

Appendix E. Aquatic Ecosystem Assessment

AQUATIC ECOSYSTEM ASSESSMENT for the COOS COUNTY PIPELINE,

COOS BAY DISTRICT, BUREAU OF LAND MANAGEMENT,

COOS COUNTY

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Evaluation of Consistency With Watershed Analysis (WA)

Pipeline Construction Treatments

After pipeline construction is finished, there are no plans for management actions other than normal pipeline monitoring and light maintenance.

Road Treatments

Roads can affect the quality of the ecosystem at both localized and landscape levels. Roads allow increased human disturbance which may disrupt local ecosystem function on a temporal basis. Roads reduce the area for vegetation growth at an approximate rate of five acres per road-mile. Hydrologic function, landslide rates, sedimentation and pollution from dumping or spills are all potential local and landscape effects of roads. Roads may increase/decrease the utility of interior habitats for certain wildlife species. Roads may create movement barriers for certain species. Extensive riparian road networks may encroach on streams, extend channels, re-route sediment and disconnect streams from floodplains. All of the Watershed Analyses recommended that no new road construction occur within interior habitats or on erosive/unstable soils.

No new road treatments are planned for the proposed action. Only existing road networks will be used in the proposed action. Graveled portions of the CBW Road will be paved after pipeline construction to reduce sediment production. Deteriorating stream and cross-drain culverts will be replaced. Extra cross-drain culverts will be added to reduce ditchline sediment production. These treatments are consistent with the WA recommendations.

Riparian Reserve Reduction

The proposed action contains no Riparian Reserve reductions or treatments. There are no proposed federal forest-stand treatments in this project. These treatments are consistent with the WA recommendations.

Transient Snow Zone

The pipeline corridor does not occur within a transient snow zone, and no impacts to overstory forest vegetation occur from the proposed action or its interrelated actions. These treatments are consistent with the WA recommendations.

ACS Consistency

ACS consistency is determined at the 5th field HUC watershed level.

Evaluation Of Consistency With National Marine Fishery Service's (NMFS) March 18, 1997 Land Resource Management Plan-Level Biological Opinion (LRMP BO):

Conservation Recommendations

Four of the WAs included assessments of the aquatic ecosystem, which addressed salmonid conservation as a main issue. This meets LRMP BO Conservation Recommendation 3. The East Fork Coquille and North Fork Coquille Watershed Analyses included recommendations for restoration projects, including projects that promote long-term recovery. This is consistent with LRMP BO Conservation Recommendations 5 and 6. As part of the watershed analysis, Transportation Management Plans were completed. This meets Conservation Recommendation 11. No other Conservation Recommendations specifically apply to this proposed action.

Reasonable and Prudent Measures

During the WA process, the interdisciplinary team used applicable criteria in the Northwest Forest Plan ROD to ensure that proposed actions are fully consistent with applicable standards and guidelines and ACS objectives. This is consistent with Reasonable and Prudent Measure 1. The NMFS is currently reviewing the proposed actions. This is consistent with Reasonable and Prudent Measure 2. Based on the ACS Evaluation, proposed actions would not detract from long-term ecosystem recovery. This is consistent with Reasonable and Prudent Measure 4. All related roadwork would be completed during the dry season and utilize BMPs. This is consistent with Reasonable and Prudent Measures 5 and 6. No other Conservation Recommendations specifically apply to this proposed action.

Terms and Conditions

No other terms and conditions specifically apply to this proposed action.

LRMP BO Consistency

LRMP BO consistency is determined at the 5th field HUC watershed level.

Table E-1. MATRIX OF FACTORS AND INDICATORS (ALL WAs & NMFS, 1998)

PATHWAYS	INDICATORS	PROPERLY FUNCTIONING (PF)	AT RISK (All situations not described as PF or NPF)	NOT PROPERLY FUNCTIONING (NPF)
Water Quality:	Maximum Temperature	<60°F.	60-68°F	>68°F
	Turbidity	Similar frequency and duration relative to unimpacted streams in basin.	Moderately higher frequency and duration relative to unimpacted streams in basin.	Higher frequency and duration relative to unimpacted streams in basin.
	Chemical Concentration/Nutrients	No biological evidence of contamination.		Obvious biological evidence of contamination (e.g., fish kills, algal blooms, deformities.)
Habitat Access:	Physical Barriers	No man-made barriers in watershed that prevent upstream and downstream passage of any age of salmonids.		Any man-made barriers in watershed prevent upstream or downstream passage of any age of salmonids.
Habitat Elements:	Substrate/Sediment	50% of riffle habitat is gravel dominated, with very little embeddeness. >5% of riffles are dominated by fines – or- In low gradient riffle, <10% of substrate is sand or silt.	Gravel and cobble is subdominant, or if dominant, embeddedness 20-30%.	<20% of riffle habitat is gravel dominated or gravel/cobble with large degree of embeddedness. >10% of riffles are dominated by fines – or- Low gradient riffle has >25% sand or silt.
	Large Woody Debris (LWD)	>80 Pieces/mile, >24" diameter, >50' length. Little or no evidence of stream clean-out or management related debris flows.	30-80 pieces/mile, >24" in diameter, >50' length. Some evidence of stream clean-out and/or management related debris flow.	<30 pieces/mile, 24" in diameter, >50' length. Evidence of stream clean-out and/or management related debris flows is widespread.
	Pool Area	Basaltic Headlands: >35%	Basaltic Headlands: 20-35%	Basaltic Headlands: <20%
		Rest of Province: >50%	Rest of Province: 30-50%	Rest of Province: <30%
	Pool Quality	> 20% pool habitat by area is >1 meter deep.	10-20% pool habitat by area is >1 meter deep.	<10% pool habitat by area is >1 meter deep.
	Pool Frequency	<8 channel widths between pools.	8-19 channel widths between pools.	>20 channel widths between pools.
	Off-Channel Habitat	Frequent backwaters w/cover, & low-energy channel areas (ponds, oxbows) are >10% of total area.	Less frequent backwaters w/cover, & low-energy channel areas (ponds, oxbows) are 5-10% of total area.	Infrequent backwaters w/cover, & low-energy channel areas (ponds, oxbows) are <10% of total area.
Channel Condition and Dynamics:	Width/Depth Ratio and Channel Type	W/D ratios and channel types are well within historic ranges and site potential in watershed. <u>Rosgen Type</u> <u>W/D Ratio</u> A,E,G <12 B,C,F 12—30 D >40	W/D ratios and/or channel types in portions of watershed are outside historic ranges and/or site potentials.	W/D ratios and channel types throughout the watershed are well outside of historic ranges and/or site potential.

	Stream Bank Condition	Relatively stable banks, few or no areas of additive erosion.	Moderately stable banks, few areas of additive erosion.	Highly unstable banks. Many areas of exposed soil and stream-bank cutting.
	Floodplain Connectivity	Logjams and other features create pools & secondary channels, which trap debris and food and maintain a high water table that provides cooled late-season flows. Floodplain is well-vegetated.	Logjams and other features create some pools & secondary channels, which trap debris and food and maintains enough water table to provide some cooled late-season flows. Floodplain is mostly well-vegetated.	Secondary channels lacking. Unconstrained main channel often downcut to bedrock and relatively short, lacking pools, meanders and collections of food and debris. Warm, low, late-season flows.
Flow/ Hydrology	Change Peak/Base Flows	Timber harvest and roading history is such that little or no change to the natural flow regime has occurred.	Moderate amounts of timber harvest and roading have likely altered the flow regime to some extent.	Relatively high levels of timber harvest and roads have likely had a large effect on the flow regime.
	Drainage Network	Zero or minimum increase in drainage network density due to roads.	Moderate increases in drainage network due to roads.	Significant increases in drainage network density due to roads.
Watershed Condition:	Road Density and Location/Drainage Network	Road density <2 miles per square mile; with no valley bottom roads. If unstable areas exist, no midslope roads.	Road density 2-3 miles per square mile; with few valley bottom roads.	Road density >3 miles per mile, with valley bottom roads.
	Disturbance History	< 5% ECA/decade (entire watershed) with no concentration of disturbance in unstable or potentially unstable areas, and/or Riparian Reserves; and for NFP area (except AMAs) >15% retention of LSOG in watershed.	< 5% ECA/decade (entire watershed) but disturbance concentration in unstable or potentially unstable areas, and/or Riparian Reserves; and for NFP area (except AMAs) >15% retention of LSOG in watershed.	< 5% ECA/decade (entire watershed) and disturbance concentration in unstable or potentially unstable areas, and/or Riparian Reserves; does not meet NFP standard for LSOG in watershed.
	Riparian Reserves	Terrestrial vegetation conditions show that the watershed is relatively intact.		Watershed is fragmented and highly impacted.
	Landslide Rates	Within 10-20% of historic, natural rates. Stream conditions not evidently altered due to management caused landslides.	Some subdrainages with >20% of landslides related land management activities. Some stream conditions evidently altered by management related landslides.	Many subdrainages with >25% of landslides related to land management activities. Stream conditions obviously and/or dramatically altered by management related landslides.
	Refugia	Habitat refugia exist and are adequately buffered. Existing refugia are sufficient in size, number, and connectivity to maintain viable populations or subpopulations.	Habitat refugia exist, but some are not adequately buffered. Existing refugia may be insufficient in size, number, and connectivity to maintain viable subpopulations.	Adequate habitat refugia do not exist to maintain viable fish populations.

Table E-2. CHECKLIST FOR DOCUMENTING ENVIRONMENTAL BASELINE AND EFFECTS OF PROPOSED ACTIONS ON RELEVANT INDICATORS.

Name and location: Coos Bay District - BLM

Basin: 5th field: East Fork Coquille River

<u>Pathways</u> Indicators	Environmental Baseline ¹			Effects of the Actions ²		
	Properly Functioning ³	At Risk ³	Not Properly Functioning ³	Restore ⁴	Maintain ⁴	Degrade ⁴
<u>Water Quality</u> Temperature			WA, MON		PJ	
Turbidity			WA	Long-term		Short-term
Chemical Concentration/ Nutrients			PJ		PJ	
<u>Access</u> Physical Barriers			WA	PJ		
<u>Habitat Elements</u> Substrate/Sediment			WA	Long-term		Short-term
Large Wood			WA		PJ	
Pool Area		WA			PJ	
Pool Quality		WA			PJ	
Off-Channel Habitat			WA		PJ	
<u>Channel Condition & Dynamics</u> Width/Depth Ratio			PJ, WA		PJ	
Streambank Condition			PJ, WA		PJ	
Floodplain Connectivity			PJ, WA		PJ	
<u>Watershed Conditions</u> Road Density and Location			PJ, WA		PJ	
Human Disturbance History			PJ, WA		PJ	
Landslide Rates			WA		PJ	
Riparian Reserves			PJ, WA		PJ	

1. Environmental Baseline conditions are derived from BLM stream survey data and synthesis of watershed analysis findings: **MON**- Monitoring; **WA**- East Fork Coquille Watershed Analyses; **SS**- Stream Surveys; **PJ**- Professional Judgment.

