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From: Pomianek, Kris
Sent: Tuesday, February 26, 2013 4:06 PM
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Cc: Heit, Ray; Hill, Courtney; Bitterman, Deborah
Subject: Consultation requested on Entiatqua Trail



ET Description for EntiatquaTrail_Plan
BA.docx



Mtg 11-9-1...

Good afternoon everyone!

Construction drawings are now complete for the development of the Entiatqua Trail to be built on the south end of Entiat Park and I am asking for your review and input. This trail will provide a connection between Entiat Park and a proposed Outdoor Learning Center at the mouth of the Entiat River. Please take a moment to review the two documents that I have attached to this e-mail. They will provide you with a detailed description of the trail plans as well as a conceptual drawing of the trail location.

I am not including the complete set of construction drawings with this e-mail because of the large size of the document, however if you would like to review these drawings, just let me know or you can contact Chelan PUD's engineer on this project, Courtney Hill, 509-661-4143, courtney.hill@chelanpud.org and he will be glad to provide them for you as well.

I am hopeful to send the construction drawings to FERC for approval by March 26 and would appreciate your input before that time. As always, if you have any questions, do not hesitate to call or e-mail me.

Thank you for your help.

Enjoy the rest of your week!

Kris

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ENTIATQUA TRAIL CONCEPTUAL PLAN

CITY OF
ENTIAT

ENTIAT
PARK

Trail Connection to
proposed Entiat Park
Waterfront Trail

Trail Connection to
proposed Entiatqua Outdoor
Learning Center

Entiat River Road

COLUMBIA RIVER

ENTIAT RIVER

SR 97A

C&CRR



LEGEND

--- ENTIATQUA TRAIL



ENTIATQUA TRAIL DESCRIPTION

Introduction

The Entiatqua Trail is a 1,776 foot long non-motorized pedestrian trail which links Entiat Park (Park), located on the Columbia River, to the proposed Entiatqua Outdoor Learning Center (Center), located on the Entiat River. See Figure 1.

Purpose

The project fulfills an obligation of the Rocky Reach Hydroelectric Project Comprehensive Settlement Agreement dated February 3, 2006 (an outcome of the Federal Energy Regulatory Commission relicensing of Rocky Reach Dam). More specifically the project fulfills an obligation to provide recreational opportunities along the Rocky Reach Reservoir.

Background

Filling of Rocky Reach reservoir in 1961 resulted in the inundation of the old Entiat Town core. In order to maintain its existence the town was forced to relocate further upland. This project mitigates for the impacts associated with the inundation and relocation of Old Entiat. The modern City of Entiat is the District's primary stakeholder for the project. Through agreement with the District, the City will operate and maintain the Trail.

Construction of Rocky Reach Dam and subsequent filling of the Rocky Reach Reservoir also required relocation of State Route 97A and the railroad (originally owned by Great Northern Rail Road). At the confluence of the Columbia and Entiat Rivers two large bridges were constructed at a significantly higher elevation to accommodate the predicted higher water flows. In order to provide access on and off the north end of the bridges it was necessary to construct a large earthen ramp. This ramp was constructed using the blasted rock attained from construction of SR97A (the blasted rock coming from the outcroppings located along the western side of the Columbia River adjacent to the modern SR97A). The manmade earthen ramp forms the embankment upon which the proposed Trail will reside.

Description

The Trail will provide for a critical connection between the Park and the proposed Center. Both the Park and Center will have their own connecting trails to form a continuous waterfront trail system. The connection of the Trail to the Park will be made at the Park's south end. From that location the trail continues in a downstream direction parallel with the Columbia River for approximately 925 feet before making a sharp turn to head up the Entiat River. From there the Trail crosses below the railroad and SR97A bridges before making another sharp turn in a northerly direction following the contour of the earthen embankment. The Trail continues north before making a gradual swerve to the west to head in the general direction of the Entiat River Valley. At this point the trail will connect to the proposed Center Trail. A timeline for construction of the Center has not been determined.

The trail setting provides striking views of the Lake Entiat (aka Rocky Reach Reservoir), Number Rock, and the Entiat River. The trail contains two wide spots for trail users to take in these views. While enjoying the view trail users may also learn about shoreline erosion stabilization methods and the regions fish and wildlife resources at one of two interpretive signs to be located along the trail. The content of these signs is located in Attachment 1.

