



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.

MINE NAME: CEMEX Sandstone Quarry	MINE/PROSPECTING ID#: M-1977-361	MINERAL: Sandstone (silica, stone, quartzite)	COUNTY: Boulder
INSPECTION TYPE: Monitoring	INSPECTOR(S): Amy Eschberger	INSP. DATE: June 3, 2020	INSP. TIME: 13:00
OPERATOR: CEMEX, Inc.	OPERATOR REPRESENTATIVE: Cita Cisse, Uwe Lubjuhn, Robin Bay	TYPE OF OPERATION: 110c - Construction Limited Impact	

REASON FOR INSPECTION: Normal I&E Program	BOND CALCULATION TYPE: Complete Bond	BOND AMOUNT: \$409,366.00
DATE OF COMPLAINT: NA	POST INSP. CONTACTS: None	JOINT INSP. AGENCY: None
WEATHER: Clear	INSPECTOR'S SIGNATURE: 	SIGNATURE DATE: June 12, 2020

GENERAL INSPECTION TOPICS

This list identifies the environmental and permit parameters inspected and gives a categorical evaluation of each. No problems or possible violations were noted during the inspection. The mine operation was found to be in full compliance with Mineral Rules and Regulations of the Colorado Mined Land Reclamation Board for the Extraction of Construction Materials and/or for Hard Rock, Metal and Designated Mining Operations. Any person engaged in any mining operation shall notify the office of any failure or imminent failure, as soon as reasonably practicable after such person has knowledge of such condition or of any impoundment, embankment, or slope that poses a reasonable potential for danger to any persons or property or to the environment; or any environmental protection facility designed to contain or control chemicals or waste which are acid or toxic-forming, as identified in the permit.

(AR) RECORDS----- <u>Y</u>	(FN) FINANCIAL WARRANTY----- <u>Y</u>	(RD) ROADS----- <u>Y</u>
(HB) HYDROLOGIC BALANCE----- <u>Y</u>	(BG) BACKFILL & GRADING----- <u>Y</u>	(EX) EXPLOSIVES----- <u>N</u>
(PW) PROCESSING WASTE/TAILING---- <u>N</u>	(SF) PROCESSING FACILITIES----- <u>N</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>N</u>	(SC) EROSION/SEDIMENTATION--- <u>Y</u>	(ST) STIPULATIONS----- <u>N</u>
(AT) ACID OR TOXIC MATERIALS----- <u>NA</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

OBSERVATIONS

This was a normal monitoring inspection of the CEMEX Sandstone Quarry (Permit No. M-1977-361) conducted by Amy Eschberger of the Division of Reclamation, Mining and Safety. The operator was represented by Uwe Lubjuhn, Cita Cisse, and Robin Bay during the inspection. The site is located approximately one mile southeast of Lyons, CO in Boulder County. The site is accessed from the east by taking a private road off US-36 and passing through a commercial stone yard owned by Loukonen Bros. Stone Company. **Photos 1-18** taken during the inspection are included with this report.

This is a 110c operation permitted for 9.9 acres (see enclosed Existing Topography Map showing approved permit area) to extract sandstone for use as a silica additive in the cement manufacturing process at the operator's nearby cement plant. The affected lands are owned by the operator. The quarry is situated on the southeast side of a grassy hill. The operation utilizes blasting methods to mine the sandstone. Mined rock is hauled directly off site to the crusher facility at the operator's nearby Dowe Flats Mine (Permit No. M-1993-041). From there, the crushed material is transported approximately two miles south via a conveyor system to the operator's cement plant (Lyons Quarry; Permit No. M-1977-208). The pit will be mined to a maximum depth of approximately 120 feet. Mining will progress in horizontal benches with slope gradients of approximately 0.5H:1V. Any available topsoil will be salvaged and stored at the edges of the pit. Additional topsoil may be imported to the site from the operator's Dowe Flats Mine. A red-tailed hawk nest was identified on the property adjacent to the western edge of the pit, outside of the affected land boundary. The general guidelines for nest avoidance are February 15 through July 15. However, this nest will be monitored prior to blasting, and no blasting will be performed when the nest is active.

