STATE OF COLORADO

Eschberger - DNR, Amy <amy.eschberger@state.co.us>

Re: Dowe Flats Mine, Permit No. M-1993-041, Technical Revision No. 4 (TR-04), Preliminary Adequacy Review

Robin Bay <rbay@habitatmanagementinc.com> Fri, Apr 10, 2020 at 10:10 AM
To: "Eschberger - DNR, Amy" <amy.eschberger@state.co.us>
Cc: Uwe Lubjuhn <uwe.lubjuhn@cemex.com>, Scott A Harcus <scotta.harcus@cemex.com>, Cita Cisse <cita.cisse@cemex.com>, "maribelb.aguilos@cemex.com" <maribelb.aguilos@cemex.com>

Amy,

I have attached Cemex's response to your Preliminary Adequacy Review for Technical Revision No. 4 to the Dowe Flats Mine, Permit No. M-1993-041. We have also attached revised maps to accompany the response. Please let us know if we also need to submit a decision date extension request to provide you time to review our response.

Thank you,

Robin

Robin Forest Bay

Sr. Environmental Scientist

Habitat Management, Inc.

Cell: 719-928-1717

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www.habitatmanagementinc.com

4 attachments

Dowe Flats (M-1993-041) TR #4 Adequacy Response.pdf
484K

TR04-Figure1-Mining_revised20Mar2020.pdf
13986K

TR04-Figure2-Mining_revised25Mar2020.pdf
1851K

TR04-Figure3-Reclamation_revised20Mar2020.pdf
1009K

April 10, 2020

Ms. Amy Eschberger
Colorado Division of Reclamation, Mining and Safety
1313 Sherman Street, Room 215
Denver, Colorado 80203

RE: Dowe Flats Quarry, Permit No. M-1993-041, Technical Revision #4, Preliminary Adequacy Review Response

Ms. Eschberger:

On March 2nd, 2020, CEMEX received your Preliminary Adequacy Review in response to our February 10th submittal of Technical Revision #4 (TR-04) to the Dowe Flats Permit (M-1993-041). Your Preliminary Adequacy Review identified 10 adequacy items to be addressed. Responses to each item are numbered in the attached document. Additionally, I have attached three revised maps and a revised reclamation cost estimate.

Please contact me if you need additional information at 720-207-8492 or cita.cisse@cemex.com.

Sincerely,

Cita Cisse
Quarry Manager, Lyons Plant Operations

Enclosures: Dowe Flats TR#4 Adequacy Review Response
Revised Figure 1: Affected Area Status Map TR-04
Revised Figure 2: Mining Plan Map TR-04
Revised Figure 3: Reclamation Plan Map TR-04
Revised Reclamation Cost Estimate

Cc: Scott Harcus, Environmental Manager, Lyons Plant Operations
Dr. Uwe Lubjuhn, Plant Manager, Lyons Plant Operations
Robin Bay, Sr. Environmental Scientist, Habitat Management, Inc.

Adequacy Review Response

The following numbered items address the 10 adequacy items detailed in the March 2nd, 2020 DRMS Preliminary Adequacy Review of the Dowe Flats Quarry Technical Revision #4 (TR-04) application.

1. Technical Revision #2 (TR-02), approved by DRMS on October 22, 2009, stated that the Affected Area boundary was 464.9 acre and included "mining and reclamation areas, haul and access roads, the crusher and conveyor areas, trailers and maintenance shop, waste rock and topsoil stockpile areas and the fuel island." However, the maps included with TR-02 showed an Affected Area boundary that totaled more than 464.9 acres and did not include the conveyor, some stockpile areas, or the fuel island. Additionally, the TR-02 mapped Affected Area boundary included a small area at the north end of the property that had been deeded to Boulder County in 2002 and leased back as a buffer zone but could no longer be included in the mining area. The Affected Area boundary in our initial submittal of TR-04 was the mapped boundary rather than that described in the text. The maps, tables, and reclamation cost estimate prepared in response to this adequacy review revise the accounting discrepancy between the maps and text that occurred in 2009 and bring the permit documents into agreement with ground conditions. The total Affected Area is and should have been 499.9 acres.

   Table 1: Current Status of Affected Area Lands

Status	Acres
Active Mining Disturbance	92.5
Reclamation in Progress	66.9
Growth Media Rock Stockpiles	27.7
Conveyor Corridor	4.6
Roads & Other Disturbance	68.5
Final Reclamation	159.5
Temporary Reclamation (Waste Rock Stockpiles)	54.7
Undisturbed	25.5
Total	**499.9**

2. The maps have been updated based on the changes addressed in Adequacy Response #1. Details of the map updates are included in Adequacy Responses #8 and #9 below.
3. The 20-acre wetland will be constructed in the approximate location shown on previous reclamation maps. The exact location may be altered slightly based on an evaluation of the soils and groundwater in this area after backfilling is substantially completed. The wetland will be wetted by groundwater seepage and capillary rise from the water table. The top 4 to 8 inches of the soil placed in the wetland will be suitable growth media placed at a final elevation such that it will remain saturated for at least 10 percent of the average growing season. The wetland area will be seeded with the wetland mixture approved in the current reclamation plan.
4. The crusher currently sits on top of a waste rock stockpile as shown on the maps. This area is currently much higher in elevation than the approved post-mining topography. After the structures have been demolished and removed from the area, the stockpiled material will be hauled to one of the pits for backfilling. As with all areas within the Affected Area boundary,

this area will be graded to final topography then growth media will be spread over the surface prior to seeding. The final elevation will be approximately that shown on the reclamation plan maps.

