Staff Report to the Planning Commission

Application Number: 28372

Applicant: RMC Pacific Materials, LLC
Owner: RMC Pacific Materials, LLC
APN: 058-022-09, -10, -14, -16, 058-071-06

Agenda Date: February 24, 2021
Agenda Item #: 7
Time: After 9:30 a.m.

Site Address: 700 Highway 1, Davenport

Project Description
Proposal to implement the final north cement kiln dust (CKD) area closure plan at the former Davenport Cement Plant as required by the Central Coast Regional Water Quality Control Board.

Location: Property located on the north side of Highway 1 on the site of the former cement plant adjacent the town of Davenport.

Permits Required: Coastal Development Permit, Riparian Exception, Grading Permit

Supervisorial District: 3rd District (District Supervisor: Ryan Coonerty)

Staff Recommendation

- Adopt the attached Mitigated Negative Declaration (Exhibit A) per the requirements of the California Environmental Quality Act.
- Approve Application 28372, based on the attached findings (Exhibit C) and conditions (Exhibit D).

Exhibits

A. Mitigated Negative Declaration and Initial Study also available for viewing at this link: https://www.sccoplanning.com/PlanningHome/Environmental/CEQAInitialStudiesEIRs/CEQADocumentsOpenforPublicReview.aspx
B. Project Plans
C. Findings
D. Conditions
E. Mitigation Monitoring and Reporting Program
F. Comments & Correspondence

Project Description & Setting

The proposed Project is the closure of the North Cement Kiln Dust (CKD) landfill located at the former Davenport Cement Plant at 700 Highway 1, immediately north of the Davenport community and south of New Town in northern unincorporated Santa Cruz County (Exhibit A, Figure 1 and 2). CKD, a byproduct of the cement manufacturing process, was historically placed as fill in what is now called the North CKD Area. In summary, this project would construct an engineered cover and vegetated soil cap with drainage controls to hydrologically isolate the CKD material and prevent surface waters and some groundwater from contacting and interacting with the CKD. This North CKD landfill closure plan follows the similar closure in 1995 of a separate CKD landfill on the site.

Construction of the cement plant began in the late 1800s and included significant modifications to onsite topography, and construction of nearby bridges over steep canyons and a rail spur. Cement production began in 1906 and the facility was the second largest cement plant in the nation. Cement manufacturing at the facility included grinding of source materials, pyro processing, storage of cement products, and storage and disposal of waste products. The facility produced large quantities of CKD as a byproduct of the cement manufacturing process. Although some of the CKD was either reused in the cement process or recycled as an agricultural soil amendment (as lime), most of it was stored or disposed of onsite or on adjacent properties. Starting in the 1950s to approximately 1998 a natural canyon behind the cement manufacturing plant was filled with CKD. The CKD was combined with water and pumped as CKD slurry to a series of temporary basins of various sizes located on top of the existing CKD piles, where the CKD slurry was allowed to dry and solidify, forming cemented layers resistant to percolation and erosion.

In February 2018, the Regional Water Quality Control Board, Central Coast Region (RWQCB) issued Waste Discharge Requirement Order No. R3-2018-0001 (Order) to adopt provisions for closure, post-closure maintenance, and monitoring requirements for the North CKD Area. Together, the Order and the Final North CKD Closure Plan submitted to the RWQCB on April 1, 2018 (Closure Plan) focus on closure of the North CKD Area as a Class II Solid Waste Landfill, as defined by California Code of Regulations Title 27, §20240 and §20250. The primary goal of the Closure Plan is to minimize infiltration of water into the waste, thereby minimizing the production of contaminated leachate and potential groundwater impacts. After closure, a final landfill cover will constitute the principal waste containment feature for the North CKD Area. The Order currently requires the Applicant to complete final closure construction activities for the North CKD Area before October 1, 2022.

According to the Waste Discharge Requirements Order the CKD waste is alkaline, contains non-hazardous levels of heavy metals, and is caustic with a high pH (>9.5) when in aqueous solution. Low permeability and high porosity where fractured, generally describes the physical properties of dried CKD. CKD is commonly considered similar to agricultural lime and sets up similarly to Portland cement when hydrated. Until dried or if in contact with water, it has the potential to alter water quality by increasing alkalinity and may leach dissolved solids including metals and minerals.

The Project closure activities would occur on approximately 23 acres of the Cement Plant property, located within a larger 43.5-acre Project boundary that also includes access roads, portions of the cement facility, and adjacent lands (Exhibit A, Figure 3). The southern portion of the Project area is owned by RMC Pacific Materials, LLC. The northern portion of the Project area is on property that is owned by Trust for Public Land (TPL), a portion of which is currently leased from The Trust for Public Land (TPL). TPL has provided written authorization for CEMEX to file this application. The Assessor Parcel Numbers are shown in Exhibit A, Figure 4.

A detailed description of the project activities is provided in Exhibit A. In summary, the proposed closure activities include grading the current surface of the North CKD Area so it has the required slope for surface water flow and management, installing a new liner to cap CKD material, reapplying a protective soil cover that includes topsoil, and revegetating with native grasses and plant species. The Project also includes remediation of the Retention Pond (by removing accumulated sediment), located south of the North CKD Area, and drainage improvements in and around the North CKD Area to protect water quality in the area (Exhibit A, Figure 3). Best Management Practices (BMPs) including a Storm Water Pollution Prevention Plan (SWPPP) and Dust Mitigation Plan will be implemented to avoid and minimize potential impacts to sensitive biological resources, to protect water and air quality, and to minimize erosion.

A Coastal Development Permit (CDP) is required because the Project includes development activities in the Coastal Zone. The project includes work in and near hydrologic features such as ponds, wetlands and drainage courses that are regulated by the County Riparian Corridor and Wetland Protection ordinance. Because the project activities are necessary for landfill closure, the ordinance provides for the approval of a Riparian Exception to allow the project activities to occur under certain conditions. A grading permit is required and the overall volume of grading (approximately 165,000 cubic yards) triggers a requirement for Planning Commission review of the project. Pursuant to the California Environmental Quality Act (CEQA), the expected environmental impacts of the project are expected to be less than significant and are documented in the attached Initial Study/Mitigated Negative Declaration (Exhibit A).

Zoning & General Plan Consistency

The Project area is located within unincorporated Santa Cruz County, north of the Davenport community, within the Coastal Zone. The area is zoned for Commercial Agriculture (CA) and Heavy Industry (M-2-L), which is consistent with the former cement manufacturing use. The Historic Landmark (L) designation reflects the presence of several historic buildings associated with the plant, but no buildings would be affected by the project. In summary, the Santa Cruz County General Plan land use and zoning plans, policies and regulations encourage the remediation of hazardous materials sites and improvements to water quality.

Environmental Review

The following paragraphs summarize the key environmental issues from the Initial Study and describe how the project plans and technical reports address each issue along with proposed mitigation measures and conditions of approval.

Water Quality

The Project area includes No-Name Creek, North Pond, seasonal ponds, and a retention pond (Exhibit A, Figure 2). The Project area is also located approximately 0.5 mile south of Agua Puera Creek and approximately 0.5 mile north of San Vicente Creek. The purpose of the Project is to improve the conditions within the Project area to ensure that the CKD is capped and contained to ensure that water bodies and drainages within and adjacent to the Project area are not contaminated by these materials. Though the Project has the potential to generate temporary water quality impacts throughout the implementation of construction activities, the Project has been designed in compliance with the Water Board's Waste Discharge Requirements (Exhibit A, Appendix 7a), which includes an erosion control plan, as required per Santa Cruz County Code (SCCC) 16.22.060. Construction BMPs included within the erosion control plan would minimize impacts to water bodies and drainages within and adjacent to the Project area. Refer to the Detailed Project Description in the Initial Study (Exhibit A, Construction BMPs), the Multi-Season Construction Wet Weather Preparedness Plan (Exhibit A, Appendix 4), and the erosion control plan (Exhibit A, Appendix 8 and Exhibit B, Sheets E1 and E2).

The Waste Discharge Requirements Order also requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP), which includes a description of the Project area, erosion and sediment controls, runoff water quality monitoring, means of waste disposal, implementation of approved local plans, control of construction sediment and erosion control measures, maintenance responsibilities, and non-stormwater management controls. The SWPPP will be filed with the Water Board prior to the start of construction and includes monitoring during qualified storm events.

The Project area includes 15 groundwater monitoring wells associated with the North CKD Area to monitor the effectiveness of closure activities at the retention pond and North CKD Area. Wells would be monitored throughout Project construction and after completion to ensure Project activities do not lead to the contamination of groundwater (Exhibit A, Appendices 7a and 7b). The monitoring program also includes wet season monitoring of stormwater and visual observations of drainage systems. Semi-annual reporting of monitoring results to the RWQCB is required. It is anticipated that the removal of the residual coal and CKD sediments and capping of the North CKD Area would substantially remove source materials that may cause groundwater degradation.

Implementation of the Project in accordance with the Closure Plan would result in an overall improvement to runoff and surface water quality, and groundwater quality would be monitored to ensure that water quality continues to improve over time as hazardous materials are further contained within the Project area and water is conveyed away from the CKD.

Although water would be sprayed from a water truck for dust suppression during construction, water spraying would not be excessive as applying too much water could introduce construction challenges to achieve design compaction for fill materials and may create mud that could be tracked out onto public roadways (Exhibit A, Appendix 5, Dust Mitigation Plan). The water used for dust suppression would not be sourced from onsite groundwater. The construction contractor

would obtain water from existing available sources. Aside from the temporary use of water for dust suppression and short-term (approximately 2 year) irrigation of plants installed at the end of closure activity, water use at the site would not change compared to existing conditions.

The Project Closure Plan was developed in accordance with the Project Hydraulic Analysis (Exhibit A, Appendix 2), Wet Weather Preparedness Plan (Exhibit A, Appendix 4), and Water Board Requirements (Exhibit A, Appendix 7a) that include details that have been included in the Project design and specifications to minimize erosion, sedimentation and water quality impacts. The Hydraulic Analysis also modeled a 24-hour, 1,000-year storm event, for which the Project was designed to convey flows without resulting in flood conditions within or adjacent to the Project area. All proposed improvements to Project area water bodies and drainages would improve both water quality and flooding conditions following project implementation.

Noise

The temporary impacts of construction noise related to the project are analyzed in the Initial Study (Exhibit A, Section M). Because the noise impacts would be temporary and buffered from the nearest residences by distance and in some areas by intervening topography and vegetation, the noise level would not violate County noise standards (SCCC 13.15 Noise Planning). In accordance with SCCC 13.15, construction activities may occur outside of normal construction hours of 8:00 a.m. and 5:00 p.m. on weekdays with approval in advance from the Building Official. It is anticipated that such a request will be made and staff is supporting approval for grading and construction activities to occur during daylight hours starting at 7:00 a.m. or at sunrise, whichever is earlier, and continue no later than 7:00 p.m., and on Saturdays between 9:00 a.m. and 5:00 p.m. and no more than three Saturdays per month. Trucking of import fill material would not occur on Saturdays. There a couple of reasons for staff support of the request to work longer than normal construction hours. Overall, the project would be completed in shorter timeline and any disruption or inconvenience to residents would be shortened. In addition, based on the general prevailing wind conditions in the area that typically increase in the afternoon hours, maximizing work hours in the morning would help to minimize potential dust impacts (see Air Quality discussion below).

Biological Resources

An overview of the habitat types and special status species and potential project-related impacts are described in Exhibit A, Appendix 9, Biotic Assessment Report. Two sensitive habitats, coastal scrub and arroyo willow riparian scrub, occur within the Biological Study Area (Exhibit A, Section D, Figure 6). To the greatest extent feasible, the proposed Closure Plan has been designed to avoid and minimize impacts to biological resources, including sensitive habitats. Closure Plan activities occur primarily within the disturbed habitat of the North CKD landfill area where CKD is mounded, in the adjacent non-native grassland habitat that currently covers portions of the North CKD landfill, and at the Retention Pond, which does not currently provide suitable conditions for most biological resources. The proposed Closure Plan activities would result in temporary and permanent impacts to coastal scrub (Exhibit A, Section D, Table 5a) and arroyo willow riparian scrub (Exhibit A, Section D, Table 5b). The Project's aquatic impacts include impacts to jurisdictional and non-jurisdictional waters. (Exhibit A, Section D, Figure 9).

Implementation of Mitigation Measure BIO-6 (Construction Related Protective and Replacement Measures for Coastal Scrub Habitat), and Mitigation Measure BIO-7 (Construction Related Protective and Replacement Measures for Arroyo Willow Scrub Habitat) and Mitigation Measure BIO-8 (Implement Protective and Replacement Actions for Jurisdictional Wetlands And Waters of The U.S.) would minimize these impacts to a less than significant level.

The following sensitive wildlife species are present within the Biological Study Area: monarch butterfly, California red-legged frog, Allen's hummingbird, northern harrier, white-tailed kite, birds of prey, other nesting common bird species, and common roosting bat species (Exhibit A, Section D, Figure 7). The following sensitive species have potential to occur within the Biological Study Area: American peregrine falcon, olive-sided flycatcher, grasshopper sparrow, western red bat, and San Francisco dusky-footed woodrat. As further described in detail in Exhibit A, Section D Biologic Resources, the construction activities could impact these species if steps are not taken to avoid and mitigate those impacts. Therefore, Mitigation Measures BIO-1 through BIO-5 will be implemented before and during construction to reduce potential impacts to a less than significant level. In summary, the measures will include monitoring by a qualified biologist, preconstruction surveys, avoidance measures, and habitat enhancements.

The full text of Mitigation Measures BIO-1 through BIO8 can be found in Exhibit A, Appendix 12 and in Exhibit E. In addition, the Project requires authorization by State and Federal permitting agencies due to the potential impacts to habitats and sensitive species protected by State and Federal law. The applicant is currently working with these agencies to develop a Mitigation and Management Plan as the basis for their authorization of Project activities as described in Mitigation Measure BIO-8. Prior to any site disturbance, authorization from the United States Army Corps of Engineers, United States Fish and Wildlife Service, and the California Department of Fish and Wildlife (CDFW) is required.

Implementation of the Closure Plan would result in impacts to riparian vegetation, as discussed in the Initial Study (Exhibit A, Section D). The grading associated with the project would affect the two ponds above and below the CKD landfill and the wetland on the eastern margin of the landfill. General Plan Policy 5.2.3 (Activities Within Riparian Corridors and Wetlands) states: "Development activities, land alterations and vegetation disturbance within riparian corridors and wetlands and required buffers shall be prohibited unless an exception is granted per the Riparian Corridor and Wetlands Protection ordinance. Based on the Riparian Exception Findings in Exhibit B and the mitigation measures described above, staff is recommending approval of a Riparian Exception for the project.

Air Quality

Construction activities associated with the Project would result in temporary increases in air pollutant emissions. Project construction emissions were estimated using the CalEEMod Model, version 2016.3.2, based on construction information provided by CEMEX in 2019. Based on the modeling results, the Project is not estimated to generate particulate matter (PM_{10}) levels in exceedance of the Monterey Bay Air Resources District (MBARD) threshold of 82 lb/day during any phase or simultaneous phase of construction (Exhibit A, Section B).

However, it is well known to the applicant, Planning staff, and the community that dust impacts were associated with past operations of the cement plant and there is a concern regarding potential dust impact associated with mass grading operations for this project. Windy conditions are common on the North Coast particularly seasonally and in the afternoon. During the public comment period on the Initial Study residents expressed concern regarding potential dust impacts from the Project. As part of the Project the applicant prepared a Dust Mitigation Plan in conjunction with MBARD (Exhibit A, Appendix 5). In accordance with the Dust Mitigation Plan, the Project includes restricting vehicle speeds to a maximum of 15 miles per hour on site and watering of exposed areas as needed. These restrictions were assumed in the air quality modeling of construction activities, and an off-highway truck was added to the construction fleet in each phase as a proxy for a water truck.

The Dust Mitigation Plan describes monitoring and best practices to prevent dust that might be transported beyond the plant property perimeter and onto occupied properties in the plant vicinity. The plan consists of two parts: (1) dust prevention measures to eliminate dusting prior to its development; and (2) a real-time monitoring network will be implemented to determine locations and times when off-site dust transport might occur so that dust-generating activities and control measures can be optimized.

BMP that will be implemented during the project are described in Section 5, Table 5-1 of the Dust Mitigation Plan. The BMPs include, but are not limited to, standard practices such as using water trucks and sweeper trucks, load covers for offsite transport, on site speed limit, and truck washing. There will also be a designated on-site person available to respond to community complaints and posting of the contact information in the community. Although not included as a BMP in the Dust Mitigation Plan, alternative working hours are proposed in part to help mitigated potential dust impacts (see discussion in Noise section above). These measures will be continuously applied throughout the project, with locations and intensities of application informed by the monitoring program. Adaptive management is part of the Plan and additional measures may be used, if needed.

The monitoring network is further described in Sections 3 and 4 of the Dust Mitigation Plan and will utilize sensors (light-scattering microsensors) that will be located in source and receptor areas to detect dust emissions. These instruments are internet connected so they can be accessed and provide notifications using smartphones, such that the on-site personnel can be alerted to potential dust events. This information will complement, rather than replace, human detection of visible plumes, as not all off-site transport is detected by human observers. With this real-time information, immediate actions can be taken to remediate specific dust generating events without requiring a complete stoppage of work in most instances. Information obtained from the monitoring network will be shared with the MBARD and Planning Department staff.

Objectives of the measurement network are:

- Obtain data before the project starts to develop a meteorology and PM air quality baseline.
- Provide real-time feedback for managing earth-moving activities and minimize off-site movement of dust.
- Develop an understanding of relationships between activities, meteorology, and off-site transport to re-deploy resources that minimize off-site dust movement.
- Together, the Best Management Practices and monitoring network will concurrently work to prevent dust from being transported outside of the property boundary.

The Dust Mitigation Plan is incorporated as part of the project and is required to be fully implemented as such. Therefore, no additional conditions of approval are proposed except for the requirement to share the information obtained from the monitoring network with Planning Department staff in addition to MBARD. The Dust Mitigation Plan includes designation of a Project Director to oversee the BMPs and monitoring network, direct remedial actions, and stop work, if necessary, until remedial actions have been implemented. The Project Director will also receive any complaints from the community and will have the authority to stop work in response to such complaints. Included in the Dust Mitigation Plan BMPs is posting of signs indicating who to call if a nuisance is perceived. Nevertheless, a condition of approval is included that specifies that the contact information shall be posted at the front gate and provided through other community networks.

Transportation

Implementation of the Project would temporarily result in an increase in construction-related traffic on Highway 1 near the main entrance to the plant and on Warnella Road where construction equipment and personnel would enter the Project area. Two onsite existing access roads, one that extends from the southern portion of the Project area to the North CKD Area and another that extends from Warnella Road north of the Project area to the North CKD Area would be used for construction vehicles and equipment (Exhibit A, Figure 2). The two access roads are located entirely within the Project area and are not open to the public.

Construction equipment and materials would be staged onsite (Exhibit A, Figure 3) for the duration of construction to minimize impacts to traffic that would occur through daily trips to and from the site on Highway 1. However, there would be a temporary increase in trips to and from the Project site when fill is being imported for the cover.

Approximately 47,400 cubic yards of fill would be imported from a quarry, sand plant, and/or soil farm located in north Santa Cruz County or San Mateo County (Exhibit A, Section Q). As described in the Air Quality analysis (Exhibit A, Section C, Table 3), liner/cap installation and fill import is assumed to require 6,321 one-way trips, with an average trip length of 18.4 miles, over 100 working days. Therefore, there could be an additional approximately 60 trips (120 roundtrips) on Highway 1 each day during the approximately 100 days fill could be imported to the site.

Existing traffic conditions along Highway 1 are free-flowing, with most vehicular traffic on this portion of Highway 1 occurring on weekends. Project construction would be primarily Monday-

Friday. The increased construction-related traffic could slow traffic traveling on Highway 1 as the trucks enter and leave the site, but the overall conditions of free-flowing traffic along Highway 1 is not expected to change substantially.

During the public comment period for the Initial Study, local residents expressed a concern about the increased truck traffic and the use of Cement Plant Road. There is no need for the truck traffic to use Cement Plant Road, and truck route requirements are clarified in a condition of approval. Truck traffic will be limited to two routes to enter and exit the cement plant site. One route is the main entrance to the plant that exits off of Highway 1. The other route would exit off Highway 1 north of New Town to immediately access Warnella Road, if necessary. Trucks would not be allowed to travel on Cement Plant Road between Davenport and New Town.

Transportation and greenhouse gas emissions impacts are evaluated in terms of increased vehicle miles traveled. As noted above, there would be a temporary increase in vehicle miles traveled (VMT) associated with the fill import. Upon completion of the Project Closure Plan, the number of trips to and from the Project area would remain similar to levels consistent with existing conditions.

Special Community

The project site is located in the Davenport Special Community which requires special consideration of visual resources and historic structures associated with the town. The Project area is located in an area that has been designated as the North Coast General Plan Scenic Area in the County General Plan and is considered to be an area that supports a scenic vista. The rolling grassland hills north of Highway 1 support sweeping views of open space and grazing fields that surround the former Cement Plant.

The proposed closure activities would be temporary in nature and would occur primarily within the developed footprint of the Cement Plant, including the North CKD Area, which is closed to the public and largely not visible from Highway 1 or scenic vistas. Following Project implementation, all disturbed lands would be revegetated with native plants and views within and of the Project area would improve compared to existing conditions. The Project would include construction of a permanent relatively impervious shotcrete slope to cover a portion of the CKD slope that could potentially be partially visible from limited sections of Highway 1. This is not considered a significant impact due to the limited visibility of the shotcrete cover and the overall improvement in visual quality that will result from the project. In addition, the large mound of CKD that is located just above the shotcrete cover would be re-graded into the final, gently sloping topography of the North CKD area landfill cover. This would eliminate the views of this CKD material from the Highway.

Local Coastal Program Consistency

The proposed landfill closure is in conformance with the County's certified Local Coastal Program, in that the structure is sited and designed to be visually compatible, in scale with, and integrated with the character of the surrounding lands. The rolling grassland hills north of Highway 1 support sweeping views of open space and grazing fields that surround the former Cement Plant.

Implementation of the project will create gentle slopes and all disturbed lands would be revegetated with native plants, and the Cement Plant would return to conditions similar to existing conditions, and views within and of the project area would improve compared to existing conditions. The project site is not located between the shoreline and the first public road and is not identified as a priority acquisition site in the County's Local Coastal Program. Consequently, the proposed Project will not interfere with public access to the beach, ocean, or other nearby body of water.

California Environmental Quality Act

Environmental review has been required for the proposed project per the California Environmental Quality Act (CEQA). The project was reviewed by the County's Environmental Coordinator and a preliminary determination to issue a Negative Declaration with Mitigations (Exhibit A) was made on November 4, 2020. The mandatory public comment period was extended based on community feedback and expired on January 22, 2021.

As described above, the environmental review process focused on the potential impacts of the Project in the areas of hydrology and water quality, noise, biological resources, and air quality. In addition, cultural resources were addressed through historical and archaeological research and on-site investigation (Exhibit A, Section E). Based on that work, impacts to historical or archaeologic resources are not expected. However, several additional mitigation measures are proposed to include on-site training of personnel in the event ground disturbing activities reveal previously unknown historical or cultural resources and a requirement to stop work if paleontological resources or human remains are discovered during construction. The environmental review process generated mitigation measures that will reduce potential impacts from the proposed development and adequately address these issues. The mitigation measures are contained in Exhibit A, Appendix 12 and Exhibit E.

Public Outreach/Public Comment

During the environmental review public comment period several comments were received from Davenport residents. The comments and correspondence are contained in Exhibit F. The comments from Davenport residents highlight their concerns regarding issues including but not limited to air quality, traffic and noise. These issues are addressed in the staff report in the relevant sections. In addition, during the public comment period, two virtual community meetings were held on December 10, 2020 and January 20, 2021 to present the project to participants, answer questions from community members, and gather community feedback. Planning Department staff and CEMEX representatives participated in the first meeting organized by the Davenport North Coast Association. The second meeting was organized by CEMEX and publicized in the local community by the DNCA and CEMEX. Planning Department staff and CEMEX representatives participated in both meetings and responded to community questions both during the meeting and in follow-up in written form.

Findings

There are three sets of Findings required for the Development Permit, Coastal Development Permit, and the Riparian Exception. In addition to specific Findings, there are some that are common to all three. In general, the project as conditioned would not be detrimental to the health, safety, or welfare of persons residing or working in the neighborhood or the general public. It would be consistent with the General Plan, Local Coastal Program, and with all County ordinances. The riparian exception is necessary for the proper design and function of the Closure Plan activities proposed for the North CKD landfill and there are no feasible alternatives. Potential impacts to riparian an aquatic resources will be fully mitigated. Please see Exhibit "C" ("Findings") for a complete listing of findings and evidence related to the above discussion.

Conclusion

As proposed and conditioned, the Project is consistent with all applicable codes and policies of the Zoning Ordinance and General Plan/LCP. Based on the Findings, staff is recommending Planning Commission approve the application as stated on the first page of this report.

Supplementary reports and information referred to in this report are on file and available for viewing at the Santa Cruz County Planning Department and are hereby made a part of the administrative record for the proposed project.

The County Code and General Plan, as well as hearing agendas and additional information are available online at: www.sccoplanning.com

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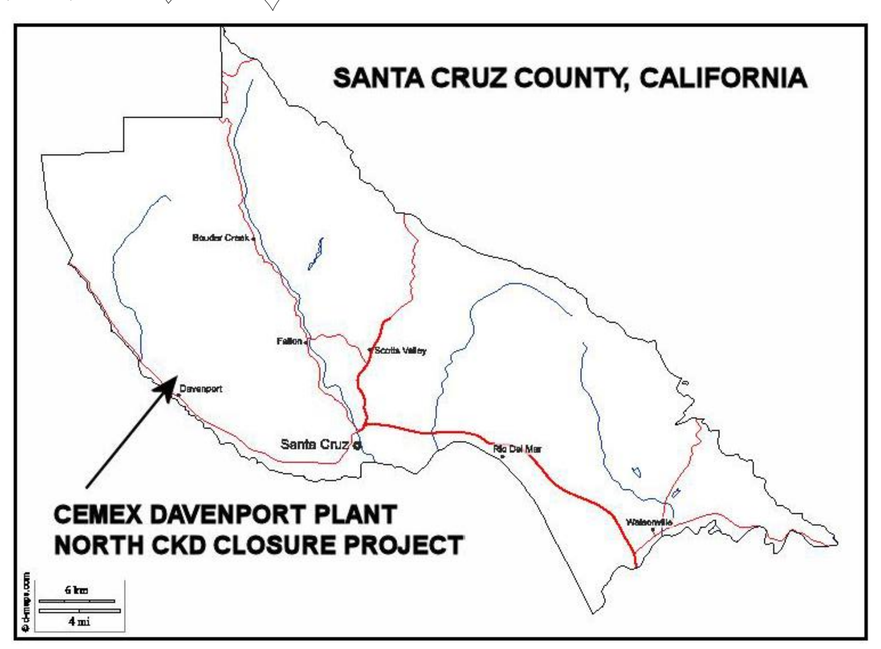
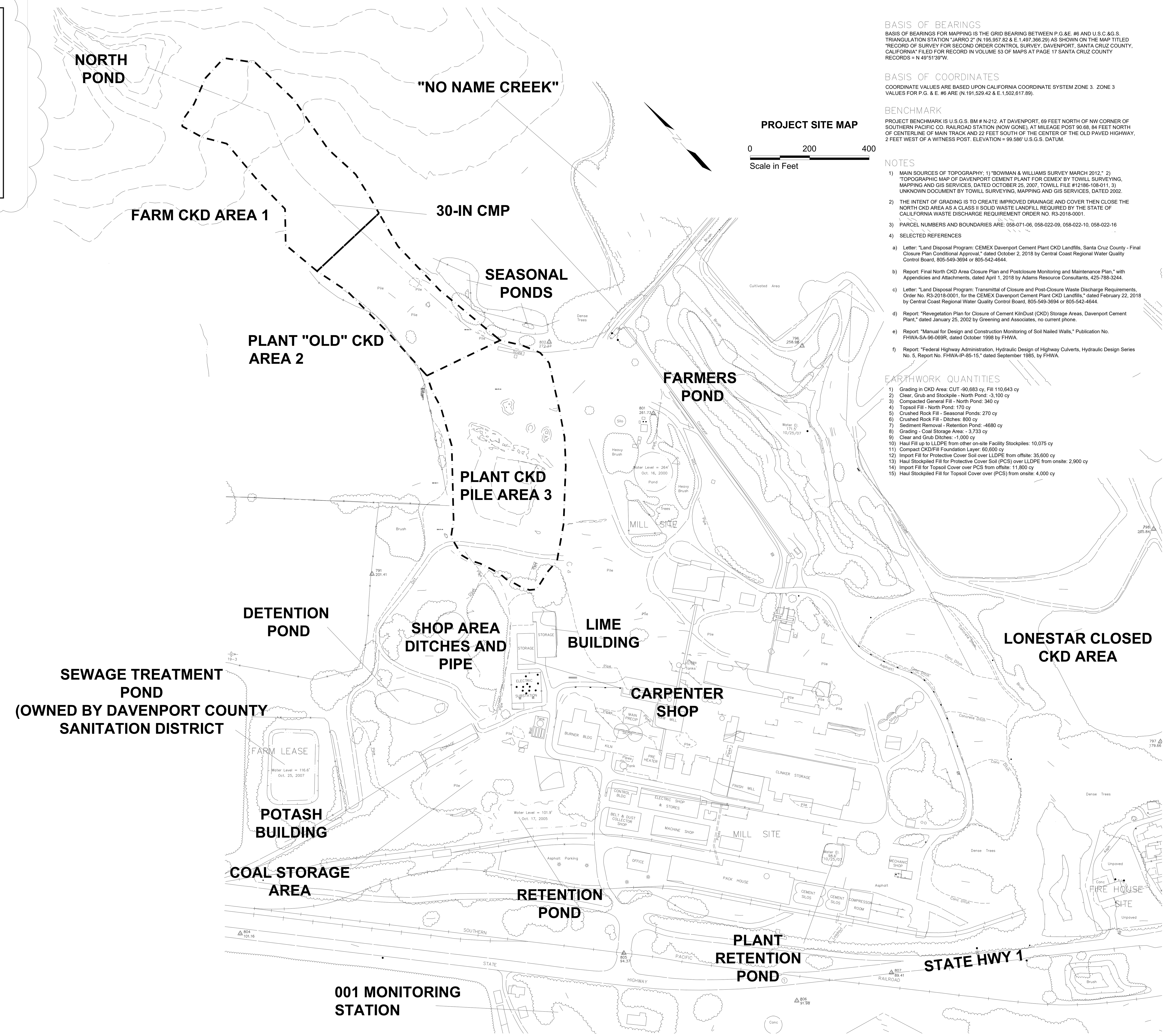
RMC PACIFIC Materials, LLC (CEMEX) DAVENPORT PLANT - DAVENPORT CALIFORNIA

NORTH CEMENT KILN DUST (CKD) AREA CLOSURE



DESIGN PLANS

LIST OF DRAWINGS:



BASIS OF BEARINGS

BASIS OF BEARINGS FOR MAPPING IS THE GRID BEARING BETWEEN P.G.&E. #6 AND U.S.C.&G.S. TRIANGULATION STATION "JARRO 2" (N.195,957.82 & E.1,497,366.29) AS SHOWN ON THE MAP TITLED "RECORD OF SURVEY FOR SECOND ORDER CONTROL SURVEY, DAVENPORT, SANTA CRUZ COUNTY, CALIFORNIA" FILED FOR RECORD IN VOLUME 53 OF MAPS AT PAGE 17 SANTA CRUZ COUNTY RECORDS = N 49°51'39"W.

BASIS OF COORDINATES

COORDINATE VALUES ARE BASED UPON CALIFORNIA COORDINATE SYSTEM ZONE 3. ZONE 3 VALUES FOR P.G. & E. #6 ARE (N.191,529.42 & E.1,502,617.89).

BENCHMARK

PROJECT BENCHMARK IS U.S.G.S. BM # N-212. AT DAVENPORT, 69 FEET NORTH OF NW CORNER OF SOUTHERN PACIFIC CO. RAILROAD STATION (NOW GONE), AT MILEAGE POST 90.68, 84 FEET NORTH OF CENTERLINE OF MAIN TRACK AND 22 FEET SOUTH OF THE CENTER OF THE OLD PAVED HIGHWAY, 2 FEET WEST OF A WITNESS POST. ELEVATION = 99.586' U.S.G.S. DATUM.

NOTES

1) MAIN SOURCES OF TOPOGRAPHY; 1) "BOWMAN & WILLIAMS SURVEY MARCH 2012," 2) 'TOPOGRAPHIC MAP OF DAVENPORT CEMENT PLANT FOR CEMEX' BY TOWILL SURVEYING, MAPPING AND GIS SERVICES, DATED OCTOBER 25, 2007, TOWILL FILE #12186-108-011, 3) UNKNOWN DOCUMENT BY TOWILL SURVEYING, MAPPING AND GIS SERVICES, DATED 2002.
2) THE INTENT OF GRADING IS TO CREATE IMPROVED DRAINAGE AND COVER THEN CLOSE THE NORTH CKD AREA AS A CLASS II SOLID WASTE LANDFILL REQUIRED BY THE STATE OF CALILFORNIA WASTE DISCHARGE REQUIREMENT ORDER NO. R3-2018-0001.
3) PARCEL NUMBERS AND BOUNDARIES ARE: 058-071-06, 058-022-09, 058-022-10, 058-022-16
4) SELECTED REFERENCES
   a) Letter: "Land Disposal Program: CEMEX Davenport Cement Plant CKD Landfills, Santa Cruz County - Final Closure Plan Conditional Approval," dated October 2, 2018 by Central Coast Regional Water Quality Control Board, 805-549-3694 or 805-542-4644.
   b) Report: Final North CKD Area Closure Plan and Postclosure Monitoring and Maintenance Plan," with Appendicies and Attachments, dated April 1, 2018 by Adams Resource Consultants, 425-788-3244.
   c) Letter: "Land Disposal Program: Transmittal of Closure and Post-Closure Waste Discharge Requirements, Order No. R3-2018-0001, for the CEMEX Davenport Cement Plant CKD Landfills," dated February 22, 2018 by Central Coast Regional Water Quality Control Board, 805-549-3694 or 805-542-4644.
   d) Report: "Revegetation Plan for Closure of Cement KilnDust (CKD) Storage Areas, Davenport Cement Plant," dated January 25, 2002 by Greening and Associates, no current phone.
   e) Report: "Manual for Design and Construction Monitoring of Soil Nailed Walls," Publication No. FHWA-SA-96-069R, dated October 1998 by FHWA.
   f) Report: "Federal Highway Administration, Hydraulic Design of Highway Culverts, Hydraulic Design Series No. 5, Report No. FHWA-IP-85-15," dated September 1985, by FHWA.

EARTHWORK QUANTITIES

1) Grading in CKD Area: CUT -90,683 cy, Fill 110,643 cy
2) Clear, Grub and Stockpile - North Pond: -3,100 cy
3) Compacted General Fill - North Pond: 340 cy
4) Topsoil Fill - North Pond: 170 cy
5) Crushed Rock Fill - Seasonal Ponds: 270 cy
6) Crushed Rock Fill - Ditches: 800 cy
7) Sediment Removal - Retention Pond: -4680 cy
8) Grading - Coal Storage Area: - 3,733 cy
9) Clear and Grub Ditches: -1,000 cy
10) Haul Fill up to LLDPE from other on-site Facility Stockpiles: 10,075 cy
11) Compact CKD/Fill Foundation Layer: 60,600 cy
12) Import Fill for Protective Cover Soil over LLDPE from offsite: 35,600 cy
13) Haul Stockpiled Fill for Protective Cover Soil (PCS) over LLDPE from onsite: 2,900 cy
14) Import Fill for Topsoil Cover over PCS from offsite: 11,800 cy
15) Haul Stockpiled Fill for Topsoil Cover over (PCS) from onsite: 4,000 cy

DESIGN	DRAWN	REVIEW	DATE	REV	DESCRIPTION
WCA	WCA	MAH	04/01/18	R3	FINAL REVIEW
WCA	WCA	MAH	12/12/19	C1	FOR BID AND CONSTRUCTION

REGISTERED PROFESSIONAL ENGINEER MATTHEW A. HILLYARD NO. 69967 EXP. 09/30/20 CIVIL STATE OF CALIFORNIA

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c/oYasha Saber-Compass Land Group 916-825-4997
CEMENT KILN DUST (CKD) CLOSURE PLANS
COVER SHEET

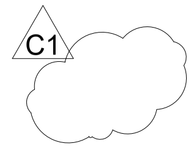
CEMEX

DRAWING NUMBER
SHEET
C1
1 OF 28

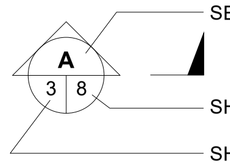
Exhibit B

MASTER DRAWING LEGEND:

- ⊕ D-100 — CONTROL POINT LOCATION AND NUMBER
- ⊘ PZ-6 — MONITORING WELL LOCATION AND NUMBER
- 2.5% — DIRECTION OF SURFACE FLOW AND GRADIENT
- 3% — GRADE DIRECTION (DOWNSLOPE)
- 20+00 — CENTERLINE AND STATION FOR TOP OF GRADE PROFILE
- PROPERTY LINE
- LEASE LINE
- LIMIT OF CKD PILE (APPROXIMATE)
- X — UTILITY LINES (BURIED)
- 30-INCH CMP PIPELINE (BURIED, APPROXIMATE LOCATION)
- P — OVERHEAD POWER LINE AND POWER POLE
- W — UNDERGROUND WATER LINE
- NEW DRAINAGE DITCHES
- EXISTING DRAINAGE DITCHES
- TEMPORARY FIBER ROLL
- 270 — EXISTING MAJOR ELEVATION CONTOUR IN FEET
- EXISTING MINOR ELEVATION CONTOUR IN FEET
- 270 — PROPOSED MAJOR ELEVATION CONTOUR IN FEET
- PROPOSED MINOR ELEVATION CONTOUR IN FEET
- ◉ BH 8 — EXISTING BOREHOLE LOCATION AND NUMBER
- PROPOSED CKD WORK AREA LIMITS (CDLC)
- PROPOSED CKD WORK AREA LIMITS (CEMEX)
- PROPOSED LIMITS OF CKD GRADING LIMITS



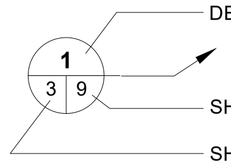
REVISION CLOUD



SECTION/PROFILE IDENTIFICATION

SHEET WHERE SECTION/PROFILE IS SHOWN

SHEET WHERE SECTION/PROFILE IS FIRST REFERENCED



DETAIL NUMBER

SHEET WHERE DETAIL IS SHOWN

SHEET WHERE DETAIL IS FIRST REFERENCED

STANDARD ABBREVIATIONS

AB	ANCHOR BOLT
ADDL	ADDITIONAL
ADJ	ADJACENT
AFF	ABOVE FINISH FLOOR
APPROX	APPROXIMATE(LY)
ARCH	ARCHITECTURAL
ARCH'T	ARCHITECT
BB	BACK TO BACK
BC	BOTTOM CORD
BL	BASELINE
BLDG	BUILDING
BM	BEAM
BMP	BEST MANAGEMENT PRACTICE
BOT	BOTTOM
BP	BASE PLATE
BRG	BEARING
BRKT	BRACKET
BS	BOTH SIDES
BSMT	BASEMENT
BVL	BEVELED
BW	BOTH WAYS
C	COMPRESSION
CB	CATCH BASIN
CIP	CAST-IN-PLACE
CJ	CONSTRUCTION JOINT
CL	CENTERLINE
CLR	CLEAR OR CLEARANCE
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONT'D	CONTINUED
D	DEPTH
DEG	DEGREES
DETL	DETAIL
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DIST	DISTRIBUTION
DL	DEAD LOAD
DN	DOWN
DP	DAMP PROOFING
DWG	DRAWING(S)
DWL	DOWEL
E	EAST
EA	EACH
EF	EACH FACE
EJ	EXPANSION JOINT
ELEC	ELECTRICAL
ELEV,EL	ELEVATION
EQ	EQUAL

STANDARD ABBREVIATIONS (CONT'D)

EQUIP	EQUIPMENT
EW	EACH WAY
EXIST (EG)	EXISTING OR (EXISTING GRADE)
EXP	EXPANSION
EXT	EXTERIOR
FAB	FABRICATION
FD	FRENCH DRAIN
FDN	FOUNDATION
FF	FINISH FLOOR
FIN (FG)	FINISH(ED) OR (FINISHED GRADE)
FS	FAR SIDE
FT	FEET/FOOT/'
GA	GAGE OR GAUGE
GALV	GALVANIZED
GB	GRADE BEAM
HDPE	HIGH-DENSITY POLYETHYLENE
HORIZ	HORIZONTAL
HP	HIGH POINT
HS	HEADED STUD
IE	INVERT ELEVATION
ID	INSIDE DIAMETER
IN	INCHES/INCH/"
JST	JOIST
JT	JOINT
K	KIPS
KO	KNOCKOUT
LB,#	POUND
LD	DEVELOPMENT LENGTH
LFT	LINEAL FEET
LH	LEFT HAND
LL	LIVE LOAD
LLDPE	LINEAR LOW-DENSITY POLYETHYLENE
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LONG	LONGITUDINAL
LP	LOW POINT
LW	LONG WAY
LWC	LIGHTWEIGHT CONCRETE
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MEP	MECHANICAL, ELECTRICAL, PLUMBING
MEZZ	MEZZANINE
MFR	MANUFACTURE(R)
MH	MAN-HOLE
MID	MIDDLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MS	MIDDLE STRIP
MT	STRUCTURAL TEE CUT FROM A MISCELLANEOUS STEEL SECTION
MTL	METAL

STANDARD ABBREVIATIONS (CONT'D)

N/A	NOT APPLICABLE
NF	NEAR FACE
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NS	NEAR SIDE
NTS	NOT TO SCALE
OA	OVERALL
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OPNG	OPENING(S)
OPP	OPPOSITE
OPP HND	OPPOSITE HAND
OPT	OPTIONAL
OZ	OUNCE(S)
PC	PRECAST CONCRETE
PCT, %	PERCENT
PE	POLYETHYLENE
PERM	PERMANENT
PERP	PERPENDICULAR
PL	PLATE
PLUMB	PLUMBING
PREFAB	PREFABRICATED
PRELIM	PRELIMINARY
PRMLD	PREMOLDED
PROJ	PROJECTION
PT	POINT
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
R	RIGHT, RISER
RAD	RADIUS
RD	ROOF DRAIN
RE:	REFER
REINF	REINFORCING (-ED,-MENT)
REM	REMAINDER
REQD	REQUIRED
REV	REVISION
RH	RIGHT HAND
RJ	RUSTICATION JOINT
RND	ROUND
RO	ROUGH OPENING
RW	RETAINING WALL
S	SOUTH
SC	SHEAR CONNECTORS
SCH	SCHEDULE(D)
SD	STORM DRAIN
SECT	SECTION
SHOT	SHOTCRETE
SIM	SIMILAR
SJ	SAW JOINT
SL	SLOPE
SPA	SPACE

STANDARD ABBREVIATIONS (CONT'D)

SPEC	SPECIFICATION(S)
SPL	SPECIAL
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STIFF	STIFFENER
STIR	STIRRUP
STL	STEEL
STR'L	STRUCTURAL
STRUCT	STRUCTURE
SW	SHEAR WALL
SYM	SYMMETRICAL
T	TOP, TENSION
T&B	TOP AND BOTTOM
T/	TOP OF
T/CONC	TOP OF CONCRETE
T/FD	TOP OF FLOOR DRAIN
T/FTG	TOP OF FOOTING
T/SLAB	TOP OF SLAB
TEMP	TEMPERATURE, TEMPORARY
THK	THICKNESS
THRD	THREADED
TOS	TOP OF STEEL, TOP OF SHOTCRETE
TOW	TOP OF WALL
TRD	TREAD(S)
TRNV	TRANSVERSE
TS	STRUCTURAL TUBING
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
W	WEST, WIDTH, WIDE FLANGE
W/	WITH
W/O	WITHOUT
WP	WORK POINT, WATER-PROOFING
WT	WEIGHT, STRUCTURAL TEE CUT FROM WIDE FLANGE BEAM
WWF	WELDED WIRE FABRIC

USE OF THIS DESIGN

WE COMPLETED THIS WORK IN GENERAL ACCORDANCE WITH OUR CONTRACT. THIS DESIGN AND THESE DRAWINGS ARE FOR THE EXCLUSIVE USE OF RMC PACIFIC MATERIALS FOR SPECIFIC APPLICATION TO THE SUBJECT PROJECT AND SITE. USE OF THIS DESIGN BY ANYONE EXCEPT FOR WHOM IT WAS PREPARED IS PROHIBITED WITHOUT WRITTEN CONSENT FROM ADAMS RESOURCE CONSULTANTS COMPANY, THE DESIGN ENGINEER-OF-RECORD.

CONTRACTOR MUST CALL FOR UTILITY LOCATES PRIOR TO CONSTRUCTION; (Phone 811).

THE CONTRACTOR IS SOLELY RESPONSIBLE FOR REPAIRS AND/OR REPLACEMENT OF EXISTING UTILITIES AND FACILITIES SHOULD DAMAGE OCCUR AS A RESULT OF CONSTRUCTION ACTIVITIES.

GENERAL NOTES

GENERAL:

THE GENERAL CONTRACTOR IS DEFINED, FOR THE PURPOSES OF THIS DESIGN, AS THE PROJECT CONTRACTOR UNLESS OTHERWISE NOTED. THE CONTRACTOR IS RESPONSIBLE FOR THE PROJECT SITE CONSTRUCTION PROCESS AND SAFETY OF THE WORKERS, THAT INCLUDES, BUT IS NOT LIMITED TO, THE CONSTRUCTION SEQUENCE, TEMPORARY BARRIERS, EXCAVATION ACCESS, AND TRAFFIC.

All WORK ON LEASED PROPERTY OR IN SENSITIVE HABITAT AREAS IS SUBJECT TO APPROVAL OF THE APPROPRIATE AGENCY AND LAND OWNER.

EXISTING UNDERGROUND OBSTRUCTIONS AND UTILITIES:

THE CONTRACTOR MUST FIELD VERIFY ALL EXISTING DIMENSIONS AND SITE CONDITIONS.

THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THE PLANS AND THOSE UTILITIES INCLUDING, BUT NOT LIMITED TO, OVERHEAD OR UNDERGROUND OBSTRUCTIONS.

THE CONTRACTOR IS RESPONSIBLE FOR INTERIM TEMPORARY CUTS OVER 4 FEET HIGH AND FOR THE REMOVAL OF ALL ABANDONED UTILITIES, OR CHANGES TO OTHER EXISTING OBSTRUCTIONS THAT INTERFERE WITH THE NEW CONSTRUCTION.

REV	DESCRIPTION	DATE	REVIEW	DRAWN	DESIGN
R3	FINAL REVIEW	04/01/18	MAH	WCA	WCA
C1	FOR BID AND CONSTRUCTION	12/12/19	MAH	WCA	WCA

REGISTERED PROFESSIONAL ENGINEER — WILLIAM C. ADAMS — NO. 19997 — 09/30/20 — STATE OF CALIFORNIA

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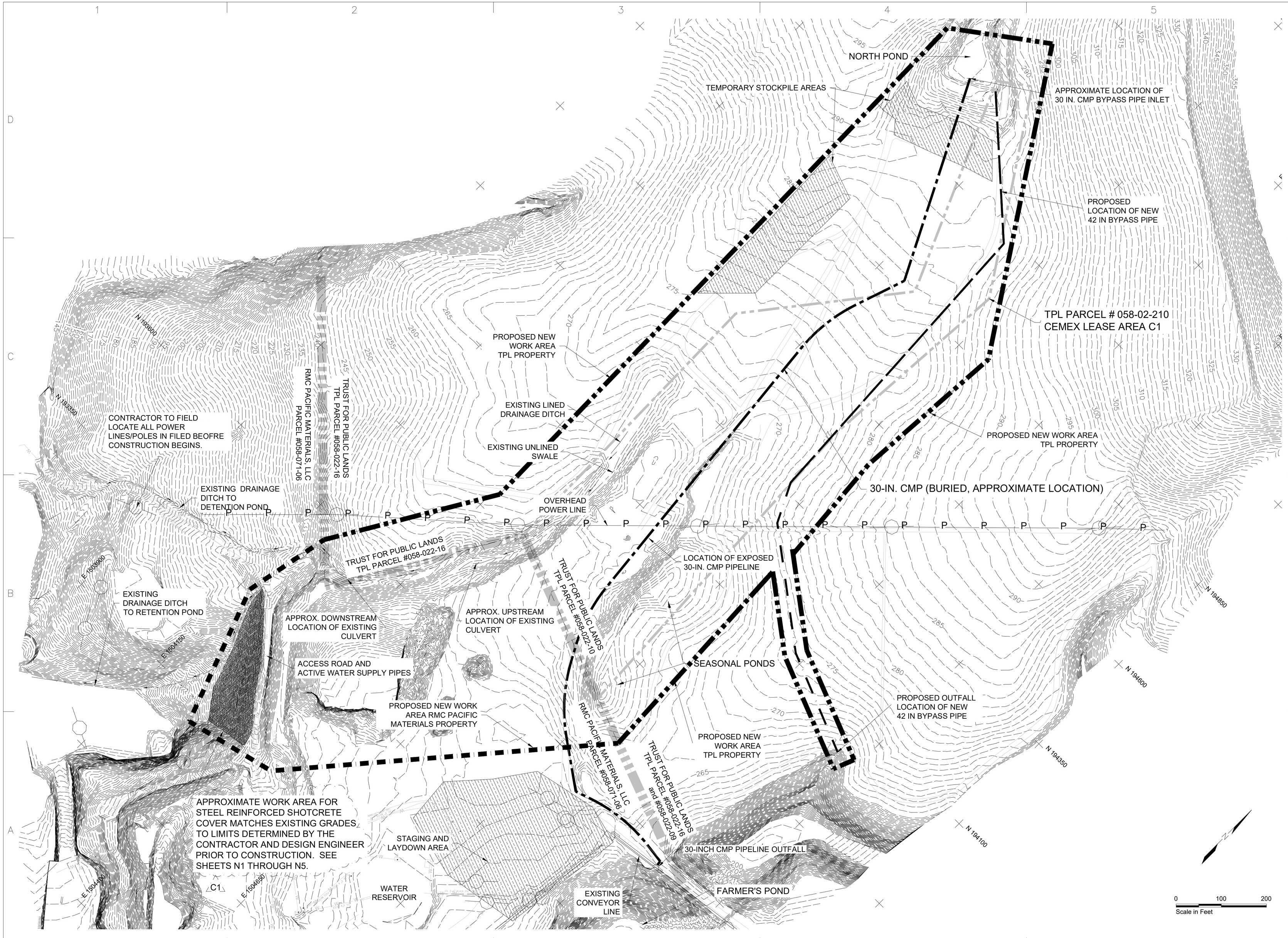
c/oYasha Saber-Compass Land Group 916-825-4997
CEMENT KILN DUST (CKD) CLOSURE PLANS

NOTES, LEGEND AND ABBREVIATIONS

cemex

DRAWING NUMBER
SHEET
C2
2 OF 28

Exhibit B



DESIGN	DRAWN	REVIEW	DATE	REV	DESCRIPTION
WCA	WCA	MAH	04/01/18	R3	FINAL REVIEW
WCA	WCA	MAH	12/12/19	C1	FOR BID AND CONSTRUCTION

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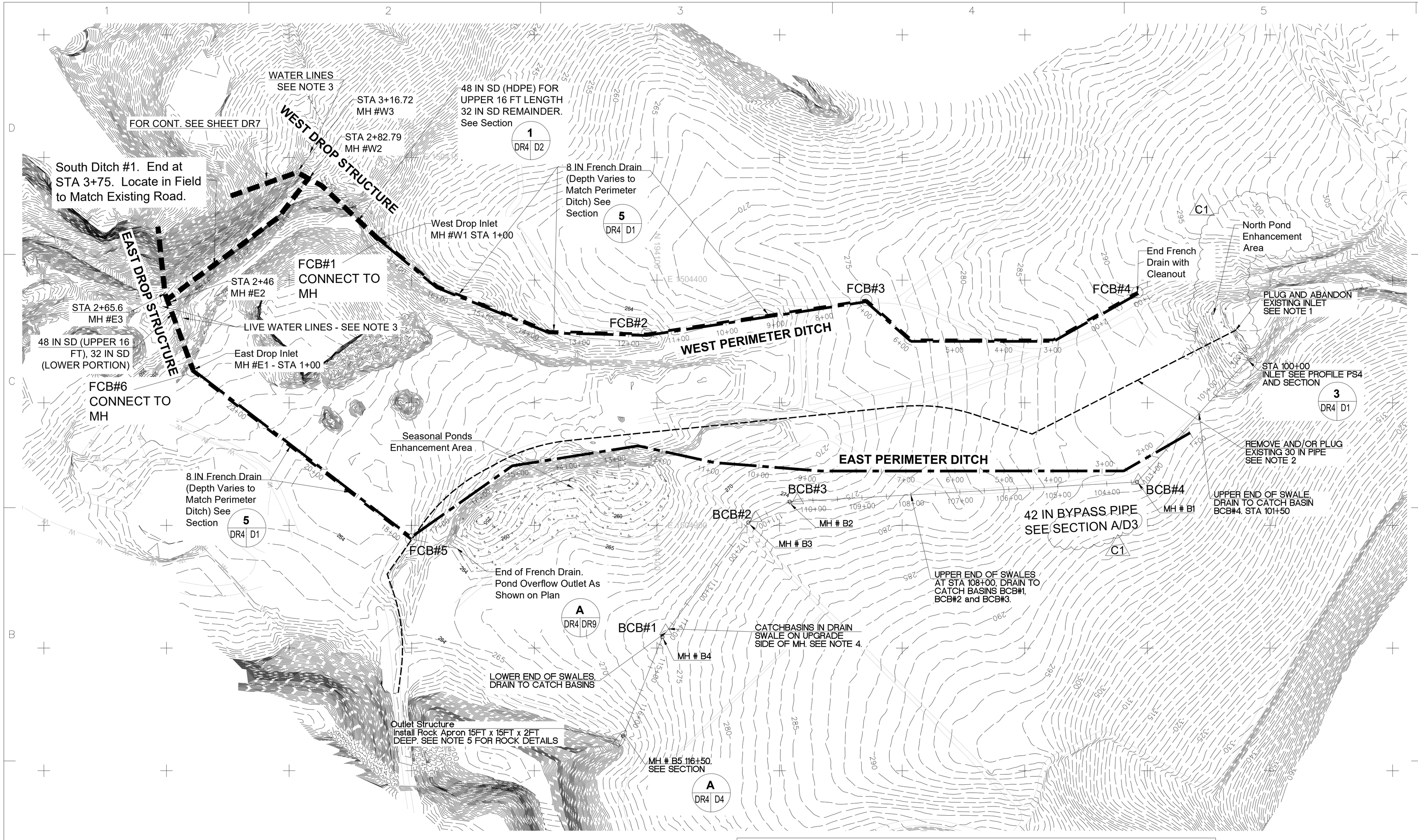
CEMENT KILN DUST (CKD) CLOSURE PLANS

EXISTING SITE CONDITIONS AND WORK AREAS

DRAWING NUMBER
SHEET
C3
3 OF 28

Exhibit B



KEY TO SYMBOLS

FCB#3 ○ FRENCH DRAIN CATCH BASIN

BCB#1 △ BYPASS PIPE CATCH BASIN

0 100 200
Scale in Feet

NOTES
1. ABANDON AND PLUG EXISTING 30 IN CULVERT INLET WITH 10 LINEAR FEET OF LEAN CEMENT OR AS APPROVED BY THE ENGINEER.
2. REMOVE (AND/OR PLUG ENTIRE LENGTH WHERE LEFT IN PLACE) THE EXISTING 30 IN CULVERT BENEATH CLOSURE AREA PROJECT LIMITS.
3. LOCATE AND EXPOSE EXISTING WATER LINES PRIOR TO CONSTRUCTION OF DROP STRUCTURE PIPES AND SOIL NAILED WALL.
   (DESIGN ENGINEER AND COUNTY TO BE NOTIFIED FOURTEEN (14) BUSINESS DAYS BEFORE EXCAVATION BEGINS IN AREA OF PIPES.)
4. INSTALL 7.5 FT WIDE DRAINAGE SWALE ALONG GROUND SURFACE. SEE SECTION A/D3.
5. RIP RAP SEE SPEC 02200/2.04.
6. ALL MANHOLES AND STILLINGS BASINS SHALL BE ENFCLOSED BY CRUSHED ROCK WHERE IN CONTACT WITH SOIL AS SHOWN ON SHEET DR8, DETAIL C.

