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cc: [Hill, Courtney](#);
Subject: Entiatqua Feasibility Study
Date: Thursday, December 01, 2011 2:21:39 PM
Attachments: [draft ET Feasibility Results.docx](#)

Good afternoon everyone!

I am attaching for your review the draft feasibility study that we will be sending to FERC for approval on the Entiatqua Trail that is proposed to be built from the south end of Entiat Park under both the railroad and highway bridges to an area called the Entiatqua Learning Center near the mouth of the Entiat River.

In the past few months, I have sent you information on this trail and have appreciated your input. With your input and further discussion with permitting agencies, DOT and the railroad, we have made some adjustments to the original plan and would ask you once again to take a look and provide your comments.

You will notice at the end of the report that there are appendices listed. As each one is a large document and a summary of each is in the study, I have not included them with this e-mail but am happy to provide them to you upon request. Those appendices are, the FERC order, preliminary design drawings, geotechnical analysis and consultation details.

I am hopeful to send this feasibility study to FERC before the end of the year, so an early response would be greatly appreciated. As always, if you have any questions, do not hesitate to call or e-mail me.

Thank you for your help and my best to you for save and happy holidays!

Kris

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ENTIATQUA TRAIL FEASIBILITY STUDY

Introduction

The Federal Energy Regulatory Commission (FERC or Commission) issued an Order Modifying and Approving Revised Recreation Management Plan to Chelan County PUD on October 12, 2010 (see Appendix A). The Order directed Chelan County PUD to complete the Entiatqua Trail Feasibility Study and file the study results with the Commission along with documentation of agency consultation.

Chelan County PUD has completed a feasibility study of the trail and determined it can be built. The study involved engineering analysis of the proposed project site; development of preliminary design drawings and cost estimates; and consultation with all agencies identified in the Order and agencies responsible for environmental permitting of the proposed project. This feasibility study provides development information for the trail and assessments regarding environmental permitting, site conditions, accessibility constraints, and the trail's proximity to a major transportation corridor, including highways and bridges.

Project Description

The proposed Entiatqua Trail is a bike and pedestrian path located at the confluence of the Entiat and Columbia rivers as illustrated in Figure 1: Entiatqua Trail Conceptual Plan. The trail site parallels the Rocky Reach Reservoir and the Entiat River along an existing earth embankment which supports the Cascade and Columbia Railroad and State Highway 97A.

Trail features are illustrated in detail in drawings contained in Appendix B – Preliminary Design Drawing. Features include:

- Trail Dimensions – The trail will be six (6) feet wide with one (1) foot shoulders on each side. The total length of the trail is approximately 1,650 feet long.¹ The length was modified as described in the Recreation Management Plan.
- Trail Surface – The trail will have a compacted aggregate surface.
- Trail Structure - Development of the trail along the existing steep embankment will necessitate terracing by means of rockery walls, pre-cast concrete retaining wall systems, soil bags and gabion baskets.
- Mitigation – Mitigation for project shoreline impacts will entail development of a riparian planting corridor and placement of large woody debris including logs and rootwads. Riparian plants will include native grasses, shrubs and trees.
- Viewpoint – A viewpoint with an interpretive sign and bench will be located along the trail as illustrated in Figure 1. The interpretative sign will highlight the local Native American History.

¹ See Rocky Reach Recreation Resources Management and Implementation Plan Dated February 12, 2010

- Fencing – A 6 foot high chain link fence will be located on the uphill side of the trail. A three rail wood fence will be located on the downhill side of the trail.

