

Upper Cowlitz River Basin Reach Characterization Project – Identifying River Reaches Suitable for Protection

A Component of the Upper Cowlitz
Basin Salmon Recovery Program



Document Information

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Table of Contents

1	Background	1-1
2	Introduction	2-1
3	Approach	3-1
4	Characterization of Upper Cowlitz Subbasin.....	4-1
4.1	Summary of Sources	4-1
4.1.1	Reports.....	4-1
4.1.2	GIS Data	4-1
4.2	Key Factors Limiting Salmon Productivity in the Project Area	4-2
5	Methods	5-1
5.1	Development of Prioritization Criteria.....	5-1
5.2	Prioritization Process.....	5-2
6	Reach Selection.....	6-1
7	Next Steps.....	7-1
8	References.....	8-1

Appendices

Appendix A	River Reaches to Consider for Protection
Appendix B	Parcel Ownership
Appendix C	River Reaches not Selected for Protection
Appendix D	Sample Restoration Reach

Tables

Table 1	Criteria for Reach Identification.....	6-2
Table 2	River Reaches Containing High Value Salmon Habitat that are Suitable for Protection	6-4

Figures

Figure 1	The Project Area in the Upper Cowlitz, Tilton and Cispus River Watersheds	3-2
Figure 2	Hierarchical perspectives on the factors that determine channel conditions. Top: a hierarchy of nested spatial scales (Frissell et al. 1986). Bottom: a hierarchy of nested influences, which align closely with the spatial scales (i.e., province, watershed, valley and channel) in which they operate (modified from Buffington et al. 2003).	3-3
Figure 3	Steelhead Critical Habitat for the Upper Cowlitz Subbasin (70FR52630 2005)	4-3
Figure 4	Chinook Salmon Critical Habitat for the Upper Cowlitz Subbasin (70FR52630 2005)	4-4
Figure 5	River Reaches Containing High Value Salmon Habitat that are Suitable for Protection	6-5

Acronyms

CMZ	Channel Migration Zone
DEM	digital elevation model
DPS	Distinct Population Segment
EDT	Ecosystem Diagnosis and Treatment Method
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FR	Federal Register
FTC	Fisheries Technical Committee
GAP	GAP Analysis Program
GIS	Geographic Information Systems
LCFRB	Lower Columbia Fish Recovery Board
LiDAR	Light detection and ranging
LWD	large woody debris
NHD	National Hydrography Database
NMFS	National Marine Fisheries Service
NWI	National Wetland Inventory
Project Area	Upper Cowlitz, Tilton and Cispus Rivers
SSHAP	Salmon and Steelhead Habitat Inventory and Assessment Program
USGS	United States Geological Survey

1 Background

Successful reintroduction of native salmonids to their historic range within the Upper Cowlitz basin and the development of self-sustaining populations require a sequential, two-pronged approach that focuses on both *protection* and *restoration*. The first step is identification of ecologically functional river reaches in the Upper Cowlitz basin that contain existing high-quality, species-suitable anadromous salmonid habitat appropriate for *protection*; the second step should be a science- and process-based identification of areas where *restoration* opportunities and actions would likely improve current physical and ecological processes. This report addresses only that first step, and its scope was limited to non-federal lands within the basin.

As part of the ongoing efforts to restore native salmon populations to the Cowlitz, Tilton and Cispus Rivers in Cowlitz County, Tacoma Power, in concert with the Cowlitz Fisheries Technical Committee (FTC), approved Cardno ENTRIX's scope of work and diagnostic approach which are reflected in the April and July 2013 draft reports. The scope was restricted to an analysis of river reaches on non-federal lands that exhibit little disturbance from human activities and that displayed the physical, fluvial, and riparian processes that are generally well-understood to support functional ecological conditions necessary to sustain native salmon populations. The objective was to provide an independent analysis that would identify reaches or sub-reaches that could be considered for *protection*. Tacoma Power requested that federal lands be excluded from this analysis because it was assumed that legacy effects from land management in these areas are minimal and that current federal management priorities already emphasize protection and restoration actions, making further intervention by Tacoma Power unnecessary. Nonetheless, the role of federal lands in supporting geomorphic processes downstream (i.e., inputs of wood, water and sediment) were recognized throughout this analysis.

In the course of conducting this analysis, Cardno ENTRIX examined all available information that characterizes historic and existing physical processes and aquatic and riparian habitats in the Upper Cowlitz basin to identify those areas suitable for continuing to support native salmonids, especially spring Chinook, coho and winter steelhead. This examination did not reveal any preexisting information at a suitable reach scale that credibly characterized geomorphic conditions or the spatial distribution and nature of habitats suitable to support native salmon reintroduction. An Ecosystem Diagnostic and Treatment (EDT) analysis completed in 1999 (Mobrاند Biometrics, Inc.) did offer some coarser grained characterization of conditions, but it is unclear if these were based on actual field data or simply expert opinion, as we were unable to find data to support the EDT conclusions. The Lower Columbia Salmon and Steelhead Recovery Plan (2013) includes updated, reach-specific recommendations, based on the Mobrاند Biometrics, Inc. (1999) data that added reaches specific to meeting conditions that support coho life history habitat requirement. Therefore the Recovery Plans characterization of conditions in the Upper Cowlitz River is largely derived from the earlier EDT analysis and doesn't resolve the current lack of empirical data on which to base advancing restoration projects.

Despite more than a decade of consideration, the simple fact is that no documentation exists for a systematic and comprehensive geomorphic and habitat assessment of the Upper Cowlitz River basin. Under Tacoma Power's FERC licensing agreement, they, in collaboration with the FTC, are orchestrating an orderly and thorough examination of the Upper Cowlitz River basin to identify both areas suitable for *protection* and areas suitable for *restoration* actions. This report is limited to recommended locations for *protection* to support Tacoma Power's consideration of options essential for defining a comprehensive and integrated recovery plan consistent with the FERC licensing requirements. It is important to note, however, that the river reaches identified in this analysis range from 100's to 1000's of meters in length; this scale is a byproduct by the remote sensing tools used for this project. Such a scale was imposed by the project's budgetary constraints, which precluded examination of river reaches at a more refined site scale, but a subsequent evaluation at greater detail of high-priority sites will likely be needed prior to implementation of a recovery program.

2 Introduction

Cardno ENTRIX, in conjunction with Tacoma Power, has performed an independent evaluation of existing river and riparian habitat conditions on non-federal lands in the watersheds of the Upper Cowlitz, Tilton and Cispus Rivers in Lewis County, Washington (Project Area, Figure 1). The scope of this effort was limited to identification of ecologically functional river reaches that contain high quality, species-suitable anadromous salmonid habitat appropriate for protection through acquisition (*used here in its broadest, possible meaning to include fee simple purchase, conservation easement, development rights, conservation reserve enhancement rights, etc.*). Emphasis was placed on discriminating those reaches displaying evidence of intact riverine (i.e., geomorphic) processes, as these areas are considered most appropriate for protection. Other areas that could be amenable to improvement, through appropriate restoration efforts, are only identified by default. Protection-suitable reaches so identified are described and organized herein for protection to help inform management efforts of Tacoma Power and its partners in salmon recovery efforts. Information about the respective parcels (ownership, dimensions, etc.) that make up each recommended reach is provided to facilitate further consideration of the relative merits of each reach in the decision-making process.

For purposes of this study, the “Upper Cowlitz” study area includes all accessible river reaches and tributaries above Mayfield Dam (RM 52.0). Identification of suitable river reaches on non-federal parcels was accomplished using a systematic approach to evaluate attributes and key physical processes associated with specific geographic localities, and their presumed influence on functional riverine characteristics necessary to support critical salmon habitat. The Upper Cowlitz Subbasin has been so designated due to reintroduction operations that move listed species into habitats above Mayfield Dam. Endangered Species Act (ESA) listed salmon species of interest in the Project Area are winter steelhead (*Oncorhynchus mykiss*), coho (*O. kisutch*) and spring Chinook (*O. tshawytscha*), although other salmonid species included in the broader recovery efforts would most certainly benefit from protection of these habitats and subsequent restoration efforts as deemed necessary.

3 Approach

The conceptual framework for identifying and prioritizing “the best remaining habitats” in a channel network is well-developed for Pacific Northwest Rivers and streams. Over a decade of prior scientific work has resulted in a robust understanding of the watershed and channel conditions that correlate most directly with the various life-stage requirements of ESA-listed salmonids. This framework provides the foundation for our site-selection criteria.

Two interrelated concepts are particularly important for this effort. The first, the spatially hierarchical relationship of streams within their watersheds, was first clearly articulated by Frissell et al. (1986). They characterized the geographically nested suite of channel, watershed, and valley attributes that determine channel conditions (Figure 2, top), arguing that a single focus on just one scale (i.e., the channel) without recognition of the context and influence imposed by larger scales allows only an incomplete understanding of the fundamental processes that shape the aquatic and riparian habitat conditions that native salmon (and other life forms) have adapted to over the millennia.

This theme was amplified by Buffington et al. (2003), who displayed an equivalent hierarchy in terms of the influences of those larger spatial scales on the smaller ones. Thus, the geomorphic provinces of Frissell et al. (1986) are the domain of “process drivers” (Figure 2, bottom), of which many exist independent of human activity (topography, geology, climate), and others are only locally amenable to human influence (e.g., fire and land use). These process drivers influence conditions of a given watershed, which in turn find local expression in specific channel characteristics and channel types. The relevance of this perspective to the Tacoma Power project is that parcel protection is, by its nature, geographically limited—and so protection needs to be strategic in order to maximize the potential of multiple, linked parcels to influence the critical process determinants of channel and instream habitat conditions. It is also a reminder that a successful, long-term protection program for the Project Area will likely be needed to address broad-scale watershed conditions, complementing the current effort to protect more localized valley- and channel-scale features.

The second key concept of our framework is that of “process-based restoration,” articulated most explicitly by Beechie et al. (2008, 2010). They have applied the hierarchical understanding of streams in their watershed context to stream restoration, advocating that the restoration of watershed-scale processes should, in general, supersede the restoration of strictly reach-scale conditions. Beechie et al. (2008) grouped these watershed-scale processes and functions under the categories of hydrology, sediment, riparian, channel, floodplain connectivity, and water quality. Subsequently, Beechie et al. (2010) recommended “...reestablish[ing] normative rates and magnitudes of physical, chemical, and biological processes that sustain river and floodplain ecosystems,” and they further emphasized that “restoration actions should address the root causes of degradation...” (p. 209). This perspective emphasizes the importance of protecting or restoring *processes* rather than simply attempting to build or rebuild particular attributes or features of a channel. Generic examples of restoration actions that embrace this approach include disconnection of the road network from the channel network to address excess in-stream fine sediment loads, riparian plantings to resolve high temperatures and low wood loadings, removal of bank armoring to encourage greater habitat complexity through channel migration, and reduced input of pesticides from surrounding land uses to achieve cleaner water.

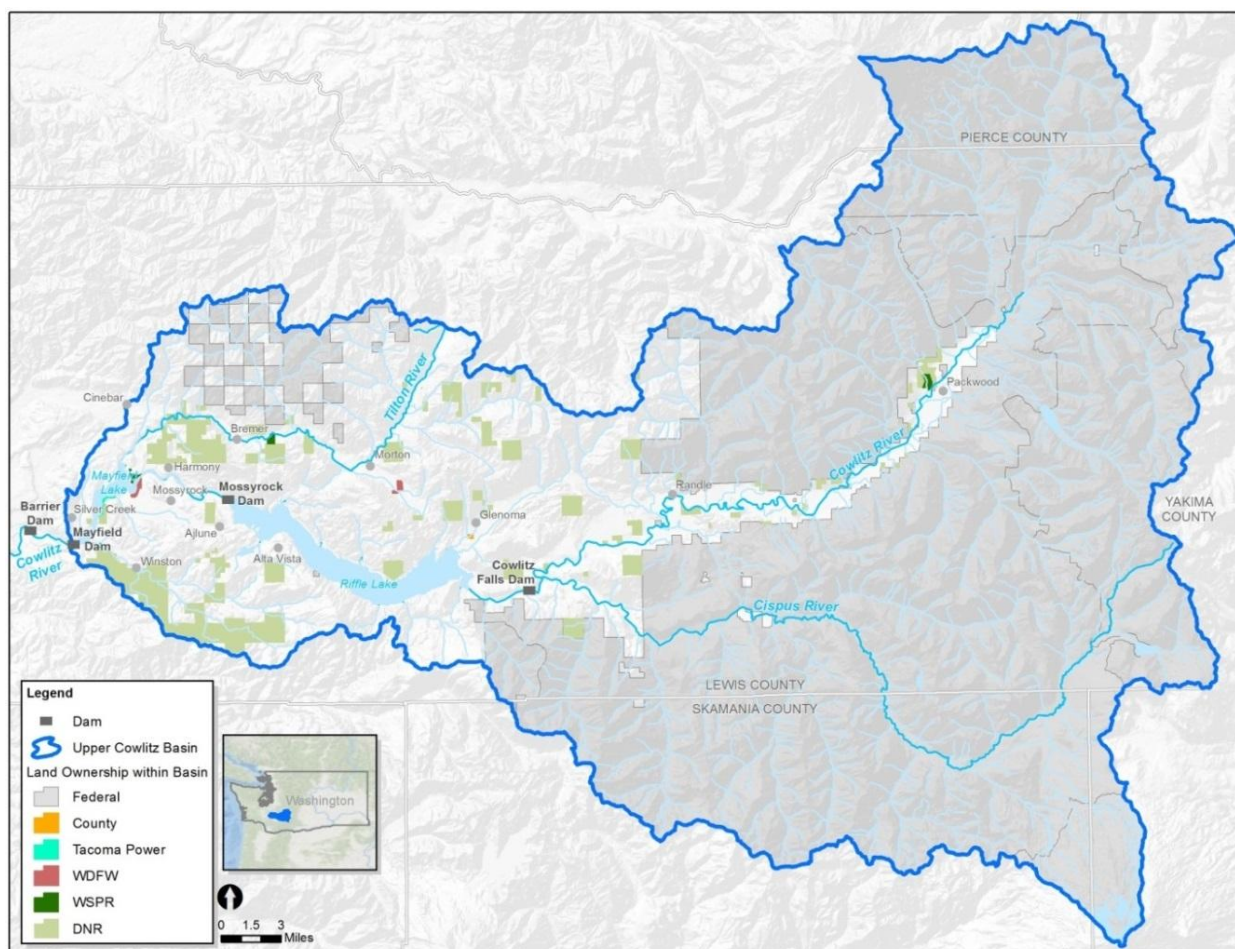


Figure 1 The Project Area in the Upper Cowlitz, Tilton and Cispus River Watersheds

Even though the Tacoma Power project is focused solely on identification of high-quality habitat in reaches (and their component parcels) suitable for protection, these concepts provide a basis to consider the full complement of river/riparian conditions within the watershed. River reaches that would be suitable for protection would likely demonstrate a relative absence of hard constraints imposed by human activities that have limited the suitability of habitat elsewhere in the basin. What is key here is to identify those reaches where near-natural rates and patterns of river and riparian processes are well-expressed and are largely unaffected by human activities, and then evaluate those areas in terms of what they offer for sustaining restored populations of listed salmonids as they are reintroduced into the Project Area. The suitability of these areas to provide habitat for salmon is inferred from prior reports and analyses as described in Section 3.1).

Historically, more attention has been paid to river and stream *restoration* than to protection, and so much of the published scientific literature needs to be translated into relevant terms to help guide the development of a thoughtful and sustainable salmon recovery program for the upper Cowlitz Basin. Tacoma Power desires that the overall salmon recovery program be guided by the principles of process-based restoration, which would include identify (1) watershed areas with a disproportionate influence on the key watershed processes that sustain rivers and streams (i.e., the delivery of water and sediment), (2) valley segments that express dynamic habitat-forming processes (e.g., channel migration zones) and sustain channel–floodplain interactions, and (3) reaches with particularly high potential for biological use, in both the channel and the riparian zone.

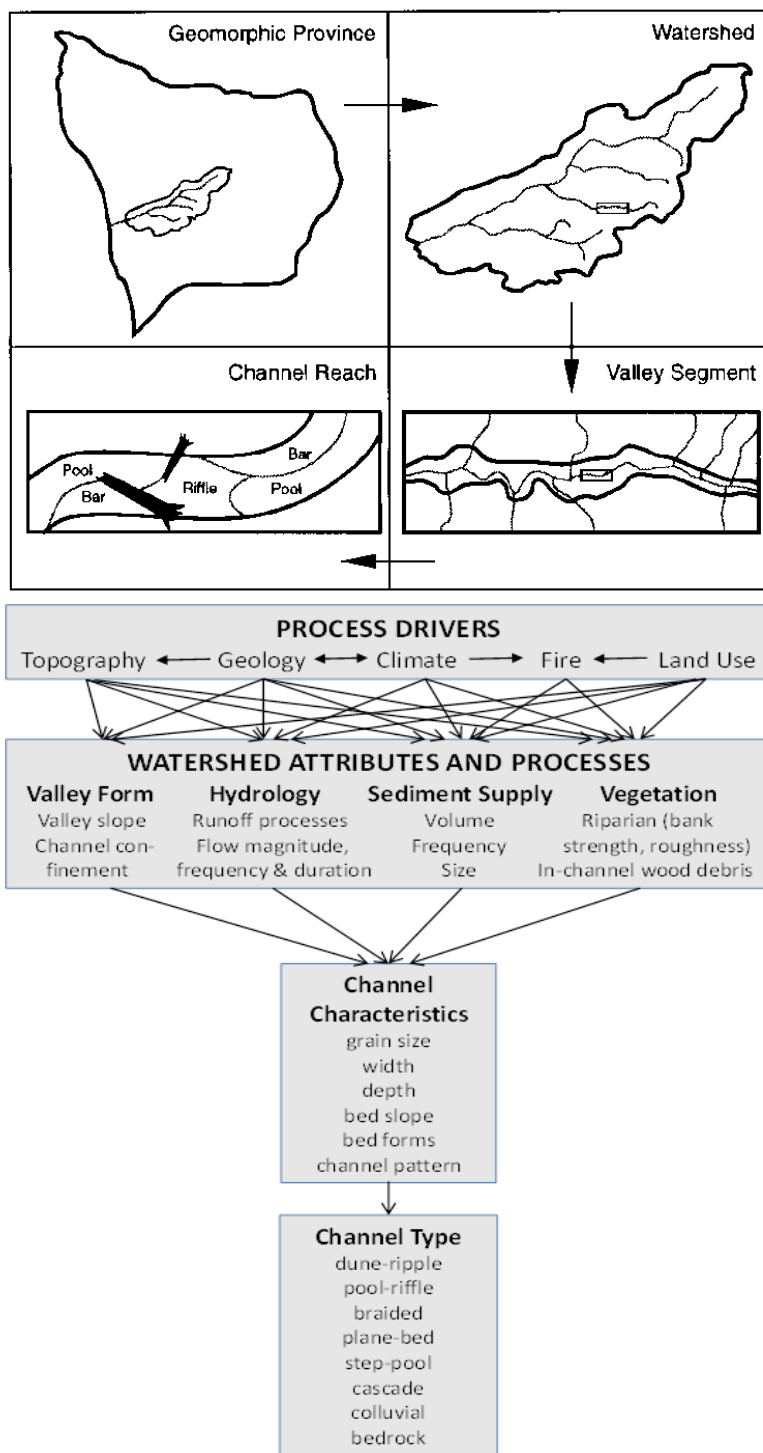


Figure 2 Hierarchical perspectives on the factors that determine channel conditions. Top: a hierarchy of nested spatial scales (Frissell et al. 1986). Bottom: a hierarchy of nested influences, which align closely with the spatial scales (i.e., province, watershed, valley and channel) in which they operate (modified from Buffington et al. 2003).

4 Characterization of Upper Cowlitz Subbasin

4.1 Summary of Sources

Cardno ENTRIX performed an extensive review of existing data and reports that describe environmental conditions and highlight key factors limiting salmonid productivity in Project Area. Reports and GIS data reviewed as part of this process are identified below.

4.1.1 Reports

- > Application of the Ecosystem Diagnosis and Treatment Method (EDT) to Analyze Fish Resources in the Cowlitz Watershed in Support of FERC Relicensing Process (Mobrand Biometrics, Inc. 1999)
- > Salmon and Steelhead Habitat Limiting Factors, Water Resource Inventory Area 26 (Wade 2000)
- > Draft Cowlitz River Subbasin Summary (Dammers et al. 2002)
- > Lower Cispus Watershed Analysis (Herrera Environmental 2003)
- > Lower Columbia Salmon and Steelhead Recovery and Subbasin Plan for the Upper Cowlitz (2013)
- > Lower Columbia Salmon Recovery and Fish & Wildlife Subbasin Plan for the Upper Cowlitz (2004)
- > Lower Columbia Fish Recovery Board 2010 Habitat Strategy
- > Cowlitz Hydroelectric Project FERC No. 2016 Fish Habitat Fund Allocation Plan for the Lower Cowlitz (2004)
- > Revised Shoreline Master Program Lewis County, Washington (1998)
- > Lewis County Comprehensive Plan (2002)
- > Lewis County Channel Migration Zone Study (2012)

4.1.2 GIS Data

- > Light Detection and Ranging (LiDAR) Topographic Data
- > U.S. Geographical Survey Topographic Data
- > U.S. Department of Agriculture Soil Survey
- > National Wetland Inventory (NWI)
- > Federal Emergency Management Agency (FEMA) Flood Zones
- > Washington Department of Natural Resources
 - Stream Data
 - Landslides
 - Slope Stability
 - Land Ownership
 - 2010 Land Use
- > Washington Department of Ecology
 - Water Quality Monitoring Stations
 - Baseflow Stations
 - Urban Growth Areas
 - 303d Listed Stream Reaches (for temperature criteria exceedances)

- > Gap Analysis Program (GAP) Land Cover and National Land Cover Database 2006
- > StreamNet Fish Species
- > Lewis County Assessor Parcel Maps
- > Lewis County Stream Types – Identifies Stream Class

4.2 Key Factors Limiting Salmon Productivity in the Project Area

The Lower Columbia River winter steelhead distinct population segment (DPS) was listed as threatened under the ESA on March 29, 1998 (63 FR 13347) and revised on January 5, 2006 (61 FR 4722) to apply DPS boundaries. The Lower Columbia River spring-run Chinook salmon evolutionary significant unit (ESU) was listed as threatened on March 24, 1999 (64 FR 14308), this listing was reaffirmed on June 28, 2005 (70 FR 37160). The Lower Columbia River coho was listed as threatened under the ESA on June 28, 2005 (70 FR 37160). On September 2, 2005 National Marine Fisheries Service (NMFS) designated critical habitat for steelhead (Figure 3) and Chinook (Figure 4) in the Project Area (70 FR 52630). Delineation of critical habitat for coho is currently under development and has not yet been formally designated by NMFS (76 FR 1392). Critical habitat designations focus on identifying areas that possess certain biological and physical constituents that support one or more salmon life history stages.

Limiting factors are those biological, physical, or chemical conditions and associated ecological processes and interactions that limit a species' viability (NMFS 2013). Limiting factors identified for winter steelhead, coho and spring Chinook in the Project Area, and thoroughly described in the cited references, include hydropower and the loss of tributary habitats associated with various land uses (NMFS 2013 and LCFRB 2010). The implications of these factors to our species of interest are discussed below.

The Upper Cowlitz subbasin is blocked to natural upstream passage and downstream migration of anadromous fish by a series of dams on the Cowlitz River (Figure 1) rendering over 300 miles of previously productive habitat inaccessible or inundated by the reservoirs. Reduced access to core headwater production areas in the Upper Cowlitz subbasin has reduced the spatial structure of anadromous fish in the Project Area. Lake Scanewa, which was created as a result of construction of the Cowlitz Falls Dam, inundated once-productive reaches of the Upper Cowlitz, increasing predation and reducing key habitat for spawning, incubation, and fry colonization (Wade 2000).

Anadromous fish in the Project Area are confronted with natural barriers on many tributaries within a few miles of their confluences with the Upper Cowlitz River (Wade 2000), restricting access to low-gradient habitat within the Project Area. Channel alterations, combined with increased sediment inputs, have created low-flow passage problems and reduced habitat quality within these important reaches. In addition, large woody debris (LWD) is generally lacking, resulting in limited pool habitat, cover, and habitat diversity in the mainstem and lower reaches of most tributaries (Wade 2000). Low levels of LWD in tributary stream of the Project Area are due to debris flows, riparian clearing, active removal, loss of recruitment, natural decay, and attrition (LCFRB 2010). Potential for LWD recruitment into the system is low (Wade 2000).

Assessing limiting factors of salmonid production in the Project Area is limited by a lack of specific and current habitat data at a variety of essential spatial scales, including watershed-level processes, stock distribution and condition, stream surveys, water quality data, and the success of reintroduction efforts (Wade 2000).

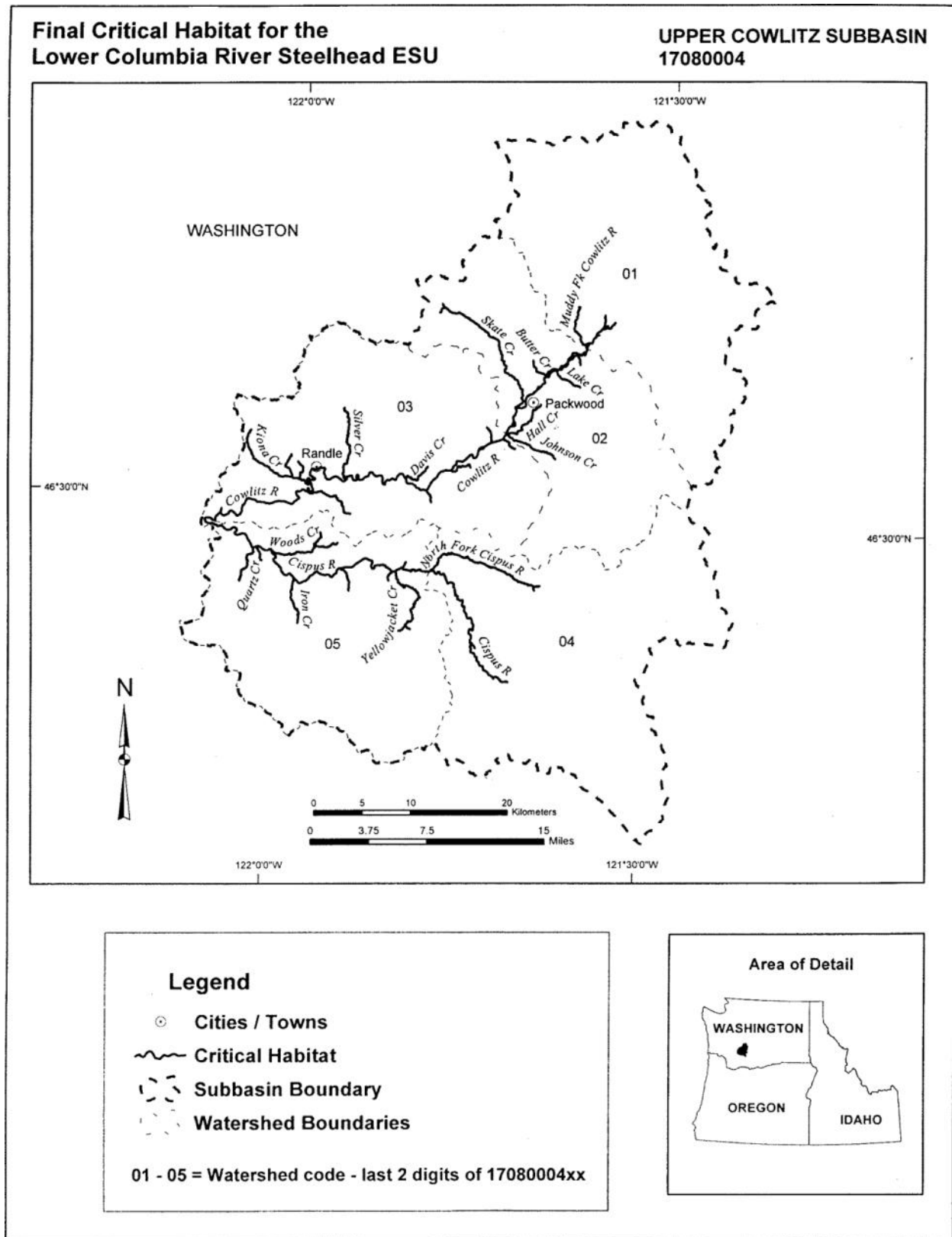


Figure 3 Steelhead Critical Habitat for the Upper Cowlitz Subbasin (70FR52630 2005)

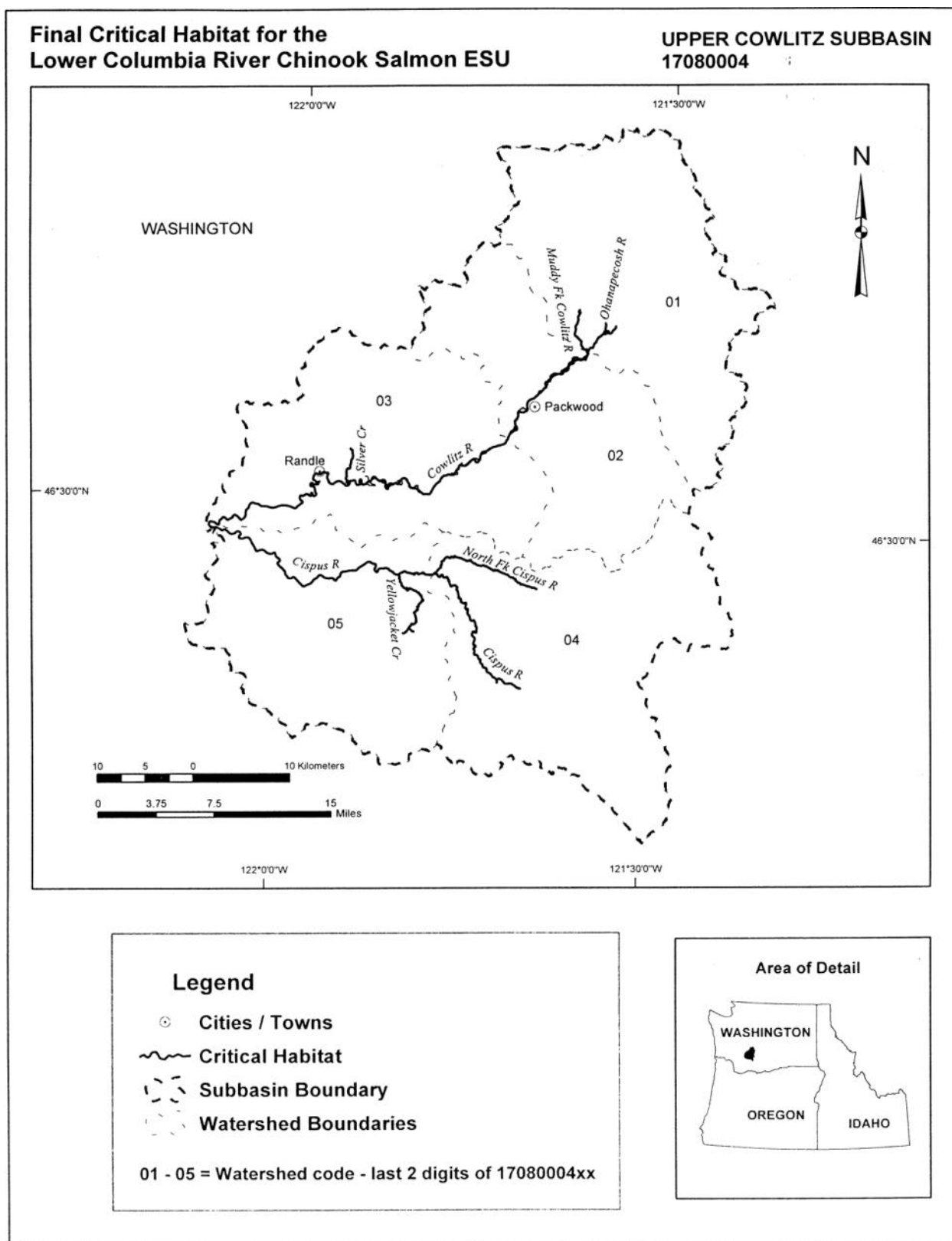


Figure 4 Chinook Salmon Critical Habitat for the Upper Cowlitz Subbasin (70FR52630 2005)

5 Methods

5.1 Development of Prioritization Criteria

The site-selection criteria developed for this Project follow the guidance described in Section 2. Prior work of others has guided consideration of the specific attributes of a channel reach within a valley segment that provides critical support or value for fish habitat or habitat-forming processes. Pess et al. (2002) identified the channel features that best correlated with adult coho salmon abundance in the Snohomish River (western Washington); they found positive, significant correlation with wetlands, non-bedrock geologic substrate, low stream gradient, and forested land cover. Multiple authors have identified the biological benefits of a forested riparian corridor in temperate, humid-region rivers worldwide, and especially throughout the Pacific Northwest; two recent examples, from Peterson et al. (2011) and Sheldon et al. (2012), emphasize the value of both the overall presence and the streamside proximity of forested land cover. Sabo and Hagen (2012) looked beyond strictly in-channel conditions to the physical and biological interactions of a stream and its watershed; they noted the disproportionate value of meander bends and tributary junctions (see also Benda et al. 2004) to maintaining these interactions.