REV	DESCRIPTION	DATE	REVIEW	DRAWN	DESIGN
R3	FINAL REVIEW	04/01/18	MAH	WCA	WCA
C1	FOR BID AND CONSTRUCTION	12/12/19	MAH	WCA	WCA

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CEMENT KILN DUST (CKD) CLOSURE PLANS

DRAINAGE IMPROVEMENTS

DRAWING NUMBER

SHEET

DR4

4 OF 28

Exhibit B

LEGEND

- 95 — Existing Grade Contour
- 105 — Proposed Grade Contour
- PZ-15 — Approximate Location of Existing Groundwater Monitoring Well
- TPZ-1 — Approximate Location of Existing Temporary Piezometer

NOTES:
Pond bottom topography was estimated based on photographs and Global Positioning System (GPS) readings taken in November 2014

PROPOSED STORM DRAIN MANHOLE - SEE DR7

PZ-16

2 / DR6

PROPOSED STORM DRAIN PIPE - SEE DR7

PROPOSED STORM DRAIN MANHOLE - SEE DR7

PROPOSED STORM DRAIN OUTLET - SEE DR7

EXISTING 12" DRAIN PIPE INVERT: 110.1

TPZ-1

TPZ-2

EXISTING 18" DRAIN PIPE INVERT: 106.3

EXISTING 12" DRAIN PIPE INVERT: 102.0

EXISTING OUTLET STRUCTURE

1 / DR6

EXISTING K-RAIL WALL TO REMAIN

TPZ-3

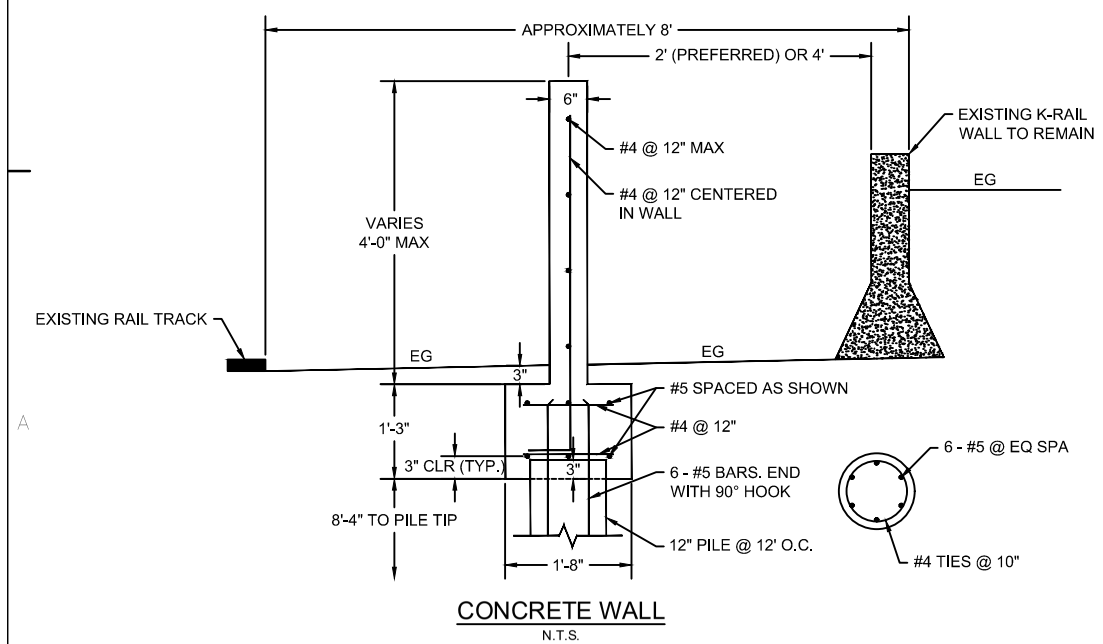
TPZ-4

PROPOSED CONCRETE WALL (TOP OF WALL ELEV: 106.5) - SEE DETAIL THIS SHEET

PZ-15 MW1

EXISTING STORM DRAIN MANHOLE RIM: 105.55 INVERT IN: 96.6 INVERT OUT: 78.3

PZ-17



CONCRETE WALL
N.T.S.

0 60 120

SHEET SIZE 11" X 17" - SCALE 1" = 60'

REGISTERED PROFESSIONAL ENGINEER
STEPHEN V. HUVANE
No. 52385
EXP. 12/31/20
CIVIL
STATE OF CALIFORNIA

DATE SIGNED: 2/19/19

DESIGN	DRAWN	REVIEW	DATE	REV	DESCRIPTION
SVH	RO	SVH	2/19/19	C1	FOR BID AND CONSTRUCTION

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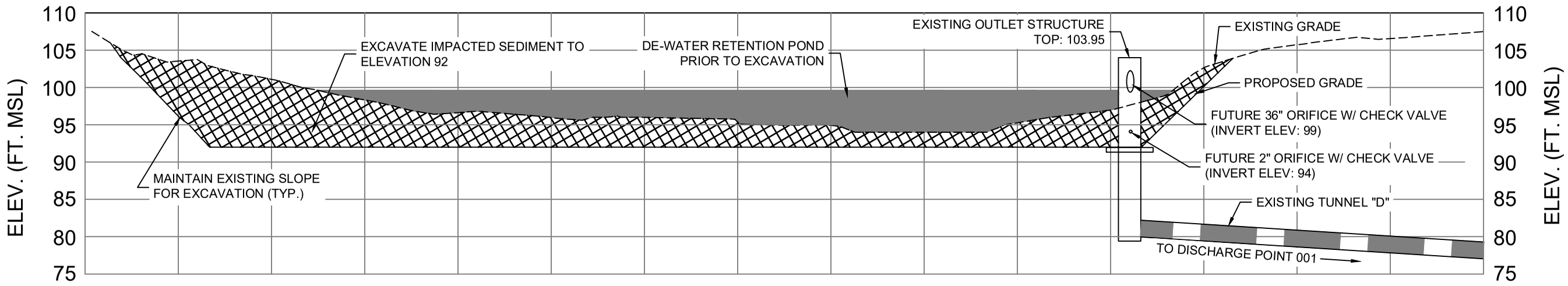
CEMENT KILN DUST (CKD) CLOSURE PLANS
RETENTION POND REMEDIATION

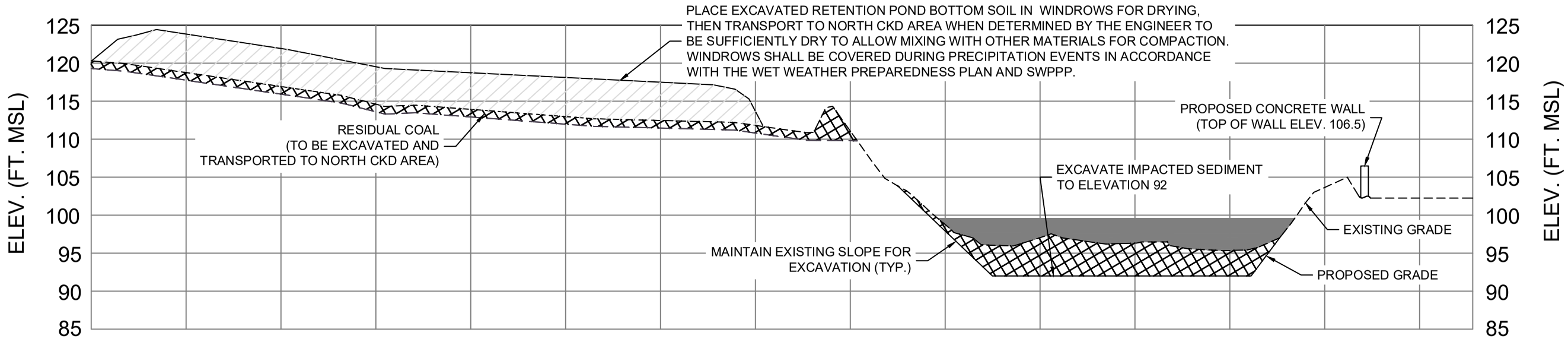
DRAWING NUMBER
SHEET
DR5
5 OF 24
Exhibit B

16



SECTION 1 (RETENTION POND)

V: 1" =15' H: 1" =30'



SECTION 2 (FORMER COAL STORAGE AREA AND RETENTION POND)

V: 1" =15' H: 1" = 30'

REGISTERED PROFESSIONAL ENGINEER
STEPHEN V. HUVANE
No. 52385
EXP. 12/31/20
CIVIL
STATE OF CALIFORNIA

DATE SIGNED: 2/19/19

REV	DESCRIPTION
C1	FOR BID AND CONSTRUCTION

DESIGN	DRAWN	REVIEW	DATE
SVH	RD	SVH	2/19/19

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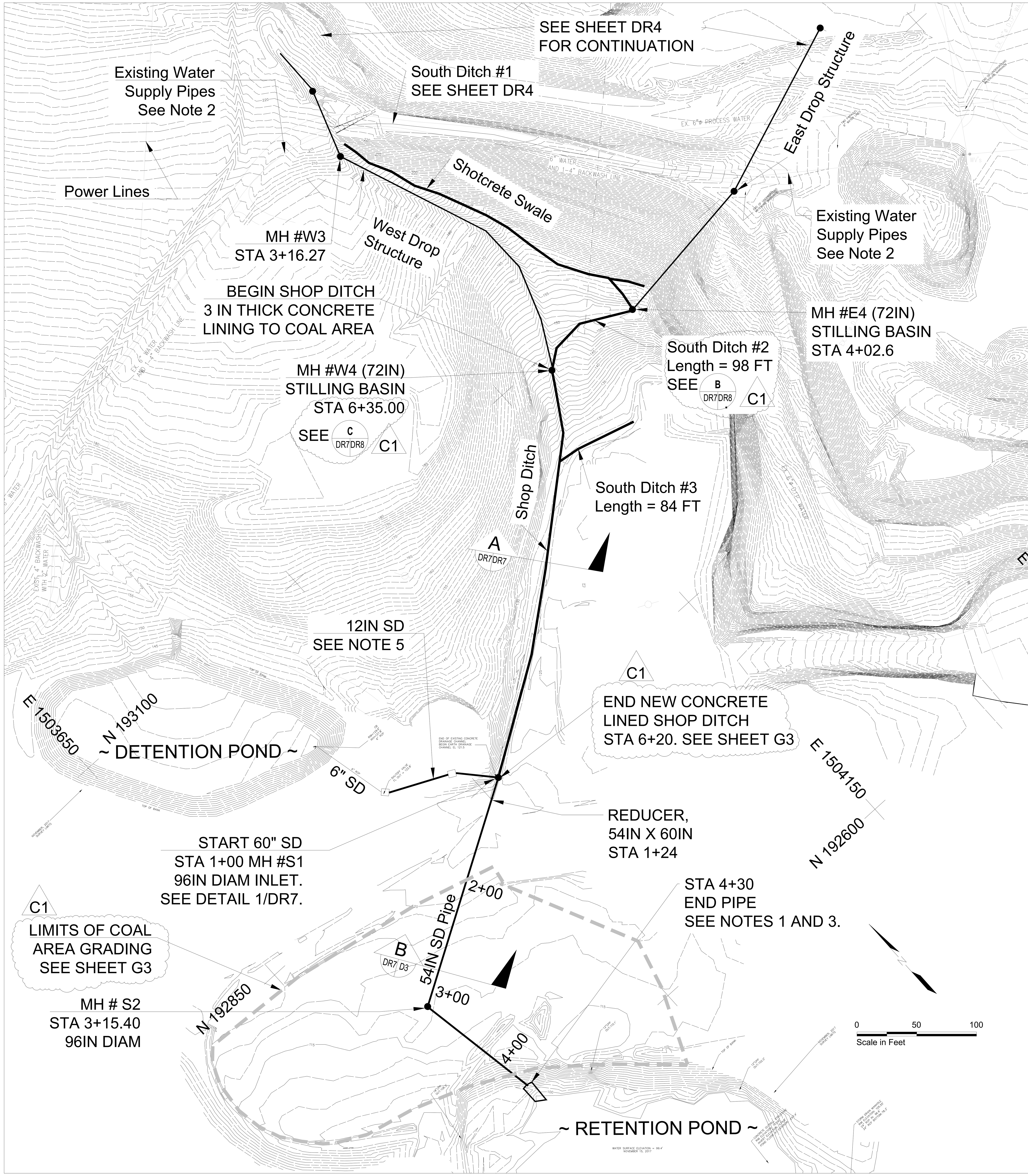
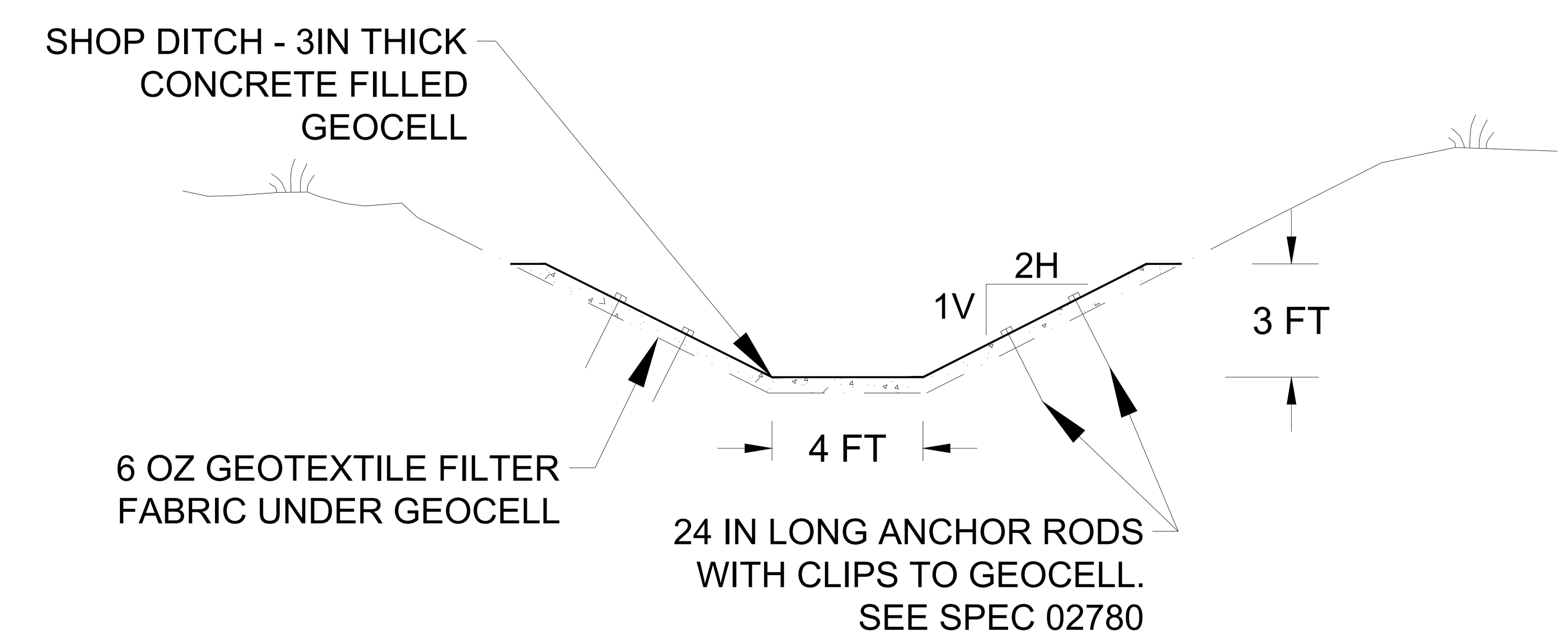
CEMENT KILN DUST (CKD) CLOSURE PLANS
RETENTION POND REMEDIATION

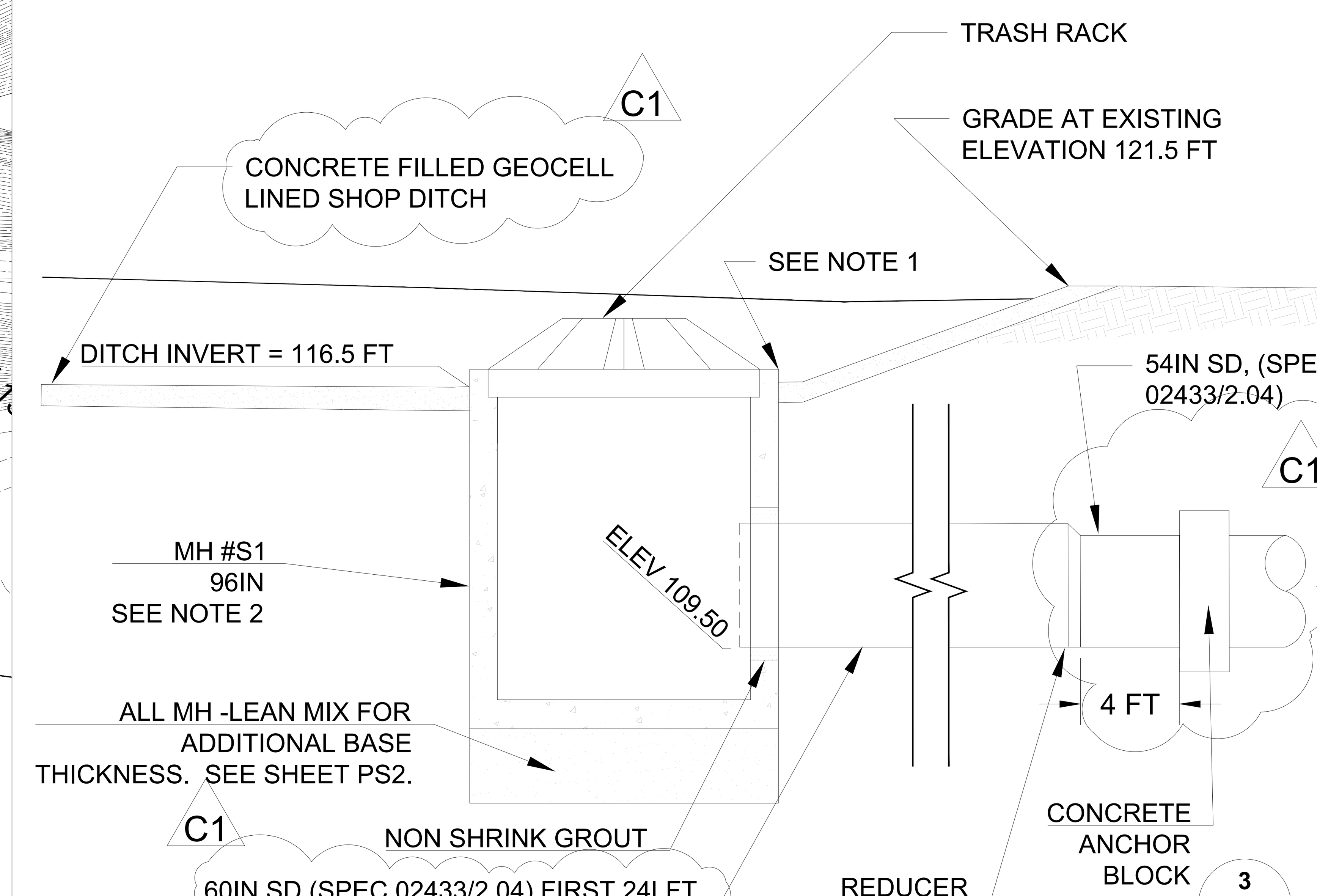
DRAWING NUMBER
SHEET
DR6
6 OF 24
Exhibit B

17





SECTION - TYPICAL SHOP DITCH (NO LLDPE/CAP) A DR7 DR7
NOT TO SCALE



NOTES

1. SET MH RIM 3IN ABOVE DITCH INVERT.
2. SET MH ON 6IN CRUSHED ROCK BASE.
3. BOTTOM OF MH SHALL BE 6IN (MIN) BELOW PIPE INVERT.

DETAIL - MH #S1 1 DR7 DR7
NOT TO SCALE

NOTES

C1

1. INSTALL ROCK APRON, DIMENSIONS SHALL BE 14FT WIDE BY 15FT LONG, AND 18IN MIN THICKNESS. EXTEND ROCK UP TO ELEV 106.0
2. CONTRACTOR SHALL LOCATE AND EXPOSE EXISTING WATER LINES PRIOR TO NEW PIPE INSTALLATION.
3. FINAL LOCATION OF 54IN SD WILL DEPEND ON SOIL REMOVED, SEE SHEETS DR5, DR6 AND G3.
4. GRADES ALONG 54IN SD TO BE CONFIRMED BY SURVEY AND STAKED PRIOR TO CONSTRUCTION.
5. CONNECT EXISTING OUTFALL FROM DETENTION BASIN TO MH #S1 WITH TWO CATCH BASINS AT SD PIPE AS SHOWN. MINIMUM COVER SHALL BE 2FT, MIN SLOPE SHALL BE 0.020 FT/LFT.
6. SOUTH DITCH #2 SHALL BE 2.5 FT DEEP, 2.0 FT WIDE AT BASE AND MIN SLOPE OF 0.149 FT/LFT. C1
7. SOUTH DITCH #3 SHALL BE 1.5 FT DEEP, 1.5 FT WIDE AT BASE, CRUSHED ROCK FILLED GEOCELL AND MIN SLOPE OF 0.04 FT/FT.

DESIGN	DRAWN	REVIEW	DATE	REV	DESCRIPTION
WCA	WCA	MAH	04/01/18	R3	FINAL REVIEW
WCA	WCA	MAH	12/12/19	C1	FOR BID AND CONSTRUCTION

MATTHEW A. HILLYARD, NO. 69967, EXP. 09/30/20, CIVIL, STATE OF CALIFORNIA, REGISTERED PROFESSIONAL ENGINEER

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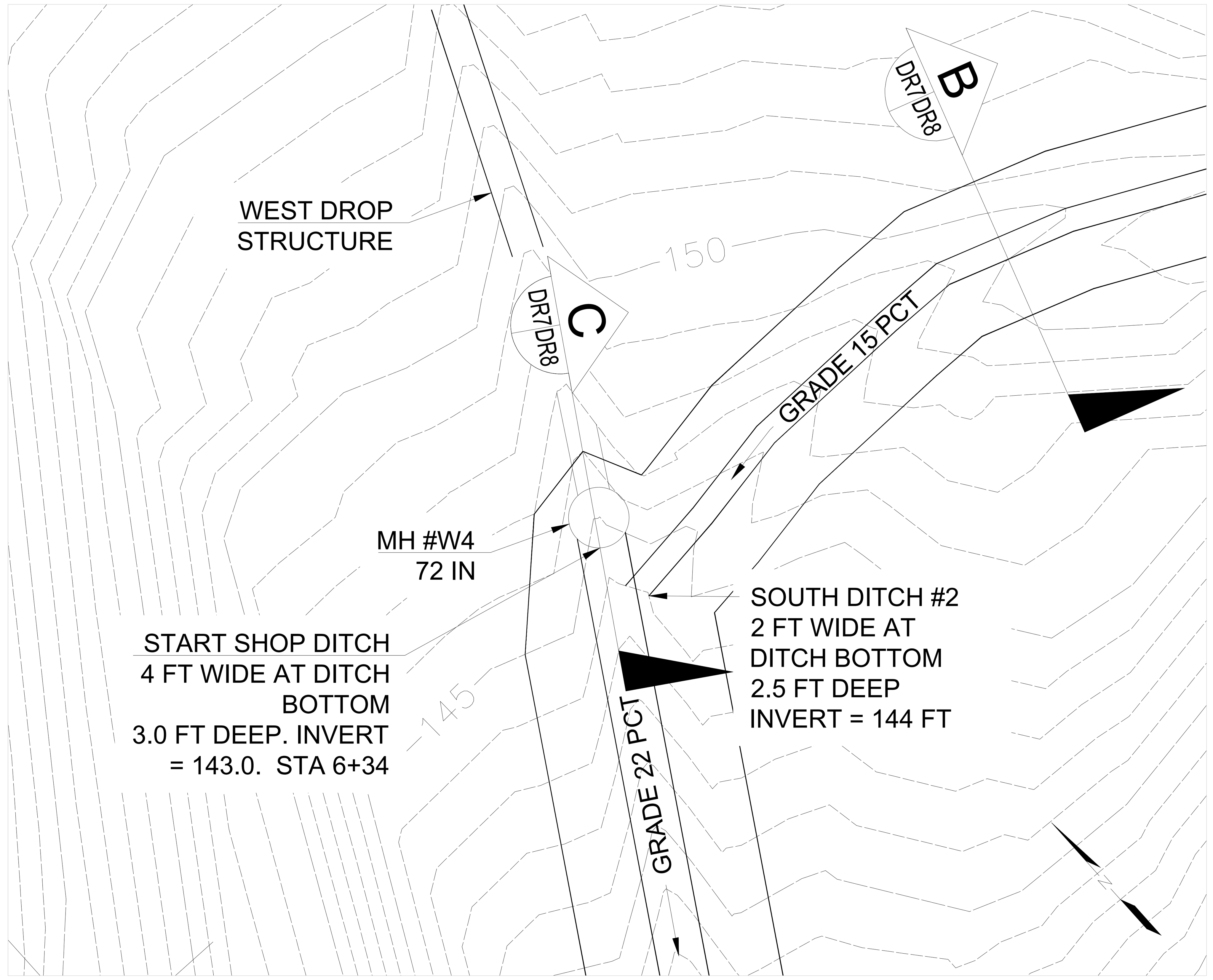
CEMENT KILN DUST (CKD) CLOSURE PLANS
SHOP AREA DITCHES AND PIPE

CEMEX

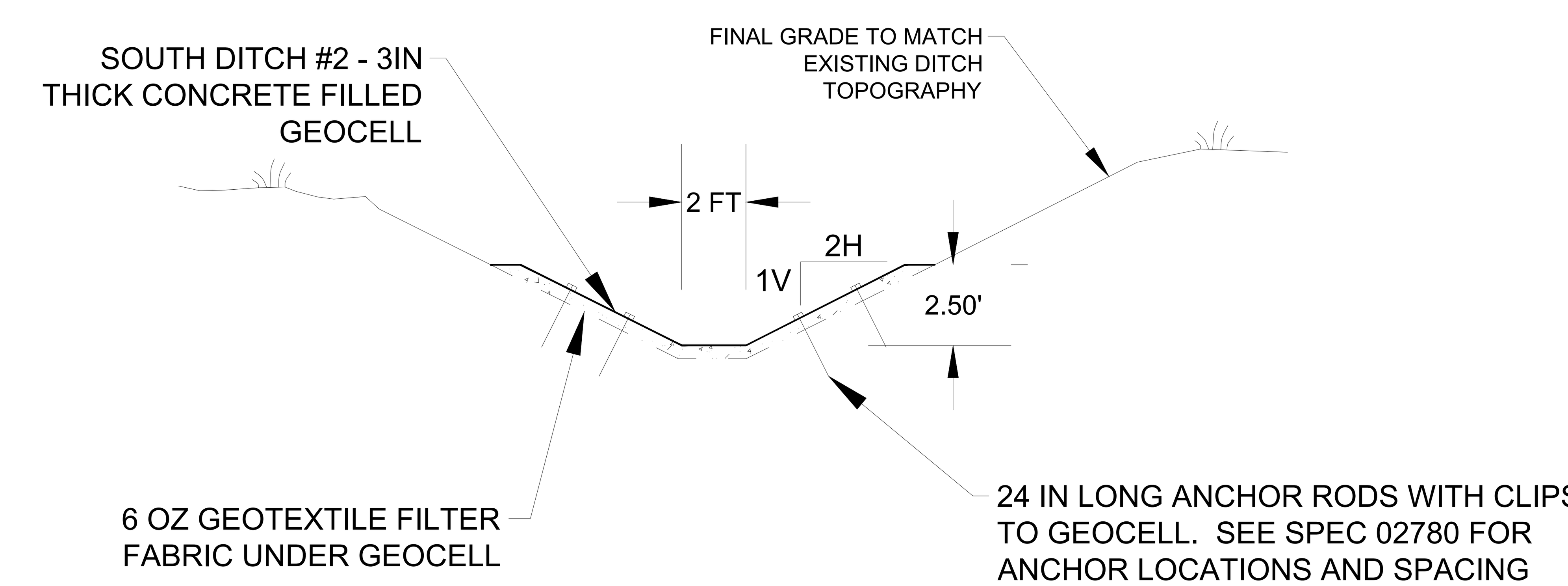
DRAWING NUMBER
SHEET
DR7
7 OF 28

Exhibit B

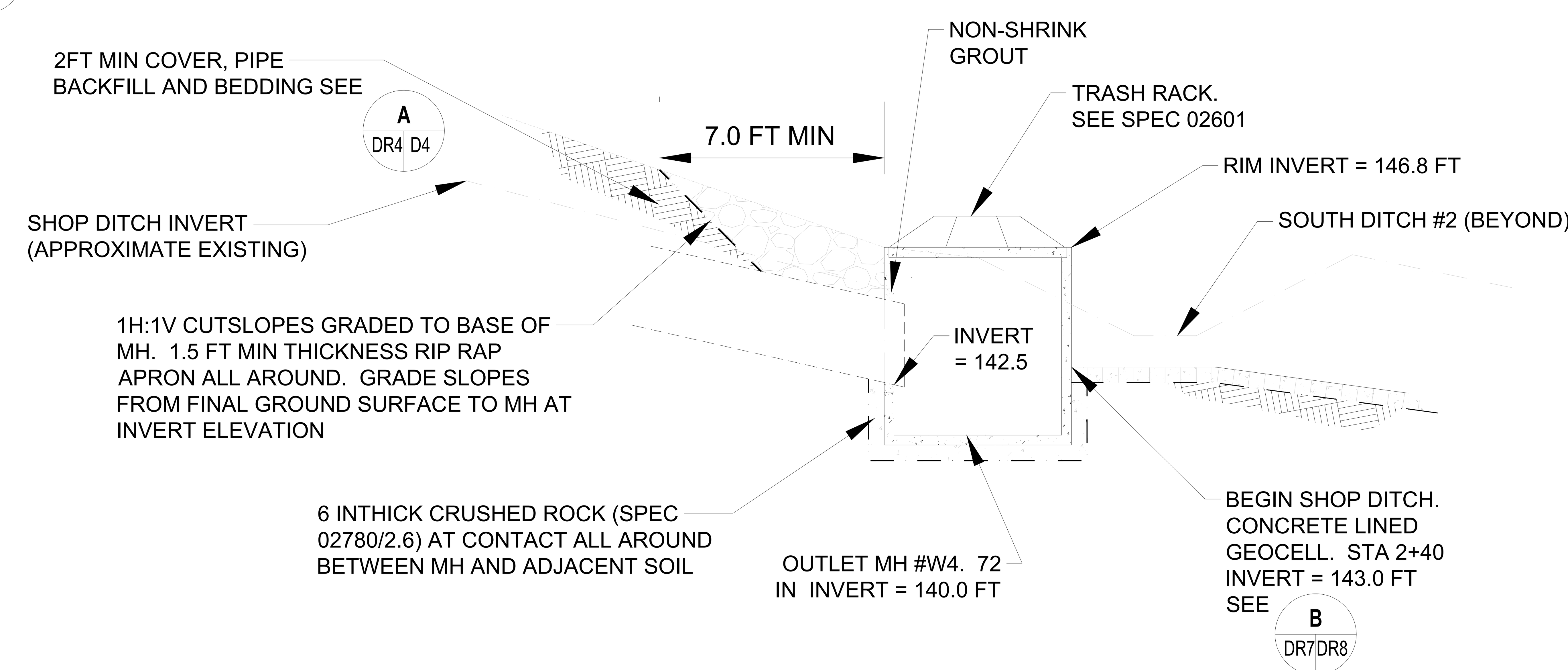


PLAN - JUNCTION SHOP DITCH AND SOUTH DITCH #2
NOT TO SCALE
A
DR7 DR8

0 8 16
Scale in Feet



SECTION - SOUTH DITCH #2
NOT TO SCALE
B
DR7 DR8



DETAIL - MH #W4 AND SOUTH DITCH #2 INVERT
NOT TO SCALE
C
DR7 DR8

DESIGN	DRAWN	REVIEW	DATE	REV	DESCRIPTION
WCA	WCA	MAH	04/01/18	R3	FINAL REVIEW
WCA	WCA	MAH	12/12/19	C1	FOR BID AND CONSTRUCTION

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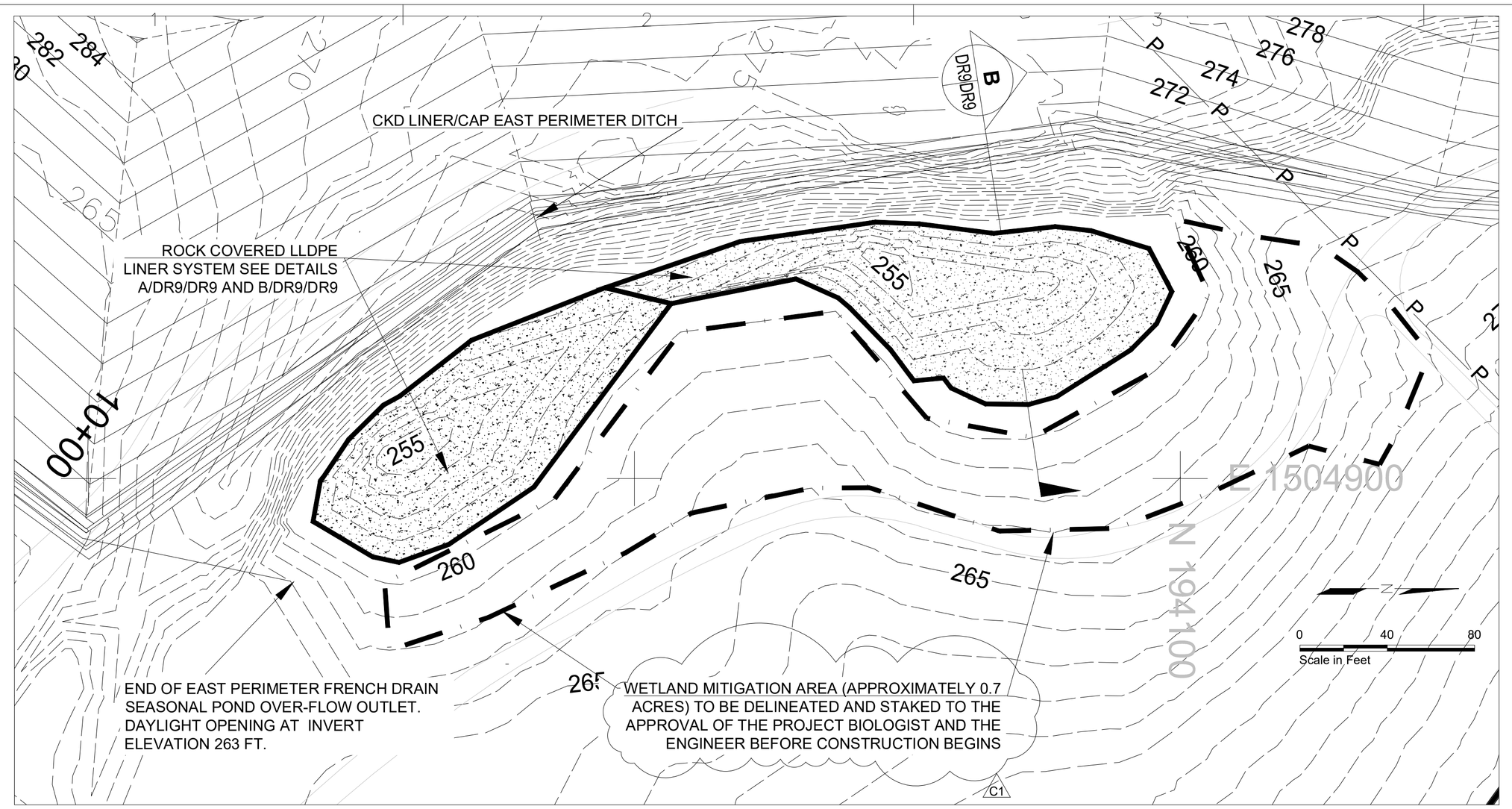
CEMENT KILN DUST (CKD) CLOSURE PLANS
JUNTION: SHOP DITCH, SOUTH DITCH #2

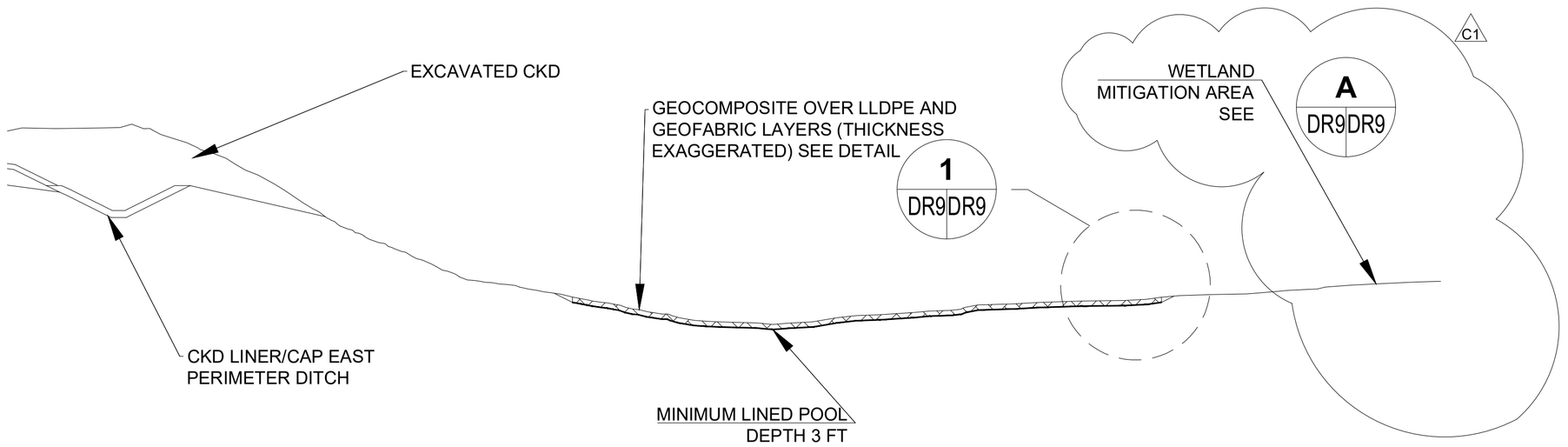
CEMEX

DRAWING NUMBER
SHEET
DR8
8 OF 28

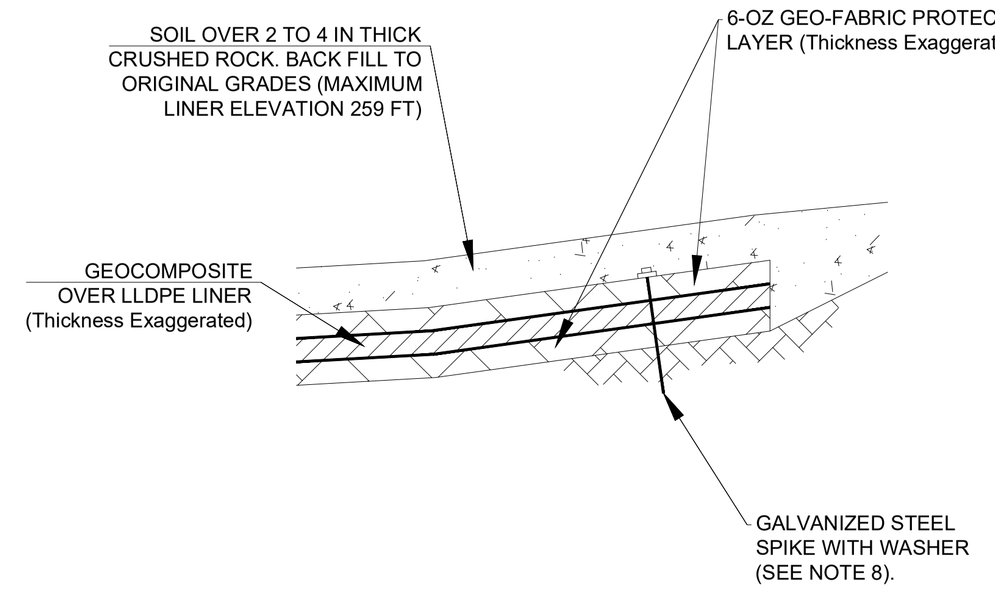
Exhibit B



PLAN - SEASONAL PONDS A DR9 DR9



SECTION - TYPICAL SEASONAL POND B DR9 DR9
NOT TO SCALE



DETAIL - LINER SYSTEM AND GEO-FABRIC 1 DR9 DR9
NOT TO SCALE

NOTES:

1) OVER-EXCAVATE TOPSOIL BETWEEN ELEVATIONS OF ABOUT 255 AND 259 FT.
2) REMOVE SOIL TO A DEPTH OF 12 IN BELOW EXISTING DRY POND GROUND SURFACE GRADES AND STOCKPILE.
3) RAKE AND REMOVE ALL SHARP OBJECTS FROM GRADED SURFACE.
4) PROOF ROLL TO CREATE A SMOOTH SURFACE ON EXCAVATED/RAKED SURFACE.
5) PLACE 16 OZ GEO-FABRIC ON PROOF ROLLED SMOOTH SURFACE.
6) PLACE LLDPE ON TOP OF BOTTOM LAYER OF GEO-FABRIC.
7) PLACE GEOCOMPOSITE DRAIN LAYER ON TOP OF LLDPE.
7) PLACE TOP LAYER OF 16 OZ GEO-FABRIC ON TOP OF GEOCOMPOSITE.
8) SECURE TOP EDGE WITH 12 IN LONG GALVANIZED STEEL SPIKES AND WASHERS DRIVEN THROUGH FABRIC AND LINER. PLACE 5 FEET (HORIZONTALLY) APART AND LOCATED ABOUT 6 IN BELOW TOP EDGE OF LINER.
9) COVER TOP LAYER OF GEO-FABRIC WITH 2 TO 4 IN THICK CRUSHED ROCK.
10) PLACE STOCKPILED EXCAVATION MATERIAL OVER ROCK AS APPROXED BY THE OWNER OR OWNERS REPRESENTATIVE.

DESCRIPTION	REV	DATE	REVIEW	DRAWN	DESIGN
FINAL REVIEW	R3	04/01/18	MAH	WCA	WCA
FOR BID AND CONSTRUCTION	C1	12/12/19	MAH	WCA	WCA

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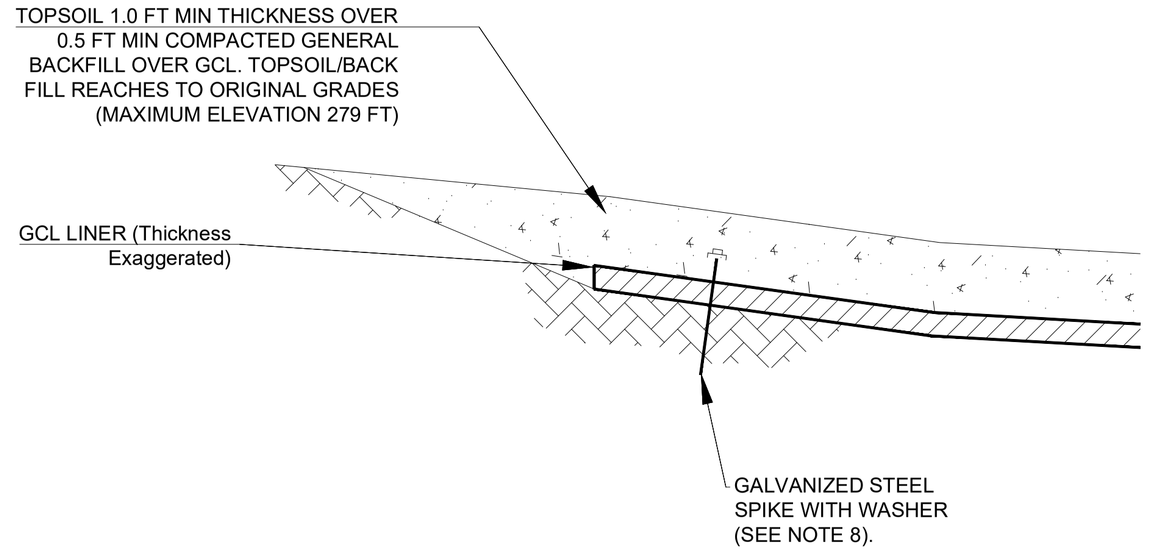
CEMENT KILN DUST (CKD) CLOSURE PLANS
SEASONAL PONDS HABITAT ENHANCEMENT

CEMEX

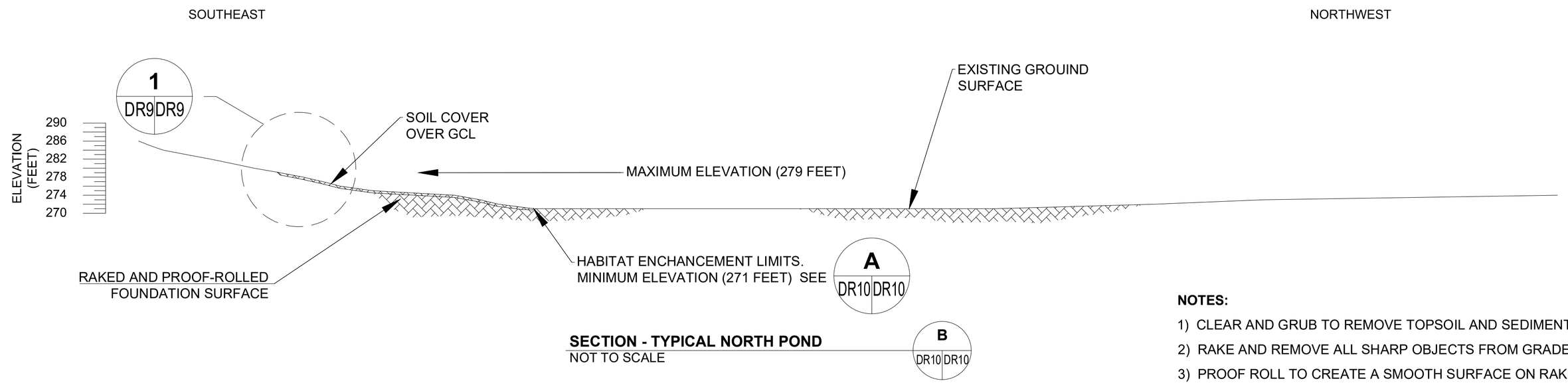
DRAWING NUMBER
SHEET
DR9
9 OF 28

Exhibit B

PLAN - NORTH POND ENHANCEMENT — A DR10 DR10



DETAIL - GCL LINER SYSTEM — 1 DR10 DR10
NOT TO SCALE



SECTION - TYPICAL NORTH POND — B DR10 DR10
NOT TO SCALE

NOTES:

1) CLEAR AND GRUB TO REMOVE TOPSOIL AND SEDIMENT BETWEEN ELEVATIONS OF ABOUT 271 AND 279 FT.
2) RAKE AND REMOVE ALL SHARP OBJECTS FROM GRADED SURFACE.
3) PROOF ROLL TO CREATE A SMOOTH SURFACE ON RAKED SURFACE.
4) PLACE GCL ON PROOF ROLLED SMOOTH SURFACE.
5) SECURE TOP EDGE WITH 12 IN LONG GALVANIZED STEEL SPIKES AND WASHERS DRIVEN THROUGH GCL FABRIC AND LINER. PLACE SPIKES 5 FEET (HORIZONTALLY) APART AND LOCATED ABOUT 6 IN BELOW TOP EDGE OF LINER.
6) PLACE STOCKPILED TOPSOIL AND SEDIMENT OVER GCL AS APPROVED BY THE ENGINEER AND OWNER'S REPRESENTATIVE.
7) SEE SPECIFICATIONS SECTION 02775 - GEOSYNTHETIC CLAY LINER (GCL)

REV	DESCRIPTION	DATE	REVIEW	DRAWN	DESIGN
R3	FINAL REVIEW	04/01/18	MAH	WCA	WCA
C1	FOR BID AND CONSTRUCTION	12/12/19	MAH	WCA	WCA

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CEMENT KILN DUST (CKD) CLOSURE PLANS

NORTH POND HABITAT ENHANCEMENT

DRAWING NUMBER
SHEET
DR10
10 OF 28

Exhibit B

LINER FOUNDATION GRADE CONTROL POINTS				
CP NAME	EASTING	NORTHING	ELEV (EG)	ELEV (FG)
F-200	1504214.60	193416.40	221.41	225.86
F-205	1504321.38	193528.95	241.91	244.40
F-210	1504420.06	193647.70	247.52	248.34
F-215	1504513.26	193879.68	257.61	256.11
F-220	1504518.47	194079.61	260.65	260.72
F-225	1504477.99	194342.77	265.68	268.00
F-230	1504450.05	194524.38	274.50	271.14
F-235	1504530.50	194615.65	276.01	274.04
F-240	1504530.51	194910.02	283.76	280.00
F-245	1504481.50	195070.18	287.54	288.00
F-250	1504690.62	195146.16	286.31	288.00
F-255	1504783.50	195050.08	285.15	281.98
F-260	1504783.49	194434.70	271.50	273.98
F-265	1504766.18	194217.32	265.98	270.53
F-270	1504734.43	194061.81	274.05	268.40
F-275	1504772.98	193802.89	271.71	265.21
F-280	1504916.82	193599.10	265.04	262.14
F-285	1504579.01	193158.92	257.58	256.23
F-290	1504438.88	193111.97	236.17	236.44
F-295	1504636.45	193513.72	263.50	282.18
F-300	1504670.63	193561.90	265.70	283.62
F-305	1504699.21	193622.27	267.57	286.00
F-310	1504671.57	193773.34	271.57	279.39
F-315	1504677.19	193880.29	273.06	277.78
F-320	1504656.77	194071.53	274.56	279.37
F-325	1504659.81	194115.98	274.06	280.73
F-330	1504657.12	194243.79	272.66	286.07
F-335	1504644.41	194398.33	270.96	291.33
F-340	1504640.87	194454.42	272.17	293.01
F-345	1504636.25	194499.21	273.16	294.00
F-350	1504666.63	194586.54	274.82	291.07
F-355	1504656.63	194964.38	285.16	297.72
F-360	1504639.03	195024.97	286.01	300.00
F-365	1504640.17	195026.43	286.03	300.00
F-370	1504900.02	193850.01	261.37	261.37

NOTE 1: ALL ROUGH GRADES SHALL BE APPROVED IN WRITING BY THE ENGINEER BEFORE PLACEMENT OF OVERLYING MATERIALS OR STRUCTURES SUCH AS, BUT NOT LIMITED TO: A) FILL, B) PIPES AND MANHOLES.