5. A portion of the Dowe Flats Permit boundary overlaps with the Lyons Quarry (M-1977-208) Permit boundary. This area is shown on the revised Figure 2 and Figure 3 maps. The reclamation of this area is described in the Lyons Quarry Reclamation Plan.
6. The power lines on the southeast side of the permit area are not under CEMEX control and will remain after reclamation. They have been added to the revised Figure 3 map along with all other permanent man-made structures that will remain after reclamation is complete.
7. All currently stockpiled material will be moved and used during reclamation. No stockpiles or berms will remain after reclamation is complete. The revised Figure 3 map illustrates this condition.
8. Both the mining plan maps (Figures 1 and 2) have been updated.
    a. The revised Affected Area boundary was added to both Figure 1 and Figure 2.
    b. The primary pit boundaries and waste rock stockpiles were added to both Figure 1 and Figure 2. Please note that the Hi-Cal and 2nd Ridges are currently being mined from the same pit.
    c. Prominent features of the mine site have been labeled on both Figure 1 and Figure 2.
    d. It is anticipated that clean concrete rubble from structure demolition will be disposed of in the 3rd Ridge Pit.
    e. The setbacks associated with this permit are not a defined distance. Instead, the Boulder County property included within the permit boundary was deed to Boulder County by CEMEX and has been leased back to act as a buffer zone.
    f. Adjoining surface owners have been added to Figure 2.
    g. All permanent man-made structures within 200 ft of the Affected Area have been added to Figure 2.
9. The reclamation plan map (Figure 3) has been updated
    a. The revised Affected Area boundary was added to Figure 3.
    b. The final reclamation plan of the Affected Areas south of Hwy 66 is shown on Figure 3.
    c. All structures to remain after reclamation are shown on Figure 3.
10. The attached revised bond estimate specifically addresses the following items.
    a. Acreages were updated based on the revised Affected Area boundary.
    b. Backfilling, grading, ripping, topsoiling, and revegetation quantities were broken out by each primary mine feature:
        i. Hi-Cal/2nd Ridge Pit
        ii. 3rd Ridge Pit
        iii. 4th Ridge Pit
        iv. Crusher Area
        v. Office/Maintenance/Equipment/Fuel Area
        vi. Waste Rock Stockpiles (Crusher & Mt. George)
        vii. Topsoil Stockpiles
        viii. Conveyor System
        ix. Wetland Area

c. Seed mixtures and seeding rates are included as defined in the currently approved Reclamation Plan.
d. Demolition costs for all structures have been broken down into separate demolition, disposal, and landfill costs.
e. Costs associated with the reclamation of the conveyor system corridor have been broken down into demolition and disposal of structures, removal of the buried section, and revegetation of the corridor both north and south of Highway 66.

Dowe Flats Quarry
2020 Reclamation Cost Estimate

The estimated costs for the closure reclamation activities are summarized in Table 1 and detailed in Tables 2 – 6 . Most costs were estimated using the Wyoming Department of Environmental Quality Land Quality Division, Guideline No. 12, Standardized Reclamation Performance Bond Format and Cost Calculation Methods (Revised November 21, 2019) with a location adjustment to Boulder Colorado from the RS Means City Cost Index for 2020.

Table 1: Reclamation Cost Summary

Tasks		**Estimated Cost**
Backfill & Excavation to Final Topography		$ 6,883,001.47
Grading & Ripping		$ 21,464.75
Growth Media Application		$ 131,826.81
Revegetation		$ 106,405.47
Demolition		$ 391,581.74
Task Total		***$ 7,534,280.25***
Contractor Overhead, Profit, Mobilization & Demobilization [1]	13.5%	$ 1,017,127.83
Project Management [1] (Appendix R)	3.4%	$ 256,165.53
Overall Total		**$ 8,807,573.61**

[1] Wyoming Department of Environmental Quality Land Quality Division, Guideline No. 12, Standardized Reclamation Performance Bond Format and Cost Calculation Methods. Revised November 21, 2019.

Table 2: 2020 Detailed Final Reclamation Cost Estimate for Backfill & Excavation

Backfill & Excavation to Final Topography												
Reclamation Area/Source	LQD Appendix [1]	Equipment	Quantity		Distance (Ft)	Resistance		Productivity		Operating Costs		Location Adjustment [2]	
						Grade	Rolling	BCY/Hr	Hours	$/BCY	Total Cost	Boulder	Adj Total
Hi-Cal/2nd Ridge Pit	-												
In-Pit Stockpiles	C	CAT637G Push-Pull Scraper Fleet	894,130	cy	1,000	-5%	4%	500	1,788.3	$ 0.759	$ 678,644.67	97%	$ 659,545.05
Crusher Stockpile	A	Cat992G Loader/CAT 777F Trucks	2,444,646	cy	5,000	0%	4%	939	2,603.5	$ 1.461	$ 3,571,627.81	97%	$ 3,471,108.72
Mt. George Stockpile	A	Cat992G Loader/CAT 777F Trucks	1,059,491	cy	5,500	0%	4%	939	1,128.3	$ 1.494	$ 1,582,879.55	97%	$ 1,538,331.34
3rd Ridge Pit	-												
In-Pit Stockpiles	C	CAT637G Push-Pull Scraper Fleet	78,714	cy	1,000	-5%	4%	500	157.4	$ 0.759	$ 59,743.93	97%	$ 58,062.51
Mt. George Stockpile	A	Cat992G Loader/CAT 777F Trucks	470,392	cy	4,000	0%	4%	939	500.9	$ 1.461	$ 687,242.71	97%	$ 667,901.11
Wetland Excavation	C	CAT637G Push-Pull Scraper Fleet	644,145	cy	1,000	0%	4%	500	1,288.3	$ 0.759	$ 488,906.06	97%	$ 475,146.40
4th Ridge Pit	-												
In-Pit Stockpiles	E	D9T Dozer	185	cy	300			270	0.7	$ 0.742	$ 137.27	97%	$ 133.41
Wetland													
Topsoil Stripping	C	CAT637G Push-Pull Scraper Fleet	11,293	cy	500	0%	4%	599	18.9	$ 0.634	$ 7,159.76	97%	$ 6,958.26
Crusher Stockpile													
Topsoil Stripping	C	CAT637G Push-Pull Scraper Fleet	9,437	cy	500	0%	4%	599	15.8	$ 0.634	$ 5,983.06	97%	$ 5,814.67
Totals									**7,502**		**$ 7,082,324.82**		**$ 6,883,001.47**

[1] Wyoming Department of Environmental Quality Land Quality Division, Guideline No. 12, Standardized Reclamation Performance Bond Format and Cost Calculation Methods. Revised November 21, 2019.
[2] RS Means Masterformat City Cost Indexes for 2020. Average for Contractor Equipment from all Wyoming cities (94.87%) compared to Boulder, CO (92.2%).