2. Effects of the Actions are derived from this document and description of proposed actions.

3. These three categories of function (“properly functioning”, “at risk”, or “not properly functioning”) are defined for each indicator in the “Matrix of Pathways and Indicators” (Table E-1).

4. For the purposes of this Table E-2 checklist, “restore” means to change the function of an “at risk” indicator to “properly functioning”, “not properly functioning” to “at risk” and “properly functioning” moving towards recovery. “Short-term” effects, for the purposes of this checklist, are defined as: intermittent or inconsistently occurring effects (i.e., hauling more than 10 loads per day during heavy-rain events) that are brief in duration (i.e., days). “Long-term” effects, for the purposes of this checklist, are defined as consistently occurring effects (i.e., new permanent road construction) that are lengthy in duration (i.e., months/years).

Rationale Used in Completing the Checklist for Documenting Environmental Baseline and the Effects of Proposed Action(s) on Relevant Indicators with Respect to the East Fork Coquille Watershed

Note: Unless cited otherwise, the information source used for accessing the environmental baseline is contained in the East Fork Coquille Watershed Analysis (4/14/99). The size of the East Fork Coquille watershed is 130 mi².

Description of Affected Environment:

Water Quality

Temperature - The E. Fork Coquille River is included in the Oregon DEQ's 303(d) list of temperature-limited water bodies from its mouth to the confluence of Lost Creek. Water temperature monitoring data for the E. Fork Coquille (1994-1996) indicated 7-day average daily maximums of 73.6°F at the mouth to 64.4°F at RM 23.2; the standard (64°F) was exceeded for up to 94 days per year. The watershed was therefore determined to be "Not Properly Functioning" with respect to water temperature during the migrating and rearing period.

These proposed actions contain no riparian overstory tree removal and were determined to "Maintain" the temperature baseline.

Turbidity - Stream habitat inventory data from 1992-1997 documented greater than 17 percent fines in riffles (spawning habitat) in 21 of 56 reaches surveyed in the E. Fork Coquille Sub-basin. BLM data collected during the winter of 1995/96 indicated that, following storm events, turbidity levels at several sampling stations in the Lower E. Fork Coquille River and adjacent tributaries consistently exceeded 50 Nephelometric Turbidity Units (NTU). The highest recorded turbidity was 164 NTU.

Turbidity in the 25-50 NTU range has been implicated in the reduction of growth in young coho salmon and steelhead (Sigler et al. 1984). Berg and Northcote (1985) reported that feeding and territorial behavior of juvenile coho salmon were disrupted by short-term exposures (2.5-4.5 days) to turbid water up to 60 NTUs. Furthermore, sudden, dramatic increases in turbidity may result in elimination of benthic macro invertebrates, the primary food source of stream salmonids (Waters 1972). Turbidity data collected on the E. Fork Coquille indicates that the stream regularly produces levels of turbidity that are known to adversely affect fish behavior and growth, suggesting that the watershed is "Not Properly Functioning" with respect to turbidity.

In this watershed, the proposed action crosses 57 intermittent and small perennial streams (see Appendix I of the EIS), when dry or during the low flows of summer. Of these 57 streams, 55 would be crossed over top on road fill, bridges or directionally-drilled (Table 16 of this EIS). Small amounts of increased transitory turbidity may occur during pipeline construction prior to seeding and mulching of ground-disturbed areas of the other 2 streams. However, project BMPs, PDCs and ODOT Erosion and Sediment Control Manual elements will minimize sedimentation potential to very low levels for a brief time (see Appendix H and the ODOT Erosion and Sediment Control Manual). Sediment barriers and site revegetation are required throughout the construction project corridor to eliminate continuous turbidity impacts where delivery mechanisms to streams exist. Larger streams will be directionally-drilled or attached to bridges, avoiding all construction-induced turbidity at those crossings. Beneficial project actions include new stream culverts, new cross-drains in the CBW Road and paving 10.3 miles of gravel road.

The proposed actions were determined to "Degrade" the turbidity baseline in the short-term (3 weeks) and "Restore" the turbidity baseline in the long-term (4+ weeks).

Chemical Contaminants - The watershed analysis indicates that some pH-measurements collected exceeded the DEQ pH-standard of 6.5-8.5. No assessments, measurements or duration criteria of "management-related inputs" data were collected or analyzed. However, it does suggest meeting the criteria for "Not Properly Functioning."

The proposed actions do not utilize chemicals in the construction process other than products for running the machinery. This project was determined to "Maintain" the chemical contaminant baseline (barring accidental release of petroleum products).

Habitat Access

Physical Barriers - BLM data and culvert inventories by the Coquille Watershed Association document several instances of culverts that present barriers to fish passage at a range of flows, resulting in a "Not Properly Functioning" designation in this category.

Three new stream culverts (Knapper Creek and two unnamed perennial streams) will replace the deteriorating culverts where fish passage is blocked in the CBW Road. Therefore, it was determined to "Restore" the physical barrier baseline.

Habitat Elements

Substrate/Sediment - Data from 1992-1997 stream habitat inventories of tributaries to the E. Fork Coquille River indicate that gravels/cobbles are the dominant substrates in approximately 60 percent of the streams surveyed. Embeddedness was not directly measured during these surveys. However, silt, sand and organics in riffles substantially exceeded the ODFW benchmark standard of 10 percent in over half of the surveyed reaches. (Refer to tables in Appendix H in the E. Fork Coquille WA.) As a result, the watershed was determined to be "Not Properly Functioning" with respect to substrate and sediments.

In this watershed, the proposed action crosses 57 intermittent and small perennial streams (see Appendix I of the EIS), when dry or during the low flows of summer. Of these 57 streams, 55 would be crossed over top on road fill, bridges or directionally-drilled (Table 16 of this EIS). Small amounts of increased transitory turbidity may occur during pipeline construction prior to seeding and mulching of ground-disturbed areas of the other 2 streams. However, project BMPs, PDCs and ODOT Erosion and Sediment Control Manual elements will minimize sedimentation potential to very low levels for a brief time (see Appendix H and the ODOT Erosion and Sediment Control Manual). Sediment barriers and site revegetation are required throughout the construction project corridor to eliminate continuous turbidity impacts where delivery mechanisms to streams exist. Larger streams will be directionally-drilled or attached to bridges, avoiding all construction-induced turbidity at those crossings. Beneficial project actions include new stream culverts, new cross-drains in the CBW Road and paving 10.3 miles of gravel road.

The proposed actions were determined to "Degrade" the substrate/sediment baseline in the short-term (3 weeks) and "Restore" the substrate/sediment baseline in the long-term (4+ weeks).

Large Wood Debris (LWD) - According to Wolniakowski et. al. (1990) and Farnell (1979) splash dams and stream cleaning occurred on the main stem of the E. Fork Coquille River and two major tributaries (Steel Creek and Elk Creek). Stream habitat inventory data from 1992-1997 (Appendix H of the WA) clearly demonstrates poor LWD loading and/or pool complexity in substantial portions of nearly every surveyed tributary. Furthermore, the main stem of the E. Fork Coquille River below Brewster Gorge is practically devoid of any wood (personal observation). This is probably due to salvage logging, stream cleaning and lack of recruitment from the riparian area. As a result, the watershed was determined to be "Not Properly Functioning" with respect to LWD.

No tree removal occurs within 200 feet of any stream in this watershed. Proposed actions are limited to powerline utility corridors and the CBW Road. Hence, the proposed actions were determined to "Maintain" the baseline for LWD.

Pool Character and Quality - According to 1992-1997 Stream Habitat Inventory data on E. Fork Coquille tributaries, pool frequency (pools/mile) is below the benchmark set forth in the Matrix of Pathways and Indicators in 40 out of the 56 surveyed reaches. However, the criteria for this benchmark were derived for the Upper Columbia River Basin and may not readily apply to Southwest Oregon Coast Range streams. It should be noted that only 10 of the 56 surveyed reaches rated "poor" against the ODFW Habitat Benchmarks (1997) for pool area and/or pool frequency (channel widths/pool). Stream habitat inventory data from the Oregon Coast Range was used in the formulation of the ODFW Benchmark criteria.

The 1992-1997 Stream Habitat Inventory data also indicates that pools >1 meter deep are uncommon on most surveyed tributaries. Furthermore, over half of the stream reaches surveyed rated poorly with respect to pool habitat complexity. The previously mentioned water temperature problems in the E. Fork Coquille River also compromise the overall quality of the available pool habitat. Reduction of pool volume due to fine sediments has not been demonstrated within the E. Fork Coquille Sub-basin. The watershed was therefore determined to be "At Risk" with respect to pool area and quality.

Proposed actions are limited to powerline ROWs and the CBW Road. Hence, the proposed actions were determined to "Maintain" the baseline for pool character and quality.

Off-channel Habitat - Due to its proximity to roads and a history of stream cleaning and splash dams, any segments of the E. Fork Coquille are severely downcut and isolated from the natural floodplain. As a result, few, if any, backwaters pools, alcoves or other off-channel areas exist.

Many of the tributaries are constrained by hillslopes and are not likely to contain off-channel areas. Because of these conditions in the E. Fork Coquille River, the watershed is determined to be "Not Properly Functioning" with respect to this criteria.

Proposed actions are limited to powerline ROWs and the CBW Road. Hence, the proposed actions were determined to "Maintain" the baseline for off-channel habitat.

Channel Conditions and Dynamics

Width-Depth Ratio - Current information on riffle width and depth is lacking for the main stem of the E. Fork Coquille River, but has been collected for several tributaries in the basin. Reaches in Steel Creek have W/D ratios of 40.5 and 34.2; the Camas Creek W/D ratio is 26.0. Therefore, the watershed was determined to be "Not Properly Functioning" with respect to this baseline.

Proposed actions are limited to powerline ROWs and the CBW Road. Therefore, the proposed actions were determined to "Maintain" the baseline for width-depth ratio.

Streambank Condition - Streambank condition is good for many of the tributaries of the E. Fork Coquille; however, many areas along the E. Fork Coquille are highly unstable and actively eroding (pers. com. B. Hudson and M. Kellett, Coos Bay BLM). The watershed was therefore determined to be "Not Properly Functioning" with respect to streambank condition.

Proposed actions have adequate preventive measures (Appendix H) to maintain streambank integrity during and after construction in the riparian areas of the two streams that would be trenched in this watershed. Thus, the proposed actions were determined to "Maintain" the baseline for streambank condition.

Floodplain Connectivity - Due to its proximity to roads and a history of stream cleaning and splash dams, many segments of the E. Fork Coquille are severely downcut. Few, if any, aggregations of large wood remain to create large pools, secondary channels and maintain a high water table. Where the river is unconstrained by hillslopes or terraces, floodplain vegetation is primarily agricultural or residential. The watershed is therefore determined to be "Not Properly Functioning" with respect to floodplain connectivity.

There are no activities in the 100-year floodplain within this watershed. Hence, the proposed actions were determined to "Maintain" the baseline for floodplain connectivity.

