

From: [Harold Chesnin](#)
To: [Chehalis](#)
Cc: [Harry Pickernell](#); [Jeff Warnke](#); [Gunn, Brian](#); [Harold Chesnin](#); [Hope S. Rieden](#); [Glen Connelly](#)
Subject: [Non-DoD Source] FW: Scanned image from OTA-5070n
Date: Monday, September 21, 2020 3:46:57 PM
Attachments: [USACE Consultation Request.pdf](#)

Enclosed please find the letter from the Chehalis Tribal Chairman requesting a consultation with the Tribe as a result of the severe impacts anticipated from the Chehalis Dam Project referenced in the letter.

Harry Chesnin
Lead Counsel for the Tribe

-----Original Message-----

From: donotreply@chehalis.tribe.org <donotreply@chehalis.tribe.org>
Sent: Monday, September 21, 2020 3:28 PM
To: Harold Chesnin <hchesnin@chehalis.tribe.org>
Subject: Scanned image from OTA-5070n

Reply to: donotreply@chehalis.tribe.org <donotreply@chehalis.tribe.org> Device Name: OTA-5070n Device Model: MX-5070N
Location: OTA office

File Format: PDF (Medium)
Resolution: 300dpi x 300dpi

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Commenter: Shaun Dinubilo
Affiliation: Cultural Resource Department of the Squaxin Island Tribe
Method of Comment: Web
Date: 9/22/2020

Comment

1. Has a cultural resource survey been conducted for the project? If so, did the APE include indirect effects that will be caused by the inundation of lands surrounding the proposed dam and further downstream? Also were impacts considered for historic properties located upstream from the dam? Normally, when a dam is built, they tend to cause further erosion upstream, which impacts cultural resources. Did the survey include mass subsurface probing of the APE?
2. How is the Reservoir Salvage Act of 1960 and the Moss-Bennet Act of 1974 being integrated into this project? Please do note that this federal permit is subjected to these laws, irrelevant if there is federal construction or not. The act of federal permitting requires compliance with these laws when you build a dam. Was the Secretary of the Interior notified about this action?
3. Was the Department of Fish and Wildlife notified about this action? How will this affect the Ordinary Highwater Mark?

From: [THPO THPO](#)
To: [Chehalis](#)
Cc: [Brandon Clinton](#); [Robert Brunoe](#)
Subject: [Non-DoD Source] Re: Public Notice for NWS-2014-1118; Chehalis River Basin Flood Damage Reduction Project - Request for comments
Date: Friday, October 16, 2020 12:14:39 PM
Attachments: [PastedGraphic-1.pdf](#)

Hi Chehalis and Brandon,

Thank you very much for the opportunity to provide comment on the Chehalis River Basin Flood Damage Reduction Project (NWS-2014-1118).

General Comment:

As the technical reviewer for NHPA Section 106 and other cultural resource issues for the Confederated Tribes of the Warm Springs Reservation of Oregon (CTWSRO), the CTWSRO Tribal Historic Preservation Office (THPO) has concerns with the potential effects to historic properties or cultural resources within the Project Area of Potential Effects (APE). The Project APE is within the areas of concern for the CTWSRO.

Project-specific Comment(s):

Please keep our office in the loop on this proposed Project, with regard to identification, evaluation, and protection of potential historic properties and other cultural resources.

Thank you for your efforts to protect cultural resources.

Best Regards, and Stay Safe,

Christian

Christian Nauer, MS
Archaeologist
Confederated Tribes of the Warm Springs Reservation of Oregon
Branch of Natural Resources

christian.nauer@ctwsbnr.org

Office 541.553.2026

Cell 541.420.2758

Standard Disclaimers:

*The Confederated Tribes of the Warm Springs Reservation of Oregon have reserved treaty rights in Ceded Lands, as well as Usual and Accustomed and Aboriginal Areas, as set forth through the Treaty with the Middle Tribes of Oregon, June 25, 1855.

*Please know that review by the Tribal Historic Preservation Office does not constitute Government-to-Government consultation. Please ensure that appropriate Government-to-Government consultation is made with the Confederated Tribes of the Warm Springs Tribal Council.

*The opinions expressed by this author do not necessarily represent those of the Confederated Tribes of the Warm Springs Reservation of Oregon. Information, contents, and attachments in this email are Private and Confidential.

On Sep 17, 2020, at 9:51 PM, Chehalis <Chehalis@usace.army.mil> wrote:

<20200917-PublicNotice-NWS-2014-1118.pdf>



November 16, 2020

Brandon Clinton, Project Manager
US Army Corps of Engineers
Regulatory Branch
Post Office Box 3755
Seattle, WA 98124-3755

Chehalis River Basin Flood Damage Reduction Project
c/o Anchor QEA
6720 South Macadam Street, Suite 125
Portland, Oregon 97219

RE: Quinault Indian Nation comments, Proposed Chehalis River Basin Flood Damage Reduction Project, Draft Environmental Impact Statement under National Environmental Policy Act; Application for a Department of the Army Permit, NWS-2014-1118

Dear Mr. Clinton and Chehalis River Basin Flood Damage Reduction Project:

On behalf of the Quinault Indian Nation (“Quinault,” “Nation,” or “Quinault Nation”), Earthjustice provides these comments regarding the Draft Environmental Impact Statement (“DEIS”) for the Proposed Chehalis River Basin Flood Damage Reduction Project (“Project” or “dam/levee Project”) prepared for the Corps pursuant to the National Environmental Policy Act (“NEPA”).

The Chehalis River Basin Flood Control Zone District (“Applicant” or “FCZD”) seeks a Clean Water Act Section 404 dredge/fill permit from the United States Army Corps of Engineers (“Corps”) to build a Flood Retention Expandable structure (“FRE”) on the Chehalis River and to raise an existing levee at the Chehalis-Centralia Airport, the preferred alternative. These activities will result in fill of several acres of wetlands, regulated by the Corps as waters of the United States, which trigger the need for a 404 permit under the Clean Water Act (“CWA”). Public Notice No. NWS-2014-1118.

As explained in detail below, the DEIS fails to meet fundamental requirements of NEPA and does not provide the requisite hard look at the Project justifying issuance of a CWA 404 permit because it:

- Relies on an unreasonably narrow purpose and need statement, which inappropriately preordains consideration of only two dams to address flood damage in the target area;

- Includes proposed construction of an expandable dam for which there is no corresponding justification in the purpose or need statement, and there is no evaluation of the impacts from an expanded dam;
- Fails to demonstrate the proposed Project will meet the stated purpose and need, however unreasonably narrow;
- Grossly understates and/or inadequately characterizes adverse environmental impacts, because credible science is not used to support analysis of impacts, especially in the case of the failure to include future climate change impacts in the analysis;
- Fails to identify and/or discuss any mitigation for unavoidable adverse environmental impacts;
- Does not adequately analyze the least-environmentally-damaging approach to accomplish the reduction of flood damage in the Centralia-Chehalis area; and
- Fails to acknowledge, quantify, or discuss the adverse environmental impacts this Project will have that will unlawfully and significantly adversely affect the Nation's reserved Treaty rights and sovereign interests.

The Nation provides the following comments in support of these conclusions. The Nation's comments are further supported by Comment Matrices related to specific environmental disciplines covered in the DEIS, Technical Review Memos, and Addendums to Memos provided to support the Nation's comment letter prepared in response to the Washington State Department of Ecology's State Environmental Policy Act ("SEPA") DEIS including:

1. Critical Review of Proposed Chehalis River Basin Flood Damage Reduction Project NEPA DEIS: Addendum to Cascade of FRE Ecosystems Effects Technical Memo
2. Critical Review of Proposed Chehalis River Basin Flood Damage Reduction Project NEPA DEIS: Climate Change Impacts
3. Critical Review of Proposed Chehalis River Basin Flood Damage Reduction Project NEPA DEIS: Geology Discipline Report Review
4. Technical Report: Salmon Population Modeling and Aquatic Species for the NEPA DEIS Evaluation of Flood Protection in the Chehalis Basin
5. Critical Review of Chehalis River Basin Flood Damage Reduction Project NEPA DEIS: Cultural Resources Issues
6. Forest Practices Technical Analyses Review
7. Socioeconomic Impact Analysis Review

All such Comment Matrices, Technical Memos and Addenda, and their supporting documents are attached and incorporated by reference.

I. QUINAULT INDIAN NATION HAS SUBSTANTIAL INTERESTS IN THE CHEHALIS BASIN.

The Quinault Indian Nation is a federally-recognized Indian tribe and sovereign tribal government. The Quinault people have lived near and depended on Grays Harbor, the Chehalis River Basin, and the Washington Coast since time immemorial. They have been called the Canoe People because of the importance of the ocean, bays, estuaries, and rivers to every aspect of tribal life. *See generally*, Jacqueline M. Storm, *Land of the Quinault* (1990). The Quinault Nation is also part of the Grays Harbor community, and is a leading contributor to the economic and social lifeblood of this region.

A. Federally-Protected Treaty Rights Must Be Considered.

Quinault Nation is a signatory to the Treaty of Olympia (1856) by which it reserved, among other things, the right of “taking fish, at all usual and accustomed fishing grounds and stations” and the privilege of hunting and gathering on open and unclaimed lands, among other rights, in exchange for ceding lands it historically roamed freely.

In a landmark court case known as the “Boldt decision,” a federal court confirmed Quinault’s treaty fishing rights and established the Nation and other plaintiff tribes as co-managers with the State of Washington of off-Reservation fisheries resources entitled to half of the harvestable number of fish returning to Washington waters. *United States v. Washington*, 384 F. Supp. 312 (W.D. Wash. 1974), *aff’d* 520 F.2d 676 (9th Cir. 1975), *cert. denied*, 423 U.S. 1086 (1976). Based on the evidence provided, the court determined the usual and accustomed areas of the Quinault Nation include “the waters adjacent to their territory” and “Grays Harbor and those streams which empty into Grays Harbor.” *Id.* at 374-75; *see also United States v. Washington*, 459 F.Supp. 1020, 1097 (W.D. Wash. 1978), *aff’d* 645 F.2d 749 (9th Cir.1981). In a later compilation of key court findings, the court concluded: “The Quinault Tribe has usual and accustomed fishing places in Grays Harbor and its watershed, including the Humptulips River.” *United States v. Washington*, 459 F.Supp. 1020, 1038 (W.D. Wash. 1978) *aff’d*, 645 F.2d 749 (9th Cir. 1981). Throughout these terrestrial, riverine and marine usual and accustomed fishing areas—including the entire Chehalis River Basin—Quinault is either a full manager or co-manager of Treaty resources and the habitats that support them.

Treaty rights have substantial legal weight. The treaties signed with Washington tribes in the 1850s do not grant rights to Indians, but rather serve as a “grant of right from them—a reservation of those not granted.” *United States v. Winans*, 198 U.S. 371, 381 (1905). Thus, the Nation’s treaty rights are rights reserved by, and not granted to, it. Treaties are the supreme law of the land. *Worcester v. Georgia*, 31 U.S. 515, 531 (1832). Treaties impose the “highest responsibility” on the government and create a special fiduciary duty and trust responsibility upon all agencies of the United States to protect treaty rights, including fishing rights. *Seminole Nation v. United States*, 316 U.S. 286, 297 (1942). These rights cannot be abrogated or diminished except by “plain and unambiguous” explicit congressional authorization. *United States v. Santa Fe Pac. R.R. Co.*, 314 U.S. 339, 346, 354 (1941).

Federal courts, as recently as this year, have consistently required the federal agencies to keep the Treaty promises upon which Indian tribes relied when they ceded huge tracts of land by way of the Treaties. *See, e.g., McGirt v. Oklahoma*, 140 S.Ct. 2452 (2020); *Winans*, 198 U.S. at 371; *Confederated Tribes of Umatilla Indian Reservation v. Alexander*, 440 F. Supp. 553 (D. Or. 1977); *United States v. Oregon*, 718 F.2d 299, 304 (9th Cir. 1983); *Muckleshoot v. Hall*, 698 F. Supp. 1504, 1510 (W.D. Wash. 1988); *Northwest Sea Farms v. U.S. Army Corps of Eng'rs*, 931 F. Supp. 1515 (W.D. Wash. 1996); *United States v. Washington*, 2007 WL 2437166 (W.D. Wash. 2007). Treaties are the supreme law of the land. *Worcester v. Georgia*, 31 U.S. 515, 531 (1832).

In addition, federal courts have confirmed that Treaty rights are property rights protected by the Fifth Amendment to the U.S. Constitution. *Muckleshoot*, 698 F. Supp. at 1510 (citing *Menominee Tribe of Indians v. United States*, 391 U.S. 404, 411 n.12 (1968)). Based on these legal principles, federal courts have interpreted Treaty rights strictly—meaning that no portion of a Treaty fishing right may be taken without specific authorization by Congress. Included in this prohibition are takings of access to fishing grounds: “Apart from allowing States to limit fishing rights for purposes of conservation . . . no court has permitted the actual taking of access or taking of fishing grounds without an act of Congress.” *Muckleshoot*, 698 F. Supp. at 1512. Accordingly, tribes have succeeded in stopping harmful development projects that affected small portions of their usual and accustomed fishing areas. *Id.* at 1515 (granting preliminary injunction halting construction of a new marina which would have occupied one-eighth of one square mile of Puget Sound, including two tribes’ Treaty fishing area); *see also NW Sea Farms v. U.S. Army Corps of Eng'rs*, 931 F. Supp. 1515, 1525 (W.D. Wash. 1996) (upholding decision of the Corps to deny permit to developer proposing to build a fish farm covering one acre of surface area and eleven acres underwater within tribe’s Treaty fishing area).

By way of example, the strength of tribal Treaty rights is evident in the 2016 denial by the Corps of the Clean Water Act § 404 permit to the Gateway Pacific Project proposing a marine-rail coal terminal based on impacts to Treaty fishing rights held by the Lummi Tribe and other tribal nations in Puget Sound. Memorandum for Record, Application: NWS-2008-260 (9 May 2016), attached as Exhibit 1. To make this determination, the Corps relied on the standard articulated by the court in *Lummi v. Cunningham*, (W.D. Wash. 1992): “If the impact to either [Lummi’s U&A treaty right to access as well as their right to take fish] is greater than *de minimis*, in other words the impact is legally significant, the Corps would be required to deny the permit because only Congress can abrogate a treaty right.” *Id.* at p. 20.

B. Quinault Treaty Harvest Is Significant Socially, Economically and Culturally.

The Quinault’s federally-protected treaty fishing right guarantees enrolled Quinault tribal members—now and in perpetuity—the right to harvest any and all fish and shellfish species anywhere within the Quinault Nation’s usual and accustomed fishing areas in perpetuity. The Chehalis River, its tributary rivers, streams, and wetlands, and the Grays Harbor estuary, provide the freshwater and marine habitat that supports Chinook, chum, and coho salmon and steelhead of critical importance to the Quinault Nation’s treaty-protected terminal river fisheries within Grays Harbor. Grays Harbor, and the Chehalis River flowing into it, nourishes other species of

importance to the Nation, such as white sturgeon and Dungeness crab, an economically vital fishery on the Washington coast.

Fish and shellfish are a source of social, economic and cultural values. Salmon have particular historic significance as a vital cultural and economic resource of the Quinault people. Many tribal fishers derive their entire economic livelihood from fishing and shellfishing, including from the Chehalis River system. Salmon represent a means for employment in fishing, guiding and processing jobs. Fish are often used in trade between tribal members for other foods or goods or gifts. Salmon, crab and razor clams are communally served at social and community events such as celebrations, weddings and funerals.

Salmon is a critical food source for the Quinault people. Salmon provide protein, vitamins, and oils that are vital to their dietary health and community well-being. The nutrition from salmon reduces susceptibility to debilitating diseases like diabetes, and provides food for sharing in ceremonial and cultural events. It also protects the community by providing food security during times of scarcity or crisis. Often, salmon and other fish and shellfish are shared with family members, elders and others in the community who do not, or can no longer, fish.

Fishing is also a way to educate younger generations in life lessons, both as a means to pass on traditional knowledge and to perpetuate ceremonial values. Parents bond with and teach these life lessons to their children while catching, gathering, preserving, and preparing foods. There are also spiritual values inherent in fishing, such as thanksgiving for the ability to utilize the resources.

Spring Chinook are highly prized by the Quinault people as it is often the first salmon species to return to the rivers in the springtime. In the Chehalis River, the first salmon ceremony has been traditionally observed for the first of these Chinook salmon. Historically, the fisherman obtaining the first salmon immediately sent messengers to notify all of the villagers of the event. People gathered at the house of the fisherman. It was prepared in such a manner as to ensure future fishing successes. In today's society, a first salmon ceremony is an individual experience; the fisherman will prepare the salmon and disburse it to elders and prominent members of the community. Elders are often unable to fish themselves so they rely on the generosity of the fisherman. The first salmon ceremony has been and continues to be of deep religious significance. *See* Technical Report – Impacts on Fish and Fisheries, describing the cultural importance of salmon to the Quinault people.

Chinook salmon from the Chehalis River system is a delicacy second only to the Blueback sockeye runs in the Quinault River. Traditionally, no edible part of the fish was wasted, including the head, eyes and eggs. Due to its high fat content, Chinook salmon is considered the most flavorful of the salmon species. The head is used for soup; other portions eaten include the eyeballs and cheeks. The belly meat is considered the most succulent and often considered the best part of the fish. Chinook salmon produce many eggs, which Quinault people use to prepare fish egg soup. Baked eggs are considered a delicacy. Nutritionally, the fish, the heads, and eggs are excellent sources of protein and B vitamins.

Correspondingly, enrolled Quinault members have a federally-protected Treaty right to hunt wildlife and gather plants within, at least, the Chehalis Basin on all open and unclaimed lands in perpetuity under Quinault laws and regulations.

The Nation is dependent on avian and other wildlife populations both for subsistence and the ecosystem services they provide, as well as their strong cultural importance to the Quinault people. Records, photographs, and oral histories indicate that a variety of wildlife species have been harvested for centuries for food, clothing, tools, medicines, and spiritual uses—including migratory birds protected under federal law. Today, these animals continue to provide nourishment for the Quinault people, as well as opportunities for intergenerational teaching about cultural history, traditional worldviews, hunting, and food preparation.

The Nation's Treaty-reserved hunting and gathering rights on open and unclaimed lands extend throughout the Chehalis River Basin. Currently, Quinault regulates its members' Treaty hunting through annual regulations pertaining to State Game Management Units within the Basin, including 501 Lincoln, 506 Willapa Hills, 530 Ryderwood, 642 Copalis, 648 Wynoochee, 651 Satsop, 658 North River, 660 Minot Peak, 672 Fall River, 673 Williams Creek, 681 Bear River, 684 Long Beach, and 699 Long Island.

Furthermore, Quinault people have strong cultural and spiritual ties and interests throughout the Chehalis Basin. Quinault people also identify special areas that are known from the dissemination of family stories and practices for the collection of plants for food, medicine, and weaving. It is known that the Quinault people identify river and floodplain locations in the Chehalis Basin as important for traditional activities that include fishing, trapping and harvesting eels (lamprey).

Eels/ Lamprey were guardian spirits for some Quinault people and could give the holder of this spirit help with hunting and healing.¹ Olsen (1936) tells of Quinault ancestor, Bob Pope who,

was told to carve an elbow pipe out of hard clay with an eel in the angle. (In some way the eel was regarded as the spirit also.) This pipe could travel about, for somehow it partook of the nature of a spirit. The power of this spirit was such that many times Pope was able to kill elk without shooting them!²

and

When an **exceptionally large eel** (leech?) was caught he was not killed. Instead, people said, 'Yes, we caught you. We hear you are a great doctor. I have a friend who is sick and I am going to take you to him. That must be why you came to meet

¹ Ronald L. Olsen, *The Quinault Indians*, vol. 6, University of Washington Publications in Anthropology 1 (Seattle, Washington: University of Washington, 1936), 131. Attached to Critical Review of Chehalis River Basin Flood Damage Reduction Project NEPA DEIS: Cultural Resources Issues.

² *Id.* at 120.

me. I'll pay you with a young woman if you cure him.' **The eel** was then wrapped in soft bark and taken to a person suffering with rheumatism. His mouth was placed over the affected part. When he had sucked his fill of blood he was placed on the floor where he vomited up quantities of slime (not blood).³

An internal Quinault publication from 1981 includes an educational article about the lamprey. The article concludes with, "The large, adult lamprey is considered a delicacy when baked in the oven, cooked on an open fire, or, best of all, dried and smoked."⁴

Rainbow Falls has been identified by the Chehalis and Quinault Tribes as culturally significant, and evidence from the literature review supports this, finding significance beginning in traditional stories, to an important place for the harvest of lamprey and a site essential to maintaining Chehalis Tribal identity and cultural continuity documented as recently as 1969 (Welch 1983).⁵

Additionally, the Quinault Indian Nation described the traditional practice that Elders had for collecting eels (Pacific Lamprey) during the spring. Because the eel population has declined, this collection practice has largely died out, and even the Elders who prepare and consume eels rely primarily on the fish hatchery which collects a few every spring, mainly for the Elders who request them. Justine James (QIN) states: "A lot of the eels in this area, they started going out in about the 60s, some of the elders still follow that old life-way of eating, preparing eels, and it's kind of a dietary change and the logging practices have kind of altered the environment and so you don't get the eels as much."⁶

Although the practice has declined over time, some Quinault members still set traps yearly and process them by smoking and canning for winter storage. While a smaller number of living tribal members recall having eaten eel in the past, many know of this practice from stories from their parents and grandparents.

³ *Id.* at 183.

⁴ "QDNR and ED Newsletter," Taholah, WA IV, no. 5 (July 1981): 1, 5–6. Attached to Critical Review of Chehalis River Basin Flood Damage Reduction Project NEPA DEIS: Cultural Resources Issues.

⁵ Willamette Cultural Resources Associates, Ltd., Chehalis River Basin Strategy Traditional Cultural Property Inventory, June 2019, p. 28. Attached to Critical Review of Chehalis River Basin Flood Damage Reduction Project NEPA DEIS: Cultural Resources Issues.

⁶ Samantha Chisholm Hatfield et al., "Indian Time: Time, Seasonality, and Culture in Traditional Ecological Knowledge of Climate Change," *Ecological Processes* 7, no. 25 (2018), p. 7. Attached to Critical Review of Chehalis River Basin Flood Damage Reduction Project NEPA DEIS: Cultural Resources Issues.

It is also known that Quinault members collect sweetgrass, cattail, and other grasses and forbs, as well as willow from a variety of areas in the Chehalis Basin. These special areas are often kept secret and not in a database. These plants are used by the Quinault as a material in the traditional weaving of baskets and mats and for ceremonial purposes. Weaving is as integral to contemporary Quinault culture as it was in the past. Quinault weavers regard sweetgrass as a special gift and have particular times of year that they prefer to collect it. Sweetgrass requires particular environments and is not common.

C. Corps of Engineers Has a Fiduciary Trust Responsibility to Protect Treaty Rights.

The Nation's status as a federally-recognized Indian tribe, sovereign government, and signatory to the Treaty of Olympia (1856) places a heightened duty and trust responsibility on the Corps to protect those Treaty rights, which includes the obligation to meaningfully consult with the Quinault Nation about the potential impacts to its rights and interests from the proposed regulations. To date, consultation specific to the potential impacts to the Nation's Treaty rights has not occurred.⁷

Executive Order 13175, "Consultation and Coordination with Indian Tribal Governments" (2000), requires all federal agencies to consult with Indian tribes on matters that affect their rights. It further requires those agencies to adhere to the following criteria when formulating and implementing policies that have tribal implications:

Agencies shall respect Indian tribal self-government and sovereignty, honor tribal treaty and other rights, and strive to meet the responsibilities that arise from the

⁷ The following statements in the DEIS regarding consultation with the Quinault Nation are incorrect: "The QIN requested government-to-government consultation with the Corps on August 15, 2017. The QIN was offered opportunities to participate through a variety of venues, ranging from one-on-one phone calls to technical team meetings to special briefings." DEIS, p. 274. The "opportunities" that included "phone calls," "technical team meetings," and "special briefings" were afforded solely in the context of the Quinault Nation's participation as a Cooperating Agency, not as actual, required tribal consultation. Only two government-to-government consultations occurred regarding the proposed dam/levee Project. The first consultation occurred with Seattle District Colonel Geraldini on November 27, 2017 and focused on the Corps' issuance of a Notice to Expedite a Department of Army permit application for the Chehalis River Basin Flood Control Zone District. The second consultation was with Seattle District Colonel Bullock, who attended a consultation with representatives of the Nation on August 31, 2020, prior to release of the DEIS for public comment. During that consultation, Corps representatives provided a high-level summary of the legal framework of the DEIS, including the Corps' trust responsibility to protect Treaty-reserved rights, outlined summary conclusions included in the DEIS, and answered some technical questions. That consultation did not include a detailed discussion of impacts to Treaty resources from the proposed dam/levee Project. At no time has the Corps requested or offered to have such a discussion with the Nation.

unique legal relationship between the Federal Government and Indian tribal governments.

The Corps echoes these principles in its “U.S. Army Corps of Engineers Tribal Consultation Policy and Related Documents” (2013), attached as Exhibit 2. Among the many Corps’ commitments to tribes included in these policy documents are:

- “Consultation: Open, timely, meaningful, collaborative and effective deliberative communication process that emphasizes trust, respect and shared responsibility. To the extent practicable and permitted by law, consultation works toward mutual consensus and begins at the earliest planning stages, before decisions are made and actions are taken; an active and respectful dialogue concerning actions taken by the USACE that may significantly affect tribal resources, tribal rights (including treaty rights) or Indian lands.”
- “Consultation will be an integral, invaluable process of USACE planning and implementation.”
- “USACE will ensure that it addresses Tribal concerns regarding protected tribal resources, tribal rights (including treaty rights) and Indian lands.”
- Commanders will “Maintain open lines of communication through consultation with Tribes during the decision making process for those matters that have the potential to significantly affect protected tribal resources, tribal rights (including treaty rights) and Indian lands.”
- “TRUST RESPONSIBILITY- The U.S. Army Corps of Engineers will work to meet trust obligations, protect trust resources, and obtain Tribal views of trust and treaty responsibilities or actions related to the Corp, in accordance with the provisions of treaties, laws and Executive Orders as well as principles lodged in the Constitution of the United States.”
- “PRE-DECISIONAL AND HONEST CONSULTATION- The U.S. Army Corps of Engineers will reach out, through designated points of contact, to involve Tribes in collaborative process designed to ensure information exchange, consideration of disparate viewpoints before and during decision making, and utilize fair and impartial dispute resolution mechanisms.”
- “Recognize, respect and take into consideration the significance that Federally-recognized Tribes ascribe to protected tribal resources when undertaking Army mission activities and when managing Army lands.”
- “This policy recognizes the importance of understanding and addressing the concerns of Federally-recognized Tribes prior to reaching decisions on matters that may have the potential to significantly affect tribal rights, tribal lands or protected tribal resources.”

In addition, the United Nations “Declaration on the Rights of Indigenous Peoples” (2007) (“UNDRIP”), endorsed by the United States in 2010, recognizes that indigenous

people must give Free, Prior and Informed Consent for projects affecting their interests: “States shall consult and cooperate in good faith with the Indigenous Peoples concerned through their own representative institutions in order to obtain FREE, PRIOR and INFORMED CONSENT prior to approval of any project affecting their land or territories.” Article 32(2). The Nation expects the Corps to honor this policy in order to ensure no unilateral actions are taken that affect its land, territories or people without its consent.

In short, the Corps is obligated to conduct meaningful government-to-government consultation with the Nation before taking any further action regarding the proposed dam/levee Project to ensure the Nation’s rights and interests are not violated. The Nation repeats its request made from its 2018 EIS Scoping Comments. ***The Nation requests ongoing and meaningful consultation with the Corps prior to its decision regarding the 404 permit for the dam/levee Project.***

D. Quinault Indian Nation Submitted Substantial Scoping Comments.

By letter dated October 29, 2018, Earthjustice submitted extensive scoping comments regarding the NEPA and SEPA EISs that included seven attachments, 33 exhibits and 122 cited supporting literature references on behalf of the Nation. Letter and all Exhibits attached thereto are incorporated by reference and Attached as Exhibit 3.

Among other issues, the Nation requested that the EISs address the following:

- The geographic scope of the EIS must include the entire geographic range of Chehalis Basin salmon, extending from “their natal spawning sites that reach to the uppermost reaches of the Chehalis River, extending downstream to the river estuary and Grays Harbor, and then ranging in marine waters from near Northern California to Southeast Alaska.” Scoping comment letter, p. 14.
- The EIS must consider the effects of cumulative stressors on Chehalis salmon populations, which were extensively outlined. *Id.* at 16-18.
- The EIS must analyze impacts of “potential direct, indirect, and cumulative effects associated with the compounding and interactive nature of ecosystem impacts that would modify river geomorphology, sediment regime, hydraulics, and hydrology impacting riparian and wetland vegetation, aquatic habitat and dependent fish and wildlife populations.” *Id.* at 21. The Nation provided extensive detail about the cascade of likely effects. *Id.* at 21-24.
- “The EIS[] should include an alternative comprised of non-structural flood protection measures applied across the entire Chehalis Basin, which include moving willing people and property out of high flood and erosion risk areas (e.g., through acquisition from willing sellers, conservation easements, and relocation/redevelopment), river and floodplain restoration, and local flood protection structures (e.g., floodwalls, levees, raising structures, farm pads, and other floodproofing measures).” *Id.* at 30. The Nation elaborated and provided many references. *Id.* at 30-33.

- “Mitigation that would protect the Chehalis River ecosystem from further degradation and loss of wild salmon would need to be both comprehensive and timed in a way to prevent losses that would be difficult or unlikely to recover from.” *Id.* at 35.
- The EIS needs to address “the full projected lifespan of the Dam and Levee, by alternative, inclusive of economic risk, the likelihood of harm to property, infrastructure, and other assets and economic systems, the full life-cycle of operations, maintenance and repairs and the consequences of the loss of ecosystem services.” (Citations omitted). *Id.* at 43. The Nation elaborated on additional important economic considerations, including the likelihood and import of cost overruns. *Id.* at 43-50

Most importantly, the Nation provided extensive information pertaining to its Treaty-protected rights and interests, including:

The importance of fishing and shellfishing to the diet, health, cultural, and spiritual well-being of Quinault members cannot be overstated.

The Quinault Nation’s Treaty-reserved fishing, hunting and gathering rights must be considered in regard to all of the Alternatives considered in the Dam and Levee Project EIS. The Quinault Nation’s property right in fish must be considered in regard to each Alternative, and in terms of any mitigation for impacts under SEPA or NEPA from each Alternative, that would diminish habitat or otherwise negatively affect salmon or other aquatic species. Likewise, the right of access must be considered in regard to any Alternative that would impair the ability of Quinault Nation fishers to access their usual and accustomed fishing grounds in the Chehalis River Basin. Such impairment would be a violation of the Treaty.

Id. at 6.

E. Quinault Nation Briefly Acted as Cooperating Agency.

The Nation accepted the Corps’ offer to become a Cooperating Agency and executed a Cooperating Agency Agreement with the Corps on May 13, 2019, which the Nation then terminated on September 22, 2019. During the time the Nation was a Cooperating Agency, representatives of the Nation engaged with the Corps and its DEIS consultants primarily regarding fish modeling because of its concerns about the accurate characterization of impacts to Treaty fish and habitat. A statement in the DEIS about the Nation’s involvement is incorrect:

As a cooperating agency under NEPA and consistent with the terms of the Cooperating Agency Memorandum of Agreement, the Corps sought input relative to the QIN’s area of technical expertise on the EIS. To this end, the Corps provided an opportunity for the QIN to comment on the input assumptions and parameters prior to running EDT. **However, the QIN declined to comment.** The Corps continued to work with the QIN throughout July and August to solicit technical input relevant to the salmonid impact modeling effort for Corps consideration. The Corps convened a meeting with QIN and the EDT modelers on August 6, 2019 to

review the EDT model results. The Corps convened another meeting on August 14, 2019 with the QIN and the integrated EDT-LCMs modelers to discuss how EDT results would be integrated into the LCMs. The QIN withdrew as a cooperating agency on September 22, 2019.

(emphasis Added) DEIS, Appendix K, pp. 7-8. In fact, the Nation’s representatives provided extensive comments regarding model input assumptions and parameters. Most, if not all, of the issues identified by the Nation’s representatives were not corrected by the Corps’ DEIS analyses.

F. Quinault Nation Submitted Extensive Comments on SEPA EIS for Dam/Levee Project.

In contravention to NEPA requirements to avoid duplication regarding EISs (40 C.F.R. §1506.2; 33 CFR § 230.20),⁸ the Corps drafted a completely separate Draft EIS than the Draft EIS developed by the State of Washington under SEPA for the same dam/levee Project. The SEPA Draft EIS and all Appendices and Attachments prepared under SEPA are attached as Exhibit 4.

On behalf of the Nation, Earthjustice also submitted extensive comments dated May 11, 2020, on the SEPA EIS, which include five Exhibits, four appendices, and nine Technical Review Memos, attached as Exhibit 5. Many of the comments made for the SEPA EIS are relevant to the NEPA EIS and the Nation incorporates those by reference as applicable.

II. NATIONAL ENVIRONMENTAL POLICY ACT REQUIREMENTS

A. NEPA Dictates a Hard Look at Environmental Impacts.

NEPA has two fundamental purposes: (1) to guarantee that agencies take a “hard look” at the consequences of their actions before the actions occur by ensuring that “the agency, in reaching its decision, will have available, and will carefully consider, detailed information concerning significant environmental impact,” *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989); and (2) to ensure that “the relevant information will be made available to the larger audience that may also play a role in both the decision-making process and the implementation of that decision,” *Id.* at 349. NEPA “emphasize[s] the importance of coherent and

⁸ We acknowledge recent revisions to the Council on Environmental Quality (“CEQ”) regulations implementing NEPA at 40 C.F.R. 1500 *et seq.*, with a final rule adopted. 85 Fed. Reg. 43304 (July 16, 2020). This final rule became effective September 14, 2020, only four days prior to the issuance of the DEIS for public comment on September 18, 2020. The Corps has not promulgated new rules or revised its NEPA rules in response to the CEQ revision. Further, the new final rules have been challenged by several organizations and states and litigation is pending. It is unclear whether these new regulations apply to the DEIS given that the DEIS was plainly complete before the new rules were finalized. Accordingly, all citations herein are to the CEQ regulations in effect prior to September 14, 2020.

comprehensive up-front environmental analysis to ensure informed decision making to the end that “the agency will not act on incomplete information, only to regret its decision after it is too late to correct.” *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1216 (9th Cir. 1998). Moreover, NEPA requires federal agencies “to recognize the worldwide and long-range character of environmental problems.” 42 U.S.C. § 4332(F).

NEPA establishes an “action-forcing” mechanism to ensure “that environmental concerns will be integrated into the very process of agency decision-making.” 42 U.S.C. § 4332(2)(C); *Andrus v. Sierra Club*, 442 U.S. 347, 350 (1979). Pursuant to that statutory provision, “all agencies of the Federal Government shall ... include in every recommendation or report on ... major Federal actions significantly affecting the quality of the human environment, a detailed statement,” an EIS, addressing “the environmental impact of the proposed action, any adverse environmental impacts which cannot be avoided ..., alternatives to the proposed action,” and other environmental issues. 42 U.S.C. § 4332.