NOTE 2: CONTROL POINTS SHOWN ALONG PERIMETER DITCH ARE LOCATED AT THE BOTTOM EDGE OF THE 13.3 PERCENT CKD SLOPE. THE PERIMETER DITCH (ROUGH GRADE) BOTTOM IS 2.5 FT LOWER AS SHOWN ON SECTION A/D1.

LIMITS OF GRADING

N 194100 E 1504400

N 193600 E 1504150

N 194100 E 1504900

13.3%

42 IN Bypass Pipe

G1 DR9 A

G1 DR9 C

G1 DR9 A

REV	DESCRIPTION
R3	FINAL REVIEW
C1	FOR BID AND CONSTRUCTION

DESIGN	DRAWN	REVIEW	DATE
WCA	WCA	MAH	04/01/18
WCA	WCA	MAH	12/12/19

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CEMENT KILN DUST (CKD) CLOSURE PLANS

FINAL LINER FOUNDATION GRADE SOUTH

CEMEX

DRAWING NUMBER
SHEET
G1
11 OF 28

Exhibit B

22

NOTE 1: ALL ROUGH GRADES SHALL BE APPROVED IN WRITING BY THE ENGINEER BEFORE PLACEMENT OF OVERLYING MATERIALS OR STRUCTURES SUCH AS, BUT NOT LIMITED TO: A) FILL, B) PIPES AND MANHOLES.

LIMITS OF GRADING

F-225 F-230 F-235 F-240 F-245 F-250 F-255 F-260 F-265 F-330 F-335 F-340 F-345 F-350 F-355 F-360 F-365

13.3%

42 IN Bypass Pipe

NOTE 2: CONTROL POINTS SHOWN ALONG PERIMETER DITCH ARE LOCATED AT THE BOTTOM EDGE OF THE 13.3 PERCENT CKD SLOPE. THE PERIMETER DITCH (ROUGH GRADE) BOTTOM IS 2.5 FT LOWER AS SHOWN ON SECTION A/D1.

REV	DESCRIPTION	DATE	REVIEW	DRAWN	DESIGN
C1	FOR BID AND CONSTRUCTION	12/12/19	MAH	WCA	WCA
R3	FINAL REVIEW	04/01/18	MAH	WCA	WCA

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CEMENT KILN DUST (CKD) CLOSURE PLANS
FINAL LINER FOUNDATION GRADE NORTH

DRAWING NUMBER
SHEET
G2
12 OF 28

Exhibit B

FOUNDATION GRADE CONTROL POINTS				
CP NAME	EASTING	NORTHING	ELEV (EG)	ELEV (FG)
C-400	1503607.32	192751.43	113.75	110.90
C-405	1503561.79	192796.14	115.60	114.00
C-410	1503671.31	192759.32	116.05	112.08
C-415	1503674.90	192831.68	118.00	119.00
C-420	1503849.08	192760.54	260.65	260.72
C-425	1503877.67	192646.75	115.90	116.00
C-430	1503768.81	192630.53	113.00	113.00

Notes
1) See Sheets PS2 and DR7 for Drainage Structures.
2) See Sheets DR5 and DR6 for Retention Pond Excavation.

SAW CUT AND REMOVE PORTION OF CONCRETE AS NEEDED FOR PIPE INSTALLATION ONLY.

EXISTING PREIMETER DITCH AROUND COAL AREA REMAINS, DRAIN TO RETENTION POND.

LIMITS OF COAL AREA REGRADING.

MONITORING WELLS, CYPRESS TREES/ROOTS TO REMAIN UNDISTURBED.

STORM DRAIN PIPE TO BE REPLACED OR AS DIRECTED BY THE ENGINEER.

~ RETENTION POND ~

REMOVE

END OF EXISTING CONCRETE DRAINAGE CHANNEL
BEGIN EARTH DRAINAGE CHANNEL EL 121.5

FLOWLINE 375± LINEAR FEET OF CONCRETE DRAINAGE CHANNEL

FLOWLINE 250± LF OF CONCRETE DRAINAGE CHANNEL

FLOWLINE 375± LINEAR FEET OF CONCRETE DRAINAGE CHANNEL

E 1503900
E 1503650
N 192850
N 192600

C-400
C-405
C-410
C-415
C-420
C-425
C-430

PZ-6

9.2%
5.1%
3.0%

METAL PLATE
CONCRETE SLAB
UTIL VAULT (OPEN)
CONC CURB
CONC COLUMNS
CONC STEPS
42" EUC
ALL UTILITIES ABANDONED
FL CONC SWALE
8'± WIDE CONC WALLS
COAL STORAGE BUILDING
8'± WIDE CONC WALL
CONVEYOR TOWER
CONC PAD FOR STAIRS
MTL STAIRS TO TOWER NOT LOCATED
CONVEYOR BLDG
POTASAH BUILDING
0.75± HIGH WALL
4' WIDE CONC BERM
BASE OF CONC COLUMN
ELEC VAULT
(3) CYPRESS TREES
34"
32"
28"
STORAGE AREA
2'± WIDE BLDG WALL

0 20 30 50
Scale in Feet

DESIGN	DRAWN	REVIEW	DATE	REV	DESCRIPTION
WCA	WCA	MAH	04/01/18	R3	FINAL REVIEW
WCA	WCA	MAH	12/12/19	C1	FOR BID AND CONSTRUCTION

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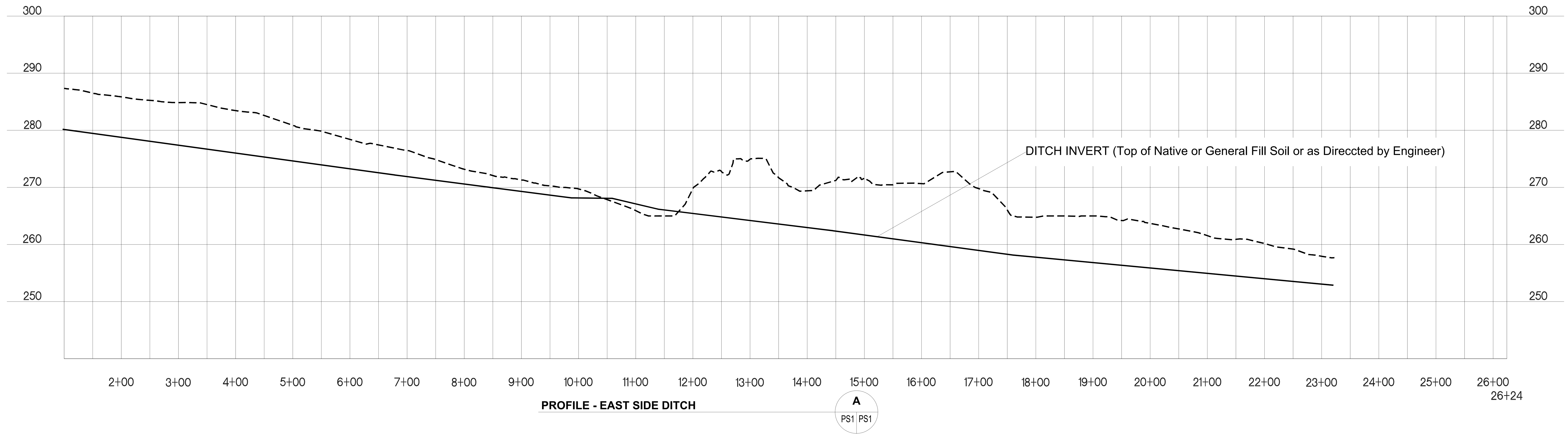
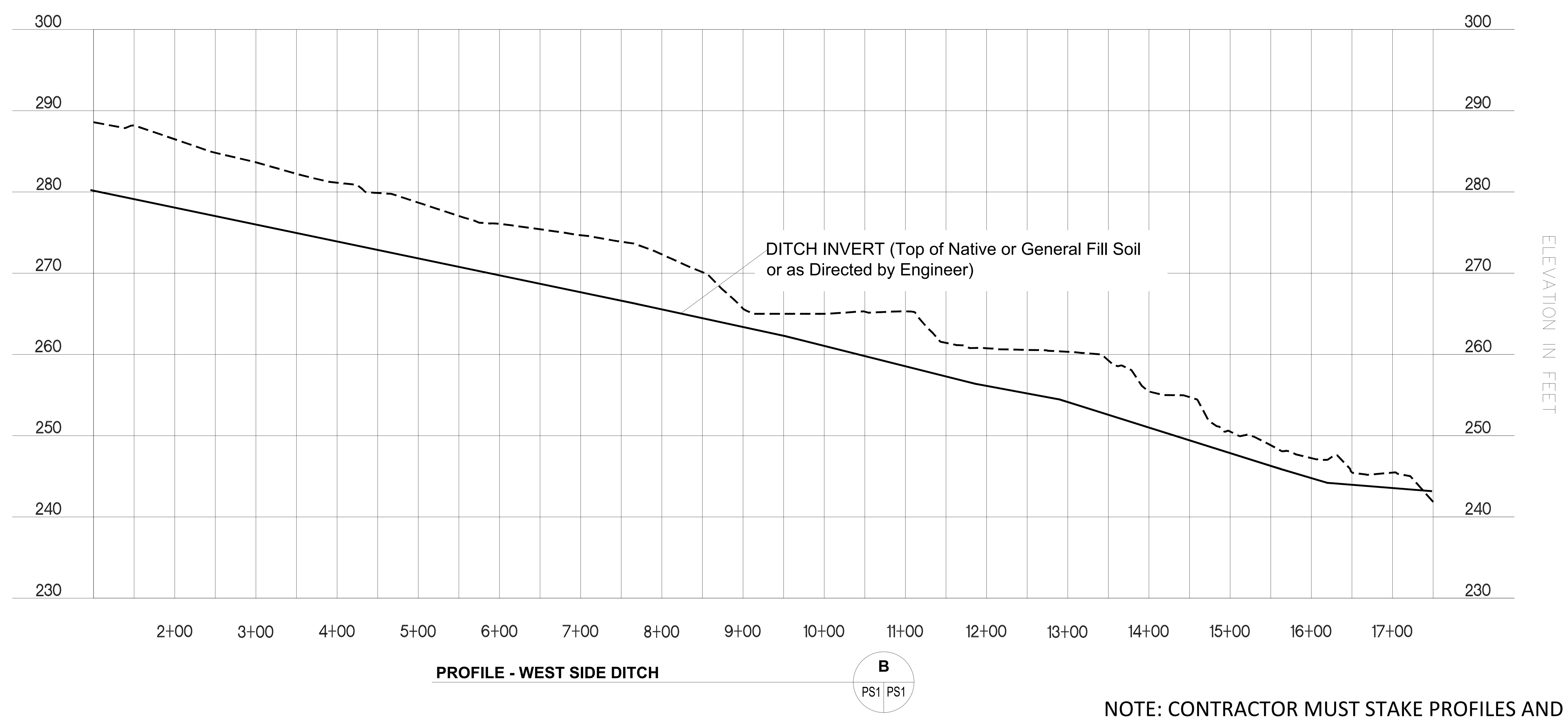
CEMENT KILN DUST (CKD) CLOSURE PLANS
COAL AREA GRADING PLAN

DRAWING NUMBER
SHEET
G3
13 OF 28

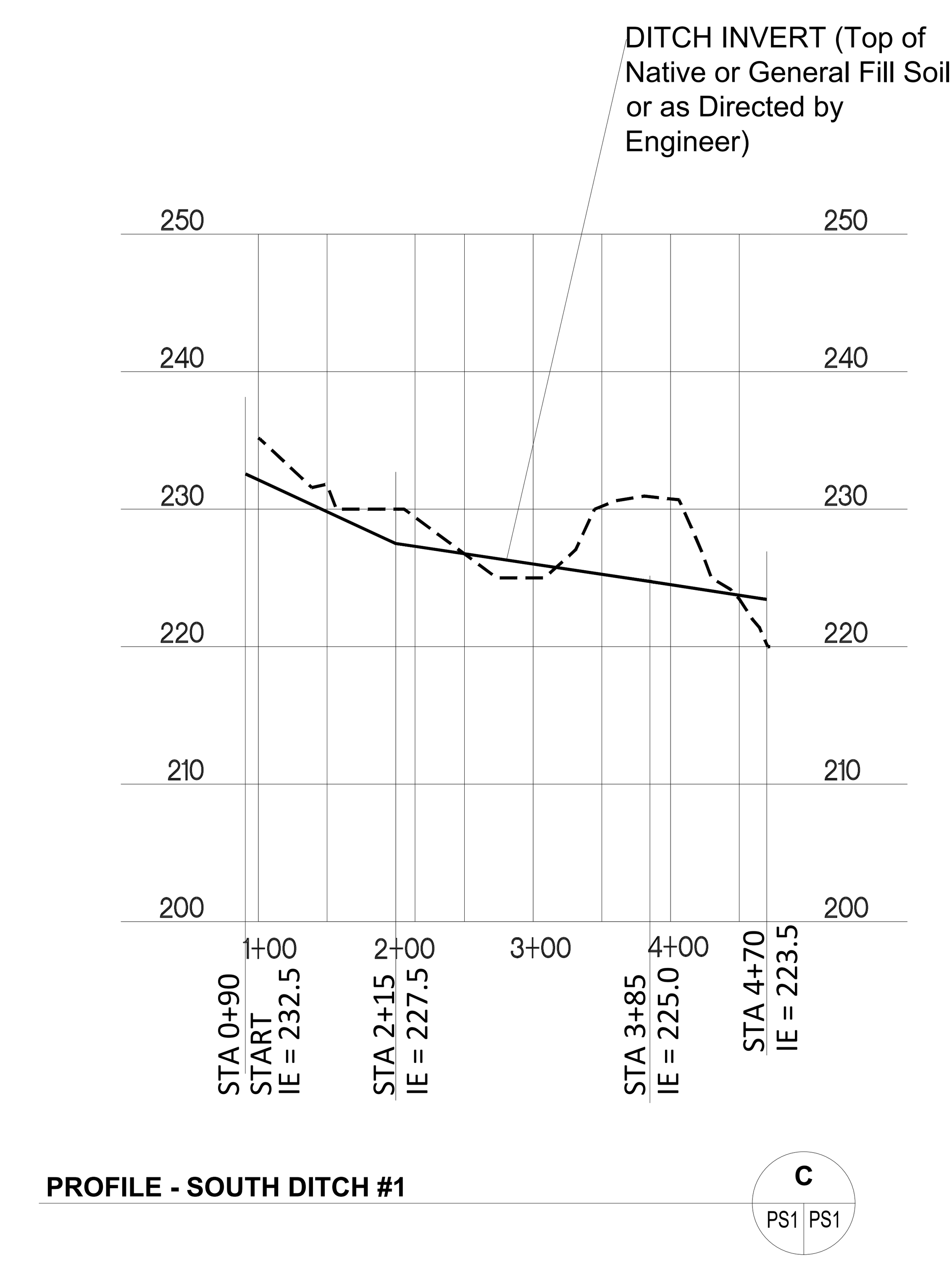
Exhibit B



PROFILE - EAST SIDE DITCH



PROFILE - WEST SIDE DITCH



PROFILE - SOUTH DITCH #1

NOTE: CONTRACTOR MUST STAKE PROFILES AND "AS-STAKED" SURVEY OF INSIDE TOP EDGE OF DITCH (CONTROL POINTS) TO OBTAIN APPROVAL BY ENGINEER BEFORE CONSTRUCTION CAN BEGIN.

DESIGN	DRAWN	REVIEW	DATE	REV	DESCRIPTION
WCA	WCA	MAH	04/01/18	R3	FINAL REVIEW
WCA	WCA	MAH	12/12/19	C1	FOR BID AND CONSTRUCTION

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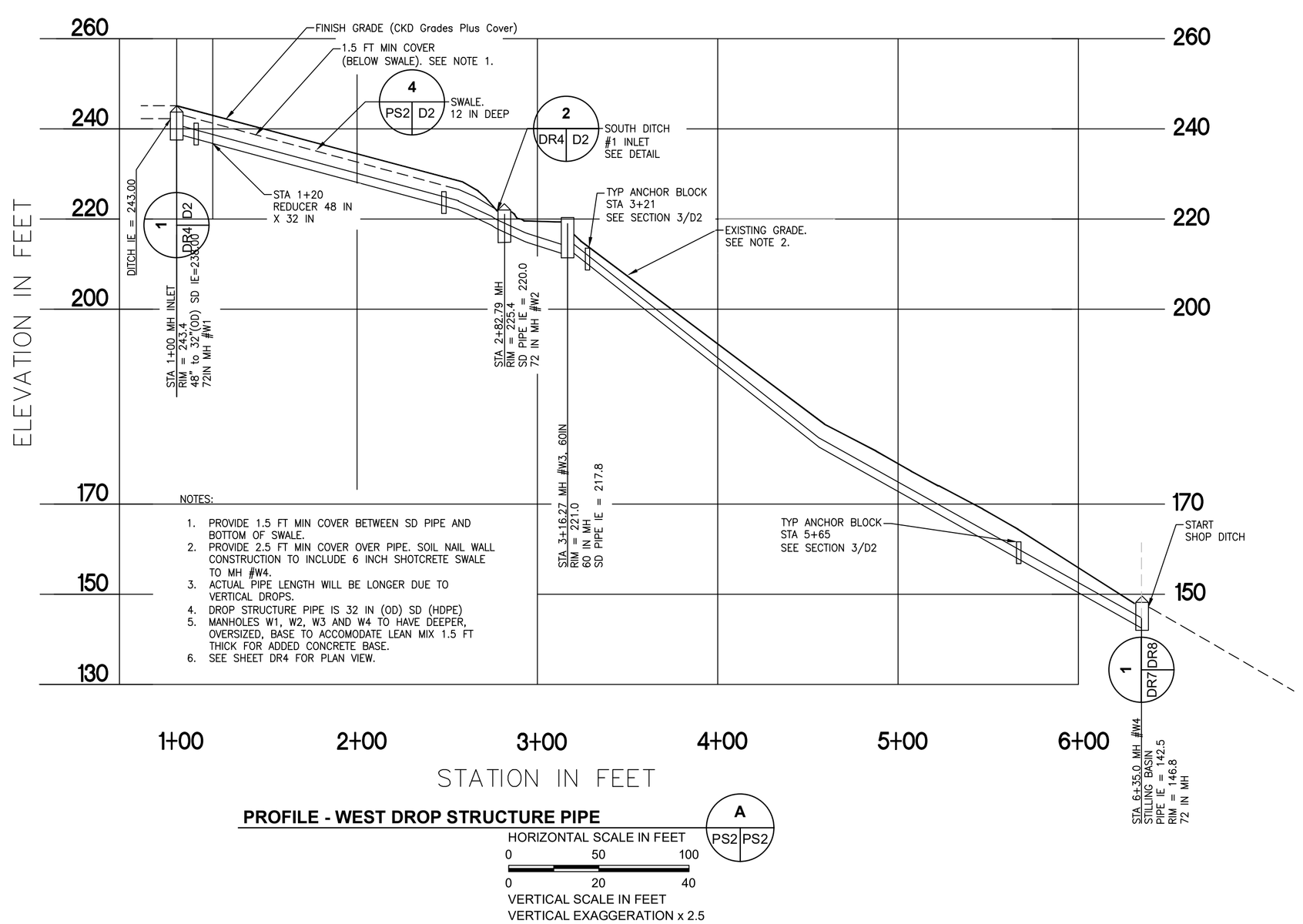
CEMENT KILN DUST (CKD) CLOSURE PLANS
EAST, WEST AND SOUTH PERIMETER DITCHES

CEMEX

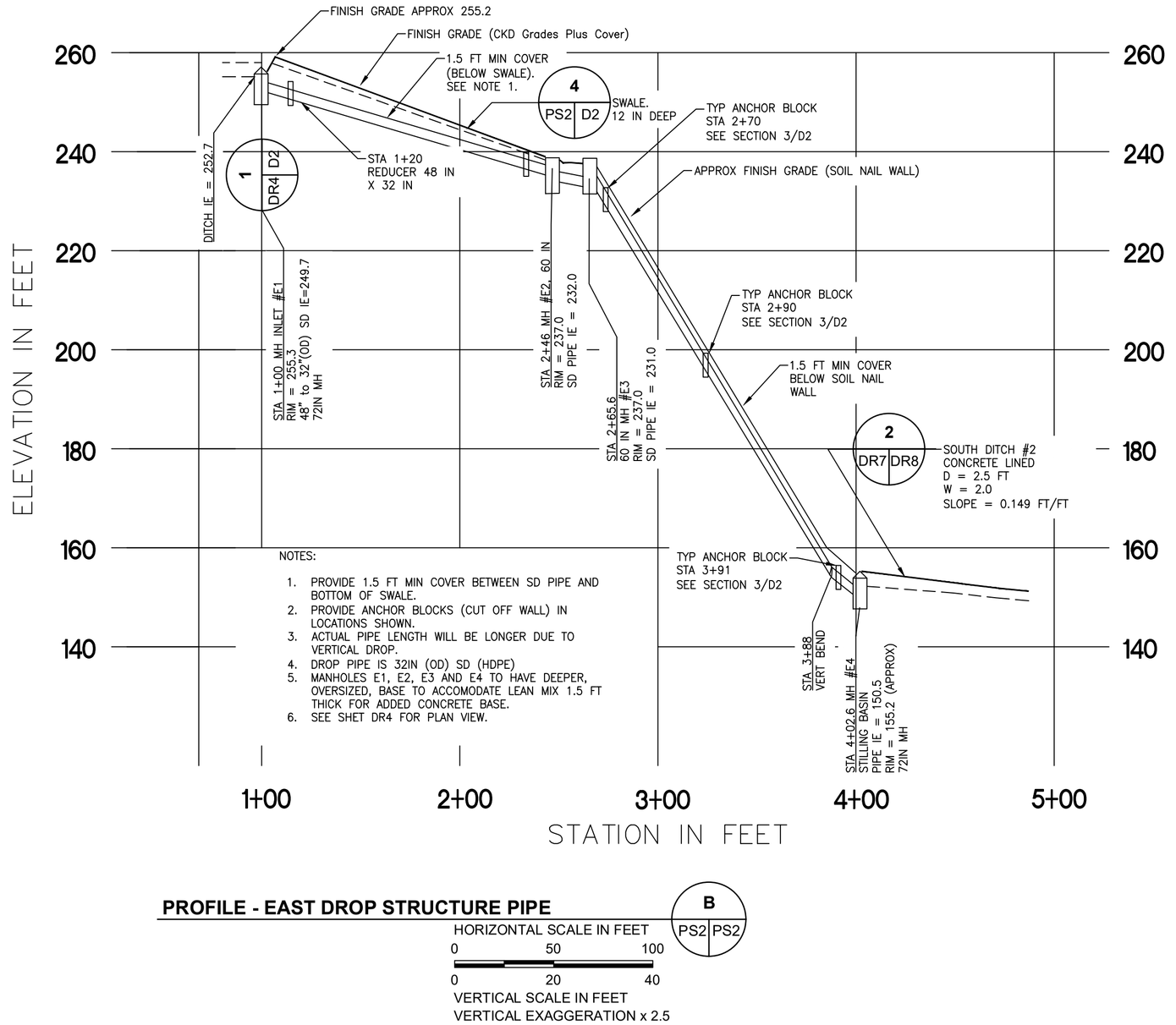
DRAWING NUMBER
SHEET
PS1
14 OF 28

Exhibit B



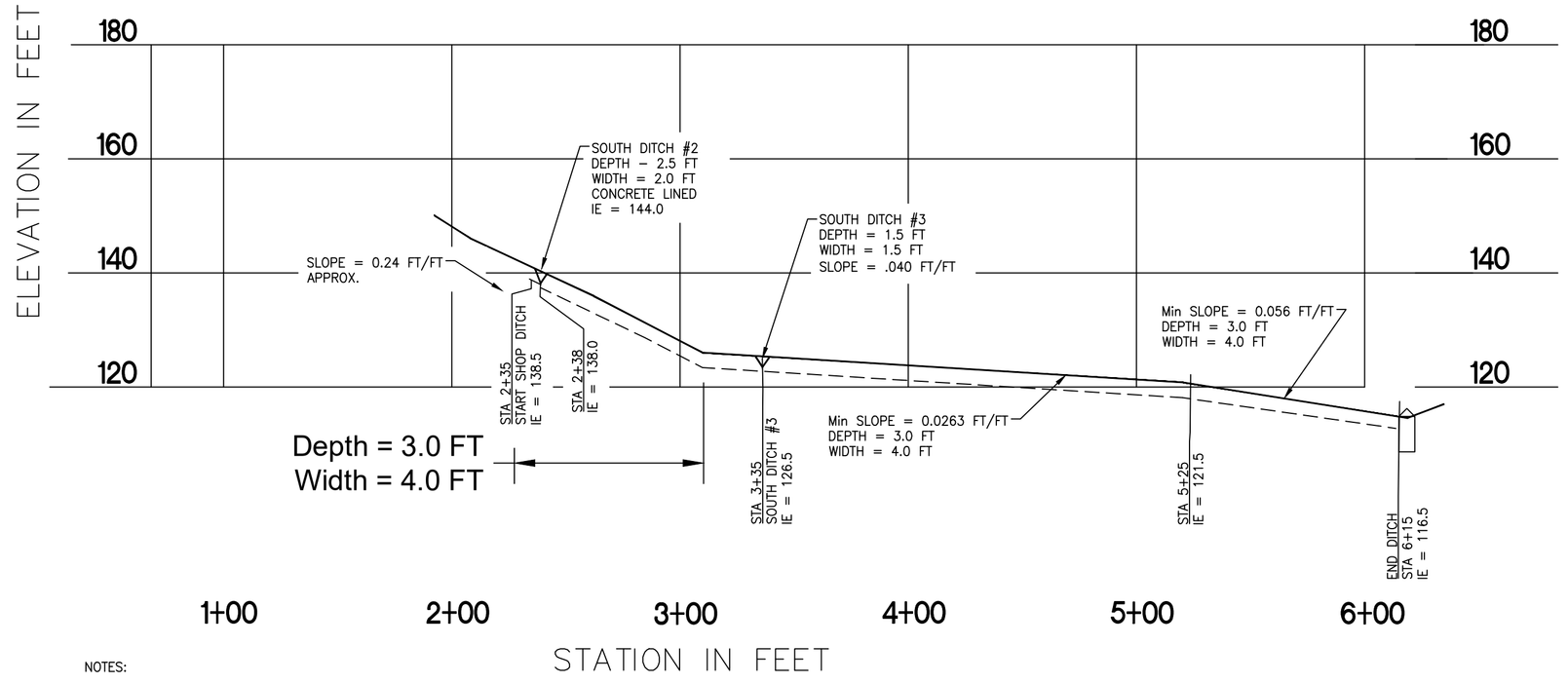
PROFILE - WEST DROP STRUCTURE PIPE — A PS2 PS2

HORIZONTAL SCALE IN FEET
0 50 100
0 20 40
VERTICAL SCALE IN FEET
VERTICAL EXAGGERATION x 2.5



PROFILE - EAST DROP STRUCTURE PIPE — B PS2 PS2

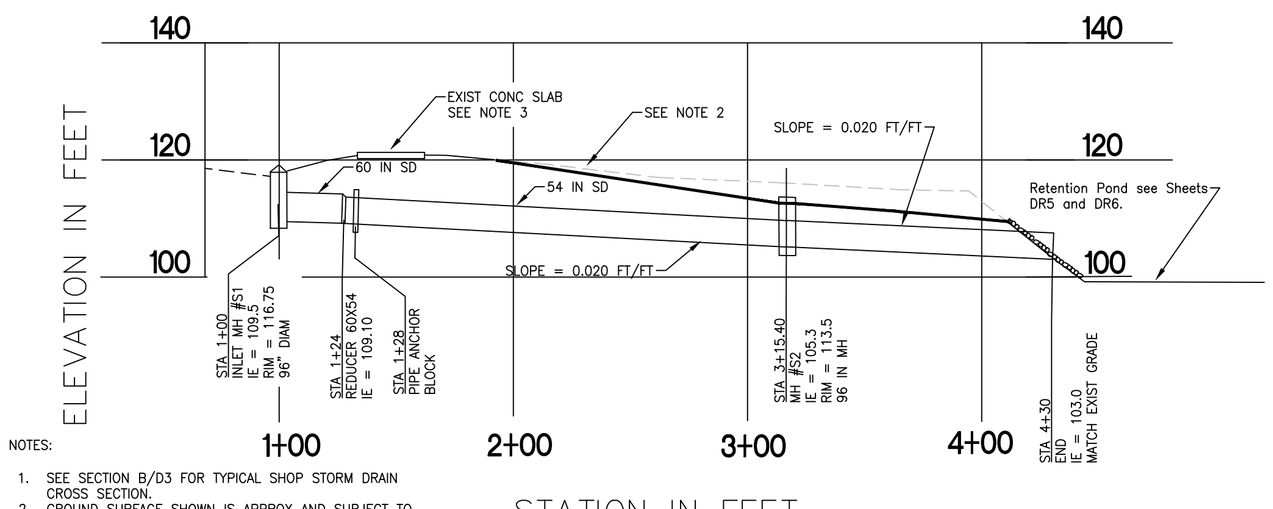
HORIZONTAL SCALE IN FEET
0 50 100
0 20 40
VERTICAL SCALE IN FEET
VERTICAL EXAGGERATION x 2.5



NOTES:
1. SEE DETAIL A/DR7 FOR TYPICAL SHOP DITCH AREA CROSS SECTION.
2. SHOP DITCH SHALL BE FILLED WITH 3 IN THICK LAYER OF CONCRETE ON ALL SIDES AND BOTTOM.
3. SEE SHEET DR7 FOR PLAN VIEW.

PROFILE - SHOP DITCH — C DR7 PS2

HORIZONTAL SCALE IN FEET
0 50 100
0 20 40
VERTICAL SCALE IN FEET
VERTICAL EXAGGERATION x 2.5



NOTES:
1. SEE SECTION B/D3 FOR TYPICAL SHOP STORM DRAIN CROSS SECTION.
2. GROUND SURFACE SHOWN IS APPROX AND SUBJECT TO FINAL COAL AND SOIL REMOVAL. SEE SHEET G3.
3. SAW CUT EXISTING CONC SLAB AND REMOVE. APPROX 30 LFT.
4. MANHOLES S1 AND S2 TO HAVE DEEPER, OVERSIZED, BASE TO ACCOMODATE LEAN MIX 3.0 FT THICK FOR ADDED CONCRETE BASE.
5. SEE SHEET DR7 FOR PLAN VIEW.

PROFILE - SHOP STORM DRAIN — D DR7 PS2

HORIZONTAL SCALE IN FEET
0 50 100
0 20 40
VERTICAL SCALE IN FEET
VERTICAL EXAGGERATION x 2.5

DESIGN	DRAWN	REVIEW	DATE	REV	DESCRIPTION
WCA	WCA	MAH	04/01/18	R3	FINAL REVIEW
WCA	WCA	MAH	12/12/19	C1	FOR BID AND CONSTRUCTION

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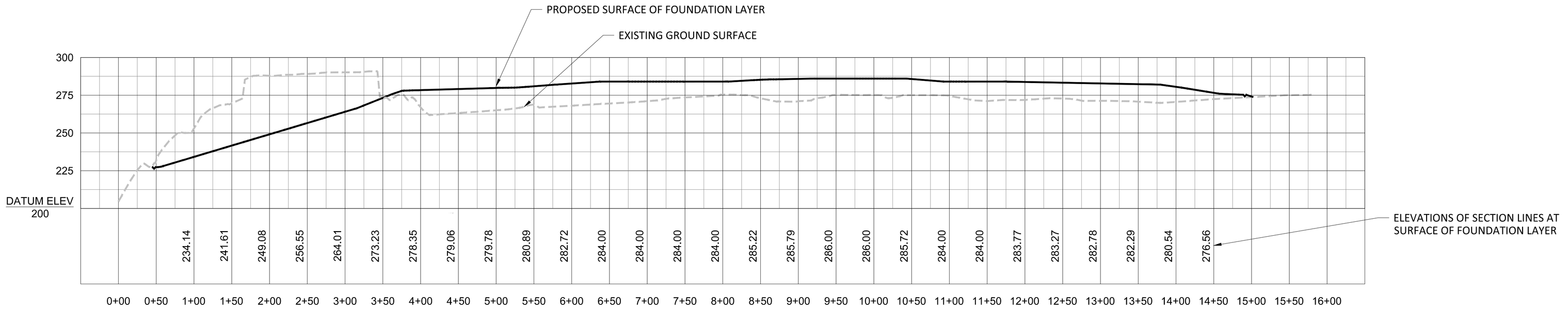
CEMENT KILN DUST (CKD) CLOSURE PLANS

CEMEX

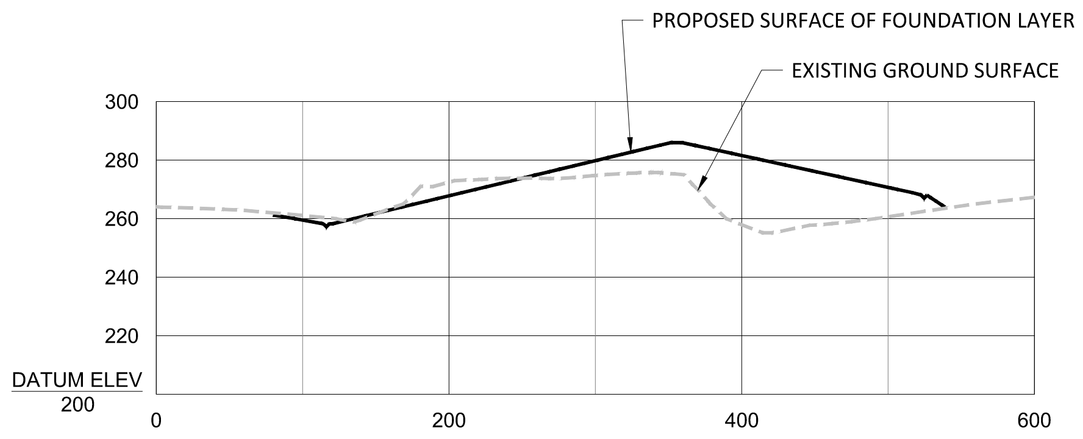
DRAWING NUMBER
SHEET
PS2
15 OF 28

Exhibit B



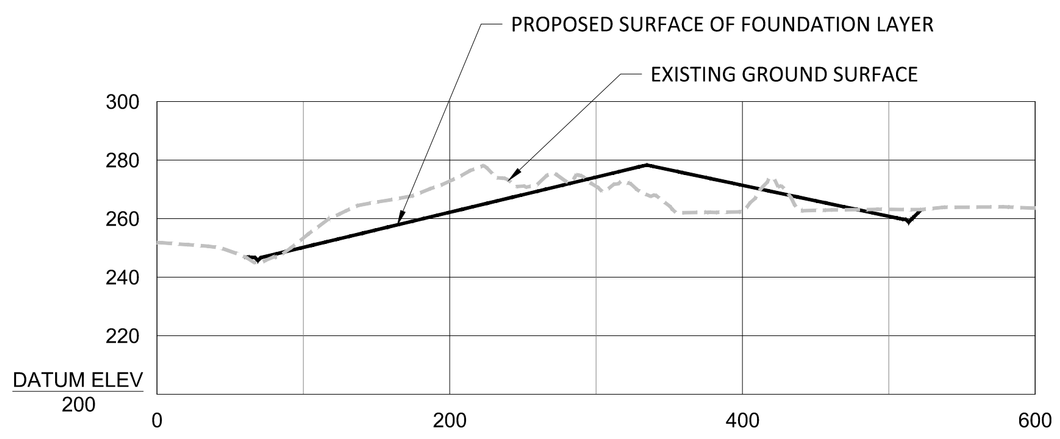
A G2 PS3 PROFILE ALONG CREST OF LANDFILL COVER

HORIZONTAL SCALE IN FEET
0 80 160
0 40 80
VERTICAL SCALE IN FEET
VERTICAL EXAGGERATION x 2



B G2 PS3 CROSS SECTION

HORIZONTAL SCALE IN FEET
0 80 160
0 40 80
VERTICAL SCALE IN FEET
VERTICAL EXAGGERATION x 2



C G1 PS3 CROSS SECTION

HORIZONTAL SCALE IN FEET
0 80 160
0 40 80
VERTICAL SCALE IN FEET
VERTICAL EXAGGERATION x 2

NOTE: CONTRACTOR MUST STAKE AND SUBMIT FINAL SURVEY TO OBTAIN APPROVAL BY ENGINEER BEFORE CONSTRUCTION CAN BEGIN.

REV	DESCRIPTION	DATE	REVIEW	DRAWN	DESIGN
R3	FINAL REVIEW	04/01/18	MAH	WCA	WCA
C1	FOR BID AND CONSTRUCTION	12/12/19	MAH	WCA	WCA

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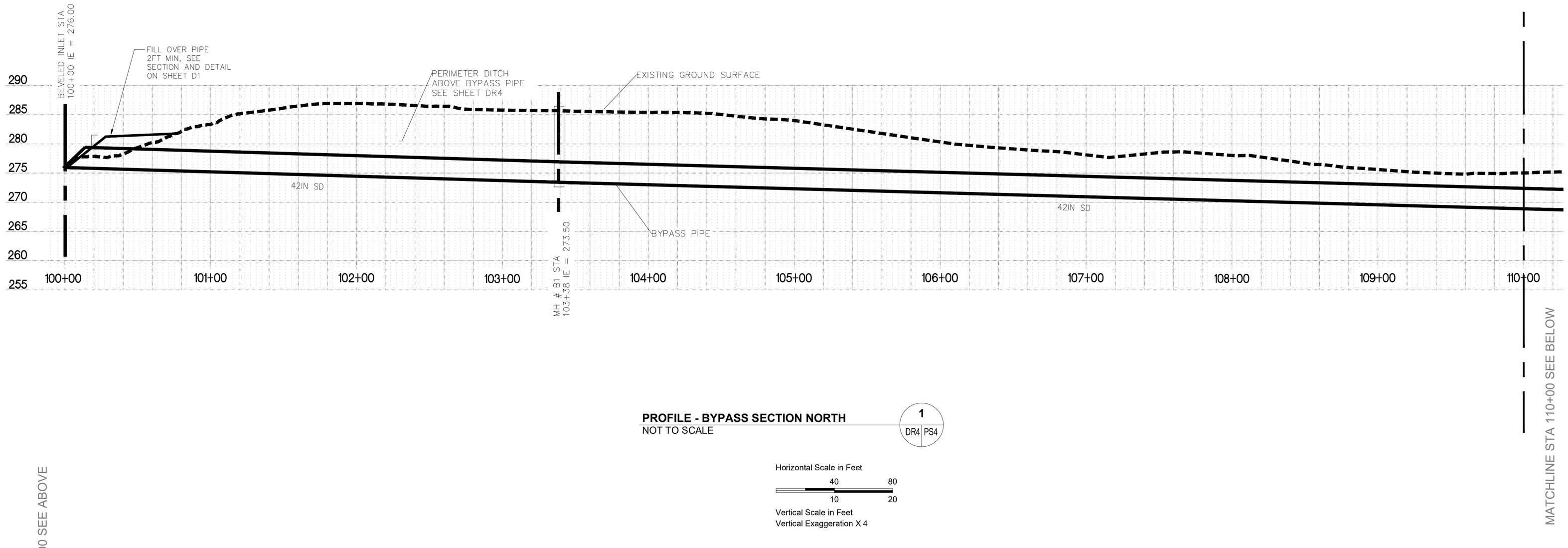
CEMENT KILN DUST (CKD) CLOSURE PLANS

CREST PROFILE AND CROSS SECTIONS

DRAWING NUMBER
SHEET
PS3
16 OF 28

Exhibit B



PROFILE - BYPASS SECTION NORTH
NOT TO SCALE

1
DR4 | PS4

Horizontal Scale in Feet
40 80
10 20
Vertical Scale in Feet
Vertical Exaggeration X 4

PROFILE - BYPASS SECTION SOUTH
NOT TO SCALE

2
DR4 | PS4

Horizontal Scale in Feet
40 80
10 20
Vertical Scale in Feet
Vertical Exaggeration X 4

NOTES:

1) CONTRACTOR MUST STAKE AND SUBMIT FINAL SURVEY PROFILES TO OBTAIN APPROVAL BY ENGINEER BEFORE CONSTRUCTION CAN BEGIN.
2) PIPE COVER TO MATCH EXISTING GRADES, STRUCTURAL FILL BERMS PLACED TO SPECIFICATIONS AND LOCATIONS AS SHOWN ON PLANS AND/OR AS DIRECTED BY ENGNEER.
3) OUTLET MH SHALL INCLUDE AN 8 INCH SCHD 40 PVC DRAIN TO DAYLIGHT AND A GALV STEEL TRASHRACK.

REV	DESCRIPTION	DATE	REVIEW	DRAWN	DESIGN
R3	FINAL REVIEW	04/01/18	MAH	WCA	WCA
C1	FOR BID AND CONSTRUCTION	12/12/19	MAH	WCA	WCA

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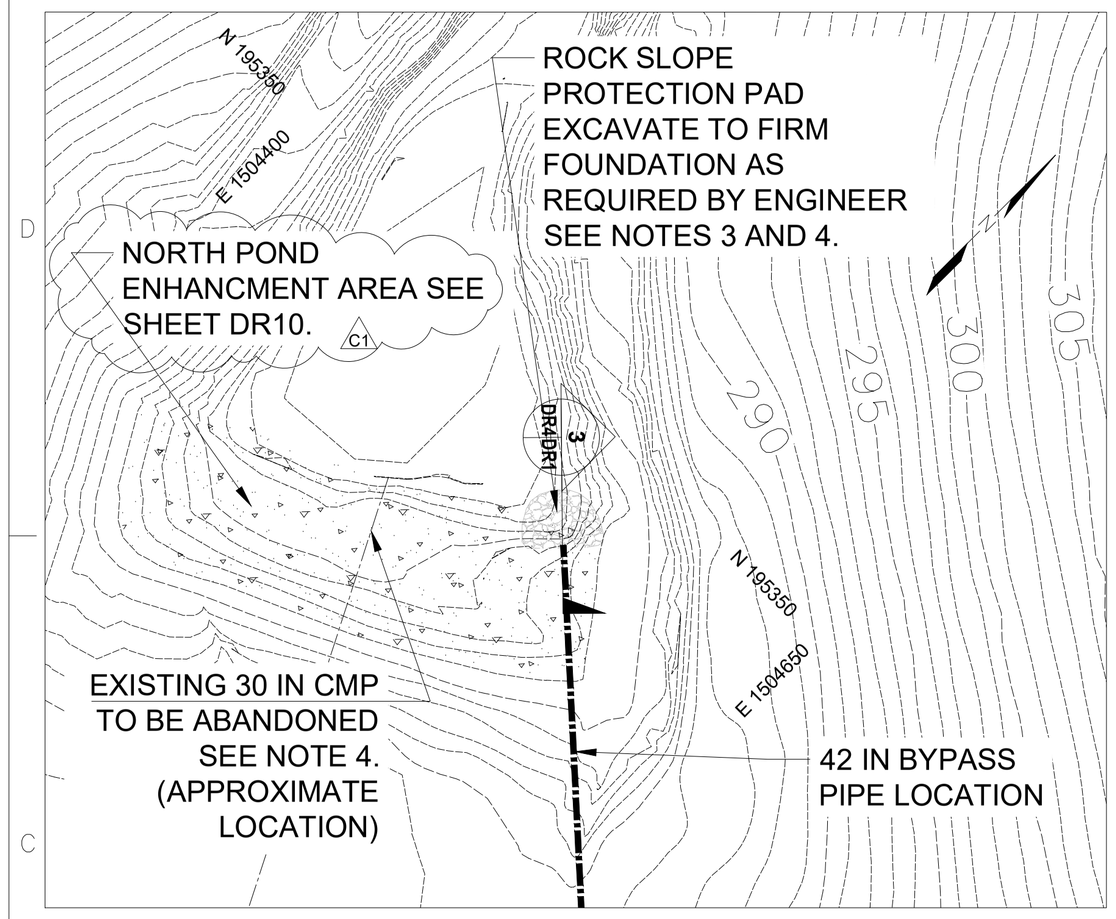
CEMENT KILN DUST (CKD) CLOSURE PLANS

BYPASS PIPE PROFILE

DRAWING NUMBER
SHEET
PS4
17 OF 28

Exhibit B



PLAN - NORTH DRAINAGE POND — 1 (D1 | D1)

0 40 80

Scale in Feet

NOTES:

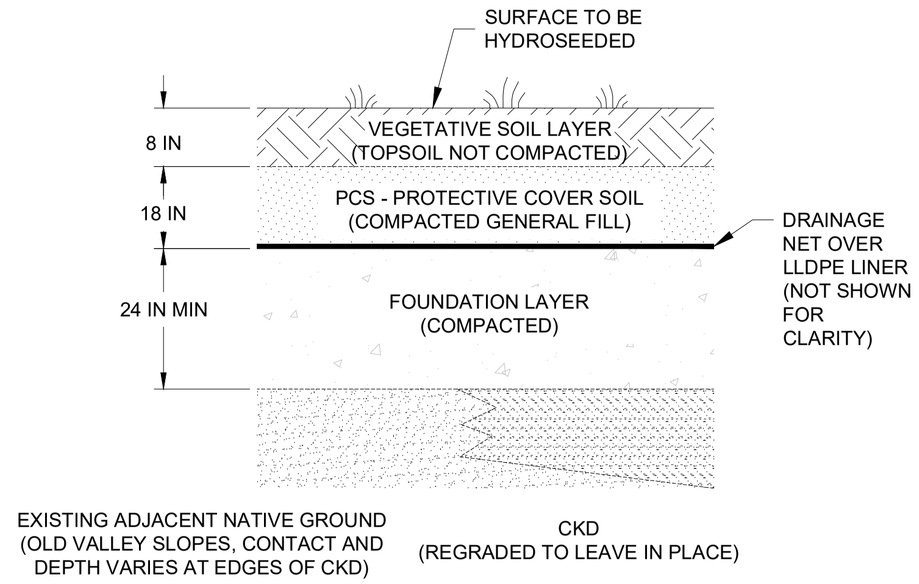
1. EXCAVATE SEDIMENT FROM THE NORTH DRAINAGE POND TO THE LIMITS INDICATED WHERE NECESSARY TO EXPOSE EXISTING 30 IN PIPE INLET AND TO ONE FOOT BELOW THE ELEVATION OF THE INVERT OF NEW BYPASS PIPE (APPROXIMATE ELEVATION 275 FT).

2. CUT SIDE SLOPES AT 2H:1V ON EAST, SOUTH, AND WEST SIDES OF EXCAVATION. GRADE NORTH SIDE OF CUT AND BASE OF POND TO DRAIN TOWARD THE DRAIN PIPE INLET.

3. INSTALL 12 IN THICK ROCK SLOPE PROTECTION (SPEC 02200) INLET PAD WITHIN 15 FT RADIUS OF THE DRAIN PIPE INLET.

4. EXPOSE EXISTING 30 IN CMP REMOVE PIPE AND/OR PLUG (AREAS 2 AND 3 ONLY), FULLY PLUG (AREA 1) WITH MATERIAL SUCH AS EXPANSIVE FOAM OR LEAN MIX AS APPROVED BY THE EINGINEER PRIOR TO EXCAVATION/CONSTRUCTION.

5. ALL GRADE AND EXCAVATION ADJUSTMENTS TO BE APPROVED BY DESIGN ENGINEER PRIOR TO CONSTRUCTION.



NOTES (SEE SPECIFICATIONS FOR FURTHER INFORMATION)

1. FOUNDATION LAYER SHALL CONSIST OF CKD THAT IS REGRADED AND LEFT IN PLACE, OR EXCAVATED SOIL MOVED FROM ELSEWHERE, OR, IF NECESSARY, DUE TO LACK OF AVAILABILITY OF CKD, PLACE AND COMPACT GENERAL BACKFILL MATERIAL (SUBJECTED TO DESIGN ENGINEER'S APPROVAL).