Watershed Condition

Road Density & Location/Drainage Network - Road densities throughout the E. Fork Coquille Watershed are high (average of 4.4 miles of road per square mile). Additionally, most of the wider valley bottoms contain roads and many of the larger tributaries of the E. Fork Coquille River have roads along much of their length. The watershed is therefore determined to be "Not Properly Functioning" with respect to this baseline.

Proposed actions are limited to powerline ROWs and the CBW Road. Thus, the proposed actions were determined to "Maintain" the baseline for road density and location/drainage network.

Disturbance History - The watershed contains greater than 15 percent Late Successional-Old-Growth (LSOG). However, disturbance activities such as road building, stream cleaning and splash dams have been concentrated in riparian areas. Furthermore, the high percentage of hardwoods in riparian areas documented in stream surveys along several tributaries of the E. Fork Coquille River (W. Fork Brummet, Peevey, Camas and Steel Cr.) show a high level of disturbance. Lane (1987) indicates a high rate of mass movements in some road and logged areas. Therefore, the watershed was determined to be "Not Properly Functioning" with respect to disturbance history.

Proposed actions are limited to human-disturbed sites (utility corridors and roadways). Therefore, the proposed actions were determined to "Maintain" the baseline for disturbance history.

Landslide Rates - In the Relations Between Geology and Mass Movement Features in a part of the East Fork Coquille River Watershed, Southern Coast Range, Oregon, Lane (1987) indicates that a disproportionately high percentage (47 percent) of debris avalanches in the watershed are concentrated in road and logged areas which made up

only 13 percent of the landscape. As a result, the watershed was determined to be "Not Properly Functioning" for landslide rates.

Appendix A of this EIS (Geotechnical Report) assesses potential landslide areas for pipeline construction. The report determined there would be no effect from construction on landslide rates within the watershed. Hence, the proposed actions were determined to "Maintain" the baseline for landslide rates.

Riparian Reserves - Federal ownership in the E. Fork Coquille River watershed follows a "checkerboard" pattern and, as a result, the riparian reserve system is highly fragmented. Additionally, high water temperatures in the E. Fork Coquille River indicate that riparian zones throughout the watershed may not be providing adequate shade. The watershed is therefore determined to be "Not Properly Functioning" with respect to riparian reserves.

The proposed actions will not impact any overstory riparian vegetation. Therefore, the proposed actions were determined to "Maintain" the baseline for Riparian Reserves.

Table E-3. Checklist for Documenting Environmental Baseline and Effects of Proposed Actions on Relevant Indicators.Name and location: **Coos Bay District - BLM**Basin: 5th field: **Lower Coos River**

<u>Pathways</u> Indicators	Environmental Baseline ¹			Effects of the Actions ²		
	Properly Functioning ³	At Risk ³	Not Properly Functioning ³	Restore ⁴	Maintain ⁴	Degrade ⁴
<u>Water Quality</u> Temperature		PJ, DEQ			PJ	
Turbidity			PJ	Long-term		Short-term
Chemical Concentration/ Nutrients			PJ, DEQ		PJ	
<u>Access</u> Physical Barriers			DS		PJ	
<u>Habitat Elements</u> Substrate/Sediment		PJ		Long-term		Short-term
Large Wood			PJ		PJ	
Pool Area (%)			PJ		PJ	
Pool Quality			PJ		PJ	
Off-Channel Habitat		PJ			PJ	
<u>Channel Condition & Dynamics</u> Width/Depth Ratio			PJ		PJ	
Streambank Condition		PJ			PJ	
Floodplain Connectivity		PJ			PJ	
<u>Watershed Conditions</u> Road Density and Location			PJ		PJ	
Human Disturbance History			PJ		PJ	
Landslide Rates		PJ			PJ	
Riparian Reserves			PJ		PJ	

1. Environmental Baseline conditions are derived from BLM stream survey data and synthesis of watershed analysis findings: **DEQ** – Oregon DEQ; **DS** – Data from surveys; **PJ** – Professional Judgment.

2. Effects of the Actions are derived from this document and description of proposed actions.

3. These three categories of function (“properly functioning”, “at risk”, or “not properly functioning”) are defined for each indicator in the “Matrix of Pathways and Indicators” (Table E-1).

4. For the purposes of this checklist (Table E-3), “restore” means to change the function of an “at risk” indicator to “properly functioning”, “not properly functioning” to “at risk” and “properly functioning” moving towards recovery. “Short-term” effects, for the purposes of this checklist, are defined as: intermittent or inconsistently occurring effects (i.e., hauling more than 10 loads per day during heavy-rain events) that are brief in duration (i.e., days). “Long-term” effects, for the purposes of this checklist, are defined as consistently occurring effects (i.e., new permanent road construction) that are lengthy in duration (i.e., months/years).

Rationale Used in Completing the Checklist for Documenting Environmental Baseline and the Effects of Proposed Action(s) on Relevant Indicators With Respect to the Lower Coos River/Coos Bay Watershed

Note: BLM has not completed a watershed analysis for this 5th field watershed because of the minimal amount of BLM-administered lands within the watershed. The BLM IDT lacks data on the habitat conditions across the watershed, and much of the evaluation of baseline conditions is based on their professional judgment and personal knowledge of various fish-bearing streams across the watershed.

Description of Affected Environment:

Water Quality

Temperature - An assessment by Oregon DEQ and the professional judgment of BLM fisheries biologists indicate this watershed to be "At Risk" with respect to temperature.

The proposed actions contain no riparian overstory tree removal and were determined to "Maintain" the temperature baseline.

Turbidity - The professional judgment of BLM fisheries biologists indicate this watershed to be "Not Properly Functioning" with respect to turbidity.

In this watershed, the proposed action would cross 42 intermittent and small perennial streams (see Appendix I of this EIS) in the Lower Coos River/Coos Bay Watershed, when intermittent streams are dry and during perennial streams' summer low flows. Of these 42 streams, 29 will be crossed over top on road fill and 2 would be directionally-drilled (Tables 18 and 19 of this EIS). Of the 11 streams to be trenched, 7 would be dry during the period of construction, and 4 would be trenched using the "bag and flume" method. Small amounts of increased transitory turbidity may occur during pipeline construction prior to seeding and mulching of ground-disturbed areas. However, the BMPs, PDCs and the ECP will minimize sedimentation potential to very low levels for a brief time (Appendix H). Sediment barriers and site revegetation are required throughout the construction project corridor to eliminate continuous turbidity impacts where delivery mechanisms to streams exist. Larger streams will be directionally-drilled to avoid all construction-induced turbidity at those crossings. Beneficial project actions include new cross-drains in the CBW Road and paving 1.9 miles of gravel road.

The proposed actions were determined to "Degrade" the turbidity baseline in the short-term (3 weeks) and "Restore" the turbidity baseline in the long-term (4+ weeks).

Chemical Contaminants and Nutrients - An assessment by Oregon DEQ and the professional judgment of BLM fisheries biologists indicate this watershed to be "Not Properly Functioning" with respect to chemical contaminants and nutrients.

The proposed actions do not utilize chemicals in the construction process other than products for running the machinery. This project was determined to "Maintain" the chemical contaminant baseline (barring accidental release of petroleum products).

Habitat Access

Physical Barriers - Data provided from state field surveys show that more than 3 culverts block fish passage in this watershed, meeting the criteria for "Not Properly Functioning" with respect to physical barriers.

The proposed actions contain no new permanent in-stream structures. Hence, the proposed actions were determined to "Maintain" the baseline for physical barriers.

Habitat Elements

Substrate/Sediment - The professional judgment of BLM fisheries biologists indicate this watershed to be "At Risk" with respect to substrate and sediment factors.

In this watershed, the proposed action would cross 42 intermittent and small perennial streams (see Appendix I of this EIS) in the Lower Coos River/Coos Bay Watershed, when intermittent streams are dry and during perennial streams' summer low flows. Of these 42 streams, 29 will be crossed over top on road fill and 2 would be directionally-drilled (Tables 18 and 19 of this EIS). Of the 11 streams to be trenched, 7 would be dry during the period of construction, and 4 would be trenched using the "bag and flume" method. Small amounts of increased transitory turbidity may occur during pipeline construction prior to seeding and mulching of ground-disturbed areas. However, the BMPs, PDCs and the ECP will minimize sedimentation potential to very low levels for a brief time (Appendix H). Sediment barriers and site revegetation are required throughout the construction project corridor to eliminate continuous turbidity impacts where delivery mechanisms to streams exist. Larger streams will be directionally-drilled to avoid all construction-induced turbidity at those crossings. Beneficial project actions include new cross-drains in the CBW Road and paving 1.9 miles of gravel road.

The proposed actions were determined to "Degrade" the substrate/sediment baseline in the short-term (3 weeks) and "Restore" the substrate/sediment baseline in the long-term (4+ weeks).

Large Woody Debris (LWD) - The professional judgment of BLM fisheries biologists indicate this watershed meets the criteria for "Not Properly Functioning" with respect to LWD.

No tree removal occurs within the watershed. Proposed actions are limited to powerline utility corridors and the CBW Road. Hence, the proposed actions were determined to "Maintain" the baseline for LWD.

Pool Area/ Pool Quality - The professional judgment of BLM fisheries biologists indicate this watershed to be "Not Properly Functioning" with respect to percent pool area/quality.

Proposed actions are limited to powerline ROWs and the CBW Road. Hence, the proposed actions were determined to "Maintain" the baseline for pool character and quality.

Off-Channel Habitat - The professional judgment of BLM fisheries biologists indicate this watershed meets the criteria for "At Risk" with respect to off-channel habitat.

Proposed actions are limited to powerline ROWs and the CBW Road. Hence, the proposed actions were determined to "Maintain" the baseline for off-channel habitat.

Channel Condition and Dynamics

Width/Depth Ratio - The professional judgment of BLM fisheries biologists indicate this watershed to be "Not Properly Functioning" with respect to width/depth ratio.

Proposed actions are limited to powerline ROWs and the CBW Road. Therefore, the proposed actions were determined to "Maintain" the baseline for width-depth ratio.

Streambank Condition - The professional judgment of BLM fisheries biologists indicate this watershed meets the criteria for "At Risk" with respect to streambank condition.

Proposed actions have adequate ECP measures (Appendix H) to maintain streambank integrity during and after construction. Thus, the proposed actions were determined to "Maintain" the baseline for streambank condition.

Floodplain Connectivity - The professional judgment of BLM fisheries biologists indicate this watershed meets the criteria for "At Risk" with respect to floodplain connectivity.

Proposed actions are adjacent to 0.9-mile of floodplain in the watershed. Activities in this area are limited to the CBW Road, which sits on 5 feet of fill dirt. Hence, the proposed actions were determined to "Maintain" the baseline for floodplain connectivity.

Watershed Condition

Road Density/Location - The professional judgment of BLM fisheries biologists indicate this watershed to be "Not Properly Functioning" with respect to road densities and location.

