

Exhibit C

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**FINAL EIR FOR THE
ROCKY CREEK RANCH
LOT LINE ADJUSTMENT**

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GEOLOGY

In early 1989, a geotechnical study was prepared that provided information on ~~all~~ Lots. ~~6, 8 and 9~~. In June 1989, Geoconsultants, Inc. prepared another report based on a geologic reconnaissance of what is presently Lot A. The purpose of this report was to determine if any geologic conditions exist on the lot that would pose a threat to adjacent public or private lands. Lastly, Geoconsultants, Inc. provided the applicant a report on the geotechnical feasibility of a driveway for Lots 1 and 8. Proposed building envelopes discussed in this EIR are partially the result of the geotechnical analysis provided in these reports which are included in Appendix B.

Environmental Setting

The Rocky Creek Ranch property is located in the northern Santa Lucia Range, on the south side of Palo Colorado Canyon. Slopes in the area are steep with deeply incised drainages. Since the site is located in a drainage divide, runoff flows to Palo Colorado Creek to the north and Rocky Creek to the south. The Rocky Creek Ranch essentially occupies the hilltop area and adjacent side slopes of a northwest trending ridge. The property is characterized by gentle (less than 3 degrees) to flat topography along the ridge line, to locally precipitous slopes in the flanks with slopes exceeding 30 percent. Total relief across the property is over 1000 feet and ranges from a low of about 400 feet along Palo Colorado Road to approximately 1500 feet on potential lot 6. (Geoconsultants, Inc., Preliminary Geotechnical Study, February 1989).

The bedrock materials that underlie the site are overlain by a discontinuous blanket of soil, colluvium and locally minor amounts of landslide debris. The soil and colluvium can be variable in thickness and range from a few inches along the ridgetop to several feet or more on side slopes.

Evidence of landsliding on the proposed site has been observed at a few locations, but is rare within the property. Though soil cover of the site may erode or slump off of the steep slopes, the underlying bedrock in the vicinity appears relatively stable. (Ibid.)

Seismic Setting

Rocky Creek Ranch, as part of the Santa Lucia Range, is within a region of moderate to high seismic activity. The major active faults in the region are the San Andreas, lying approximately 40 miles to the northeast, and the Hosgri-San Gregorio, which trends offshore along the central California coast. The Palo Colorado Fault traverses the property.

Of the faults mentioned, the San Andreas and Hosgri-San Gregorio appear to be capable of generating the largest earthquakes. Because the area around the site is relatively undeveloped, little historic data on earthquake effects is available. With a Richter magnitude estimated at 8.3, the 1906 earthquake was the largest in northern California in recent history. Other historic earthquakes with smaller magnitudes on nearby faults have occurred, and undoubtedly caused shaking at the site. The October 17, 1989 earthquake registering 7.1 on the Richter scale occurred at Loma Prieta, Santa Cruz County.

Potential earthquake hazards may generally be divided into three categories; faulting, shaking and seismically induced landsliding. Based upon geologic reconnaissance mapping, all building sites are situated far enough away from all known faults considered to be significant (i.e., the Palo Colorado or the fault that separates the sandstone from the Sur Series) that the risk associated with faulting is judged to be low. (Ibid.)

According to a 1977 Map Showing Earthquake Intensity Zonation and Distribution of Quaternary Deposits in Monterey County (McCrory and others, U.S. Geological Survey Map MF-903), the proposed project could experience ground shaking approximately equal to Modified Mercalli intensities of IV-V in the event of an earthquake on the San Andreas Fault with a Richter magnitude of 8.3. In the event of an earthquake on the Hosgri Fault of a magnitude of 8, the property might be subjected to Modified Mercalli intensities of about IX. High ground shaking intensities could be a triggering mechanism for earthquake induced landsliding. Given the nature of the bedrock in the area and the location of the proposed building sites, the risks associated with earthquake induced landsliding are low. That is, raveling of loose blocks and minor failures of cutslopes could occur, but it would probably only be a temporary inconvenience.

In reference to earthquake shaking, the proposed structures shall be designed and constructed so as to withstand, within an acceptable level of damage, earthquake shaking, in accordance with the latest version of the Uniform Building Code (UBC).

Impacts and Mitigation Measures

Impact: Future structures and roadways may be subject to earthquake related damage relating to groundshaking, landsliding and surface rupture.

