US Army Corps
of Engineers
Seattle District

# Notice of Preparation & Clean Water Act Public Notice

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ATTN: Andrea Cummins

Public Notice Date: 21 May 2008
Expiration Date: 11 June 2008
Reference: PL-08-08, PL-08-09, PL-08-10, PL-08-11
Name: Green River Levee Rehabilitation

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Interested parties are hereby notified that the U.S. Army Corps of Engineers, Seattle District (Corps) plans to prepare, pursuant to the National Environmental Policy Act, an environmental assessment (EA) for proposed levee repairs at ten sites, at six locations, along the Green River, in King County, Washington.

## AUTHORITY

The proposed levee repairs are authorized by Public Law 84-99 (33 U.S. Code Section 701n). Corps rehabilitation and restoration work under this authority is limited to flood control works damaged or destroyed by floods. The statute authorizes rehabilitation to the condition and level of protection exhibited by the flood control work prior to the damaging event.

## PROJECT LOCATION

Levee repairs are proposed for ten sites, at six locations, along the Green River, in King County, Washington. However, the levee repair sites are not interdependent and depending upon circumstances, only some of the projects may be constructed this year.

## BACKGROUND

Historically the Green River has been prone to regular flooding and inundation of surrounding lands. Many of the levees in existence today were constructed in the late 1800s and early 1900s by local landowners using any materials available. In 1961 the Howard Hansen Dam went into operation and, accompanied by an extensive and continuous system of levees, major flooding in the area was moderated. Age, poor construction, and high peak flows from rain events and urbanization have all contributed to a weakening of the existing levee system. These levees serve to reduce the risk of flooding of the surrounding highly urbanized regions of southern King County, including the cities of Tukwila, Kent and Auburn, and all infrastructure and human life therein.

Due to the dynamic process of rivers and heavy storm events, damage caused by erosion to levees and other structures is cumulative unless addressed through repair efforts. During high and prolonged flood events of the Green River, such as that of the November 2006, flows could erode through previously weakened or damaged portions of the levees, making them even more susceptible to seepage and leading to a potential

breach. This project is intended to repair the portions of the levees damaged by the November 2006 floods.

## NEED AND PURPOSE

A heavy rainstorm during November 2006 created flooding in many river basins in western Washington causing damage to levees at a number of sites, including 10 levee segments at 6 locations in the Green River basin in King County, Washington, which are addressed in this Notice. These levees are integral to protecting life, safety, and property, including private residences, commercial and industrial property, retail and recreational centers and farmland, in floodplains along the river. The Corps has determined that if the ten segments of the Green River levees are not repaired before the next flood event, each segment would present an imminent threat of loss of private and/or public property.

The flood season in the Green River basin typically begins November 1 of each year. It is important to ensure that the levees meet their design standards before November, in order to minimize chances of increased levee damage and possible breaching, which could have major consequences to life, health, safety, and property.

The purpose of the project is to reconstruct certain Green River levees that were damaged in the November 2006 flood event.

## DESCRIPTION OF DAMAGE

The following addresses the ten individual sites, at six locations, proposed for repair:

| Site | Length of Repair | Location of Repair | River Bank | Environmental Compliance |
|---|---|---|---|---|
| Tukwila #3 | 800 ft | RM 14.6 to RM 14.8 | Left bank | Exempt per Section 404(f)(1)(B) of CWA, 401 Certification not required |
| Tukwila #5 | 1100 ft | RM 15.0 to RM 15.3 | Left bank | Exempt per Section 404(f)(1)(B) of CWA, 401 Certification not required |
| Horseshoe Bend #1 | 800 ft | RM 25.8 to RM 26.1 | Right bank | Not exempt from 404 of CWA, 401 Certification required from Ecology |
| Horseshoe Bend #2 | 150 ft | RM 25.3 | Right bank | Exempt per Section 404(f)(1)(B) of CWA, 401 Certification not required |
| Horseshoe Bend #3 | 100 ft | RM 25.2 | Right bank | Exempt per Section 404(f)(1)(B) of CWA, 401 Certification not required |
| Horseshoe Bend #4 | 1000 ft | RM 24.9 to RM 25.1 | Right bank | Exempt per Section 404(f)(1)(B) of CWA, 401 Certification not required |
| Kent Shops/Narita | 3600 ft | RM 21.0 to RM 22.0 | Right bank | Exempt per Section 404(f)(1)(B) of CWA, 401 Certification not required |

| | | | | |
|---|---|---|---|---|
| Meyer's Golf | 1600 ft | RM 22.0 to RM 22.5 | Right bank | Exempt per Section 404(f)(1)(B) of CWA, 401 Certification not required |
| Galli's | 1100 ft | RM 30.5 to RM 30.8 | Left bank | Not exempt from 404 of CWA, 401 Certification required from Ecology |
| Dykstra | 600 ft | RM 30.8 to RM 31.5 | Left bank | Not exempt from 404 of CWA, 401 Certification required from Ecology |

Damage descriptions at the various sites are as follows:

Tukwila 205 (Public Notice no. PL 08-08)
The Tukwila 205 levee project includes two repair sites, Site #3 and Site #5. Both are located on the left bank of the Green River in Tukwila (T 23N, R 04E, S 35 and 36). Site #3 is located between river mile (RM) 14.6 and RM 14.8 and Site #5 between RM 15.0 and RM 15.3. The levee projects protect an industrialized area which lies in a flood plain that extends over 1000 acres. Included in this area are light manufacturing facilities, warehouses, shopping malls, and large retail stores. The levee is constructed with earthen material and is armored with riprap on the riverward side. The November 2006 flood event resulted in approximately 800 linear feet (LF) of damage at Site #3 and 1,100 LF at Site #5. Damage at both Site #3 and Site #5 includes toe scour and riverward slope erosion.