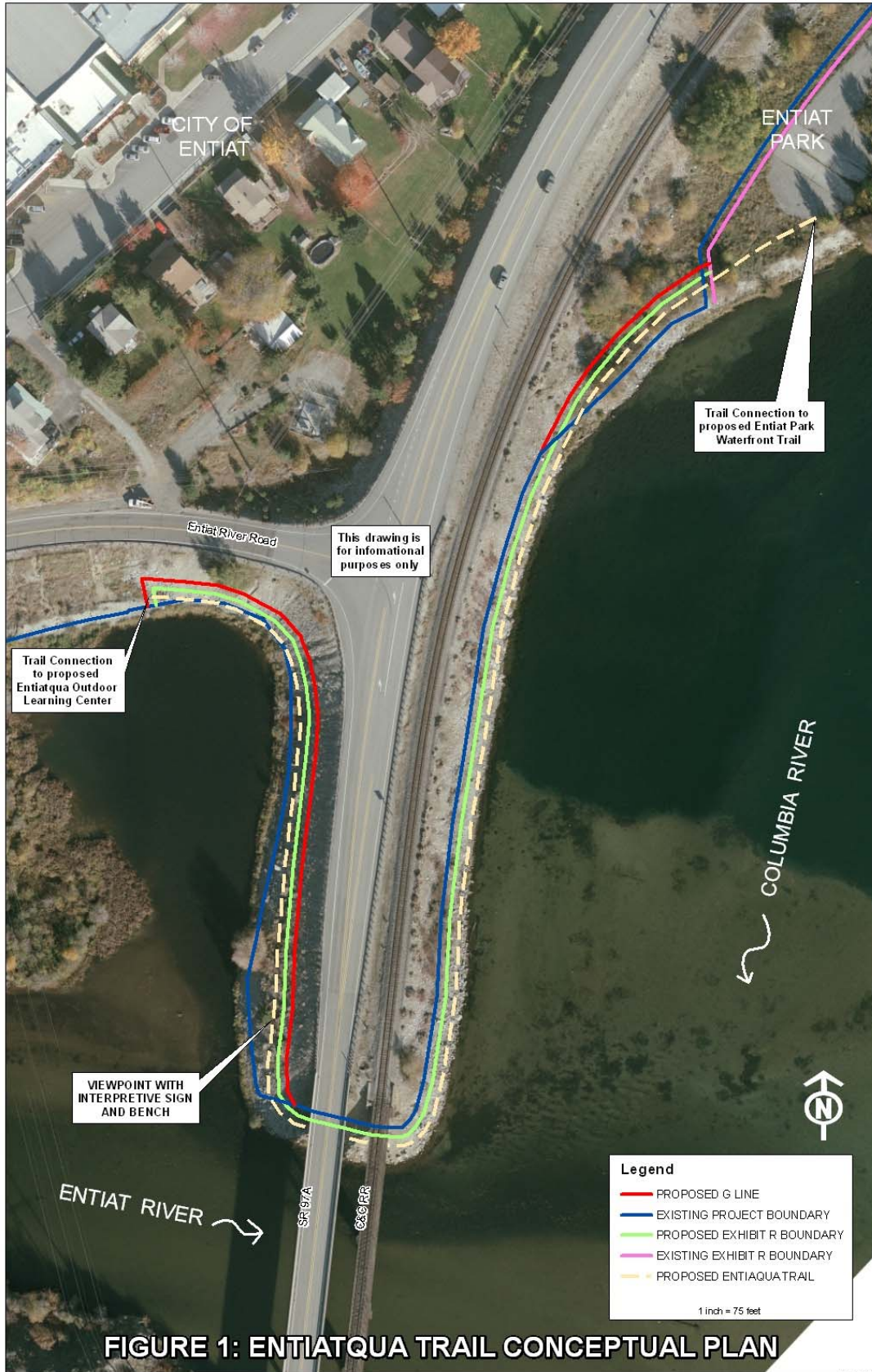


FIGURE 1: ENTIATQUA TRAIL CONCEPTUAL PLAN

Study Findings – Construction Accessibility Constraints

Construction access to the trail site is limited by the highway/railroad embankment and the river bodies as illustrated in Figure 1. During the study period, it was determined that construction equipment would most likely access the trail site from Entiat Park or the proposed Entiatqua Outdoor Learning Center. The Learning Center access entails using a 2,000 foot long single lane (narrow), unimproved road. During construction of the trail, equipment would also be constrained to the single lane trail (i.e. no turning movements or passing). These constraining conditions are workable, but result in a more costly and time intensive construction operation.

Study Findings – Site Conditions

Chelan County PUD studied the feasibility of constructing the trail along the steep earth embankment by conducting a geotechnical analysis. The analysis is documented in letters and reports prepared by Shannon & Wilson, Inc., as provided in Appendix C.

The geotechnical analysis evaluated site conditions and recommended differing techniques for trail construction. The preliminary design drawings, shown in Appendix B, are based on these recommendations. In summary, results of the geotechnical analysis indicate site conditions, while challenging, are not an impediment to trail construction.