Lot 1 is located near the top of a northwest trending ridge. The ground surface within the building site slopes gently (8 degrees) to the southwest. The site is underlain by bedrock of the Sur Series and probably includes marble. The overlaying soil cover is estimated to be thin (less than 3 feet). There are no suspected problems with driveway access. Based on the geotechnical assessment prepared for the Rocky Creek Ranch, the potential building site is suitable for development. The presence of marble suggests that excavation work at the site could be difficult but not insurmountable if this rock type is encountered.

Lot 2 is located on a small knoll. Slope inclinations through the building site are gentle (4-9 degrees). It is underlain by rocks of the Sur Series intruded by quartz diorite. Soils are thin; less than three feet. There are no suspected problems with driveway access. Based on the geotechnical assessment prepared for the Rocky Creek Ranch, the potential building site is suitable for development. If the quartz diorite or other rocks are not weathered deeply, difficult excavation conditions might be encountered.

Lot 3 is located on a northeast trending ridge. Slope inclinations through the site are gentle (6-7 degrees), but steep to moderate (14 degrees) on the flanks. It is not anticipated that there will be any problems with access to the site, as it can currently be reached by an existing roadway. Based on the geotechnical assessment prepared for the Rocky Creek Ranch, the potential building site is suitable for development.

Lot 4 is located on a northeast trending ridge. Slope inclinations through the building site are gentle (5 degrees); off the flanks they vary from gentle (5 degrees) to moderately steep (10 degrees). The site is underlain by sandstone bedrock and soil cover is thin, less than three feet. The bedrock is jointed and weathered, therefore, excavation should not be difficult.

The only minor concern is control of runoff from the proposed access road. The road will need to be carefully designed so as not to concentrate too much runoff at discharge points. Control of runoff after it is directed off the road will also be important. Runoff control at the project site is discussed further in the hydrology discussion. Based on the geotechnical assessment prepared for the Rocky Creek Ranch, the potential building site is suitable for development.

Lot 5 is on a short northeast trending ridge. Slope inclinations through the site are moderately steep (10-15 degrees). The site is underlain by sandstone and the soil cover is very thin (0 to less than 3 feet). No problems are anticipated with driveway access to the site. The sandstone is well fractured and broken, therefore, excavation should not be difficult. Based on the geotechnical assessment prepared for the Rocky Creek Ranch, the potential building site is suitable for development. Based on the geotechnical assessment prepared for the Rocky Creek Ranch, the potential building site is suitable for development.

Lot 6 is located on a subtle northwest trending ridge with gentle (3 to 9 degrees) slopes. It is underlain by rocks of the Sur Series, including marble. Aside from the presence of marble which could make excavation work difficult, according to the geotechnical consultant, the site is relatively free of geologic and soils engineering concerns and is considered suitable from a geotechnical standpoint.

Lot 7 is located in a relatively flat northwest trending ridge. Slopes within 100 feet of the site are moderately steep (14 degrees) to steep (20 degrees). Sandstone is the underlying bedrock and soils are estimated to be thin (less than 3 feet). Just to the southwest of the site the sandstones are in contact with Sur series rocks. There are no anticipated problems with driveway access. According to the geotechnical consultant, the proposed site is suitable from a geologic and soils engineering point of view.

Lot 8 is located on the north-facing slope of a generally east-trending ridge. It is characterized by moderately steep (12 degrees) slopes. The site is underlain by sandstone and the soil cover is estimated to be thin (less than three feet). No problems are anticipated with driveway access to the alternative site. According to the geotechnical consultant, the proposed site is suitable from a geologic and soils engineering point of view.

Lot 9 is situated in the upper reaches of a southwest trending swale. Slopes across the site are moderately steep (10 degrees), but become steep (18 degrees) upslope from the site. The site appears to be underlain by schist of the Sur series and the overlying soils are estimated to be thick (greater than three feet). The site is located on a draw near the confluence of two drainages. Minor gullying was noted downslope from the site. The southeast corner of the proposed site is located almost in the middle of one of the drainages, the southern most swale. Because the site encroaches on the drainage axis of the southern swale there exists the potential for problems to develop with respect to runoff that concentrates in this swale. The amount of runoff and severity of the problem are difficult to estimate, but could result in flooding or damage to the foundation of a structure if constructed outside of the proposed building site. In addition, the driveway will require some design work to ensure runoff is properly controlled.

