


**COLORADO**Division of Reclamation,
Mining and Safety

Department of Natural Resources

MINERALS PROGRAM INSPECTION REPORT**PHONE: (303) 866-3567**

The Division of Reclamation, Mining and Safety has conducted an inspection of the mining operation noted below. This report documents observations concerning compliance with the terms of the permit and applicable rules and regulations of the Mined Land Reclamation Board.

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| MINE NAME: East Rigden Pit | MINE/PROSPECTING ID#: M-1979-097 | MINERAL: Sand and gravel | COUNTY: Larimer |
| INSPECTION TYPE: Monitoring | INSPECTOR(S): Amy Eschberger | INSP. DATE: January 31, 2019 | INSP. TIME: 10:00 |
| OPERATOR: City of Fort Collins | OPERATOR REPRESENTATIVE: Justin Fredrickson | TYPE OF OPERATION: 112c - Construction Regular Operation | |

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|---|--|--|
| REASON FOR INSPECTION: Normal I&E Program | BOND CALCULATION TYPE: None | BOND AMOUNT: \$0.00 |
| DATE OF COMPLAINT: NA | POST INSP. CONTACTS: None | JOINT INSP. AGENCY: None |
| WEATHER: Clear | INSPECTOR'S SIGNATURE:  | SIGNATURE DATE: March 11, 2019 |

The following inspection topics were identified as having Problems or Possible Violations. OPERATORS SHOULD READ THE FOLLOWING PAGES CAREFULLY IN ORDER TO ASSURE COMPLIANCE WITH THE TERMS OF THE PERMIT AND APPLICABLE RULES AND REGULATIONS. If a Possible Violation is indicated, you will be notified under separate cover as to when the Mined Land Reclamation Board will consider possible enforcement action.

INSPECTION TOPIC: Hydrologic Balance

PROBLEM: The Division has no evidence that the operator has a valid well permit, substitute water supply plan, or approved water augmentation plan for the exposed groundwater at the site. This is a problem related to 34-32.5-116(4)(h) of the Colorado Revised Statutes and 3.1.6(1)(a) of the Construction Materials Rules and Regulations governing injury to existing water rights.

CORRECTIVE ACTIONS: The operator shall demonstrate that the operation is in compliance with the Office of the State Engineer (SEO), show evidence that the operator is taking measures to bring the site into compliance with the SEO, or backfill the pits to at least two feet above the groundwater surface by the corrective action date specified.

CORRECTIVE ACTION DUE DATE: May 10, 2019

OBSERVATIONS

This was a normal monitoring inspection of the East Rigden Pit (Permit No. M-1979-097) conducted by Amy Eschberger of the Division of Reclamation, Mining and Safety (Division). Mr. Justin Fredrickson represented the operator, City of Fort Collins during the inspection. The site is located at the eastern edge of Fort Collins, Colorado in Larimer County, just west of Interstate 25. The site is situated just south of the Cache La Poudre River. The site can be accessed from the west off Ziegler Road, through the batch plant area operated by Martin Marietta Materials. **Photos 1-22** taken during the inspection are included with this report.

This is a 112c operation permitted for 518 acres to mine sand and gravel (see enclosed Google Earth image of site). The affected lands are partially owned by the City and partially owned by Cottonwood Land and Farms. In 2014, the City acquired parcels within the permit area and also took over the permit in order to construct a clay-lined reservoir and a future regional park. Soon after, in 2015, the City submitted a permit Amendment (AM-1) to revise the reclamation plan for the site, and change the post-mining land use to a combination of wildlife habitat and developed water resources (see enclosed reclamation plan map). According to annual reports submitted by the operator, construction of the clay-lined reservoir was completed in September of 2014. In the Substitute Water Supply Plan (SWSP) submitted to the Division with AM-1 (for the period of March 1, 2015 through February 29, 2016), there is mention of a 90-day leak test having commenced in early February 2015, anticipated to be completed in early May 2015. However, the Division was unable to find any documentation in the permit file that the reservoir has been approved by the Office of the State Engineer. The operator will need to provide this documentation to the Division before the reservoir could be released from the permit area.

