



US Army Corps  
of Engineers ®  
Seattle District

# Riparian Planting Mitigation Plan Requirements



*April 20, 2017*

---

Applicants proposing shoreline plantings (also known as riparian plantings) as compensatory mitigation for impacts to aquatic resources must submit a Shoreline Mitigation Planting Plan which contains the elements below. The Corps will review the specific site conditions to ensure that plantings are appropriate and will be successful at the selected location.

1. The shoreline mitigation planting area must be planted with native trees and shrubs evenly interspersed or with trees at the corners and shrubs across the middle. The permittee is required to establish and preserve the shoreline mitigation planting area at the project site for as long as the overwater structure (i.e. pier, boatlift, etc.) is in place.
2. The entire permit, including approved drawings showing the mitigation area(s), must be recorded with the Registrar of Deeds. Proof of this must be provided to the Corps within 65 days after the date of permit issuance. See the handout titled “Recording a permit and/or mitigation on a property deed” at <http://www.nws.usace.army.mil/Missions/Civil-Works/Regulatory/Forms/> for more information on this process.
3. The mitigation plantings must occur on the property where the overwater structures are proposed. However, the plantings do not need to be located immediately adjacent to the overwater structures. The landward edge of the shoreline mitigation area must be no further than 10 feet from the ordinary high water (OHW) mark on bodies of freshwater or High Tide Line on bodies of tidal waters and must be oriented parallel to the shoreline.
4. The shoreline mitigation planting area must be planted with 1 to 5 gallon container or bare root plants, or cuttings of native shrubs and trees. The native plant species and spacing must be from the list of approved species included in this document or be a species or spacing approved by the Corps. Look for updates to this list at <http://www.nws.usace.army.mil/Missions/Civil-Works/Regulatory/Forms/>.
5. Required Performance Standards and maintenance activities.
  - 100 percent survival of all planted trees and shrubs is required during the first and second years after planting.
  - Individual plants that die in the first or second year must be replaced with native species taken from the approved plant lists included in this document.
  - A minimum of 80 percent survival of all planted trees and shrubs is required during the third through fifth years after planting.
  - Maintenance of the shoreline mitigation planting area includes removal and replacement of dead or dying plants, and removal of invasive and/or noxious weeds. Maintenance does **not** include trimming or mowing of the mitigation plants. The mitigation plants must be allowed to develop naturally, so that they grow large enough to overhang the water.

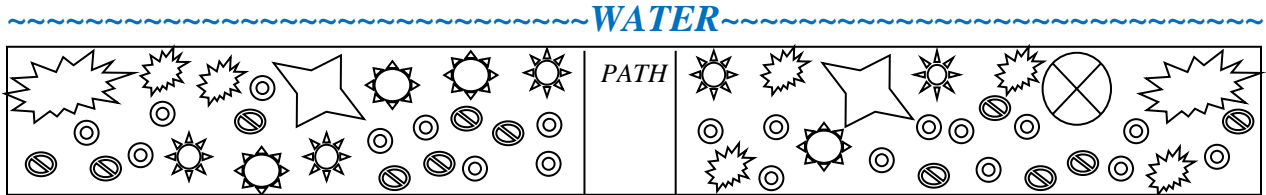
If performance standards are not being met, the Corps will require contingency actions such as weed control, irrigation, additional plantings, or browse control to bring the mitigation site into compliance with the permit performance standards, special conditions, mitigation plan, or other requirements.

