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March 29, 2010

VIA ELECTRONIC FILING

Ms. Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 1st St NE
Washington, DC 20426

Re: Seattle City Light Boundary Hydroelectric Project No. 2144-038: Response to Additional Information Request

Dear Secretary Bose:

Enclosed for filing please find the responses of City of Seattle d/b/a Seattle City Light ("SCL"), the licensee for the Boundary Hydroelectric Project No. 2144 (the "Project"), to the Additional Information Request issued in this matter on November 18, 2010.[1]

Notice of this filing is being provided by email to all persons identified as participants in SCL's Integrated Licensing Process. In addition, a disk containing this filing is being sent to all persons on the Commission's service list and all parties to the Offer of Settlement that is being filed under separate cover.

If you have any questions regarding this filing, please contact the undersigned.

Very truly yours,

K&L GATES LLP

By
Elizabeth Thomas

[1] The November 18 issuance set a response date of February 1, 2010, but the February 1 deadline was extended to March 29, 2010, by the Commission's letter order of January 26, 2010.

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ET:lm
Enclosure
cc: Service List (attached)
Ms. Jennifer Hill, Office of Energy Projects
Ms. Ann Miles, Office of Energy Projects

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Service List for P-2144-000 Seattle City Light

Party	Primary Person or Counsel of Record to be Served	Other Contact to be Served
Department of the Interior	Jennifer Frozena Department of the Interior 911 N.E. 11th Avenue Portland, OR 97213 jennifer.frozena@bia.gov	
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Seattle City Light	Elizabeth Thomas K&L Gates LLP 925 4th Ave Ste 2900	**Jorge Carrasco SUPT. Seattle City Light

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SCL Response to FERC Additional Information Request (AIR) dated November 18, 2009.

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1	There appears to be confusion with how to determine the installed capacity of the individual turbine-generator units, the overall project capacity, and how to account for new capacities based on upgrades. According to section 11.1(i) of the Commissions regulations, the project's authorized installed capacity is defined as the lesser of the capacity ratings of the generator or turbine expressed in kilowatts. In various sections of the license application you state that the current total power plant capability is 1,040 megawatts (MW). In addition, section B.5.2 of the license application states that the proposed turbine-generator upgrades for Units 55 and 56 will increase the installed capacity of each turbine from 200 MW to 215 MW for an increase in total project capability from 1,040 MW to 1,070 MW. These capacities appear to be incorrect. For Units 55 and 56, the turbine capacity is 194.9 MW (not 200 MW); and the total project authorized installed capacity is 1,003.25 MW which is based on limiting turbine capacities (*See* the FERC Order Amending License and Revising Annual Charges issued November 2, 2007). In order for us to determine the proposed total authorized capacity after the proposed turbine upgrades and generator rewinds, please clarify what both the new turbine capacity and the new generator capacity will be for Units 55 and 56 after the proposed upgrades.	Attachment 1 clarifies SCL's calculations of the new turbine capacity and the new generator capacity for Units 55 and 56 after the proposed upgrades. The Project's current total authorized installed capacity is 1,003,253 kW based on turbine ratings with a total generator capacity of 1,039.8 megawatts (MW) (1,040 MW) based on an assumed peak efficiency of 95 percent as listed on Table 1 (FERC 2007). By 2008, SCL conducted actual performance tests that produced a peak efficiency of approximately 90 percent resulting in a revised total installed capacity of 981,518 kW with a total generator capacity of 1,039.8 MW (1,040 MW). The Project's proposed total authorized installed capacity after units 55 and 56 turbine upgrades and generator rewinds will be approximately 1,002,518 kW based on turbine ratings with a total generator capacity of approximately 1,119,800 kW (1,120 MW). The current, revised, and proposed authorized installed capacities and generating capacities provided in Attachment 1 are reflected in the revised Exhibits B, E, and H provided with the Settlement Agreement (SA).
2	In Exhibit D, you provided on-peak and off-peak energy values that were based on Seattle City Light sales in 2007; you also report the costs of your proposed protection, mitigation, and enhancement (PM&E) measures in 2007 dollars. Please provide the 2009 on-peak and off-peak values if available, and if not, provide the 2008 values. Please update the PM&E costs to the equivalent year. Note, if a settlement agreement is reached and submitted by February 1, 2010, be sure to revise the costs reported in Exhibit D to reflect all of the agreed upon measures.	Please see the Exhibit D addendum for PM&E costs in 2009 dollars. In 2009 the average on-peak energy value was $35.70/MWh, and the average off-peak energy value was $28.62/MWh.
3	In section 4.5.4.3 and 4.5.5.3 of the license application, you state that proposed protection, mitigation and enhancement measures for botanical and wildlife species, respectively, are described in the Terrestrial Resources Management Plan contained in Attachment E-3 in the application. While you describe the effects of the project on these resources in other sections of the license application, you do not adequately describe how the proposed measures in the Terrestrial Resources Management Plan would mitigate for the identified effects or protect or enhance the existing environment, including, where possible, a non-monetary quantification of the anticipated benefits of each of the measures contained in the Terrestrial Resources Management Plan (see 18 CFR §	Please see revised sections 4.5.4.3 and 4.5.5.3 in the Exhibit E addendum, and the Terrestrial Resources Management Plan (TRMP) submitted with the SA for revised information on the basis for and benefits from terrestrial PM&Es. The measures described in the TRMP were developed with Settlement Parties as part of a comprehensive settlement package to mitigate for Project effects and enhance habitats and resources in the Project area. Terrestrial resources in the Project area have been affected by: the loss of shoreline and adjacent upland habitat from

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	5.18(b)(5)(ii)(C)). This is particularly important to ensure that Commission staff has a clear understanding of the relationship of the proposed measures to the project. For example, in section 5.5 of the Terrestrial Resources Management Plan you propose annual nest surveys for four wildlife species: bald eagle, peregrine falcon, osprey, and bank swallow. You state that these species would potentially benefit from long-term monitoring and that because the project has the potential to affect habitat for these species, the long-term monitoring data may be used to determine the need for management actions to mitigate identified issues. In the license application you discuss how project-related recreation may be affecting breeding behavior and causing nest abandonment of bald eagles breeding in habitats adjacent to the project, but the lack of regular monitoring of these bald eagle nests limits your ability to ascertain the timing or the specific cause of nest abandonment. However, you do not provide a similar justification for long-term monitoring of the peregrine falcon, osprey and bank swallow. In fact, you conclude that the only potential project effect on osprey and peregrine falcons would be a negligible reduction in the number of osprey perch trees along the reservoir shoreline associated with project-related bank erosion and a limited effect that the loss of these habitats would have on peregrine prey (passerine birds). The application does not discuss any other effects on osprey or peregrine falcons, which may be an oversight. For example, based on site visits in May 2009, construction of the PeeWee Falls viewpoint would require the removal and relocation of an active osprey nesting structure. If this is still the case, this effect should be disclosed. The application does not contain any discussion of project effects on bank swallow colonies. Therefore, you must file an analysis of the benefits of, and the basis for, all of the measures included in the Terrestrial Resources Management Plan. Note, if a settlement agreement is reached by February 1, 2010, that modifies the filed Terrestrial Resources Management Plan, the basis for, and benefits of, the additional measures should also be described.	erosion; use of Project-related roads; and, Project-related recreation. Further, the development of riparian habitat in some areas along the reservoir is limited by water level fluctuations. To address these effects, the TRMP proposes programs that mitigate, protect, and enhance terrestrial resources throughout the Project area. The benefits of these measures are described more fully in the above referenced section of the Exhibit E addendum. The following narrative summarizes key program elements and provides a non-monetary quantification of their anticipated benefits. <u>Erosion Program</u> Erosion of the shoreline is a direct effect of Project-related reservoir fluctuations. The erosion program has two main elements: (1) stabilizing 3 erosion-prone areas identified in the feasibility analysis (conducted as part of the Erosion Study) and associated effectiveness monitoring; and (2) long-term monitoring of erosion rates along the reservoir. These actions will benefit natural resources by reducing the effects of Project-related erosion on the shoreline and adjacent habitat at the 3 sites, ensuring that the erosion control measures at these sites are effective, and by tracking erosion rates to determine if there is a need for additional mitigation. <u>Habitat Management, Enhancement, and Protection Program</u> SCL proposes to: enhance upland, wetland, and riparian habitat in selected locations; control vehicle access to Project Habitat Lands; control recreational access to islands and shoreline habitats used by ground-nesting birds; acquire and manage additional Project Habitat Lands; and, implement an adaptive management program for all resources and habitats affected by Project-related operations and activities. These measures will provide direct natural resource benefits by reducing disturbance to wildlife and habitat from vehicles and recreationists, and by preserving and increasing habitat diversity in the Project area. <u>Integrated Weed Management Program</u> Weeds have established in areas disturbed by Project operations and maintenance. In addition, weeds dominate some locations in the reservoir fluctuation zone, although it is not possible to determine the extent of the Project's contribution to this process. The integrated weed management program includes: regular inventories; a prevention program that includes Best Management Practices (BMPs); weed control; effectiveness monitoring; and, stakeholder