Kent Shops/Narita (Public Notice no. PL 08-08)
The Kent Shops/Narita levee project is located on the right bank of the Green River extending from RM 21.0 to RM 22.0 in the city of Kent (T 22N, R 04E, Sec. 22 and 23). This section of levee protects retail and commercial buildings, the Kent Riverbend 18-Hole Golf Course, City of Kent maintenance shops and a recreational ice center. The levee is constructed of earthen material and is armored with rock on the riverward side. The November 2006 flood event resulted in damage to 3600 LF of damaged toe and lost armor rock on the riverward bank. The damage is continuous along the levee and the scour extends approximately 15 feet vertically above the apparent toe elevation. Several severe slumps are evident and appear to result from toe scour. Due to the slope instability following the slumps, large cracks (up to about ¾" in width) have developed on the crown at some sections along the levee. Additionally, differential settlement as much as 4 inches has occurred in one section of the levee, recently covered by an over-layer of asphalt pavement.

Meyer's Golf (Public Notice no. PL 08-08)
The Meyer's Golf levee project is located on the right bank of the Green River between RM 22 and RM 22.5, in the city of Kent (T 22N, R 04E, Sec. 23) and adjacent to the Kent Shops/Narita project. This section of levee protects Kent Riverbend Par-3 Golf Complex Course and Driving Range, and two large apartment complexes. The levee is constructed of earthen material and is armored with rock on the riverward side. The November 2006 flood event resulted in damaged toe and lost armor rock on the riverward levee slope for approximately 1,600 LF. The levee damage consists of varying

degrees of riprap loss on the riverside of the slope and substantial scour at the toe of the slope.

Horseshoe Bend 205 (Sites #2, 3, & 4 - Public Notice no. PL-08-08; and Site #1, Public Notice no. 08-11)

The Horseshoe Bend 205 levee project includes four repair sites: Site #1, Site #2, Site #3, and Site #4. All are located on the right bank of the Green River in the city of Kent (T 22N, R 05E, Sec. 30 and T 22N, R 04E, Sec 25). Site locations are as follows:

- Site #1 is located between RM 25.8 and RM 26.1
- Site #2 is located at RM 25.3
- Site #3 is located at RM 25.2
- Site #4 is located between RM 24.9 and RM 25.1

The Horseshoe Bend levee system encloses about 75% of a rough circle with approximately 68 parcels of mixed residential and commercial structures. This levee is located on the upstream (south) end of a flood plain that is very roughly 10-15 miles long and up to about 2 miles wide with similar land use. The levee system is constructed of earthen material with armor rock on the riverward side. The November 2006 flood event resulted in the following damage:

- Site #1 - As the river receded a rotational failure developed forming a deep-seated arcing crack in the levee crown along 950 LF. There is noticeable settlement riverward of the crack.
- Site #2 - There is extensive toe scour from high flows along approximately 150 LF of the levee. Additionally 10 shallow sink holes have developed on the landward levee slope along a roughly 1,000 foot reach.
- Site #3 - The high flows caused deep scour to the riverward toe, and is eroding into the levee prism along approximately 100 LF.
- Site #4 - The high flows caused toe scour along 1,000 LF of the levee toe.

Galli's (Public Notice no. PL 08-10)

The Galli's levee project is located on the left bank of the Green River between RM 30.5 and RM 30.8, in the city of Auburn (T 21N, R 05E, Sec. 6 and 7). This section of levee protects an urban area without any agriculture. The structures consist of a mix of single family and multi-family residences, including several homes adjacent to the levee section proposed for repair, retail and office centers, nursing homes and a middle school. The levee is constructed of earthen material and is armored with rock on the riverward side. The November 2006 flood event resulted in damage to 1,100 LF of toe and bank scour. The levee damage at this location consists of varying degrees of riprap loss on the riverward levee slope and substantial scour and loss of material at the toe of the slope. There are signs of rock riprap displaced from the slope that has accumulated on the toe and river bottom.

Dykstra (Public Notice no. PL 08-09)

The Dykstra levee project is located on the left bank of the Green River between RM 30.8 and RM 31.5, in the city of Auburn (T 21N, R 05E, Sec. 8). The levee protects 120 single-family residential structures including several homes adjacent to the levee section proposed for repair. The levee is constructed of earthen material and is armored

with rock on the riverward side. The November 2006 flood event resulted in approximately 600 LF of toe scour. The levee damage at this location consists of varying degrees of rock riprap loss on the riverside of the slope and substantial scour at the toe of the slope.