Table 3: 2020 Detailed Final Reclamation Cost Estimate for Grading & Ripping

Grading & Ripping											
Reclamation Area/Task	LQD Appendix [1]	Equipment	Quantity				Productivity		Operating Costs		Location Adjustment [2]	
							AC/Hr	Hours	$/AC	Total Cost	Boulder	Adj Total
Hi-Cal/2nd Ridge Pit	-											
Rough Grade	M	CAT D9T Dozer	107.3	ac			2.82	38.0	$ 71.05	$ 7,623.67	97%	$ 7,409.11
Final Grade	G	CAT 16M Motor Grader	107.3	ac			2.66	40.3	$ 57.570	$ 6,177.26	97%	$ 6,003.41
3rd Ridge Pit	-											
Rough Grade	M	CAT D9T Dozer	29.8	ac			2.82	10.6	$ 71.05	$ 2,117.29	97%	$ 2,057.70
Final Grade	G	CAT 16M Motor Grader	29.8	ac			2.66	11.2	$ 57.57	$ 1,715.59	97%	$ 1,667.31
4th Ridge Pit	-											
Rough Grade	M	CAT D9T Dozer	7.0	ac			2.82	2.5	$ 71.05	$ 497.35	97%	$ 483.35
Final Grade	G	CAT 16M Motor Grader	7.0	ac			2.66	2.6	$ 57.57	$ 402.99	97%	$ 391.65
Office/Maintenance/Equipment/Fuel Areas												
Ripping to Alleviate Compaction	P	CAT 16M Motor Grader	3.8	ac			2.90	1.3	$ 52.86	$ 200.87	97%	$ 195.22
Roads & Other Disturbance												
Ripping to Alleviate Compaction	P	CAT 16M Motor Grader	63.4	ac			2.90	21.9	$ 52.86	$ 3,351.32	97%	$ 3,257.00
Totals								**128**		**$ 22,086.34**		**$ 21,464.75**

[1] Wyoming Department of Environmental Quality Land Quality Division, Guideline No. 12, Standardized Reclamation Performance Bond Format and Cost Calculation Methods. Revised November 21, 2019.
[2] RS Means Masterformat City Cost Indexes for 2020. Average for Contractor Equipment from all Wyoming cities (94.87%) compared to Boulder, CO (92.2%).

Table 4: 2020 Detailed Final Reclamation Cost Estimate for Growth Media Application

Growth Media Application													
Reclamation Area/Source	LQD Appendix [1]	Equipment	Quantity		Distance (Ft)	Resistance Grade	Resistance Rolling	Productivity BCY/Hr	Productivity Hours	Operating Costs $/BCY	Operating Costs Total Cost	Location Adjustment [2] Boulder	Location Adjustment [2] Adj Total
Hi-Cal/2nd Ridge Pit	-												
Northeast North Stockpile	C	CAT637G Push-Pull Scraper Fleet	16,231	cy	1,500	0%	4%	436	37	$ 0.871	$ 14,137.20	97%	$ 13,739.33
Northeast Middle Stockpile	C	CAT637G Push-Pull Scraper Fleet	32,329	cy	2,000	0%	4%	389	83	$ 0.977	$ 31,585.43	97%	$ 30,696.50
Northwest Stockpile	C	CAT637G Push-Pull Scraper Fleet	3,369	cy	1,500	0%	4%	436	8	$ 0.871	$ 2,934.40	97%	$ 2,851.81
Hi-Cal Ridge Stockpile	C	CAT637G Push-Pull Scraper Fleet	5,775	cy	1,000	0%	4%	500	12	$ 0.759	$ 4,383.23	97%	$ 4,259.87
3rd Ridge Pit	-												
Northeast Middle Stockpile	C	CAT637G Push-Pull Scraper Fleet	450	cy	2,000	0%	4%	389	1	$ 0.977	$ 439.65	97%	$ 427.28
Northeast South Stockpile	C	CAT637G Push-Pull Scraper Fleet	8,263	cy	1,500	0%	4%	436	19	$ 0.871	$ 7,197.07	97%	$ 6,994.52
Wetland Area Excavation	C	CAT637G Push-Pull Scraper Fleet	7,313	cy	1,000	0%	4%	500	15	$ 0.759	$ 5,550.57	97%	$ 5,394.36
4th Ridge Pit	-												
Wetland Area Excavation	C	CAT637G Push-Pull Scraper Fleet	3,764	cy	500	0%	4%	599	6	$ 0.634	$ 2,386.38	97%	$ 2,319.22
Crusher Stockpile	-												
Reclaimed Area Stripping	C	CAT637G Push-Pull Scraper Fleet	9,437	cy	500	0%	4%	599	16	$ 0.634	$ 5,983.06	97%	$ 5,814.67
Southeast Stockpile	C	CAT637G Push-Pull Scraper Fleet	16,054	cy	2,500	0%	4%	351	46	$ 1.081	$ 17,354.37	97%	$ 16,865.95
Office/Maintenance/Equipment/Fuel Areas	-												
Southeast Stockpile	C	CAT637G Push-Pull Scraper Fleet	2,044	cy	5,000	0%	4%	238	9	$ 1.593	$ 3,256.09	97%	$ 3,164.45
Wetland Area	-												
Wetland Area Excavation	C	CAT637G Push-Pull Scraper Fleet	5,647	cy	500	0%	4%	599	9	$ 0.634	$ 3,580.20	97%	$ 3,479.44
Roads & Other Disturbance	-												
Northeast South Stockpile	C	CAT637G Push-Pull Scraper Fleet	16,433	cy	2,500	0%	4%	351	47	$ 1.081	$ 17,764.07	97%	$ 17,264.12
Southeast Stockpile	C	CAT637G Push-Pull Scraper Fleet	17,446	cy	2,500	0%	4%	351	50	$ 1.081	$ 18,859.13	97%	$ 18,328.36
Wetland Area Excavation	C	CAT637G Push-Pull Scraper Fleet	216	cy	2,500	0%	4%	351	1	$ 1.081	$ 233.50	97%	$ 226.93
Totals			**144,771**	**cy**					**359**		**$ 135,644.35**		**$ 131,826.81**

[1] Wyoming Department of Environmental Quality Land Quality Division, Guideline No. 12, Standardized Reclamation Performance Bond Format and Cost Calculation Methods. Revised November 21, 2019.

