

COPY

Lincoln

STATE DEPARTMENT OF GEOLOGY AND
MINERAL INDUSTRIES

1069 STATE OFFICE BUILDING
PORTLAND 1, OREGON

May 20, 1964

Mr. Wayne E. Garber
Assistant Director of Engineering
Fish Commission of Oregon
907 State Office Building
Portland, Oregon

Dear Mr. Garber:

Inspection of Waterfalls on Drift Creek

Inspection was made on May 5, 1964, of the several falls in Drift Creek, Lincoln County, Oregon. The lower waterfall is located on the Behannon Ranch in the south-center sec. 29, T. 12 S., R. 9 W. A second waterfall is located upstream about one mile.

Inspection was made to determine geologically the merits of construction of concrete fish ladders at the falls and the feasibility of using gunnite.

Geology. The area is topographically youthful with deep canyons cut into gently dipping Tye Formation composed of hard, impure sandstone beds alternating with shale. Two miles to the southeast of Behannon Ranch is Table Mountain. It is capped by an intrusive of nepheline syenite, a granite-like rock, nearly flat lying and about 350 feet thick. The Tye sandstone and shale have been stripped off most of the area above the sill of syenite.

In the subject area Drift Creek has cut down through a thin alluvial valley fill and is running on nearly horizontal Tye sandstone and shale. The creek is running along the west edge of the valley.

The Tye Formation is unique in that it is extremely widespread and uniform throughout the central third of the Coast Range geologic province. It is composed of sandstone beds ranging from several feet to about 6 or 8 feet thick interbedded with shale beds of a few inches to several feet

thick. A single unit of bedding consists of a basal sandstone grading upwards into fine sandstone, siltstone, and shale at the top. The shale is overlain in sharp contact by the next higher coarse sandstone unit.

With proper excavation of the weathered rock, probably less than one foot, the rock should be firm and adequate for coating with gunnite. It would be advisable to use reinforcing material of some type which can be firmly anchored to the sandstone. If possible, some tests should be made to determine the compatibility of cement with Tye sandstone and shale to establish the nature of the bond or chemical reaction.

The shale interbeds are recognized by their rapid erosion and undercutting beneath the sandstone layers. This shale will require special consideration and perhaps bridging across the shale zone. Reinforcing steel anchored above and below in cement firmly anchored to the sandstone layers should be adequate.

The gunnite could be applied using a simple form which could be left behind the vertical wall.

If you have any further questions concerning this please feel free to call on me.

Sincerely yours,

H. G. Schlicker
Geologist

HGS:lk