Appendix G: Draft Wetlands Mitigation Plan

CAMP HALL RAIL PROJECT
BERKELEY COUNTY, SOUTH CAROLINA
SAC: 2016-01395

540 East Bay Street
Charleston, South Carolina

27 July 2017

Camp Hall Rail Project Conceptual Wetlands Mitigation Plan

Submitted by: Open Space Institute

7/20/17

Summary:

Impacts to jurisdictional Waters of the United States associated with the Camp Hall Rail Project will be accounted for with 1,308 freshwater wetlands restoration/preservation credits. The Permittee Responsible Mitigation Plan will generate approximately 1,258 credits from enhancement and preservation activities proposed on the Fairlawn C-1 tract (described below) and 60 wetland credits will be provided by the Francis Beidler Forest Mitigation Bank to account for wetland impacts in the Four Hole Swamp watershed.

Fairlawn C-1 Proposed Mitigation Tract (PMT) Work Plan

The Fairlawn C-1 property is an approximately 1,550-acre inholding strategically located within the Francis Marion National Forest proclamation boundary in Berkeley and Charleston Counties (Figure 1) and contains the headwaters of the Wando River, which drains into the Cooper River watershed. Of these 1,550 acres, 1,000 acres (hereafter PMT) are being proposed to offset the impacts associated with the Camp Hall Rail Project. Fairlawn has been identified as one of the highest-ranking priorities for the United States Forest Service (USFS) in the entire country, a view widely shared by other State and Federal natural resource agencies and environmental groups. The Open Space Institute is poised to acquire PMT, conduct restoration on the property and convey it to the USFS for this mitigation project. PMT is surrounded by conservation land and other mitigation, restoration, and enhancement projects. The property lies on a unique geological formation known as the Cainhoy Ridge, a known reservoir for rare, threatened, and endangered species. The surrounding areas of the Francis Marion National Forest and Cape Romain National Wildlife Refuge have been recognized as areas of international significance for wildlife and wetlands, including recognition by the United Nations as a Culturally Significant Biosphere Reserve and Ramsar Wetland of International Significance.

The primary impacts to the property include fire suppression and silviculture impacts. Mitigation activities include ecological enhancement and preservation of the site and then transference of the property to the USFS, which would assume long-term management and ownership obligations in accordance the Conservation Land Use Agreement between USFS and the Army Corps of Engineers. The PMT Work Plan will permanently protect and make open to the public 1,000 acres of land, including approximately 593 acres of wetlands.

The upland areas of the site were likely pine flatwoods grading toward pine savannah prior to loblolly pine conversion. Depressional areas scattered throughout the flatwoods/savannah are pond cypress ponds or swamp tupelo ponds. The lower landscape positions which appear as more linear features grade from flatwood/savannah to bottomland hardwoods. Areas within the bottomland hardwoods may grade into bald cypress-tupelo gum swamp where these areas may be inundated for most of the year.

1. **Wetland Preservation**

Wetland preservation within PMT is anticipated to protect approximately 43 acres of wetlands, as shown in Figure 2. The proposed wetland preservation areas lie within depressional wetland ponds and bottomland hardwood forest communities.

2. Natural Community Reestablishment (Wetland Enhancement)

The mitigation work plan proposes to re-establish native plant communities which were removed or encroached upon by past silvicultural activities to establish loblolly pine plantations. Longleaf pine flatwoods/savannahs will be established in areas which have recently been clear-cut or will be cleared as part of mitigation activities. Fringe hardwood or bottomland hardwood forest communities will be established within low wet areas which are not conducive to longleaf pine establishment through the Francis Marion National Forest Management Plan (FMNFMP).

A detailed wetland and vegetative community delineation has not been completed, therefore Figure 2 does not differentiate between enhancement activities. The wetland enhancement work plan to be implemented on PMT will be categorized by activities based on the existing habitats and are anticipated to include the following prescriptions:

a) <u>Longleaf Pine Flatwoods/Savannah Establishment and Enhancement</u>

Areas within PMT which are not currently in longleaf will be cleared and converted to a Longleaf Pine Flatwood/Savannah community. Loblolly pine will be logged prior to site preparation for longleaf pine planting. Logging will be conducted in such a way as to reduce damage to the soil and existing topography.

Clear-cut areas, either clear-cut prior to mitigation work or as part of the mitigation plan, will be mechanically prepared where necessary to allow for successful longleaf pine establishment. Logging decks, debris piles, and bark piles will be managed either by windrowing or burning, or some combination thereof. Minor mechanical site prep may be required to deal with existing bedded areas or those areas that have been heavily impacted by previous logging operations. The extent of mechanical site prep will be determined following additional data collection.