The permit area is divided by the Great Western Railway which runs northwest-southeast across the northern portion of the site. The western portion of the permit area located south of the railway is crossed by the Boxelder Ditch, which also runs northwest-southeast across the site. The site has not been mined in many years. However, a concrete batch plant remains active in the western portion of the permit area (on approximately 26 acres). Besides the batch plant area, all portions of the site have been in various stages of reclamation for some time. The southwestern portion of the permit area, located south of the batch plant and west of the Boxelder Ditch was never disturbed by the operation. According to annual reports submitted by the operator, reclamation of the southeastern portion of the permit area, east of the reservoir (and east of the river) was completed in 2008. Reclamation of the areas north of the railway was completed in 2011. The area located south of the railway, north and northeast of the batch plant (previously utilized for an asphalt plant and wash ponds) was backfilled and graded in 2013. This area was reseeded in 2015. However, portions of this reclaimed area were re-disturbed in 2017 and 2018 to install an underdrain system (approved in Technical Revision Nos. 5 and 6) to eliminate standing water. According to the 2018 annual report, areas re-disturbed by the underdrain installation were retopsoiled and seeded in Spring of 2018. Reclamation of the reservoir shorelines was completed in 2015, and additional seeding and erosion repair has been completed on the shorelines since that time.

During the inspection, the weather was clear, sunny, and cool. A permit sign was posted at the main site entrance (to the batch plant). The Division observed the lined reservoir to have slope gradients of 4H:1V or flatter. Vegetative cover of the reservoir shorelines above water surface consists of native grasses and some annual weeds. The northern and western shorelines have better grass growth than observed along the southern and eastern shorelines. Some portions of the reservoir shorelines may require reseeding to achieve an established grass cover. A concrete revetment block spillway is installed at the northeastern edge of the reservoir for river overflow. No issues were observed with this spillway. The Division did not observe any excessive erosion issues along the reservoir shorelines during the inspection. Based on an aerial image from October 14, 2017, the Division estimates the reservoir water surface to cover approximately 127 acres. It should be noted, the reclamation plan in AM-1 called for planting trees and shrubs adjacent to the reservoir, including, Cottonwoods, Ponderosa Pines, Colorado Pinyons, Rocky Mountain Junipers, Hackberry, and Rabbitbrush. The

Division did not observe any trees growing adjacent to the reservoir. Therefore, the Division recommends the operator either plant the trees in accordance with the approved reclamation plan, or revise the revegetation plan through submittal of a permit revision.

The Division observed the land located north of the batch plant and northwest of the lined reservoir, where the underdrain system was installed in 2017, and extended in 2018. No standing water was observed in this area during the inspection. The operator continues to monitor groundwater levels in this area to assess the effectiveness of the underdrain system. No grass growth was observed in the areas that were retopsoiled and seeded in early 2018. Therefore, these areas may require reseeding. The portions of this area not re-disturbed by the underdrain installation have good grass cover.

The Division observed the batch plant area located at the western edge of the permit area, which is operated by Martin Marietta Materials. The Division estimates disturbance in this area to consist of 25.5 acres west of the Boxelder Ditch (for batch plant operations), and 4.95 acres east of the ditch (for stockpiling/equipment storage activities associated with batch plant operations). The disturbed area located east of the Boxelder Ditch has been in reclamation since 2015. The approved reclamation plan requires the batch plant to be demolished and removed from the site, and the area retopsoiled and revegetated for a post-mining land use of wildlife habitat. During the inspection, the Division discussed with Mr. Fredrickson the possibility of changing the post-mining land use for this area to industrial/commercial. Given that the rest of the site is either reclaimed or in reclamation, this change in post-mining land use would allow the City to release the permit with continued batch plant operations by Martin Marietta Materials. The Division informed the operator after the inspection this change in post-mining land use for the batch plant area could be reviewed through the permit Amendment process. Demonstration the area is appropriately zoned for industrial/commercial use would need to be included with the Amendment application.

The Division observed the portion of the permit area located north of the railway. This area includes two ponds and a wooded/grassy area separating the ponds. A concrete rubble/rock riprap spillway was constructed at the southeastern edge of the larger pond for overflow between the East Rigden Pit and the adjacent Port of Entry Pit (also permitted by the City of Fort Collins). A dewatering manhole, pump station, and pipeline were also installed at the southeastern edge of this pond. The shorelines of the ponds located north of the railway were observed to have slope gradients of 3H:1V or flatter, and were stable with good grass growth. The areas around the ponds were well vegetated with native grasses and some trees (in the area between the ponds). During the inspection, the Division discussed with Mr. Fredrickson the possibility of releasing the portion of the permit area located north of the railway from the permit. Considering the reclamation achieved in these areas, the Division agreed this could be done with an Acreage Reduction submittal in the near future. However, after reviewing the permit file after the inspection, the Division has discovered an issue with exposed groundwater (explained in more detail below) which will require resolution before these areas could be released.