Proposed actions are limited to powerline ROWs and the CBW Road. Thus, the proposed actions were determined to "Maintain" the baseline for road density and location/drainage network.

Disturbance History - The professional judgment of BLM fisheries biologists indicate this watershed meets the criteria for "Not Properly Functioning" with respect to disturbance history.

Proposed actions are limited to human-disturbed sites (utility corridors and roadways). Therefore, the proposed actions were determined to "Maintain" the baseline for disturbance history.

Landslide Rates - The professional judgment of BLM fish biologists indicate this watershed meets the criteria for "At Risk" with respect to landslide rates.

Appendix A of this EIS (Geotechnical Report) assesses potential landslide areas for pipeline construction. The report determined there would be no effect on landslide rates from construction within the CBW Road or the utility corridor. Hence, the proposed actions were determined to "Maintain" the baseline for landslide rates.

Riparian Reserves - The professional judgment of BLM fisheries biologists indicate this watershed meets the criteria for "Not Properly Functioning" with respect to riparian reserves.

The proposed actions will not impact any overstory riparian vegetation. Therefore, the proposed actions were determined to "Maintain" the baseline for Riparian Reserves.

Table E-4. Checklist for Documenting Environmental Baseline and Effects of Proposed Actions on Relevant Indicators.Name and location: **Coos Bay District - BLM**Basin: 5th field: **North Fork Coquille**

<u>Pathways</u> Indicators	Environmental Baseline ¹			Effects of the Actions ²		
	Properly Functioning ³	At Risk ³	Not Properly Functioning ³	Restore ⁴	Maintain ⁴	Degrade ⁴
<u>Water Quality</u> Temperature			DEQ		PJ	
Turbidity			PJ, WA	Long-term		Short-term
Chemical Concentration/ Nutrients			DEQ		PJ	
<u>Access</u> Physical Barriers			WA		PJ	
<u>Habitat Elements</u> Substrate/Sediment		PJ, WA		Long-term		Short-term
Large Wood			WA		PJ	
Pool Area (%)		PJ, WA			PJ	
Pool Quality			PJ		PJ	
Off-Channel Habitat		PJ, WA			PJ	
<u>Channel Condition & Dynamics</u> Width/Depth Ratio			PJ, WA		PJ	
Streambank Condition		PJ, WA			PJ	
Floodplain Connectivity			PJ, WA		PJ	
<u>Watershed Conditions</u> Road Density			PJ, WA		PJ	
Human Disturbance History		PJ, WA			PJ	
Landslide Rates			PJ, WA		PJ	
Riparian Reserves			PJ, WA		PJ	

1. Environmental Baseline conditions are derived from BLM stream survey data and synthesis of watershed analysis findings: **WA**-North Fork Coquille Watershed Analyses; **PJ**-Professional Judgment; **DEQ** – Oregon DEQ.

2. Effects of the Actions are derived from this document and description of proposed actions.

3. These three categories of function (“properly functioning”, “at risk”, or “not properly functioning”) are defined for each indicator in “Matrix of Pathways and Indicators” (Table E-1).

4. For the purposes of this checklist (Table E-4), “restore” means to change the function of an “at risk” indicator to “properly functioning”, “not properly functioning” to “at risk” and “properly functioning” moving towards recovery. “Short-term” effects, for the purposes of this checklist, are defined as: intermittent or inconsistently occurring effects (i.e., hauling more than 10 loads per day during heavy-rain events) that are brief in duration (i.e., days). “Long-term” effects, for the purposes of this checklist, are defined as consistently occurring effects (i.e., new permanent road construction) that are lengthy in duration (i.e., months/years).

Rationale Used in Completing the Checklist for Documenting Environmental Baseline and the Effects of Proposed Action(s) on Relevant Indicators With Respect to the North Fork Coquille Watershed

Note: Unless cited otherwise, the information source used for accessing the environmental baseline is contained in the North Fork Coquille Watershed Analysis in preparation by the Coos Bay District Umpqua Resource Area (07/20/2001). The watershed covers approximately 98,467 acres.

Description of Affected Environment:

Water Quality

Temperature - The N. Fork Coquille River is included in the Oregon DEQ 303(d) list of temperature-limited water bodies from its mouth to the confluence of Lost Creek. Water temperature monitoring data for the N. Fork Coquille (1986-1994) indicate 7-day average daily maximums of 69.9°F between the mouth to Middle Creek and Middle Creek to Little N. Fork; the standard (64°F) was exceeded for up to 96 days per year. The watershed was therefore determined to be "Not Properly Functioning" with respect to water temperature during the migrating/rearing period.

These proposed actions contain no riparian overstory tree removal and "Maintain" the temperature baseline.

Turbidity - No direct quantitative analysis of turbidity occurred in the WA. However, page 30 of chapter 8 documents that the headwaters of Woodward Creek are down cutting through a clay deposit which enters into suspension and imparts a milky turbidity to the creek. The watershed was therefore determined to be "Not Properly Functioning" with respect to water turbidity.

In this watershed, the proposed action would cross 5 intermittent and 11 perennial streams (see Appendix I of the EIS) when dry or during summer low flows. Of these 16 streams, 5 will be crossed over top on road fill and 4 would be directionally-drilled (Tables 20 and 21 of this EIS). Of the 7 streams to be trenched, 1 would be dry during the period of construction, and 6 would be trenched using the "bag and flume" method. Small amounts of increased transitory turbidity may occur during pipeline construction, prior to seeding and mulching of ground-disturbed areas. However, the BMPs, PDCs and ECP will minimize sedimentation potential to very low levels for a brief time (Appendix H). Sediment barriers and site revegetation are required throughout the construction project corridor to eliminate continuous turbidity impacts where delivery mechanisms to streams exist. Larger streams will be directionally-drilled to avoid all construction-induced turbidity at those crossings. Beneficial project actions include new cross-drains in the CBW Road and paving 1.0 mile of gravel road.

The proposed actions were determined to "Degrade" the turbidity baseline in the short-term (3 weeks) and "Restore" the turbidity baseline in the long-term (4+ weeks).

Chemical Contaminants - The Oregon DEQ identified the Coquille River as potentially water limited as early as 1973 and confirmed it as a "Waterbody of Concern" in the 1988 Water Quality Report. Furthermore, Table WQ-11 lists the N. Fork Coquille River from the Mouth to Middle Creek exceeding fecal coliform FWS standard values, thus meeting the criteria for "Not Properly Functioning."

The proposed actions do not utilize chemicals in the construction process other than products for running the machinery. This project was determined to "Maintain" the chemical contaminant baseline (barring accidental release of petroleum products).

Habitat Access

Physical Barriers - Page 5 in chapter 8 of the WA states, "...many culverts in the subwatershed partially or entirely block fish and amphibian passage." Additionally, page 19 of chapter 8 discusses anadromous fish having been eliminated from some former suitable habitat by blockages created by impassable culverts in this watershed, thus meeting the criteria for "Not Properly Functioning" with respect to physical barriers.

The proposed actions contain no new permanent in-stream structures. Hence, the proposed actions were determined to "Maintain" the baseline for physical barriers.

Habitat Elements

Substrate/Sediment - Page 17 in chapter 7 of the WA states that sediment from road failure was considered the greatest water quality problem, and erosion of soils exposed by severe slash burning on steep slopes was often the principle cause of surface erosion.

The watershed was therefore determined to be "At Risk" with respect to water substrate and sediment.

In this watershed, the proposed action would cross 5 intermittent and 11 perennial streams (see Appendix I of the EIS) when dry or during summer low flows. Of these 16 streams, 5 will be crossed over top on road fill and 4 would be directionally-drilled (Tables 20 and 21 of this EIS). Of the 7 streams to be trenched, 1 would be dry during the period of construction, and 6 would be trenched using the "bag and flume" method. Small amounts of increased transitory turbidity may occur during pipeline construction, prior to seeding and mulching of ground-disturbed areas. However, the BMPs, PDCs and ECP will minimize sedimentation potential to very low levels for a brief time (Appendix H). Sediment barriers and site revegetation are required throughout the construction project corridor to eliminate continuous turbidity impacts where delivery mechanisms to streams exist. Larger streams will be directionally-drilled to avoid all construction-induced turbidity at those crossings. Beneficial project actions include new cross-drains in the CBW Road and paving 1.0 mile of gravel road.

The proposed actions were determined to "Degrade" the substrate/sediment baseline in the short-term (3 weeks) and "Restore" the substrate/sediment baseline in the long-term (4+ weeks).

Large Wood Debris (LWD) - During the early 1900s, stream "improvements" including eliminating vegetation along the river banks, blasting channel boulders and removing large woody debris and snags from the river channel occurred on the main stem of the N. Fork Coquille. Much of this "improvement and maintenance" was in association with splash damming. Page 15 in chapter 8 of the WA reveals that stream cleaning was required on BLM timber sales conducted from 1965 through 1991. Furthermore, stated on page 28 in chapter 8 of the WA, "While stream cleaning and salvaging from streams and riparian areas has been stopped, the legacy of the cleaning process remains. It will be many years before the in-stream habitat improvement options of the State water protection rules will be applied to sections of the North Fork Coquille River, if they ever will be." As a result, the watershed was determined to be "Not Properly Functioning" with respect to LWD.

No tree removal occurs within this watershed. Proposed actions are limited to powerline utility corridors and the CBW Road. Hence, the proposed actions were determined to "Maintain" the baseline for LWD.

Pool Area (%) - Page 5 in chapter 8 of the WA reports only 2 pools with a maximum depth of >3 feet were documented along 2 miles of stream inventoried. The percent pool area was rated fair for the 4th order reaches, and poor in 0.2-mile of 3rd-order channels. The watershed was therefore determined to be "At Risk" with respect to pool area.

Proposed actions are limited to powerline ROWs and the CBW Road. Hence, the proposed actions were determined to "Maintain" the baseline for pool area.

Pool Quality - The professional judgment of a BLM fisheries biologist indicates this watershed to be "Not Properly Functioning" with respect to percent pool area/quality.

Proposed actions are limited to powerline ROWs and the CBW Road. Hence, the proposed actions were determined to "Maintain" the baseline for pool character and quality.

Off-channel Habitat - Due to its proximity to roads and a history of stream cleaning and splash dams, many segments of the N. Fork Coquille River are severely downcut and isolated from the natural floodplain. As a result, few, if any, backwaters pools, alcoves or other off-channel areas exist.

Many of the tributaries are constrained by hillslopes and are not likely to contain off-channel areas. However, because of the condition of the N. Fork Coquille River, the watershed is determined to be "At Risk" with respect to this criteria.

Proposed actions are limited to powerline ROWs and the CBW Road. Hence, the proposed actions were determined to "Maintain" the baseline for off-channel habitat.

Channel Conditions and Dynamics

Width-Depth Ratio - Current information on riffle width and depth is lacking for the main stem of the N. Fork Coquille River but has been summarized for the 1997 Middle Main Coquille-North Coquille Mouth-Catching Creek Watershed Analysis. It is revealed on page 6 of chapter 9 of the WA that many channels have become wider with a corresponding reduction in stream depth. Thus, this watershed was determined to be "Not Properly Functioning" due to the degraded aquatic habitat caused by past logging and past and current agricultural practices.

