

**Additional Information Provided for the  
MEMORANDUM FOR RECORD (MFR)**

**CENWS-ODR**

**Re: Permit Application Review**

**Reference Number:** NWS-2020-0322

**Applicant's Name:** Grays Harbor Department of Public Works

**Project Manager:** Bethany Nickison

**Date:** April 22, 2020

The applicant Grays Harbor County Department of Public Works has reviewed the MFR dated April 13, 2020 for the Keys Road Flood Protection Project reference number NWS-2020-0322 and has revised the application to provide the additional information requested. The questions and additional information requested in the MFR have been included in this letter with direct responses to assist in completing Corps review of the project application.

## 1. Clarification of Project Components

### a. Overall Impacts

Please confirm or adjust the following impacts:

- 1200 linear foot bypass channel
- 7 floodplain roughness ELJs
- 17 in-stream ELJs
- 1 setback revetment ELJ
- 300 linear-foot timber complex
- 139,130 square foot staging areas/access
- Buffer impacts from bypass channel, setback revetment, and ELJ 06-A1

Please note that impacts from floodplain roughness ELJs, in-stream ELJs, timber complex, and the bypass channel would be considered permanent impacts as opposed to temporary. The setback revetment ELJ may be considered a temporary impact depending on the proposed restoration (see "c")

The JARPA has been updated to reflect that impacts from project features are permanent impacts. We confirm the following proposed project elements and associated impacts:

- 1200 linear foot bypass channel
- 7 floodplain roughness ELJs
- 17 in-stream ELJs
- 2 setback revetment ELJs
- 320 linear-foot timber complex
- 139,130 square foot staging areas/access
- Buffer impacts from bypass channel, setback revetment, and ELJ 06-A1

### b. Bypass Channel

Since the bypass channel would not be restored, it would be considered a permanent impact. Please identify why the bypass channel is necessary for construction, if left in place how it will provide habitat function equal to or greater than existing conditions, and how it would affect aquatic resources.

The bypass channel will increase floodplain inundation and edge habitat complexity as local backwater from the adjacent ELJ's pushes water onto the floodplain on river left through the bypass channel. These processes will have a positive effect on the quality and quantity of in-channel and channel-adjacent habitat critical to native aquatic species documented in the reach including Winter steelhead, Coho salmon, Northern red-legged frog and Olympic mudminnow, as well as to the riparian habitats that produce invertebrates and organic matter critical for foraging and migration habitats, resulting in a gain in habitat function.

The bypass channel excavation is also a necessary element of project construction and impact minimization as it will be used to route the river around the in-channel ELJ construction area. By using a portion of the excavated alluvium as backfill at the ELJ's an immediate reduction to inputs of fine sediment from the river banks can be achieved. The natural process of creating a zone of aggraded alluvium and gravel between the highly erodible soils and the river can take years to develop after ELJ are installed. The native alluvium will reduce erosion and inputs of fine sediment into the channel which could otherwise negatively impact habitat quality and quantity.

c. Setback Timber Engineered Log Jam revetment

Adjust or explain the calculations in box 7j of the JARPA. There appears to be a miscalculation because it identifies 4,243 to be excavated, 3,643cy of native soil to be placed back along with 300cy of wood/ELJ totaling 3,943cy of material, and 1,572cy of leftover material to be placed on the gravel bar. The initial 4,243cy of sediment minus the 3,643cy of sediment to to-be-placed back in the revetment only leaves 600cy to-be dispersed on the gravel bar which is variant from 1,572cy.

The apparent discrepancy in arithmetic is because we have accounted for the normal 'swell' of native soils after placement. In the JARPA form 7j there is a reference to an assumption of 30% swell. We have estimated the excavation volume as bank cubic yards, equal to the size of the hole, but in practice once material is excavated it expands. The amount of expansion is typically around 30%. The variant between the calculation of 600 CY and the 1,572 CY presented on the JARPA is due to this assumption of 30% swell. This assumption was included to be conservative in estimating the amount of material that will need to be placed in uplands.

In addition, during the phone conversation on the project, it was indicated that the top soil layer would be restored and planted. What is the current vegetation class and how will existing conditions be met or improved compared to proposed restoration?