The Division estimates a total of 41.97 acres of exposed groundwater exists at the site. The Division estimates the two ponds located north of the railway to be 8.88 acres (northwestern pond) and 22.5 acres (northern pond) in size. South of the railway, an unlined pond 7.67 acres in size is located north of the batch plant, and small unlined ponds totaling 2.92 acres in size are located southeast of the lined reservoir (and east of the river).

According to the last SWSP submitted for the site (covering the period of March 1, 2015 through February 29, 2016), a total of 25 acres of exposed groundwater was documented as having existed prior to January 1, 1981. These 25 acres are therefore considered by the SEO/DWR to be "pre-81", and thus do not require replacement of depletions. The physical locations of the pre-81 ponds are identified on an overview map included in the SWSP (map enclosed), and may not be re-allocated to other areas of groundwater exposure within the permit boundary. The SWSP map shows pre-81 ponds located north of the railway to be 8.5 acres (northwestern pond)

and 4.5 acres (northern pond) in size, and ponds located south of the railway to be 7 acres (pond north of batch plant), 2 acres (within footprint of current lined reservoir), and 3.0 acres (southeast of reservoir) in size. Comparing these pre-81 pond acreages to the current existing pond acreages, all but the southeastern ponds exceed their pre-81 size. The pond that exceeds its pre-81 size the most is the larger pond located north of the railway, which is 18 acres larger than the pre-81 size of 4.5 acres.

The Division was unable to find documentation in the permit file that the amount of exposed groundwater at the site exceeding the pre-81 exempted amounts is covered by a water court-approved augmentation plan. Therefore, this is being cited as a problem in this report (see page 1), requiring the operator to demonstrate the operation is in compliance with the SEO, show evidence that the operator is taking measures to bring the site into compliance with the SEO, or backfill the pits to at least two feet above the groundwater surface by the corrective action date specified.

No other problems were observed during the inspection.

This concludes the report.

PHOTOGRAPHS



Photo 1. View looking east across southwestern shoreline of lined reservoir, showing slopes graded 4H:1V or flatter with fairly good grass cover.



Photo 2. View looking northwest across western shoreline of lined reservoir, showing slopes graded 4H:1V or flatter with fairly good grass cover.



Photo 3. View looking south across southeastern shoreline of lined reservoir, showing slopes graded 4H:1V or flatter with very little to no vegetative cover.



Photo 4. View looking north across southeastern shoreline of lined reservoir, showing slopes graded 4H:1V or flatter with very little to no vegetative cover.



Photo 5. View looking north across concrete revetment block spillway constructed at northeastern edge of lined reservoir for river overflow.



Photo 6. View looking east across northern shoreline of lined reservoir, showing slopes graded 4H:1V or flatter with fairly good grass cover.



Photo 7. View looking west across northern shoreline of lined reservoir, showing slopes graded 4H:1V or flatter with fairly good grass cover.



Photo 8. View looking north across northwestern shoreline of lined reservoir, showing slopes graded 4H:1V or flatter with some grass cover.



Photo 9. View looking south across western shoreline of lined reservoir, showing slopes graded 4H:1V or flatter with some grass cover. Recreation/maintenance path along perimeter of reservoir (shown at far right) to remain for reclamation.



Photo 10. View looking northeast across area located northwest of reservoir and north of batch plant, showing good grass growth in areas not re-disturbed by underdrain installation.



Photo 11. View looking west across area located northwest of reservoir and north of batch plant, showing good grass growth in areas not re-disturbed by underdrain installation.



Photo 12. View looking east across disturbed land located east of batch plant and Boxelder Ditch which may require reseeding. This area was previously used for stockpiling and equipment storage.



Photo 13. View looking south across active batch plant area.



Photo 14. View looking southwest across active batch plant area.



Photo 15. View looking south across area located northwest of reservoir and north of batch plant which was re-disturbed by underdrain installation. This area was retopsoiled and seeded in Spring of 2018, and may require reseeding.



