
APPENDIX G
LETTERS

NORMAN S. BRAITHWAITE, INCORPORATED
1050 WEST STREET
REDDING, CA 96001
PH: 530.245.0864 FAX: 530.245.0867

June 19, 2000

Chris Stabenfelt
Pacific Municipal Consultants
10461 Old Placerville Road, Suite 110
Sacramento, CA 95827

Re: Eastside Aggregates EIR, Peer Review.

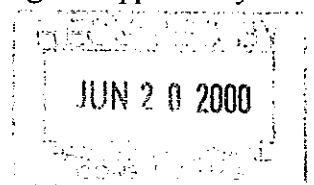
Dear Chris:

Norman S. Braithwaite, Incorporated has completed a cursory review of the proposed project and environmental documents. This review has been conducted for the purpose of avoiding oversights related to storm drainage and flood risk. A site visit has been conducted and documents including a project description prepared by Pacific Municipal Consultants, the Eastside Aggregates Reclamation Plan and a letter report by Dr. John H. Humphrey, Ph.D., P.E. regarding storm drainage and flood risk have been reviewed. No new analysis has been conducted. Concerns are described below.

Overflow from Burney Creek:

As discussed in the letter report by Dr. Humphrey and subsequently in other documents, during floods of approximately 10-year and greater recurrence flows are believed to leave the Burney Creek channel in the vicinity of the historic ranch diversion structure and flow in an easterly direction. That portion of these flows capable of being conveyed under State Route 89 (SR-89) through a small culvert and any portion that may be conveyed over SR-89 during very significant floods arrive on the project property. It has been suggested that the first 20- to 30-feet of historic diversion ditch be filled to reduce the opportunity for overflow to reach the project property. It is also noted that removal of the historic diversion structure is not believed to reduce the opportunity for overflow.

Based on observations of the historic diversion structure, historic ditch and topography between Burney Creek and SR-89, the historic diversion ditch is completely ineffective for conveying flood flows to the SR-89 culvert. Historic alternate flow channels and drainage swales, however, were observed and believed very capable of conveying flood water to the SR-89 culvert as has most likely occurred during infrequent floods prior to construction of the diversion structure and ditch. Filling the first 20- to 30-feet of the ditch is not likely to be effective in reducing the opportunity



for flood water to reach the SR-89 culvert. This is because overflow is most likely related to topography rather than the presence of the ditch and because a portion of the flood water reaching the culvert is from local drainage from a basin of approximately 4-square miles (between Burney Creek, SR-89 and State Route 299E). Building a levee or berm type structure set back from the east bank of Burney Creek may be effective in reducing the opportunity for overflow from Burney Creek during infrequent flood events but will not prevent local drainage from reaching the culvert. Given the limited flows entering the project property in the vicinity of the SR-89 culvert, it may be more prudent to accommodate these flows on the project property (provide drainage facilities to the north along the east side of SR-89) than try to reduce the opportunity for these flows to reach the project property (with uncertainties).

Local Drainage:

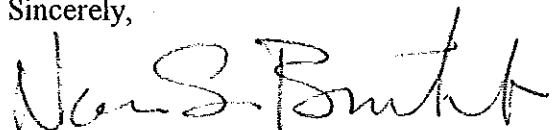
The project as proposed includes retention basins to accommodate all runoff expected from the developed project site during a 100-year storm. The retention is not proposed to accommodate potential runoff from approximately 2-square miles of basin on upstream properties (south of proposed project to State Route 299E). There are no obvious natural drainage channels from the upstream properties but according to the Reclamation Plan, soil types have "moderately slow permeability and slow to medium surface runoff" and runoff from upstream properties may occur as sheet flow during infrequent storms. The potential for this runoff should be evaluated and if significant conveyed to the north by drainage facilities or accommodated in the design of the retention basins.

Flood Risk:

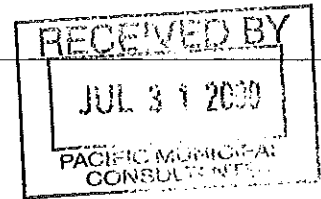
Provided that upstream surface drainage including flow from the SR-89 culvert area is properly accommodated considering backwater conditions from downstream of the site, the proposed project should be protected against flood damage during the most probable 100-year flood. The project as proposed (with full retention of runoff from developed project areas during the most probable 100-year storm) will not increase the risk of damage to downstream structures (east of SR-89) during floods up to and including the most probable 100-year flood.

Structures west of SR-89 and north of the project are not downstream of the project site. Therefore, unless modifications to the historic diversion structure or along the east overbank of Burney Creek are included in the project, the existing flood risk at these structures will not be changed by the proposed project. Removal of the historic diversion structure and/or placement of an embankment set back from the east bank of Burney Creek *may* reduce the flood risk for these structures related to Burney Creek overflow but not due to local drainage.