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		coordination. This program will provide direct habitat benefits by reducing the establishment and spread of weeds and by maintaining or improving native plant species diversity within the Project area. <u>RTE Plant Species Program</u> RTE plants in the Project area are affected by Project-related erosion, recreation, water level fluctuations, and weed infestations. While it is not possible to determine the degree to which Project-related activities are responsible for these effects, the TRMP includes measures that will mitigate for these types of effects. The RTE Plant program includes regular RTE plant surveys and censuses, and stakeholder coordination and is designed to benefit rare plant populations by providing long-term data for adaptive management purposes. <u>Wildlife Program</u> Settlement discussions between SCL and the stakeholders have resulted in changes to this program since the filing of the License Application. The stakeholders and SCL agreed that it was not necessary to include osprey in the long-term monitoring program, while bald eagles, peregrine falcons, and bank swallows remain as species that will be monitored. Project effects on bald eagles, peregrine falcons, and bank swallows are either unknown or small and not quantifiable. Bald eagles and peregrine falcons were both formerly listed as Threatened under the ESA. Neither species is a common breeder in eastern Washington, however, both are of management interest to the Washington Department of Fish and Wildlife. The bank swallow is of interest to the U.S. Fish and Wildlife Service because it is a migratory species with breeding habitat that is directly affected, both positively and negatively, by Project-related bank erosion. Long-term monitoring of bald eagles, peregrine falcons, and bank swallows will provide data on local population trends, which will be useful in developing adaptive management measures, if needed in the future. Further, nest management plans will be developed for bald eagle nests documented within the Project boundary. FERC correctly notes the omission of the effect on osprey from the development of the Peewee Falls Viewpoint that would remove an existing osprey nest tree. In coordination with the stakeholders, it was determined that no specific mitigation measures were warranted for effects on osprey. The species is common in the watershed and

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		there is no lack of suitable nest trees. More broadly, the Wildlife Program provides for documenting occurrences of select wildlife species, primarily RTE species. <u>Shoreline Management Program</u> To ensure that shoreline-related activities are conducted in a manner that protects Project resources, the following measures will be implemented: establishment of land use designations, allowed uses, and needed approvals; development of guidelines for private shoreline facilities; removal of debris from the shoreline; public safety and education program; and, coordination. <u>Travel and Public Access Management Program</u> To provide for safe and adequate access for Project operations and maintenance and public use of the Project area and resources, the following measures will be implemented: provisions for SCL access to Project facilities; management of public access as it relates to security and safety; provisions for public access to Project recreation facilities and use areas; and, management of access to the Boundary Wildlife Preserve. As noted below in the response to item #4, this program (except for Objective #4) will be moved to the Recreation Resources Management Program. <u>Management of Project-related Activities and Facilities</u> This program was designed to ensure that Project operations are conducted in a manner that protects sensitive environmental resources. Measures to be implemented include: a staff environmental awareness program; preconstruction planning; and, development and implementation of BMPs.
4	You included a Terrestrial Resource Management Plan in your license application (Attachment E-3) that describes seven resource programs and the objectives and tasks you would implement under each program to achieve the stated goals of the plan. These programs include: (a) Erosion Program, (b) Habitat Protection and Enhancement Program, (c) Integrated Weed Management Program, (d) Rare, Threatened and Endangered (RTE) Plant Species Program, (e) Wildlife Program, (f) Shoreline Management Program, and (g) Travel and Public Access Management Program. The plan also includes a separate Monitoring and Adaptive Management Program and a Project-related Activities and Facilities Management Program. To adequately assess the benefits and costs of the plan, we need the information below.	

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	Erosion Program Under Objective 2 of this program, you would develop a long-term erosion monitoring plan for lands adjacent to the reservoir within two years of license issuance and conduct the first year of monitoring within three years of license issuance. You state that you will work with the Terrestrial Resource Working Group to refine the erosion monitoring methods and identify specific sites for monitoring. However, you already provide detailed monitoring methods that would produce results comparable with the results of erosion study conducted to develop the license application (which serves as the baseline for evaluating erosion rates). Given the level of detail included in the filed program, why do you need two years to develop the monitoring program and three years to implement the program?	Erosion Program Please see the TRMP filed with the SA for revised implementation timeframes. The schedule for implementation of this program has been accelerated. The monitoring plan will be developed in license Year 1 and implementation will begin in license Year 2. A monitoring program was conducted during relicensing studies, however this program was not designed to address long-term monitoring. As such, the study design needs to be refined to integrate the needs related to a decades-long monitoring scenario.
	Habitat Protection and Enhancement Program (a) Under Objective 1 of this program, you would identify and implement access control measures, as needed, on certain select City properties within the project boundaries and implement the measures within five years of license issuance. You specifically identify two areas needing vehicle access controls (Forest Road 3165-200 and access to the Boundary Wildlife Preserve). Please explain why you need five years to identify and implement these control measures. (b) Under Objective 3 you propose to identify and implement specific measures to improve the spotted frog habitat associated with the picnic area adjacent to the employee parking area near the power plant portal, including ceasing mowing (the identified adverse effect on the habitat) and planting native trees and shrubs to enhance the habitat. Given the existing information, based in large part on extensive study done during the pre-filing stages of the ILP, explain why you need three years to identify and implement the appropriate measures.	Habitat Protection and Enhancement Program (a) Please see the TRMP filed with the SA for revised implementation timeframes and accompanying explanations of those timeframes. The original schedule contemplated that access may need to be reserved for short term use to support implementation of habitat enhancement measures. The revised schedule provides for both short and long term measures to be implemented on a phased schedule. (b) Please see the TRMP filed with the SA for revised implementation timeframes. Appropriate measures will be identified and implemented in the first year following license issuance.
	Integrated Weed Management Program Under Objective 3 of this plan, you would eradicate, suppress, or contain weed species on City lands within the project boundaries, along roads and at recreation areas covered by the Terrestrial Resources Management Plan, and on federal lands along the reservoir shoreline where infestations are determined to be project-related. Please explain how you would determine if the infestations to be treated on federal lands are project related.	Integrated Weed Management Program (IWMP). Weed infestations on federal lands will be considered Project-related if they are: (1) within the reservoir fluctuation zone; (2) in areas affected by Project-related erosion; (3) along roads used for Project purposes; and/or (4) associated with Project-related recreational use. Infestations that meet these criteria will be treated and monitored as described in the IWMP.
	Travel and Pubic Access Management Program (a) This program contains several tasks that duplicate efforts in other programs in the Terrestrial Resources Management Plan or in the Recreation Resources Management Plan or, as described, appear to be more appropriately included in the Recreation Plan (i.e., Task 2.1 to 2.3: managing public access to project facilities, such as the tailrace recreation area and powerhouse; Task 3.2 and 3.3: providing boating and trail enhancement measures; Task 4.1: managing public access to the Boundary Wildlife	Travel and Public Access Management Program Please see the RRMP filed with the SA for more detailed implementation timeframes. (a) SCL has moved the Travel and Public Access Management Program to the RRMP, with the exception of Objective 4, *Provide compatible access to the BWP and manage public use*, which has

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	Preserve). Please explain why you believe these measures should be included in this program or file a modified Terrestrial Resources Management Plan removing these elements. (b) Under Objective 3 of this program, you propose to provide safe vehicle, watercraft, and/or pedestrian access to project recreation facilities and use areas defined in the Recreation Resources Management Plan within three years of license issuance. One of the tasks (3.1) that you would complete to achieve this objective is to develop and implement a plan to maintain single-purpose roadways used to access project recreation facilities, and for multi-purpose roadways (e.g., the Forest Service Road to the Vista House Recreation Area from Highway 31) work with the primary party responsible for maintaining the roadway to ensure that the roadway is adequately maintained for project visitors. The Terrestrial Resource Management Plan does not indicate when the roadway plan would be developed or provided for Commission approval prior to its implementation. Please modify the plan accordingly. <u>Recreation Resources Management Program</u> Under Objective 5 of this program, you propose the development and implementation of a public safety and education program within two years of license issuance. Task 5.2 indicates that the Multi-Resource Interpretation and Education Program (I&E Program) proposed as a component of the Draft Recreation Resources Management Plan (Attachment E-12 of your license application), will be the source of information regarding potential public safety, interpretation, and education needs and concerns to inform the public safety and education program. The I&E Program is not scheduled to be developed until year three, one year after the public safety and education program is scheduled to be implemented. Additionally, the I &E Program framework does not provide for an assessment of potential public safety, interpretation, and education needs and concerns. In other words, how will the I&E program be used to inform the public safety and education program (i.e., how will you determine if visitors are aware of and following the rules). Please clarify the apparently contradictory timelines for these two programs and explain how public safety and visitor education will be monitored through the Recreation Monitoring Program (Task 5.3 under Objective 5).	been moved to Section 5.2 in the TRMP. (b) As noted above, this section has been moved into the RRMP filed with the SA. A schedule for implementation of all measures in the RRMP is included in Appendix 7 of the RRMP. <u>Recreation Resources Management Program</u> The objective statement in the RRMP has been revised to better reflect the anticipated schedule for this element of the I&E Program. Planning for the public safety and education program will take place in license Years 1 and 2. Implementation of the plan will begin in Year 3 and will be part of a coordinated effort at implementation of the complete multi-resource I&E Program. Regarding an assessment of this program, the Multi-Resource I&E Program will describe all public/visitor safety-related messages, media, and methods that will be assessed and implemented at the Project. Additionally, the I&E Program, in coordination with the Recreation Monitoring Program, will describe methods for monitoring visitor awareness and compliance with posted safety messages (e.g., rules and regulations).

