ATTACHMENT IV
MITIGATION MEASURES AND PROJECT CONDITIONS

This attachment to the Site Certification Amendment (SCA) incorporates agreements made with the Washington Department of Ecology (Ecology) and Department of Fish and Wildlife (WDFW), and mitigation measures included in the SCA Application.

PART I. GENERAL CONDITIONS

A. Mitigation Principles

The principles of impact assessment which have been applied to the currently expected impacts and which shall be applied to all unforeseen impacts are, in descending order of importance, 1) avoid the impact wherever possible; 2) minimize the impact; 3) provide on-site, in-kind mitigation; and lastly, 4) provide off-site compensatory mitigation.

The Certificate Holder shall, prior to construction of the natural gas pipeline, create a detailed pipeline construction plan which shall contain, at a minimum, the following mitigation measures including construction methodology, surface water runoff control, study schedules, and erosion and sedimentation control. To the extent that one or more of the following standards or requirements cannot be met, the Certificate Holder will confer with EFSEC and its designated representatives on the appropriate standard or requirement to be used.

B. Required Plans

The Certificate Holder agrees to develop the following in consultation with EFSEC and its designated representatives:

1. Natural Gas Pipeline Map

A detailed map showing right-of-way acquisition and land uses impacted within the right-of-way. If the final alignment of the pipeline deviates from the proposed corridor, additional field investigations of cultural resources, vegetation (including wetlands), wildlife, and aquatic resources will be conducted as necessary to document the affected environment and potential impacts and mitigation measures.

2. Environmental Protection Control Plan

An Environmental Protection Control Plan will be developed for the Satsop

CT Project, including the natural gas pipeline. The Environmental Checklist will include specifications for commitments made concerning the Satsop Combustion Turbine and the associated natural gas pipeline.

The Environmental Protection Control Plan will be implemented to provide adequate maintenance and inspection of the erosion and sediment control system. The plan will specify that control structures will be inspected at a frequency sufficient to provide adequate environmental protection. Such inspections will increase in frequency during rainfall periods.

3. Erosion and Sedimentation Control Plan

An Erosion and Sedimentation Control Plan for the natural gas pipeline will be prepared to address crossings of sensitive areas, and submitted to EFSEC for review and approval prior to construction. The plan will include emergency implementation and response, damage control, and restoration activities for stream and wetland crossings, and for riparian and habitat areas, and will include detailed drawings which will identify areas where accretion may occur, and specific mitigation measures to be used to prevent or limit accretion will be identified.

The plan will include detailed information in the following areas:

a. Description - A description of the nature and extent of proposed land disturbing activities (e.g., clearing, trenching, and grading).

b. Existing Site Conditions - A description of the existing topography, bed-rock lithology and structure, vegetation and drainage.

c. Adjacent Areas - A description of neighboring streams, lakes, and drainage areas, which might be affected by the land disturbance.

d. Soils - A detailed account of the soils within the pipeline construction corridor, including soil names, erodibility, permeability, depth, texture, and soil structure.

e. Critical Areas - A description of areas within the pipeline construction corridor which have potentially serious erosion problems, for example, areas of past or present soil movement.

f. Erosion and Sedimentation Control Measures - A description of the control methods to be used including vegetative and structural controls and management measures (e.g., staging construction so no areas remain exposed for unnecessarily long period of time). Methods will

be specific and include schedules and duration the control measure is expected to be used. An explanation will be included as to why selected methods are appropriate to the situation.

g. Permanent stabilization - A detailed description, including specifications of how the corridor will be stabilized after completion of construction.

h. Maintenance - An inspection schedule for all erosion control measures will be established. A maintenance schedule for erosion and sediment control structures will be set forth.

i. Calculations - Any calculations made for the design of erosion control structures, such as sediment basins, will be included.

j. Contingency Plans - Contingency plans for emergency situations and project abandonment will be outlined.

k. Pipeline Construction Corridor Plan - High resolution maps of the construction corridor will be provided which will include: a vicinity map, existing contours, vegetation and soils, critical erosion areas, existing drainage patterns, limits of clearing and grading, location of control measures, and detailed drawings of control structures.

4. Blasting Plan.

5. Restoration of Natural Gas Pipeline Right of Way Plan

This plan will include restoration and maintenance practices, schedules, monitoring methods, contingencies, and noxious weed control measures.