[2] RS Means Masterformat City Cost Indexes for 2020. Average for Contractor Equipment from all Wyoming cities (94.87%) compared to Boulder, CO (92.2%).

Table 5: 2020 Detailed Final Reclamation Cost Estimate for Revegetation

Revegetation														
			Materials				Productivity			Operating Costs		Location Adjustment [1]	
Reclamation Area/Task	Acres	Equipment	Product	Rate		$/ac	AC/Hr	Hours	$/AC	Total $/AC	Total Cost	Boulder	Adj Total
Hi-Cal/2nd Ridge Pit													
Seed Bed Preparation [2]	107.3	CAT 16M Motor Grader					2.9	37	$ 52.86	$ 52.86	$ 5,671.88	97%	$ 5,512.25
Fertilizer Application [3]	107.3	Tractor + Broadcaster	Fertilizer (0-45-0)	67	lb/ac	$ 32.43	2.3	47	$ 52.61	$ 85.04	$ 9,124.79	-	$ 9,124.79
Upland Seed Application [3]	107.3	Tractor + Broadcaster	Upland Seed	17	lb/ac	$ 260.51	2.3	47	$ 52.61	$ 313.12	$ 33,597.78	-	$ 33,597.78
Straw Mulch Application [3]	107.3	Tractor + Blower	Straw	2	ton/ac	$ 220.00	0.8	134	$ 151.25	$ 371.25	$ 39,835.13	-	$ 39,835.13
Straw Mulch Crimping [3]	107.3	Tractor + Crimper					2.9	37	$ 41.75	$ 41.75	$ 4,479.78	-	$ 4,479.78
3rd Ridge Pit (minus wetland)													
Seed Bed Preparation [2]	25	CAT 16M Motor Grader					2.9	9	$ 52.86	$ 52.86	$ 1,321.50	97%	$ 1,284.31
Fertilizer Application [3]	25	Tractor + Broadcaster	Fertilizer (0-45-0)	67	lb/ac	$ 32.43	2.3	11	$ 52.61	$ 85.04	$ 2,126.00	-	$ 2,126.00
Upland Seed Application [3]	25	Tractor + Broadcaster	Upland Seed	16	lb/ac	$ 260.51	2.3	11	$ 52.61	$ 313.12	$ 7,828.00	-	$ 7,828.00
Straw Mulch Application [3]	25	Tractor + Blower	Straw	2	ton/ac	$ 220.00	0.8	31	$ 151.25	$ 371.25	$ 9,281.25	-	$ 9,281.25
Straw Mulch Crimping [3]	25	Tractor + Crimper					2.9	9	$ 41.75	$ 41.75	$ 1,043.75	-	$ 1,043.75
4th Ridge Pit													
Seed Bed Preparation [2]	2.3	CAT 16M Motor Grader					2.9	1	$ 52.86	$ 52.86	$ 121.58	97%	$ 118.16
Fertilizer Application [3]	2.3	Tractor + Broadcaster	Fertilizer (0-45-0)	67	lb/ac	$ 32.43	2.3	1	$ 52.61	$ 85.04	$ 195.59	-	$ 195.59
Upland Seed Application [3]	2.3	Tractor + Broadcaster	Upland Seed	16	lb/ac	$ 260.51	2.3	1	$ 52.61	$ 313.12	$ 720.18	-	$ 720.18
Straw Mulch Application [3]	2.3	Tractor + Blower	Straw	2	ton/ac	$ 220.00	0.8	3	$ 151.25	$ 371.25	$ 853.88	-	$ 853.88
Straw Mulch Crimping [3]	2.3	Tractor + Crimper					2.9	1	$ 41.75	$ 41.75	$ 96.03	-	$ 96.03
Crusher Stockpile													
Seed Bed Preparation [2]	47.4	CAT 16M Motor Grader					2.9	16	$ 52.86	$ 52.86	$ 2,505.56	97%	$ 2,435.05
Fertilizer Application [3]	47.4	Tractor + Broadcaster	Fertilizer (0-45-0)	67	lb/ac	$ 32.43	2.3	21	$ 52.61	$ 85.04	$ 4,030.90	-	$ 4,030.90
Upland Seed Application [3]	47.4	Tractor + Broadcaster	Upland Seed	16	lb/ac	$ 260.51	2.3	21	$ 52.61	$ 313.12	$ 14,841.89	-	$ 14,841.89
Straw Mulch Application [3]	47.4	Tractor + Blower	Straw	2	ton/ac	$ 220.00	0.8	59	$ 151.25	$ 371.25	$ 17,597.25	-	$ 17,597.25
Straw Mulch Crimping [3]	47.4	Tractor + Crimper					2.9	16	$ 41.75	$ 41.75	$ 1,978.95	-	$ 1,978.95
Mt George Stockpile													
Seed Bed Preparation [2]	22.9	CAT 16M Motor Grader					2.9	8	$ 52.86	$ 52.86	$ 1,210.49	97%	$ 1,176.43
Fertilizer Application [3]	22.9	Tractor + Broadcaster	Fertilizer (0-45-0)	67	lb/ac	$ 32.43	2.3	10	$ 52.61	$ 85.04	$ 1,947.42	-	$ 1,947.42
Upland Seed Application [3]	22.9	Tractor + Broadcaster	Upland Seed	16	lb/ac	$ 260.51	2.3	10	$ 52.61	$ 313.12	$ 7,170.45	-	$ 7,170.45
Straw Mulch Application [3]	22.9	Tractor + Blower	Straw	2	ton/ac	$ 220.00	0.8	29	$ 151.25	$ 371.25	$ 8,501.63	-	$ 8,501.63
Straw Mulch Crimping [3]	22.9	Tractor + Crimper					2.9	8	$ 41.75	$ 41.75	$ 956.08	-	$ 956.08
Topsoil Stockpiles													
Seed Bed Preparation [2]	27.7	CAT 16M Motor Grader					2.9	10	$ 52.86	$ 52.86	$ 1,464.22	97%	$ 1,423.01
Fertilizer Application [3]	27.7	Tractor + Broadcaster	Fertilizer (0-45-0)	67	lb/ac	$ 32.43	2.3	12	$ 52.61	$ 85.04	$ 2,355.61	-	$ 2,355.61
Upland Seed Application [3]	27.7	Tractor + Broadcaster	Upland Seed	16	lb/ac	$ 260.51	2.3	12	$ 52.61	$ 313.12	$ 8,673.42	-	$ 8,673.42
Straw Mulch Application [3]	27.7	Tractor + Blower	Straw	2	ton/ac	$ 220.00	0.8	35	$ 151.25	$ 371.25	$ 10,283.63	-	$ 10,283.63
Straw Mulch Crimping [3]	27.7	Tractor + Crimper					2.9	10	$ 41.75	$ 41.75	$ 1,156.48	-	$ 1,156.48