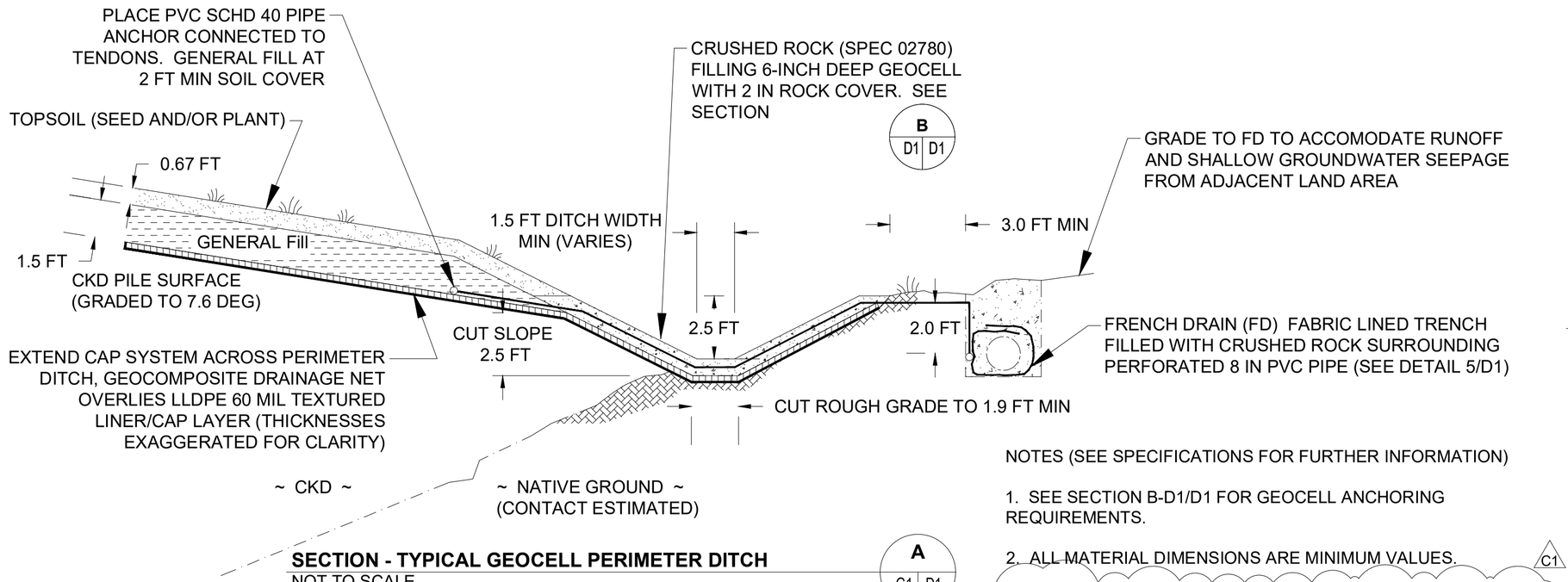
2. COMPACT AND PROOF ROLL FOUNDATION LAYER AND PLACE DRAINAGE NET/LLDPE LINER IN ACCORDANCE WITH SPECIFICATIONS. LLDPE LINER TO BE PLACED ON "FINAL FOUNDATION LAYER GRADE" SURFACE. CKD SHALL NOT BE PLACED OUTSIDE LIMITS OF LINER/CAP.

3. ALL MATERIALS PLACED TO CREATE THE FOUNDATION LAYER SHALL BE COMPACTED IN ACCORDANCE WITH THE SPECIFICATIONS AND PROVIDE A SMOOTH SURFACE WITH NO PROTRUSIONS.

4. VEGETATIVE SOIL LAYER SHALL CONSIST OF ONSITE STOCKPILED TOPSOIL PLACED AS A LOOSE LIFT THICKNESS, AMENDED IN ACCORDANCE WITH THE SPECIFICATIONS. IMPORTED TOPSOIL MAY ALSO BE USED. SEE SPECIFICATIONS SECTION 02200.

DETAIL - TYPICAL LINER/CAP COVER SYSTEM — 2 (D1 | D1)

NOT TO SCALE



SECTION - TYPICAL GEOCELL PERIMETER DITCH — A (G1 | D1)

NOT TO SCALE

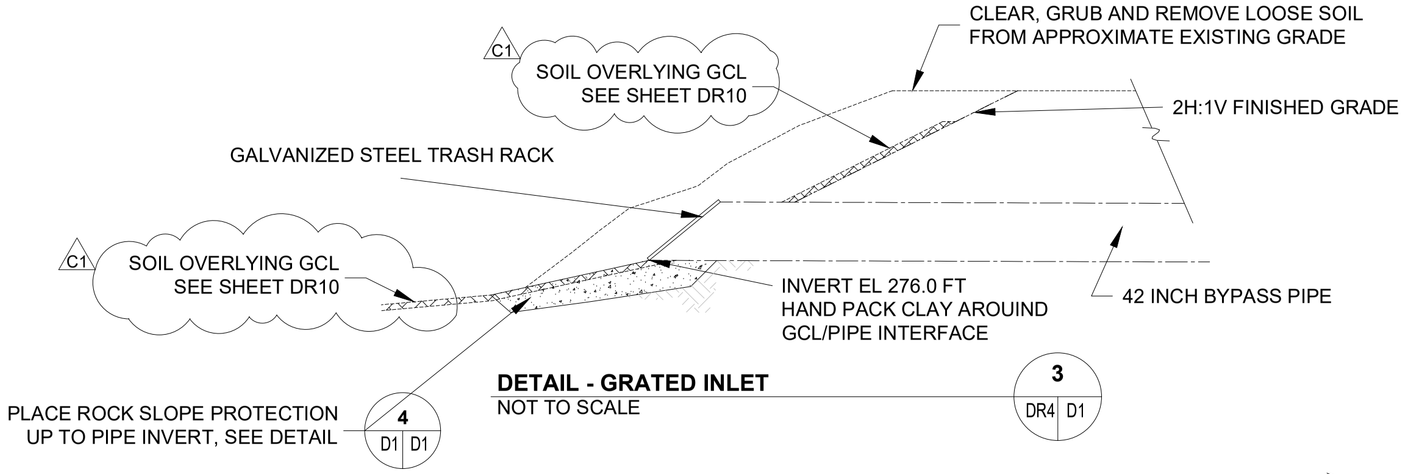
NOTES (SEE SPECIFICATIONS FOR FURTHER INFORMATION)

1. SEE SECTION B-D1/D1 FOR GEOCELL ANCHORING REQUIREMENTS.

2. ALL MATERIAL DIMENSIONS ARE MINIMUM VALUES.

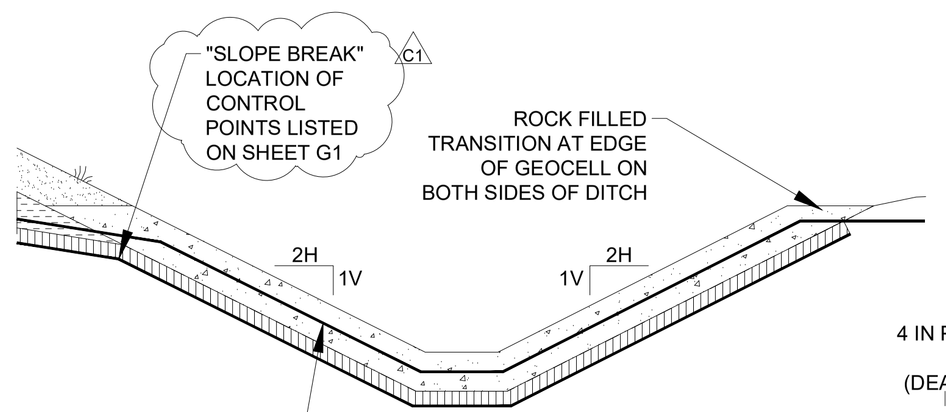
C1

3. EAST AND WEST DITCHES ARE 1.5 FT WIDE, 2.5 FT DEEP. SEE PROFILE DRAWINGS FOR OTHER DITCH SIZES.



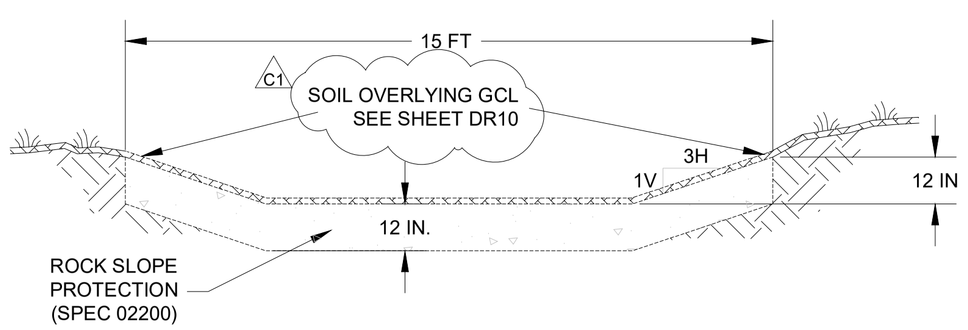
DETAIL - GRATED INLET — 3 (DR4 | D1)

NOT TO SCALE



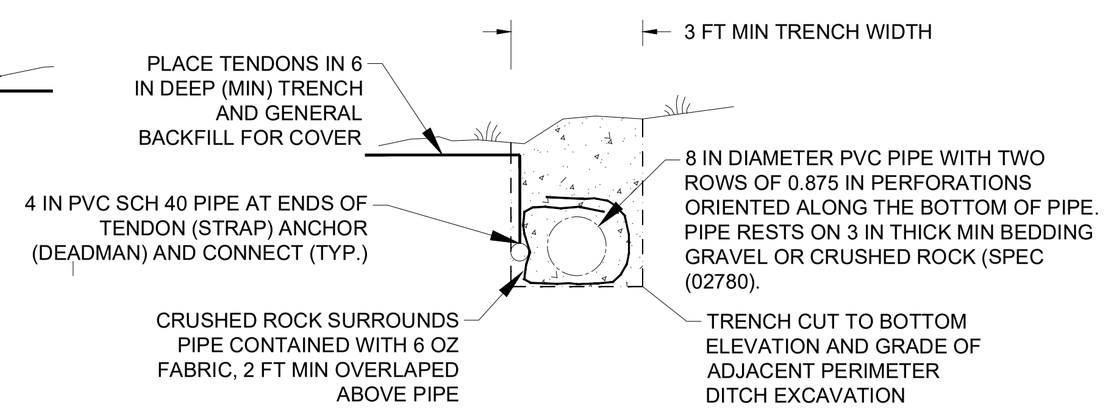
SECTION - TYPICAL GEOCELL — B (D1 | D1)

NOT TO SCALE



DETAIL - ROCK SLOPE PROTECTION (TYP.) — 4 (D1 | D1)

NOT TO SCALE



DETAIL - PERIMETER FRENCH DRAIN (FD) — 5 (D1 | D1)

NOT TO SCALE

DESIGN	DRAWN	REVIEW	DATE	REV	DESCRIPTION
WCA	WCA	MAH	04/01/18	R3	FINAL REVIEW
WCA	WCA	MAH	12/12/19	C1	FOR BID AND CONSTRUCTION

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CEMENT KILN DUST (CKD) CLOSURE PLANS

NORTH DRAINAGE POND AND CKD COVER DETAILS

CEMEX

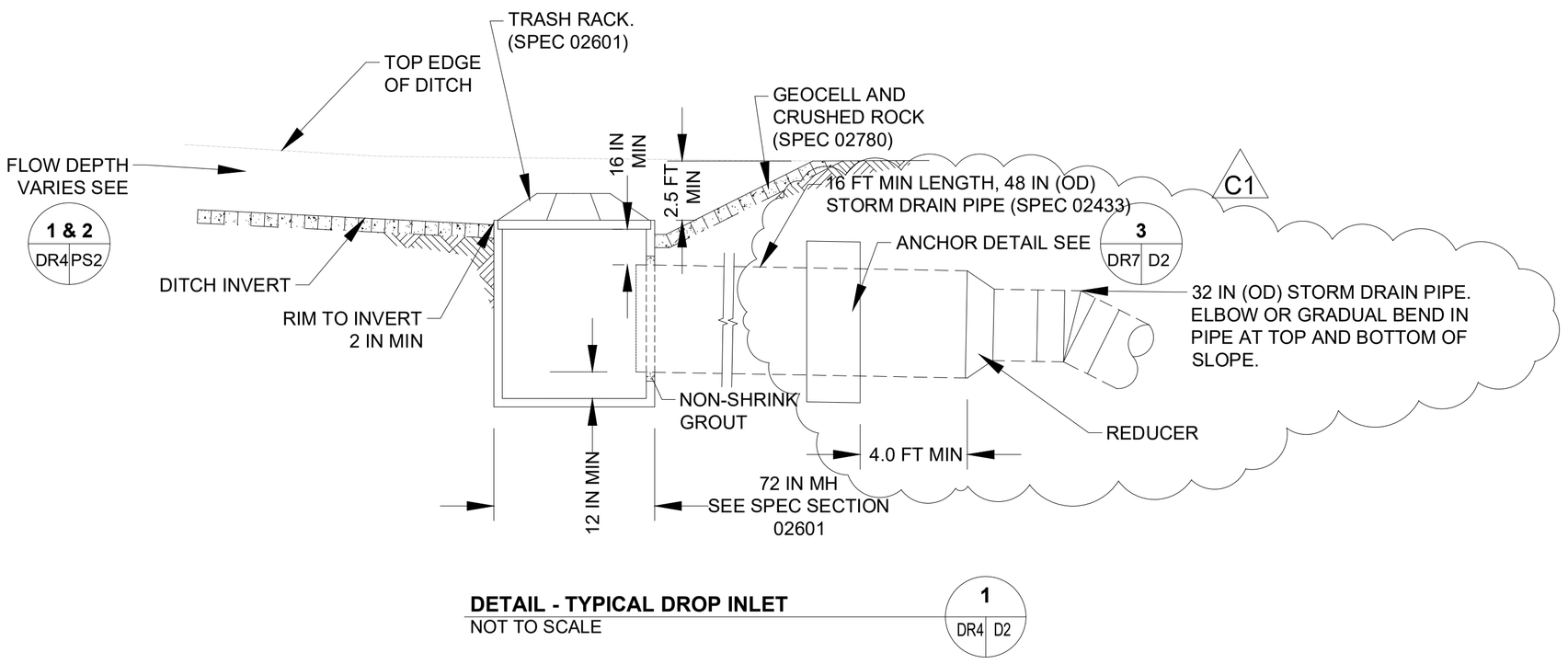
DRAWING NUMBER

SHEET

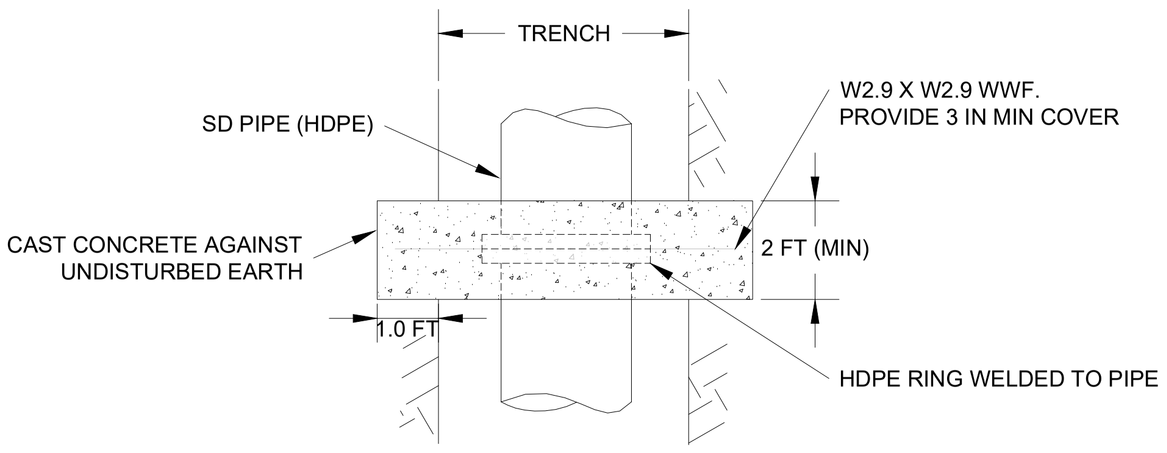
D1

18 OF 28

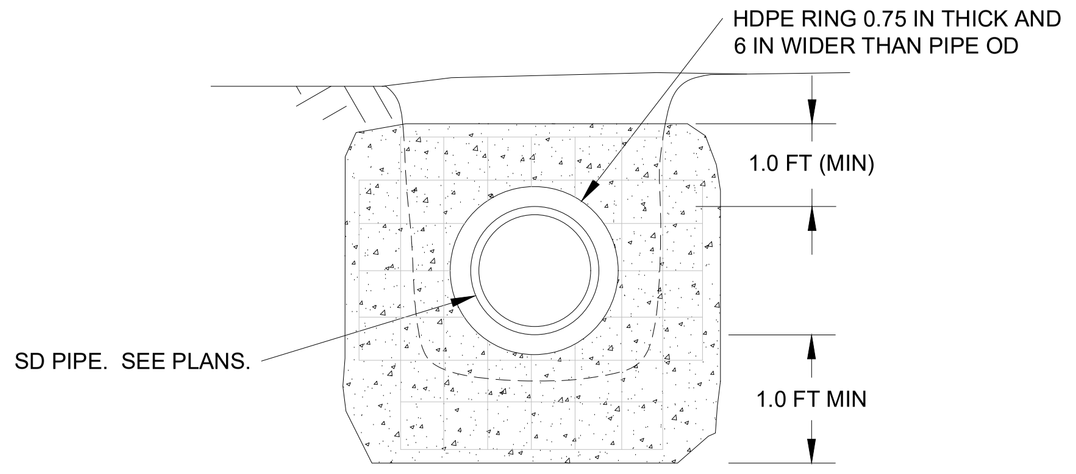
Exhibit B



DETAIL - TYPICAL DROP INLET 1 (DR4 D2)
NOT TO SCALE

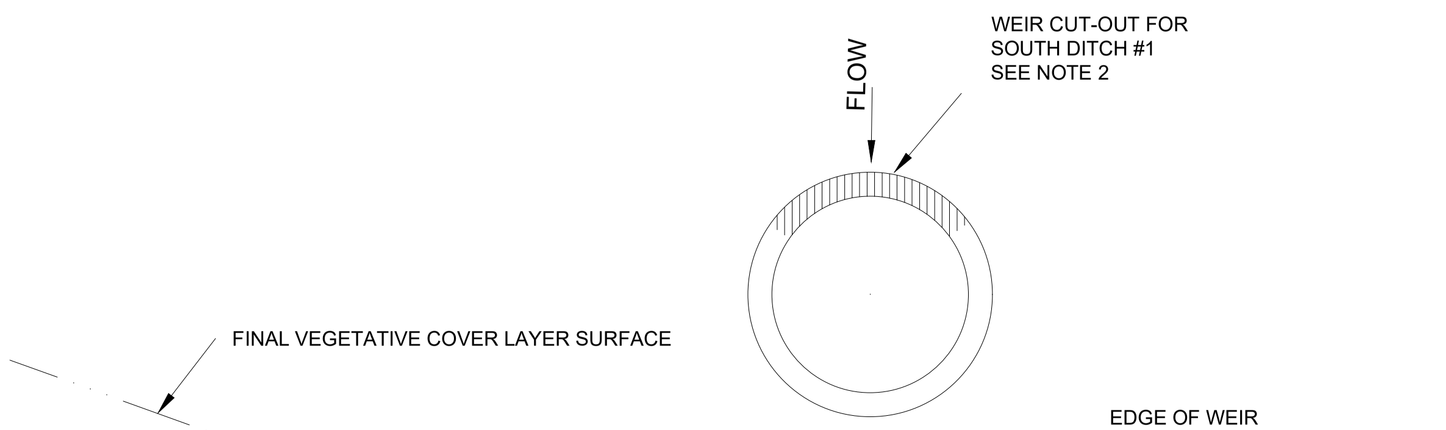


PLAN



SECTION

DETAIL - TYPICAL ANCHOR BLOCK 3 (DR7 D2)
NOT TO SCALE

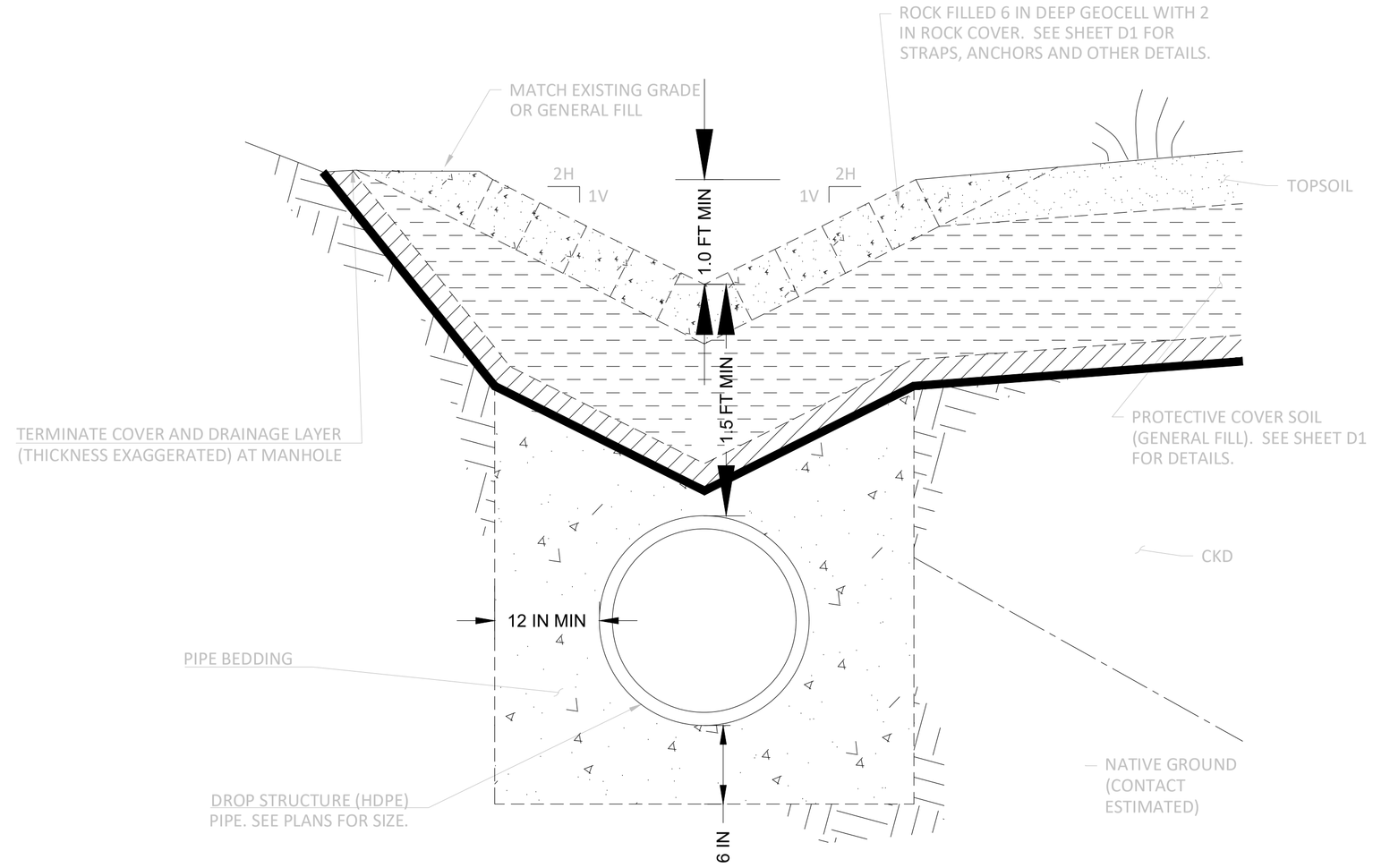


NOTES

1. HDPE PIPE SHALL EXTEND A MINIMUM 3 IN INTO DROP INLET TO ALLOW FOR THERMAL EXPANSION.

2. WEST MH #W2 - CUT WEIR INTO SOUTH SIDE OF MH FOR SOUTH DITCH. OPENING SHALL BE 1.0 FEET DEEP BY 6.6 FT WIDE. TOP OF CUT SHALL BE 2 IN ABOVE SOUTH DITCH INVERT.

DETAIL - TYPICAL STILLING BASIN 2 (DR4 D2)
NOT TO SCALE



DETAIL - DROP STRUCTURE AND SWALE 4 (PS2 D2)
NOT TO SCALE

REV	DESCRIPTION	DATE	REVIEW	DRAWN	DESIGN
R3	FINAL REVIEW	04/01/18	MAH	WCA	WCA
C1	FOR BID AND CONSTRUCTION	12/12/19	MAH	WCA	WCA

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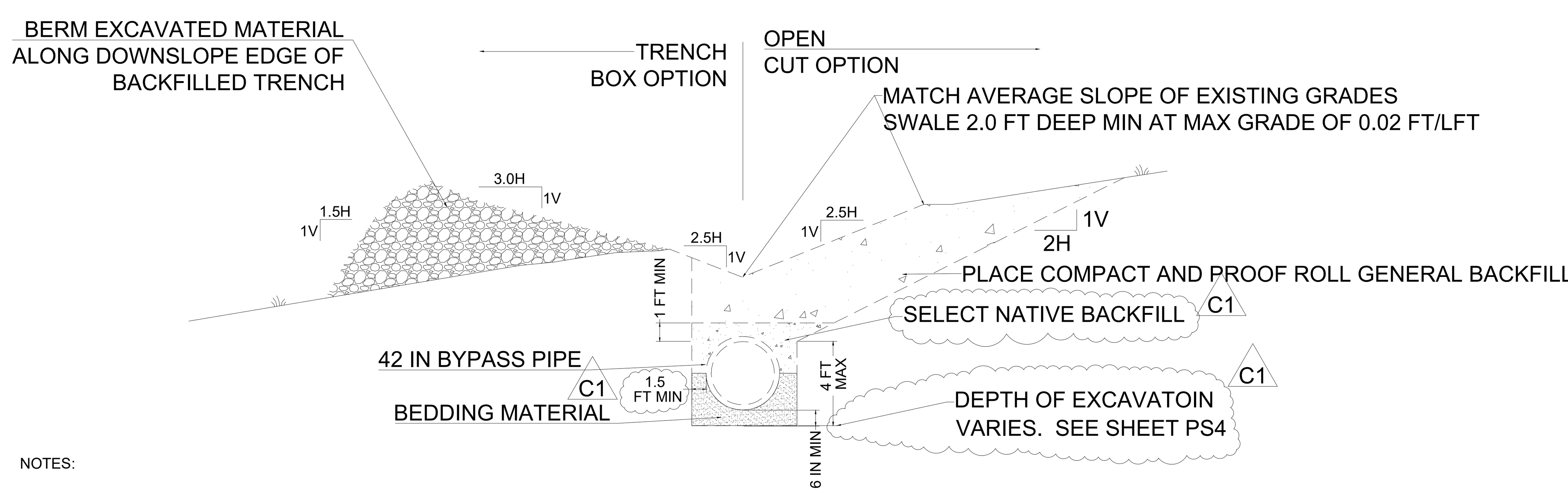
CEMENT KILN DUST (CKD) CLOSURE PLANS

DRAINAGE DETAILS

DRAWING NUMBER
SHEET
D2
19 OF 28

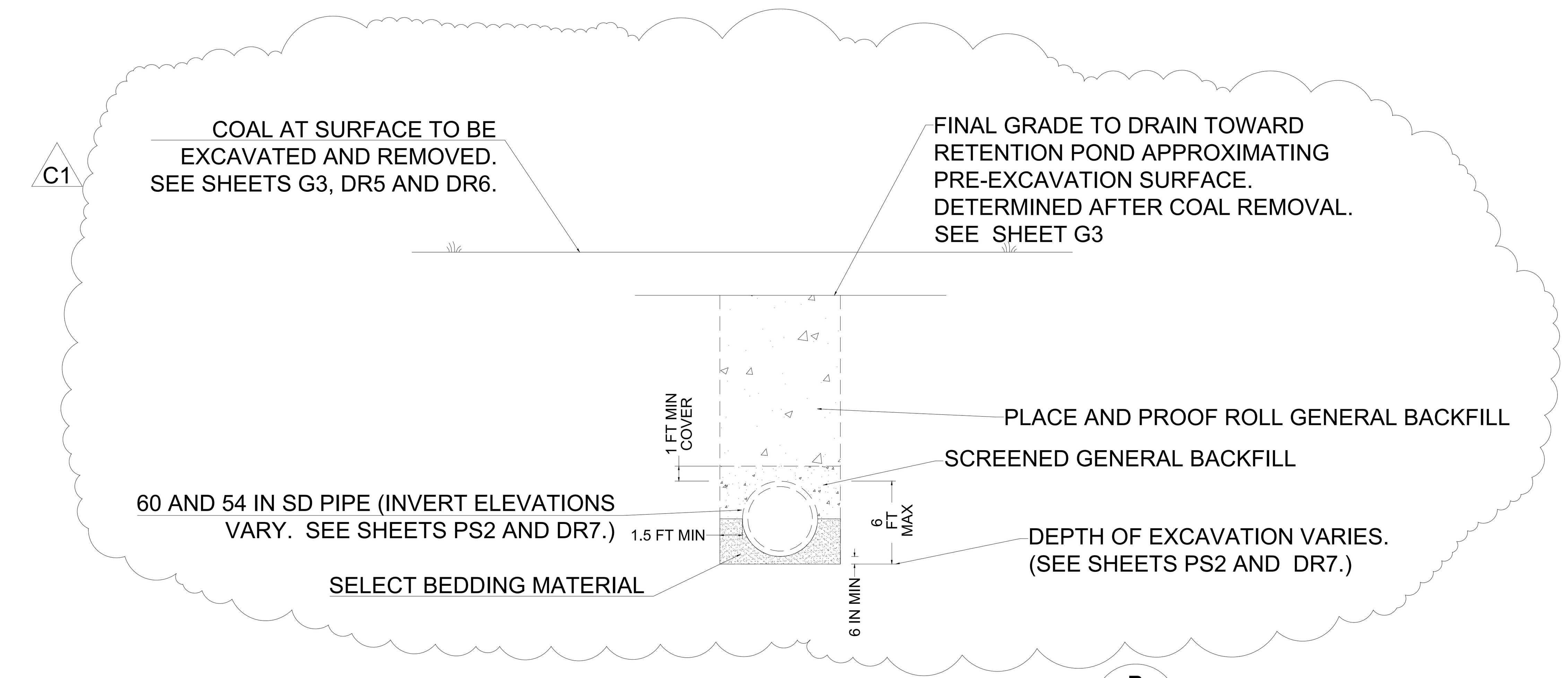
Exhibit B



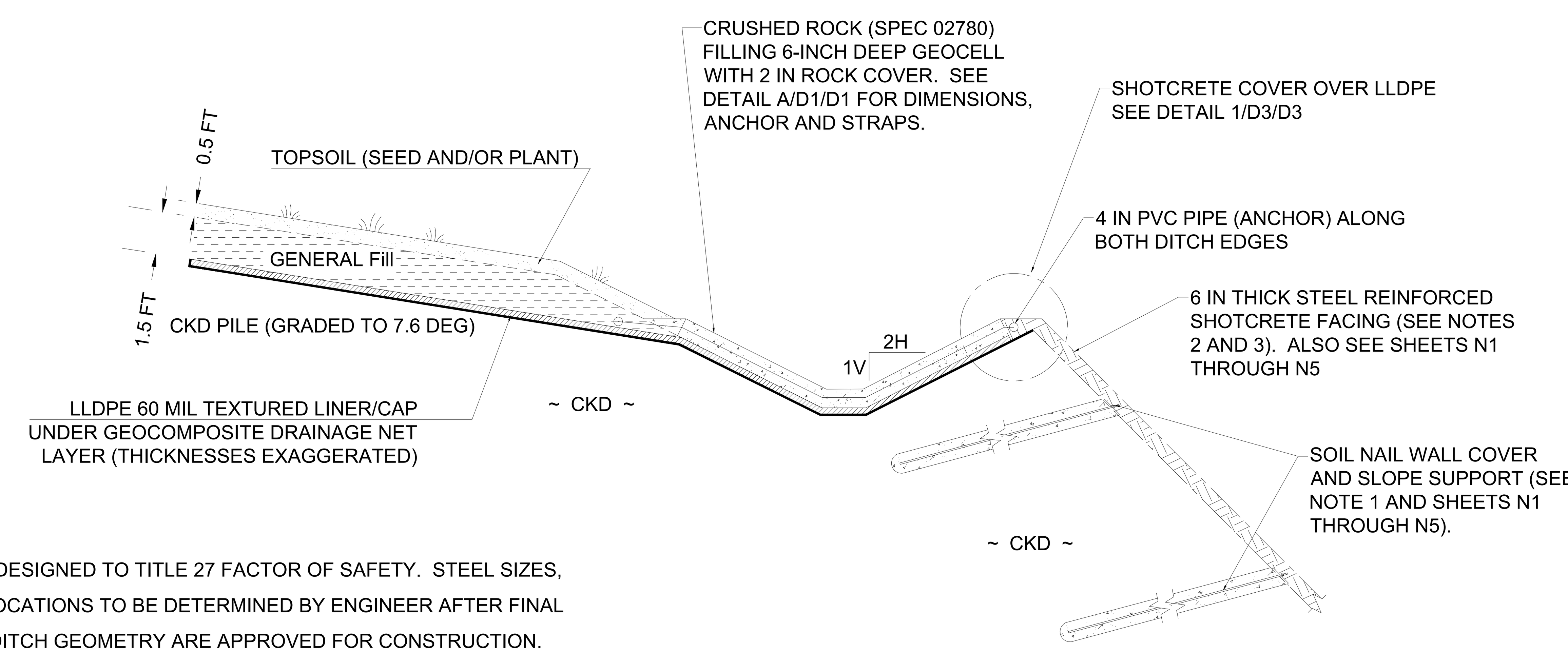
NOTES:

1) PERMANENT CUTSLOPE ANGLES TO BE APPROVED BY DESIGN ENGINEER PRIOR TO CONSTRUCTION.

SECTION - TYPICAL BYPASS PIPE A DR4 D3
NOT TO SCALE



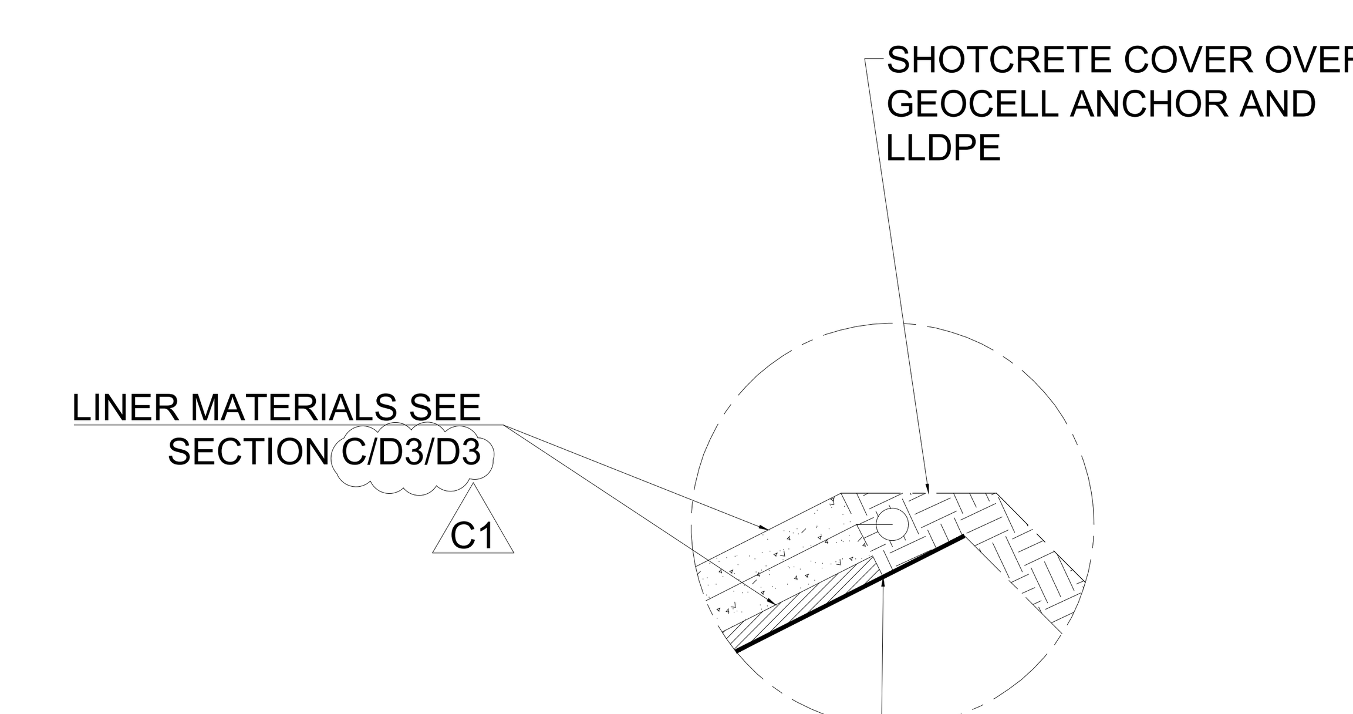
SECTION - TYPICAL COAL AREA STORM DRAIN PIPE B DR7 D3
NOT TO SCALE



NOTES:

1) SOIL NAILS TO BE DESIGNED TO TITLE 27 FACTOR OF SAFETY. STEEL SIZES, BAR LENGTHS AND LOCATIONS TO BE DETERMINED BY ENGINEER AFTER FINAL LINER GRADES AND DITCH GEOMETRY ARE APPROVED FOR CONSTRUCTION. DETAILS SHOWN ON SHEETS N1 THROUGH N5.
2) 6 IN THICK STEEL REINFORCED SHOTCRETE FACING SHALL BE PLACED DIRECTLY ON EXISTING SLOPE GRADES AND EXTEND FROM THE SOUTH DITCH ANCHOR COVER AT THE TOP TO THE TOE OF THE SLOPE.
3) BOTTOM OF SHOTCRETE SHALL INCORPORATE A SHOTCRETE LINED DRAINAGE SWALE THAT DIRECTS WATER INTO THE SHOP DITCH.
4) SHOTCRETE AT TOP-OF-WALL TO BE COMPLETED AFTER PLACEMENT OF LLDPE DITCH LINER.

SECTION - TYPICAL SOUTH DITCH #1 C D3 D3
NOT TO SCALE



DETAIL - SHOTCRETE AT TOP OF WALL 1 D3 D3
NOT TO SCALE

DESIGN	DRAWN	REVIEW	DATE	REV	DESCRIPTION
WCA	WCA	MAH	04/01/18	R3	FINAL REVIEW
WCA	WCA	MAH	12/12/19	C1	FOR BID AND CONSTRUCTION

REGISTERED PROFESSIONAL ENGINEER MATTHEW A. HILLYARD NO. 69967 EXP. 09/30/20 CIVIL STATE OF CALIFORNIA

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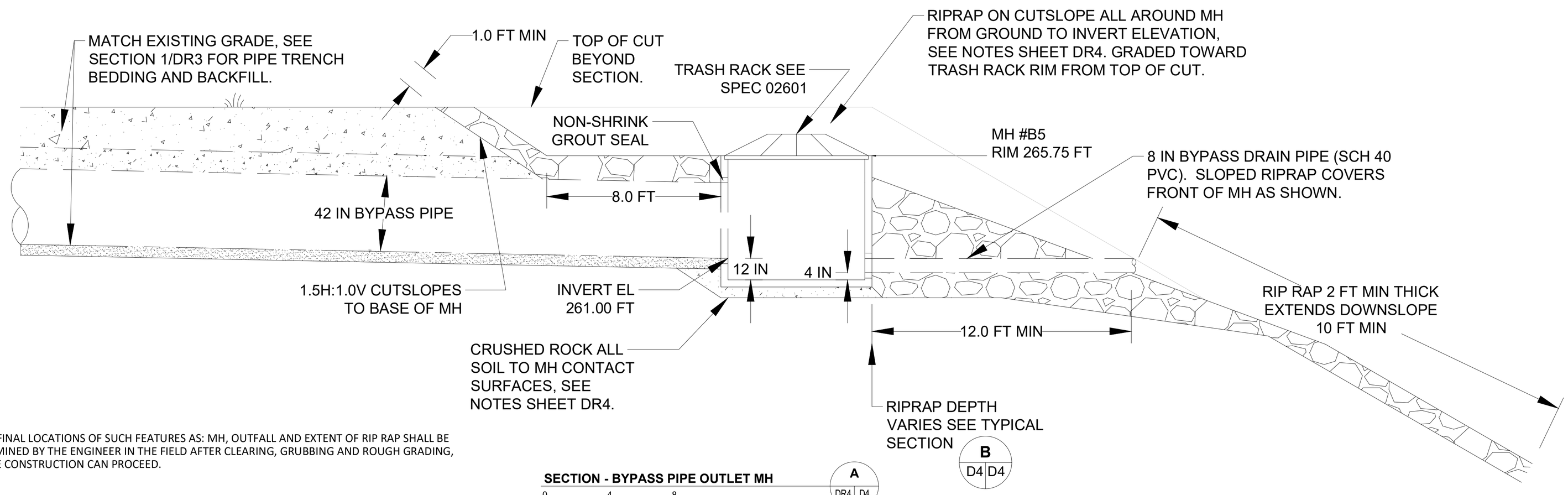
CEMENT KILN DUST (CKD) CLOSURE PLANS
BYPASS, SOUTH DITCH AND STORM DRAIN DETAILS

CEMEX

DRAWING NUMBER
SHEET
D3
20OF 28

Exhibit B



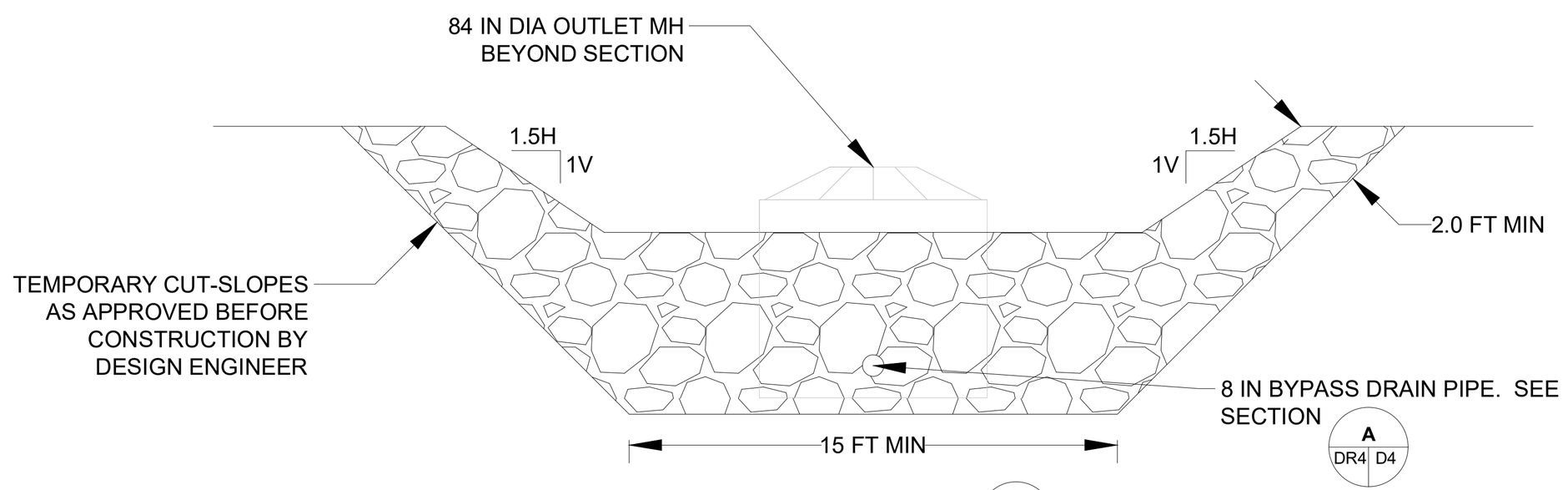
NOTE: FINAL LOCATIONS OF SUCH FEATURES AS: MH, OUTFALL AND EXTENT OF RIP RAP SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD AFTER CLEARING, GRUBBING AND ROUGH GRADING, BEFORE CONSTRUCTION CAN PROCEED.

SECTION - BYPASS PIPE OUTLET MH

0 4 8

Scale in Feet

A
DR4 D4

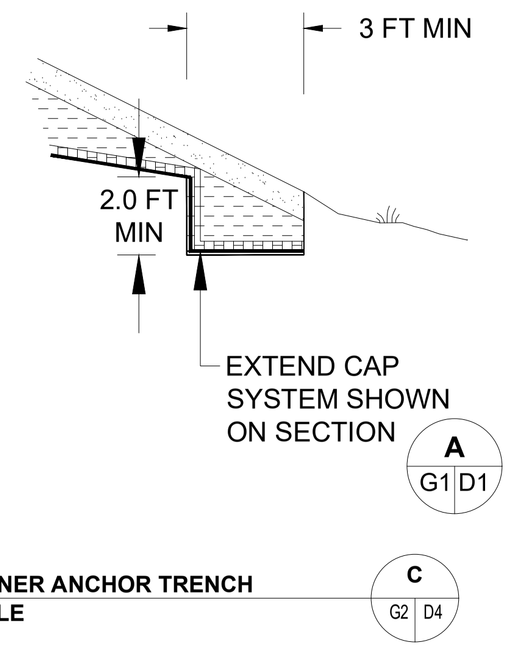


SECTION - OUTLET MH RIPRAP

0 4 8

Scale in Feet

B
D4 D4



SECTION - LINER ANCHOR TRENCH
NOT TO SCALE

C
G2 D4

DESIGN	DRAWN	REVIEW	DATE	REV	DESCRIPTION
WCA	WCA	MAH	04/01/18	R3	FINAL REVIEW
WCA	WCA	MAH	12/12/19	C1	FOR BID AND CONSTRUCTION

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CEMENT KILN DUST (CKD) CLOSURE PLANS

BYPASS PIPE, OUTLET AND ANCHOR TRENCH DETAILS

DRAWING NUMBER
SHEET
D4
21 OF 28

Exhibit B

NORTH CKD CLOSURE PROJECT

SOIL NAIL AND SHOTCRETE WALL PLANS

CEMEX DAVENPORT PLANT

700 HIGHWAY 1, DAVENPORT, CA 95017

CONTRACTOR MUST CALL FOR UTILITY LOCATES PRIOR TO CONSTRUCTION; (phone 811).

THE CONTRACTOR IS SOLELY RESPONSIBLE FOR REPAIRS AND/OR REPLACEMENT OF EXISTING UTILITIES SHOULD DAMAGE OCCUR AS A RESULT OF CONSTRUCTION ACTIVITIES.

GENERAL NOTES

GENERAL:

THE CONTRACTOR IS DEFINED, FOR THE PURPOSES OF THIS NAIL DESIGN, AS THE PROJECT'S SPECIALTY SHOTCRETE WALL (SHORING) CONTRACTOR UNLESS OTHERWISE NOTED AND IS SOLEY RESPONSIBLE FOR THE PROJECT SITE CONSTRUCTION PROCESSS AND SAFETY OF THE WORKERS THAT MAY INCLUDE BUT IS NOT LIMITED TO, THE CONSTRUCTION SEQUENCE, TEMPORARY HANDRAILS, EXCAVATION ACCESS, AND BARRIERS. IT ALSO BUT NOT LI,ITED TO INCLUDES LIFTING OF MATERIALS AND CONSTRUCTION EQUIPMENT ON, INTO AND OUT OF THE EXCAVATION AREA, TEMPORARY BRACING, SINGLE-SIDED FORMWORK, TEMPORARY EXCAVATIONS, AND STABILITY OF ALL TEMPORARY CUT SLOPES. MINIMUM SLOPE PROTECTION SHALL BE PROVIDED BY THE CONTRACTOR AND CONSIST OF PROVIDING ADEQUATE COVERING OVER ALL EXPOSED SLOPES. ADEQUATE COVERING SHALL CONSIST OF A FLASHCOAT OF SHOTCRETE, STEEL REINFORCEMENT, POLYETHYLENE SHEETING, OR AN EQUIVALENT MATERIAL AS APPROVED BY THE DESIGN ENGINEER, ADAMS RESOURCE CONSULTANTS (ARC). THE SOIL NAILED WALL IS A SYSTEM DESIGNED TO SUPPORT THE NEARLY VERTICAL EXCAVATION ONCE THE COMPONENTS OF THE NAILS, VERTICAL MEMBERS, AND FACING SYSTEM ARE COMPLETELY INSTALLED FOR ALL EXCAVATION LIFTS UP TO AND INCLUDING THE CURRENT EXCAVATION LIFT. THE STABILITY OF INTERIM TEMPORARY VERTICAL CUTS OVER 4 FEET HIGH THAT EXIST PRIOR TO INSTALLATION OF NAILS AND THE SHOTCRETE WALL FACING IS THE RESPONSIBILITY OF THE CONTRACTOR.

THE CONTRACTOR SHALL PROVIDE PROTECTION FOR SAFE PASSAGE OF PEDESTRIANS WORKERWS AND VEHICULAR TRAFFIC. LOOSE SOIL OF CUTS MAY RAVEL.

SPECIAL INSPECTION AND TESTING

IN ACCORDANCE WITH THE RWQBC AND LATEST IBC, SPECIAL INSPECTION SHALL BE PROVIDED BY THE OWNER'S REPRESENTATIVE AND CQA OFFICER FOR DESIGN EXECUTION TO COVER OBSERVATION OF THE FOLLOWING TYPES OF CONSTRUCTION WHEN APPLICABLE:

- SOIL NAIL INSTALLATION AND TESTING
- INSTALLATION OF STEEL PLATES, NUTS AND MEMBERS AND LEAN MIX PLACEMENT IF REQUIRED
- SHOTCRETE WORK (SHOTCRETE AND REBAR PLACEMENT)

ALL SHOTCRETE, SOIL NAIL GROUT AND SOIL NAIL DESIGN ADHESIONS SHALL BE TESTED IN ACCORDANCE WITH THE SPECIFICATIONS.

DESIGN LIVE LOADS:

TRAFFIC/CONSTRUCTION SURCHARGE = 125 PSF. SURCHARGE LOADS SHALL NOT BE CLOSER THAN 5 FEET (HORIZ.) FROM TOP OF SOIL NAILED WALLS OR 3 FEET (HORIZ.) FROM THE TOP OF CUT SLOPES, WHICHEVER IS GREATER. THE CONTRACTOR IS RESPONSIBLE AND SHALL VERIFY THAT THE CONSTRUCTION SURCHARGE OR CLEARANCE IS NOT EXCEEDED WITHOUT THE DESIGNER'S APPROVAL. SEE ELEVATIONS, PLANS AND SECTIONS FOR ADDITIONAL LIVE LOADS THAT MAY HAVE BEEN CONSIDERED IN DESIGN.

SUBSURFACE DESIGN:

ALL SUBSURFACE SOIL AND WATER PARAMETERS USED IN THE DESIGN WERE BASED ON EXPERIENCE AND THE SUBSURFACE CHARACTERIZATION PRESENTED IN THE REPORT TITLED "FINAL DESIGN REPORT, NORTH CKD CLOSURE PLANS, CEMEX DAVENPORT PLANT, DAVENPORT, CALIFORNIA, BY ADAMS RESOURCE CONSULTANTS COMPANY, Dated APRIL 1, 2018, for CEMEX.

SOIL UNIT	MOIST UNIT WEIGHT (PCF)	FRICTION (DEG)	COHESION (PSF)	ULTIMATE PULLOUT RESISTANCE (K/FT)
CEMENT KILN DUST	115	38	50	9.5

NOTES: 1) ULTIMATE PULLOUT RESISTANCE SHALL BE CONFIRMED BY THE CONTRACTOR DURING VERIFICATION TESTING PRIOR TO STARTING SOIL NAIL WALL CONSTRUCTION. CONTRACTOR MAY NEED TO MODIFY MEANS, METHODS AND/OR ADD NAILS DEPENDING ON THE TEST RESULTS. 2) DESIGN ADHESION (ALLOWABLE PULLOUT RESISTANCE) IS CALCULATED AS ULTIMATE PULLOUT RESISTANCE DIVIDED BY A FACTOR OF SAFETY EQUAL TO 2.0.

THE REGIONAL GROUNDWATER LEVEL IS ASSUMED TO EXIST BELOW THE BOTTOM OF THE NAIL WALLS IN CONSIDERING "LONG-TERM" STABILITY. LOCAL AREAS OF PERCHED SEEPAGE MAY BE ENCOUNTERED IN SOME LOCATIONS AND WILL BE MANAGED BY DRAIN FABRIC PLACED ON THE SOIL CUT FACE (NEAT CUT) AND COVERED BY THE STEEL REINFORCED SHOTCRETE FACING.

EXISTING UNDERGROUND OBSTRUCTIONS AND UTILITIES:

THE CONTRACTOR MUST FIELD VERIFY ALL EXISTING DIMENSIONS AND SITE CONDITIONS.

THE CONTRACTOR SHALL FIELD VERIFY AND BE RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THE PLANS AND THOSE UTILITIES OR UNDERGROUND OBSTRUCTIONS NOT SHOWN ON THE PLANS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF ALL ABANDONED UTILITIES, OR CHANGES TO OTHER EXISTING OBSTRUCTIONS THAT INTERFERE WITH OR ARE ADJACENT TO THE NEW CONSTRUCTION.