The approved post-mining land use for the site is wildlife habitat. The land adjacent to the quarry property on the north, west, and south is primarily open space land owned by either Boulder County Open Space or the City of Lyons. These lands are primarily used for wildlife habitat with limited recreation and grazing activities. As mentioned above, the east side of the property is bordered by a commercial landscaping stone yard. The approved reclamation plan (see enclosed Reclamation Plan Maps) calls for leaving the highwalls with slope gradients of approximately 0.5H:1V. The 0.5H:1V cut slopes will be interspersed with small sections of vertical highwall designed to promote raptor habitat. A bench will be cut into the top of the highwall that ranges from 10-15 feet wide with a 10-foot high backslope that varies from 0.1H:1V to 0.5H:1V. The operator will also construct a fence at least 6 feet back from the crest of the highwall with signage that will serve as a visual and physical safety barrier.

For final reclamation, the pit floor will be graded to a 2% slope toward the southeast. A drainage channel will be constructed in the southeast corner of the pit with 2H:1V cut slopes leading down to a 48 inch culvert to be installed under the South Ledge Ditch (an ephemeral drainage) and 2H:1V fill slopes over the culvert to maintain a consistent grade in the ditch. The culvert outlet channel will be lined with riprap. Growth media will be spread on all fill slopes and any cut slopes not steeper than 2H:1V at a depth of 12-18 inches, including the pit floor (estimated to cover 5.64 acres) and the drainage area (estimated to cover 0.21 acre). All retoppedsoiled areas will be seeded with an upland native seed mixture consisting of grasses, forbs, and shrubs. All haul roads will be reclaimed except for the main access road that enters the pit from the east. Entrances to reclaimed roads will be blocked by barriers of native rock or earthen berms to prevent vehicular access, while continuing to allow wildlife access.

Amendment No. 1 (AM-1; approved on July 14, 2014) updated the mining and reclamation plans for the site, changed the post-mining land use from agriculture to wildlife habitat, and clarified the permit boundary. Since AM-1 was submitted, the Division has approved three Technical Revisions for the site. Technical Revision No. 2 (TR-2; approved on March 25, 2014) allows for the importation of inert material to be used as reclamation

backfill. Approximately 400,000 cubic yards of sandy material was imported to the site in March of 2014 and placed in the northern portion of the pit. This material will be mixed with on-site blasted rock structural fill for final reclamation to fill voids and improve the stability of the backfill. Technical Revision No. 3 (TR-3; approved on September 18, 2017) authorized intermittent operation of the quarry, where mining activities occur less than 180 days per year. Technical Revision No. 4 (TR-4; approved on November 21, 2018) increased the annual production of sandstone from what was estimated in the approved mining plan and provided notice of the relocation of topsoil stockpiles within the affected land boundary. The production rate will not exceed 70,000 tons/year in accordance with the operating permit the operator maintains with the Colorado Department of Public Health and Environment. TR-4 authorizes the operation to relocate the two existing topsoil stockpiles at the southern edges of the pit (with a combined volume of approximately 20,000 cubic yards) to the top of the northern backfilled portion of the pit. This will allow the operation to continue mining the areas beneath the current stockpile locations. Any additional topsoil salvaged during mining will be placed at the new stockpile location.

At the time of the inspection, the site was not active and no mining equipment was stored in the quarry. However, the operator continues to mine the site every year in accordance with its intermittent status. A permit sign is posted at the main entrance to the site and the permit boundary is delineated with barbed wire fencing. The pit has reached its maximum depth of approximately 120 feet. The highwalls have bench slopes of approximately 0.5H:1V with minor vertical portions. The pit has reached its allowable extent along its northern and southern edges. The western edge of the pit ranges from approximately 20-100 feet from the permit boundary, so there is not much room left to safely mine this edge of the pit. There is a portion of the southwestern pit wall that extends into the pit beneath an existing topsoil stockpile which could potentially be mined once the topsoil has been relocated per TR-4. The operation is currently mining the eastern edge of the pit. Topsoil above this area has been stripped in preparation for mining.

