Cayuse Pass (National Park Highway) 1998

Western Federal Lands Highway Division

A Glimpse into an Earlier Era

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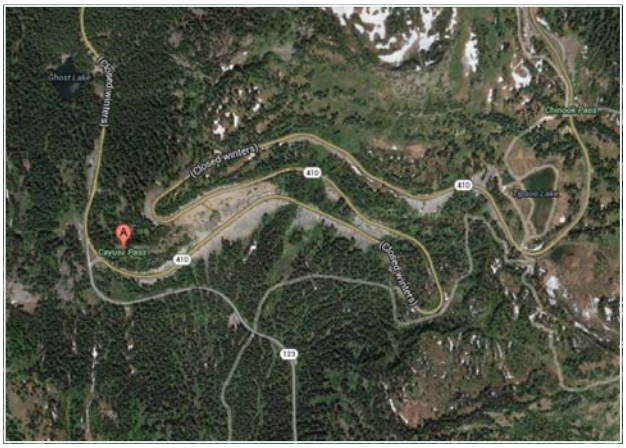
Having a contractor unused to FHWA's work ethic created interesting challenges for Project Engineer Gary Hunter. The fact that it was the first WFLHD project to use metric units provided additional insights.

A few years after completing the east end of the parkway from Chinook Pass, towards Natches, Washington, Gary Hunter returned to Mather Memorial Parkway to work on the stretch between Cayuse Pass and Chinook Pass.

"Cayuse Pass is really just an intersection of SR 410 and 123," Gary said. "The project headed up grade and didn't quite reach the summit of Chinook Pass. . . . It ended about a mile west of Chinook Pass, so there was a gap of about a mile between the two projects." This project was completed in 1998.

"It was an interesting project," Gary said. The Civilian Conservation Corps (CCC) had built the road in the 1930's, "blasting it out of the cliff, and building stone retaining walls on the downhill side."

The crew worked out of a camp at the upper switchback and the project presented some interesting challenges.



At top the crew prepares to place concrete into a completed section of formwork. A concrete hose, top center, hangs from the boom of the pumper truck at left. A lower switchback of Highway 410 can be seen below the work. Above: Vicinity map of Cayuse Pass, courtesy Google Maps.

Concrete retaining walls preserve the look of original CCC work

An operator uses a crane to set forms for a high retaining wall.

Construction operations required Highway 410 to be closed to daytime traffic for four days each week. "We had to be very careful because there were very tight switchbacks on this stretch and really steep cliffs on either side. We wanted to make the road wider and safer without disturbing any of the cliffs or the trees. But how could you make it wider and safer when there was a steep cliff dropping off the side of the road?

"The designers at WFLHD designed massive—and high—concrete retaining walls on the cliff side that were fully hidden from view from the roadway and still left all the original work undisturbed. I really have to compliment the designers on how well they designed it," Gary said, "because the road really worked out well.

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"This project was the first one we built that used the metric system." The concrete walls involved a lot of rebar work as well as carpentry work for the forms. "Of course the carpenters and laborers didn't know the metric system," Gary said, and "from the first we thought it would be a problem for them, because they would attempt to convert the metric measurements into English units."

A shrewd superintendent was able to sidestep the inevitable mistakes, however. "From the beginning, he wouldn't let the carpenters or ironworkers use English units at all. He said they'd just have to get used to it, and he bought them a bunch of metric tapes and told them they had to use those." The work was all done without doing any conversions. "There were a lot of complaints at the beginning," Gary said, "but it worked very well."

To stabilize the fractured rock of the cliff, the contract requires four rock anchors to be installed. Here, the contractor drills a horizontal hole for one of the anchors. The drill is mounted on the boom of an excavator, which stands on the roadway above. Below is a lower level of Highway 410.

Contractor submits claim: material source is "substandard"

The prime contractor came to the project with experiences and expectations dramatically different from what contractors can expect from FHWA. They "had done a lot of work in Alaska for the Army Corps of Engineers, and they had always had an adversarial relationship with the Corps," Gary explained. "At the end of each project, the contractor would file a bunch of claims against the Corps, and would end up winning them. So they were getting literally millions of dollars on every project.

"FHWA doesn't work that way," he pointed out. "We try really hard to have a constructive and positive relationship with the contractor. We expect the contract provisions to be carried out. We expect that if something is not covered, that we will write a contract modification to include it. We do our best to acknowledge the contractor's requests.

The drill on the boom of an excavator. When the hole is complete a 25-foot-long anchor will be installed; grout will be injected around the anchor to hold it in place.

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At night in a cage suspended next to the cliff, two men use a hydraulic jack to apply tension to the rock anchor.

"That really set them for a loop," Gary observed, because "This contractor didn't know how to work that way. He expected a lot of claims, but it turned out there weren't any opportunities for claims."

In the end he did get one claim. "The contract required them to remove the top 8-10 feet of material" from the top of the borrow pit because it wasn't suitable. "They were supposed to dig down, set that top material aside, and use the material 8-10 feet down for the job. They didn't do that. They crushed the rock we required, but mixed some of the overburden into it, and that introduced a lot of dirt and clay into the mixture, so it became a lot more plastic."

The contractor had been having a hard time getting the crushed aggregate base rock to set up properly. Their claim was that this was due to there being substandard rock in the materials source, and that there was too much plastic in that material. "When done properly," Gary explained, "the base rock is placed and compacted, and sets up to provide a solid foundation for the road. In this case, however, the crushed rock contained clay or silt. . . After the rock has been placed and compacted, it deflects—as if it

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Gary Hunter's remembrances of the project on Chinook Pass can be found in two previous articles, "Chinook Pass (National Park Highway) 1994-95" Part I and Part II.

Stories in this series have been developed by Marili Reilly from interviews and correspondence. Retirees who would like to share their memories may email marili.reilly@dot.gov.

A Glimpse into an Earlier Era

Continued from page 3

contains rubber or plastic—whenever a truck drives over it. This will not adequately support the pavement that is to be placed on top of it….

"Even though they had brought the problem on themselves, they still filed a claim against FHWA," and, Gary lamented, they finally won the claim.

"I wasn't happy about this," he said. "I didn't think the contractor should be paid." The contractor had created the problem himself, "but we still paid him."

Gary added "I asked our attorneys what I could have done differently; how I should have acted," and they assured him that he had acted appropriately.

"Not in my mind," he said. "In my mind, a Project Engineer is on the project to solve problems. This was a problem that I didn't get solved."

Photos in this story were provided by Gary Hunter.

At the material source, a Cat pushes rock to the contractor's crusher. The contractor is required to remove about eight feet of unsuitable overburden from the source before beginning operations, but fails to do so, mixing the brown overburden with the gray rock. The resulting crushed rock is very plastic when placed on the grade.