[2] RS Means Masterformat City Cost Indexes for 2020. Average for Contractor Equipment from all Wyoming cities (94.87%) compared to Boulder, CO (92.2%).
[2] Wyoming Department of Environmental Quality Land Quality Division, Guideline No. 12, Standardized Reclamation Performance Bond Format and Cost Calculation Methods. Revised November 21, 2019.
[3] 2019 Contractor Quote

Table 5 (continued): 2020 Detailed Final Reclamation Cost Estimate for Revegetation

Revegetation														
			Materials				Productivity			Operating Costs		Location Adjustment [1]	
Reclamation Area/Task	Acres	Equipment	Product	Rate		$/ac	AC/Hr	Hours	$/AC	Total $/AC	Total Cost	Boulder	Adj Total
Office/Maintenance/Equipment/Fuel Areas													
Seed Bed Preparation [2]	3.8	CAT 16M Motor Grader					2.9	1	$ 52.86	$ 52.86	$ 200.87	97%	$ 195.21
Fertilizer Application [3]	3.8	Tractor + Broadcaster	Fertilizer (0-45-0)	67	lb/ac	$ 32.43	2.3	2	$ 52.61	$ 85.04	$ 323.15	-	$ 323.15
Upland Seed Application [3]	3.8	Tractor + Broadcaster	Upland Seed	16	lb/ac	$ 260.51	2.3	2	$ 52.61	$ 313.12	$ 1,189.86	-	$ 1,189.86
Straw Mulch Application [3]	3.8	Tractor + Blower	Straw	2	ton/ac	$ 220.00	0.8	5	$ 151.25	$ 371.25	$ 1,410.75	-	$ 1,410.75
Straw Mulch Crimping [3]	3.8	Tractor + Crimper					2.9	1	$ 41.75	$ 41.75	$ 158.65	-	$ 158.65
Wetland Area													
Seed Bed Preparation [2]	20	CAT 16M Motor Grader					2.9	7	$ 52.86	$ 52.86	$ 1,057.20	97%	$ 1,027.45
Fertilizer Application [3]	20	Tractor + Broadcaster	Fertilizer (0-45-0)	67	lb/ac	$ 32.43	2.3	9	$ 52.61	$ 85.04	$ 1,700.80	-	$ 1,700.80
Wetland Seed Application [3]	20	Tractor + Broadcaster	Wetland Seed	4.3	lb/ac	$ 173.60	2.3	9	$ 52.61	$ 226.21	$ 4,524.20	-	$ 4,524.20
Straw Mulch Application [3]	20	Tractor + Blower	Straw	2	ton/ac	$ 220.00	0.8	25	$ 151.25	$ 371.25	$ 7,425.00	-	$ 7,425.00
Straw Mulch Crimping [3]	20	Tractor + Crimper					2.9	7	$ 41.75	$ 41.75	$ 835.00	-	$ 835.00
Conveyor Corridor													
Seed Bed Preparation [2]	4.6	CAT 16M Motor Grader					2.9	2	$ 52.86	$ 52.86	$ 243.16	97%	$ 236.31
Fertilizer Application [3]	4.6	Tractor + Broadcaster	Fertilizer (0-45-0)	67	lb/ac	$ 32.43	2.3	2	$ 52.61	$ 85.04	$ 391.18	-	$ 391.18
Upland Seed Application [3]	4.6	Tractor + Broadcaster	Upland Seed	16	lb/ac	$ 260.51	2.3	2	$ 52.61	$ 313.12	$ 1,440.35	-	$ 1,440.35
Straw Mulch Application [3]	4.6	Tractor + Blower	Straw	2	ton/ac	$ 220.00	0.8	6	$ 151.25	$ 371.25	$ 1,707.75	-	$ 1,707.75
Straw Mulch Crimping [3]	4.6	Tractor + Crimper					2.9	2	$ 41.75	$ 41.75	$ 192.05	-	$ 192.05
Roads & Other Disturbance													
Seed Bed Preparation [2]	63.4	CAT 16M Motor Grader					2.9	22	$ 52.86	$ 52.86	$ 3,351.32	97%	$ 3,257.01
Fertilizer Application [3]	63.4	Tractor + Broadcaster	Fertilizer (0-45-0)	67	lb/ac	$ 32.43	2.3	28	$ 52.61	$ 85.04	$ 5,391.54	-	$ 5,391.54
Upland Seed Application [3]	63.4	Tractor + Broadcaster	Upland Seed	16	lb/ac	$ 260.51	2.3	28	$ 52.61	$ 313.12	$ 19,851.81	-	$ 19,851.81
Straw Mulch Application [3]	63.4	Tractor + Blower	Straw	2	ton/ac	$ 220.00	0.8	79	$ 151.25	$ 371.25	$ 23,537.25	-	$ 23,537.25
Straw Mulch Crimping [3]	63.4	Tractor + Crimper					2.9	22	$ 41.75	$ 41.75	$ 2,646.95	-	$ 2,646.95
Revegetation Maintenance													
Re-seeding	10%	Failure rate									$ 27,854.99		$ 27,806.73
Totals	**324.4**						**918.0**				**$ 106,590.30**		**$ 106,405.47**

