

## ESB 5127 Project Descriptions

May 17, 2012

**SUBSECTION (2) UP TO \$1,875,000 FOR "REPAIRING AND MODIFYING LEVEES AND DIKES, INCLUDING BUT NOT LIMITED TO, THE AIRPORT LEVEE, LEVEES PROTECTING THE ADNA AND BUCODA AREAS."**

### **Airport Levee (#26-vii on the Project Matrix)**

Location: City of Chehalis

Ownership:

Project description/benefits: Project consists of elevating the existing airport levee using both earthen material where the footprint at the base is large enough, and floodwalls constructed generally with pilings atop the existing levee where drainage or rights-of-way occur at the base, to protect the airport operation, the commercial area east of the airport runway and the I-5 freeway from closure during a major flood event on the Chehalis River. Airport road at the south end of the airport property would be elevated several feet and terminate in the West Street overcrossing approach.

If/when the West St. overcrossing is modified for reconstruction of the freeway, the terminus of the enhanced levee protection could be modified as well to maintain the protection elevations at the south end. Minor elevation enhancements would be needed on the freeway rights of way via either berms or lifts on existing pavement to provide required elevation. The state would need to identify protection measures on the east side of the freeway to prevent backwater from that side, such as concrete barriers, floodwalls, or berms on the existing rights of way.

There is also a way to prevent significant flooding from the east side by raising W. Main Street, but that concept has not been studied. The east side can be protected fairly easily (engineering-wise) from both the north and the south, and/or with lower floodwalls where needed on the freeway r/w if the west side is protected by the levee. The flood elevations that occur at the south end of the project are slightly higher than would be required at the north end.

RB Engineering has created a civil plan for the Airport Board showing what elevations would be needed to satisfy certification to the proposed new FEMA floodplain standard. That standard is likely to be revised slightly locally when FEMA determines what the 'existing levee' approach will be in their floodplain mapping process. Allyn Roe at the Airport will have a copy of the civil plan for this project. RB Engineering could probably get you a set also.

Approximate cost: Engineers actual cost estimate is being calculated presently - Airport Board has requested that information from RB Engineering. Preliminary estimates are around \$2M to \$2.5M, and engineers report is expected within a month or so.

Next steps: Civil plans are already on the shelf. Construction plans could be developed within a month to six weeks. Permitting could be accomplished in a month or so locally. Unknown how Ecology or the Corps would look at this project.

**Adna Levee (#26-vi on the Project Matrix)**

Location: Adna

Ownership:

Project description/benefits:

Approximate cost:

Next steps: Work has been conducted by the US Army Corps of Engineers on this; need to access this information.

**Bucoda Levee (#26-v on the Project Matrix)**

Location: Bucoda North end

Ownership: Town of Bucoda.

Project description/benefits: Reduces flood levels in town. Repaired by Corps of Engineers in 2002; additional work needed to determine status of levee.

Approximate cost: To be determined

Next steps: Need design to determine precise flood benefits and cost estimates.

**Wishkah Road (Kirsch) (#24 on the Project List)**

Location: Grays Harbor County

Ownership:

Project description/benefits: Reduce flooding to the Wishkah Road. 1). Land acquisition to provide more flood plain storage of two parcels located right along the water. 2). Approximately nine homes would be helped by raising them above the flood plain. 3). Replacement culvert near Kersh's property would have to be a six foot diameter pipe and approximately 90 feet long and relocating Aberdeen's transmission water main. 4). Construct a sheet pile wall (dike) 1000 feet long.

Approximate cost: 1). \$42,000 2). \$30,000 per home or \$270,000 total 3). \$500,000 4).

\$1,100,000

Next steps:

**Humptulips Dike Road (#26-I on the Project Matrix)**

Location: Grays Harbor County

Ownership:

Project description/benefits:

Approximate cost:

Next steps

**Trail/Dike behind Burger King (#26-ii on the Project Matrix)**

Location: Aberdeen - East bank of Wishkah between Wishkah and Heron

Ownership:

Project description/benefits: The Burger King property is located between the Wishkah and the Heron street bridges. Extreme high water can top the bank and flood the adjacent commercial property. A small dike or elevated walkway along the river would help keep the river in its banks. Prevents river flooding from entering that section of Aberdeen.