When reviewing claims under NEPA, Courts must “ensure that an agency has taken the requisite hard look at the environmental consequences of its proposed action, carefully reviewing the record to ascertain whether the agency decision is founded on a reasoned evaluation of the relevant factors.” *Te-Moak Tribe v. Interior*, 608 F.3d 592, 599 (9th Cir. 2010) (quoting *Greenpeace Action v. Franklin*, 14 F.3d 1324, 1332 (9th Cir. 1992) (internal quotation marks and citations omitted)). This review must be “searching and careful.” *Ocean Advocates v. U.S. Army Corps of Engineers*, 402 F.3d 846, 858 (9th Cir. 2005). It also is guided by a “rule of reason” that asks “whether an EIS contains a reasonably thorough discussion of the significant aspects of the probable environmental consequences.” *Churchill County v. Norton*, 276 F.3d 1060, 1071 (9th Cir. 2001), *amended by*, 282 F.3d 1055 (9th Cir. 2002). NEPA favors “coherent and comprehensive up-front environmental analysis to ensure ... that the agency will not act on incomplete information, only to regret its decision after it is too late to correct.” *Id.* at 1072–73 (quotation marks omitted).

Under NEPA, courts have held that an agency cannot rely on “stale” scientific evidence or “ignore reputable scientific criticism” in EISs. *Seattle Audubon Soc. v. Espy*, 998 F.2d 699 (9th Cir.1993); *Carmel*, 123 F.3d at 1151. In fact, NEPA requires agencies to “ensure the professional integrity, including scientific integrity, of the discussions and analyses in environmental documents.” 40 C.F.R. §1502.23.

NEPA further requires discussion of “[p]ossible conflicts between the proposed action and the objectives of Federal, regional, State, and local (and in the case of a reservation, Indian tribe) land use plans, policies and controls for the area concerned.” (*See* 40 C.F.R. § 1506.2(d)); 40 C.F.R. § 1502.16(c); 42 U.S.C. § 4332(C)(iv).

B. Purpose and Need Must Not Dictate Alternatives.

How an agency defines the purpose and need of its project or action also determines the range of alternatives it considers. On the one hand, an agency may not define the purpose of and need for the action in unreasonably narrow terms. On the other hand, it need not craft a statement so broad that it requires consideration of alternatives that are inconsistent with the overarching

purpose of the proposal. *Northwest Ecosystem Alliance v. Rey*, 380 F. Supp. 2d 1175 (W.D. Wash. 2005). Courts will uphold an agency's discussion of alternatives if they believe the statement of purpose and need is sufficiently broad so that it does not prevent the consideration of reasonable alternatives. *Center for Biological Diversity v. National Highway Traffic Safety Admin.*, 538 F.3d 1172 (9th Cir. 2008) (energy conservation goal required consideration of more stringent corporate average fuel economy standards); *City of Carmel-By-The-Sea v. U.S. Dept. of Transp.*, 123 F.3d 1142 (9th Cir. 1997) (cannot narrow consideration of alternatives by modifying statement of need to eliminate all but one alternative). Courts have cautioned against too narrowly defining a purpose and need statement: [i]t “will fail if it unreasonably narrows the agency's consideration of alternatives so that the outcome is preordained.” *Protect Our Communities Found. v. Jewell*, 825 F.3d 571, 579 (9th Cir. 2016); *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 194 (D.C. Cir. 1991) (“[T]he rule of reason does not give agencies license to fulfill their own prophecies, whatever the parochial impulses that drive them. . . . [A]n agency may not define the objectives of its actions in terms so unreasonably narrow that only one alternative from among the environmentally benign ones in the agency’s power would accomplish the goals of the agency’s action.”).

Similarly, in order to ensure that environmental review under NEPA is meaningful and fully informs agency decisions, agencies are prohibited from taking any action that limits or forecloses choices or increases the likelihood of that result prior to conclusion of the NEPA EIS process. 40 C.F.R. § 1506.1.

C. Reasonable Range of Alternatives Must Be Analyzed.

NEPA requires a “detailed statement ... on ... alternatives to the proposed action ...” 42 U.S.C. § 4332(2)(C). This includes the mandate to “(s)tudy, develop, and describe appropriate alternatives to recommend courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources.” *Id.* at § 4332(2)(E). EISs must “[r]igorously explore and objectively evaluate *all* reasonable alternatives,” and “[i]nclude reasonable alternatives not within the jurisdiction of the lead agency,” and “[i]dentify the agency's preferred alternative.” *Westlands Water Dist. v. U.S. Dept. of Interior*, 376 F.3d 853, 868 (9th Cir. 2004) (citing 40 C.F.R. § 1502.14(a), (c), (e)) (emphasis added). “The existence of a viable but unexamined alternative renders an environmental impact statement inadequate.” *Id.* (internal quotations and citations omitted). *See also, Natural Resources Def. Council v. U.S. Forest Serv.*, 421 F.3d 797, 813 (9th Cir. 2005) (rigorous and objective evaluation of all reasonable alternatives is “the heart” of an EIS). Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant. 40 Most Asked Questions, #2a. Further, the environmental impacts of the proposal and the alternatives are to be presented “in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public.” 40 C.F.R. § 1502.14

A no-action alternative must also be included in EISs. 40 C.F.R. § 1502.14(c). The no-action alternative may be characterized as continuing with the present course of action until that action is changed. It establishes a baseline against which the proposed action and its alternatives may be measured. *Center for Biological Diversity v. U.S. Dep’t of Interior*, 623 F.3d 633 (9th Cir. 2010).

A court can hold an impact statement inadequate if a baseline is not properly selected. *Center for Biological Diversity v. U.S. Bureau of Land Mgmt.*, 746 F. Supp. 2d 1055 (N.D. Cal. 2009). Courts have held the no-action alternative is not a ‘do nothing alternative,’ but must include a discussion of reasonably foreseeable development that would result from its adoption. *Young v. General Services Admin.*, 99 F. Supp. 2d 59 (D.D.C. 2000), *judgment aff’d*, 11 Fed. Appx. 3 (D.C. Cir. 2000).

Consideration of alternatives is “the heart of the environmental impact statement.” *Westlands Water Dist.*, 376 F.3d at 865. Judicial review of the range of alternatives considered by an agency is governed by a “rule of reason” that requires an agency to set forth only those alternatives necessary to permit a “reasoned choice.” *Save Lake Washington v. Frank*, 641 F.2d 1330, 1334 (9th Cir. 1981); *Life of the Land v. Brinegar*, 485 F.2d 460, 472 (9th Cir. 1973), cert. denied, 416 U.S. 961 (1974). The “touchstone” for courts reviewing challenges to an EIS under NEPA “is whether an EIS’s selection and discussion of alternatives fosters informed decision-making and informed public participation.” *Save Lake Washington*, 641 F.2d at 1334.

D. Scope of Review Requires Direct, Indirect and Cumulative Impacts of Past, Present and Future Projects.

NEPA regulations require that an EIS must consider direct effects, indirect effects, and cumulative effects. 40 C.F.R. §§ 1502.16 and 1508.8. “Effects includes ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative.” 40 C.F.R. § 1508.8. The direct effects of an action are those effects “which are caused by the action and occur at the same time and place.” 40 C.F.R. § 1508.8(a). Indirect impacts are “caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.” 40 C.F.R. § 1508.8(b). In addition, § 1502.4(a) states that “[p]roposals or parts of proposals which are related to each other closely enough to be, in effect, a single course of action shall be evaluated in a single impact statement.”

Cumulative impacts include “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.” 40 C.F.R. § 1508.7. An agency cannot ignore reasonably foreseeable impacts just because they might occur at a later date or at a more distant location. *Department of Transportation v. Public Citizen*, 541 U.S. 752 (2004).

NEPA requires a “useful analysis of the cumulative impacts of past, present and future projects,” which requires “discussion of how [future] projects together with the proposed ... project will affect [the environment].” *Muckleshoot Indian Tribe v. U.S. Forest Service*, 177 F.3d 800, 810 (9th Cir. 1999) (*citing City of Carmel*, 123 F.3d at 1160). The court in *Muckleshoot Indian Tribe* rejected a cumulative impacts analysis in an EIS that contained no evaluation of the impact of timber harvest on lands proposed to be transferred to Weyerhaeuser as part of a land exchange, finding the EIS failed to adequately analyze impacts of another “reasonably foreseeable” land exchange. *Id.* at 811-812. The court ultimately held that the cumulative

impacts statements in the EIS, relying on “broad and general statements devoid of specific, reasoned conclusions,” were “far too general and one-sided to meet NEPA requirements.” *Id.* at 811. The court stated further that the analysis fell far short of a “useful analysis” as required by *Carmel*, 123 F.3d at 1160, and *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1214–15 (9th Cir. 1998).

Under NEPA, Congress also directs that agencies must recognize any world-wide and long-range character of environmental problems. 42 U.S.C. § 4332(2)(F). Climate change is plainly world-wide and long-range and the most significant environmental problem the world faces today.

Courts use the “rule of reason” test to decide whether the discussion of cumulative impacts is “reasonably thorough” and would allow an agency's decision-maker to make an informed decision. *Westside Property Owners v. Schlesinger*, 597 F.2d 1214 (9th Cir. 1979).

E. Mitigation Measures Must Be Specific and Analyzed for Effectiveness.

Mitigation measures for identified impacts must be considered and that is the case even for impacts that by themselves would not be considered “significant.” Once the proposal itself is considered as a whole to have significant effects, all of its specific effects on the environment (whether or not “significant”) must be considered, and mitigation measures must be developed where it is feasible to do so. 40 C.F.R. §§ 1502.14(f), 1502.16(h), and 1508.14. All relevant, reasonable mitigation measures that could improve the project are to be identified, even if they are outside the jurisdiction of the lead agency or the cooperating agencies, and thus would not be committed as part of the RODs of these agencies. 40 C.F.R. §§ 1502.16(h) and 1505.2(c). If an impact cannot feasibly be mitigated, the EIS must so state.

For a mitigation measure to be considered valid and the discussion of such measures considered adequate, the measure “shall be reasonable and capable of being accomplished.” *See also, Neighbors of Cuddy Mountain v. U.S. Forest Serv.*, 137 F.3d 1372, 1380-81 (9th Cir. 1998). While a complete mitigation plan capable of being immediately executed is not necessary, a simple list of mitigation measures is not adequate, nor is a perfunctory discussion of what *might* happen with mitigation. *Id.* An essential component of any discussion and analysis of mitigation measures is a full assessment of whether, when, and to what extent, a measure will be effective and what impacts that measure will address. *South Fork Band Council of Western Shoshone of Nevada v. U.S. Dep’t of Interior*, 588 F.3d 718, 727 (9th Cir. 2009). *Cf. Okanogan Highlands Alliance v. Williams*, 236 F.3d 468, 474-75 (9th Cir. 2000) where the court found mitigation discussion adequate where mitigation measures were set forth in detail, each measure received an “effectiveness rating” for how it would address the impact, listed steps for assessing and applying each mitigation measure and discussed how the mitigation measure would address each of the specific impacts. As the court noted, this level of analysis of mitigation is necessitated by the “hard look” requirements of NEPA.

F. Environmental Justice Requirements Dictate Evaluation of Impacts to Affected Populations.

NEPA assigns continuing responsibility to federal agencies to preserve important historic, cultural, and natural aspects of our nation heritage and to maintain, wherever possible, an environment which supports diversity. 42 U.S.C. § 4331(b)(4). To that end, by Executive Order, federal agencies are required to consider environmental justice in their NEPA analysis in order to evaluate the potential that a proposed action would have disproportionate impacts affecting minority or low-income groups (Executive Order 12898, 59 Fed. Reg. 7629 (1994)). The Environmental Justice process requires that no minority or low-income population group should bear a disproportionate share of potential adverse environmental and socioeconomic impacts resulting from major projects, such as the Dam and Levee proposed for the Chehalis Basin. The analysis of potential impacts must identify alternative proposals that may mitigate environmental justice, as well as environmental, impacts. In addition, special efforts should be made to reach out to such communities to ensure that they understand the proposed project and its potential impacts on them.

The fundamental policy of NEPA is to “encourage productive and enjoyable harmony between man and his environment.” In service, in part, to that policy, Executive Order 12898 directed each federal agency to, among other things:

- make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations;
- identify differential patterns of consumption of natural resources among minority populations and low-income populations;
- evaluate differential consumption patterns by identifying populations with differential patterns of subsistence consumption of fish and wildlife; and
- collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence.⁹

In considering how to evaluate whether federal agencies were complying with this direction, the CEQ has defined effects or impacts to include “ecological...aesthetic, historic, cultural, economic, social or health impacts, whether direct, indirect or cumulative.”¹⁰ CEQ’s Guidance for Environmental Justice under NEPA calls for agencies to consider specific elements when considering environmental justice issues:

⁹ “Federal actions to address environmental justice in minority populations and low-income populations,” 59 Fed. Reg. 7629 (Executive Order 12898; February 11, 1994).

¹⁰ CEQ, Environmental Justice: Guidance Under the National Environmental Policy Act, December 10, 1997, available at <http://ceq.hss.doe.gov/nepa/regs/ej/justice.pdf> (“CEQ Guidance”).

- agencies should consider the composition of the affected area, to determine whether minority populations, low-income populations, or Indian tribes are present in the area affected by the proposed action, and if so whether there may be disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, or Indian tribes.
 - agencies should consider the potential for multiple or cumulative exposure to human health or environmental hazards in the affected population and historical patterns of exposure to environmental hazards.
 - agencies should consider these multiple, or cumulative effects, even if certain effects are not within the control or subject to the discretion of the agency proposing the action.
 - agencies should recognize the interrelated cultural, social, occupational, historical, or economic factors that may amplify the natural and physical environmental effects of the proposed agency action.
 - these factors should include the physical sensitivity of the community or population to particular impacts; the effect of any disruption on the community structure associated with the proposed action; and the nature and degree of impact on the physical and social structure of the community.
 - agencies should be aware of the diverse constituencies within any particular community.
 - agencies should seek tribal representation in the process in a manner that is consistent with the government-to-government relationship between the United States and tribal governments, the federal government's trust responsibility to federally-recognized tribes, and any treaty rights.

See also, EPA Policy on Environmental Justice for Working With Federally-Recognized Tribes and Indigenous Peoples, (July 24, 2014) (“EPA Tribal Policy”).¹¹ These principles have been enforced as to NEPA review, most recently by the decision in *Standing Rock Sioux Tribe v. U.S. Army Corps of Engineers*, 255 F.Supp.3d 101 (D.D.C. 2017) (citing *Allen v. Nat’l Institutes of Health*, 974 F. Supp. 2d 18, 47 (D. Mass. 2013) “The purpose of an environmental justice analysis is to determine whether a project will have a disproportionately adverse effect on minority and low income populations” (quoting *Mid-States Coal. for Progress v. Surface Transp. Bd.*, 345 F.3d 520, 541 (8th Cir. 2003)).

The EIS must include demographic information for all communities affected. The Guidance provides that agencies “should recognize that the impacts within...Indian tribes may be different from impacts on the general population due to a community’s distinct cultural practices.” CEQ Guidance at 14. “Where environments of Indian tribes may be affected...agencies must consider pertinent treaty, statutory, or executive order rights and consult with tribal governments in a manner consistent with the government-to-government relationship.” *Id.* *See also, EPA Tribal Policy.*

¹¹ <https://www.epa.gov/sites/production/files/2017-10/documents/ej-indigenous-policy.pdf>.

Relevant to this dam/levee Project, the “unit of geographic analysis” for the environmental-justice assessment should “be chosen so as not to artificially dilute or inflate the affected minority population.” CEQ Guidance at 26. *See Standing Rock Sioux Tribe v. U.S. Army Corps of Engineers*, 255 F.Supp.3d 101 (D.D.C. 2017) (citing *Allen v. Nat’l Institutes of Health*, 974 F. Supp. 2d 18, 47 (D. Mass. 2013)).

Finally, the CEQ guidance requires that, in the environmental review process (not some later process), tribal input must be sought at a level “consistent with government to government consultation.” It does not say wait until consultation (assuming consultation properly happens at all) to seek tribal input. Rather, the input is supposed to be part of the environmental review itself in order to inform government decision making, inform the public, and allow a comprehensive environmental justice analysis within the context of the information gathering and analysis that is part of an EIS. Consultation with tribes and environmental review under NEPA are two separate and distinct obligations. While they may overlap or have similarities, they are not substitutes for each other.

G. Socioeconomic Effects Must Be Considered and Analyzed.

NEPA requires agencies to “identify and develop methods and procedures, which will ensure that presently unquantified environmental amenities and values may be given appropriate consideration in decision making along with economic and technical considerations.” 42 U.S.C. § 4332(B). Effects that must be considered in an EIS include economic effects. 40 C.F.R. § 1508.8(b). *See also, id.* § 1508.14 (adequate discussion of impacts on the natural and human environment will necessarily include economic and social impacts) and CEQ Guidance at 4, 5, 8, and 26 (each EIS must consider the economic and social impacts on tribes). Plainly, adequate analysis of socioeconomic impacts is an integral part of adequate assessment of environmental justice impacts.

It is further critical that the agency take pains to ensure that the economic information it considers and includes in the DEIS is accurate and complete. If it is not, the DEIS is misleading and inadequate and the public’s ability to understand and comment on the project subverted. *See, Natural Resources Defense Council v. U.S. Forest Serv.*, 421 F.3d 797, 811-12 (9th Cir. 2005).

III. ADDITIONAL FEDERAL LEGAL REQUIREMENTS

A. Clean Water Act Dictates Least Environmentally Damaging Alternative.

The Clean Water Act (“CWA”) (33 U.S.C. §§ 1251 *et seq.*) is the federal legal framework for regulating discharges of pollutants into the waters of the United States and regulating water quality. The CWA is the federal law authorizing the Corps’ to develop the permit program for dredge and fill permits such as the one here. The Corps has determined that Project construction will result in the filling of several acres of wetlands under CWA jurisdiction. Under section 404, the Corps regulates discharges of “dredged or fill material” into “navigable waters.” (33 U.S.C. § 1344.) “Navigable waters” is defined as “waters of the United States.” (33 U.S.C. § 1362(7)). To issue a 404 permit, the Corps must ensure, among other things, that the proposed activity

complies with the U.S. Environmental Protection Agency's ("EPA") 404(b)(1) Guidelines, set out in 40 C.F.R. Part 230.

The 404(b)(1) Guidelines, adopted as binding federal regulations, provide strong overarching policy directives to the Corps that guide their implementation:

(a) The purpose of these Guidelines is to restore and maintain the chemical, physical, and biological integrity of waters of the United States through the control of discharges of dredged or fill material.

(b) Congress has expressed a number of policies in the Clean Water Act. These Guidelines are intended to be consistent with and to implement those policies.

(c) Fundamental to these Guidelines is the precept that dredged or fill material should not be discharged into the aquatic ecosystem, unless it can be demonstrated that such a discharge will not have an unacceptable adverse impact either individually or in combination with known and/or probable impacts of other activities affecting the ecosystems of concern.

(d) From a national perspective, the degradation or destruction of special aquatic sites, such as filling operations in wetlands, is considered to be among the most severe environmental impacts covered by these Guidelines. The guiding principle should be that degradation or destruction of special sites may represent an irreversible loss of valuable aquatic resources.

40 C.F.R. § 230.1.

"The fundamental precept of the Guidelines is that discharges of dredged or fill material into waters of the United States, including wetlands, should not occur unless it can be demonstrated that such discharges, either individually or cumulatively, will not result in unacceptable adverse effects on the aquatic ecosystem." Memorandum: Appropriate Level of Analysis Required for Evaluating Compliance with the CWA Section 404(b)(1) Guidelines Alternatives Requirements, Robert H. Wayland, III, U.S. Environmental Protection Agency and Michael L. Davis, Department of the Army. Attached as Exhibit 6. "The burden of proof to demonstrate compliance with the Guidelines rests with the applicant; where insufficient information is provided to determine compliance, the Guidelines require that no permit be issued. 40 CFR 230.12(a)(3)(iv)." *Id.*

Accordingly, the Guidelines impose stringent criteria for the Corps' determination of whether it can issue a 404 permit, including the following four prerequisites for approval:

(a) "[N]o discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences." 40 C.F.R. § 230.10(a) (emphasis added).

(b) "No discharge of dredged or fill material shall be permitted if it . . . [c]auses or contributes, . . . to violations of any applicable State water quality standard . . . [or]

[j]eopardizes the continued existence of species listed as endangered or threatened under the Endangered Species Act . . . or results in likelihood of the destruction or adverse modification of . . . a critical habitat” 40 C.F.R. § 230.10(b).

(c) “[N]o discharge of dredged or fill material shall be permitted which will cause or contribute to significant degradation of the waters of the United States.” This includes adverse effects “on life stages of aquatic life and other wildlife dependent on aquatic ecosystems” Such effects “are not limited to, loss of fish and wildlife habitat or loss of the capacity of a wetland to assimilate nutrients, purify water, or reduce wave energy[.]” 40 C.F.R. § 230.10(c).

(d) [N]o discharge of dredged or fill material shall be permitted *unless appropriate and practicable steps have been taken which will minimize potential adverse impacts of the discharge on the aquatic ecosystem.* 40 C.F.R. § 230.10(a) (emphasis added).

In determining whether these criteria are met, 40 CFR § 230.11 requires the Corps make written factual determinations regarding the “potential short-term or long term effects of a proposed . . . fill . . . on the physical, chemical, and biological components of the aquatic environment. . . .” Per 40 CFR § 230.11, each determination includes considerations of effects on:

(a) “[T]he nature and degree of effect that the proposed discharge will have, individually and cumulatively, on the characteristics of the substrate at the proposed disposal site.”

(b) “[T]he nature and degree of effect that the proposed discharge will have individually and cumulatively on water, current patterns, circulation including downstream flows, and normal water fluctuation.”

(c) “[T]he nature and degree of effect that the proposed discharge will have, individually and cumulatively, in terms of potential changes in the kinds and concentrations of suspended particulate/turbidity in the vicinity of the disposal site.”

(d) “[T]he degree to which the material proposed for discharge will introduce, relocate, or increase contaminants.”

(e) “[T]he nature and degree of effect that the proposed discharge will have, both individually and cumulatively, on the structure and function of the aquatic ecosystem and organisms.”

(f) Determinations regarding disposal and mixing zones.

(g) “Cumulative effects attributable to the . . . fill material in waters of the United States should be predicted to the extent reasonable and practical.”

(h) “[S]econdary effects on aquatic ecosystems shall be considered prior to the time final section 404 action is taken by permitting authorities.” An example of a secondary effect is “fluctuating water levels in an impoundment and downstream associated with the operation of a dam[.]”

The Guidelines include additional requirements and evaluation and testing procedures at subparts C through J to Part 230, including extensive requirements for compensatory mitigation to “offset environmental losses resulting from unavoidable impacts to waters of the United States.” 40 § 230.93(a)(1). In addition to these requirements of the Section 404(b)(1) Guidelines, the Corps also conducts a review of at least 19 different public interest factors. 33 C.F.R. § 320.4. Even if a proposal passes the Guidelines tests, if it is found to be contrary to the public interest, the permit should be denied.

B. Federal Laws Protecting to Animal Species and Cultural Resources Apply.

The Corps must comply with the **Endangered Species Act** (“ESA”) (16 U.S.C. §§ 1531 *et seq.*), which prohibits the unauthorized “take” of listed species. 16 U.S.C. § 1538(a)(1)(B). The ESA broadly defines “take” to include “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect.” 16 U.S.C. § 1532(19). “Harm” may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. 50 C.F.R. § 17.3.

Under the ESA, federal agencies must “insure that any action authorized, funded, or carried out by such agency ... is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat” of endangered or threatened species. 16 U.S.C. § 1536(a)(2); *Friends of Santa Clara River v. United States Army Corps of Engineers*, 887 F.3d 906, 913 (9th Cir. 2018). Accordingly, the Corps must review this Section 404 permit application “for the potential impact on threatened or endangered species pursuant to section 7 of the Endangered Species Act.” 33 C.F.R. § 325.2(b)(5). If the Corps determines that “the proposed activity may affect an endangered or threatened species or their critical habitat,” it must “initiate formal consultation procedures with the U.S. Fish and Wildlife Service [(“USFWS”)] or National Marine Fisheries Service [(“NMFS”)].” *Id.*

Such consultation requires consideration of the “best scientific and commercial data available or which can be obtained during the consultation for an adequate review of the effects that an action may have upon listed species or critical habitat.” 50 CFR § 402.14(d).

The **Bald and Golden Eagle Protection Act** (“BGEPA”) (16 U.S.C. §§ 668-668d), prohibits the take, possession, sale, purchase, barter, offer to sell, purchase or barter, transport, export or import, of bald or golden eagles, including any part, nest, or egg, unless permitted under the authority of USFWS. “Take” includes acts to “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” 6 U.S.C. § 668c.

The **Migratory Bird Treaty Act of 1918**, as amended (“MBTA”) (16 U.S.C. §§ 703 *et seq.*) prohibits the take of protected migratory birds, their eggs, parts, or nests unless authorized by a permit under the authority of USFWS. “Take” includes acts to “pursue, hunt, shoot, capture, collect, kill, or attempt to pursue, hunt, shoot, capture, collect, or kill.” 6 U.S. Code § 715n.

Congress declared through the **Marine Mammal Protection Act** (“MMPA”) (16 U.S.C. §§ 1361 *et seq.*) that:

[M]arine mammals have proven themselves to be resources of great international significance, esthetic and recreational as well as economic, and it is the sense of the Congress that they should be protected and encouraged to develop to the greatest extent feasible commensurate with sound policies of resource management and that the primary objective of their management should be to maintain the health and stability of the marine ecosystem. Whenever consistent with this primary objective, it should be the goal to obtain an optimum sustainable population keeping in mind the carrying capacity of the habitat.

16 U.S.C. § 1361(6). Accordingly, it prohibits, with certain exceptions, the "take" of marine mammals in U.S. waters, including harassment, hunting, capture, collection, or killing, or "any other negligent or intentional act which results in disturbing or molesting a marine mammal." 50 CFR § 216.3.

The **Magnuson-Stevens Fishery Conservation and Management Act** ("MSA") (6 U.S.C. §§ 1801 *et seq.*) creates a national program "to conserve and manage the fishery resources found off the coasts of the United States, and the anadromous species and Continental Shelf fishery resources of the United States." 16 U.S.C. § 1801(b)(1). Among Congress' goals in adopting this Act are to "promote the protection of essential fish habitat in the review of projects conducted under Federal permits, licenses, or other authorities that affect or have the potential to affect such habitat." 16 U.S.C. § 1801(b)(7). Essential fish habitat ("EFH") includes "waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." 16 U.S.C. § 1802(10). Congress requires that this program "utilizes, and is based upon, the best scientific information available." 16 U.S.C. § 1801(c)(3). The Corps must consult with NMFS regarding impacts to EFH and seek recommendations regarding measures that can be taken to conserve it. See 16 U.S.C. § 1855(b), 50 CFR Subpart K.

Similarly, the **Fish and Wildlife Coordination Act** ("FWCA"), 16 U.S.C. §§ 661 *et seq.* (as amended), requires consultation with the U.S. Fish and Wildlife Service when there are plans to conduct, license, or permit an activity involving the impoundment, diversion, deepening, control, or modification of a stream or body of water. *And see* 33 CFR § 320.3(e), 33 CFR § 320.4. The FWCA also requires consultation with the head of the state agency that administers wildlife resources in the affected state. The purpose of this process is to promote conservation of wildlife resources by preventing loss of and damage to such resources and to provide for the development and improvement of wildlife resources in connection with the action. This is not consultation for consultation's sake. Rather, the EISs should contain an explicit record of wildlife resource loss and damage prevention consistent with FWCA compliance.

The **National Historic Preservation Act** ("NHPA") (16 U.S.C. §§ 470 *et seq.*) requires the Corps to consult with tribes when considering the effects of federal undertakings on historic properties that have tribal religious and cultural significance. Section 106 imposes several obligations that should occur in conjunction with EIS development, including to make a "reasonable and good faith effort" to identify historic properties within the "area of potential effects, including any data concerning possible historic properties not yet identified." 36 C.F.R. § 800.4.

IV. SIGNIFICANT LEGAL SHORTCOMINGS OF THE DEIS

The choosing and analysis of alternatives is the heart of an EIS and fundamental to credible compliance with NEPA. The purpose and need statement dictates the alternatives analyzed in an EIS. Federal law requires a purpose and need statement not be so narrow as to limit or undermine analysis of all “reasonable alternatives.” This DEIS, however, only considers two dams after applying overly-narrow, inexplicable and unsupported screening criteria to address the stated purpose and need.

To start, the Nations reminds the Corps of the process by which this entire Project began. The Chehalis Basin Strategy (“Strategy”) is a collaborative process the responsibility for which the Washington Legislature delegated to the Office of the Chehalis Basin and its oversight Board “to aggressively pursue implementation of an integrated strategy and administer funding for long-term flood damage reduction and aquatic species restoration in the Chehalis river basin.” RCW 43.21A.730(1). The Chehalis Basin Strategy Final Programmatic Environmental Impact Statement (“PEIS”) (June 2, 2017) evaluated a suite of actions to equally address both challenges. Among those actions were two types of dams: 1) A dam designed to temporarily hold back water during major floods, referred to as a Flood Retention Only facility (“FRO”), and 2) a larger dam with a permanent reservoir designed to retain water all year (instead of only during major floods), referred to as a Flood Retention Flow Augmentation facility (“FRFA”).

The proposed dam/levee Project is antithetical to objective of the Chehalis Basin Strategy of an **integrated** strategy for flood damage reduction and aquatic species restoration throughout the Basin. The proposed Project addresses flood damage reduction through a facility that will have catastrophic impacts on the core riverine processes and ecological systems needed to sustain, let alone restore, aquatic species in the Chehalis Basin and offers a limited geographic extent and scale of flood damage reduction, leaving most of the Chehalis River Basin and its residents unprotected. This Project does not address other important components of the overall Chehalis Basin Strategy that have been under consideration for more than two decades, such as flood damage reduction **throughout the entire** Chehalis River Basin.

A. The Corps Did Not Adequately Consider All Reasonable Alternatives.

1. *Stated purpose and need inexplicably differ from Applicant’s.*

There are several fundamental flaws with and between the purpose and need statement, alternative screening metrics, and selection of alternatives for analysis in the DEIS. These flaws, described below, demonstrate an invalid process that does not support the proposed Project as the only solution to the stated problem.

a. Project description.

Although lacking detail provided in the Draft EIS under the State Environmental Policy Act

(“SEPA”),¹² the preferred Alternative, the proposed dam/levee Project includes an expandable dam—the FRE (equivalent size and function to the FRO considered in the PEIS). It is proposed to be 1,550 feet long and 270 feet high. DEIS, p. 26. It includes an overflow spillway and five gated outlets about 310 feet long, through which the river would flow under “normal conditions.” *Id.* A fish “Collection, Handling, Transport, and Release” (“CHTR”) facility would be located on the east side of the River immediately downstream of the FRE facility. *Id.* A reservoir with a storage capacity of 65,000 acre-feet would hold floodwaters, covering approximately 856 acres. *Id.* at 28. Vegetation would be removed from 485 acres of the FRE site and reservoir footprint. *Id.* at 31. A road bypass route consisting of existing roads would be improved by adding gravel and compacting it. *Id.* at 28.

Concrete aggregate material would come from one or more quarries, three potential sites for which are identified in the DEIS, (p. 28), and a concrete production facility would be built “near the FRE facility.” *Id.* at 30. A new power line will be installed. *Id.* at 26.

The reservoir would begin to fill approximately 48 hours before the predicted flow rate reached 38,800 cubic feet per second (cfs) at the Grand Mound gage (USGS 12027500). *Id.* at 31.

The following substantive elements of the FRE were included in a Department of Army Section 404 Permit Application (“DAPA”) submitted by the Applicant for the proposed Project September 4, 2020, but not discussed or analyzed in the DEIS:

- The CHTR would include an adult and a juvenile fish ladder, lamprey ramp, fish lift, sorting stations, holding tanks, and a mechanical/electrical building. DAPA, p. 11
- Access road improvements would include crossing several delineated streams and seven streams that have not been field verified. *Id.* at 6.
- Although the size of the quarry has not yet been defined, for the purposes of this application it was assumed that the selected quarry site would be cleared of vegetation to support up to a 15-acre quarry for aggregate production. Material processing equipment would be used to produce aggregates suitable for RCC and conventional concrete from materials

¹² Anchor QEA prepared the DEIS on behalf of the Corps under a contract with the State of Washington, and under which it also prepared a Draft EIS pursuant to the State Environmental Policy Act. Anchor QEA also authored or contributed to several technical reports analyzing various aspects of the proposed dam/levee Project that underlie the analysis in the DEIS, including the wetland delineation reports, hydrologic monitoring, hydrology, water quality reports, and fish passage design. Anchor QEA developed the dam/levee Project Operations Plan. It is a conflict of interest for Anchor QEA to be analyzing and discussing the impacts of the proposed Project in the Draft EIS based on its own underlying technical reports—essentially reviewing its own work. This situation fails to meet the objectivity required by 40 C.F.R. § 1502.14.

excavated from the quarry and concrete mixing plants. This would include rock crushers and processing plants, stockpiles, conveyors, and potential washing equipment to produce different size sand, gravel, and rock required for construction. Imported materials such as Portland cement, pozzolans (flyash), and concrete add mixtures would be stored at the concrete production facility location near the Chehalis River. *Id.* at 14.

- To the extent possible, the FCZD would minimize disturbance and creation of new impervious surfaces by using existing roads to provide access to and around the construction site. However, some permanent road improvements would be necessary to provide sufficient load-bearing for construction equipment. Improvements would likely include amendment with quarry spalls and subsequent maintenance activities. *Id.*
- Debris management, storage, and staging areas would support the deployment of boats and barges from existing access roads. Debris would be stockpiled in a log sorting yard located between RM 109.6 and 109.9. *Id.* at 15.
- Incorporation of permanent new water pipeline crossing of the Chehalis River into the FRE structure or a permanent new crossings of the Chehalis River at another location [to replace the water supply system for the town of Pe Ell, which will be affected by the Project]. *Id.* at 15-16.

No description of or justification for the expanded FRE is provided in the DEIS. Likewise, the impacts associated with the expanded FRE are not considered.

The proposed Chehalis-Centralia Airport levee portion of the Project would include:

- Adding 4 to 7 feet of height along the existing 9,511-foot levee with earthen materials or floodwalls¹³
- Raising up to 810 linear feet of NW Louisiana Avenue
- Widening the parts of the levee base
- Replacing utility infrastructure

DEIS, p. 33.

Aside from the requisite No Action Alternative, the DEIS includes only a second version of the dam/levee—a non-expandable flood-retention only dam (FRO) combined with the airport levee. The impacts of this non-expandable dam are largely deemed the same as the FRE.

¹³ In contrast, Public Notice No. NWS-2014-1118 and DAPA indicate the levee work involves “Raising the existing levee by between 1.3 feet and 5.3 feet along 9,511 linear feet.”

The Applicant for the dam/levee Project is the Chehalis River Basin Flood Control Zone District (“FCZD”), a quasi-governmental agency that has never designed, built, or operated a flood control dam. To date, the development of the Project and the SEPA and NEPA analysis have been funded by the State of Washington. However, there is currently no identified funding source to construct or operate this proposed Project.

b. Purpose and need statement.

The Applicant determined that this Project is needed:

because flooding has caused major damage in the recent past. In the Chehalis Basin, flooding has damaged homes, businesses, and agricultural areas. It has also damaged and blocked access to critical public facilities. Some transportation facilities, like I-5 and the Chehalis-Centralia Airport, have been required to temporarily shut down. These past damages and delays have resulted in high economic costs.