The Division observed the northern portion of the pit where imported backfill was placed in accordance with TR-2. This area has been graded nearly flat with a gentle southward slope. Additional backfill material has been placed at the southern edge of this area since the Division's last inspection. For final reclamation, this material will be pushed southward across the pit floor to create the approved final gradient to the southeast for positive drainage. The two existing topsoil stockpiles remain at the southwestern and southeastern edges of the pit, and have not yet been relocated to the northern backfilled portion of the pit per TR-4. These stockpiles are stable with good grass cover. The pit floor was dry during the inspection. No significant erosion issues were observed.

During its last inspection of the site on March 22, 2017, the Division observed a stone processing area near the main site entrance which overlaps the northeastern portion of the permit area. This processing area includes material stockpiles, a stone crusher plant, a trailer, a few small sheds, and an equipment and truck storage area. The Division estimated the disturbance located outside the permit boundary in this area to be approximately 0.85 acre. While a portion of the processing area is located within the permit area, a barbed wire fence separates this area from the quarry area. The operator informed the Division the entire processing area (east of the fence) was leased to Loukonen Bros. Stone Company for processing stone in conjunction with their adjacent commercial stone yard. The Division cited a problem for this off-site disturbance in its last inspection report, sent on April 4, 2017, requiring the operator to demonstrate to the Division the off-site affected land is not associated with the permitted operation in any way. For the corrective action, the operator provided a signed letter confirming the processing area was not associated in any way with the permitted operation. The operator also provided a notarized letter from Michael Loukonen attesting to the use of the property for processing stone by Loukonen Bros. Stone Company, and that the equipment and material stockpiles stored in the area are part of the Loukonen operation. Therefore, the Division considers this problem to be abated. If the operation were to ever have a need for using this area in any way (besides as a mine entrance), the operator would need to submit a permit revision to incorporate the use and reclamation of this area into the mining and reclamation plans, and

to update the reclamation bond accordingly. During the current inspection, the Division observed no changes in the processing area.

After conducting the inspection, the Division reassessed the required financial warranty for completing reclamation of the site in accordance with the approved reclamation plan. The Division found the currently held financial warranty in the amount of \$409,366.00 to be adequate for completing reclamation of the site.

This concludes the report.

Any questions or comments regarding this inspection report should be forwarded to Amy Eschberger at the Colorado Division of Reclamation, Mining and Safety, 1313 Sherman Street, Room 215, Denver, CO 80203, via telephone at 303-866-3567, ext. 8129, or via email at amy.eschberger@state.co.us.

PHOTOGRAPHS



Photo 1. View looking west across top of backfilled northern portion of pit.



Photo 2. View looking north at northern pit wall with slopes of approximately 0.5H:1V.



Photo 3. View looking west across northern portion of pit where additional backfill material has been placed since last inspection.



Photo 4. View looking south across eastern pit wall which is currently being mined.



Photo 5. View looking south at southern pit wall with mostly 0.5H:1V slopes.



Photo 6. View looking west at western pit wall with mostly 0.5H:1V slopes. Note topsoil stockpile stored above highwall (indicated) stable with vegetative cover.



Photo 7. View looking northwest across pit from its southeastern corner. Note backfilled northern portion of pit (in background).



Photo 8. View looking west across southern pit wall (at right), showing barbed wire fence (at left) delineating southern permit boundary.



Photo 9. View looking northwest across side of large topsoil stockpile stored at southeastern edge of pit, stable with good grass cover.



Photo 10. View looking southeast across top of large topsoil stockpile stored at southeastern edge of pit, stable with good grass cover.



Photo 11. View looking east from top of large topsoil stockpile, showing southeastern portion of permit area where drainage will be constructed for final reclamation.



Photo 12. View looking northwest across pit from top of large topsoil stockpile.



Photo 13. View looking west across pit from top of large topsoil stockpile.



Photo 14. View looking southwest across pit from top of large topsoil stockpile.