Approximate cost: \$123,000

Next steps: 24 months

**Dike bank of Wishkah north of Hwy. (#26-iii on the Project Matrix)**

Location: Aberdeen - East bank of Wishkah from Kansas Street to Chehalis street

Ownership:

Project description/benefits: The northeast area of Aberdeen is partially protected by dike along the Chehalis behind the Wal-Mart/Gateway Plaza mall area; however when extreme conditions exist the water will flood the area from the Wishkah river north of the highway. Raising the local road elevations adjacent the Wishkah River and installing tide gates would create a dike which would reduce flooding frequency. Prevents river flooding from entering that section of Aberdeen.

Approximate cost: \$235,000

Next steps: Concept Plan – 36 months

### **Market Street Dike (#26-iv on the Project Matrix)**

Location: Aberdeen - Market Street from D Street to 1st Street

Ownership:

Project description/benefits: High water from the Wishkah River overtops the river bank in the Market Street area. If half the road and sidewalk were raised it would create a small dike which would not protect from the 100 year event but would greatly reduce the frequency of flooding experienced. Prevents flood waters from entering that area of the community.

Approximate cost: \$483,000

Next steps: Concept Plan – 24 months

### **Southside Dike (Levee) certification (#26-viii on the Project Matrix)**

Location: Aberdeen - Southside Dike – South Aberdeen

Ownership:

Project description/benefits: In order for the current flood protection status of South Aberdeen to be recognized Aberdeen needs to complete a certification process for its Dike even though it was designed and built by the Army Corps of Engineers. This process is ongoing and is being done in-house. It is anticipated to be completed within the year. There may be some dike improvements needed to meet the certification requirements. This project documents effectiveness of existing diking system.

Approximate cost: \$50,000

Next steps: Project is in process. Work is being completed in-house and will be completed within one year.

### **Satsop Floodplain Restoration (#26-ix on the Project Matrix) (see below as well)**

Location: Satsop River Floodplain

Ownership:

Project description/benefits: This Satsop River floodplain restoration project consists of approximately 100 ac. of floodplain habitat that is negatively impaired by approximately 5200 linear feet of constructed dike and approximately 2500 linear feet of riprapped riverbank. Since May 2001 the Satsop Committee (WDFW, Corps, Grays Harbor County, and local citizens) has met to develop a project approach to meet the needs of both fish and people. As a result the committee has worked with the Corps to develop a Channel Migration Study, Preliminary

Restoration Plan and has recently been notified of the Corps approval to fund this project under Section 206 Ecosystem Restoration.

Throughout the past 1+ years the Satsop Committee has identified the dike, riprap, ponds, and excessive eroding banks as areas to focus restoration efforts. Beginning Fall 2001 the Corps will begin a study phase that will characterize baseline habitat conditions and identify potential improvements to these conditions through restoration actions. Proposed restoration activities will be analyzed using standard modeling techniques to determine if there are potential adverse affects from the restoration project. Once this phase is complete the Satsop Committee will decide on a restoration concept and design. The project is scheduled to be constructed the summer of 2004. The implementation of this project will restore floodplain functions and re-establish access to off-channel habitat.

Approximate cost: \$1,099,800

Next steps: Study Phase (Planning Phase) Plans and Specifications Construction - Total two years

**SUBSECTION (3) UP TO \$2,075,000 FOR "MODIFICATION OF THE SICKMAN FORD BRIDGE, AND FLOODPLAIN CULVERTS, TO OPEN UP THE CHANNEL, INCREASE CONVEYANCE, AND ALLOW FOR FLOOD RELIEF"**

**Sickman Ford Bridge**

Location: Grays Harbor County

Project Description: Project information is being developed by the Chehalis Tribe.

