FINAL LICENSE APPLICATION EXHIBIT E

APPENDIX M

ROADS, TRAILS, AND TRANSMISSION LINE RIGHT-OF-WAY EROSION MANAGEMENT PLAN

ROADS, TRAILS, AND TRANSMISSION LINE RIGHT-OF-WAY EROSION MANAGEMENT PLAN ANNOTATED OUTLINE

SKAGIT RIVER HYDROELECTRIC PROJECT FERC NO. 553

Seattle City Light

April 2023

Section No.		Description	Page No.
1.0	Intro	duction	1-1
2.0	Purpo	ose and Scope of the Plan	2-1
	2.1	Goals and Objectives	2-1
	2.2	Geographic Area	2-1
3.0	Plan Implementation		3-1
	3.1	Best Management Practices	
	3.2	Road and Trail Maintenance	
		3.2.1 Routine Maintenance	
		3.2.2 Minor Drainage Improvements (Not Stream Crossings)	
		3.2.3 Stream Crossings	
		3.2.4 Route Stabilization	
	3.3	Drainages Affecting Sensitive Areas	
	3.4	Route Decommissioning	
	3.5	Major Projects	
	3.6	Emergency Maintenance	
	3.7	Staff Training	
4.0	Monitoring, Reporting, and Communications		
	4.1	Monitoring Procedures	4-1
	4.2	Reporting Schedule	
	4.3	Communications	4-1
5.0	References		5-1

TABLE OF CONTENTS

List of Tables

Table No.	Description	Page No.
Table 4.2-1.	Timeline of activities.	

BMP	.best management practices
City Light	Seattle City Light
Ecology	
FERC	.Federal Energy Regulatory Commission
O&M	.operations and maintenance
Project	Skagit River Hydroelectric Project
ROW	Right-of-Way
SOP	.standard operating procedure
SRCC	Skagit Resource Coordinating Committee
TESC	.temporary erosion and sediment control
WDFW	.Washington Department of Fish and Wildlife
WSDOT	.Washington State Department of Transportation

1.0 INTRODUCTION

This document describes Seattle City Light's (City Light) proposed Roads, Trails, and Transmission Line Right-of-Way (ROW) Erosion Management Plan for the Skagit River Hydroelectric Project (Project or Skagit River Project), Federal Energy Regulatory Commission (FERC) No. 553. The Roads, Trails, and Transmission Line ROW Erosion Management Plan describes procedures and best management practices (BMP) for routine maintenance, construction, and decommissioning of roads and trails associated with Project operations, Project mitigation lands, and other areas of erosion concern along the transmission line ROW. The goal of this Roads, Trails, and Transmission Line ROW Erosion Management Plan is to minimize the extent of erosion due to Project operations where erosion affects resources.

City Light will coordinate the efforts required under this Roads, Trails, and Transmission Line ROW Erosion Management Plan with other license article obligations, including other Project resource management plans included in the new license.

2.0 PURPOSE AND SCOPE OF THE PLAN

City Light proposes this Roads, Trails, and Transmission Line ROW Erosion Management Plan to provide BMPs and procedures to guide City Light's actions related to potential areas of erosion associate with Project operations and maintenance (O&M) under the new license. This plan will be effective for the term of the new license and is subject to annual reporting and periodic five (5) year review and updates in consultation with the Skagit Resource Coordinating Committee (SRCC).¹

2.1 Goals and Objectives

This section presents goals and objectives for minimizing erosion at Project roads, trails, and within the transmission line ROW. The primary goal of this plan is to minimize extent of erosion and erosion rates along transmission ROW and Project road network due to Project operations where erosion is impacting habitat, recreation sites, and cultural resources or where non-Project related activity results in erosion that impacts utility infrastructure.

The implementation actions included in this plan are designed to meet the following objectives:

- Protect roads and other associated infrastructure by minimizing potential erosion and sedimentation;
- Reduce habitat loss and impacts to other natural and cultural resources from effects of erosion and sedimentation;
- Reduce sediment input to waterbodies;
- As part of Historic Properties Management Plan (City Light 2023a), coordinate as needed with erosion monitoring program;
- Restore habitats impacted through Project-related erosion through seeding or planting with native compatible plant species.

2.2 Geographic Area

The geographic scope of the Roads, Trails, and Transmission Line ROW Erosion Management Plan includes Project roads and trails associated with Project operations, Project fish and wildlife mitigation lands, and other areas of erosion concern along the transmission line ROW within the Project Boundary.

¹ The SRCC includes agency representatives that will collaborate regarding implementation and monitoring of this Roads, Trails, and Transmission Line ROW Erosion Management Plan and contribute to adaptive management decisions.