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5	In your license application and the Draft Recreation Resources Management Plan (Attachment E-12 of your license application), you propose to extend the Forebay Recreation Area boat ramp lane so that boaters may be launched/retrieved during the primary recreation season (Memorial Day weekend to Labor Day weekend) without problems due to fluctuating reservoir water surface elevations. During the recreation season, you propose to maintain the forebay pool elevation at or above 1,984 feet NAVD 88 from 6:00 am to 8:00 pm and at or above 1,982 feet NAVD 88 from 8:00 pm to 6:00 am. The conceptual site plan in the Draft Recreation Resources Management Plan appears to indicate that the ramp would be extended to an elevation of about 1,982 or 1,983 feet. Some boaters may unintentionally return after dark. Would boaters be able to effectively use the ramp when the reservoir levels are at 1,982 feet? If not, how much further would the ramp need to be extended to permit boaters to use the ramp at the reservoir level of 1,982? How much more would it cost to extend the ramp to permit boaters to use the reservoir during these lower water levels?	The conceptual plan for the Forebay Recreation Area boat ramp, shown in what is now Appendix 5 of the revised RRMP, states that the boat ramp would be extended "1 vertical foot to meet design criteria of 3 feet of water depth above toe of ramp at pool elevation of 1,984 feet." This means that the ramp would be extended to an elevation of 1,981 feet, not "about 1,982 or 1,983 feet." SCL believes the current proposal for the boat ramp extension will accommodate boaters per the scenario contemplated by FERC.
6	Would the improvements to the Metaline Waterfront Boat Launch be included in the revised project boundary? Please provide a modified schematic for the Metaline Waterfront Boat Launch showing the improvements relative to the project boundary, similar to the Metaline Falls Portage Trail schematic included in the Draft Recreation Resources Management Plan.	The proposed improvements to the Metaline Waterfront Boat Launch shown on the existing site plan are at a conceptual stage and do not allow for a determination of proposed Project boundary revisions. For the Metaline Falls Portage Trail, the location of the trail would follow the existing road alignment, allowing for a final representation of the Project boundary. When site design at the boat launch is being finalized, SCL plans to submit proposed Project boundary changes, as necessary, to FERC for review and approval.
7	Within the Draft Recreation Resources Management Plan (Attachment E-12 of your license application), you propose to develop and implement a Multi-Resource Interpretation and Education Program (I&E Program) over the first 10 years of the new license period with an estimated investment of $200,000. It is not clear how you intend to assess the effectiveness of the I &E Program in order to inform the periodic updates to the I&E program's themes and messages that are proposed in the Draft Recreation Resources Management Plan (i.e., are visitors learning about the history, nature & culture of the area?). Will the I&E Program be evaluated as a component of the recreation monitoring program? Please identify the frequency, measurement tool and reporting mechanism that will be utilized for this analysis.	Please see the RRMP filed with the SA for an explanation of the frequency, measurement methods, and reporting used to assess the effectiveness of the Multi-Resource I&E Program to inform the periodic updates to the I&E program's themes and messages. Additionally, when developed, the Multi-Resource I&E Program will describe annual (e.g., River Ranger reports and SCL staff observations) and periodic (e.g., visitor surveys) monitoring tasks that will be used to assess the effectiveness of the program to inform the periodic updates to the I&E Program's themes and messages.

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8	On the conceptual site plan for the Peewee Falls Viewpoint and Trail within Appendix 4 (Planned New/Enhanced Recreation Sites and Use Areas) of the Draft Recreation Resources Management Plan, the viewpoint area is described as being a gravel area with a bench. The trail leading from the parking lot to the viewpoint is identified as an accessible trail. Please clarify if the surface that will be used at the viewpoint will be accessible. Please provide the cost of making the viewpoint area accessible.	Please see the RRMP filed with the SA. The Peewee Falls Viewpoint and Trail conceptual site plan (in Appendix 5 of the revised RRMP) has been updated to include planned accessibility enhancements at this site. Specifically, the viewpoint, trail, parking, and restrooms will be accessible. The revised Exhibit D, Attachment D-1, includes the costs of the accessibility enhancements.
9	In Exhibit E, section 4.5.2.3.1, as part of your proposed Water Resources environmental measures, you state that you will acquire flood easements from private landowners in the towns of Metaline and Metaline Falls to compensate them for the project-related incremental increase in the flooding during high-flow flood events; and that these easements will restrict building, filling, or excavation in the easement areas. You also state that because these easements are unnecessary for normal project operations, you do not propose to include any provisions relating to these easements in the new license. While the Commission does not as a rule draw project boundaries to take account of flood events that are beyond the normal operating conditions of the project,[1] it does require the project boundary to encompass at a minimum all lands on which flowage rights would be needed for the reservoir under reasonably predictable flood conditions.[2] In order to determine if you have the necessary flowage easements and if the project boundaries should be modified to include these easements, we need the following information: (a) the extent (acreage) and location of the easements needed to accommodate the highest flood analyzed in your study of peak flood flow conditions above Metaline Falls, (b) the date on which landowners acquired the property for which flood easements would be acquired, and (c) the estimated cost of acquiring these easements.	Commission regulations indicate that only lands necessary for project purposes during normal operations should be included in the project boundary.[3] As the Commission has indicated, it does not as a rule draw project boundaries to take account of flood events that are beyond the normal operating conditions of the project. Lands that are "on occasion flooded" as a result of project operations need not be included in a project boundary.[4] If a project causes flooding outside of the project boundary, the remedy for the property owner would be a damage claim against the licensee.[5] The fact that a licensee has obtained flowage easements for potential infrequent flooding outside the project boundary does not require that these lands be retained within the project boundary.[6] The lands on which SCL proposes to acquire flood easements are outside the normal maximum surface elevation and cannot be characterized as necessary for project purposes during normal operations. Exhibit G defines the project boundary in the Boundary Reservoir as the line of ordinary high water as observed by surveyors in 2009. In the upper reservoir (where flood easements are proposed), the line of ordinary high water is outside of the modeled normal maximum surface elevation of the reservoir. As indicated in *Study 2 - Peak Flow Conditions Analysis*, modeling during historic peak flood flow events indicates that there is an incremental change

[1] See *Wisconsin Power and Light Company and Wolf River Hydro Limited Partnership, Project Nos. 710-002, 003 and 013*, 94 FERC 61,294 (March. 15, 2001).
[2] See *Pennsylvania Power & Light Company, Project No. 1881*, 21 FERC 61,429 (Aug. 14, 1980).
[3] 18 C.F.R. § 4.41(h)(2) (project boundary must enclose "only those lands necessary for operation and maintenance of the project and for other project purposes . . ."); *id.* at § 4.41(h)(2)(i)(B) (boundary around a project impoundment, "must be located no more than 200 feet (horizontal measurement) from the exterior margin of the reservoir, defined by the normal maximum surface elevation").
[4] *Wisconsin Power and Light Company and Wolf River Hydro Limited Partnership*, Project Nos. 710-002, 003 and 013, 94 FERC ¶ 61,294, 62,072 (March 15, 2001).
[5] *Id*. ¶ 62,072.
[6] *See New York Power Authority*, Project No. 2000-036, 105 FERC ¶ 61,102 (2003)(approving a revised boundary defined by normal maximum surface elevation, notwithstanding the applicant's retention of flowage easements on properties outside the boundary); *Georgia Power Company*, Project No. 1951, 110 FERC ¶ 62,138 (2005) (approving a revised project boundary removing lands on which flowage easements would be retained).

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		in water surface elevations as a result of project operations, which results in additional inundation during those peak flood flow events. Thus, while lands may occasionally become inundated during peak flood flow conditions above Metaline Falls, operation of the Boundary Project contributes only incrementally to this flooding. SCL seeks to compensate landowners for the incremental component of flooding attributable to project operations, but the lands subject to these easements need not be included within the project boundary because the peak flood flow events are beyond the normal operating conditions of the project. The specific information requested is provided below. To estimate the maximum extent of peak flood flow impacts, SCL modeled a flow of 140,000 cfs. This is 4,000 cfs higher than the highest flow on record since the construction of the Project. During a modeled peak flood flow event of 140,000 cfs, the area between the high flow line and the current FERC project boundary is estimated at 6.2 acres of private property within the incorporated town of Metaline, and 1.2 acres of private property within the incorporated town of Metaline Falls for a total of 7.4 acres.[7] Attachment 2 (Figures 1 through 8, titled AIR No. 9, Peak Flood Flow Areas Within Incorporated Metaline and Metaline Falls) shows the current project boundary and the modeled peak flood flow inundation line. Assessor numbers identify the private lots affected by peak flood flow inundation. Table 1, titled Property Assessor Numbers and Sales Dates, follows the figures. This data was obtained from the Pend Oreille County Assessor's web site. Sales date information was available for all but one parcel. SCL estimates the cost of obtaining the proposed easements at $720,000.
10	On pages E-141 and 142 of your license application, you propose to "implement measures identified in [your] TDG Attainment Plan (Attachment E-4) that are designed to attain TDG compliance at the Project consistent with the approved TMDL for TDG." You also add on page E-141 that you will "evaluate and implement as appropriate the following three gate alternatives for TDG abatement:" (1) throttle the sluice gates at the dam; (2) roughen the sluice flow; and (3) add a spillway flow splitter/aerator. All of the	Please see the revised TDG Attainment Plan submitted with the SA. Before license issuance, SCL will determine the alternative or combination of alternatives that will be implemented in Year 1 of the new license. SCL will formally recommend a prototype design in the 2010 TDG Annual Report to the Washington Department of Ecology for review and approval by mid-2011; submit the

[7] If approved, the updated FERC project boundary proposed in Exhibit G to the Boundary Project License Application would not materially alter these acreages.

