Left)

Fish Passage Weirs 1-3

Field Inspection Report

PROJECT: Helena Ditch Diversion Dam & Headgate		
JOB NO: 572.12	**WEATHER:** Clear 22° 9:30 am; 38° at 3:00 windy	**DATE**: FRIday, Dec-13-2013
CONTRACTOR PERSONNEL: ACA (general contractor) Foreman Justin Koch, equipment operators, & John Hollenbeck for inspection meeting; Moltz Constructors- Scott Canchola & 4 laborers		
CONTRACTOR EQUIPMENT: 2 ACA Excavators, mini excavator, Skidsteer, Trailer generators, electric pumps. Concrete contractor ground heater **Inspectors:** CRE		
SUMMARY OF CONSTRUCTION ACTIVITIES: - ACA was working on moving rock and armoring from the overflow channel to upstream of weir wall (morning). Afternoon placing rock in overflow channel and creating fish pools. Inspection to be completed by REP the next week. Requested contractor to minimize over excavation in front of existing concrete weir wall. - Floor in headgate channel poured week previously, heater and blankets on-site. Reviewed rebar spacing and forming plan with Scott from Moltz Constructors. Recommended contractor review bolt spacing of slide gate with rebar spacing to avoid conflict.		
RESULTS OF INSPECTION: Concrete form work ok		
MATERIALS NOTES: verified rebar, waterstop		

Field Inspector: Chris Manera, P.E.
COLORADO RIVER ENGINEERING, INC.
PO BOX 1301, RIFLE, CO 81650
970-625-4933/ FAX: 970-625-4564

COLORADO RIVER ENGINEERING INCORPORATED

Field Inspection Report

Concrete Forming Headwall & Walls Phase 1

Phase 1 Walls Forming

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Date: 16 December 2013

Project: AHRA – Helena Boat Chute and Diversion (AR301D51)

Project Location: 28280 County Road 133, Buena Vista, CO
N38° 49' 43.5", E106° 06' 35.5"

Contractor: ACA Products, Inc.

Project Engineer: Tracy Kittell

Project Engineer's: **Arrival:** 09:00 **Departure:** 15:00

Construction: **Start:** On-Site **End:** On-Site

Weather: ☒ Sunny ☐ Overcast ☐ Raining ☐ Snowing

Temperature (F): ☐ 0+ ☐ 10+ ☐ 20+ ☒ 30+ ☒ 40+
☐ 50+ ☐ 60+ ☐ 70+ ☐ 80+ ☐ 90+

Wind: ☐ Calm ☒ Moderate ☐ High

Shutdown Due to Weather: ☒ No ☐ Yes

River Flow: Gage Off-Line

Flow Determination: ARKNATCO, USGS 07091200 ARKANSAS RI
NEAR NATHROP, CO (no adjustment for project location)

Major Equipment:
1. Komatsu PC260LC Excavator w/ Thumb
2. Volvo EC330B Excavator w/ Thumb (inactive)
3. Bobcat T770 w/ Forks (inactive)
4. Komatsu 320 Front End Loader (inactive)
5. Komatsu PC88MR Excavator w/ Thumb (inactive)
6. Komatsu PC800LC Excavator w/ Hammer (inactive)

Contractor Personnel:
1. Justin Koch – Supervisor
2. One Equipment Operator
3. Three Laborers

Motz Constructors (concrete sub)
1. Scott Canchola – Foreman
2. Three Laborers

Other Personnel/Visitors:
1. Greg Policky (CPW) – 09:15 to 14:00
2. Mike Harvey (REP) – On-Site to 13:00

Material Delivered Since Project Engineer Last On-Site:
1. None.

Material Delivered While Project Engineer On-Site:
1. None.

Work Completed Since Project Engineer Last On-Site:
1. Install Rock Weirs 5 and 6 (counting from bottom up) and associated pools.
2. Armored pools up to Weir 6

Work Completed While Project Engineer On-Site:
1. Install Rock Weirs 6 and 7 and associated pools.
2. Excavated upstream side of existing concrete irrigation diversion.
3. Completed forming for Irrigation gate structure walls.