GENERAL NOTES, (CONT.)

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 / AASHTO M31, GRADE 60 FOR DEFORMED BARS, AND ASTM A185 / AASHTO M55 FOR WELDED WIRE FABRIC (WWF).

SUBMIT REINFORCING STEEL SHOP DRAWINGS TO DESIGN ENGINEER IN ACCORDANCE WITH THE SPECIFICATIONS.

ALL REINFORCING STEEL DETAILS IN ACCORDANCE WITH THE MOST RECENTLY ADOPTED ACI 318/318R MANUAL OF STANDARD PRACTICE.

ALL REINFORCING BAR LAPS SHALL BE CLASS B, IN ACCORDANCE WITH THE 2006 INTERNATIONAL BUILDING CODE OR AS SUMMARIZED IN THE FOLLOWING TABLE:

BAR SIZE	CLASS B LAP LAP SPLICE LENGTH MEASURED IN DIAMETERS (IN.)	CLASS B LAP LAP SPLICE LENGTH MEASURED IN LENGTH (IN.)
#4	40 ϕ	20
#5	40 ϕ	25
#6	40 ϕ	30
#7	50 ϕ	44
#8	50 ϕ	50

ALL WELDED WIRE FABRIC SPLICES SHALL BE A MINIMUM OF 6 INCHES LONG AND LAP AT LEAST TWO LONGITUDINAL OR TRANSVERSE WIRES. SEE PLANS FOR SPECIFIC DETAILS. IF APPLICABLE, SUBMIT ALL SHOP DRAWINGS IN ACCORDANCE WITH THE SPECIFICATIONS.

SEE THE WALL PLANS SPECIFIC DETAILS AS THEY PERTAIN TO CONNECTION OF THE REINFORCED SHOTCRETE WALL AND ANY OTHER FACING. SUBMIT ALL SHOP DRAWINGS IN ACCORDANCE WITH THE SPECIFICATIONS.

CONCRETE

AFTER 28 DAYS, ALL CONCRETE SHALL OBTAIN A MINIMUM ULTIMATE COMPRESSIVE STRENGTH (f'c), AS MEASURED BY THE PROCEDURES IN ASTM C109/AASHTO T106, WHERE THE STRENGTH f'c SHALL ATTAIN 4000 PSI.

TEMPORARY CUT SLOPES

THE SOIL NAILED WALL DESIGN BY ARC DOES NOT INCLUDE SPECIFICATIONS OR DESIGN OF TEMPORARY OPEN CUT SLOPES UNLESS SPECIFICALLY PROVIDED ON THE DRAWINGS. ADDITIONAL DESIGN AND SPECIFICATIONS OR PERFORMANCE CRITERIA AS MAY BE REQUESTED FOR EXCAVATIONS NOT SHOWN ON THESE DRAWINGS ARE THE RESPONSIBILITY OF THE CONTRACTOR UNLESS AGREED TO OTHERWISE IN WRITING BY ARC.

CONSTRUCTION SEQUENCE

ARC HAS ASSUMED THE FOLLOWING FOR THIS DESIGN;
1) CONTRACTOR SHALL REMOVE ORGANICS, DELETERIOUS MATERIALS AND SOIL FROM AREAS REQUIRING GRADING TO CREATE THE "NEAT LINE" SURFACE FOR SHOTCRETE APPLICATION BEFORE STARTING DRILLING.

2) DRILLING, INSTALLATION AND WALL CONSTRUCTION SHALL DONE BY EITHER A "TOP-DOWN" FASHION SUCH THAT THE TOP ROWS OF NAILS WILL BE COMPLETED FIRST OR IN A VERTICAL COLUMN FASHION SUBJECT TO APPROVAL BY ARC. IF MEANS AND METHODS REQUIRE INSTALLATION BY REACHING OVER OR ABOVE THE EDGE OF A SLOPE THE CONSTRUCTION AND INSTALLATION EQUIPMENT WILL REMAIN AS FAR AWAY FROM THE STEEP SLOPE TOP OR TOE EDGE AS POSSIBLE.

USE OF THIS DESIGN

ARC PREPARED THIS WORK IN GENERAL ACCORDANCE WITH OUR CONTRACT. THIS DESIGN AND THESE DRAWINGS ARE FOR THE EXCLUSIVE USE OF CEMEX FOR SPECIFIC APPLICATION TO THE SUBJECT PROJECT AND SITE. USE OF THIS DESIGN BY ANYONE EXCEPT FOR THOSE WHOM IT WAS PREPARED IS PROHIBITED WITHOUT WRITTEN CONSENT FROM ARC COMPANY, THE WALL DESIGN ENGINEER.

SHOTCRETE:

ALL SHOTCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4000 PSI, AND A MINIMUM 3-DAY COMPRESSIVE STRENGTH OF 2000 PSI.

SEE THE SPECIFICATIONS FOR REQUIREMENTS.

TYPE V PORTLAND CEMENT CONFORMING TO ASTM C150 / AASHTO M85 SHALL BE USED FOR SHOTCRETE.

SUBMIT MIX DESIGNS IN ACCORDANCE WITH THE SPECIFICATIONS.

GENERAL NOTES (CONT.)

NAIL BAR STEEL:

ALL NAIL BARS SHALL CONFORM TO EITHER ASTM A615 / AASHTO M31, GRADE 60, GRADE 75 OR ASTM A722 / AASHTO M275, GRADE 150, AS INDICATED ON THE PLANS.

ALL SHRINKAGE CRACKS, DEFICIENCES OR OPENINGS IN THE SHOTCRETE WALL SHALL BE CORRECTED AND FILLED OR SEALED TO THE SATISFACTION OF THE DESIGNER AND THE SPECIAL INSPECTOR.

DEFINITIONS

"DESIGN ENGINEER" OR "DESIGNER" = Adams Resource Consultants (ARC), THE DESIGN ENGINEER OF THESE PLANS. MAY ALSO BE THE GEOTECHNICAL SPECIAL INSPECTOR FOR THIS PROJECT.
"THE ENGINEER" = GEOTECHNICAL SPECIAL INSPECTOR AS APPOINTED BY THE OWNER AND APPROVED BY THE GOVERNING MUNICIPALITY OR AGENCY.
"CONTRACTOR" = SPECIALTY SHOTCRETE (SHORING) WALL CONTRACTOR
"NEAT CUT" = THE EXCAVATION EXPOSED CUT FACE PREPARED FOR APPLICATION OF THE SHOTCRETE

ABBREVIATIONS

AB	ANCHOR BOLT
ADDL	ADDITIONAL
ADJ	ADJACENT
AFF	ABOVE FINISH FLOOR
APPROX	APPROXIMATE(LY)
ARCH	ARCHITECTURAL
ARCH'T	ARCHITECT
BB	BACK TO BACK
BC	BOTTOM CORD
BL	BASE LINE
BLDG	BUILDING
BM	BEAM
BOT	BOTTOM
BP	BASE PLATE
BRG	BEARING
BRKT	BRACKET
BS	BOTH SIDES
BSMT	BASEMENT
BVL	BEVELED
BW	BOTH WAYS
C	COMPRESSION
CIP	CAST-IN-PLACE
CJ	CONSTRUCTION JOINT
CL	CENTERLINE
CLR	CLEAR OR CLEARANCE
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONT'D	CONTINUED
D	DEPTH
DETL	DETAIL
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DIST	DISTRIBUTION
DL	DEAD LOAD
DN	DOWN
DP	DAMP PROOFING
DWG	DRAWING(S)
DWL	DOWEL

ABBREVIATIONS (CONT.)

E	EAST
EA	EACH
EF	EACH FACE
EJ	EXPANSION JOINT
ELEC	ELECTRICAL
ELEV,EL	ELEVATION
EQ	EQUAL
EQUIP	EQUIPMENT
EW	EACH WAY
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FD	FLOOR DRAIN
FDN	FOUNDATION
FF	FINISH FLOOR
FIN	FINISH(ED)
FS	FAR SIDE
FTG	FOOTING
FAB	FABRICATION
GA	GAGE OR GAUGE
GALV	GALVANIZED
GB	GRADE BEAM
HDPE	HIGH-DENSITY POLYETHYLENE
HORIZ	HORIZONTAL
HP	HIGH POINT
HT	HEIGHT
HS	HEADED STUD
ID	INSIDE DIAMETER
INT	INTERIOR
JT	JOINT
K	KIPS
KO	KNOCKOUT
L	DRILLED NAIL LENGTH
LB,#	POUND
LD	DEVELOPMENT LENGTH
LDG	LANDING
LH	LEFT HAND
LL	LIVE LOAD
LONG	LONGITUDINAL
LP	LOW POINT
LW	LONG WAY
LWC	LIGHTWEIGHT CONCRETE
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MEZZ	MEZZANINE
MFR	MANUFACTURE(R)
MID	MIDDLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MS	MIDDLE STRIP
MTL	METAL
N/A	NOT APPLICABLE
NF	NEAR FACE
NEAT	NEAT-CUT FACE
NO	NUMBER
NOM	NOMINAL
NS	NEAR SIDE
NTS	NOT TO SCALE
OA	OVERALL
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OPNG	OPENING(S)
OPP	OPPOSITE
OPP HND	OPPOSITE HAND
OPT	OPTIONAL
PC	PRECAST CONCRETE
PE	POLYETHYLENE
PERM	PERMANENT
PERP	PERPENDICULAR
PL	PLATE
PLUMB	PLUMBING
PREFAB	PREFABRICATED
PRELIM	PRELIMINARY
PROJ	PROJECTION
PSF	POUNDS PER SQUARE FEET
PSI	POUNDS PER SQUARE INCH
PT	POINT
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
R	RIGHT, RISER
RAD	RADIUS
RD	ROOF DRAIN
RE:	REFER
REINF	REINFORCING (-ED,-MENT)
REM	REMAINDER
REQD	REQUIRED
REV	REVISION
RH	RIGHT HAND
RND	ROUND
RO	ROUGH OPENING
RW	RETAINING WALL
S	SOUTH
SCH	SCHEDULE(D)
SECT	SECTION
SHOT	SHOTCRETE
SIM	SIMILAR
SJ	SAW JOINT
SL	SLOPE
SPA	SPACE
SPEC	SPECIFICATION(S)
SPL	SPECIAL
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
STRUCT	STRUCTURE
STR'L	STRUCTURAL
T	TOP, TENSION
T/	TOP OF
T/CONC	TOP OF CONCRETE
T/FD	TOP OF FLOOR DRAIN
T/FTG	TOP OF FOOTING
T/SLAB	TOP OF SLAB
T&B	TOP AND BOTTOM
TEMP	TEMPERATURE, TEMPORARY
THRD	THREADED
THK	THICKNESS
TOS	TOP OF STEEL, TOP OF SHOTCRETE
TOW	TOP OF WALL
TRD	TREAD(S)
TRNV	TRANSVERSE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
W	WEST, WIDTH, WIDE FLANGE
W/	WITH
W/O	WITHOUT
WP	WORK POINT, WATER-PROOFING
WT	WEIGHT, STRUCTURAL TEE CUT FROM WIDE FLANGE BEAM
WWF	WELDED WIRE FABRIC

DESIGN	DRAWN	REVIEW	DATE	REV	DESCRIPTION
WCA	WCA	MW	04/01/18	R1	FINAL REVIEW
WCA	WCA	MW	02/19/19	C1	FOR BID AND CONSTRUCTION

REGISTERED PROFESSIONAL ENGINEER MICHAEL P. WHELAN No. C59853 Exp. 6/30/18 CIVIL STATE OF CALIFORNIA

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CEMENT KILN DUST (CKD) CLOSURE PLANS
GENERAL NOTES AND ABBREVIATIONS

CEMEX

DRAWING NUMBER
SHEET
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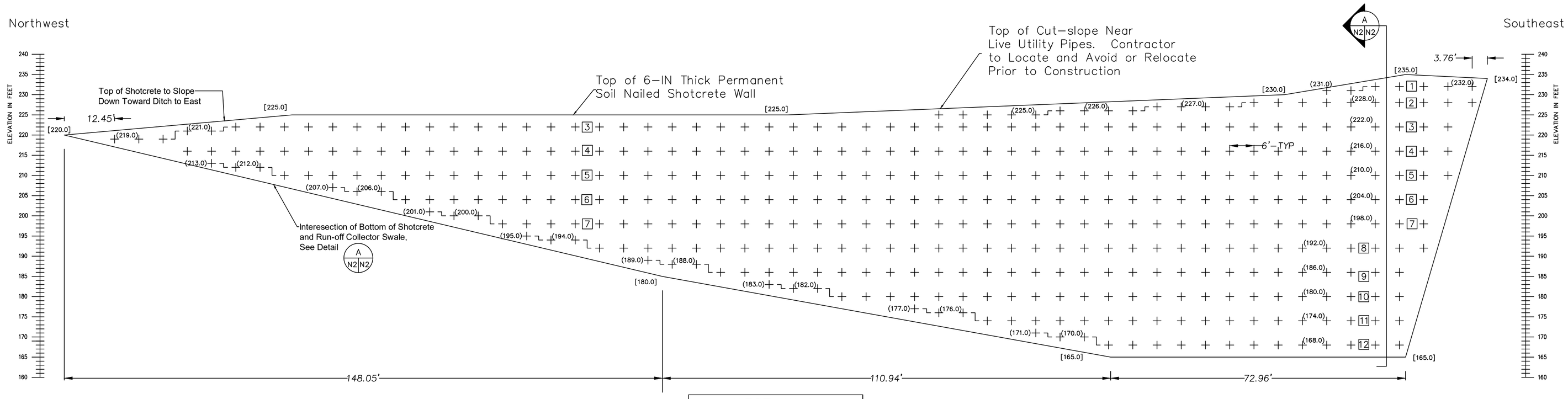
Exhibit B



WEST WALL (Looking East)			
SEGMENT A			
ROW	L	BAR	α
1	36	#8 GR 75	15°
2	36	#8 GR 75	15°
3	36	#8 GR 75	15°
4	36	#8 GR 75	15°
5	36	#8 GR 75	15°
6	36	#8 GR 75	15°
7	36	#8 GR 75	15°
8	34	#8 GR 75	15°
9	26	#8 GR 75	15°
10	20	#8 GR 75	15°
11	17	#8 GR 75	15°
12	17	#8 GR 75	15°

1 N2 N2 SHOTCRETE WALL ELEVATION

Scale in Feet: 0 10 20

NOTES:

1. CONTRACTOR TO ADD AT LEAST 1-FT TO NAIL LENGTHS (L) TO ACCOMODATE PLATE, WASHER AND NUT. SEE SOIL NAIL TYPICAL SECTION.

2. CONTRACTOR TO CONFIRM LOCATION OF ALL UTILITIES BEHIND OR NEAR SOIL NAILED WALL CUT FACE AND CUT-SLOPES BEFORE BEGINNING CONSTRUCTION.

3. CONTRACTOR IS SOLEY RESPONSIBLE FOR REPAIRS AND/OR REPLACEMENT OF EXISTING UTILITIES SHOULD DAMAGE OCCUR AS A RESULT OF CONSTRUCTION ACTIVITIES.

4. CONTRACTOR IS RESPONSIBLE FOR STABILITY OF ALL TEMPORARY CUT SLOPES AND ALL CUT SLOPES REQUIRED FOR CONSTRUCTION. TEMPORARY CUT SLOPES MAY REQUIRE PLASTIC SHEETING, SHOTCRETE FLASHCOAT AND/OR STEEL REINFORCED FALSH-COAT OF SHOTCRETE FOR TEMPORARY EROSION PROTECTION.

5. CONSTRUCTION EQUIPMENT THAT IS NOT PART OF NAIL INSTALLATION SHALL NOT OPERATE CLOSER THAN 5 FEET (HORIZONTAL) FROM BACK NEAT-CUT PLANE AT THE TOP OF SOIL NAILED WALL.

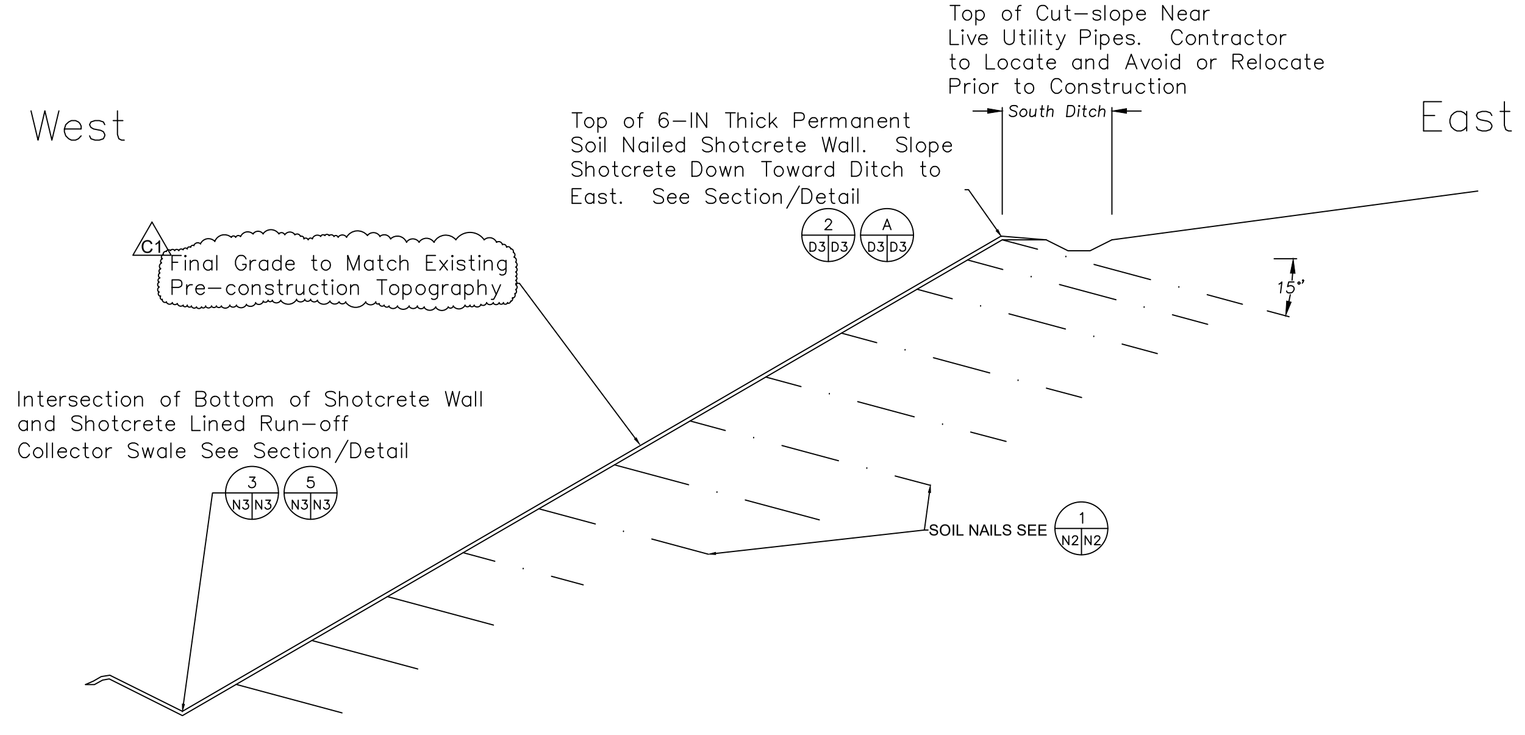
6. COMPACTION EQUIPMENT SHALL NOT OPERATE CLOSER THAN 2 FEET (HORIZONTAL) FROM BACK PLANE OF SOIL NAILED WALL.

7. THE PROVIDED DESIGN PULLOUT VALUES ARE ASSUMED AND ARE BASED ON SUBSURFACE INFORMATION THAT INCLUDES SITE OBSERVATIONS. VALUES USED IN THE NAIL PULLOUT TESTING WILL RELY ON THE ENGINEER'S (OR REPRESENTATIVE) EVALUATION OF DESIGN INPUT, CONTRACTOR'S METHODS AND ACTUAL INTERCEPTED SUBSURFACE CONDITIONS DURING CONSTRUCTION.

8. UNLESS DESIGNER APPROVES A CONTRACTOR SUBMITTAL FOR ALTERNATIVE MEANS/METHODS, EXCAVATION FOR NEXT LOWER LIFT SHALL NOT PROCEED UNTIL ALL SHOTCRETE, STEEL PLATES, NUTS AND REQUIRED NAIL TESTING IS COMPLETE AND ENGINEER HAS ACCEPTED CONSTRUCTED SOIL NAIL WALL LIFT.

LEGEND

[9]	= NAIL ROW	ROW	= NAIL ROW NUMBER
+	= NAIL	L	= DRILLED NAIL LENGTH (FEET)
(156)	= NAIL ROW ELEVATION	BAR	= MINIMUM BAR AND STEEL GRADE
[150.0']	= GRADE ELEVATION	α	= NAIL DECLINATION (DEGREES) UNLESS SHOWN OTHERWISE ON PLANS
		(25°)→	= DECLINATION OF SPECIFIC NAIL (ARROW INDICATES DIRECTION MEASURED FROM PERPENDICULAR)



A N2 N2 SHOTCRETE WALL SECTION

NTS

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CEMENT KILN DUST (CKD) CLOSURE PLANS

SOIL NAILED WALL ELEVATION AND SECTION

DRAWING NUMBER

SHEET

N2

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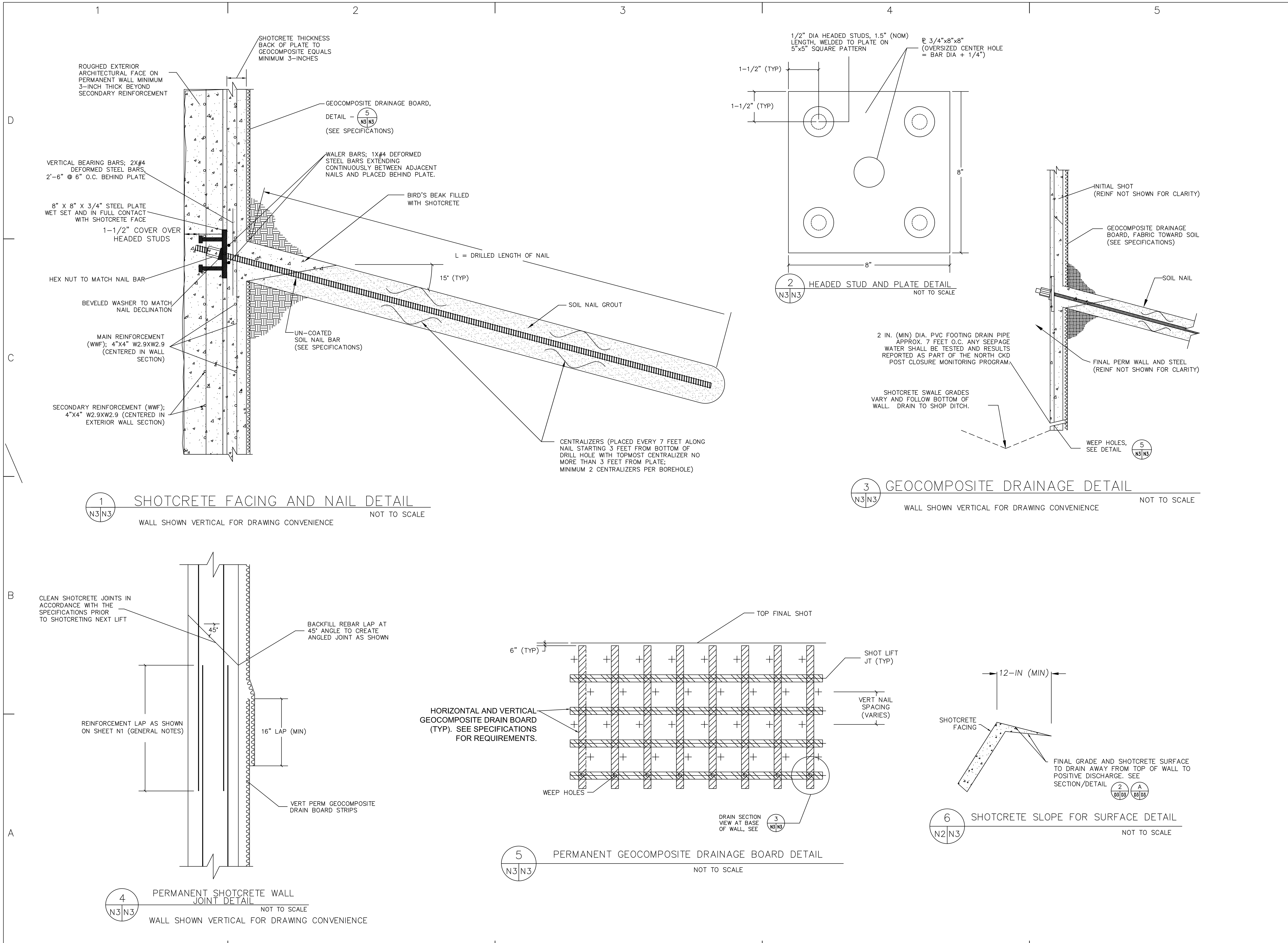
Exhibit B


SHOTCRETE THICKNESS BACK OF PLATE TO GEOCOMPOSITE EQUALS MINIMUM 3-INCHES
ROUGHED EXTERIOR ARCHITECTURAL FACE ON PERMANENT WALL MINIMUM 3-INCH THICK BEYOND SECONDARY REINFORCEMENT
GEOCOMPOSITE DRAINAGE BOARD, DETAIL – 5 N3 N3 (SEE SPECIFICATIONS)
VERTICAL BEARING BARS; 2X#4 DEFORMED STEEL BARS, 2'-6" @ 6" O.C. BEHIND PLATE
WALER BARS; 1X#4 DEFORMED STEEL BARS EXTENDING CONTINUOUSLY BETWEEN ADJACENT NAILS AND PLACED BEHIND PLATE.
8" X 8" X 3/4" STEEL PLATE WET SET AND IN FULL CONTACT WITH SHOTCRETE FACE
BIRD'S BEAK FILLED WITH SHOTCRETE
1-1/2" COVER OVER HEADED STUDS
L = DRILLED LENGTH OF NAIL
HEX NUT TO MATCH NAIL BAR
15° (TYP)
BEVELED WASHER TO MATCH NAIL DECLINATION
SOIL NAIL GROUT
MAIN REINFORCEMENT (WWF); 4"X4" W2.9XW2.9 (CENTERED IN WALL SECTION)
UN-COATED SOIL NAIL BAR (SEE SPECIFICATIONS)
SECONDARY REINFORCEMENT (WWF); 4"X4" W2.9XW2.9 (CENTERED IN EXTERIOR WALL SECTION)
CENTRALIZERS (PLACED EVERY 7 FEET ALONG NAIL STARTING 3 FEET FROM BOTTOM OF DRILL HOLE WITH TOPMOST CENTRALIZER NO MORE THAN 3 FEET FROM PLATE; MINIMUM 2 CENTRALIZERS PER BOREHOLE)
1 N3 N3 SHOTCRETE FACING AND NAIL DETAIL
NOT TO SCALE
WALL SHOWN VERTICAL FOR DRAWING CONVENIENCE
1/2" DIA HEADED STUDS, 1.5" (NOM) LENGTH, WELDED TO PLATE ON 5"x5" SQUARE PATTERN
℞ 3/4"x8"x8" (OVERSIZED CENTER HOLE = BAR DIA + 1/4")
1-1/2" (TYP)
1-1/2" (TYP)
8"
8"
2 N3 N3 HEADED STUD AND PLATE DETAIL
NOT TO SCALE
INITIAL SHOT (REINF NOT SHOWN FOR CLARITY)
GEOCOMPOSITE DRAINAGE BOARD, FABRIC TOWARD SOIL (SEE SPECIFICATIONS)
SOIL NAIL
2 IN. (MIN) DIA. PVC FOOTING DRAIN PIPE APPROX. 7 FEET O.C. ANY SEEPAGE WATER SHALL BE TESTED AND RESULTS REPORTED AS PART OF THE NORTH CKD POST CLOSURE MONITORING PROGRAM.
FINAL PERM WALL AND STEEL (REINF NOT SHOWN FOR CLARITY)
SHOTCRETE SWALE GRADES VARY AND FOLLOW BOTTOM OF WALL. DRAIN TO SHOP DITCH.
WEEP HOLES, SEE DETAIL 5 N3 N3
3 N3 N3 GEOCOMPOSITE DRAINAGE DETAIL
NOT TO SCALE
WALL SHOWN VERTICAL FOR DRAWING CONVENIENCE
CLEAN SHOTCRETE JOINTS IN ACCORDANCE WITH THE SPECIFICATIONS PRIOR TO SHOTCRETING NEXT LIFT
45°
BACKFILL REBAR LAP AT 45° ANGLE TO CREATE ANGLED JOINT AS SHOWN
REINFORCEMENT LAP AS SHOWN ON SHEET N1 (GENERAL NOTES)
16" LAP (MIN)
VERT PERM GEOCOMPOSITE DRAIN BOARD STRIPS
4 N3 N3 PERMANENT SHOTCRETE WALL JOINT DETAIL
NOT TO SCALE
WALL SHOWN VERTICAL FOR DRAWING CONVENIENCE
TOP FINAL SHOT
6" (TYP)
SHOT LIFT JT (TYP)
VERT NAIL SPACING (VARIES)
HORIZONTAL AND VERTICAL GEOCOMPOSITE DRAIN BOARD (TYP). SEE SPECIFICATIONS FOR REQUIREMENTS.
WEEP HOLES
DRAIN SECTION VIEW AT BASE OF WALL, SEE 3 N3 N3
5 N3 N3 PERMANENT GEOCOMPOSITE DRAINAGE BOARD DETAIL
NOT TO SCALE
12-IN (MIN)
SHOTCRETE FACING
FINAL GRADE AND SHOTCRETE SURFACE TO DRAIN AWAY FROM TOP OF WALL TO POSITIVE DISCHARGE. SEE SECTION/DETAIL 2 D3 D3 A D3 D3
6 N2 N3 SHOTCRETE SLOPE FOR SURFACE DETAIL
NOT TO SCALE

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CEMENT KILN DUST (CKD) CLOSURE PLANS
SOIL NAILED WALL DETAILS

CEMEX

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N3
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Exhibit B

SECTION 2350 – SOIL NAILS AND WALL DRAINAGE

PART 1 – GENERAL

1.01 DESCRIPTION

A. THE WORK SHALL CONSIST OF CONSTRUCTING SOIL NAILS AND WALL DRAINAGE AS SPECIFIED HEREIN AND SHOWN ON THE PLANS. THE WORK SHALL ALSO INCLUDE: 1) CLEAR, GRUB AND EXCAVATE IN ACCORDANCE WITH THE LAYOUT SHOWN ON THE PLANS, 2) DRILLING SOIL NAIL HOLES TO THE SPECIFIED MINIMUM LENGTH AND ORIENTATION INDICATED ON THE PLANS, 3) PROVIDE, CENTER, AND GROUT THE NAILS IN THE DRILLED BOREHOLES 4) PLACING DRAINAGE ELEMENTS AND 5) PERFORMING ALL SOIL NAIL PULLOUT TESTING. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, AND EQUIPMENT REQUIRED FOR COMPLETING THE WORK.

B. A PRE–CONSTRUCTION MEETING SHALL BE HELD PRIOR TO THE START OF THE WORK AND SHALL BE ATTENDED BY THE OWNER'S REPRESENTATIVES, THE ENGINEER (DESIGNER/REPRESENTATIVE), THE PRIME CONTRACTOR, THE EXCAVATION CONTRACTOR, AND THE SOIL NAIL SUBCONTRACTOR. THE PRE–CONSTRUCTION MEETING SHALL BE CONDUCTED TO CLARIFY THE CONSTRUCTION REQUIREMENTS FOR THE WORK, TO COORDINATE THE CONSTRUCTION ACTIVITIES, AND TO IDENTIFY CONTRACTUAL RELATIONSHIPS AND RESPONSIBILITIES.

C. THE OWNER'S REPRESENTATIVE / SOIL NAILING INSPECTOR THAT IS PROVIDING THE SPECIAL INSPECTION SHALL BE A QUALIFIED GEOTECHNICAL ENGINEER OR REPRESENTATIVE WITH EXPERIENCE MONITORING SOIL NAIL INSTALLATION, TESTING AND WALL CONSTRUCTION.

D. UTILITIES REFERENCED ON THE PLANS ARE FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING AND VERIFYING THE LOCATION OF ALL UTILITIES SHOWN ON THE PLANS OR OTERWISE IDENTIFIED PRIOR TO STARTING THE WORK. THE CONTRACTOR SHALL MAINTAIN UNINTERRUPTED SERVICE FOR THOSE UTILITIES DESIGNATED TO REMAIN IN SERVICE THROUGHOUT THE WORK.

PART 2 – MATERIALS

2.01 GENERAL

A. MATERIALS FOR CONSTRUCTION OF SOIL NAIL WALLS SHALL BE FURNISHED NEW AND WITHOUT DEFECTS. DEFECTIVE MATERIALS REJECTED BY THE OWNER'S REPRESENTATIVE SHALL BE REMOVED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. MATERIALS SHALL CONSIST OF THE FOLLOWING:

CENTRALIZERS	SCHEDULE 40 PVC OR OTHER MATERIAL NOT DETRIMENTAL TO THE NAIL STEEL (WOOD SHALL NOT BE USED); SECURELY ATTACHED TO THE NAIL BAR; SIZED TO POSITION THE NAIL BAR WITHIN 1 INCH OF THE CENTER OF THE DRILLHOLE; SIZED TO ALLOW TREMIE PIPE INSERTION TO THE BOTTOM OF THE DRILLHOLE; AND, SIZED TO ALLOW GROUT TO FLOW FREELY UP THE DRILLHOLE.
NAIL GROUT	THE GROUT SHALL BE A NEAT OR SAND/CEMENT MIXTURE WITH A MINIMUM 3–DAY COMPRESSIVE STRENGTH OF 1500 PSI AND A MINIMUM 28–DAY COMPRESSIVE STRENGTH OF 3000 PSI PER ASTM C109 / AASHTO T106.
CEMENT	ASTM C150 / AASHTO M85, TYPE I.
FINE AGGREGATE	ASTM C33 / AASHTO M6.
SOLID BAR NAILS	ASTM A615 / AASHTO M31, GRADE 75 OR ASTM A722 / AASHTO M275, GRADE 150.
BAR COUPLERS	BAR COUPLERS SHALL DEVELOP THE FULL ULTIMATE TENSILE STRENGTH OF THE BAR AS CERTIFIED BY THE MANUFACTURER.
BEARING PLATES	ASTM A709 / AASHTO M270, GRADE 36.
NUTS & WASHERS	AASHTO M291, GRADE B, HEXAGONAL FITTED WITH BEVELED WASHER OR SPHERICAL SEAT TO PROVIDE UNIFORM BEARING.
HEADED–STUDS	ASTM A307 OR APPROVED EQUAL.
WELD ELECTRODES	E70XX AND IN ACCORDANCE WITH AWS D1.1–88.
DRAINAGE GEOTEXTILE	NEEDLE PUNCHED, NON–WOVEN, PUNCTURE RESISTANCE (ASTM D4833) 335 N, GRAB STRENGTH (ASTM D4632) 690 N, FABRIC WEIGHT (ASTM 3776) 0.2 KG/M2, APPARENT OPENING SIZE (AOS) (COE CW–02215) 70.
GEOCOMPOSITE DRAIN STRIP	MIRADRAIN 6000 OR AMERDRAIN 500.
PVC WEEP PIPE	SCHEDULE 40 PVC.

2.02 MATERIALS HANDLING AND STORAGE

A. CEMENT SHALL BE ADEQUATELY STORED TO PREVENT MOISTURE DEGRADATION AND PARTIAL HYDRATION. CEMENT THAT HAS BECOME CAKED OR LUMPY SHALL NOT BE USED.

B. ALL STEEL REINFORCEMENT SHALL BE CAREFULLY HANDLED AND SHALL BE STORED ON SUPPORTS TO KEEP THE STEEL FROM CONTACT WITH THE GROUND. STEEL BARS SHALL BE PICKED UP IN SUCH A WAY AS TO PREVENT OVERSTRESSING. DAMAGE TO THE NAIL STEEL AS A RESULT OF OVERSTRESSING, ABRASION, CUTS, NICKS, WELDS, AND WELD SPLATTER SHALL BE CAUSE FOR REJECTION BY THE OWNER'S REPRESENTATIVE. GROUNDING OF WELDING LEADS TO THE NAIL STEEL SHALL NOT BE ALLOWED. NAIL STEEL SHALL BE PROTECTED FROM AND SUFFICIENTLY FREE OF DIRT, RUST, AND OTHER DELETERIOUS SUBSTANCES PRIOR TO INSTALLATION. HEAVY CORROSION OR PITTING OF NAILS SHALL BE CAUSE FOR REJECTION BY THE OWNER'S REPRESENTATIVE. LIGHT RUST THAT HAS NOT RESULTED IN PITTING IS ACCEPTABLE.

C. DRAINAGE GEOTEXTILE AND GEOCOMPOSITE DRAINS SHALL BE PROVIDED IN ROLLS WRAPPED WITH A PROTECTIVE COVERING AND STORED IN A MANNER THAT PROTECTS THE FABRIC FROM MUD, DIRT, DUST, DEBRIS, AND SHOTCRETE REBOUND. PROTECTIVE WRAPPING SHALL NOT BE REMOVED UNTIL IMMEDIATELY BEFORE THE GEOTEXTILE OR DRAIN STRIP IS INSTALLED. EXTENDED EXPOSURE TO ULTRA–VIOLET LIGHT SHALL BE AVOIDED.

PART 3 – EXECUTION

3.01 GENERAL

A. THE CONSTRUCTION SEQUENCE SHALL BE AS SHOWN ON THE PLANS, IN STAGED LIFTS OR IN ACCORDANCE WITH THE APPROVED SUBMITTAL, UNLESS APPROVED OTHERWISE BY THE DESIGNER. NO EXCAVATIONS STEEPER OR HIGHER THAN THOSE SPECIFIED HEREIN SHALL BE MADE ABOVE OR BELOW THE SOIL NAIL WALL WITHOUT WRITTEN APPROVAL OF THE DESIGNER.

3.02 EXCAVATION

3.02.01 MASS EXCAVATION

A. FOR DISTANCES AWAY FROM THE WALL FACE GREATER THAN THE CURRENT WALL HEIGHT, MASS EXCAVATION MAY OCCUR AT ANY TIME, BUT WITH SLOPES NO STEEPER THAN 1H:1V, UNLESS APPROVED OTHERWISE BY THE DESIGNER.

B. SUBSEQUENT MASS EXCAVATION BENEATH A PRECEDING SHOTCRETE LIFT, NO CLOSER THAN 5 FEET FROM THE FACE OF SHOTCRETE, MAY OCCUR ANY TIME 24–HOURS AFTER SHOTCRETING THE PRECEDING LIFT. ALL TEMPORARY SLOPES THAT ARE HIGHER THAN 4 FEET SHALL NOT BE STEEPER THAN 1H:1V UNLESS APPROVED OTHERWISE BY THE DESIGNER.

C. DURING MASS EXCAVATION OF THE DRILL BENCH FOR THE NEXT ROW OF NAILS, THE CONTRACTOR SHALL MAINTAIN A BENCH OF MATERIAL TO SERVE AS BOTH A PLATFORM FOR THE DRILLING EQUIPMENT, AND AS A STABILIZING BERM AGAINST THE FINAL WALL EXCAVATION FACE NEAT–LINE. IN ACCORDANCE WITH THAT SHOWN ON THE PLANS OR APPROVED OTHERWISE BY THE DESIGNER, THE MATERIAL NEAR THE WALL FACE MAY BE EITHER (A) A NATIVE BERM, (B) A SOFT BERM, OR (C) NEAT CUT. IN ALL THREE CASES, THE DRILL BENCH (IF COMPLETEING HORIZONTAL INSTALLATION) SHALL NOT BE MORE THAN 3 FEET BELOW THE ROW OF NAILS TO BE INSTALLED AND SHALL EXTEND OUT FROM THE WALL FACE A MINIMUM DISTANCE TO PROVIDE A SAFE WORKING BENCH FOR THE DRILL EQUIPMENT AND WORKERS. THE CONTRACTOR IS COMPLETELY RESPONSIBLE FOR THE SAFETY AND STABILITY OF THE TEMPORARY DRILL BENCH AND WALL FACE CUT, UNTIL THE CORRESPONDING SHOTCRETE LIFT WITH CONNECTION HARDWARE IS CONSTRUCTED AS SHOWN ON THE PLANS.

D. SUBSEQUENT MASS EXCAVATION BENEATH A PRECEDING SHOTCRETE LIFT, CLOSER THAN 5 FEET FROM THE FACE OF SHOTCRETE, SHALL NOT OCCUR UNTIL: (1) NAIL GROUT AND SHOTCRETE ON THE PRECEDING LIFT SHALL HAVE REACHED 50 PERCENT OF THEIR SPECIFIED 28–DAY COMPRESSIVE STRENGTHS; AND (2) INSTALLATION OF CONNECTION HARDWARE AND NAIL TESTING FOR THE PRECEDING LIFT ARE COMPLETE AND ACCEPTABLE TO THE OWNER'S REPRESENTATIVE. MASS EXCAVATION CLOSER THAN 5 FEET TO THE SHOTCRETE FACE MUST BE IN ACCORDANCE WITH THE DRILL BERM, BENCH AND EMBANKMENT REQUIREMENTS PREVIOUSLY DESCRIBED ABOVE AND SHOWN ON THE PLANS.

E. EXCAVATION OF THE GROUND BEYOND THE FINAL WALL FACE SHALL NOT BE ALLOWED. INADVERTENT OVEREXCAVATION BEYOND THE FINAL WALL FACE SHALL BE RESTORED BY THE CONTRACTOR USING A METHOD APPROVED BY THE DESIGNER AND AT NO ADDITIONAL COST TO THE OWNER.

3.02.02 WALL FACE EXCAVATION

A. EXCAVATION TO THE FINAL WALL EXCAVATION FACE (NEAT LINE) SHALL BE DONE USING PROCEDURES THAT : (1) PREVENT GROUND LOSS, SWELLING, AIR SLACKING, OR LOOSENING; (2) MINIMIZE DEGRADATION OF SOIL BEARING SUPPORT BELOW THE OVERLYING PORTIONS OF THE SOIL NAIL WALL AND BELOW THE SOIL NAILS CURRENTLY BEING INSTALLED; (3) PREVENT PREMATURE LOSS OF SOIL MOISTURE AT THE FACE; (4) PREVENT GROUND FREEZING; AND (5) REDUCE THE POTENTIAL FOR SHOTCRETE OVERAGES.

3.02.03 TEMPORARY END OF WALL CONDITIONS

A. WHERE THE CONTRACTOR'S CONSTRUCTION SEQUENCING RESULTS IN A DISCONTINUOUS LIFT ALONG ANY NAIL ROW, THE ENDS OF THE LIFT SHALL EXTEND BEYOND THE ENDS OF THE NEXT LOWER LIFT BY AT LEAST 10 FEET. SLOPES/BERMS IMMEDIATELY BENEATH THESE STEPPED LIFTS SHALL BE CONSTRUCTED TO PREVENT SLOUGHING OR FAILURE THAT WOULD RESULT IN LOSS OF THE FACE SUPPORT PROVIDED BY THE SLOPES/BERMS.

3.02.04 PROTRUSIONS AND VOIDS

A. COBBLES, BOULDERS, RUBBLE, OR OTHER OBJECTS THAT ARE ENCOUNTERED AT THE SOIL FACE DURING EXCAVATION AND THAT PROTRUDE FROM THE SOIL FACE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTING THE SHOTCRETE CONSTRUCTION FACING AND/OR THE FINISH STRUCTURAL FACING TO THE SPECIFIED MINIMUM THICKNESS AND TO THE LINE AND GRADE INDICATED IN THE PLANS. REMOVAL OF FACE PROTRUSIONS TO ACCOMPLISH THIS CONSTRUCTION SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL NOTIFY THE DESIGNER OF THE PROPOSED METHOD FOR MITIGATION OF FACE PROTRUSIONS AT LEAST 24 HOURS PRIOR TO INITIATION OF THE WORK. SHOULD THE REMOVAL OF FACE PROTRUSIONS RESULT IN VOIDS BEYOND THE FINISH FACE LINE (NEAT LINE), THE CONTRACTOR SHALL DETERMINE THE APPROPRIATE METHOD OF BACKFILLING AND SHALL SUBMIT TO THE DESIGNER SUCH METHOD(S) AT LEAST 24 HOURS PRIOR TO INITIATING THE WORK.

3.03 WALL DRAINAGE

3.03.01 DESCRIPTION

A. THE DRAINAGE NETWORK SHALL CONSIST OF INSTALLING THE PREFABRICATED GEOCOMPOSITE DRAINAGE STRIPS, PVC CONNECTION PIPES, AND WALL FOOTING DRAINS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE DESIGNER. EXCLUSIVE OF THE WALL FOOTING DRAINS, ALL ELEMENTS OF THE DRAINAGE NETWORK SHALL BE INSTALLED PRIOR TO SHOTCRETING.

3.03.02 DRAINAGE CONTROL

A. LOCALIZED AREAS OF PERCHED WATER MAY BE ENCOUNTERED. THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE IF GROUNDWATER OCCURS, IS ENCOUNTERED, OR OBSERVERED IN AT OR ADJACENT TO THE EXCAVATION FACE.

B. THE CONTRACTOR SHALL PROVIDE POSITIVE CONTROL AND DISCHARGE OF ALL SURFACE WATER ENCOUNTERED DURING CONSTRUCTION TO THE EXTENT NECESSARY TO PREVENT ADVERSE CONDITIONS AS DETERMINED BY THE OWNER'S REPRESENTATIVE.

C. EXISTING SUBSURFACE DRAINAGE FEATURES ENCOUNTERED DURING EXCAVATION SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE OWNER'S REPRESENTATIVE. WORK IN THESE AREAS SHALL BE SUSPENDED UNTIL REMEDIAL MEASURES MEETING THE APPROVAL OF THE OWNER'S REPRESENTATIVE ARE IMPLEMENTED BY THE CONTRACTOR. SURFACE WATER RUNOFF FLOW AND FLOWS FROM EXISTING SUBSURFACE DRAINAGE FEATURES SHALL BE CAPTURED INDEPENDENTLY OF THE WALL DRAINAGE NETWORK AND CONVEYED TO AN OUTFALL STRUCTURE OR STORM SEWER AS DETERMINED BY THE OWNER'S REPRESENTATIVE. REMEDIAL MEASURES FOR EXISTING SUBSURFACE DRAINAGE FEATURES ENCOUNTERED DURING THE WORK, WHICH WERE NOT IDENTIFIED ON THE PLANS, WILL BE PAID FOR AS EXTRA WORK PER THE CONTRACT DOCUMENTS.

3.03.02 GEOCOMPOSITE DRAIN STRIPS

A. GEOCOMPOSITE DRAIN STRIPS SHALL BE INSTALLED AS SHOWN ON THE PLANS. DRAIN STRIPS AT CONSTRUCTION JOINTS SHALL BE PLACED SUCH THAT THE JOINT IS ALIGNED AS CLOSE AS PRACTICAL ALONG THE MIDDLE OF THE LONGITUDINAL AXIS OF THE DRAIN STRIP.

B. THE GEOCOMPOSITE DRAIN STRIPS SHALL BE AT LEAST 16 INCHES WIDE AND SHALL BE SECURED TO THE EXCAVATION FACE WITH THE GEOTEXTILE SIDE AGAINST THE GROUND BEFORE SHOTCRETING. DRAIN STRIPS SHALL BE MADE CONTINUOUS BY USING THE "SHINGLE" METHOD OF SPLICING WITH A 16 INCH MINIMUM OVERLAP SUCH THAT THE FLOW OF WATER IS NOT IMPEDED OR DIRECTED TO THE SHOTCRETE SIDE OF THE STRIPS.

3.03.03 CONNECTION PIPES AND WEEPHOLES

A. CONNECTION PIPES AND WEEPHOLES SHALL BE INSTALLED AS SHOWN ON THE PLANS. CONNECTION PIPES SHALL BE LENGTHS OF SOLID PVC PIPE INSTALLED TO DIRECT WATER FROM THE GEOCOMPOSITE DRAIN STRIPS INTO THE FOOTING DRAIN. CONNECTION PIPES AND WEEPHOLES SHALL BE CONNECTED TO THE DRAIN STRIPS AS SHOWN ON THE PLANS, UNLESS APPROVED OTHERWISE BY THE ENGINEER. THE JOINT BETWEEN THE DRAIN PIPE AND THE DRAIN STRIP, AND THE DISCHARGE END OF THE CONNECTOR PIPE SHALL BOTH BE SEALED TO PREVENT SHOTCRETE INTRUSION. DAMAGE OF THE GEOCOMPOSITE DRAIN STRIP WHICH, IN THE OPINION OF THE OWNER'S REPRESENTATIVE, MAY CAUSE INTERRUPTION IN FLOW SHALL REQUIRE INSTALLATION OF ADDITIONAL CONNECTION PIPES OR WEEPHOLES ABOVE THE DAMAGED SECTION. CONNECTION PIPES SHALL BE EXTENDED TO THE EDGE OF THE FOOTING DRAIN BUT NOT THROUGH THE DRAINAGE GEOTEXTILE. THE INTEGRITY OF THE DRAINAGE GEOTEXTILE SHALL NOT BE INTERRUPTED.

3.03.04 FOOTING DRAINS

A. FOOTING DRAINS SHALL CONSIST OF A PERFORATED PVC PIPE AND SHALL BE CONSTRUCTED AT THE BOTTOM OF EACH WALL AS SHOWN ON THE PLANS.

3.04 NAIL INSTALLATION

3.04.01 GENERAL

A. TWO SUCCESSFUL VERIFICATION TESTS SHALL BE PERFORMED IN EACH SOIL UNIT IDENTIFIED ON THE PLANS PRIOR TO STARTING INSTALLATION OF PRODUCTION NAILS. THE LOCATIONS OF THE VERIFICATION TESTS ARE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE DESIGN ENGINEER. ADDITIONAL VERIFICATION TESTS MAY BE REQUIRED IF THE CONTRACTOR MODIFIES THE INSTALLATION METHODS FROM THOSE USED DURING THE INSTALLATION OF THE APPROVED VERIFICATION TEST NAILS AND WILL BE CONDUCTED AT THE CONTRACTOR'S EXPENSE.

B. NAILS SHALL BE INSTALLED PRIOR TO THE APPLICATION OF SHOTCRETE AT THE LOCATIONS AND TO THE LENGTHS INDICATED ON THE PLANS. THE DESIGNER MAY ADD, ELIMINATE, OR RELOCATE NAILS TO ACCOMMODATE ACTUAL FIELD CONDITIONS. MODIFICATIONS TO THE DESIGN RESULTING FROM ACTIONS OF THE CONTRACTOR SHALL BE DETERMINED BY THE ENGINEER.

3.04.02 DRILLING

A. THE CONTRACTOR SHALL SELECT DRILLING EQUIPMENT AND METHODS SUITABLE FOR THE GROUND CONDITIONS DESCRIBED IN THE GEOTECHNICAL REPORT. DRILLHOLE DIAMETER SHALL BE SELECTED TO PROVIDE THE MINIMUM SPECIFIED GROUT COVER OVER THE SOIL NAIL TENDON AND TO DEVELOP THE SPECIFIED LOAD CARRYING CAPACITY. DRILLING MUDS USED TO ASSIST IN CUTTING REMOVAL SHALL NOT BE ALLOWED. UNCASED DRILLHOLES SHALL BE OBSERVED FOR CLEANLINESS PRIOR TO INSERTION OF THE SOIL NAIL TENDON. IN CAVING GROUND, THE CONTRACTOR SHALL USE CASED DRILLING METHODS TO SUPPORT THE SIDES OF THE DRILLHOLES.

B. THE CONTRACTOR SHALL IMMEDIATELY SUSPEND DRILLING OPERATIONS IF GROUND SUBSIDENCE IS OBSERVED, IF THE SOIL NAIL WALL IS ADVERSELY AFFECTED, OR IF ADJACENT STRUCTURES ARE DAMAGED AS A RESULT OF THE DRILLING OPERATION. THE ADVERSE CONDITIONS SHALL BE STABILIZED IMMEDIATELY AND THE DESIGNER SHALL BE NOTIFIED OF SUCH CONDITIONS WITHIN 24 HOURS.