Photo 16. View looking north across eastern shoreline of northwestern pond located north of railway, showing slope gradients at 3H:1V or flatter with good grass cover.



Photo 17. View looking west across southern shoreline of northwestern pond located north of railway, showing slope gradients at 3H:1V or flatter with good grass cover.



Photo 18. View looking north across reclaimed land between two ponds located north of railway.



Photo 19. View looking east, showing dewatering manhole and pump station constructed at southeastern edge of larger pond located north of railway.



Photo 20. View looking northwest across southern shoreline of larger pond located north of railway, showing slope gradients at 3H:1V or flatter with good grass cover.



Photo 21. View looking north across western portion of larger pond located north of railway, showing slope gradients at 3H:1V or flatter with good grass cover.



Photo 22. View looking east across area south of larger pond located north of railway, showing good grass cover in this area.

GENERAL INSPECTION TOPICS

The following list identifies the environmental and permit parameters inspected and gives a categorical evaluation of each

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| (AR) RECORDS----- <u>Y</u> | (FN) FINANCIAL WARRANTY----- <u>NA</u> | (RD) ROADS----- <u>Y</u> |
| (HB) HYDROLOGIC BALANCE----- <u>PB</u> | (BG) BACKFILL & GRADING----- <u>Y</u> | (EX) EXPLOSIVES----- <u>N</u> |
| (PW) PROCESSING WASTE/TAILING---- <u>Y</u> | (SF) PROCESSING FACILITIES----- <u>Y</u> | (TS) TOPSOIL----- <u>Y</u> |
| (MP) GENL MINE PLAN COMPLIANCE- <u>Y</u> | (FW) FISH & WILDLIFE----- <u>N</u> | (RV) REVEGETATION---- <u>Y</u> |
| (SM) SIGNS AND MARKERS----- <u>Y</u> | (SP) STORM WATER MGT PLAN---- <u>Y</u> | (RS) RECL PLAN/COMP-- <u>Y</u> |
| (ES) OVERBURDEN/DEV. WASTE----- <u>Y</u> | (SC) EROSION/SEDIMENTATION--- <u>Y</u> | (ST) STIPULATIONS----- <u>N</u> |
| (AT) ACID OR TOXIC MATERIALS----- <u>N</u> | (OD) OFF-SITE DAMAGE----- <u>N</u> | |

Y = Inspected and found in compliance / N = Not inspected / NA = Not applicable to this operation / PB = Problem cited / PV = Possible violation cited

Inspection Contact Address

Justin Fredrickson
City of Fort Collins
P.O. Box 580
Fort Collins, CO 80522

Encls: Google Earth image of site
Approved Reclamation Plan Map
SWSP overview map showing pre-81 ponds