Possible Notice of Changes / Contract Modifications:
None.

Questions / Remarks / Problems / Conservations:
1. None

Tracy Kittell — **PROJECT ENGINEER**

16 December 2013 — **DATE**

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Headgate Structure Tie to North Rock

Fish Passage Weirs 3-6

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Fish Passage Weirs 3 and 4 (Note bedrock Weir 4 on right)

Fish Passage Weirs 6-8

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Date: 17 December 2013

Project: AHRA – Helena Boat Chute and Diversion (AR301D51)

Project Location: 28280 County Road 133, Buena Vista, CO
N38° 49' 43.5", E106° 06' 35.5"

Contractor: ACA Products, Inc.

Project Engineer: Tracy Kittell

Project Engineer's: **Arrival:** 07:30 **Departure:** 11:15

Construction: **Start:** On-Site **End:** On-Site

Weather: ☒ Sunny ☐ Overcast ☐ Raining ☐ Snowing

Temperature (F): ☐ 0+ ☒ 10+ ☒ 20+ ☒ 30+ ☒ 40+
☐ 50+ ☐ 60+ ☐ 70+ ☐ 80+ ☐ 90+

Wind: ☒ Calm ☐ Moderate ☐ High

Shutdown Due to Weather: ☒ No ☐ Yes

River Flow: Gage Off-Line

Flow Determination: ARKNATCO, USGS 07091200 ARKANSAS RI
NEAR NATHROP, CO (no adjustment for project location)

Major Equipment:
1. Komatsu PC260LC Excavator w/ Thumb
2. Volvo EC330B Excavator w/ Thumb (inactive)
3. Bobcat T770
4. Komatsu 320 Front End Loader (inactive)
5. Komatsu PC88MR Excavator w/ Thumb (inactive)
6. Komatsu PC800LC Excavator w/ Hammer (inactive)

Contractor Personnel:
1. Justin Koch – Supervisor
2. One Equipment Operator
3. One Laborers

Motz Constructors (concrete sub)
1. Scott Canchola – Foreman
2. Three Laborers

Other Personnel/Visitors:
1. Greg Policky (CPW) – 10:00 to 11:15
2. Mike Harvey (REP) – 10:30 to On-site
3. Chris Manera (CRE) – 09:45 to 11:15

Material Delivered Since Project Engineer Last On-Site:
1. None.

Material Delivered While Project Engineer On-Site:
1. 6 CY CDOT Class D concrete, air 5.8%, slump 2.5"; added water 3.5", concrete temperature 63°F
   a. Truck 1 – 6.0 CY, 9:30 on-site, pour 10:00, offsite 10:45
   b. Truck 2 – 4.5 CY, ordered but not on-site when CPW engineer left.
2.

Work Completed Since Project Engineer Last On-Site:
1. N/A

Work Completed While Project Engineer On-Site:
1. Poured 6 CY of headgate structure walls.

Possible Notice of Changes / Contract Modifications:
None.

Questions / Remarks / Problems / Conservations:
1. Met on-site with Greg Policky, Mike Harvey, Chris Manera, Justin Koch, and Jon Hollenbeck to discuss diversion structure/fish passage/overflow tie-ins.
2. Existing diversion has large concrete "pad" upstream of weir wall. Chris Manera is discussing with ditch company on options.

Tracy Kittell — 17 December 2013

PROJECT ENGINEER **DATE**

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Existing Irrigation Diversion

Formed (Walls) Headgate Structure Phase 1

COLORADO RIVER ENGINEERING INCORPORATED

Field Inspection Report

PROJECT: Helena Ditch Diversion Dam & Headgate		
JOB NO: 572.12	**WEATHER:** Clear 35° 9:15 am; 48° at 3:15	**DATE**: Tuesday, Dec-17-2013

CONTRACTOR PERSONNEL: ACA (general contractor) Foreman Justin Koch, equipment operators, & John Hollenbeck for inspection meeting; Moltz Constructors- Scott Canchola & 4 laborers