[2] RS Means Masterformat City Cost Indexes for 2020. Average for Contractor Equipment from all Wyoming cities (94.87%) compared to Boulder, CO (92.2%).
[2] Wyoming Department of Environmental Quality Land Quality Division, Guideline No. 12, Standardized Reclamation Performance Bond Format and Cost Calculation Methods. Revised November 21, 2019.
[3] 2019 Contractor Quote

Table 6: 2020 Detailed Final Reclamation Cost Estimate for Demolition

Item	Dimensions L	W	H	Quantity Qty	SF	CF	CY	Ton	Demolition [1] $/unit		Total	Disposal [1] $/CY	Total	Landfill [1] $/ton	Total	Total Cost	Adjusted Cost [2]
Concrete (On-site Disposal)																	
Fuel Island	40	52	1	1	2,080	2,080	77		0.81	$/sf	$ 1,684.80	$ 8.87	$ 683.32			$ 2,368.12	$ 2,207.09
Fuel Island	20	30	1	1	600	600	22		0.81	$/sf	$ 486.00	$ 8.87	$ 197.11			$ 683.11	$ 636.66
Office Trailer Foundation	51	13	1	1	663	663	25		0.81	$/sf	$ 537.03	$ 8.87	$ 217.81			$ 754.84	$ 703.51
Break Room Trailer Foundation	51	13	1	1	663	663	25		0.81	$/sf	$ 537.03	$ 8.87	$ 217.81			$ 754.84	$ 703.51
Trailer Steps	10	14	1	2	280	280	10		0.81	$/sf	$ 226.80	$ 8.87	$ 91.99			$ 318.79	$ 297.11
Maintenance Building Pad	25	13	1	1	325	325	12		0.81	$/sf	$ 263.25	$ 8.87	$ 106.77			$ 370.02	$ 344.86
Crusher Slab	35	31	1	1	1,085	1,085	40		0.81	$/sf	$ 878.85	$ 8.87	$ 356.44			$ 1,235.29	$ 1,151.29
Conveyor Supports	6	2	6	457	5,484	32,904	1,219		0.81	$/sf	$ 4,442.04	$ 8.87	$ 10,809.57			$ 15,251.61	$ 14,214.50
Structures																	
Fuel Tank [3]	28	16	16	1	448	7,168	265	15	0.3	$/cf	$ 2,150.40	$ 10.55	$ 2,800.83	$ 74.00	$ 1,073.00	$ 6,024.23	$ 5,614.58
Trailer Office [4]	50	12	9	1	600	5,400	200	7.0	0.3	$/cf	$ 1,620.00	$ 10.55	$ 2,110.00	$ 74.00	$ 518.00	$ 4,248.00	$ 3,959.14
Trailer Break Room [4]	50	12	9	1	600	5,400	200	7.0	0.3	$/cf	$ 1,620.00	$ 10.55	$ 2,110.00	$ 74.00	$ 518.00	$ 4,248.00	$ 3,959.14
Maintenance Building [5]	40	68	30	1	2,720	81,600	3,022	731	0.3	$/cf	$ 24,480.00	$ 10.55	$ 31,884.44	$ 74.00	$ 54,121.96	$ 110,486.40	$ 102,973.32
Maintenance Building [5]	25	13	10	1	325	3,250	120	29	0.3	$/cf	$ 975.00	$ 10.55	$ 1,269.91	$ 74.00	$ 2,155.59	$ 4,400.50	$ 4,101.27
Crusher Metal Roof [3]	23	35	30	1	805	24,150	894	101	0.3	$/cf	$ 7,245.00	$ 10.55	$ 9,436.39	$ 74.00	$ 7,446.25	$ 24,127.64	$ 22,486.96
Conveyor System [3]	9,718	4	4	1	38,872	155,488	5,759	648	0	$/cf	$ 46,646.40	$ 10.55	$ 60,755.50	$ 74.00	$ 47,942.13	$ 155,344.03	$ 144,780.64
Conveyor Walkways [3]	2558	3	4	1	7,674	30,696	1,137	128	0.3	$/cf	$ 9,208.80	$ 10.55	$ 11,994.18	$ 74.00	$ 9,464.60	$ 30,667.58	$ 28,582.18
Conveyor Structure [3]			20	2	327	6,540	242	27	0.3	$/cf	$ 1,962.00	$ 10.55	$ 2,555.44	$ 74.00	$ 2,016.50	$ 6,533.94	$ 6,089.64
Conveyor Structure [3]			12	3	720	8,640	320	36	0.3	$/cf	$ 2,592.00	$ 10.55	$ 3,376.00	$ 74.00	$ 2,664.00	$ 8,632.00	$ 8,045.02
Conveyor Structure [3]			6	4	638	3,828	142	16	0.3	$/cf	$ 1,148.40	$ 10.55	$ 1,495.76	$ 74.00	$ 1,180.30	$ 3,824.46	$ 3,564.39
Conveyor Structure [3]			6	5	469	2,814	104	12	0.3	$/cf	$ 844.20	$ 10.55	$ 1,099.54	$ 74.00	$ 867.65	$ 2,811.39	$ 2,620.22
Conveyor Structure [3]			12	6	583	6,996	259	29	0.3	$/cf	$ 2,098.80	$ 10.55	$ 2,733.62	$ 74.00	$ 2,157.10	$ 6,989.52	$ 6,514.23
Conveyor Structure [3]			12	7	644	7,728	286	32	0.3	$/cf	$ 2,318.40	$ 10.55	$ 3,019.64	$ 74.00	$ 2,382.80	$ 7,720.84	$ 7,195.83
Conveyor Structure [3]			20	8	696	13,920	516	58	0.3	$/cf	$ 4,176.00	$ 10.55	$ 5,439.11	$ 74.00	$ 4,292.00	$ 13,907.11	$ 12,961.43
Conveyor Structure [3]			12	9	556	6,672	247	28	0.3	$/cf	$ 2,001.60	$ 10.55	$ 2,607.02	$ 74.00	$ 2,057.20	$ 6,665.82	$ 6,212.55
Conveyor Buried Section [6]	160							12	5.6	$/lf	$ 896.00	$ 10.55	$ -	$ 74.00	$ 888.00	$ 1,784.00	$ 1,662.69
Totals											**$ 121,038.80**		**$ 157,368.20**		**$ 141,745.08**	**$ 420,152.09**	**$ 391,581.74**

