



MEMORANDUM

DATE: June 16, 2017

To: Helge Eng
Deputy Director for Resource Management
California Department of Forestry and Fire Protection

FROM: Jacob Lee
Engineering Geologist
California Geological Survey

SUBJECT: Engineering Geologic Review – Timber Harvesting Plan (THP) for
THP 2-16-077-SHA [Cedar Boots THP]

Timber/Timberland Owner:
Oxbow Timber I, LLC

County: Shasta

Quadrangle: Hatchet Mountain Pass
7.5' USGS Quadrangle

CALWATER 2.2 Planning Watershed:
Cedar Creek (5507.330201),
Upper Montgomery Creek (5526.130003),
and Lookout Mountain (5507.330103)

Silviculture: Clearcutting (355 ac.),
Selection (35 ac.), and
Road Right of Way (2 ac.)

Logging Method: Tractor, including end/long
lining; rubber-tired skidder, forwarder,
Fellerbuncher and shovel yarding.

Area: 392 acres

Date of Inspection: June 6, 2017

Participants-Affiliation:
Jeff Webster, RPF
William Blackwell, Roseburg Resources Co.
Richard Klug, Roseburg Resources Co.
Jake Birge, Jefferson Resource Co.
Mathew Boone, CAL FIRE
Shane Edmunds, CVRWQCB
Ronna Bowers, CVRWQCB
David Haynes, DFW
Jacob Lee, CGS

Legal Description:
Sections 14, 21, 22, 23, 27, and 28, T34N,
R01E; Mount Diablo B&M.

Slope: Ranges from horizontal to as much
as 50 percent, with most slopes between
20 percent and 30 percent.

EHR: Low and Moderate

Geologic Concerns: Proposed timber-harvest operations that include reductions in canopy and ground-based yarding may increase rates of sediment delivery to Class I and Class II tributaries to Little Cow Creek and the Pit River.

References:

Dupras, D., compiler, 1997, *Geology of Eastern Shasta County, California*: California Department of Conservation Division of Mines and Geology, OFR 97-103, Plate 1B, scale 1:100,000.

USDA, 2017, Natural Resources Conservation Service, Web Soil Survey, national Cooperative Soil Survey, accessed June 2017, and available at <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>

Aerial Photographs Reviewed:

40°47'28.82"N and 121°49'53.02"W. **Google Earth**. September 26, 2016. Accessed June 5, 2017.

Geologic Conditions:

The THP area is within the headwaters of Little Cow Creek and the Pit River approximately 5 miles east of Round Mountain, California (see THP NOI Map). Elevations within the THP area range from about 4,320 feet above mean sea level (amsl) in proposed harvest Unit 2101 (Section 21) to about 6,020 feet amsl in proposed harvest Unit 2307 (Section 23).

Surface water within the THP area is generally concentrated and conveyed through a network of swales and ephemeral Class II and III watercourses. According to the THP, the majority of watercourses within the THP area are tributary to Little Cow Creek, which is tributary to Cow Creek and the Sacramento River. A minor portion of the proposed harvest area drains to Montgomery Creek, which is tributary to the Pit River.

Published geologic maps (Dupras, 1997) indicate that the THP area lies within the Cascade Ranges physiographic province and is underlain by Pliocene- to Pleistocene-age volcanic andesite flows (Ta). No landslides are shown within the THP area on published geological maps of the region nor were observed in CGS's review of historical aerial photographs of the THP area and vicinity (Google Earth, 2014).

The prominent soil types mapped in the THP area consist primarily of stoney sandy loams (USDA, 2017).

General Observations:

A review of the local geology and soils in the field agreed with available published information (see References). The THP area is primarily underlain by volcanic andesitic flows (Ta) that are overlain with moderate (between 2 and 5 feet in thickness) to thick (greater than 5 feet in thickness) well-drained soils. Slopes within the THP are generally planar and range between 0 to 40 percent, with the majority of slopes less than 30 percent. No mass-wasting features are mapped within the THP nor were observed nor were observed during the PHI.

The THP proposes the installation of several rock-armored crossings and a permanent bridge. Proposed permanent Class I and Class II crossings were observed in the field to be consistent with information provided in the THP. Existing crossings within the vicinity similar to those proposed in the THP were observed during the PHI to be functional with no evidence of failure. As a result of these observations, it appeared that the proposed watercourse crossings would be appropriate for site conditions.

Summary:

The THP appears to adequately describe the existing slope stability and soil erosion conditions for the site and the proposed mitigation measures generally appear to be appropriate for site conditions. CGS's findings were conveyed to the CAL FIRE inspector and were included in the CAL FIRE inspector's report, filed June 14, 2017. CGS has reviewed the CAL FIRE inspector's

PHI report and concurs with the geologically-related observations, conclusions, and recommendations summarized therein. CGS proposes no new or additional mitigations.

Original signed by:

Jacob B. Lee, PG 8865
Engineering Geologist
Redding, California



Concur:

June 16, 2017 *Original signed by:*
Date Donald N. Lindsay, CEG 2323
 Senior Engineering Geologist



Attachments: THP NOI Map

CEDARBOOTS THP
Notice of Intent

Roseburg Resources Company
Map Data Source: RRC GIS Department
Mount Diablo Base Meridian
Map Date: 10/26/2016