6. An as-built report must be submitted by the permittee within 13 months from the date of permit issuance or within one month of planting completion, whichever comes first. It must include:
  - A completed one-page as-built report (see template at <http://www.nws.usace.army.mil/Missions/Civil-Works/Regulatory/Forms/>).
  - A site plan which shows any changes that occurred to the shoreline mitigation planting area during plant installation, and establishes permanent locations from which photographs will be taken to document plant growth (photopoints). The drawing must be labeled “as-built” and have the date of the as-built inspection.
  - Photos of the installed mitigation plants, including panoramic shots of the entire shoreline mitigation planting area.
7. Planting is strongly recommended to be completed in October through March for best plant survival. Fall and winter planting gives the plants time to get established in their new location before their first summer drought. This will lower establishment costs and reduce the chances that replanting will be necessary.
8. Monitoring reports are due annually by November 30 for 5 years. The first shoreline mitigation planting area monitoring should occur in the first September after plant installation. Monitoring reports must include:
  - A completed one page monitoring report. A template is available at the same link above.
  - The as-built site plan updated to show any changes that have occurred to the shoreline mitigation planting area since the last report, such as plants that have died and been replaced.
  - Photographs taken in September from the previously established photopoints. The photos must be dated and labeled with the photopoint and direction of the photo.
9. Compliance inspections may be conducted by Corps staff, with appropriate notice, at any time during or after the installation of the shoreline mitigation planting area, and during or after the 5 year monitoring period. The inspections will verify whether the project construction and shoreline mitigation plantings match the approved permit drawings and mitigation plan, and if the mitigation plantings are meeting performance standards or other requirements.
10. If the mitigation plantings are not meeting the performance standards or other requirements, the permittee must propose contingency actions and work with Corps staff to bring the project back into compliance with the permit performance standards or other requirements. Your responsibility to implement the shoreline planting plan as set forth in your permit authorization will not be considered fulfilled until you have met performance standards or other requirements for five or more years, demonstrated planting success, and received written verification from the Corps.

# SAMPLE PLANTING PLAN FOR SHORELINE MITIGATION PROJECTS

## PLAN VIEW

Scale: 1 inch = 10 feet, example is 10 feet wide by 65 feet long



### LEGEND

	willow, 5 to 10 feet on center (o.c.)		shrub, 5 feet o.c.
	conifer, 10 feet o.c.		shrub, 5 feet o.c.
	broadleaf tree, 10 feet o.c.		shrub, 5 feet o.c.
	shrub, 5 feet o.c.		shrub, 5 feet o.c.

o.c. = on center

**Approved native plant species for shoreline mitigation projects in western Washington**

Below is a list of approved native plant species for mitigation projects in western Washington. The applicant may propose other species, but the Corps must approve the species before work starts. Plants that prefer shade when young are marked with an asterisk. This list may be updated as best management practices evolve. The most up-to-date list may be found on the U.S. Army Corps of Engineers Seattle District website at <http://www.nws.usace.army.mil/Missions/Civil-Works/Regulatory/Forms/>.

WIS = Wetland Indicator Status, this describes the likelihood of a species of plant occurring in a wetland. Western Washington is included in the Western Mountain, Valleys, and Coast (WMVC) Region, which includes areas west of the Cascades and all mountainous regions of Washington State. The WIS ratings below are for the WMVC region.

Indicator Status	Abbreviation	Definitions
Obligate	OBL	Almost always occur in wetlands.
Facultative Wetland	FACW	Usually occur in wetlands, but may occur in non-wetlands.
Facultative	FAC	Occur in wetlands and non-wetlands.
Facultative Upland	FACU	Usually occur in non-wetlands, but may occur in wetlands.
Upland	UPL	Almost never occur in wetlands.

Source: [http://wetland\\_plants.usace.army.mil/](http://wetland_plants.usace.army.mil/)

<b>Western Washington</b>		
<b>Common Name</b>	<b>Scientific Name</b>	<b>WIS</b>
<b>Willows</b>		
Hooker willow	<i>Salix hookeriana</i>	FACW
Pacific willow	<i>Salix lasiandra (lucida)</i>	FACW
Scouler willow	<i>Salix scouleriana</i>	FAC
Sitka willow	<i>Salix sitchensis</i>	FACW
<b>Evergreen Trees</b>		
grand fir	<i>Abies grandis</i>	FACU
Sitka spruce	<i>Picea sitchensis</i>	FAC
shore pine	<i>Pinus contorta v. contorta</i>	FAC
Douglas-fir	<i>Pseudotsuga menzeisii</i>	FACU
western red cedar*	<i>Thuja plicata</i>	FAC
western hemlock*	<i>Tsuga heterophylla</i>	FACU
<b>Deciduous Trees</b>		
big-leaf maple	<i>Acer macrophyllum</i>	FACU
red alder	<i>Alnus rubra</i>	FAC
paper birch	<i>Betula papyrifera</i>	FAC
Pacific dogwood	<i>Cornus nuttalii</i>	FACU
Oregon ash	<i>Fraxinus latifolia</i>	FACW