DEIS, p. 11.

The stated purpose of the proposed Project, therefore, is “to reduce the risk of flood damage in the Chehalis/Centralia area from catastrophic flooding.” *Id.* A “catastrophic flood” is defined as a 100-year flood, which has a 1% chance of happening each year. *Id.* The geographic scope of the Project’s purpose is then very specifically defined as the 100-year floodplain of the Chehalis River from Adna to Grand Mound. DEIS p. 11, 23. There is no justification provided in the DEIS for an expandable dam being needed to address any particular future condition. Appendix D merely notes the FRE is expandable “if the Applicant decided to increase the storage capacity in the future. This future expansion could increase temporary reservoir storage from 65,000 acre-feet to 130,000 acre-feet, but is not proposed at this time.” p. D-25.

To meet the stated purpose in the target area, the Corps applied “screening criteria based on information provided by the Applicant.” *Id.* at 23. The Corps neither cited nor provided such “information.” The Nation notes, however, the SEPA DEIS included an Attachment comprising “Applicant’s Project Description and Clarifications” (Attachment A to Appendix 1) that included a series of Memoranda from the Applicant dating between November 30, 2018 and May 7, 2019 regarding “Chehalis River Basin Water Retention Facility - Project Purpose and Need Clarification.” The May 7, 2019 Memorandum¹⁴ included the following description of the Project purpose:

The proposed project would reduce flooding originating in the Willapa Hills and improve levee integrity at the Chehalis-Centralia Airport to reduce flood damage in the

¹⁴ This May 7, 2019 Memorandum is provided on the Chehalis River Basin Flood Control District website as the “Project Purpose Need and Description” <https://www.chehalisriverbasinfczd.com/flood-retention-facility-options> (accessed October 26, 2020).

Chehalis-Centralia area Reduced flood damage would be measured by the following metrics:

1. Removing about 635 structures of value from flooding risk during a 100-year flood
2. Reducing the disruption of access via main transportation routes, specifically ensuring access along State Route (SR) 6 and Interstate 5 (I-5) is open within 24 hours of a 100-year flood
3. Minimizing flood-related impacts (e.g., closure) at the Chehalis-Centralia Airport

To achieve the proposed project purpose, the Applicant is proposing the following objectives:

1. Locate the proposed project within a geographic scope extending from the Pe Ell area to the Chehalis-Centralia area. More specifically, the Applicant is proposing to locate a flood retention facility near Pe Ell and implement levee improvements at the Chehalis-Centralia Airport.
2. Reduce flood elevations during a 100-year flood at the following locations:
 - A. 10 feet at the Doty gage (U.S. Geological Survey [USGS] 12020000)
 - B. 1 foot at the Mellen Street gage (USGS 12025500)
3. Do not extend the boundaries of the existing 100-year floodplain.
4. Provide future leaders in the Chehalis Basin the flexibility to address additional increases in peak flood levels through an adaptable design approach.

In stark contrast to the SEPA framework outlined above, the Corps imposed an entirely different framework to evaluate whether the purpose and need would be met. The Corps required that the alternatives meet all the following Phase 1 screening criteria for achieving the Project purpose:

- **Geographic Area of Flood Damage Reduction:** An alternative must reduce flood damage from a 100-year flood from USGS river gage 12021800 near Adna to USGS river gage 12027500 near Grand Mound.
- **Flood Damage Reduction Metrics:** An alternative must reduce 100-year flood elevations at each of the following locations:
 - Reduction of 1 foot at the Mellen Street gage (USGS 12025500)
 - Reduction of 4 feet at the Adna gage (USGS 12021800)
 - Reduction of 0.9 foot at the Chehalis Wastewater Treatment Plant gage (USGS 12025100)
 - Reduction of 0.8 foot at the Grand Mound gage (USGS 12027500)

- No Substantial Increase in Redirected Negative Impacts: An alternative cannot cause substantial changes to the 100-year floodplain that would increase flood damages in other segments of the Chehalis Basin. *Id.*

Applying these metrics, only four out of 61 potential alternatives were deemed viable after Phase 1 screening. *Id.* at 24. All four of these alternatives included a flood control dam and levee improvements.

As part of its Phase 2 screening criteria, the Corps considered “whether alternatives carried from Phase 1 were reasonably available to the Applicant” and “whether any alternatives would cause substantially greater impacts to the aquatic environment relative to each other.” *Id.* at 23. The remaining viable alternatives were the FRE and a Flood Retention Only (FRO) dam, which would essentially be the same as the preferred FRE but “built on a smaller foundation” and “would not be designed to allow for future expansion of flood storage capacity.” *Id.* at 34.

These criteria and metrics differ substantially from those presented in the SEPA DEIS, which included the metrics identified by the Applicant in its May 9, 2019 Memorandum regarding the “Project Purpose and Need Clarification”:

The stated purpose and objective for the FRE dam/levee Project are:

The Applicant’s **purpose** for the Proposed Project is to reduce flood damage in the Chehalis-Centralia area by constructing a flood retention facility and temporary reservoir near Pe Ell and making changes to the Chehalis-Centralia Airport levee.

The Applicant’s **objective** for the Proposed Project is to reduce flooding coming from the Willapa Hills and improve the levee protection level at the Chehalis-Centralia Airport.

SEPA DEIS, p. 6 (emphasis added). The DEIS identifies these specific metrics to measure flood damage reduction:

1. Protect approximately 635 structures of value from flooding risk during a catastrophic flood.
2. Reduce disruption of access via main transportation routes, specifically ensuring access along SR 6 and Interstate 5 (I-5) is open within 24 hours of a catastrophic flood.
3. Minimize flood-related impacts (e.g., closure) at the Chehalis-Centralia Airport.

SEPA DEIS, p. 8.

The NEPA DEIS does not provide an explanation or justification for not incorporating the Applicant’s stated purpose and need. Nor does the NEPA DEIS provide any explanation or rationale for changing the metrics used to measure the purpose of flood damage reduction from

those provided by the Applicant and utilized in the SEPA DEIS, to use a more narrowly focused purpose and need statement.

2. *Stated purpose and need are unreasonably narrow and improperly dictate alternatives.*

The purpose of the proposed Project is described (p. 11) “to reduce the risk of flood damage in the Chehalis/Centralia area from catastrophic flooding. The target area is the 100-year floodplain of the Chehalis River from Adna to Grand Mound” (Figure 2.2-1). Flood damage reduction is not the same as flood level reduction; there are many proven measures to reduce flood damage without reducing flood levels. However, the DEIS ties its screening for potential alternatives to reductions in 100-year flood elevations without justifying why flood damage can only be reduced through reduction in flood levels specifically at the Mellen Street, Adna, Chehalis Wastewater Treatment Plant, and Grand Mound river gauges. The delineation of the target area is not supported by the need statement in Section 2.2 and appears to reverse-engineer the screening metrics to the preferred alternative, effectively ruling out any other potential solution than a dam at the proposed location.

The flood damage reduction metrics used in the screening process to support the purpose for the Project differ substantially, and without explanation or justification, from the metrics presented in the SEPA DEIS to achieve the stated purpose. Inclusion of the Adna gauge in the flood level reduction metrics defines the agricultural area along the mainstem Chehalis River in that reach as being part of the target area. The need description (Section 2.2) describes the consequences of catastrophic flooding in this target area, including damage to “vast areas of agricultural land.” However, there is no rationale provided for why this particular area of agricultural land warrants flood protection while other, higher value areas such as in the South Fork Chehalis do not. In fact, the unexplained inequity of providing protection against flooding for one agricultural area over another introduces a new problem rather than solving one. If the true target area is actually the urban Centralia/Chehalis/I-5 corridor as stated (p. 11), the DEIS should be transparent about that and focus on screening for alternatives that solve the flood consequences in that smaller target area.

Further, the types of damage to agricultural land described in the DEIS need statement in Section 2.2 can be solved through measures other than the dam/levee Project, such as riparian corridors to screen out sand and other flood debris before it reaches agricultural fields, elevated farm pads (many of which have been built in the Chehalis Basin) to provide safe refuge for animals and farm equipment, and elevation or floodproofing for valuable structures (including barns). In addition, restoration of upper Chehalis headwater areas and of flood-storing riparian wetlands could reduce flood flow velocities (and possibly even levels) in the future. Additionally, actual inundation of crop land from slow-moving floodwater is widely recognized as a net benefit to crop productivity because of the soil replenishment that these floodwaters bring, as long as the farmer is able to achieve field drainage during the growing season. It is this exact process that created the fertile farmland that farmers seek in floodplain areas. Therefore, periodic flooding of agricultural land is not inherently a problem to be solved, but rather a benefit to increase agriculture viability. Limiting periodic agricultural flooding is not properly included as a “need” for the dam/levee project.

The DEIS alternative selection process describes a two-phase screening process, with Phase 1 relying on the criteria described in Section 3.2.2 – target geographic area, flood level reduction metrics, and a criterion for no substantial increase in redirected negative impacts—and Phase 2 evaluating whether alternatives were “reasonably available to the Applicant” and “whether any of the alternatives would cause substantially greater impacts to the aquatic environment relative to each other.” The DEIS is not transparent about its evaluation of other alternatives; Appendix D contains a short synopsis description of each alternative evaluated along with its qualitative ratings against the Phase 1 screening criteria. No information is provided as to the basis of the ratings assigned. The Nation notes, however, that the four projects (all variations on dams) that advanced to Phase 2 were the only ones to meet the metrics of reduction in flood levels at the specific gages defined in the DEIS purpose and need statement. Given this lack of transparency, there is inadequate basis to determine why the ratings are supported, and, accordingly, the Nation does not accept the screening results. Further, the screening process does not consider combinations of the 61 potential screened alternatives except combinations similar to the proposed project (flood retention plus airport levee improvements), resulting in a myopic evaluation process that did not truly examine the possibilities of other ways to meet the purpose and need as stated in the DEIS.

By considering the airport levee only in conjunction with the FRE/FRO facility, rather than as a stand-alone alternative or one combined with other non-dam flood reduction measures, the DEIS inflates the benefits of the FRE facility and fails to comparatively determine the efficacy of the airport levee. *See*, Appendices Comment Matrix, comment 8. Understanding impacts from the airport levee separately would be beneficial to understanding each action's unique effects and whether the airport levee options could provide important flood damage reduction benefits as part of a non-dam alternative. Furthermore, the DEIS in no way justifies the need for the airport levee in light of the stated purpose and need.

The Phase 2 screening evaluation is invalid because of the flaws in the Phase 1 screening process described above, which steered the conclusion toward a flood retention facility as the only viable alternative. In fact all of the types of measures included in the many alternatives screened out – levees, flood walls, flood proofing, farm pads, buyouts, structure elevations, and watershed restoration – are currently actively being implemented in the Chehalis Basin through the Chehalis Basin Flood Authority actions and the Community Flood Assistance and Resilience (“CFAR”) program implementation, making the argument that these measures are not reasonably available to the Applicant absurd. Nearly all of these measures would have relatively smaller impacts to aquatic systems than the proposed Project, making them viable and even superior against that Phase 2 criterion.

In summary, this DEIS is a clear example of the Corps preordaining the preferred alternative by providing an unreasonably narrow purpose and need statement. The flawed method by which the DEIS alternatives were chosen based on this unreasonably narrow purpose and need statement violates NEPA requirements to consider all reasonable alternatives and fails to appropriately foster informed decision-making.

3. *Purpose and need does not justify expandable dam/levee Project.*

In addition to the unreasonably narrow purpose, need and objectives for the proposed Project, the DEIS wholly fails to comply with NEPA requirements to consider reasonable alternatives because the purpose and need do not support that a future expanded dam with a larger reservoir is actually needed. In fact, the DEIS provides zero justification for an expandable FRE dam. Notably, because the DEIS eliminates the Applicant's previously stated objective from the SEPA DEIS to "Provide future leaders in the Chehalis Basin the flexibility to address additional increases in peak flood levels through an adaptable design approach," it eliminates the only objective that would have provided support for needing an expanded dam.¹⁵ This objective, in addition to other clarifications by the Applicant found in appendices to the SEPA DEIS, provided insight about why the FRE was designed to allow for a future expanded dam addition and larger reservoir. For further elaboration, see Quinault Nation SEPA comment letter, Section V.A.2, and referenced Exhibits and attachments, including SEPA DEIS, Appendix 1, Attachment A. Additionally, the NEPA DEIS specifically excludes consideration of future climate conditions and states that "it is not possible to predict the timing or extent of future flooding." DEIS at 40. **The DEIS, thus, on its face, fails to justify an expandable FRE dam as an alternative that meets the purpose and need stated in the DEIS.**

4. *DEIS fails to provide comprehensive flood risk evaluation for target area, compounding the lack of justification for choosing the FRE as the proposed Project.*

Flood damage reduction and flood risk mitigation standards of practice dictate that flood risks to a target area be comprehensively evaluated in order to provide reasonable assurance that the best techniques are applied to the right areas. As stated in FEMA Guidance for Flood Risk Analysis and Mapping (2019):

[D]ata and information obtained during the Discovery process should demonstrate a holistic picture of flooding issues, flood risk, and flood mitigation needs and capabilities within a watershed. The data and information gathered should also provide an understanding of the geography, demographics, and willingness to address risks, infrastructure presence, underlying building codes, and other critical elements that will provide a full understanding of the watershed.

Attached as Exhibit 7.

¹⁵ See discussion in Quinault Nation SEPA DEIS comment letter, Section V.A.2, demonstrating that even given the Applicant's stated purpose, need and objectives, the Applicant's own record demonstrates an expanded dam is not warranted because it rejected the Flood Retention Flow Augmentation dam (effectively the equivalent of an expanded FRE) as "not necessary to meet the purpose and need" and because of its "unnecessary environmental impacts."

As stated above, major floods do not equate to flood damage. Flood damage only occurs in areas where development is exposed to flooding and not designed to accommodate flood waters. Flood-resilient communities accommodate major flooding with little or no damage. The DEIS fails to provide a comprehensive assessment of how effective the FRE will be at reducing flood damage in the Chehalis-Centralia area because it ignores the regular flood damage the area experiences from several local creeks, and that “storms centered over the Black Hills and Cascade Range foothills can cause flooding in the Skookumchuck, Newaukum, and Chehalis Rivers in the Centralia/Chehalis area.” (SEPA DEIS App. N, p. N-15)¹⁶

The Chehalis-Centralia area experiences regular flood damage from several local creeks that flow through the two cities, most notably China Creek, Salzer Creek, Coal Creek and Dillenbaugh Creek, but aside from generalized statements about flood risk related to the No Action Alternative, the DEIS does not acknowledge or discuss the flood risks posed by local creeks. Through its preferred alternative, the DEIS has inappropriately narrowly focused on flooding from a single source within the Chehalis Basin – the upper Basin above the Town of Pe Ell – when it is well known that damaging floods originate from numerous sources within the Chehalis Basin, including the South Fork Chehalis, Newaukum, Skookumchuck, Satsop and other watersheds.

Although the NEPA DEIS states that the proposed FRE facility would have the volumetric capacity to impound more water than is technically needed to achieve the purpose and need during a current 100-year flood, there is no analysis of how increases in peak flows from the South Fork Chehalis River, the Newaukum River, and the Skookumchuck River will affect downstream flood stage, regardless of the impoundment and storage of flood flows upstream of Doty. Without this analysis, it becomes impossible to characterize whether the FRE facility will meet the stated purpose and need during the analysis period of 2030 to 2080. *See*, Critical Review of Proposed Chehalis River Basin Flood Damage Reduction Project NEPA DEIS: Climate Change Impacts.

The failure to evaluate different geographic sources of flooding and a range of storm events compounds the DEIS’s failure to actually meet its stated purpose and objectives. This failure contradicts sound standards of flood risk management practices to comprehensively assess flood risks to an area, and then develop solution options to address those risks.

Likewise, because of the application of unreasonably narrow purpose and need statements, a non-dam alternative was not considered. In fact, a non-dam alternative such as the Local Action Program as explored by the Nation in its comment letter for the SEPA DEIS would be best suited to provide the comprehensive plan needed to address the range of flood problems, inundation pathways and geographic flooding scenarios not considered in the DEIS and more in keeping

¹⁶ In addition to the FRE/levee Project, the DEIS briefly discusses the non-expanded FRO combined with the levee. However, because the DEIS largely concludes the impacts between the two dams are similar and does not analyze the impacts of each comparatively, the comments herein regarding the preferred FRE dam/levee Project also apply to the FRO dam/levee Project.

with the original legislative direction for the Basin. *See*, Ex. 8, Local Actions Alternative Technical Analyses Review.

5. *Stated metrics for meeting purpose and need not all met.*

Oddly, the DEIS buries its conclusions about whether the metrics tied to the dam/levee Project meeting the purpose and need will be met. *See*, Note at the end of Table 4.1-5 at 57. It confirms that of the four flood elevation reduction metrics, one is not met, and one would “most likely be met”:

1. This is the closest location to the Adna gage (USGS 12021800) and shows **the metric of -4 feet during a catastrophic flood would not be met.**
2. This is the closest location to the Chehalis Wastewater Treatment Plant gage (USGS 12025100) and shows the **target metric of -0.9 feet during a catastrophic flood would most likely be met.**
3. This is the Mellen Street Bridge (USGS 12025500) and shows the target metric of -1 foot during a catastrophic flood would be met.
4. This is the Grand Mound gage (USGS 12027500) and shows the target metric of -0.8 foot during a catastrophic flood would be met.

Id.

Because the DEIS does not comprehensively evaluate all potential sources of flooding for this area, it cannot definitively conclude that the two areas deemed to meet the target metric would actually be removed from flood risk with the proposed Project.

By the same token, whether the metric of reducing flood damage from catastrophic flooding between Adna and Grand Mound is met is only superficially addressed in the DEIS. *Id.* at 180-181. First, it states that the number of flooded acres in the study area (the FRE site to Porter) would be reduced by 2,800 acres during a major (10-year) flood, and by 4,100 acres during a catastrophic (100-year) flood. *Id.* However, it is unclear which of those acres lie between Adna and Grand Mound, specifically. Nor does the DEIS clarify whether flood *damage* on that acreage would be reduced. As pointed out previously, flooding does not necessarily equate to flood damage. Second, the DEIS states that a reduced number of structures would be flooded as a result of the dam/levee Project (55 fewer structures during a major/10-year flood and 692 fewer structures during a catastrophic/100-year flood). However, it is unclear whether this means flood levels would be reduced or these structures would see zero flooding. The DEIS states generally that critical infrastructure, including I-5, would be “protected from flooding” without providing detail about what that means. *Id.* at 180. Likewise, the statement that “[e]ssential public facilities “would experience reduced flooding.” *Id.* Again, it is unclear if this means those facilities would experience lower flood levels or reduced damage.

Because the analysis in the SEPA DEIS included future climate predictions, its conclusions showed less protection of structures from flooding and less flood damage reduction than stated in the NEPA DEIS. The NEPA DEIS, then, almost certainly over-reports the protection of structures from flooding. The failure of the NEPA DEIS to consider future climate impacts, combined with the failure to evaluate all potential sources of flooding, means the NEPA DEIS

does not validly demonstrate its metrics for achieving the stated purpose and need would be met. Accordingly, **the DEIS does not satisfy NEPA requirements to rigorously and objectively evaluate all reasonable alternatives or “to recognize the worldwide and long-range character of environmental problems,” which clearly include climate change.**

B. DEIS Fails to Take Requisite Hard Look at Impacts and Is Not Based on Credible Science.

The DEIS considers environmental impacts from the proposed Project between 2030 and 2080 and describes them as “low, medium, or high.” *Id.* at 38. These determinations were “based on best professional judgment” without further qualification or explanation of whose judgment, or what process was followed to derive them. “Low impacts may or may not be readily noticeable while medium impacts would be. High impacts would be very noticeable and cause substantial problems for the environmental resource.” *Id.* Although the DEIS indicates that the thresholds used to assess impact levels for each environmental resource are provided in Appendix E, in fact, no explanation is provided to quantitatively interpret the thresholds identified and so they cannot be validated and are not scientifically justified. *See*, TECHNICAL REPORT: Salmon Population Modeling and Aquatic Species for the NEPA DEIS Evaluation of Flood Protection in the Chehalis Basin, p. 34.

In summary, with regard to impacts to aquatic species, “Construction and operations would also adversely affect aquatic species, including fish, plants, freshwater mussels, and marine mammals.” App. K at E-2.

Key DEIS findings for impacts from FRE construction include:

- High direct impacts to anadromous salmonids and lamprey in the FRE project area and study area
- High direct impact to spring-run Chinook at the Chehalis Basin scale from loss of habitat diversity in the study area
- High permanent impairment of habitat function in the study area because of increased water temperatures and decreased dissolved oxygen below the proposed flood retention facility to RM 100 from pre-construction vegetation removal and reduced shading from riparian vegetation

DEIS at 111, 126, 132, App. K at ES-2- ES-10.

Key DEIS findings for FRE operational impacts include:

- High indirect impacts to anadromous salmonids and lamprey in the FRE project area and study area
- High indirect impacts to spring-run Chinook salmon from loss of habitat diversity in the study area

- High permanent impairment in the study area of habitat function because of increases in water temperatures (RM 108 to RM 100 near the Elk Creek confluence) from ongoing vegetation management
- High long-term modeled decrease in habitat potential in study area for spring- and fall-run Chinook salmon, coho salmon, and steelhead because of changes in habitat function, reduced supply of prey resources, and reduced fish passage
- High decrease in habitat potential in study area for other salmonids, lamprey, and other native fish species because of impacts to habitat function that are similar to impacts to modeled salmonids

Id. Although statements of these qualitative findings of impacts are spread throughout the DEIS and Appendix K, they are somewhat inconsistently described. The Nation explains below why the impacts to aquatic species and their habitats are incorrectly analyzed and underestimated in the DEIS.

To analyze impacts to natural resources, the DEIS relies on three key modeling efforts: hydrology models using data from the past 30 years, a sediment transport model, and salmon models. Because there are significant errors, omissions, flawed assumptions, and inappropriate calibration with each model, and because model inputs rely on each other, the DEIS severely underreports impacts to aquatic species and their habitats.

Furthermore, the DEIS acknowledges “precipitation patterns and air temperatures in the Chehalis Basin will differ in the future compared to the data used in modeling” (*Id.* at 40), and the DEIS concedes “it is possible that the operational impacts of the flood retention facility would also differ.” *Id.* However, future climate conditions were not modeled for the DEIS. *Id.*

These multiple severe shortcomings are discussed in more depth below.

1. *Ecosystems effects are not addressed in DEIS.*

A flood control dam alters the natural flow, sediment, and wood regimes, creating what is referred to as a first-order impact that sets in motion a cascade of effects to the fundamental physical processes that form and sustain river ecosystems. *See*, Exh. 8, Cascade of FRE Facility Ecosystems Effects Technical Memo. By disrupting the natural flow of water, sediment, and wood, the proposed FRE facility will subsequently impact all river processes related to geomorphology, aquatic habitat, wetlands, and water quality. *Id.*

Alteration of the natural flow, sediment and wood regimes directly affects both downstream sediment transport and channel hydraulics, resulting in channel incision, alteration of channel and floodplain morphology over time, referred to as a second-order impact. These impacts affect instream flows and groundwater levels that directly and indirectly set up a third-order impact to existing plant, fish and wildlife habitat and how this habitat changes over time. This, in-turn, adversely affects the plant and animal populations and their habitats. Changes in plant communities, such as vegetation encroachment into a side channel that now has a reduced flow regime, may subsequently cause changes in channel hydraulics, causing channel incision and

decoupling channel and floodplain lateral connectivity, causing feedback that further alters plant communities, habitats, and fish and wildlife populations. This leads to higher order impacts. *Id.* These impacts are thoroughly described in the Nation's SEPA DEIS comment letter (pp. 33-38) and Exh. 8 Cascade of FRE Facility Ecosystems Effects Technical Memo. As explained in the attached Addendum to Cascade of FRE Ecosystems Effects Technical Memo, the NEPA DEIS also fails to consider or address these pervasive and significant ecosystem impacts and their effects on waters, wetlands, and aquatic species and habitats.

The DEIS provides no meaningful analysis that accurately quantifies the interaction of the processes affected by the proposed Project in an ecosystem framework. Given the well-established interactions between geomorphic, hydrologic, and ecological processes that form and maintain high quality aquatic habitat, the impairment of several of these individual processes will set in motion a much larger "cascade" of impacts that will amplify over time. The synchronous alteration to multiple, connected natural processes that sustain aquatic habitat sets up a positive feedback loop in which the overall impact to ecosystems is amplified relative to the alteration of any one process. However, neither the cascade of effects, nor the amplification of effects are adequately or appropriately analyzed in the DEIS and its associated discipline reports. The result is a DEIS that presents only cursory analysis and grossly underestimates the potential for impacts to waters and wetlands, fish and wildlife species and habitats, and to the very processes that create and sustain functional rivers and floodplains through time. *Id.* at 2. If approved, the proposed Project would have impacts to aquatic species and habitats that cannot be mitigated. *Id.*

2. *Frequency and duration of impacts to flow regime are underestimated.*

The incorporation of reasonable estimates for both the current and future frequency and duration of peak flow events is critical to a credible analysis of impacts from the proposed FRE facility because its operation is directly tied to these events. The analysis of all local and downstream effects due to operation of the FRE facility depends on the hydrology of the system, and particularly on the frequency and magnitude of flooding events that would trigger operation of the FRE facility.

Although the DEIS references "...established, peer-reviewed and state-of-the-art climate projections" (DEIS, Appendix G, p. 54) related to future trends in temperature, precipitation, and flooding, the analysis of impacts tied to frequency and duration of operating the FRE facility ignores future trends. Rather, the NEPA DEIS relies on the assumption that current conditions are representative of future conditions and the assertion that future uncertainty justifies ignoring robust projections, both of which stand in contrast to a large body of scientific literature. *See*, Critical Review of Proposed Chehalis River Basin Flood Damage Reduction Project NEPA DEIS: Climate Change Impacts; Technical Report: Salmon Population Modeling and Aquatic Species for the NEPA DEIS Evaluation of Flood Protection in the Chehalis Basin.

Climate change projections are readily available for the Chehalis River Basin due to previous modeling efforts by the University of Washington Climate Impacts Group. Incorporation of these, or similar, projections is critical for a robust analysis of impacts. By excluding quantitative analysis of projected increases in the frequency and magnitude of flood events, the DEIS underestimates the frequency of operation of the FRE facility. Critical Review

of Proposed Chehalis River Basin Flood Damage Reduction Project NEPA DEIS: Climate Change Impacts, pp. 4-6, 8-9. The DEIS states that “For the purposes of the impact analysis, the EIS generally assumes that the flood retention facility would operate on average once every 7 years, which is the average predicted frequency of a major flood.” DEIS, p. 39. However, the Nation’s previous analysis of the SEPA DEIS estimates that the frequency would actually be once in every 1.8 and 1.4 years under the mid- and late-century climate change scenarios as presented in the SEPA DEIS. Critical Review of Proposed Chehalis River Basin Flood Damage Reduction Project NEPA DEIS: Climate Change Impacts, p. 6. Furthermore, the DEIS’s assumption is based on analysis of the historic record of annual peaks and does not incorporate historical observations of the occurrence of multiple peak flows that would trigger operation of the FRE facility multiple times in a single year. Critical Review of Proposed Chehalis River Basin Flood Damage Reduction Project NEPA DEIS: Climate Change Impacts, p. 4.

By not incorporating climate change in any quantitative analysis, all impacts associated with the frequency and duration of dam operation and reservoir impoundment are underestimated in the DEIS. Additionally, the frequency and magnitude of peak flows is projected to increase across the Chehalis River basin, but there is no analysis in the DEIS of how increases in peak flows in other contributing drainages will affect the ability of the FRE facility to meet the stated purpose of reducing flood stage within the 100-year floodplain of the Chehalis River from Adna to Grand Mound, which is downstream of several unregulated tributaries. By not incorporating climate change projections, the DEIS cannot adequately provide decision makers the information necessary to determine whether the future achievement of the flood damage reduction metrics can meet the stated purpose and need. *Id.* at 8-9.

3. *Impacts to sediment regime are based on flawed analyses and are underestimated.*

The sediment transport model is the primary analysis tool used to assess impacts to geomorphic processes as a result of the proposed FRE facility and serves as the quantitative basis for assessing how changes to those processes impact the ecosystem, including but not limited to aquatic habitat and fish populations (Appendix K) and wetlands (Appendix J). The sediment transport model presented in Appendix I of the NEPA DEIS is fundamentally flawed and contains many errors, omissions, flawed assumptions, inappropriate calibration, and a sensitivity analysis that does not reflect the variability and uncertainty in sediment transport predictions. *See*, Addendum to Cascade of FRE Ecosystems Effects Technical Memo.

The modeling approach significantly underestimates the sediment load from the 2007 storm event by omitting ~90% of the estimated sediment load. *Id.* at 7. The model also fails to account for increases in the frequency and magnitude of landslides due to reservoir operations. *See*, Addendum to Cascade of FRE Ecosystems Effects Technical Memo. Landslides and landslide potential are underrepresented in the supporting technical analyses and thereby underestimate sediment delivered by landslides and the resulting impact analyses; actual sediment volumes will be much higher (potentially as high as 16 million cubic yards). Critical Review of Proposed Chehalis River Basin Flood Damage Reduction Project NEPA DEIS: Geology Discipline Report Review, p. 3, 8. Observations of actual conditions in the Chehalis River confirm the sediment transport results are flawed. *Id.* Further, because the model was not properly calibrated with

bedload measurements, the accuracy of the results are questionable. *Id.* The sediment mobility analysis has multiple additional flaws, which are discussed in the Addendum to Cascade of FRE Ecosystems Effects Technical Memo.

For these reasons, the model significantly underestimates the amount of coarse sediment that would be stored behind the proposed FRE facility and the amount of fine sediment that would be transported downstream as a result of its operation. There is likely to be greater amounts of fine sediment transported downstream of the proposed FRE facility than what is disclosed in the NEPA DEIS. The implications of these underestimated impacts include likely greater impacts to geomorphic processes, aquatic habitat, and wetlands than are disclosed in the NEPA DEIS. These include, but are not limited to, greater degrees of downstream channel incision (which disconnects the river from its floodplain, results in decreases in floodplain habitat and the loss of associated wetland area and function), loss of salmonid spawning habitat through increases in siltation from fine sediment and increases in bed scour, and increased simplification of in-channel habitats. Fine sediment inputs will increase the frequency and duration of river turbidity, adversely affecting water quality, suffocating salmonid eggs, freshwater mussels, and amphibian larvae, and altering the nature and functions of floodplain wetlands – all of which would result in greater impacts to water quality, aquatic species, instream habitats, and floodplain wetlands than what is presented. Siltation from fine sediments has been identified as a contributing factor to freshwater mussel declines in many watersheds across the country. Amphibian species (including Tailed frogs, Western toads and some species of salamanders, among others) have been shown to be similarly susceptible to increases in fine sediment. *Id.*

Because the sediment transport model is fundamentally flawed, so too are all of the impact assessments that rely upon it, particularly the NEPA DEIS interpretation of the magnitude and intensity of impacts to the physical processes that create and sustain riverine, floodplain, and associated wetland habitats and their associated fish and wildlife species. *Id.*

4. *Impacts to fish and habitat based on flawed analysis and underreported.*

The DEIS relies on the same methods and models used in the SEPA DEIS (the Ecosystem Diagnosis & Treatment Model (“EDT”) and the integrated EDT-Life Cycle Model (“LCM”) Hybrid (hereafter referred to as “Hybrid”)), to evaluate impacts of the FRE on four salmonid species (spring and fall Chinook, coho, and winter steelhead) (collectively referred to as “salmon”). These salmon models utilized the same population structures, geographic area, and time periods for reporting impacts (during FRE construction, and at mid and late century), and assumptions regarding early action habitat restoration, culvert removal, and future degradation resulting from development as were used to inform the SEPA DEIS.

The major difference in methods used in the NEPA and SEPA model-based assessments is that the NEPA assessment does not evaluate impacts of future climate change, despite a clear recognition that climate change patterns are projected to worsen certain environmental conditions for salmon. Technical Report: Salmon Population Modeling and Aquatic Species for the NEPA DEIS Evaluation of Flood Protection in the Chehalis Basin, p. 3. The SEPA DEIS, on the other hand, included at least a superficial evaluation of changes in future precipitation, temperature, flood peak flows, and streamflow for mid- and late-century. Accordingly, the

analysis provided in the Nation's SEPA DEIS comment letter related to impacts to fisheries resources from the proposed Project (pp. 38-44) and associated "Review of Impacts on Fish and Fisheries as Presented in the SEPA DEIS Evaluation of Flood Protection in the Chehalis Basin" are applicable to the impacts characterized in the NEPA DEIS but not re-stated herein. Additional concerns are outlined in the Technical Report: Salmon Population Modeling and Aquatic Species for the NEPA DEIS Evaluation of Flood Protection in the Chehalis Basin and summarized below.

A primary concern is the reliance on the use of the Hybrid to examine potential effects of variability in inter-annual stream flows as reflected by United States Geological Survey ("USGS") water years. The Hybrid does not simulate effects of flow on salmon habitats directly, but rather attempts to mathematically stitch together population performance measures for life stages produced by EDT under steady state conditions for the entire life cycles of different species. Life cycles for different species encompass several years while individual life stages occur during a few months. The Hybrid, therefore, is a fundamental and irreconcilable mismatch between the population performance measures produced by EDT and an attempt to incorporate USGS water years.

The Hybrid attempts to evaluate effects of variability in water years by a random selection over a 100-year period used in modeling of three specific USGS water years chosen to represent 2-, 10-, and 100-year flood flow frequencies. The Hybrid employs "water flow conditions" that correspond to EDT's life stages for individual species. However, the months encompassed by Hybrid's selected EDT life stages do not align with October to September USGS water years. For example, Hybrid's spawner to smolt life stage for coho covers an 18-month period that includes portions of two USGS water years. An error in coordinating the modeling components between EDT and Hybrid resulted in only applying a single water year over the entire 18-month period—this mistake was never corrected even though the modelers became aware of it prior to publishing the DEIS. *See*, Technical Report, at 22. A more confusing situation occurred in modeling winter steelhead. Hybrid's representation of winter steelhead utilizes an April to March water year, which is mid-way during an actual USGS water year. In addition to the physical and biological disconnects between water flow conditions, USGS water years, and EDT life stages, persistent environmental carry-over effects are ignored by Hybrid's assumption that environmental conditions change instantaneously with water flow conditions. Hybrid's coupling of EDT life stage performance measures in an attempt to estimate cumulative impacts of variations in USGS water years over salmon life cycles is clearly fundamentally flawed.

The effects of the different water year types that serve as the inputs to Hybrid are derived using EDT by adjusting that model's habitat attribute parameters in a way intended to reflect how the attributes would change under different water year scenarios. Any errors in parameterization of EDT would be incorporated directly into results produced by Hybrid. EDT modeling suffers from a variety of deficiencies, errors, and lack of interpretation and explanation, as detailed in the Technical Report. *Id.* at 15-25, 29-33. Significant errors were found in EDT parameterization associated with the 10- and 100-year flood scenarios, which would underestimate adverse effects of those flood events on salmon populations. Hybrid suffers from structural defects in attempting to extract the EDT steady state results in a manner for which the EDT Model was not designed. This results in propagating those errors in the EDT

attribute parameterization. *Id.* at 9. Hybrid attempts to mathematically couple steady state population performance measures of productivity and capacity produced by EDT for life stages of different species to generate productivity and capacities over the entire life cycle. NEPA does not describe the mathematical methods employed to merge EDT steady state life stage results into the Hybrid. Attempting to force fit incompatible modeling frameworks is not scientifically credible or defensible. *Id.* at 25-33. As a result, the Nation does not have confidence in the validity or utility of the results produced by either model, but the Hybrid model in particular. The negative effects to salmon are significantly underestimated by the modeling. *Id.* at 4, 14, 15, 16, 18, 19, 36.