Study Findings - Trail's Proximity to a Major Transportation Corridor

As shown in Figure 1, the trail runs parallel with and crosses below both the Cascade and Columbia Railroad and State Highway 97A. The trail as proposed would be built on the embankment which supports the highway and railroad. The geotechnical analysis evaluated potential impacts to the transportation corridor and concluded trail construction would not adversely impact the corridor.

During the study period, it was determined that extensive permitting of the trail will not be required by Washington State Department of Transportation (WDOT), rather their only requirement will be for Chelan County PUD to obtain a General Permit for construction of the trail below the bridge. Chelan County PUD has already initiated efforts to attain this permitting and believes it will not impede construction of the trail.

The portion of the trail running parallel with the highway north of the bridge is within the Entiat City Limits and therefore resides within the jurisdictional limits of the City. The City and Chelan County PUD will therefore be required to enter into a right-of-way agreement for the portion of the trail running adjacent to Highway 97A. As the primary project stakeholder the City of Entiat has expressed their willingness to enter into right-of-way agreement for the trail.

Chelan County PUD has acquired the necessary land rights and easements to permit construction of the trail along and below the Cascade and Columbia Railroad.

Study Findings – Environmental Permitting

Construction of the trail as proposed in Appendix A will require the following environmental permits:

- United State Army Corps of Engineers (USACE) 404 permit
- Washington State Department of Fish & Wildlife (WDFW) Hydraulic Project Approval
- Shoreline Permit as administered by the City of Entiat

Chelan County PUD has conducted a permit pre-application review with National Ocean and Aerospace Administration (NOAA) Fisheries Service² and with WDFW. The pre-application review included site visits and conference calls to discuss the project as documented in Table 1. Comments and feedback provided by the two agencies has been incorporated into the preliminary design drawings shown in Appendix B.

The end result of the pre-application review was a determination that environmental permits to allow construction of the trail can be obtained. The attainment of actual permits, however, will require further collaboration between Chelan County PUD, NOAA Fisheries and WDFW regarding specific design details.

Cost

The Rocky Reach Comprehensive Settlement Agreement (Chapter 9, Section 4.5.3) identified a cost of \$1.2 million for construction of the Entiatqua Trail. Chelan County PUD has developed a cost estimate based on the preliminary design drawings in Appendix B and determined the trail can be built for this amount.

Table 1: Consultation

AGENCY	CONSULTATION FORMAT	CONSULTATION DATE
NOAA Fisheries	Pre-Application Office and Site Meeting	Sept. 26, 2011
NOAA Fisheries	Conference Call	October 25, 2011
NOAA Fisheries	Conference Call	November 23, 2011
WDFW	Pre-Application Site Mtg.	November 22, 2011
C&C Railroad	E-mail	August 25, 2011
WSDOT	Office Meeting	May 17, 2011
WSDOT	E-mail	Sept. 22, 2011

² As part of the USACE 404 permit process NOAA Fisheries Services will provide a biological opinion and therefore their involvement in determining the feasibility of the project in relation to avoiding impacts to endangered species is critical.

Estimated Implementation Schedule

Design: January 1, 2012 to February 28, 2012

Permitting: March 1, 2012 to April 30, 2013

FERC Construction Document Submittal: May 1, 2013 to June 30, 2013

Bid & Award: July 1, 2013 to Sept. 31, 2013

Construction: October 1, 2013 – June 1, 2014

Other Considerations

Soil Erosion and Sedimentation Control Measures will be employed during construction of the trail and submitted with construction drawings. Measures will include, but not be limited to the following devices: straw wattles, silt fencing and silt curtains.

The needs of the disabled were considered during the conceptual design of the trail. The trail design includes grades that are conducive to wheel chairs.

Chelan County PUD will be responsible for construction of the trail. The City of Entiat in agreement with Chelan County PUD will oversee the operation and maintenance of the trail and be responsible for trash clean-up and removal.

APPENDIX A – FERC ORDER

APPENDIX B – PRELIMINARY DESIGN DRAWINGS

APPENDIX C – GEOTECHNICAL ANALYSIS

APPENDIX D – CONSULTATION