Proposed actions are limited to powerline ROWs and the CBW Road. Therefore, the proposed actions were determined to "Maintain" the baseline for width-depth ratio.

Streambank Condition - Page 5 of chapter 8 discusses some of the primary reasons for the degraded conditions, including stream-bank damage from livestock, down-cutting of streams due to the removal of stream-side vegetation and in-stream structure, as well as the confinement of stream channels. The watershed was therefore determined to be "At Risk" with respect to streambank condition.

Proposed actions have adequate measures (Appendix H) to maintain streambank integrity during and after construction. Thus, the proposed actions were determined to "Maintain" the baseline for streambank condition.

Floodplain Connectivity - Page 6 of chapter 5 states, "Large areas of floodplain have been cleared and drained for development. The loss of vegetation maintained stream bank stability resulted in increased stream bank erosion. The loss of wood recruitment to the channel, along with loss of stream bank vegetation, reduced channel roughness. This in turn resulted in higher stream velocities that contribute to increased stream bank erosion, downcutting and the loss and/or simplification of habitat, especially aquatic habitat that is critical during high flows. The watershed is therefore determined to be "Not Properly Functioning" with respect to floodplain connectivity.

In the floodplain area of this watershed, the proposed action is limited to the CBW Road, which sits on 5 feet of fill dirt. Hence, the proposed actions were determined to "Maintain" the baseline for floodplain connectivity.

Watershed Condition

Road Density - Table Intro-4, page 5 in chapter 1 of the WA, gives an estimate of total roads in the WA as 751.3 miles. Table Intro-1, page 3 in chapter 1, lists total area in the WA as 98,476 acres, which translates to 639 square miles. These numbers can be expressed as 1.2 miles of road per square mile within the WA. Although this is a relatively low road density, the location of roads and effects to drainage network are discussed on page 5 in chapter 8 of the WA, where it is stated, "Roads paralleling streams and crossing tributaries restrict interactions between the aquatic and riparian areas" and further stated, "Road construction along streams has resulted in the establishment of alders next to the stream channels, thus reducing the future recruitment of large, durable conifers." Thus, this watershed was determined to be "Not Properly Functioning" with respect to road density & location/drainage network.

Proposed actions are limited to existing powerline ROWs and the CBW Road. Thus, the proposed actions were determined to "Maintain" the baseline for road density.

Disturbance History - Page 5 in chapter 8 of the WA discusses the combined impacts of agricultural practices, past timber practices and the associated land management activities. Some of the disturbance effects included harvesting of large conifers next to streams, the removal of LWD through stream cleaning and salvage practices, poorly constructed culverts and poorly located and/or constructed roads. The watershed was therefore determined to be "At Risk" with respect to disturbance history.

Proposed actions are limited to human-disturbed sites (utility corridors and roadways). Therefore, the proposed actions were determined to "Maintain" the baseline for disturbance history.

Landslide Rates - Page 11 in the WA Erosion Process Appendix discusses landslides and debris avalanches and states "In the Late 1950s through the mid-1970s, human-related soil/slope failures dominated as road construction and clearcutting reached the middle and upper parts of the subwatershed. In this period, there were 106 human-related landslides, 64 of which were directly related to road construction." As a result, the watershed was determined to be "Not Properly Functioning" for landslide rates.

Appendix A of this EIS (Geotechnical Report) assessed potential landslide areas for pipeline construction. The report determined there would be no effect from construction on landslide rates within the CBW Road or utility corridor. Hence, the proposed actions were determined to "Maintain" the baseline for landslide rates.

Riparian Reserves - Chapter 5 of the WA discusses the current condition and pattern of vegetation within the watershed. Stated on page 3 in chapter 5, "Current vegetation patterns are a result of past management actions, harvest practices and associated road building, land ownership, fires, human settlements, agriculture and farming. Early or mid-seral stands occupy most of the private forest land in the watershed. Approximately 9,358 acres are agricultural and rural residential lands." The watershed is therefore determined to be "Not Properly Functioning" with respect to riparian reserves.

The proposed actions in this watershed will not impact any overstory riparian vegetation. Therefore, the proposed actions were determined to "Maintain" the baseline for Riparian Reserves.

Table E-5. Checklist for Documenting Environmental Baseline and Effects of Proposed Actions on Relevant Indicators.Name and location: **Roseburg District South River Resource Area - BLM**Basin: 5th field: **Lower South Umpqua**

<u>Pathways</u> Indicators	Environmental Baseline ¹			Effects of the Actions ²		
	Properly Functioning ³	At Risk ³	Not Properly Functioning ³	Restore ⁴	Maintain ⁴	Degrade ⁴
<u>Water Quality</u> Temperature			WA		PJ	
Sediment and Turbidity			WA, PJ		Long-term	Short-term
<u>Access</u> Physical Barriers		WA, PJ			PJ	
<u>Habitat Elements</u> Large Wood		WA			PJ	
Substrate		WA			Long-term	Short-term
Pool Characteristics		WA			PJ	
Off-Channel Habitat		WA, PJ			PJ	
<u>Channel Conditions and Dynamics</u> Width/Depth Ratio		WA, PJ			PJ	
Streambank Condition		WA, PJ			PJ	
Floodplain Connectivity		WA			PJ	
<u>Flow/Hydrology</u> Change in Peak/Base Flows			WA, PJ		PJ	
Drainage Network			WA		PJ	
<u>Watershed Conditions</u> Road Density and Location			WA		PJ	
Disturbance History			WA		PJ	
Riparian Reserves			WA		PJ	
Landslide Rates		WA			PJ	
Refugia		PJ			PJ	

1. Environmental Baseline conditions are derived from BLM stream survey data and synthesis of watershed analysis findings: **WA**- Lower South Umpqua Watershed Analyses; **PJ**- Professional Judgment.

2. Effects of the Actions are derived from this document and description of proposed actions.

3. These three categories of function ("properly functioning", "at risk", or "not properly functioning") are defined for each indicator in the "Matrix of Pathways and Indicators" (Table E-1).

4. For the purposes of this checklist (Table E-5), "restore" means to change the function of an "at risk" indicator to "properly functioning", "not properly functioning" to "at risk" and "properly functioning" moving towards recovery. "Short-term" effects, for the purposes of this checklist, are defined as: intermittent or inconsistently occurring effects (i.e., hauling more than 10 loads per day during heavy-rain events) that are brief in duration (i.e., days). "Long-term" effects, for the purposes of this checklist, are defined as consistently occurring effects (i.e., new permanent road construction) that are lengthy in duration (i.e., months/years).

Rationale Used in Completing the Checklist for Documenting Environmental Baseline and the Effects of Proposed Action(s) on Relevant Indicators With Respect to the Lower South Umpqua Watershed

Note: Unless cited otherwise, the information source used for accessing the environmental baseline is contained in the Lower South Umpqua Watershed Analysis prepared by the Roseburg District South River Resource Area (05/30/2000). The WA covers approximately 110,419 acres.

Description of Affected Environment:

Water Quality

Maximum Temperature - Table C-2, found in appendix C of the WA, rates the watershed as "Poor" (temperatures = 70° F), thereby meeting the criteria for "Not Properly Functioning."

These proposed actions contain no riparian overstory tree removal and were determined to "Maintain" the temperature baseline.

Sediment/Turbidity - No direct quantitative analysis of turbidity occurred in the WA. However, a definition is given on page 82: "Turbidity is a function of suspended sediments and algal growth in a stream." Also stated in this section, "Roads have the potential to affect the sediment regime. Erosional effects can occur when culverts become plugged or cannot handle peak flows, diverting streams out of their original channel, flowing down the road and entering another stream channel." Page 84 of the WA states "Many roads within the WAU have not been maintained on a regular schedule. The lack of routine road maintenance may lead to increased sedimentation from the road surfaces, landslides from road failures and an increased risk of culvert problems." Page 83 discusses the increased sedimentation to the WAU caused by human-related activities (e.g., agriculture, urbanization and road construction).

Assessments, inferred from these data, suggest that sediment/turbidity in this watershed is of higher frequency and duration relative to unimpacted streams in the basin. This meets the criteria for "Not Properly Functioning" with respect to sediment and turbidity.

In this watershed, the proposed action would cross 8 intermittent streams (Table 13 of the EIS) when dry. Small amounts of increased transitory turbidity may occur during precipitation events after pipeline construction and prior to seeding and mulching of ground-disturbed areas. However, the ECP elements will minimize sedimentation potential to very low levels for a brief time (Appendix H). Sediment barriers and site revegetation are required throughout the construction project corridor to eliminate continuous turbidity impacts where delivery mechanisms to streams exist.

The proposed actions were determined to "Degrade" the turbidity baseline in the short-term (3 weeks) and "Maintain" the turbidity baseline in the long-term (4+ weeks).

Habitat Access

Physical Barriers - Fish migration barriers are considered a data gap for the Lower South Umpqua WA and were not specifically quantified. However, high road densities (WA page 77, Table 25) and numerous stream crossings (WA page 73), 57 percent of which are within 100 feet of a stream, indicate this watershed to be "At Risk" with respect to physical barriers.

The proposed actions contain no new permanent in-stream structures. Hence, the proposed actions were determined to "Maintain" the baseline for physical barriers.

Habitat Elements

Large Woody Debris (LWD) - Page 93 of the WA states, "Recent ODFW Aquatic Habitat Inventory data indicates well-distributed or frequently occurring LWD is lacking in the survey stream reaches." Large woody debris frequency (Table C-3) in this watershed averages 35 pieces/mile, thus meeting the criteria for "At Risk."

No tree removal occurs within this watershed. Proposed actions are limited to powerline utility corridors. Hence, the proposed actions were determined to "Maintain" the baseline for LWD.

Substrate - Table C-2 (in Appendix C of the WA) lists the dominant substrate as gravel with a subdominant substrate of cobble and embeddedness is rated as "Fair" (26-49 percent), meeting the criteria for "At Risk" with respect to substrate.

In this watershed, the proposed action would cross 8 intermittent streams (Table 13 of the EIS) when dry. Small amounts of increased transitory turbidity may occur during precipitation events after pipeline construction and prior to seeding and mulching of ground-disturbed areas. However, the ECP elements will minimize sedimentation potential to very low levels for a brief time (Appendix H). Sediment barriers and site revegetation are required throughout the construction project corridor to eliminate continuous turbidity impacts where delivery mechanisms to streams exist.

The proposed actions were determined to "Degrade" the substrate baseline in the short-term (3 weeks) and "Maintain" the substrate baseline in the long-term (4+ weeks).

Pool Characteristics - Table C-2 in Appendix C of the WA rates percent pool area as "Fair" (16-29 percent) meeting the criteria for "At Risk" (less than 30 percent pool habitat).