Further, the failure to include future climate impact considerations in the modeling analysis of impacts to salmon is a significant omission. From a biological standpoint, salmon populations are particularly sensitive to broadly accepted scientific projections of climate change impacts on temperatures, water flows, estuarine and ocean environments. When coupled with environmental degradation initiated by construction and operation of the proposed Project and foreclosures of opportunities to restore habitat upstream of the facility or improve resiliency, climate change will heighten risks to the viability of the salmon populations. The DEIS ignores these considerations and thereby fails to provide a sound basis for its conclusions regarding the scale and intensity of impacts to aquatic species.

In light of the omissions and errors in modeling inputs, configuration and parameterization, and omission of climate change from the analysis, the impacts on salmon and other aquatic species from the proposed Project were not sufficiently analyzed in the DEIS and are likely underestimated. As a result, the DEIS does not provide a sound scientific foundation on which to base a decision regarding issuance of a 404 permit. *Id.* at 36.

5. *DEIS fails to consider all impacts from all project components.*

There are myriad additional shortcomings and failures in the DEIS discussion of impacts from the proposed Project, which are pointed out in the various Technical Memos and Comment Matrices attached and incorporated by reference. These include inaccuracies and omissions in analyses, as well as failures to include or analyze all Project components. A few are highlighted below. Additionally, comments provided in the Nation's SEPA DEIS comment letter at B.3. *Analysis of Other Fisheries Impacts is Inadequate* and referenced Technical Report – Impacts on Fish and Fisheries, remain relevant failures in this NEPA DEIS and are incorporated by reference herein.

Three sites are proposed for development of a quarry to provide rock and aggregate for dam construction as a component of the proposed Project. However, the DEIS fails to provide site plans, volume estimates, proposed footprints, or supporting technical analyses (e.g. vibration, slope stability, stormwater management, etc.) or meaningful analysis for any of the three quarries proposed on steep slopes and adjacent to Type-S waters. The impacts of developing any or all of these proposed quarries were not analyzed in the DEIS or supporting documents. Critical Review of Proposed Chehalis River Basin Flood Damage Reduction Project NEPA DEIS: Geology Discipline Report Review, pp. 3, 9. Nor were the impacts of the associated concrete production

facility, including “rock crushers and processing plants, stockpiles, conveyors, and potential washing equipment” considered or analyzed. NEPA EIS Comment Matrix, comment 29.

A water line relocation for Pe Ell is included as a component of the proposed Project in the Applicant’s DAPA, but is not specifically identified in the NEPA DEIS, nor are the impacts of this component analyzed. No proposed plans nor detailed descriptions for the water line relocation were presented in the NEPA DEIS or supporting documents. Supporting graphics submitted with the Project’s public notice (Sheet 20 of 22 dated 7/30/2020) identify the water line relocation. It crosses many geologically hazardous areas, including landslides, steep slopes, and channel migration zones. The excavation, installation, and operation of a municipal water line in these hazardous areas has probable impacts to wetlands and waters, and aquatic species and their associated habitats and compensatory mitigation would be anticipated. Critical Review of Proposed Chehalis River Basin Flood Damage Reduction Project NEPA DEIS: Geology Discipline Report Review, pp. 3, 9; NEPA EIS Comment Matrix, comment 17.

The potential impact of large waves and dam-break floods resulting from large landslides were not fully evaluated in the DEIS. Critical Review of Proposed Chehalis River Basin Flood Damage Reduction Project NEPA DEIS: Geology Discipline Report Review, p. 1, 8-9; Geology Comment Matrix, comments 59, 66.

Impacts from new road development and the development and use of a debris management storage and staging area that would support the deployment of boats and barges from existing access roads are not analyzed. See, Forest Practices Technical Analyses Review– Proposed Chehalis River Basin Flood Damage Reduction Project, NEPA DEIS, pp. 3-8.

Impacts to wetlands are severely underreported, resulting in incorrect calculations of wetland impacts that would require compensatory mitigation. *See generally*, Wetlands and Other Waters Comment Matrix and Addendum to Cascade of FRE Ecosystems Effects Technical Memo. First, the DEIS inappropriately represents changes to the flood inundation area as being the sole factor indicative of impacts to the complex network of riverine processes within the 100-year floodplain that sustain existing wetlands and waters and continuously form new wetlands and waters over time. Addendum to Cascade of FRE Ecosystems Effects Technical Memo, p. 16. Second, the DEIS underestimates the downstream impact on groundwater recharge, and therefore the formation and maintenance of floodplain wetlands, by using inappropriate groundwater recharge rates and a rudimentary groundwater-surface water analysis. Critical Review of Proposed Chehalis River Basin Flood Damage Reduction Project NEPA DEIS: Climate Change Impacts, pp. 2, 4-7. Third, the DEIS fails to recognize the pervasive cascade of impacts to wetlands and waters downstream of the proposed FRE facility as a consequence of the operation of the FRE and fails to characterize the impacts that are acknowledged as operational impacts even though they are the direct result of the operation of the FRE facility. The DEIS also fails to accurately represent the scale and intensity of these impacts to wetlands as a result of the interaction of the riverine processes affected by the proposed Project. Further, because these downstream impacts to the area and function of the 100-year floodplain, its wetlands and waters, and associated habitats should have been characterized as permanent, direct impacts attributable to the proposed Project, they should be subject to requirements for compensatory mitigation of area and function. Addendum to Cascade of FRE Ecosystems Effects Technical Memo, pp. 16-

19; Wetlands and Other Waters Comment Matrix. The DEIS fails to accurately or consistently state the cause and type of impact (i.e. direct, indirect, compounded over time) to waters and wetlands. Gross internal DEIS inconsistencies render the decision maker incapable of understanding the true scope and scale of impacts to area and function. Mitigation cannot be appropriately proposed, or its potential efficacy considered, unless the scope, scale, and mechanism of impact is accurately represented. *Id.*

The DEIS fails to provide sufficient evidence for its conclusion that water quality impacts from mercury would not occur from operation of the FRE facility, including ignoring the documented role that decomposing vegetation plays in enhancing mercury methylation that may make the FRE facility an actual source of methylated mercury. *See*, Water Quantity and Quality Comment Matrix, comments 26-34. On the contrary, there is evidence that methylmercury uptake and concentration elevation happens rapidly in aquatic organisms and could occur within the expected inundation period for the proposed reservoir—up to one month according to the DEIS (Appendix G, p. 69; Appendix D, Table 2.2-1, p. D-39), although further evaluation of issues with the DEIS hydraulic and geomorphic models suggests the temporary reservoir would be inundated for much longer periods. Therefore, the potential exists for methylmercury accumulation in fish—fish the Nation relies on for subsistence--due to the proposed FRE facility, which must be more thoroughly analyzed. *See also*, Terrestrial Species and Habitats Comment Matrix, comment 28.

Impacts to macroinvertebrates, amphibian and wildlife species are not fully disclosed or analyzed in the DEIS. *See generally*, Terrestrial Species and Habitats Comment Matrix. Similarly, impacts to native plant species and their communities that provide habitat for native aquatic and terrestrial wildlife species are not considered. *Id.* at comments 9, 12, 27, 29.

For the foregoing reasons, numerous direct and indirect impacts have been omitted, underestimated, or insufficiently analyzed in the DEIS. The erroneous critical assumptions, omissions, and errors present in the DEIS and associated discipline reports and modeling efforts result in a gross underestimation of the potential for impacts to waters and wetlands, fish and wildlife species and habitats, and of the very processes that create and sustain functional rivers and floodplains through time. **These failures represent an overall failure to comply with NEPA requirements to take a reasonably thorough and hard look at the environmental consequences of the proposed Project in order that the decision of whether to issue a 404 permit is founded on a reasoned evaluation of the relevant factors.**

C. Cumulative and Indirect Impacts Were Not Fully Considered As Required by NEPA.

The DEIS fails to disclose, quantify or characterize the permanent, temporary, indirect, and cumulative impacts from construction and operation of the proposed Project consistently or accurately. *See*, NEPA DEIS Chapters Comment Matrix, comments 60-88. This failure prevents regulatory decision makers from having an accurate accounting of the impacts to acres, processes, and functions that would occur to natural resources and species as a consequence of the proposed Project.

Most egregious, although the FRE includes a footprint that allows for an expandable, larger dam to be constructed at the site in the future, the impacts of an expanded dam are not addressed. According to documents included in the SEPA DEIS, the proposed Project would add \$60 million to \$100 million to the price tag of the dam in order to build “a foundation and hydraulic structures capable of supporting future construction of a larger dam with up to 130,000 acre feet of storage.” *See*, Exh. 7, App. 1, Att. A-2, pp. ES-1, 6. The dam designer, HDR, went to the extent of providing design configurations, construction details and cost opinions for the expanded dam, evident throughout the Report at App.1, Att. A-2. *See*, Exh. 7. Despite the DEIS’s glaring omission to consider future climate change impacts, the building of an expanded dam is a likely indirect consequence of the building of an expandable dam, and therefore, reasonably foreseeable. Accordingly, the impacts of an expanded dam should have been analyzed as an indirect and cumulative impact. NEPA DEIS Chapters Comment Matrix, comments 64, 65.

The DEIS evaluated impacts over a time scale of 50-years. Given the fact that large dams are intended to last far longer than 50-years and there is no commitment to remove the project in 50-years, the evaluation period of 50-years is arbitrary and misleading because it minimizes impacts that occur over a longer time period. Cumulative environmental impacts will increase with time, maintenance costs will rise considerably with the age of the project, dam failure risks will increase as the facility ages, and flood reduction benefits will diminish significantly after 50 years based on climate predictions. Critical Review of Proposed Chehalis River Basin Flood Damage Reduction Project NEPA DEIS: Geology Discipline Report Review, pp. 1-2.

Accordingly, the DEIS fails to comply with NEPA requirements to fully disclose and analyze the past, present and future direct, indirect, and cumulative impacts from construction and operation of the proposed Project.

D. Mitigation is Not Described or Analyzed as Required by NEPA.

As set forth above, NEPA requires that mitigation for environmental effects identified in the DEIS be identified and discussed in enough detail that a decision maker can understand and assess whether and to what extent significant impacts can be avoided or mitigated. If impacts cannot be avoided or mitigated, that fact must be disclosed and disclosed clearly. And, while it is useful for the DEIS to describe where impacts can or will be “minimized,” minimization is not mitigation and that must be clearly disclosed and the difference discussed. The DEIS fails on each of these counts.¹⁷

¹⁷ This section addresses the failure of the DEIS to adequately identify and analyze mitigation measures for the impacts that are identified in the DEIS. It must be noted, however, that the multiple failures of the DEIS to adequately disclose, analyze and/or discuss the many adverse impacts from the dam/levee Project, also mean that the mitigation discussion is, at its core, inadequate because it does not include any mitigation discussion for the impacts that the DEIS missed or underestimated.

An adequate discussion of mitigation measures in the DEIS requires at least:

- identification of what mitigation is being considered;
- which impact each proposed mitigation measure will address (e.g. for which species as well as the type of impact for example spawning or rearing or migration);
- a general analysis and discussion of the potential success and magnitude of success of the particular measure, including any barriers to that success;
- timing of mitigation and whether that will negatively affect the success of that mitigation measure;
- proposed general locations of the mitigation measures because that will likely affect the success or at least magnitude of success of the proposed measure.

While detailed and definite mitigation plans need not be completed for environmental review under NEPA, the descriptions and discussion of mitigation must not be a mere list, must not be perfunctory, and must be definite enough that the reasonableness and success of the mitigation measure can be judged with some assurance that the intended mitigation will occur if the measure is implemented. There are significant gaps in the mitigation measures presentation in this DEIS, with no substantive statement of impact scale or intensity, no link to the mechanism of impact, and no analysis of the likelihood of mitigation reducing the impact to a lower level or consequence. This is particularly true regarding the pervasive ecosystem and aquatic species impacts from the operation of the FRE dam. The mitigation provisions in the DEIS particular to ecosystem and aquatic species impacts do not meet the basic requirements of federal law.

First, the mitigation section of the DEIS claims that the Final EIS (“FEIS”) will present “updated potential mitigation measures” (DEIS at 265). Deferring a detailed disclosure and qualitative discussion and analysis of mitigation measures to the FEIS deprives the public of the opportunity to be informed on mitigation and to comment, contrary to either the mitigation requirements or public participation requirements of NEPA.

Second, the DEIS wholly fails to identify or analyze actual mitigation of the most serious ecosystem impacts identified in the DEIS that will have the most significant impact on the Nation, much less mitigation that is “reasonable and capable of being accomplished.” *See*, NEPA EIS Comment Matrix, comments 89-112; Critical Review of Proposed Chehalis River Basin Flood Damage Reduction Project NEPA DEIS: Geology Discipline Report Review; Terrestrial Species and Habitats Comment Matrix, comment 34.

The DEIS does not disclose or discuss mitigation measures that are actually intended to be taken nor does it qualitatively analyze, even in general terms, how that mitigation might work, what species impacts will be addressed by which mitigation measures or when, where, by whom and over what duration the mitigation measures will be implemented. The proposed mitigation measures in the DEIS include actions that would be normal elements of any dam operation, such as a breach flood warning system, construction BMPs, and a vegetation management plan. None of these elements minimize or reduce impact mechanisms, and thus, are not actual mitigation for impacts. NEPA EIS Comment Matrix, comment 15.

The “conceptual framework” of Section 7.4 is nothing more than the “mere list” that has been repeatedly rejected by federal courts. The DEIS does not target mitigation measures to the mechanism, scale, or intensity of significant impacts that are actually identified, particularly to spring Chinook and other already-threatened salmonids. The DEIS does not indicate what the intended environmental benefits of mitigation measures are for significant adverse impacts, does not discuss their technical feasibility and economic practicability, and makes no mention of whether there is any indication that a mitigation measure is capable of being accomplished, because of course, there are no actual mitigation measures identified to assess whether they can be accomplished. Section 7.4 does not even make clear *where* the mitigation measures might be taken other than to say the applicant is “focusing on an area that is largely the same as the upper Chehalis Basin upstream of where the Skookumchuck River empties into the Chehalis River.” DEIS at 269. The Chehalis River at that location is not at all like the upper reaches where the dam will be. Further, that description is unclear in that it could be referring to the Chehalis or the Skookumchuck sub-basin. There is no tethering of this very general list of potential best management practices in some unspecific location at some unspecified point in the future to the actual impacts and the type and magnitude of mitigation that will actually be needed. The DEIS discloses only the possibility of some mitigation proposal (not actual mitigation), someday, post-EIS, that may or may not propose to address the actual impacts to salmon, aquatic habitats, and wetlands.

A specific example of the lack of qualitative analysis and discussion concerns the claim to unspecified “habitat improvements including culverts.” Tribes have been waiting decades for culverts, which harm fish to such an extent that the failure to address them by the State has been found to be a violation of Treaty rights, to be addressed. There is no discussion of how this Project Applicant will make any measurable progress such that it will mitigate the extreme damage from this dam/levee Project when various government entities have so thoroughly failed for decades. Culverts are a pointed example of how this is a mere list of things that harm salmon that could be fixed. It is not a discussion of mitigation measures for the comprehensive suite of processes, systems, habitats, and species which this dam/levee Project will impact that is adequate under federal law.

The failure of the DEIS to adequately identify actual mitigation and discuss and analyze how effective that mitigation might be (or even where it might occur), means that the dam/levee Project will cause all the harm now with the unspecific potential of some mitigation of unknown quality and quantity later.

Finally, NEPA requires that if an impact cannot feasibly be mitigated, an EIS must state this. As demonstrated above based on credible science, ecosystem scale impacts and species extinction cannot be feasibly mitigated. The DEIS should have so indicated.

For the many failures to properly address mitigation as required under NEPA, the DEIS is inadequate.

E. Other NEPA Requirements Not Met.

1. *DEIS fails to include adequate environmental justice impacts analysis.*

Overall, the environmental justice analysis requires that no minority or low-income population group bear a disproportionate share of adverse environmental and socioeconomic impacts resulting from major projects such as the dam/levee Project proposed for the Chehalis Basin. In addition, special efforts must be made to reach out to such communities to ensure that they understand the proposed project, its potential impacts on them, and to ensure that those communities' concerns and the effects upon them are heard and understood by the decision makers so that decisions can be altered to avoid burdens being disproportionately-borne. Both CEQ and EPA identify special considerations particular to Tribes in this regard.

The DEIS fails to properly analyze or consider the impacts of the proposed Project from an environmental justice perspective, particularly the impacts on the Nation's cultural, economic, and historic interests as well as the impacts to the Nation's Treaty rights.

The EIS must examine the environmental justice impacts, particularly impacts to salmon and the riverine processes that create and sustain salmon habitat, and must do so from the perspective of how specifically this affects the Nation and the magnitude of those effects. It must be at least a qualitative discussion with adequate detail for the decision-makers and the public to understand the nature and magnitude of the effects, including cumulative effects to the Nation over time. Here, the DEIS, while acknowledging tribal interests in fishing, hunting, gathering and ecosystem services generally, and acknowledging high adverse unavoidable impacts to fish, including extirpation of spring Chinook, the DEIS fails utterly to grapple with or discuss in any detail or in a qualitative way, the very negative and specific impacts to members of the Nation from the dam/levee Project.

The DEIS primarily follows a census block methodology for identifying any environmental justice concerns or impacts. That is, to be considered an environmental justice impact, it must occur to a community that is in actual physical proximity to the Project or the river itself. This is an incomplete and unanalytical approach to environmental justice considerations. While there might be some impacts to certain communities from reduced flooding along the river, the primary impact of concern for environmental justice is the further decimation of salmon stocks and the riverine processes that create and sustain viable salmon habitat in the Chehalis Basin. This identified "high" adverse impact will most negatively affect communities that rely on those fish, communities that may have very little physical proximity to the river. That is, the census block approach to assessing environmental justice concerns from the dam/levee project focuses more on the density of environmental justice communities in the region and fails to focus on the real concern which is the intensity (or "density") of actual impact from decimation of fish populations which will affect any persons or communities that rely on those fish whether or not they reside close to the river. The physically-proximate census block approach therefore completely fails to address the most serious and most negative impacts on communities like the Nation, as well as commercial fishing families, from the dam/levee Project.

The DEIS purports to include consideration of impacts to tribal members living outside the census blocks that are physically proximate to the river, at 239, but the DEIS then goes on to analyze in detail the impacts to the proximate census blocks while shunting an extremely general and conclusory statement about the Nation to the very end of the environmental justice section. Therefore, it appears that the environmental justice analysis and discussion focuses almost exclusively on those communities proximate to the river. The census block approach especially fails to address the disproportionate impact on Quinault members who may rely on fish for food. It further fails to address the disproportionate impact on the culture of the Quinault Nation, both due to the census block approach, but also due to the complete failure to even discuss in a detailed and qualitative way, the importance of salmon, including spring Chinook, on the Nation's culture. Only at the very end of the environmental justice section of the DEIS are two short paragraphs, generally acknowledging that "some people" may depend on these [aquatic and terrestrial] species for food, medicine, fiber, economic livelihood and cultural and spiritual values. In only one sentence, the DEIS says that the Quinault and Chehalis people will be disproportionately adversely affected by the impacts from the dam/levee Project. DEIS at 247.

The environmental justice section is also inadequate because it includes a false comparison of environmental justice effects as between the no-action alternative and the dam/levee alternatives. As noted above, the DEIS fails to consider a non-dam alternative and as such, does not meet the requirements of NEPA. But, that failure carries over and compounds other failures such as with the environmental justice analysis. A non-dam alternative would have far fewer negative effects on the Nation than either the FRE or FRO Alternative. And, because a non-dam alternative would likely be designed to address flooding through habitat and wetland restoration and measures designed to preserve and protect the environment, it would not have the negative effects of increased or continued flooding that the DEIS claims is the downside of the no action alternative. A non-dam alternative is plainly an important consideration in the weighing and discussion of environmental justice and the highly disproportionate effects the dam/levee Project will have on the Quinault people. Also, as to the increased or continued flooding from the no-action alternative and its effect on some lower income communities, the DEIS fails to grapple with the fact that low income people will still be in harm's way even after the dam/levee Project is constructed.¹⁸ By failing to consider a reasonable range of alternatives, the DEIS also fails to properly and fully analyze environmental justice concerns and considerations.

Finally, the claimed "flood reduction benefits" of the dam/levee Project to select members of the community will come at an extremely high cost to the Quinault people, meaning not just that the Nation will suffer disproportionate negative impacts, but will get none of the benefits, a double negative impact. This repeats a historic pattern of sacrificing the interests and rights of

¹⁸ It is also likely that low-income communities throughout the Chehalis Basin will be disproportionately affected by the dam/levee Project, yet nowhere is that discussed. For example, "high value" properties like the airport and/or commercial properties are clearly favored. Similarly, "high value" property may be receiving funds for this Project, leaving less public money available for habitat restoration (critically important to the Nation) or less public money available to move individuals out of harm's way.

Tribes to other concerns or communities that is nowhere acknowledged or discussed in the environmental justice sections of the DEIS. That kind of failure runs directly counter to the methods and considerations spelled out in CEQ and EPA Guidance.

In sum, the DEIS fails to conform to environmental justice requirements to assess and discuss disproportionate impacts to the Quinault Nation from the proposed Project. The DEIS is inadequate in its failure to adequately address environmental justice impacts on the Nation.

2. *DEIS fails to adequately analyze negative socioeconomic consequences of dam/levee Project.*

Overall, the analysis of socioeconomic impacts from the dam/levee Project is so deficient the results cannot be used or relied up on for decision-making. Because the very purpose of the DEIS is to inform decision-makers and the public about the impacts of the proposed project such that decision-makers and the public can make informed choices regarding the project, the DEIS does not meet the most basic requirements of NEPA. *See generally*, Executive Summary of Socioeconomic Impact Analysis Review (“Socioeconomic Review”). Further, cumulative economic and socioeconomic impacts, along with the high cost of operating the dam/levee Project, are significantly underestimated while ecosystem costs are not quantified or evaluated at all. In fact, it is likely that if the damage to ecosystem services were properly valued and considered, the dam/levee project would overall damage the economy of the Chehalis Basin. Socioeconomic Review, p. 15. Therefore, the DEIS’s economic analysis is also misleading. This comment will highlight and summarize the inadequacies of the DEIS’s socioeconomic analysis. For details, refer to the Socioeconomic Review.

As noted, the DEIS is severely deficient in its assessment of socioeconomic impacts from the dam/levee Project. The DEIS is missing data, has partial or incomplete analysis, over and under-estimates important components such as economic benefits or costs of mitigation, and is a complete failure in that there is no assessment of the economic impact of the most significant adverse impacts of the project—impacts to salmon and ecosystem services. *See*, Socioeconomic Review generally, and at 7-11. An example of the incomplete and/or inaccurate data problem concerns the focus primarily on timber and agriculture as regional economies yet nothing about fisheries---commercial, recreational or subsistence. This renders data about the local economies and costs or benefits there utterly useless. Socioeconomic Review, p. 11. Similarly, the estimated jobs and benefits therefrom for the Project are clearly overestimated, particularly because it is unlikely that the jobs will all be filled from within the Chehalis Basin. Socioeconomic Review, p. 19.

Most egregious, the DEIS makes *zero* effort to quantify, assess, or even acknowledge the economic impacts of the substantial adverse effects to salmon and ecosystem services. The DEIS claims this stems from the fact that these impacts are “difficult to predict,” “quantify,” or “measure.” Even if true, (and it is not), the DEIS fails to follow the clear procedures laid out in the rules for when data is not available. If in fact, information is truly lacking, 40 C.F.R. § 1502.22 makes clear what the preparer must do. First, get the information. Second, if the information is relevant and truly cannot be obtained, the DEIS must state it is relevant and in

what way, describe what information is needed but unavailable, summarize what information is available and the agency's assessment of that information, and the agency must apply the best theoretical approaches and/or research generally accepted in the science community to fill the gap in information as much as possible. None of that has occurred in this DEIS and it appears no effort was made to comply with this requirement in the rules as to the socioeconomic impacts related to damage to fisheries and ecosystem services.

Importantly, the statement that information is not available or that the socioeconomic impacts cannot be assessed, is simply false. Despite significant harm to Chehalis Basin salmon runs being the most significant impact of the dam/levee project, the DEIS "shows no level of expertise in understanding fisheries." Socioeconomic Review, p. 27. Information regarding Washington fisheries in particular and the larger impacts of Washington salmon on area economies is readily available. *See*, Socioeconomic Review, pp. 24-25, 28 for just a sample of available information. Salmon fisheries---and the economic impact of their decline---have been well-studied and it is ridiculous for the DEIS to suggest that that information is not available or cannot be used to estimate the impacts of substantial damage to the Chehalis Basin salmon runs. The utter failure of the DEIS to assess these likely large economic losses from the dam/levee Project renders the minimal DEIS effort to do a comparative "cost/benefit" analysis baseless and useless.

Particular to the Quinault people, the DEIS section on socioeconomic impacts fails to note or discuss the fact that economic impacts to the Nation will be felt through food costs, commercial fishing costs, and cultural and spiritual costs. While there is an extremely general acknowledgment of cultural and spiritual importance for ecosystem services and fishery resources, the DEIS then simply states they are irreplaceable and therefore cannot be measured in dollars. That statement may be true, but if that is indeed correct, then those resources must be considered priceless such that their loss will always exceed the limited "benefits" from the dam/levee project. Nowhere does the DEIS attempt to analyze and discuss those relative concepts. Instead, the DEIS simply ignores the socioeconomic impact of the devastation.

The Socioeconomic Review outlines a number of steps and/or sources of information that will help correct the glaring deficiencies in the DEIS, *see, e.g.*, Socioeconomic Review, p. 17. The Corps must follow those steps and seek the information to conform to the rule requirements for this analysis. Under a proper and thorough socioeconomic analysis, "[i]t is highly likely that the 'beneficial' economic impacts of the proposed Project will be completely offset by the negative impacts on the economic benefits of ecosystem services to the local economy and amenity support in-migration. For that reason, it is also highly likely that the proposed Project would, overall, damage the economic vitality and well-being of the Chehalis Basin." Socioeconomic Review, p. 15.

3. *DEIS fails to identify conflicts with state and local plans.*

The DEIS ignores the legal framework and obligations of the Chehalis Basin Strategy embodied in State law and directing the Office of Chehalis Basin and its oversight board the responsibility "to aggressively pursue implementation of an **integrated** strategy and administer funding for long-term flood damage reduction and aquatic species restoration in the Chehalis

river basin.” RCW 43.21A.730(1). In fact, the Washington State Legislature directed that the Programmatic EIS (2016) guide this integrated approach. RCW 43.21A.731(5). The PEIS analyzed several suites of actions including two types of dams: one with a temporary pool referred to as a Flood Retention Only (FRO) dam, and one with a permanent reservoir referred to as a Flood Retention Flow Augmentation (FRFA) facility. Neither of these dams were considered in the DEIS, but rather the proposed Project is an expandable dam—the FRE—which was not considered in the PEIS. The analysis of the FRE in this DEIS is contrary to state legislative direction, and arguably arbitrary and capricious.

Regardless, the proposed Project addresses only a small component of one of the goals of that overall Strategy, leaving most of the Chehalis River Basin and its residents unprotected. The proposed dam/levee Project would provide some flood damage reduction to a small area within the Chehalis Basin at an extreme cost that may well eliminate opportunity for flood reduction projects elsewhere in the Basin. Furthermore, the catastrophic impacts on ecosystems and aquatic resources and habitats are antithetical to the Strategy’s goal of Basin-wide aquatic species restoration.

The DEIS assumes state forest practices permits will be obtained for Project activities, but fails to acknowledge the conflicts and obstacles as they relate to the proposed Project. For example, the necessary Class IV Special authorization to convert forested lands to non-forested lands is unattainable under current state law. *See*, Forest Practices Technical Analyses Review, p. 1. An Alternate Plan would be required under state law, but obtaining one would be unlikely. *Id.* at 3. Compliance with state and federal CWA requirements related to forest roads would be similarly difficult but is not acknowledged. *Id.* at 4-6; Aquatic Species and Habitats Comment Matrix, comments 81, 82.

Similarly, the DEIS acknowledges the need for various County permits and approvals (DEIS, Appendix F at F-13), however, it fails to acknowledge the conflicts between activities permissible under County Code and the unlikelihood of obtaining such County approvals. Geology Comment Matrix, comments 11, 33.

While the DEIS notes the over-appropriation of water rights in the Chehalis Basin and that new water rights might be difficult to obtain (DEIS, p. 51, 54), it fails to discuss this in the context of needing a new water use permit. *Id.* at F-12. *See*, Water Quantity and Water Quality Comment Matrix, comment 8; Aquatic Species and Habitats Comment Matrix, comment 76.

The FRE construction work windows identified in the DEIS are not realistic and do not take into consideration likely restrictions under state law and for various federally-protected fish and wildlife species. *See*, NEPA EIS Comment Matrix, comments 9, 28, 57, 103, 105, 108; Aquatic Species and Habitats Comment Matrix, comments 20, 48, 52-54.

Key federal guidelines and standards should have been referenced and integrated into the DEIS analysis to support planning, analysis and considerations for dam design. *See*, Geology Discipline Report Review, p. 7. The failure to indicate whether these documents were properly used in the planning, analysis, and consideration of design in the DEIS results in significant

information being omitted from the DEIS and fails to properly inform decision makers about important safety requirements.

F. Clean Water Act Requirements Are Not Met and 404 Permit Cannot Be Issued.

As discussed above in Section II.A., the Corps' determination of whether it can issue a 404 permit depends on meeting four prerequisites. The Nation analyzes each in light of the DEIS herein.

The first criterion is: “[N]o discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences.” 40 C.F.R. § 230.10(a) (emphasis added). Because of the unreasonably narrow purpose and need statement, only two dam alternatives are analyzed in the DEIS. However, a practicable non-dam alternative was analyzed in the SEPA DEIS and is in the process of being further developed by the Office of Chehalis Basin. A non-dam alternative should have been analyzed in this DEIS. Because a non-dam alternative is viable and would have a significantly less adverse impact on aquatic ecosystems than the proposed FRE or FRO, this criterion is not met. Further, because of the errors, omissions, and misrepresentations present in the DEIS related to the geomorphic model, the hydrologic and groundwater analyses, flaws in the representation of the frequency and duration of FRE facility operation, and the failure to include any quantitative analysis of climate change, no accurate understanding of adverse impacts to waters, wetlands, and aquatic resources can be determined. These flaws result in a gross underestimation of the frequency, duration, and spatial extent of reservoir formation and in the potential impacts to waters and wetlands, as well as associated floodplain and instream aquatic habitat, as well as the amplification of impacts over time if the proposed project is approved for construction and operation. Because the Phase 2 alternatives screening evaluated whether any of the alternatives “would cause substantially greater impacts to the aquatic environment relative to each other,” the level of impacts is a key consideration in what constitutes a viable alternative and which alternative would have “less adverse impact.” It is not possible to have determined that only the FRE and FRO facilities met the screening criteria when the analysis contains such fundamental flaws in the methods used to present the scale and intensity of impacts. This criterion cannot be met based on the analysis presented in this DEIS.

The second criterion is: “No discharge of dredged or fill material shall be permitted if it . . . [c]auses or contributes, . . . to violations of any applicable State water quality standard . . . [or] [j]eopardizes the continued existence of species listed as endangered or threatened under the Endangered Species Act . . . or results in likelihood of the destruction or adverse modification of . . . a critical habitat . . .” 40 C.F.R. § 230.10(b). As pointed out in numerous comments in the attached Comment Matrices, the DEIS does not accurately or fully confirm the proposed Project will comply with applicable State water quality standards. Comments in the Aquatic and Terrestrial Species and Habitats comment matrices demonstrate the proposed Project will jeopardize ESA-listed species. This criterion is not met.

The third criterion is: “[N]o discharge of dredged or fill material shall be permitted which will cause or contribute to significant degradation of the waters of the United States.” This

includes adverse effects “on life stages of aquatic life and other wildlife dependent on aquatic ecosystems” Such effects “are not limited to, loss of fish and wildlife habitat or loss of the capacity of a wetland to assimilate nutrients, purify water, or reduce wave energy[.]” 40 C.F.R. § 230.10(c). The DEIS relies on inaccurate hydraulic and geomorphic modeling to project impacts on downstream floodplain wetlands and waters, fails to utilize climate change projections to assess impacts, and presents a simplistic and inaccurate picture of the magnitude and intensity of impacts that will result from modifying the flow of water, sediment, and wood once the Chehalis River is confined to flowing through the low-level outlets of the proposed FRE facility. *See*, Section IV.B. above. Equally problematic, the analyses of impacts on salmon and other aquatic species from the proposed Project were not sufficiently analyzed in the DEIS and are likely underestimated. *Id.*; *and see*, Addendum to Cascade of FRE Ecosystems Effects Technical Memo. The third criterion is not met and cannot be met given the magnitude of impacts that cannot be mitigated.

The fourth criterion is: “[N]o discharge of dredged or fill material shall be permitted *unless appropriate and practicable steps have been taken which will minimize potential adverse impacts of the discharge on the aquatic ecosystem.*” 40 C.F.R. § 230.10(a) (emphasis added). As described above, the DEIS provides no actual mitigation or demonstration that adverse impacts to the aquatic ecosystem have been, or can be, minimized. The fourth criterion is not met.

The analysis in the DEIS fails to support issuance of a 404 permit. **Accordingly, the Corps cannot issue a 404 permit based on this DEIS because the CWA criteria for issuance have not been met.**

G. DEIS Improperly Fails to Analyze Significant Impacts to Treaty Rights.

The Nation has Treaty-reserved rights and interests as outlined in its scoping letter of October 29, 2018, that will be significantly adversely affected by the proposed dam/levee Project. *See*, discussion at I above. The DEIS entirely ignores the extensive scoping comments provided by the Nation. In the brief paragraphs discussing Cultural Resources, the DEIS mentions the Treaty of Olympia, but utterly fails to discuss impacts to Treaty rights and resources. Indeed, the DEIS incorrectly characterizes the Nation’s Treaty area: “Usual and accustomed fishing grounds are treaty-reserved areas where tribes traditionally fished, hunted and gathered.” DEIS, p. 20 footnote. As explained in the scoping comments submitted by the Nation, the usual and accustomed fishing area includes the entire Chehalis River Basin, and the Nation further reserved the right to hunt and gather on open and unclaimed land.

The DEIS considered impacts from the proposed Project on aquatic and terrestrial species and habitats (including fish, shellfish, aquatic plants, and marine mammals), discussed in Chapter 4. Though these species and habitats are Treaty resources, the DEIS does not consider these impacts or the biological implications of the impacts through the lens of Treaty obligations.

As explained above at Section IV.B., the consequences to the Nation’s Treaty fishing resources have been grossly underestimated and, in fact, the Nation’s Treaty fishing rights and interests will be severely adversely affected by the proposed Project.

