

**APPENDIX D**  
BROWN AND CALDWELL TECHNICAL MEMORANDUM  
OCTOBER 12, 2020





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# Technical Memorandum

Prepared for: RMC Pacific Materials, LLC (“CEMEX”)

Project Title: Eliot Quarry Reclamation Plan Amendment, Arroyo del Valle Realignment Project

Project No.: 153842

## Technical Memorandum

Subject: Surface Mining and Reclamation Act (SMARA), California Code of Regulations (CCR) §3706(d)

Date: October 12, 2020

To: Yasha Saber, Compass Land Group

From: Nathan Foged, Brown and Caldwell

Copy to: Steve Grace, CEMEX  
Andrew Kopania, EMKO Environmental

## Summary

CEMEX submitted a Reclamation Plan Amendment (RPA) for the Eliot Facility in Livermore, California. The County of Alameda (County) Community Development Agency (CDA) and its contract environmental impact report preparer, Benchmark Resources (Benchmark), reviewed several of the technical studies from the RPA, including the *Hydraulic Design Study* completed by Brown and Caldwell (BC, 2020). Benchmark asked CEMEX to confirm that stormwater drainage and erosion control measures planned for the Eliot Facility comply with Surface Mining and Reclamation Act (SMARA), California Code of Regulations (CCR) §3706(d):

### **§ 3706.**

#### ***Performance Standards for Drainage, Diversion Structures, Waterways, and Erosion Control***

*(d) Surface runoff and drainage from surface mining activities shall be controlled by berms, silt fences, sediment ponds, revegetation, hay bales, or other erosion control measures, to ensure that surrounding land and water resources are protected from erosion, gullyng, sedimentation and contamination. Erosion control methods shall be designed to handle runoff from not less than the 20 year/1 hour intensity storm event.*

BC reviewed the work completed for the *Hydraulic Design Study*, as well as supporting calculations for the design of the *Arroyo del Valle Realignment Project* and found that project elements fundamentally comply with the 20-year, 1-hour storm event requirement specified by SMARA CCR §3706(d), even though different design criteria were used. Table 1 provides a summary of these findings.

### **Limitations:**

*This document was prepared solely for CEMEX, Inc. in accordance with professional standards at the time the services were performed and in accordance with the contract between CEMEX, Inc. and Brown and Caldwell dated December 1, 2016. This document is governed by the specific scope of work authorized by CEMEX, Inc.; it is not intended to be relied upon by any other party except for regulatory authorities contemplated by the scope of work. We have relied on information or instructions provided by CEMEX, Inc. and other parties and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.*

**Table 1. Comparison of project elements with SMARA CCR §3706(d)**

Project	Element	Design criterion	Compared with 20-year, 1-hour storm event
ADV realignment	Stormwater drainage ditches and inlets	15-year peak rainfall intensity per Alameda County standards	15-year peak rainfall intensity is slightly less than a 20-year peak rainfall intensity. However, we have confirmed that the sizing remains the same. <sup>1</sup>
ADV realignment	Arroyo del Valle stream channel	Historical range of stream flows were used to balance sediment and maintain channel function and stability.	The full range of stream flows analyzed (roughly 0.01 to 1,000 cfs) includes discharges resulting from a 20-year, 1-hour event.
ADV realignment	Floodplain and protection for outer embankments (barbs)	100-year discharge in Arroyo del Valle	100-year >> 20-year, 1-hour event
ADV realignment	Temporary erosion control measures	Design Key Notes: (1) Erosion control facilities shall be installed and maintained according to the technical standards and specifications of Alameda county. (2) This suggested erosion control plan is intended to provide conceptual erosion control BMP for the contractor's consideration. (3) Contractor is responsible for submitting final erosion control, dewatering, materials management and sequencing plans to Alameda County prior to construction start.	A 20-year, 1-hour design storm criterion does not change the recommended erosion control BMPs.
ADV realignment	Lateral pipe entry to earth channel (pipes from Vineyard)	Standard details provided by Zone 7 (SF605)	Runoff comes from south side of Vineyard avenue not mine site and enters into ADV realignment channel that is adequately designed for the 20-year/1-hour storm event.
Lake A diversion structure	Overflow, bypass, diversion, etc.	Zone 7, water management criteria for diversion and by pass flows	Concept design does not have elements that manage drainage/runoff from surface mining activities.
Lake B overflow	Riprap slope protection	Probable maximum precipitation (PMP)	PMP >> 20-year, 1-hour event.

1. BC updated the rainfall intensity in their supporting calculations to use the 20-year intensity. The intensity increased from 3.1 in/hr for the 15-year event to 3.28 in/hr for the 20-year event. This led to a change in the peak runoff rate from 3.25 cfs to 3.50 cfs using the County's calculator worksheet. However, this small increase does not change the size of the v-ditch.