Construction of the Trail attempts to not only provide a spectacular recreational and educational opportunity but also provides for a significant improvement to shoreline habitat. The project includes the development of a 650 foot long, 3 to 15 foot wide riparian corridor along the Columbia River side of the Trail. The Corridor will be planted with nearly 350 new shrubs and trees. The shrubs and trees will provide near shore foliage (shade and nutrients). In addition the riparian corridor includes the construction of four large complex woody structure. These structures will provide in-water habitat for a variety of fish. Further supplementing the structures will be the placement of sediment and cobble mix specifically designed for enhancing the near shore aquatic habitat.

To provide for the safety of Trail users a wood rail fence is located on the side of the trail closest to the river. The rail fence provides a protective barrier from a 3 to 8 foot high drop off which will be created by retaining the trail as a means to minimize the amount of in-water fill required.

The Trail also takes into consideration the needs of the physically disabled by constructing the trail consistent with Accessibility Guidelines for Outdoor Developed Areas. This includes constructing the trail at reasonable grades and providing sufficient trail width to allow two wheel chairs to pass side by side.

Summary of Trail Elements

- Clear Trail width: 7'-3" from outside face of upper retaining structure (gabions) to inside of rail fence.
- Total Trail width (including rail fence): 8'-0" from outside face of upper retaining structure (gabion) to inside face of lower retaining structure (Lock + Load or rock wall). Expands to greater width at interpretive signs (see drawings).
- Trail retaining structures: Gabion Baskets along upland side of Trail, Lock + Load (concrete) modules or rock wall along waterward side of Trail.
- Trail Surface: Well compacted crushed rock aggregate.
- Large complex wood structures: 4 total along Columbia River, each structure has five (5) logs 18 inches to 30 inches diameter, log type is Cedar or Ponderosa Pine or Douglas Fir; Structures are held in place by ballast boulders 36 inches to 54 inches in diameter.
- A 650 foot long, 3 foot to 15 foot wide Riparian Corridor includes over 350 trees and shrubs as well as native grasses. Stabilization includes the use of coir logs and fabric. Irrigation system for watering of new plants.
- Wood Rail Fence: approximately 4 foot 6 inches tall, three rails, to be located along the waterward side of trail (protection from fall hazard).
- Chainlink fence: 6 feet in height, to be located above gabions (minimizes pedestrian conflicts with railroad and SR97A to improve safety).
- A Bench for resting on the Entiat River side of the Trail.
- Two interpretive signs one on each side of the Trail.

Property Ownership

The portion of the Trail adjacent to the Columbia River is within property owned by Chelan County PUD. For the portion under the rail road bridge Chelan PUD has obtained an easement with Rail America. For the portion under the SR97A Chelan PUD is seeking a general permit with Washington State Department of Transportation. The portion of the trail along the Entiat River is within WSDOT right-of-way and will be permitted through agreement with the City of Entiat.

Construction Sequence

The construction sequence will largely depend on the Contractor awarded the project. The project will go to public bid once all permits have been obtained. Preliminary cost estimates have assumed the Contractor will build the trail from the bottom up as well as from both ends concurrently. This results in the following construction sequence:

1. Mobilization and staging of project. Mobilization includes the placement of erosion control devices including silt fences.
2. Rough excavation of embankment starting at each end concurrently.
 - a. On the Columbia River side rough excavation work will occur to provide access to construct the in-water components (during the approved work window). Specifically this will include placement of the base rock, streambed cobble and sediment, complex wood log structures, etc.. During in-water work the Contractor will deploy a turbidity curtain to contain suspended sediment in the immediate work vicinity.
 - b. On the Entiat River side excavation work will occur in conjunction with construction of the Lock + Load retaining Wall. Because of the narrow working conditions the Contractor will likely have multiple iterations of excavation then wall construction.
3. Once the lower walls are constructed various fill materials will be brought in and construction including excavation and building of the other retaining structures upland. The gabions will likely be final retaining wall structure built. Once they are built the embankment just above them will be capped with quarry spall to stabilize the slope directly above the trail.
4. In conjunction with building the trail the Contractor will place sono tubes or similar for the construction of the rail and chainlink fences. Placement of the interpretive signs and bench will likely happen during this same time period.
5. The final component will be development of the riparian corridor. This consists of installation of the irrigation system, placement of top soil and coir fabric, planting of native shrubs and trees, placement of soil/gravel mix and finally hydroseeding with native grasses.