The Corps had more than adequate opportunity between the time it received the Nation's scoping comments (November 14, 2016) and its publication of the DEIS for public comment (September 18, 2020) to engage in government-to-government consultation, as requested in the Nation's scoping comments, in order to more fully ascertain and address impacts to the Nation's Treaty rights. Meaningful consultation has not occurred. *See* footnote 7 above. The Corps' failure to consult with the Nation is in stark contradiction to the requirements in Executive Order 13175 and the Corps' commitments to Indian tribes in its Consultation Policy and Related Documents.

Based on the underestimation of impacts to fish resources, and the significant but underreported impacts to the Nation's Treaty rights, issuance of a 404 permit for the proposed Project would violate the Treaty of Olympia and the Corps' trust responsibility to protect Treaty resources.

H. Future Compliance with Federal Laws Fails to Properly Inform Decision Makers.

The DEIS defers compliance with various federal laws pertaining to fish and wildlife species to future consultations and permitting processes. In doing so, the DEIS undermines the essential purpose of NEPA— to provide comprehensive up-front environmental analysis to ensure informed decision-making.

1. *Endangered Species Act.*

The Corps has “determined the proposed project would adversely affect listed species. After receipt of comments from this public notice, the Corps will evaluate any additional potential impacts and will initiate Section 7 consultation with the NMFS and USFWS as appropriate.” Public Notice No. NWS-2014-1118.

Section 7 of the ESA and the CWA require consultation with USFWS and NMFS to provide “an adequate review of the effects that an action may have upon listed species or critical habitat.”

The DEIS fails to provide complete information about impacts to ESA-listed species. For instance, Southern Resident Killer Whales are mentioned, but impacts from the proposed Project were only cursorily addressed in the DEIS. Salmon from the Chehalis Basin, particularly spring Chinook, are a key food source for Killer Whales and increasing the abundance of spring Chinook is critical for their recovery. *See*, Aquatic Species and Habitats Comment Matrix, comments 40, 41. The dam/levee Project has potential to severely harm spring Chinook runs, and therefore, harm Killer Whales. *See*, Quinault Nation scoping comments and attachments.

Marbled Murrelets are a federally- and state-listed Threatened species. The DEIS fails to fully consider impacts on Marbled Murrelets and the forested habitat they rely on for nesting; the proposed Project is not consistent with the USFWS Marbled Murrelet Recovery Plan, which states that suitable habitat should be preserved in large, contiguous blocks to minimize nest predation. Terrestrial Species and Habitats Comment Matrix, comments 2, 20-25, 35.

The DEIS fails to consider the ESA petitions to list two species present in the Chehalis Basin. On August 18, 2020, the Xerces Society for Invertebrate Conservation filed a petition with the U.S. Fish and Wildlife Service to consider listing the Western Ridged Mussel under the ESA. The DEIS should have given greater consideration to this species and evaluated the possible implications should it become listed under the ESA. Aquatic Species and Habitats Comment Matrix, comment 64. Likewise, the Columbia Torrent Salamander (*Rhyacotriton kezeri*) has been found within the FRE reservoir footprint. On September 17, 2015, the USFWS responded to a petition filed by the Center for Biological Diversity to list this Salamander. Having conducted the initial 90-day determination, the USFWS found that the petition presents substantial scientific or commercial information indicating that the petitioned action may be warranted. The DEIS fails to recognize the significance of and risk to the local Columbia Torrent Salamander population, and fails to acknowledge the potential for impact to the viability of this imperiled species as a direct result of the proposed Project. Terrestrial Species and Habitats Comment Matrix, comments 2-4.

Failure to initiate consultation with USFWS and NMFS and include relevant measures to protect ESA-listed species that will be harmed by this Project fails to provide decision makers with adequate information to make a fully informed permit decision.

2. *Bald and Golden Eagle Protection Act.*

The BGEPA prohibits the take, possession, sale, purchase, barter, offer to sell, purchase or barter, transport, export or import, of bald or golden eagles, including any part, nest, or egg, unless permitted under the authority of USFWS. “Take” includes acts to “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.”

The DEIS fails to consider the loss of potential nesting habitat for Golden Eagles as a result of the construction of the FRE facility and the clearing of forest in the upstream inundation area. Three historic Golden Eagle nests have been identified within the vicinity of the upstream inundation area of the FRE. Although not currently active nests, these data show that Golden Eagles have historically utilized the area as nesting habitat and could potentially use it again in the future. Given their status as a protected species, and the lack of any survey of the project area for Golden Eagles, potential impacts to Golden Eagles should have been, but were not, considered in the DEIS. Terrestrial Species and Habitats Comment Matrix, comment 13. The DEIS also fails to consider the potential for direct construction impacts as well as indirect effects on Bald Eagle populations from operations of proposed FRE facility. *Id.* at comments 18-21; Appendices Comment Matrix, comment 10.

3. *Migratory Bird Treaty Act of 1918.*

The MBTA prohibits the take of protected migratory birds, their eggs, parts, or nests unless authorized by a permit under the authority of USFWS. “Take” includes acts to “pursue, hunt, shoot, capture, collect, kill, or attempt to pursue, hunt, shoot, capture, collect, or kill.”

The DEIS fails to adequately address the likely take of multiple species protected under the MBTA. See, Appendices Comment Matrix, comment 11; Terrestrial Species and Habitats Comment Matrix, comments 6, 23.

4. *Marine Mammal Protection Act.*

The MMPA prohibits, with certain exceptions, the "take" of marine mammals in U.S. waters, including harassment, hunting, capture, collection, or killing, or "any other negligent or intentional act which results in disturbing or molesting a marine mammal."

Among those marine mammals that may be affected by the proposed Project, Southern Resident Killer Whales are among those reliant on salmon from the Chehalis River system. However, the DEIS fails to recognize and evaluate the degree to which the Proposed actions will result in the harassment of local marine mammal populations nor do they provide any viable mitigation proposals to ameliorate the detrimental effects of this harassment. Aquatic Species and Habitats Comment Matrix, comments 40-41, 65, 67, 114.

5. *Magnuson-Stevens Fishery Conservation and Management Act.*

The Corps "has determined the proposed project would adversely affect designated EFH for federally managed fisheries in Washington waters. After receipt of comments from this public notice, the Corps will evaluate any additional potential impacts and will initiate EFH consultation with the NMFS." Public Notice No. NWS-2014-1118. Under the MSA, the Corps must consult with NMFS regarding impacts to EFH and seek recommendations regarding measures that can be taken to conserve it.

Failure to initiate consultation with NMFS and include relevant measures to protect the anadromous fish species using the Chehalis River Basin fails to provide decision makers with adequate information to make a fully informed permit decision.

6. *Fish and Wildlife Coordination Act.*

The FWCA requires consultation with the USFWS about the proposed dam/levee Project. The FWCA also requires consultation with Washington State's Department of Fish and Wildlife ("DFW").

The DEIS does not include an explicit record of wildlife resource loss and damage prevention as required under the FWCA. Failure to initiate consultation with USFWS and State DFW as required under FWCA fails to provide decision makers with adequate information to make a fully informed permit decision.

7. *National Historic Preservation Act.*

Section 106 of the NHPA imposes several obligations that should occur in conjunction with EIS development, including to make a "reasonable and good faith effort" to identify historic

properties within the “area of potential effects, including any data concerning possible historic properties not yet identified.”

The Corps “has determined the proposed project would adversely affect historic properties eligible for inclusion in the [National Register of Historic Places] (two Native American archaeological sites and three Native American Traditional Cultural Properties). After receipt of comments from this public notice, the Corps will evaluate any additional potential impacts and consult with the State Historic Preservation Officer, the Advisory Council on Historic Preservation, Native American Tribes, and other interested consulting parties on a resolution of adverse effects in accordance with Section 106 of the National Historic Preservation Act.” Public Notice No. NWS-2014-1118.

The Section 106 study area for cultural resources did not include the 100-year floodplain, which is not explained in the DEIS. This deficiency results in an unstudied and overgeneralized assessment to impacts in the DEIS. *See*, Critical Review of Chehalis River Basin Flood Damage Reduction Project NEPA DEIS: Cultural Resources Issues. Further, there are most likely many undocumented archaeological sites, above ground built properties, and traditional cultural properties in the unassessed parts of the Study Area, particularly the 100-year floodplain. *Id.* However, a complete analysis has not yet been undertaken to determine the full extent of impacts to the Nation’s cultural interests. *Id.*

CONCLUSION

The DEIS fails to consider all reasonable alternatives for addressing flood damage in the target Chehalis-Centralia area. It relies on a statement of purpose, need, and objectives different than the Applicant’s, and unreasonably narrow, to justify excluding a non-dam alternative from consideration. It provides no justification for an expanded dam, and therefore, no justification for spending tens of millions more to construct an expandable dam.

Despite wholly inadequate analysis and under-representation of many significant impacts having disproportionate negative effect on the Nation, the DEIS admits that significant impacts will result from the proposed Project. Its failure to consider future climate predictions results in an unwarranted underestimation of how frequently the proposed dam will impound flood waters. The DEIS provides no information or discussion regarding whether or how those significant adverse impacts can or will be mitigated.

The DEIS fails to meet fundamental requirements of NEPA and does not provide the requisite hard look at the Project justifying issuance of a CWA 404 permit. Among other significant defects, because the Project will have far more than a *de minimis* impact on the Nation’s reserved Treaty rights, the Corps must deny the permit.

The Nation appreciates consideration of these comments. Should you have any questions concerning these comments, do not hesitate to contact the undersigned. The Nation looks

November 16, 2020

Page 58

forward to continuing to work on a more comprehensive and less-damaging strategy for addressing flood damage in the Chehalis Basin.

Sincerely,

A handwritten signature in black ink, appearing to read "Janette K. Brimmer", with a long horizontal flourish extending to the right.

Janette K. Brimmer
Earthjustice
Attorney for the Quinault Indian Nation

Karen Allston
*Senior Assistant Attorney General, Quinault Indian
Nation*

November 17, 2020

Chehalis River Basin Flood Damage Reduction Project
c/o Anchor QEA
6720 South Macadam Street, Suite 125
Portland, OR 97219

Confederated Tribes of the Chehalis Reservation
Comments Related to the US Army Corp of Engineers Draft Environmental Impact Statement for
the Proposed Chehalis River Basin Flood Damage Reduction Project

Chehalis River Peoples

The Confederated Tribes of the Chehalis Reservation (Chehalis Tribe) are inextricably linked to nsúlapš, more commonly known as the Chehalis River. Nsúlapš can be translated as “our wealth water”, because the river has provided all things of value to the Chehalis River Peoples. As the descendants of the first people of these lands, Chehalis River Peoples have a living memory that spans beyond the age of the river. Their stories begin in the time of the glaciers that covered much of North America and describe the creation of the rivers, hills and valleys by the creator ɣʷəni ɣʷən. As stewards of the watershed, the Chehalis River Peoples are deeply concerned with the health of the river and are committed to protecting the wealth that it provides.

The principal Chehalis Reservation is located at the confluence of the Chehalis River and the Black River; however, portions of the Reservation are located throughout the watershed and include areas within a few miles of the proposed dam. The Chehalis Tribe’s aboriginal / traditional areas are spread throughout the entirety of the watershed, from the headwaters of the river to Grays Harbor. Salmon, lamprey, other aquatic species and the many plant species that are native to the watershed, have provided food, economic opportunities and cultural connections to the Chehalis Tribal Community for generations. The combination of land use impacts, over-harvesting and climate change have already damaged the fish and wildlife populations in the watershed and has had direct damaging effects on the tribal community. The proposed projects will have immediate and long-lasting negative impacts on aquatic species and aquatic habitat. The Chehalis Tribe is concerned that no amount of man-made mitigation is going to make up for those impacts.

The importance of clean water for the tribal community cannot be overstated. Clean ground water and surface water are absolutely critical for all life within the Chehalis Watershed. Tribal members ability to drink, bath, recreate, feed their family and pray are all directly connected to the health and abundance of water in the basin. As a sovereign nation, and through federal channels, the Tribe has legal water quality standards that apply to all reservation lands, including those directly downstream from the proposed facility. Portions of the river are currently under water quality restrictions and are being evaluated for ways to correct the already degraded conditions. Additionally, due to high demand and a history of undocumented

claims, the Chehalis Basin is currently over committed with water rights claims. The high demand for water has led to minimum in-stream flows regularly not being met and the subsequent curtailment of junior water rights. The basin is closed to new claims and efforts are underway to create a plan to account for usage in the future. Protecting the quality and quantity of water in the basin is an absolute necessity. The proposed projects will have a huge negative impact on water quality and the quantity of water in the aquifers associated with flood plains, with the potential to undermine many of the efforts of recent years.

The Chehalis River and its many tributaries dominate the ecology of the region. Riverine ecological areas are one of the most productive areas in the world and the Chehalis Watershed is no different. Regular flooding creates a dynamic and abundant environment around the basin, that produces healthier and more robust plant life, as well as, a diverse food web that supports a vast variety of animals. That diverse web of plants and animals has become woven into the lives of the people of the Chehalis Tribe and are a vital aspect of its culture. The proposed projects will have immediate and long-lasting impacts on those vital riverine ecologies, impacts that cannot be mitigated.

Executive Summary of Our Comments

The Confederate Tribes of the Chehalis Reservation is a member of the Chehalis Basin Board and is heavily involved in the Chehalis Basin Strategy. The Chehalis Tribe has participated in flood damage reduction planning and natural resource protection planning for decades, with a variety of groups, organizations and boards, all with the goal of protecting people from the hazards of flooding and protecting the ecology of the watershed. On many occasions, tribal leaders and the tribal community have made it clear that they will not support any projects in the watershed that will have negative effects on the ecology of the river, or on salmon and other important aquatic species.

The DEIS for the proposed flood reduction projects makes it abundantly clear that the construction of these proposed projects would create major impacts on the ecology of the Chehalis River and cause severe impacts to spring salmon, steelhead and many other aquatic species, thus hastening their path to extinction. The DEIS fails to meet the minimum requirements of the National Environmental Policy Act (NEPA), because it has failed to fairly and completely assess the potential impacts to protected resources and because it failed to consider appropriate alternatives to the proposed projects. The Chehalis Tribe cannot support these projects, nor accept their consequences. The comments below will describe specific impacts that the Tribe believes are important to highlight and areas where we feel this DEIS fails to meet the requirements of the National Environmental Policy Act (NEPA).

Failure to Meet NEPA Requirements

Requirements of the NEPA EIS are stated in the Code of Federal Regulations to include specific aspects. §1502.1 Purpose of environmental impact statement states “NEPA is to ensure agencies consider the environmental impacts of their actions in decision making. It shall provide full and fair discussion of significant environmental impacts and shall inform decision makers and the public of reasonable alternatives that would avoid or minimize adverse impacts or

enhance the quality of the human environment.” The DEIS has failed to meet this requirement of “full and fair” in multiple regards. The selection of alternatives should include all “reasonable alternatives to the proposed action” (§1502.14). The alternatives did not include any local action combinations or any alternative that did not include a flood retention facility. As this has been the driving force behind the political movement in the basin, it appears that this document has violated §1502.2 where it states “Environmental impact statements shall serve as the means of assessing the environmental impact of proposed agency actions, rather than justifying decisions already made”. The EIS is also required to “include appropriate mitigation measures not already included in the proposed action or alternatives” (§1502.14). The document did not include appropriate mitigation measures but instead repeatedly referred to existing BMPs or stated that the plans will be drafted in the future. These clear failures make the DEIS unacceptable to the Chehalis Tribe.

Tribal Cultural Impacts

The Confederated Tribes of The Chehalis Reservation are the descendants of Chehalis River Peoples that refused to be removed from the lands of their ancestors. Their creation stories tell of the creator ḫʷəni ḫʷən forming the hills, valleys and rivers of the entire basin. Chehalis River Peoples lived throughout the watershed and their culture is directly linked to the Chehalis River and its tributaries. Since European settlers began to move into the Chehalis Watershed, the Tribal community has been steadily and devastatingly impacted. The siting of a flood control dam on the very lands where their Creator lived is another example of those impacts. The proposed project will have significant impacts to culturally significant sites, as well as to the aquatic species, wildlife and plants that are the very nature of the culture of the Chehalis River Peoples and is; therefore, unacceptable.

Aquatic Species Impacts

Salmonids and other aquatic species are already in peril in the Chehalis Watershed. The spring Chinook run is so depleted and returns have been so low, that the Chehalis Tribe, the State and the Quinalt have had to close the Chehalis River to fishing two years in a row. The closing of the river in 2019 triggered NOAA to declare an economic disaster due to the low number of returning salmon. Steelhead are also experiencing low returns and this year the State and the Tribes will close fishing for them on the Chehalis River as well. The spring Chinook are a unique population of Chinook and there are discussions in the basin about petitioning to have them listed as a Threatened or Endangered Species. All aquatic species will bear the brunt of the impacts from these proposed projects.

Field research and modeling have shown there is substantial salmon and steelhead trout spawning and rearing habitat directly adjacent to the dam and in the reservoir footprint. Spawning and rearing habitats will be destroyed due to the inundation of the flood retention reservoir. Large areas will be stripped of large trees and the loss of riparian areas upstream of the dam will cause scouring and erosion in the reservoir footprint.

If the proposed dam is permitted, the projected five-year construction phase would cause severe damage to out-migrating juvenile fish and to returning adults, despite mitigation plans calling for hauling fish around the construction site. Altered flow patterns will impact sediments

downstream and damage spawning areas. Species affected include: winter and summer steelhead trout, spring and fall Chinook salmon, Coho salmon, and Pacific lamprey. The Pacific lamprey is another species of particular concern to the Tribe and there has been a documented presence of lamprey within a mile of the proposed dam. There were many other vital species that were not included in the detailed studies, such as: large scale sucker, sculpin, mountain whitefish, speckled dace, western toad and Van Dyke's salamander. These species were given no more than a mention, but are a vital piece to a functioning system.

The loss of 17 miles of habitat, which includes upstream reaches of the main stem river and tributary habitat and significant amounts of habitat downstream that will be irreversibly affected by construction and operation of the dam. The project will directly degrade prime spawning habitat for fall chinook and remove key habitat elements such as large woody debris, which hold the gravel in which chinook spawn. The damage will have lasting impacts on the already critically imperiled spring Chinook salmon runs. The scale and scope of mitigation that would be required to balance the impacts to aquatic species and their essential habitat is incredible and unattainable.

Water Quality Impacts

Water quality within the Chehalis Basin currently faces a multitude of challenges. The Department of Ecology has noted exceedances of key parameters from established water quality standards throughout the basin, including temperature, turbidity, and dissolved oxygen (DO). Research from the Washington State Department of Fish and Wildlife note that elevated temperatures are a critical factor in the ability of aquatic species to thrive (Winkowski et al, 2018). With air temperatures projected to increase between 3.7°F and 4.7°F due to "climate variability" by mid-century and 5.0°F and 8.5°F by late century (Appendix G pg. 55), it is critically important to protect and preserve all areas which provide cool water habitat. The proposed project could raise water temperatures by up to two degrees Celsius behind the dam (DEIS Pg. 63).

Temperature is also directly related to the available DO in a system. Reduced concentrations of DO levels, instances of which have also been documented in multiple reaches in the Chehalis, can lead to fish kills and dead zones that cannot sustain aquatic life. The DEIS predicts that the proposed project could cause elevated levels of turbidity and sediment (DEIS pg. 63-64) in the Chehalis River. Increased turbidity results in a lack of water clarity which reduces the biological productivity of aquatic systems; thereby, increasing temperatures, decreasing DO, affecting the feeding and growth of fish, increasing predation and clogging fish gills. There have been several mechanisms put in place by the state to help alleviate these existing problems; however, those measures are rendered moot when all of the above factors are noted as potential effects from construction and operation of the proposed water retention facility. These impacts cannot be adequately mitigated.

ADDITIONAL COMMENTS

General NEPA Related Comments

1. The alternative analysis does not meet USACE or Council on Environmental Quality (CEQ) NEPA guidance or regulations.

The DEIS presents Alternative 1, Alternative 2, and the No Action Alternative. Alternatives 1 and 2 essentially the same alternative, with the flood retention expandable (FRE) alternative (Alternative 1) having a foundation that is 20 ft narrower. It is also interesting that Alternative 2 is defined as flood retention only (FRO), since we understand Alternative 1 to be an FRO alternative also. If there another component that is not for retention of water only, it has not been addressed.

This is a huge project and a 20-ft difference in the foundation of the dam does not meet the USACE NEPA requirements (40 CFR 1501.5) for a reasonable alternative. As shown in multiple sections of the DEIS, there is no need to describe any construction, operation, impact analysis, or mitigation that differ from those of Alternative 1, because there are no basic differences. The difference between Alternatives 1 and 2 also does not meet the Council on Environmental Quality Regulations for implementing NEPA (40 CFR 1502.14), including reasonable alternatives formed on purpose and need (33 CFR 32; see comments on Purpose and Need herein).

2. Why is an expandable flood retention facility considered a viable alternative to a flood retention facility? Where is the discussion on the need for an expandable dam? There is explanation or need for an expandable version of the dam, despite the fact that the proposed project will be built to accommodate such an expansion.
3. The majority of the flood retention alternatives listed for review had previously been eliminated as possibilities for achieving the main goals as stated in the Programmatic EIS through multiple studies. Re-evaluating these projects here appears to be an attempt at searching for a valid alternative where in fact it is simply filling space and, as stated above, does not fulfill the regulatory requirements of the document.
4. One of the main criteria listed by the flood control district is that the project directly affect the geographic scope extending from Pe Ell to the Centralia-Chehalis Area. Projects included in the screening process included alternatives in the Wynoochee, Montesano, and Satsop areas. These should not have been included in the evaluation process as they did not fall within the geographic scope.
5. Phase 1 screening includes a set of criteria for evaluating alternatives, which does not match the intended purpose of the project as outlined in the Purpose and Need document provided by the Flood Control Zone District (Letter to USACE dated 5/7/2019 https://static1.squarespace.com/static/59de46d2d2b8572392209c3c/t/5d018f5e679451000161f089/1560383326926/CORRECTED_Chehalis_NEPA_ProjNeedPurpDescrip_20190612_NOFIGS.pdf). There was only one stated criterion that was the same; the reduction of a foot of flood elevation at the Mellen Street Gage during a 100-year flood event. Alternatives cannot be adequately assessed for the purpose of the project if the same criteria is not applied to all projects proposed.

6. The alternatives screening criteria were too limited.

Why are these metrics so limited/limiting? The narrow screening criteria completely ignores one of the two goals of the Chehalis Basin Strategy. How were these metrics decided upon? Flood Reduction levels are misleading and need to be clarified to show relative change in flood levels from projected flood levels. “Readily available” need to be clarified. If the applicant is already working on plans for a certain type of project, then that is more “readily available” than other projects types that will have great benefit to both natural and human environment throughout the Chehalis Basin.

7. The EIS does not provide a flood prevention option that does not include a dam.

Several actions that could be used to reduce flooding and flood damage exist, yet they are not considered in this EIS (USACE 2020) or described in Appendix D as part of the No Action Alternative. A practical alternative would be the restoration of natural flood plains that have been cut off from the river and the removal of floodplain impediments and structures, with the possible addition of protection for essential infrastructure (e.g., raising Interstate 5 above flood levels). There are many opportunities for such actions throughout the area, both in the mainstem of the Chehalis River and the many tributaries that cause flooding in the project area.

Such actions include habitat restoration projects within the Chehalis River floodplain (and the floodplains of tributary creeks), floodproofing structures or purchasing properties in flood zones, land use management strategies to minimize development within floodplains, culvert replacement projects, and the use of livestock pads, among others. By relegating these types of actions to the No Action Alternative and then treating the No Action Alternative as though it will have no impact on flooding scenarios, these other types of actions are essentially eliminated from consideration within this DEIS. An alternative should be developed for a basin-wide floodplain habitat restoration strategy, with secondary actions like floodproofing and livestock pads as additional activities that could be implemented as part of an adaptive strategy.

8. The basis for determining potential for impacts over a 50-year period does not include the critical aspect of climate change and therefore is not accurate.

The potential for impacts is based on frequency, duration, and magnitude of flooding; this potential is used as the basis for determining operation scenarios and impacts over a 50-year period. There is absolutely no quantitative consideration of the impacts of climate change as a critical basis for modeling potential operations and future modifications (also not addressed), and therefore the impacts analysis is not scientifically based and certainly not accurate.

Research by numerous federal, state, university, and other institutions substantiates the fact that stream flows in Western Washington have altered dramatically and will continue to change as climate change affects our environment. Even the Ecology EIS (Ecology 2020) includes climate change parameters—such as projections for precipitation, temperature, flood peak flows, streamflow, and sea level rise—throughout its analyses and modeling as part of future conditions for all scenarios and

all resource areas. Consistent climate change predictions are included in the baseline conditions for the proposed project No Action Alternative and Local Actions Alternative.

This document clearly stated the changing conditions throughout the basin, including the reduction of snowpack at the headwaters of rivers flowing from the Cascade Mountain range. The decrease of snow pack translates to the increase of flowing water from each storm event centered over tributaries to the Chehalis River. This, in turn, will change the relative source of flood waters in the basin, potentially eliminating the long-term desired effect of placing the flood retention facility in the Willapa Hills.

9. The complete absence of this obvious and critical element in the development of operation scenarios (e.g., modeling) and the therefore inaccurate analysis and determination of impacts and mitigation makes the basis of the EIS and its overall conclusions completely inaccurate. The DEIS failed to adequately analyze avoidance and mitigation requirements for the project.

NEPA requires project proponents to reduce potential impacts to protected resources by first avoiding those impacts via design changes, minimizing those impacts via design changes, or mitigating for those impacts to balance out the impacts. Throughout the DEIS the sections mention numerous low, medium and high impacts to protected resources, yet there is little to no discussion of avoidance, or minimization. Throughout those same sections, mitigation is discussed, but the bulk of the mitigation measure mentioned are actually Best Management Practices (BMP's) that do not meet mitigation requirements. The need for future development of mitigation plans is mentioned for many sections of the document, but without those very detailed mitigation plans, the full impacts of the proposed project cannot be determined.

General Project Comments

10. Page 11 - The defined purpose in the document does not match the stated purpose outlined in the Flood Control Zone District Documentation and lacks specifics. A change in the stated purpose of the project changes the criteria in which all projects associated are assessed.
11. Page 11 - The geographic region defined in the purpose statement does not include the same geographic area defined by the proponent nor does it align with the area defined in the scope of evaluation for the proposed projects.
12. Page 20 – Stating that the Chehalis Basin is mostly forested without the caveat that it is held in private timber companies is misleading. Recent studies (Segura et al. 2020) have indicated that active forest propagation as is done with private timber industries has a direct effect on the hydrologic process. Primarily Douglas Fir dominated forests have been shown to increase the flashiness of the stream and river network. Varying stages of growth and forest age also directly impact the hydrology.
13. Page 23, 3.2.2 Flood Damage Reduction Metrics, this section needs an explanation of how these four criteria correspond to the “accepted level of flood damage reduction.” If

structures were raised, flood-proofed, moved or demolished in those same areas, wouldn't you achieve lower damage from flooding? Isn't that the ultimate goal?

14. Page 23 – No substantial increase in Redirected Negative Impacts – This section was obviously not used to consider the impacts that the inundation (which could be considered a redirection of the floods) in the upper basin would have on the fisheries or forestry industry in regards to the selected proposal.
15. Page 26, “When the gates are partially closed upstream fish passage would be CHTR”. The likelihood of the fish passage gates being closed during fall spawning season is high, leading to increased mortality of spawning fish.
16. Page 28, 3.4.1.1.3 Access Roads, One can assume that Weyerhaeuser will not allow for the project without permanent access roads being constructed so they can harvest on their other properties without dealing with potentially closed roads. Those cost and impacts those roads need to be included.
17. Page 30, Construction of the FRE facility would require dewatering a section of the Chehalis River. To do this, the river would be diverted around the construction site through a 1,630-foot-long diversion tunnel about 20 feet in diameter. How will diverting fish runs through this pipe for 3-4 years impact salmonids and other aquatic species? How will trap and haul impact salmonids and other aquatic species?
18. Page 30, “Resident fish and lamprey would also be collected...”. What species represent resident fish?
19. Page 31 - The stated purpose of the dam is to reduce flood levels during a catastrophic flood event. This does not explain the decision to set the flood retention criteria for a major flood nor does it relate the relative flood damage incurred during this type of event. The intention for the project should match the purpose and need or provide valid reasoning why there is a deviation. The letter provided by the flood control zone district further clarifying the rationale for the lower water criteria for closing the dam at the Grand Mound gage. This metric should not have been included in the EIS without clear rationale.
20. Page 31 – The document states that when the facility is operating, the gates would reduce the river to a flow rate of 300 cfs which is “a naturally occurring winter low flow rate on the Chehalis River” however, in table 4.1-1, flow rates are indicated to be between 956cfs and 1260. The explanation does not clarify how the effects of changing the flow from a rate of 1260 down to 300 during an event would translate to all the affected environs.
21. Page 31, “Construction would require removing 485 acres of vegetation. No quantification or definition of what “vegetation” is. Why is there no specific management plan in place for the public to comment on?

22. Page 31, “The FRE facility would begin to hold back floodwaters when flood forecasts predict a major or greater flood. The temporary reservoir would begin to fill approximately 48 hours before the predicted flow rate reached 38,800 cubic feet per second (cfs) at the Grand Mound gage (USGS 12027500).” Who makes this decision to close the gates? What is the alert system that the FRE will be operating, and who will be alerted?
23. Page 32, If the temporary reservoir were full, it would take up to an estimated 32 days for the temporary reservoir pool to completely empty. This more than month-long inundation would surely kill almost all forest vegetation within the temporary reservoir footprint. This area would then be susceptible to colonization by weedy and invasive plant species, particularly if vehicles and other equipment were traveling in and out of this area after it had drained. The resultant 850-acre patch of weeds would then be a source of invasive plants to nearby, intact forested areas.
24. Page 32, This section mentions the use of an anchored log boom to help trap LWD floating on the surface of the temporary reservoir and prevent it from entering the FRE. Where would this log boom be located? It is not shown on any of the maps. How large would it be? Would it be a permanent feature?
25. Page 32 “Applicant proposes to develop a vegetation management plan that reduces the potential of LWM accumulation at the FRE facility, and vegetating areas to minimize erosion.” Without the plan, it is impossible to ascertain that the applicant will successfully mitigate for the impact of removing 485 acres of “vegetation” in terms of LWM, shading in the riparian zone, and terrestrial habitat for wildlife.
26. Page 32, If trees are actively removed every 7 to 10 years as well as inundated for up to 1 month every 7 to 10 years, the land within the temporary reservoir footprint is likely to support only shrubs, small trees/seedlings, groundcover species, and a great number of weedy and invasive plants that will likely colonize this highly disturbed area. Invasive plants that colonize the temporary reservoir footprint are also likely to invade nearby, intact forested habitat.
27. Page 32, This section proposes the development of a vegetation management plan that focuses on maximizing the amount of beneficial shading for aquatic resources, reducing potential LWD accumulation at the FRE facility, and vegetating areas to minimize erosion. In addition, flood-tolerant vegetation would be maintained as a priority. However, removing trees and LWD is counter to achieving beneficial shading and minimization of erosion.
28. Page 32, Fish would not be able to pass through the FRE facility while it operates. To address this issue, the Applicant proposes to provide upstream fish passage through the CHTR facility. No downstream passage would be provided. This means downstream passage could be blocked for up to 32 days in the event of a catastrophic flood. Fish

passage during operations is summarized in Table 3.4-1. The “Culverts Case” determined that projects that diminish or eliminate fish runs and destroy habitat-forming processes that are essential to the availability of fish to tribes cannot be permitted. But this DEIS will specifically block downstream fish passage for up to 32 days, most likely during salmon and steelhead outmigration times. This is directly counter and in violation of the “Culverts Case”.

29. Page 32, Operation of the CHTR facility would begin immediately prior to the closure of the gates. The Applicant proposed to design the CHTR facility for upstream fish passage. Fish would be collected in the CHTR facility and released into the river at pre-selected release sites determined by fisheries biologists. The CHTR would continue to operate until the last remaining water in the temporary reservoir is released. Who would manage, operate, and oversee the safe handling and movement of the fish? How would this program be funded? How would this CHTR facility meet both NOAA/NMFS and WDFW permitting criteria to allow full fish passage?

Water Quantity and Quality Comments

30. The information used to evaluate water quality and associated impacts were taken from the Department of Ecology and the private environmental firm Anchor QEA. Due to funding limitations of the state, these waters are only evaluated by Ecology on a very limited basis. Extensive studies by local conservation districts, Tribal Water Quality evaluations and the State Department of Fish and Wildlife have drastically increased the information in the basin. By only siting studies performed by the Department of Ecology and Anchor QEA, the EIS has underutilized available data and therefore not completed a comprehensive analysis of water quality in the affected area.
31. Page 43, The river mile locations of the stream gauges in relation to the river mile of the proposed projects are not clear.
32. Page 45, The DEIS states that the Chehalis River floodplain is generally narrow in the vicinity of the proposed flood retention facility and that, due to steep river banks, floodplain functions (such as water storage capacity) are limited. However, beginning around Pe Ell, the floodplain widens and the topography becomes less steep. As the areas that would experience flooding under existing conditions during a major or catastrophic flood event are all downstream from Pe Ell, Washington, there should exist opportunities to enhance flood water storage capability through floodplain restoration projects. However, the EIS does not include consideration of such projects.
33. Page 45, There is a good description of the importance of the floodplain and connectivity, but little description about the risk of human development in the floodplain. Why doesn't the DEIS assess the potential for increased development in the floodplain? There is certainly a pattern of development in the Lewis County area that could continue to create more floodplain impacts and increased flood damage.

34. Page 46 – map of affected areas by a major flood does not show interstate 5 being inundated. As the avoidance of this is the proponent’s main objective, including this map is irrelevant to the stated purpose and need.
35. Page 48 – Water Quality Criteria determined by the department of Ecology is cited but the Tribal Water Quality Standards are not. Because Federally designated reservation land is directly in the path of the affected waters from the facility, these standards must be taken into consideration.
36. The waters above the facility also frequently exceed stated water quality standards (Tribal Records, WDFW Thermalscape) but are regulated differently because they fall under the Forest Practices guidelines.
37. Page 49 – Too much algal growth only causes oxygen depletion when it dies off and decomposes. Otherwise, primary producers contribute to oxygen levels.
38. Numerous impacts to water resources are identified from the construction and operation of Alternative 1 and 2 and the majority of the proposed mitigation actions for water quality and quantity impacts (Section 4.1, pp. 41-69) are following pre-existing BMP specifications provided by the state and county. These BMPs are designed to minimize impacts to water quality and quantity during construction of the project, but do not meet the mitigation requirements. The applicant is proposing to develop several plans which are not provided in any detail, nor is the process in which they will be developed or reviewed. Since there is only reference to plans that have yet to be developed, it is impossible to gauge how effective they will be to mitigate for water quality and quantity impacts of this project. There is also no mention to avoid, minimize, or mitigate the permanent loss of 11.4 acres of floodplain.
39. Page 51, There is not enough discussion about the type of land where flood reduction will occur? Does this land hold less weight if it is agricultural or forest land rather than residential or commercial? This factor is not included among the decision factors in Section 3.2.2. Most flood reduction will occur near Doty and Adna, Washington, which comprise mostly agricultural land.
40. Page 53 – “Water quality is not expected to become worse under the No Action Alternative than it is under current (2019) conditions” This is a statement that is only made because of research and evidence that is clearly documented but was deliberately not utilized for this study.
41. Page 54 – The categorization of the withdrawal of 3% of the river flows as being a “low” impact does not track with the laws associated with minimum instream flows. The entire Chehalis Basin is currently over allocated and closed to any new water rights. When in stream minimum flows are now met, restrictions are put in place to eliminate junior water right users from withdrawing from the river. This document points out that minimum flows have not been met for the majority of the years studied. By allowing

the construction to continue but curtailing other users in the basin during this time frame, it appears to be a violation of the instream flow laws especially when some of those rights would be considerably less than the amount proposed to be withdrawn by the construction. How can you describe water quantity impacts as low, when legally required instream flows are not met for portions of every year, usually during summertime when low flows impact fisheries the most?