[1] Appendix K, Wyoming Department of Environmental Quality Land Quality Division, Guideline No. 12, Standardized Reclamation Performance Bond Format and Cost Calculation Methods. Revised November 21, 2019.

[2] RS Means Masterformat City Cost Indexes for 2020 for Demolition in Boulder, CO (93.2%).

[3] Tons per cubic yard for ferrous metal estimated from Volume-to-Weight Conversion Factors U.S. Environmental Protection Agency Office of Resource Conservation and Recovery April 2016. https://www.epa.gov/sites/production/files/2016-04/documents/volume_to_weight_conversion_factors_memorandum_04192016_508fnl.pdf

[4] Tons estimated from values found on https://www.mobileofficepros.com.

[5] Tons per cubic yard for bulk construction and demolition materials estimated from Volume-to-Weight Conversion Factors U.S. Environmental Protection Agency Office of Resource Conservation and Recovery April 2016. https://www.epa.gov/sites/production/files/2016-04/documents/volume_to_weight_conversion_factors_memorandum_04192016_508fnl.pdf

[6] Tons estimated from values found on https://www.metalculverts.com

Hi-Cal &
2nd Ridge Pit

4th
Ridge
Pit

3rd
Ridge
Pit

Crusher
Waste Rock
Stockpile

Crusher

Mt George
Waste Rock
Stockpile

Fuel
Island

Office/
Maintenance
Area

Equipment
Storage

Active Mining Disturbance
Reclamation In Progress
Reclaimed
Growth Media Stockpile
Conveyor Corridor
Roads & Other Disturbance

Affected Area Boundary
Primary Pit Boundary
Waste Rock Stockpile
Permit Boundary
Dowe Flats Property Boundary

Conveyor
Buried Conveyor
Structure

2019 NAIP Imagery from Natural
Resources Conservation Service
https://nrcs.app.box.com/v/gateway

N

0 1,000 2,000 4,000 Feet

1 inch = 475 feet

DOWE FLATS QUARRY

M-1993-041

Figure 1: Affected Area Status Map TR-04

CEMEX

Habitat Management

Date: 3/20/2020

Drawn by: RFB

REVISIONS

Adjacent Property Owners

1 - Cemex, Inc., 1501 Belvedere Rd, West Palm Beach, FL 33406
2 - County of Boulder, 5201 St Vrain Rd Bldg 1, Longmont, CO 80503
3 - Bnsf Railway Company, 2500 Lou Menk Dr, Fort Worth, TX 76161
4 - Brenner Gary R & Shirley E H (Jt), 13197 N 53rd St, Longmont, CO 80503
5 - City of Longmont, 350 Kimbark St, Longmont, CO 80501
6 - Jones James R Jr Trust Fund B, 4708 Highland Dr, Longmont, CO 80503
7 - Jones Mary Colleen, 4708 Highland Dr, Longmont, CO 80503
8 - Mccain Gene Edward & Lynn Marie, 5099 Ute Hwy 66, Longmont, CO 80503
9 - Neuschaefer John & Kandy Tigerman, PO Box 1473, Lyons, CO 80540
10 - Northern Colorado Water Conservancy District, 220 Water Ave, Berthoud, CO 80513
11 - Poudre Valley Rural Electric Association, PO Box 272550, Fort Collins, CO 80527
12 - Rocking R Ranch Llc, 5880 Butte Mill Rd , Boulder, CO 80301
13 - Round Mountain Horse Ranch Llc, PO Box 9100, Boulder, CO 80301
14 - Shady Lanes MHP, PO Box 1621, Lyons, CO 80540
- Ernst Beverly A, PO Box 1621, Lyons, CO 80540
- Ernst Beverly A Trust, 4858 Highland Dr, Longmont, CO 80503
- Freeman Richard, 4858 Highland Dr Spc 12, Longmont, CO 80503
- Meyers Judd & Janine K, 4858 Highland Dr Spc 1 , Longmont, CO 80503
- Naeve William C & Rebecca J, 4858 Highland Dr Spc 5 , Longmont, CO 80503
- Schowalter Wilma, 4858 Highland Dr Spc 4 , Longmont, CO 80503
- Sinclair Walt Lee & Tracie L, 4858 Highland Dr Spc 11, Longmont, CO 80503
- Soenksen Steven K & Lola Jean, PO Box 641, Lyons, CO 80540
15 - Sivy William J & Abby M, 5595 Ute Rd , Longmont, CO 80503
16 - Stonebridge Trust, 5169 Ute Hwy, Longmont, CO 80503
17 - U S Government, Washington, DC 20001
18 - Wall Jerilyn Dianne & Margaret L Toteve, 13151 N 61st St , Longmont, CO 80503

Permanent Structure	Owner
County Roads	County of Boulder 5201 St Vrain Rd Bldg 1 Longmont, CO 80503
Highway 66	Colorado Department of Transportation 2829 W Howard Pl Denver, CO 80204
Railroad Tracks	BNSF Railway Company 2500 Lou Menk Dr Fort Worth, TX 76161
Water Pipelines	City of Longmont 350 Kimbark St Longmont, CO 80501
Natural Gas Pipelines	Public Service Co. of Colorado 2070 S Valentia St Denver, CO 80231
Powerlines	Poudre Valley Rural Electric Association PO Box 272550 Fort Collins, CO 80527
Highland Ditch	Highland Ditch Co. 4309 State Highway 66 Longmont, CO 80504
Palmerton Ditch	Palmerton Consolidated Ditch 12788 N. 66th Street Longmont, CO 80503
Rough & Ready Ditch	Rough and Ready Ditch Co. P.O. Box 1826 Longmont, CO 80504
Smead Ditch	Smead Ditch Co. 5471 Hygiene Road Longmont, CO 80503
Supply Ditch	Supply Ditch Co. P.O. Box 1826 Longmont, CO 80504
Private Out Buildings	Brenner Gary R & Shirley E H 13197 N 53rd St Longmont, CO 80503
Well Permits	Western Mobile PO Box 21588 Denver, CO 80221