The current vegetation class of wetland PFO6 is scrub shrub with the northern end supporting an area of saturated forest and emergent vegetation along the edge of adjacent wetland PEM5. Red alder (*Alnus rubra*) and Pacific willow (*Salix lucida lasiandra*) are the dominate tree species documented by NSD in the southern portion of the wetland adjacent to where the impact would occur; shrub-stature Pacific willow, salmonberry (*Rubus spectabilis*) and red-osier dogwood (*Cornus sericea*) dominate the shrub layer in this area. Invasive reed canarygrass (*Phalaris arundinacea*) is the dominant emergent species in the center of the depression, along with bittersweet nightshade (*Solanum dulcamara*) and western touch-me-not (*Impatiens nolitangere*). The proposed plant schedule for re-vegetation after excavation has been

specifically designed to restore the native species present in the temporarily impacted portion of the wetland and to improve existing conditions in the emergent layer by reducing the occurrence of reed canarygrass and replanting native slough sedge which is present in other portions of Wetland PFO6. The proposed plant schedule is included below in Table 1.

*Table 1. Proposed plant schedule for revegetation of wetland PFO6 after construction.*

COMMON NAME	SPECIES	TYPICAL SPACING	PERCENT OF PLANTING AREA	PLANTING AREA (SF)	# OF PLANTS
RED ALDER	ALNUS RUBRA	15'	50%	7,275	32
PACIFIC WILLOW	SALIX LASIANDRA	6'	15%	2,182	61
RED-OSIER DOGWOOD	CORNUS ALBA	6'	15%	2,182	61
SNOWBERRY	SYMPHORICARPOS ALBUS	6'	15%	2,182	61
SALMONBERRY	RUBUS SPECTABILIS	6'	15%	2,182	61
SLOUGH SEDGE	CAREX OBNUPTA	2'	10%	1,455	364

#### d. Excavated Sediments Placement

The JARPA indicates gravel excavated for the channel and revetments would be placed on a gravel bar below OHWM. Please identify: What is the purpose of spreading the gravel below the OHWM, how much cubic yards would be discharged and at what locations. Please update project drawings to include discharge areas. In addition, the amount of material planned to be placed below OHWM may adjust bottom elevations and has the potential to turn aquatic resources to uplands, how would loss of aquatic resources be avoided?

Excavation of the bypass channel, with the purpose and benefits as noted in response to question 1b, will result in more gravels than can be completely used as backfill in the ELJ structures. The project design specifically sought to retain this native material in the river channel and to utilize it in a manner that would have no negative impacts.

The project drawings have been updated to show specifically the locations where the gravels would be placed. The quantity of material to be relocated as backfill at structures and spread over gravel bars will be equal to the excavation volume of 8,772 cubic yards. NSD analyzed the volume of gravels during design to estimate the depth of alluvium which would be spread over the available area to ensure that gravel placement would not fill any waters or wetlands. The analysis concluded that there is sufficient room to ensure that none of the alluvium is placed at an elevation approaching the OHWM. The preliminary plans and draft specifications also specifically require that any alluvium relocated to a gravel bar as part of project construction may not have a finished grade elevation higher than the OHWM. This specification will ensure that the contractor does not inadvertently place material in any manner that would fill a water or wetland.

e. Access and Staging Areas

The JARPA identifies 3.194 acres of temporary impacts to the Satsop River for staging and access and the project drawings identify 2.194 acres of wetland impact. Please clarify the total temporary and permanent impacts for staging and access for wetlands and rivers, what the impacts would be (grading, any discharge of material etc) and how would the areas would be restored.

Access and staging impacts to waterbodies, wetlands, and critical areas buffers are presented on page 6 of the drawings. A column has been added to the table specifying the impacted resource so that exact areas are clarified. No wetlands will be impacted by access or staging. The proposed project would temporarily impact 0.855 acre of wetland buffers as a result of utilizing existing disturbed areas for staging; these areas will be revegetated with a native upland grass and forb mix or with a riparian tree and shrub mix depending on the existing plant community prior to construction, see Table 3 and Table 4.

The 3.194 acres of impacts from access pathways below the OHWM the Satsop River will be restored by decompaction. The proposed project would impact 3.013 acres of stream buffer. These areas will be restored by decompaction and planting as shown in Sheet 7 of the drawings. The main access route to the Satsop River will be restored by decompaction and hydroseeding with a native grass and forb mix. This route may be needed the following year for construction of a Grays Harbor County RCO funded restoration project that would include a riparian planting component as well as an invasive removal program. The access route would be needed to get heavy equipment out to the river and so this proposed project would utilize hydroseeding with a native grass and forb mix to reduce colonization by invasive species while not precluding construction equipment access for the future project. The reach scale restoration project is contingent on funding, would be permitted separately under the NWP 27 framework, and while it would leverage the habitat elements of the Keys Road Flood Protection project it is distinct and separate.

