April 30, 2015

Mr. Tony Peterson  
Gilpin County  
Community Development Director  
P.O. Box 661  
Central City, CO 80427

Subject: Post-construction Summary for Albert Frei and Sons Walstrum Quarry Flood Damage Repair (Sediment Removal), North Clear Creek, Gilpin County, Colorado (Corps File No: NWO-2014-02459-DEN)

Dear Mr. Peterson:

During the September 2013 flooding, crusher fines and associated sediment from the Albert Frei and Sons (AFS) Walstrum Quarry (Quarry) were released into North Clear Creek (Creek) via a steep unnamed tributary (tributary). The Clear Creek Watershed Foundation (CCWF) recently completed work on behalf of AFS to clean up the material (project). The CCWF contracted with RMC Consultants (RMC) to perform a Threatened and Endangered Species assessment and to assist with wetland permitting for the project.

A Gilpin County grading permit (#15-03-18) was issued for the project. Per your email request on March 16, 2015, this letter has been prepared by RMC to document that the project was generally completed according to plans and the US Army Corp of Engineers (Corps) Section 404 permit requirements.

Project Summary

The proposed work (plan) was described in a Pre-Construction Notification (PCN) letter sent to the Corps on February 19, 2015 (emailed to you on March 2, 2015). The February 25, 2015 Corps response authorized the project under Nationwide Permit 27 for Aquatic Habitat Restoration, Establishment, and Enhancement Activities (NWP 27) (emailed to you on March 16, 2015). The Corps’ response included fact sheets listing the required conditions of coverage under NWP 27.

Once clean up excavation began, it was evident that the depth and volume of crusher fines within the project area exceeded the initial estimate and that the original work plan may need to be modified. Thus, Julia Auckland (an RMC contractor) met on-site with J. David Holm (CCWF Executive Director and the project manager) on April 8, 2015 to discuss Corps permitting requirements. Based on the site conditions and aerial photo review, a modified approach seemed prudent in order to maintain the historic alignment of the creek and prevent erosion of the east bank of North Clear Creek along State Highway 119 (SH 119). Mr. Holm then discussed these issues with the Aaron Eilers at the Corps to confirm that activities would be in compliance with NWP 27. An email chain summarizing the site conditions, revised plans, and Corps approval is attached.
Clean-up activities were completed on April 22, 2015. A post-construction site visit was completed by Julia Auckland on April 24, 2015. Construction activities were generally in compliance with the above-reference correspondence (plans). Key points are summarized below.

a. **Unnamed tributary:** Prior to construction, the estimated sediment depth was approximately two to four feet. Based on excavation, the actual depth was five to ten feet and the average depth was approximately seven feet. Fines could not be removed from an area at the west end of the tributary because trees blocked access.

b. **Upstream of the unnamed tributary:** Sediment depth and clean up actions were completed as planned with one exception; a small area of sediment located near the highway was not removed because overhead power lines created a safety hazard.

c. **Culverts at Highway 119:** Prior to the flood, two 48-inch culverts had been constructed to convey flow from an unnamed tributary under the highway and into the creek. The elevation of the bottom of the culverts appears to have been lower than the elevation of the creek. Based on aerial photographs, it appears that a berm was constructed to prevent the creek from flowing into the low area. The flood washed away much of the berm and deposited approximately 18-inches of sediment around the 48-inch double culverts. Removal of sediment around the culverts re-created a low area. In order to stop the majority of the creek from flowing into the culvert area, the channel upstream of the historic berm was graded down approximately one foot to direct flow from the east to the west channel. Additionally, an approximately two- to three-foot deep channel was constructed along the east edge of the east channel to convey flow from the culverts into the main west channel. The east end of the washed-out berm was partially reconstructed and then the elevation was gradually tapered down to the west to match the existing elevation. Thus, the majority of the east channel was maintained as a wide, flat area that is approximately 18 inches higher than the adjacent, flowing main channel. Creek flow will typically be directed to the west channel, but some creek flow is expected in the east channel when water levels are high. Photographs of this area are attached.

d. **West channel downstream of the unnamed tributary:** The original estimate of sediment in this channel was one to two feet; the excavated depth was two to three feet. Based on this observation, the west channel was lower than the east channel prior to the flood. Thus this channel was graded slightly lower than the east channel. This directed the majority of the Creek’s flow into the west channel.

e. **Sediment volume:** The pre-construction estimate of crusher fines to be removed was 1,223.6 cubic yards. The actual volume of material removed during the clean up effort was 3,210 cubic yards.
Conclusions
The clean up of the North Fork of Clear Creek was completed on April 22, 2015. Due to unforeseen circumstances, some modifications to the originally proposed work were made. These modifications were competed in cooperation with the Corps. Thus, the clean up was completed per the plans and the conditions of NWP 27.

Sincerely,

RMC CONSULTANTS, INC.