black cottonwood	<i>Populus trichocarpa (balsamifera)</i>	FAC
bitter cherry	<i>Prunus emarginata</i>	FACU
Garry (Oregon white) oak	<i>Quercus garryana</i>	FACU
<b>Shrubs</b>		
vine maple*	<i>Acer circinatum</i>	FAC
western serviceberry	<i>Amelanchier alnifolia</i>	FACU
tall Oregon grape	<i>Berberis (Mahonia) aquifolium</i>	FACU
red osier dogwood	<i>Cornus sericea (alba, stolonifera)</i>	FACW
beaked hazelnut	<i>Corylus cornuta</i>	FACU
black hawthorn	<i>Crataegus douglasii</i>	FAC
cascara	<i>Frangula (Rhamnus) purshiana</i>	FAC
oceanspray	<i>Holodiscus discolor</i>	FACU
black twinberry	<i>Lonicera involucrata</i>	FAC
western crabapple	<i>Malus (Pyrus) fusca</i>	FACW
sweet gale	<i>Myrica gale</i>	OBL
Indian plum (osoberry)	<i>Oemleria cerasiformis</i>	FACU
mock orange	<i>Philadelphus lewisii</i>	UPL
Pacific ninebark	<i>Physocarpus capitatus</i>	FACW
stink currant	<i>Ribes bracteosum</i>	FAC
straggly currant	<i>Ribes divaricatum</i>	FAC
prickly currant	<i>Ribes lacustre</i>	FAC
red flowering currant	<i>Ribes sanguineum</i>	FACU
Nootka rose	<i>Rosa nutkana</i>	FAC
swamp (peafruit, clustered) rose	<i>Rosa pisocarpa</i>	FAC
thimbleberry	<i>Rubus parviflorus</i>	FACU
salmonberry	<i>Rubus spectabilis</i>	FAC
red elderberry	<i>Sambucus racemosa</i>	FACU
hardhack	<i>Spiraea douglasii</i>	FACW

\* = prefers shade when young

**Approved native plant species for shoreline mitigation projects in eastern Washington**

Below is a list of approved plant species for eastern Washington. The applicant may suggest other species and spacing, but the Corps must approve the species before work starts. This list may be updated as best management practices evolve. The most up-to-date list may be found on the U.S. Army Corps of Engineers Seattle District website at:

[http://www.nws.usace.army.mil/Missions/Civil-Works/Regulatory/Forms/.](http://www.nws.usace.army.mil/Missions/Civil-Works/Regulatory/Forms/)

WIS = Wetland Indicator Status, the likelihood of a species of plant occurring in a wetland. Eastern Washington includes 2 regions, the Arid West (AW) Region, which includes lowland areas east of the Cascades; and the Western Mountain, Valleys, and Coast (WMVC) Region, which includes all mountainous regions of the state and areas west of the Cascades. Some plants have different ratings in the each of these regions.

Indicator Status	Abbreviation	Definitions
Obligate	OBL	Almost always occurs in wetlands.
Facultative Wetland	FACW	Usually occurs in wetlands, but may occur in non-wetlands.
Facultative	FAC	Occurs in wetlands and non-wetlands.
Facultative Upland	FACU	Usually occurs in non-wetlands, but may occur in wetlands.
Upland	UPL	Almost never occurs in wetlands.

Source: [http://wetland\\_plants.usace.army.mil/](http://wetland_plants.usace.army.mil/)

<b>Eastern Washington</b>			
<b>Common Name</b>	<b>Scientific Name</b>	<b>AW</b>	<b>WMVC</b>
<b>Willows</b>			
peach-leaf willow	<i>Salix amygdaloides</i>	FACW	FACW
Bebb's willow	<i>Salix bebbiana</i>	FACW	FACW
sandbar (coyote) willow	<i>Salix exigua</i>	FACW	FACW
Pacific willow	<i>Salix lasiandra (lucida)</i>	FACW	FACW
MacKenzie's willow	<i>Salix prolixa</i>	OBL	OBL
Scouler's willow	<i>Salix scouleriana</i>	FAC	FAC
Sitka willow	<i>Salix sitchensis</i>	FACW	FACW
<b>Evergreen Trees</b>			
grand fir	<i>Abies grandis</i>	FACU	FACU
Rocky Mountain juniper	<i>Juniperus scopulorum</i>	UPL	UPL
western larch	<i>Larix occidentalis</i>	FACU	FACU
lodgepole pine	<i>Pinus contorta var. latifolia</i>	FAC	FAC
ponderosa pine	<i>Pinus ponderosa</i>	FACU	FACU
Douglas-fir	<i>Pseudotsuga menzeisii var. glauca</i>	FACU	FACU
western red-cedar	<i>Thuja plicata</i>	FAC	FAC
<b>Deciduous Trees</b>			
vine maple	<i>Acer circinatum</i>	FAC	FAC
Douglas maple	<i>Acer glabrum</i>	FAC	FACU