## PROPOSED ACTION

Multiple alternatives were considered, including the No-Action Alternative, the Non-Structural Alternative, the Repair the Damage Alternative, and a Layback the Levee Alternative. Different alternatives are recommended for different sites. In order for any alternative to be acceptable for consideration, it must meet certain objectives. The alternative must afford flood protection similar to the rest of the levee segment, it must be economically justified, it should be environmentally acceptable, and it should minimize costs for both the public sponsor and the Federal government.

The No-Action Alternative must be fully considered under NEPA. It would leave the levees in their current damaged condition. This alternative has high potential for flood damages to the protected structures and lands in behind these levees in the Green River valley.

The Non-Structural Alternative would relocate all existing residences, commercial and retail structures, utilities, and public facilities. Relocation of infrastructure prior to the coming flood season is impractical, even if willing sellers were identified. Because the costs associated with flood proofing or relocating the structures in the potential inundation area would significantly exceed the cost of repairing the levee, the non-structural alternative was not selected.

The Repair to Pre-Flood Condition Alternative would be to restore the levees to pre-flood conditions. Damaged or lost riprap would be replaced, willow lifts would be planted at ordinary high water (OHW) and the levee slopes hydroseeded. This alternative is the recommended alternative for Horseshoe Bend #2 and #3. For the Dykstra and Galli's sites, the recommended alternative includes a 2H:1V riprap slope with willow lifts planted at OHW, and large woody debris (LWD) placed at the levee toe in limited areas.

The Layback the Levee Alternative includes moving the landward footprint of the levee back from the river; the toe location would remain the same. The general design includes creating a mid-slope bench planted with native trees and shrubs, reducing the overall slope of the riverward face of the levee to 2V:1H, and adding willows and LWD. This alternative is recommended for the following projects: Tukwila 205 #3 and #5, Horseshoe Bend #1 and #4, Kent Shops/Narita, and Meyer's Golf. This is the locally preferred alternative.

Under the recommended alternatives the individual projects are proposed as follows:

***Tukwila 205 #3 and # 5***

The recommended alternative for the repairs at both sites is to layback the levee. It is the locally preferred alternative. The proposed repair is approximately 800 LF at Site #3 and 1,100 LF at Site #5.

Repair at both Site #3 and Site #5 will consist of laying the existing levee back to establish a 2H:1V riverward slope with a 15-16 foot mid-slope bench. A launchable toe structure will be constructed using Class IV riprap to prevent future scour. A 3 foot blanket of Class IV riprap will be placed for armor rock. This slope will then be filled in with earthen material to achieve a 2H:1V slope, creating a planting bench. The mid-slope bench will be hydroseeded to prevent erosion after construction and planted with native trees and shrubs in spring 2009. The lower slope will be planted with 2 willow lifts above the OHW elevation. The soil lifts containing the willows will extend to the spall layer allowing the willow roots to contact the native soil. Above the bench the levee prism will continue at a 2H:1V slope, underlain with 1 foot blanket of quarry spalls and hydro-seeded. At Site #5, a 250 LF retaining wall will be constructed at the furthest downstream reach of the repair in place of the landward side levee prism due to site constraints. Large woody debris (LWD) will be placed, at approximately 20 foot intervals, at the riverward edge of the riprap toe and anchored using 5 foot diameter quarry stone at Site #3 and in sections of Site #5. No LWD will be placed at the downstream end of the Site #5 repair due to concerns about bank erosion in this bend of the river.

***Kent Shops/Narita***

The recommended alternative for the repair at this site is to layback the levee, it is also the locally preferred alternative and the least cost alternative. The proposed repair is approximately 3600 (LF).

Repair at this site will consist of laying the existing levee back to establish a 2H:1V riverward slope with a 12-18 foot mid-slope bench. A launchable toe structure will be constructed using Class III riprap to prevent future scour. A 3 foot blanket of Class III riprap will be placed for armor rock. This slope will then be filled in with earthen material to achieve a 2H:1V slope, creating a planting bench. The mid-slope bench will be hydroseeded to prevent erosion after construction and planted with native trees and shrubs in spring 2009. The lower slope will be planted with 2 willow lifts above the OHW elevation. The soil lifts containing the willows will extend to the spall layer allowing the willow roots to contact the native soil. Above the bench the levee prism will continue at a 2H:1V slope, underlain with 1 foot blanket of quarry spalls and hydro-seeded. Large woody debris (LWD) will be placed along a total of approximately 3000 ft of the levee at the riverward edge of the riprap toe and anchored using 5 foot diameter quarry stone. No LWD will be placed at the farthest downstream 600 linear feet of the repair due to concerns about bank erosion in this bend of the river. The golf course located behind the levee will be impacted by this alternative. King County is working with the City of Kent (Golf Course Owner) to minimize project impacts.

***Meyer's Golf***

The recommended alternative for the repair at this site is to layback the levee, it is also the locally preferred alternative and the least cost alternative. The proposed repair is approximately 1600 LF.