Sincerely,



Norman S. Braithwaite, P.E.
Civil Engineer



July 28, 2000
File: 26-2730-01

Mr. Chris Stabenfeldt
Pacific Municipal Consultants
10411 Old Placerville Road, Suite 210
Sacramento, California 95827

**Subject: PEER REVIEW OF SUPPORTING DOCUMENTATION
FOR ENVIRONMENTAL IMPACT REPORT
EASTSIDE AGGREGATES AND
HAT CREEK CONSTRUCTION PROPERTY
SHASTA COUNTY, CALIFORNIA**

Dear Mr. Stabenfeldt:

Kleinfelder, Inc. is pleased to present this summary of our peer review of selected supporting documentation prepared for an Environmental Impact Report (EIR) for the referenced project in Shasta County, California. Our review and this report has been prepared in accordance with our agreement dated June 23, 2000.

INTRODUCTION

We understand that the Shasta County Department of Resource Management, Planning Division is preparing an EIR for Zone Amendment 99-05, Use Permit 99-17 and Reclamation Plan 99-01, "Eastside Aggregates and Hat Creek Construction". Necessary to the preparation of this EIR, Pacific Municipal Consultants (PMC) has requested a review of completed studies and opinions for validity and completeness. This proposal has been prepared for review of the geologic hazards studies and opinions prepared for this project. Per your recent request, review of hydrologic and surface water quality issues, as originally proposed, was eliminated from Kleinfelder's project scope.

SCOPE OF WORK

Kleinfelder's proposed project scope entailed the following three tasks:

1. Site Visit and Data Review;
2. Review of Previous Studies and Opinions; and,
3. Preparation of this letter report.

In addition, PMC has requested that Kleinfelder respond to Shasta County's comment to the administrative EIR regarding the influence of rock blasting by the proposed mining operation upon groundwater aquifer hydraulics or water quality beneath the site.

DESCRIPTION OF SITE AND PROPOSED MINING PROJECT

Aspects of the project pertaining to our peer review are described below. The project is divided into two levels. The lower level is relatively flat and comprises the majority of the site. The upper level is a mesa which stands east of the lower level. The boundary between the two levels is a steep slope which is partially covered by basalt talus. Historical uses of the property, beginning in 1955, have been related to lumber processing. Site development has included construction of an equipment repair shop and sawmill, which included a large log pond. Three shallow depressions which contained water at the time of our site reconnaissance (May, 2000) are located east and south of the former log pond.

The following information regarding the mining operation was obtained from the Project Description dated March 2000. The project applicant, Hat Creek Construction, proposes to operate a rock quarry, a crushing and screening operation, a concrete batch plant and an asphalt plant on approximately 85 acres of the property. The quarry will mine basalt rock from the west-facing escarpment which rises approximately 70 feet above the valley floor. Mining will be staged in three phases (Phases I, II, and III), starting with Phase I at the south end of the escarpment, progressing northward along the escarpment and ending in the Phase III area at the northeast corner of the property. The mine will entail development of a flat quarry floor and highwall with a 1:1 slope. Development of the highwall will shift the rim of the escarpment 200 to 500 feet eastward. A total of 900,000 cubic yards of usable material would be mined during the quarry's projected 30-year life. A bulldozer would rip the rock where feasible. The remaining rock would be blasted and moved to a processing area with the bulldozer. The rock

would be processed into a variety of products including: aggregate base, drain rock, asphaltic concrete, concrete aggregate, and riprap.

RESULTS

Site Reconnaissance and Data Review

Kleinfelder conducted a site reconnaissance on May 12, 2000 to become familiar with geologic conditions on and in the vicinity of the proposed project. Kleinfelder conducted reconnaissance-level traverses of the retention basin dike, existing pond, and rock slopes of the proposed three quarry phases. A copy of our field reconnaissance map showing the observed features is attached. Prior to our visit Kleinfelder reviewed geologic maps and site plans of the proposed quarry. The rock type along the escarpment and underlying the site is mapped as Pleistocene basalt (Lydon, P.A., T.E. Gay, Jr., and C.W. Jennings, California Division of Mines and Geology, Geologic Map of California, Westwood Sheet, 1960). A western member of the Hat Creek Fault runs north-south along the base of a west-facing 80-foot high escarpment at the east side of the property. The escarpment is within an Alquist-Priolo Earthquake Fault Zone as depicted on the State of California Special Studies Zones, Cassel Quadrangle, Preliminary Review Map of May 1, 1991. Approximately three miles to the west, another normal fault along an east-facing escarpment known as Rocky Ledge forms the western boundary of the Burney Creek valley. The two faults form the east and west boundaries of the Burney Creek valley.