42. Page 56, The Alternative 1 Operational Impacts to Water Quality box lists “indirect” impacts from high temperature, increased turbidity, dissolved oxygen changes, and increases in chlorophyll α and nutrients. These changes would be a direct result of the operation of the flood retention facility and would have direct impacts on fish species. It is incorrect to list them as “indirect impacts.”
43. Page 57, Table 4.1-5 shows the largest drop in flood waters occurs near Doty, but what would the damage reduction in that area amount to? Are there many structures in that area to make that level of reduction worthwhile? How many would no longer be damaged? Couldn't raising, moving and buying out achieve that same reduction?
44. Page 58 – The inclusion of modeling outside the scope of the project is confusing and does not appear to be relevant.
45. Page 58, The DEIS states that, “Operation of the FRE facility would not substantially affect floodplain functions because it would not directly modify the existing floodplain.” However, it also acknowledges that operation of the FRE would reduce floodplain functions in some areas during that operation and also that river hydrology would be impacted even when the FRE facility was not in operation (i.e., when river flow was sufficient to exceed the capacity of the gated outlets but not high enough to close the gates). Altering the natural flood patterns by imposing the closure of the flood gates at an estimated 7-year period would indirectly change the overall hydrology of the basin much further downstream. Further, the previous paragraph states that the full capacity of the gated outlets is 8000 cfs which translates to a modification of natural flows even if the gates are not closed. Changing the heights and not allowing for the higher flows will eventually increase the incision by not allowing as many overbank events. Increased incision will increase turbidity and sedimentation rates. Increased sedimentation directly relates to the viability of habitat of numerous aquatic species. Increased incision rates will also speed up the disconnection of periodically inundated wetlands, which are also essential habitat. The EIS provides insufficient evidence to back its claim that Alternative 1 would have little impact on floodplains and floodplain functions, given that floodplains and their functions would be altered over a range of river flow conditions. Existing floodplain areas could be directly modified by changes in hydrology caused by the presence of the FRE facility; this should be examined and discussed further in the EIS.
46. Page 61 – “Not expected to affect water quality very far downstream” is not a precise measurement and cannot be verified for purposes of determining actual impacts.

47. Page 61, The DEIS states “If a larger storm happened, there would be an increase in the potential for water quality impact from such sources. The chance that river flows would exceed the capacity of the diversion tunnel would be about 89% over the 5-year construction period.” It is almost guaranteed that several large storms will happen during the construction phase and neither the BMP’s nor the diversion tunnel are designed to handle large storm flows. That will result in major erosion and silt being carried downstream.
48. Page 63 – This section specifically calls out the area downstream of the proposed structure as being impacted by increased temperature without mentioning Tribal Standards. This is a clear violation of Tribal rights.
49. Page 64 – Mentions that the section of river upstream of the confluence with the Newaukum is already impaired for turbidity; alternative 1 is unlikely to increase turbidity in that section. Was the analysis done to see if it would decrease the effectiveness of any TMDLs put in place to alleviate those turbidity exceedances?
50. Page 65 – The statement that the removal of trees would increase stormwater flows reaching ground water because of the lack of leaf deflection is directly contradictory to the literature which shows there is a higher level of ground water storage in forested areas. Vegetated landscapes reduce excessive runoff thereby allowing the water to percolate back into the soil, replenishing groundwater supplies. If this is not the intent of this statement, it should be rephrased and clarified.
51. Page 66, The Alternative 1 Operational Impacts to Water Quality box lists “indirect” impacts from high temperature, increased turbidity, dissolved oxygen changes, and increases in chlorophyll α and nutrients. These changes would be a direct result of the operation of the flood retention facility and would have direct impacts on fish species. It is incorrect to list them as “indirect impacts.”
52. Page 63, The DEIS states “Based on temperature modeling, this loss of riparian shading could increase river temperature by as much as 2°C in the spring and summer (Anchor QEA 2017). Certain sections of the river are already impaired for temperature. Any increase greater than 0.3°C in impaired sections of the river during this time of year would exceed the applicable criteria for salmonid protection.” This clear impact to water quality is in direct violation of Washington State water quality standards and the EPA approved Chehalis Tribe Water Quality Standards. This impact will put salmonids at risk and is unacceptable.
53. Page 63, The DEIS states “Operation of the FRE facility would also cause a medium, short-term increase in turbidity upstream and downstream of the facility when the temporary reservoir is draining.” This clear impact to water quality is in direct violation of Washington State water quality standards and the EPA approved Chehalis Tribe

Water Quality Standards. This impact will put spawning salmonids and lamprey at risk and is unacceptable.

54. Page 64, The DEIS states “Alternative 1 would also result in decreases in dissolved oxygen to the Chehalis River confluence with Elk Creek. Multiple sections of river also have criteria in place for low dissolved oxygen and would potentially be impacted by this decrease.” Dissolved oxygen is a major limiting factor to the health of salmonids in the watershed and there are TMDL’s in place to protect certain reaches of the river. What specific areas will be impacted and by how much? What impacts will that have on the algal, benthic and aquatic species in the area? This serious issue deserves further study and more description than two sentences.
55. Page 65, The DEIS states “Construction of Alternative 1 would have low impacts to shallow groundwater. This includes low effects on groundwater movement, connection to the river, and the zone between surface and groundwater (hyporheic zone).” We disagree with this determination. Less flooding of usually flooded areas will have a moderate impact to ground water because less water will reach the outer edges of the flood plain, including wetlands and other shallow aquifers in overbank areas.
56. Page 65, The DEIS states “Construction of the FRE facility would have low temporary and permanent impacts to the hyporheic zone.” Draining the hyporheic zone for 2-5 years will devastate the ecology of the subsurface zone. Bacteria, fungi, plants and benthic species will be exterminated. How long will it take for that ecology to reestablish itself? Decades? This should be a moderate to high impact.
57. Page 66, The Alternative 1 Operational Impacts to Groundwater box states that there would be “indirect” impacts on groundwater recharge and the hyporheic zone (i.e., surface water groundwater interface). These changes would be a direct result of the operation of the flood retention facility and would directly impact groundwater recharge and the hyporheic zone. It is incorrect to list them as “indirect impacts.”
58. Page 66, The DEIS concludes that both construction and operation of the FRE facility will have only low impacts on groundwater, without citing a single source or study to back up this claim. Operation of the FRE over 50 years is likely to have a larger impact on overbank areas than you predict. Decreased flood waters reaching wetlands, or other fringe areas of the flood plain are important for slowing flood waters and slowly percolating waters into the ground.
59. Page 67, The DEIS states “Downstream of the FRE facility, there could be less sediment and organic material carried into the hyporheic zone by surface water. This could have a low impact by reducing the amount of food sources for aquatic animals.” Operation of the FRE will have a direct impact on benthic activity and that will have a direct impact on other aquatic species. The long term impact will not be low.

60. Page 67, The DEIS states “As discussed in Section 4.1.3.3.1, this would be a 3% reduction in river flow under the lowest flow conditions. This is not expected to affect downstream water users and would therefore be a low impact.” How can using that much water in a closed basin not be considered a Large impact?

Appendix G Comments

61. AG- Page 4-7 – list of regulatory contexts pertaining to environmental controls and permits does not list the Confederated Tribes of the Chehalis as a governing body within the affected area.

62. AG- Pages10-12 – List of information sources did not include the most recent temperature data compiled by WDFW and NOAA which includes the most comprehensive evaluation done in the basin.

63. AG- Page 24 – Notes that the 2009 flood closed I-5 for 2 days. The corresponding cfs at Porter was 50,700. There is still no justification within the document for why the gates of the facility would be closed at 38,000 cfs at the Grand Mound gage.

64. AG- Page 39 – The majority of the TMDL listings and impaired water notations used for the analysis are not current. Some have not been updated in as many as 25 years. With the environment changing as rapidly as it is within the Chehalis basin, basing conclusions on outdated data instead of seeking out the more recent studies from local jurisdictions renders this analysis invalid.

65. AG- Page 41 – the findings that show water temperature increases over time to not be statistically significant is directly contradictory to other studies performed in the basin.

66. AG- Page 54 – Section on water rights focused on the operation of the facility and the affected water right but did not apply the findings of continued lack of adequate instream flow and the basin being closed to new water rights to the 5-year construction window and continuous withdrawal of water for that purpose.

67. AG- Page 55 – this section includes some highly applicable information to the long-term effects of changing the hydrology of the system with a dam. There were no explanations given as to why climate change, and the information contained in this section, was not used in the greater analysis.

68. AG- Page 58 – Lack of consistency in the message. The main document states that climate change was not taken into consideration while evaluating the effects of the facility on the hydrology of the basin but here it is stated that potential impacts of climate variability were assessed qualitatively.

69. AG- Page 58 – The modeling of a 10 year event verses a 7 year event stating that they are similar enough does not give an accurate picture. The 7 year flood is determined to

be 38,800 cfs and the 10 year 45,350, the difference between the two is 6,550 cfs. This change in volume could have potentially serious implications on lower lying areas within the study area and thereby skew the results of any analysis. The following paragraph states that anything below a 10 year flood would not need to be analyzed since the flood gates remain open. However, even when the flood gates are open, the flow will be restricted to only 8,000 cfs which is nearly the size of the difference between the two flood models. It appears, based on the numbers provided, that the flows not needed to be analyzed would be those that would be able to pass through the facility completely unhindered.

70. AG- Page 75 – Notes that the ASRP and Forest Practice rules would not create long lasting downstream improvements to water temperatures makes broad and inaccurate assumptions as to where projects and priority areas would take place.
71. AG- Page 76 – Water use and water rights – the document states that new permits for groundwater withdrawals may be granted however the Chehalis is a closed basin (as noted elsewhere in this document)
72. AG- Page 94 – Table 6.4-8 shows specific locations in the basin which would be affected by potential flooding. As stated in the purpose and need statement, there is no justification for closing the gates and holding back flood waters in what has been determined to be a major flood. The table shows that none of the selected points would be inundated during a major flood during the no-action alternative.
73. AG- Page 99 – The temperature is stated to have a substantial temperature increase due to the removal of riparian cover however, the removal of large woody inputs and the associated accumulation of gravels also contributes to the temperature increases. Multiple studies have demonstrated the necessity of woody debris in stream to maintain temperature moderations. Analysis of bed scour as a result of the removal as it relates to temperature should be included in this description.

Geology and Geologic Hazards Comments

74. Page 70-71, States that the lack of erosion is directly related to the deflection of water by leaves of associated vegetation and gives no credence to the stabilization of soils by the root structure of mature forests.
75. Page 71, The assertion that the Chehalis River cuts mainly through bedrock is only accurate through selected reaches. The river has been scoured to bedrock by the removal of large woody debris and other forestry actions. This does not accurately reflect the conditions of the adjacent slopes to the river nor does it give an accurate assessment of the potential for landslides as a result of vegetation removal which would directly affect the function of the aquatic and forest systems.

76. Page 74, Again, there is inconsistent messaging in the impacts. The document states that “low to medium increased soil erosion would occur” followed by a statement that states 485 acres of trees would be removed which would result in “high erosion potential when it rains”. Given the established fact of high rainfall in this region, and the need to have these areas continually have trees removed through the operation of the facility, these two statements contradict each other
77. Pages 74-75, Some of the impacts to geology and geologic hazards include the removal of 920,000 cubic yards of rock and soil (p. 74), and high impact from slope instability, road instability, stream sedimentation, and hillslope and road erosion in temporary reservoir when the FRE facility is operating (p.75). The majority of the proposed mitigation for geological impacts and geomorphology are following pre-existing BMP specifications provided by the state and county. Since there is only reference to plans that have yet to be developed, it is impossible to gauge how effective they will be to mitigate for geologic hazards and changes in geomorphology of this project.
78. Page 77, The 2007 event triggered thousands of landslides in the upper basin above where the proposed facility is located (DNR 2008). The temporary inundation zone extends between 6 and 7 miles upstream. How is it possible to accurately identify each location of a potential landslide as a result of the inundation and associated hydrological effects on slope stability, let alone enact said stability improvements. Each of these abutments would require additional environmental analysis. The effects and determination of impacts cannot be commented on when there is only a promise from the applicant for more plans.
79. Page 77, The DEIS states “Operation of the proposed FRE facility would result in a medium increase in landslide risk over time.” As climate change increases the frequency of flooding and increases how often the FRE will be in operation, these increased periods of inundation in the FRE reservoir will result in more slide activity and increased movement of soils, silts and large increases in turbidity.

Geomorphology Comments

80. Page 83, The DEIS states that there were nine active landslides between 1955 and 2009. The source of the landslides cites Sarikhan et al. 2008, which, after review, actually indicates a total of 1645 individual landslides as a direct result of the 2007 storm alone. Stating that the landslides were not directly caused by the Chehalis River does not negate the evidence of instability of the slopes associated with the valley where the river flows. Sarikhan et al. also directly related the landslides to geologic units, citing the majority of landslides occurring within the basalt Crescent Formation found within the reservoir footprint. While stating that a full review to determine what extent forest management played in the increase of landslides, it was also noted that the majority of slides occurred in clear-cut regions. This indicates, at least qualitatively as the analysis in this document was done, that the removal of trees, as indicated by the proponent,

would drastically increase the prevalence of landslides and mass wasting contributing to extreme changes in geomorphology.

81. Page 84, The supply of LWM in the Chehalis is a result of timber harvest as well as actively clearing the channels.
82. Page 85, The DEIS states “An estimated 5.7 to 8.7 million tons of sediment from landslides entered headwaters upstream of the proposed flood retention facility during the 2007 flood (WGD and Anchor QEA 2017). Much of this material was fine-grained clay, silt, and sand that was carried to downstream areas. Some coarser material was also transported to downstream areas, but much of the material remains in the flood retention facility project area.” Was any investigation completed to examine the causes of the landslide and how timber practices, or possible changes to timber practices might impact the river and the proposed FRE in the future?
83. Page 88, The DEIS states ‘At flows that exceed the design capacity, generally equivalent to a 2.8-year flood, it is possible that the water could back up and flood the construction site. There is about an 89% chance of this happening during the 5-year construction period.’ The chance flood will occur during construction and surpass the capability of the diversion tunnel is very high (89%). Flood flows during construction will have drastic impacts on the flow of sediments downstream.
84. Page 90, Avoidance, minimization and/or mitigation measures of potential impacts from slope instability, road instability, stream sedimentation and hillslope and road erosion need to be addressed. It is important to note that there were high impacts of LWM due to the loss of 485 acres of trees that is not directly addressed other than in a “vegetation management plan” that has yet to be written, and an approval process that has yet to be defined.
85. Page 90, It also alarming that high impacts due to sediment loading and deposition was not addressed, except for the generic reference to BMPs.
86. Page 91, The DEIS states “Over time, the riverbed in Reach 1 would become shallower and wider as sediment builds up in Reach 1.” What impact will the widening and shallowing of Reach 1 have on spawning salmonids and lamprey?
87. Page 91, The DEIS states “The reason that Alternative 1 could cause an impact is because peak flows from major or greater floods in the main stem would be reduced by the operation of the FRE facility. The reduced flows could be insufficient to move the accumulated sediments at confluence areas downstream.” This suggests that flooding could be increased at locations downstream where tributaries enter the main stem of the Chehalis. Altering the natural ecology of the river causes unpredictable and unintended consequences downstream. One of the reasons Alternative 1 passed through the selection process on Page 23 of the DEIS was because it was NOT supposed to do this.

88. Page 93, The document states that the elimination of peak flows is expected to decrease bank erosion as it relates to lateral movement but does not allow for the associated incision rates that would occur instead. Lateral movement is a natural function of a floodplain within reason. Eliminating the variability of flows with allow for the natural lateral movement could also increase incision and increased disconnection from associated floodplains.

Wetlands and Other Waters Comments

89. Page 95, The Key Findings box in this section states that operation of the FRE facility will have only low, indirect impacts on wetlands, other waters, and stream buffers within the Chehalis River's 100-year floodplain. This statement should be backed up with modeling studies and other sources. It is difficult to believe that installation of a dam in Reach 1 of the river (as depicted in Figure 4.3-1 of the DEIS) would have only low impacts on all downstream floodplain wetlands, given the dam's influence on river hydrology when its gates are both open and closed.

90. Page 104, Table 4.4-2 lists dewatering of the Chehalis River as a temporary impact. The paragraph that precedes the table refers to the temporary impacts in the table as "low temporary impacts." Furthermore, the table lists the impact area for dewatering as 2.16 acres, seemingly ignoring all downstream impacts from dewatering at the FRE facility. How can dewatering a river for two to five years be considered a low impact?

91. Page 105, The DEIS states "A pipe or excavated diversion channel would reroute flow in the stream to a point in the Chehalis River downstream of the cofferdams. Because the location and type of diversion required are unknown, temporary impacts from the diversion of Mahaffey Creek could not be estimated." Unknown impacts to wetlands, stream ecology and salmonids, or other aquatic species in Mahaffey Creek are unacceptable.

92. Page 106, The disturbances noted in this section have a very high probability of introduction of invasive species. The current BMP's have not been able to significantly reduce the impacts of invasive species in other areas of the watershed and it is reasonable to assume they would not here either. There needs to be a robust plan to keep this aspect under control. Without one, the impacts would be high. This project is high in the watershed and with frequent inundation, the presence of invasive species would be then transported downstream for a continual re- infestation even as other efforts may progress.

93. Page 106, Under Airport Levee impacts the DEIS notes the loss of 4.54 acres of medium to high functioning wetlands as a moderate, or medium impact. The Tribe disagrees with that assertion and feels like that much loss is a high impact.

94. Page 108, A small section referring to the impacts that potential landslides may have on wetlands is not sufficient. As the estimation of landslides noted in the geomorphology section was highly underestimated, the impacts here are also glossed over. These issues have the potential to be a high impact and needs to be analyzed further.

Aquatic Species and Habitats Comments

95. Page 111, Bullet two in the Key Findings box under Construction states that construction of the FRE facility will have Low to medium direct impacts to other native fish in the study area. We disagree with this statement, as the proposed alternatives will block both upstream and downstream passage for native fish. Section 4.5 fails to assess impacts to native fish species assemblages and variations of abundance from the construction or operation of the two alternatives examined in the document. Section 4.5 also fails to expand on the life histories of native fish in general, and how they will be impacted by the dam. How will these omissions be corrected?
96. Page 111, Bullet three in the Key Findings box under Construction states that construction of the FRE facility will have Low to medium direct impacts to freshwater mussels and aquatic plants in the flood retention facility project area. This level of impact is vastly underestimated for freshwater mussels. Additionally, at least two mussel species considered species of greatest conservation need by WDFW are found in the upper watershed. How will these species be protected?
97. Page 111, Threatened plant species, like Blandow's helodium moss (*Helodium blandowii*), are potentially found around the proposed construction and inundation site; how will the loss of species such as these be mitigated? Will there be surveys and BMP put into place to ensure impacts are minimized?
98. Page 111, How are other non-fish, aquatic species, like macroinvertebrates being examined due to impacts of both a dam and a reservoir?
99. Page 111, Bullet four in the Key Findings box under Construction states that construction of the FRE facility will have Low to Medium temporary indirect impacts to aquatic species in the flood retention facility project area. This statement underestimates the temporary indirect impacts to aquatic species in the project area. While adult salmonids will be trucked around the dam during construction and operations, out-migrating fish will be held back during operations with little investigation on the impacts of being denied downstream passage to such fish. Additionally there is almost no mention of the impact of cutting off the up- or down-stream movement of any other aquatic species, including native fish, macroinvertebrates, or freshwater mussels.
100. Page 111, Bullet five in the Key Findings box under Construction states that construction of the FRE facility will have a Low impact to the number of anadromous salmonids at the Chehalis Basin scale. Simply looking at the loss of salmonids on a basin scale, fails to consider the importance of spatial variability of salmonid populations and

the unique value of smaller sections of the population. The projected impacts of the proposed FRE facility show the complete extirpation of spring Chinook in the headwaters of the Chehalis Basin (as stated in bullet six in this box). How is this considered a Low impact on an already imperiled population?

101. Page 111, Bullet seven in the Key Findings box under Construction states “Low indirect impact to downstream marine mammals outside of the study area that rely on salmon for food” In addition to this being highly inaccurate, this statement obviously does not use best available science to come to this conclusion. How does the tremendous direct impacts on spring Chinook populations not impact marine mammals by adversely affecting their food sources?
102. Page 111, Bullet two in the Key Findings box under Operation states “Medium indirect impacts to other native fish, freshwater mussels, and aquatic plants in the study area” Again, the estimation of impacts is incorrect. Native fish, freshwater mussels and aquatic plants will be greatly impacted by the two alternatives by cutting off populations of species by an unnatural structure and by altering the flow and inundation levels by artificially stopping the river flow and creating a reservoir.
103. Page 111, Bullet three in the Key Findings box under Operation states “Low impact to the number of anadromous salmonids at the Chehalis Basin scale” Would this be a low impact because the number of anadromous salmonids would have already be decimated by the construction of a dam?
104. Page 111, Bullet five in the Key Findings box under Operation states “Low indirect impact to downstream marine mammals outside of the study area that rely on salmon for food” In addition to this being highly inaccurate, this statement obviously does not use best available science to come to this conclusion. How does the tremendous direct impacts on spring Chinook populations not impact marine mammals by adversely affecting their food sources?
105. Page 112, 4.5.2.1 Aquatic Habitat Conditions. While the habitat types are broadly summarized, there is little mention of the actual conditions, and the causes of the degradation of those habitat conditions.
106. Page 112, The DEIS states “River flows are discussed in greater detail in Section 4.1, but in general, heavy precipitation and corresponding peak river flows usually happen between November and February.” This section should also include a statement that the majority of spawning for salmonids happens in this time period.
107. Page 113, The DEIS states “Aquatic habitat in the study area is also directly affected by the geomorphic processes that shape the river.” How will the two alternatives, as well as present and future land use, affect these processes? How will the proposed projects change or eliminate the geomorphic processes above, at, and below the project site locations? What will be the significance of the impacts from these lost processes?

108. Page 113, The DEIS states that “Anadromous fish do best when the water temperatures remain cool and waterways are not blocked by natural or manmade structures, like rocks or culverts. Fish also need places to rest and hide from predators. These areas are provided by deep pools, areas where streamflow is lower, and areas where there is natural cover provided by things like LWD that has fallen into the river (NOAA 2005; 50 CFR 226).” This statement is partially true and partially false. Reducing high flows and placing a dam in the mainstem of the river exacerbates the situation. First, only rocks and culverts are mentioned as manmade structures, but the effects of these in degrading fish habitat are minuscule compared to those of a dam in the mainstem of a river. In addition, fish are able to successfully navigate around natural barriers (like beaver dams, or large log jams), but cannot swim around many manmade structures like rock weirs, undersized culverts or dams. Second, the reduction of high flows will result in deep pools, reducing the critical larger substrate needed for spawning (e.g., gravel) and reducing natural cover (e.g., LWD). Third, reservoirs serve as heat sinks, which will increase temperatures and reduce dissolved oxygen in the retention area and downstream. High flow reduction downstream will decrease the groundwater storage in wetlands and aquifers, resulting in restricted cool groundwater flow into areas of thermal refugia that are already impacted by anthropogenic-related summer high temperatures and corresponding dissolved oxygen.
109. Page 113, Why are the protections that are made by determining specific habitats necessary for species survival being disregarded? This brief mention of habitat protections is very limited, and these habitats will be adversely effected by the alternation of watershed processes by the two alternatives.
110. Page 115, When describing the habitat that will be impacted in the flood retention area, the sections starts out with: “There are some areas of quality habitat in the flood retention facility project area. This includes deep pools and shallow areas with gravel bottoms. There is more of this higher quality habitat in this area compared to upstream areas of other large tributaries in the Chehalis Basin (Winkowski et al. 2018a)” (USACE 2020). The next three paragraphs that describe this area (in total) have nothing to do with a fair and objective assessment of the habitat quality; rather, they describe all the current impacts and limiting conditions. There is no mention of the areas of quality habitat referenced the first paragraph. The beneficial habitats that support critical rearing and some spawning habitat should be described. The description of the 100-year flood plain is similar, focusing on factors limiting fish populations (focused on salmon) rather than factors supporting one of the only rivers in Washington State where no salmon species are on the ESA Threatened and Endangered species list. The section should address impacts on functioning habitat.
111. Page 115, The DEIS states “Aquatic habitat in this area has been degraded over time mainly from timber harvest and land-use practices.” These are the same actions that likely contributed to the landslides that exacerbated the impacts of the 2007 flood.

There should be some mention of the need for protections, enforcement, and accountability.

112. Page 115, The DEIS states “Lack of LWM means aquatic habitat is less complex and less beneficial for aquatic species.” A dam will further degrade aquatic habitat quality by impairing geomorphic processes that depend on large in-stream wood, such as pool creation and retention of spawning gravels by not allowing natural downstream movement of LWM.
113. Page 115, The DEIS states “Connections to the floodplain provide important off-channel habitat for rearing. These connections are reduced in this part of the study area because of natural channel restriction and human influences.” Please provide a detailed list of examples of these natural constrictions and human influences.
114. Page 115, The DEIS states “There are also seasonally flooded and off-channel habitats used by salmon, lamprey, and other native fishes (Hayes et al. 2019). However, some areas are degraded. There are generally poor streamside conditions due to agricultural, commercial, and residential development.” Why is there no assessment of how the legal protections and regulations in place to stop habitat degradation have not succeeded, or have not been enforced?
115. Page 116, The DEIS states “Special-status species with the potential to be in the study area include bull trout, which is a federally threatened species and a state species of concern. Bull trout have not been observed in the study area, but could be present, most likely in the downstream end (USFWS 2004; Winkowski et al. 2018a).” Because they are an ESA-listed species, the presence of bull trout in the study area should be confirmed and further analysis of how they would be affected should be included in this DEIS.
116. Page 116, The DEIS states “Chum salmon spawn outside of the study area but could be present in the lower portion of the Chehalis River 100-year floodplain study area.” There are oral tribal records of chum salmon occurring all the way up to the Newaukum River. Some consideration as to why they were extirpated from the study area should be made, so that other salmonids do not suffer local extinction like this.
117. Page 117, The DEIS states “Pacific eulachon (*Thaleichthys pacificus*) and the Northern Distinct Population segment of green sturgeon (*Acipenser medirostris*) are special-status species that are assumed not to be present in the study area.” The geographic scope of the analysis is too limited to account for the nature, scope, scale, and intensity of impacts. The proponent does not take into consideration the watershed processes that will be negatively impacted by the proposal and fails to relate these impacts to downstream listed species.
118. Page 117, The DEIS states “Within the study area, wildlife studies show that Chinook salmon, coho salmon, and steelhead primarily spawn above RM 98 of the Chehalis River

(Ronne et al. 2018). Below RM 98, these species primarily spawn in tributaries that are not part of the study area.” The Chehalis Tribe has documentation of spring Chinook salmon spawning in the mainstem Chehalis River below RM 98 and within the study area during low water years. The proposed project would have an impact on those main-stem spawning beds.

119. Page 117, The DEIS states that “Of the native species likely to be found in the study area, Chinook salmon, coho salmon, and steelhead are especially important salmonids with respect to recreational, commercial, or tribal fisheries” (USACE 2020). It then states that “within the study area, wildlife studies show that Chinook salmon, coho salmon, and steelhead primarily spawn above RM 98 of the Chehalis River (Ronne et al. 2018).” Winkowski et al. (2018) observed greater density of juvenile salmonids in cooler, upstream locations than in warmer, downstream locations. Juvenile steelhead (0+) and juvenile coho were the most ubiquitous salmonids observed among study areas and years (minimum of 70.5% occupancy) and were generally found in greater densities in cooler, upstream locations than in warmer, downstream locations (Appendix 9-11 to Winkowski et al. [2018]). This pattern was repeated in the Upper Chehalis survey area among all years for juvenile steelhead (0+), three of the four years for juvenile steelhead (1+), and two of the four years for juvenile coho. These observations highlight the importance of juvenile salmon and steelhead summer rearing areas in upstream extents of the Upper Chehalis survey area, which would be impacted by the construction of a dam. Since the EIS reveals that the most important species and their critical habitats are in the most impacted areas of the project, it seems obvious that this project would affect all users of this important fish resource.
120. Page 118, Figure 4.5-2 This graph is likely inaccurate because the numbers of spring Chinook are likely inaccurate. Will this table be updated to include the recent findings on spring- and fall-run Chinook? Were these runsizes estimated using only spawner and redd surveys, or was other data included? What is the geographic scope of the Chehalis Basin in the title of the figure?
121. Page 118, Table 4.5-1 This table is very misleading since redds found in the floodplain are based from 1 weeks’ worth of surveys per year. Additionally, the estimated number of spring- and fall-run Chinook need to be updated using the best available science, including the genetic evidence that spring Chinook numbers have been overestimated and that there are few of them in the system as previously thought. Does the column labeled Chehalis Basin include the tributaries in Grays Harbor, such as the Humptulips, and the estuary?
122. Page 119, The DEIS states “This population has a very low risk of extinction.” This statement is incorrect because it is not using the best available data. Winter steelhead have not made escapement goals for the last several years, as set by WDFW, causing shutdown of tribal, commercial and recreational fisheries. If wild steelhead are not returning in numbers greater than the minimum number needed to prevent damage of the run, then there is definitely an extinction risk.

123. Page 119, Will the summer run of steelhead be analyzed or even mentioned in the DEIS?
124. Page 119, The DEIS states “Some western brook lamprey have been observed in the Chehalis River 100-year floodplain study area, but not in the flood retention facility project area (Winkowski et al. 2016).” Based on their life stages and history, it is unlikely to see a Western brook lamprey during a snorkel survey, so the last sentence in the paragraph is misleading. Just because they are not observed does not mean they are not there.
125. Page 120, 4.5.2.2.3 Non-native fish, This entire section seems to lack detail and needs to be expanded upon. Non-native fish will greatly benefit from reduced flows caused by a dam, thus increasing their impacts on native fish.
126. Page 120, 4.5.2.3 Freshwater Mussels, Freshwater mussels are a culturally significant species to the Confederated Tribes of the Chehalis Reservation. This section needs to be expanded upon to include best available science addressing the mussel die-off in the study area and the petition for ESA listing of the Western ridged mussel. Including information about the potential ESA listing should also illustrate how dams will stop recruitment of mussels from up or downstream from the dam, causing loss of genetic diversity, how changes in flow regimes and water quality negatively affect freshwater mussels, and how it has been documented repeatedly that mussels will be extirpated from above the dam site due to both loss of recruitment and altered natural water flow regimes.
127. Page 121, 4.5.2.4 Aquatic Plants, What surveys will be done to identify and protect sensitive, threatened or endangered plants in the project areas, especially where wetlands are going to be affected? Will there be a management plan for these species? Will there be an invasive plant species plan for the area of the proposed project where native vegetation is going to be removed increasing the risk of invasive plants taking hold and altering the ecology of the area?
128. Page 122, The DEIS states “Southern Resident killer whales are federally listed as endangered.” This section needs further attention. Spring Chinook salmon are included in the runs that are part of the endangered orca diet, and Grays Harbor is within the critical habitat. This DEIS also underestimated the level of impact of the orca by the reduction of one of its main food sources. Goal 1 of Governor Jay Inslee's Southern Resident Orca Task force is to increase Chinook abundance. Goal 2 is to decrease disturbance of and risk to Southern Resident orcas from vessels and noise and increase their access to prey. By their own admission, the proponents of the dam will undoubtedly diminish (or even possibly eliminate entirely) some of the Chehalis River Chinook salmon stocks. This runs directly counter to the first two stated goals of Governor Inslee's Orca recovery plan. While the report does make brief mention of the

Southern Resident Orca Task Force, it neglects to acknowledge the role that the dam will be playing in undermining the committee's recovery efforts.

129. Page 122, 4.5.3 Potential Impacts, this section is devoted entirely to effects on fish populations of the main stem of the Chehalis River and does not discuss potential impacts on fish populations in tributaries.
130. Page 122, 4.5.3.1 Methods. The Confederated Tribes of the Chehalis Reservation has repeatedly raised concerns about the misrepresentation of the EDT models due to poor data going into the models and the lag of updating that raw data. There needs to be inclusion of quality assurance/quality control for the model and the data it uses. Additionally, the DEIS does not provide sufficient, specific information and data to permit thorough scientific evaluation of modeling procedures. How can we provide a proper analysis of the model if only insufficient and inaccurate data is provided?
131. Page 122, There is a heavy focus on reporting the impacts on salmonids, specifically modeling impacts. However, that same attention is not provided to other fish species. The Tribes affected by the proposed alternative rely on many other species for subsistence and cultural well-being. The modeling of one group of fish (i.e., three species of salmonids) does not form the basis for an accurate impact analysis of diverse native species with completely different habitat needs and life cycles.
132. Page 123, 4.5.3.2 No Action Alternative. The DEIS does not provide a thorough 'apples to apples' comparison of alternatives, especially considering the lack in detail provided about data used by the EDT and EDT-LCM models.
133. Page 123, The DEIS states "Depending on variability of the climate, increased extremes in temperature and river flows could reduce habitat quality over time." Because climate change was not appropriately examined, climactic variability should not be considered. However, this DEIS would be greatly strengthened if climate change had been properly considered.
134. Page 123, The DEIS states "There would be medium adverse impacts from continued growth and development and beneficial impacts from restoration and local flood risk management projects." What is the scale used to determine impact adversity? Much of the detrimental impact from flooding is from growth and development in the floodplain, going against city and county ordinance for shoreline management. How is the lack of protection and enforcement to protect habitat going to be addressed?
135. Page 123, The DEIS states that "Continued major or greater flooding would result in primarily adverse impacts." This is not so: Such flooding on a floodplain that is connected to and an integral part of the river ecology will not result in primarily adverse impacts. The EIS provides support for such a conclusion with statements such as "Floods can result in gravel recruitment, redistribution of silt and the removal of fine sediment from the spawning gravels, and displacement of predators (Ferguson 2020)." Floods also

contribute to benefits stated in the same paragraph: flows across the floodplain connecting nearby wetlands, ponds, oxbows, and other off-channel habitats that are important for fish rearing or that support species that rely on periodic flooding; increases in aquatic food supply; increases in nutrients; improved primary production; and groundwater recharge (Talbot et al. 2018). The determination that the No Action Alternative will result in high impacts on habitat from continued flooding is not based on science and not accurate, especially in light of the current trend to reconnect the flood plain and reduce flooding related to anthropogenic impacts.