In western Washington, prior work has also tackled the challenge of identifying priority areas to achieve the protection of instream resources using remotely sensed data over a broad landscape. The Puget Sound Characterization (Stanley et al. 2012) used an analytical, GIS-based approach to identify key areas at a sub-watershed scale (typically, analysis units of one to a few tens of square miles). Priority areas for protection were identified by habitat-rich site characteristics such as depressional wetlands, lakes, unconfined floodplain area, and permeable geologic substrate; and by a general absence of water diversions, urban and agricultural land, roads, and impervious surfaces in general. Although these attributes were focused and implemented in the Puget Sound Characterization at a somewhat larger watershed scale than that of our present effort and did not include any channel- or reach-specific criteria, they offer partial guidance for some of the types of GIS data that has been found useful in addressing similar problems. A companion study (Wilhere et al. 2013) applied a similar approach to discriminating the quality and degradation of habitats at a scale that more closely approaches that of this Upper Cowlitz effort. For their instream assessment, they included two indices of clear applicability here—reach-scale wetland area and undeveloped floodplain area (the other two primary factors used, percent watershed urbanization and locations of known fish use, are of little or no relevance for the present study). Tacoma Power owns many wetlands in the upper Cowlitz River basin, for example, that may also provide opportunities for further habitat enhancement work in the future.

More broadly, Cluer and Thorne (2013) have reviewed the literature relating channel morphology to ecological conditions, and they show overwhelming evidence for the benefits of dynamic, multi-thread, floodplain-connected channels. Their criteria for recognizing such channels serve as a useful summary of prior work, emphasizing the biological value of "...habitats that are rich and resilient, that range from micro-scale to meso-scale, to macro-scale, and that persist across a wide range of hydrologic conditions." The reach- and channel-scale attributes that they associate with such habitats are as follows:

- > Multi-channel (i.e., braided or anastomosing) morphology
- > Tributary confluences
- > High in-stream sediment storage
- > Extent and connectivity of floodplain surfaces, side channels, and wetlands
- > Diversity of emergent, riparian, and floodplain vegetation

5.2 Prioritization Process

Cardno ENTRIX utilized GIS and report data (described in Section 3.1) to prioritize potential reaches for *protection* on non-federal ownership lands within the Project Area. The priority reaches identified appear either to provide suitable, intact aquatic habitat for salmonids that would be readily utilized by winter steelhead, spring Chinook and coho, or to have major influence on key watershed or riparian processes that directly influence the quality of those habitats. Reach suitability was determined through examination of relative channel conditions (lack of channel bank armoring, intact riparian conditions, lack of artificial constraints to flow, connection to off-channel floodplain areas, good diversity of channel substrate conditions consistent with meeting spawning and rearing requirements of target species, and similar characteristics of natural river corridors). Because this study relies solely on remotely sensed information about river conditions, educated inferences were made about the relative complexity of instream/riparian habitat conditions associated with each reach and, ultimately, its component parcels.

Cardno ENTRIX also made use of an EDT analysis covering much of the Project Area (Mobrand Biometrics, Inc., 1999) as independent corroboration of the reach assignments identify during characterization and analysis. The EDT analysis identified discrete segments of the channel network (which they also term “reaches”) that were amendable for protection, as well as others where habitat conditions could be improved with active restoration, by virtue of their apparent contribution to desired habitat conditions. A subsequent distillation of the EDT analysis, compiled by the Lower Columbia Fish Recovery Board (LCFRB), also contributed to our analysis (LCFRB 2010). In addition, Lewis County zoning and development services records were reviewed to determine if any specific reaches and their component parcels are being considered for future development.

Once candidate reaches (and their component parcels) were identified, an initial review was done to determine which reaches would provide the highest level of benefit from the standpoint of preservation of river processes and habitat functions to meet the needs of the target species. These prioritized areas form the basis of the reach recommendations.

6 Reach Selection

Cardno ENTRIX preformed a first-tier site assessment within the Project Area to identify river and stream reaches on non-federal land that could potentially support salmonids. Channel segments on non-federal lands within the basin that were reviewed included the Cowlitz, Cispus, and Tilton Rivers, Rainy Creek, and tributaries with the potential to contain critical habitat for Chinook and steelhead, and by default coho, based on critical habitat designation (70 FR 52630). The exercise was performed using an ArcGIS desktop aerial photography survey of the aforementioned rivers to identify largely unconfined channel segments with good floodplain connectivity, key attributes of channels that can support habitat-forming processes. Criteria used to identify unconfined channels included the presence on the aerial photography of active and relict meander bends, extensive deposits of bare sediment adjacent to the channel, a wide zone of these recent riverine features, and the absence of any bounding anthropogenic structures such as roads or revetments. Connectivity with the adjacent floodplain was inferred using GIS shapefiles to show the presence of wetlands and hydric soils adjacent to the active channel.

Based on the above criteria, 67.9 miles of channel were identified with the majority of the segments occurring along the mainstem Cowlitz River (59%). The Tilton and Cispus Rivers account for 17% and 5% of the segments, respectively. The specific criteria and data sources utilized for discriminating priority river reaches are presented in Table 1. Most (though not all) of these criteria are best suited for application to the mainstem channels of the Upper Cowlitz, Tilton and Cispus Rivers; some modification were made for tributaries. Tributary analysis emphasized riparian corridors, location of its respective confluence with the main channel, and with a lesser focus on for instance, valley confinement.

Table 1 Criteria for Reach Identification

Attribute	Data Source(s)	Criteria for Identification
1. Channel length and gradient	NHD ¹ Hydrology, DEM ²	N/A (needed to support other criteria)
2. Channel confinement	DEM ² , County data CMZ ³ study, Airphoto Evaluation of Channel Morphology, Road Proximity	Reaches with little or no bank armoring, or where roads or structures are not adjacent to the channel. Also includes reaches where the channel width has not been artificially widened, possibly reflecting past floodplain gravel mining or bedload accumulations above major channel constrictions, which would exacerbate habitat limitations during summer low flows.
3. Floodplain connectivity	Airphotos, USFWS Wetland Inventory, Soils Mapping	Reaches with intact connection to floodplain features (oxbows, side channels); floodplain wetlands; or with potential for reconnection to currently disconnected floodplain features.
4. In-channel habitat diversity	Airphotos	Reaches with high channel complexity and heterogeneity; multi-thread channels.
5. Tributary junctions	NHD ¹ , Airphotos	Tributary confluences with mainstem and other major tributary rivers.
6. Fish passage barriers	WDFW Reports; SSHIAP ⁴ Database	All reaches downstream of fish-migration blockages from culverts or natural barriers
7. Species-specific habitat preferences	DEM ² (LiDAR ⁵) Slope/Drainage Area Calculation	For <u>Chinook salmon</u> , look for primarily mainstem river (can include upper Cowlitz, Tilton, Cispus Rivers) reaches with gradients ~<2%, with obvious mix of pools and riffles, with predominant median substrate sizes ranging from ~20 to 50 mm (Kondolf & Wolman 1993).
	DEM ² (LiDAR ⁵) Slope/Drainage Area Calculation	For <u>steelhead</u> look for accessible tributary rivers/streams with gradients up to ~10%, but with reaches of lower gradients and discernible riffles to allow for spawning and rearing habitats. Steelhead juveniles (1+ yr) also prefer larger bed materials in excess of 25 cm in diameter for shelter cover. Adult steelhead will also use mainstem rivers ~<2% for spawning, similar to Chinook.
	DEM ² (LiDAR ⁵) Slope/Drainage Area Calculation	For <u>coho salmon</u> , look for off channel habitat containing inwater structures with gradients ~<2%, containing slow water, with predominant median substrate sizes that are <15 cm.
8. Water quality	303d List for Stream Temperature-Limited Reaches	Areas of suitable temperature regimes throughout critical periods of spawning and rearing by virtue of non-listing; conversely, identification of those areas to avoid because temperatures are problematic for salmonid spawning, incubation and rearing.

¹ NHD – National Hydrography Dataset

² DEM – Digital elevation model

³ CMZ – Channel Migration Zone

⁴ SSHIAP – Salmon and Steelhead Habitat Inventory and Assessment Program

⁵ LiDAR – Light Detection and Ranging

Once the initial assessment of unconfined reaches was complete, a second-tier GIS assessment was performed to further refine the reaches to only those containing the most favorable salmonid habitat characteristics. Unconfined reaches were excluded if they exhibited any of the following characteristics:

- > Disconnected habitat – short reaches with unsuitable conditions on either side of them; and
- > Proximity to development or impaired floodplain connectivity – lack of riparian cover at the margins of the active channel zone.

Each of the remaining 26 reaches, (Table 2 and Figure 5) contains several of the following characteristics necessary to support critical salmon habitat:

- > Lack of constraints from natural features or anthropogenic structures
- > Excellent floodplain connectivity
- > Channel gradient $\leq 4\%$
- > Tributary junction(s)
- > Adjacent canopy cover that extends a minimum of 50 feet from the active channel or recently deposited sediment
- > Meanders, wide active channel, and/or abundant distribution of recently deposited bare sediment

Appendix A provides a detailed map and attribute table for each of the twenty-seven reaches.

It should be noted that other reaches in the Project Area may contain salmonid habitat; however, these reach do not meet the definition of “best remaining habitat”, as described in this report, and are not included on this list. This designation should not be construed as suggesting that these excluded areas do not currently provide suitable habitat, but rather, that the reaches show evidence of having been altered to some degree by human activities. These sites remain quite suitable for consideration as restoration sites, once details about their opportunities and constraints are more thoroughly evaluated.

Table 2 River Reaches Containing High Value Salmon Habitat that are Suitable for Protection

River	Reach ID	Reach Length (mi)
Tilton River	Tilton 1	2.2
Tilton River	Tilton 2	1.7
Tilton River	Tilton 3	0.2
Tilton River	Tilton 4	0.5
Tilton River	Tilton 5	1.3
Tilton River	Tilton 6	0.3
Tilton River	Tilton 7	1.5
East Fork Tilton River	Tilton 8	0.7
Tilton River	Tilton 9	1.1
Quartz Creek	Cispus 1a	0.1
Quartz Creek	Cispus 1b	0.2
Cispus River	Cispus 2	0.5
Cispus River	Cispus 3	0.2
Cispus River	Cispus 4	0.4
Cowlitz River	Cowlitz 1	0.8
Cowlitz River	Cowlitz 2	0.5
Cowlitz River	Cowlitz 3	1.7
Cowlitz River	Cowlitz 4	2.0
Cowlitz River	Cowlitz 5	3.0
Cowlitz River	Cowlitz 6	1.3
Smith Creek	Cowlitz 7a	0.2
Smith Creek	Cowlitz 7b	0.4
Cowlitz River	Cowlitz 8	3.7
Skate Creek	Cowlitz 9	1.0
Cowlitz River	Cowlitz 10	4.1
Cowlitz River	Cowlitz 11	0.5

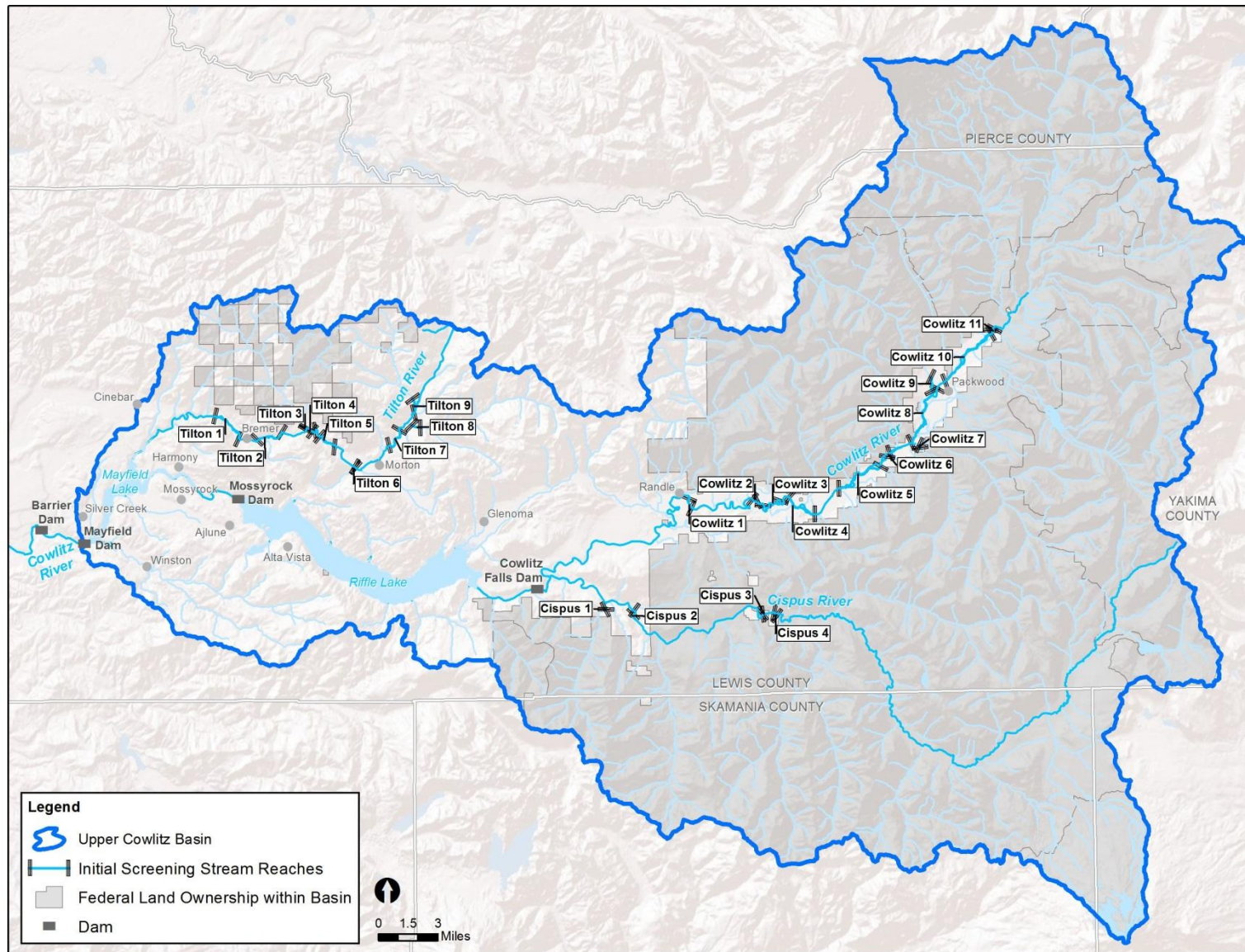


Figure 5 River Reaches Containing High Value Salmon Habitat that are Suitable for Protection

7 Next Steps

Tacoma Power and the FTC will review the protection reaches recommended in this report for further consideration, with the next steps requiring the prioritization and final identification of those reaches they wish to pursue for protection under their FERC licensing requirements.

Tacoma Power and the FTC will also want to devise a process to gain a more comprehensive view of additional reaches where investments in restoration projects will rectify habitat limitations, especially those reaches that can be linked with those recommended for protection, to take full advantage of preserving continuity of habitats in the Upper Cowlitz Subbasin.

8 References

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Upper Cowlitz River Basin Reach
Characterization Project

APPENDIX

A

RIVER REACHES TO CONSIDER FOR
PROTECTION

Appendix A

River Reaches to Consider for Protection

Twenty-six river reaches, covering approximately 30 river miles, possess attributes indicative of the riverine processes necessary to support critical salmon habitat that is sustainable over time, and won't require intervention by the use of restoration techniques. (Table A-1 and Figure A-1). Detailed maps are provided for each reach showing the proposed location at the basin and reach scale (Figure A-2 and A-25), as well as a summary matrix (Table A-2) identifying individual reached attributes. Please note that United States Geological Survey (USGS) river miles were used, but in some instances these occur outside of the active river channel.

Seven of the twenty-six reaches are identified as "priority reaches" (Table A-2), these reaches provide the most contagious river miles, meander bends, and having a "reasonable" number of parcels. This prioritization was performed at a coarse scale and intended as a starting point for Tacoma Power and the Fisheries Technical Committees review, prioritization and final identification of those reaches they wish to pursue for protection under their FERC licensing requirements.

Table A-1 River Reaches Containing High Value Salmon Habitat that are Suitable for Protection

River	Reach ID	Reach Length (mi)	Ownership	Field Visit
Tilton River	Tilton 1	2.2	Private/State	No
Tilton River	Tilton 2	1.7	Private/State	No
Tilton River	Tilton 3	0.2	Private	No
Tilton River	Tilton 4	0.5	Private/State	No
Tilton River	Tilton 5	1.3	Private/State	No
Tilton River	Tilton 6	0.3	Private	Yes
Tilton River	Tilton 7	1.5	Private/State	Yes
East Fork Tilton River	Tilton 8	0.7	Private	Yes
Tilton River	Tilton 9	1.1	Private	Yes
Quartz Creek	Cispus 1a	0.1	Private	No
Quartz Creek	Cispus 1b	0.2	Private	No
Cispus River	Cispus 2	0.5	Water	No
Cispus River	Cispus 3	0.2	Private	Yes
Cispus River	Cispus 4	0.4	Private	Yes
Cowlitz River	Cowlitz 1	0.8	Private/State	Yes
Cowlitz River	Cowlitz 2	0.5	Private	No
Cowlitz River	Cowlitz 3	1.7	Private	No
Cowlitz River	Cowlitz 4	2.0	Private/Tribal	No
Cowlitz River	Cowlitz 5	3.0	Private/County	Yes
Cowlitz River	Cowlitz 6	1.3	Private	No
Smith Creek	Cowlitz 7a	0.2	Private	Yes
Smith Creek	Cowlitz 7b	0.4	Private	Yes
Cowlitz River	Cowlitz 8	3.7	Private/State	No
Skate Creek	Cowlitz 9	1.0	Private/State	No
Cowlitz River	Cowlitz 10	4.1	Private/State	Yes
Cowlitz River	Cowlitz 11	0.5	Water	Yes

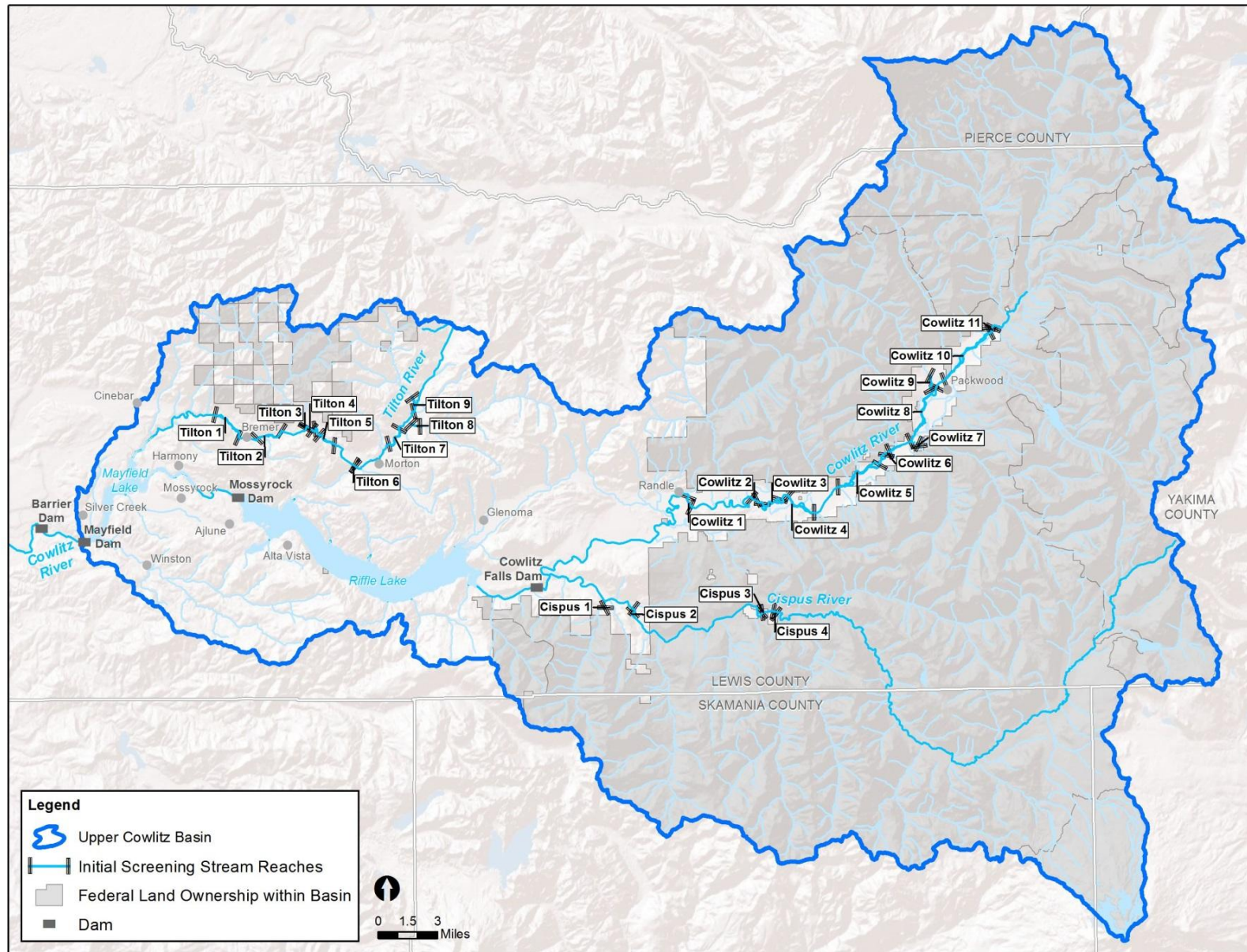


Figure A-1 River Reaches Containing Critical Salmon Habitat that are Suitable for Protection