6. Construction Water Use and Control Plan for the Natural Gas Pipeline.

7. Storm Water Control Plan

Storm water control for the natural gas pipeline and the site will be subject to the National Pollution Discharge Elimination System (NPDES) Permit. A storm water discharge plan for the pipeline will be submitted, or water quality waivers with proposed limitations will be requested of EFSEC if appropriate.

8. Spill Prevention, Control, and Countermeasure Plan

The Certificate Holder shall prepare a Spill Prevention, Control, and Countermeasure Plan (SPCC) that complies with the provisions of the NPDES Permit. The plan shall address oil/chemical storage, containment, personnel training, control and containment of discharges, cleanup actions, notification of appropriate agencies, and cleanup materials.

9. An Emergency Response Plan.

10. Army Corps of Engineers Approval

Army Corps of Engineers (ACOE) approval will be required for locating the gas pipeline where it would cross wetlands. A permit application has been made to the ACOE.

11. Wildlife Studies and Mitigation Plan

a. Upon completion of the final route details for the gas pipeline and prior to construction, clarification will be sought from EFSEC concerning the need for additional wildlife studies.

b. Prior to construction, a new survey for the presence of Bald Eagle nesting or feeding habitat areas will be made for the impact area of the gas pipeline. If nests or feeding habitat are found, a mitigation plan will be developed with consultation from state and federal agencies.

c. The U.S. Fish and Wildlife Service will be contacted prior to construction of the project to update the list of endangered, threatened, and candidate species. If there are any new species listed, coordinate any possible mitigation measures with the appropriate agency.

d. WDFW will be contacted periodically for updated information from the Natural Heritage Data Systems.

12. Geo-technical Studies

Detailed geo-technical studies will be performed to identify the final pipeline alignment and to provide input to the final design criteria.

13. Traffic and Transportation Plan

A Traffic and Transportation Plan, including proposed design or mitigation measures, will be prepared for the construction phase and submitted to EFSEC for review.

14. Historic Boundary Determination

A Historic Boundary Determination of HSN-2 will be made and a determination of eligibility requested if the gas pipeline route crosses through the site.

PART II. CONSTRUCTION METHODOLOGY

A. Erosion Control

1. Construction activities will be controlled to help limit erosion. Clearing, excavation and grading will be limited to those areas of the project absolutely necessary for construction of the project. Areas outside the construction limits will be marked in the field and equipment will not be allowed to enter areas or to disturb existing vegetation.

2. The Certificate Holder's construction contractors will implement an Erosion and Sedimentation Control Plan during construction to minimize soil loss due to surface water flows. Construction activities for access roads and extra working areas will be controlled to the extent possible to help limit erosion. Clearing, excavation, and grading will be limited to extra working areas and the construction of access roads. Best Management Practices (BMPs) will be designed and implemented for each extra working site construction. BMPs include limiting certain construction activities and installing control structures as described below.

   a. Sediment Traps/Retention Ponds: Sediment traps/retention ponds will be constructed to intercept runoff from disturbed areas and will be located away from natural stream channels. A sufficient number of traps/ponds will be constructed to intercept runoff from the disturbed area, with sufficient capacity provided for the required storm event and accumulated sediment. The traps/ponds will not be constructed on fill material.

   b. Silt Fences: Silt fences will be installed in locations where they will trap silt eroded from slopes during construction and prior to reestablishing vegetation. Silt fence construction specifications,

including fabric equivalent opening size, spacing and length will be determined by local conditions.

c. Check Structures and Slope Ditches: Check structures such as dikes and swales will be used to reduce runoff velocity as well as divert surface runoff around and away from cut-and-fill slopes. A swale or slotted pipe will be provided on the upstream side to divert runoff from the dike and such runoff will be discharged to a sediment trap.

d. Temporary Water Conveyance Structures: Temporary pipe installed on the surface may be used for temporary drainage ways. Where piping is not possible, temporary earth channels will be constructed. All temporary drainage ways in disturbed areas will be protected to prevent erosion as specified in current standards.

e. Permanent Waterways: Some waterways that are to be part of the permanent storm water drainage system, will be constructed early during construction to carry construction runoff. Where applicable at the proposed plant site, existing storm water control ways may be utilized.

f. Vehicle Entrance Stabilization: Stabilized construction vehicle entrances will be established with tire wash provisions to reduce the amount of soil transported onto nearby roads and highways.

3. Surface runoff will be diverted around and away from cut and fill slopes and conveyed in pipes or protected channels. If the runoff is from disturbed areas, it will be directed to a sediment trap/retention pond prior to discharge.