CONTRACTOR EQUIPMENT: same as 12-13-2013, 2 ACA Excavators, mini excavator, Skidsteer, Trailer generators, electric pumps. Concrete contractor ground heater

Inspectors: Tracy Kittell CPW, Greg Policky CPW, Mike Harvey REP, Mountain Engineering & Testing

SUMMARY OF CONSTRUCTION ACTIVITIES:

- ACA was working on excavating a trench along the toe of the divider wall upstream of the weir wall in preparation of the grout curtain, scheduled to be installed by pumper on Thursday. Mini Excavator & excavator being used to remove and shuttle alluvium material out of trench. Generators used to run electric pumps dewatering seepage upstream of weir wall. Trench several feet wide, Justin reported they will form trench with plywood to minimize grout volume.

- Inspectors and ACA reps reviewed fish passage structures, discussed additional armoring and smaller rock placement in pools. REP recommended larger rock placement and grouting detail along divider wall in last pool abutting headwall.

- REP recommended use of the larger rocks along the remainder of the weir wall as part of the overflow channel armoring. CRE agreed as long as new rocks were keyed in to rocks below. Contractor to finish weir wall concrete then place remainder of rocks. Discussed armoring behind large rocks in void between rock and existing concrete weir wall. Recommend placement of grout layer to fill voids and protect against undermining toe of wall.

- Concrete contractor (Moltz) placing concrete for the Phase 1 headwall and sidewalls, delivered via truck with conveyor. Vibration occurring. Slump reported at 2.75", allowed water addition, new slump reported at ±3.5" (acceptable). Mountain Engineering and Testing on site and testing. Following pour exterior walls wrapped in hoses from ground heater, propane heater placed inside channel. Entire structure wrapped in blankets.

- ACA cleaned upstream of existing concrete weir wall. Exposed concrete slab that is part of vertical wall. See attached sketch and pictures. Examined wall found and evidence of steel rebar and large aggregate. Made recommendation to leave concrete slab and construct new wall on top of slab as bedrock condition per design drawings. The basis for leaving older concrete was; Concrete showed exterior abrasion but did not show any signs of any stress cracking in the wall and slab indicating continuous competency in the materials. The concrete portion of the design is acting as a water barrier with the structural component provided by downstream rock. The existing structure was observed to provide excellent seal of the channel with no observed seepage under structure when the fish pool passage construction was occurring. The volume of concrete observed in slab and wall provide significant water barrier protection. The new vertical wall will still provide water barrier protection long term (as per original plans design)

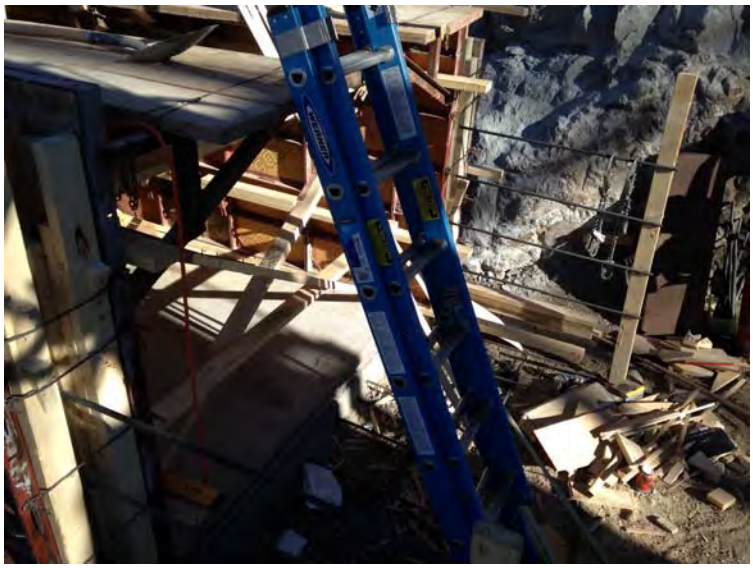
COLORADO RIVER ENGINEERING INCORPORATED

Field Inspection Report

- Reported results of recommendation to Rob White for purposes of informing ditch users of recommendations.
RESULTS OF INSPECTION: Concrete work ok, blanketed and heated
MATERIALS NOTES: Concrete test results to be verified in future