**Open migration zone of the Satsop (#43 on the Project Matrix)**

Location: Satsop River

**Dredge Lake Sylvia (#44 on the Project Matrix)**

Location: Montesano

**Open relic channel at Marys River oxbow (#45 on the Project Matrix)**

Location: Grays Harbor

**Widen Stream channel at MP 8.2 of the South Bank Road. (#46 on the Project Matrix)**

Location: Grays Harbor

**Realign Dillenbaugh Creek (#47 on the Project Matrix)**

Location: City of Chehalis/WSDOT

**Galvin Road area; downstream Grand Mound - Oxbow reconnection (#116 on Project Matrix)**

Location: Lewis County

**Oakville backwater - Oxbow reconnection (#117 on the Project Matrix)**

Location: Chehalis Mainstem

**Porter area - Oxbow reconnection (#118 on the Project Matrix)**

Location: Chehalis Mainstem

**State Route 6 oxbow - Oxbow reconnection (#119 on the Project Matrix)**

Location: Chehalis Mainstem

**Horseshoe Lake oxbow - Oxbow reconnection (#120 on the Project Matrix)**

Location: Chehalis Mainstem

**Pheasant Farm Fords Prairie - High flow side channels (#121 on the Project Matrix)**

Location: Chehalis Mainstem

**Dillenbaugh Creek - Oxbow reconnection (#122 on the Project Matrix)**

Location: Newaukum Management Unit

**Salzer Creek - Oxbow reconnection (#123 on the Project Matrix)**

Location: Newaukum Management Unit

**Salzer Creek - Oxbow reconnection; wetland connection (#124 on the Project Matrix)**

Location: Newaukum Management Unit

**Open old migration channels to allow river braiding (#127 on the Project Matrix)**

Location: Wynoochee and Satsop Rivers

**Correct barrier culverts - improve fish passage:** For a list of prioritized (for fish enhancement) culvert projects for WRIA 23, see Table 7 "LCCD Prioritized Culvert Projects in WRIA 23" in Draft Chehalis Enhancement Project Prioritization Report 5-9-2012.

**SUBSECTION (4) UP TO \$50,000 FOR "INSTALLATION AND CALIBRATION OF A RAIN GAUGE ON THE CHEHALIS RESERVATION."**

The Chehalis Tribe is researching potential locations for a gauge to better predict impacts to the Chehalis Reservation. This project is not on the Flood Authority's Project Matrix.



**SUBSECTION (5): UP TO \$500,000 FOR "CONSTRUCTION OF EVACUATION ROUTES AND PADS TO AVOID FUTURE LIVESTOCK LOSS."**

**Establish critter pads to reduce livestock loss (#90 on the Project Matrix)**

Location: Basin-wide

Ownership: Private land owners.

Next steps: The Lewis County Conservation District has already identified a number of potential locations with Lewis County, and is working to identify potential locations in Thurston and Grays Harbor County as well. In addition, the Conservation District is developing further descriptions and criteria for critter pads, analyzing the regulatory requirements, and working with the Washington Department of Ecology to see if a programmatic SEPA approval might be possible.

**SUBSECTION (6): UP TO \$500,000 FOR "IMPROVEMENTS TO AREAS AFFECTED BY THE SATSOP RIVER".**

**Satsop Floodplain Restoration (#26-ix on the Project Matrix)**

Location: Satsop River Floodplain

Ownership:

Project description/benefits: This Satsop River floodplain restoration project consists of approximately 100 ac. of floodplain habitat that is negatively impaired by approximately 5200 linear feet of constructed dike and approximately 2500 linear feet of rip-rapped riverbank. Since May 2001 the Satsop Committee (WDFW, Corps, Grays Harbor County, and local citizens) has met to develop a project approach to meet the needs of both fish and people. As a result the committee has worked with the Corps to develop a Channel Migration Study, Preliminary Restoration Plan and has recently been notified of the Corps approval to fund this project under Section 206 Ecosystem Restoration.

Throughout the past 1+ years the Satsop Committee has identified the dike, riprap, ponds, and excessive eroding banks as areas to focus restoration efforts. Beginning Fall 2001 the Corps will begin a study phase that will characterize baseline habitat conditions and identify potential improvements to these conditions through restoration actions. Proposed restoration activities will be analyzed using standard modeling techniques to determine if there are potential adverse effects from the restoration project. Once this phase is complete the Satsop Committee will decide on a restoration concept and design. The project is scheduled to be constructed the summer of 2004. The implementation of this project will restore floodplain functions and re-establish access to off-channel habitat.

Approximate cost: \$1,099,800

Next steps: Study Phase (Planning Phase) Plans and Specifications Construction; total, 2 years.

**Satsop River Bank Stabilization near Satsop (#36 on the Project Matrix)**

Location: Grays Harbor County

**Satsop River Bank Stabilization near Satsop Rivera (#37 on the Project Matrix)**

Location: Grays Harbor County

**Keys Road Chehalis River Bank at Boat Launch near Satsop River (#38 on the Project Matrix)**

Location: Grays Harbor County

**Protect access to Satsop Development Park (#27 on the Project Matrix)**

Location: Grays Harbor County

**Open old migration channels to allow river braiding (#127 on the Project Matrix)**

Location: Wynoochee and Satsop Rivers

**Open migration zone of the Satsop (#43 on the Project Matrix)**

Location: Satsop River