Technical Memorandum

September 05, 2023

To	Darren Mierau	**Contact No.**	
Copy to	Misha Schwarz, Jeremy Svehla	**Email**	brett.vivyan@ghd.com
From	Brett Vivyan	**Project No.**	11206383
Project Name	CALTROUT-CANNIBAL ISL. RESTORATION		
Subject	Wetlands Fill Analysis		

1. Introduction

The Cannibal Island Restoration Project (CIRP) will restore the natural tidal range in much of the Project Area enhancing tidal channels and salt marsh. Portions of the existing dike network within the Project Area will be reconfigured or removed. A new set-back levee will be constructed to protect remaining prime agricultural lands at risk of future tidal inundation and further degradation. Cannibal Island Road will be elevated to maintain access during high tides and river stages, and to protect remaining agricultural lands. A public parking lot will be constructed along Cannibal Island Road to enhance public access to CDFW-owned land. A component of tidal channel restoration includes installation of rock grade control in a section of channel to help passively manage the tidal prism until the site elevations increase to be representative of a system with full tidal amplitude. Soil excavated during construction from levees and uplands areas is proposed to be reused within the Project Area and will not be hauled off-site. The proposed Project Area includes much of Cannibal Island north of Cannibal Island Road (with a small strip of pasture just to the south of Cannibal Island Road) up to the water's edge at Seven Mile Slough and Mosley Slough. The purpose of this memorandum is to outline the methods and results to estimate the area of fill in wetlands and the available uplands for wetland mitigation (onsite and in kind).

1.1 Methods

GHD conducted an upland/wetland delineation within the approximately 794.8-acre Project Area (GHD, 2022). The vast majority of the Project Area is regularly flooded and comprised of jurisdictional wetlands and Other Waters of the U.S./State. Wetlands and Other Waters within the Project Area include Palustrine Emergent Wetlands, Estuarine Emergent Wetlands, Estuarine Subtidal Waters, Estuarine Intertidal Unconsolidated Shore, and Estuarine Intertidal Aquatic Beds. Levees and other higher-elevation areas of the Project Area were investigated for potential uplands, defined as areas that do not meet Army Corps of Engineers (USACE 2020a) three-parameters wetland definition based on hydrophytic vegetation, hydric soils, and wetland hydrology. Due to the location of the Project Area within the Coastal Zone boundary, the areas that did not meet the USACE three-parameter wetland definition were also investigated to determine whether they meet California Coastal Commission (CCC) one-parameter wetland definition (or three-parameter uplands, i.e., not a coastal wetlands).

Project features resulting in potential wetland fill include constructing the set-back levee, elevating Cannibal Island Road, and constructing a new parking lot. Based on previously regulatory accepted wetland fill evaluations in the Eel River Estuary, earthen fill within tidal environments will maintain wetland characteristics up to elevation 9 feet (NAVD88). Similarly, fill within freshwater environments will maintain wetland characteristics with up to 1-foot (vertical) of fill placed on an existing wetland. The proposed set-back levee and elevated roadway will be located at the interface between tidal and freshwater wetlands, therefore the fill extent that is located below elevation 9 feet (NAVD88) on the tidal-facing side and 1-foot of fill on the freshwater-facing side is considered still to be wetland after filling (**Figure 1**). The proposed parking lot is located within a tidal area adjacent to Cannibal Island Road. Therefore any fill above elevation 9 feet (NAVD88) is considered to be wetland fill (conversion to uplands).

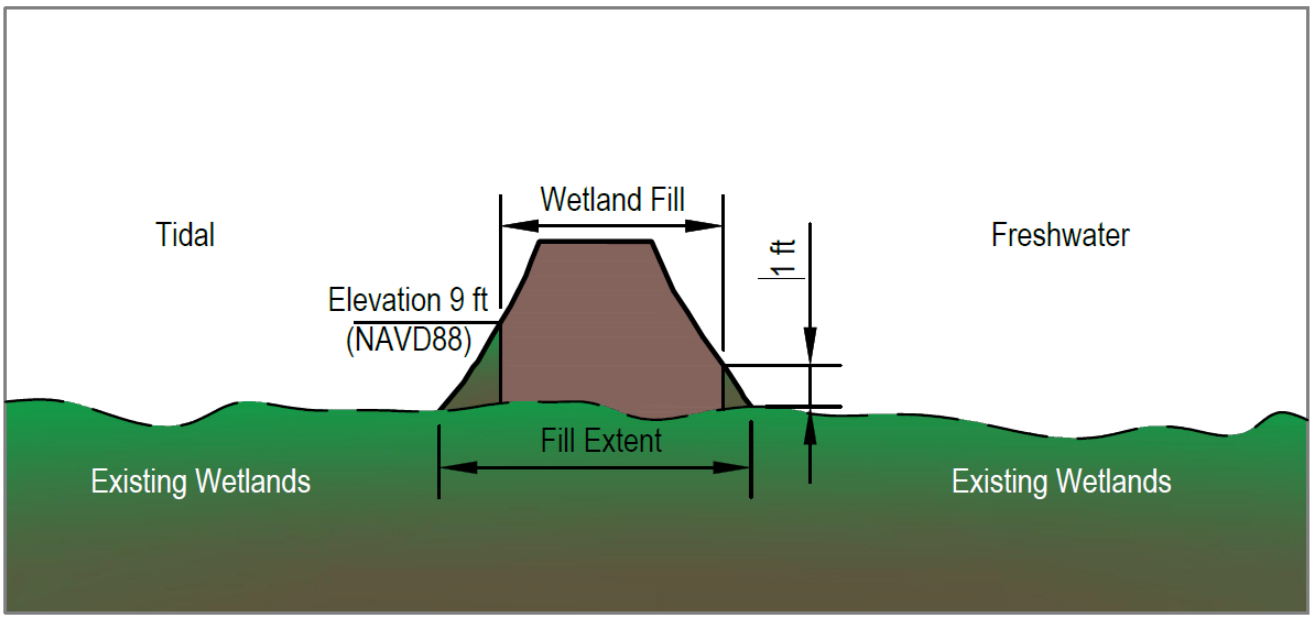

Figure 1 ***Conceptual extent if wetland fill at tidal and freshwater interface.***

1.2 Results

Upland areas were delineated as 3-parameter uplands and 2-parameter uplands (1-parameter wetlands). All other areas within the Project Area were assumed to be 3-parameter wetlands. The proposed set-back levee is located entirely within 3-parameter wetlands. The increased footprint of the roadway prism encroaches into 3-parameter wetlands. The new parking lot is entirely within 3-parameter wetlands. Based on the methods described above and shown in **Figure 1**, the total wetland fill is 4.61 acres.

Delineated uplands identified for creation of 3-parameter wetlands are summarized in **Table 1** and shown in **Figure 2**. Creation of 3-parameter wetlands will be achieved by removing all concrete and other fill materials and grading the area to typical marsh plain elevation (approximately elevation 7 feet). A total of 7.48 acres of uplands within the Project Area have been identified for wetland creation, resulting in a creation to fill ratio of up to 1.6:1 based on the current level of design.

Table 1 Summary of Available Wetland Creation Areas (USACE and Regional Water Quality Control Board Uplands)

Upland Type	Type Total Area (acres)
2-Parameter Upland (1-Parameter Wetland)	3.28
3-Parameter Upland	2.45
Northwest Dike Upland	1.75
Total	7.48

References

GHD. (2022). *Cannibal Island Restoration Project Upland/Wetland Delineation Report.* Eureka: GHD.