Access and Staging

Because the Trail will likely be built from each end access and staging is provided at each end. These routes and staging areas are illustrated in the attached Staging Area Map.

Refueling

The Contractor has stringent requirements regarding refueling of machinery. Included in these requirements is for the refueling area to be located 150 feet from either river. Depending on how the Contractor arranges Staging Area 1 there may be sufficient space to allow refueling there otherwise the Contractor will need to conduct refueling at a location outside the staging and project areas.

Attachment 1

Content of the interpretive sign located on the Columbia River Side of the Trail (Sta. 7+00):

Wherever water and land meet erosion is inevitable. It's simply a matter of time. Both natural and manmade events can speed up the process. Along the Rocky Reach Reservoir wave action is one of the major contributors. Waves are generated by wind and boats. Wind is of course a phenomenon of nature and boating is an essential part of our culture. Both activities are here for the long term and as a result some shorelines must be stabilized to guard against erosion or to stop erosion in progress.

There are many different methods for stabilizing shorelines. The selection of which method to use depends on site specific conditions and consideration of the aquatic environment. Balancing between a structurally stable method and one that is respectful of the aquatic environment is referred to as a bio-engineered method. Bio-engineering is a relatively new branch of science which in this case involves the use of biological or naturally occurring material in the building of an engineered structure.

This demonstration site incorporates the following features of a bio-engineered shoreline stabilization site:

- Large complex woody structures which provide in-water habitat while also dissipating wave action.
- Coir logs and fabric made from the natural fiber of coconut husk to also dissipate wave action and to hold soil in place for the establishment of plantings.
- Plantings consisting of shrubs (willow, dogwood, salmon berry, nootka rose and spirea), trees (shore pine and water birch) and grass seed (rye, hairgrass and junegrass). Once the plants are fully established their root systems form an invisible framework to lock earth materials in place. The plantings also provide shade in the hot summer and drop material in the fall to help replenish nutrients along the river's edge promoting further biological activity.

Additional information regarding other shoreline stabilization demonstration sites on the Rocky Reach Reservoir can be found at: www.chelanpud.org

Content of the interpretive sign located on the Entiat River Side of the Trail (Sta. 12+00):

Once an important part of the livelihood of the Entiat Indians, the Entiat River valley continues to be rich with fish and wildlife.

The confluence of the Entiat with the Columbia River provides a unique wetland area used by waterfowl, eagles, and great blue herons. Beaver, river otter, muskrat, raccoon and mink can often be seen, especially in the early morning, enjoying the wetland habitat.

The Entiat River also has an abundance of many species of fish. Dams put in the river in 1889 nearly eliminated the fish population, but a successful restoration effort in 2004 led by the Entiat Watershed Planning Unit enhanced fish habitat and protected the integrity of the stream.

Today, the Entiat River boasts of runs of steelhead, bull trout, spring and late-run Chinook, coho and sockeye salmon. Rainbow, a resident form of steelhead, bull, Westslope cutthroat, brook and interior redband trout use the river and its tributaries most or all of their lives. Other resident species found in the area include mountain whitefish and pacific lamprey.

This wetland habitat consists of a variety of trees, shrubs, forbs, grasses, and aquatic vegetation that wildlife call home. The cottonwood and pine trees provide nesting habitat during spring and summer

for owls, hawks, herons, and songbirds. During the winter, these same trees are used regularly by bald eagles as they hunt for waterfowl and fish. Cottonwood trees found along the banks of the Entiat River provide food and materials for beaver to build lodges. Trees damaged by beaver become snags that are important for cavity-nesting birds such as chickadees and woodpeckers.

Riparian areas are important for many animals to raise their young due to the abundant food sources and thick vegetation for hiding. Shrubs provide cover for a variety of birds, small mammals, and reptiles. Plants overhanging the water provide shade for fish that inhabit the river during the hot summer period. Cottonwood leaves that fall in the water provide food for aquatic insects, which fish depend on to grow and thrive. Shrubs and other shoreline vegetation help to stabilize the river banks, protecting them from erosion. Forbs and grasses host a variety of insects needed to pollinate spring flowers. Insects also provide a ready food source for birds.

During winter, deer migrate down from the Cascade Mountains to forage along the foothills and riverbanks. Bitterbrush and other shrubs that dot the upland landscape are required for their survival during hard winters when deep snow buries other food sources. This viewpoint offers an excellent opportunity to watch wildlife using the habitat year-round. What can you see?