3.04.03 NAIL TENDON INSTALLATION

A. NAIL TENDONS SHALL BE INSERTED INTO THE DRILLHOLE TO THE REQUIRED LENGTH WITHOUT DIFFICULTY AND IN SUCH A MANNER AS TO PREVENT DAMAGE TO THE DRILLHOLE. TENDONS THAT CANNOT BE FULLY INSERTED TO THE DESIGN DEPTH WITH RELATIVE EASE SHALL BE REMOVED FROM THE DRILLHOLE AND THE DRILLHOLE SHALL BE CLEANED SUFFICIENTLY TO ALLOW UNOBSTRUCTED INSTALLATION OF THE TENDON.

B. IF THE NAIL TENDON IS INSTALLED USING CASED OR HOLLOW–STEM AUGER METHODS, CENTRALIZERS ARE NOT REQUIRED PROVIDED THE INSTALLATION METHOD ENSURES THAT THE TENDON WILL REMAIN IN THE CENTRAL PORTION OF THE NAIL GROUT. IN SUCH SITUATIONS, SLUMP SHALL NOT EXCEED 8 INCHES.

B. BOREHOLES READY FOR NAIL BAR INSTALLATION SHALL BE CLEAR OF ALL OBSTRUCTIONS SUCH AS BUT NOT LIMITED TO SOIL, ROCKS ROOTS OF OTHER MATERIALS THAT CONSTRICT THE UNIFROM DIAMETER OF THE BOREHOLE. CAVING WILL BE CAUSE FOR REJECTION AND MAY REQUIRE A REPLACEMENT BOREHOLE.

3.05 GROUTING

3.05.01 GROUTING EQUIPMENT

A. GROUT EQUIPMENT SHALL PRODUCE A UNIFORMLY MIXED GROUT FREE OF LUMPY AND UNDISPERSED CEMENT. A POSITIVE DISPLACEMENT GROUT PUMP SHALL BE USED. THE PUMP SHALL BE EQUIPPED WITH A PRESSURE GAUGE THAT CAN MEASURE AT LEAST TWICE BUT NO MORE THAN THREE TIMES THE INTENDED GROUT PRESSURE. THE GROUTING EQUIPMENT SHALL BE SIZED TO ENABLE THE ENTIRE NAIL TO BE GROUTED IN ONE CONTINUOUS OPERATION. THE MIXER SHALL BE CAPABLE OF CONTINUOUSLY AGITATING THE GROUT DURING USAGE.

3.05.02 GROUTING METHODS

A. THE DRILLHOLE SHALL BE GROUTED AFTER INSTALLATION OF THE NAIL TENDON. GROUTING PRIOR TO INSERTION OF THE NAIL TENDON CAN BE ALLOWED PROVIDED NEAT CEMENT GROUT IS USED AND THE NAIL BAR IS IMMEDIATELY INSERTED THROUGH THE GROUT TO THE SPECIFIED LENGTH WITHOUT DIFFICULTY. NO PORTION OF THE NAIL HOLE SHALL BE LEFT OPEN FOR MORE THAN 60 MINUTES PRIOR TO GROUTING UNLESS APPROVED OTHERWISE BY THE ENGINEER. THE GROUT SHALL BE INJECTED AT THE LOWEST POINT OF EACH DRILLHOLE THROUGH A GROUT TREMIE PIPE, CASING, HOLLOW–STEM AUGER, OR DRILL RODS WITH THE DRILLHOLE FILLED IN ONE CONTINUOUS OPERATION. COLD JOINTS IN THE GROUT PLACEMENT ARE ALLOWED FOR CONSTRUCTION OF TEST NAILS. THE CONDUIT DELIVERING THE GROUT SHALL BE KEPT BELOW THE SURFACE OF THE GROUT AS THE CONDUIT IS WITHDRAWN. THE GROUTING CONDUIT SHALL BE WITHDRAWN AS THE NAIL HOLE IS FILLED IN A MANNER WHICH PREVENTS THE CREATION OF VOIDS. THE QUANTITY OF GROUT AND THE GROUTING PRESSURES SHALL BE RECORDED FOR EACH SOIL NAIL. GROUT PRESSURES SHALL BE CONTROLLED TO PREVENT EXCESSIVE GROUND HEAVE OR FRACTURING.

B. DURING CASING REMOVAL FOR DRILLHOLES ADVANCED BY EITHER CASED OR AUGER–CAST METHODS, THE GROUT SURFACE WITHIN THE CASING SHALL BE CONTINUALLY MONITORED FOR MAINTENANCE OF "HEAD" SUFFICIENT TO OFFSET THE EXTERNAL GROUNDWATER/SOIL PRESSURE.

3.05.03 GROUT TESTING

A. NAIL GROUT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI IN 3 DAYS AND 3000 PSI IN 28 DAYS. NAIL GROUT SHALL BE TESTED BY THE CONTRACTOR IN ACCORDANCE WITH ASTM C109 / AASHTO T106 AT A FREQUENCY OF NO LESS THAN ONE TEST FOR EVERY 50 CUBIC YARDS OF GROUT PLACED OR ONCE PER WEEK, WHICHEVER COMES FIRST.

3.05.04 TEST NAIL UNBONDED LENGTH

A. TEMPORARY UNBONDED LENGTHS SHALL BE PROVIDED FOR EACH TEST NAIL. THE TEST NAIL BAR SHALL BE ISOLATED FROM THE SHOTCRETE FACING AND THE REACTION FRAME DURING TESTING. ISOLATION OF A TEST NAIL THROUGH THE SHOTCRETE FACING SHALL NOT AFFECT THE LOCATION OF THE REINFORCING STEEL UNDER THE BEARING PLATE. ACCEPTED TEST NAILS MAY BE INCORPORATED IN THE WORK PROVIDED THE TEMPORARY TEST UNBONDED LENGTH IS FULLY GROUTED SUBSEQUENT TO TESTING.

3.06 NAIL TESTING

3.06.01 GENERAL

A. VERIFICATION TESTS SHALL BE PERFORMED AT THE LOCATIONS SELECTED BY THE CONTRACTOR AND APPROVED BY THE OWNER'S REPRESENTATIVE. PROOF TESTS SHALL BE PERFORMED AT LOCATIONS SELECTED BY THE OWNER'S REPRESENTATIVE. ALL RECORDED TEST DATA SHALL BE RECORDED BY THE OWNER'S REPRESENTATIVE, UNLESS APPROVED OTHERWISE. PULLOUT TESTING OF NAILS SHALL NOT BE PERFORMED UNTIL THE NAIL GROUT AND SHOTCRETE FACING HAVE ATTAINED AT LEAST 50 PERCENT OF THEIR SPECIFIED 28–DAY COMPRESSIVE STRENGTHS.

B. WHERE TEMPORARY CASING OF THE UNBONDED LENGTH OF TEST NAILS IS PROVIDED, THE CASING SHALL BE INSTALLED TO PREVENT ANY REACTION BETWEEN THE CASING AND THE GROUTED BOND LENGTH OF THE NAIL AND/OR THE STRESSING APPARATUS.

3.06.02 TESTING EQUIPMENT

A. TESTING EQUIPMENT SHALL INCLUDE TWO DIAL GAUGES, A DIAL GAUGE SUPPORT, JACK AND PRESSURE GAUGE, A PUMP, AND A REACTION FRAME.

B. A MINIMUM OF TWO DIAL GAUGES CAPABLE OF MEASURING TO 0.001–INCH SHALL BE AVAILABLE AT THE SITE TO MEASURE THE NAIL MOVEMENT. THE DIAL GAUGES SHALL HAVE A MINIMUM TRAVEL SUFFICIENT TO ALLOW THE TEST TO BE PERFORMED WITHOUT RE–SETTING THE DIAL GAUGE. THE DIAL GAUGES SHALL BE ALIGNED WITHIN 5 DEGREES OF THE AXIS OF THE NAIL AND SHALL BE SUPPORTED INDEPENDENT OF THE JACKING SET–UP AND THE WALL. A HYDRAULIC JACK, PRESSURE GAUGE, AND PUMP SHALL BE USED TO APPLY AND MEASURE THE TEST LOAD. THE CONTRACTOR SHALL PROVIDE RECENT CALIBRATION CURVES IN ACCORDANCE WITH THE SUBMITTALS SECTION.

C. THE JACK AND PRESSURE GAUGE SHALL BE CALIBRATED BY AN INDEPENDENT TESTING LABORATORY AS A UNIT. THE PRESSURE GAUGE SHALL BE GRADUATED IN 100 PSI INCREMENTS OR LESS AND SHALL HAVE A RANGE NOT EXCEEDING TWICE THE ANTICIPATED MAXIMUM PRESSURE DURING TESTING UNLESS APPROVED OTHERWISE BY THE ENGINEER. THE RAM TRAVEL OF THE JACK SHALL BE SUFFICIENT TO ENABLE THE TEST TO BE PERFORMED WITHOUT RE–SETTING THE JACK. THE JACK SHALL BE CAPABLE OF APPLYING EACH TEST LOAD INCREMENT IN LESS THAN 1 MINUTE.

D. THE JACK SHALL BE INDEPENDENTLY SUPPORTED AND CENTERED OVER THE NAIL SO THAT THE NAIL DOES NOT CARRY THE WEIGHT OF THE JACK. THE STRESSING EQUIPMENT SHALL BE PLACED OVER THE NAIL IN SUCH A MANNER THAT THE JACK, BEARING PLATES, AND STRESSING ANCHORAGE ARE IN ALIGNMENT. THE JACK SHALL BE POSITIONED AT THE BEGINNING OF THE TEST SUCH THAT UNLOADING AND REPOSITIONING OF THE JACK DURING THE TEST WILL NOT BE REQUIRED.

E. THE REACTION FRAME SHALL BE SUFFICIENTLY RIGID AND OF ADEQUATE DIMENSION SUCH THAT EXCESSIVE DEFORMATION OF THE TEST APPARATUS REQUIRING REPOSITIONING OF ANY COMPONENTS DOES NOT OCCUR DURING TESTING. WHERE THE REACTION FRAME BEARS DIRECTLY ON THE SHOTCRETE FACING, THE REACTION FRAME SHALL BE DESIGNED TO PREVENT FRACTURE OF THE SHOTCRETE.

3.06.03 VERIFICATION TESTING OF SACRIFICIAL NAILS

A. VERIFICATION TESTING IN EACH SOIL UNIT SHALL BE PERFORMED PRIOR TO INSTALLATION OF PRODUCTION NAILS IN THAT SOIL UNIT TO VERIFY THE CONTRACTOR'S INSTALLATION METHODS, NAIL PULLOUT CAPACITY, AND DESIGN ASSUMPTIONS. THE NAILS USED FOR THE VERIFICATION TESTS SHALL BE SACRIFICIAL AND SHALL NOT BE INCORPORATED AS PRODUCTION NAILS. PAYMENT FOR ADDITIONAL VERIFICATION TESTS REQUIRED DUE TO DIFFERING SITE CONDITIONS, AS DETERMINED BY THE DESIGNER, SHALL BE PER THE CONTRACT UNIT PRICE.

B. TEST NAILS SHALL BE CONSTRUCTED USING THE SAME EQUIPMENT, METHODS, AND HOLE DIAMETER AS PLANNED FOR THE PRODUCTION NAILS. CHANGES IN THE DRILLING OR INSTALLATION METHOD MAY REQUIRE ADDITIONAL VERIFICATION TESTING AS DETERMINED BY THE DESIGNER AND SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

C. THE UNBONDED LENGTH OF THE TEST NAIL SHALL BE AT LEAST 3 FEET UNLESS APPROVED OTHERWISE BY THE DESIGNER. THE BONDED LENGTH OF THE TEST NAIL SHALL BE DETERMINED BY THE ENGINEER BASED ON THE BAR GRADE AND SIZE SUCH THAT THE ALLOWABLE BAR LOAD IS NOT EXCEEDED, BUT SHALL NOT BE LESS THAN 10 FEET. THE ALLOWABLE BAR LOAD DURING TESTING SHALL NOT EXCEED 80 PERCENT OF THE STEEL ULTIMATE STRENGTH FOR GRADE 150 BARS OR 90 PERCENT OF THE YIELD STRENGTH FOR GRADE 60 AND GRADE 75 BARS.

D. THE DESIGN TEST LOAD (DTL) DURING TESTING SHALL BE DETERMINED BY MULTIPLYING THE BOND LENGTH OF THE NAIL TIMES THE DESIGN ADHESION. VERIFICATION TEST NAILS SHALL BE INCREMENTALLY LOADED AND UNLOADED IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

LOAD	HOLD TIME	LOAD	HOLD TIME
AL	1 MINUTE	1.75DTL	UNTIL STABLE
0.25DTL	10 MINUTES	1.50DTL	UNTIL STABLE
0.50DTL	10 MINUTES	1.25DTL	UNTIL STABLE
0.75DTL	10 MINUTES	1.00DTL	UNTIL STABLE
1.00DTL	10 MINUTES	0.75DTL	UNTIL STABLE
1.25DTL	10 MINUTES	0.50DTL	UNTIL STABLE
1.50DTL	60 MINUTES	0.25DTL	UNTIL STABLE
1.75DTL	10 MINUTES	AL	UNTIL STABLE
2.00DTL	10 MINUTES		

E. THE ALIGNMENT LOAD (AL) SHOULD BE THE MINIMUM LOAD REQUIRED TO ALIGN THE TESTING APPARATUS AND SHOULD NOT EXCEED 0.05DTL. DIAL GAUGES SHOULD BE ZEROED AFTER THE ALIGNMENT LOAD HAS BEEN APPLIED.

F. EACH LOAD INCREMENT SHALL BE HELD FOR AT LEAST 10 MINUTES. THE VERIFICATION TEST NAIL SHALL BE MONITORED FOR CREEP FOR 60 MINUTES AT THE 1.50 DTL LOAD INCREMENT. NAIL MOVEMENTS DURING THE CREEP PORTION OF THE TEST SHALL BE MEASURED AND RECORDED AT 1, 2, 3, 5, 6, 10, 20, 30, 50, AND 60 MINUTES.

3.06.04 PROOF TESTING OF PRODUCTION NAILS

A. PROOF TESTING SHALL BE PERFORMED ON APPROXIMATELY 5 PERCENT OF THE PRODUCTION NAILS IN EACH SHOTCRETE LIFT AS DETERMINED BY THE OWNER'S REPRESENTATIVE.

B. THE UNBONDED LENGTH OF THE TEST NAIL SHALL BE AT LEAST 3 FEET. THE BONDED LENGTH OF THE TEST NAIL SHALL BE DETERMINED BY THE OWNER'S REPRESENTATIVE SUCH THAT THE ALLOWABLE BAR LOAD IS NOT EXCEEDED BUT SHALL NOT BE LESS THAN 10 FEET. THE ALLOWABLE BAR LOAD DURING TESTING SHALL NOT EXCEED 80 PERCENT OF THE STEEL ULTIMATE STRENGTH FOR GRADE 150 BARS OR 90 PERCENT OF THE STEEL YIELD STRENGTH FOR GRADE 60 AND GRADE 75 BARS.

C. PROOF TEST NAILS SHALL BE INCREMENTALLY LOADED IN 0.25DTL INCREMENTS TO A MAXIMUM LOAD OF 1.50DTL IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

AL	0.75DTL	1.50DTL
0.25DTL	1.00DTL	
0.50DTL	1.25DTL	

D. THE ALIGNMENT LOAD (AL) SHOULD BE THE MINIMUM LOAD REQUIRED TO ALIGN THE TESTING APPARATUS AND SHOULD NOT EXCEED 0.05DTL. DIAL GAUGES SHOULD BE ZEROED AFTER THE ALIGNMENT LOAD HAS BEEN APPLIED.

E. ALL INCREMENTS SHALL BE MAINTAINED WITHIN 5 PERCENT OF THE INTENDED LOAD. DEPENDING ON PERFORMANCE, EITHER A 10 MINUTE OR 60 MINUTE CREEP TEST SHALL BE PERFORMED AT 1.50DTL. NAIL MOVEMENT SHALL BE MEASURED AND RECORDED AT 1 MINUTES, 2, 3, 5, 6, AND 10 MINUTES. WHERE THE NAIL MOVEMENT BETWEEN 1 MINUTE AND 10 MINUTES EXCEEDS 0.04 INCHES, THE MAXIMUM TEST LOAD SHALL BE MAINTAINED AN ADDITIONAL 50 MINUTES AND MOVEMENTS SHALL BE RECORDED AT 20, 30, 50, AND 60 MINUTES.

3.06.05 TEST NAIL ACCEPTANCE CRITERIA

A. A TEST NAIL SHALL BE CONSIDERED ACCEPTABLE WHEN:

1. FOR VERIFICATION TESTS, A CREEP RATE LESS THAN 0.08 INCHES PER LOG CYCLE OF TIME BETWEEN THE 6 AND 60 MINUTE READINGS IS OBSERVED DURING CREEP TESTING, AND THE RATE IS LINEAR OR DECREASING THROUGHOUT THE CREEP TEST LOAD HOLD PERIOD.
2. FOR PROOF TESTS, A CREEP RATE LESS THAN 0.04 INCHES PER LOG CYCLE OF TIME BETWEEN THE 1 AND 10 MINUTE READINGS IS OBSERVED OR A CREEP RATE LESS THAN 0.08 INCHES PER LOG CYCLE OF TIME BETWEEN THE 6 AND 60 MINUTE READINGS, AND THE CREEP RATE IS LINEAR OR DECREASING THROUGHOUT THE CREEP TEST LOAD HOLD PERIOD.
3. THE TOTAL MOVEMENT AT THE MAXIMUM TEST LOAD EXCEEDS 80 PERCENT OF THE THEORETICAL ELASTIC ELONGATION OF THE TEST NAIL UNBONDED LENGTH.
4. A PULLOUT FAILURE DOES NOT OCCUR DURING TESTING. PULLOUT FAILURE IS DEFINED AS THE LOAD AT WHICH ATTEMPTS TO INCREASE THE TEST LOAD SIMPLY RESULT IN CONTINUED PULLOUT MOVEMENT OF THE TEST NAIL.

B. AT THE CONTRACTOR'S OPTION, SUCCESSFUL PROOF TEST NAILS MEETING THE ABOVE TEST ACCEPTANCE CRITERIA MAY BE INCORPORATED AS PRODUCTION NAILS, PROVIDED THAT (1) THE UNBONDED TEST LENGTH OF THE NAIL HOLE HAS NOT COLLAPSED DURING TESTING, (2) THE MINIMUM REQUIRED HOLE DIAMETER HAS BEEN MAINTAINED, AND (3) THE TEST NAIL LENGTH AND BAR SIZE ARE EQUAL TO OR GREATER THAN THE SCHEDULED PRODUCTION NAIL LENGTH AND BAR SIZE. TEST NAILS MEETING THESE REQUIREMENTS SHALL BE COMPLETED BY SATISFACTORILY GROUTING THE UNBONDED TEST LENGTH. MAINTAINING THE TEMPORARY UNBONDED TEST LENGTH FOR SUBSEQUENT GROUTING IS THE CONTRACTOR'S RESPONSIBILITY.

3.06.06 INADEQUATE TEST NAIL PERFORMANCE

A. THE DESIGNER SHALL EVALUATE THE RESULTS OF EACH VERIFICATION TEST. INSTALLATION METHODS THAT DO NOT SATISFY THE NAIL TESTING REQUIREMENTS SHALL BE CONSIDERED INADEQUATE. THE CONTRACTOR SHALL PROPOSE ALTERNATIVE METHODS AND INSTALL REPLACEMENT VERIFICATION TEST NAILS. REPLACEMENT TEST NAILS SHALL BE INSTALLED AND TESTED AT NO ADDITIONAL COST TO THE OWNER.

B. THE DESIGNER MAY REQUIRE THAT THE CONTRACTOR REPLACE SOME OR ALL OF THE PRODUCTION NAILS REPRESENTED BY THE INADEQUATE PROOF TEST NAIL. ALTERNATIVELY, THE DESIGNER MAY REQUIRE PROOF TESTING OF ADDITIONALLY INSTALLED PROOF TEST NAILS BE CONDUCTED TO VERIFY THAT ADJACENT PREVIOUSLY INSTALLED PRODUCTION NAILS HAVE SUFFICIENT LOAD CARRYING CAPACITY. COSTS DUE TO ADDITIONAL PROOF TESTS OR INSTALLATION OF ADDITIONAL OR MODIFIED NAILS AS A RESULT OF POOR PROOF TEST NAIL PERFORMANCE SHALL BE AT NO ADDITIONAL COST TO THE OWNER, UNLESS DETERMINED BY THE DESIGNER TO BE DUE TO CAUSES BEYOND THE CONTRACTOR'S CONTROL.

3.07 SOIL NAIL TOLERANCES

A. THE SOIL NAILS SHALL NOT EXTEND BEYOND THE RIGHT–OF–WAY OR EASEMENT LIMITS SHOWN ON THE PLANS, UNLESS APPROVED OTHERWISE. BARS SHALL BE CENTERED WITHIN 1 INCH OF THE CENTER OF THE DRILLHOLE. INDIVIDUAL NAILS SHALL BE POSITIONED PLUS OR MINUS 12 INCHES FROM THE DESIGN LOCATIONS SHOWN IN THE ELEVATION PLANS. LOCATION TOLERANCES SHALL BE CONSIDERED APPLICABLE TO ONLY ONE NAIL AND NOT CUMULATIVE OVER LARGE WALL AREAS. THE NAIL INCLINATION SHALL BE PLUS OR MINUS 3 DEGREES OF THAT SHOWN IN THE PLANS. NAIL SPLAY ANGLE SHALL BE WITHIN PLUS OR MINUS 3 DEGREES. NAILS THAT ENCOUNTER UNANTICIPATED OBSTRUCTIONS DURING DRILLING SHALL BE RELOCATED BY THE ENGINEER AT THE OWNER'S COST. SOIL NAILS THAT DO NOT SATISFY THE SPECIFIED TOLERANCES DUE TO THE CONTRACTOR'S INSTALLATION METHODS SHALL BE REPLACED TO THE DESIGNER'S SATISFACTION AT NO ADDITIONAL COST TO THE OWNER.

DESIGN	DRAWN	REVIEW	DATE	REV	DESCRIPTION
WCA	WCA	MW	04/01/18	R1	FINAL REVIEW
WCA	WCA	MW	02/19/19	C1	FOR BID AND CONSTRUCTION

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CEMENT KILN DUST (CKD) CLOSURE PLANS
SOIL NAIL SPECIFICATIONS

CEMEX

DRAWING NUMBER
SHEET
N4
25 OF 28

SECTION 02360 – SHOTCRETE FACING

PART 1 – GENERAL

1.01 DESCRIPTION

A. THE WORK DESCRIBED IN THIS SECTION SHALL CONSIST OF FURNISHING ALL MATERIALS AND LABOR REQUIRED FOR PLACING REINFORCED SHOTCRETE FOR THE SOIL NAIL WALL. THE WORK SHALL INCLUDE PLACEMENT OF THICKNESS PINS OR FINISHING WIRES, AND PREPARATORY TRIMMING AND CLEANING OF SOIL/ROCK SURFACES AND SHOTCRETE COLD JOINTS FOR THE SOIL NAIL WALLS SHOWN ON THE PLANS.

B. SHOTCRETE SHALL COMPLY WITH THE REQUIREMENTS OF ACI 506.2–94, "SPECIFICATION FOR SHOTCRETE", EXCEPT AS SPECIFIED OTHERWISE HEREIN.

C. THE OWNER'S REPRESENTATIVE / SHOTCRETE INSPECTOR SHALL BE QUALIFIED TO INSPECT REINFORCEMENT AND SHOTCRETE PLACEMENT.

1.02 QUALITY ASSURANCE

A. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING A QUALITY ASSURANCE PROGRAM. ALL WORKERS, INCLUDING FOREMAN, NOZZLEMEN, FINISHERS AND DELIVERY EQUIPMENT OPERATORS, SHALL BE FULLY QUALIFIED TO PERFORM THE WORK. ALL NOZZLEMEN ON THIS PROJECT SHALL HAVE AT LEAST ONE YEAR OF ACCUMULATIVE EXPERIENCE IN THE PAST 3 YEARS IN SIMILAR SHOTCRETE APPLICATION WORK AND SHALL DEMONSTRATE ABILITY TO SATISFACTORILY PLACE THE MATERIAL IN ACCORDANCE WITH THE RECOMMENDATIONS OF ACI 506.3R "GUIDE TO CERTIFICATION TO SHOTCRETE NOZZLEMEN", AND ANY LOCAL CODE REQUIREMENTS.

B. QUALIFICATION OF THE NOZZLEMEN SHALL BE BASED ON A VISUAL INSPECTION OF THE SHOTCRETE DENSITY AND VOID STRUCTURE AND ON ACHIEVING THE SPECIFIED 3–DAY AND 28–DAY COMPRESSIVE STRENGTH REQUIREMENTS DETERMINED FROM THE AVERAGE TEST RESULTS FROM THREE CORES EXTRACTED FROM EACH PRECONSTRUCTION AND PRODUCTION TEST PANEL. PRECONSTRUCTION AND PRODUCTION TEST PANELS, CORE EXTRACTION AND COMPRESSIVE STRENGTH TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH ACI 506.2–94 UNLESS SPECIFIED OTHERWISE HEREIN.

C. THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE NOT LESS THAN 2 DAYS PRIOR TO THE SHOOTING OF A QUALIFICATION PANEL. SHOTCRETE MIX AND EQUIPMENT USED TO MAKE QUALIFICATION TEST PANELS SHALL BE THE SAME AS THOSE TO BE USED FOR THE SOIL NAIL WALL.

D. EACH FINISHER SHALL HAVE AT LEAST ONE YEAR OF ACCUMULATIVE EXPERIENCE IN THE PAST 3 YEARS IN SIMILAR STRUCTURAL SHOTCRETE APPLICATION WORK.

1.03 SUBMITTALS

A. SUBMIT IN ACCORDANCE WITH SECTION 01300 – SUBMITALS.

B. AT LEAST 15 DAYS PRIOR TO INITIATING THE WORK, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER:

1. WRITTEN DOCUMENTATION LISTING AT LEAST 5 SIMILAR SHOTCRETE WALLS SUCCESSFULLY COMPLETED WITHIN THE PAST 3 YEARS, INCLUDING PHOTOGRAPHS OF THE PROJECT AS WELL AS NAMES, ADDRESSES, AND PHONE NUMBERS OF THE OWNER'S REPRESENTATIVE.
2. WRITTEN DOCUMENTATION OF THE NOZZLEMEN AND FINISHERS QUALIFICATIONS AND PROPOSED METHOD OF SHOTCRETE PLACEMENT.
3. SHOP DRAWINGS PLANS ILLUSTRATING REINFORCING LAYOUT AND SCHEDULES.
4. SHOTCRETE MIX DESIGN INCLUDING: BRAND AND TYPE OF PORTLAND CEMENT TO BE USED; OURCE, GRADATION, AND QUALITY OF AGGREGATES AS SPECIFIED HEREIN; MIX PROPORTIONS BY WEIGHT; PROPOSED ADMIXTURES, AND THEIR MANUFACTURER, DOSAGE, AND TECHNICAL LITERATURE; AND COMPRESSIVE STRENGTH TEST RESULTS FROM THE MANUFACTURES RECORDS NO OLDER THAN 6 MONTHS VERIFYING THE 28–DAY COMPRESSIVE STRENGTH.
5. CERTIFIED MILL TESTS FOR ALL REINFORCING STEEL FROM EACH HEAT SPECIFYING THE MINIMUM ULTIMATE STRENGTH, YIELD STRENGTH, ELONGATION, AND COMPOSITION.
6. CERTIFICATIONS OF COMPLIANCE FOR BEARING PLATES, NUTS, AND CURING COMPOUNDS.
7. SPECIFICATION AND DATA FOR REVIEW ON EQUIPMENT PROPOSED FOR THE PROJECT INCLUDING SHOTCRETING AND COMPRESSED AIR EQUIPMENT, PROPOSED ACCESS ARRANGEMENTS, AND CAPACITIES.
8. METHODS OF CONTROLLING THE LOCATION OF THE FINISH FACE AND DETERMINING SHOTCRETE THICKNESS.

PART 2 – MATERIALS

2.01 GENERAL

A. ALL MATERIALS FOR SHOTCRETE SHALL CONFORM TO THE FOLLOWING REQUIREMENTS.

CEMENT	ASTM C150 / AASHTO M85, TYPE I.
FINE AGGREGATE	ASTM C33 / AASHTO M6.
COARSE AGGREGATE	AASHTO M–80, CLASS B FOR QUALITY.
WATER	POTABLE, CLEAN, AND FREE FROM SUBSTANCES DELETERIOUS TO CONCRETE AND STEEL, OR THAT WOULD CAUSE STAINING.
CHEMICAL ADMIXTURES	
ACCELERATOR	FLUID TYPE, APPLIED AT NOZZLE, MEETING THE REQUIREMENTS HEREIN.
WATER–REDUCER AND SUPER–PLASTICIZER	ASTM C494 / AASHTO M194, TYPE A, D, F, G.
AIR–ENTRAINING AGENT	ASTM C260 / AASHTO M154.
MINERAL ADMIXTURES:	
FLY ASH	ASTM C618 / AASHTO M295, TYPE F OR G, CEMENT REPLACEMENT UP TO 35 PERCENT BY WEIGHT OF CEMENT.
SILICA FUME	ASTM C1240, 90 PERCENT MINIMUM SILICON DIOXIDE SOLIDS CONTENT, NOT TO EXCEED 12 PERCENT BY WEIGHT OF CEMENT.
WELDED WIRE FABRIC	ASTM A185 / AASHTO M55.
REINFORCING BARS	ASTM A615 / AASHTO M31, GRADE 60, DEFORMED.
CURING COMPOUNDS	AASHTO M148, TYPE ID OR TYPE 2.

2.02 ADMIXTURES

A. SHOTCRETE ADMIXTURES SHALL NOT BE USED UNLESS APPROVED BY THE ENGINEER. APPROVED ADMIXTURES USED TO ENTRAIN AIR, TO REDUCE WATER–CEMENT RATIO, TO RETARD OR ACCELERATE SETTING TIME, OR TO ACCELERATE THE DEVELOPMENT OF STRENGTH, SHALL BE THOROUGHLY MIXED INTO THE SHOTCRETE AT THE RATE SPECIFIED BY THE MANUFACTURER UNLESS SPECIFIED OTHERWISE. ACCELERATING ADDITIVES SHALL BE COMPATIBLE WITH THE CEMENT USED, BE NON–CORROSIVE TO STEEL AND SHALL NOT PROMOTE OTHER DETRIMENTAL EFFECTS SUCH AS CRACKING OR EXCESSIVE SHRINKAGE. THE MAXIMUM ALLOWABLE CHLORIDE ION CONTENT OF ALL INGREDIENTS SHALL NOT EXCEED 0.10 PERCENT WHEN TESTED PER AASHTO T260.

2.03 MATERIALS HANDLING AND STORAGE

A. MATERIALS SHALL BE DELIVERED STORED AND HANDLED TO PREVENT CONTAMINATION, SEGREGATION, CORROSION OR DAMAGE. LIQUID ADMIXTURES SHALL BE STORED TO PREVENT EVAPORATION AND FREEZING.

2.04 SHOTCRETE MIX DESIGN

A. AGGREGATES FOR SHOTCRETE SHALL MEET THE STRENGTH AND DURABILITY REQUIREMENT OF AASHTO M80 AND SHALL MEET THE FOLLOWING GRADATION REQUIREMENTS:

SIEVE SIZE	PERCENT PASSING BY WEIGHT	SIEVE SIZE	PERCENT PASSING BY WEIGHT
1/2 INCH	100	NO. 16	35–55
3/8 INCH	90–100	NO. 30	20–35
NO. 4	70–85	NO. 50	8–20
NO. 8	50–70	NO. 100	2–10

B. CEMENT CONTENT SHALL BE AT LEAST 600 POUNDS PER CUBIC YARD. THE WATER/CEMENT RATIO SHALL NOT BE GREATER THAN 0.45. FOR WET–MIX SHOTCRETE EXPOSED TO FREEZING AND THAWING, THE AIR CONTENT AT THE TRUCK SHALL BE BETWEEN 7 TO 10 PERCENT WHEN TESTED IN ACCORDANCE WITH ASTM C231 / AASHTO T152. THE MIX SHALL BE PROPORTIONED TO BE PUMPABLE WITH THE CONCRETE PUMP FURNISHED FOR THE WORK. ADMIXTURES SHALL BE USED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

C. SHOTCRETE SHALL BE PROPORTIONED TO PRODUCE A MIX CAPABLE OF ATTAINING A COMPRESSIVE STRENGTH OF 2000 PSI IN 3 DAYS AND 4000 PSI IN 28 DAYS. THE AVERAGE COMPRESSIVE STRENGTH OF EACH SET OF THREE CORES EXTRACTED FROM TEST PANELS OR WALL FACE MUST BE EQUAL TO OR EXCEED 85 PERCENT, WITH NO INDIVIDUAL CORE LESS THAN 75 PERCENT OF THE SPECIFIED COMPRESSIVE STRENGTH IN ACCORDANCE WITH ACI 506.2. THE BOILED ABSORPTION OF SHOTCRETE, WHEN TESTED IN ACCORDANCE WITH ASTM C642 AT 7 DAYS, SHALL BE LESS THAN 8.0 PERCENT.

PART 3 – EXECUTION

3.01 SHOTCRETE MIXING AND BATCHING

A. AGGREGATE AND CEMENT MAY BE BATCHED BY WEIGHT OR BY VOLUME IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM C94 / AASHTO M157. MIXING EQUIPMENT SHALL BE CAPACBLE OF THOROUGHLY MIXING THE MATERIALS IN SUFFICIENT QUANTITY TO MAINTAIN PLACING CONTINUITY. READY–MIX SHOTCRETE SHALL BE DELIVERED AND PLACED WITHIN 90 MINUTES OF BEING BATCHED UNLESS APPROVED OTHERWISE BY THE DESIGNER.

3.02 SHOTCRETE TEST PANELS

3.02.01 GENERAL

A. PRECONSTRUCTION AND PRODUCTION SHOTCRETE TEST PANELS SHALL BE REQUIRED. PRECONSTRUCTION AND PRODUCTION TEST PANELS SHALL NOT BE DISTURBED OR MOVED WITHIN THE FIRST 24 HOURS AFTER SHOOTING. TEST PANELS SHALL BE FIELD CURED UNDER CONDITIONS SIMILAR TO THOSE ANTICIPATED FOR THE WORK. SHOTCRETING AND CORING OF TEST PANELS SHALL BE PERFORMED BY QUALIFIED PERSONNEL IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE.

B. THE CONTRACTOR SHALL PROVIDE EQUIPMENT, MATERIALS, AND PERSONNEL AS NECESSARY TO OBTAIN SHOTCRETE CORES FOR TESTING INCLUDING CONSTRUCTION OF TEST PANEL BOXES, FIELD CURING REQUIREMENTS AND CORING. COMPRESSIVE STRENGTH TESTING WILL BE PERFORMED BY THE OWNER. SHOTCRETE WILL BE ACCEPTED BASED ON THE 28–DAY STRENGTH. THE FREQUENCY SPECIFIED FOR TEST PANELS IS APPROXIMATE. A GREATER OR LESSER NUMBER OF PANELS MAY BE MADE AS REQUIRED BY THE DESIGNER.

C. UNSATISFACTORY COMPRESSIVE STRENGTH TESTS SHALL RESULT IN SUSPENSION OF THE CREW RESPONSIBLE FOR THE UNSATISFACTORY WORK UNTIL ADDITIONAL SPECIMENS HAVE BEEN SUBMITTED, TESTED, AND PROVEN SATISFACTORY. COSTS ASSOCIATED WITH ADDITIONAL TESTING AND LOST PRODUCTION DUE TO TESTS FAILING TO MEET THE SPECIFICATIONS SHALL BE BORNE BY THE CONTRACTOR.

3.02.02 PRECONSTRUCTION TEST PANELS

A. EACH SHOTCRETE APPLICATION CREW SHALL FURNISH AT LEAST TWO PRECONSTRUCTION TEST PANELS FOR EACH PROPOSED MIXTURE BEING CONSIDERED AND FOR EACH SHOOTING POSITION ENCOUNTERED ON THE JOB. PRECONSTRUCTION TEST PANELS SHALL BE MADE BY EACH APPLICATION CREW USING THE EQUIPMENT, MATERIALS, MIXTURE PROPORTIONS, AND PROCEDURES PROPOSED FOR THE JOB PRIOR TO THE COMMENCEMENT OF WORK.

B. PRECONSTRUCTION TEST PANELS FOR PLAIN SHOTCRETE SHALL BE 30 IN. X 30 IN. IN ACCORDANCE WITH ACI 506.2–94, WITH THE FOLLOWING EXCEPTIONS.

1. ONE PRECONSTRUCTION TEST PANEL SHALL BE OF THE MAXIMUM SHOTCRETE THICKNESS SHOWN ON THE PLANS AND SHALL INCLUDE THE MAXIMUM ANTICIPATED REINFORCING CONGESTION. CORES EXTRACTED FROM THE TEST PANEL SHALL DEMONSTRATE ENCAPSULATION OF THE REINFORCEMENT IN ACCORDANCE WITH ACI 506.2 EQUAL TO CORE GRADE 2 OR BETTER.
2. ONE PRECONSTRUCTION TEST PANEL SHALL BE AT LEAST 6 INCHES THICK AND CONSTRUCTED WITHOUT REINFORCEMENT AND USED FOR ABSORPTION AND COMPRESSIVE STRENGTH TESTING.
3. THE CORNERS OF PRODUCTION AND PRECONSTRUCTION TEST PANELS SHALL BE CHAMFERED OUTWARD AT 45 DEGREES OVER THE FULL THICKNESS OF THE PANEL.

3.02.03 PRODUCTION TEST PANELS

A. THE CONTRACTOR SHALL FURNISH AT LEAST ONE PRODUCTION TEST PANEL OR, IN LIEU OF PRODUCTION TEST PANELS, SIX 3–INCH DIAMETER CORES FROM THE SHOTCRETE FACE DURING THE FIRST APPLICATION OF SHOTCRETE AND HENCEFORTH FOR EVERY FIFTH APPLICATION OF SHOTCRETE, OR EVERY 5000 SQ. FT., OR 50 CU. YDS. OF SHOTCRETE PLACED, WHICHEVER IS LESS. THE PRODUCTION TEST PANELS SHALL BE CONSTRUCTED SIMULTANEOUSLY WITH THE SHOTCRETE FACING INSTALLATION AT TIMES DESIGNATED BY THE OWNER'S REPRESENTATIVE. THE PRODUCTION TEST PANELS SHALL HAVE MINIMUM DIMENSIONS OF 18 IN.X18 IN.X6 IN.

3.03 SHOTCRETE ALIGNMENT CONTROL

A. ALIGNMENT WIRES AND/OR THICKNESS CONTROL PINS SHALL BE PROVIDED AS NECESSARY TO ESTABLISH AND MAINTAIN THE MINIMUM SHOTCRETE THICKNESS SHOWN ON THE PLANS. THE MAXIMUM DISTANCE BETWEEN THE WIRES AND/OR THICKNESS CONTROL PINS ON ANY SURFACE SHALL BE EQUAL TO THE VERTICAL NAIL SPACING. THE CONTRACTOR SHALL ENSURE THAT ALIGNMENT WIRES ARE TIGHT, TRUE TO LINE, AND PLACED TO ALLOW FURTHER TIGHTENING.

3.04 SURFACE PREPARATION

A. PRIOR TO SHOTCRETING THE UNGROUTED ZONE ABOVE THE NAIL GROUT AT THE EXCAVATION CUT FACE (BIRDS BEAK), THE CONTRACTOR SHALL REMOVE ALL LOOSE MATERIALS FROM THE SURFACE OF THE GROUT AND PREPARE THE JOINT IN ACCORDANCE WITH ALL REQUIREMENTS FOR JOINT PREPARATION SPECIFIED HEREIN.

B. THE CONTRACTOR SHALL REMOVE ALL LOOSE MATERIALS AND LOOSE DRIED SHOTCRETE FROM PREVIOUS PLACEMENT OPERATIONS AND FROM ALL RECEIVING SURFACES BY METHODS ACCEPTABLE TO THE OWNER'S REPRESENTATIVE. THE REMOVAL SHALL BE ACCOMPLISHED IN SUCH A MANNER AS NOT TO LOOSEN, CRACK, OR SHATTER THE SURFACES TO RECEIVE THE SHOTCRETE. ANY SURFACE MATERIAL THAT, IN THE OPINION OF THE OWNER'S REPRESENTATIVE, IS SO LOOSENED OR DAMAGED SHALL BE REMOVED TO SUFFICIENT DEPTH TO PROVIDE A BASE THAT IS SUITABLE TO RECEIVE THE SHOTCRETE. MATERIAL THAT LOOSENS AS THE SHOTCRETE IS APPLIED SHALL BE REMOVED. SHOTCRETE SHALL NOT BE PLACED ON FROZEN SURFACES.

3.05 DELIVERY AND APPLICATION

A. A CLEAN, DRY, OIL–FREE SUPPLY OF COMPRESSED AIR SUFFICIENT FOR MAINTAINING ADEQUATE NOZZLE VELOCITY FOR ALL PARTS OF THE WORK AND FOR SIMULTANEOUS OPERATION OF A BLOW PIPE FOR CLEANING AWAY REBOUND SHALL BE MAINTAINED AT ALL TIMES. THE EQUIPMENT SHALL BE CAPABLE OF DELIVERING THE PREMIXED MATERIAL ACCURATELY, UNIFORMLY, AND CONTINUOUSLY THROUGH THE DELIVERY HOSE.

B. THE SHOTCRETE SHALL BE APPLIED FROM THE LOWER PART OF THE WORK AREA UPWARDS TO PREVENT ACCUMULATION OF REBOUND ON UNCOVERED SURFACES. THICKNESS, METHODS OF SUPPORT, AIR PRESSURE, AND RATE OF PLACEMENT OF SHOTCRETE SHALL BE CONTROLLED TO PREVENT SAGGING OR SLOUGHING OF FRESHLY APPLIED SHOTCRETE. WHERE SHOTCRETE IS USED TO COMPLETE THE UNGROUTED ZONE OF THE NAIL DRILL HOLE NEAR THE EXCAVATION CUT FACE, THE NOZZLE SHALL BE POSITIONED INTO THE MOUTH OF THE DRILLHOLE TO COMPLETELY FILL THE VOID. REBOUND SHALL NOT BE WORKED BACK INTO THE PLACEMENT NOR SHALL THE REBOUND BE SALVAGED. REBOUND THAT DOES NOT FALL CLEAR OF THE WORKING AREA SHALL BE REMOVED. THE NOZZLE SHALL BE HELD AT A DISTANCE AND AT AN ANGLE APPROXIMATELY PERPENDICULAR TO THE WORKING FACE SO THAT REBOUND WILL BE MINIMAL AND COMPACTION WILL BE MAXIMIZED. THE NOZZLE SHOULD BE ROTATED STEADILY IN A SMALL CIRCULAR PATTERN.

C. SHOTCRETE PLACEMENT SHALL BE BY THE BENCH GUNNING METHOD WHEN THE THICKNESS OF THE SHOTCRETE LAYER IS 3 INCHES OR GREATER. THE GUNNING METHOD SHALL CONSIST OF BUILDING UP A THICK LAYER OF SHOTCRETE FROM THE BOTTOM OF THE LIFT AND MAINTAINING THE TOP SURFACE AT APPROXIMATELY A 45–DEGREE SLOPE.

3.06 VISUAL OBSERVATION

A. A CLEARLY DEFINED PATTERN OF CONTINUOUS HORIZONTAL OR VERTICAL RIDGES OR DEPRESSIONS AT THE REINFORCING ELEMENTS AFTER THEY ARE COVERED WILL BE CONSIDERED INDICATION OF INSUFFICIENT COVER OF REINFORCEMENT OR POOR APPLICATION AND PROBABLE VOID. IN THIS CASE, THE WORK SHALL BE IMMEDIATELY SUSPENDED AND THE WORK CAREFULLY INSPECTED BY THE OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL IMPLEMENT AND COMPLETE CORRECTIVE MEASURES PRIOR TO RESUMING THE SHOTCRETE OPERATIONS.

B. THE SHOTCRETING PROCEDURE MAY BE CORRECTED BY ADJUSTING THE NOZZLE DISTANCE AND ORIENTATION PERPENDICULAR TO THE SURFACE, ADJUSTING THE WATER CONTENT OF THE SHOTCRETE MIX, OR OTHER MEANS ACCEPTABLE TO THE OWNER'S REPRESENTATIVE. ALL OVERSPRAY AND REBOUND SHALL BE REMOVED FROM THE SURFACE.

3.07 DEFECTIVE SHOTCRETE

A. SURFACE DEFECTS SHALL BE REPAIRED AS SOON AS POSSIBLE AFTER INITIAL PLACEMENT OF SHOTCRETE. ALL SHOTCRETE THAT LACKS UNIFORMITY, EXHIBITS SEGREGATION, SAGGING, HONEYCOMBING, OR LAMINATION, OR CONTAINS ANY VOIDS OR SAND POCKETS SHALL BE REMOVED AND REPLACED WITH FRESH SHOTCRETE BY THE CONTRACTOR TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE.

3.08 CONSTRUCTION JOINTS

A. CONSTRUCTION JOINTS SHALL BE WATERTIGHT AND UNIFORMLY TAPERED TOWARD THE EXCAVATION FACE OVER A MINIMUM DISTANCE EQUAL TO THE THICKNESS OF THE SHOTCRETE LAYER. THE SURFACE OF THE JOINTS SHALL BE ROUGH, CLEAN, SOUND AND DAMP. THE HARDENED SURFACE SHALL BE CLEANED OF ALL LAITANCE, FOREIGN SUBSTANCES, WASHED WITH CLEAN WATER, AND WETTED THOROUGHLY PRECEDING PLACEMENT OF FRESH SHOTCRETE.

3.09 FINISH

A. SHOTCRETE FINISH SHALL BE EITHER AN UNDISTURBED GUN FINISH AS APPLIED FROM THE NOZZLE, A SCREEDED FINISH, OR A WOOD OR STEEL TROWELED FINISH, UNLESS SHOWN OTHERWISE ON THE PLANS.

3.10 ATTACHMENT OF THE NAIL HEAD CONNECTION HARDWARE

A. FOR TEMPORARY SHOTCRETE FACINGS, THE BEARING PLATE SHALL BE WET–SET WHILE THE SHOTCRETE IS PLASTIC TO ASSURE FULL SHOTCRETE BEARING BEHIND THE PLATE. HOWEVER, THE RETENTION NUT SHALL ONLY BE HAND TIGHTENED SUCH THAT FULL BEARING IS ACHIEVED WITHOUT EXCESSIVELY SQUEEZING FRESH SHOTCRETE OUT FROM UNDER THE PLATE.

3.11 CURING

A. TEMPORARY SHOTCRETE SHALL NOT REQUIRE CURING.

3.12 WEATHER LIMITATIONS

A. SHOTCRETE SHALL NOT BE PLACED IN COLD WEATHER UNLESS ADEQUATELY PROTECTED WHEN THE AMBIENT TEMPERATURE IS BELOW 40° F AND FALLING AND/OR WHEN THE SHOTCRETE IS LIKELY TO BE SUBJECTED TO FREEZING TEMPERATURES BEFORE REACHING A MINIMUM STRENGTH OF 750 PSI. COLD WEATHER PROTECTION SHALL BE MAINTAINED UNTIL THE STRENGTH OF THE IN–PLACE SHOTCRETE IS GREATER THAN 750 PSI. COLD WEATHER PROTECTION SHALL INCLUDE HEATING UNDER TENTS, BLANKETS OR OTHER MEANS ACCEPTABLE TO THE OWNER'S REPRESENTATIVE. THE TEMPERATURE OF THE SHOTCRETE, WHEN DEPOSITED, SHALL BE NOT LESS THAN 50° F NOR MORE THAN 80° F. THE AIR IN CONTACT WITH SHOTCRETE SURFACES SHALL BE MAINTAINED AT TEMPERATURES ABOVE 32° F FOR A MINIMUM OF 7 DAYS.

B. SHOTCRETE APPLICATION SHALL ALSO BE SUSPENDED DURING HIGH WINDS AND HEAVY RAINS WHEN IN THE OPINION OF THE OWNER'S REPRESENTATIVE THE QUALITY OF THE APPLICATION IS NOT ACCEPTABLE. NEWLY PLACED SHOTCRETE EXPOSED TO RAIN THAT WASHES OUT CEMENT OR OTHERWISE MAKES THE SHOTCRETE UNACCEPTABLE TO THE OWNER'S REPRESENTATIVE SHALL BE REMOVED AND REPLACED. THE CONTRACTOR SHALL PROVIDE ADEQUATELY SECURED POLYETHYLENE SHEETING OR EQUIVALENT WHEN ADVERSE EXPOSURE TO WEATHER IS ANTICIPATED.

3.13 TOLERANCES

A. THE TOLERANCES FOR TEMPORARY SHOTCRETE FACINGS SHALL BE IN ACCORDANCE WITH THOSE LISTED IN THE FOLLOWING TABLE:

	PERMANENT SHOTCRETE
VERTICAL LOCATION OF SHOTCRETE JOINT	6"
THICKNESS OF SHOTCRETE	– 0.5"
HORIZONTAL LOCATION OF REINFORCEMENT	1"
REINFORCING LAP LENGTH	– 1"
REINFORCEMENT SPACING	1"
DEVIATION FROM PLANENESS IN A 10–FOOT DISTANCE	0.5"
LOCATION OF STUDS ON PLATE	N/A

DESIGN	DRAWN	REVIEW	DATE	REV	DESCRIPTION
WCA	WCA	MW	04/01/18	R1	FINAL REVIEW
WCA	WCA	MW	02/19/19	C1	FOR BID AND CONSTRUCTION

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CEMENT KILN DUST (CKD) CLOSURE PLANS
SOIL NAIL SPECIFICATIONS

CEMEX

DRAWING NUMBER
SHEET
N5
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Exhibit B

NOTES:

1. SEE SHEET E2 FOR EROSION CONTROL BEST MANAGEMENT PRACTICES STANDARDS AND DESIGNATIONS.

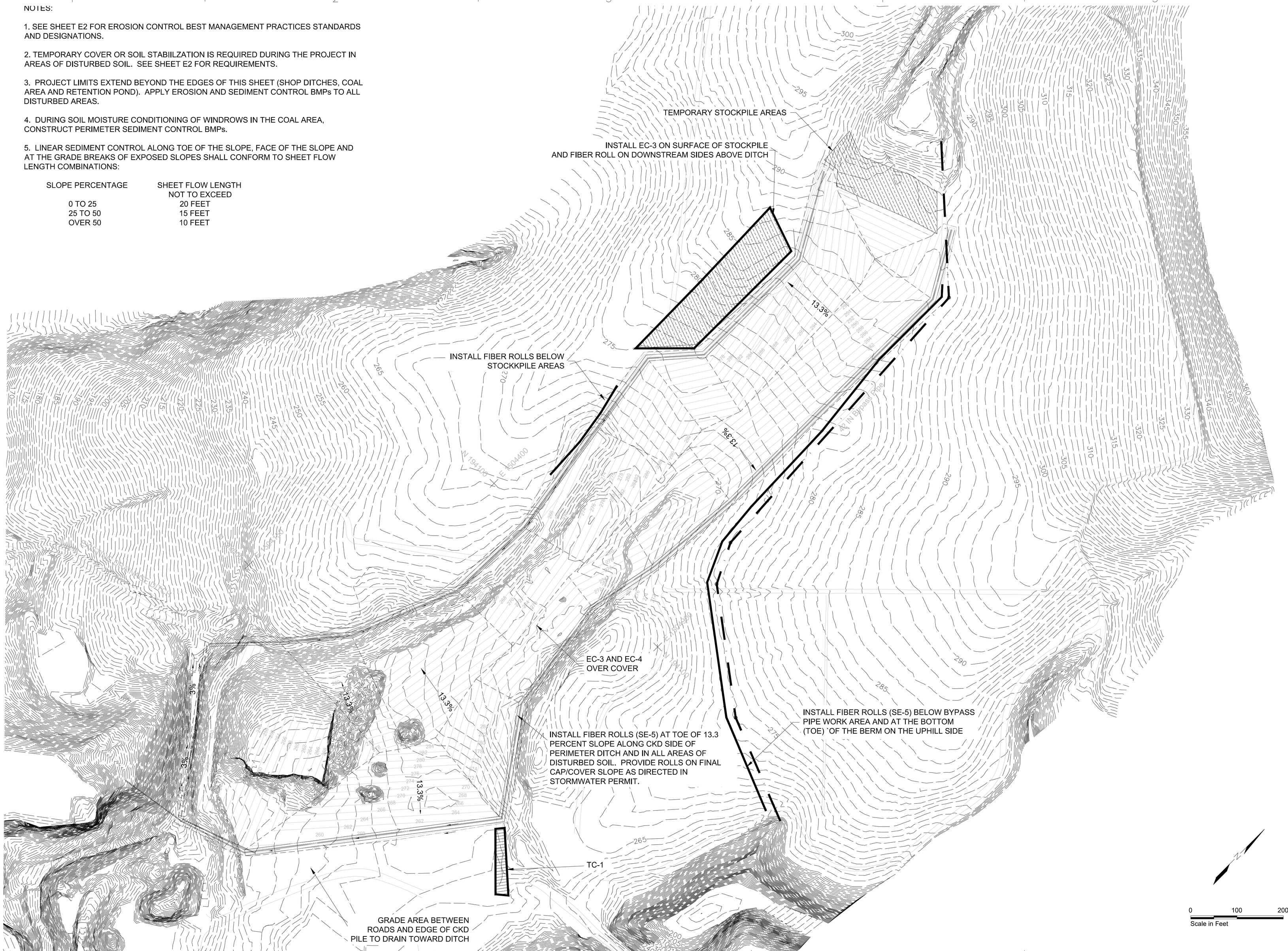
2. TEMPORARY COVER OR SOIL STABIILZATION IS REQUIRED DURING THE PROJECT IN AREAS OF DISTURBED SOIL. SEE SHEET E2 FOR REQUIREMENTS.