mountain (thinleaf) alder	<i>Alnus incana</i>	FACW	FACW
Sitka (green) alder	<i>Alnus viridis (sinuata)</i>	FACW	FACW
water birch	<i>Betula occidentalis</i>	FACW	FACW
quaking aspen	<i>Populus tremuloides</i>	FACU	FACU
black cottonwood	<i>Populus balsamifera (balsamifera)</i>	FAC	FAC
Cascade mountain ash	<i>Sorbus scopulina</i>	FACU	FACU
<b>Shrubs</b>			
western serviceberry	<i>Amelanchier alnifolia</i>	FACU	FACU
big sagebrush	<i>Artemisia tridentata ssp. tridentata</i>	UPL	UPL
fourwing saltbush	<i>Atriplex canescens</i>	UPL	UPL
redstem ceanothus	<i>Ceanothus sanguineus</i>	UPL	UPL
snowbrush ceanothus	<i>Ceanothus velutinus</i>	UPL	UPL
red-osier dogwood	<i>Cornus sericea (alba, stolonifera)</i>	FACW	FACW
black hawthorn	<i>Crataegus douglasii</i>	FAC	FAC
buckthorn (cascara)	<i>Frangula (Rhamnus) purshiana</i>	FACU	FAC
oceanspray	<i>Holodiscus discolor</i>	FACU	FACU
black twinberry	<i>Lonicera involucrata</i>	FAC	FAC
mock orange	<i>Philadelphus lewisii</i>	UPL	UPL
bitter cherry	<i>Prunus emarginata</i>	FACU	FACU
chokecherry	<i>Prunus virginiana</i>	FAC	FACU
bitterbrush	<i>Purshia tridentata</i>	UPL	UPL
smooth sumac	<i>Rhus glabra</i>	UPL	UPL
golden currant	<i>Ribes aureum</i>	FAC	FAC
wax currant	<i>Ribes cereum</i>	UPL	UPL
prickly currant	<i>Ribes lacustre</i>	FACW	FAC
sticky currant	<i>Ribes viscosissimum</i>	FAC	FAC
Nootka rose	<i>Rosa nutkana</i>	FACU	FAC
Wood's rose	<i>Rosa woodsii</i>	FACU	FACU
American red raspberry	<i>Rubus idaeus</i>	FACU	FACU
blackcap raspberry	<i>Rubus leucodermis</i>	FACU	FACU
thimbleberry	<i>Rubus parviflorus</i>	FAC	FACU
black elderberry	<i>Sambucus racemosa var. melanocarpa</i>	FACU	FACU
buffalo berry, soapberry	<i>Shepherdia canadensis</i>	UPL	UPL

## Approved native plant species for saltwater shoreline mitigation projects in Washington

Below is a list of approved plant species for compensatory mitigation projects on saltwater shorelines in Washington. The applicant may suggest other species, but the Corps must approve the species before work starts. This list may be updated as best management practices evolve. The most up-to-date list may be found on the U.S. Army Corps of Engineers Seattle District website at: <http://www.nws.usace.army.mil/Missions/Civil-Works/Regulatory/Forms/>.

In designing a mitigation planting for a saltwater shoreline, plant tolerance to saltwater inundation and saltwater spray must be taken into account along with all the other ecological factors normally considered. The list below attempts to divide plants roughly according to this tolerance. There is not a lot of research in this area, so much of our information is anecdotal. It is especially useful to use reference sites when designing a mitigation planting plan for a saltwater shoreline. A reference site is a site with similar environmental conditions to yours that can be used as a model for appropriate plant selection.

Remember, however, that this list is just a start and that every site and project is different. When in doubt, consult a qualified expert. In addition, when a plant species grows in both fresh and saltwater situations, as many do, it may be critical to buy plants that were propagated from parent plants exposed to saltwater conditions, i.e., a shoreline or salt marsh eco-type. Also, not all of these species may be available from nurseries; therefore, it would be wise to check availability before finalizing plans.