3.0 PLAN IMPLEMENTATION

Upon approval by FERC, this Roads, Trails, and Transmission Line ROW Erosion Management Plan will be implemented in consultation with the SRCC. City Light will continue to implement erosion minimization measures for routine O&M and new construction and will incorporate additional measures if new data indicates they are necessary. Review of implementation effectiveness will be communicated annually and formal reports will be submitted to FERC every five (5) years. Implementation will include the following actions:

- Collaboratively prioritize erosion sites warranting possible treatment, site specific road repairs, erosion and sediment controls, and habitat restoration/stewardship needed to minimize and mitigate impacts from roads at or near steep erodible slopes, wetlands, creeks, and streams.²
- Identify potential roads or trails that could be minimized, moved, closed, or abandoned. These
 may be routes that are not necessary for Project operations or are detrimental to nearby
 resources (e.g., steep erodible slopes, wetlands, creeks, and streams).
- Develop and implement comprehensive and specific BMPs and standard operating procedures (SOP) for road and trail maintenance, including ditches and culverts.
- Install soil bioengineering treatments and plantings as needed to minimize erosion and improve habitat.
- Train City Light staff to implement BMPs and Temporary Erosion and Sediment Control (TESC) procedures.

3.1 Best Management Practices

While conducting all maintenance and construction activities, crews will follow BMPs including:

- Follow all applicable SOPs and BMPs outlined in Washington State's Department of Transportation (WSDOT) TESC (WSDOT 2019) and the Washington Department of Ecology's (Ecology) 2019 Stormwater Management Manual for Western Washington (Ecology 2019).
- When possible, routine road work will be conducted when moisture and soil conditions are not likely to result in excessive erosion and/or soil movement.
- Areas of vegetation and soil disturbance will be minimized.
- Rock and structural fill material brought to the site will be free of seeds or other plant parts that could result in the spread of weeds. Only gravel sources that are known to be weed-free will be used.
- When appropriate, structural fill will be constructed of granular, free-draining material containing no organic materials. Structural fill will be compacted in lifts to a firm, unyielding condition.

² Locations are identified in GE-02 Erosion and Geologic Hazards at Project Facilities and Transmission Line Right-of-Way Study Report (City Light 2023c).

- All debris (tree limbs, stumps, and brush) are placed outside the roadway prism. For roads near streams or other waterbodies, woody debris will be placed on the downhill side of the road at the toe of the road fill to trap sediment.
- BMPs will be followed to reduce the introduction of petroleum-based products when equipment is used near streams or waterbodies.
- Equipment will be checked daily for leaks and any necessary repairs are completed prior to commencing work activities near a creek, river, reservoir, or other waterbody.
- Erosion and sediment control methods will be used to prevent sediment from entering a creek, river, or other waterbody.

3.2 Road and Trail Maintenance

This section will identify types of maintenance City Light will perform along Project roads or trails and provide appropriate BMPs.

3.2.1 Routine Maintenance

This section will describe procedures and BMPs for routine road maintenance procedures such as grading, surfacing, cleaning ditches and culverts, and brushing. Maintenance activities include:

- Regrading roadways;
- Resurfacing or topping existing roads with aggregate;
- Filling potholes;
- Vegetation maintenance within the roadway prism;
- Cleaning out existing ditches and culverts that have filled in with debris;
- Installing water bars and/or other appropriate measures to prevent sediment and erosion of road surface;
- Installing check dams in ditches to reduce sediment and erosion;
- Armoring ditches and/or culverts;
- Clearing debris from the roadway following mudslides, rockslides or rockfall, as appropriate;
- Emergency repairs of culverts and roadway ditches following a landslide or erosion from heavy precipitation; and
- Snow plowing and storing snow within the shoreline buffer or pushing snow into the Skagit River at designated locations (two snow dumps in the town of Newhalem adjacent to the maintenance yard and one dump along the upstream side of Ross Dam).

3.2.2 Minor Drainage Improvements (Not Stream Crossings)

This section will describe procedures and BMPs for minor road improvements such as water bars, swales, rolling dips, relief culverts. Replacing failed culverts using size and materials appropriately sized for future flows and according to Washington Department of Fish and Wildlife guidelines (WDFW 2023) in fish-bearing streams a fish passable culvert would be installed.

3.2.3 Stream Crossings

This section will describe both routine maintenance at stream crossings and procedures for replacing stream crossings. Selection and prioritization of stream crossings for replacement will not be included in this plan but will be included in the Riverscape Ecosystem Plan (City Light 2023b).

3.2.4 Route Stabilization

This section will describe procedures and BMPs for small-scale route stabilization procedures such as stabilizing failing fill or cutslopes. Major stabilization that includes the entire road prism will be considered a major project.

3.3 Drainages Affecting Sensitive Areas

This section will address ditches and relief culverts that drain into or near erodible slopes, wetlands, and streams in plan implementation section.

3.4 Route Decommissioning

This section will describe selection and prioritization or roads/trails for decommissioning.