4. Vegetation will be re-established on all disturbed slopes. Seeding generally will be performed March 15 to June 30 and September 1 to October 30. All seeded areas will be protected against vehicle and pedestrian traffic. Straw mulch may be placed on disturbed slopes to provide additional protection, or placed on a disturbed slope if it is not possible to seed and the slope is to be left unworked for a long period of time.

5. Geo-textiles will be used to minimize water migration in areas with potentially unstable slopes. French drains or other de-watering methods will be used for slopes that have the potential to become unstable due to their water content, and for areas with perched water in soils susceptible to liquefaction.

6. In areas with relatively shallow problem soils, trenches will be excavated to a depth where suitable bedding materials are present.

7. The toe of unstable slopes will be stabilized through the use of gabions or retaining walls in areas of Class III or Class IV slope instability.

8. In areas where low permeability top soils occur at or near the surface, compaction of trench backfill will be completed using native soils compacted to match, as closely as possible, the density and permeability of the surrounding undisturbed soils.

9. Fuller Creek.

   Particular care will be taken to prevent erosion from reaching Fuller Creek during plant construction. Construction runoff will be routed to existing pond C-1 or F-2 ponds.

B. Wetland and Aquatic Standards

1. Timing

   a. All "out of the water" soil or stream bed disturbing activities associated with wetland, stream, or river crossings shall occur during the dry portion of the year, typically late spring through early fall.

   b. Construction related activity within the active stream or river channel and/or within fifty feet of the bank shall be limited to the period of July 1 through September 30.

2. General Construction Procedures

   a. Notify EFSEC and its designated representatives at least 48 hours prior to commencement of pipe installation activities or blasting within each water body.

   b. In wetlands and riparian areas, limit the construction rights-of-way to fifty feet or less.

   c. In wetlands and riparian areas, vegetation that must be removed shall be cut at ground level, leaving existing root systems intact. Limit pulling of tree stumps and grading activities to those that would directly interfere with trenching, pipe installation and backfill.

   d. If standing water or saturated soils are present, use low ground weight construction equipment and/or operate on prefabricated equipment mats. Matting will be used in all cases where there is water within the

upper 18 inches of soil.

e. In the event that matting is necessary, all construction activities will be carried out from the matting. Equipment will not be allowed in the wetland, off the mats, at any time. The mats will be inspected prior to placing in the wetland and mats with foreign material will not be used.

f. Use trench plugs as necessary to prevent diversion of water into upland portions of the pipeline trench.

g. Appropriate culvert size, placement and installation will be determined by site specific hydrology to ensure proper drainage regimes and that fish passage is maintained.

h. Construct crossings as perpendicular to axis of stream channel as engineering and routing conditions permit.

i. Maintain downstream flow rates at all times.

j. Complete in-stream construction in minor streams within 24 hours of initiation.

k. Install and maintain sediment filter devices at all stream banks.

l. Perform daily inspection and repair as needed.

m. Return stream bank to original contour where possible.

n. Re-vegetate immediately after construction using vegetation that is fast to establish and plant native plants such as willows and cottonwood for long-term stabilization.

o. Use log deflectors that create sediment deposition and plant establishment to stabilize banks where possible.

p. Minimize the use of riprap to areas where flow conditions preempt vegetative stabilization.

q. Locate all staging areas, additional spoil storage areas, and other additional work areas at least fifty feet away from the ordinary high water mark or wetland boundary. In no event shall vegetation be cleared between these areas and the water body or wetland. Limit size to minimum needed to construct the wetland or water body crossing.

r. Limit the size of areas disturbed when constructing a stream crossing.

s. Avoid storing hazardous materials, chemicals, fuels, and lubricating oils, or perform concrete coating activities within floodplain (at least 100 feet from bank).

3. Access, Staging, and Ancillary Areas

a. All equipment crossing a water body must use a construction bridge. Culvert crossings are not allowed.

b. All equipment bridges shall be designed to pass the maximum flow and be maintained to prevent flow restrictions during the period that the equipment bridge is in place.

c. The only access roads, other than the construction right of way, which may be used in wetlands are those existing roads that can be used with no modification and no impact on the wetland.

d. Locate all staging areas, additional spoil storage areas, and other additional work areas at least fifty feet away from the ordinary high water mark or wetland boundary. In no event shall vegetation be cleared between these areas and the water body or wetland. Limit size to minimum needed to construct the wetland or water body crossing.

e. Refuel all construction equipment at least 100 feet from water bodies or wetland boundaries.

f. All equipment will be cleaned and inspected prior to entering the wetland. Leaking equipment will not be allowed to enter the wetland.