Repair at this site will consist of laying the existing levee back to establish a 2H:1V riverward slope with an 18 foot mid-slope bench. A launchable toe structure will be constructed using Class III riprap to prevent future scour. A 3 foot blanket of Class III riprap will be placed for armor rock. This slope will then be filled in with earthen material to achieve a 2H:1V slope, creating a planting bench. The mid-slope bench will be hydroseeded to prevent erosion after construction and planted with native trees and shrubs in spring 2009. The lower slope will be planted with 2 willow lifts above the OHW elevation. The soil lifts containing the willows will extend to the spall layer allowing the willow roots to contact the native soil. Above the bench the levee prism will continue at a 2H:1V slope, underlain with 1 foot blanket of quarry spalls and hydro-seeded. Large woody debris (LWD) will be placed, at approximately 20 foot intervals, at the riverward edge of the riprap toe and anchored using 5 foot diameter quarry stone. The golf course located behind the levee will be impacted by this alternative. King County is working with the City of Kent (Golf Course Owner) to minimize project impacts.

***Horseshoe Bend 205***

The recommended alternative for the repairs at the four sites are as follows:

- Site #1 - The recommended plan for the repair is to layback the existing levee and create a mid-slope bench. This is the least cost alternative and is preferred by the sponsor. The proposed repair is approximately 800 (LF).
- Site #2 - The recommended plan is to repair to pre-flood condition and repair the approximately 10 sink holes that have developed on the landward side at this location. This is the least cost alternative. The proposed repair is approximately 150 (LF).
- Site #3 - The recommended plan is to repair to pre-flood condition. This is the least cost alternative. The proposed repair is approximately 100 (LF)
- Site #4 - The recommended plan for the repair is to layback the existing levee and create a mid-slope bench. This is the locally preferred alternative. The proposed repair is approximately 1000 (LF)

The proposed plans for the repairs are as follows:

- Site #1 - The proposed repair consists of removing damaged material and laying back the existing levee to a 2H: 1V slope. A launchable toe will be constructed using Class IV riprap to prevent future scour and a 3 foot blanket of Class IV riprap will be placed for armor rock. This slope will be filled with earthen material to achieve a 2H:1V slope, creating a 23 foot planting bench. The mid-slope bench will be hydroseeded to prevent erosion after construction and planted with native trees and shrubs in spring 2009. The lower slope will be planted with 2 willow lifts above the OHW elevation. The soil lifts containing the willows will extend to the spall layer allowing the willow roots to contact the native soil. Above the bench the levee prism will continue at a 2H:1V slope, underlain with 1

foot blanket of quarry spalls and hydro-seeded. Large woody debris (LWD) will be placed along the downstream 150 ft, at approximately 20 foot intervals, at the riverward edge of the riprap toe and anchored using 5 foot diameter quarry stone

- Site #2 - The proposed repair includes excavating the damaged material and re-grading the slope to 2H:1V. A 3 foot blanket of Class IV riprap placed on a 1 foot lift of quarry spalls over a six inch lift of gravel on the levee slope from the toe to the 100-year elevation. Two willow lifts will be installed at the OHW elevation and the levee will be hydroseeded. Additionally the approximately 10 sink holes that have developed on the landward side of the levee will be excavated. The cause of the sinkholes will be determined and repairs made. After construction the area will be hydroseeded.
- Site #3 - The proposed repair includes excavating the damaged material and re-grading the slope to 2H:1V. The slope will be covered with a 1 foot blanket of quarry spalls and a launchable toe will be constructed of Class IV riprap. One willow lift will be constructed at the OHW and the slope will be covered with a layer of topsoil and hydroseeded.
- Site #4 - The proposed repair is to re-grade the damaged slope to 2H:1V creating a 15 foot mid-slope bench. A launchable toe will be constructed using Class III riprap to prevent future scour and a 3 foot blanket of Class III riprap will be placed for armor rock. This slope will be filled with earthen material to achieve a 2H:1V slope, creating a planting bench. The mid-slope bench will be hydroseeded to prevent erosion after construction and planted with native trees and shrubs in spring 2009. The lower slope will be planted with 2 willow lifts above the OHW elevation. The soil lifts containing the willows will extend to the spall layer allowing the willow roots to contact the native soil. Above the bench the levee prism will continue at a 2H:1V slope, underlain with 1 foot blanket of quarry spalls and hydro-seeded. Large woody debris (LWD) will be placed, at approximately 20 foot intervals, at the riverward edge of the riprap toe and anchored using 5 foot diameter quarry stone.

***Galli's***

The recommended alternative for the repair at this site does not impact the structures behind the levee. The residences behind this levee preclude any setback/layback of the levee. The proposed repair is approximately 1100 LF.

The recommended repair would require grading the existing bank to a 2H:1V slope. To achieve this slope, the levee footprint will move riverward between 3-15 feet along the reach of the repair. The estimated total impact to the aquatic habitat is 3000 $ft^2$. A launchable toe will be constructed using Class IV riprap to prevent future scour. The slope will be armored with Class IV riprap underlain by filter spalls. The armored slope will extend to approximately 8 feet above ordinary high water (OHW) line and will be planted with 2 willow lifts. Above 8 ft OHW, the levee prism will continue at a 2H:1V slope and be hydro-seeded. Large woody debris (LWD) will be placed along a total of approximately 450 ft of the levee at the riverward edge of the riprap toe and anchored using 5 foot diameter quarry stone.