136. Page 124, The EIS states “These actions would lead to localized areas of improvement. However, they are not robust enough to improve aquatic habitat quality at or approaching the scale of a watershed.” This assertion is not supported by the evidence provided to date. There is not enough information here in the DEIS, or in Appendix E, J, or K, to make this assumption. Please specify the science, reasoning, and data that support this contention, including projects that are restoring floodplains, reducing floods, improving passage, and restoring off- and in-channel habitat over the 50-year time frame of the EIS analysis.
137. Page 124, The DEIS predicts declines in salmon populations in the flood retention area and states “The abundance of native fish and freshwater mussels in the Chehalis River 100-year floodplain area are expected to decline compared to existing conditions. This is because habitat quality is expected to generally decrease over the analysis period, as discussed in Section 4.5.3.2.1.” This issue is addressed in comment 96 (above).
138. Page 126, 4.5.3.3.1 Construction (Entire Section) As with the lack of data and information made available to fully analyze both the EDT and EDT-LCM models, the failure to acknowledge and/or analyze the full suite of impacts on salmonid populations; the failure to acknowledge or analyze the risks associated with uncertainties of environmental and biological effects during FRE construction activities (including mortalities of fish passage and trap and haul operations) and subsequent operation of the FRE facility are evident.
139. Page 126, Additionally, the failure to consider the cascade of ecosystem impacts on environmental processes of the whole river system leaves a major data gap. The USACE, cannot ignore these deficiencies and adverse impacts to fish and other aquatic species.
140. Page 126, This section also lacks any analysis of the impacts of loss of riparian vegetation and aquatic habitat on the effected aquatic environment and species. While there are a few mentions of a vegetation management plan, there are no specifics regarding this management plan, nor are there any specifics on avoidance or mitigation for impacts to aquatic species and aquatic habitat. The USACE fails to provide adequate alternatives or to address and define mitigation, and therefore does not meet the basic tests required to approve permitting.

141. Page 126, The DEIS states Construction Fish “Alternative 1 construction would generally contribute to decreases in the abundance of fish in the flood retention facility project area. These activities would also result in declines in fish health and habitat quality in this area.” The construction of Alternative 1 will divert the river for a period of five years (or more). The above statement in the DEIS needs to be more specific about the decrease in abundance and declines in fish health and habitat quality. Will the fish passage facility used during the construction period meet the full criteria and be permitted by both NOAA/NMFS and WDFW, and follow both state and federal law regulating fish passage for all life stages of fish believed to be present in the system?
142. Page 126, The DEIS states that shiner, dace, and sucker species would likely experience lesser impacts because there is more habitat in areas of the Chehalis River downstream of the proposed construction site than upstream (Winkowski et al. 2018). It is not appropriate to equate basin-wide population impacts to the construction area. Please provide the exact language from Winkowski et al. (2018) used to determine that native fish impacts will be less downstream of the proposed construction area. There will be high impacts on species other than shiner, dace, and sucker in the same area, blasting will occur four times a week near the streams for three years, and 485 acres of vegetation will be destroyed, especially the critically important riparian vegetation that maintains the cover and cool temperatures in the area. Therefore, we disagree that impacts on other native fish species will be only low or medium.
143. Page 127, The DEIS states “There would be high impacts to salmonids in the study area above Rainbow Falls (RM 98). This is because there is important spawning habitat in this part of the study area. Adverse effects would generally cause declines in the abundance of fish and habitat diversity. Downstream of Rainbow Falls, the impacts were not modeled but would be low to medium.” How will these direct impacts to fish runs already imperiled be mitigated? The proposed project will most likely trigger an ESA listing for spring Chinook due to the impacts of the construction period. How can a project like this be permitted knowing that effects would likely result in the complete demise of the aggregate spring Chinook population in the Chehalis Basin due to the contraction of spawning distribution, loss of genetic diversity, and foreclosing the possibility of restoring the upper basin through habitat restoration measures?
144. Page 127, The DEIS gives an inaccurate assessment of construction (retention facility) impacts, stating: “The impacts to the combined abundance of anadromous salmonids in the study area would be low when considered at the scale of the Chehalis Basin.” First, huge losses in diversity and abundance losses of 78% of spring-run Chinook, 40% of fall-run Chinook, 72% of coho salmon, and 53% of steelhead are not a low impact. Second, we disagree that there would be no impact on bull trout since that species’ main food sources (salmon and lamprey) would be decreased.
145. Page 127, Table 4.5-2 Due to the already diminished population size, this table illustrates how the construction impacts to abundance and diversity would most likely cause spring Chinook to go functionally extinct in the upper Chehalis watershed. How

can a project like this be permitted? How will the proposed project and alternative be permitted knowing it will cause an extirpation of these fish, as well as having high direct adversity to other fish analyzed in this table?

146. Page 127, The DEIS states “There would be no impact to federally listed bull trout, Pacific eulachon, or green sturgeon because these species are not likely to be found near the flood retention facility project area.” This statement is incorrect because the geographic scope of the analysis is too limited to account for the nature, scope, scale, and intensity of impacts. Watershed processes will be negatively impacted; therefore, this DEIS fails to relate these impacts to downstream listed species. As mentioned in the SEPA DEIS, there is a great need to increase surveys for these listed species to fully understand how the effects of proposed project during the construction and operation stages.
147. Page 128, The survival rate for upstream fish passage of Chinook, coho, steelhead, and coastal cutthroat is around 50%. There would be complete loss of Steelhead and Coastal cutthroat trout downstream passage and reduced downstream survival for all species. Since construction will take up to five years (the entire life cycle of some species), the potential to eliminate entire sub-species/runs is almost certain. No fish passage is provided for fish species other than Chinook, coho, steelhead, and coastal cutthroat, so upstream passage survival is assumed to be 0%. This is not acceptable given the critical subsistence and cultural importance of these fish species to Tribal members.
148. Page 128, The DEIS states “...for the protection of fish from July 1 through September 30. Fish species that would be affected include those listed in Appendix K as potentially present in the flood retention facility project area. Some salmonids and lamprey may have more than one life stage present during this time, as shown in Figure 4.5-1. Spring-run Chinook salmon may be especially sensitive during this time because adults arrive throughout the summer and spawning begins in early September.” If spring Chinook are in the system during the in-river work window, what BMPs and mitigation will be in place to protect them, and who will oversee the proper implementation of the BMPS and mitigation? The DEIS proposes an in-water work window that exceeds current regulations and that will harm spawning spring Chinook salmon, as well as harm incubating steelhead eggs. WDFW recommendations for the section of the Chehalis River upstream of South Fork Chehalis River a work window of 1 – 31 August. It is unlikely construction activities can be completed in the amount of time stated in the DEIS; the construction window appears to be too short. If co-managers (QIN and WDFW) do not approve an extension of the construction window, the impacts on all aquatic species will be unmitigable. If the overall construction period is extended because the DEIS overestimated the in-water work window and underestimated the length of time needed to complete the project, the loss of both spatial and temporal diversity should be discussed as entire cohorts (spring Chinook and steelhead in particular) are at risk of being lost from the basin above the FRE facility. Impacts are linked both to the duration of construction, which is estimated at 5 years, and to the

possible elimination of an entire brood from the upper basin in any given year were repeated storm events and lethal effects of drawdown could combine to effectively reduce outmigration survival to thresholds below sustainability. Construction impacts could be compounded with extension of fish window to 1 July to 30 September (rather than opening on 1 August and closing on 31 August). The proponent falsely assumes the construction time for the FRE Facility would be limited to 5 years based on an approved in-water work window and incorrectly bases the impact analysis on this. WAC 220-660-110 (2) states “Work in or near watercourses can harm fish life including incubating eggs and fry, juveniles, spawning adults, and other sensitive life history stages. Therefore, work must occur at times of the year when the risk to fish life is reduced or can be avoided.” September is a critical time for Spring Chinook spawning in the construction area and juvenile Coho, Steelhead, Fall Chinook, Rainbow Trout, and Cutthroat Trout utilize the construction area for up and downstream movement. Extending the work window will negatively affect critical spawning habitat and migration corridors for juvenile and adult salmonids. WDFW has the authority to modify timing windows if the proponent can demonstrate there is a low risk to fish life, but to date the proponent has failed to present any meaningful measures to mitigate unavoidable impacts to fish life and habitat. It is unlikely that WDFW or QIN, as co-managers will authorize an extension of the work window for this magnitude of in-water work. The applicant must account for this shortfall and incorporate an accurate construction time into their project description and impacts assessment for all aspects of the affected environment.

149. Page 128, The DEIS states “Diversion activities would require work directly in the river. Building the in-water structures and draining the work site could increase the risk that fish could be harmed. BMPs would be implemented to minimize these risks, such as using slow dewatering rates for less harmful fish removal, and implementing buffers around blasting. However, risks cannot be eliminated, and fish present during construction would still experience medium impacts.” This paragraph is incorrect. Even with BMPs in place for various species, fish present during construction would most likely be killed during all parts of the construction process, therefore; the fish present during construction would experience high, negative, and direct impacts. BMPs should be identified so that the public can comment on them. Which BMPs will be implemented and for which species? Who will oversee the BMPs to ensure they are done correctly to protect all aquatic species?
150. Page 128, The DEIS states “Construction would result in a temporary loss of 2.77 acres of aquatic habitat because of dewatering the work area, cofferdams, and staging. Some additional area would also be affected from dewatering Mahaffey Creek. Fish would not be able to use this area while it was dewatered. Any eggs present in this area would be lost. The losses would result in high local impacts because it would affect the potential of the habitat to produce and support native fish of all species.” How will this loss be mitigated? How can the public comment on these proposed actions if they are not included in the DEIS? How can a permit allow these actions when the level of mitigation has not been reviewed?

151. Page 128, The DEIS states “Construction would also result in high impacts from the permanent loss of 2.05 acres of fish habitat. Habitat loss from constructing the FRE facility would include EFH and WDFW priority habitat.” How will this loss be mitigated? How can the public comment on these proposed actions if they are not included in the DEIS, especially when EFH and WDFW priority habitats are being impacted to the point of losing the habitat completely? How can a permit allow these actions when the level of mitigation has not been reviewed?
152. Page 128, The DEIS states “Construction would also require pre-construction vegetation management, including harvest of trees from the footprint of the temporary reservoir. This would reduce streamside vegetation and increase the potential for adverse impacts to water quality because of increased erosion and sedimentation in the river. Less streamside vegetation would also result in long-term temperature increases and loss of aquatic species prey resources. Periodic flooding would also result in the loss of habitat within the footprint of the temporary reservoir. These impacts are discussed further in Section 4.5.3.3.2.” The DEIS analysis of impacts to vegetation within the FRE reservoir is cursory, inaccurate and not based on recent and relevant scientific literature about flood control reservoirs. Where is the Pre-construction Vegetation Management Plan so that the public can comment on it? What little there is in the DEIS for a Vegetation Management Plan is not only poorly documented relative to the current scientific literature regarding dam reservoirs, it is also factually incorrect. Additionally, vegetation management is not expanded in section 4.5.3.3.2. Like the rest of the DEIS, there is no pre-construction or operational vegetation management plans on which the public can review and comment. How are we going to be able to review the vegetation management plan?
153. Page 128, The DEIS states “Construction noise could adversely affect fish by disrupting normal behavior patterns or damaging ear structures. The loudest noise levels would happen during blasting. The Applicant has proposed blasting to occur at a minimum of 25 feet from the water’s edge. The Applicant has also proposed to implement BMPs that would minimize sound levels to below levels that have been shown to disrupt behavior in salmonids and other fish species. Depending on how effective these measures are, the impact to fish could range from low to high.” What are the BMPs and protocol for construction noise? How will the public be able to review them if they are not included in the DEIS? How will the applicant ensure that blasting is done no closer than 25 feet from the water’s edge and how will this be documented? How will construction noise be timed to minimize impacts on fish species, such as behavioral disruption?
154. Page 128, The DEIS states “Because construction would last for more than one season (up to 5 years), some species of adult fish would need to move past the construction site to reach spawning grounds located farther upstream. Fish passage assumptions are shown in Table 3.4-1. Upstream fish passage would be provided by a temporary trap-and-transport facility, targeting adult anadromous salmonids. Once eggs hatched and fish were large enough to move downstream, fish could pass downstream through the construction site using the diversion tunnel.” There is not enough description in this

section, Table 3.4-1, or any other preceding discussion about adult fish passage upstream during construction to for any statements about fish passage to be correctly analyzed. The estimates for effectiveness of fish passage provisions appear to be simply educated guesses unsupported by rigorous analysis.” Construction-period fish passage will limit movement of all non-salmon aquatic species, most likely adversely affecting them by cause a spatial division during the construction period. Most analysis on the impacts of this should be included in the DEIS.

155. Page 129, The DEIS states “As shown in Table 4.5-3, overall fish passage rates would be substantially reduced compared to existing conditions. This is especially true for upstream passage of adults through the trap-and-transport facility. The reason upstream passage rates would be lower is because it is expected that some fish would die while being collected, transported, or placed above the construction site. Some fish may also die from delayed effects of stress and injury before they have a chance to spawn. Stress and injury can occur from handling, reduced water quality, or longer holding times during trap and transport. Picket weirs, a common method for controlling fish movement, also have less than 100% capture efficiency, reducing the overall number of fish that are trapped. It is possible that other options that could improve fish passage may be put in place.” What “other options” are being considered; why are these “other options” only mentioned but not specified? Construction-period fish passage standards should be as rigorous as during operations, and what little is discussed here leads to the assumption that the full fish passage criteria required by NMFS and WDFW will not be met for the entire construction period. Like elsewhere in the DEIS document, fish passage needs to be expanded upon for consistent public scrutiny. What plans are going to be in effect to reduce injury and death, how will this be documented, and who will oversee it to ensure that fish health and safety is being considered? The 1680 ft long, structure will not meet requirements for fish passage due to exceedance in length-to-span ratio requirements. The proponent fails to offer any solid mitigation and it is unlikely that any proposed mitigation will result in no- net loss and be acceptable to co-managers. What are the cumulative effects of Tables 4.5-2 and 4.5-3? The loss of 78% of spring Chinook abundance, and only a 63% survival rate for the few spring Chinook that do make it through the temporary trap and transport system should be clarified, as well as the other species analyzed.

156. Page 129, The DEIS states “Because no upstream passage is specifically proposed for Pacific lamprey, other native fish, or juvenile salmonids, it was assumed these species would not be able to pass through the construction site. This means these species would not be able to spawn or rear in suitable habitat above the construction site. This would have a high impact to Pacific lamprey and juvenile salmonids because of their documented behavior patterns and known habitat. There is a lack of research on the importance of suitable spawning areas above the construction site for mountain whitefish (*Prosopium williamsoni*), speckled dace, and largescale sucker (*Catostomus macrocheilus*) populations.” A 5+ year blockage in fish passage for lamprey, native fish, or juvenile salmonids is unacceptable. As mentioned before with in-water construction timing, this spatial and temporal division should be discussed as entire cohorts are at

risk of being lost from the basin above the FRE facility. Impacts are linked both to the duration of construction, which is estimated at 5 years or more, and to the possible elimination of an entire brood from the upper basin in any given year were repeated storm events and lethal effects of drawdown could combine to effectively reduce outmigration survival to thresholds below sustainability. This is further compounded by the lack of knowledge of the life history and habitat use of native fish such as the mountain whitefish, speckled dace, and large-scale sucker.

157. Page 130, The DEIS states “As noted in Table 4.5-3, downstream passage for juvenile fish would be somewhat reduced compared to existing conditions. It is also expected that most juvenile fish would pass the picket weir that would be put in place as part of the trap-and-transport facility.” Why are the cumulative effects of loss of adult salmon passage, reduction in adult survival in trap-and-haul, and then reduction in juvenile downstream passage survival not discussed? For a run like spring Chinook, these cumulative effects could highly impact the population to the point of extinction of the fish in the upper Chehalis Basin.
158. Page 130, The DEIS states, “There would also be low to medium indirect impacts to fish from habitat degradation during the construction period. This would mainly happen because of the increased risk of spills, leaks, and high turbidity.” We disagree with the assertion that impacts on fish habitat in the construction area would be low to medium impacts. It is not possible to build a dam and cut down 485 acres of trees along the river and have low to medium impacts on habitat; such activities will have repercussions beyond potential spills and turbidity. Because the 5-year construction window is underestimated, as discussed in previous comments, the risk of flooding, wash outs and other negative effects from the construction project are also understated. How will the increased flood risk be managed as the construction period increases?
159. Page 131, The DEIS notes that “construction would also result in permanent changes to habitat. These changes would cause medium long-term impacts to freshwater mussels and aquatic plants from increased water temperatures and sedimentation.” We disagree that the impacts on mussels and plants in the construction area would be medium and assert that any impacts would be high. Since these two sets of organisms are stationary or semi-stationary in their life cycle, the impact on them would be worse than on native fishes. Please see comments on native fishes in the first sub-bullet of this section. This entire section is inadequate, and reflects the lack of thorough analysis throughout this DEIS. Freshwater mussels need permanent inundation to survive, and the dewatering process will kill off any mussels in the construction footprint. What are the BMP that will be in place to prohibit this from happening, and why is it not mentioned in the DEIS? What mitigation will be in place to protect freshwater mussels from spills and decreased water quality? What mitigation will be in place for species loss?
160. Page 130, Section 4.5.3.3.1 and Appendix K. There is no proposed passage during the construction of the FRE facility for a number of fish species, including Pacific lamprey,

western brook lamprey, juvenile salmonids, and other native fishes. There is no clear indication why these species would not be considered for trap and transport. The construction period will last up to five years. Preventing the upstream transport of migrating fish would have long-lasting, severe impacts on these populations in the upper reaches of the Chehalis River.

161. Page 131, Marine Mammals. This section inadequately discusses the impacts of the proposed FRE construction on marine mammals. While marine mammals are not directly affected, the reduction of food availability due to loss of Chinook salmon abundance is high, considering that the DEIS fails to recognize and evaluate the degree to which the proposed FRE construction, and its direct and indirect effects will result in 'Level B' harassment of local marine mammal populations through disruption in feeding as a result of detrimental impacts on fisheries stocks, nor is any viable mitigation proposed to ameliorate the detrimental effects of this harassment. Even Chapter 8 Consultation and Compliance fails to identify the need to address this.
162. Page 131, The DEIS states "In addition, salmon about the FRE facility are less than 5% of the fish that travel through the Chehalis Basin and Grays Harbor (Ronne 2019)." This statement is misleading, even when in context of the rest of the paragraph. To what species are being referred? Of the total number of fish travelling through Grays Harbor and the Chehalis River, how many, both of diversity and abundance travel through Grays Harbor, but not the Chehalis River? Of the 5% of fish, how many are spring Chinook, and how does that number compare to levels of abundance in tributaries of the Chehalis River or Grays Harbor?
163. Pages 132-135, Section 4.5.3.3.2. The DEIS impacts determinations under the operational scenario state that all impacts would be indirect. We disagree and contend that the impacts would be a direct result of the retention facility and changes in flow regimes downstream that would occur at the same time and place as operations. The CEQ regulations are concise and USACE uses the following criteria to distinguish between direct and indirect impacts: Direct effects are caused by the action and occur at the same time and place. Indirect effects are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable (40 CFR 1508.8).
164. Pages 132-135, The DEIS states that about 40 species of fish (see appendix K) would be potentially impacted by the flood retention facility. The entire EIS focuses on anadromous fish but fails to provide the degree of impact on those fish species that are important from a Tribal perspective. As provided in comments on Section 4.5.3.3.1 and Appendix K regarding native fish and the construction of the retention facility, we assert that impacts will be high and direct. It should not be assumed that only anadromous fish migrate and will therefore be the most affected. Resident species also migrate to spawn and rear, especially to areas above the retention facility, where there is cooler water during the summer temperatures. Again, it is not a medium impact to prevent migration and destroy large portions of habitat, especially since there is no analysis to back up such a categorization. The DEIS also states that the impacts would be lower for non-

salmonids than for salmonids and lamprey, because non-salmonid fish could use other habitats that would not be flooded or blocked. This statement is completely contrary to fisheries ecology and concepts such as carrying capacity, and it should be taken out of the analysis.

165. Pages 132-135, We agree that the dam will basically eliminate spring-run Chinook salmon and Pacific lamprey. It is reasonable to assume that these runs that use the upper watershed could potentially be evolutionarily significant populations. Basically, the project will potentially cause the extinction of these unique runs of fish, in violation of the ESA.
166. Page 132, The DEIS states “FRE facility operation would have the greatest impact to fish that rely on spawning and rearing habitat above the FRE facility.” All of the analysis and trend modeling with inaccurate without addressing climate change. Additionally, there is no mitigation or avoidance guidance given to allow reviewers a chance to give input on the direction of the DEIS. Without mitigation and avoidance guidance, the impacts are further compounded, so most likely the negative effects on fish species such as spring Chinook and Pacific lamprey are far greater than being predicted.
167. Page 132, The DEIS states “Trend modeling showed that, by mid-century, operation of the FRE facility would reduce the spring-run Chinook salmon population to fewer than 20 fish, putting it at risk for permanent loss in this area.” There needs to be clarification to illustrate if the trend modeling is using cumulative effects of both construction and operation, or just operations alone.
168. Page 133, Table 4.5-4. How were these numbers calculated? Are they cumulative, considering losses of both species abundance and diversity during constructions, as well as years where the proposed FRE is operating?
169. Page 133, The DEIS states “Non-salmonid native fish would likely experience medium to high impacts during FRE facility operation. The impacts would be lower than for salmonids and lamprey because non-salmonid fish could use other habitats that would not be flooded or blocked.” Do these statements take into consideration the loss of fish passage both up and downstream for native fish?
170. Page 133, The DEIS states “During FRE facility operation, approximately 94 acres of EFH and WDFW priority habitat in the footprint of the temporary reservoir would be flooded. This would cause a high impact to salmonids and lamprey because of their use of this habitat. Any eggs or fry in the temporary reservoir would likely experience 100% mortality due to sedimentation and extensive changes in habitat conditions.” How would the loss of EFH and WDFW priority habitat be mitigated? Would this mitigation be different from other loss of habitat (an “apples to apples” exchange)? What is the avoidance measure for 100% mortality of eggs and fry, or mitigation? Why is this not outlined in the DEIS?

171. Page 133, The DEIS does not evaluate or present details on the amount of fish stranding expected when flow below the FRE is decrease due to the start of operations, or when the reservoir is emptied above the FRE. This is necessary for a full evaluation of project impacts.
172. Page 133, The DEIS repeatedly uses term "Temporary Reservoir" or "Temporary Reservoir Area". This is untrue and misleading. The reservoir and reservoir area are permanent features throughout the lifespan of the FRE facility that will have pervasive and long-term effects on the river's geomorphology, hydrology, and ecosystems.
173. Page 133, the DEIS states "Fish passage would also be restricted or reduced when the FRE facility was operating. When the gated outlets were partially closed, there would be no downstream passage for up to 32 days. Delays in migration can cause juvenile salmon and trout to experience poorer downstream conditions, such as warmer temperatures and lower flows, increased exposure to predation, and potentially reduced ocean survival (Freshwater et al. 2016; Marschall et al. 2011). Delays in migration for steelhead kelts in poor physical condition after spawning could result in increased mortality (Hatch et al. 2013). The Applicant would operate a CHTR facility to transport fish above the FRE facility. With this system in place, there would be medium adverse impacts to migrating fish due to mortality and other stress-related impacts to reproductive success. Impacts would not be higher because the impact would happen on average once every 7 years. Fish passage rates for salmonids would be about 90%. Passage for coastal cutthroat trout and Pacific lamprey is conservatively estimated at 54% because less is known about providing passage for these species." How was the time length of 32 days chosen? How is it guaranteed that the time the FRE is operating will only be that maximum? How will the blockage of fish passage be mitigated since passage design for the FRE facility must meet state and federal regulations and optimize fish passage both during construction and during operation, including non-flood conditions and during flood retention events. NOAA Fisheries requires fish passage to be provided between the 95% and 5% exceedance flow values, or in other words the middle 90% of the streamflow of record when migrating fish are normally present at a site. RCW 77.57.030 requires provision for passage of all fish and fish life stages believed to be present in the system. Why are the fish passage rates so different during operations than they are modelled for constructions? RCW 77.57.030 requires passage for all fish and life stages but non-salmonid native fish are excluded, with the exception of Pacific lamprey. How will this impact native fish and how will those impacts be avoided or mitigated?
174. Page 134, The DEIS states "FRE facility operation would also cause short-term increases in turbidity. As discussed in Section 4.1, turbidity levels within the footprint of the temporary reservoir and immediately downstream of the FRE facility are predicted to exceed applicable water quality criteria for a short period. Impacts to aquatic species from temporary turbidity increases would be minor because they would be relatively infrequent." How is it permissible to knowingly decrease water quality? How is this permit-able when the USACE failed to provide adequate alternatives or address and

define mitigation elements to satisfy protocols of the clean water act and therefore does meet the basic tests required to approve permitting? How will scour be addressed since drawdowns will also cause scour of the habitats downstream of the FRE?

175. Page 134, The DEIS states that when the water is flowing through the reservoir, the impacts on fish would be medium to high. However, the impact would be high and direct. There is no evidence of suitable habitat that supports fish migrating or rearing through a drained reservoir with a silt substrate and treeless riparian habitat.
176. Page 134, The DEIS states "Increases in water temperature are expected to have the greatest impact to salmon and trout and other native fish species that require colder water for spawning and rearing." How will the decrease in water quality from knowingly increasing water temperatures be avoided/mitigated? How will the impacted species change in behaviors/movement/abundance/reproductive success/diversity?
177. Page 134, The DEIS states "Fish could be affected by reduced passage over time. Fish passage survival through the FRE facility is expected to be lower than under existing Chehalis River instream conditions. The reduction in fish passage survival is dependent on species, life stage, and movement direction. In general, adult upstream passage for salmonids, cutthroat trout, and lamprey would only be slightly reduced, ranging from 92% to 96% survival. Juvenile upstream passage would be more reduced, ranging from 64% to 79% survival. Downstream survival for adults and juveniles would range from 74% to 95%." Again, how can information like this be given adequate consideration if the avoidance and mitigation opportunities are not included?
178. Page 135, The DEIS states "Alternative 1 would also reduce the amount of LWM in the system overall. This would cause adverse impacts to fish and fish habitat. The Applicant could be required to establish a program for the ongoing transport of LWM downstream of the FRE facility as a condition of a permitting or approval process." Will the applicant be required to establish a program for LWM transport? What is the criteria to determine that, especially since recruitment of LWM is a major limiting factor in habitat-forming processes? Will the public be able to review and comment on the LWM transport program? Why is it not included as part of the DEIS?
179. Page 135, The DEIS states "Changes in habitat-forming processes caused by the operation of the flood retention facility would happen continuously over time. This includes changes in how sediment travels within the river, where sediment erodes and where it deposits, how the river channel moves, what types of materials make up the riverbed, and where LWM collects. Section 4.3 discusses the effects of Alternative 1 on geomorphology in the Chehalis River." How will the changes in sediment type be avoided or mitigated to help with gravel recruitment essential for salmonid spawning habitat? What mitigation actions are there to address this sediment change? How will decreases in fine sediment effect water quality, especially turbidity? How will effects of climate change, including increased temperature and increase rainfall impact finer

sediments being backed-up by the FRE and released into the river, causing greater turbidity.

180. Page 135, The DEIS states “Sediment in the riverbed within the temporary reservoir footprint is expected to be finer over time compared to existing conditions and the No Action Alternative. This part of the study area is expected to become wider and shallower because of increases in fine sediment. This change could impact spawning and rearing habitat for salmon and trout and other native fish that require sand, gravel, and cobbles in specific size ranges (Bergendorf 2002; Winkowski and Kendall 2018).” How will fish health be impacted due to high turbidity and fine particulate suspended in the water? How will these impacts be avoided or mitigated?
181. Page 135, The DEIS states “Alternative 1 operation would generally contribute to decreases in the abundance of fish in this part of the study area. Table 4.5-5 shows how anadromous salmonids would be adversely affected compared to the No Action Alternative. The results are presented as a percent change compared to the No Action Alternative to isolate the impacts of Alternative 1 over time. There would be high impacts to spring-run Chinook salmon, fall-run Chinook salmon, and steelhead. Impacts would range from medium adverse to beneficial for coho salmon. Coho salmon mostly spawn above RM 108, but reduced streambed scour may increase the amount of suitable spawning habitat in the Chehalis 100-year floodplain in years when the facility operates. Steelhead would experience the greatest impacts. Trend modeling showed that, after mid-century, operation of the FRE facility would drive a 100% decline in steelhead abundance, resulting in a permanent loss of the steelhead population in this area. Impacts to spring-run Chinook salmon are also notable because of their already low abundance. Further, the recent spawning survey (2018-2019) conducted between the proposed FRE facility footprint and the Newaukum River confluence found the most redds above RM 98 (Table 4.5-2), where operational impacts would be more pronounced.” How are the Alternative 1 operation impacts beneficial to Coho in the 100-year floodplain? Reduced flows will increase floodplain connectivity, and increase fine sediment in an area with little gravel already. What avoidance measures will be taken to stop a 100% decline of steelhead in the upper Chehalis? A loss like this is not something that can be mitigated when a unique run like this is lost. Are there going to be better explanations of the differences in abundance and diversity for already imperiled runs like spring Chinook? How will these dangerous impacts be avoided?
182. Page 135, The DEIS states “Other fish like lamprey and resident trout that live below the FRE facility and prefer cooler water would also likely experience similar declines. Non-salmonid native fish, including shiner, sculpin, dace, and pikeminnow species have higher abundance and more habitat near and below RM 98 in the study area, so impacts to these species would be low to medium. Mountain whitefish have been detected in low numbers just below RM 108. This species may experience high impacts in this area, but there is limited information available.” With limited information about mountain whitefish, what steps are being taken to learn more to help steer avoidance and mitigation recommendations with a degree of accuracy? With such little data on many

of these native fish, how was the analysis done accurately? Why was the data collected by Weyerhaeuser about native fish not better used?

183. Page 137, The DEIS states “The fish modeling results at the Chehalis Basin scale are shown in Table 4.5-6. The results are presented as a percent change compared to the No Action Alternative to isolate the impacts of Alternative 1 over time.” How accurate is the modelling? Numerous errors were identified in the model inputs used in the life stage projections produced by EDT and questions remain regarding how the stochasticity in streamflow years was modeled, and the NOAA LCM, while thorough and well defended, has yet to be tested. Habitat data in the EDT model is still questionable. Because of these known issues, and issues still being verified, impacts to fish species are most likely underrepresented, especially the negative effects of the proposed projects on spring Chinook.
184. Page 137, The DEIS states “Alternative 1 operation would result in medium impacts to freshwater mussels and aquatic plants. The main impacts would happen as the result of increases in temperature and sedimentation over time. These impacts would be greatest in the flood retention facility project area but would extend downstream. Temperature increases would extend to RM 100 and sediment transport changes would happen throughout the study area.” How are other aquatic species, such as macroinvertebrates, going to be impacted by warmer temperatures and slower moving water, as well as massive scouring when the reservoir is drawn down? How will climate change the level of impacts?
185. Page 137, The DEIS states “The riverbed within the temporary reservoir footprint is expected to be composed of more fine sediment over time compared to existing conditions and the No Action Alternative. An increase in fine sediment could also bury and kill or injure aquatic plants or freshwater mussels that are unable to move to avoid the fine sediment.” Most mussels depend on free-flowing rivers and streams. Dams by their nature, transform moving water into still water, shallow water into deep water. By slowing the velocity of the current, dams allow suspended sediments to drop to the river bottom, burying existing mussel beds. The prospects for new mussel beds is even more dire. As barriers to fish migration, dams can effectively block mussel movement by blocking the movement of the host fish.
186. Page 137, The DEIS states “Freshwater mussels would also be adversely affected by temperature increases. Because freshwater mussels have a lifecycle that depends on fish species, mussel distributions could also change as fish movements and distributions change.” How would temperature changes, associated with climate change, further complicate temperature changes from an impounded, slower moving river and how would that affect freshwater mussels? How were these populations and the impacts from the proposed projects modelled to get an accurate analysis for the public to review and comment on?

187. Page 137, The DEIS states “Aquatic plants would also be adversely impacted by increases in temperature. Aquatic plants such as mosses and liverworts are sensitive to light and temperature, and too much of either can cause damage and reduced photosynthesis (Stream Bryophyte Group 1999). Because mosses and liverworts can strongly influence the types and abundance of stream invertebrate species (Stream Bryophyte Group 1999), this is considered to be a medium impact. Increases in temperature could allow non-native plant species such as parrotfeather and Brazilian elodea to expand farther upstream. In the area downstream of the FRE facility to RM 100, there is greater likelihood that these two plant species could expand their range.” Is there an invasive species plan in place to control and eradicate invasive species before the increase temperatures and slower moving water allow for greater infestations of nonnative species? How will climate change influence the effects of invasive species when the proposed project will already set the stage for invasive species playing a bigger role in negative impacts throughout the basin? How are impacts to other less abundant aquatic species such as bryophytes and freshwater sponges being addressed?
188. Page 128, Marine Mammals (entire section), This section, along with the other spots where the negative impacts are only lightly touched upon, is not using the best available science about the make-up of marine mammal diets, critical habitat for orca, and how the negative impacts on marine mammals is much more than guessed in this DEIS. The impacts from the dam go against the goals set up by the SRKW working group. Even the details in Appendix K and the references listed are lacking.
189. Page 138. Alternative 2 – (entire section) While there are many similarities between Alternative 1 and Alternative 2, this section reflects how inappropriate Alternative 2 is as a viable alternative in the DEIS. This analysis is wholly inadequate and reflects on the entirely limited amount of time USACE spent on creating a thorough DEIS.

Terrestrial Species and Habitat Comments

190. Page 139, Terrestrial Species and Habitats. This section lacks any adjustments due to climate change and related effects. Avoidance and mitigation need to be addressed with the impacts, and vegetation management plans, including invasive species management should be outlined.
191. Page 139, Terrestrial Plant Species (Entire Section). This section needs to be expanded upon, both in the DEIS and in Appendix L. What are the plant species of special concern? What plant types help determine habitat type? Invasive species, cultivated species, and threatened/endangered species, and their habitats, should be teased out, not lumped together.
192. Page 140, Airport Levee Improvements Project Area. Emphasis needs to be put on the sheer number of invasive species in the levee project area, and the present lack of effective management of those invasive species. An example is the monoculture of reed canarygrass that occurs throughout the surround area as well as the entire project area.

193. Page 140, Chehalis River 100-year Floodplain. Special emphasis to camas, a culturally important species to the Confederated Tribes of the Chehalis Reservation, should be given. In addition to being a key food source for the tribes, it is an indicator of a unique flooded prairie habitat that is being lost due to development in the floodplain, including levees.
194. Page 141, Flood Retention Facility Project Area. What impacts do the tree plantation and clearcut logging have on the habitat health? The cultural importance of some of the landscape features, such as the caves, higher elevation wetlands, and rocky outcroppings should be noted as part of the habitat. These features are prominent in the creation stories for the tribes as well as important monuments that celebrate the tribes' evolution with the Chehalis River Basin. The importance of the WDFW Priority Habitats should be noted, as well as the steps needed to conserve these unique habitats.
195. Page 141, Airport Levee Improvements Project Area. Emphasis should be given to the massive increase in the footprint of this project as elevating the top of the levee also means widening the base. Emphasis should also be given how this levee with decrease habitat connectivity, potentially trapping terrestrial species in a lethal area.
196. Page 141, Chehalis River 100-year Floodplain. The loss of riparian due to human disturbance such as encroaching development and agricultural fields, should be noted, especially since healthy riparian habitat can act as a buffer to smaller floods.
197. Page 142, Flood Retention Facility. What surveys are being done to allow for project clearance for listed species? Most riparian species will use rivers for passage. How will blocking a major wildlife corridor be avoided? How will artificial shifts in the flood cycle due to dam operations be avoided when they effect wildlife movement throughout the flood retention facility and water retention areas. The list of special-status species that will be affected, both in the narrative and Appendix L are cursory at best. How will this list be expanded to include all species that may occur?
198. Page 142, Airport Levee Improvements Project Area. The list of special-status species is not enough. A full suite of wildlife species needs to be considered.
199. Page 142, Chehalis River 100-year Floodplain. The list of special-status species is incomplete. Some species of migratory birds that fall under the Migratory Bird Treaty Act have been omitted in both the NEPA narrative and Appendix L.
200. Page 142, The DEIS states "Methods. Impacts to terrestrial plants and wildlife considered how likely it was that a species would be in the affected area and how much exposure to disturbance, such as increased construction noise or filling of the temporary reservoir during operation, the species would experience." What is the methodology for

this? What about consideration to impacts from vehicles, pollution from traffic and roads, light pollution, vibrations, not just sound?