CC: Michael Cunningham, DRMS

M-1979-097 / East Rigden Pit / City of Fort Collins

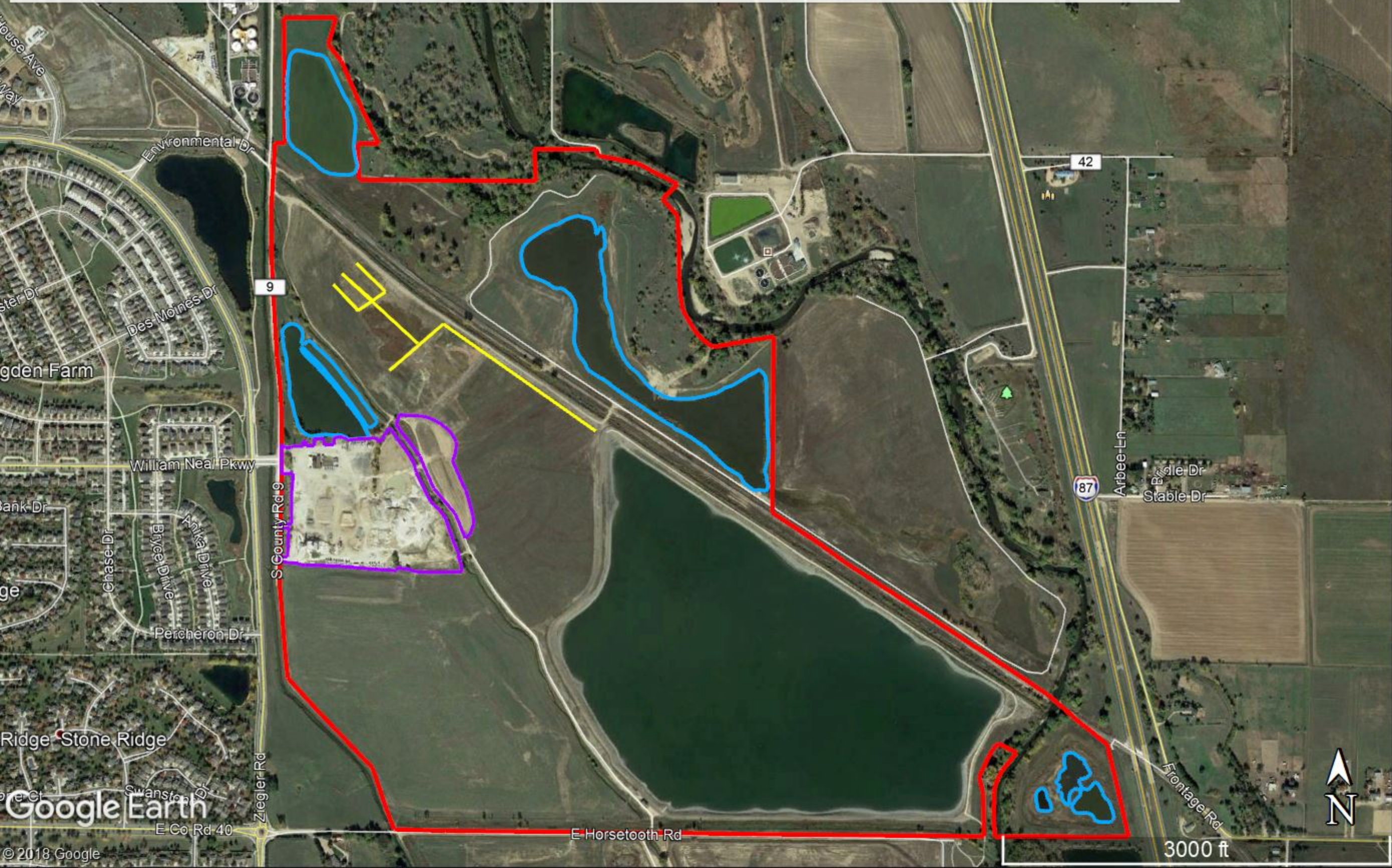
Red Outline = 518 acres = Approved Permit Area

Purple Outline = 30.45 acres = Disturbed Areas Associated with Batch Plant (25.5 acres + 4.95 acres)