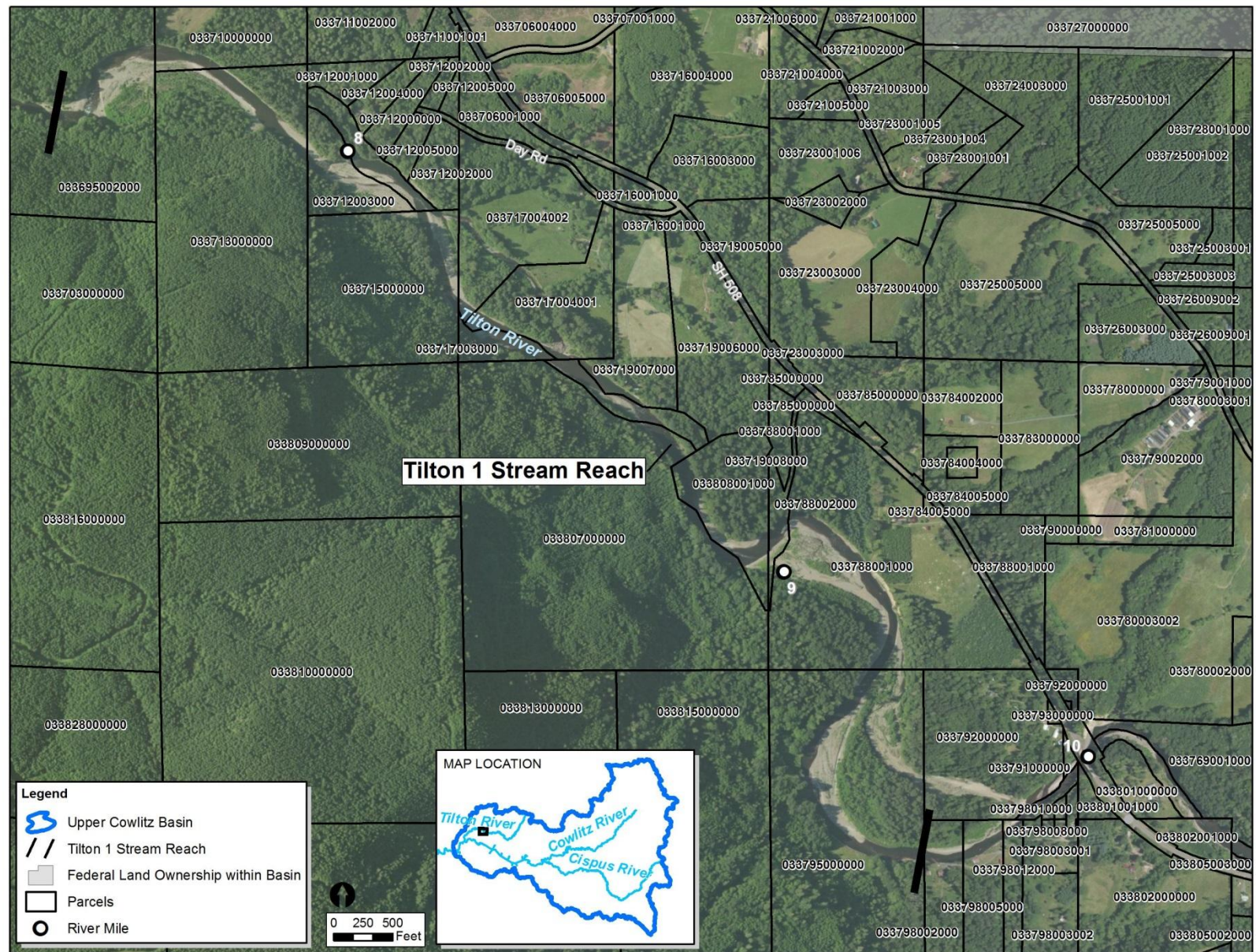


Figure A-2 Tilton 1 Stream Reach

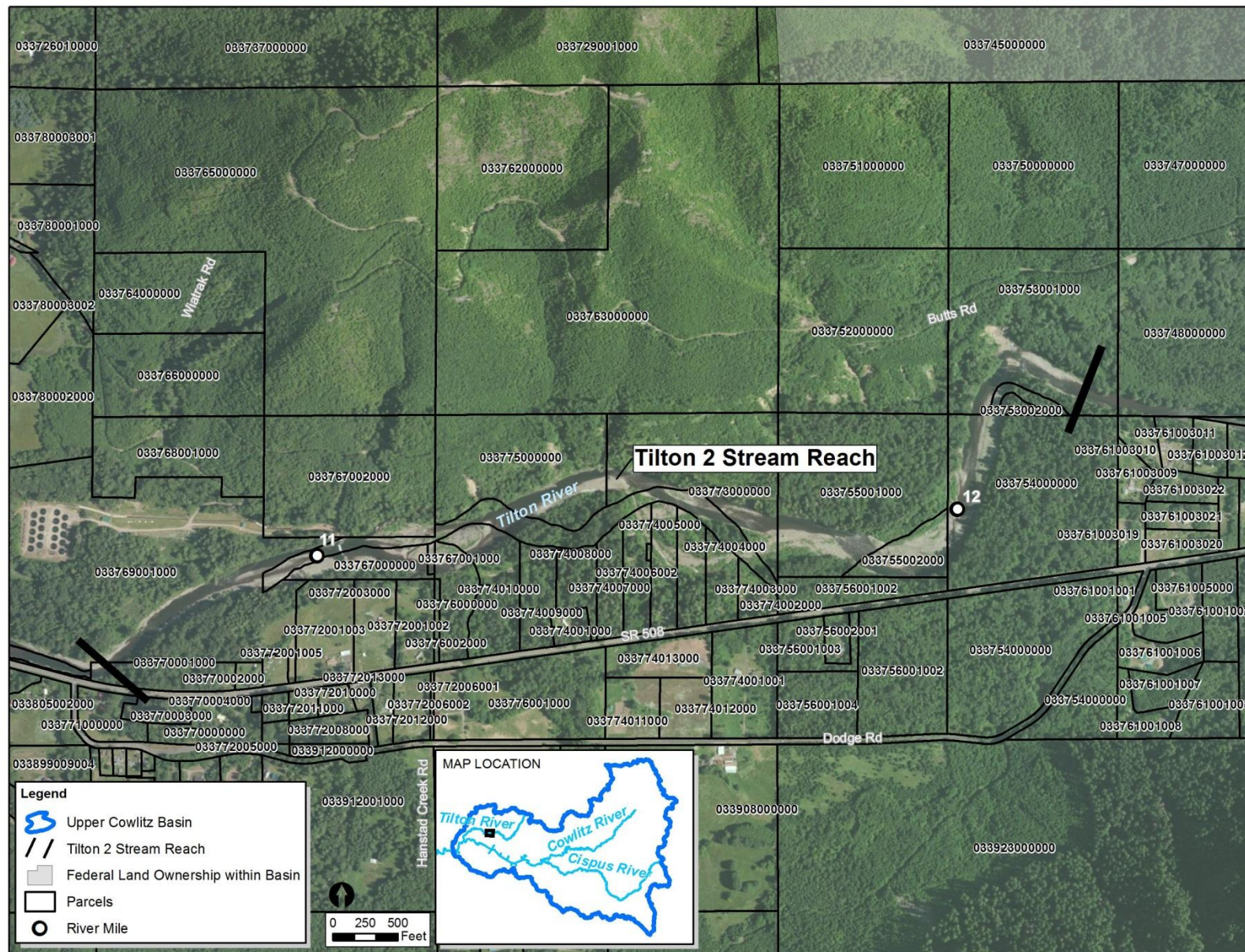


Figure A-3 Tilton 2 Stream Reach

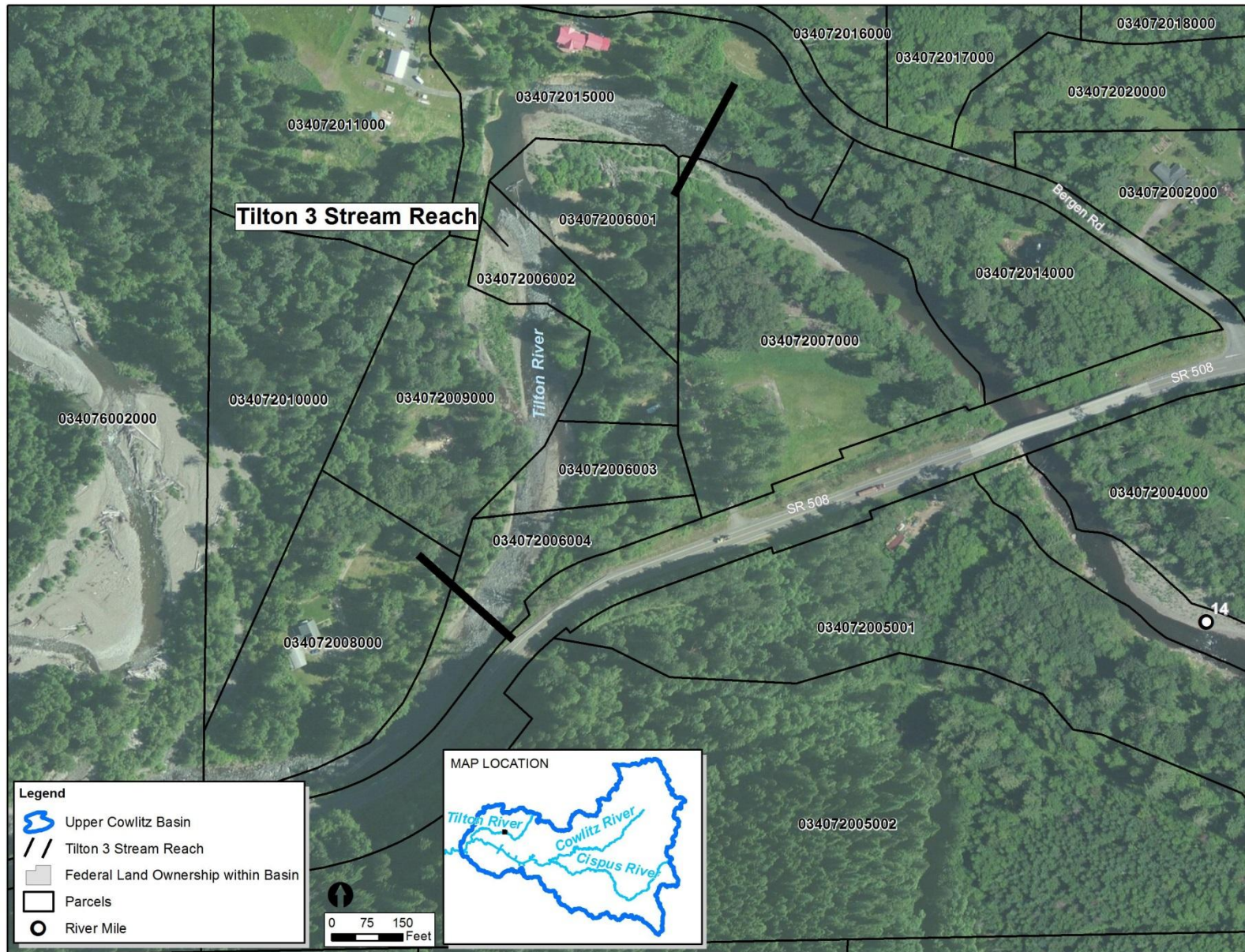


Figure A-4 Tilton 3 Stream Reach

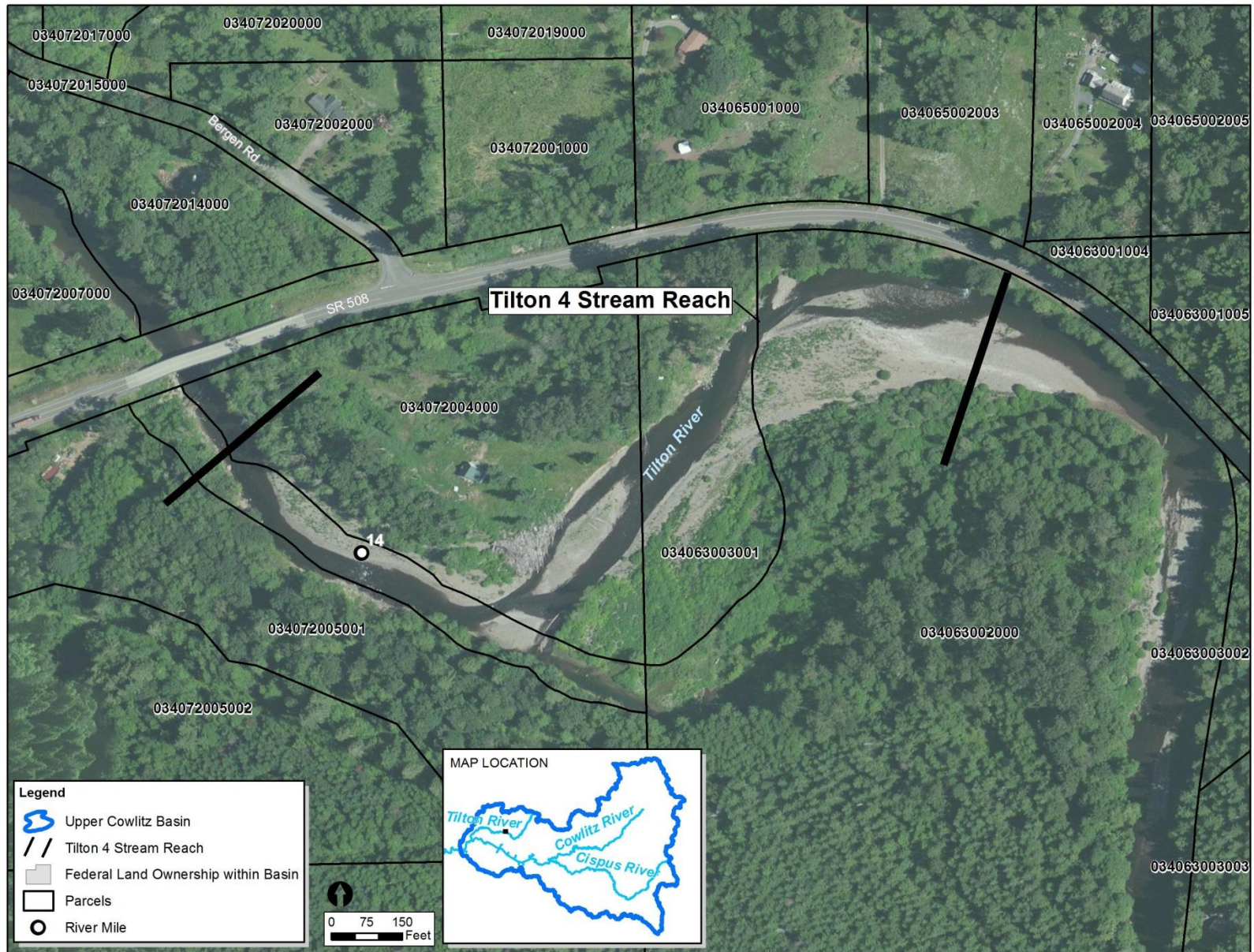


Figure A-5 Tilton 4 Stream Reach

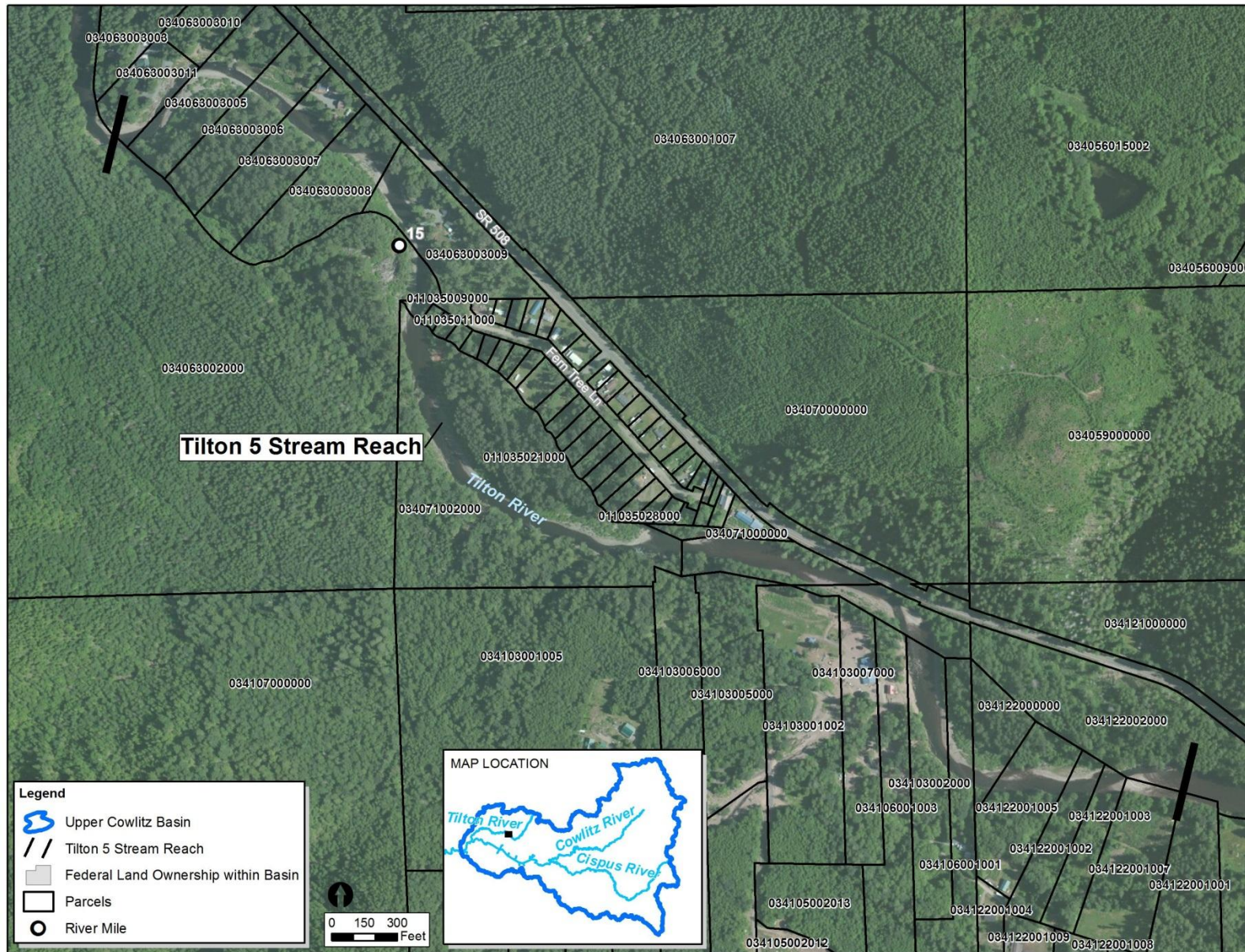


Figure A-6 Tilton 5 Stream Reach

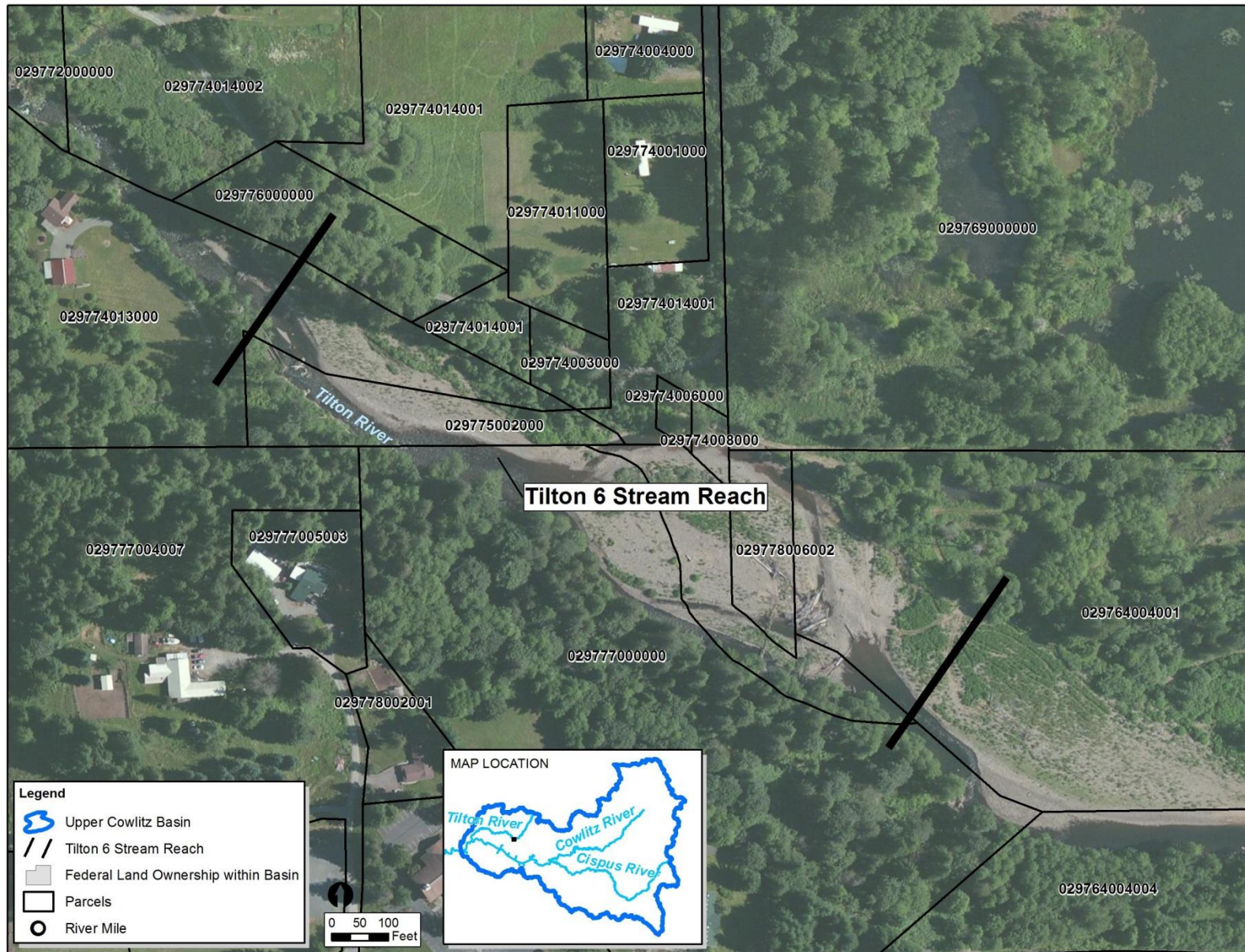


Figure A-7 Tilton 6 Stream Reach

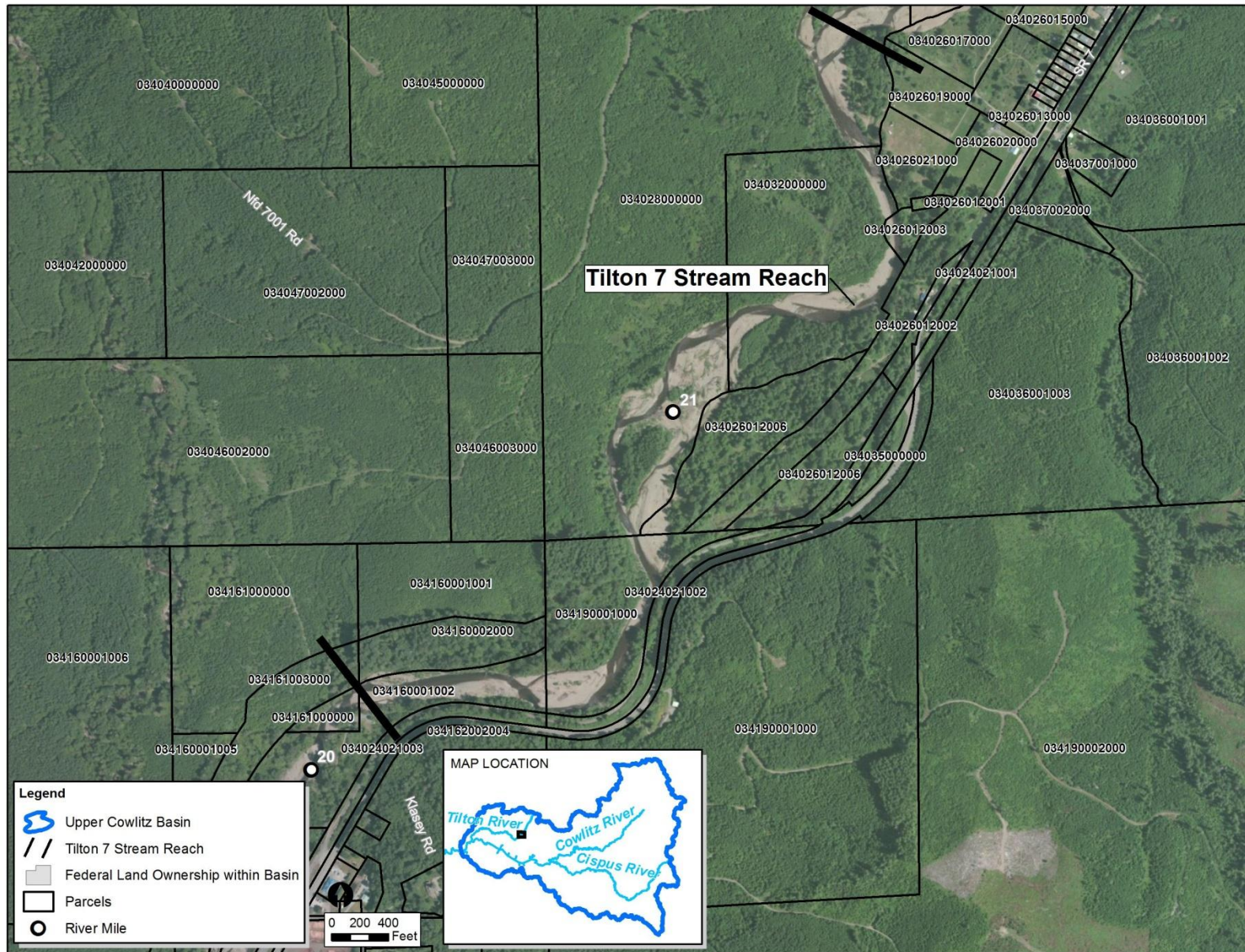


Figure A-8 Tilton 7 Stream Reach

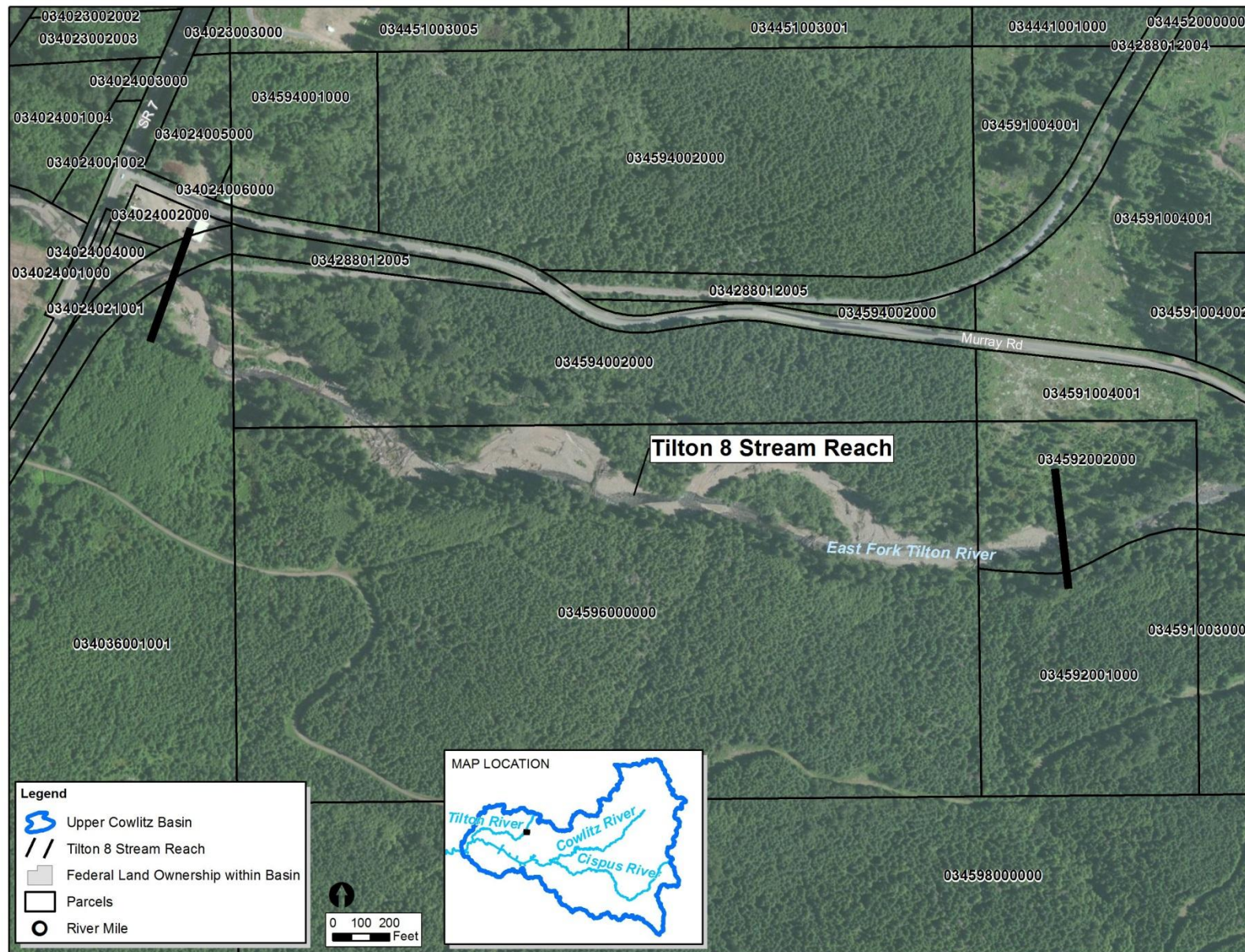


Figure A-9 Tilton 8 Stream Reach

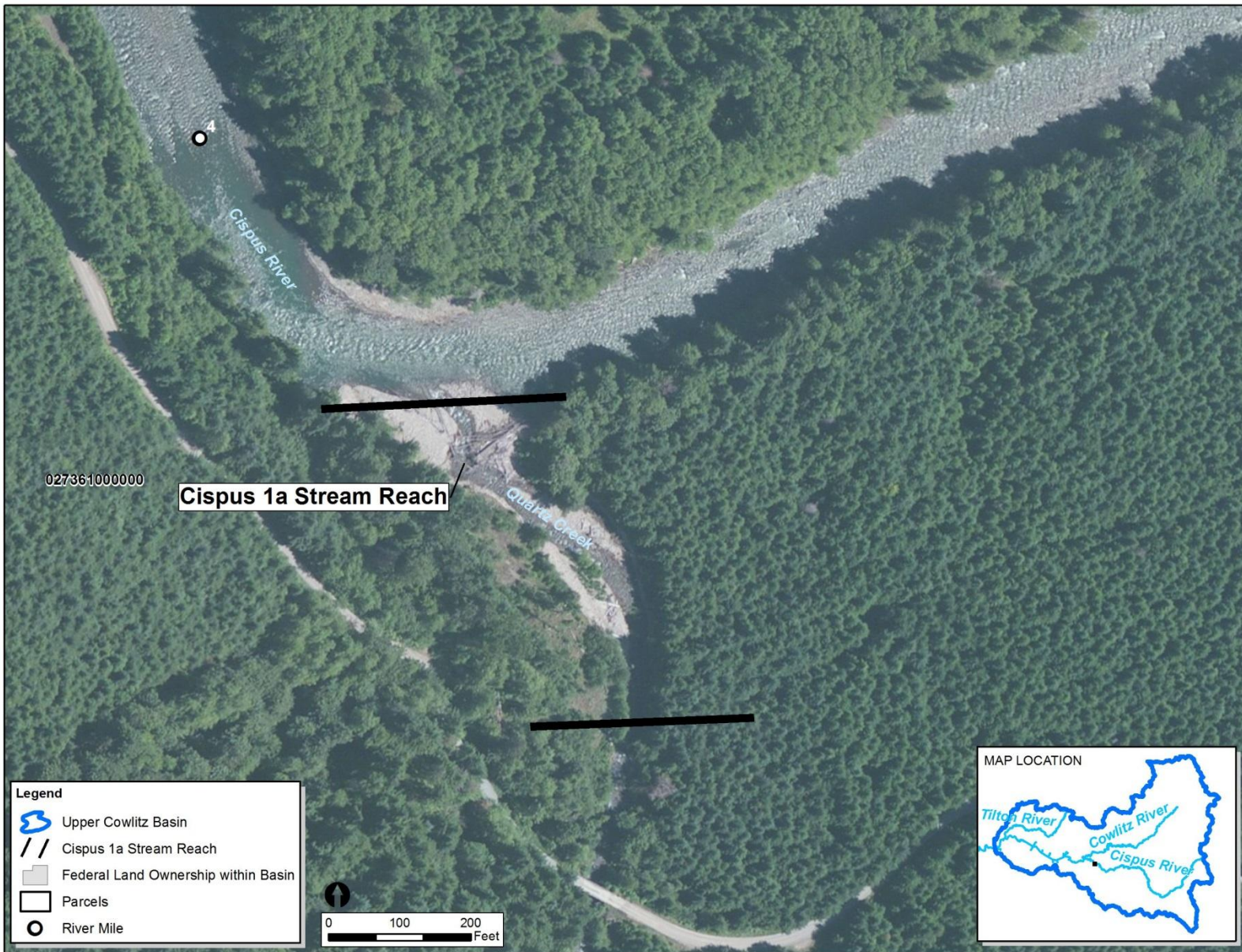


Figure A-10 Cispus 1a Stream Reach

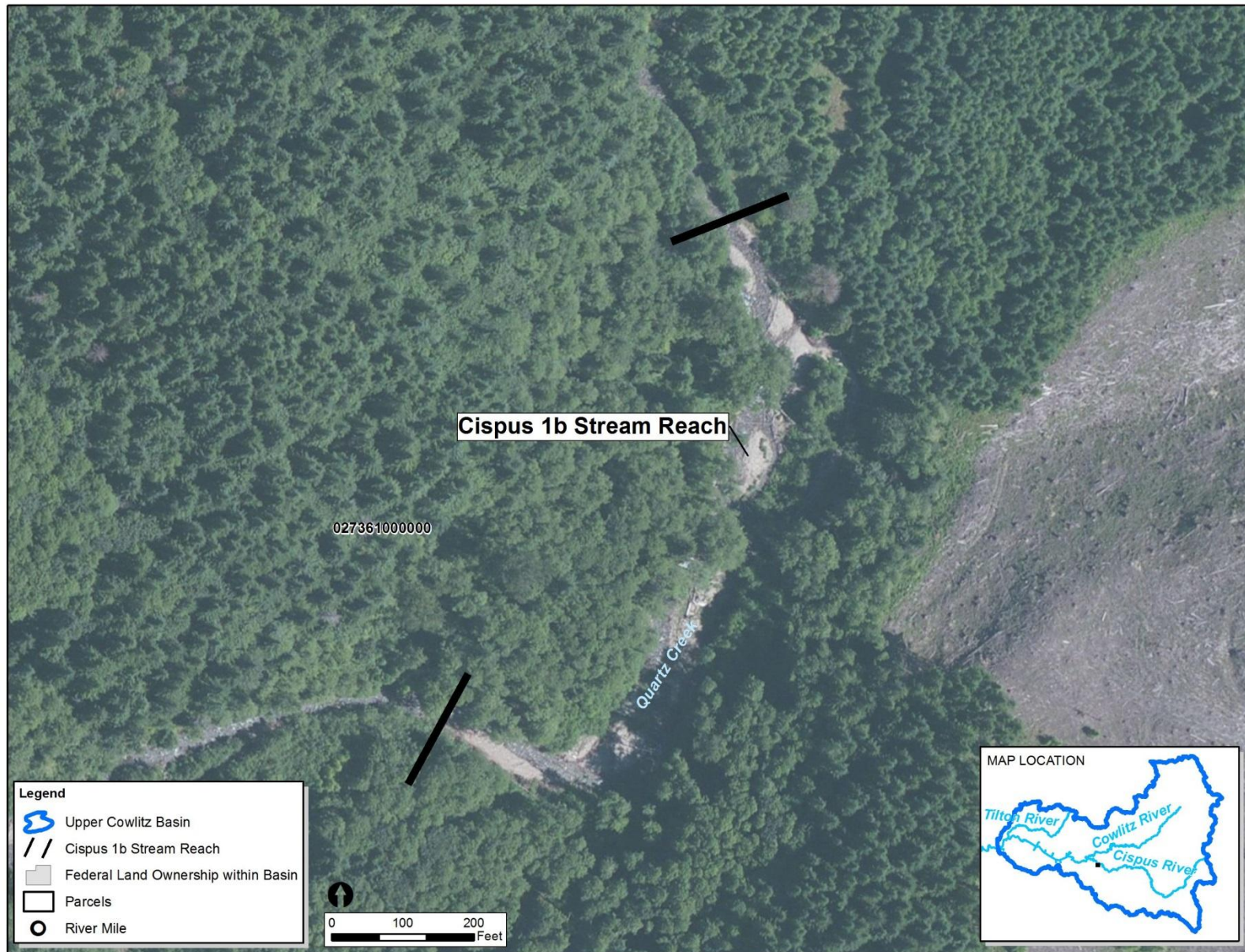


Figure A-11 Cispus 1b Stream Reach

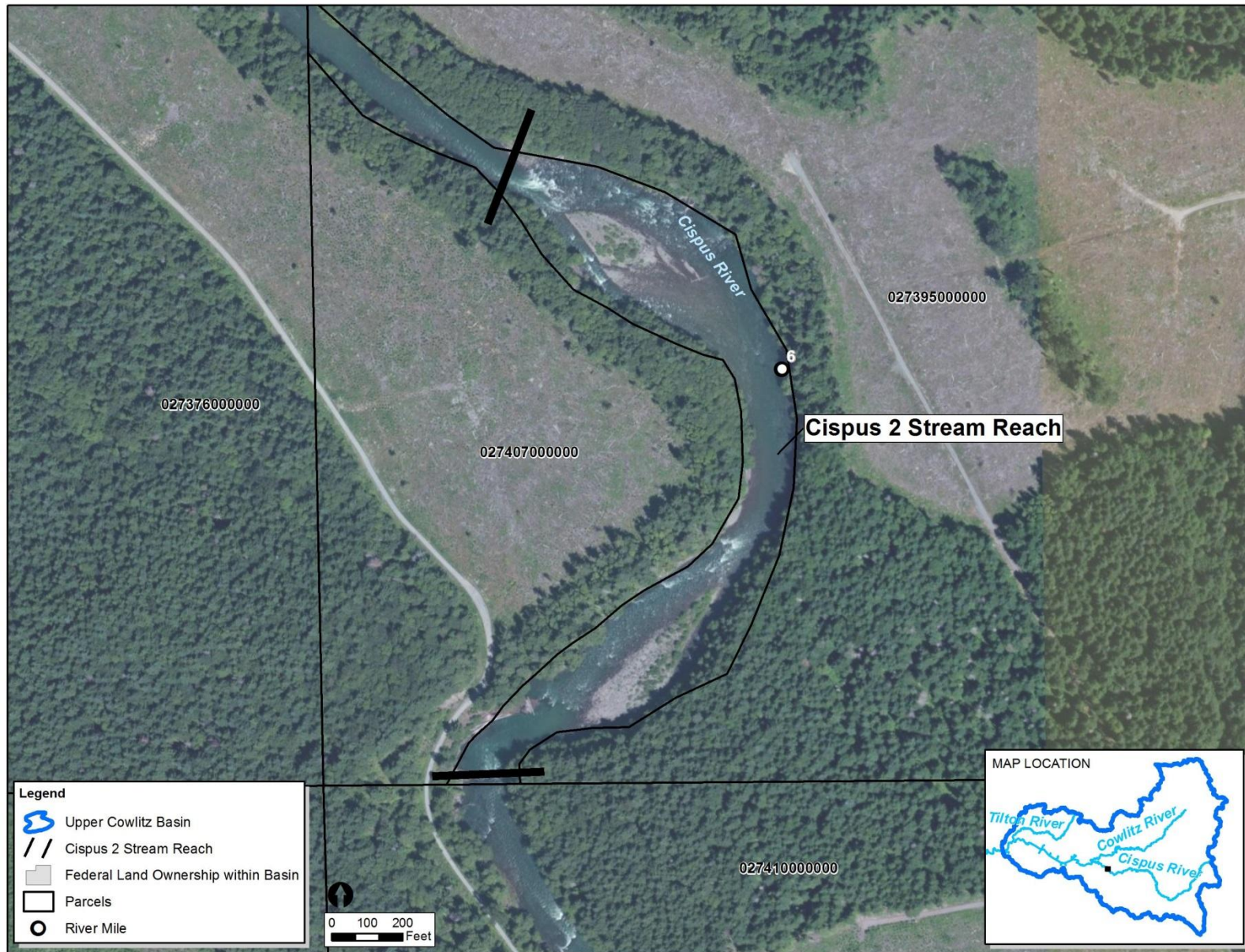


Figure A-12 Cispus 2 Stream Reach

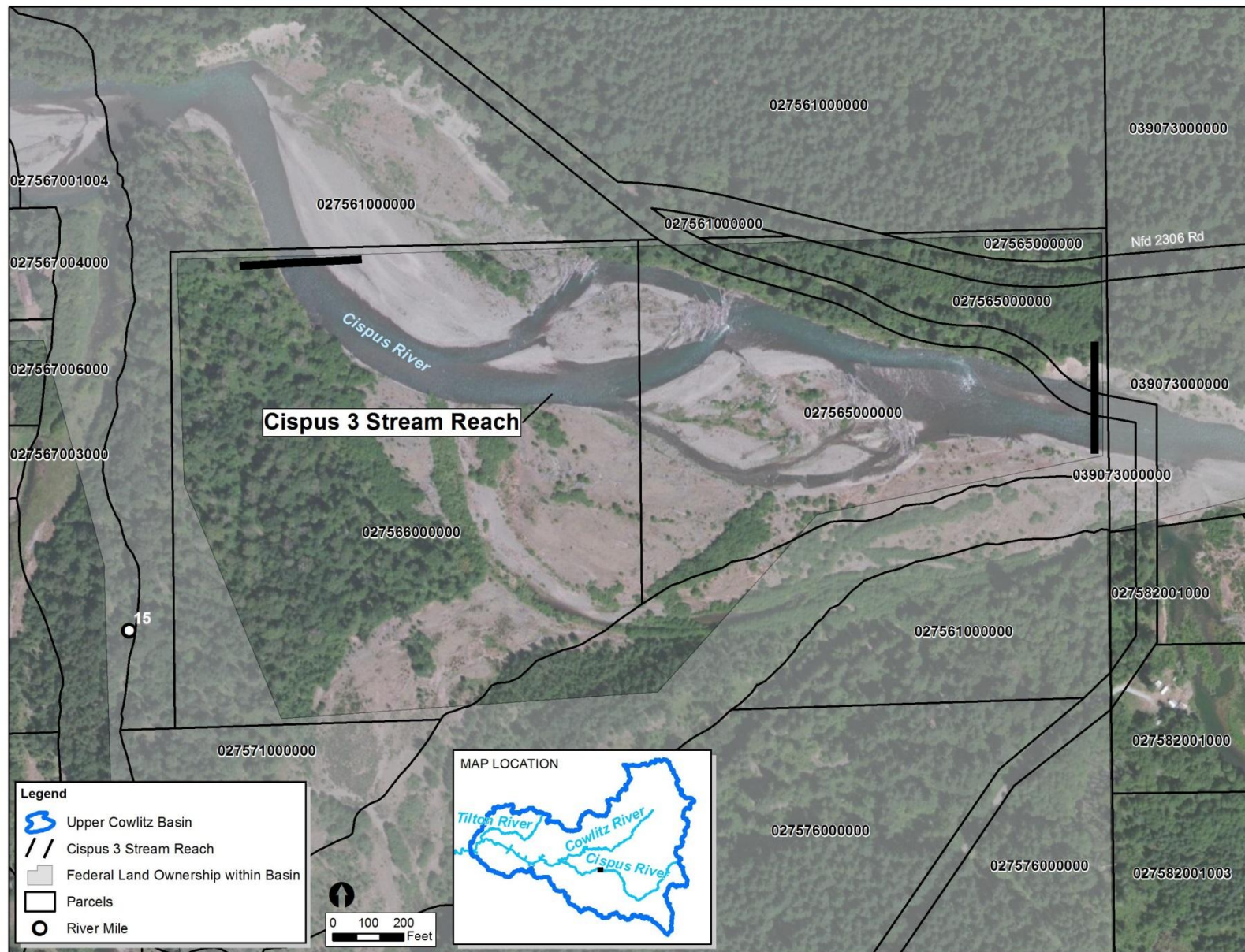


Figure A-13 Cispus 3 Stream Reach

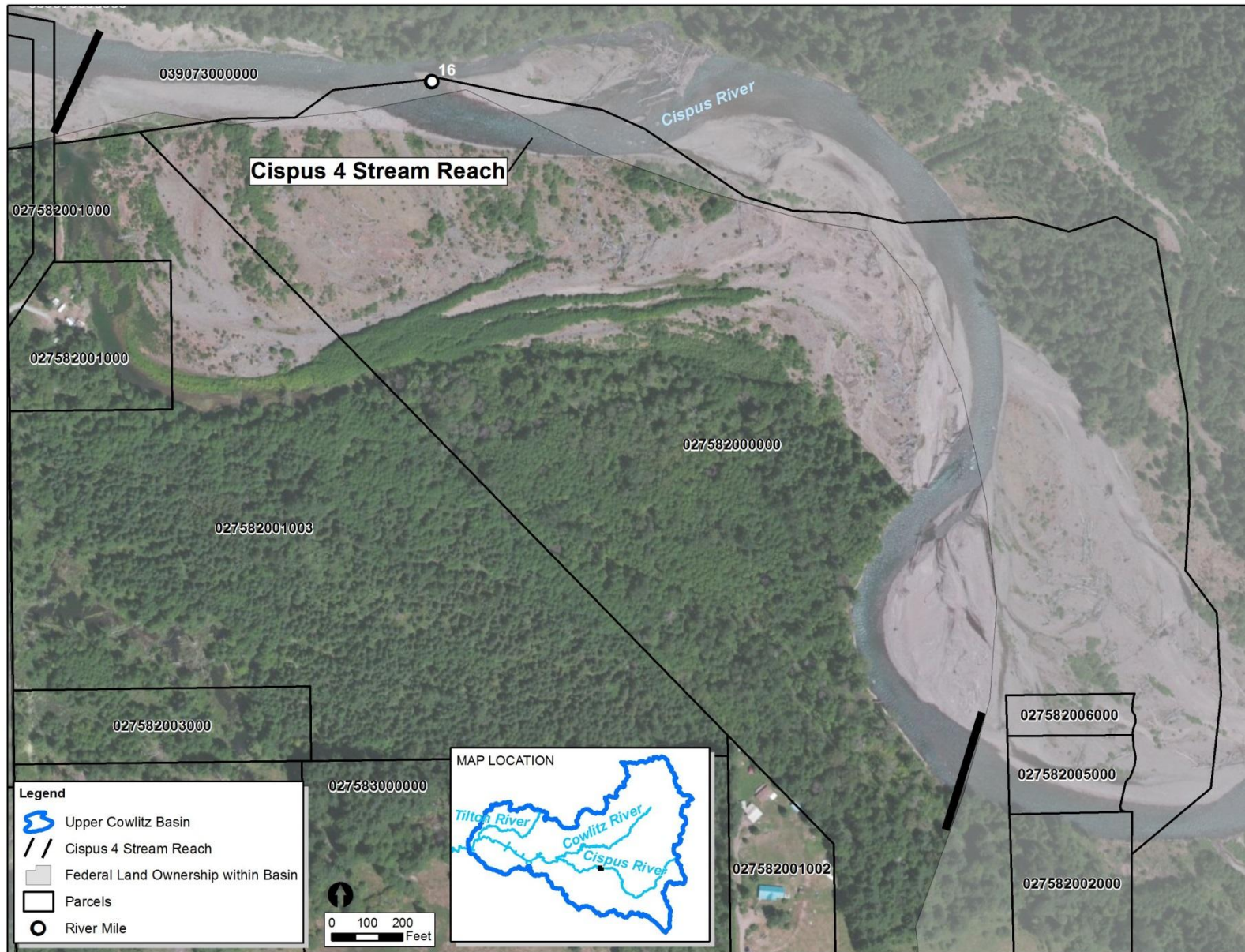


Figure A-14 Cispus 4 Stream Reach

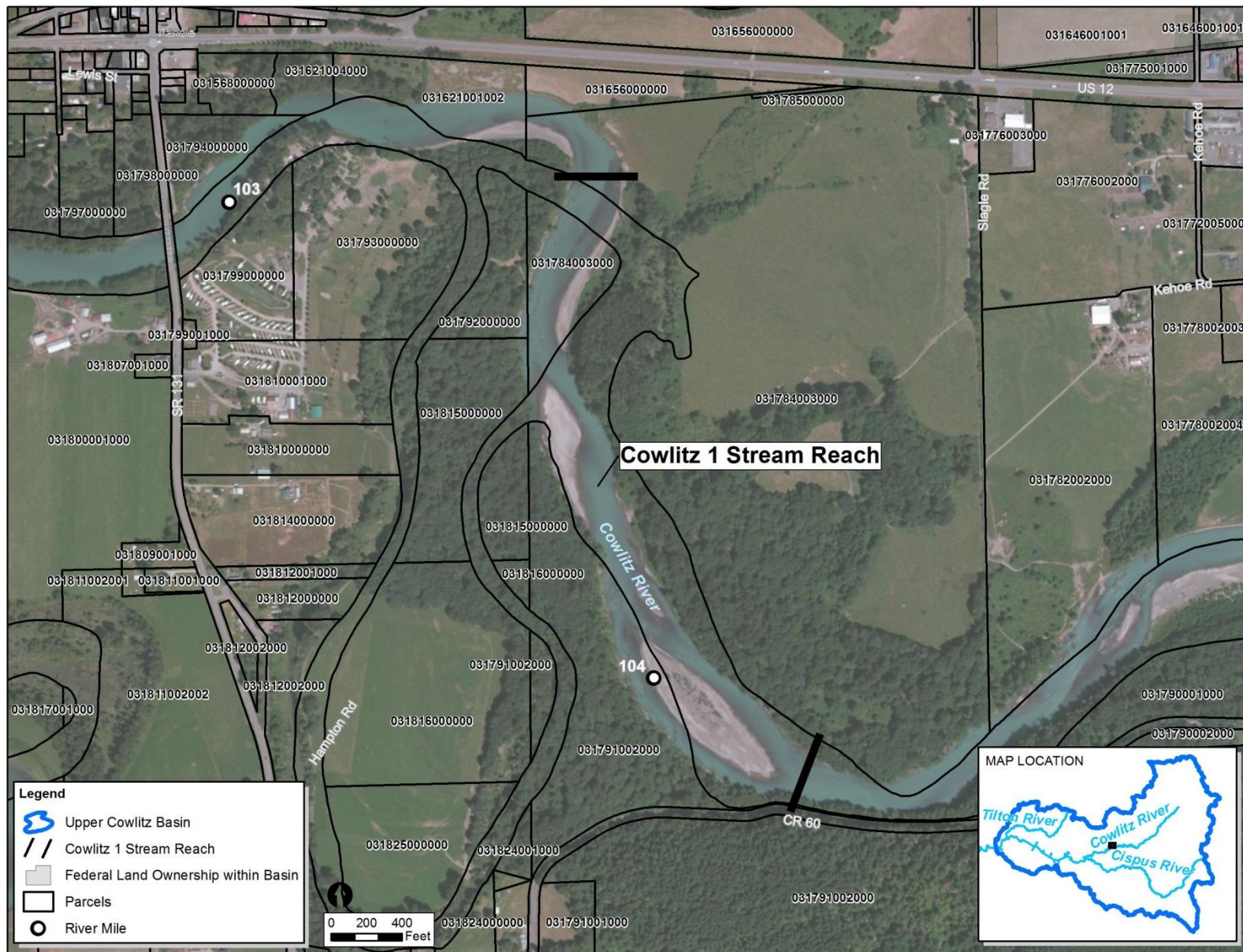


Figure A-15 Cowlitz 1 Stream Reach

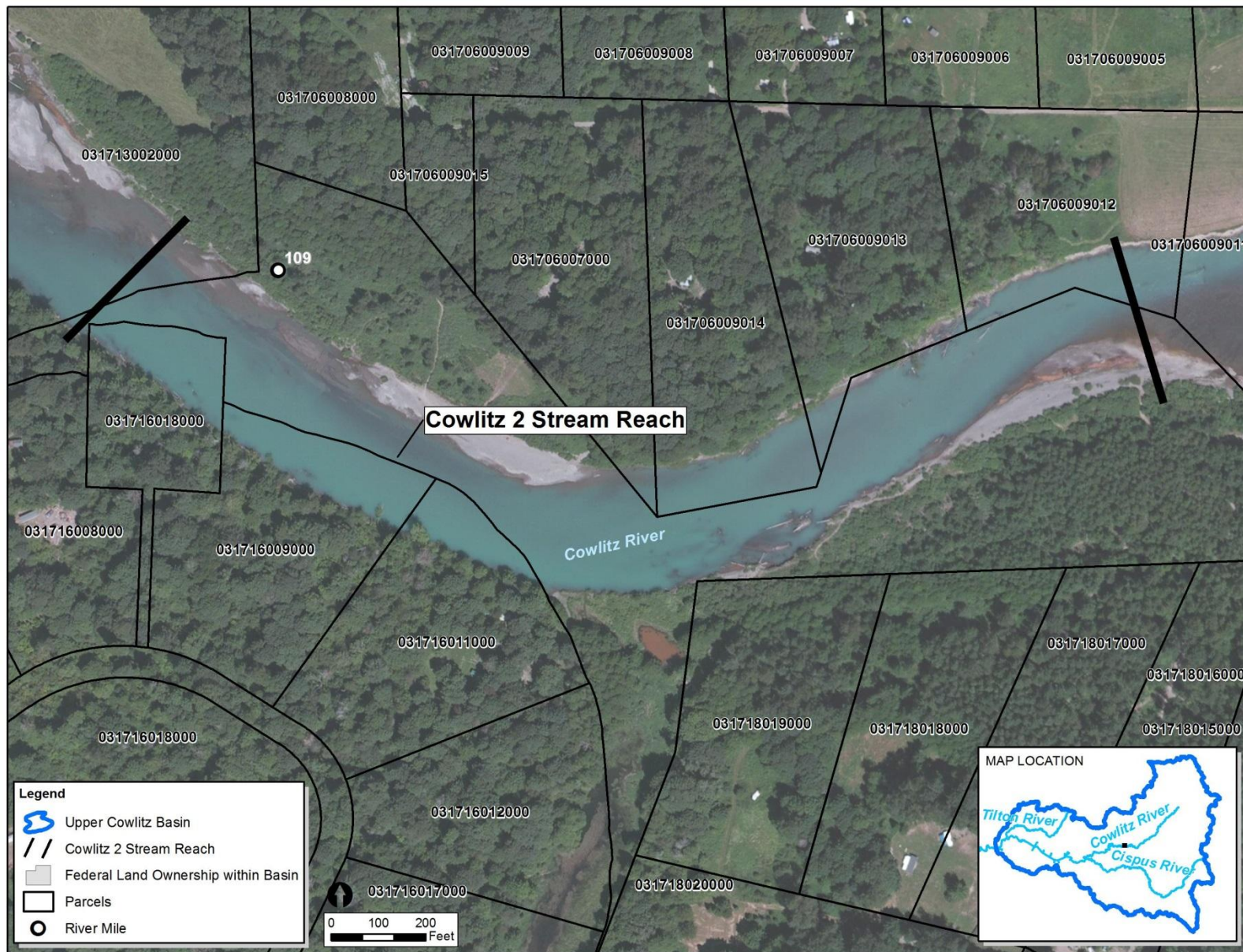


Figure A-16 Cowlitz 2 Stream Reach

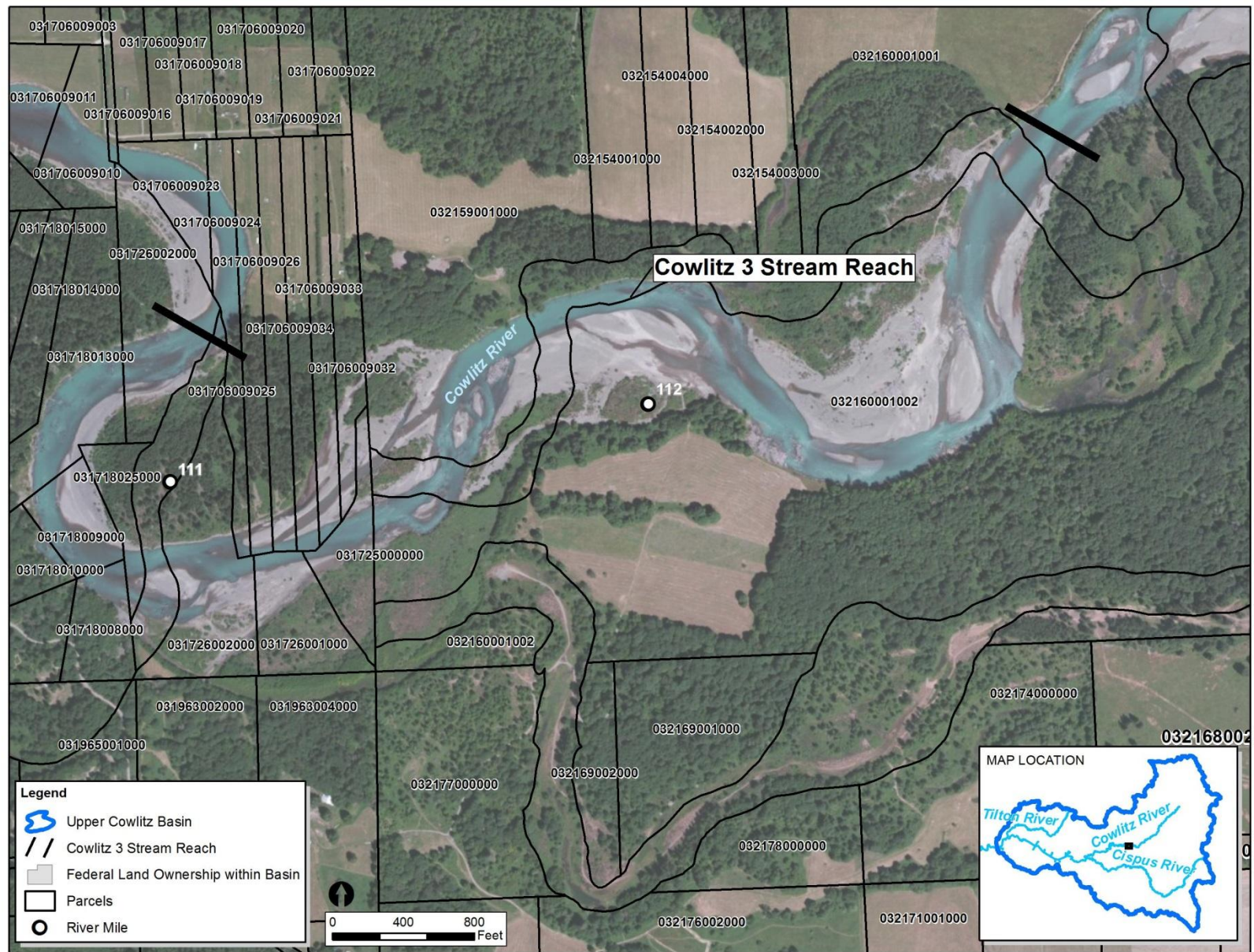


Figure A-17 Cowlitz 3 Stream Reach

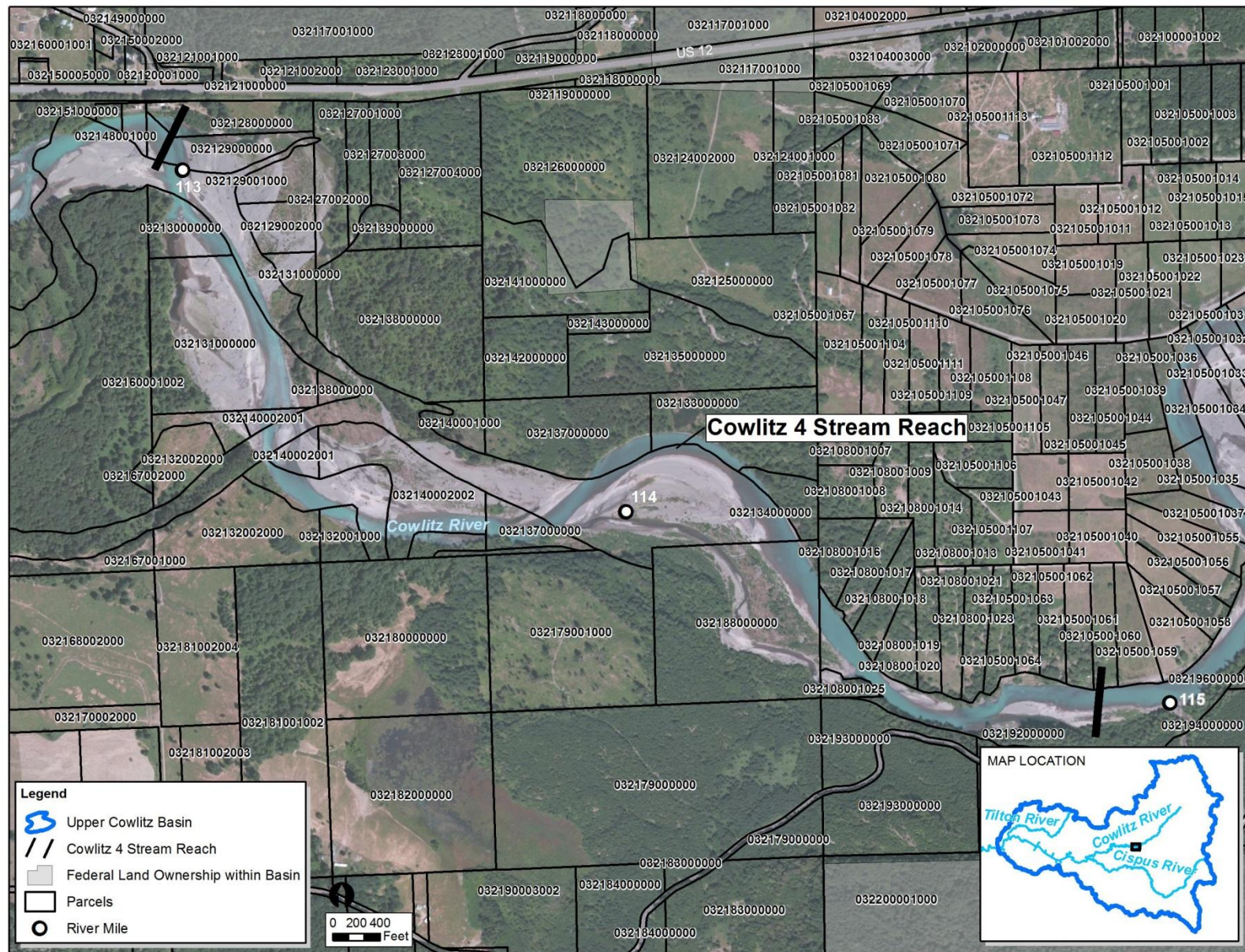


Figure A-18 Cowlitz 4 Stream Reach





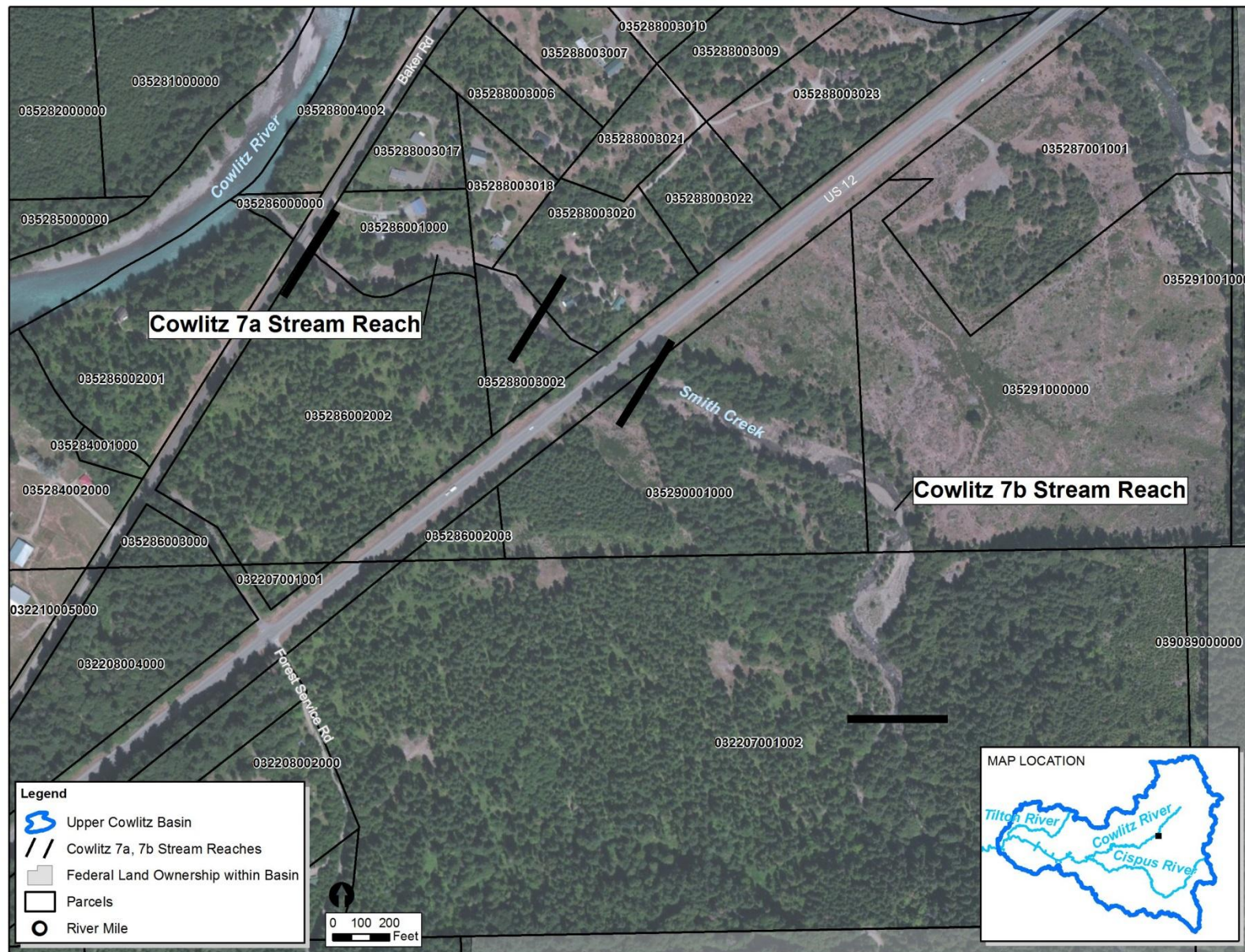


Figure A-21 Cowlitz 7a/b Stream Reach



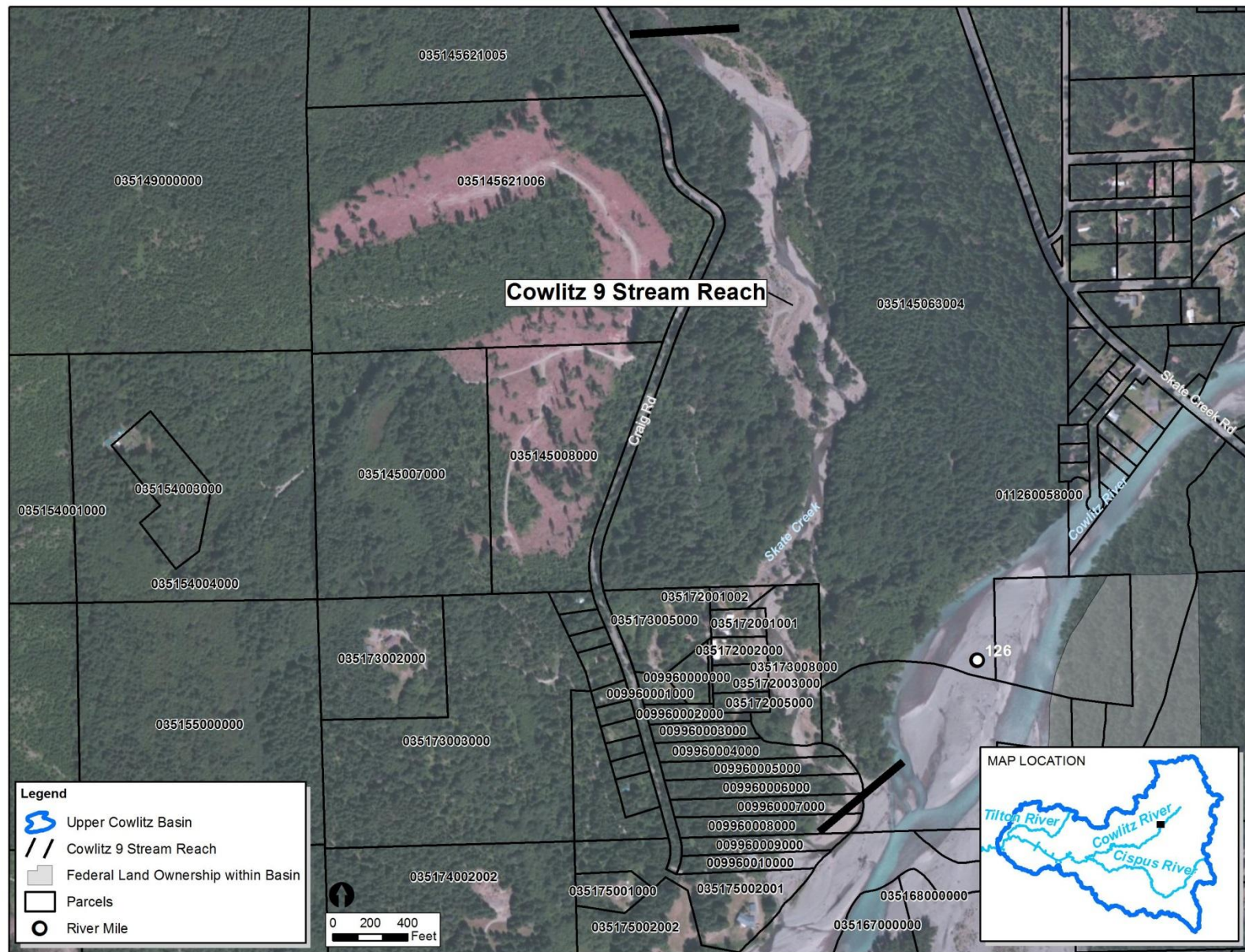


Figure A-23 Cowlitz 9 Stream Reach

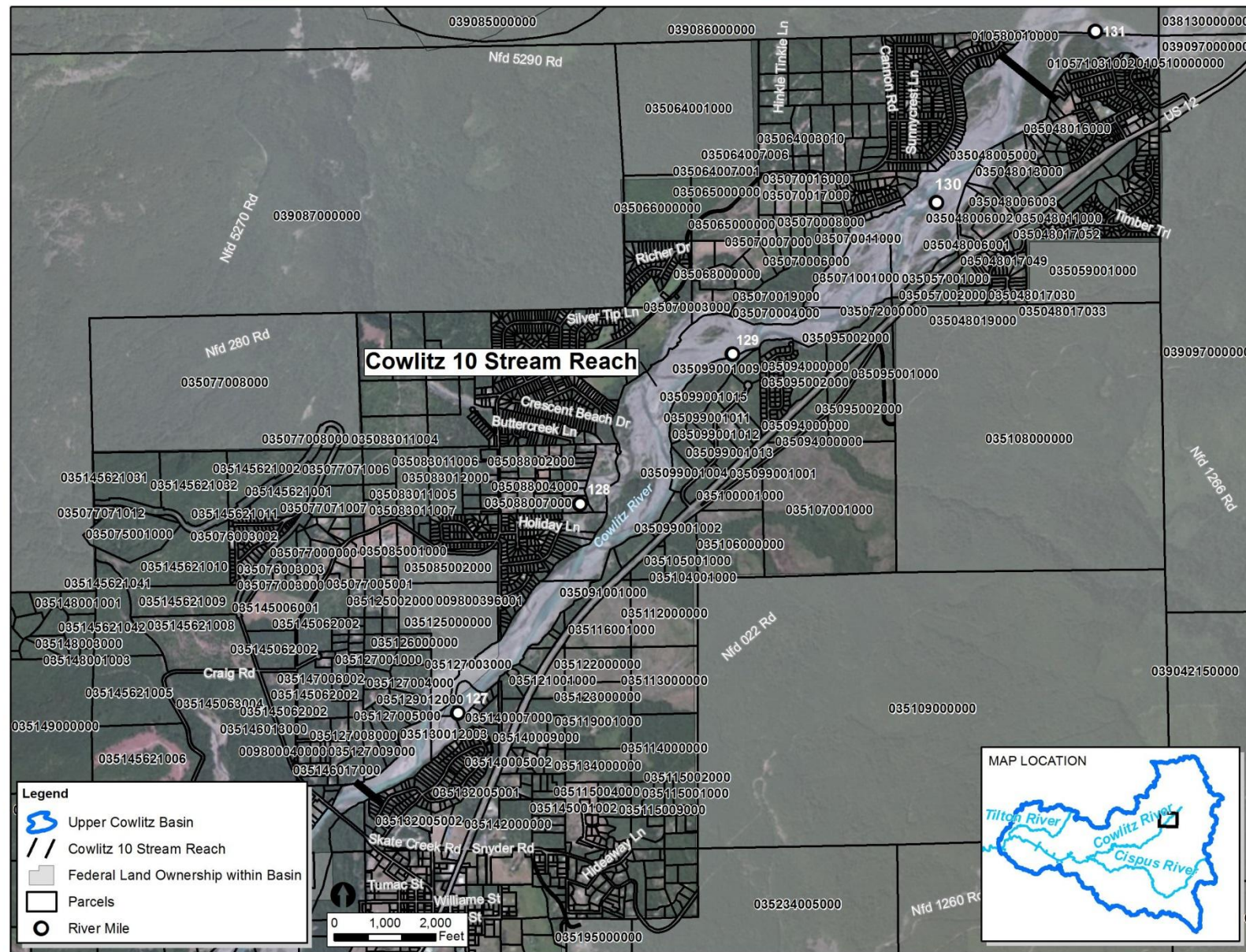


Figure A-24 Cowlitz 10 Stream Reach

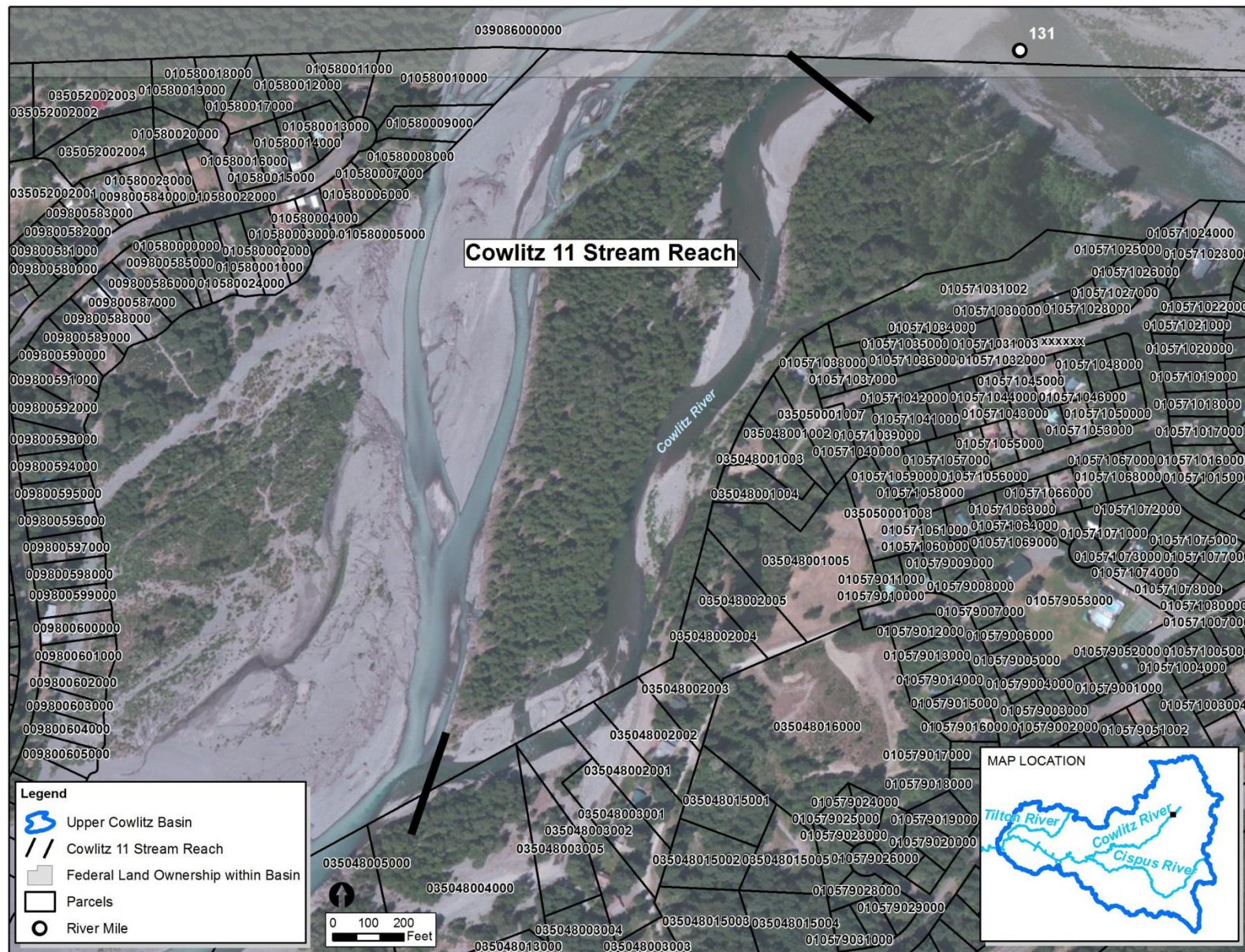


Figure A-25 Cowlitz 11 Stream Reach

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Table A-2 Reach Characteristics

River	Reach ID	Reach Length (mi)	River Mile ¹ Start	River Mile ¹ End	Meander Bends	Tributary Junction	Ownership	Zoning ²	Parcels	Current Human Use ³	Threat of Development	Species Present ⁴	EDT ⁵ Reach ID	EDT ⁶ Reach Rating and Preservation Value ⁵	Notes	Priority Reach ⁷
Tilton River	Tilton 1	2.2	7.5	9.7	2	None	Private/State	Forest	33695002000, 33710000000, 33712000000, 33712001000, 33712002000, 33712003000, 33712004000, 33712005000, 33713000000, 33715000000, 33717003000, 33717004001, 33717004002, 33719006000, 33719007000, 33788001000, 33788002000, 33792000000, 33795000000, 33798002000, 33807000000, 33808001000	None	Low	Spring Chinook/Winter Steelhead/Coho	Tilton-3	B/11%	-	Yes
Tilton River	Tilton 2	1.7	10.6	12.3	2	None	Private/State	Forest/Park	33753001000, 33753002000, 33754000000, 33755001000, 33755002000, 33756001002, 33767000000, 33767001000, 33767002000, 33769001000, 33770001000, 33772001002, 33772001003, 33772003000, 33773000000, 33774002000, 33774003000, 33774004000, 33774005000, 33774006002, 33774007000, 33774008000, 33774009000, 33774010000, 33775000000, 33776000000	None	Low	Spring Chinook/Winter Steelhead/Coho	Tilton-3	B/11%		-
Tilton River	Tilton 3	0.2	13.5	13.7	1	None	Private	RDD-20	34072006001, 34072006002, 34072006003, 34072006004, 34072007000, 34072008000, 34072009000, 34072015000	Yes	Medium/High	Spring Chinook/Winter Steelhead/Coho	Tilton-4	B/17%	A few houses near shore; Tributary junction just downstream of site	-
Tilton River	Tilton 4	0.5	13.9	14.5	2	None	Private/State	Forest/RDD-20	34063002000, 34063003001, 34072004000, 34072005001	Yes	Medium/High	Spring Chinook/Winter Steelhead/Coho	Tilton-4	B/17%	One house near shore	-
Tilton River	Tilton 5	1.3	14.7	15.9	4	None	Private/State	Forest/RDD-5/RDD-10/RDD-20	11035009000, 11035010000, 11035011000, 11035026000, 11035027000, 11035028000, 11035029000, 11035030000, 11035031000, 11035032000, 29774014002, 34063002000, 34063003005, 34063003006, 34063003007, 34063003008, 34063003009, 34063003010, 34063003011, 34071000000, 34071002000, 34103001002, 34103002000, 34103005000, 34103006000, 34103007000, 34106001001, 34106001003, 34122000000, 34122001001, 34122001002, 34122001003, 34122001005, 34122001007, 34122002000	Yes	Medium/High	Spring Chinook/Winter Steelhead/Coho	Tilton-4	B/17%	A few houses near shore	-
Tilton River	Tilton 6	0.3	17.5	17.7	0	None	Private/State	UGA	29764004001, 29774003000, 29774006000, 29774008000, 29774013000, 29774014001, 29775002000, 29776000000, 29777000000, 29778006002	None	Low	Spring Chinook/Winter Steelhead/Coho	Tilton-4	B/17%		-
Tilton River	Tilton 7	1.5	20.1	21.7	3	None	Private/City/State	Forest/RDD-5/RDD-10	34024021002, 34024021003, 34026012003, 34026012006, 34026017000, 34026019000, 34026021000, 34028000000, 34032000000, 34160001002, 34160002000, 34161000000, 34161003000, 34190001000	None	Medium	Spring Chinook/Winter Steelhead/Coho	Tilton-4	B/17%		Yes

Table A-2 Reach Characteristics

River	Reach ID	Reach Length (mi)	River Mile ¹ Start	River Mile ¹ End	Meander Bends	Tributary Junction	Ownership	Zoning ²	Parcels	Current Human Use ³	Threat of Development	Species Present ⁴	EDT ⁵ Reach ID	EDT ⁶ Reach Rating and Preservation Value ⁵	Notes	Priority Reach ⁷
East Fork Tilton River	Tilton 8	0.7	22.2	0.0	0	None	Private/City	Forest/RDD-10	34024021001, 34036001001, 34592001000, 34592002000, 34594002000, 34596000000	None	Medium	Spring Chinook/Winter Steelhead/Coho	Tilton EF-1	D/30%		-
Tilton River	Tilton 9	1.1	22.8	0.0	2	Yes	Private	Forest/RDD-10	34432000000, 34441001000, 34446001000, 34446004000, 34449001001, 34449001002	None	Medium	Spring Chinook/Winter Steelhead/Coho	Tilton WF-1	D/29%		Yes
Quartz Creek	Cispus 1a	0.1	4.1	0.0	0	Yes	Private	Forest	27361000000	None	Low	Spring Chinook/Winter Steelhead/Coho	Quartz Cr-1	NA/35%	Tributary to Cispus	-