Hi-Cal & 2nd Ridge Pit
4th Ridge Pit
3rd Ridge Pit
Crusher Waste Rock Stockpile
Mt George Wate Rock Stockpile
Crusher
Fuel Island
Office/ Maintenance Area
Equipment Storage
N 53rd St
CO Hwy 66
US Hwy 36
Saint Vrain Creek
South Branch
Supply Ditch
Rough and Ready Ditch
Highland Ditch
Palmerton Ditch
Smead Ditch
Swede Ditch
Boulder Feeder Canal
Sixteen Ditch
Clough & True Ditch
180198
180181

Public Road
Private Road
Railroad
Pipeline
Overhead Powerline
Perennial Stream
Intermittent Stream
Ditch
Well Permit
Conveyor
Buried Conveyor
Current Topography (Jan 2019, 5-ft interval)
Structure
PLSS Section
Adjacent Surface Owners
Overlap with Permit M-1977-208
Affected Area Boundary
Permit Boundary
Dowe Flats Property Boundary
Primary Pit Boundary
Waste Rock Stockpile

N

0 1,000 2,000 4,000 Feet

1 inch = 475 feet

DOWE FLATS QUARRY
M-1993-041

Figure 2: Mining Plan Map TR-04

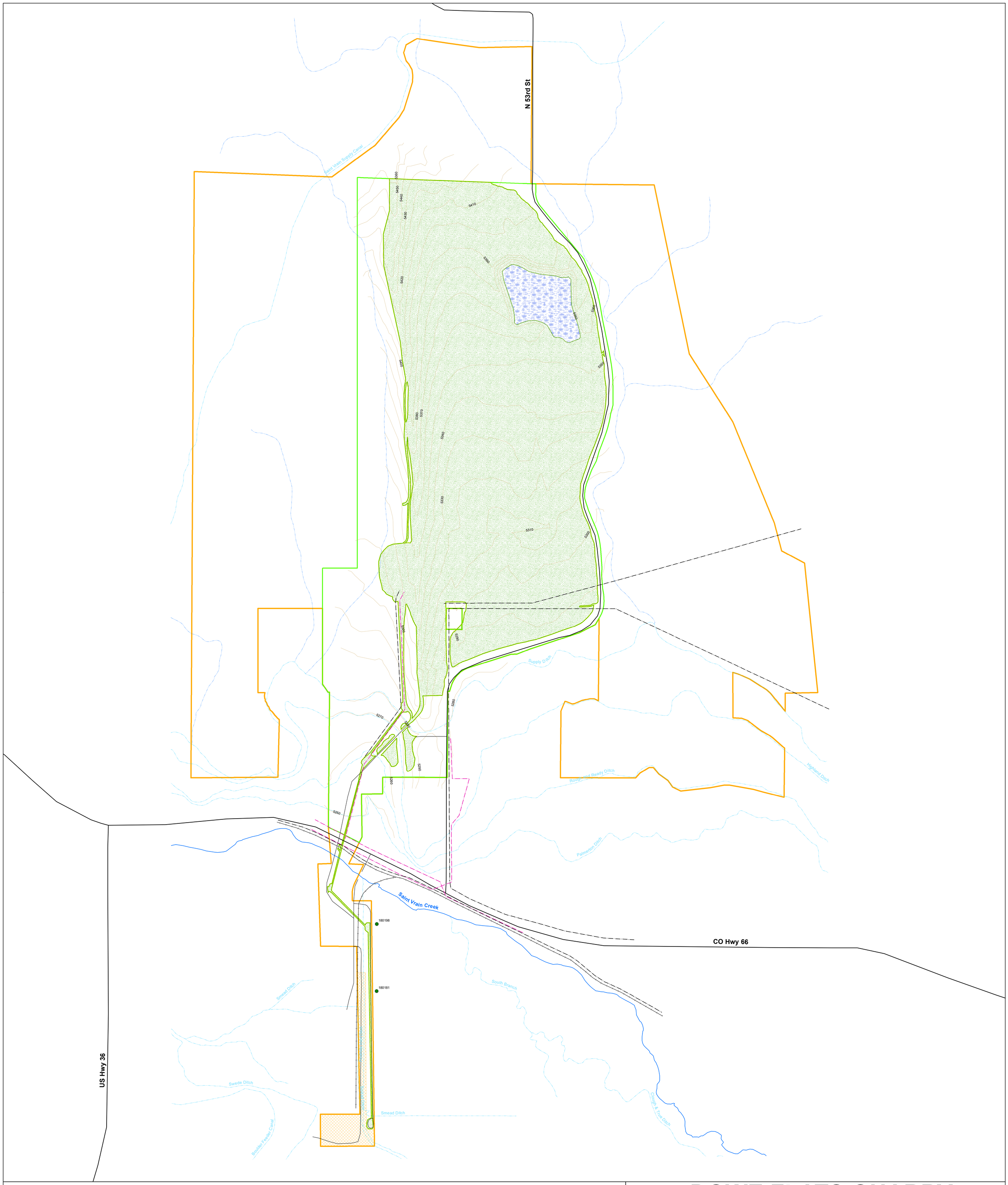
CEMEX

Habitat Management

Date: 3/20/2020

Drawn by: RFB

REVISIONS



DOWE FLATS QUARRY

M-1993-041

Figure 3: Reclamation Plan Map TR-04

CEMEX

Habitat Management

Date: 3/20/2020

Drawn by: RFB

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