Photo 15. View looking north across area above eastern pit wall stripped in preparation for mining.



Photo 16. View looking west from processing area utilized by Loukonen, showing backfilled northern portion of pit. Note barbed wire fence separating processing area from quarry area.



Photo 17. View looking east across processing area located east of quarry, which is utilized by Loukonen Brothers Stone Company in conjunction with their adjacent commercial stone yard.



Photo 18. View of stone scrap stockpile stored in processing area east of quarry, which is utilized by Loukonen Brothers Stone Company in conjunction with their adjacent commercial stone yard.

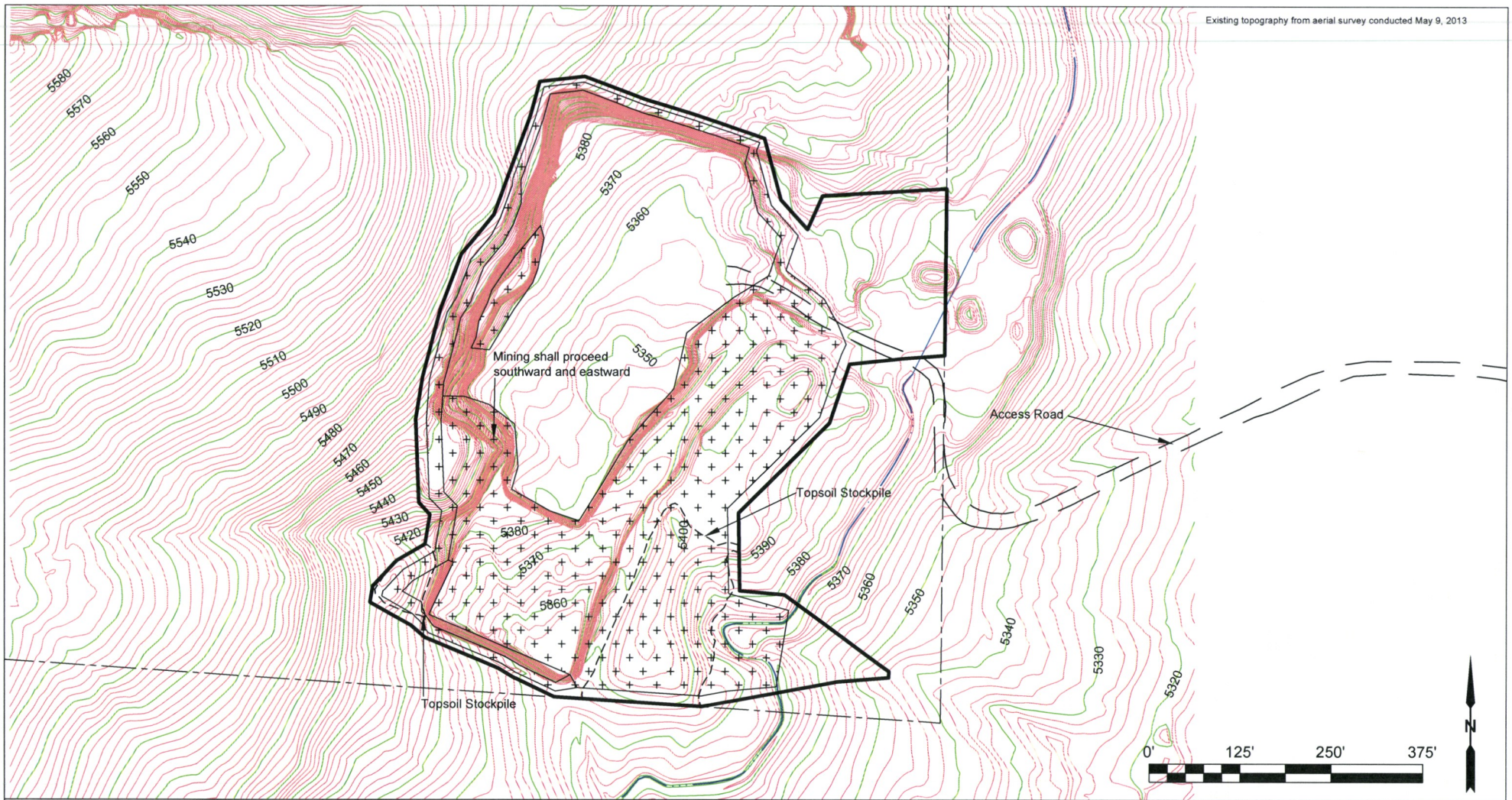
Inspection Contact Address

Cita Cisse
CEMEX, Inc.
P.O. Box 529
Lyons, CO 80540

Encls: Existing Topography Map, submitted with AM-1
Reclamation Plan Maps (3), submitted with AM-1

CC: Uwe Lubjuhn, CEMEX, Inc.
Scott Marcus, CEMEX, Inc.
Robin Bay, Habitat Management, Inc.
Michael Cunningham, DRMS

Existing topography from aerial survey conducted May 9, 2013



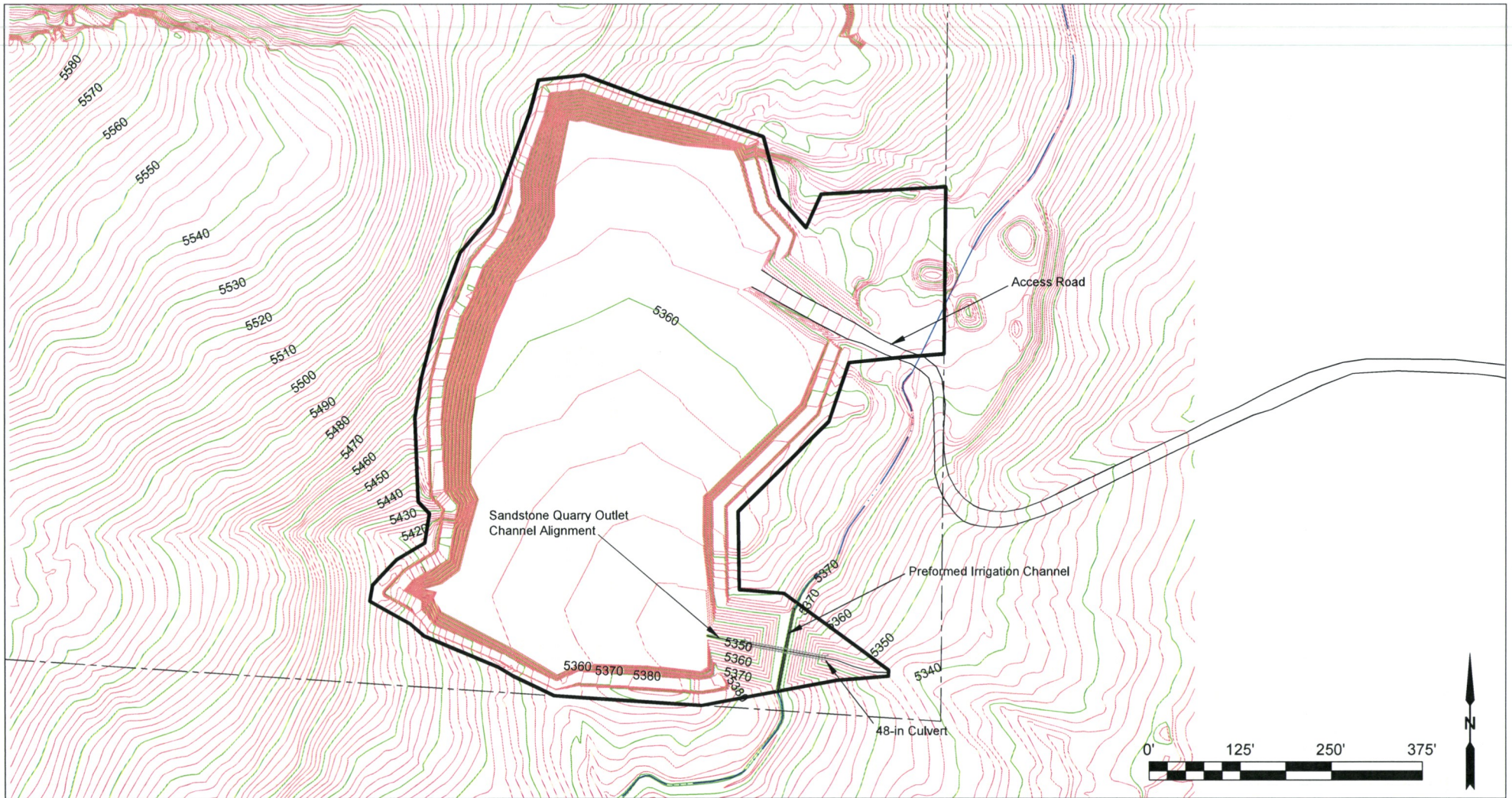
Index Contour (10' Interval)	+	+	+	+	Future Mining Area
Intermediate Contour (2' Interval)					
Proposed Affected Area					
Property Boundary					
South Ledge Ditch					
Topsoil Stockpile Boundary					