Mining will be staged in three northward-progressing phases. The scarp face along the Phase I and II mining areas was 70 to 80 feet in height. The scarp was covered with fresh, angular scoriaceous basalt talus varying in size from six inches to greater than 6 feet. The talus slope angle was 1-1/4:1 to 1-1/2:1 (horizontal: vertical) (40 to 50 degrees from horizontal). In the Phase III area, fresh columnar jointed basalt was exposed in several areas where historic quarrying appears to have occurred. A stratigraphic sequence of several flows with thicknesses greater than 10 feet was observed. Fracturing was tighter at the base and top of the flow exposed nearest the toe of the escarpment. A bulldozed cut at the top of the bluff near the southeast property corner revealed a 4-foot thick layer of colluvial soil consisting of gravelly clay with cobbles.

The former log pond was dry and covered with tall weeds growing through an accumulation of decomposed bark and organic material. A passable dirt road was on top of the earthen dike which surrounded the pond.

Standing water was observed in two narrow depressions formed by enclosed drainages east of the former log pond dike, and in a deeper pond at the south end of the former log pond. These depressions, and the escarpment, are possible indications of the presence of a fault younger in age than the basalt. Exposed Holocene (< 11,000 years) offsets of geologic materials that would indicate recent fault displacement were not noted in our site reconnaissance or aerial photo review.

The water level in the pond was approximately eight feet below the surrounding ground surface. This water level coincides with the expected depth to groundwater beneath the site. No flowing water was observed.

Review of Previous Studies and Opinions

Kleinfelder reviewed previous studies and opinions in light of observed geologic conditions and best available data. Document review was limited to the following "Special Studies" documents listed in the RFP:

1. Aerial photograph showing the location of wetlands on the project site, submitted by Hat Creek Construction (Special Studies document No. 3).

Kleinfelder viewed this map in a meeting with Shasta County on March 10, 2000. The observed features were represented without substantial change from conditions as observed in our May 12, 2000 site reconnaissance. Evaluation of wetlands and hydrologic features were not within the project scope.

2. Reclamation Plan for Eastside Aggregates, prepared by The Land Designers of Redding and Miller Engineering of Anderson, CA, dated July 1999 (graphic only) (Special Studies document No. 4).

Kleinfelder reviewed the Reclamation Plan map and portions of the Reclamation Plan text for consistency with the map.

The Reclamation Plan map shows the proposed reclamation measures within an 85.48-acre area within the eastern portion of the site. The reclamation area does not include the shop or office areas which are located in the western portion of the site. The Reclamation area is labeled "Industrial Site". The text states that this designation is consistent with the zoning designated by the Shasta County General Plan. The boundary designates the enclosed drainages and northern portion of the former log pond as "non-disturbance areas". Proposed

revegetation with pines is shown along a 410-ft long by 50-ft wide by 10-ft high berm west of the former log pond. Revegetation of the toe of the finished mined slope with pines is also proposed. A permanent benchmark is shown at the northeast corner of the concrete slab of the former log mill building. The map was consistent with the text of the Reclamation Plan.

3. Letter from Fred R. Nagel, C.E., of NTS Engineering Inc., of Susanville, CA, dated January 4, 1996, regarding site engineering geology (Special Studies document No. 8).

Mr. Nagel describes the rock type, various slope angles, and height of the slope from the valley base to top of the mesa. The occurrence of fractures that form blocks typical of lava flow geology is discussed. Mr. Nagel states that rock is jointed horizontally and vertically resulting in "block" shaped units. Mr. Nagel recommends cutting slopes no steeper than 3/4:1 (horizontal: vertical) "to allow for random rock fallouts from weathering and seismic actions". He further recommends rounding back the topsoil horizons at the tops of the cuts to a 2:1 slope, and laying back slopes in zones of unstable loose rock or soil-rock mixtures at 1-1/2:1.

Kleinfelder concurs with Mr. Nagel's letter, but feel that the potential for localized slope instabilities due to the heavily jointed bedrock should be commented on by James Cooksley, the engineering geologist with Cooksley Geophysics. We further recommend that the slope stability conditions of rock and soil slopes be periodically evaluated by a qualified professional engineer or certified engineering geologist as the mining operation progresses.

4. Letter from James W. Cooksley, C.E.G. of Cooksley Geophysics of Redding, CA, dated January 9, 1996 regarding the potential for seismic activity on the site (Special Studies document No. 9).

The State of California Special Studies Zones, Cassel Quadrangle, Preliminary Review Map of May 1, 1991 depicts an approximately 600-foot wide Earthquake Fault Zone centered on the proposed mine escarpment. Mr. Cooksley states that "no evidence of geologically recent movement was observed along the escarpment of the quarry site", and that "the rock is generally massive and should remain stable at a slope of 3/4:1". In another letter dated January 26, 1996, Mr. Cooksley recommends that "any permanent buildings be situated as depicted on the Preliminary Review Map". The map shows the nearest building approximately 600 feet west of the escarpment, approximately 300 feet west of the Earthquake Fault Zone boundary.