g. Grading will not take place within the boundaries of any wetland, and disturbance will be kept to the minimum necessary to safely construct the pipeline.

h. All activities within the wetland will be kept to the minimum disturbance area possible. Pipe sufficient to cross the wetland will be welded on the right-of-way and X-rayed before being carried or pulled into the wetland and lowered into the trench. In long wetland stretches, it may be more feasible to weld up several joints of pipe, carry them into the trench leaving one end at the welding location, weld on additional lengths, pull them into the trench, and repeat this process until the entire wetland length has been crossed.

i. The upper 6 to 12 inches of topsoil will be removed and protected throughout construction.

j. The materials removed from the trench below the topsoil level are not to be placed on top of, or mixed with, the topsoil material previously removed.

k. Once the pipe has been laid in the trench, the subsoil will be replaced, followed by the topsoil. Excess material will be transported out of the wetland and spread on the right-of-way outside the wetland boundaries.

4. Spoil Pile Placement and Control

All spoil material from water body crossings must be placed in the right of way at least ten feet away from the ordinary high water line, or in additional spoil storage areas located as required in paragraph II.B.3.d of this Agreement. At a minimum, all spoil shall be contained within sediment filter devices.

5. Specific Stream and River Crossing Methods[1]

STREAM NAME	STREAM NO.	METHOD
Fuller Creek	22.0488	Span
Unnamed	22.0489	Bore and Jack or Directionally Drill
Workman Creek	22.0490	Bore and Jack or Directionally Drill
Unnamed	N/A	Standard dry method with berms
Unnamed	22.0520	Standard dry method with berms
Chehalis River	22.0190	Bore and Jack or Directionally Drill
Unnamed	N/A	Standard dry method with berms
Sand Creek	22.0534	Standard dry method with berms
Mox Chehalis Creek	22.0533	Bore and Jack or Directionally Drill
Unnamed Tributary	22.539	Standard dry method with berms
Unnamed Tributary	14.0018	Standard dry method with berms
Unnamed Tributary	N/A	Standard dry method with berms
Kennedy Creek	14.0012	Standard dry method with berms
Unnamed	N/A	Standard dry method with berms
Unnamed	N/A	Standard dry method with berms
Swift Creek	13.0139	Standard dry method with berms
Cedar Flats Creek	13.0141	Bore and Jack or Directionally Drill
McLane Creek	13.0138	Standard dry method with berms
Unnamed Tributary	13.0132	Standard dry method with berms

[1]Subject to engineering feasibility and Army Corps of Engineer requirements.

Black Lake Drainage	13.0030	Bore and Jack or Directionally Drill
Unnamed	N/A	Standard dry method with berms
Unnamed	23.0694	Standard dry method with berms
Deschutes River	13.0028	Attach to county road bridge
Unnamed	N/A	Standard dry method with berms

6. Hydrostatic Testing

a. Perform 100 percent radiographic inspection of all section welds prior to installation under water bodies or wetlands.

b. Screen the intake hose (1/8" mesh) to prevent entrainment of fish. The maximum approach velocity shall not exceed 0.4 feet/second.

c. At least thirty days prior to use, provide to EFSEC a list of specific locations proposed for withdrawal and discharge of hydrostatic test water and allow EFSEC to review and comment on the list in consultation with WDFW and Ecology.

d. Notify EFSEC and its designated representatives of intent to begin using specific sources at least 48 hours prior to testing.

e. Maintain adequate flow rates at all times to protect aquatic life and provide for all other water body uses, including downstream withdrawals.

f. Hydrostatic test manifolds shall be located outside wetlands and riparian areas.

g. Regulate discharge rate and use energy dissipation device(s) in order to prevent erosion of upland areas, stream bottom scour, suspension of sediments, or excessive stream flow.

h. When hydrostatic testing is complete, the test water will be analyzed and treated if necessary to make it suitable for discharge in compliance with the water withdrawal and discharge permits issued for the project. The water will be discharged into ponds or holding areas and discharged through filtering media before it enters any water course. Erosion protection measures will be incorporated into the water discharge procedures. Final discharge plans will be developed in consultation with EFSEC.

i. Pipe that is prepared for stream crossings will be air tested before placement. Pipe installed in rivers will be hydro-statically tested prior

to installation. If leaks are detected, they will be repaired or the pipeline section replaced and the section re-tested.