Quartz Creek	Cispus 1b	0.2	4.1	0.0	1	Yes	Private	Forest	27361000000	None	Low	Spring Chinook/Winter Steelhead/Coho	Quartz Cr-1	C/35%	Tributary to Cispus	-
Cispus River	Cispus 2	0.5	5.8	6.3	1	None	Private	Forest	27395000000, 27407000000	None	Low	Spring Chinook/Winter Steelhead/Coho	Cispus-1D	C/48%		-
Cispus River	Cispus 3	0.2	15.4	15.6	1	None	Private/Federal	RDD-10	27561000000, 27565000000, 27566000000, 27571000000, 27576000000, 39073000000	None	Medium	Spring Chinook/Winter Steelhead/Coho	Cispus-1F	C/56%		-
Cispus River	Cispus 4	0.4	15.9	16.4	1	None	Private	Forest/RDD-10	27582000000, 27582001000, 27582001003	None	Medium	Spring Chinook/Winter Steelhead/Coho	Cispus-1F	C/56%		-
Cowlitz River	Cowlitz 1	0.8	103.5	104.2	1	None	Private/State	ARL/RDD-10	31784003000, 31791002000, 31792000000, 31815000000	None	Medium	Spring Chinook/Winter Steelhead/Coho	Upper Cowlitz-1B	C/51%		-
Cowlitz River	Cowlitz 2	0.5	108.9	109.4	1	None	Private	ARL/RDD-20	31706007000, 31706008000, 31706009011, 31706009012, 31706009013, 31706009014, 31706009015, 31713002000, 31716008000, 31716009000, 31716011000, 31716018000, 31718016000, 31718017000, 31718018000, 31718019000	None	Medium	Spring Chinook/Winter Steelhead/Coho	Upper Cowlitz-1C	C/59%		-
Cowlitz River	Cowlitz 3	1.7	110.8	112.7	3	None	Private	RDD-20	31706009024, 31706009025, 31706009026, 31706009032, 31706009033, 31706009034, 31718007000, 31718008000, 31718009000, 31718010000, 31718013000, 31718014000, 31718025000, 31725000000, 31726001000, 31726002000, 31963002000, 31963004000, 32154001000, 32154002000, 32154003000, 32154004000, 32159001000, 32160001001, 32160001002, 32177000000	None	Medium	Spring Chinook/Winter Steelhead/Coho	Upper Cowlitz-1C	C/59%		Yes
Cowlitz River	Cowlitz 4	2.0	112.9	114.9	3	None	Private/State/Tribal	RDD-20	32105001060, 32105001061, 32105001062, 32105001063, 32105001064, 32108001016, 32108001017, 32108001018, 32108001019, 32108001020, 32108001021, 32108001023, 32108001025, 32127001000, 32127002000, 32128000000, 32129000000, 32129001000, 32129002000, 32130000000, 32131000000, 32132001000, 32132002000, 32133000000, 32134000000, 32137000000, 32138000000, 32140001000, 32140002001, 32140002002, 32179001000, 32188000000, 32192000000, 32193000000	None	Medium	Spring Chinook/Winter Steelhead/Coho	Upper Cowlitz-1CC	C/58%		Yes – majority of parcels are grouped at the upstream extent

Table A-2 Reach Characteristics

River	Reach ID	Reach Length (mi)	River Mile ¹ Start	River Mile ¹ End	Meander Bends	Tributary Junction	Ownership	Zoning ²	Parcels	Current Human Use ³	Threat of Development	Species Present ⁴	EDT ⁵ Reach ID	EDT ⁶ Reach Rating and Preservation Value ⁵	Notes	Priority Reach ⁷
Cowlitz River	Cowlitz 5	3.0	116.5	119.9	2	None	Private/County/Federal	Forest/RDD-20	32017000000, 32020000000, 32020001000, 32020001001, 32020002001, 32020002002, 32020003000, 32025000000, 32026005001, 32026005002, 32026007001, 32026007002, 32026008000, 32026009000, 32028002006, 32031003000, 32031005003, 32031005004, 32031005005, 32031005006, 32031005007, 32035000000, 32036004000, 32036007000, 32036009000, 32037001000, 32037002000, 32037003000, 32037004000, 32038001000, 32038002000, 32038004000, 32038005000, 32038006000, 32038007000, 32038008000, 32038009000, 32038010000, 32038012000, 32038013000, 32039000000, 32040000000, 32041000000, 32041001000, 32041002000, 32041003000, 32042001001, 32042002000, 32042005000, 32042008000, 32043007000, 32046002000, 32046003000, 32046004000, 32046005000, 32046006000, 32046007000, 32046008000, 32049006000, 32053007000, 32054000000, 32057003000, 32060001001, 32073004000, 32078000000, 32080000000, 32094002000	Yes	Medium	Spring Chinook/Winter Steelhead/Coho	Upper Cowlitz-1CCC	C/58%	Properties reclaimed by river	-
Cowlitz River	Cowlitz 6	1.3	120.1	121.7	0	None	Private/Federal	Forest/RDD-20	32014001001, 32015000000, 32016000000, 32212001000, 32212002000, 32212003000, 32217002000, 32222002000, 32222005000, 32225001000, 32229001000, 32229003000, 32229004000, 35276010000, 35276011000	None	Medium	Spring Chinook/Winter Steelhead/Coho	Upper Cowlitz-1CCC	C/58%		Yes
Smith Creek	Cowlitz 7a	0.2	122.2	0.0	0	Yes	Private	RDD-20	35286001000, 35286002002, 35288003002, 35288003018, 35288003020	Yes	Medium	Spring Chinook/Winter Steelhead/Coho	Smith Cr-1	NA/71%	House on shore	-
Smith Creek	Cowlitz 7b	0.4	122.2	0.0	1	Yes	Private	RDD-10	32207001002, 35290001000, 35291000000	Yes	Medium	Spring Chinook/Winter Steelhead/Coho	Smith Cr-1	NA/71%	House on shore	-

Table A-2 Reach Characteristics

River	Reach ID	Reach Length (mi)	River Mile ¹ Start	River Mile ¹ End	Meander Bends	Tributary Junction	Ownership	Zoning ²	Parcels	Current Human Use ³	Threat of Development	Species Present ⁴	EDT ⁵ Reach ID	EDT ⁶ Reach Rating and Preservation Value ⁵	Notes	Priority Reach ⁷
Cowlitz River	Cowlitz 8	3.7	122.1	126.2	4	None	Private/State/Federal	Forest/Mine/RDD-5/RDD-10/RDD-20	9960004000, 9960005000, 9960006000, 9960007000, 9960008000, 9960009000, 9960010000, 11260058000, 35145063004, 35160000000, 35166000000, 35167000000, 35168000000, 35169002000, 35169003000, 35173008000, 35174001000, 35174002001, 35174002002, 35175002001, 35175002002, 35179001003, 35180001000, 35180002000, 35180003000, 35180004000, 35180005000, 35180006000, 35180007000, 35180008000, 35180009000, 35180010000, 35180011000, 35180012000, 35247001000, 35255001000, 35257000000, 35266000000, 35271000000, 35271001001, 35272000000, 35274000000, 35275000000, 35277001000, 35280001000, 35281000000, 35282000000, 35285000000, 35286000000, 35286002001, 35287002000, 35288003013, 35288003015, 35288003025, 35288003030, 35288004001, 35288004002, 35293001000	Yes	Low	Spring Chinook/Winter Steelhead/Coho	Upper Cowlitz-1F	C/60%	River has reclaimed properties in this reach; Four houses near Skate Creek Junction	-