Kleinfelder contacted Perry Wong, Geologic Aid at CDMG on July 21, 2000 to determine the basis for designation of the Earthquake Fault Zone described in FER-209. This report was used as the basis of the State of California Special Studies Zones, Cassel Quadrangle, Preliminary Review Map of May 1, 1991 in the site vicinity. Mr. Wong related that the designation of the earthquake fault zone is based on two features: 1. A lineament of talus along the steep scarp within a Pleistocene-age basalt; and two closed drainages along the base of the scarp. The former log pond has "artificially enlarged" the northern enclosed drainage. The second enclosed drainage is located in the southeast corner of the property. These enclosed drainages are the narrow depressions and pond observed during our site reconnaissance.

Mr. Cooksley states that the rock is generally massive and should remain stable at a slope of 3/4:1. We request that James Cooksley comment on the horizontal and vertical joints creating "block" shaped units as they relate to potential localized slope instability. These features were noted by Fred Nagel with NTS Engineering, but we feel an engineering Geologist should address them.

During our site reconnaissance, Kleinfelder did not observe offset geologic materials, but did observe enclosed drainages at the base of the Phase III escarpment. Therefore, we are in agreement with FER-209 that the wet enclosed drainages in proximity to the talus escarpment may indicate the presence of an active fault. We concur with Mr. Cooksley's recommendations. Should the applicant desire to know the actual location of the fault to develop more precise setbacks, Kleinfelder recommends that the applicant hire the services of a qualified engineering geologist to perform a fault trench study.

Response to Shasta County Comment to the Administrative Draft of the EIR

In their letter dated June 22, 2000 commenting on the Administrative Draft of the EIR, Shasta County Planning Department requested an "analysis of the impact of blasting on the aquifer which flows toward Burney Falls, as per Initial Study section VIII b)." Based upon our experience with hard rock mining operations and review of the available geologic literature for the site vicinity, the zone around blast holes with energy sufficient to fracture the rock is localized to within a few feet of the charge. Depth to groundwater beneath the site is approximately 15 feet (CH2M Hill, Hydrogeologic Investigation at Louisiana-Pacific Lumber Mill, Burney, California, November 4, 1986). Therefore, it is highly unlikely that blasting would influence fracture densities or aperture widths at depths sufficient to affect groundwater flow. Should influences occur, they would be highly localized along the quarry face.

LIMITATIONS

Recommendations contained in this report are based on our field observations, limited review of available documents, and our present knowledge of the project. If site conditions are encountered which differ from those described herein, we should be notified immediately in order that a review may be made and any supplemental recommendations provided. If the scope of the proposed project changes from that described in this report, our findings should also be reviewed.

We have prepared this report in substantial accordance with the generally accepted geotechnical and geologic engineering practice as it exists in the site area at the time of our study. No warranty is expressed or implied. The recommendations provided in this report are based on the assumption that an adequate program of tests and observations will be conducted by Kleinfelder during the construction phase in order to evaluate compliance with our recommendations.


This report may be used only by the client and only for the purposes stated, within a reasonable time from its issuance. Land use, site conditions (both on site and off site) or other factors may change over time, and additional work may be required with the passage of time. Any party other than the client who wishes to use this report shall notify Kleinfelder of such intended use. Based on the intended use of the report, Kleinfelder may require that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the client or anyone else will release Kleinfelder from any liability resulting from the use of this report by any unauthorized party.

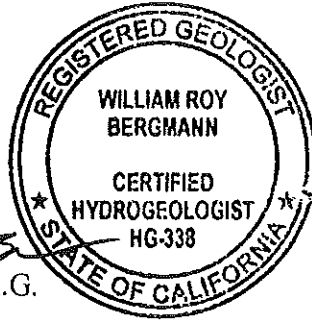
CLOSING REMARKS

We appreciate the opportunity to submit this proposal and look forward to working with you on this project. If you have any questions or need additional information, please contact the undersigned at (916) 244-7203.


Sincerely,

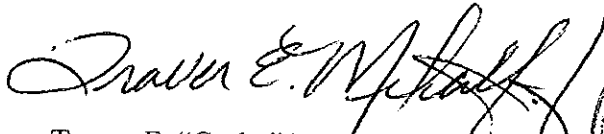
KLEINFELDER, INC.


Bill Bergmann, R.G., C.H.G.
Project Geologist



Reviewed by:


Kris Johnson, C.E.G.
Engineering Geologist


Traver E. "Corky" Metcalf, Jr., R.E., C.E.
Area Manager



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