3.5 Major Projects

This section will describe how major projects that have the potential for erosion will be handled. Major projects involve substantial work (e.g., relocating a section of Project road or major culvert replacements). A separate, site-specific TESC plan will be developed for major projects. All construction projects will follow applicable BMPs to minimize erosion, control sediment, and protect natural or cultural resources. Updates to best available science and BMPs will be made during adaptive management reviews every five (5) years over the life of the license.

3.6 Emergency Maintenance

This section will describe how City Light will perform emergency road maintenance (e.g., following a major storm event), BMPs for such work, and follow-up steps to ensure protection of natural resources.

3.7 Staff Training

This section will describe applicable training topics and frequency of training activities.

4.0 MONITORING, REPORTING, AND COMMUNICATIONS

This section will describe the monitoring efforts that will document progress towards Roads, Trails, and Transmission Line ROW Erosion Management Plan goals and objectives. Monitoring is an extension of City Light's protection and enhancement implementation and will use baseline information from City Light relicensing study efforts. The goals of monitoring are to determine the effectiveness of protection measures and to inform adaptive management updates to this plan.

4.1 Monitoring Procedures

This section will include a program to monitor effectiveness of this Roads, Trails, and Transmission Line ROW Erosion Management Plan. Monitoring efforts will include regular inventory and condition survey of roads and associated drainage features, review of new construction projects, included or new erosion or sediment controls, and visual surveys of hydrologically connected road reaches following major storm events; monitoring will use available technology (including drones and other remote sensing methods), where applicable.

4.2 Reporting Schedule

This section describes the schedule and method for regular communications with the SRCC and submittals to FERC. City Light will report annually on road and trail maintenance, erosion-related activities in the transmission line ROW, and monitoring results during years when data is collected, and other pertinent issues. Every five (5) years, City Light will file a report with FERC describing implementation and any proposed modifications to the Roads, Trails, and Transmission Line ROW Erosion Management Plan based upon the results of monitoring and consultation with the SRCC (Table 4.2-1).

Timeline	Activity
Years 1-3 following license issuance	Collaboratively prioritize erosion areas warranting possible treatment, site specific road repairs, erosion and sediment controls, and habitat restoration/stewardship needed to minimize and mitigate impacts from roads at or near creeks and streams.
	Identify potential roads or trails that could be minimized, moved, closed, or decommissioned. These may be routes that are not necessary for Project operations or are detrimental to nearby resources.
Every five (5) years following license issuance	Re-inventory of road conditions and associated drainage features.
For five (5) years following new construction	Review of new construction projects, including new erosion or sediment controls and revegetation.
As needed	Visual surveys of stream crossings and hydrologically connected road reaches or roads on steep slopes.

Table 4.2-1.Timeline of activities.

4.3 Communications

This section will describe a process for making coordinated, timely, and informed decisions while implementing the Roads, Trails, and Transmission Line ROW Erosion Management Plan, including how City Light will coordinate and communicate its implementation actions with the

SRCC. Because of simultaneous implementation of multiple resource management plans (e.g., cultural, wildlife, fish and aquatics), cross-resource communication will be necessary. Coordination processes may include:

- Clarifying resource goals, objectives, and priorities;
- Ongoing consultation with relevant resource groups and other entities;
- Sharing information used to make resource decisions; and
- Solving problems and resolving issues.

5.0 **REFERENCES**

- Seattle City Light (City Light). 2023a. Draft Historic Properties and Management Plan for the Skagit River Hydroelectric Project, FERC Project No. 553. Prepared by HDR Engineering, Inc. April 2023.
- . 2023b. Draft Riverscape Ecosystem Plan for the Skagit River Hydroelectric Project, FERC No. 553. Prepared by HDR Engineering, Inc. April 2023.
- . 2023c. GE-02 Erosion and Geologic Hazards at Project Facilities and Transmission Line Right-of-Way Study Report for Skagit River Hydroelectric Project, FERC Project No. 553. Prepared by American Forest Management, Inc., Shannon and Wilson, Inc. Terrapin Environmental, and Watershed Geodynamics.
- Washington Department of Fish and Wildlife (WDFW). 2023. Designing climate-change-resilient culverts and bridges. Online URL: <u>https://wdfw.wa.gov/species-habitats/habitat-recovery/fish-passage/climate-change</u>. Accessed March 2023.
- Washington State Department of Ecology (Ecology). 2019. 2019 Stormwater Management Manual for Western Washington. Washington State Department of Ecology, Water Quality Program. Online URL: <u>https://fortress.wa.gov/ecy/ezshare/wq/Permits/Flare/</u>2019SWMMWW/Content/Resources/DocsForDownload/2019SWMMWW.pdf. Accessed March 2023.
- Washington State Department of Transportation (WSDOT). 2019. Temporary Erosion and Sediment Control Manual. Engineering and Regional Operations, Development Division, Design Office. Online URL: <u>https://www.wsdot.wa.gov/publications/manuals/ fulltext/M3109/TESCM.pdf</u>. Accessed March 2023.