In this watershed, the proposed actions are limited to the powerline ROWs. Hence, the proposed actions were determined to "Maintain" the baseline for pool characteristics.

Off-Channel Habitat - No data quantified this indicator in the WA. However, page 84 of the WA describes the watershed as having less complex stream channels, degraded substrate and poor fish habitat in some areas of the watershed. This is attributed to the removal of LWD from the stream channels (a key component for creating off-channel habitat), cutting trees along many streams (off-channel shading) and road construction (primary constituent for channelization) in and adjacent to riparian areas. Based on this impacts list of factors in the WA, it was determined to be "At Risk" with respect to off-channel habitat.

In this watershed, the proposed actions are limited to the powerline ROWs. Hence, the proposed actions were determined to "Maintain" the baseline for off-channel habitat.

Channel Condition and Dynamics

Width/Depth Ratio - Although current width to depth ratios given in table C-2 of the WA are rated as "Good", page 85 discusses the significant changes in historical stream width occurring within the South Umpqua River Basin stating, "Thirteen of the 14 stream reaches located in areas where timber harvesting occurred were significantly wider than in 1937." Also, lack of LWD within the basin projects poor recruitment for continuation of a high width/depth ratio rating, creating conditions where the present rating of "Good" in table C-2 may not be sustained. Thus, with respect to width/depth ratio, this watershed meets the criteria for "At Risk."

In this watershed, the proposed actions are limited to the powerline ROWs. Therefore, the proposed actions were determined to "Maintain" the baseline for width-depth ratio.

Streambank Condition - There is no direct mention of this indicator in the WA. However, inferences from the WA can be made. Page 70 states, "Many low gradient stream channels in the watershed have been eroded down to bedrock, probably due to increased peak flows as a result of timber harvesting, road construction, channel downcutting due to over grazing on streambanks, and the lack of LWD due to stream cleaning practices." This indicates consistent levels of human disturbance both historically and ongoing, leaving some of the streams within the watershed with unstable banks. Thus, based on inferences from the data, streambank condition meets the criteria for "At Risk."

Proposed action has adequate measures (Appendix H) to maintain streambank integrity during and after construction. Thus, the proposed actions were determined to "Maintain" the baseline for streambank condition.

Floodplain Connectivity - No direct mention of this indicator occurred in the WA. However, page 83 of the WA discusses the negative impacts to streams and stream flow due to removing water for irrigation and riparian vegetation. Some areas of wetlands and floodplains within the watershed are blocked by human development (such as roads and agricultural development) during summer low flows, which reduce linkages and degrade the wetland/riparian vegetation ecological functions. Also, there is a high density of roads and stream crossings throughout the basin. Inferences from these factors indicate floodplain connectivity to be "At Risk."

There are no activities in the 100-year floodplain within this watershed. Hence, the proposed actions were determined to "Maintain" the baseline for floodplain connectivity.

Flow/Hydrology

Change in Peak/Base Flow - Page 79 of the WA discusses drainages in the watershed with high road densities, high stream crossing densities, previously harvested and/or in the transient snow zone areas as being susceptible to increased peak flows. Additionally, it is stated on page 79, "The majority of roads within the watershed were constructed with ditches and/or insloped road surfaces designed to carry water off of the road surface. Once the water is in the ditch, much of it may reach the stream faster than in an unroaded area. In fact, some ditchlines effectively function as stream channels extending the actual length of flowing streams during rain storms. Increased drainage density due to road construction may increase peak flows and mean annual floods." Based on these observations, it was determined to be "Not Properly Functioning" with respect to peak/base flow.

The proposed actions contain no new road construction or timber harvest within the basin, therefore, it was determined to "Maintain" the change in peak/base flow.

Drainage Network - High road densities (WA, Table 23) and the resulting increase in drainage density (discussed on page 79 of the WA) indicate this watershed meets the criteria for "Not Properly Functioning" with respect to drainage network.

In this watershed, the proposed actions are limited to the powerline ROWs. Therefore, the proposed actions will "Maintain" the baseline with respect to drainage network.

Watershed Condition

Road Density/Location - Road densities in the Lower South Umpqua WAU average 5.66 miles/mi² (Table 23, WA) meeting the criteria for "Not Properly Functioning."

In this watershed, the proposed actions are limited to the powerline ROWs. Thus, the proposed actions were determined to "Maintain" the baseline for road density and location/drainage network.

Disturbance History - Pages 10-13 of the WA list past and current human land uses in the Lower South Umpqua River watershed as agriculture/grazing, timber harvesting, collection of special forest products and recreation (including ATV and motorcycle use). Additionally, the WA states, "The city of Roseburg is located in the WAU and provides food, gas, and other essentials for tourists, commercial travelers and local residents. Roseburg is the center of commerce for the local area." High levels of human activity in conjunction with the high road densities in this watershed meet the criteria for "Not Properly Functioning" with respect to disturbance history.

In this watershed, the proposed actions are limited to the powerline ROWs (human-disturbed sites). Therefore, the proposed actions were determined to "Maintain" the baseline for disturbance history.

Riparian Reserves - Table 9 in the WA lists the current riparian reserve age class distribution for this watershed, demonstrating approximately 34 percent (less than the 60 percent criteria) of the forested areas are in late seral successional stages. This meets the criteria for "Not Properly Functioning" with respect to riparian reserves.

The proposed actions will not impact any overstory riparian vegetation. Therefore, the proposed actions were determined to "Maintain" the baseline for Riparian Reserves.

Landslide Rates - Page 84 of the WA discusses the increased risk of landslides and road failures due to timber harvesting and improper maintenance of existing roads. Therefore, with respect to landslide rates, this watershed meets the criteria for "At Risk."

Appendix A of this EIS (Geotechnical Report) assesses potential landslide areas for pipeline construction. The report determined there would be no effect from construction within the utility corridor. Hence, the proposed actions were determined to "Maintain" the baseline for landslide rates.

Refugia - Channelization from high road densities, lack of LWD recruitment and poor off-channel habitat conditions throughout the basin and sub-basin are direct indicators of available refugia within the watershed. From these assessments, it was inferred to meet the criteria for "At Risk."

In this watershed, the proposed actions are limited to the powerline ROWs. Thus, the proposed actions were determined to "Maintain" the baseline for refugia.

Table E-6. Checklist for Documenting Environmental Baseline and Effects of Proposed Actions on Relevant Indicators.

Name and location: Coos Bay District - BLM

Basin: 5th field: **Middle Main Coquille**

<u>Pathways</u> Indicators	Environmental Baseline ¹			Effects of the Actions ²		
	Properly Functioning ³	At Risk ³	Not Properly Functioning ³	Restore ⁴	Maintain ⁴	Degrade ⁴
<u>Water Quality</u> Temperature			WA, PJ		PJ	
Turbidity		WA, PJ		Long-term		Short-term
Chemical Contamination/ Nutrients		WA			PJ	
<u>Access</u> Physical Barriers			WA		PJ	
<u>Habitat Elements</u> Substrate/Sediment			WA, PJ	Long-term		Short-term
Large Wood			WA, PJ		PJ	
Pool Area%		WA			PJ	
Pool Quality		WA, PJ			PJ	
Off-Channel Habitat		WA			PJ	
<u>Channel Conditions and Dynamics</u> Width/Depth Ratio		WA, PJ			PJ	
Streambank Condition		WA			PJ	
Floodplain Connectivity			WA		PJ	
<u>Watershed Conditions</u> Road Density and Location			WA		PJ	
Disturbance History			WA, PJ		PJ	
Riparian Reserves			WA, PJ		PJ	
Landslide Rates			WA		PJ	

1. Environmental Baseline conditions are derived from BLM stream survey data and synthesis of watershed analysis findings: **WA**- Middle Main Coquille North Coquille Mouth Catching Creek Watershed Analyses; **PJ**- Professional Judgment.

2. Effects of the Actions are derived from this document and description of proposed actions.

3. These three categories of function ("properly functioning", "at risk", or "not properly functioning") are defined for each indicator in the "Matrix of Pathways and Indicators" (Table E-1).

4. For the purposes of this checklist (Table E-6), "restore" means to change the function of an "at risk" indicator to "properly functioning", "not properly functioning" to "at risk" and "properly functioning" moving towards recovery. "Short-term" effects, for the purposes of this checklist, are defined as: intermittent or inconsistently occurring effects (i.e., hauling more than 10 loads per day during heavy-rain events) that are brief in duration (i.e., days). "Long-term" effects, for the purposes of this checklist, are defined as consistently occurring effects (i.e., new permanent road construction) that are lengthy in duration (i.e., months/years).

Rationale Used in Completing the Checklist for Documenting Environmental Baseline and the Effects of Proposed Action(s) on Relevant Indicators With Respect to the Middle Main Coquille Watershed

Note: Unless cited otherwise, the information source used for accessing the environmental baseline is contained in the Middle Main Coquille Watershed Analysis prepared by the Umpqua Resource Area, Coos Bay District Bureau of Land Management (09/30/1997). The WA includes 3 subwatersheds: North Coquille Mouth, Middle Main Coquille and Catching Creek. North Coquille Mouth Subwatershed I is part of the North Fork Coquille 5th field watershed. Middle Main Coquille and Catching Creek Subwatersheds together make up the Middle Main Coquille 5th field watershed. The watershed covers approximately 55,728 acres.

Description of Affected Environment:

Water Quality

Temperature - The Little North Fork Coquille and Catching Creek are listed on Oregon's 303 (d) list as water quality limited due to temperature and the South, North and Middle Forks, as well as the main stem of the Coquille River, are also warmer than optimum (WA, page 19). John's Creek, however, is considered to be properly functioning (WA, table FISH-3). There is little other mention of water temperature in the watershed analysis and no mention of 7-day maximum averages. Riparian vegetation on BLM land is said to be in good condition (WA, page 25) and riparian vegetation is said to be partially responsible for the lack of change from historic conditions of type A and B channels (WA, page 18). It appears that upper reaches of the watershed are receiving adequate shading. Lower portions of the watershed that have been converted to farmland and grazing do not have intact riparian corridors (WA, page 18), therefore, any heating of the water due to lack of shading would likely be occurring in the lower portions of the watershed. Based on these data and observations, it was determined to be "Not Properly Functioning" with respect to temperature.

These proposed actions contain no riparian overstory tree removal and were determined to "Maintain" the temperature baseline.

Turbidity - Roughly 12 percent of the watershed is located on soils that generally yield silt and clay sediments (WA, pg. 5), which tend to remain suspended longer (WA, pg. 10). Whereas larger particles, such as sand and gravel, tend to settle out of the water column sooner. Because of this assessment, it was determined to be "At Risk" with regards to turbidity.

In this watershed, the proposed action would cross over top 17 intermittent and small perennial streams (Table 22 of the EIS) on road fill when streams are dry or during summer low flows. Small amounts of increased transitory turbidity may occur during pipeline construction, prior to repaving of the CBW Road. However, the ECP measures will minimize sedimentation potential to very low levels for a brief time (Appendix H). Sediment barriers are required throughout the construction project corridor, eliminating continuous turbidity impacts where delivery mechanisms to streams exist. In this watershed, no vegetation removal will occur as construction is limited to the CBW Road. Beneficial project actions include new cross-drains in the CBW Road and paving 1.9 miles of gravel road.