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	alternatives are designed to spread spill flow to limit the plunging effects of spill jets for the purposes of reducing TDG concentrations downstream of the dam and powerhouse tailrace. The TDG Attainment Plan in Attachment E-4 contains six chapters. Chapters 1-3 are introductory chapters that provide an overview of the applicable regulatory requirements pertaining to TDG and studies and analyses that you have conducted to date. Chapter 6 contains the literature cited. Chapter 4 describes (generally) physical and numerical hydraulic models that you plan to develop during the period 2009 through 2011 to "better determine the implementation priority among the three gate alternatives." We understand these alternatives to be the three from page E-141 of the license application as noted above. The results of the physical and numerical hydraulic monitoring would be used to rank the three alternatives in order of priority for prototype development, installation/construction, and field testing. Chapter 5 includes a schedule for plan implementation that provides that in years 1 and 2 of any new license for the project, you would design, construct, operate, and test a prototype of your first choice of the three alternatives mentioned above. In years 3 and 4, you would repeat the steps from years 1 and 2 for the second choice of the three alternatives, and in year 5 you would repeat the steps in years 1 and 2 for your third choice. In years 6 through 10, you would repeat the steps as necessary for these or any other alternatives that optimize TDG reduction. Given all of the existing information based in large part on extensive study done during the pre-filing stages of the ILP and the fact that any structural alternatives would be examined first through design, installation, and testing of a prototype rather than a permanent structure, we find that additional information is not needed to determine which of the three alternatives should be selected first for evaluation. Therefore, please make your first choice of the three options (or combination thereof) based on existing information and modify your TDG Attainment Plan accordingly.	construction quality control inspection program (QCIP) to the FERC by late 2011 for review and approval including obtaining other applicable permits; and, construct the prototype design in 2012 (or Year 1 of the new license) when the sluice maintenance gate is back in service. The "prototype" described in the TDG Attainment Plan refers to the iterative process of partially developing and implementing a preferred alternative, followed by field testing to confirm that the modification has the desired TDG reduction. As FERC noted, all of the three gate alternatives will spread spill flow and/or limit the plunging effects of spill jets for the purposes of reducing TDG concentrations downstream of the Project. However, the effectiveness in reducing TDG may not be realized by prioritizing any one of the three (3) alternatives in a singular sequential process of implementation. As a result of conducting the 2009 TDG activities, which included baseline tests and calibration of the physical and computational hydraulic models, there are preliminary indications that a combination of alternatives may yield more promising TDG reduction results than implementing one alternative at a time. The 2010 activities will include using the physical and computational hydraulic models to determine the preferred configuration of the alternative for construction in Year 1 of the license, including the sequence of alternatives and their incremental plan of development. The first choice or alternative for construction may consist of one of the three gate alternatives, but more likely, the alternative will consist of a combination of the alternatives. SCL has already completed permanent structural modifications to three of the seven sluice gates by installing stainless steel seal plates that will reduce the likelihood of damage to the Project during throttled flow. The prototype process of assessing the throttled sluice gate alternative has been initiated to collect qualitative and quantitative information prior to sluice maintenance gate refurbishment during 2010 through 2011. SCL will continue to evaluate the safe use of and field test sluice gate throttling in tandem with assessing the two remaining gate alternatives, individually and in combination, using the physical and numerical hydraulic modeling during the period from 2010 through 2011.
11	On page E-142 of the license application, you proposed to monitor dissolved oxygen (DO) concentrations and water temperature in the reservoir to "better define the	The dissolved oxygen monitoring conducted in 2005 and 2006 as part of relicensing studies addressed conditions during a single year's

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AIR Number	AIR	SCL response
	magnitude and spatial and temporal extent of DO concentrations below 8.0 mg/L in the Project area." You say that the purpose of the DO monitoring is "to verify the results of the relicensing study by monitoring more extensively during the warmer summer months when DO levels are more likely to be below 8.0 mg/L." Given: (1) your finding on page E-133 of the license application that your existing study results "indicate no correlation between DO and water surface elevation fluctuations related to Project operations;" and (2) the extensive DO data conducted during the summer months as part of your pre-filing ILP studies, it's not clear to us what your basis is on the need to "verify" your already existing results by conducting further monitoring. Please explain by addressing the adequacy of the information you acquired and filed on the record for the project with your license application and describing the benefits that the new information would provide you. Given your finding that there is no correlation between project operations and DO concentrations, how would the information be used to formulate license conditions related to DO concentrations in project affected waters?	hydrologic and climatic conditions. Although no correlation was observed between DO levels and Project operations, the Washington Department of Ecology has requested that additional monitoring be conducted to evaluate DO levels at several locations over five years to better understand the extent of potential DO readings below 8.0 mg/l , if any, under a broader range of hydrologic and climatic conditions. SCL will report DO data to Ecology on an annual basis, and after five-years of monitoring, in consultation with Ecology, determine if any further actions are needed.
12	As part of your proposal to install, operate, and maintain a trap-and-haul facility at or near the project tailrace as outlined in Attachment E-8 of your license application, you would conduct a seven-year "initiation study" in which you would: (1) conduct biological monitoring to determine alternative facility locations and periods of operation; (2) develop fish handling protocols; (3) research other trap-and-haul facilities that have been successfully used under similar hydraulic conditions to the project; (4) conduct any field measurements and associated surveys; (5) develop a high resolution model for the reach where a passage facility might be installed; (6) develop design criteria; (7) develop conceptual temporary trap-and-haul facility designs; (8) construct a temporary facility; and (9) develop protocols for deploying and retrieving the temporary facility. In order to assess the benefits and costs of your proposed upstream passage program, please provide the information requested below. (a) You state that additional biological monitoring is needed "because of low numbers of native salmonids captured or observed in the Boundary Dam tailrace." In light of the pre-filing trout monitoring studies that you've already performed in the tailrace with limited success as described above, please explain what revised methods you would use under the biological monitoring component (item 1 above) to improve your ability to capture native salmonids. Please also explain why such additional monitoring would be needed given that you propose to deploy a portable, temporary trap-and-haul facility (which could serve as your sampler for biological monitoring) in locations where you've stated you've already captured native trout (i.e., the tailrace). Please also explain why you need seven years to perform these steps under the "initiation study." (b) Please conceptually describe the "high resolution" model that you propose in item (5) above and explain its purpose.	Please see the revised Fish and Aquatics Management Plan (FAMP), and the Exhibit E addendum for a revised Section 4.5.10.2.4 with an updated description of the proposed trap-and-haul facility that is different from the fishway development program described in the License Application. Specific itemized responses are: (a) Although low numbers of native salmonids were captured in the tailrace during relicensing studies, there are concerted ongoing efforts to increase populations of native salmonids through basin-wide restoration efforts (e.g., Washington State Salmon Recovery Board, USFWS Partners For Fish and Wildlife Program, and the Northwest Power Conservation Council's Fish and Wildlife Program) and implementation of Boundary PM&E measures. These efforts may increase the number of native salmonids to be used in the fishway development program. Since post-licensing studies will begin prior to full recovery of native salmonids, bull trout and other native salmonids may be collected from upstream habitats and released into the Boundary tailrace to evaluate upstream migration behavior. In order to collect the site-specific biological and engineering information required to site, design, and install the upstream trap-and-haul facility, a Fishway Development Plan (FDP) will be developed in consultation with the Fish and Aquatic Work Group (FAWG) within 2 years following license issuance. The FDP will describe the schedule, study design and study methods to be used during the development period. Although the number of native