Skate Creek	Cowlitz 9	1.0	125.8	0.0	3	Yes	Private/State	RDD-5/RDD-10	9960003000, 9960004000, 9960005000, 9960006000, 9960007000, 9960008000, 9960009000, 9960010000, 35145063004, 35172001001, 35172001002, 35172002000, 35172003000, 35172005000, 35173008000, 35173009000	Yes	Medium	Spring Chinook/Winter Steelhead/Coho	Skate Cr-1	NA/47%	House near junction with Cowlitz River	Yes

Table A-2 Reach Characteristics

River	Reach ID	Reach Length (mi)	River Mile ¹ Start	River Mile ¹ End	Meander Bends	Tributary Junction	Ownership	Zoning ²	Parcels	Current Human Use ³	Threat of Development	Species Present ⁴	EDT ⁵ Reach ID	EDT ⁶ Reach Rating and Preservation Value ⁵	Notes	Priority Reach ⁷
Cowlitz River	Cowlitz 10	4.1	126.5	130.7	2	Yes	Private/State/Federal	Mine/RDD-5/RDD-10/RDD-20/RRC-R1/STMU/STR-4	9800173000, 9800174000, 9800175000, 9800176000, 9800177000, 9800178000, 9800179000, 9800378000, 9800379001, 9800381000, 9800382000, 9800383000, 9800384000, 9800385000, 9800386000, 9800387000, 9800390000, 9800391000, 9800392000, 9800393000, 9800396001, 9800397000, 9800398000, 9800404000, 9800405000, 9800406000, 9800407000, 9800408000, 9800409000, 9800410000, 9800434000, 9800435000, 9800585000, 9800586000, 9800587000, 9800588000, 9800589000, 9800590000, 9800591000, 9800592000, 9800593000, 9800594000, 9800595000, 9800596000, 9800597000, 9800598000, 9800599000, 9800600000, 9800601000, 9800602000, 9800603000, 9800604000, 9800605000, 9800606000, 9800607000, 9800608000, 9800609000, 9800610000, 9800611000, 9800612000, 9800615001, 9800615002, 9800616000, 9800617001, 9800619000, 9800620000, 9800621000, 9800622000, 9800623000, 9800624000, 10125092001, 10125154000, 10125155000, 10125156000, 10125157000, 10125158000, 10125159000, 10125160000, 10125179000, 10125180000, 10125181000, 10125182000, 10125183000, 10125184000, 10125185000, 10125186000, 10125187000, 10125188000, 10125189000, 10580000000, 10580001000, 10580002000, 10580003000, 10580004000, 10580005000, 10580006000, 10580007000, 10580008000, 10580009000, 10580010000, 10580024000, 11038015000, 11038069004, 11038069011, 11038069012, 11038069014, 11038069015, 11038069019, 11038069021, 11038069024, 11038069029, 11038069033, 11038069039, 11038069042, 11038069043, 11038069044, 11038069045, 11038069046, 35048005000, 35048006001, 35048006002, 35048006004, 35048006005, 35048011000, 35057001000, 35070003000, 35070004000, 35070010000, 35070011000, 35070012000, 35070018001, 35070018002, 35070018003, 35070019000, 35071001000, 35072000000, 35078000000, 35081001000, 35081002000, 35087001000, 35087001001, 35087001005, 35087001006, 35087001007, 35087002000, 35087003000, 35087004000, 35087005000, 35087006000, 35091001000, 35094000000, 35095002000, 35097000000,	Yes	Medium	Spring Chinook/Winter Steelhead/Coho	Upper Cowlitz-2	C/61%	Bank armoring present, several near shore residents	-

Table A-2 Reach Characteristics

River	Reach ID	Reach Length (mi)	River Mile ¹ Start	River Mile ¹ End	Meander Bends	Tributary Junction	Ownership	Zoning ²	Parcels	Current Human Use ³	Threat of Development	Species Present ⁴	EDT ⁵ Reach ID	EDT ⁶ Reach Rating and Preservation Value ⁵	Notes	Priority Reach ⁷
									35099001002, 35099001003, 35099001004, 35099001005, 35099001009, 35099001015, 35117001000, 35117002000, 35117003000, 35120000000, 35121002001, 35121002002, 35121002003, 35121002004, 35125000000, 35127002000, 35127003000, 35127004000, 35127005000, 35127006000, 35127007000, 35127008000, 35127009000, 35129002000, 35129004000, 35129005000, 35129006000, 35129009000, 35129011000, 35129012000, 35130001000, 35130002001, 35130002002, 35130004000, 35130005000, 35130005001, 35130006000, 35130007000, 35130008000, 35130009000, 35130012002, 35130012003, 35132005005, 35146017000, 35147000000							
Cowlitz River	Cowlitz 11	0.5	130.4	130.9	3	None	Private	Mine/RRC-R1	10571023000, 10571024000, 10571025000, 10571031002, 10571038000, 35048001002, 35048001003, 35048001004, 35048001005, 35048002001, 35048002002, 35048002003, 35048002004, 35048002005, 35048003001, 35048003002, 35048003005, 35048004000, 35050001007	Yes	Low	Spring Chinook/Winter Steelhead/Coho	Upper Cowlitz-2	C/61%	House on shore	-

¹ USGS River Miles <http://www.ecy.wa.gov/services/gis/data/hydro/rivermiles.htm>

² Zoning Definitions:

- ARL: Agricultural resources land
- Forest: Land primarily useful for growing trees
- Mine: Land zoned for mining
- Park: Park and recreation land
- RDD-5: Rural development district – allows a density of one dwelling per five acres for subdivision purposes
- RDD-10: Rural development district – allows a density of one dwelling per ten acres for subdivision purposes
- RDD-20: Rural development district – allows a density of one dwelling per twenty acres for subdivision purposes
- RRC-R1: Rural residential centers – maximum density one unit per gross acre
- STMU: Small towns – mixed use/commercial
- STR-4: Small towns – residential
- UGA: Urban growth area

³ Development constraints (i.e. bank hardening, encroachment by land uses, transportation infrastructure, etc.).

⁴ For the purpose of our analysis this is limited to species identified in the Settlement Agreement

⁵ LCRFB 2010 <http://www.lcfrb.gen.wa.us/Google%20earth%20layer%20page.htm>

⁶ Mobrand Biometrics, Inc. 1999

⁷ Priority Reach indicates those the reaches containing the most contiguous river miles, meander bends, and a “reasonable” number of parcels.

