TIER 1 EELGRASS DELINEATION REPORT

Juneau Douglas North Crossing PEL Study

1138.63234.01

Prepared for:

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1.0 INTRODUCTION

The City and Borough of Juneau has partnered with Alaska Department of Transportation and Public Facilities to explore a north crossing between Juneau and Douglas Island, north of the existing Douglas Island Bridge. DOT&PF has chosen the Planning and Environmental Linkage (PEL) process to evaluate the purpose and need for a north crossing, identify potential north crossing alternatives, evaluate the alternatives, and identify recommended crossing(s). In support of the evaluation of alternatives environmental data is being collected to understand potential impacts of six proposed alternatives. One study being undertaken to collect current data on proposed alternatives is a wetland delineation.

1.1 Study Area

The study area is within six potential crossing alignments: Mendenhall Peninsula, Sunny Point West, Sunny Point East, Vanderbilt, Twin Lakes, and Salmon Creek. The study area encompasses a 150-foot buffer zone for each of six potential proposed bridge alignments across Gastineau Channel (Figure 1).

The approximate 695.5 study area includes the tidally influenced Gastineau Channel between Douglas Island and mainland Juneau, Alaska. The Mendenhall Wetlands State Game Refuge (MWSGR) is located between Juneau and Douglas from the Mendenhall Peninsula to approximately the intersection of Glacier Highway and Channel Drive. The beginning of the project is located 58.341963 North Latitude; -134.628022 West Longitude and the end of the project is located at 58.299292 North Latitude; -134.429609 West Longitude, Copper River Meridian, see Table 1 for Township, Range, Section (Figure 1).

Table 1: Project Location within the Copper River Meridian

Township	Range	Sections
40 South	65 East	25, 26, 27, 34, 36
40 South	66 East	30, 31, 32, 33, 34
41 South	66 East	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 15, 16, 17

1.2 Previous Investigations

Biological mapping units were acquired from the National Oceanic and Atmospheric Administration National Marine Fisheries Service's ShoreZone website. Patchy eelgrass is mapped on the south shore of the Salmon Creek crossing (Figure 1).

2.0 METHODS

Each proposed crossing alternative was traversed and photo points were used to document representative locations of the traversed area and document the presence or absence of eelgrass. Photos of the substrate were taken to document whether the conditions were appropriate for eel grass growth. Areas were not traversed if during the survey the area was under greater than one foot of water or was unconsolidated mud. As eelgrass was identified, a Tier 1 Delineation Survey (USACE, 2018) was conducted to define and delineate eelgrass bed boundaries. The survey identified eelgrass boundaries, spatial distribution (continuous or patchy), and relationship to tidal elevation(s). Density of eelgrass beds is not part of this survey and a more detailed survey may be needed prior to initiation of the Project.

Eelgrass bed boundaries were identified using Method B (eelgrass within one square meter quadrat and within one meter of another shoot); for small beds (i.e., contained within the alignment buffer zone) the perimeter of the bed were mapped, for large beds (i.e., extending outside of the alignment buffer), beds were mapped using transects (spaced between three and twelve meters). Geo-referenced photographs were taken of all identified eelgrass beds. If individual eelgrass beds were spaced less than sixteen feet (five meters) apart, each individual bed will not be delineated. However, mapping will identify the outer boundaries of these discontinuous beds and label it as a patchy eelgrass bed. In areas where there are too few eelgrass shoots to meet the bed threshold, then a note in the report indicating eelgrass is present, but no discernable beds identified.

Data collection was conducted per US Army Corps of Engineers *Components of a Complete Eelgrass Delineation Report*.

3.0 RESULTS

The eelgrass survey was conducted by David DeKrey and Tad Schwager September 27th through 29th, 2023. Survey activities were conducted during daylight hours within four hours of low tide (typical range between -0.27 and +6.15 reference mean low low water). Each proposed bridge alternative was traversed to approximate mean low low water (Table 1).