***Dykstra***
The recommended alternative for the repair at this site does not impact the structures behind the levee. The residences behind this levee preclude setback/layback of the levee. The proposed repair is approximately 600 LF.

The recommended repair would require reestablishing a weighted toe for approximately 600 linear feet. The existing bank will be graded to a 2H:1V slope. A toe will be constructed using Class III riprap to prevent future scour. The slope will be armored with Class III riprap underlain by filter spalls. The armored slope will extend to approximately 8 feet above ordinary high water (OHW) line and will be planted with 2 willow lifts. Above the armoring the levee prism will continue at a 2H:1V slope and be hydro-seeded. Large woody debris (LWD) will be placed along the downstream 300 ft, at approximately 20 foot intervals, at the riverward edge of the riprap toe and anchored using 5 foot diameter quarry stone. Additional LWD will be placed on a mid-channel island across from the construction site.

## ANTICIPATED IMPACTS
The Corps' preliminary analyses of effects of the actions are summarized below. Due to the scheduled timing of the in-water portion of construction (July 1 to September 15), the design of the repairs which include laybacks, and the proposed environmental features (LWD and mid-slope bench plantings) at the sites, both long and short term effects of the overall 2008 Green River levee rehabilitation project are expected to be insignificant.

### Water Quality
Historically, water temperatures in the Green River basin were considerably lower than today; this is particularly true in the middle and lower reaches. All proposed projects are located in the lower reaches, in sections of the river on Ecology's current 303d list for temperature. The combination of channel width, depth, and lack of shade-producing riparian vegetation contributes to warming of the river during low flow periods in summer.

The proposed repairs will require removing all vegetation within the repair footprint. In the short term this will contribute to continuing higher water temperatures. Except at Dykstra and Galli's, the riverward face of the levees scheduled for repairs are predominately vegetated with invasive species; primarily blackberry and reed canary grass. While this vegetation provides minimal shade to the water it does provide habitat for birds and other small mammals and organic input into the river. During construction, willow/dogwood lifts will be installed above the ordinary high water (OHW) mark at all repair sites. It will take 3-10 years for these plants to provide increased shade and similar habitat value as exists on the sites currently. Additionally, the proposed repairs at Tukwila, Horseshoe Bend #1 and #4, Kent Shops/Narita and Meyer's Golf include mid-slope benches. These benches will be planted in spring 2009 with riparian trees and shrubs by the Corps in an effort to provide shade to the river corridor. It should be noted however, that these benches are to be constructed on top of the launchable toe of the levee. If the toe were to "launch" during a flood event, part or the entire bench may

also slide into the river resulting in a rock faced levee with no way to replant the vegetation. Over time and assuming bench stability, this addition of riparian vegetation to the lower Green River corridor would greatly improve habitat, lower water temperatures due to increased shading of the river, and create additional organic input to the river.

Excavation in the water would be necessary at all Green River repair sites, as would individual placement of clean rock. Some short term suspension of solids and turbidity is likely during construction.

Wetlands and Aquatic Area

The project areas include no jurisdictional wetlands, and no adverse impacts to wetlands are expected.

The Galli's project design will result in the loss of approximately 3000 $ft^2$ of aquatic area along about 400 LF of the levee. The aquatic area to be filled is currently river edge habitat that consists primarily of riprap and a large pool on the outside of a river bend. The riprap edge habitat will be replaced by construction of the new levee. In the short term, there will likely be some of loss in area of the existing pool. With time a new riprap edge habitat may develop forming a similar or possibly deeper pool.

Vegetation

As noted above, all vegetation falling within the repair footprint will be removed resulting in loss of bird and small animal habitat, organic input and shading to the river. The planting of willow/dogwood lifts on the levee prism at OHW and riparian trees and shrubs on the mid-slope benches will, in time, provide shade, small animal habitat, and organic input to the river which may be of better-quality than that which currently exists at the sites.

Additionally, as part of the required levee maintenance for eligibility in the PL 84-99 program, the local sponsor (King County) must minimize the amount of vegetation on levees which are active in the program. This vegetation maintenance occurs as a separate action from this repair and the effects of levee maintenance are addressed in the cumulative effects section of this document.

Fish and Wildlife

There would be minor and temporary disturbances to fish in the project area due to in-water construction, with possible impacts from noise, vibration and turbidity. Vegetation removal, particularly at Dykstra and Galli's, also has the potential for adverse effects in terms of loss of shade and cooling, input of organic matter and nutrients, and input of terrestrial organisms that provide food for fish. Riparian vegetation also provides shelter, nesting habitat, and movement corridors for small birds and mammals, and its removal would create impacts. All impacts related to removal of vegetation are likely to persist for at least 3-10 years until new vegetation becomes established, assuming vegetation is allowed to grow a size that provides functional habitat. In addition,

terrestrial wildlife species may be temporarily disturbed by noise and mechanized activity during construction.

The decrease in aquatic area at the Galli's site due to levee encroachment into the river results in a permanent loss of habitat for aquatic species. The addition of LWD to the lower Green River will improve habitat conditions for aquatic species in these sections of the river and help to offset the habitat loss at the Galli's site.