3. PROJECT LIMITS EXTEND BEYOND THE EDGES OF THIS SHEET (SHOP DITCHES, COAL AREA AND RETENTION POND). APPLY EROSION AND SEDIMENT CONTROL BMPs TO ALL DISTURBED AREAS.

4. DURING SOIL MOISTURE CONDITIONING OF WINDROWS IN THE COAL AREA, CONSTRUCT PERIMETER SEDIMENT CONTROL BMPs.

5. LINEAR SEDIMENT CONTROL ALONG TOE OF THE SLOPE, FACE OF THE SLOPE AND AT THE GRADE BREAKS OF EXPOSED SLOPES SHALL CONFORM TO SHEET FLOW LENGTH COMBINATIONS:

SLOPE PERCENTAGE	SHEET FLOW LENGTH NOT TO EXCEED
0 TO 25	20 FEET
25 TO 50	15 FEET
OVER 50	10 FEET



DESIGN	DRAWN	REVIEW	DATE	REV	DESCRIPTION
WCA	WCA	MAH	04/01/18	R3	FINAL REVIEW
WCA	WCA	MAH	12/12/19	C1	FOR BID AND CONSTRUCTION

REGISTERED PROFESSIONAL ENGINEER — WILLIAM C. ADAMS — No. 69669 — CIVIL — STATE OF CALIFORNIA

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CEMENT KILN DUST (CKD) CLOSURE PLANS

EROSION AND SEDIMENT CONTROL PLAN

CEMEX

DRAWING NUMBER
SHEET
E1
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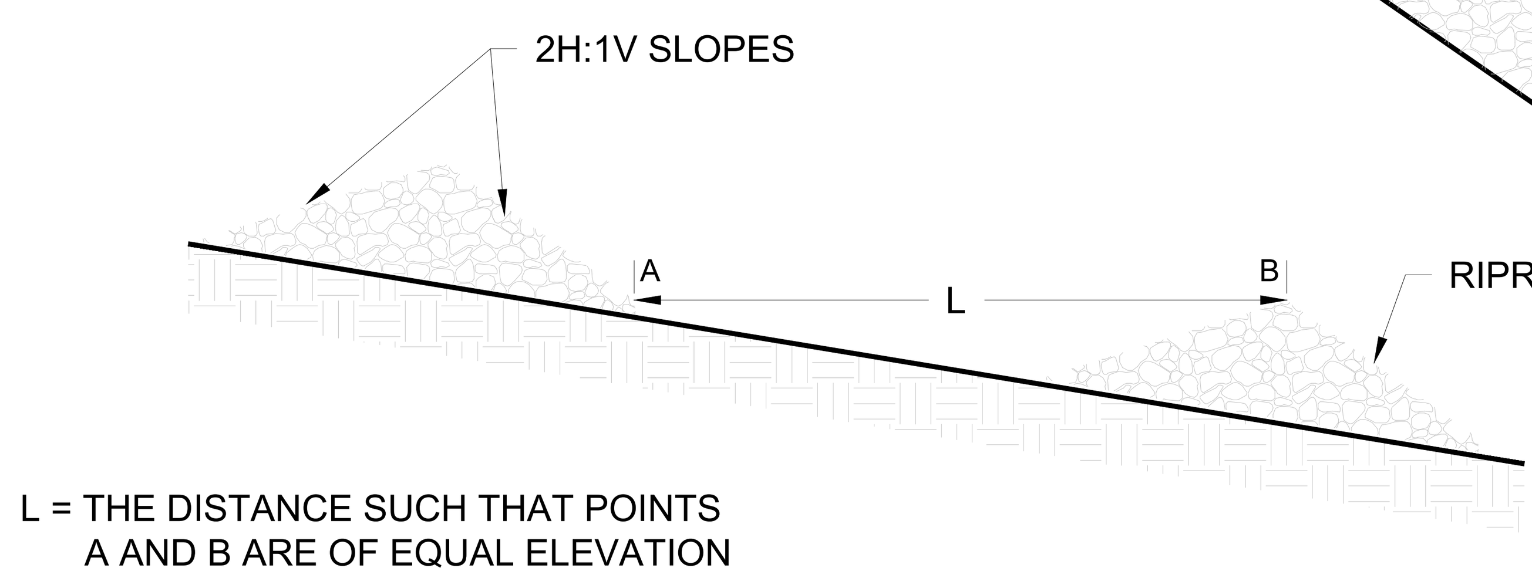
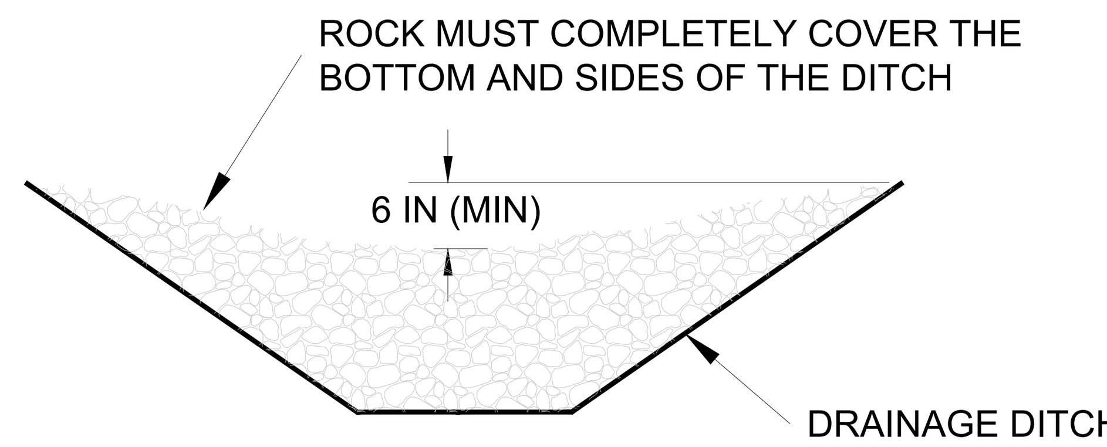
Exhibit B



PROFILE ALONG DRAINAGE DITCH



SECTION

DETAIL - TEMPORARY CHECK DAM
NOT TO SCALE

1
E1 E2

BEST MANAGEMENT PRACTICES SEE BMP FACT SHEET IN STORMWATER BEST MANAGEMENT PRACTICE HANDBOOK FOR BMP DETAILS AND INSTALLATION INSTRUCTIONS			
DESCRIPTION	**REQUIRED**	**AS NECESSARY**	**IMPLEMENTATION PERIOD**
EROSION CONTROL BMPs			
EC-1: Scheduling	X		THROUGHOUT
EC-2: Preservation of Existing Vegetation	X		THROUGHOUT
EC-3: Hydraulic Mulch	X		Oct. 1 – Apr. 15*
EC-4: Hydroseeding	X		Oct. 1 – Apr. 15*
EC-5: Soil Binders		X	AS NEEDED
EC-6: Straw Mulch	X		Oct. 1 – Apr. 15*
EC-7: Geotextiles and Mats	X		Oct. 1 – Apr. 15*
EC-8: Wood Mulching			
EC-10: Velocity Dissipation Devices	X		Oct. 1 – Apr. 15*
EC-11: Slope Drains			
SEDIMENT CONTROL BMPs			
SE-1: Silt Fence		X	THROUGHOUT
SE-2: Sediment/Desilting Basin			
SE-3: Sediment Trap			
SE-4: Check Dams	X		THROUGHOUT
SE-5: Fiber Rolls	X		THROUGHOUT
SE-7: Street Sweeping and Vacuuming		X	THROUGHOUT
SE-8: Sandbag Barrier			
SE-9: Straw Bale Barrier			
SE-10: Storm Drain Inlet Protection	X		THROUGHOUT
WIND EROSION BMPs			
WE-1: Wind Erosion Control		X	THROUGHOUT
TRACKING CONTROL BMPs			
TC-1: Stabilized Construction Entrance/Exit	X		THROUGHOUT
TC-2: Stabilized Construction Roadway			
TC-3: Entrance/Outlet Tire Wash			

* As needed throughout for temporary or final stabilization.

EROSION AND SEDIMENT CONTROL NOTES

EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs) SHALL COMPLY WITH THE CALIFORNIA STORMWATER QUALITY ASSOCIATION (CASQA) BEST MANAGEMENT PRACTICES HANDBOOK- CONSTRUCTION (LATEST VERSION). WORK SHALL CONFORM TO THE APPROVED PROJECT SWPPP.

SEQUENCE OF CONSTRUCTION AND EROSION CONTROL MEASURES

IF POSSIBLE, CONSTRUCTION SHALL BE SEQUENCED SUCH THAT CLOSURE, GRADING, AND DRAINAGE CONSTRUCTION WORK IS COMPLETED IN ALL AREAS SO THAT REVEGETATION ACTIVITIES CAN BE COMPLETED BEFORE OCTOBER 1 AS REQUIRED BY WDR.

CONSTRUCTION ACTIVITIES WILL OCCUR ON THE SITE IN THE FOLLOWING SEQUENCE, UNLESS OTHERWISE APPROVED:

1. PRIOR TO EARTHWORK, TEMPORARY CONSTRUCTION ENTRANCES SHALL BE PROVIDED AT THE LOCATIONS SHOWN ON THE PLANS, OR AS INDICATED BY THE OWNER , ENGINEER OR CONSTRUCTION MANAGER (CM). CONSTRUCTION TRAFFIC SHALL BE LIMITED TO THESE ACCESS POINTS.

2. CONSTRUCT DRAINAGE DITCH SYSTEM AROUND PERIMETER OF CKD PILE AS SPECIFIED, INCLUDING MINOR CUTTING AND FILLING AS NECESSARY TO ACHIEVE DESIGN GRADES, REMOVAL OF SEDIMENT FROM THE NORTH POND, CONSTRUCTION OF THE IN LET TO THE FRENCH DRAIN SYSTEM AS AN OUTLET/OVERFLOW FOR THE SEASONAL PONDS, AND PLACEMENT OF RIPRAP WHERE SHOWN.

3. ALL TRAFFIC IS PROHIBITED FROM CROSSING DRAINAGE DITCHES, SWALES, AND STREAMS EXCEPT WHERE ALLOWED BY THE CM, AND ONLY USING ROAD PLATES AS APPROVED BY THE CM.

4. WHEN ADJACENT LAND IS DISTURBED NEAR DRAINAGE DITCHES, INSTALL FIBER ROLLS ALONG UPSTREAM EDGE OF THE NEAREST DITCH AND EROSION CONTROL MATERIALS, AS NEEDED.

5. HYDROSEEDING AND REVEGETATION SHALL BE ACCOMPLISHED ON AREAS OF DISTURBANCE, IN ACCORDANCE WITH "REVEGETATION PLAN FOR CLOSURE OF TWO CEMENT KILN DUST (CKD) STORAGE AREAS," BY GREENING ASSOCIATES (2002). REVEGETATION IN RETENTION POND, SEASONAL PONDS AND NORTH POND SHALL BE COMPLETED USING APPROVED PLANT MIX FOR PONDED OR WET AREAS.

6. AN EROSION CONTROL BLANKET SHALL BE INSTALLED WHERE SHOWN ON THE COVER, AND WHERE DESIGN GRADES EXCEED 15 PERCENT.

7. INSTALL FIBER ROLLS ALONG INSIDE EDGE OF DRAINAGE DITCHES IMMEDIATELY AFTER SOIL COVER IS CONSTRUCTED.

GENERAL NOTES

THE COUNTY OF SANTA CRUZ AND OTHER REGULATORY AUTHORITIES MUST BE NOTIFIED BY THE CONTRACTOR AT LEAST ONE (1) WEEK PRIOR TO COMMENCING LAND DISTURBING ACTIVITY.

TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES (I.E., FIBER ROLLS) SHALL BE REMOVED WITHIN THIRTY (30) DAYS AFTER FINAL STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY LOCAL REGULATORY AUTHORITIES. ONLY BIODEGRADEABLE MATERIALS WILL BE ALLOWED TO STAY.

SLOPES SHALL BE MADE UNIFORM AND FREE OF IRREGULARITIES THAT COULD CONCENTRATE RUNOFF.

APPLY TEMPORARY EROSION CONTROL ON DISTURBED AREAS THAT ARE INACTIVE FOR 14 DAYS OR MORE.

APPLY LINEAR SEDIMENT CONTROL DEVICES IN ACCORDANCE WITH SLOPE LENGTH REQUIREMENTS.

AVOID THE USE OF PLASTIC IN BMPs

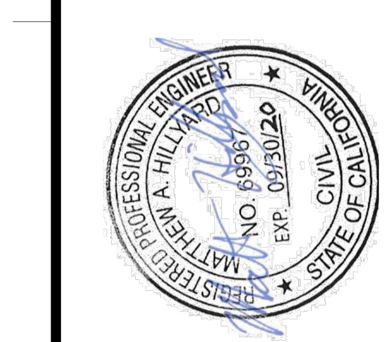
PERIODIC INSPECTIONS AND MAINTENANCE MUST BE PROVIDED, ESPECIALLY AFTER EACH SIGNIFICANT STORM EVENT. INSPECTIONS SHALL INCLUDE OBSERVATION OF THE FOLLOWING:

1. INSPECT AND REPORT: TEMPORARY CHECK DAMS, INLETS/OUTLETS AT NORTH PONDS AND AT SEASONAL PONDS FOR SEDIMENT ACCUMULATION AND EROSION.
2. CHECK FIBER ROLLS FOR UNDERMINING, DETERIORATION, AND BUILDUP/CLOGGING OF SEDIMENT. TAKE CORRECTIVE ACTIONS IMMEDIATELY TO ENSURE CONTINUED FUNCTION.
3. CHECK ALL SEEDED AND PLANTED AREAS REGULARLY TO ENSURE THAT A GOOD STAND IS MAINTAINED. FOLLOW RECOMMENDATIONS BY GREENING ASSOCIATES (2002).

WINTERIZE PROJECT SITE: PROVIDED PROJECT SPANS BETWEEN CONSTRUCTION SEASONS AND EXTENDS INTO THE WINTER (NON-CONSTRUCTION SEASON) FROM OCTOBER THROUGH APRIL:

1. ALSO REFER TO TABLE 1 IN THE CLOSURE PLAN APPENDIX E.
2. CONTRACTOR: A) TO FOLLOW THE STORMWATER GENERAL CONSTRUCTION PERMIT, B) PROVIDE WRITTEN MULTI-SEASON WET WEATHER PREPAREDNESS PLAN FOR PROJECT WINTERIZING PLANS. ALL IMPROVEMENTS SHALL BE APPROVED BY THE OWNER, OWNERS REPRESENTATIVE , THE RWQCB AND APPROPIATE GOVERNING ENTITIES.
3. PERSUANT TO THE CONDITIONAL APPROVAL LETTER, THE PROJECT WINTERIZING PLANS SHALL INCLUDE BUT MAY NOT BE LIMITED TO:
   - 3.1. SITE DRAWING SHEETS THAT INDICATE LOCATION OF WINTERIZING MEASURES.
   - 3.2. TEMPORARY CHECK DAMS, CRUSHED ROCK PLACEMENT, EARTH BERMING, COVER AND/OR PROTECTION OF PROJECT SITE WHERE EARTHWORKS, STOCKPILES, CKD AND OTHER ELEMENTS OF THE PROJECT ARE EXPOSED TO POTENTIAL EROSION, DEPOSITION OR EXCESSIVE RUNOFF.
   - 3.3. ALSO SEE STORMWATER CONSTRUCTION GENERAL PERMIT AND STORMWATER POLLUTION PREVENTION PLAN

DESIGN	DRAWN	REVIEW	DATE	REV	DESCRIPTION
WCA	WCA	MAH	04/01/18	R3	FINAL REVIEW
WCA	WCA	MAH	12/12/19	C1	FOR BID AND CONSTRUCTION



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c/oYasha Saber–Compass Land Group 916–825–4997
CEMENT KILN DUST (CKD) CLOSURE PLANS
EROSION CONTROL NOTES AND DETAILS

CEMEX

DRAWING NUMBER
SHEET
E2
28 OF 28

Exhibit B

Coastal Development Permit Findings

1. That the project is a use allowed in one of the basic zone districts that are listed in LCP Section 13.10.170(D) as consistent with the LCP Land Use Plan designation of the site.

This finding can be made, in that the property is zoned Heavy Industry (M-2-L), a designation which allows industrial uses. The proposed landfill closure project related to the industrial use is an allowed use within the zone district, and the zoning is consistent with the site's Heavy Industry (I) General Plan designation.

2. That the project does not conflict with any existing easement or development restrictions such as public access, utility, or open space easements.

This finding can be made, in that no such easements or restrictions are known to encumber the project site. There are water supply and wastewater lines that cross the project site and these will be located and marked prior to land disturbance.

3. That the project is consistent with the design criteria and special use standards and conditions of this chapter pursuant to SCCC 13.20.130 and 13.20.140 et seq.

This finding can be made, in that the proposed landfill closure is in conformance with the County's certified Local Coastal Program, in that the structure is sited and designed to be visually compatible, in scale with, and integrated with the character of the surrounding lands. The rolling grassland hills north of Highway 1 support sweeping views of open space and grazing fields that surround the former Cement Plant. Implementation of the project will create gentle slopes and all disturbed lands would be revegetated with native plants, and the Cement Plant would return to conditions similar to existing conditions, and views within and of the project area would improve compared to existing conditions. The project site is not located between the shoreline and the first public road and is not identified as a priority acquisition site in the County's Local Coastal Program. Consequently, the proposed project will not interfere with public access to the beach, ocean, or other nearby body of water.

The project site is located in the Davenport Special Community which requires special consideration of visual resources and historic structures associated with the town. The Project area is located in an area that has been designated as the North Coast General Plan Scenic Area in the County General Plan (Santa Cruz County, 1994) (Santa Cruz County GIS Mapping, 2016), and is considered to be an area that supports a scenic vista. The rolling grassland hills north of Highway 1 support sweeping views of open space and grazing fields that surround the former Cement Plant.

The proposed closure activities would be temporary in nature and would occur primarily within the developed footprint of the Cement Plant, including the North CKD Area, which is closed to the public and largely not visible from Highway 1 or scenic vistas. Furthermore, there are no public recreation lands or facilities with views of the Project area. Following project implementation, all disturbed lands would be revegetated with native plants, and the Cement

Plant would return to conditions similar to existing conditions, and views within and of the project area would improve compared to existing conditions. The project would include construction of a permanent relatively impervious shotcrete slope to cover the CKD slope that could potentially be partially visible from limited sections of Highway 1. This is not considered a significant impact due to the limited visibility of the shotcrete cover and the overall improvement in visual quality that will result from the project. Therefore, this impact would be **less than significant.** No mitigation would be required.

4. That the project conforms with the public access, recreation, and visitor-serving policies, standards and maps of the LCP Land Use Plan, including Chapter 2: Section 2.5 and Chapter 7.

This finding can be made, in that the project site is not identified as a priority acquisition site in the County Local Coastal Program and public beach access is available at multiple nearby North Coast beaches.

5. That the project conforms to all other applicable standards of the certified LCP.

This finding can be made, in that the structure is sited and designed to be visually compatible and integrated with the character of the surrounding lands. Additionally, the industrial uses is an allowed uses in the Heavy Industry (M-2-L) zone district, as well as the General Plan and Local Coastal Program land use designation of Heavy Industry (I). Implementation of the project will create gentle slopes and all disturbed lands would be revegetated with native plants, and the Cement Plant would return to conditions similar to existing conditions, and views within and of the project area would improve compared to existing conditions.

6. If the project is located between the nearest through public road and the sea or the shoreline of any body of water located within the Coastal Zone, that the project conforms to the public access and public recreation policies of Chapter 3 of the Coastal Act.

This finding can be made, in that the project site is not located between the shoreline and the first public road. Consequently, the landfill closure will not interfere with public access to the beach, ocean, or any nearby body of water. Further, the project site is not identified as a priority acquisition site in the County Local Coastal Program.

Development Permit Findings

1. That the proposed location of the project and the conditions under which it would be operated or maintained will not be detrimental to the health, safety, or welfare of persons residing or working in the neighborhood or the general public, and will not result in inefficient or wasteful use of energy, and will not be materially injurious to properties or improvements in the vicinity.

This finding can be made, in that the project is located in an area designated for industrial uses. Grading and construction will comply with prevailing civil engineering and building technology, the California Building Code, and the County Grading Regulations to ensure the optimum in safety and the conservation of energy and resources.

2. That the proposed location of the project and the conditions under which it would be operated or maintained will be consistent with all pertinent County ordinances and the purpose of the zone district in which the site is located.

This finding can be made, in that the proposed location of the landfill closure project and the conditions under which it would be operated or maintained will be consistent with all pertinent County ordinances and the purpose of the Heavy Industry (M-2-L) zone district as the primary use of the property will be industrial which meets all current site standards for the zone district.

3. That the proposed use is consistent with all elements of the County General Plan and with any specific plan which has been adopted for the area.

This finding can be made, in that the proposed landfill closure project is consistent with the use and density requirements specified for the Heavy Industry (I) land use designation in the County General Plan. The General Plan land use and zoning plans, policies and regulations allow for the remediation of hazardous materials sites and for improvements to water quality (Santa Cruz County General Plan, Chapters 6, 7 and 13, 1994).

The proposed landfill closure project is consistent with General Plan policies 8.5.2 and 8.5.3 regarding compatibility with surrounding uses and the Davenport Special Community. Implementation of the project will create gentle slopes and all disturbed lands would be revegetated with native plants, and the Cement Plant would return to conditions similar to existing conditions, and views within and of the project area would improve compared to existing conditions. The project site is located in the Davenport Special Community which requires special consideration of visual resources and historic structures associated with the town. The Project area is located in an area that has been designated as the North Coast General Plan Scenic Area in the County General Plan (Santa Cruz County, 1994) (Santa Cruz County GIS Mapping, 2016), and is considered to be an area that supports a scenic vista. The rolling grassland hills north of Highway 1 support sweeping views of open space and grazing fields that surround the former Cement Plant.

The proposed closure activities would be temporary in nature and would occur primarily within the developed footprint of the Cement Plant, including the North CKD Area, which is closed to the public and largely not visible from Highway 1 or scenic vistas. Furthermore, there are no public recreation lands or facilities with views of the Project area. Following project implementation, all disturbed lands would be revegetated with native plants, and the Cement Plant would return to conditions similar to existing conditions, and views within and of the project area would improve compared to existing conditions. The project would include construction of a permanent relatively impervious shotcrete slope to cover the CKD slope that could potentially be partially visible from limited sections of Highway 1. This is not considered a significant impact due to the limited visibility of the shotcrete cover and the overall improvement in visual quality that will result from the project. Therefore, this impact would be **less than significant.** No mitigation would be required.

A specific plan has not been adopted for this portion of the County.

4. That the proposed use will not overload utilities, and will not generate more than the acceptable level of traffic on the streets in the vicinity.

This finding can be made, in that the proposed landfill closure project will occur on an existing industrial site. The expected level of traffic generated by the proposed project is anticipated to be 60 trips per day (120 round trips) on a temporary basis during project construction and importation of fill material. This temporary increase in traffic will not adversely impact existing roads or intersections in the surrounding area. There will be no permanent increase in traffic as a result of the project.

5. That the proposed project will complement and harmonize with the existing and proposed land uses in the vicinity and will be compatible with the physical design aspects, land use intensities, and dwelling unit densities of the neighborhood.

This finding can be made, in that Implementation of the project will create gentle slopes and all disturbed lands would be revegetated with native plants, and the Cement Plant would return to conditions similar to existing conditions, and views within and of the project area would improve compared to existing conditions. The project site is located in the Davenport Special Community which requires special consideration of visual resources and historic structures associated with the town. The project would include construction of a permanent relatively impervious shotcrete slope to cover the CKD slope that could potentially be partially visible from limited sections of Highway 1. This is not considered a significant impact due to the limited visibility of the shotcrete cover and the overall improvement in visual quality that will result from the project. Therefore, this impact would be less than significant. No mitigation would be required.

6. The proposed development project is consistent with the Design Standards and Guidelines (sections 13.11.070 through 13.11.076), and any other applicable requirements of this chapter.

This finding is not applicable.

Riparian Exception Findings

1. That there are special circumstances or conditions affecting the property;

There are special circumstances or conditions affecting the property. The seasonal wetland that would be permanently lost during CKD landfill closure is located within the boundary of the existing CKD landfill atop CKD materials historically placed as fill. Grading of this area would be necessary to install the LLDPE liner/cap system and to direct surface and subsurface water away from the CKD landfill in order to prevent pooling on top of the liner/cap system and avoid potential water quality impacts to No-Name Creek, groundwater, and the Pacific Ocean. Proposed work within the aquatic features (ponds) is for the purpose of improving drainage, water quality and/or enhancing habitat for CRLF. The loss of the seasonal wetland would be fully mitigated through implementation of conditions of approval, including obtaining and implementing permits and conditions imposed by the U.S. Army Corps of Engineers.

2. That the exception is necessary for the proper design and function of some permitted or existing activity on the property;

The riparian exception is necessary for the proper design and function of the Closure Plan activities proposed for the existing CKD landfill, a permitted activity.

3. That the granting of the exception will not be detrimental to the public welfare or injurious to other property downstream or in the area in which the project is located;

The granting of the riparian exception will not be detrimental to the public welfare or injurious to other property downstream or in the area in which the Project is located; proposed Closure Plan activities have been designed for the purpose of protecting water quality in compliance with WDR No. R3-2018-0001, conditionally approved by the Water Board.

4. That the granting of the exception, in the Coastal Zone, will not reduce or adversely impact the riparian corridor, and there is no feasible less environmentally damaging alternative; and

The granting of the exception, in the Coastal Zone, would not reduce or adversely impact the riparian corridor; no impacts to the riparian corridor are anticipated as a result of the proposed Project and there is no feasible less environmentally damaging alternative.

5. That the granting of the exception is in accordance with the purpose of this chapter, and with the objectives of the General Plan and elements thereof, and the Local Coastal Program Land Use Plan.

The granting of the exception is in accordance with the purpose of the Riparian Ordinance. The proposed Project would ultimately help preserve, protect, and restore the riparian corridor and wetlands within the immediate area, including for the protection and enhancement of wildlife

habitat; water quality; aquatic habitat; and open space, as well as the other values listed in the purpose of the Riparian Ordinance. The project has been designed for the 1000-year (24-hour) storm event; water quality protections and erosion control measures have also been included in the Closure Plan designs and associated documentation (ARC 2018 and ARC 2019a).

Conditions of Approval

Exhibit B: Project plans, prepared by Adams Resource Consultants, dated 12/12/2019.

I. This permit authorizes the construction of the North CKD Area landfill closure as indicated on the approved Project plans for this permit (Exhibit B). This approval does not confer legal status on any existing structure(s) or existing use(s) on the subject property that are not specifically authorized by this permit. Prior to exercising any rights granted by this permit including, without limitation, any construction or site disturbance, the applicant/owner shall:

A. Sign, date, and return to the Planning Department one copy of the approval to indicate acceptance and agreement with the conditions thereof.

B. Obtain a Building Permit from the Santa Cruz County Building Official prior to construction of the soil nail wall or retention pond wall.

1. Any outstanding balance due to the Planning Department must be paid prior to making a Building Permit application. Applications for Building Permits will not be accepted or processed while there is an outstanding balance due.

C. Obtain a Grading Permit from the Santa Cruz County Building Official.

1. Any outstanding balance due to the Planning Department must be paid prior to making a Building Permit application. Applications for Building Permits will not be accepted or processed while there is an outstanding balance due.

D. Obtain an Encroachment Permit from the Department of Public Works for all off-site work performed in the County road right-of-way.

II. Prior to issuance of a Building Permit or Grading Permit the applicant/owner shall:

A. Submit final grading and retaining wall plans for review and approval by the Planning Department. The final plans shall be in substantial compliance with the plans marked Exhibit "B" on file with the Planning Department. Any changes from the approved Exhibit "B" for this development permit on the plans submitted for the Building Permit or Grading Permit must be clearly called out and labeled by standard architectural methods to indicate such changes. Any changes that are not properly called out and labeled will not be authorized by any Building Permit that is issued for the proposed development.

B. Comply with all requirements of the letter dated July 20, 2020 accepting the geotechnical report for the project as repeated below.

1. For County records, please revise page 5 of the Response to Comments on Design Analyses for Soil Nail Wall Davenport Cement Plant Santa Cruz County, California dated 2 July 2020, to read 5 inches instead of 5 cm as outlined in the 6 July 2020 email from Wayne Adams, PE.

2. Public access to the project site area is to be restricted. Monitoring and maintenance programs for the soil nail wall as well as the site drainage system are required to be implemented in accordance with project plans and specifications.

3. All project design and construction shall comply with the recommendations of the subject geotechnical investigation report.

III. Prior to any site disturbance or physical construction on the subject property the following condition(s) shall be met:

A. Pre-Construction Meeting: In order to ensure that the mitigation measures are communicated to the various parties responsible for constructing the project, prior to any disturbance on the property the applicant shall convene a pre-construction meeting on the site. The following parties shall attend: the applicant, grading contractor supervisor, the project biologist, and Santa Cruz County Planning Department staff.

B. Background information obtained from the air quality monitoring network shall be submitted to Monterey Bay Air Resources District and the Planning Department.

C. Submit a copy of the Storm Water Pollution Prevention Plan as required by the Regional Water Quality Control Board Waste Discharge Order.

D. Submit documentation of authorization from the United States Army Corps of Engineers (USACE) for all project activities within their jurisdiction including the Biological Opinion from the United States Fish and Wildlife Service (USFWS).

E. Submit documentation of authorization from the California Department of Fish and Wildlife (CDFW) for all project activities within their jurisdiction.

F. Submit a copy of the Mitigation and Management Plan as approved by USACE and CDFW.

IV. During construction of the project the following conditions shall be met:

A. All required mitigation measures required prior to and during construction to protect biological and cultural resources shall be implemented.

B. All best management practices and requirements of technical reports for the project intended to prevent water quality impacts shall be implemented at all times during construction.

C. All best management practices and monitoring requirements contained in the Dust Management Plan intended to prevent air quality impacts shall be implemented at all times during construction.

D. A contact person shall be designated to respond to any complaints related to project construction activities, including but not limited to air quality impacts. The contact information shall be posted at the entrance to the facility and provided through other community networks.

E. All trucks shall access the site from Highway 1 using the main cement plant entrance or by exiting Highway 1 north of New Town to access Warnella Road. Trucking shall not occur on Cement Plant Road between Davenport and New Town.

F. Information obtained from the air quality monitoring network shall be submitted on a weekly basis to the Monterey Bay Air Resources District and the Planning Department.

V. All construction shall be performed according to the approved plans for the Building Permit and Grading Permit. Prior to final building and grading inspection, the applicant/owner must meet the following conditions:

A. All required mitigation measures shall be implemented construction, as specified in the Mitigation Monitoring and Reporting Program attached to these conditions.

B. All site improvements shown on the final approved Building Permit and Grading Permit plans shall be installed.

C. All inspections required by the building permit shall be completed to the satisfaction of the County Building Official.

D. The project must comply with all recommendations of the approved soils reports.

E. The project applicant is responsible for the entire drainage pathway from their site to the ocean discharge including inspection, maintenance, repair, replacement,

capacity, condition and water quality. The drainage pathway crosses Cement Plant Road (county-maintained road), the railroad, and Highway 1.

F. The sanitary sewer line within Tunnel B shall be identified as to ownership and the locations is serves. If the line is still in use, it shall be removed from the tunnel and relocated.

G. Pursuant to Sections 16.40.040 and 16.42.080 of the County Code, if at any time during site preparation, excavation, or other ground disturbance associated with this development, any artifact or other evidence of an historic archaeological resource or a Native American cultural site is discovered, the responsible persons shall immediately cease and desist from all further site excavation and notify the Sheriff-Coroner if the discovery contains human remains, or the Planning Director if the discovery contains no human remains. The procedures established in Sections 16.40.040 and 16.42.080, shall be observed.

VI. Operational Conditions

A. In the event that future County inspections of the subject property disclose noncompliance with any Conditions of this approval or any violation of the County Code, the owner shall pay to the County the full cost of such County inspections, including any follow-up inspections and/or necessary enforcement actions, up to and including permit revocation.

VII. Indemnification

The applicant/owner shall indemnify, defend with counsel approved by the COUNTY, and hold harmless the COUNTY, its officers, employees, and agents from and against any claim (including reasonable attorney's fees, expert fees, and all other costs and fees of litigation), against the COUNTY, its officers, employees, and agents arising out of or in connection to this development approval or any subsequent amendment of this development approval which is requested by the applicant/owner, regardless of the COUNTY's passive negligence, but excepting such loss or damage which is caused by the sole active negligence or willful misconduct of the COUNTY. Should the COUNTY in its sole discretion find the applicant's/owner's legal counsel unacceptable, then the applicant/owner shall reimburse the COUNTY its costs of defense, including without limitation reasonable attorney's fees, expert fees, and all other costs and fees of litigation. The applicant/owner shall promptly pay any final judgment rendered against the COUNTY (and its officers, employees, and agents) covered by this indemnity obligation. It is expressly understood and agreed that the foregoing provisions are intended to be as broad and inclusive as is permitted by the law of the State of California and will survive termination of this development approval.

A. The COUNTY shall promptly notify the applicant/owner of any claim, action, or proceeding against which the COUNTY seeks to be defended, indemnified, or held harmless. The COUNTY shall cooperate fully in such defense.

B. Nothing contained herein shall prohibit the COUNTY from participating in the defense of any claim, action, or proceeding if both of the following occur:

1. COUNTY bears its own attorney's fees and costs; and

2. COUNTY defends the action in good faith.

C. Settlement. The applicant/owner shall not be required to pay or perform any settlement unless such applicant/owner has approved the settlement. When representing the COUNTY, the applicant/owner shall not enter into any stipulation or settlement modifying or affecting the interpretation or validity of any of the terms or conditions of the development approval without the prior written consent of the COUNTY.

D. Successors Bound. The "applicant/owner" shall include the applicant and/or the owner and the successor'(s) in interest, transferee(s), and assign(s) of the applicant and/or the owner.

Minor variations to this permit which do not affect the overall concept or density may be approved by the Planning Director at the request of the applicant or staff in accordance with Chapter 18.10 of the County Code.

Please note: This permit expires three years from the effective date listed below unless a building permit (or permits) and a grading permit are obtained for the retaining walls and earthwork described in the development permit (does not include demolition, temporary power pole or other site preparation permits, or accessory structures unless these are the primary subject of the development permit). Failure to exercise the building and grading permits and to complete all of the construction under the building permit and grading under the grading permit, resulting in the expiration of the building and grading permits, will void the development permit, unless there are special circumstances as determined by the Planning Director.

Approval Date: _____

Effective Date: _____

Expiration Date: _____

Appeals: Any property owner, or other person aggrieved, or any other person whose interests are adversely affected by any act or determination of the Planning Commission, may appeal the act or determination to the Board of Supervisors in accordance with chapter 18.10 of the Santa Cruz County Code.

Exhibit D

County of Santa Cruz

PLANNING DEPARTMENT
701 OCEAN STREET, 4TH FLOOR, SANTA CRUZ, CA 95060
(831) 454-2580 FAX: (831) 454-2131 TDD: (831) 454-2123

MITIGATION MONITORING AND REPORTING PROGRAM
for
Application No. 28372

No.	Mitigation Measures	Responsibility for Compliance	Method of Compliance	Timing of Compliance
Biological Resources				
BIO-1	**Conduct monarch butterfly surveys.** During each proposed construction year, a qualified biologist will conduct autumnal and winter roost surveys, if work is scheduled to occur during monarch roost season (September through March). Surveys will occur beginning September 1. If no monarchs are detected, surveys will occur on a weekly basis until construction concludes for the year or until November 30 (when stable winter aggregates will have formed).If autumnal or winter roosts are present, the biologist will determine the protective buffer necessary to avoid impacts to the roost and develop a site-specific monarch butterfly roost management plan following the guidelines described in Xerces Society 2017.	Applicant	Compliance monitoring by the County Planning Department	Autumnal and winter roost surveys during each construction year
BIO-2	**Implement Construction Related Protective Measures for California Red Legged Frog.** The following protective measures for CRLF will be implemented for the duration of construction activities: • Prior to the initiation of construction activities, a USFWS- and CDFW-approved biologist will prepare a construction monitoring plan that identifies all areas to be protected with exclusion fencing on a 1:1500 scale map (or similar scale determined to be practicable), and all areas requiring monitoring by a USFWS- and CDFW-approved biologist. • Prior to the initiation of construction activities, a USFWS-approved biologist will conduct an environmental training for all construction personnel. The training will include a description of CRLF and its habitat, measures to protect CRLF, and other sensitive wildlife species known or with potential to occur in the Project area and surroundings (sensitive and native nesting bird species, potential roosting bats species, and potential San Francisco dusky-footed woodrat). • If it is determined through consultation with USFWS that exclusion fencing (solid silt fencing) is necessary for minimizing impacts to CRLF, prior to the initiation of construction activities, the construction contractor will install exclusion fencing in specified areas along the Project boundaries, 2 feet below grade and 3 feet above grade, with wooden stakes at intervals of no more than 5 feet. The fence will be maintained in working order for the duration of construction activities. The USFWS-approved biologist or designated trained construction monitor shall inspect the fence daily and notify the construction foreman when fence maintenance is required. The fence will allow for wildlife passage across the Project area at intervals to be determined in conjunction with USFWS and CDFW. • Construction activities will take place during the dry season and before the first rain of the season, especially vegetation removal and work in or near aquatic features, including ditch wetlands. Work shall not take place at night or during rain events when special-status amphibians are generally more active. The Project contractor will consult weather forecasts from the National Weather Service at least 72 hours prior to performing work.	Applicant	Compliance monitoring by the County Planning Department	Issuance of Biological Opinion by USFWS, protective measures in place,and daily monitoring during construction activities in areas with regulated waters and habitats

No.	Mitigation Measures	Responsibility for Compliance	Method of Compliance	Timing of Compliance
	• Ground-disturbing activities in upland areas including clearing, grubbing, and grading shall not occur between November 1 and March 31, unless authorized by the USFWS, because that is the time period when CRLF are most likely to be moving through upland areas. • If the project seeks and obtains winter grading approval from the County and disturbance of upland areas between November 1 and March 31 is authorized by USFWS, measures to prevent CRLF from entering the Project area shall be implemented. These measures shall include installation of exclusion fencing and all other recommendations and conditions provided through consultation with USFWS. • Prior to commencement of construction, a Service-approved biologist(s) will identify suitable relocation sites for CRLF. If it is determined that individual CRLF must be relocated to avoid harm, a plan shall be developed in consultation with USFWS to relocate individual CRLF prior to initiation of disturbance in aquatic habitat. The biologist shall be given enough time to move the animals from the work site before ground disturbance is initiated. • A Service-approved biologist(s) shall be onsite during all activities that may result in take of the CRLF, to be determined at the discretion of the Service-approved biologist in consultation with USFWS. The approved biologist shall have the authority to stop work that may result in the "take" of a special-status species. If a CRLF is encountered during Project construction, the approved biologist shall be given enough time to move the animals from the work site to a designated relocation site. • The approved biologist will have the authority to stop work that may result in the "take" of a special-status species. • Capturing and handling CRLF is not permitted unless a project-specific Take Permit has been obtained from USFWS. • Only USFWS-approved biologists shall participate in activities associated with surveying, capturing, handling, and monitoring of CRLF. • The USFWS-approved biologist or construction monitor will check under all equipment for wildlife before use. If any special-status wildlife is observed under equipment or within the work area, the approved biologist will be permitted to handle and relocate it. • At the end of each work day, excavations will be secured with a cover, or a ramp installed to prevent wildlife entrapment. • All trenches, pipes, culverts or similar structures will be inspected for animals prior to burying, capping, moving, or filling the structures.			
BIO-3	**Conduct Preconstruction Surveys and Construction Related Protective Measures for Avian Species**. The following protective measures for avian species will be implemented for the duration of construction activities: • The avian breeding season occurs between February 1 and September 15. To the greatest extent practicable, initiate non-native tree and ruderal vegetation removal activities outside of the breeding bird season to avoid direct harm or mortality to potential nesting bird species and other sensitive biological resources. • For all Project activities initiated during the breeding bird season, or if construction activities lapse for a period of two weeks or more during breeding bird season, a qualified biologist will conduct a breeding bird survey for nesting birds, including raptors. Surveys will be conducted within 15 days	Applicant	Compliance monitoring by the County Planning Department	Prior to initiation of any phase of construction activity or two-week lapse in construction between February 1 and September 15

No.	Mitigation Measures	Responsibility for Compliance	Method of Compliance	Timing of Compliance
	prior to beginning Project activities and will include all work, staging, and access areas and a minimum buffer radius of 150 meters (or more as determined by the resource agencies). The survey will include potential habitat for raptors and sensitive and common nesting avian species known to occur within the Biological Study Area [arroyo willow riparian scrub, coastal scrub, eucalyptus grove (adjacent to the Seasonal Ponds), other non-native forest (adjacent to the Retention Pond), large cypress/eucalyptus groves, non-native grassland, and the Pre-heater Tower and Coal Mill buildings]. • If no nesting sensitive or common avian species are observed during breeding bird surveys no additional measures will be required. • If nesting birds are observed within vegetation proposed for removal, postpone vegetation removal activities until young have fledged to avoid direct harm or mortality of nesting birds. • Sensitive bird species, if nesting in or near the Project area, will be given special consideration and may require additional protective measures as determined through consultation with the relevant agency (USFWS or CDFW), such as protective buffers recommended in PG&E et al. 2015: o American peregrine falcon: 150 meters (500 feet) o Northern harrier, white-tailed kite, and other raptors: 90 meters (300 feet). o Olive-sided flycatcher and grasshopper sparrow: 25 meters (75 feet) o Allen's hummingbird: 15 meters (50 feet). • If the biologist determines that a smaller avoidance buffer will provide adequate protection for nesting birds, a proposal for alternative avoidance/protective measures, potentially including a smaller avoidance buffer and construction monitoring, may be submitted to USFWS and CDFW for review and approval prior to removal of vegetation, grading activity, or other use of heavy equipment. • If removal of vegetation, grading activity, or other use of heavy equipment stops for more than two weeks during the nesting season (February 1st - August 31st) a new survey shall be conducted prior to re-commencement of construction.			
BIO-4	**Implement Construction Related Protective Measures for San Francisco dusky-footed woodrat**. The following protective measures for San Francisco dusky-footed woodrat will be implemented for the duration of construction activities: • Within one month prior to the onset of construction activities, a CDFW qualified biologist will conduct a preconstruction survey for woodrat houses, and clearly flag all houses within the construction impact area and immediate surroundings. • The construction contractor will avoid woodrat houses to the greatest extent feasible by installing a minimum 10-foot (preferably 25-foot) buffer with silt fencing or other material that will prohibit encroachment. If this buffer and avoidance is not feasible, the qualified biologist will allow encroachment into the buffer, but preserve microhabitat conditions such as shade, cover and adjacent food sources. • If avoidance of woodrat houses is not possible, in coordination with CDFW and County Environmental Planning staff, a qualified biologist will develop and implement a San Francisco dusky-footed woodrat Relocation Plan and the following conditions or conditions of a CDFW agreement shall be adhered to: o Prior to house disturbance, the biologist shall obtain from CDFW a scientific collection permit for the trapping of the dusky-footed wood rats.	Applicant	Compliance monitoring by the County Planning Department	Prior to initiation of construction activities

No.	Mitigation Measures	Responsibility for Compliance	Method of Compliance	Timing of Compliance
	○ Houses shall be disturbed/dismantled only during the non-breeding season, generally between late summer and early fall, as determined in consultation with the project biologist and CDFW.. ○ If trapping is utilized as part of the relocation plan, prior to house disturbance, wood rats shall be trapped at dusk of the night set for relocation of the nest(s). ○ Any existing house that may be disturbed by construction activities shall be mostly dismantled and the material spread in the vicinity of identified house relocation site(s). ○ In order to avoid the potential health effects associated with handling rodents and their milieu, all workers involved in the handling of the wood rats or the house materials should wear protective gear to prevent inhalation of contaminant particulates, contact with conjunctiva (eyes), and protection against flea bites; a respirator, eye protection and skin protection should all be used. ○ Dismantling shall be done by hand, allowing any animals not trapped to escape either along existing woodrat trails or toward other available habitat. ○ If a litter of young is found or suspected, house and nest material shall be replaced, and the house left alone for 2-3 weeks before a recheck to verify that young are capable of independent survival before proceeding with house dismantling. ○ Woody debris shall be collected from the area and relocated houses shall be partially constructed in an area determined by the qualified biologist to be both suitable for the wood rats and far enough away from the construction activities that they will not be impacted. ○ If trapping is utilized as part of the relocation plan, rats that were collected at dusk shall be released hours before dawn near the newly constructed nests to allow time for rats to find refuge.			
BIO-5	Implement Construction Related Protective Measures for Bats. The following protective measures for bats will be implemented throughout the duration of construction activities. • To the greatest extent feasible, conduct limbing/tree removal operations between September 15 and November 1 to avoid bat maternity roosts and winter hibernacula, as well as other sensitive biological resources. • To avoid impacts to potential roosting bats, a qualified biologist shall conduct a pre-construction survey for bats during all months as follows: ○ A qualified biologist will determine if bats are utilizing the Project area where construction activities would occur, or adjacent trees/snags/buildings for roosting. For any trees/snags/buildings that could provide roosting space for cavity or foliage-roosting bats, potential bat roost features will be thoroughly evaluated to determine if bats are present. Visual inspection and/or acoustic surveys will be utilized as initial techniques. If roosting bats are found, the biologist will develop and implement acceptable passive exclusion methods in coordination with or based on CDFW recommendations. If feasible, exclusion will take place during the appropriate windows (September 15 and November 1) to avoid harming bat maternity roosts and/or winter hibernacula. (Authorization from CDFW is required to evict winter hibernacula for bats). ○ If established maternity colonies are found, in coordination with CDFW, a buffer will be established around the colony to protect pre-volant young from construction disturbances until the young can fly; or implement other measures acceptable to CDFW.	Applicant	Compliance monitoring by the County Planning Department	Prior to initiation of any phase of construction

No.	Mitigation Measures	Responsibility for Compliance	Method of Compliance	Timing of Compliance
	○ If a tree is determined not to be an active roost site for roosting bats, it may be immediately limbed or removed as follows: • If foliage roosting bats are determined to be present, limbs will be lowered, inspected for bats by a bat biologist, and chipped immediately or moved to a dump site. Alternately, limbs may be lowered and left on the ground until the following day, when they can be chipped or moved to a dump site. No logs or tree sections will be dropped on downed limbs or limb piles that have not been in place since the previous day. ○ If the tree is not limbed or removed within four days of the survey, the survey efforts shall be repeated.			
BIO-6	**Implement Construction Related Protective And Replacement Measures For Coastal Scrub Habitat**. The following protective and replacement measures for coastal scrub habitat will be implemented throughout the duration of construction activities. • Construction equipment will be staged in ruderal and developed areas only and, to the greatest extent feasible, equipment will access the ditch system from the south side in ruderal and developed habitat. • Coastal scrub habitat will be fenced off to prevent encroachment from construction related equipment and materials, and the construction footprint adjacent to this habitat will be minimized to the greatest extent practicable. • Permanent impacts to coastal scrub will be mitigated through replacement at a 3:1 ratio in suitable upland locations east of the Seasonal Ponds, east of the North Pond, and along the top of the embankment to No-Name Creek where poison hemlock currently dominates the area. Plantings will consist of locally-sourced native coastal scrub plantings (such as coastal sage brush, coffeeberry, coyote bush, California blackberry, California wild rose, and lizard tail) in accordance with the Mitigation and Management Plan required by Mitigation Measure BIO-8. • Where temporary impacts to coastal scrub occur, the area will be allowed to resprout from stumps and roots and will be re-vegetated, as needed, with locally-sourced native coastal scrub plantings (as listed above for permanent impacts) in accordance with the Mitigation and Management Plan required by Mitigation Measure BIO-8. Adjacent non- native grassland and ruderal habitats may also be planted with coastal scrub vegetation, where appropriate, to support the revegetation of this habitat.	Applicant	Compliance monitoring by the County Planning Department	Approval of Mitigation and Management Plan, and protective measures in place prior to initiation of construction activities in areas with regulated waters and habitats; Revegetation prior to project completion; Post project monitoring

No.	Mitigation Measures	Responsibility for Compliance	Method of Compliance	Timing of Compliance
BIO-7	**Implement Construction Related Protective and Replacement Measures for Arroyo Willow Scrub Habitat.** The following protective and replacement measures for arroyo scrub habitat will be implemented throughout the duration of construction activities. • To the greatest extent feasible, minimize removal of arroyo willow scrub and protect the remaining habitat from construction activities through installation of protective fencing. • At a minimum, the Project will result in no net loss of arroyo willow scrub habitat. Replace arroyo willow scrub at a ratio to be determined by the County and other state and federal agencies in accordance with the Mitigation and Management Plan required by Mitigation Measure BIO-8. • To mitigate for permanent impacts, arroyo willow pole cuttings will be planted in other suitable locations within and immediately adjacent to the Project area as described in the Mitigation and Management Plan: along the southwestern corner of the North Pond, at the outfall structure from the North Pond bypass pipe to No-Name Creek, on the northern side of the proposed mitigation seasonal willow pond in the remediated coal storage area, and along the western edge of the "frog swale", a feature located west of the wastewater treatment pond immediately west of the Project boundary area within CEMEX property. . • Where temporary impacts to arroyo willow scrub occur, the area will be allowed to resprout from stumps and roots, through natural recruitment, and will be re-vegetated, as needed, with locally-sourced willow pole cuttings in accordance with the Mitigation and Management Plan required by Mitigation Measure BIO-8.	Applicant	Compliance monitoring by the County Planning Department	Approval of Mitigation and Management Plan, and protective measures in place prior to initiation of construction activities in areas with regulated waters and habitats; Revegetation prior to project completion; Post project monitoring
BIO-8	**Implement Protective and Replacement Actions for Jurisdictional Wetlands And Waters of The U.S.** Implementation of the following measures would minimize potential temporary and permanent impacts on jurisdictional wetlands and waters of the U.S. • Avoid or minimize disturbance to wetlands, aquatic features (ponds), as well as to other sensitive habitats (coastal scrub, arroyo willow scrub, and edge habitats) through the installation of construction fencing around staging and work areas, and access routes, outside of which no activities would occur and no materials would be stored. The construction fencing will be placed in accordance with the stages of work being implemented in specific areas throughout the Biological Study Area, as feasible, to allow a corridor for wildlife movement along the southern boundary of the Project area. • Where feasible, avoid grubbing and construction within 100 feet of the edge of wetlands, ponds, and No-Name Creek, per the County of Santa Cruz General Plan/LCP and Sensitive Habitats Ordinance. • Restrict access roads that must enter into aquatic features to one location, and minimize the area of impact that results from these access roads to the greatest extent feasible. • Construct a replacement seasonal wetland at a ratio of 3:1, as included in the Closure Plan. A shallow mitigation feature of approximately 0.7 acre would be excavated along (outside of) the eastern fringe of the Seasonal Ponds, planted with locally sourced native wetland vegetation, including, but not limited to, a seed mix composed of California oat grass, Mediterranean barley, and seep monkey flower; plugs of spreading rush and Pacific rush; and stakes of arroyo willow, where applicable.	Applicant	Compliance monitoring by the County Planning Department	Authorization by USACE, approval of Mitigation and Management Plan, and protective measures in place prior to initiation of construction activities in areas with regulated waters and habitats; Wetland mitigation and revegetation prior to project completion; Post project monitoring

No.	Mitigation Measures	Responsibility for Compliance	Method of Compliance	Timing of Compliance
	• As detailed in the Mitigation and Management Plan, to mitigate for permanent impacts to aquatic habitat in the Seasonal Ponds, develop a replacement seasonal willow pond in the coal storage area north of Retention Pond. To mitigate for permanent impacts to riparian and poison oak wetlands, the northern portion of the mitigation pond will be planted with riparian wetland plantings and willow pole cuttings. Container plants and/or willow pole cuttings will also be planted along the northern margin of the Retention Pond, in the wetland fringe east of the Seasonal Ponds, along the southwestern corner of the North Pond, at the outfall structure from the North Pond Bypass Pipe to No-Name Creek, and along the western edge of the "frog swale", a feature located west of the wastewater treatment pond immediately west of the project boundary area within CEMEX property. In addition to arroyo willow pole cuttings, plantings will consist of locally-sourced native riparian plantings including red elderberry, beaked hazelnut, California blackberry, and coffeeberry, as well as those wetland species listed above. Develop and implement a Mitigation and Management Plan that will include the following: o Planning mitigation strategies with regulatory agencies, including the County of Santa Cruz, CDFW, the Water Board, and USFWS. o Developing a description of the Project, including acreages of temporary and permanent impacts to palustrine emergent wetlands, Coastal Act wetlands (arroyo willow scrub), and aquatic features (ponds), as identified in the formal delineation of jurisdictional wetlands and other waters of the U.S. o Goals of the compensatory mitigation project, including types and areas of wetland and aquatic habitat to be created, restored, and/or enhanced, and mitigation ratios (created/restored/enhanced : impacted). o Disturbed areas of coastal scrub habitat and arroyo willow riparian scrub habitat shall be restored at a 3:1 ratio. o Identifying the location and acreage of wetland and riparian mitigation areas, including size and ownership status. o Detailing wetland and aquatic construction and planting techniques. o Species, size, and locations of all restoration plantings. These plantings shall occur at sizes and ratios determined by the restoration specialist to adequately restore native habitat while maximizing plant health and survivability of individual trees and shrubs. o Information regarding the methods of irrigation for restoration plantings. o Replacing all non-native tree and shrub vegetation with native, locally-sourced vegetation. o Describing and designing of habitat requirements for special-status wildlife, including CRLF, potentially occupying wetland and aquatic habitats. o Identifying maintenance activities that will occur during the monitoring period, including replanting native wetland and riparian vegetation and weed removal that will not result in take of CRLF. o Producing long-term quantitative and qualitative monitoring and reporting, and documenting the ability of the areas to meet or surpass performance			

No.	Mitigation Measures	Responsibility for Compliance	Method of Compliance	Timing of Compliance
	criteria. o 5-year management plan for maintenance and monitoring of restored areas to maintain 100% survival of installed container stock in year 1, 90% survival rate in year 2, and at least 80% survival in years 3-5. Replacement plants shall be installed as needed during the monitoring period to meet survival rates. Annual reports shall be submitted to the County Planning Department by December 31 of each monitoring year. o Developing adaptive management strategies to ensure the long-term viability of mitigation areas. o Developing strategies to protect remaining wetland and aquatic/riverine habitats.			
Cultural Resources				
CR-1	**Conduct Awareness Training and Stop Work in the Event of Unexpected Occurrence of Cultural or Historic Resources During Construction.** Prior to the onset of construction activities at the Cement Plant, a qualified archaeologist (who meets the Secretary of the Interior's Professional Qualifications Standards as promulgated in 36 CFR 61 and who has experience with precontact, historic period, and tribal resources) shall be present at the construction site to conduct awareness training. The aware training will inform the construction crew of historic activities that may result in the presence of cultural or historic resources throughout the Project area, and will provide photographic examples of the types of resources that may be found. Pursuant to Sections 16.40.040 and 16.42.080 of the County Code, if at any time during site preparation, excavation, or other ground disturbance associated with this development, any artifact or other evidence of an historic archaeological resource or a Native American cultural site is discovered, the responsible persons shall immediately cease and desist from all further site excavation and notify the Sheriff-Coroner if the discovery contains human remains, or the Planning Director if the discovery contains no human remains. The procedures established in Sections 16.40.040 and 16.42.080, shall be observed. If previously unknown cultural or historic resources are encountered, an archaeological report must be prepared by a qualified professional archaeologist and no further excavation or development may take place except as authorized by an archaeological site development approval. The archaeologist will work to determine the extent of the materials encountered and develop an appropriate course of action. Such actions may include identifying alternative construction methodologies or the placement of Project materials/structures in alternative locations, with the ultimate goal of providing the ability for the project to move forward while protecting the resources in place.	Applicant	Compliance monitoring by the County Planning Department	Prior to initiation of construction activities and if cultural or historic resource discovered during construction
CR-2	**Stop Work in the Event of Unexpected Occurrence of Human Remains During Construction.** If human remains and/or associated/or unassociated funerary objects are discovered during ground disturbing activities, construction crews will stop work and immediately notify the Santa Cruz County Coroner, the Planning Director, and a qualified archeologist, in accordance with applicable local and State laws. In the event that the Coroner determines that the human remains are Native American, the County will notify the Native American Heritage Commission (NAHC) according to the requirements in PRC Section 5097.98. NAHC will appoint a Most Likely Descendent (MLD). A qualified archeologist, County and MLD will make all reasonable efforts to develop an agreement for the treatment, with appropriate dignity, of any human remains and associated or unassociated funerary objects (CEQA Guidelines Section 15064.5[d]). The agreement will take into consideration the appropriate preservation measures, with the	Applicant	Compliance monitoring by the County Planning Department	If human remains discovered during construction

No.	Mitigation Measures	Responsibility for Compliance	Method of Compliance	Timing of Compliance
	preference to preserve all resources intact and in place. The County will work with RMC Pacific Materials, LLC to develop an alternative pipeline route, or excavate, remove, record, analyze, take custody of, and finally respectfully dispose of the human remains and associated or unassociated funerary objects. The PRC allows 48 hours to reach agreement on these matters.			