The proposed actions were determined to "Degrade" the turbidity baseline in the short-term (3 weeks) and "Restore" the turbidity baseline in the long-term (4+ weeks).

Chemical Contamination/Nutrients - In the 1986 Water Quality Report the Oregon DEQ listed the Coquille River as a "Waterbody of Concern." In 1991, it specifically identified wastewater treatment plants in Myrtle Point and Coquille for producing nutrient and coliform bacteria and toxic substances as areas of concern for the Coquille River. However, no record of fish kills or other biological evidence of serious or chronic contamination exist. Therefore, with respect to chemical contamination/nutrients, it was determined to be "At Risk."

The proposed actions do not utilize chemicals in the construction process other than products for running the machinery. This project was determined to "Maintain" the chemical contaminant baseline (barring accidental release of petroleum products).

Habitat Access

Physical Barriers - On pages 21 to 26 of the WA, culverts acting as artificial barriers to salmonid passage are discussed. This meets the criteria to be classified as "Not Properly Functioning" with respect to physical barriers.

The proposed actions contain no new permanent in-stream structures. Hence, the proposed actions were determined to "Maintain" the baseline for physical barriers.

Habitat Elements

Substrate/Sediment - The only analysis area for which substrate was sampled (as percent gravel in the riffles) is John's Creek, which was rated as "Good" with regard to gravel and "Fair" with regard to silt/sand/organics (WA, Table FISH-1). Pages 18 & 19 of the WA state, "However, the substrate composition...[sic] has changed in response to man's activities..." and, "Many larger channels have scoured to bedrock or migrated laterally, and have difficulty retaining substrate. The systems that could retain substrate may have difficulty recruiting it because streamside and mid-slope roads function as terraces that trap material that would otherwise proceed downhill to the channel." Based on these references, it was inferred to be "Not Properly Functioning" with respect to substrate/sediment.

The proposed actions contain no new road construction. Sediment barriers will be placed along the entire pipeline corridor in areas where delivery mechanisms to streams exist, as well as all stream crossings. In this watershed, the pipeline would cross over top on road fill 6 intermittent and 11 small perennial streams, when dry or during summer low flows (Table 22 of the EIS). Small amounts of transitory sediment may enter the streams after construction during the first precipitation prior to repaving. Sediment barriers are required throughout the construction project corridor to eliminate sedimentation impacts. In this watershed, no vegetation removal will occur as construction is limited to the CBW Road. Beneficial project actions include paving 1.9 miles of gravel road.

The proposed actions were determined to "Degrade" the substrate/sediment baseline in the short-term (3 weeks) and "Restore" the substrate/sediment baseline in the long-term (4+ weeks).

Large Woody Debris (LWD) - The only place where the WA specifically addresses large woody debris in terms of pieces/mile is table FISH-1 which only covers John's Creek. The table lists the number as 20 pieces/mile and classifies it as "Fair." Table FISH- 3, however, gives large woody debris as "Unknown" for John's Creek and "Not Properly Functioning" for Wimer Creek.

Pages 18 and 20 of the WA indicate that much large woody debris has been removed from the channels, and page 20 also indicates that future recruitment of large woody debris will be limited (at least in the near-term) by historical management actions in the basin. Based on this information, the watershed was determined to be "Not Properly Functioning" in relation to LWD.

No vegetation removal would occur in this watershed from the pipeline project, as the proposed actions are limited to the CBW Road. Hence, the proposed actions were determined to "Maintain" the baseline for LWD.

Pool Area (%) - Pool area is listed as 17 percent (average) for John's Creek in table FISH-1 of the WA and is considered "Not Properly Functioning" in table FISH-3. The other indication of pool area for the watershed is the statement, "...beaver populations are probably much lower currently than historically, and that beaver dams have decreased proportionately" (WA, pages 24 & 25). Pool area would be expected to be less in upper reaches of a watershed (such as John's Creek) where the slopes are steeper than lower down in the watershed. Based on these observations and current trends, it was given a rating of "At Risk" with respect to pool area.

In this watershed, proposed actions are limited to the CBW Road. Hence, the proposed actions were determined to "Maintain" the baseline for pool area.

Pool Quality - Table FISH-3 in the WA rates pool quality as "Not Properly Functioning" for John's Creek and Wimer Creek; while, table FISH-1 rates it as "Good" for John's Creek. It is assumed that as stream order increases, pool depth will increase as well. Based on these inferences and the decrease in beaver activity in the watershed, which can be a prime source of deep, high quality pools (WA, pages 24 & 25), the watershed appears to be "At Risk" with regard to pool quality.

Proposed actions are limited to the CBW Road in this watershed. Hence, the proposed actions were determined to "Maintain" the baseline for pool quality.

Channel Condition and Dynamics

Off-Channel Habitat - Off-channel habitat is considered to be "At Risk" in both John's Creek and Wimer Creek (see table FISH-3). Throughout the rest of the WA, the only mention is on page 18 where it states, "The floodplains have been cleared and drained for development resulting in the loss or simplification of habitat; especially, aquatic habitat that is critical during high flows." Based on these references, it was determined that the watershed is "At Risk" with respect to off-channel habitat.

Proposed actions are limited to the CBW Road in this watershed. Hence, the proposed actions were determined to "Maintain" the baseline for off-channel habitat.

Width/Depth Ratio - Page 23 of the WA states concerning John's Creek, "The width/depth ratio of riffles was fair for all stream reaches." Increased erosion and sedimentation resulting from logging, road building and agricultural activities (WA, page 5), have altered the substrate composition of the watershed (WA, page 18). Increased sedimentation also directly acts to increase width/depth ratios. The watershed, therefore, was rated "At Risk" regarding width/depth ratios.

Proposed actions are limited to the CBW Road in this watershed. Hence, the proposed actions were determined to "Maintain" the baseline for width/depth ratios.

Streambank Condition - Page 17 of the WA states, "Most of the assessment area has a dendritic drainage pattern and is steep, water-cut, deeply dissected, and forested." This portion would be classified under the Rosgen Stream Types as A and B type channels which are relatively stable. Page 18 indicates that C type channels in the watershed have decreased bank stability due to human manipulations. Because of anticipated ongoing human impacts, it was determined to be "At Risk" with respect to streambank condition.

Proposed actions are limited to the CBW Road in this watershed. Thus, the proposed actions were determined to "Maintain" the baseline for streambank condition.

Floodplain Connectivity - Floodplain connectivity is discussed on page 18 of the WA; it states, "Removal of vegetation, ditching and draining, and construction of flood control structures has... [sic]...significantly altered the channels and their interaction with the floodplain." Also, "The floodplains have been cleared and drained for development." Table FISH-3 assesses John's Creek and Wimer Creek as both being "At Risk" regarding floodplain connectivity. However, most of the floodplain occurs lower down in the drainage system, where heavy disconnecting of floodplains from road construction exists. Therefore, with respect to floodplain connectivity, the watershed was determined to be "Not Properly Functioning."

There are no activities in the 100-year floodplain within this watershed. Hence, the proposed actions were determined to "Maintain" the baseline for floodplain connectivity.

Watershed Conditions

Road Density & Location/Drainage Network - While there is insufficient data to estimate road densities in non-BLM land in the watershed (WA, page 2), it is listed for John's Creek and Wimer Creek both as being "Not Properly Functioning" (table FISH-3). Page 49 of the WA gives the road density on BLM administered lands as 3.92 miles per square mile (table EROD-3 gives the road density for BLM administered lands as 3.82 miles per square mile), and page 23 indicates that some roads were constructed along streams. Map EROD-6 shows many intersections of roads and streams. Combined, these indicate that the watershed is "Not Properly Functioning" with regard to road density and location/drainage network.

Proposed actions are limited to the CBW Road in this watershed. Thus, the proposed actions were determined to "Maintain" the baseline for road density location network.

Disturbance History - Page 23 of the WA says, "The combined impacts of agricultural practices, past timber harvest practices, and the associated land management activities have degraded stream habitat conditions in the Area (watershed)." Table Veg-3 (WA, page 14) indicates that although a high percentage of BLM-managed land is currently in mid-to late-seral stages; it is a small percentage of the entire land base. WA pages 40 & 41 highlight historic splash damming in the watershed causing bank erosion and stream scouring. These references illustrate that the watershed is "Not Properly Functioning" with respect to disturbance history.

Proposed actions are limited to human-disturbed sites (CBW Road). Therefore, the proposed actions were determined to "Maintain" the baseline for disturbance history.

Landslide Rates - Page 6 of the WA indicates that of the 182 known slides in the watershed, 63 percent were associated with recent timber-yarding; while, 16 percent were associated with roads. These data meet the criteria for "Not Properly Functioning" with regard to landslide rates.

Appendix A (Geotechnical Report) of this EIS assesses potential landslide areas and pipeline construction. The report determined there would be no effect on landslide rates from construction within the CBW Road. Hence, the proposed actions were determined to "Maintain" the baseline for landslide rates.

Riparian Reserves - Page 25 of the WA states that riparian buffers on BLM-managed lands are intact and that future recruitment of large wood "appears to be good." For the watershed as a whole, however, page 18 indicates that C type channels have had considerable disturbance of stream-side vegetation, and page 23 indicates that considerable areas on private land do not have the potential to provide large wood to the streams. Because of the riparian management on private land in the basin, the watershed was determined to be "Not Properly Functioning" with respect to Riparian Reserves.

The proposed actions will not impact any overstory riparian vegetation. Therefore, the proposed actions were determined to "Maintain" the baseline for Riparian Reserves.

Table E-7. Checklist for Documenting Environmental Baseline and Effects of Proposed Actions on Relevant Indicators.Name and location: **Coos Bay District - BLM**Basin: 5th field: **Olalla-Lookingglass**

<u>Pathways</u> Indicators	Environmental Baseline ¹			Effects of the Actions ²		
	Properly Functioning ³	At Risk ³	Not Properly Functioning ³	Restore ⁴	Maintain ⁴	Degrade ⁴
<u>Water Quality</u> Temperature			WA		PJ	
Turbidity		WA, PJ			Long-term	Short-term
Chemical Contaminants and Nutrients		DEQ			PJ	
<u>Access</u> Physical Barriers		WA, PJ			PJ	
<u>Habitat Elements</u> Substrate/Sediment		WA			Long-term	Short-term
Large Woody Debris	WA				PJ	
Pool Area and Pool Quality		WA			PJ	
Off-Channel Habitat			WA, PJ		PJ	
<u>Channel Conditions and Dynamics</u> Width/Depth Ratio			WA		PJ	
Streambank Condition			WA, PJ		PJ	
Floodplain Connectivity		WA, PJ			PJ	
<u>Watershed Conditions</u> Road Density and Location			WA		PJ	
Disturbance History			WA, PJ		PJ	
Landslide Rates		WA, PJ			PJ	
Riparian Reserves			WA		PJ	

1. Environmental Baseline conditions are derived from BLM stream survey data and synthesis of watershed analysis findings: **WA**- Olalla-Lookingglass Creek Watershed Analyses; **PJ**- Professional Judgment; **DEQ** - Oregon DEQ.