The Corps believes that this action would have no effect on bald eagles (protected under the Bald and Golden Eagle Protection Act), as no eagle nests are documented near the project sites and the projects should not have any negative effects to eagle habitat or forage.

Threatened and Endangered Species

Puget Sound/Coastal bull trout, Puget Sound steelhead, and Puget Sound Chinook salmon, listed as threatened under the Endangered Species Act, are found in the project area. The lower Green River is designated critical habitat for Chinook and bull trout. The projects are scheduled during the in-water construction period to avoid periods of greatest resident fish vulnerability and highest expected use. Adult fish are expected to avoid the construction area, and still be able to access upstream spawning areas. Turbidity will be monitored as deemed necessary to ensure Department of Ecology standards are not exceeded and impacts to fish from turbidity are minimized.

Assuming the proposed projects are built within the approved work window, constructed according to design, and the vegetation becomes established over time, it is expected that the proposed projects at the Tukwila, Horseshoe Bend, Kent Shops/Narita, Meyer's Golf and Dykstra sites are ***not likely to adversely affect*** listed species.

Below is a table detailing the results of the preliminary effects analysis of the federal action on listed species at the above sites:

| Species | Effect Determination | Critical Habitat Determination |
|---|---|---|
| Puget Sound Chinook salmon | Not likely to adversely affect | Not likely to adversely affect |
| Puget Sound steelhead trout | Not likely to adversely affect | Critical habitat is not yet determined |
| Bull Trout | Not likely to adversely affect | Not likely to adversely affect |

The proposed construction at the Galli's site includes roughly 3000 $ft^2$ of river encroachment. This would result in a permanent loss of aquatic habitat area. Assuming the proposed project is built according to current design which includes levee encroachment into the river channel, the construction at the Galli's site is expected to

***likely to adversely affect*** listed species and is ***likely to adversely affect*** critical habitat.

Below is a table detailing the results of the preliminary effects analysis of the federal action on listed species at the Galli's site:

| Species | Effect Determination | Critical Habitat Determination |
|---|---|---|
| Puget Sound Chinook salmon | Likely to adversely affect | Likely to adversely affect |
| Puget Sound steelhead trout | Likely to adversely affect | Critical habitat is not yet determined |
| Bull Trout | Likely to adversely affect | Likely to adversely affect |

The incorporation of plantings on the mid-slop benches, installation of willow/dogwood lifts, LWD placement at the toe of the levees, and the decrease in levee slope created by the proposed laybacks will provide habitat benefits and are expected to help substantially to offset any adverse effects caused by strengthening the levees with additional rock and loss of aquatic area at the Galli's site.

Essential Fish Habitat (EFH)
EFH determination will emulate the ESA analysis and determination for the Green River projects. Consultation will be initiated as necessary for the Galli's site.

Cultural Resources
To comply with Section 106 of the National Historic Preservation Act (NHPA), a Corps archaeologist conducted a cultural resources reconnaissance survey of the proposed project Areas of Potential Effect with negative results. Cultural resources studies conducted for the project included a search of the Washington Department of Archaeology and Historic Preservation (DAHP) Electronic Historic Sites Inventory Database, and other background and archival research. The Corps has also initiated consultation with the Muckleshoot Tribe consisting of the sending of this report and a letter soliciting knowledge or concerns to the Muckleshoot Tribe.

The Corps has determined that rehabilitation of the levee system in the vicinity of Kent and Renton in King County is a type of ground disturbing activity that has potential to cause effects on historic properties. The APEs of Tukwila Levees 3 and 5, Kent Shops Levee, Meyers Golf Levee, Horseshoe Bend Levees, Galli's Levee and Dykstra Levee are in the near vicinity of known historic properties or encompassed within the boundaries of ethnographically or historically significant places. The APEs for the individual projects have been defined as their respective construction boundaries, which include access roads and staging areas; these APEs were not fully defined at the writing of this report. The individual project area APEs include the levee repair areas, access road construction or improvement, staging areas, seepage berm construction,

and will include all other areas where there will be ground disturbing activities related to the projects.

Recreation

The Horseshoe Bend 205 and Tukwila 205 projects are part of the King County Green River Trail. The trail is heavily used by joggers, walkers, cyclists, and other recreation enthusiasts. Short term access, but not long-term access to the trail will be impacted by construction activities.

The Meyer's Golf and Kent Shops/Narita projects are adjacent to a golf course and driving range. The golf course will be permanently impacted by the construction due to the layback of the existing levee into the current golf course property and by the removal of mature trees in the construction area. King County is working with the City of Kent (Golf Course Owner) to minimize any project impacts. Additionally, the paved walking trail that is located along the top of the levee, which is used by runners, walkers, and bicyclists will be impacted in the short-term, but not in the long-term by construction activities.

Along the top of the Galli's levee is an informal trail, assumed to be used primarily by local residents. Short-term access, but not long-term access will be impacted by construction activities.

The Dykstra site is adjacent to several residences, and access is limited by a locked county gate. Several local residents appear to use have built and maintained private sitting areas on the top of the levee. These sitting areas will be removed by the project.