Upper Cowlitz River Basin Reach
Characterization Project

APPENDIX

B

PARCEL OWNERSHIP

Appendix B

Parcel Ownership

Twenty-six river reaches, covering approximately 30 river miles, possess attributes indicative of the riverine processes necessary to support critical salmon habitat that is sustainable over time, and won't require intervention by the use of restoration techniques (Appendix A). This appendix provides additional detail on parcel ownership associated with the recommended reaches to assist Tacoma Power and the Fisheries Technical Committee with their discussion about which of the recommended reach(es) would be most suitable to pursue (Table B-1). Additional reach specific details are available from the GIS, KMZ and excel files accompanying this report.

Table B-1 Parcel Ownership

Reach	Parcel Number	Owner	Mailing Address
Cispus 1a/b	27361000000	PORT BLAKELY TREE FARMS LDT PT	8133 RIVER DR SE,TUMWATER,WA98501
Cispus 2	27395000000	PORT BLAKELY TREE FARMS LDT PT	8133 RIVER DR SE,TUMWATER,WA98501
Cispus 2	27407000000	PORT BLAKELY TREE FARMS LDT PT	8133 RIVER DR SE,TUMWATER,WA98501
Cispus 3	27566000000	TENZLER, DOUGLAS J	245 FOXFIELD DR,PORT TOWNSEND,WA98368-9549
Cispus 3	27565000000	TENZLER, DOUGLAS J	245 FOXFIELD DR,PORT TOWNSEND,WA98368-9549
Cispus 3	39073000000	GOVERNMENT LAND	351 NW NORTH ST MS:ASR01,CHEHALIS,WA98532-1926
Cispus 3	27561000000	UNITED STATES OF AMERICA	UNKNOWN, WASHINGTON,DC20240-0001
Cispus 3	27576000000	GOVERNMENT LAND	351 NW NORTH ST MS:ASR01,CHEHALIS,WA98532-1926
Cispus 3	27571000000	TENZLER, DOUGLAS J	245 FOXFIELD DR,PORT TOWNSEND,WA98368-9549
Cispus 4	27582000000	RUFFINO, JOSEPH A ET AL	26726 BRISTOL CT,KENT,WA98032
Cispus 4	27582001003	SMITH, BARBARA, ET AL	1112 WASHINGTON AVE N, LONG BEACH,WA98631
Cispus 4	27582001000	BARCUS, RICHARD D & DEBORAH F	PO BOX 643,MILTON,WA98354
Cowlitz 1	31784003000	WORTHEN, MARGERY E	601 2ND AVE NE,PUYALLUP,WA98372-5004
Cowlitz 1	31792000000	COWLITZ MEADOW DAIRY INC	158 ST RTE 131,RANDLE,WA98377
Cowlitz 1	31815000000	COWLITZ MEADOW DAIRY INC	158 ST RTE 131,RANDLE,WA98377
Cowlitz 1	31791002000	STATE OF WASHINGTON	PO BOX 47339,OLYMPIA,WA98504
Cowlitz 10	10580010000	MORBECK, JOHN P & SALLY R	203 LAKE WASHINGTON BLVD E,SEATTLE,WA98112
Cowlitz 10	10580009000	MORBECK, JOHN P & SALLY R	203 LAKE WASHINGTON BLVD E,SEATTLE,WA98112
Cowlitz 10	10580008000	MORBECK, JOHN P & SALLY R	203 LAKE WASHINGTON BLVD E,SEATTLE,WA98112
Cowlitz 10	10580007000	MORBECK, JOHN P & SALLY R	203 LAKE WASHINGTON BLVD E,SEATTLE,WA98112
Cowlitz 10	10580006000	MCALPINE, JOHN	140 MAPLE PL,PACKWOOD,WA98361-9705
Cowlitz 10	10580005000	JONES, TODD L & JULIE K	PO BOX 99,PACKWOOD,WA98361
Cowlitz 10	10580004000	JONES, DARRELL & KYESUN	PO BOX 1790,OROVILLE,WA98844
Cowlitz 10	10580003000	ROLOFF, KEITH E & ROLOFF, CASEY J	132 MAPLE WAY,PACKWOOD,WA
Cowlitz 10	10580002000	BERGSTROM, RETA	6836 40TH ST CT W,FIRCREST,WA98466
Cowlitz 10	10580001000	BETSWORTH, ROBERT	3717 188TH ST NW,STANWOOD,WA98292
Cowlitz 10	10580000000	FOX, PATRICK J	5580 BEVERLY AVE NE,BROWNS POINT,WA98422
Cowlitz 10	10580024000	HIGH VALLEY COUNTRY CLUB INC	PO BOX 427,PACKWOOD,WA98361-0427
Cowlitz 10	9800585000	BALDWIN, SUSAN	2222 92ND AVE NE,BELLEVUE,WA98004

Table B-1 Parcel Ownership

Reach	Parcel Number	Owner	Mailing Address
Cowlitz 10	9800586000	AFDEM, RODNEY & AFDEM, WILLIAM D	8911 119TH ST CT E,PUYALLUP,WA98373
Cowlitz 10	9800587000	CLAUS LIVING TRUST, MICHAEL LEROY	110 MAPLE PL,PACKWOOD,WA98361
Cowlitz 10	9800588000	CLAUS, MICHAEL	110 MAPLE PL,PACKWOOD,WA98361
Cowlitz 10	9800589000	JACOBSON, RICHARD E	104 MAPLE PL,PACKWOOD,WA98361
Cowlitz 10	9800590000	MCMILLIN, SYLVIA O, ET AL	PO BOX 1194,GRAHAM,WA98338
Cowlitz 10	9800591000	MCMILLIN, SYLVIA O, ET AL	PO BOX 1194,GRAHAM,WA98338
Cowlitz 10	9800592000	BRUCHET, LORNE R ET AL	2507 BUCKINGHAM DR SE,OLYMPIA,WA98501
Cowlitz 10	9800593000	WENDELIN, EDWARD C & SYLVIA A	202 MOUNTAIN VIEW DR,PACKWOOD,WA98361
Cowlitz 10	9800594000	BROOKS, HOWARD	PO BOX 367,COWICHE,WA98923
Cowlitz 10	9800595000	EWART, JOANNE, ET AL	11317 E AUTUMN SAGE DR,SCOTTSDALE,AZ85255
Cowlitz 10	9800596000	WISHKOSKI, MICHAEL S, ET AL	1205 NW 122ND ST,SEATTLE,WA98177-4328
Cowlitz 10	9800597000	WISHKOSKI, MICHAEL S, ET AL	1205 NW 122ND ST,SEATTLE,WA98177-4328
Cowlitz 10	9800598000	LEGLER, WILLIAM C & NOVELLA V	PO BOX 261,PACKWOOD,WA98361
Cowlitz 10	9800599000	LEGLER, WILLIAM C & NOVELLA V	PO BOX 261,PACKWOOD,WA98361
Cowlitz 10	9800600000	GOBEL, JUDITH	8040 SW LAURELWOOD CT,PORTLAND,OR97225
Cowlitz 10	9800601000	GOBEL, JUDITH	8040 SW LAURELWOOD CT,PORTLAND,OR97225
Cowlitz 10	9800602000	JAMES, MARK	PO BOX 404,AUBURN,WA98071
Cowlitz 10	9800603000	LEECH, ROBERT A & TERESA A	PO BOX 597,OLYMPIA,WA98540
Cowlitz 10	9800604000	CRUCHON, DENNIS	5007 MORGAN ST,SEATTLE,WA98136-1357
Cowlitz 10	9800605000	SHUMWAY, JUSTIN	21624 121ST STREET CT E,SUMNER,WA98391-7264
Cowlitz 10	9800606000	CLAUNCH, LARRY L, ET AL	10317 75TH AVE E,PUYALLUP,WA98373-4017
Cowlitz 10	9800607000	CLAUNCH, LARRY L, ET AL	10317 75TH AVE E,PUYALLUP,WA98373-4017
Cowlitz 10	9800608000	CLAUNCH, LARRY L, ET AL	10317 75TH AVE E,PUYALLUP,WA98373-4017
Cowlitz 10	9800609000	RHEBECK, MATTHEW HALE & MEGAN MAUREEN	1831 LENORE DR,TACOMA,WA98406
Cowlitz 10	35048005000	TRUSSELL, JONATHAN H	608 23RD ST,LONGVIEW,WA98632
Cowlitz 10	9800610000	RHEBECK, MATTHEW HALE & MEGAN MAUREEN	1831 LENORE DR,TACOMA,WA98406
Cowlitz 10	9800611000	OHLSON, KIMBERLY ET AL	1822 N WHITMAN,TACOMA,WA98406
Cowlitz 10	9800612000	TOWER, MARKEEN, ET AL	PO BOX 350,PACKWOOD,WA98361
Cowlitz 10	9800615002	THATCHER, REVOCABLE LIVING	1911 SW CAMPUS DR,FEDERAL WAY,WA98023

Table B-1 Parcel Ownership

Reach	Parcel Number	Owner	Mailing Address
Cowlitz 10	9800615001	MARTEL, THOMAS J & DEBRA A	5039 N WHITMAN, TACOMA, WA98407
Cowlitz 10	9800624000	BUNTING, DAVID	114 MOUNTAIN VIEW DR, PACKWOOD, 98361
Cowlitz 10	9800623000	ELLIS, PETE & DEBBIE	29115 26TH AVE E, ROY, WA98580-9574
Cowlitz 10	9800622000	ELLIS, PETER F	29115 26TH AVE E, ROY, WA98580-9574
Cowlitz 10	9800621000	BACKUS, JUDY J	32449 LYNCH LANE, BLACK DIAMOND, WA98010
Cowlitz 10	9800616000	WOODS, WILLIAM V JR & BRAYDEN, DEBRA	2263 ROBIN LN, CAMANO ISLAND, WA98282
Cowlitz 10	9800620000	BACKUS, JUDY J	32449 LYNCH LANE, BLACK DIAMOND, WA98010
Cowlitz 10	9800619000	BACKUS, JUDY J	32449 LYNCH LANE, BLACK DIAMOND, WA98010
Cowlitz 10	9800617001	KLINE, RONALD H & CASADY, CHRISTINA	5013 N 48TH ST, TACOMA, WA98407-4410
Cowlitz 10	35048006005	CODER, DARIN & BECKY	3136 DOUGLAS CIR, LAKE OSWEGO, OR97035-3551
Cowlitz 10	35070018003	GALA, DAVID J & SHANNON	2817 E SEQUIM BAY RD, SEQUIM, WA98382
Cowlitz 10	35048011000	ALVORD, GORDON P & AMY L	4118 N MULLEN, TACOMA, WA98407
Cowlitz 10	35070018002	ROMERO, MARK A & SHARON L	PO BOX 777, PACKWOOD, WA98361-0777
Cowlitz 10	35070018001	PACKWOOD PROPERTIES LLC	PO BOX 472, FOX ISLAND, WA98333
Cowlitz 10	35048006004	ELLINGSON, BRETT A & JOEY L	247 TILLCUM DR, CHEHALIS, WA98532
Cowlitz 10	35048006001	WALTERS, ROBERT & ANDRA	177 VISTA RD, CHEHALIS, WA98532
Cowlitz 10	11038069012	CLIFTON, JAMES V, ET AL	321 E SODERBERG RD C-7, ALLYN, WA98524
Cowlitz 10	11038069024	CROWE, RON & VANESSA	443 5TH ST NE APT 5, PUYALLUP, WA98372-3090
Cowlitz 10	11038069029	PRATHER, TIM & JEAN	2030 S 332ND ST, FEDERAL WAY, WA98003
Cowlitz 10	11038069021	MISIAK, EUGENE P & PATRICIA J	3311 GREEN MOUNTIAN RD, KALAMA, WA98625
Cowlitz 10	35048006002	ROBERTS, BRIAN & AMY	PO BOX 588, NAPA VINE, WA98565-0588
Cowlitz 10	11038069019	MISIAK, EUGENE P & PATRICIA J	3311 GREEN MOUNTIAN RD, KALAMA, WA98625
Cowlitz 10	11038069039	MYERS REVOCABLE MARITAL TRUST	51 E MT. RAINIER LOOP, BONNEY LAKE, WA98390
Cowlitz 10	11038069033	SAVAGE, KEVIN E & KAREN A	10223 70TH AVE NW, GIG HARBOR, WA98332
Cowlitz 10	11038069015	TRAILS END ASSOCIATION C/O MARK ROMERO	PO BOX 777, PACKWOOD, WA98361
Cowlitz 10	11038069046	FLYGARE, GREGORY S & MCLEOD, JENNIFER L	2225 S 308TH ST, FEDERAL WAY, WA98003
Cowlitz 10	11038069045	MURPHY, TODD A & VICTORIA A	920 16TH ST SW, PUYALLUP, WA98371-6652
Cowlitz 10	11038069044	ONDATJE, JEROME T & DAWN R	1665 S WASHINGTON AVE, GLENDORA, CA91740
Cowlitz 10	11038069043	HANSEN, JON M & PATTERSON, EMILY JEAN	30633 CRAG VIEW DR, DUNS MUIR, CA96025

Table B-1 Parcel Ownership

Reach	Parcel Number	Owner	Mailing Address
Cowlitz 10	11038069042	MISIAK, EUGENE P & PATRICIA J	3311 GREEN MOUNTIAN RD,KALAMA,WA98625
Cowlitz 10	11038015000	TRAILS END ASSOCIATION	PO BOX 777,PACKWOOD,WA98361
Cowlitz 10	11038069014	EDMINSTER, CHRIS & MICHELLE	2014 MERIDIAN ST S,PUYALLUP,WA98373
Cowlitz 10	35070010000	ALMONT, ERIC & MICHELLE	16616 249TH ST E,ORTING,WA98360
Cowlitz 10	35070011000	BILLINGS, GREG & KRISTINE	PO BOX 681,SUMNER,WA98390
Cowlitz 10	35070012000	SYMONDS, JAMES K & MONZELLA T	1605 WASHINGTON AVE,ENUMCLAW,WA98002
Cowlitz 10	11038069004	GAMIN, JAMES & MARSHA	8708 W FALLS AVE,KENNEWICK,WA99336-1007
Cowlitz 10	11038069011	TRAILS END ASSOCIATION C/O MARK ROMERO	PO BOX 777,PACKWOOD,WA98361
Cowlitz 10	35071001000	STATE LAND	LANDS MGMT-% PAT GARRETT PUBLIC LANDS BLDG,OLYMPIA,WA98504
Cowlitz 10	35057001000	STERLING SAVINGS BANK	111 N WALL ST,SPOKANE,WA99210-1954
Cowlitz 10	35070019000	EAGLE PEAK ESTATES HOMEOWNERS ASSOCIATIO	PO BOX 555,PACKWOOD,WA98361
Cowlitz 10	35070003000	IMHOF, M	11509 E 152ND ST,PUYALLUP,WA98374
Cowlitz 10	35070004000	IMHOF, M	11509 E 152ND ST,PUYALLUP,WA98374
Cowlitz 10	35072000000	GOAT ROCKS CO	PO BOX 1234,NORTH BEND,WA98045-1234
Cowlitz 10	35097000000	ARKLE, GREG R & LOFGREN, TIM	PO BOX 171,PACKWOOD,WA98361-0171
Cowlitz 10	35095002000	GOAT ROCKS CO	PO BOX 1234,NORTH BEND,WA98045-1234
Cowlitz 10	35078000000	ARKLE, GREG R & LOFGREN, TIM	PO BOX 171,PACKWOOD,WA98361-0171
Cowlitz 10	35094000000	GOAT ROCKS CO	PO BOX 1234,NORTH BEND,WA98045-1234
Cowlitz 10	35099001015	MENASHA DEVELOPMENT CORP	PO BOX 588,NORTH BEND,OR97459-0102
Cowlitz 10	35099001009	BROOKS, JEREMY & MELINDA EC	22607 NE 227TH AVE,BATTLE GROUND,WA98604
Cowlitz 10	35081002000	ARKLE, GREG R & LOFGREN, TIM	PO BOX 171,PACKWOOD,WA98361-0171
Cowlitz 10	9800175000	STENGER, JACQUELYN	1707 N VASSAULT #7-1,TACOMA,WA98406-2565
Cowlitz 10	35081001000	STENGER, JACKIE	106 RIVERSIDE DR,PACKWOOD,WA98361-9744
Cowlitz 10	9800176000	STENGER, JACQUELYN	1707 N VASSAULT #7-1,TACOMA,WA98406-2565
Cowlitz 10	9800177000	NUBILE, RICHARD A	100 RIVERSIDE DR,PACKWOOD,WA98361
Cowlitz 10	9800178000	NUBILE, RICHARD A	100 RIVERSIDE DR,PACKWOOD,WA98361
Cowlitz 10	9800179000	FRANZ, DONALD L & THOMPSON NIANOA, MO	6672 HOMESTEAD AVE,TACOMA,WA98404
Cowlitz 10	9800174000	RENTERIA, MICHAEL L & ALYS M	12003 SE 13TH ST,VANCOUVER,WA98683
Cowlitz 10	9800173000	ANDERSON REVOCABLE LIVING TRUS	3505 NW UPAS WAY,REDMOND,OR97756-9705

Table B-1 Parcel Ownership

Reach	Parcel Number	Owner	Mailing Address
Cowlitz 10	35099001005	COLLINS, NEIL & ASHLEY	9 CAMERON DR, GREENWICH, CT 06831-2804
Cowlitz 10	35087001007	MONETTE, GARY	11603 CANYON RD E, PUYALLUP, WA 98373-4361
Cowlitz 10	35087006000	GOVERNMENT LAND	351 NW NORTH ST MS:ASR01, CHEHALIS, WA 98532-1926
Cowlitz 10	35099001004	REETZ, DOUG G & NANETTE E	1911 SW CAMPUS DR, FEDERAL WAY, WA 98023
Cowlitz 10	35087001006	KNECHT, CARL	PO BOX 647, GIG HARBOR, WA 98335
Cowlitz 10	35087001001	ONION RING FLATS INC	2221 29TH AVE CT SW, PUYALLUP, WA 98373
Cowlitz 10	35087001005	EDWARDS, SCOTT J	13019 NAOMILAUN DR SW, LAKEWOOD, WA 98498
Cowlitz 10	35087005000	BUTTORFF, ROBERT G & KARLA ROE	3756 N 30TH, TACOMA, WA 98407
Cowlitz 10	35087003000	RAY, GARY & SHIRLEY	2103 HARRISON AVE NW PMB 123, OLYMPIA, WA 98502
Cowlitz 10	35087004000	HOKE, JAMES W	1307 122ND ST CT E, TACOMA, WA 98445
Cowlitz 10	35099001003	BLAIR, JIM & KAREN	6017 144TH ST E, PUYALLUP, WA 98373
Cowlitz 10	35087002000	SCHUTTIE FAMILY REVOCABLE LIVING TRUST	PO BOX 271, ONALASKA, WA 98570-0271
Cowlitz 10	35087001000	BROWN, CHARLES R	PO BOX 547, GRAPEVIEW, WA 98546
Cowlitz 10	9800435000	YOST, DOUGLAS A	PO BOX 154, SPOKANE, WA 99210
Cowlitz 10	9800387000	MURDOCK, MARK	156 SLALOM WAY, PACKWOOD, WA 98361
Cowlitz 10	35099001002	PAUL, MARTIN E AND STACY D	3622 HORSEHEAD BAY DRIVE NW, GIG HARBOR, WA 98335
Cowlitz 10	9800386000	MURDOCK, MARK	156 SLALOM WAY, PACKWOOD, WA 98361
Cowlitz 10	9800385000	MORK, STEVEN C	136 N 77TH ST, SEATTLE, WA 98103-4606
Cowlitz 10	9800384000	MORK, STEVEN C	136 N 77TH ST, SEATTLE, WA 98103-4606
Cowlitz 10	9800383000	YOUNG, FRED E	PO BOX 1365, YAKIMA, WA 98907
Cowlitz 10	9800382000	YOUNG, DAVID ROBERT	PO BOX 1365, YAKIMA, WA 98907
Cowlitz 10	35091001000	AINSWORTH, RICHARD B & CHRISTINE J	3701 GUN CLUB RD #32, YAKIMA, WA 98901
Cowlitz 10	9800381000	ROLOFF, EDWARD A	29630 11TH PL S, FEDERAL WAY, WA 98003-3727
Cowlitz 10	9800379001	STOKKE, MICHAEL J & ROXANNE L	134 SLALOM WAY, PACKWOOD, WA 98361
Cowlitz 10	9800378000	FINN, RICHARD M	15400 SE 155TH PL UNIT 87, RENTON, WA 98058
Cowlitz 10	9800410000	HIGH VALLEY COUNTRY CLUB INC	PO BOX 427, PACKWOOD, WA 98361-0427
Cowlitz 10	9800409000	DUSEK, PATRICK & THERESA R	3910 N DEFIANCE, TACOMA, WA 99407
Cowlitz 10	9800408000	SILBERLING, JANA A	905 A HARVEY RD, AUBURN, WA 98002
Cowlitz 10	35125000000	UNITED STATES OF AMERICA	UNKNOWN, WASHINGTON, DC 20240-0001

Table B-1 Parcel Ownership

Reach	Parcel Number	Owner	Mailing Address
Cowlitz 10	9800407000	HOFFARTH, MARK A SR & SANDY L	517 N JEAN ST,KENNEWICK,WA99336
Cowlitz 10	9800406000	HOFFARTH, MARK A SR & SANDY L	517 N JEAN ST,KENNEWICK,WA99336
Cowlitz 10	9800405000	LOCKARD, ROBERT A	2531 BUCKINGHAM DR SE,OLYMPIA,WA98501-7034
Cowlitz 10	9800404000	LOCKARD, ROBERT A	2531 BUCKINGHAM DR SE,OLYMPIA,WA98501-7034
Cowlitz 10	9800434000	GALLAHER, J	12009 169TH DR NE,ALRINGTON,WA98223-7128
Cowlitz 10	9800398000	JACOBUS, DALE	521 98TH ST S,TACOMA,WA98444
Cowlitz 10	9800396001	HILL, RICHARD A & CAROLYN R	1523 S LAKE STICKNEY DR,LYNNWOOD,WA98087
Cowlitz 10	9800397000	KING, JOSEPH	10924 24TH PL SW,SEATTLE,WA98146
Cowlitz 10	35117001000	SODERGREN, JOHN L	PO BOX 6,OLYMPIA,WA98507-0006
Cowlitz 10	9800393000	MCDONALD, RICHARD, JR & TERRI D	1720 169TH ST CT S,SPANAWAY,WA98387
Cowlitz 10	9800392000	MCDONALD, RICHARD, JR & TERRI D	1720 169TH ST CT S,SPANAWAY,WA98387
Cowlitz 10	9800391000	MCDONALD, RICHARD, JR & TERRI D	1720 169TH ST CT S,SPANAWAY,WA98387
Cowlitz 10	9800390000	LEWIS COUNTY TAX TITLE PROPERTY	360 NW NORTH ST,CHEHALIS,WA98532-1900
Cowlitz 10	35117002000	SODERGREN, JOAN F	PO BOX 6,OLYMPIA,WA98507-0006
Cowlitz 10	35117003000	SODERGREN, JOHN L, ET AL	PO BOX 6,OLYMPIA,WA98507-0006
Cowlitz 10	35127002000	TACOMA ORTHOTIC & PROSTH TRUST	5106 188TH ST SW,LYNNWOOD,WA98037
Cowlitz 10	35121002001	GILBERT, FAMILY LIVING TRUST THE	13510 94TH ST KPN,GIG HARBOR,WA98335
Cowlitz 10	35127003000	TACOMA ORTHOTIC & PROSTH TRUST	5106 188TH ST SW,LYNNWOOD,WA98037
Cowlitz 10	35121002002	GILBERT, FAMILY LIVING TRUST THE	13510 94TH ST KPN,GIG HARBOR,WA98335
Cowlitz 10	35121002003	SULKOSKY FAMILY LIVING TRUST	4812 E MAPLE LANE CIR NW,GIG HARBOR,WA98335
Cowlitz 10	35121002004	ABSHER, DONALD STEVEN & BETTY LOUISE	10 BLOSSOM LN SW,LAKEWOOD,WA98499-1606
Cowlitz 10	35127004000	TACOMA ORTHOTIC & PROSTH TRUST	5106 188TH ST SW,LYNNWOOD,WA98037
Cowlitz 10	35129012000	SEXSMITH, RANDY L	4401 NE 92ND,PORTLAND,OR97220
Cowlitz 10	35129006000	GODFREY, RICHARD D & CATHERINE M	11108 SUMMITVIEW EXT,YAKIMA,WA98908-9117
Cowlitz 10	35127005000	VITA, SHAWN T & SUE	26419 SE 273RD PL,RAVENSDALE,WA98051
Cowlitz 10	35129005000	GODFREY, R D	11108 SUMMITVIEW EXT,YAKIMA,WA98908-9117
Cowlitz 10	35129002000	TRUJILLO, CHARLES ET AL	1002 E SEATTLE ST,KENT,WA98030
Cowlitz 10	35127006000	LAVALLA, PATRICK H & COBLE, CYNTHIA A	4537 FOXHALL DR NE,OLYMPIA,WA98516
Cowlitz 10	35129011000	STANLEY, GERALD N	133 TURNER RD,PACKWOOD,WA98361

Table B-1 Parcel Ownership

Reach	Parcel Number	Owner	Mailing Address
Cowlitz 10	35127007000	BERKOMPAS, DERREK G & SPENCER, SARAH C	PO BOX 648,PACKWOOD,WA98361
Cowlitz 10	35129009000	DILLS, THOMAS F	PO BOX 21423,BILLINGS,MT59104-1423
Cowlitz 10	35120000000	LEWIS COUNTY WATER DISTRICT 3	PO BOX 128,PACKWOOD,WA98361
Cowlitz 10	35127008000	ANDERSON, STEPHEN R & SANDRA L	7716 OLYMPIC VIEW DR NW,GIG HARBOR,WA98335
Cowlitz 10	35127009000	MAYON, MITCHELL	4009 N 25TH ST,TACOMA,WA98406
Cowlitz 10	35129004000	BRANDT, STEPHEN D & CAROL A	9708 NE 111TH AVE,VANCOUVER,WA98662
Cowlitz 10	35130012003	SKYLINE DEV CO	PO BOX 507,PACKWOOD,WA98361
Cowlitz 10	35130012002	DELONG, DAVID LAYNE	PO BOX 447,PACKWOOD,WA98361
Cowlitz 10	10125092001	COTTONWOOD DRIVE LLC	317 S MERIDIAN,PUYALLUP,WA98371
Cowlitz 10	35130009000	BAUER, PAUL R	9102 ZIRCON DR SW,LAKEWOOD,WA98498
Cowlitz 10	35130006000	BORDEAUX, ROBERT W & SHELLI K	3606 N 8TH ST,TACOMA,WA98406
Cowlitz 10	35130001000	MEIER, WILLIAM S & PATRICIA A	PO BOX 273,PACKWOOD,WA98361-0273
Cowlitz 10	35130007000	HUFFMAN, ELTHA MAXINE	PO BOX 841,GOLDENDALE,WA98620
Cowlitz 10	35130005000	LAGESON, DOUGLAS R & DANA M	PO BOX 943,PACKWOOD,WA98361
Cowlitz 10	35130005001	LAGESON, DOUGLAS R & DANA M	PO BOX 943,PACKWOOD,WA98361
Cowlitz 10	35130002002	OLSON, GREG P & TERRI L SINCLAIR	7718 HENDERSHOT ST NE,OLYMPIA,WA98516
Cowlitz 10	35146017000	HISLOP, MICHAEL D & AIPPERSPACH, JULIE A	128 ALDER RD,PACKWOOD,WA98361
Cowlitz 10	35130002001	KARR, JOHN M	12018 50TH ST CRT E,EDGEWOOD,WA98372-9300
Cowlitz 10	35130004000	LIVING TRUST OF DONALD W & IVA M NURMI	4338 COLUMBIA HEIGHTS RD,LONGVIEW,WA98632
Cowlitz 10	35130008000	RODGERS, JEFFREY D	4740 SCOTT RD NW,OLYMPIA,WA98502
Cowlitz 10	10125154000	JENSEN, PATRICIA	15185 SEGOVIA CT,SAN DIEGO,CA92129
Cowlitz 10	10125155000	JENSEN, PATRICIA	15185 SEGOVIA CT,SAN DIEGO,CA92129
Cowlitz 10	10125156000	MILLER, GREGORY	4606 MERRY LN W,TACOMA,WA98466-1333
Cowlitz 10	10125157000	HENDRICKSON, GARY D & PAMELA C	3617 N WARNER ST,TACOMA,WA98407
Cowlitz 10	10125158000	MILLER, HAL H, ET AL	5310 W LINCOLN AVE,YAKIMA,WA98908
Cowlitz 10	10125159000	CARSON, AGNES ADENA	PO BOX 223,PACKWOOD,WA98361-0223
Cowlitz 10	10125160000	CARSON, AGNES ADENA	PO BOX 223,PACKWOOD,WA98361-0223
Cowlitz 10	10125188000	HEATON, KEVIN & JILL	4880 RAU ST,RICHLAND,WA99352
Cowlitz 10	10125189000	CARSON, AGNES ADENA	PO BOX 223,PACKWOOD,WA98361-0223