Attachments:
   Emails between CCWF and the Corps, April 10 and 13, 2015
   Photolog

cc: Mr. J. David Holm, Clear Creek Watershed Foundation
    Mr. Aaron Eilers, Corps
    Mr. Kiel Downing, Corps
Re: [EXTERNAL] (UNCLASSIFIED)

David Holm <jdavidholm@gmail.com>  
Mon, Apr 13, 2015 at 2:01 PM

To: "Eilers, Aaron R NWO" <Aaron.R.Eilers@usace.army.mil>
Bcc: "Brent A. Scarbrough" <brent@frontierenvironmental.net>, "julia@auck-env.com" <julia@auck-env.com>, Albert Frei <AFreiJr@albertfreiandsons.com>, Clay Combrink <clay@frontierenvironmental.net>

Aaron,
Thank you for taking time on the phone to come to agreement on the completion plan.

Dave H.

On Mon, Apr 13, 2015 at 1:56 PM, Eilers, Aaron R NWO <Aaron.R.Eilers@usace.army.mil> wrote:
Classification: UNCLASSIFIED
Caveats: NONE

David,
Thank you for the update. The additional activity described in your April 10, 2015 email is consistent with the restoration of wetland and riparian areas authorized per Nationwide Permit 27, verified by this office on February 25, 2015. No additional coordination with this office is necessary for the restoration activities described below. Please let me know if you have any additional questions or concerns.

AE

Aaron R. Eilers
U.S. Army Corps of Engineers, Omaha District
Denver Regulatory Office
9307 South Wadsworth Blvd.
Littleton, CO 80128
aaron.r.eilers@usace.army.mil
(720) 922-3851

-----Original Message-----
From: David Holm [mailto:jdavidholm@gmail.com]
Sent: Friday, April 10, 2015 10:59 AM
To: Eilers, Aaron R NWO
Cc: Brent A. Scarbrough; Albert Frei; julia@auck-env.com
Subject: [EXTERNAL]

Aaron,

Thank you for working with me through the final issues surrounding our sediment removal project. I wanted to capture the key points from our discussion. Please disregard my earlier request for a call back. I have the answer I needed.

Field Observations

1. Downstream of the un-named tributary, which was the source of the sediment deposition (tributary), the West channel of North Clear Creek (NCC) the was low flow channel, based on the fact that it is 2-3' lower than east channel.
2. Upstream of the tributary, the west channel of NCC appears to have been stagnant backwater based on presence of shrub willows and bent grass. (Per Google Earth, looks like in most recent years this channel
usually had shallow water in it with emergent vegetation. There are some rocky fines in this area but they seem to be from earlier event(s) based on an observed thin (1-2") cover of native soil and more established vegetation.

3. Floodwaters cut the stream bank of the east channel immediately upstream of the SH 119 culverts. Now the main east channel is flowing toward and flooding the culverts, and eroding the east bank.

   Per Google Earth -
   *
   The area around the culverts has changed repeatedly.
   *
   6/18/2013 shows newly constructed culvert and much of area appears to be upland that was constructed to protect culvert. This all washed out in flood. (Please see the Bing.com photo attached)
   *
   In most earlier years, it looks like the flow was split with approximately 25% going east and 75% going west. The 10/7/2012 aerial is a fairly typical and moderately clear photo that seems representative of typical conditions.
   *
   Prior to the flood, the main east channel cut over to the west channel just upstream of the culverts & the dredge pile. (East channel didn't exist upstream of the culverts until ~2006!)
   *
   During low flows, the east channel downstream of culverts seems to have been dry except for water coming in from the east via the culvert.

Actions:

1. Over-excavate crusher fines in riparian areas where wetland species were present but wetland (hydric) soils are not observed and replace with topsoil. Apply wetland/riparian seed mix to these riparian areas. The less steep areas along the mouth of the tributary will receive an upland seed mix.

2. Where possible, harvest willow cuttings from the disturbed area and plant in restored areas.

3. Upstream of the tributary remove fines (~12-18") from west channel but keep the channel area upstream of the tributary ~12" higher than east channel. This will ensure that the east channel will maintained as the low flow channel until it is routed into the west channel at the location where the two channels merged historically, as shown on the 10/7/12 Google Earth historical aerial photograph.

4. The east bank of the east channel upstream of the SH119 culverts will be restored largely by excavation of crusher fines that were deposited in the channel. This will direct the main flow from the east to the west channel. This critical outside corner of the restored stream bend will be armored with existing boulders from the blown-out embankment that was there prior to the 9-15-13 flood event.

I hope this captures our mutual understanding. Please let me know.

Dave Holm

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David Holm, Exec. Director
Clear Creek Watershed Foundation
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4015 Wyandot Street
Denver CO 80211

Classification: UNCLASSIFIED
Caveats: NONE

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Photo 1. Facing north along Creek prior to the clean up. Partially buried culverts are visible on the right (east) side of the photo. January 27, 2015.

Photo 2. Post clean up, facing north along the channel that conveys water from the culverts, to the south, along the east edge of the Creek, and into the west channel. April 24, 2015.
Photo 3. Pre-construction photo taken facing west across the east channel. The west channel is behind the upland berm. January 27, 2015

Photo 4. Post-clean up facing northwest toward east channel and upland berm. The west channel is behind the berm. The small channel in foreground conveys flow from the culverts to west channel. The main channel of Creek is visible in the background; at this point flow is shifting from the east channel to the west channel. April 24, 2015
Photo 5. Pre-flood aerial photograph from approximately 2013 (Source: Bing.com).