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Date: May 1, 2024

To: Patty Garvey-Darda, Project Lead

From: Bill Ehinger, USFS Hydrologist-Retired

Subject: Comments on USFS Project #57415 - Gold Creek Valley Restoration Project

As a US Forest Service Hydrologist-retired I was stationed on the Cle Elum Ranger District of the Okanogan-Wenatchee National Forest, working in Gold Creek for over 25 years. I have first-hand professional knowledge of Gold Creek's hydrologic, aquatic and ecological processes, as well as the historic disturbance regime which has impaired watershed conditions and contributed to bull trout population declines. Having reviewed the Draft EA and supporting Hydrologic Assessments I am in full support of a US Forest Service decision to implement the Gold Creek Valley Restoration Project.

Over my career, I've monitored (snorkeled) late summer bull trout presence and migration in Gold Creek and monitored bull trout survival during summer low-flow conditions. I frequently witnessed summer low-flow conditions which interrupted the continuity of surface streamflow of the creek, where the creek was reduced to simply a series of shallow isolated pockets of water between dry channel lengths. Working alongside Central Washington University Faculty/Students, WDFW and USFWS biologists and Kittitas Conservation Trust staff, we salvaged bull trout juveniles that had become stranded in isolated low-flow pockets of water suffering under conditions of lethal summer water temperatures and depleted oxygen levels. In other cases, we witnessed adult and juvenile bull trout mortality under these conditions. Those experiences form the basis of my understanding of the threats facing the Gold Creek bull trout population and the need for this large scale restoration effort.

In addition, I've monitored Gold Creek's summer high water temperatures in both Gold Creek Pond and the main Gold Creek channel, as well as isolated cold groundwater refugia in both. This allowed me to develop a scientific understanding of the hydrologic effects and relationships occurring between the pond and the creek. Furthermore, I've witnessed multiple peak flood events over my career, several of which inundated the current road, parking area and trails of the Gold Creek Day-Use Area recreation facility. These events highlighted for me that the Day-Use Area was impairing watershed functions and wetland hydrology on which bull trout survival is dependent. I've planned and implemented small scale USFS floodplain restoration projects on lower Gold Creek, and worked on behalf of the USFS and WA State Department of Transportation on the redesign of the Gold Creek floodplain beneath the new I-90 highway bridge spans. This work, in addition to my work on other rivers and watersheds in the Yakima River Watershed, has given me an understanding of context-specific watershed and river restoration concepts, designs and their appropriate applications.

My career experiences and knowledge of Gold Creek, knowledge furthered by this project's comprehensive science-based hydrologic assessments and project designs prepared by Natural Systems Design for Kittitas Conservation Trust, together form the basis for my full endorsement of this project's need, the

scope of work being proposed and the design elements contained in this Draft EA.

While some uncertainty exists in any ecological restoration project, it is my opinion that the proposed actions in this project collectively will substantially improve aquatic habitat quantity and quality for bull trout, and provide an extended duration of late summer surface streamflow that will allow for bull trout migration upstream for spawning, while reducing bull trout adult and juvenile mortality in isolated shallow pools.

Below are 3 issues/concerns of mine which I feel require additional attention and consideration in preparing a Final EA, Decision Memo and further project design revisions.

**Issue: Neighboring Landowner Agreements for Gold Creek Expanded Restoration**

I encourage the USFS to proceed with acquiring an agreement from the private landowner adjacent to USFS lands on the west side of Gold Creek Pond. This would allow for the Gold Creek Expanded Restoration to be implemented (see Figure A-5) which is a far superior design for achieving the project objectives. Such an agreement is necessary for fully restoring floodplain and riparian functions for bull trout recovery. It would allow for a more complete removal of an artificially constructed rock berm which constrains the floodplain, impairing the full function of Gold Creek on its floodplain. It would allow for expanded floodplain flowpaths from the main channel of Gold Creek over into the constructed Forested Wetland where the existing pond is located. Removal of the berm will also allow for more aquatic and riparian habitat construction with additional engineered log jam construction and riparian native plantings.

**Issue: Final Re-design of Gold Creek Day-Use Recreation Area to Support Unimpeded Natural Flowpaths from the Constructed Forested Wetland (Gold Creek Pond) Through to Gold Creek Floodplain Wetland Complex.**

The past construction, management and use of the developed recreation facilities at the Gold Creek Day-Use Area, which include the shoreline of the pond, road, parking lot, fill material, trails from parking lot to around the pond, CXT restrooms, as well as the vegetation management and special use permitted events have all contributed in very specific ways to a degraded and non-functioning riparian and aquatic environment; an environment which is not currently meeting the Region 6 Aquatic Conservation Strategy (ACS) of the Northwest Forest Plan. The entirety of the day-use area falls within the Riparian Reserves of Gold Creek, Gold Creek Pond and the valley's high-quality wetlands. The current facility's location within these Reserves as well as the past facility's footprint and maintenance practices are impairing the riparian and aquatic resources and puts this facility out of compliance with the Forest Plan (Okanogan-Wenatchee Land and Resource Management Plan). The current Gold Creek Day-Use Area facilities neither meet, nor move toward attainment of the ACS objectives and Riparian Standards and Guidelines in the Northwest Forest Plan. As such, the Northwest Forest Plan directs the Forest to modify these facilities to bring them into compliance with the ACS or remove the facilities from the reserves. The facility designs in this Draft EA are conceptual and don't offer specific details in how day-use facilities will be specifically re-located and redesigned to come into compliance with the ACS for riparian and aquatic resources. Specific design criteria have been provided for the relocation and construction of these facilities. The public needs reassurance that the final designs will incorporate these design criteria. These criteria are intended to provide unimpeded flowpaths for water during conditions occurring as a result of peak flood events. In the past these events have occurred on average every 6 to 15 years when rapid snowmelt and rain runoff, which originate from along the east side of the valley including Rampart Ridge tributaries, combine to inundate the day-use area facilities. This has resulted in soil erosion and sedimentation into the wetland complex and aquatic environment downstream and damage to the recreation facility.

**Issue: Sourcing and Sequencing of Material Placement for Filling of Gold Creek Pond, in Support of Both Forested Wetland Construction and Shallow Groundwater Recharge to Gold Creek**

The design concept for filling of Gold Creek pond to form both a Forested Wetland while simultaneously

redirecting groundwater flowpaths to support Gold Creek surface streamflow requires a complex implementation plan using materials of differing hydraulic conductivity values (HC). The soils underlying the constructed wetland will need a vertical flow component which is slow enough to allow for a period of surface inundation sufficient to support wetland vegetation, while potentially allowing surface water downwards towards the groundwater flow path toward Gold Creek. However, the soil fill material adjacent to the constructed wetlands would typically require materials with an HC value that allows a higher infiltration rate to allow snowmelt and surface waters to move vertically in support of shallow groundwater recharge to Gold Creek. The soil fill specifications which are required for restoring these 2 closely juxtaposed areas could become lost in the process of acquiring and placing massive volumes of geologic fill material. The sheer volume of material required to fill the pond could drive the project toward accepting sources of geologic materials which do not provide for the appropriate HC values to accomplish the spatial goals identified for this area. An acceptable range of HC values for fill materials and the discrete boundary areas for their spatial placement must be developed as an additional detail or guideline for implementation and construction, in order to achieve the desired restoration of hydrologic functions.

I appreciate the opportunity to provide these comments. I look forward to seeing this project's future implementation.

Respectfully,

Bill Ehinger