Table B-1 Parcel Ownership

Reach	Parcel Number	Owner	Mailing Address
Cowlitz 10	10125187000	PANNELL, DENNIE	PO BOX 175,PACKWOOD,WA98361-0175
Cowlitz 10	10125186000	CARSLON, NANCY A TRUST DTD 5-15-1990	3505 HARBORVIEW DR,GIG HARBOR,WA98332
Cowlitz 10	10125185000	JAPHET, JOHN M & SANDY	2127 SUMMIT LAKE SHORE RD,OLYMPIA,WA98502
Cowlitz 10	10125184000	LAWRENCE, PHILLIP N	PO BOX 409,PACKWOOD,WA98361-0409
Cowlitz 10	10125183000	WEST, JOHN D	699 KAMUS DR,FOX ISLAND,WA98333-9603
Cowlitz 10	10125182000	LAWRENCE, PHILLIP N	PO BOX 409,PACKWOOD,WA98361-0409
Cowlitz 10	10125181000	JOHNSON, ROGER LEE & MEAGEN C	2535 N FREMONT,TACOMA,WA98406
Cowlitz 10	10125180000	PETERS, JAMES W	PO BOX 404,PACKWOOD,WA98361-0404
Cowlitz 10	35132005005	JDR CONSTRUCTION INC	7707 56TH AVENUE CT NW,GIG HARBOR,WA98335-7476
Cowlitz 10	35147000000	GELLINGS, LEO B, ET AL	PO BOX 5758,KETCHIKAN,AK99901-0758
Cowlitz 10	10125179000	JOHNSON, DOLORES	PO BOX 354,PACKWOOD,WA98361-0354
Cowlitz 11	10571024000	LOVELY REVOCABLE LIVING TRUST, JEFFREY M	3710 N 31ST ST,TACOMA,WA98407
Cowlitz 11	10571023000	TEBB, MARY PATRICIA	8915 N HARBORVIEW DR UNIT 103,GIG HARBOR,WA98332
Cowlitz 11	10571025000	MAY, MELISSA A	344 E BIRCH AVE STE 102,COLVILLE,WA99114
Cowlitz 11	10571031002	SILVER ISLAND HOLDING LLC	540 N SHORE BLVD,FOX ISLAND,WA98333
Cowlitz 11	10571038000	RABURA, JOHN H & SARA BIRO-	PO BOX 7172,STATE LINE,NY89449-7172
Cowlitz 11	35050001007	STEWART, DONALD L & LISA C	PO BOX 454,BURLEY,WA98322
Cowlitz 11	35048001002	LUCKY 13 CABIN LLC	6622 WOLLECHET DR NW,GIG HARBOR,WA98335-8325
Cowlitz 11	35048001003	WATTLES, SHAWN & CARRIE D	25303 126TH AVE SE,KENT,WA98031
Cowlitz 11	35048001004	TOWNE, BRIAN D & CRYSTAL D	10 N 98TH AVE,YAKIMA,WA98908
Cowlitz 11	35048001005	JONES, ROBERT C & SCHEEL, GAYE L	91 WEST RD,TACOMA,WA98406
Cowlitz 11	35048002005	JONES, ROBERT C & SCHEEL, GAYE L	91 WEST RD,TACOMA,WA98406
Cowlitz 11	35048002004	JONES, ALAN C & ARLENE A	16856 NW PATRICK LN,PORTLAND,OR97229
Cowlitz 11	35048002003	BEROTH, JERRY	5106 62ND AVE NW,GIG HARBOR,WA98335-7310
Cowlitz 11	35048002002	LAVALLA, PATRICK H & COBLE, CYNTHIA A	4537 FOXHALL DR NE,OLYMPIA,WA98516
Cowlitz 11	35048002001	GREEN, MARLIN D	4616 N 8TH ST,TACOMA,WA98406-3518
Cowlitz 11	35048003002	TUTTLE, HOWARD A & JOELL E	PO BOX 763,PACKWOOD,WA98361
Cowlitz 11	35048004000	TUTTLE, HOWARD & JOELL	PO BOX 763,PACKWOOD,WA98361
Cowlitz 11	35048003005	TUTTLE, HOWARD & JOELL	PO BOX 763,PACKWOOD,WA98361

Table B-1 Parcel Ownership

Reach	Parcel Number	Owner	Mailing Address
Cowlitz 11	35048003001	PACKWOOD SHACK LLC	540 N SHORE BLVD,FOX ISLAND,WA98333
Cowlitz 2	31713002000	KHVOROFF, VICTOR I	116 JOREK RD,RANDLE,WA98377-9230
Cowlitz 2	31706008000	CHAMBERS FAMILY REV LIVING TRU	29111 NE HAMMOND CT,BATTLE GROUND,WA98604-9721
Cowlitz 2	31706009015	BURGIN, RACHELLE R & BRADLEY G, ET AL	41419 94TH AVE E,EATONVILLE,WA98328-9511
Cowlitz 2	31706007000	DUNN, JEREMY	6818 254TH ST E,GRAHAM,WA98338-9571
Cowlitz 2	31706009014	BURNS, ROBERT J	620 112TH ST SE UNIT 109,EVERETT,WA98208
Cowlitz 2	31706009013	KYNSI, MARK, ET AL	15694 LUXFORD RD,CLATSKANIE,OR97016
Cowlitz 2	31706009012	VAN NOY, JAMES F	10015 252ND ST E,GRAHAM,WA98338-9167
Cowlitz 2	31706009011	VAN NOY, JAMES F	10015 252ND ST E,GRAHAM,WA98338-9167
Cowlitz 2	31716018000	WOODS, JOSEPH M	PO BOX 220,RANDLE,WA98377-0220
Cowlitz 2	31716008000	HORTTOR, RANDALL & JOAN A	839-105 CLINE RD,RANDLE,WA98377
Cowlitz 2	31716009000	JACOBSEN, DANIEL & A MICHELLE	9501 WOODLAND AVE,PUYALLUP,WA98371
Cowlitz 2	31716011000	WALTON, DONALD	6125 98TH ST NW,GIG HARBOR,WA98335
Cowlitz 2	31718016000	SELF, PATRICIA	9018 112TH ST SW,LAKEWOOD,WA98498
Cowlitz 2	31718017000	MCINTYRE, ROY	2509 NATALIE LN,STEILACOOM,WA98388-4220
Cowlitz 2	31718018000	LAWRENCE, WILLIAM P & ROBYN M	12115 205TH ST E,GRAHAM,WA98338
Cowlitz 2	31718019000	SCHNOOR, CARL W	719 7TH AVE SW,PUYALLUP,WA98371-6768
Cowlitz 3	32159001000	JOY, WILLIAM H	PO BOX 842,GRAHAM,WA98338
Cowlitz 3	32154001000	GONSTEAD, MARK R	10207 LAKE FLORENCE PL,ANDERSON ISLAND,WA98303
Cowlitz 3	32154004000	ENGER, RONALD D	E 1161 BERTLESON RD,SHELTON,WA98584
Cowlitz 3	32154002000	ENGER, RONALD D ET AL	E 1161 BERTLESON RD,SHELTON,WA98584
Cowlitz 3	32154003000	HERRIED, STANLEY KARL & LINDA K	13434 10TH AVE S,BURIEN,WA98168
Cowlitz 3	32160001001	BLANKENSHIP, LLOYD	1350 SILVERBROOK RD,RANDLE,WA98377
Cowlitz 3	32160001002	LESARGE AND RUD, LLC	9504 150TH ST SE,SNOHOMISH,WA98296
Cowlitz 3	31706009033	GILSTRAP CARL, ET AL	1319 E 56TH,TACOMA,WA98404
Cowlitz 3	31706009032	BELLINO, JOSEPH C & CHERYL S	19027 SE 270TH CT,COVINGTON,WA98042
Cowlitz 3	31706009034	TERWILLEGAR, CHARLES E & CYNTH	21016 184TH AVE SE,RENTON,WA98058
Cowlitz 3	31706009026	SWENSEN, ERIC	329 GEORGETOWN CT UNIT B,BLOOMINGDALE,IL60108
Cowlitz 3	31706009025	LUSINK, RICHARD A & GRETCHEN L	PO BOX 773,EATONVILLE,WA98328

Table B-1 Parcel Ownership

Reach	Parcel Number	Owner	Mailing Address
Cowlitz 3	31706009024	POLLEX, JEFF J	18221 95TH LOOP ST E,BONNEY LAKE,WA98391
Cowlitz 3	31726002000	RUD, FRIDOLIN H	PO BOX 32562,JUNEAU,AK99803
Cowlitz 3	31718013000	GIBSON, JAMES N & MELISSA D	PO BOX 1004,MUKILTEO,WA98275
Cowlitz 3	31718014000	WAGNER, JAMES L & MELISSA A	24214 68TH AVE E,GRAHAM,WA98338
Cowlitz 3	31725000000	HARRIS, RICHARD C, ET AL	625 SE PROSPECT ST,CHEHALIS,WA98532
Cowlitz 3	31718025000	HUNSTOCK, DAVID & TONYA	7109 236TH STREET CT E,GRAHAM,WA98338-9353
Cowlitz 3	31718009000	GIBSON, JAMES N & MELISSA D	PO BOX 1004,MUKILTEO,WA98275
Cowlitz 3	31718010000	MONEY, AMANDA	14114 47TH AVE E,TACOMA,WA98446
Cowlitz 3	31726001000	LESARGE, SHANNON RUD & LEONARD	9504 150TH ST SE,SNOHOMISH,WA98296
Cowlitz 3	31718008000	HUNSTOCK, DAVID & TONYA	7109 236TH STREET CT E,GRAHAM,WA98338-9353
Cowlitz 3	31718007000	HUNSTOCK, DAVID & TONYA	7109 236TH STREET CT E,GRAHAM,WA98338-9353
Cowlitz 3	32177000000	LE SARGE, LEONARD & SHANNON	9504 150TH ST SE,SNOHOMISH,WA98296
Cowlitz 3	31963004000	LESARGE, SHANNON RUD & LEONARD	9504 150TH ST SE,SNOHOMISH,WA98296
Cowlitz 3	31963002000	RUD, FRIDOLIN H	PO BOX 32562,JUNEAU,AK99803
Cowlitz 4	32128000000	FEDERAL HOME LOAN MORTGAGE CORPORATION	5000 PLANO PKWY,CARROLLTON,TX75010-4902
Cowlitz 4	32127002000	SMITH, TIMOTHY	16616 10 AVE E,SPANAWAY,WA98387
Cowlitz 4	32127001000	SMITH, TIMOTHY	16616 10 AVE E,SPANAWAY,WA98387
Cowlitz 4	32129000000	NORTON, JOHN E, ET AL	1947 CLINE RD,RANDLE,WA98377
Cowlitz 4	32129001000	NORTON, JOHN E	11377 US HIGHWAY 12,RANDLE,WA98377-9107
Cowlitz 4	32130000000	PUYALLUP TRIBE OF INDIANS	3009 E PORTLAND AVE,TACOMA,WA98404
Cowlitz 4	32129002000	JOHNSON, DENNIS M	304 E DAYTON AVE,DAYTON,WA99328-1021
Cowlitz 4	32138000000	WEBSTER, KRISTY J	1323 CLINE RD,RANDLE,WA98377-9404
Cowlitz 4	32131000000	PUYALLUP TRIBE OF INDIANS	3009 E PORTLAND AVE,TACOMA,WA98404
Cowlitz 4	32133000000	TROUT, LARRY B & ANGELL M	15716 13TH AVE CT E,TACOMA,WA98445
Cowlitz 4	32137000000	WEBSTER, KRISTY J	1323 CLINE RD,RANDLE,WA98377-9404
Cowlitz 4	32140001000	WEBSTER, KRISTY J	1323 CLINE RD,RANDLE,WA98377-9404
Cowlitz 4	32140002001	COLEMAN, HERBERT	182 GLENOMA RD,GLENOMA,WA98336-9724
Cowlitz 4	32132002000	COLEMAN, HERBERT	182 GLENOMA RD,GLENOMA,WA98336-9724
Cowlitz 4	32140002002	WEBSTER, KRISTY J	1323 CLINE RD,RANDLE,WA98377-9404

Table B-1 Parcel Ownership

Reach	Parcel Number	Owner	Mailing Address
Cowlitz 4	32134000000	ELKINS, ANTHONY CHARLES	1211 BAYNE ST,CENTRALIA,WA98531-5401
Cowlitz 4	32132001000	WEBSTER, KRISTY J	1323 CLINE RD,RANDLE,WA98377-9404
Cowlitz 4	32108001016	MICKELSON, SIDNEY C & MERLE G	2607 94TH AVE E,EDGEWOOD,WA98371
Cowlitz 4	32108001017	RONGEN, PEDER & TERESA	5111 FRANCES AVE NE,TACOMA,WA98422
Cowlitz 4	32108001018	CARTERMAN, MYRON	PO BOX 13393,DES MOINES,WA98198
Cowlitz 4	32188000000	DURBIN, EARL & ROXANNE	17504 SE 261ST ST,COVINGTON,WA98042
Cowlitz 4	32179001000	STATE OF WASHINGTON	PO BOX 47339,OLYMPIA,WA98504
Cowlitz 4	32108001019	MCPEAK, DON & KAREN	21704 34TH ST E,LAKE TAPPS,WA98391
Cowlitz 4	32108001020	MCCRACKEN, DAN C & LORI J	1810 WILSON ST SE,OLYMPIA,WA98501
Cowlitz 4	32108001021	DOWNEY, DANIEL D & ELAINE K, E	31926 TISCH RD S,ROY,WA98580
Cowlitz 4	32108001023	MERKEL, DARRELL	11256 10TH AVE S,SEATTLE,WA98168
Cowlitz 4	32105001064	STUART, LOIS	PO BOX 66,PACKWOOD,WA98361-0066
Cowlitz 4	32105001063	KAATZ, WARD & CHRIS, ETAL	625 8TH ST SE,AUBURN,WA98002
Cowlitz 4	32105001062	FOUST, JOSHUA J, ET AL	PO BOX 637,VASHON,WA98070
Cowlitz 4	32105001061	HOLLOWAY KEVIN, ET AL	22025 8TH AVE S,DES MOINES,WA98198
Cowlitz 4	32105001060	VOLOSEVYCH, EUGENE & MILA ET AL	8403 SE SHERRETT ST,PORTLAND,OR97266
Cowlitz 4	32108001025	BURRIS, GARY A & BURRELL, ANGELA	2418 VISTA AVE SE,OLYMPIA,WA98501
Cowlitz 4	32193000000	MENASHA DEVELOPMENT CORPORATION	1 SW COLUMBIA ST STE 1700,PORTLAND,OR97258
Cowlitz 4	32192000000	MENASHA DEVELOPMENT CORPORATION	1 SW COLUMBIA ST STE 1700,PORTLAND,OR97258
Cowlitz 5	32020001000	LIGHTBODY, ROBERT E ET AL	2601 S CASCADE PL,KENNEWICK,WA99337
Cowlitz 5	32020002001	HEYER, CAREY J & TRACIE	11032 11TH AVE SW,SEATTLE,WA98146
Cowlitz 5	32020002002	GAW, PATRICIA	11019 11TH AVE SW,SEATTLE,WA98146
Cowlitz 5	32020003000	ANDERSON, MIKE E	13602 COBBLESTONE LN,YELM,WA98597
Cowlitz 5	32020001001	DOCKTER, CRAIG	2808 S ST CHARLES LN,SIOUX FALLS,SD57103
Cowlitz 5	32020000000	DOCKTER, CRAIG	2808 S ST CHARLES LN,SIOUX FALLS,SD57103
Cowlitz 5	32017000000	ROBBINS, TERRY E	PO BOX 775,PACKWOOD,WA98361-0775
Cowlitz 5	32036007000	FOGG, DAVID	9128 128TH ST SW,LAKEWOOD,WA98498
Cowlitz 5	32041002000	UNITED STATES OF AMERICA	UNKNOWN,WASHINGTON,DC20240-0001
Cowlitz 5	32036004000	GLENN, RONALD E	307 KEY PENINSULA HWY N,LAKEBAY,WA98349-9601

Table B-1 Parcel Ownership

Reach	Parcel Number	Owner	Mailing Address
Cowlitz 5	32053007000	UNITED STATES OF AMERICA	UNKNOWN, WASHINGTON, DC 20240-0001
Cowlitz 5	32046008000	DVORAK, ROD G & DIANE M	11405 36TH ST E, EDGEWOOD, WA 98372
Cowlitz 5	32046002000	FOOTE, MARCUS S & COLLEEN L	924 ROSWELL RD, CENTRALIA, WA 98531
Cowlitz 5	32054000000	MANKE TIMBER COMPANY, INC	1717 MARINE VIEW DR, TACOMA, WA 98422
Cowlitz 5	32049006000	MANKE TIMBER COMPANY, INC	1717 MARINE VIEW DR, TACOMA, WA 98422
Cowlitz 5	32046003000	TILLOTSON, CHARLES A	18209 SE 372ND ST, AUBURN, WA 98002
Cowlitz 5	32038012000	DVORAK, ROD G & DIANE M	11405 36TH ST E, EDGEWOOD, WA 98372
Cowlitz 5	32046004000	PARHAM, GERALD F & BARBARA	8409 188TH STREET CT E, PUYALLUP, WA 98375
Cowlitz 5	32038013000	LEE, CLAUDE W	1813 170TH AVE KPS, LAKEBAY, WA 98349-9670
Cowlitz 5	32046005000	ACKLEY, MICHAEL L & SHARON M	15215 KNOWLES RD SE, TENINO, WA 98589
Cowlitz 5	32036009000	MACLAY, BENJAMIN BRUCE KNAUFT & ANNIE	2626 GULL HARBOR RD NE, OLYMPIA, WA 98506
Cowlitz 5	32046006000	HEATON, RONALD K & KIM R	1312 SE WASHINGTON AVE, CHEHALIS, WA 98532
Cowlitz 5	32046007000	HEATON, RONALD K & KIM R	1312 SE WASHINGTON AVE, CHEHALIS, WA 98532
Cowlitz 5	32039000000	TATE, BARBARA JEAN	2218 W DRY CREEK RD, ELLENSBURG, WA 98926-9446
Cowlitz 5	32038010000	HALEY, RICHARD L	624 9TH ST SW, PUYALLUP, WA 98371-5716
Cowlitz 5	32038004000	DVORAK, ROD G & DIANE M	11405 36TH ST E, EDGEWOOD, WA 98372
Cowlitz 5	32031005004	BOSTWICK, ANTHONY A & DEBRA R	PO BOX 329, MCKENNA, WA 98558
Cowlitz 5	32038006000	DVORAK, ROD G & DIANE M	11405 36TH ST E, EDGEWOOD, WA 98372
Cowlitz 5	32038008000	MCMILLEN APRIL & JOHNSTON DANIEL	20307 97TH ST E, BONNEY LAKE, WA 98391-6360
Cowlitz 5	32060001001	PEARSON, GREGORY & SERAN	181 W LAKE ISABELLA LOOP, SHELTON, WA 98584
Cowlitz 5	32041000000	LEWIS COUNTY	360 NW NORTH ST, CHEHALIS, WA 98532-1900
Cowlitz 5	32038009000	DVORAK, ROD G & DIANE M	11405 36TH ST E, EDGEWOOD, WA 98372
Cowlitz 5	32041001000	MULLIGAN, TERRY L	2404 ALLEN ST APT A203, KELSO, WA 98626
Cowlitz 5	32038005000	MULLIGAN, TERRY L	2404 ALLEN ST APT A203, KELSO, WA 98626
Cowlitz 5	32038007000	ERICKSON, SEVERIN H II	21907 V LN, OCEAN PARK, WA 98640
Cowlitz 5	32038002000	SEELBACH, ROBERT & BECKY	6209 185TH AVE E, BONNEY LAKE, WA 98391
Cowlitz 5	32038001000	OLSON, JOHN W & TONYA	PO BOX 295, CENTRALIA, WA 98531
Cowlitz 5	32057003000	EMBUM, ERROL, ESTATE	19027 ELDERBERRY ST SW, ROCHESTER, WA 98579-9247
Cowlitz 5	32040000000	LEWIS COUNTY	360 NW NORTH ST, CHEHALIS, WA 98532-1900

Table B-1 Parcel Ownership

Reach	Parcel Number	Owner	Mailing Address
Cowlitz 5	32031005003	BOSTWICK, ANTHONY A & DEBRA R	PO BOX 329,MCKENNA,WA98558
Cowlitz 5	32037001000	LEWIS COUNTY	360 NW NORTH ST,CHEHALIS,WA98532-1900
Cowlitz 5	32037004000	DVORAK, ROD G & DIANE M	11405 36TH ST E,EDGEWOOD,WA98372
Cowlitz 5	32037003000	DVORAK, RODNEY & DIANE M	11405 36TH ST E,EDGEWOOD,WA98372
Cowlitz 5	32043007000	SCATTONE, MARSHALL & PAMELA J	6901 44TH AVE E,TACOMA,WA98443
Cowlitz 5	32042008000	LAWSON, KIMBERLI & HALL, JAMES	21401 161ST AVE E,GRAHAM,WA98338
Cowlitz 5	32042002000	BARNES, DONALD R & TAMMY E	26203 217TH AVE SE,MAPLE VALLEY,WA98038-6101
Cowlitz 5	32042005000	JOHNSON, LINDA JEAN	2119 141ST AVE KP S,LAKEBAY,WA98349-9393
Cowlitz 5	32042001001	MIELCAREK, SCOTT & DEBBIE	18214 87TH AVE E,PUYALLUP,WA98375
Cowlitz 5	32037002000	DVORAK, ROD G & DIANE M	11405 36TH ST E,EDGEWOOD,WA98372
Cowlitz 5	32031003000	BOSTWICK, ANTHONY A & DEBRA R	PO BOX 329,MCKENNA,WA98558
Cowlitz 5	32031005006	MEIER, WILLIAM & PATRICIA A	PO BOX 273,PACKWOOD,WA98361-0273
Cowlitz 5	32031005007	MEIER, WILLIAM	PO BOX 273,PACKWOOD,WA98361-0273
Cowlitz 5	32035000000	CHENEY FAMILY RLT U/A 12-9-04	PO BOX 164,PACKWOOD,WA98361
Cowlitz 5	32025000000	CHENEY FAMILY RLT U/A 12-9-04	PO BOX 164,PACKWOOD,WA98361
Cowlitz 5	32041003000	UNITED STATES OF AMERICA	UNKNOWN,WASHINGTON,DC20240-0001
Cowlitz 5	32026005001	LARSON, LOREN W	5006 79TH AVE W,TACOMA,WA98467
Cowlitz 5	32026009000	MOTLAND, THOMAS R & DONNA M	1113 187TH AVE E,SUMNER,WA98390
Cowlitz 5	32026008000	HAMSTREET, RICHARD L & GAYE M ZANDER	PO BOX 677,PACKWOOD,WA98361
Cowlitz 5	32026005002	KRAG, DONALD A, ET AL	7014 35TH ST W,UNIVERSITY PLACE,WA98466-5207
Cowlitz 5	32031005005	WELCH, JOHN R	495 NW PENNSYLVANIA AVE,CHEHALIS,WA98532-1619
Cowlitz 5	32026007002	WALL, MICHAEL & MARCIE	1971 ALEXANDER EXT,GRANDVIEW,WA98930
Cowlitz 5	32026007001	LARSON, RICHARD J	5810 81ST AVE CT W,UNIVERSITY PLACE,WA98467
Cowlitz 5	32028002006	THE HERBRAND COMPANY	315 39TH AVE SW STE 6,PUYALLUP,WA98373
Cowlitz 5	32094002000	FORTINER, ROBERT H MD EXEMPTION EQU TRUS	13906 172ND STREET CT E,PUYALLUP,WA98374
Cowlitz 5	32073004000	DILLS, FRED & PATTY	PO BOX 901,MOXEE,WA98936
Cowlitz 5	32078000000	NEDERHOOD, BRITT & HELEN R KEISER	4938 SUNSET DR NW,OLYMPIA,WA98502
Cowlitz 5	32080000000	NEDERHOOD, BRITT & HELEN R KEISER	4938 SUNSET DR NW,OLYMPIA,WA98502
Cowlitz 6	35276010000	JORGENSEN TIMBER LLC	PO BOX 1503,CHEHALIS,WA98532

Table B-1 Parcel Ownership

Reach	Parcel Number	Owner	Mailing Address
Cowlitz 6	35276011000	BAKER, ROBERT W, ET AL	PO BOX 205,PACKWOOD,WA98361-0205
Cowlitz 6	32014001001	UNITED STATES OF AMERICA	UNKNOWN, WASHINGTON,DC20240-0001
Cowlitz 6	32229003000	JORGENSEN TIMBER LLC	PO BOX 1503,CHEHALIS,WA98532
Cowlitz 6	32229004000	JORGENSEN TIMBER LLC	PO BOX 1503,CHEHALIS,WA98532
Cowlitz 6	32229001000	WARNOCK JERRY, ET AL	404 RAIN TREE LOOP CT SE,RAINIER,WA98576
Cowlitz 6	32217002000	BAKER, ROBERT W, ET AL	PO BOX 205,PACKWOOD,WA98361-0205
Cowlitz 6	32225001000	KAUER, ROY A	PO BOX 6257,FEDERAL WAY,WA98063
Cowlitz 6	32212001000	LAFOREST, JAMES	927 BROADWAY AVE,HOQUIAM,WA98550
Cowlitz 6	32212003000	DIEMERT, DEBRA	2962 ESCALA CIR,SAN DIEGO,CA92108
Cowlitz 6	32212002000	WESTBY, LONA D	196 KAUER RD,RANDLE,WA98377
Cowlitz 6	32222005000	SJODEN, ANNE	PO BOX 583,PACKWOOD,WA98361-0583
Cowlitz 6	32222002000	MANKE TIMBER COMPANY, INC	1717 MARINE VIEW DR,TACOMA,WA98422
Cowlitz 6	32015000000	MANKE TIMBER COMPANY, INC	1717 MARINE VIEW DR,TACOMA,WA98422
Cowlitz 6	32016000000	MANKE TIMBER COMPANY, INC	1717 MARINE VIEW DR,TACOMA,WA98422
Cowlitz 7	35288003018	MOHL, DENNIS J & GALE	14211 SE 29TH CIR,VANCOUVER,WA98683
Cowlitz 7	35288003020	JONES, RANDY M & JANE E	PO BOX 204,PACKWOOD,WA98361-0204
Cowlitz 7	35286001000	MAPLES, SHARON	PO BOX 450,PACKWOOD,WA98361
Cowlitz 7	35291000000	DEVAUX, DANIEL J & TONI D	18301 45TH ST E,SUMNER,WA98390
Cowlitz 7	35290001000	DEVAUX, DANIEL J & TONI D	18301 45TH ST E,SUMNER,WA98390
Cowlitz 7	35286002002	SKYO IRREVOCABLE TRUST DTD 10/22/84	PO BOX 977,PACKWOOD,WA98361
Cowlitz 7	35288003002	WALLACE, GARY & PAT	PO BOX 201,RIFLE,CO81650
Cowlitz 7	32207001002	SKYO IRREVOCABLE TRUST DTD 10/22/84	PO BOX 977,PACKWOOD,WA98361
Cowlitz 8/9	35145063004	WASHINGTON STATE PARKS & RECREATION	PO BOX 42650,OLYMPIA,WA98504-2650
Cowlitz 8	11260058000	WORLUND, ALLISON R, ET AL	1180 E OLD RANCH RD,ALLYN,WA98524
Cowlitz 8/9	35173008000	ARMSTRONG REVOCABLE LIVING TRU	PO BOX 401,PACKWOOD,WA98361-0401
Cowlitz 8/9	9960004000	RICHARDSON, NEIL H	PO BOX 44427,TACOMA,WA98444-0427
Cowlitz 8	35166000000	STATE OF WASHINGTON	PO BOX 47339,OLYMPIA,WA98504
Cowlitz 8/9	9960005000	LEVANDOWSKI, RICHARD L	4705 N GOVE ST,TACOMA,WA98407
Cowlitz 8/9	9960006000	RYSER, DONALD N JR	3921 BENSON ST,GIG HARBOR,WA98332-1064

Table B-1 Parcel Ownership

Reach	Parcel Number	Owner	Mailing Address
Cowlitz 8/9	9960007000	AAROE, EUGENE	2326 CALIFORNIA AVE SW APT #228, SEATTLE, WA 98116
Cowlitz 8/9	9960008000	MILLER, JAMES C	3937 S 348TH ST, AUBURN, WA 98001-9027
Cowlitz 8	35174002002	ARMSTRONG REVOCABLE LIVING TRU	PO BOX 401, PACKWOOD, WA 98361-0401
Cowlitz 8	35175002001	LERCHEN, THOMAS W	PO BOX 487, PACKWOOD, WA 98361-0487
Cowlitz 8/9	9960009000	VAN BOHEEMEN, WILCO & SALLY	1950 UNION AVE NE, RENTON, WA 98059
Cowlitz 8	35169003000	OWENS, WILLIAM D	PO BOX 578, PACKWOOD, WA 98361-0578
Cowlitz 8/9	9960010000	VAN BOHEEMEN, WILCO & SALLY	1950 UNION AVE NE, RENTON, WA 98059
Cowlitz 8	35168000000	OWENS, CHRISTOPHER T	PO BOX 557, PACKWOOD, WA 98361-0557
Cowlitz 8	35175002002	TATOOSH VACATION GROUP, LLC	400 N 4TH ST, TACOMA, WA 98403
Cowlitz 8	35167000000	TATOOSH VACATION GROUP, LLC	400 N 4TH ST, TACOMA, WA 98403
Cowlitz 8	35169002000	OWENS, CHRISTOPHER T	PO BOX 557, PACKWOOD, WA 98361-0557
Cowlitz 8	35179001003	OWENS, CHRISTOPHER T	PO BOX 557, PACKWOOD, WA 98361-0557
Cowlitz 8	35174002001	MUNOZ, NANCY	3 RAVINIA CT, HENDERSON, NV 89052
Cowlitz 8	35160000000	WEYERHAEUSER COMPANY	PO BOX 9777, FEDERAL WAY, WA 98063-9777
Cowlitz 8	35180011000	HENDERSON, LONI L	11707 SE 92ND PL, NEWCASTLE, WA 98056
Cowlitz 8	35180012000	CARTANO, ROBERT J & MAUREEN M	3135 BROADWAY AVE E, SEATTLE, WA 98102
Cowlitz 8	35174001000	WHITE FAMILY REVOCABLE LIVING	PO BOX 68, PACKWOOD, WA 98361
Cowlitz 8	35180010000	HENDERSON, LONI L	11707 SE 92ND PL, NEWCASTLE, WA 98056
Cowlitz 8	35180009000	AUSBUN, RK & JODI, ETAL	2717 57TH STREET CT E, TACOMA, WA 98404-5254
Cowlitz 8	35180008000	RENFRO, TIMOTHY J & LINDA L	10010 FRUITLAND AVE E, PUYALLUP, WA 98373
Cowlitz 8	35180007000	WRIGHT, JEFFREY	11006 CERMONA CT, RICHMOND, TX 77406-4592
Cowlitz 8	35180006000	WRIGHT, JEFFREY	11006 CERMONA CT, RICHMOND, TX 77406-4592
Cowlitz 8	35271000000	GOVERNMENT LAND	351 NW NORTH ST MS:ASR01, CHEHALIS, WA 98532-1926
Cowlitz 8	35180005000	WOOD, MARCIA J & THOMAS R	726 NW 22ND AVE, PORTLAND, OR 97210
Cowlitz 8	35266000000	MENASHA FOREST PRODUCTS CORPORATION	ONE SW COLUMBIA ST STE 1700, PORTLAND, OR 97258
Cowlitz 8	35247001000	WOOD, MARCIA JOHNSTON & THOMAS R	726 NW 22ND AVE, PORTLAND, OR 97210
Cowlitz 8	35180004000	DESTINATION PACKWOOD ASSOC.	PO BOX 64, PACKWOOD, WA 98361
Cowlitz 8	35180003000	HYDE PROPERTIES LLC	7 AMBER SKY DR, RANCHO PALOS VERDES, CA 90275
Cowlitz 8	35255001000	UNITED STATES	1103 N FANCHER RD, SPOKANE, WA 99212