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	(c) Please explain when you would commence moving captured fish upstream and to where, in your best judgment using existing information, the fish would likely be transported. (d) Please explain the basis of your cost estimates for a temporary trap-and-haul facility (estimated capital cost of $2,909,661) and a permanent trap-and-haul facility (capital costs of $9,848,082). These are very precise costs for what appears to be temporary and permanent fishways for which you do not identify final, or even conceptual designs at this point (you describe six steps above that would need to be completed before you begin preparing a conceptual design).	salmonids is expected to increase, it is anticipated that radio-tracking will be an important method because of lower sample size requirements relative to other techniques. Subject fish could be captured in the tailrace or captured in Lake Pend Oreille and released in the tailrace. The potential for low sample sizes in any one year and the need to test a variety of fishway entrance locations means up to 8 years will be needed to evaluate fishway siting and design options. (b) SCL will convene a technical advisory committee (TAC) of fish passage design experts to advise the FAWG on the need for a computational fluid dynamic or physical scale model of the Boundary Dam and appurtenant facilities. The purpose of the model would be to test the hydraulic characteristics of the fishway entrance and other features under a wider variety of designs and facility and project operating scenarios than could be empirically tested. Results of the model will help inform siting, selection and design decisions. (c) Capture and transport of fish using a trap-and-haul facility will occur no later than Year 15 following license issuance. Some fish may be captured using nets or a test capture facility during the 8-year research phase of the PM&E measure. Most bull trout observed in the Boundary tailrace during pre-licensing studies were genetically tested and identified as stocks from Lake Pend Oreille or other upstream habitats. It is likely that Lake Pend Oreille fish will be returned to Lake Pend Oreille, but transport protocols have not been developed in consultation with agencies with jurisdictional authority. Numerous factors such as species, size, time of year, population source, the need for monitoring subjects, and other factors could be considered for each individual captured. The FDP, to be developed in consultation with the FAWG, will include protocols to be followed during the 8 year monitoring period. These protocols will be further refined in the Fishway Design and Construction Plan (FDCP) to be prepared at the conclusion of the FDP. (d) The revised cost estimate for the research, monitoring, design, construction, operation, and maintenance of the trap-and-haul facility was based on pre-conceptual level designs developed in consultation with resource agencies. Although the current cost estimates may be precise, accuracy of the pre-conceptual level design are considered with a range of -30% to +50%.

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AIR Number	AIR	SCL response
13	Two of the plans you filed with your license application do not contain sufficient detail for Commission approval: Terrestrial Resources Management Plan [Attachment E-3] and Fish and Aquatics Management Plan [Attachment E-8]. These plans include the development of other plans to complete identified tasks. Many of the plans require Commission review and approval and would be developed at different time periods, creating problems for not only tracking compliance with the license requirements, but also weighing the benefits and costs of the plan's measures. For example, in the Terrestrial Resources Management Plan, you propose to develop a forest management plan for the Boundary Wildlife Preserve to reduce tree density in overstocked stands, increase plant diversity, and improve wildlife habitat values. The plan would include goals, expected outcomes, a monitoring and contingency plan, and harvest and wood disposal plans. In the Fish and Aquatics Management Plan, you propose similar measures that would require Commission oversight (i.e., large woody debris implementation planning study). The Commission would need to review and approve the details of these plans prior to implementation. You also propose in the Fish and Aquatics Management Plan to undertake a number of measures to improve riparian habitat conditions in tributaries to the project reservoir. However implementation of these measures is contingent on the willingness of the existing landowners to sell their land or enter into conservation agreements or allow permission to implement the measures. If you are unable to obtain such rights, you would allocate the funds that would have been expended to other measures. The Commission needs greater certainty on your proposed measures in order to assess the benefits and costs of your proposal and to define any license requirements. We cannot access the benefits that would be achieved in the event that the contingency actions were required. Given that you would only pursue these measures on a willing seller/conservation easement basis, we will need you to identify your proposed measures should you need such a contingency, not just the amount of funding that would be put toward alternative measures, as is now proposed. Please describe alternative sites or actions, if any, which would be undertaken in the event that you could not obtain the necessary rights to implement your proposed measures. Please include the costs of the contingency measures. In light of the above, please review each proposed plan and provide additional detail where possible.	<u>TRMP</u> The TRMP, Section 5.2, *Habitat Management, Enhancement and Protection Program*, provides for four assessments to be conducted to determine if reasonable options exist to enhance terrestrial habitats and resources. These assessments must be completed before a determination can be made on whether plans should be developed to implement viable measures. The tasks that address plan development have been revised to include submittal of draft documents for FERC approval prior to implementation. <u>FAMP</u> The revised FAMP identifies within each PM&E measure whether a planning phase is needed that requires FERC review and approval. The Tributary Restoration program includes a variety of aquatic resource treatments: culvert replacement, riparian plantings, LWD placement, non-native fish suppression and eradication, riparian easements and native trout supplementation. If the resulting benefits of an initial treatment are less than expected in a specific reach, or if a treatment cannot be implemented due to uncooperative landowners, future restoration efforts may be reallocated to increase the intensity, duration or geographical extent of alternate treatments. Landowner permission, conservation agreements, or land sales from parties not bound by the Settlement Agreement would be needed for three PM&E measures: (1) Riparian Improvement and Stream Channel Enhancement in Sullivan Creek from RM 0.30 to RM 0.54 (FAMP Section 5.4.3), Riparian Planting, Culvert Replacement, and Channel Reconstruction in Linton Creek RM 0.00 to RM 0.24 (FAMP Section 5.4.7), and Riparian and Channel Improvements in Sweet Creek RM 0.0 to RM 0.6 (FAMP Section 5.4.8). Contingency measures, in the event there is a failure to reach agreement with landowners, are identified in the revised FAMP.

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Attachment 1: Current, revised and proposed total authorized installed and generator capacity after units 55 and 56 upgrades at the Project.

Current Capacities in 2007[1]					***Revised*** Capacities in 2008[2]					**Proposed Capacities in 2009 (*Estimated*)[3,8]**					*Incremental Change*[7,8]
Unit Number	Turbines		Generators[5]	Authorized Capacity[6]	Unit Number	Turbines		Generators[5]	Authorized Capacity[6]	Unit Number	Turbines[8]		Generators[(5, 6)]	Authorized Capacity[6,8]	
	HP	kW[4]	kW	kW		HP	kW[4]	kW	kW		HP	kW[4]	kW	kW	kW
51	204,506	153,379.50	158,400	153,379.50	51	204,506	153,379.50	158,400	153,379.50	51	204,506	153,379.50	158,400	153,379.50	n/a
52	204,506	153,379.50	161,500	153,379.50	52	204,506	153,379.50	161,500	153,379.50	52	204,506	153,379.50	161,500	153,379.50	n/a
53	204,506	153,379.50	158,400	153,379.50	53	204,506	153,379.50	158,400	153,379.50	53	204,506	153,379.50	158,400	153,379.50	n/a
54	204,506	153,379.50	161,500	153,379.50	54	204,506	153,379.50	161,500	153,379.50	54	204,506	153,379.50	161,500	153,379.50	n/a
55	259,823	194,867.25	200,000	194,867.25	55	***245,333***	***184,000***	200,000	184,000	55[(8)]	**259,333[(8)]**	**194,500[(8)]**	**240,000[(8)]**	194,500	*10,500*
56	259,823	194,867.25	200,000	194,867.25	56	***245,333***	***184,000***	200,000	184,000	56[(8)]	**259,333[(8)]**	**194,500[(8)]**	**240,000[(8)]**	194,500	*10,500*
[1]Current Total Authorized Capacity (kW) = 1,003,253					[2]***Revised*** Total Authorized Capacity (kW) = ***981,518***					[(3,8)] **Proposed Total Authorized Capacity (kW) = 1,002,518**					
										[7]*Total Incremental Change in Authorized Capacity (+kW) = 21,000*					
										[7]*Total Incremental Change in Generator Rating (+kW) = 80,000*					

Notes:

[1] - Current capacities for turbines and generators per FERC Order Amending License and Revising Annual Charges, dated November 2, 2007. Total authorized installed capacity is 1,003,253 kilowatts (kW) based on turbine ratings. Current capacities data for units 55 and 56 is based on original index testing assuming a peak efficiency of 95% at 194,867.25 kW (259,823 HP) performed by the Original Equipment Manufacturer (OEM, Toshiba) during commissioning of the units in 1985 and 1986, respectively.

[2] - Revised capacities for units 55 and 56 are based on performance tests conducted in 2007 and 2008 that produced an actual peak efficiency of only 90% at 184,000 kW (245,333 HP).

[3] - Proposed capacities per City of Seattle, Seattle City Light Department (SCL) November 2009 turbine upgrade preliminary estimates for units 55 and 56. [Note: The peak efficiency desired by SCL is a value slightly lower than the initial peak efficiency requested for the original units. SCL typically operates below the peak efficiency capacities to meet reserve requirements; therefore, a turbine with a flatter efficiency curve will produce more annual energy.]

[4] - Turbine rating in kilowatts (kW) is the product of the turbine capacity in horsepower (hp) at best gate (maximum efficiency point) opening under the manufacturer's rated head times a conversion factor of 0.75 kW/hp.

[5] - Current and revised total generating capacity is 1,039,800 kW (1,040 MW) and the proposed total generating capacity is approximately 1,119,800 kW (1,120 MW) at a power factor of 0.95.

[6] - The Commission's regulations at 18 C.F.R. § 11.1(i) state that "authorized installed capacity means the lesser of the ratings of the generator or turbine units."