2. Effects of the Actions are derived from this document and description of proposed actions.

3. These three categories of function (“properly functioning”, “at risk”, or “not properly functioning”) are defined for each indicator in the “Matrix of Pathways and Indicators” (Table E-7).

4. For the purposes of this checklist (Table E-7), “restore” means to change the function of an “at risk” indicator to “properly functioning”, “not properly functioning” to “at risk” and “properly functioning” moving towards recovery. “Short-term” effects, for the purposes of this checklist, are defined as: intermittent or inconsistently occurring effects (i.e., hauling more than 10 loads per day during heavy-rain events) that are brief in duration (i.e., days). “Long-term” effects, for the purposes of this checklist, are defined as consistently occurring effects (i.e., new permanent road construction) that are lengthy in duration (i.e., months/years).

Rationale Used in Completing the Checklist for Documenting Environmental Baseline and the Effects of Proposed Action(s) on Relevant Indicators With Respect to the Olalla-Lookingglass Watershed

Note: Unless documented otherwise, the information source used for accessing the environmental baseline is contained in the Olalla-Lookingglass Watershed Analysis prepared by the Roseburg District South River Resource Area (04/02/1998). The watershed covers approximately 103,109 acres.

Description of Affected Environment:

Water Quality

Temperature - Pages 72 and 73 from Olalla-Lookingglass Watershed Analysis (WA) indicate that the 7-day maximum water temperature of Olalla Creek exceeds 68° F, thus meeting the criteria for "Not Properly Functioning" with respect to temperature.

These proposed actions contain no riparian overstory tree removal and were determined to "Maintain" the temperature baseline.

Turbidity - Pages 71 and 75 of the WA report that problems with turbidity were identified by DEQ on Thompson Creek within the Olalla-Lookingglass WAU. A weighted average of "Fair" was derived from ODFW habitat surveys (table C-6 in WA) of percent area covered in silt/sand in the watershed. From this data, it was inferred to be "At Risk" with respect to turbidity.

The proposed action would cross 48 intermittent and small perennial streams (Appendix I) in this watershed when dry or during summer low flows. Of these 48 stream crossings, 30 would be trenched dry during summer construction and 8 would be over top on road fill (Tables 14 and 15 of this EIS). Ten small (less than 0.1 cfs) perennial streams would be trenched using the "bag and flume" method during low flows (Tables 14 and 15 of this EIS). Small amounts of increased transitory turbidity may occur during pipeline construction prior to seeding and mulching of ground-disturbed areas. However, the BMPs, PDCs and ECP minimize sedimentation potential to very low levels for a brief time (Appendix H). Sediment barriers and site revegetation are required throughout the construction project corridor, to eliminate continuous turbidity impacts where delivery mechanisms to streams exist. Beneficial project actions include new cross-drains in the CBW Road.

The proposed actions were determined to "Degrade" the turbidity baseline in the short-term (3 weeks) and "Maintain" the turbidity baseline in the long-term (4+ weeks).

Contaminants and Nutrients - Pages 72 and 75 state that one pH measurement collected in 1996 was 8.0, which was within the standards set by DEQ of 6.5-8.5. No assessments, measurements or duration criteria of management-related inputs data were collected or analyzed. Table C-6 rated organics as fair for the watershed. However, due to continued impacts from human development (residences, agriculture, logging, etc.), there is potential for future increases in contaminants. Because of this potential increase, it was determined to be "At Risk" with respect to contaminants and nutrients.

The proposed actions do not utilize chemicals in the construction process other than products for running the machinery. This project was determined to "Maintain" the chemical contaminant baseline (barring accidental release of petroleum products).

Habitat Access

Physical Barriers - Pages 63 - 68 and Appendix C of the WA discuss the high road densities (greater than 3 miles of road per square mile of area) and their impacts within the Olalla-Lookingglass watershed. There are roughly 2 stream crossings per stream mile within the watershed. Some culverts in the watershed likely inhibit fish passage during high or low flows. Based on these data, it was determined to be "At Risk" with respect to physical barriers.

The proposed actions contain no new permanent in-stream structures. Hence, the proposed actions were determined to "Maintain" the baseline for physical barriers.

Habitat Elements

Substrate/Sediment - Pages 63 - 68 and Appendix C of the WA discuss the impacts of high road densities (>3 mi/mi² area) and their ability to increase sedimentation. Although road-related surface erosion was not quantified for this WA, pages 71 & 75 indicate that problems with sedimentation were specifically identified by DEQ within the Olalla-Lookingglass watershed. Table C-6 gives embeddedness as 26 - 49 percent with cobble as the dominant substrate. This indicates that the watershed is "At Risk" with respect to substrate/sediment.

The proposed action would cross 48 intermittent and small perennial streams (Appendix I) in this watershed when dry or during summer low flows. Of these 48 stream crossings, 30 would be trenched dry during summer construction and 8 would be over top on road fill (Tables 14 and 15 of this EIS). Ten small (less than 0.1 cfs) perennial streams would be trenched using the "bag and flume" method during low flows (Tables 14 and 15 of this EIS). Small amounts of increased transitory turbidity may occur during pipeline construction prior to seeding and mulching of ground-disturbed areas. However, the BMPs, PDCs and ECP minimize sedimentation potential to very low levels for a brief time (Appendix H). Sediment barriers and site revegetation are required throughout the construction project corridor, to eliminate continuous turbidity impacts where delivery mechanisms to streams exist. Beneficial project actions include new cross-drains in the CBW Road.

The proposed actions were determined to "Degrade" the substrate/sediment baseline in the short-term (3 weeks) and "Maintain" the substrate/sediment baseline in the long-term (4+ weeks).

Large Woody Debris (LWD) - Pages 68 and 69 state that LWD is lacking in many stream channels within the watershed because of previous stream cleaning practices. However, aquatic inventory data in Appendix C of the WA reports an average of 220.2 pieces of LWD per mile of stream, which is well above the criteria of greater than 80 pieces required for a "Properly Functioning" classification.

No tree removal occurs within this watershed from the proposed action. Proposed actions are limited to powerline utility corridors and the CBW Road. Hence, the proposed actions were determined to "Maintain" the baseline for LWD.

Pool Area and Pool Quality - Table C-6 gives a weighted average of "Fair" (16 - 29 percent) for the watershed as a whole with respect to pool area. According to the WA, this corresponds with the NMFS designation of "At Risk."

Proposed actions are limited to powerline ROWs and the CBW Road. Hence, the proposed actions were determined to "Maintain" the baseline for pool quality.

Off-Channel Habitat - No quantification of this indicator occurred in the WA. However, due to its high density of roads and a history of stream cleaning, severe downcutting has occurred, thus isolating the natural floodplain. From this, it was inferred to be "Not Properly Functioning" with respect to off-channel habitat.

Proposed actions are limited to powerline ROWs and the CBW Road. Hence, the proposed actions were determined to "Maintain" the baseline for off-channel habitat.

Channel Condition & Dynamics

Width/Depth Ratio - Page 69 and table C-6 in Appendix C from the WA indicate that the width/depth ratio exceeds 12, thus meeting the criteria for "Not Properly Functioning."

Proposed actions are limited to powerline ROWs and the CBW Road. Hence, the proposed actions were determined to "Maintain" the baseline for width/depth ratio.

Streambank Condition - Page 68 from the WA discusses field surveys which found that stream channels are downcutting and causing accelerated bank erosion. It was inferred from these observations that streambank condition could meet the criteria for "Not Properly Functioning."

Proposed actions have adequate measures (Appendix H) to maintain streambank integrity during and after construction. Thus, the proposed actions were determined to "Maintain" the baseline for streambank condition.

Floodplain Connectivity - This indicator was indirectly assessed as overall hydrologic flows through out the watershed (WA, pages 59-68). Page 58 states that, "...increased drainage densities, due to road construction, may increase peak flows and mean annual floods." Based on these comments in the context of high road densities prevalent within the watershed, it was determined to be "At Risk" with respect to floodplain connectivity.

There are no activities in the 100-year floodplain within this watershed. Hence, the proposed actions were determined to "Maintain" the baseline for floodplain connectivity.

Watershed Condition

Road Density and Location/Drainage Network - Appendix C, page 63, as well as pages 66-68 from the WA, indicate that the road density/drainage network exceeds 3 road miles per square mile with an average of 4.49 miles of road per square mile. Also, many of the wider valley bottoms contain roads and many of the larger tributaries within the watershed have roads along much of their length. The watershed was determined to be "Not Properly Functioning" with respect to road density and location/drainage network.

Proposed project actions are limited to powerline ROWs and the CBW Road. Thus, the proposed actions were determined to "Maintain" the baseline for road density location network.

Disturbance History - Pages 15-29 of the WA discuss the disturbance history of the watershed. Vegetation data from 1936, when compared with vegetation data from 1997, reveals a shift in the watershed to a higher proportion of early seral vegetation. Therefore, stem exclusion conditions are over-represented within the landscape, fragmenting the forest matrix with early seral patches (age 0-30). Also, the proportion of the landscape classified as nonforested has grown significantly, because of urban and agricultural land uses, each of which display a high intensity disturbance regime. Historically, natural disturbances such as slides, fire, storm events, etc., played a significant role in defining the landscape of the watershed (WA pages 15-29). However, landscape changes from 1936-1997 were primarily attributed to human-induced influences. Based on this information, it was determined to be "Not Properly Functioning" with respect to disturbance history.

Proposed project actions are limited to human-disturbed sites (utility corridors and roadways). Therefore, the proposed actions were determined to "Maintain" the baseline for disturbance history.

Landslide Rates - Page 53 of the WA indicates that landslide rates can be increased by human activity, such as road building. There was no quantified measure of landslide rates in the WA. However, since human impacts (such as road densities) throughout the Olalla-Lookingglass Watershed are high, it seems likely that landslide rates are above historical levels. Based on these inferences, the watershed was determined to be "At Risk" with respect to landslide rates.

Appendix A of this EIS (Geotechnical Report) assessed potential landslide areas for pipeline construction. The report determined there would be no effect on landslide rates from construction within the CBW Road or the utility corridor. Hence, the proposed actions were determined to "Maintain" the baseline for landslide rates.

Riparian Reserves - Riparian reserves within the Olalla-Lookingglass basin are highly impacted and fragmented from human activities as a result of the "checkerboard" federal ownership pattern that exists within the watershed. Table C-2 shows that the Lookingglass Creek subwatershed is less than 70 percent intact. This meets the criteria for "Not Properly Functioning" with respect to Riparian Reserves.

The proposed project actions will not impact any overstory riparian vegetation. Therefore, the proposed actions were determined to "Maintain" the baseline for Riparian Reserves.

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