201. Page 143, No Action Alternative. If development, growth and other types of negative impacts eliminate habitat, then that is not a low impact. Additionally, not all development projects are compliant with local permits, and the permitting process is inadequate for protections of habitats, so impacts will not be addressed. Flooding is a natural process that allows habitats to change and adapt, by natural succession. Species and habitats are at much greater risk to habitat destruction and elimination by development than from watershed processes like flooding. Proper land management needs to also have enforcement and protection.
202. Page 144, Construction - Flood Retention Facility Project Area. The specific of high to low impacts needs to be better defined, both in this DEIS and in the associated appendix. What surveys will be done to determine presence/absence for special-status terrestrial species, both plants and wildlife? What is the vegetation management plan around the FRE facility and inundation zone? What is the invasive species management plan for the FRE facility and inundation zone?
203. Page 145, Construction - Flood Retention Facility Project Area. How will construction be timed to minimize impacts to wildlife species? Who will oversee conditions to make sure that impacts are avoided or minimized? How will species that can be relocated be handled to minimize impacts of dewatering, construction and other impacts from construction?
204. Page 146, Construction - Flood Retention Facility Project Area. Will special-status species, and other vulnerable species, be fully surveyed for presence/absence before construction starts, included repeated years? How will construction timing be managed during critical breeding, nesting and rearing windows? How will loss of habitat connectivity be avoided or mitigated? Will wildlife corridors be identified to help species move past the project areas safely without additional exposure to impacts of construction, or predators, and without concentrating wildlife in smaller areas where they have to deal with increased competition? What is the mitigation plan for these impacts? What is the vegetation management plan for areas where vegetation and habitat will be removed? What is the invasive species management plan to ensure that infestations of invasive species don't replace native species in impacted areas?
205. Page 147, Airport Levee Improvements. Will certified clean fill be used to prevent further spread in invasive species? What is the invasive species management plan to help not only manage the species that are already infesting the work area, but prevent new infestations from happening? This paragraph is misleading because the footprint of the expanded levee will be much greater than the present one. This will cause greater fragmentation of the pond and wetland habitat in the area, and potentially trap wildlife species trying to move from one habitat area to another. How will the loss of hydraulic function of the wetlands be mitigated?

206. Page 148, Operation - Flood Retention Facility Project Area. How will wildlife passage and habitat connectivity be addressed when most wildlife species will not, and cannot cross a huge open area, especially if it storing flood water? Is there an erosion control plan to manage large swaths of sediment with not vegetation to stabilize it? What is the vegetation management plan and invasive species management for the inundation area, and how will it help benefit wildlife? How will displaced wildlife species be managed?
207. Page 150, The DEIS states “However, flood risk management may also lead to continued development in the floodplain, which could reduce potential habitat for listed plant species.” Flood risk management should never lead to continued development of the floodplain, especially when the goal of this project is flood damage reduction only. Additionally, protections are in place for these listed plant species and proper management should be followed to protect these species. Will the effects of variability due to climate change be considered when making these statements?

Cultural Resources Comments

208. Page 190, General comments about Section 5.6. This section contains several statements and implications which are false, misleading, irrelevant, unclear, or incomplete. Three primary issues of general concern were identified: 1) inconsistent impact areas, 2) conflation of terms and 3) attempts to insert Quinault into the history of the project area.
209. Page 190, Defined Impact Areas Do Not Correspond, Section 5.1 States that the survey area contains “areas that would be affected by construction and operation of the action alternatives.” The area of potential impacts is then further defined: “This includes the 100-year floodplain from the proposed flood retention facility location at RM 108 downstream to RM 33 near Porter.” This does not align with the Area of Potential Effect as defined during the Section 106 Consultation, in which the Army Corps has limited the definition of the APE as “the permit area plus effects to nearby identified historic properties outside the permit area,” which has been understood to extend no further than Rainbow Falls (RM 93). If this inconsistency is to be reconciled, then another 60 river miles of potential TCPs and pre-contact tribal archaeological sites must be considered during the Section 106 identification process. Page 190, Section 5.6.2 of the Cultural Resources section echoes this in summarizing the Affected Environment. The study area is defined in Section 3.6 to include the 100-year floodplain, the FRE project area, and the Airport levee project area. It is understood that direct impacts are limited to construction areas, but indirect impacts as results of operation are noted as “including effects in the 100-year floodplain” to Porter. While the study area, project area, impact areas, and APE need not be the same, an explanation as to why they are not the same is needed to eliminate confusion throughout this review and parallel processes.

210. Page 190, Conflation of Terms Related to Tribal Groupings. Throughout the Cultural Resources section, the terms referencing different tribal groupings are extensively used interchangeably and conflated in ways that can confuse the understanding of the roles of government, village sites, language use, and cultural distinction. When speaking in a pre-contact context within the study area, the village was the largest political, social, and land-using unit and sites were not necessarily politically or economically linked. While the original inhabitants of the Chehalis basin were culturally very similar, and used the basin resources in similar ways, one should not infer that the entirety of the study area was inhabited by people with an over-all shared political entity of which each village felt itself to be a participant unit. The terms “Upper Chehalis” and “Lower Chehalis” are references to a linguistic group. They are, however, often confused in this report as culture groups or even representative political entities. Things become even more confusing when you add to that fact that these terms are also used as a means of understanding the relative geography of the basin. The villages of the so-called “Upper” or “Lower” Chehalis River regions cannot be treated as either a single combined entity or as two separate units. The term “Chehalis Tribe,” used as an abbreviation for the Confederated Tribes of the Chehalis Reservation, is mistakenly used as a culture group and/or treated as a singular tribe. The reservation and its government were established for a confederacy of related tribes who shared the Chehalis language, customs, subsistence, and residence within the Chehalis basin. Specifically, the Chehalis tribe would have been a small band of Chehalis-speaking people who lived at a village that is their namesake near present-day Westport. The Confederated Tribes of the Chehalis Reservation would request adherence to the proper name of our government in such context and to use culturally-specific tribal designations associated with their villages (i.e. s̓q̓ʷay̓ ʔyit̓q, c̓ ax̓ʷʔasn, ʔilawiqs, etc.) when possible/applicable. Of special note is the conflation between the Quinault Indian Nation as a political entity and Quinault Indians as a culture group. One must not confuse the historical presence of Quinault Indians in the basin (or more accurately, the lack of a documented presence in the study area) with the alleged claim of the Quinault Indian Nation with respect to treaty fishing in Grays Harbor and its tributaries. Making statements that are not precise or unclear, mistaking one thing for another, has immense implications for the cultures and governments being referenced. Each modern sovereign has its own unique associations with various tribal entities. Making these associations can be complex but required for accuracy.

211. Page 190, The Question of a Quinault Presence in the Study Area. Throughout Section 5.6. Cultural Resources, the authors make a repeated attempt to insert Quinault Indians into the study area in a context for which there is little or no evidence. Authors repeatedly cite Hajda 1990 and Ruby and Brown 1992 erroneously; neither of the works cited state or imply any cultural presence of Quinault Indians in the study area. It is unclear as to why the authors include such misguided statements. The presence of such unfounded and spurious assumptions places an entire culture group within a position or status which is groundless. While the Quinault Indian Nation makes an alleged claim with respect to treaty fishing in Grays Harbor and its tributaries, the purpose of this

report is to provide a cultural context, not a political or legal context. Revisions to this context are requisite for an ethnographic and historical understanding.

212. Page 190, Flora and Fauna. This section is incomplete. When discussing the dominant tree species in the area, Oregon White Oak (*Quercus garryana*), is conspicuously absent. Recognizing Oak savanna habitat is essential to understanding Chehalis lifeways, and has already been greatly diminished by development. Oregon White Oak is also missing from the list of food resources; acorns are a primary source of carbohydrates in this area.
213. Page 191, Flora and Fauna. This section is incomplete. Missing from the list of food resources under consideration are Cougar (*Puma concolor*), White Sturgeon (*Acipenser transmontanus*), fresh water mussels (*Margaritifera falcata*, *Gonidea angulate*), and especially eel (*Lampetra tridentada*, *Lampetra richardsoni*), which to some tribes in the project area were probably equal to salmon in the proportion of diet.
214. Page 191, The DEIS states “Flora and Fauna. Four species of salmon and trout spawn in the Chehalis and its tributaries...” This section is incomplete. According to the fish biologist for the Confederated Tribes of the Chehalis Reservation, there are at least eight species of salmonids and trout who spawn in the Chehalis and its tributaries.
215. Page 191, Precontact Context. This section is incomplete and limited in content. The Precontact Context includes Early Holocene to Late Holocene, but excludes the span of human occupation prior to 10,000BP. While there may be a limited understanding of pre-contact history, you cannot simply exclude 5000+ years of human occupation. Without including the span of years between the late Vashon glacial sub-stage of the Pleistocene to the Early Holocene, this report is limited/incomplete in providing pre-contact context. Additional consideration needs to be given to the precontact timeline provided in Croes, et al (Entering the American Continent: The Chehalis River Hypothesis, *Journal of Northwest Anthropology*, Fall 2017). The stated lack of work done within the region leaves much to be to be discovered.
216. Page 191, Ethnographic Context. This section is unclear on some points. The ethnographic context needs to clearly delineate and describe whether the authors are referencing a tribal government entity, language group, or a specific village site group. Because of the multifaceted nature of precontact tribal groups and kinship systems, using the wrong conventions can lead to confusing issues relating to unrelinquished hereditary rights, treaty rights, and the rights of individual Indians.
217. Page 191, The DEIS states “The flood retention facility project area is within the traditional territory of the Kwalhioqua (Krauss 1990; Spier 1936).” This statement is incomplete or misleading. This is widely known to be a shared-use territory of several tribes, all of which should be noted if making such a claim to territory.

218. Page 191, The DEIS states “Based on the minimal information known, there were two subgroups: the Willapa and the Suwal.” This is unclear and should be cited. Are the Willapa being considered as different from the Clatskanie? The Chehalis people know the people of Willapa as čt łac’ q’ anay (Clatskanie). If so, why are the Clatskanie not being included here, especially given the pre-contact context?
219. Page 191, The DEIS states “The Suwal occupied the drainage of the Chehalis River upriver from Centralia.” This is imprecise or misleading. It is like saying “The Chehalis Tribes now reside on a reservation west of New York City.” True, but not quite accurate. Provides an equivocal context. When referencing Krauss, the complete sentence indicates the Suwal occupation in mixed-group sites with Chehalis and Cowlitz.
220. Page 191, The DEIS states “Descendants of the groups identified above are now members of the Chehalis Tribe, Cowlitz, QIN, Shoalwater Bay Tribe, and the Squaxin Island Tribe.” This statement is limiting. Descendants are likely enrolled among many other tribal sovereigns as well. It would be extremely difficult to identify and name them all, so the language should be corrected, e.g. “...now members of various tribal sovereigns including but not limited to...” It is also a little unclear. Where were the two speakers of Kwalhioqua located? Knowing where these speakers were found will help give an idea where other Kwalhioqua decedents now reside.
221. Page 191, The DEIS states “Parts of the study area were also traditionally inhabited by the Hoquiam and Wishkah people.” This statement is false and should be removed or cited. The Hoquiam and Wishkah people have been culturally and linguistically associated with the Lower Chehalis at Wishkah, Wynoochee, and Humptulips. All these areas are well outside the study area as defined in Section 3.6.
222. Page 191, The DEIS states “The waters in the study area, including the Chehalis River, were seasonally used by the Quinault people.” This statement is false and should be removed, or cite appropriate sources. What evidence is there of Quinault people’s seasonal use and occupation of the Chehalis River upstream from Porter (RM 33), which is the downstream extent of the 100-year floodplain study area as defined in Section 3.6?
223. Page 191, The DEIS states “Today, the people of the Quinault and the Chehalis hold a connection to, and actively derive cultural and spiritual importance from, the ecosystems within the study area (Hajda 1990; Ruby and Brown 1992).” This statement is false and should be removed. While the Quinault Indian Nation makes an alleged claim with respect to treaty fishing in Grays Harbor and its tributaries, the purpose of this report is to provide a cultural context, not a political or legal context. There is no documentation of a cultural or spiritual presence of Quinault people in the study area. Hajda as well as Ruby and Brown are both cited erroneously. No passage in Ruby and Brown states or implies that Quinault people have a presence in the study area. There is no indication in Hajda that Quinaults have any presence in the study area. In fact, Hajda defines the extent of Quinault territory in the Chehalis Basin as “seasonal fishing sites on

the north shore of Grays Harbor at the Humptulips River, Chenois Creek, and the Hoquiam River..." all of which are well downstream of the 100-year floodplain Study Area as defined in Section 3.6.

224. Page 192, The DEIS states "Villages consisted of lodges built of split cedar poles and covered with bark. Floors were furnished with rush mats." This statement is unclear. The description of the villages does not distinguish if it is describing specifically the Kwalhioqua villages or simply a general description of regional homes.
225. Page 192, The DEIS states "However, there was an Upper Chehalis village at Rainbow Falls, known as Wah-moss (Swindell 1942), where lamprey were caught as they ascended the falls (Marr et al. 1980)." This statement is incomplete. There are additional Upper Chehalis village sites worthy of mention, which also exhibit cultural significance.
226. Page 192, The DEIS states "In 1855, Washington territorial governor Isaac Stevens and representatives from the upper Chehalis, Cowlitz, Chinook, Lower Chehalis, Quinault, Queets, and Satsop held the Chehalis River Treaty Council." This section is unclear and conflates linguistic groups with cultural or societal groups with governmental/political groups. Be distinct and consistent. If addressing from the point-of-view of the entreating U.S. or Washington government then naming should be consistent with political groups. If addressing from a point-of-view of societal exchange, then naming should be consistent with tribal groups.
227. Page 192, The DEIS states "Later that year, the Quinault, Quileute, and Hoh signed the Treaty of Olympia and the Quinault Reservation was established." And "A reservation for the Chehalis Tribe was established by executive order in 1864 (Ruby and Brown 1992)." These statements are irrelevant. Why is a geo-political summary necessary to a cultural resources study? If it is deemed essential to a present understanding of the tribal dynamics within the study area, then a more complete picture is needed. Each modern sovereign has its own unique associations with various tribal entities. Making these associations can be complex but required for accuracy. Furthermore, mention of the Quinault Reservation is irrelevant in this context, associated with the Quinault, Quileute, and Hoh, none of which has a documented presence in the Study Area as defined in Section 3.6.
228. Page 192, The DEIS states "The QIN's reservation is located outside of the Chehalis Basin. However, the QIN's usual and accustomed fishing grounds include the entire Chehalis Basin." This statement is false and should be removed or cited. What documentation exists stating that the Quinault Indian Nation's usual and accustomed fishing grounds extend throughout the basin and not simply to seasonal fishing grounds on the north shore of Grays Harbor (which is outside the study area)? The location of the QIN's reservation is outside the study area, so is irrelevant. Taylor (Anthropological Investigation of the Chehalis Indians Relative to Tribal Identity and Aboriginal Possession of Lands, 1953) clearly identifies the Chehalis Basin as being the usual and accustomed

area of multiple groups that now primarily reside on the Confederated Tribes of the Chehalis Indian Reservation and the Shoalwater Bay Indian Reservation.

229. Page 192, The DEIS states “A reservation for the Chehalis Tribe was established by executive order in 1864 (Ruby and Brown 1992).” This statement is incorrect. When speaking in a cultural context, the singular Chehalis tribe would mean only the small band of Chehalis-speaking people who lived in a village near present-day Westport. The reservation was established for a confederacy of related tribes who shared the Chehalis language, customs, subsistence, and residence within the Chehalis basin. The Confederated Tribes of the Chehalis Reservation request adherence to the proper name of our government in such context and to use culturally specific tribal designations when possible/applicable.
230. Page 193, The DEIS states “Freshwater clams and crayfish were also part of the traditional Chehalis diet.” This statement is incorrect. While there are freshwater clams of the family Sphaeriidae present in the Chehalis basin, they are among the smallest of adult bivalves; so small they would not be considered an essential part of the traditional Chehalis diet. Are freshwater mussels being confused with freshwater clams?
231. Page 193, The DEIS states “The Chehalis-Centralia Airport and the surrounding floodplain are within the traditional territory of the Upper Chehalis People or the q^wayait̓ (Marr et al. 1980; Spier 1936). The subgroup of Upper Chehalis who lived near the townsite of Chehalis was known as the ʔil̓ awiqs (Hajda 1990). The Upper Chehalis are considered to be part of the larger shared cultural group of Southwestern Coast Salish people (Hajda 1990).” These statements are imprecise. In context, it is being implied that the Upper Chehalis is a political entity. The ‘Upper Chehalis’ are a linguistic group. This distinction matters in clarifying the identity of the people living at ʔilawiqs. Categorizing the Upper Chehalis as a political group (rather than as a language group) does not reflect the autonomy each village held as loosely affiliated tribal peoples.
232. Page 193, The DEIS states “Subsistence focused on fishing, and included salmon, steelhead, and lamprey.” This sentence is incomplete, because the description of subsistence does not reflect the diversity of the diet of precontact peoples living in the basin.
233. Page 193, The DEIS mentions freshwater clams again. See comment above.
234. Page 193, The DEIS states “The QIN usual and accustomed fishing grounds include the entire Chehalis Basin.” This statement is false. As mentioned in prior notes, the Quinault Indian Nation’s usual and accustomed fishing grounds do NOT include the entire Chehalis Basin. Citation? What documentation exists stating that the Quinault Indian Nation’s usual and accustomed fishing grounds extend throughout the basin and not simply to seasonal fishing grounds on the north shore of Grays Harbor (which is outside the study area)?
235. Page 194, The DEIS states “No historic built resources have been documented in the study area.” This statement is unclear. Is this sentence referring to the study area in

total or the Flood Retention Facility project study area only? The Historical Context (5.6.2.5) includes the 100-year Floodplain Study Area, which has numerous historic built resources documented.

236. Page 196, The DEIS states “A records search was not completed for the Chehalis River 100-year floodplain study area because there would be no activities proposed in these areas that would adversely affect these resource types.” While there are no activities in the 100-year Floodplain study area that would adversely affect these resource types, there are activities proposed upstream (Flood Retention Facility operations) that may indirectly affect resources in the 100-year Floodplain area. Identification of potentially affected built resources should be compiled and considered for indirect effects.
237. Page 196, The DEIS states “A records search was not completed for the Chehalis River 100-year floodplain study area because there would be no activities proposed in these areas that would adversely affect these resource types. Flood damage reduction benefits on these resources were evaluated qualitatively.” These statements are unclear. How can one perform an evaluation on resources for which a records search has not been completed? There is a flaw in logic here. Were built resources identified or not? Were they then evaluated (qualitatively or otherwise) or not? Please clarify.
238. Page 196, The DEIS states “Because of local topographic and logistical conditions, including steep slopes and dense vegetation, only the accessible portions of the flood retention facility (those with slopes less than 30%) were subject to archaeological survey.” What portion of the site was NOT surveyed? This must be expressed in measurable terms (% of whole, square footage, etc.) as compared to the whole. Only such a measure can provide a better understanding of the extent of this survey and whether it was sufficient. We know it was sufficient to state that certain archaeological sites would be adversely affected, but is it sufficient to say that other NHPA-eligible sites are not likely to be found? Is it likely more archaeological sites exist in unsurveyed areas? How likely? Why or why not? The report must state something to that effect.
239. Page 197, 5.6.3.2 It should be noted, given the cultural context, that it is a spiritual belief within the Confederated Tribes of the Chehalis Reservation that the River has the right to reclaim any and all lands within the valley. The Chehalis Tribe’s Zoning Ordinance is written to reflect this belief.
240. Page 198. The DEIS states “As currently proposed, construction activities would result in a high impact to one of the three TCPs in the study area.” This statement drastically understates the severity of the impacts. Construction activities would result in irrevocable change in the integrity of the TCP. Destruction. The TCP would cease to exist. The report must not diminish the result to one of merely “high impact.”
241. Page 198, The DEIS states “Reduction in the frequency and intensity of flooding and erosion would benefit archaeological sites and historic buildings, including presently undocumented resources.” This statement is misleading. While not untrue, this

statement implies that the Flood Retention Facility would reduce the frequency and intensity of flooding. How is the FRE reducing the frequency of flooding?

242. Page 198, The DEIS states “The likelihood of this happening is low. Therefore, this is a medium impact.” The likelihood of what? Floodwaters reaching elevation? Bank erosion? The composition of this portion of the paragraph is unclear. Is it Medium or is it High? Clarify. It is unlikely, but the impact would be high in the event bank erosion occurred and floodwaters reached the elevation of the site.

243. Page 198, The DEIS states “Neither of the other known archaeological sites would be disturbed during operation. Site 45LE194 is located away from areas that would be affected by operation.” This statement is unclear and potentially false. UNCLEAR/POTENTIALLY FALSE. 45LE981, 982, 983-IO, 984-IO, 985-IO, 987, 988-IO, 989, and 990 are within the FRE inundation zone. While ineligible for NHRP, they should still be included in a statement of impacts. Would they be disturbed in the event the inundation levels reached a certain elevation and induced bank erosion and slides? Clarify.

Socioeconomics Comments

244. Page 231, Section 5.10.2.6.4. We agree with the DEIS that the people of the Chehalis Tribe maintain a connection with the ecosystem in the study area directly through its role in sustaining cultural practices and spiritual meaning. Cultural ecosystem services are defined by place, tradition, and continuity of use and practice, so they are inherently not replaceable with other types of resources or ecosystems elsewhere and cannot be measured in dollars. We disagree that the impacts on ecosystem services are within a range that may be low (low to high) for the No Action Alternative. Ecosystem services will be highly and adversely affected by the reduction of natural ecological maintenance of habitats and therefore fish, wildlife, plants, water retention, water purification etc. This is especially true when considering the EIS’s statement that Tribal ecosystem services are highly valued and currently used extensively by the Tribal entities. Since this is part of the No Action Alternative and is the basis for evaluating the preferred alternative, the impacts analysis is not accurate.

Cumulative Impacts Comments

245. Page 264, Section 6.5.17 When describing effects of Alternative 1, the EIS states “These impacts would disproportionately impact people in the study area, particularly the QIN and Chehalis Tribes. These tribes may depend on affected resources for food, fiber, economic livelihood, and cultural and spiritual values. Impacts to these resources from Alternative 1 would contribute to cumulatively substantial impacts to environmental justice populations” (USACE 2020). We agree that the Chehalis Tribes resources would be disproportionately impacted, but would add “significantly” to the substantial descriptor. Ecology (2020) states that environmental justice impacts will be significant and disproportionate. Therefore, please remove “may depend on affected resources.”

Appendix J Comments

246. Summary of Impacts (pg. ES-3) With respect to the Chehalis River 100-year floodplain, the EIS concludes that there would be only low impacts to the more than 500 acres of wetlands and other waters in the floodplain areas downstream from the FRE facility, because these areas would continue to be flooded by events smaller than major flood events (estimated to occur approximately once every seven years). However, the EIS also acknowledges that river hydrology would be affected by the presence of the FRE facility even when the floodgates were open (i.e., it would be influenced during events when water flow was below the level of a major flood event). Furthermore, Appendix J states that Chehalis River floodplain wetlands are not dependent upon over-bank flooding to support their hydrology. Additional information about the sources of water supporting the floodplain wetlands should be provided, as well as the relationship between those sources (such as groundwater) and Chehalis River hydrology and flooding.
247. Table ES-1 It is assumed that the permanent loss of intermittent streams and drainages because of FRE facility construction can only be considered low because of some type of acreage cut-off. Is that the case? If so, below which acreage is an impact considered low even when it leads to the permanent destruction of an aquatic resource? How can the “permanent conversion of 2.1 acres of natural river channel into a concrete-lined conveyance via excavation, grading, and placement of rock, gravel, roller compacted concrete, and other materials” be considered a medium impact?
248. Section 5.4 This section refers to attachments to Anchor QEA’s 2019 downstream floodplain wetland analysis report for maps of wetlands in the 100-year floodplain. These maps should be included in the EIS. If the study area boundary of the maps needs to be adjusted to accurately reflect the portion of the Chehalis River 100 year floodplain considered in the EIS, then such edits should be made prior to incorporating the maps into the EIS.
249. Sections 6.2.1 and 6.2.2 The EIS considers only impacts on wetlands, other water bodies, and their buffer areas that would occur as a result of construction during Alternative 1 to be direct impacts; any impacts occurring during operation of the FRE facility or in a location beyond the immediate project footprint are considered indirect impacts (USACE 2020). However, as operation of the FRE facility will directly affect wetlands, other water bodies, and buffer zones both upstream and downstream of the FRE facility (as detailed in Section 6.4.2 of Appendix J), these effects should also be considered direct impacts of the project. For example, inundation of areas within the temporary reservoir footprint for up to 32 days at a time during operation of the FRE facility (Section 6.4.2.1) should certainly be considered a direct impact on wetlands upstream of the facility. An inundation of such long duration would likely kill many of the plants in these areas, as well as have other effects like landslides and sedimentation (as acknowledged in Section 6.4.2.1).

250. Section 6.4.1.1.1 The EIS acknowledges that the culverted road crossings required to support construction and operation of the FRE facility could include as many as 262 new culverts/crossings, yet the acreage of “other waters” estimated to be affected by this construction is only 0.6 acres (USACE 2020). The estimated acreage impact resulting from the placement of new culverts should include the lengths of streams and other water bodies upstream from the culverts, rather than only the acreage of the crossings themselves. Culverts reduce passage by fish and other aquatic organisms and can interfere with natural water and sediment flows impacting habitat quality far beyond the actual location of the culvert.
251. Section 6.4.1.1.4 The possible introduction and spread of invasive species likely to occur from construction of the FRE facility is discussed as a low impact on wetlands and other waters. The EIS states that invasive species could be transported into the project site by construction equipment or workers, but that standard weed control best management practices (BMPs) would help reduce impacts from such species (USACE 2020). The creation of a large, disturbed area in the middle of an intact native forest raises great concern for the establishment and spread of invasive species, within both the footprint of the FRE facility and its temporary reservoir and adjacent areas that are to remain undisturbed forest. Active vegetation removal, along with long periods of inundation likely to kill vegetation in the reservoir area, will likely cause enough disturbance that this area will be continually susceptible to colonization by invasive species, which can be spread by wind, animals, and streams as well as human sources. BMPs to prevent the establishment and spread of invasive species—such as routine monitoring for new infestations, control of invasive species populations on a routine schedule, and possibly planting native herbaceous and shrub species if they do not quickly recover in areas where trees have been removed or where inundation has caused vegetation die-offs—should be required as part of the mitigation for the project.
252. Section 6.4.1.1.5 The EIS states that climate variability models show that the frequency of extreme precipitation events and winter and spring flooding events will likely increase in the future (USACE 2020). This implies that the FRE facility will likely operate more frequently than once every seven years in the future; however, this increase is not discussed when describing impacts on wetlands upstream and downstream of the FRE facility. In fact, the EIS points to the assumption that the FRE facility will only operate approximately once every seven years as a reason why impacts on downstream wetlands are considered to be low. This discrepancy should be addressed.
253. Section 6.4.1.1.5 There are between approximately 7,000 and 11,000 acres of potential wetlands and other aquatic habitat within the Chehalis River 100-year floodplain downstream from the proposed FRE facility (USACE 2020). None of these wetlands were surveyed as part of the planning studies for the FRE facility (Appendix J); therefore, their hydrogeomorphic (HGM) classifications and wetland ratings could not be determined. HGM classifications provide information on how water moves into and through wetlands. Therefore, how can the EIS conclude that the FRE facility would not have any

effect on the existence or extent of the wetlands in the floodplain downstream from the FRE facility? The EIS assumes that reduced over-bank flooding will not impact wetland hydrology to the degree that wetland extent or size would be impacted, yet the document provides no actual data or field observations to support this claim. Qualitative discussions of estimated wetland ratings, functions, values, and HGM classes are not sufficient to determine a low impact rating for so many acres of floodplain wetlands.

Appendix K Comments

254. ES-3 The EDT model integrated with life cycle models was used to determine effects on and changes to salmonid habitat. However, for other fish species, the physical habitat simulation (PHABSIM) model was used to evaluate only impacts of temperature increases on habitat. There is an absence of consideration of other fish species to determine physical effects and changes to habitat (other than temperature). This includes the loss of habitat due to the inability of fish passage.
255. Section 6.2.1.2 The PHABSIM only looked at temperature changes for flows that stayed in the banks of the river. It is well known that the flooding of flood plains maintains wetlands and recharges groundwater. These water sources are critical for maintaining cooler water during the summer and providing a cool-water refuge for many species of fish. These critical areas of refuge will be greatly diminished by flood control.
256. Section 6.4.3.5 Changes in habitat-forming processes could occur during operation. Over the life of the proposed project, there would be changes in sediment amount, a decrease in substrate size, a decrease in the supply and transport of LWD, and reduced peak flows. Taken together, these effects could have high impacts on processes to form habitat for spawning and rearing for salmonids, non-salmonid native species, freshwater mussels, and plants within the temporary reservoir and downstream to river mile 98.
257. Section 6.4.3.6 As noted in Section 5.4, precipitation patterns could change and become more extreme in the future, for example, as the result of climate variability. If the frequency and amount of rain increases, a major (10-year) or catastrophic (100 year) flood could occur more frequently. This would increase the frequency that the FRE facility would operate and impound water (compared to the No Action Alternative). It is assumed that such an increase is why there is an alternative with a bigger structure and holding capacity. This would result in more frequent adverse impacts in the footprint of the temporary reservoir, mainly from loss of habitat and reduced fish passage (compared to the No Action Alternative). If climate change, which seems to be an impact in the foreseeable future, were incorporated into the analysis, perhaps a more realistic impacts analysis could be determined.
258. Attachment A, Section 6 We are pleased with the conclusion that acknowledges the Chehalis River basin ecosystem as being integrally important in the Pacific Northwest as the largest river basin entirely in Washington State, supporting a multitude of native aquatic and riparian species. It also points out that the analysis focused on only

potential effects on habitat for a few salmonids, and that the report discusses only the predicted impacts of the proposed structure on four native salmonids, with the caveat that implications for additional species should be considered.

259. Attachment A, Section 6. It is good to see the conclusion's acknowledgement that the construction period, while lasting only five years, could have a long-lasting impact on the modeled species due to low passage survival rates and degraded habitat. All species are predicted to decline by large percentages upstream of the proposed structure during the construction period. In the project area above Crim Creek, coho salmon abundance is predicted to decline 72%, spring-run Chinook salmon abundance to decline almost 80%, fall-run Chinook salmon abundance to decline 40%, and steelhead abundance to decline 53% during the construction period. The limitations placed on species during the construction period, and the reduction in spatial diversity of successful spawning areas and life histories, could create a bottleneck, especially for the most sensitive species such as spring-run Chinook salmon.

Appendix L Comments

260. Section 4.1 There are no information sources on invasive species within the project area.

261. Section 5.4.1 and 5.4.3 The extent of invasive plant species in the project area was not investigated in the US Geological Survey (USGS) LANDFIRE mapped vegetation types. Understanding the extent of invasive plant species coverage in the project area is important for determining how invasive species may proliferate from project activities.

262. Section 6.3 As noted in Section 5.6, precipitation patterns could change and become more extreme in the future, for example, as the result of climate variability. If the frequency and amount of rain increases, a major (10-year) or catastrophic (100 year) flood could occur more frequently. This would increase the frequency that the FRE facility would operate and impound water (compared to the No Action Alternative). It is assumed that such an increase is why there is an alternative with a bigger structure and holding capacity. This would result in more frequent adverse impacts in the footprint of the temporary reservoir, mainly from loss of habitat and reduced fish passage (compared to the No Action Alternative). If climate change, which seems to be an impact in the foreseeable future, were incorporated into the analysis, perhaps a more realistic impacts analysis could be determined.

263. Section 6.4.1.1.1 The proposed project will include 485 acres cleared trees in the temporary reservoir zone, as well as new access roads and temporary staging areas. Invasive species can contaminate construction equipment, and disturbed areas are more likely to have invasive species propagate. The proposed area potentially has five state-listed endangered and four state-listed threatened plant species. The EIS does not include any information about current invasive plant species in the project area or the prevention of invasive plant species propagating due to project activity (USACE 2020).

Chehalis Tribe
Summary of Talking Points for the
Government to Government Meeting with
The US Army Corps of Engineers

1. The Chehalis Tribe opposes the construction of any dam on the Chehalis River. We have participated in watershed planning at every stage and the DEIS for this proposed project clearly shows the sheer volume and magnitude of negative impacts to the cultural resources, fisheries, wildlife and ecology of the river.
2. Cultural Impacts - The proposed project will have significant impacts to several culturally significant sites in the upper basin. It will also have negative impacts to the aquatic species, wildlife and plants that are the very nature of the culture of the Chehalis River Peoples.
3. Fisheries – Substantial salmon, steelhead and lamprey spawning/rearing habitat will be decimated by the proposed dam and its 720 acre inundation reservoir footprint.
4. Altered flow patterns from the proposed dam will limit the movement of woody debris and gravel, negatively impacting vital habitat for aquatic species. The potential changes in flow will impact the movement of sediments and will have a negative impact on downstream spawning and rearing areas, suffocating, or dewatering redds.
5. Any impact to spring Chinook is unacceptable. The spring Chinook run is so depleted and returns have been so low, that the Chehalis Tribe, the State and the Quinault have had to close the Chehalis River to fishing two years in a row. Steelhead are also experiencing low returns and this year the State and the Tribes will close fishing for them on the Chehalis River as well.
6. The spring Chinook are a unique sub-species of Chinook and there are discussions in the basin about petitioning to have them listed as a Threatened or Endangered Species. If that listing were to happen, the Dam would further their decline and would likely be considered an illegal taking.
7. If the proposed dam were permitted, the projected 5 year construction phase would cause severe damage to out-migrating juvenile fish and to returning adults, despite mitigation plans calling for hauling fish around the construction site.
8. The proposed dam would also have negative impacts on the lamprey of the basin, a culturally important species to the Tribe, that have not been well studied.
9. Wildlife - The construction of the Dam will interrupt and then destroy wildlife corridors for migrating wildlife that are critical to the ceremonial and subsistence life of the Tribe.
10. River Ecology -The construction phase would cause major river flow changes, increasing turbidity and violating Chehalis Tribe and Washington State water quality ordinances.
11. Operation of the dam would alter normal river flows and change the hydrology of the river downstream, causing potential impacts to vital wetlands and aquifers.
12. The Tribe is disappointed that the Alternatives section did not include a non-dam alternative. It seems like a local actions alternative, as is being discussed at the Chehalis Basin Board, could achieve similar flood damage reduction goals, but it was not included. Comments during the scoping period emphasized the examination of low impact alternatives, and those recommendations were obviously not heeded.