State Department of Geology and Mineral Industries

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INSPECTION OF DEBRIS FILLED STREAM CHANNEL IN EUCHRE CREEK

Lincoln County, Oregon

Introduction

On December 27, 1962, inspection of the bed of Euchre Creek, a tributary of the Siletz River, in sec. 1, T. 9 S., R. 10 W., was made in the company of Mr. William Clothier, Assistant State Fisheries Director, Mr. Thomas E. Kruse, biologist, and Mr. Edward Neubauer, engineer, with the Oregon Fish Commission; and members of the Georgia Pacific Corporation, including their legal consultant, Mr. Thomas Withycomb, and consulting mining engineer, Mr. Leslie C. Richards.

Biologists of the Fish Commission have determined that changes in the bed of Euchre Creek in the SW¼ sec. 1, T. 9 S., R. 10 W., have blocked the passage of fish. They have attributed this to the effects of road construction by the Georgia Pacific Corporation.

The purpose of this inspection and report is to determine the extent of the changes in the stream channel, the causes, and to recommend reasonable remedial procedures which will be consistent with both present and future conditions in the stream bed.

Methods

This report is based upon field inspection of the area and the study of aerial photographs taken in 1952 before extensive road construction and in 1958 after road construction.

Geology

The Coast Range in the vicinity is made up of lower to middle Eocene volcanics and interbedded sediments called the Siletz River Volcanics by Snavely and Vokes (1949). The sediments have been intruded in many places by intrusive bodies of various sizes. According to Snavely and Wagner (1961), Lambert Peak is a large granophyric gabbro intrusive.

Sushre Creek has cut a deep, narrow channel with a fairly steep gradient along the west edge of Lambert Peak. The east wall of the stream is composed of very steeply sloping, massively jointed rock of the Lambert Peak intrusive. The west slope of similar rock is covered by talus part way up to the logging road. The bulk of this material was undoubtedly blasted and otherwise shoved down the steep slopes to the bottom of the canyon during road construction and formed the talus slope. The talus is composed of large angular blocks in part mixed with soil.

Aerial photographs taken in 1952 when compared with aerial photographs taken in 1958 show that between these times a new road was constructed paralleling Sushre Creek and that the relatively large rock cut was made during this time. The slopes show that this rock was dumped over the side of the road into the creek and piled to considerable depth in the stream bottom.

For a period following the dumping of large rock in the stream channel the water apparently flowed through the rock instead of over it except during periods of flooding. A large log and other debris became jammed near the lower end of this rock slope and caused the large boulders in the stream channel to be covered with sand and gravel. Since the normal gradient in this area was about 17 percent over a distance of about 510 feet and the upper 150 feet became alluviated and having been changed to a shallow gradient of only a few percent, the remaining 360 feet has been altered to a slope of about 23 percent with several small waterfalls and rapids.

Recommendations and conclusions

The small waterfalls and the steepened gradient in this area have been formed by large boulders dumped into the stream as a result of road construction. It appears that the stream can be made passable to fish by two main methods: (1) construction of adequate fish ladders, and (2) the restoration of the natural stream gradient. The possibility of logs and boulders brought down during floods and the cost of construction would appear to eliminate the use of fish ladders.

The restoration of the stream channel could probably best be accomplished by proper spreading of the existing rock downstream as far as needed to restore adequate gradient. A study of the volumes of rock involved and the slope of the stream below the rock jam would be needed to determine the scope of the project. This stream modification will need to be made as far upstream as possible to keep the gradient within limits as well as to keep the work at a minimum. I would suggest that this work be flexible in that the best results might be obtained by trial and error. It should be considered that the gravel bed of the stream will change considerably following a season of flooding so that each area where the stream velocity slows will be filled in with sand and gravel.

References

Snavely, Parke D., Jr., and Vokes, H. E., 1949, Geology of the coastal area between Cape Kiwanda and Cape Foulweather, Oregon: U. S. Geol. Survey Map OM 97.

____________________, and Wagner, H. C., 1961, Differentiated gabbroic sills and associated alkalic rocks in the central part of the Oregon Coast Range, Oregon: U. S. Geol. Survey Prof. Paper 424, Short papers in the geologic and hydrologic sciences, p. D-155-161.

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