Field Inspector: Chris Manera, P.E.
COLORADO RIVER ENGINEERING, INC.
PO BOX 1301, RIFLE, CO 81650
970-625-4933/ FAX: 970-625-4564

Concrete pour headwall & walls Phase 1



Phase 1 Walls Concrete Pour

COLORADO RIVER ENGINEERING INCORPORATED

Field Inspection Report

Existing Concrete Weir Wall

Existing Concrete Weir Wall & Upstream Slab

Existing Concrete Weir Wall & Upstream slab, grout curtain trench

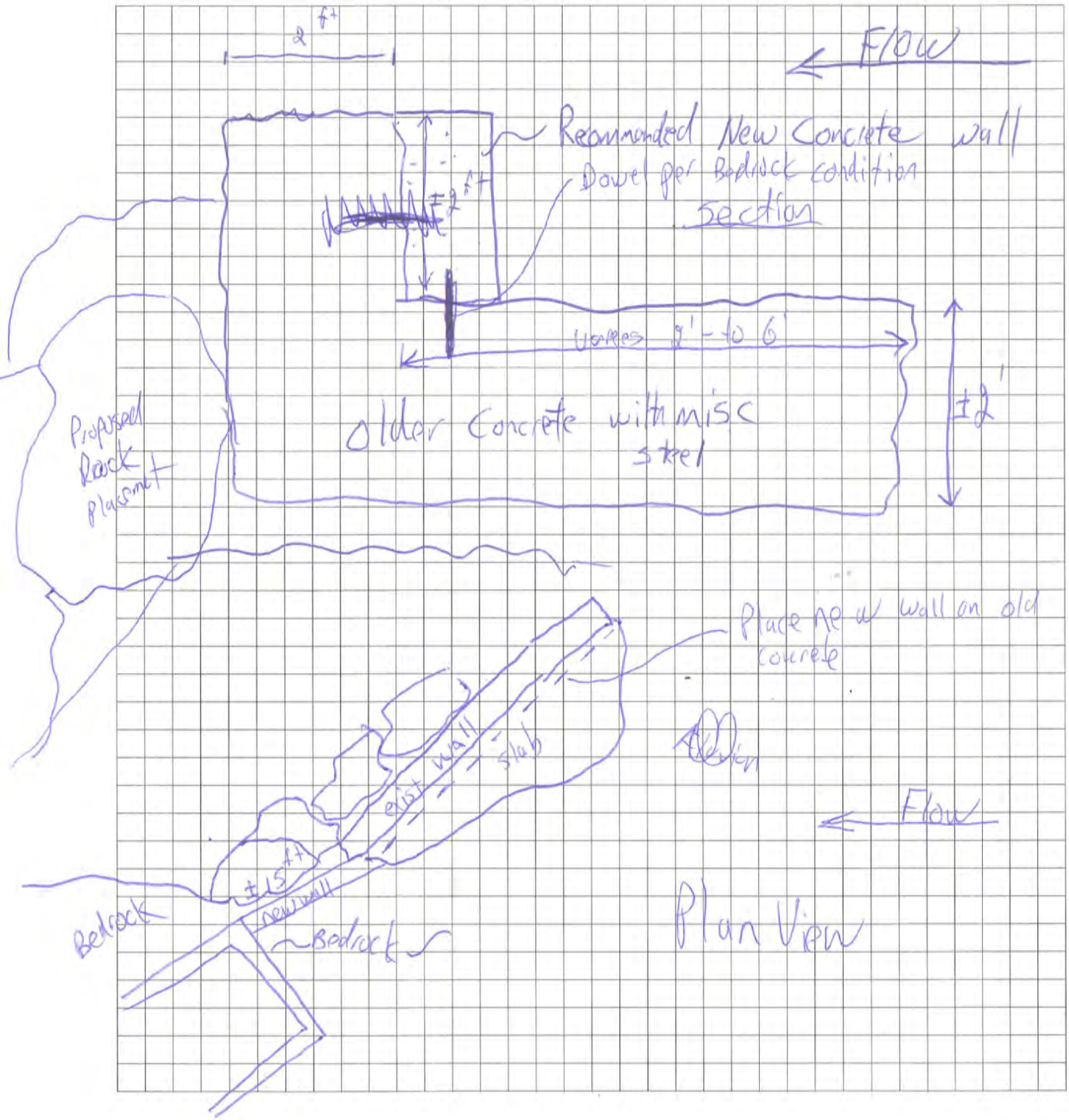
COLORADO RIVER ENGINEERING INCORPORATED

Field Inspection Report

Existing Concrete Weir Wall

COLORADO RIVER ENGINEERING INCORPORATED
136 E. 3rd Street
P. O. Box 1301
Rifle, CO 81650
Tel 970-625-4933
Fax 970-625-4564

Date 12-17-2013
Job No. 572.12
Job Name Helen
Description CM Field sketch



COLORADO RIVER ENGINEERING INCORPORATED

Field Inspection Report

PROJECT: Helena Ditch Diversion Dam & Headgate		
JOB NO: 572.12	**WEATHER:** Pcloudy 35° 9:40 am; 44° at 3:15	**DATE**: Thursday, Dec-19-2013

CONTRACTOR PERSONNEL: ACA (general contractor) Foreman Justin Koch, John Hollenbeck , ± 6 operators and laborers; Moltz Constructors- Scott Canchola & 3 laborers

CONTRACTOR EQUIPMENT: same as 12-17-2013, 2 ACA Excavators, mini excavator, Skidsteer, Trailer generators, electric pumps. Concrete contractor ground heater, Concrete Pumper (Beach)

Inspectors: Mountain Engineering & Testing (Rich), ACA QA/QC (Shaun), Rob White AHRA site visit 10:30

SUMMARY OF CONSTRUCTION ACTIVITIES:

- ACA was installing grout on cutoff curtain (upstream of weir) and grouting boulders on divider island (overflow channel side). Work transitioned back and for the between the two areas with 1' to 2' lifts being placed in cutoff trench. Curtain was from with plywood, elevation chalk line for grout height set to weir elevation. Grout was being pumped from west bank of river by Beach. Several ACA employees use to fill voids, vibrate, and trowel finished surfaces.

- 28 Cyds of grout delivered in 4 loads, grout installed from 10:00 to 12:00. MET collected samples

- Motlz Constructors forming weir wall Phase 1. Rebar checked and ok. Doweled into bedrock and concrete slab. ACA placed extra grout at toe of existing concrete weir wall.

- 1:10 6 CY D concrete at site, pumped to weir wall. Initial slump 5 ¾" and air 7% high. Mixed and retested 1:27 4.9% air, 5" slump. MET collected cylinders.

RESULTS OF INSPECTION: Concrete work ok, blanketed and heated

MATERIALS NOTES: Concrete test results to be verified in future

Field Inspector: Chris Manera, P.E.
COLORADO RIVER ENGINEERING, INC.
PO BOX 1301, RIFLE, CO 81650
970-625-4933/ FAX: 970-625-4564

COLORADO RIVER ENGINEERING INCORPORATED

Field Inspection Report

Grout Delivery and Pumper

Grout Curtain along Divider wall Upstream Weir Wall

COLORADO RIVER ENGINEERING INCORPORATED

Field Inspection Report

Grout Placement Divider wall Downstream Weir Wall

Weir Wall Phase 1

COLORADO RIVER ENGINEERING INCORPORATED

Field Inspection Report

Weir Wall

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Date: 30 December 2013

Project: AHRA – Helena Boat Chute and Diversion (AR301D51)

Project Location: 28280 County Road 133, Buena Vista, CO
N38° 49' 43.5", E106° 06' 35.5"

Contractor: ACA Products, Inc.