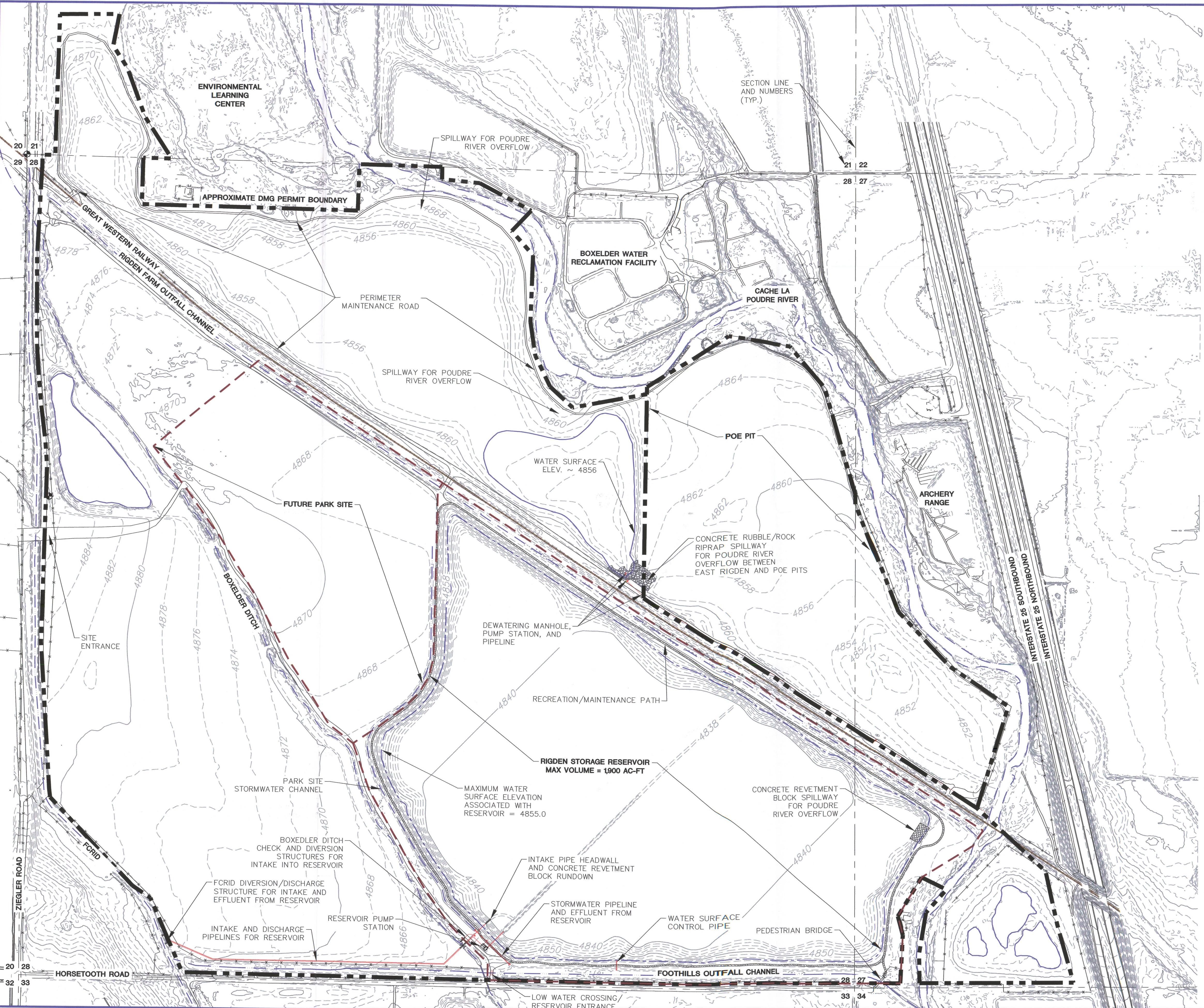
Blue Outline = 41.97 acres = Exposed Groundwater = (8.88 ac NW pond + 22.5 ac N pond + 7.67 ac W pond + 2.92 ac SE ponds)

Yellow Lines = Approximate location of underdrain system installed in 2017/2018

(Image data from 10/14/2017)



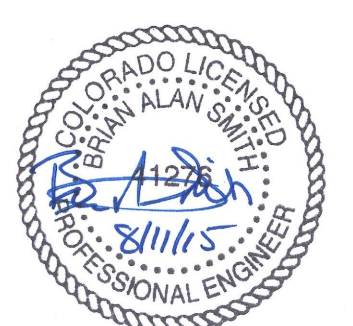
8/11/2015 5:15 PM
PA:COFC2011\COFC2011.07.3-RIGDEN_CMA AMENDMENT TO MINING PERMIT-RIGDEN MINING AMENDMENT FIGURE REVISED.DWG



LEGEND:

- MINING PERMIT BOUNDARY
- CITY OWNED PARCELS WITHIN EAST RIGDEN PIT MINING BOUNDARY
- FINISHED 2-FOOT CONTOURS
- FINISHED 10-FOOT CONTOURS
- RAILROAD
- ROADS
- FENCE
- SECTION LINES
- RIVER/STORMWATER/IRRIGATION CHANNEL
- OPEN WATER
- UNDERGROUND PIPELINES

CITY OF FORT COLLINS
EAST RIGDEN PIT
MINING AMENDMENT
MINING PERMIT #:
M-1979-097



| | | |
|-----------------|---------|----------------|
| DRAWN BY: | | BAS |
| DESIGNED BY: | | BAS |
| CHECKED BY: | | BAS |
| PROJECT NUMBER: | | COFC2011-07.03 |
| DATE: | | 08/11/2015 |
| FIGURE: | PAGE #: | |
| F.2 | F-3 | |



ANDERSON CONSULTING ENGINEERS, INC.
Civil - Water Resources - Environmental
275 East Irons Road, Suite 5, Fort Collins, CO 80521
Phone (970) 226-0120 / Fax (970) 226-0121
www.andersoninc.com

RECLAMATION MAP
RECEIVED
AUG 19 2015
Response to Inadequacies
M-1979-097

UNIVERSITY OF COLORADO
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