Table 2. Access and staging route impacts to waterbodies, wetland buffers, and waterbody buffers

PROJECT ELEMENT	IMPACTED RESOURCE	TOTAL IMPACTS		CRITICAL AREAS BUFFER IMPACTS		TEMPORARY WETLAND IMPACTS		WATERBODY IMPACTS	
		EXCV. (CY)	AREA (ACRE)	EXCV. (CY)	AREA (ACRE)	EXCV. (CY)	AREA (ACRE)	EXCV. (CY)	AREA (ACRE)
TEMPORARY ACCESS ROUTES									
	SATSOP RIVER AND BUFFER	0	3.300	0	2.300	-	-	0	1.000
STAGING AREAS									
01-S	SATSOP RIVER	0	1.503	-	-	-	-	0	1.503
02-S	SATSOP RIVER	0	0.691	-	-	-	-	0	0.691
03-S	WETLAND PFO6 BUFFER	0	0.569	0	0.569	-	-	-	-
04-S	WETLAND PEM4 BUFFER	0	0.286	0	0.286	-	-	-	-
05-S	SATSOP RIVER BUFFER	0	0.713	0	0.713	-	-	-	-

Table 3. Proposed plant schedule for revegetation of riparian tree and shrub plant communities.

COMMON NAME	SPECIES	TYPICAL SPACING	PERCENT OF PLANTING AREA	PLANTING AREA (SF)	# OF PLANTS
RED ALDER	ALNUS RUBRA	15'	16%	11,217	50
DOUGLAS FIR	PSEUDOTSUGA MENZIESII	15'	17%	11,918	53
BEAKED HAZELNUT	CORYLUS CORNUTA	6'	8%	5,608	156
THIMBLEBERRY	RUBUS PARVIFLORUS	6'	8%	5,608	156
SNOWBERRY	SYMPHORICARPOS ALBUS	6'	8%	5,608	156

Table 4. Proposed seed mix for hydroseeding to revegetate native grass and forb plant communities.

COMMON NAME	SPECIES	MIX SPECIES SEEDING RATE LBS/ACRE	PERCENT PLS/BULK POUND	TOTAL PLS POUNDS	BULK PLANTING RATE LBS/ACRE	TOTAL BULK SEED (LBS)
BLUE WILD RYE	ELYMUS GLAUCUS	3.60	80.75	12.06	4.46	14.93
NATIVE RED FESCUE	FESTUCA RUBRA	1.20	80.75	4.02	1.49	4.98
CALIFORNIA BROME	BROMUS CARINATUS	1.60	80.75	5.36	1.98	6.64
TUFTED HAIRGRASS	DESCHAMPSIA CESPITOSA	0.15	76.5	0.50	0.20	0.66
STREAMBANK WHEATGRASS	ELYMUS LANCEOLATUS SSP. PSAMMOPHILUS	0.80	76.5	2.68	1.05	3.50

## 2. Updated Project Drawings

Adjust the project drawings to mark impacts from ELJs, timber complex, gravel placement, and the bypass channel as permanent impacts. In addition, clearly identify what aquatic resources are being impacted by each project component. For example, adding a column to the existing table starting on page 5 or marking each impact location with the impact name, aquatic resource name, and duration of impact (such as 01-SB2, Wetland PF06, permanent).

A column has been added to the table in the project drawings specifying the resource being impacted by project construction and the permanent or temporary nature of the proposed impacts.

## 3. Indirect Wetland Impacts

The table on Page 5 of the Project Drawings identifies temporary impacts to wetland buffer. Please clarify the total amount of impacts to wetland buffer, indicate whether impacts are temporary or permanent, and describe how temporarily disturbed areas would be restored following project completion.

The proposed project would temporarily impact 0.855 acre of wetland buffers as a result of utilizing existing disturbed areas for staging; these areas will be revegetated with a native upland grass and forb mix or with a riparian tree and shrub mix depending on the existing plant community prior to construction, see Table 3 and Table 4.

A column has been added to the table in the JARPA drawings specifying the resource being impacted by project construction. Temporary impacts to wetland buffers will be restored from either a native upland grass and forb mix or with a riparian tree and shrub mix depending on the existing plant community prior to construction, see Table 3 and Table 4.

The main access route to the Satsop River (which crosses wetland buffers) will be restored by decompaction and hydroseeding with a native grass and forb mix. This route may be needed the following year for construction of a Grays Harbor County RCO funded reach scale restoration project that would include engineered log jams, a riparian planting component, and an invasive removal program. The access route would be needed to get heavy equipment out to the river and so hydroseeding would reduce colonization by invasive species while not precluding construction equipment access for the future project.

Please provide the requested information within 30 days from the receipt of this Memorandum. If the requested information is not received, the project will be administratively withdrawn. This does not remove the project from review, but merely allows the Corps to prioritize projects that already have the necessary information. Once the requested information has been submitted, I can resume review of this project.

Thank you for the opportunity to provide additional information to support processing this application.