Prepared By: Ryan Wade & Richard Spotts

**PRELIMINARY
FOR PERMITTING ONLY
NOT FOR CONSTRUCTION**

**Figure E-1:
Sandstone Quarry
Existing Topography**

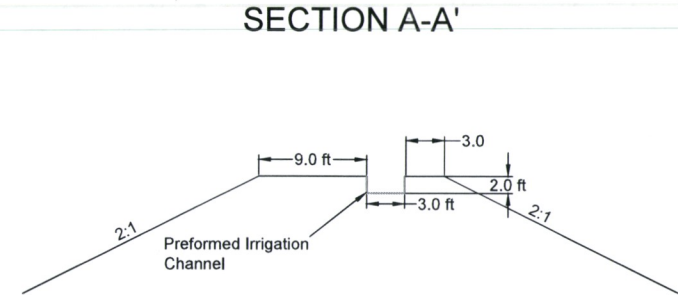
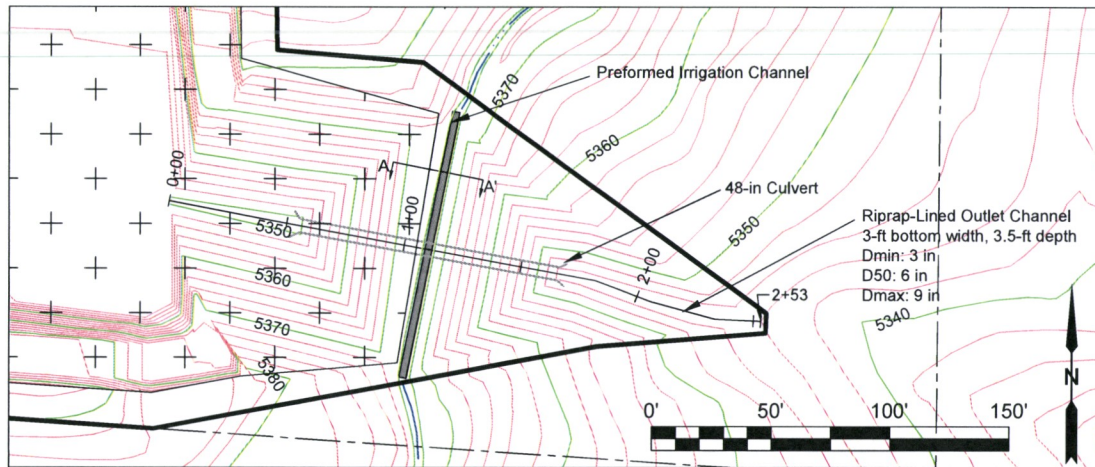
June 27, 2014