<b>Species for compensatory mitigation</b>	
Common name	Scientific name
<b>Plant species tolerant of periodic salt water inundation and to salt spray.</b>	
madrone	<i>Arbutus menziesii</i>
Pacific wax myrtle (bayberry)	<i>Myrica californica</i>
sweet gale	<i>Myrica gale</i>
Hooker's willow	<i>Salix hookeriana</i>
Pacific willow	<i>Salix lucida</i>
<b>Plant species tolerant of salt spray.</b>	
grand fir	<i>Abies grandis</i>
vine maple	<i>Acer circinatum</i>
big-leaf maple	<i>Acer macrophyllum</i>
red alder	<i>Alnus rubra</i>
serviceberry	<i>Amelanchier alnifolia</i>
beaked hazelnut	<i>Corylus cornuta</i>
oceanspray	<i>Holodiscus discolor</i>
black twinberry	<i>Lonicera involucrata</i>
tall Oregon grape	<i>Mahonia aquifolium</i>
Pacific crabapple	<i>Malus fusca</i>
Sitka spruce	<i>Picea sitchensis</i>



shore pine	<i>Pinus contorta</i>
Douglas-fir	<i>Pseudotsuga menziesii</i>
Nootka rose	<i>Rosa nutkana</i>
thimbleberry	<i>Rubus parviflorus</i>
Scouler's willow	<i>Salix scouleriana</i>
red elderberry	<i>Sambucus racemosa</i>
hardhack	<i>Spiraea douglasii</i>
snowberry	<i>Symphoricarpos albus</i>
western red-cedar	<i>Thuja plicata</i>
western hemlock	<i>Tsuga heterophylla</i>
evergreen huckleberry	<i>Vaccinium ovatum</i>

The plant species below are also suitable for saltwater shorelines. However, because the following species will not get large enough to overhang the water or shade the beach, they are not eligible for compensatory mitigation credit. You may choose to use these plants to fill out the ground cover along the shoreline to prevent erosion.

<b>Species that may be suitable for saltwater shoreline native plant landscaping</b>	
Plant species tolerant of salt water inundation and to salt spray.	
spear saltbush	<i>Atriplex patula</i>
searocket	<i>Cakile edentula</i>
Lyngby's sedge	<i>Carex lyngbyei</i>
saltgrass	<i>Distichlis spicata</i>
gumweed	<i>Grindelia intergrifolia</i>
fleshy jaumea	<i>Jaumea carnosa</i>
Baltic rush	<i>Juncus balticus</i>
seaside plantain	<i>Plantago maritima</i>
pickleweed	<i>Salicornia virginica</i>
seaside arrowgrass	<i>Triglochin maritimum</i>
Plant species tolerant of periodic salt water inundation and to salt spray.	
Douglas aster	<i>Aster subspicatus</i>
seacoast bulrush	<i>Bolboschoenus (Scirpus) maritimus</i>
large headed sedge	<i>Carex macrocephala</i>
tufted hairgrass	<i>Deschampsia cespitosa</i>
common (creeping)spikerush	<i>Eleocharis palustris</i>
coastal strawberry	<i>Fragaria chiloensis</i>
meadow barley	<i>Hordeum brachyantherum</i>
dune grass	<i>Leymus (Elymus) mollis</i>
Pacific silverweed	<i>Potentilla anserina ssp. pacifica</i>

hardstem bulrush	<i>Schoenoplectus (Scirpus) acutus</i>
chairmaker's bulrush	<i>Schoenoplectus (Scirpus) americanus</i>
Plant species tolerant of salt spray.	
coastal sand verbena	<i>Abronia latifolia</i>
silver bur ragweed	<i>Ambrosia chamissonis</i>
sea watch	<i>Angelica lucida</i>
thrift, sea pink	<i>Armeria maritima</i>
coastal mugwort	<i>Artemisia suksdorfii</i>
sand-dune sedge	<i>Carex pansa</i>
beaked hazelnut	<i>Corylus cornuta</i>
salal	<i>Gaultheria shallon</i>
jointleaf rush	<i>Juncus articulatus</i>
Bolander's rush	<i>Juncus bolanderi</i>
hairyleaf rush	<i>Juncus supiniformis</i>
beach pea	<i>Lathyrus maritimus</i>
seashore lupine	<i>Lupinus littoralis</i>
common (threesquare) bulrush	<i>Schoenoplectus (Scirpus) pungens</i>
softstem bulrush	<i>Schoenoplectus tabernaemontani (Scirpus lacustris)</i>
Henderson's checkermallow	<i>Sidalcea hendersonii</i>
common cattail	<i>Typha latifolia</i>