7. Restoration, Stabilization, and Re-vegetation

a. Immediately after pipeline crossing, placement to a minimum depth of one (1) foot of clean, round spawning gravel must be done in all disturbed streambed areas.

b. Placement and securing of acceptable in-stream fish cover features at a maximum interval of ten (10) feet along disturbed banks must be done on both sides of the stream. In-stream cover features shall be woody debris including root wads or well-branched triple tree top bundles with the following specifications:

Stream Toe Width Length	Root Wad Diameter and Attached Trunk	
Up to 10 feet	2 feet	5 feet
10 to 40 feet	3 feet	10 feet
More than 40 feet	4 feet	15 feet
Stream Toe Width	Tree Top Diameter and Length	
Up to 10 feet	4 inches	5 feet
10 to 40 feet	6 inches	10 feet
More than 40 feet	8 inches	15 feet

c. The in-stream cover features shall project into the low-flow water margin a minimum of the diameter of the required root wad.

d. Suggested native species that may be used for re-vegetation in emergent wetlands include:

slough sedge (Carex obnupta)
American bulrush (Scirpus americanus)
small-fruited bulrush (Scirpus microcarpus)
Watson's willow herb (Epilobium watsonii)
spike rush (Eleocharis palustris)
cattail (Typha latifolia)

speedwell (Veronica, spp)
mint (Mentha arvensis)
cut-leaved water horehound (Lycopus americanus, L. unifora)
angelica (Angelica, spp.)
water parsley (Oenatnthe garmentosa)
cow parsnip (Heracleum lanatum)

C. Upland Standards

1. Retain selected oak in protected "islands" within right of way.

2. Plant standard size apple and crabapple or other appropriate fruit producing trees along right of way in selected locations, more than fifteen feet from centerline of pipe.

3. Retain snags and allow for snag recruitment. Retain and replace down woody material.

4. During construction of the pipeline, if trees need to be removed at some right-of-way locations, the tree-line edge will be cut in an irregular pattern to reduce a linear swath appearance.

5. When pipeline construction is complete, the corridor will be replanted with (a) native, non-invasive plant species to prevent invasive plant species from becoming established and altering the plant community, or (b) returned to a condition agreed to by the landowner (for example, returned to a condition suitable for planting crops).

6. In areas where vegetation may need to be temporarily cleared for construction-related activities, removal of woody vegetation will be minimized by using the narrowest corridor possible and locating staging areas elsewhere. Construction in areas consisting of woody vegetation will be avoided whenever feasible, because areas temporarily cleared of herbaceous vegetation are more quickly restored over time.

7. Replanting will be done as soon as possible to prevent invasive species from becoming established and all species planted will be native to the region.

8. Reforestation of areas not maintained as right-of-way. Seedlings will be replanted to begin regeneration of forest habitat. A minimum of 300 seedlings per acre will be planted. Species included in the mix are Douglas fir, western hemlock, western red cedar, Sitka spruce, western white pine, red alder, and bigleaf maple. Species mixes will be appropriate to the area.

Factors affecting the species mix include geographic location, soil characteristics (including soil moisture regimes), and adjacent forested plant species composition.

9. Re-vegetation of shrubby areas not maintained as right-of-way. Shrubs will be replanted in areas currently composed of shrubby vegetation. The following species are included in the mix: red elderberry, hazel, Indian plum, oceanspray, and cascara. The species mix will increase the habitat value of the mitigation area, and will be appropriate to the area. Geographic location, soil characteristics, and adjacent shrubby vegetation composition are factors affecting the species mix. Root stock that is approximately 3 feet in height is preferred. If suitable size shrubs cannot be found, younger stock may be introduced in a nursery enclosure (to prevent deer browsing of young plants) until the shrubs are about 3 feet high.

10. Re-vegetation of grasslands in shaded areas. Seed will be broadcast in areas that will be shaded for most of the day. The species included in this seed mix are (the numbers in parentheses indicate the pounds per acre of that species): fine fescue (17.0), big trefoil (2.0), annual ryegrass (1.0), and white Dutch or subterranean clover (2.0) for a total of 22.0 pounds of seed mix per acre. This seed mix would also be broadcast in areas of shrub and tree plantings to minimize the potential for erosion between completion of pipeline construction and replanting (shrubs and seedlings will be planted at times to optimize their chances of survival which may not correspond with the construction schedule).

11. Re-vegetation of grasslands in open areas. The following seed mix will be broadcast to re-establish grassland habitat in open areas (the numbers in parentheses represent the number of pounds per acre of that species): perennial ryegrass (2.0), annual ryegrass (2.0), orchard grass (dwarf if available) (4.0), tall fescue (1.0), yellow sweet clover (4.0), red (white Dutch or subterranean) clover (2.0), and birdsfoot trefoil (5.0) for a total of 20.0 pounds of seed mix per acre.