Following a spring and summer of growth in the clear-cut areas, a herbicide spray will be utilized to kill green vegetation and a site preparatory burn may be conducted to remove competing vegetation and woody debris .

Longleaf pine seedlings will be planted during the dormant season (December to March). Containerized bareroot seedlings will be used. Longleaf pine seedlings will be planted at a density of approximately 435 stems per acre. The FMNFMP prescribes continued burning and restoration activities that provide reasonable and material assurance of project success after conveyance to USFS.

b) <u>Bottomland Hardwoods and Wet Pine Savannah Establishment</u>

Wetland areas on the PMT which have previously been converted to loblolly pine plantations and are marginal for successful longleaf pine establishment will be thinned to a basal area of 40-50 square feet per acre to open the forest canopy. Over time, these areas will become mixed bottomland hardwood stands or wet pine savannahs depending on the USFS's fire regime and other natural factors.

c) <u>Prescribed Burns</u>

A prescribed burn schedule will be developed for the proposed pine savannah/flatwood enhancement areas. All initial and subsequent burns will be conducted by prescribed fire professionals, most likely USFS staff. It is anticipated that prescribed burning activities beyond the initial burn will be implemented by the U.S Forest Service pursuant to the FMNFFMP. Fire intensity will be adjusted in subsequent years to provide the best results of this habitat management technique. Burns will be conducted when conditions favor fire across the range of forest communities on PMT.

d) Stream Preservation

Stream preservation within PMT is anticipated to protect approximately 14,000 linear feet of streams. At this time, stream lengths have only been calculated using the available USGS Topographical maps and aerial imagery.

3. Planting Plan for Longleaf Pine Savanna / Flatwood Community

Longleaf pine will be planted at a density of approximately 435 trees per acre (10 ft. x 10 ft. spacing). Seedlings will be distributed uniformly during planting, while maintaining the proper average number of trees per acre. It is anticipated that herbaceous species will recruit naturally.

Table 1. Planting Plan, Longleaf Pine Savanna/Flatwood Community

Scientific name	Common name	Frequency (Percent)	Stocking Rate per Acre
Pinus palustris	Longleaf Pine	100	435
Notes: Seedlings will be stocked at up to 435 stems per acre (10 foot by 10 foot spacing) to allow for natural mortality.			

4. Conveyance to the U.S. Forest Service

The PMT property will be conveyed to the USFS to be managed as additions to the Francis Marion National Forest, subject to the same protections and use requirements defined in the FMNFMP. The land will be managed as USFS land in perpetuity through the Conservation Land Use Agreement and the FMNFMP.

The preamble to the conveyance deed will state the project name and identify that lands being conveyed are for purposes of compensatory mitigation for environmental impacts caused as a result of the Camp Hall Project. Appropriate restrictive deed covenants will be put in place to ensure the lands are held as compensatory mitigation lands in perpetuity to meet the project mitigation requirements, or alternative mitigation will be provided consistent with current federal law and applicable executive guidance.