Project Engineer: Tracy Kittell

Project Engineer's: **Arrival:** 08:30 **Departure:** 15:30

Construction: **Start:** On-Site **End:** Off-Site

Weather: ☒ Sunny ☐ Overcast ☐ Raining ☐ Snowing

Temperature (F): ☐ 0+ ☒ 10+ ☒ 20+ ☒ 30+ ☐ 40+
☐ 50+ ☐ 60+ ☐ 70+ ☐ 80+ ☐ 90+

Wind: ☒ Calm ☐ Moderate ☐ High

Shutdown Due to Weather: ☒ No ☐ Yes

River Flow: Gage Off-Line

Flow Determination: ARKNATCO, USGS 07091200 ARKANSAS RI
NEAR NATHROP, CO (no adjustment for project location)

Major Equipment:
1. Komatsu PC260LC Excavator w/ Thumb (inactive)
2. Volvo EC330B Excavator w/ Thumb (inactive)
3. Bobcat T770 (inactive)
4. Komatsu 320 Front End Loader (inactive)
5. Komatsu PC88MR Excavator w/ Thumb (inactive)
6. Komatsu PC800LC Excavator w/ Hammer (inactive)

Contractor Personnel:
1. Justin Koch – Supervisor
2. Two laborers

Other Personnel/Visitors:
1. Greg Policky (CPW) – 09:00 to 10:00

Material Delivered Since Project Engineer Last On-Site:
1. None.

Material Delivered While Project Engineer On-Site:
1. None

Work Completed Since Project Engineer Last On-Site:
1. Installed rock "mattress" at bottom of project.
2. Installed concrete weir wall for diversion.
3. Installed Drop 1 grout curtain.
4. Grouted river left side of divider island
5. Installed irrigation control gate.
6. Rebuilt downstream side of portage/trail completed with rock retaining wall.

Work Completed While Project Engineer On-Site:
1. Place "equipment" grout around headgate.
2. Cut existing exposed concrete rebar back to concrete surface.

Possible Notice of Changes / Contract Modifications:
1. ACA may request additional time to complete project.

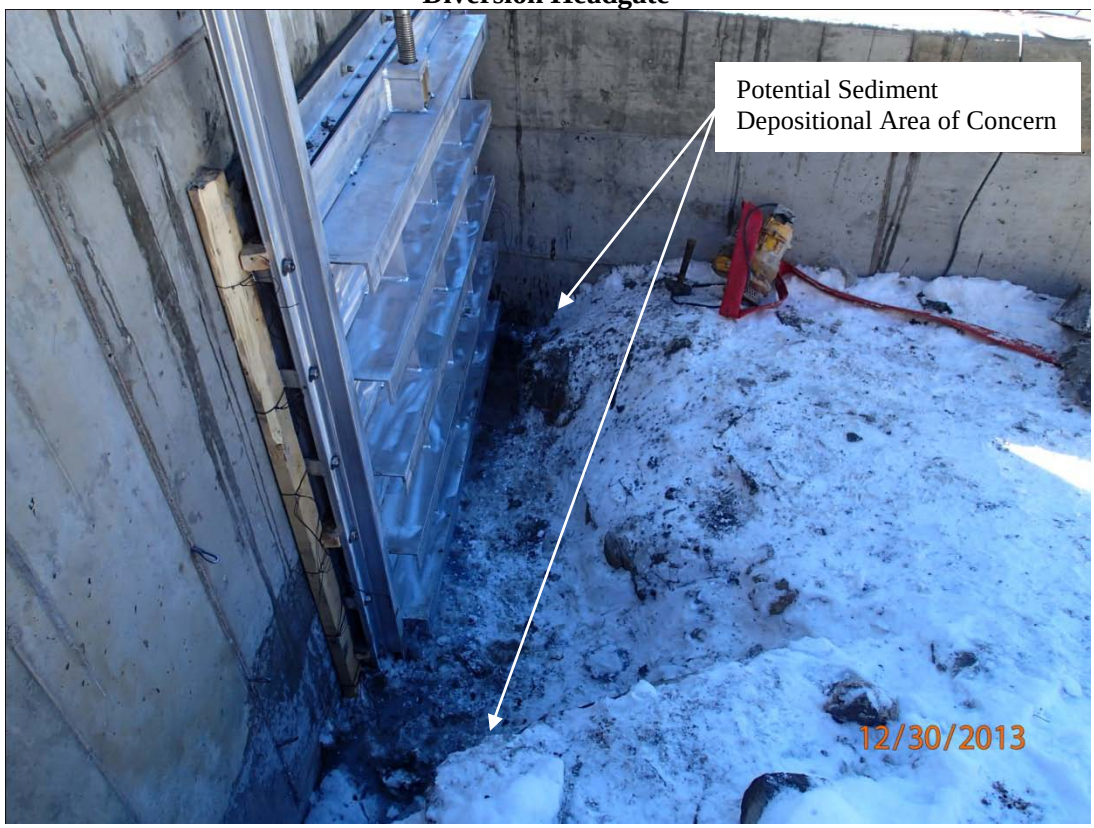
Questions / Remarks / Problems / Conservations:
1. The irrigation headgate sits about 12" to 18" below the bottom of the river in a "hole". Since the ditch side of the gate steps up from the gate invert approximately 3.3', I am concerned that sediment will settle into the gate "hole" and make the gate difficult to maintain or be inoperable. Sent concerns to Design Engineer, Chris Manera.