D. White Top Aster

1. The narrowest construction corridor possible will be used in areas with White-Top Aster.

2. A turf cutter will be used over the trench corridor to remove the prairie turf with the white-top aster. The turf cutter should cut about 6 inches deep. The turf will be rolled up and stored until construction in the prairie habitat is complete. When the sub-soils and top-soils have been back-filled, the turf will be replaced. Rolled-up turf must be watered to prevent soil desiccation. The turf must be watered when replaced and watering may be necessary if precipitation levels are unseasonably low.

3. If feasible, construction will occur between mid-October and early April when the plant is dormant.

4. Top-soils excavated from the trench (6" to 18") will be stockpiled separately from the sub-soils and will be back-filled over the sub-soils when installation is complete.

5. The construction corridor will be re-vegetated, as necessary, with other plant species native to Tenalquot Prairie such as Idaho fescue (*Festuca idahoensis*). The plants used to re-vegetate the construction corridor will be native to the prairie so that the vegetation growing over the construction corridor resembles the naturally-occurring plant composition of the prairie.

6. Idaho fescue plugs will be collected, divided, and replanted, as necessary, to ensure survival of native prairie species and minimize the opportunity for invasive species to become established.

7. Invasive plant species (that are not native to the prairie) are adjacent to the pipeline corridor. Therefore, re-vegetation of the construction corridor will be conducted as soon as construction is complete to prevent invasive plants from becoming established.

E. Fugitive Dust

Fugitive dust will be controlled by spraying water on dry earth in the active construction areas.

PART III. CONSTRUCTION MITIGATION

A. General Wildlife Habitat

1. The Certificate Holder construction contractor for the pipeline will be required to replant disturbed habitats with native vegetation to reduce the duration of habitat disturbance. In areas requiring maintenance, they will plant native grassland species which need less frequent maintenance than native pioneer shrubs, thus reducing the frequency of human activity in this habitat.

2. The pipeline route was relocated in the vicinity of the Chehalis River to increase the distance of the pipeline from a bald eagle nest. The nest was approximately 1,000 feet from the original alignment, but is now approximately 2,000 feet from the proposed route. Because the nest is more than 0.25 mile from the nest, there will be no timing restrictions on construction, unless new nesting sites are determined (See I.C.13.a).

3. Transmission lines will be designed to be safe for raptors using techniques recommended by Olendorff et al. (1981), thus eliminating the potential hazard of electrocution for bald eagles as well as other raptors.

4. Native vegetation will be retained as much as possible in the impact area to preserve wildlife habitat and provide a buffer of vegetation from surrounding habitat areas. Shrub habitat will be maintained at low to medium vegetation heights in the rights-of-way.

5. Restore and re-vegetate the 25-foot wide construction easement with native plant species favorable to wildlife immediately following construction consistent with a site-specific vegetation plan and landowners agreements, as appropriate.

6. Relocate nest boxes for western bluebirds and wood ducks that will be disturbed by construction of the pipeline.

B. Wetland Habitat

1. Wetland restoration, creation and enhancement will not result in a net loss of wetland acreage and functions.

2. In-kind replacement of functions and values is preferred.

3. Where in-kind replacement is not feasible, substitute resources of equal or greater ecological value will be provided.

4. Biologists are continuing to work with the Army Corps of Engineers and other federal and state agencies to avoid wetlands, especially high quality wetlands and forested wetlands. Some route revisions may result based on wetland determinations.

5. Wetland mitigation for the project is focused on avoidance and restoration. Avoidance of impacts to wetlands and wetland functional values will occur by physically avoiding contact with the wetlands. Although it is not possible to avoid all of the wetlands in the construction corridor, wetlands have been avoided whenever feasible. An emphasis on avoidance has been made for high quality wetlands and wetland types, which are difficult to replicate (e.g., forested wetlands).

6. Where avoidance of wetlands is not possible, the following mitigation measures will be implemented:

   a. Construction techniques for minimizing compaction and mixing of wetland soils.

   b. Temporary erosion and sedimentation controls including use of hay bales and siltation/sedimentation fences.

   c. Conducting construction activities during the dry season to the extent possible.

   d. Avoiding scrub-shrub and forested portions of wetlands to the greatest extent possible.

   e. Retaining and back-filling wetland top-soils.

   f. Re-grading wetland basins to the original elevation and contour.

   g. Re-vegetation of wetland types using native, non-invasive species.

   h. Reestablishing hydrologic regimes (water inflow and outflow).