Table 2: Alignment Traverse and Tide Stage

Alignment	Date (2023)	Start Time	End Time	Tide Stage
Mendenhall	September 28	6:01 PM	6:48 PM	Ebb
	September 29	5:12 PM	6:06 PM	Ebb
Sunny Point West	September 29	9:23 AM	10:51 AM	Flow
Sunny Point East	September 29	10:09 AM	12:09 PM	Flow
Vanderbilt	September 27	5:40 PM	5:48 PM	Ebb
	September 28	8:16 AM	9:05 AM	Flow
Twin Lakes	September 28	7:06 AM	8:03 AM	Flow
	September 27	6:01 PM	~6:29 PM	Ebb
Salmon Creek	September 27	~6:29 PM	6:40 PM	Flow
	September 28	9:06 AM	10:01 AM	Flow

Only one location documented “dwarf” eelgrass *Zostera japonica* outside the study area (approximately 25 feet) on the south side of the Salmon Creek alternative (Table 3, Photo Set 1, and Figure 2).

Table 3: Eelgrass Survey Summary of Findings

Site Name	Date	Time	Tide Stage	Approximate Contour (feet)	Eelgrass Present
EG1	9/27/2023	6:25 PM	Ebb Current	0.3	Yes

Photo Set 1: Location on south end of the proposed Salmon Creek Alignment

Note: Left photo view is oriented toward the northeast across the Eelgrass bed, and right photo view is oriented down on the Eelgrass bed

4.0 DISCUSSION

The National Oceanic and Atmospheric Administration Alaska ShoreZone Mapping (NOAA, 2023) has mapped patchy eelgrass on the south shore within the Salmon Creek alignment. No eelgrass was previously identified at any of the alignments between 2004 and 2011 (Harris et al., 2008, Harris et al., 2012). Based on these previous surveys and the survey conducted in 2023, the proposed alignments are absent the presence of eelgrass. However, the proposed Salmon Creek alignment is adjacent to a patchy eelgrass bed. Changes in the project may require additional eelgrass survey on the southside of the proposed Salmon Creek alignment.

5.0 REFERECES

Harris, P.M., A.D. Neff, S.W. Johnson, and J.F. Thedinga. 2008. *Eelgrass habitat and faunal assemblages in the City and Borough of Juneau, Alaska*. U.S. Department of Commerce, National Oceanic and Atmospheric Administration Technical Memorandum NMFS-AFSC-182, page 46.

Harris, P.M., A.D. Neff, S.W. Johnson. 2012. *Changes in eelgrass habitat and faunal assemblages associated with coastal development in Juneau, Alaska*. U.S. Department of Commerce, National Oceanic and Atmospheric Administration Technical Memorandum NMFS-AFSC-240, page 47.

National Oceanic and Atmospheric Administration. 2023. *Alaska ShoreZone Mapping Website*. https://alaskafisheries.noaa.gov/mapping/sz/ Accessed August 29, 2023.

U.S. Army Corps of Engineers. 2018. *Components of a Complete Eelgrass Delineation Report*.

FIGURES

AUKE LAKE
AUKE BAY
GLACIER HIGHWAY
MENDENHALL PENINSULA
JUNEAU INT'L AIRPORT
SUNNY POINT WEST
SUNNY POINT EAST
EGAN DRIVE
MENDENHALL WETLANDS STATE GAME REFUGE
VANDERBILT
SPUHN ISLAND
FRITZ COVE
TWIN LAKES
DOUGLAS HIGHWAY
SALMON CREEK
DOUGLAS HIGHWAY

STUDY AREA

NOAA MAPPED EEL GRASS
CONTINUOUS
PATCHY

ADF&G GAME REFUGE

0 1,500 3,000 Feet

EEL GRASS LOCATION

SEC 25 - 27, 34 - 36, T 40S, R 65E; SEC 30 - 34, T 40S, R 66E
SEC 1 - 12, 15 - 17, T 41S, R 66E;
SEC 4 - 10, 15 - 17, 21 - 23, 27 T 41S, R 67E

COPPER RIVER MERIDIAN, ALASKA

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

DOT&PF PROJECT NO. SFHWY00299/0003259
JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