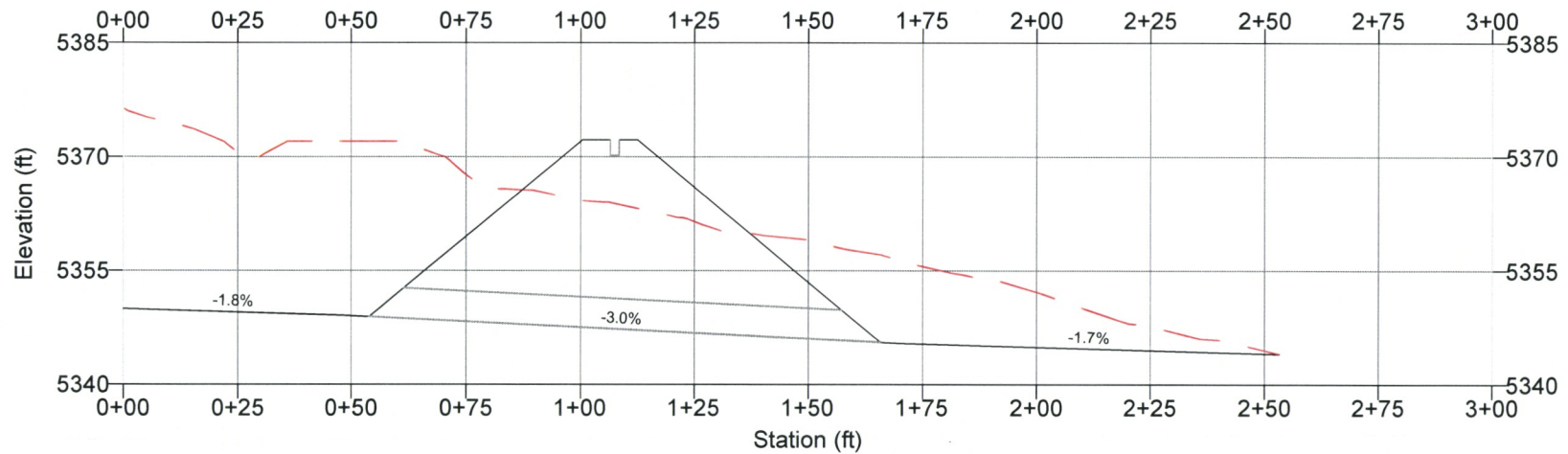
Index Contour (10' Interval)	Culvert
Intermediate Contour (2' Interval)	Preformed Channel Section
Proposed Affected Area	South Ledge Ditch
Property Boundary	
Outlet Channel Alignment	

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**Figure E-2:
Sandstone Quarry
Final Reclamation
Topography**