7. Compensation

   A combination of wetland enhancement and creation to compensate for proposed wetland impacts will be implemented where avoidance of wetlands is not possible. Compensation for unavoidable losses will include:

a. For wetlands filled and lost, wetland acreage shall be replaced by creation at a 3 to 1 replacement ratio by wetland type (ratio to be doubled for enhancement of existing wetlands).

b. For wetlands that are disturbed but not lost, the following shall apply:

1. Forested Wetlands. Disturbance impacts to forested wetlands shall be mitigated by both: restoration of the disturbed area to either forested wetland or scrub/shrub wetland; and either replacement with other forested wetland (restoration or creation) in an amount equal to the disturbed area, or enhancement of disturbed emergent herbaceous wetland to forested wetland in amount equal to twice the disturbed area.

2. Scrub/Shrub Wetlands. Disturbance impacts to scrub/shrub wetlands shall be mitigated by both: restoration of the disturbed area to scrub/shrub wetland; and either replacement with other scrub/shrub wetland (restoration or creation) in an amount equal to one-half the disturbed area, or enhancement of disturbed emergent wetland to scrub/shrub wetland in an amount equal to the disturbed area.

3. Emergent Wetlands. Disturbance impacts to emergent herbaceous wetlands shall be mitigated by restoration of the disturbed areas to native emergent herbaceous wetland.

C. Upland Habitat

1. Forest Habitat

a. For forest areas that are cleared and that cannot be restored to forest habitat, mitigation shall be by replacement of forest habitat (restoration or creation) in an amount equal to twice the unrestored forest area.

b. For forest areas that are restored in place to forest habitat, mitigation shall be by restoration or creation of additional forest habitat in an amount equal to one-half the restored forest area.

c. In either (1) or (2) above, planting of trees in formerly disturbed herbaceous sites (such as abandoned agricultural fields) shall qualify.

2. Shrub Habitat

a. For shrub areas that are cleared and that cannot be restored to shrub habitat, mitigation shall be by replacement of shrub habitat (restoration or creation) in an amount equal to twice the unrestored shrub area.

b. For shrub areas that are restored in place to shrub habitat, mitigation shall be by restoration or creation of additional shrub habitat in an amount equal to one-half the restored shrub area.

c. In either (1) or (2) above, planting of shrubs in formerly disturbed herbaceous sites (such as abandoned agricultural fields) shall qualify.

3. Prairie and Native Oak Forest

The Certificate Holder shall fund, design and implement an off-site prairie restoration project in Thurston County to restore lost prairie habitat values. The specific location of the prairie enhancement efforts shall occur on existing public lands identified by the Prairie Landscape Working Group. The project shall consist of the following two actions:

a. A controlled burn or mechanical removal (mowing) to accomplish the initial removal of scotch broom on an area of existing prairie equal to two times the area of prairie habitat affected by pipeline construction activities; and

b. One-time removal of invading conifer growth on 25 acres of established native oak forest.4

4. Herbaceous Habitat

Disturbance impacts to herbaceous habitat shall be mitigated by restoration of the disturbed areas in place with safeguards against weedy invasive species.

D. Pipeline Right-of-Way

1. Wherever feasible, construction activities will occur outside of the planting/growing/harvesting period to minimize cropland productivity impacts.

2. Negotiations with land owners for easement compensation will be conducted prior to construction. If the land owners refuse to grant the easements and if all reasonable efforts to satisfy their concerns have been exhausted, then the Certificate Holder will consider other options including minor re-route of the pipeline.

3. Compensation to farmers for crop removal and/or damage or lost productivity caused by the construction activities will be negotiated based on actual impact.

4. Compensation to farmers for land permanently removed from productive use by construction of the project will be negotiated based on the productive use of that land.

5. Equipment cleaning and washing procedures will be implemented to prevent the spread of noxious weeds.

6. The Certificate Holder will coordinate construction activities with farmers to ensure (a) livestock access to feeding and watering stations, and (b) continued access across the right-of-way for farm equipment.

7. Compacted soil will be loosened by tilling after the pipeline is installed and back-filled.

8. The pipeline corridor will be replanted with native vegetation after completion of construction.

9. Fences and gates removed during construction will be replaced.

E. Noise

The following construction sound abatement measures will be included in the project construction specifications to mitigate construction sound impacts:

1. Construction will not be performed within 1,000 feet of an occupied dwelling unit on Sundays, legal holidays, or between the hours of 10:00 P.M. and 6:00 A.M. on other days.