FEBRUARY 12, 2024 | FIGURE 1

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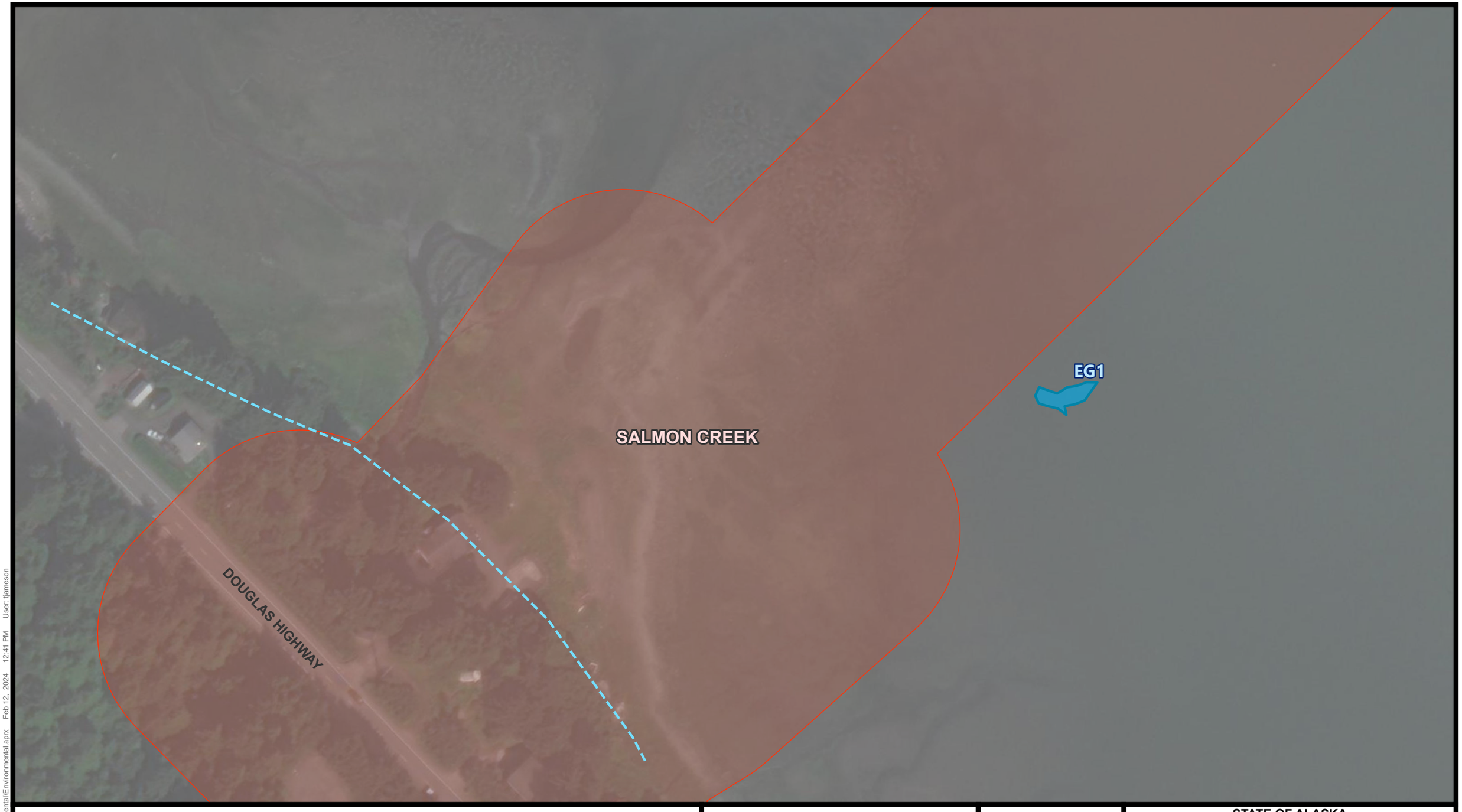

STUDY AREA | FIELD VERIFIED EEL GRASS | NOAA MAPPED EEL GRASS (PATCHY)

Feet
0 50 100

FIELD MAPPED EEL GRASS

SEC 25 - 27, 34 - 36, T 40S, R 65E; SEC 30 - 34, T 40S, R 66E
SEC 1 - 12, 15 - 17, T 41S, R 66E;
SEC 4 - 10, 15 - 17, 21 - 23, 27 T 41S, R 67E

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FEBRUARY 12, 2024 | FIGURE 2

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