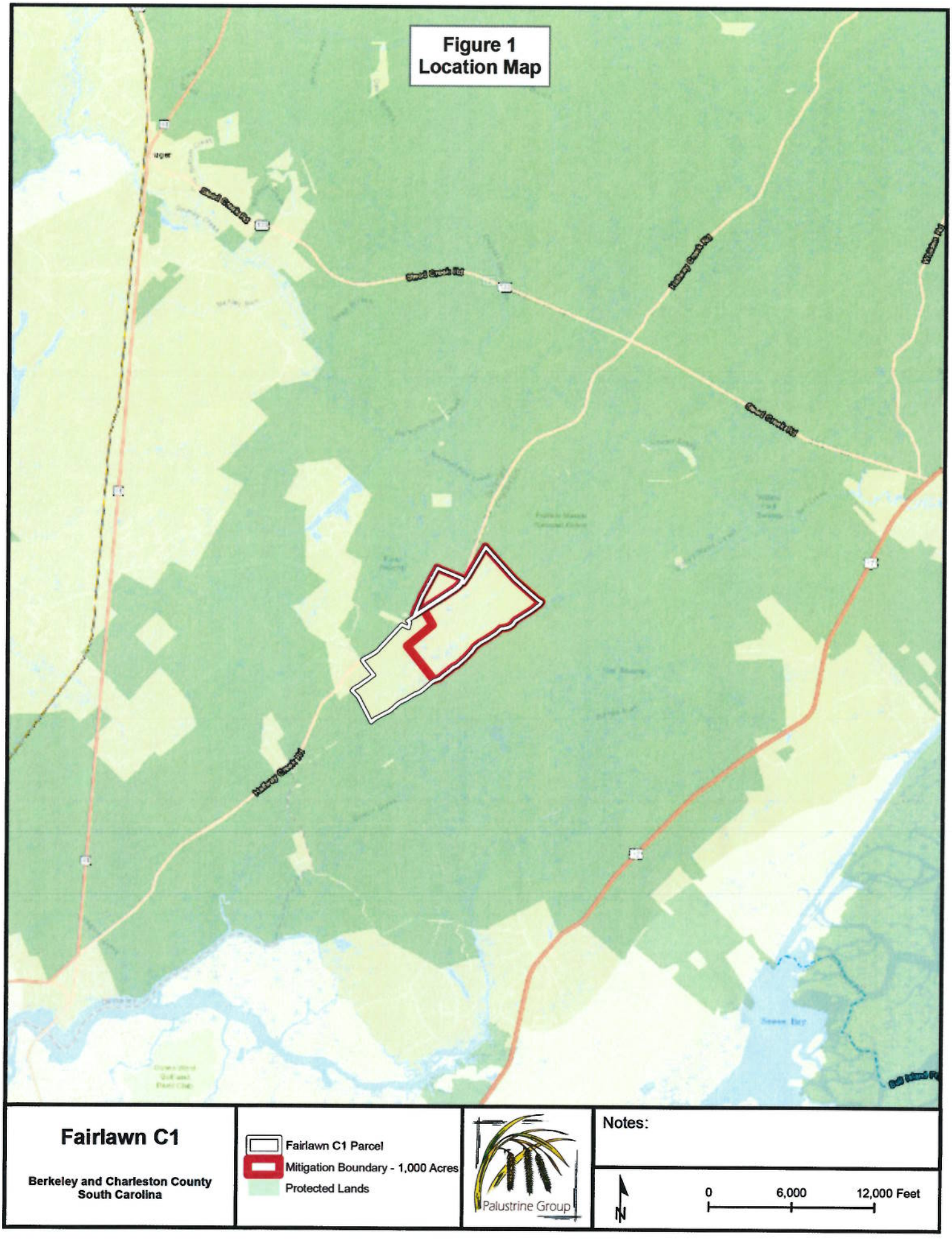
Figure 1
Location Map
Fairlawn C1
Berkeley and Charleston County
South Carolina
Fairlawn C1 Parcel
Mitigation Boundary - 1,000 Acres
Protected Lands
Palustrine Group
Notes:
N
0
6,000
12,000 Feet

Figure 2
Proposed Mitigation Plan

PROPOSED WETLAND MITIGATION TABLE

Factors	Options				
Net Improvement	0.0** <—— to ——> 3.0 (see Section 3.0 for examples of potential values)				
Upland Buffer	0.0 <—— to ——> 1.0 (see Section 3.0 for examples of potential values)				
Credit Schedule	Not Applicable 0**	After 0.1		Concurrent 0.3	Before 0.5
Temporal Loss	Not Applicable 0**	0 to 5 Years - 0.1	5 to 10 Years - 0.2	10 to 20 Years - 0.3	Over 20 Years - 0.4
Kind	Out of Kind 0			In Kind 0.4	
Location	Case by Case 0	Drainage Basin 0.1		Adjacent 8-Digit HUC 0.2	8-Digit HUC 0.4

** Use this option to calculate credit for Preservation

PROPOSED WETLAND MITIGATION CREDIT WORKSHEET

Factor	Area 1	Area 2	Area 3	Area 4	Area 5
Net Improvement	1.0	1.0	0.0		
Upland Buffer	0.8				
Credit Schedule	Concurrent	Concurrent	Not Applicable		
Temporal Loss	10 to 20 Years	10 to 20 Years	Not Applicable		
Kind	In Kind	In Kind	In Kind		
Location	8-Digit HUC	8-Digit HUC	8-Digit HUC		
Sum of Factors	2.6	1.8	0.8		
Mitigation Area	292	258	43		
M x A =	759.2	464.4	34.4		
Proposed Wetland Mitigation Credits = $\sum$ (M x A) =					1258

Fairlawn C1

Berkeley and Charleston County
South Carolina

- Mitigation Boundary - 1000 Acres
- Wetland Enhancement - 550 Acres
- Wetland Preservation - 43 Acres
- 150-Foot Upland Buffer - 292 Acres

Palustrine Group

Notes:

N

0 1,000 2,000 Feet