According to the geotechnical consultant, the proposed site is suitable from a geologic and soils engineering point of view, provided the following items are taken into account during planning and design. The actual location of the structure should be moved uphill to get the southeast corner out of the access of the drainage swale. The drainage around the structure, including the swale and driveway, shall be carefully designed to guard against erosion, gullying and possible flooding of the structure and vicinity.

After further examination of the site by Geoconsultants (May 26, 1989), suitable foundation materials were found to be present at depths of about 6 feet. However, a low

berm should be placed on the north side of the drainage swale, between the swale and the proposed residence to protect the residence foundation from potential erosion.

Site 10 is located on a northwest-trending ridge. Slopes across the site are gentle (7 degrees). Flanking slopes to the north are moderately steep (15 degrees). It is underlain by Sur series schist intruded by quartz. Soils are expected to be thin (less than 3 feet). There are no anticipated problems with driveway access and according to the geotechnical consultant, the proposed project is suitable from a geologic and soil engineering point of view.

All future structures shall be located within the building envelopes discussed in this EIR because the geotechnical studies relate to proposed building envelopes only.

All proposed building envelopes have been sited to reflect the concerns outlined in the 1989 Geoconsultants, Inc. reports. All Future development will be required to adhere to the Uniform Building Code (UBC) as it pertains to geotechnical issues. No mitigations are warranted for potential future structures.

Project Roads: The roads of the property are graded, unimproved surfaces. They are in fairly good condition and appear to be somewhat regularly maintained. Cut slopes in bedrock are characterized by over-steepened slopes (60-70 degrees) up to 15 feet high. In colluvium, cut slopes are from three to six feet high and essentially near vertical. Fill slopes range in height from a few feet to an estimate of 10 to 15 feet. Generally, they too are characterized by over steepened slopes (33 to 40 degrees). Cut slopes and fill slopes are graded to inclinations of 26 degrees. The over steepened nature of these artificial slopes suggest that they were not graded under supervision of an engineering geologist or soils engineer, thus they are potentially unstable.

In spite of this condition, cut slopes in bedrock appear to be fairly stable at least along roads that will be used for access. Raveling and minor slumping was observed but evidence for large scale failures was not observed. The fill slopes are somewhat less stable. At many locations along the roads cracking and slumping can be observed. It was also noted that loose soil, generated during recent grading and pushed over the outer edge of the roadway, has accumulated and, in a sense, been retained by the thick chaparral and manzanita. This creates a condition of very steep, unstable slopes of loose soil that will slump away as the vegetation dies or gives away on the pressure of fill. This action will result in minor slumps and failures along the outer edge of the roadways.

Any future roadway construction or pull outs to accommodate potential CDF requirements will traverse an area underlain by Sur series rocks including marble. This excavation of the roadway could be difficult in places. Soils are expected to be thin (less than 3 feet). Locally, roads are gullied and eroded. Water is allowed to flow unchecked over the edge of fill slopes, resulting in erosion of the fill and causing potential maintenance problems.

At a point approximately 1,600 to 1,700 feet along the main road, the roadway is located directly above a PG&E access road and easement. The cutslope of this road is near vertical and has experienced past failures. These failures have resulted in the top of the cut slope almost undermining the outer edge of the main road. Continued failures could have a long term adverse impact on the main access road. The slope is too steep for vegetation to re-establish itself independently.

Coastal Implementation Plan section 20.145.130.D.4d states that a soils report be provided as a condition of project approval. The reports shall be submitted prior to the issuance of building or grading permits. Other regulations of section 20.145.130 are applicable and will be required to be implemented by the applicant.

Mitigation:

1. The potential for failure of a portion of the main road in the area from 1,600 to 1,700 feet from Palo Colorado Canyon Road shall be investigated and remedial measures to stop the damage shall be provided by PG&E. Measures shall include, at a minimum, netting customarily used in stabilizing slopes which shall be staked down onto the surface of the cut slope to create a skin effect. This shall then be hydro seeded with native or naturalized species of grass.

Existing Versus Proposed Lot Line Configuration:

Geologic impacts associated with existing lot line configurations remain the same as for the proposed lot line configuration.

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