Table B-1 Parcel Ownership

Reach	Parcel Number	Owner	Mailing Address
Cowlitz 8	35180002000	HYDE PROPERTIES LLC	7 AMBER SKY DR,RANCHO PALOS VERDES,CA90275
Cowlitz 8	35272000000	MENASHA FOREST PRODUCTS CORPORATION	ONE SW COLUMBIA ST STE 1700,PORTLAND,OR97258
Cowlitz 8	35180001000	HYDE PROPERTIES LLC	7 AMBER SKY DR,RANCHO PALOS VERDES,CA90275
Cowlitz 8	35275000000	MENASHA FOREST PRODUCTS CORPORATION	ONE SW COLUMBIA ST STE 1700,PORTLAND,OR97258
Cowlitz 8	35274000000	MENASHA FOREST PRODUCTS CORPORATION	ONE SW COLUMBIA ST STE 1700,PORTLAND,OR97258
Cowlitz 8	35257000000	HYDE PROPERTIES LLC	7 AMBER SKY DR,RANCHO PALOS VERDES,CA90275
Cowlitz 8	35280001000	UNITED STATES OF AMERICA	UNKNOWN, WASHINGTON,DC20240-0001
Cowlitz 8	35271001001	GOVERNMENT LAND	351 NW NORTH ST MS:ASR01,CHEHALIS,WA98532-1926
Cowlitz 8	35277001000	HYDE PROPERTIES LLC	7 AMBER SKY DR,RANCHO PALOS VERDES,CA90275
Cowlitz 8	35287002000	STATE OF WASHINGTON	PO BOX 47339,OLYMPIA,WA98504
Cowlitz 8	35293001000	HILL, RICHARD A & CAROLYN R	1523 S LAKE STICKNEY DR,LYNNWOOD,WA98087
Cowlitz 8	35288003015	CREST, LEROY B	PO BOX 619,PACKWOOD,WA98361-0619
Cowlitz 8	35288003013	LONER, PAULA	122 SE KING ST,CAMAS,WA98607
Cowlitz 8	35288003025	CHENOWETH, ALBERT J	8323 144TH ST NW,GIG HARBOR,WA98329
Cowlitz 8	35288003030	SHELTON, KIMBERLY, ET AL	1322 106TH AVE CT E,EDGEWOOD,WA98372
Cowlitz 8	35282000000	MENASHA FOREST PRODUCTS CORPORATION	ONE SW COLUMBIA ST STE 1700,PORTLAND,OR97258
Cowlitz 8	35288004001	MISSEL, JOSEPH	4418 N 19TH ST,TACOMA,WA98406
Cowlitz 8	35281000000	MENASHA FOREST PRODUCTS CORPORATION	ONE SW COLUMBIA ST STE 1700,PORTLAND,OR97258
Cowlitz 8	35288004002	FERCH, RONALD A	PO BOX 835,PACKWOOD,WA98361
Cowlitz 8	35285000000	MENASHA FOREST PRODUCTS CORPORATION	ONE SW COLUMBIA ST STE 1700,PORTLAND,OR97258
Cowlitz 8	35286000000	FERCH, RONALD & ROSEMARIE	PO BOX 835,PACKWOOD,WA98361
Cowlitz 8	35286002001	SKYO IRREVOCABLE TRUST DTD 10/22/84	PO BOX 977,PACKWOOD,WA98361
Cowlitz 9	35172001002	FERCH, RONALD A & ROSE MARIE	PO BOX 835,PACKWOOD,WA98361
Cowlitz 9	35172001001	ARMSTRONG REVOCABLE LIVING TRU	PO BOX 401,PACKWOOD,WA98361-0401
Cowlitz 9	35172002000	FRANZ FAMILY RLT DATED APRIL 7, 2006	PO BOX 863,PACKWOOD,WA98361-0863
Cowlitz 9	35172003000	FRANZ FAMILY RLT DATED APRIL 7, 2006	PO BOX 863,PACKWOOD,WA98361-0863
Cowlitz 9	35172005000	FRANZ FAMILY RLT DATED APRIL 7, 2006	PO BOX 863,PACKWOOD,WA98361-0863
Cowlitz 9	35173009000	GUNKEL, WILLIAM ROBERT	818 BICKNELL RD,LOS GATOS,CA95030
Cowlitz 9	9960003000	GROSE, S LEE	PO BOX 308,PACKWOOD,WA98361

Table B-1 Parcel Ownership

Reach	Parcel Number	Owner	Mailing Address
Tilton 1	33695002000	MENASHA FOREST PRODUCTS CORPORATION	ONE SW COLUMBIA ST STE 1700,PORTLAND,OR97258
Tilton 1	33710000000	DAY ROAD PARTNERS LLC	1420 FIFTH AVE STE 425,SEATTLE,WA98101
Tilton 1	33712000000	SCHAIBLE, LEO F	PO BOX 90,CINEBAR,WA98533
Tilton 1	33712004000	SCHAIBLE, LEO F	PO BOX 90,CINEBAR,WA98533
Tilton 1	33712001000	HELSTROM, ROBERT L	PO BOX 855,OLYMPIA,WA98507-0855
Tilton 1	33713000000	STATE OF WASHINGTON	DEPT OF NAT'L RESOURCES PO BOX 47000,OLYMPIA,WA98504-7000
Tilton 1	33712003000	ALLEN, JOHN W ET AL	5304 GROVE ST,MARYSVILLE,WA98270
Tilton 1	33712005000	MILLER LIVING TRUST	5521 HAWKS PRAIRIE RD NE,OLYMPIA,WA98516-2721
Tilton 1	33712002000	WILLIAMS, MARY	42508 212TH AVE SE,ENUMCLAW,WA98022
Tilton 1	33717004002	HODDINOTT, JOHN, ET AL	127 DAY RD,MORTON,WA98356
Tilton 1	33717004001	EDHOLM, BARRY E & REBECCA A	2036 W DOVONSHIRE CIR,MESA,AZ85201
Tilton 1	33715000000	LONGVIEW TIMBERLANDS LLC	PO BOX 667,LONGVIEW,WA98632-7428
Tilton 1	33719007000	TILTON TIME LLC	3233 VIEW DR,BREMERTON,WA98312
Tilton 1	33719006000	HODDINOTT, STEPHEN W	PO BOX 388,MORTON,WA98356
Tilton 1	33717003000	SPARKMAN, KENNETH W	PO BOX 1112,MORTON,WA98356-1112
Tilton 1	33807000000	LONGVIEW TIMBERLANDS LLC	PO BOX 667,LONGVIEW,WA98632-7428
Tilton 1	33788002000	MALICH, MARCO E & CARLA A	1908 LYBECKER DR NW,GIG HARBOR,WA98332-9540
Tilton 1	33788001000	ERICKSEN, ELIABETH CHAN & OLAF CHRISTOPH	333 N 81ST ST,SEATTLE,WA98103
Tilton 1	33808001000	MALICH, MARCO E & CARLA A	1908 LYBECKER DR NW,GIG HARBOR,WA98332-9540
Tilton 1	33795000000	LONGVIEW TIMBERLANDS LLC	PO BOX 667,LONGVIEW,WA98632-7428
Tilton 1	33792000000	BLANKENSHIP, JAROD D & HEATHER	6231 S FERDINAND ST,TACOMA,WA98409-1221
Tilton 1	33798002000	POWELL, JEANINE	163 SIDORSKI LN,MORTON,WA98356
Tilton 2	33753001000	HAWTHORN TIMBERLANDS LLC	15 PIEDMONT CENTER STE 1250,ATLANTA,GA30305
Tilton 2	33767002000	HAWTHORN TIMBERLANDS LLC	15 PIEDMONT CENTER STE 1250,ATLANTA,GA30305
Tilton 2	33753002000	STATE OF WASHINGTON	7150 CLEANWATER LN,OLYMPIA,WA98504
Tilton 2	33775000000	HAWTHORN TIMBERLANDS LLC	15 PIEDMONT CENTER STE 1250,ATLANTA,GA30305
Tilton 2	33773000000	HAWTHORN TIMBERLANDS LLC	15 PIEDMONT CENTER STE 1250,ATLANTA,GA30305
Tilton 2	33755001000	HAWTHORN TIMBERLANDS LLC	15 PIEDMONT CENTER STE 1250,ATLANTA,GA30305
Tilton 2	33754000000	WASHINGTON STATE PARKS	PO BOX 42650,OLYMPIA,WA98504-2650

Table B-1 Parcel Ownership

Reach	Parcel Number	Owner	Mailing Address
Tilton 2	33769001000	MENCKE FAMILY REVOCABLE TRUST	170 HARKINS RD,WINLOCK,WA98596-9735
Tilton 2	33774005000	BARKER, CHRISTOPHER J ET AL	PO BOX 775,MORTON,WA98356-0775
Tilton 2	33774006002	CORAK, DOROTHY, ET AL	928 108TH AVE E,PUYALLUP,WA98372
Tilton 2	33774004000	SWANSON, JOANNE, ET AL	6217 48TH AVE E,TACOMA,WA98443-2430
Tilton 2	33755002000	STATE OF WASHINGTON	7150 CLEANWATER LN,OLYMPIA,WA98504
Tilton 2	33774010000	REIMER, ANDREW G & ROSALYN JOY	2027 129TH PL SE,EVERETT,WA98208
Tilton 2	33774007000	CROSIER, KURT	2123 88TH AVE E,PUYALLUP,WA98371-1952
Tilton 2	33774003000	MCKINNEY, RICHARD A & DALITA V	2706 SE 152ND AVE,VANCOUVER,WA98683
Tilton 2	33776000000	DOTSON, DONALD D	PO BOX 365,MORTON,WA98356-0365
Tilton 2	33767001000	DOTSON, DONALD D	PO BOX 365,MORTON,WA98356-0365
Tilton 2	33767000000	MENCKE FAMILY REVOCABLE TRUST	170 HARKINS RD,WINLOCK,WA98596-9735
Tilton 2	33774009000	SMITH, WAYNE E & VALERIE D	28639 16TH AVE S #D4,FEDERAL WAY,WA98003
Tilton 2	33774008000	RICE, WILLARD	31580 23RD AVE S APT 113,FEDERAL WAY,WA98003-5537
Tilton 2	33774002000	COMBS, DAVID	3700 HUECO VALLEY DR #605,EL PASO,TX79938
Tilton 2	33772001003	STEWART, RUSSELL	PO BOX 1090,MORTON,WA98356
Tilton 2	33772001002	DOTSON, DON	PO BOX 365,MORTON,WA98356
Tilton 2	33772003000	DOTSON, DONALD D	PO BOX 365,MORTON,WA98356-0365
Tilton 2	33756001002	WASHINGTON STATE PARKS	PO BOX 42650,OLYMPIA,WA98504-2650
Tilton 2	33770001000	ALBERT, GARY & JOAN	8421 S 19TH,TACOMA,WA98466
Tilton 3	34072015000	HUBBARD, JERRY LEE & DORIS J	PO BOX 757,MORTON,WA98356
Tilton 3	34072006001	WILLIAMS, CLINTON H & JUDITH A	9520 TAYLOR ST E,EDGEWOOD,WA98371
Tilton 3	34072007000	CAMPBELL, DOUGLAS	27207 E MERIDIAN,GRAHAM,WA98338
Tilton 3	34072006002	WILSON, GREG & ROBYN	4008 SOUTHBAY RD NE,OLYMPIA,WA98516
Tilton 3	34072009000	LUNA, ELOY A & FAYREE C	15305 46TH ST CT E,SUMNER,WA98390
Tilton 3	34072006003	MILLER, JAMES E & LAURI K	29506 8TH AVE S,ROY,WA98580-9607
Tilton 3	34072008000	MILLS, WALLACE J & A KATHLEEN	176 CHICKS PL,MORTON,WA98356
Tilton 3	34072006004	HIGH TECH INC	16822 PACIFIC AVE S,SPANAWAY,WA98387
Tilton 4/5	34063002000	STATE OF WASHINGTON	DEPT OF NAT'L RESOURCES PO BOX 47000,OLYMPIA,WA98504-7000
Tilton 4	34063003001	HUTCHINSON, STEVEN	3824 65TH STREET CT E,TACOMA,WA98443

Table B-1 Parcel Ownership

Reach	Parcel Number	Owner	Mailing Address
Tilton 4	34072004000	CHANG, SHEN-JEA	1311 N 175TH ST APT F402,SHORELINE,WA98133-5068
Tilton 4	34072005001	O'HEREN, SHOHN K	PO BOX 372,ELBE,WA98330
Tilton 5	34063003010	COOL FAMILY LIVING TRUST	PO BOX 265,MORTON,WA98356
Tilton 5	34063003005	RICHARDSON, JAMES DEAN & LAURA ANN	1701 S TACOMA WAY,TACOMA,WA98409
Tilton 5	34063003011	COOL FAMILY LIVING TRUST	PO BOX 265,MORTON,WA98356
Tilton 5	34063003006	RICHARDSON, JAMES DEAN & LAURA ANN	1701 S TACOMA WAY,TACOMA,WA98409
Tilton 5	34063003007	ANSTEAD, ROBERT B & PAIGE R	3120 N 543 PR NE,BENTON CITY,WA99320
Tilton 5	34063003008	FOX, DOUGLAS	5519 NE 7TH PL,RENTON,WA98059-6129
Tilton 5	34063003009	GOODNER, GARY	PO BOX 1151,MORTON,WA98356
Tilton 5	34071002000	HART, PATRICK J	PO BOX 937,MORTON,WA98356-0937
Tilton 5	11035009000	KENT, HELEN	6081 E LAKE SAMMAMISH PKY NE,REDMOND,WA98052-6106
Tilton 5	11035010000	KENT, HELEN	6081 E LAKE SAMMAMISH PKY NE,REDMOND,WA98052-6106
Tilton 5	11035011000	POWELL, HAROLD & MARY	18310 NE CRAMER RD,BATTLE GROUND,WA98604-9452
Tilton 5	11035026000	THOMPSON, DEBORAH	9102 NE 138TH PL,KIRKLAND,WA98034
Tilton 5	11035027000	DAVIS, DORIS & PIERRE, JAMES	PO BOX 69761,SEATTLE,WA98168
Tilton 5	11035032000	PENA, JOSE	PO BOX 103,MORTON,WA98356
Tilton 5	11035028000	DAVIS, DORIS & PIERRE, JAMES	PO BOX 69761,SEATTLE,WA98168
Tilton 5	11035029000	LANGE, BRAD, ET AL	17119 4TH AVE KPN,HOME,WA98349
Tilton 5	34071000000	DUEÑAS, GILBERTO C	1319 179TH STREET CT E,SPANAWAY,WA98387
Tilton 5	11035030000	OLSON, SCOTT M	PO BOX 72,MORTON,WA98356
Tilton 5	11035031000	OLSON, SCOTT M	PO BOX 72,MORTON,WA98356
Tilton 5	34103006000	HART, PATRICK J	PO BOX 937,MORTON,WA98356-0937
Tilton 5	34103005000	JOHNSON, LAWRENCE W	2601 VIEW PL,ANACORTES,WA98221-3135
Tilton 5	34103001002	ECKLUND, JIMMY	PO BOX 667,MORTON,WA98356
Tilton 5	34103007000	ECKLUND, JIMMY	PO BOX 667,MORTON,WA98356
Tilton 5	34106001003	TAHRAN, MYRON	PO BOX 657,MORTON,WA98356
Tilton 5	34122002000	SCHNEIDER, DAVID F	1310 N FORSELL RD,GRANDVIEW,WA98930
Tilton 5	34103002000	CONDOS REVOCABLE TRUST	3554 S MASON,TACOMA,WA98408
Tilton 5	34106001001	CONDOS REVOCABLE TRUST	3554 S MASON,TACOMA,WA98408

Table B-1 Parcel Ownership

Reach	Parcel Number	Owner	Mailing Address
Tilton 5	34122000000	BOND, ALAN	909 112TH AVE NE APT 810,BELLEVUE,WA98004
Tilton 5	34122001005	TAYLOR, ROBERT	31521 94TH AVE E,EATONVILLE,WA98328
Tilton 5	34122001002	RISSE, GEORGE	8802 177TH ST E,PUYALLUP,WA98375
Tilton 5	34122001003	ESPE, BERNARD L	PO BOX 486,ORTING,WA98360-0486
Tilton 5	34122001007	COX, MICHAEL R & LINDA S	825 PLEASANT VALLEY RD,MINERAL,WA98355-9706
Tilton 5	34122001001	KOTH, KAY, ET AL	8418 SARDONYX DR SW,LAKEWOOD,WA98498-4934
Tilton 5	29774014002	ZAPALAC, JOHN	153-117 CHAPMAN RD,MORTON,WA98356
Tilton 6	29764004001	LOGBROOK LLC	315 39TH AVE SW STE 6,PUYALLUP,WA98373
Tilton 6	29774014001	EMERSON, MICHAEL W	PO BOX 362,MORTON,WA98356-0362
Tilton 6	29774013000	BARLOW, GARY & LORNA	104 CRUMB RD,MORTON,WA98356-9510
Tilton 6	29776000000	WASH STATE FISH HATCHERIES	DEPT OF FISHERIES 115 GENERAL ADMIN BUILD AX-11,OLYMPIA,WA98504
Tilton 6	29774003000	REYNOLDS, BENNY P & JODI R	24217 116TH AVE E,GRAHAM,WA98338
Tilton 6	29775002000	HARBAUGH, GEORGE	102-54 CRUMB RD,MORTON,WA98356-9510
Tilton 6	29774006000	CLINGMAN, DAN & MONTE, ELIZABETH	2216 15TH AVE,OLYMPIA,WA98501
Tilton 6	29774008000	CLINGMAN, DAN & MONTE, ELIZABETH	2216 15TH AVE,OLYMPIA,WA98501
Tilton 6	29777000000	FAIRHART, ELEE M	PO BOX 766,MORTON,WA98356
Tilton 6	29778006002	CLINGMAN, DAN & MONTE, ELIZABETH	2216 15TH AVE,OLYMPIA,WA98501
Tilton 7	34028000000	ORM TIMBER OPERATING COMPANY II LLC	19950 7TH AVE NE SUITE 200,POULSBO,WA98370
Tilton 7	34026017000	OPPERMAN, CHRIS & LYNN	PO BOX 105,SOUTH PRAIRIE,WA98385
Tilton 7	34026019000	KARCH, ROBERT	2812 S 138TH ST,SEATAC,WA98168
Tilton 7	34026021000	ACCOLA, A MASSACHUSETTS TRUST	PO BOX 220,MORTON,WA98356
Tilton 7	34032000000	ORM TIMBER OPERATING COMPANY II LLC	19950 7TH AVE NE SUITE 200,POULSBO,WA98370
Tilton 7	34026012003	WEBB, ROBERT W ET AL	5163 STATE ROUTE 508,MORTON,WA98356-9709
Tilton 7	34026012006	WEBB, ROBERT W ET AL	5163 STATE ROUTE 508,MORTON,WA98356-9709
Tilton 7	34024021002	CITY OF TACOMA PUBLIC WORKS DE	TACOMA MUNICIPAL 747 MARKET ST BLDG 444,TACOMA,WA98402-3701
Tilton 7	34190001000	STATE OF WASHINGTON	PO BOX 47339,OLYMPIA,WA98504
Tilton 7	34160002000	STATE OF WASHINGTON	PO BOX 47339,OLYMPIA,WA98504
Tilton 7	34161003000	ORM TIMBER OPERATING COMPANY II LLC	19950 7TH AVE NE SUITE 200,POULSBO,WA98370
Tilton 7	34160001002	ROORDA, KEVIN	PO BOX 7216,BONNEY LAKE,WA98391

Table B-1 Parcel Ownership

Reach	Parcel Number	Owner	Mailing Address
Tilton 7	34161000000	ORM TIMBER OPERATING COMPANY II LLC	19950 7TH AVE NE SUITE 200,POULSBO,WA98370
Tilton 7	34024021003	CITY OF TACOMA PUBLIC WORKS DE	TACOMA MUNICIPAL 747 MARKET ST BLDG 444,TACOMA,WA98402-3701
Tilton 8	34024021001	CITY OF TACOMA PUBLIC WORKS DE	TACOMA MUNICIPAL 747 MARKET ST BLDG 444,TACOMA,WA98402-3701
Tilton 8	34036001001	DEVAUX, DANIEL J & TONI D	18301 45TH ST E,SUMNER,WA98390
Tilton 8	34594002000	WEST FORK TIMBER CO LLC	PO BOX 186,MINERAL,WA98355
Tilton 8	34596000000	WEST FORK TIMBER CO LLC	PO BOX 186,MINERAL,WA98355
Tilton 8	34592002000	CHAPMAN FAMILY LIMITED PARTNER	259 MURRAY RD,MORTON,WA98356
Tilton 8	34592001000	WEST FORK TIMBER CO LLC	PO BOX 186,MINERAL,WA98355
Tilton 9	34432000000	WEST FORK TIMBER CO LLC	PO BOX 186,MINERAL,WA98355
Tilton 9	34441001000	WEST FORK TIMBER CO LLC	PO BOX 186,MINERAL,WA98355
Tilton 9	34446004000	HUMMEL, KURT D & BAHYOE M	903 STATE ROUTE 7,MORTON,WA98356
Tilton 9	34446001000	HUMMEL, KURT D & BAHYOE M	903 STATE ROUTE 7,MORTON,WA98356
Tilton 9	34449001002	SMITH, HELEN	883 STATE ROUTE 7,MORTON,WA98356
Tilton 9	34449001001	SUSAN, RUDY J	PO BOX 807,MORTON,WA98356-0807

Upper Cowlitz River Basin Reach
Characterization Project

APPENDIX

C

RIVER REACHES NOT SELECTED
FOR PROTECTION

Appendix C

River Reaches not Selected for Protection

An evaluation of the existing river and riparian habitat conditions on non-federal land in the Upper Cowlitz basin, which included all accessible river reaches and tributaries above Mayfield Dam (RM 52.0), was performed to identify “the best remaining habitats” for native salmonids. Reach suitability was determined using remotely sensed data to examine of relative channel conditions and identify those reaches that appear to either provide suitable, intact aquatic habitat for salmonids, or to have major influence on key watershed or riparian processes that directly influence the quality of those habitats. In applying these selection criteria, we used a rigid binary system, that is, if a given reach did not exhibit even one of the selection criteria, it was removed from further consideration as a potential site for protection (Figure C-1). These excluded sites do however, warrant closer examination as they provide many opportunities for restoration actions that would help to restore the suitability as salmon habitat. To further that objective, information on these excluded reaches is provided in the GIS shapefile and google earth KMZ file that is being submitted in support of this report. The inclusion of this information with the final report is not part of our scope of work with Tacoma Power and is being done as a courtesy to provide background data in support of our reach selection. As such, there are working files that highlight the main reason for reach exclusion; they do not provide an entire site characterization as would be needed for consideration of their restoration potential.

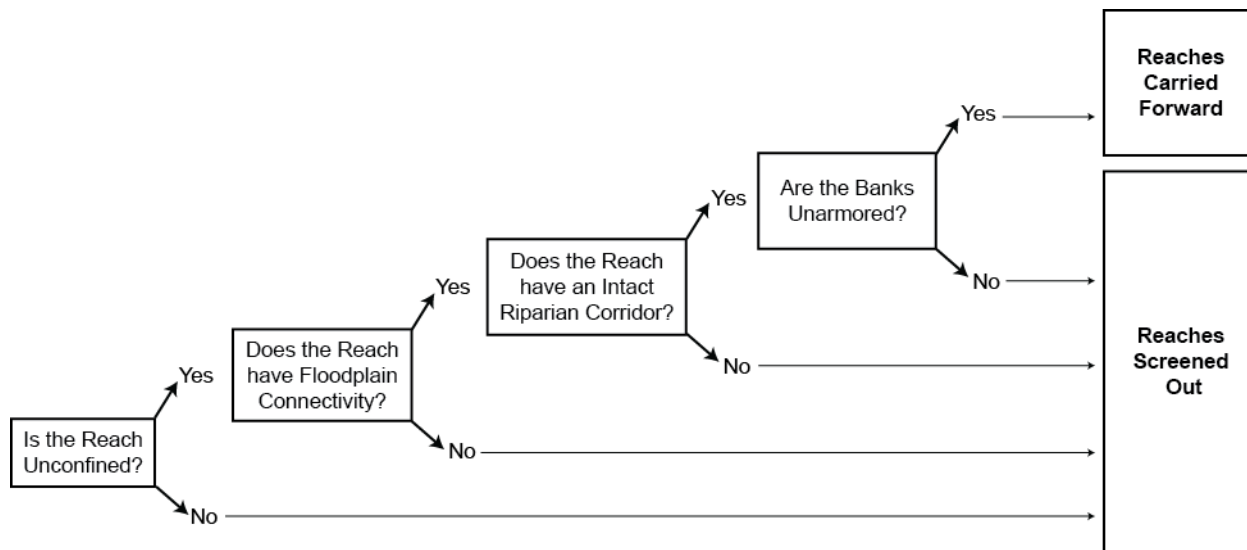


Figure C-1 Basic Reach Selection Criteria

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Upper Cowlitz River Basin Reach
Characterization Project

APPENDIX

D

SAMPLE RESTORATION REACH

Appendix D

Sample Restoration Reach

The annotated map view below (Figure D-1) illustrates the synergy between identifying sites suitable for protection and those river reaches where opportunities also exist to apply restoration techniques to improve native salmonid habitat conditions. The restoration reach shown in Figure D-1 is directly downstream from a reach recommended for protection (Cowlitz 1), near the town of Randle. The proposed restoration reach (approximately 3 miles in length) exhibits a number of relic oxbow channels and small, tributary stream junctions (possibly wall-based, spring-fed channels) with the main channel. These features merit further examination for their potential to be modified to provide an expansion of off-channel shallow water areas suitable to serve as summer rearing and winter refuge for listed salmon. Our preliminary examination of this reach suggests three possible relict channels that warrant field evaluation, as well as numerous areas where additional vegetation planting would benefit both fish and wildlife.

In our experience, the outlets of such features are often plugged with debris or have been altered as a consequence of land uses, and can often be re-connected using simple techniques. The inlets of these relic channels should be evaluated to determine sources of inflow that could be opened to increase water supply. In addition, engineered log jams or other deflector structures could be placed in the main channel near these inlets to help direct flow back into these side-channels, greatly expanding the area of slow water, high cover habitats that would improve growth and survival of coho, spring Chinook and winter steelhead juveniles. In terms of salmonid growth and survival, off-channel rearing habitat is likely a limiting factor in this reach and therefore small gains in this type of habitat provide a larger return in overall habitat value and population performance. Significant portions of the riparian zone along this reach have been altered by past land use, and re-vegetation of this zone could provide additional benefits in terms of shade, overhead cover and input of terrestrial insects and litter, helping to fuel the food web. While this is not akin to fully reestablishing the physical process at this river meander, it is possible to significantly restore ecological functions by working with willing property owners, the Town of Randle, local neighborhood partners, and the county road system to affect these changes.

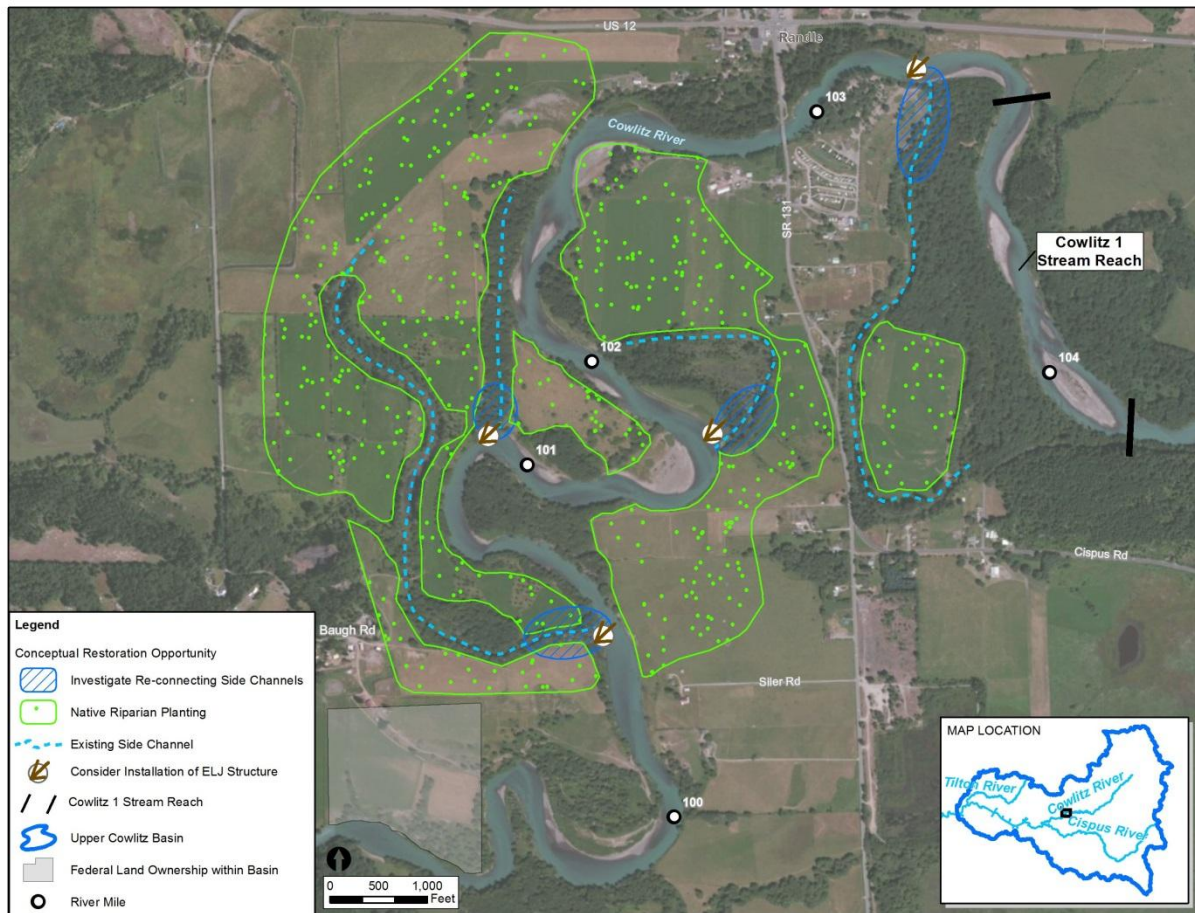


Figure D-1 Sample Restoration Reach – Cowlitz River