[7] - Incremental change is the difference due to the proposed capacities minus the revised capacities for units 55 and 56.

[8] - Turbine ratings for units 55 and 56 upgrades will verified by model tests in 2011. SCL will file an amendment when units 55 and 56 rehabilitations are completed and field performance testing is finalized in approximately Year 3 after new license issuance.

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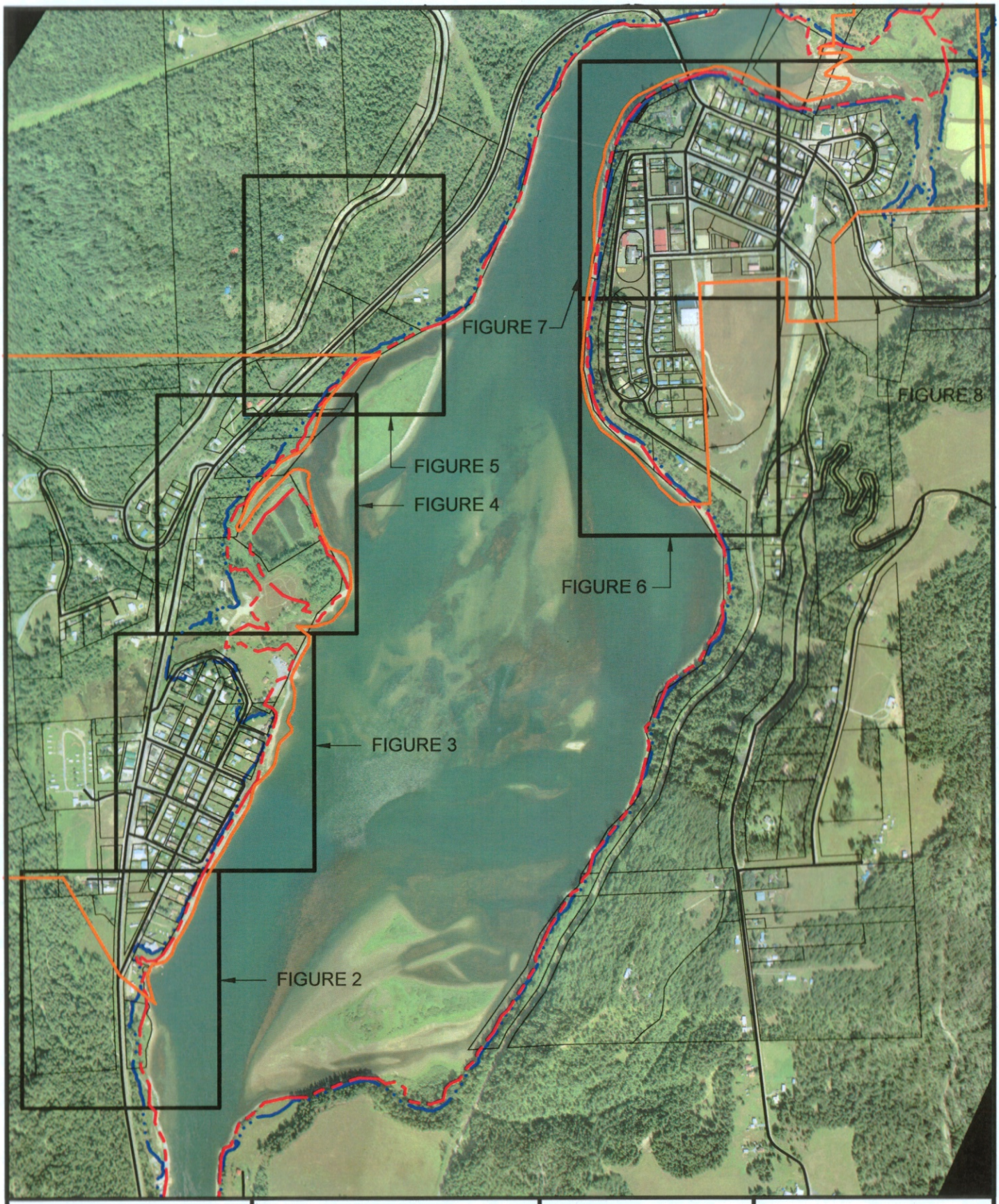
Attachment 2: AIR No. 9 Peak Flood Flow Areas Within Incorporated Metaline and Metaline Falls



City of Seattle

AIR No. 9
ATTACHMENT 2
Peak Flood Flow Areas within Incorporated Metaline & Metaline Falls
FIGURE 1 OF 8

LEGEND:

- FERC BOUNDARY
- 140,000 INUNDATION
- INCORPORATION LIMITS

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SCALE IN FEET

City of Seattle

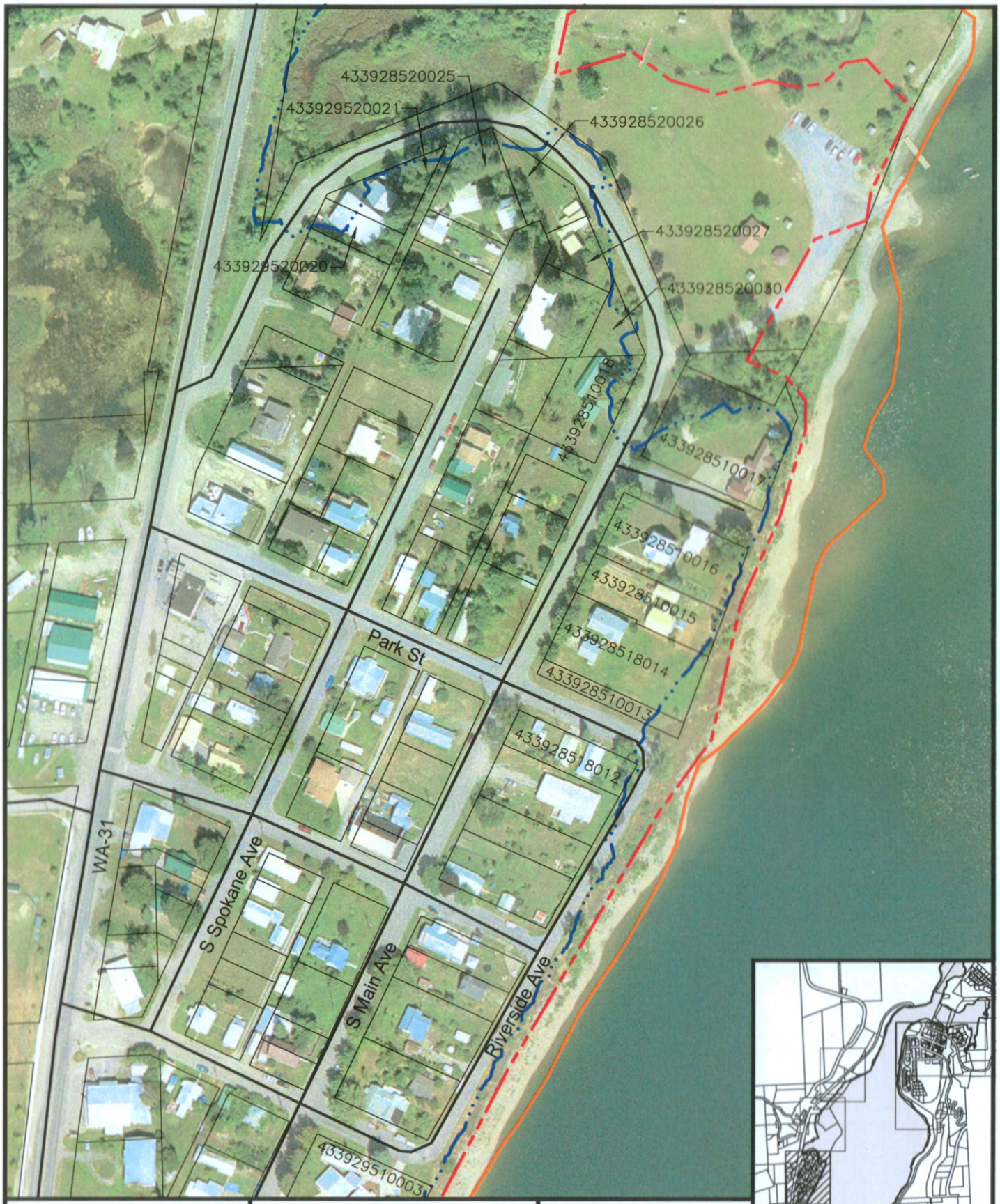
AIR No. 9
ATTACHMENT 2
Peak Flood Flow Areas within Incorporated Metaline & Metaline Falls
FIGURE 2 OF 8

LEGEND:

- FERC BOUNDARY
- 140,000 INUNDATION
- INCORPORATION LIMITS

MAP KEY

0 200
SCALE IN FEET



City of Seattle

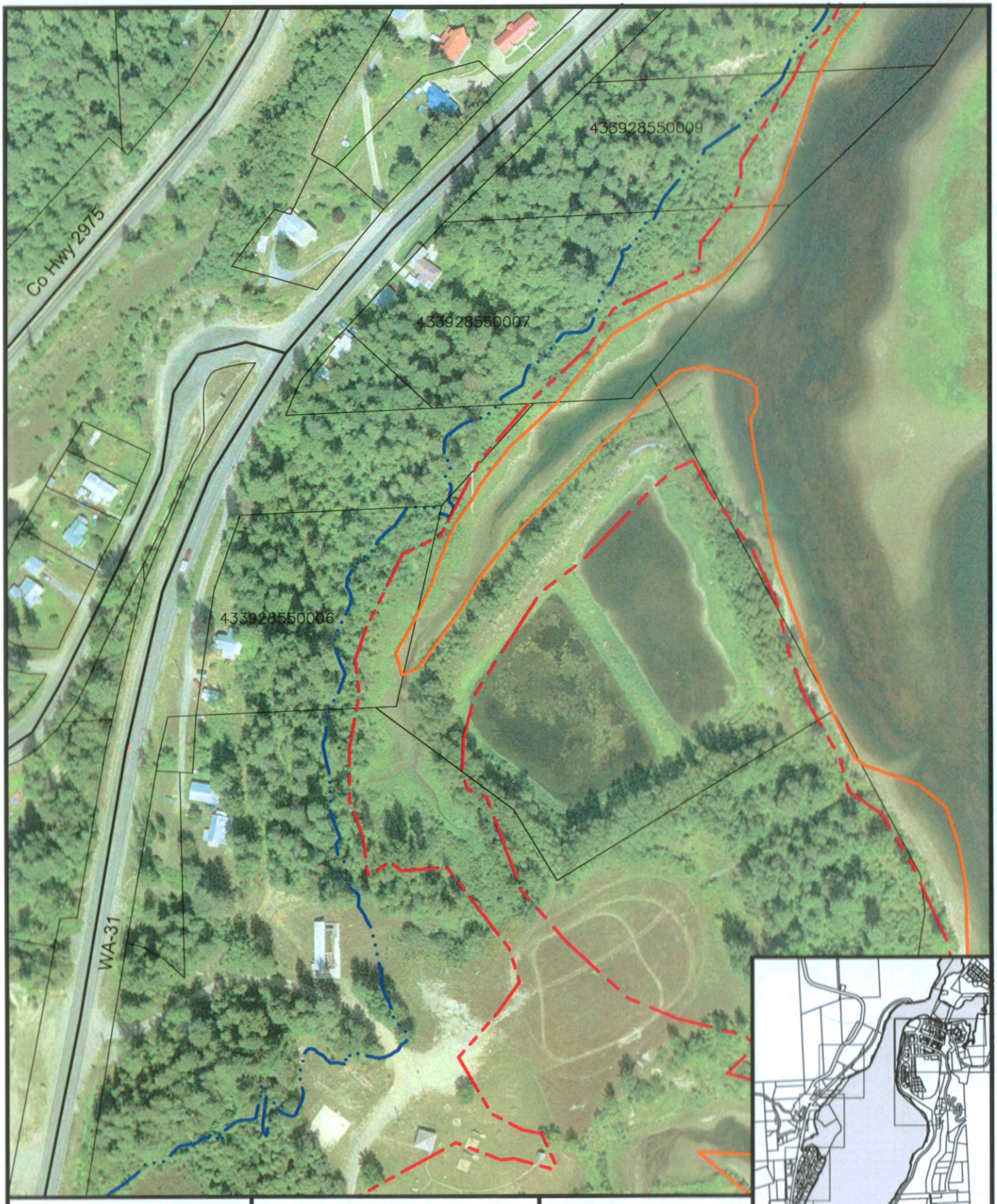
AIR No. 9
ATTACHMENT 2
Peak Flood Flow Areas within Incorporated Metaline & Metaline Falls
FIGURE 3 OF 8

LEGEND:

- FERC BOUNDARY
- 140,000 INUNDATION
- INCORPORATION LIMITS

MAP KEY

0 200
SCALE IN FEET



City of Seattle

AIR No. 9
ATTACHMENT 2
Peak Flood Flow Areas within Incorporated Metaline & Metaline Falls
FIGURE 4 OF 8

LEGEND:

- FERC BOUNDARY
- 140,000 INUNDATION
- INCORPORATION LIMITS

MAP KEY

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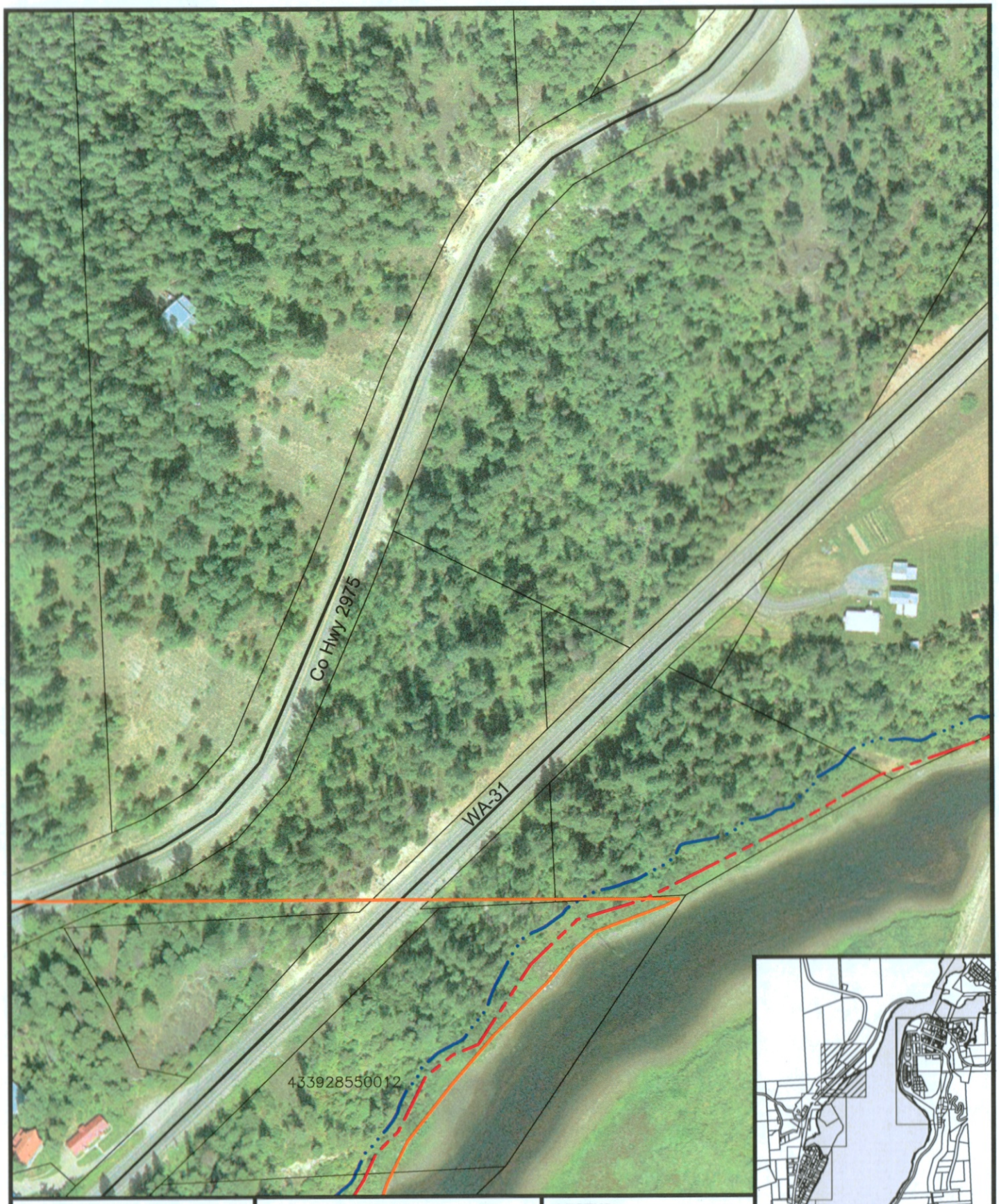
SCALE IN FEET



City of Seattle

AIR No. 9
ATTACHMENT 2
Peak Flood Flow Areas within Incorporated Metaline & Metaline Falls
FIGURE 5 OF 8

LEGEND:

- FERC BOUNDARY
- 140,000 INUNDATION
- INCORPORATION LIMITS

MAP KEY

0 200
SCALE IN FEET

City of Seattle

AIR No. 9
ATTACHMENT 2
Peak Flood Flow Areas within Incorporated Metaline & Metaline Falls
FIGURE 6 OF 8

LEGEND:

- FERC BOUNDARY
- 140,000 INUNDATION
- INCORPORATION LIMITS

MAP KEY

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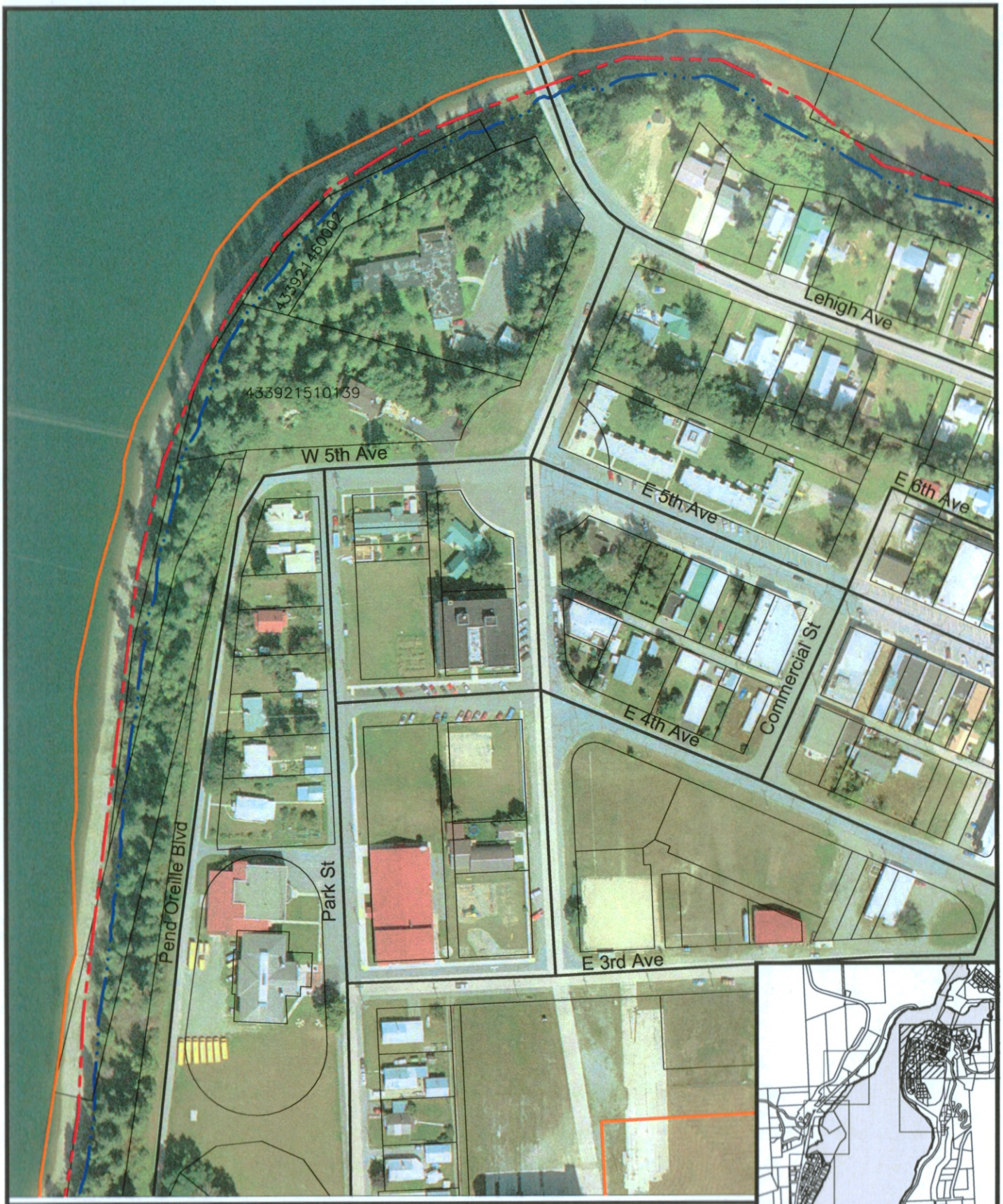
SCALE IN FEET



City of Seattle

AIR No. 9
ATTACHMENT 2
Peak Flood Flow Areas within Incorporated Metaline & Metaline Falls
FIGURE 7 OF 8

LEGEND:

- FERC BOUNDARY
- 140,000 INUNDATION
- INCORPORATION LIMITS

MAP KEY

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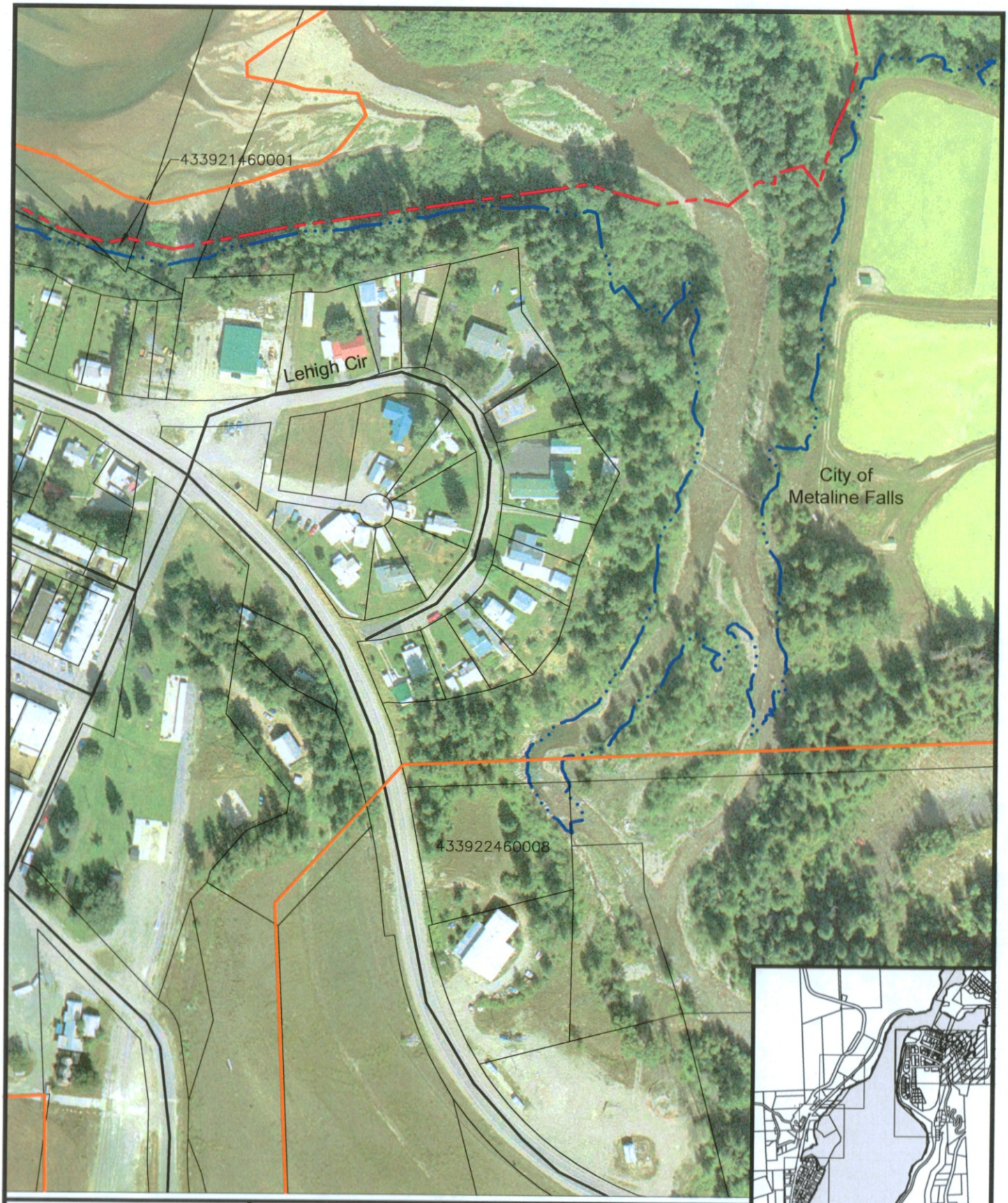

City of Seattle

AIR No. 9
ATTACHMENT 2
Peak Flood Flow Areas within Incorporated Metaline & Metaline Falls
FIGURE 8 OF 8

LEGEND:

- FERC BOUNDARY
- 140,000 INUNDATION
- INCORPORATION LIMITS

MAP KEY

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SCALE IN FEET

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Table 1. Property Assessor Numbers and Sales Dates.

Parcel Number	Sales Date
433928550012	4/23/2007
433928550009	7/29/1966
433928550007	5/25/1977
433928550006	3/1/2006
433929520020	9/28/2006
433929520021	4/27/2007
433928520026	2/27/2006
433928520027	11/19/1969
433928520025	5/22/1905
433928520030	5/20/1905
433928510018	9/15/2006
433928510017	8/2/1979
433928510016	8/10/1983
433928510015	5/14/1998
433928518014	10/2/1995
433928510013	11/13/1998
433928518012	8/9/2007
433929510003	11/30/1993
433929510002	5/2/2009
433929510001	11/28/1975
433929550006	5/18/1982
433929550008	3/2/1999
433929550007	9/30/1968
433921460001	12/31/2007
433921460002	12/31/2002
433928120002	unavailable
433921510139	12/31/2002
433922460008	7/3/2003

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CERTIFICATE OF SERVICE

I hereby certify that I served a copy of Seattle City Light's Responses to FERC's November 18, 2009 Additional Information Requests this 29th day of March 2010 upon each person designated on the official service list compiled by the Secretary in this proceeding.

/s/ Marilani Huling
Marilani Huling

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Document Content(s)

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