Air Quality and Climate

Use of heavy equipment during construction as well as automobile and truck transportation would result in minor, short-term, insignificant increases in emissions of carbon dioxide and other exhaust components of diesel fuel and gasoline combustion. Effects on climate change are considered negligible and insignificant. Emissions generated by the construction activity are expected to be below the *de minimus* threshold.

Cumulative Effects

This reach of river has had previous levee repair projects, levee upgrades, and dike maintenance over the last twenty-five years. Additional levee repairs/upgrades are likely in the future. The King County Flood Hazard Management Plan was adopted in 2006 and provides guidance for long-term flood reduction and management for all of King County. The goals of this plan are to reduce the risk of future flood hazard, reduce long-term associated costs of maintaining the flood reduction infrastructure, and avoid or minimize the environmental impacts of flood management. Specific project and program recommendations are presented in a 10-year Action Plan, many of which are in the Green River corridor. It can be assumed that a considerable number of projects, both levee rehabilitations and restorations, will be initiated along the Green River in the next 10 years.

The lower Green River is almost completely lined with levees. There is less that 10% remaining of the river's historical floodplain in the valley. The continued presence of the levees themselves is a limiting factor in the habitat restoration activities that are necessary for ESA listed salmon recovery. The rehabilitations proposed in this Notice, and any future projects, will perpetuate an already degraded condition of the river corridor. Additionally, the conversion of soil based levee to rock based levee will more permanently confine the river to its existing channel decreasing opportunities for natural floodplain processes, and further urbanizing the lower Green River.

As part of the required levee maintenance for eligibility in the PL 84-99 program, the local sponsor (King County) must minimize the amount of vegetation on levees which are active in the program. This maintenance requirement is nationally addressed in ER 500-1-1. The Seattle District, has established a variance for this standard. Currently the variance allows for woody vegetation less than 4" in diameter at breast height (dbh) to remain on levees of standard design. This vegetation maintenance by the local government occurs as a separate action from the repairs addressed in this Notice and is expected to be ongoing. This maintenance is required on all levees in the program and includes levees outside of the actions proposed in this document. This will result in continued negative impacts on the riparian habitat, shade and temperature in the river. To be consistent with the program, removal of all trees/shrubs that are larger than 4" dbh along all levees proposed for repair this summer, including the areas outside of the project footprint, is required. The proposed repair site along the Green River corridor most affected by the County vegetation removal action will be Dykstra, where 24 mature trees will be removed prior to the end of the construction. The other rehabilitation sites are primarily vegetated with invasive shrubs (blackberry) and include few large trees; therefore the loss of vegetation due to maintenance will be less detrimental. However, the regular (it is assumed bi-yearly) removal of 4" or greater woody vegetation by the County required to continue in the PL 84-99 program, will exacerbate the already compromised wildlife and fish habitat along the Green River corridor.

In an effort to mitigate for the adverse impacts of these proposed repairs to the river corridor and future adverse impacts by required levee vegetation maintenance, the levee footprints will be laidback where feasible. This will allow for the construction of a mid-slope bench. This bench falls outside of the vegetation maintenance requirements of PL 84-99 as it is not considered part of the levee prism. Therefore, the trees and shrubs planted on the benches in spring 2009 (and any future bench plantings) will be allowed to mature. In addition, LWD will be installed in the river below the levee repair footprints to create shade and refuge for fish. Willow/dogwood lifts will be incorporated into the riverward levee prism to increase shade and organic input to the river. To remain in the PL 84-99 program the local government is required to be maintain these willows/dogwoods according to PL 84-99 standards. These environmental features may improve fish and wildlife habitat in the lower sections of the Green River in the long-term.

Additional Corps activities in the immediate project location include two large civil works projects, the Howard Hanson Dam Additional Water Storage Project (AWSP) and the

Green-Duwamish Ecosystem Restoration Program (ERP). The AWSP includes storing water from the Green River behind HHD for the City of Tacoma. It also includes a suite of restoration actions including annual additional of gravel and wood to the middle Green River. The ERP includes a number of environmental restoration projects throughout the lower and middle Green River.

COMPLIANCE WITH OTHER LAWS AND REGULATIONS

The Corps will coordinate the proposed action with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service concerning anticipated effects on threatened and endangered species and their critical habitat, pursuant to Sec. 7(a)(2) of the Endangered Species Act. As necessary based on anticipated adverse effects at Galli's, formal consultation will be initiated with a biological assessment.

The Corps has reviewed the work for substantive compliance with the Clean Water Act. Work below the ordinary high water line is planned at all the repair sites. The work proposed at Tukwila #3 and #5, Horseshoe Bend #2, #3 and #4, Kent Shops/Narita, and Meyer's Golf (referenced under PL-08-08) is exempt per Section 404(f)(1)(B) of the Clean Water Act, which allows for emergency reconstruction of recently damaged parts of currently serviceable structures such as dikes, dams, levees, groins, riprap, breakwaters, causeways, bridge abutments or approaches, and transportation structures. Therefore, for Tukwila #3 and #5, Horseshoe Bend #2, #3 and #4, Kent Shops/Narita, and Meyer's Golf no analysis is required under Sec. 404(b) (1) of the CWA and a Section 401 WQC is not required.