Tracy Kittell — **PROJECT ENGINEER**

30 December 2013 — **DATE**

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Diversion Headgate



Lower Rock Mattress

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Grout Curtain

Diversion Weir

CONSTRUCTION PROGRESS REPORT
State of Colorado / Department of Natural Resources / Parks and Wildlife

Date: 31 December 2013

Project: AHRA – Helena Boat Chute and Diversion (AR301D51)

Project Location: 28280 County Road 133, Buena Vista, CO
N38° 49' 43.5", E106° 06' 35.5"

Contractor: ACA Products, Inc.

Project Engineer: Tracy Kittell

Project Engineer's: **Arrival:** 08:30 **Departure:** 09:45

Construction: **Start:** On-Site **End:** Off-Site

Weather: ☒ Sunny ☐ Overcast ☐ Raining ☐ Snowing

Temperature (F): ☐ 0+ ☐ 10+ ☒ 20+ ☒ 30+ ☐ 40+
☐ 50+ ☐ 60+ ☐ 70+ ☐ 80+ ☐ 90+

Wind: ☒ Calm ☐ Moderate ☐ High

Shutdown Due to Weather: ☒ No ☐ Yes

River Flow: Gage Off-Line

Flow Determination: ARKNATCO, USGS 07091200 ARKANSAS RI
NEAR NATHROP, CO (no adjustment for project location)

Major Equipment:
1. Komatsu PC260LC Excavator w/ Thumb (inactive)
2. Volvo EC330B Excavator w/ Thumb (inactive)
3. Bobcat T770 (inactive)
4. Komatsu 320 Front End Loader (inactive)
5. Komatsu PC88MR Excavator w/ Thumb (inactive)
6. Komatsu PC800LC Excavator w/ Hammer (inactive)

Contractor Personnel:
1. Justin Koch – Supervisor
2. Dean German - Supervisor
3. Two laborers

Other Personnel/Visitors:
1. Greg Policky (CPW) – 09:00 to 09:30

Material Delivered Since Project Engineer Last On-Site:
1. None.

Material Delivered While Project Engineer On-Site:
1. None

Work Completed Since Project Engineer Last On-Site:
1. N/A

Work Completed While Project Engineer On-Site:
1. None

Possible Notice of Changes / Contract Modifications:
1. None

Questions / Remarks / Problems / Conservations:
1. ACA was to scheduled to remove coffer dam and return water to normal operating configuration. However, the previous day's grouting operation on the headgate resulted in a large void that needed additional work. Schedule is now to remove the coffer dam January 3.
2. Discussed gate sediment concerns with Chris Manera, Design Engineer, and Paul Moltz, one of the ditch owners. Conclusion was to cut a notch in the weir wall that will allow sediment to sluice from in front of the gate. Chris will size the notch and send ACA a detail.

Tracy Kittell — **PROJECT ENGINEER**

31 December 2013 — **DATE**