Geology and Soils				
GEO-1	**Stop Work in the Event of Unexpected Paleontological Resources or Unique Geological Features During Construction.** If paleontological resources or unique geologic features are discovered during soil-disturbing activities, the construction crew will stop work and immediately notify the County Planning Director and a qualified paleontologist. The procedures established in Santa Cruz County Code Section 16.44.070, shall be observed. A paleontological resource or fossil is any evidence of ancient life preserved in a geologic context (e.g., leaves, bones, teeth, shells). A paleontologist will inspect the discovery and determine whether further investigation is required. If the discovery can be avoided, no further mitigation will be required. If the resource cannot be avoided, the qualified paleontologist will evaluate the resource and determine whether it meets the definition of "unique". If the resource is determined to not be unique, work may continue in the area. If the resource is determined to be unique, work will remain halted, and a preservation or recovery plan will be prepared. Preservation in place is the preferred protective measure. If preservation in place is not possible, resources and/or fossils will be recovered, prepared, identified, catalogued and analyzed according to current professional standards under the direction of the qualified paleontologist. Work may commence at the time of completion of the treatment. A final summary report will be completed and submitted to the County. The report will include a discussion of the methods used, stratigraphy exposed, fossils collected, and the significance of the recovered fossils. The report will also include an itemized inventory of all the collected and catalogued fossil specimens.	Applicant	Compliance monitoring by the County Planning Department	If paleontological resources or unique geological features discovered during construction

From: David Carlson
Sent: Friday, December 11, 2020 3:37 PM
To: David Carlson
Subject: FW: Public Comments: Environmental Impact Analysis of Davenport Cement Plant Closure Dust Plan

From: Alison Edwards <alison.edwards02@gmail.com>
Date: December 11, 2020 at 10:03:50 AM PST
To: Kathy Molloy <Kathy.Molloy@santacruzcounty.us>, Alison Edwards <alison.edwards02@gmail.com>
Subject: Public Comments: Environmental Impact Analysis of Davenport Cement Plant Closure Dust Plan

****CAUTION:This is an EXTERNAL email. Exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email.****

To: SC County Planning Director Kathy Molloy

From: Alison Edwards, resident at 101 San Vicente St, Davenport CA.

Dear Planning Director Molloy,

As a resident/homeowner of the town of Davenport just downwind of the cement plant, I am genuinely concerned about the current plans the county has to remediate the CKD pile on that property. I am happy that there is finally something being done about that CKD pile, clearly it needs to happen. But, I want to county, the state, and the owners of the cement plant to fix that CKD pile in a process which has the absolutely least impact on the health and well being of the current residents of Davenport. As you know - we have already had a very difficult time lately - with the fire here, as well as the pandemic and now with mandatory evacuations for debris flows throughout the winter. We need the County to work with us to make this CKD pile work happen in a way that does not negatively impact us.

Your current plan has a number of issues which must be adjusted in order to not adversely impact all of us who live here. My biggest concern is windblown dust. I was able to observe the area around the CKD pile a few weeks ago during windy conditions and there were very large plumes of dust being blown toward Old Town from the flat area inland of the pile and from around the water plant. If this is happening before disturbance I'm scared of what will occur when they're regrading the whole area.

The number one issue which needs to be addressed and adjusted is timing. Due to the very strong north winds which happen on the North Coast each Spring, doing the grading work on this pile during that time would have significant negative health impacts on all of us who live downwind of the CKD pile. As you know, that fine particulate matter is unhealthy, and that CKD dust does have some hazardous materials in it as

well. For both of those reasons, the timing of the grading of the CKT pile is the number one management issue of this project. Fall and Winter are the best times to do this work. Oct - Feb are the absolutely best months to do this work from this perspective. I believe that the county might have been avoiding those months due to avoidance of impact on red legged frogs. I understand and respect that, but while red legged frog habitat is important (though questionable on the highly industrial use land of the cement plant) - it should not take precedence over the physical health and well being of the people of the town of Davenport.

Your current plan puts this work being done during the windiest time of the year - spring through summer. That is unacceptable for those of us who live downwind from the CKD pile. If you insist on doing this work during those months (which I do not agree with) then the timing of the work should be adjusted so that it is ONLY done at night (when there is no wind). If the work was done from evening through the night and wrapping up by 10 am then it could possibly be done during the Spring/summer - if and only if the entire graded area was deeply watered down each morning to keep dust from impacting the town during the high winds which start each day around 10 am and last until dusk.

It appears that the planning process, as currently outlined, is primarily concerned with/focused on water quality. While important, water quality is not the biggest impact of this project on the residents of Davenport - rather, air quality is. The county needs to re-do this plan with air quality being front and center in the planning process. Fugitive dust has the potential to be a significant air quality health issue for the residents of Davenport. This plan needs to be re-made with every attempt to manage the project for the least air quality impact on those of us who live, work and go to school here.

As the plan currently stands - dust generating activities are upwind of much of Davenport. All activities will be during the dry (windy) season. This is likely due to the fact that the consultants did not use the best available science for background wind data. The data they cite are from 1998 (a strong La Nina year which has been associated with lower wind velocities in our area) and from non-overlapping window of months of the proposed activity: 6/13-11/20/1998 vs 4/1-10/31 (see attached from Appendix 5 Table 2-1 and Figure 2-6). These data are old and appear to be cherry picked (only 4 DAYS with winds over 15mphs during the entire time) - suggesting little potential impact on the Town of Davenport. We are all familiar with predominant of very strong NW daytime wind direction especially during the spring April 1 - Oct 31. I think the consultant should reference representative wind data.

In addition, the consultants do not mention dust and control of dust from the degraded plastic sheeting that is disintegrating atop the CKD

pile. Which becomes air born and rains down on the town of Davenport.

We have an elementary school downwind of these operations. The health of school students, teachers, and residents would be best protected with an adaptive management operations protocol where work occurs outside of high wind events with appropriate onsite dust mitigation (water hoses) not just on roads but on active operations where soil is scraped, dumped and transported.

When CEMEX removed the Ball Mill there was lots of fugitive dust that impacted the town of Davenport. They worked during some of the windiest days of that season. The structures that were removed contained significant amounts of dust and contained signage that said "Caution - Respirator Required for Entry". The contractor did not use hoses to water down the site to control dust. The trucks leaving the site were not tarped and billowed dust from Davenport all the way to the recycler's yard in South County. There were no monitoring stations. I could visually see the dust in the air, in our home, and feel it in my mouth and lungs.

The County must adapt this CKD project planning to avoid such air quality impacts going forward.

I have reviewed the Dust Monitoring Plan - Appendix 5 and they are using some poor data and questionable assumptions about wind speed that I believe need to be addressed. In particular, they use a wind speed study that was conducted at the "schoolhouse" (Presumably Pacific School) that was conducted June to November 1998. There are two obvious problems. First, Pacific school is protected from the prevailing winds from the eucalyptus forest to the North. Anyone with direct experience here knows wind speeds are much lower at the school than in open area such as the CKD pile. Second, Spring is the windiest time of year here, but the study was conducted during summer and fall and therefore does not represent actual conditions. The fact that best highlights that the wind study is not representative is that the study found only 4 days with wind speeds above 15 mph during 6 months of monitoring! Any quick glance at weather data shows this is very far from actual conditions.

I'm also concerned about the report's assumptions about the size of materials that are present at the site. This is not my area of expertise, but it appears that no field measurements were taken to establish the size of the materials, especially the CKD dust. Instead the study appears to assume a midpoint particle size based on previous studies conducted elsewhere. Smaller particles are blown more easily - are the particles that will be exposed during this project large or small?

Incorrect information about the wind and no information about the size of local materials raises a red flag about the validity of this

mitigation plan. At a minimum these issues need to be addressed and the plan modified to accommodate the findings. In addition I recommend the county address the need to change the timing of the work (both time of year and time of day) as well as add significant planning to keep any portion of the disturbed CKD pile watered down multipal times a day. I also suggest that the plan be adapted so that portions of the CKT pile which are disturbed are capped or covered as by section as the work progresses - in order to keep those graded portions from releasing fugitive dust and creating unhealthy air quality for the residents of Davenport for the duration of the work.

Please keep us posted on how our concerns are being addressed and how the consultants and county will be changing the project plan to address the negative impacts outlined here.

Thank you so much,

Alison Edwards

101 San Vicente St, Davenport CA

David Carlson

From: David Carlson
Sent: Monday, December 7, 2020 2:34 PM
To: David Carlson
Subject: FW: Comments on Davenport North Cement Kiln Dust Area Closure Project

Begin forwarded message:

From: Brian McElroy <briancareymcelroy@gmail.com>
Date: December 3, 2020 at 2:10:11 PM PST
To: Kathy Molloy <Kathy.Molloy@santacruzcounty.us>
Subject: Comments on Davenport North Cement Kiln Dust Area Closure Project

Santa Cruz County Planning Department
Planning Director Kathy Molloy
701 Ocean Street, 4th Floor
Santa Cruz, CA 95060
Via email at kathy.molloy@santacruzcounty.us

Brian McElroy
13 First Ave.
Davenport, CA 95017
briancareymcelroy@gmail.com

Comments on Initial Study Davenport North Cement Kiln Dust Area Closure Project

I only became aware of this plan on 12/3 – the day before comments were due. I am supportive of the project to remediate the Kiln Dust pile, but would like to better understand the project and be better informed. This late notification precludes any sort of careful analysis or input. However, I have comments below from other community members and my own review of the documents.

1. There has been insufficient notification of the local stakeholders (residents, businesses, local school) to allow careful study and timely comments. I request an extension of the comment period to allow sufficient public input. My home is adjacent to the Cement Plan Property on First Ave, only separated by the road. Perhaps this is not technically "adjacent" but I protest the lack of notification. Please provide me with a list of all parties notified of this action. If I was notified and failed to acknowledge the notice then I stand corrected.

2. There has been insufficient assessment of the characteristics of the material to be mitigated. The CKD pile has been covered for years with a combination of petroleum-based plastic tarping and used tires. What is the potential for this material to become suspended during operations, what are the potential health effects, and will they be properly mitigated. The consultants do not mention dust and control of dust from the degraded plastic sheeting that is disintegrating atop the CKD pile. Which becomes air born and rains down on the town of Davenport.

1. There has not been a direct analysis of the CKD material. It appears instead that an analysis of similar material from another location has formed the basis of the prediction of the physical quality of the material likely forming dust during operations. This is inadequate as particle sizes and composition is likely different at the RMC site in Davenport compared to the material presented in the analysis.

2. The data on wind are severely outdated (climate models are showing intensification of NW winds in the Central California coastal region), based upon a location that does not represent what will be present at the mitigation site (the wind-protected "schoolhouse" site rather than the actual mitigation site), seasonally incorrect (Summer/Fall rather than Spring), and taken from an anomalous year (La Nina – 1998). It is well established that the strongest and most consistent winds occur in the area in the Spring between March and June. However, the wind data used in the analysis was from the LEAST windy period in the region (June-November - Summer/Fall). We understand the mitigation effort will occur during the Spring season (April-October). Specifically, the consultants do not use the best available science for background wind data. The data they cite are from 1998 (a strong La Nina year which has been associated with lower wind velocities in our area) and from non-overlapping window of months of the proposed activity: 6/13-11/20/1998 vs 4/1-10/31 (see attached from Appendix 5 Table 2-1 and Figure 2-6). Indeed, these old data appear to be cherry picked (**only 4 DAYS** with winds over 15mphs during the entire time) - suggesting little potential impact on the Town of Davenport. We are all familiar with predominant NW daytime wind direction especially during the spring April 1 - Oct 31. More representative wind data should be used.

3. Dust mitigation plan. We have an elementary school downwind of these operations. The health of school students, teachers, and residents would be best protected with an adaptive management operations protocol where work occurs outside of high wind events with appropriate onsite dust mitigation (water hoses) not just on roads but on active operations where soil is scraped, dumped and transported. Our experience when CEMEX removed the Ball Mill was that there was significant fugitive dust that impacted the town of Davenport. Indeed, the work was conducted during some of the windiest days of that season. The structures that were removed contained significant amounts of dust and contained signage that said "Caution - Respirator Required for Entry". The contractor did not use hoses to water down the site to control dust. The trucks leaving the site were not tarped and billowed dust from Davenport all the way to the recycler's yard in South County. There were no monitoring stations. I could visually see the dust in the air, in our home, and feel it in my mouth and lungs. We are fearful of a similar scenario developing under this plan with inadequately defined timing and dust mitigation procedures.

4. Traffic planning. The project will require a significant amount of heavy truck traffic. The reports does not address impacts on Cement Plant Road. The report could define measures to be taken to reduce traffic on Cement Plant Road and avoid residential areas at First and Third Avenues. The report addresses impacts to HWY 1 and Warrannela Road but fails to mitigate dust, and safety concerns. What measures will be taken to reduce dust from truck loads, tires and truck bodies?

As mentioned above, these comments have been developed with the most cursory review of the proposal due to the inadequate prior nofication. I respectfully request an extension of 30 days to allow our community to more fully assess this important and impactful activity likely to affect the quality and health of our community, school, and businesses. Thank you for your time and effort reading my comments.

Brian McElroy

David Carlson

From: Clint Biddle <clintjbiddle@gmail.com>
Sent: Tuesday, January 19, 2021 10:53 AM
To: David Carlson
Subject: CEMEX CKD Project

Hi David,

I live on First Avenue in Davenport and plan to attend, and would like to briefly speak/comment at, the public phone call meeting tomorrow (1/20) at 5pm regarding the implementation of the final North CKD Area Closure Plan at the former Davenport Cement Plant.

While I support the project, I have significant concern at the prospect of the trucks passing by the "Newtown" neighborhood (1st, 2nd, and 3rd Avenues) of Davenport along Cement Plant Road and the associated noise, traffic and CKD that is likely to blow off of the trucks as they pass our neighborhood.

I think that the trucks should either have to exit through the Cement Plant's main entrance/exit near highway 1, or if they must go down Waranella Road they should only be on Cement Plant Road for the short distance between the Warrenella Road gate and the railroad crossing entrance to highway 1 just south of the gate. They will then only be on Cement Plant Road for 40 yards give or take and will not pass by the Newtown neighborhood. That entrance to highway 1 has much better visibility and runway for big slow trucks then the ones south of Newtown anyway making it safer all around.

I am also concerned about:

- Dust impacts from excavation, fill dumping, and grading.
- Impacts to current drainage issues that are eroding the hill behind New Town.

Thank you,
Clint Biddle
1st Avenue
Davenport, CA

David Carlson

From: Kathy Molloy
Sent: Saturday, December 19, 2020 12:23 AM
To: David Carlson
Subject: Fwd: Davenport Cement Plant Closure Dust Plan

Begin forwarded message:

From: Clint Biddle <clintjbiddle@gmail.com>
Date: December 18, 2020 at 11:12:42 PM PST
To: Kathy Molloy <Kathy.Molloy@santacruzcounty.us>
Subject: Davenport Cement Plant Closure Dust Plan

Hello Kathy,

My name is Clint Biddle and I am a resident of New Town, Davenport.

I have read over the comments on the Plant Mitigation Study done by the DNCA and strongly agree with their points below:

1. There has been insufficient notification of the local stakeholders (residents, businesses, local school) to allow careful study and timely comments. DNCA strongly urges an extension of the comment period to allow sufficient public input.
2. There has been insufficient assessment of the characteristics of the material to be mitigated. The CKD pile has been covered for years with a combination of petroleum-based plastic tarping and used tires. What is the potential for this material to become suspended during operations, what are the potential health effects, and will they be properly mitigated. The consultants do not mention dust and control of dust from the degraded plastic sheeting that is disintegrating atop the CKD pile. Which becomes air born and rains down on the town of Davenport.
3. There has not been a direct analysis of the CKD material. It appears instead that an analysis of similar material from another location has formed the basis of the prediction of the physical quality of the material likely forming dust during operations. This is inadequate as particle sizes and composition is likely different at the RMC site in Davenport compared to the material presented in the analysis.
4. The data on wind are severely outdated (climate models are showing intensification of NW winds in the Central California coastal region), based upon a location that does not represent what will be present at the mitigation site (the wind-protected "schoolhouse" site rather than the actual mitigation site), seasonally incorrect (Summer/Fall rather than Spring), and taken from an anomalous year (La Nina – 1998). It is well established that the strongest and most consistent winds occur in the area in the Spring between March and June. However, the wind data used in the analysis was from the LEAST windy period in the region (June-November - Summer/Fall). We understand the mitigation effort will occur during the Spring season (April-October). Specifically, the consultants do not use the best available science for background wind data. The data they cite are from 1998 (a strong La Nina year which has been associated with lower wind

velocities in our area) and from non-overlapping window of months of the proposed activity: 6/13-11/20/1998 vs 4/1-10/31. Indeed, these old data appear to be cherry picked (**only 4 DAYS** with winds over 15mphs during the entire time) - suggesting little potential impact on the Town of Davenport. We are all familiar with predominant NW daytime wind direction especially during the spring April 1 - Oct 31. More representative wind data should be used.

5. Dust mitigation plan. We have an elementary school downwind of these operations. The health of school students, teachers, and residents would be best protected with an adaptive management operations protocol where work occurs outside of high wind events with appropriate onsite dust mitigation (water hoses) not just on roads but on active operations where soil is scraped, dumped and transported. Our experience when CEMEX removed the Ball Mill was that there was significant fugitive dust that impacted the town of Davenport. Indeed, the work was conducted during some of the windiest days of that season. The structures that were removed contained significant amounts of dust and contained signage that said "Caution - Respirator Required for Entry". The contractor did not use hoses to water down the site to control dust. The trucks leaving the site were not tarped and billowed dust from Davenport all the way to the recycler's yard in South County. There were no monitoring stations. I could visually see the dust in the air, in our home, and feel it in my mouth and lungs. We are fearful of a similar scenario developing under this plan with inadequately defined timing and dust mitigation procedures.
6. Our understanding based upon our read of the process and requirements is that properties considered "contiguous" we be notified of the process and plan with opportunity for comment. None of the Davenport residents contacted by the DNCA had received notification of the plan. This seems to violate the regulatory requirements of the process.

Thank you for your consideration,
Clint Biddle
Resident at 9 1st Ave., Davenport, CA, 95017

David Carlson

From: Colin Hannon <colinhannon@cruzio.com>
Sent: Monday, January 18, 2021 9:13 PM
To: David Carlson
Subject: Davenport CKD closure comments/concerns

Dear David,
I am a homeowner in New Town, Davenport adjacent to the project site where I live with my wife and 2 young children. We are concerned about dust, traffic, and noise connected with the Davenport CKD project. I was grateful to be on the very informative zoom call recently where information was shared with local residents and the DNCA etc. The amount of planned earthmoving and its potential to create dust, traffic, and noise that could significantly impact our neighborhood was concerning. The Cemex representative said in that meeting that their goal was 'no dust whatsoever' leaving the site. This seems unrealistic and leads one to wonder if other mitigations in the plan are realistic and adequate. We are very glad that this site is going to be cleaned up, and hopeful that every effort will be made to ensure that it is safe for Davenport residents and that any negative impacts will be minimized and mitigated adequately. Thank you for you time and consideration.
Best,
Colin Hannon
831-345-4372
20 3rd Ave
Davenport, CA
95017

David Carlson

From: Courtney Scruggs <courtneyrscruggs@gmail.com>
Sent: Monday, January 18, 2021 11:27 AM
To: David Carlson
Subject: CKD Pile - Davenport Cement Plant

Hello David,

First, I want to thank you for heading this and tell you how excited we are that this is being managed!

As a resident of New Town Davenport I *am* a bit concerned with the dust, traffic and damage that may be done to our road. We are hoping that the dust will be mitigated with water trucks especially with our high winds in the spring time and the truck drivers will be warned that they are driving through an area with neighbors, kids and lots of pets. We are a tight knit community and would love it if the people working on this project could treat this as if it were their neighborhood and take it slow. When they put in the pond just north of us, they severely damaged the road and when it was over, they did repairs as necessary. I am hoping there is a plan to do the same on this project.

I am one of many who live and work out of the house here in New Town so my hope is that we will not be too impacted by this clean up process. Thank you again for your hard work and I look forward to seeing you on the call scheduled for the 20th.

Best regards,
Courtney Scruggs

Resident of:
8 3rd Ave.
Davenport, CA, 95017

--
Courtney Renee Scruggs
P.O. Box 167
Davenport, CA, 95017
CourtneyRScruggs@gmail.com
(831) 205- 0285
http://www.courtneyrenees.com
https://www.instagram.com/courtneyrenees/
https://www.facebook.com/courtneyreneescruggs

David Carlson

From: Kathy Molloy
Sent: Saturday, December 19, 2020 12:21 AM
To: David Carlson
Subject: Fwd: CKD Pile Comments - Davenport

Begin forwarded message:

From: Courtney Scruggs <courtneyrscruggs@gmail.com>
Date: December 18, 2020 at 9:14:41 PM PST
To: Kathy Molloy <Kathy.Molloy@santacruzcounty.us>
Subject: CKD Pile Comments - Davenport

Hello Kathy,

My name is Courntey Scruggs and I am a resident of New Town, Davenport. It has come to my attention that there is a severe lack of information/planning associated with the proposed cleanup of the CKD pile on the Cemex property. I can literally see it out of my kitchen window so, as thrilled as I am that it is going to be cleaned up, I am concerned with the process being dangerous for our residents.

I have read over the comments on the Plant Mitigation Study and comments by the DNCA and Noel and strongly agree with their points as noted below.

1. There has been insufficient notification of the local residents to allow careful study and timely comments. I am requesting an extension of at least 30 days to allow our community to assess the impact of this activity likely to affect us.
2. There has been insufficient assessment of material to be cleaned up. I have lived here for 5 years and seen plenty of tarp, plastic and other debris flying away in the 30+ knots of breeze we see here in Davenport.
3. As stated in section 2, our winds can be unruly here and based on what time of day and what time of year, wind models could be inaccurate. There is a reason we are known as the windsurfing capital of the world. I would like to suggest a cap of 10 knots of wind in order to contain the debris that floats down on Davenport. I was not a resident when the Cement plant was in operation but I have heard horror stories of cars being covered in cement dust and would hate to see something like that happen again especially considering the legal battle that ensued causing Cemex to compensate residents and provide car covers. It would be unfortunate to see history repeat itself.
5. Dust mitigation plan. We have an elementary school and the heart of the town downwind of these operations. The health of residents would be best protected with proper watering prior to removal of the debris to keep down dust and other airborne particulates.

I know how hard it is to make everyone happy in matters like these but we're a small town of very loyal and caring residents and we've already dealt with a lot this year from Covid to the fires and potentially mudslides this winter. It would be nice to see things go smoothly in this operation with a little careful planning and we would all be eternally grateful for your kindness. This is our home and we would greatly appreciate it if you could remember that when considering how to go forward with this proposal.

Thank you for your consideration,
Courtney Scruggs
Resident at 8 3rd Ave., Davenport, CA, 95017

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Courtney Renee Scruggs
P.O. Box 167
Davenport, CA, 95017
CourtneyRScruggs@gmail.com
(831) 205- 0285
http://www.courtneyrenees.com
https://www.instagram.com/courtneyrenees/
https://www.facebook.com/courtneyreneescruggs

David Carlson

From: Kathy Molloy
Sent: Saturday, December 19, 2020 12:21 AM
To: David Carlson
Subject: Fwd: CKD Pile Restoration Project Davenport, Ca.

Begin forwarded message:

> **From:** Eric Ruderman <rudy161@gmail.com>
> **Date:** December 18, 2020 at 8:54:11 PM PST
> **To:** Kathy Molloy <Kathy.Molloy@santacruzcounty.us>
> **Subject: CKD Pile Restoration Project Davenport, Ca.**
>
> ****CAUTION:This is an EXTERNAL email. Exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email.****
>
> Kathy,
>
> I am just becoming aware of this restoration project this evening, the last evening to comment. Was there a community outreach program that I somehow missed? The community that will be effected should know all the details sooner than later. In this case, it seems to be later.
>
> There are many valid concerns about the CKD pile, inaccurate wind data used, risk assessment to the local community, as well a study of the actual pile for particulate make up and size. As a home owner in Davenport - 6 3rd Ave. I am voicing my concerns to you to be addressed and mitigated before the restoration project is underway.
>
> We need you to at minimum, to water down the pile before, during and after any movement of materials to help limit airborne particulates.
>
> Please update your wind data with accurate readings from proposed period - Spring, which is by far the winiest season here.
>
> Your decisions will impact the health and safety of our community. We all want the pile dealt with, but it needs to happen with the safety of the community at the forefront.
>
> Sincerely,
>
> Eric Ruderman

David Carlson

From: David Carlson
Sent: Friday, December 11, 2020 3:38 PM
To: David Carlson
Subject: FW: Public Comments: Environmental Impact Analysis of Davenport Cement Plant Closure Dust Plan

Begin forwarded message:

> **From:** Josto Puddu <jpuddu@ucsc.edu>
> **Date:** December 11, 2020 at 10:25:54 AM PST
> **To:** Kathy Molloy <Kathy.Molloy@santacruzcounty.us>
> **Subject: Public Comments: Environmental Impact Analysis of Davenport Cement Plant Closure Dust Plan**

Dear Planning Director Molloy,

I am an homeowner in the town of Davenport just downwind of the cement plant, I am very concerned about the current plans the county has to remediate the CKD pile on that property.
I am happy that there is finally something being done about it.
But, I want to county, the state, and the owners of the cement plant to fix that CKD pile in a process which has the absolutely least impact on the health and well being of the current residents of Davenport.
As you know - we have already had a very difficult time lately - with the fire here, as well as the pandemic and now with mandatory evacuations for debris flows throughout the winter. We need the County to work with us to make this CKD pile work happen in a way that does not negatively impact us, now or in long term health risks.

Your current plan has a number of issues which must be adjusted in order to not adversely impact all of us who live here.
The concern is windblown dust. I was able to observe the area around the CKD pile a few weeks ago during windy conditions and there were very large plumes of dust being blown toward Old Town from the flat area inland of the pile and from around the water plant.
If this is happening before disturbance I'm scared of what will occur when they're regrading the whole area.

The number one issue which needs to be addressed and adjusted is mainly the timing.
Due to the very strong north winds which happen on the North Coast each Spring, doing the grading work on this pile during that time would have significant negative health impacts on all of us who live downwind of the CKD pile.
As you know, that fine particulate matter is unhealthy, and that CKD dust does have some hazardous materials in it as well. For both of those reasons, the timing of the grading of the CKT pile is the number one management issue of this project.

Fall and Winter are the best times to do this work. Oct - Feb are the absolutely best months to do this work from this perspective.
I believe that the county might have been avoiding those months due to avoidance of impact on red legged frogs.
I understand and respect that, but while red legged frog habitat is important (though questionable on the highly industrial use land of the cement plant) - it should not take precedence over the physical health and well being of the people of the town of Davenport.

Your current plan puts this work being done during the windiest time of the year - spring through summer.
That is simply unacceptable for those of us who live downwind from the CKD pile.
If you insist on doing this work during those months (which I do not agree with) then the timing of the work should be adjusted so that it is ONLY done at night (when there is no wind). If the work was done from 8pm through the night and wrapping up by 6 am then it could possibly be done during the Spring/summer - if and only if the entire graded area was deeply watered down each morning to keep dust from impacting the town during the high winds which start each day around 10 am and last until dusk.

It appears that the planning process, as currently outlined, is primarily concerned with/focused on water quality. While important, water quality is not the biggest impact of this project on the residents of Davenport - rather, air quality is. The county needs to re-do this plan with air quality being front and center in the planning process. Fugitive dust has the potential to be a significant air quality health issue for the residents of Davenport. This plan needs to be re-made with every attempt to manage the project for the least air quality impact on those of us who live, work and go to school here.

As the plan currently stands - dust generating activities are upwind of much of Davenport. All activities will be during the dry (windy) season.
This is likely due to the fact that the consultants did not use the best available science for background wind data. The data they cite are from 1998 (a strong La Nina year which has been associated with lower wind velocities in our area) and from non-overlapping window of months of the proposed activity: 6/13-11/20/1998 vs 4/1-10/31 (see attached from Appendix 5 Table 2-1 and Figure 2-6). These data are old and appear to be cherry picked (only 4 DAYS with winds over 15mphs during the entire time) - suggesting little potential impact on the Town of Davenport. We are all familiar with predominant of very strong NW daytime wind direction especially during the spring April 1 - Oct 31. I think the consultant should reference representative wind data.

In addition, the consultants do not mention dust and control of dust from the degraded plastic sheeting that is disintegrating atop the CKD pile. Which becomes air born and rains down on the town of Davenport.

We have an elementary school downwind of these operations. The health of school students, teachers, and residents would be best protected with an adaptive management operations protocol where work occurs outside of high wind events with appropriate onsite dust mitigation (water hoses) not just on roads but on active operations where soil is scraped, dumped and transported.

When CEMEX removed the Ball Mill there was lots of fugitive dust that impacted the town of Davenport. They worked during some of the windiest days of that season. The structures that were removed contained significant amounts of dust and contained signage that said "Caution - Respirator Required for Entry". The contractor did not use hoses to water down the site to control dust. The trucks leaving the site were not tarped and billowed dust from Davenport all the way to the recycler's yard in South County. There were no monitoring stations. I could visually see the dust in the air, in our home, and feel it in my mouth and lungs.

The County must adapt this CKD project planning to avoid such air quality impacts going forward.

I have reviewed the Dust Monitoring Plan - Appendix 5 and they are using some poor data and questionable assumptions about wind speed that I believe need to be addressed. In particular, they use a wind speed study that was conducted at the "schoolhouse" (Presumably Pacific School) that was conducted June to November 1998. There are two obvious problems. First, Pacific school is protected from the prevailing winds from the eucalyptus forest to the North. Anyone with direct experience here knows wind speeds are much lower at the school than in open area such as the CKD pile. Second, Spring is the windiest time of year here, but the study was conducted during summer and fall and therefore does not represent actual conditions. The fact that best highlights that the wind study is not representative is that the study found only 4 days with wind speeds above 15 mph during 6 months of monitoring! Any quick glance at weather data shows this is very far from actual conditions.

I'm also concerned about the report's assumptions about the size of materials that are present at the site. This is not my area of expertise, but it appears that no field measurements were taken to establish the size of the materials, especially the CKD dust. Instead the study appears to assume a midpoint particle size based on previous studies conducted elsewhere. Smaller particles are blown more easily - are the particles that will be exposed during this project large or small?

Incorrect information about the wind and no information about the size of local materials raises a red flag about the validity of this mitigation plan. At a minimum these issues need to be addressed and the plan modified to accommodate the findings. In addition I recommend the county address the need to change the timing of the work (both time of year and time of day) as well as add significant planning to keep any portion of the disturbed CKD pile watered down multipal times a day. I also suggest that the plan be adapted so that portions of the CKT pile which are disturbed are capped or covered as by section as the work progresses - in order to keep those graded portions from releasing fugitive dust and creating unhealthy air quality for the residents of Davenport for the duration of the work.

Please keep us posted on how our concerns are being addressed and how the consultants and county will be changing the project plan to address the negative impacts outlined here.

Thank you so much,
Iosto Saleri Puddu

101 San Vicente St, Davenport CA
--
Josto Saleri Puddu
UCSC Dining
Business Systems Analyst
Cell (831)212-5003
Office (831)459-5236

David Carlson

From: David Carlson
Sent: Tuesday, December 22, 2020 2:49 PM
To: David Carlson
Subject: FW: Davenport CKD Closure proposal -Public Comments

Begin forwarded message:

From: kasha forgette <kashaforgettelac@gmail.com>
Date: December 17, 2020 at 11:09:28 PM PST
To: Kathy Molloy <Kathy.Molloy@santacruzcounty.us>
Subject: Davenport CKD Closure proposal -Public Comments

Kathy,

Hi this is Kasha Forgette And I have been a Davenport residence for many years. I would like to leave my public comment about the CKD closure proposal 2020 in Davenport.

I read through the report and am extremely concerned about 4 things. I believe for the health and safety of our community and children That these 4 things need to be addressed and that the proposal needs to include ways to mitigate these hazards to public health before this proposal moves forward.

1. When the CKD pile is grated It needs to be wetted down constantly to prevent dust and small particles of hazardous waste from reaching the elementary school 1/4 mile away. The school and community of Davenport is directly down wind from the CKD pile.
There needs to also be an over site group making sure the wetting down gets done and that the contractors are Fallowing all safety protocols.

2. A level of acceptable wind knots for grating needs to be decided. For the safety and well being of the children at the school and the residents of Davenport. If the wind reaches over The safety threshold in knots the grating has to be postponed until wind levels come down. There needs to be an over site group to make sure This is being fallowed.
The wind data in the report was majorly flawed and not consistent with the Actual conditions on the north coast of Santa Cruz. The proposed time of year for the project is our windiest time of year. The north coast of santa Cruz has Extreme wind and can last dawn to dusk for days on end. The elementary school and town Of Davenport are directly down wind from the proposed CKD Project and if it is a windy day like we get up here most days the proposed grating of the CKD pile will cause major health risks to our children and community. These include A huge exposure to dust from the grating, exposure to hazardous materials in the CKD pile (listed as a hazardous materials site in 2019 for Santa Cruz county), both dust and hazardous materials in our water supply.

3. Our drinking water supply comes mostly from San Vicente creek which is downwind from the Proposed grating of the CKD Pile.

4. Particle size of material from the proposed CKD pile grating that will become airborne was not properly established or addressed in the report.

As residents of Davenport we would all like the CKD pile to be dealt with in the best way possible. However This proposal does not use Accurate data That is applicable When addressing the effect the grating of the CKD pile will have on the down wind community of Davenport, And the health and safety of the elementary school children 1/4 mile away.
The data does not truly represent the wind conditions here in Davenport, the amount of dust and hazardous materials that will blow down wind to the residents and Elementary school children, or into our drinking water supply. Nor does it address accurately the size of the dust and waste particles generated from the grating.

I strongly disagree with the statements on pages 94, 96, and 98 and feel that this project is a significant risk to the health and safety of the public and children of our community, and drinking water supply.

I think that the data in appendix 5 and 10 is not accurate and should be reconsidered.

If Safety measures Like spraying down the CKD pile with water while grating and only grating if wind is under certain knots in strength were implemented this project could pose less risk to the public health and safety in Davenport.
I ultimately think that the wind levels, particle size of the CKD pile material and impacts on drinking water and Risks of inhalation of this dust for adults and elementary school children Be further studied before this report or plan gets approved or moves forward.

Thank you for your time,

Kasha
--
Warmly,

Kasha Forgette, LAC

(831) 239-1948
kashaforgettelac@gmail.com

David Carlson

From: Kathy Molloy
Sent: Saturday, December 19, 2020 12:22 AM
To: David Carlson
Subject: Fwd: CKD Pile in Davenport

Begin forwarded message:

From: Maria Fernandez <bodyworkbymariaf@gmail.com>
Date: December 18, 2020 at 9:57:50 PM PST
To: Kathy Molloy <Kathy.Molloy@santacruzcounty.us>
Subject: CKD Pile in Davenport

Hi Kathy,

I am a resident of New Town in Davenport. It is very exciting to hear about plans to take care of the CKD pile. However there is some concern about the proposal and key missing information.

I strongly agree with their points as noted below on the Plant Mitigation Study done by the DNCA and Noel.

1. There has been insufficient notification of the local residents to allow careful study and timely comments. DNCA strongly urges an extension of the comment period to allow sufficient public input. I am requesting an extension of at least 30 days to allow our community to assess the impact of this activity likely to affect us.
2. There has been insufficient assessment of material to be cleaned up. I have lived here for 5 years and seen plenty of tarp, plastic and other debris flying away in the 30+ knots of breeze we see here in Davenport.
3. As stated in section 2, our winds can be unruly here and based on what time of day and what time of year, wind models could be inaccurate. There is a reason we are known as the windsurfing capital of the world. I would like to suggest a cap of 10 knots of wind in order to contain the debris that floats down on Davenport. I was not a resident when the Cement plant was in operation but I have heard horror stories of cars being covered in cement dust and would hate to see something like that happen again especially considering the legal battle that ensued causing Cemex to compensate residents and provide car covers. It would be unfortunate to see history repeat itself.
5. Dust mitigation plan. We have an elementary school and the heart of the town downwind of these operations. The health of residents would be best protected with proper watering prior to removal of the debris.

We would love to see this project in action along with addressing our concerns for the health and wellness of our community and environment.

Thank you so much,

Maria Fernandez
9 1st Ave
Davenport

David Carlson

From: Kathy Molloy
Sent: Saturday, December 19, 2020 12:21 AM
To: David Carlson
Subject: Fwd: Davenport CKD pile cleanup

Begin forwarded message:

From: Melissa Sullivan <scboardrider@gmail.com>
Date: December 18, 2020 at 9:17:47 PM PST
To: Kathy Molloy <Kathy.Molloy@santacruzcounty.us>
Subject: Davenport CKD pile cleanup

Hello Kathy,

My name is Melissa Sullivan and I am a resident of New Town, Davenport. It has come to my attention that there is a severe lack of information associated with the proposed cleanup of the CKD pile on the Cemex property. I can literally see it out of my kitchen window so as thrilled as I am that it is going to be cleaned up, I am concerned with the process being dangerous for our residents.

I have read over the comments on the Plant Mitigation Study done by the DNCA and Noel and strongly agree with their points as noted below.

1. There has been insufficient notification of the local residents to allow careful study and timely comments. DNCA strongly urges an extension of the comment period to allow sufficient public input. I am requesting an extension of at least 30 days to allow our community to assess the impact of this activity likely to affect us.
2. There has been insufficient assessment of material to be cleaned up. I have lived here for 5 years and seen plenty of tarp, plastic and other debris flying away in the 30+ knots of breeze we see here in Davenport.
3. As stated in section 2, our winds can be unruly here and based on what time of day and what time of year, wind models could be inaccurate. There is a reason we are known as the windsurfing capital of the world. I would like to suggest a cap of 10 knots of wind in order to contain the debris that floats down on Davenport. I was not a resident when the Cement plant was in operation but I have heard horror stories of cars being covered in cement dust and would hate to see something like that happen again especially considering the legal battle that ensued causing Cemex to compensate residents and provide car covers. It would be unfortunate to see history repeat itself.
5. Dust mitigation plan. We have an elementary school and the heart of the town downwind of these operations. The health of residents would be best protected with proper watering prior to removal of the debris.

I know how hard it is to make everyone happy in matters like these but we're a small town of very loyal and caring residents and we've already dealt with a lot this year from Covid to the fires and potentially mudslides this winter. It would be nice to see things go smoothly in this

operation with a little careful planning and we would all be eternally grateful for your kindness. This is our home and we would greatly appreciate it if you could remember that when considering how to go forward with this proposal.

Thank you for your consideration,
Melissa Sullivan
Resident at 6 3rd Ave., Davenport, CA, 95017
831-251-2526

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2

David Carlson

From: David Carlson
Sent: Tuesday, December 22, 2020 3:07 PM
To: David Carlson
Subject: FW: Davenport North Cement Kiln Dust Closure Project #28372

From: Noel Bock <ngbock@icloud.com>
Sent: Thursday, December 3, 2020 12:02 PM
To: Kathy Molloy <Kathy.Molloy@santacruzcounty.us>
Subject: Davenport North Cement Kiln Dust Closure Project #28372

Planning Director Kathy Molloy,

We were surprised to hear about the Cement Plant CKD Closure Plan Public Comment Period ending tomorrow. We request the community of Davenport, NewTown and Pacific Elementary School be notified of updates on the planning for this mitigation operation. We have not seen any notification except by searching the Planning Department website.

After Supervisor Ryan Coonerty held the CKD Q&A meeting in February 2017 for the Davenport community, the Regional Water Board stated:

… If allowed to remain in place, it is expected that the North CKD Area will be regraded to mimic the adjacent sloping hilly terrain to make it easier to construct an engineered final cover. Although to a lesser extent, this work will also result in potential fugitive dust and greenhouse gas emissions that will need to be mitigated via oversight by other agencies.
…The Final Closure Plan is also required to include an assessment of the Retention Pond and associated drainages, including characterization of the sediments, and a corrective action plan as needed to mitigate any water quality threats.

- We request the Davenport North Coast Association (DNCA) be notified what agency(s) will be monitoring fugitive dust, gas emissions, and water quality during and after this mitigation.
- We request the DNCA be notified of the mitigation timeline.
- Since we were not told about the Cement Plant CKD Closure Plan Public Comment Period, would it be possible to extend the deadline beyond tomorrow 12/4?

Thank you,
Noel Garin Bock
Davenport North Coast Association
ngbock@icloud.com
831-332-0646 cell

David Carlson

From: Noel Bock <ngbock@icloud.com>
Sent: Thursday, December 3, 2020 2:58 PM
To: Kathy Molloy
Cc: David Carlson; Rachel Dann; Brian McElroy
Subject: Re: Davenport North Cement Kiln Dust Closure Project #28372

Kathy,
Thank you for you quick response and for extending the deadline.
Board member, Brian McElroy, would like to take advantage of the opportunity to meet with David Carlson to better understand the affects especially on NewTown. He will be in touch with you.

None-the-less, I would like to forward you the comments made by a board member for your consideration.

DNCA Draft Comments on Cement Plant Mitigation Study/Plan

The DNCA and local community only became aware of this plan on 12/3 – the day before comments were due. This late notification precludes any sort of careful analysis or input. However, DNCA distributed the plan to a limited number of residents living adjacent to the mitigation site (Old Town and New Town Davenport) as well as the Pacific Elementary School Superintendent and some School Board Members. A summary of our rapidly-accumulated comments from this group of local stakeholders include:

1. There has been insufficient notification of the local stakeholders (residents, businesses, local school) to allow careful study and timely comments. DNCA strongly urges an extension of the comment period to allow sufficient public input.

2. There has been insufficient assessment of the characteristics of the material to be mitigated. The CKD pile has been covered for years with a combination of petroleum-based plastic tarping and used tires. What is the potential for this material to become suspended during operations, what are the potential health effects, and will they be properly mitigated? The consultants do not mention dust and control of dust from the degraded plastic sheeting that is disintegrating atop the CKD pile. Which becomes air born and rains down on the town of Davenport.

3. There has not been a direct analysis of the CKD material. It appears instead that an analysis of similar material from another location has formed the basis of the prediction of the physical quality of the material likely forming dust during operations. This is inadequate as particle sizes and composition is likely different at the RMC site in Davenport compared to the material presented in the analysis.

4. The data on wind are severely outdated (climate models are showing intensification of NW winds in the Central California coastal region), based upon a location that does not represent what will be present at the mitigation site (the wind-protected “schoolhouse” site rather than the actual mitigation site), seasonally incorrect (Summer/Fall rather than Spring) and taken from an anomalous year (La Nina – 1998). It is well established that the strongest and most consistent winds occur in the area in the Spring between March and June. However, the wind data used in the analysis was from the LEAST windy period in the region (June-November - Summer/Fall). We understand the mitigation effort will occur during the Spring season (April-October). Specifically, the consultants do not use the best available science for background wind data. The data they cite are from 1998 (a strong La Nina year which has been associated with lower

wind velocities in our area) and from non-overlapping window of months of the proposed activity: 6/13-11/20/1998 vs 4/1-10/31 (see attached from Appendix 5 Table 2-1 and Figure 2-6). Indeed, these old data appear to be cherry picked (**only 4 DAYS** with winds over 15mphs during the entire time) - suggesting little potential impact on the Town of Davenport. We are all familiar with predominant NW daytime wind direction especially during the spring April 1 - Oct 31. More representative wind data should be used.

5. Dust mitigation plan. We have an elementary school downwind of these operations. The health of school students, teachers, and residents would be best protected with an adaptive management operations protocol where work occurs outside of high wind events with appropriate onsite dust mitigation (water hoses) not just on roads but on active operations where soil is scraped, dumped and transported. Our experience when CEMEX removed the Ball Mill was that there was significant fugitive dust that impacted the town of Davenport. Indeed, the work was conducted during some of the windiest days of that season. The structures that were removed contained significant amounts of dust and contained signage that said "Caution - Respirator Required for Entry". The contractor did not use hoses to water down the site to control dust. The trucks leaving the site were not tarped and billowed dust from Davenport all the way to the recycler's yard in South County. There were no monitoring stations. I could visually see the dust in the air, in our home, and feel it in my mouth and lungs. We are fearful of a similar scenario developing under this plan with inadequately defined timing and dust mitigation procedures.

6. Our understanding based upon our read of the process and requirements is that properties considered "contiguous" we should be notified of the process and plan with opportunity for comment. None of the Davenport residents contacted by the DNCA had received nonfiction of the plan. This seems to violate the regulatory requirements of the process.

As mentioned above, these comments have been developed with the most cursory review of the proposal due to the inadequate prior nonfiction. We respectfully request an extension of 30 days to allow our community to more fully assess this important and impactful activity likely to affect the quality and health of our community, school, and businesses

Thank you for your time,
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