The proposed repair work at Dykstra (referenced under PL-08-09), Galli's (reference PL-08-10) and Horseshoe Bend #1 (reference PL-08-11) is not exempt as per Section 404(f)(1)(B) as construction at these sites will involve a discharge of dredged or fill material into waters of the United States that does not precisely meet the parameters of the exemption for reconstruction of levee structures. These projects will be evaluated for substantive compliance with guidelines promulgated by the Environmental Protection Agency under authority of Section 404(b)(1) of the Clean Water Act. The Corps is also obtaining CWA 402 NPDES construction storm water permit for those sites over one acre. In accordance with Section 401 of the CWA, the Corps has requested a certification from Ecology that the sites described in Public Notice Nos. PL 08-09, 08-10, and 08-11 comply with the applicable Water Quality Standards of Washington State. Pursuant to the Coastal Zone Management Act, a preliminary Coastal Zone consistency determination is currently being conducted pursuant to the Coastal Zone Management Act, and will be coordinated with the Washington Department of Ecology as necessary.

A National Historic Preservation Act Section 106 compliance report will be prepared that includes all of the proposed levee repairs. The report will include the findings of the investigations for each repair site, recommendations for archaeological monitoring during construction, and a determination of effects to archaeological and historic properties. If archaeological monitoring is recommended at some repair locations, the report will include a monitoring plan and protocols to be followed. The Corps' determinations of effects to historic properties, the investigation report, and monitoring

plan will be reviewed and approved by the Washington State Historic Preservation Officer (SHPO) and the appropriate tribes prior to construction.

In preparation of the environmental documentation for this project, coordination has been conducted or is ongoing with the following public agencies: King County, City of Tukwila, the Muckleshoot Tribe, National Marine Fisheries Service (NMFS), US Fish & Wildlife Service (USFWS), Washington Department of Ecology, and Washington Department of Fish and Wildlife (WDFW).

EVALUATION - CORPS

The decision whether to conduct the project will be based on an evaluation of the probable impact on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered; among these are: conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, consideration of property ownership and, in general, the needs and welfare of the people.

Any person who has an interest that may be affected by this disposal of fill or dredged material may request a public hearing. The request must be submitted in writing to the District Engineer within the comment period of this notice, and must clearly set forth the following: the interest that may be affected, the manner in which the interest may be affected by this activity, and the particular reason for holding a public hearing regarding this activity.

The Corps has made a preliminary determination that the environmental impacts of the proposal can be adequately evaluated under the National Environmental Policy Act through preparation of an environmental assessment (EA). Preparation of an EA addressing potential environmental impacts associated with the levee rehabilitation project is currently underway.

The Corps invites submission of comment on the environmental impact of the proposal. Comments will also be considered in determining whether it would be in the best public interest to proceed with the proposed project. The Corps will consider all submissions received by the expiration date of this notice. The nature or scope of the proposal may be changed upon consideration of the comments received. The Corps will initiate an Environmental Impact Statement (EIS), and afford all appropriate public participation opportunities attendant to an EIS, if significant effects on the quality of the human environment are identified and cannot be mitigated.

COMMENT AND REVIEW PERIOD

Submit comments to this office, Attn: Environmental Resources Section no later than the expiration date of this public notice. Requests for information concerning the project should be directed to Ms. Andrea K. Cummins, (206) 764-3641, andrea.k.cummins@usace.army.mil or to Mr. Scott Pozarycki, (206) 764-3316 scott.v.pozarycki@usace.army.mil.

RONALD J. KENT
Acting Chief, Environmental Resources Section

Site locations:

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
P.O. Box 47600 • Olympia, Washington 98504-7600
(360) 407-6000 • TDD Only (Hearing Impaired) (360) 407-6006

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Notice of Application for
Water Quality Certification
and for
Certification of Consistency with the
Washington Coastal Zone Management Program

Date: May 21, 2008

Notice is hereby given that a request has been filed with the Department of Ecology, pursuant to the requirements of Section 401 of the federal Clean Water Act of 1977 (PL 95-217), to certify that the projects described in the U.S. Army Corps of Engineers Public Notice Nos. Dykstra Levee (Public Notice Reference PL-08-09), Galli's Levee (Public Notice Reference PL-08-10), and Horseshoe Bend Levee Site #1(Public Notice Reference PL-08-11, will comply with the Sections 301, 302, 303, 306, and 307 of the Act, and with applicable provisions of State and Federal water pollution control laws.

Notice is herby given that a request has been filed with the Department of Ecology, pursuant to the requirements of Section 307(c) of the Federal Coastal Zone Management Act of 1972 (16 U.S.C. §1451), to certify that the projects described in the U.S. Army Corps of Engineers Public Notice Nos. PL-08-08, PL-08-09, PL-08-10, and PL-08-11-comply with the Washington State Coastal Zone Management Program and that the project will be conducted in a manner consistent with that program.

Any person desiring to present views on the project pertaining to the project on either or both (1) compliance with water pollution control laws or (2) the project's compliance or consistency with the Washington State Coastal Zone Management Program may do so by providing written comments within 21 days of the above publication date to:

Federal Permit Coordinator
Department of Ecology
SEA Program
Post Office Box 47600
Olympia, Washington 98504-7600