SANDSTONE QUARRY OUTLET CHANNEL



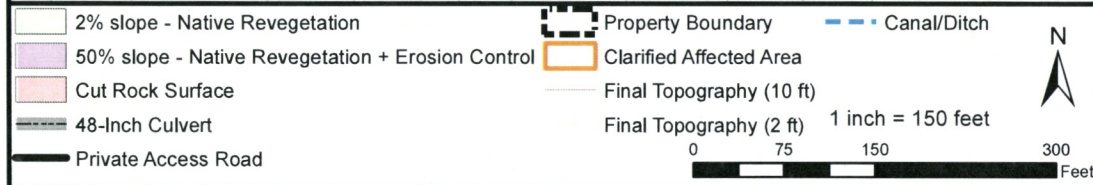
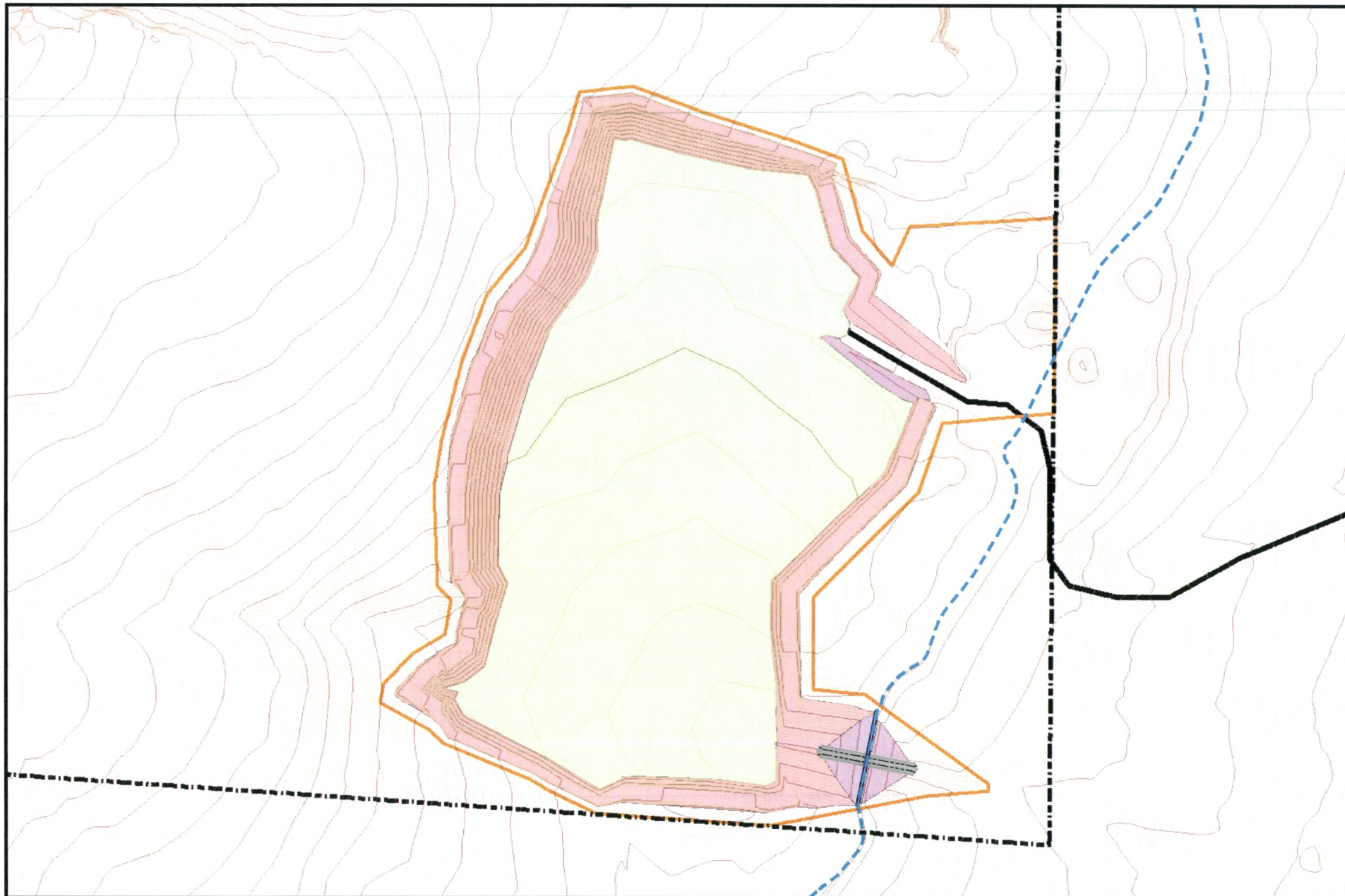
LEGEND	
	Index Contour (10' Interval)
	Intermediate Contour (2' Interval)
	Proposed Affected Area
	Property Boundary
	Outlet Channel Alignment
	Culvert
	Preformed Channel Section
	South Ledge Ditch
	Existing Grade Profile
	Final Grade Profile

Prepared By: Ryan Wade & Richard Spotts

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**Figure E-3:
Sandstone Quarry
Outlet Channel Profile**

June 27, 2014



Drawn By: RFB
 Checked By: KEC
 Approved By: DTA
 Date: 3-19-2014

CEMEX		
REVISIONS		
DATE	BY	
6-24-14	RFB	

CEMEX SANDSTONE QUARRY

FIGURE E-4
FINAL RECLAMATION & REVEGETATION MAP