2. All construction equipment will have sound control devices no less effective than those provided on the original equipment. Equipment will not be operated with unmuffled exhaust systems.

3. Pile driving or blasting operations, if required, will not be performed within 3,000 feet of an occupied dwelling unit on Sundays, legal holidays, or between the hours of 8:00 P.M. and 8:00 A.M. on other days.

4. Notice of the proposed construction schedule and locations will be well publicized in the area, and nearby residents will be notified in advance of the anticipated schedule for construction activities.

F. Historic and Cultural Preservation

The Certificate Holder and their construction contractor will coordinate with EFSEC and local Tribes to develop an acceptable construction monitoring plan and will implement the plan during construction of the proposed project.

G. Traffic and Transportation

The natural gas pipeline will be installed under major roadways and under railroads using boring and drilling techniques to avoid roadway and rail disruptions. After pipeline installation across roadways, the subgrade and surface of the roadways will be returned to their pre-existing conditions in accordance with state and local requirements.

H. Commuter Trip Reduction Act

The Commuter Trip Reduction Act is implemented in the eight largest counties in Washington State. Grays Harbor County is exempt, but Thurston County is subject to the Act. The Commuter Trip Reduction Act requires carpooling or other transportation management measures in work situations where 100 or more workers will be arriving at the same site between 6:00 and 9:00 a.m. for 12 months or longer. In Thurston County, only pipeline construction will occur as part of the project, and it is not known at this time exactly how long workers will be arriving at a single site, nor how many workers. However, if the project is found to fall within the requirements of the Act, carpooling or other transportation management planning will take place.

PART IV. MITIGATION DURING OPERATIONS

A. Best Management Practices

1. Operational BMPs will consist of company policies, operating and maintenance procedures, personnel training, good housekeeping, prohibition of undesirable practices, and other administrative practices to prevent or reduce pollution of waters of the state. Source control BMPs will consist of physical, structural or mechanical devices or structures that are intended to prevent pollutants from entering stormwater.

2. Operational BMPs will be adopted to implement good housekeeping, preventive and corrective maintenance procedures, steps for spill prevention and emergency cleanup, employee training programs, and inspection and recordkeeping practices as needed to prevent stormwater pollution.

3. Existing stormwater catchbasins and detention systems will be used and will continue to be inspected at least annually as part of the site preventive maintenance program.

4. During periods of heavy rainfall and after primary storage tanks have been filled or emptied, secondary containment structures will be inspected for accumulations of water.

5. The Certificate Holder will periodically inspect the system to ascertain that the controls identified in the plan are adequate and to confirm that non-permitted discharges are not entering the stormwater system.

6. Source control BMPs consistent with those in the Stormwater Management Manual for Western Washington (SWMMWW) will be employed in the design of fueling stations; vehicle and equipment washing and steam cleaning areas; loading and unloading areas for liquid materials; aboveground storage tank systems; container storage facilities; outside storage areas; and outside manufacturing and maintenance areas.

B. Monitoring of Revegetation or Vegetation Replacement

The success of wetland and riparian revegetation will be monitored annually, with written reports to EFSEC and copies to WDFW and Ecology, for the first five years after construction. Revegetation of areas which are currently vegetated with native species is considered successful if the native herbaceous and/or woody cover is at least eighty percent of the total cover, and native species diversity is at least fifty percent of the diversity originally found in the wetland. If revegetation is not successful at the end of five years, the Certificate Holder shall develop and implement (in consultation with a professional wetlands ecologist and the Departments of Ecology and Fish and Wildlife) a plan to actively revegetate the wetland with native wetland herbaceous and woody plant species.

A five year monitoring plan shall be developed to assess mitigation success. For those restoration, creation or enhancement areas that do not meet the success standards provided in paragraph IV.B.3 after five years, additional replacement shall be provided as follows: an amount of forested wetland equal to three times the unsuccessfully restored forested wetland areas; and an amount of scrub/shrub or emergent wetland equal to two times the unsuccessfully restored scrub/shrub or emergent wetland areas.

1. A minimum five-year monitoring and contingency plan shall be required for all wetland impact and mitigation actions.

2. Development of the wetland compensatory mitigation plan will be based on the format and checklists specified in Ecology Publication #94-29, Guidelines for Developing Freshwater Wetlands Mitigation Plans and Proposals.