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Environmental Services, Inc.

MITIGATION PLAN

PORT OF BEAUMONT RAILWAY EXPANSION
ORANGE COUNTY

I. Project Information

Project Name: Port of Beaumont Railway Expansion
Permit Number: Previous Port of Beaumont USACE No. SWG-1997-01754
Project Location: Located adjacent to Port of Beaumont property near the Neches River, Orange County. 30º 05' 17.58" N and 94º 04' 42.50" W

Mitigation Site Location: Pineywoods Mitigation Bank
Watershed: Lower Neches – HUC # 12020003

II. Avoidance and Minimization

The east bank of the Neches River in the vicinity of the proposed project has been heavily modified in the past by dredged material disposal, rail, and industrial development activities. The Port of Beaumont previously obtained a USACE permit (SWG-1997-01754) to construct port facilities, including access roads, additional rail access, industrial pad sites, and berthing docks on the Neches River. The proposed additional development will include construction of additional rail access. The area of the Port of Beaumont property that is proposed for additional rail access development consists of a drainage corridor located between the Port facilities and an existing elevated rail. The project has been designed to minimize impacts to jurisdictional areas as much as possible, but impacts cannot be completely avoided due to engineering and logistical constraints. Please see Attachment A - Figure 1 for wetland impacts.

III. Compensatory Mitigation Plan

The applicant proposes to purchase credits from the Pineywoods Mitigation Bank. The proposed Port of Beaumont project is within the secondary service area of the Pineywoods Mitigation Bank. The applicant will purchase credits at a 1.5:1 ratio.

1. Goals and Objectives: The goal of the mitigation is to maintain the benefits of mitigation within the Neches River Watershed through the purchase and preservation of wetland credits from the Pineywoods Mitigation Bank.

2. Site Selection: The Pineywoods Mitigation Bank is the only currently available mitigation bank covering the proposed project.

3. Easements or Encumbrances: NA

4. Baseline Information: The Pineywoods Mitigation Bank baseline information is on file at the Galveston District USACE offices.

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5. Mitigation Work Plan: NA

6. Determination of Credits: The proposed rail expansion will impact a total of 9.59 acres of wetland ditch laying between the Port of Beaumont site and the KCS Mainline railroad tracks (see Figure 1, Attachment A). The wetland ditch is largely herbaceous in nature. A hydrogeomorphic (HGM) analysis was completed for two wetland assessment areas (WAAs) being impacted in order to determine the number of functional capacity units (FCU)/credits needed to be purchased from the Pineywoods Mitigation Bank. The Herbaceous Riverine iHGM was used for the analysis. The FCU's were calculated for three different riverine wetland functions including: Temporary Storage and Detention of Surface Water, Maintenance of Plant and Animal Communities, Removal and Sequestration of Elements and Compounds (Attachment B). The FCUs calculated for each wetland function were combined between the two different WAAs to determine the aggregate amount of FCUs/credits needed to be purchased. A total of 3.51 FCU will be needed to mitigate loses for temporary storage and detention of surface water functions. A total of 4.8 credits will be needed for the maintenance of plant and animal community functions. A total of 4.31 credits will be needed to mitigate for the removal and sequestration of elements and compounds functions. Since the project area is in the secondary service area of the Pineywoods Mitigation Bank, a 1.5:1 service area multiplier will apply. Therefore, the total purchase will include 5.3 FCU hydrological credits; 7.2 FCU biological credits; and 6.5 FCU sequestration credits.

7. Maintenance Plan: NA

8. Site Protection Instrument: NA

9. Performance Standards: NA

10. Monitoring Requirements: NA

11. Long-term Management Plan: NA

12. Adaptive Management Plan: NA

13. Financial Assurances: The permittee will purchase the total amount of FCUs/credits determined to be needed in Section 6 from the Pineywoods Mitigation Bank prior to the commencement of construction in jurisdictional areas.

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ATTACHMENT A

FIGURES

100108B16MI_New Dist Area.dwg | JEA | 11/5/2013 || Revised: JEA | 1/28/2014

"Do Not Scale This Drawing"

UP/BNSF MAINLINE

KCS MAINLINE

WAA-2
2.096 Ac

WAA-1
7.491 Ac

EXISTING
LOOP TRACK

ROTARY
DUMP PIT

PROPOSED NEW LOOP
TRACKS

ORANGE COUNTY
JEFFERSON COUNTY

PROPOSED
NEW DOCK

800 LOA

TRANSIT
SHED NO. 7

TRANSIT
SHED NO. 6

TRANSIT
SHED NO. 5

LOT 3

PROPOSED NEW
DOCK

EXISTING

NECHES

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MAP SOURCE:
SITE MAP PROVIDED BY CLIENT (OCTOBER 21, 2010)

N

0 250 500
FEET

LEGEND

JURISDICTIONAL
WETLAND DELINEATION

DISTURBANCE AREAS
(9.59 Ac.)

FIGURE 1

PROPOSED
DISTURBANCE AREAS WITHIN
JURISDICTIONAL DELINEATION
PORT OF BEAUMONT
ORANGE COUNTY, TEXAS

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ATTACHMENT B

HGM RESULTS

HGM Class: HERBACEOUS

HGM subclass: LOW GRADIENT

Project: Port of Beaumont **Pre-Construction** **Acre(s): 7.491**

WAA 1

Temporary Storage and Detention of Surface Water

Storage Coefficient (FCI) =

$([V_{dur} \times V_{frq}^{2}] \times [V_{topo}+\{(V_{herb}+V_{mid})/2\}]/2)^{2}$

Storage Coefficient (FCI):

0.37

Acres:

7.491

Functional Unit (FCU) = Coefficient (FCI) * Acres:

2.74

Maintenance of Plant and Animal Communities

Maintenance Coefficient (FCI) =

(Vmid+Vherb+Vconnect)/3

Maintenance Coefficient (FCI):

0.50

Acres:

7.491

Functional Unit (FCU) = Coefficient (FCI) * Acres:

3.75

Removal and Sequestration of Elements and Compounds

Removal Coefficient (FCI) =

[Vwood+Vfreq+Vdur+{(Vtopo+Vherb+Vmid)/3}+{(Vdetritus+Vredox+Vsorpt)/3}]/5

Removal Coefficient (FCI):

0.45

Acres:

7.491

Functional Unit (FCU) = Coefficient (FCI) * Acres:

3.37

Site Score	VARIABLES	Score	Criteria	
0.10	**Vdur**	1.00	In average year, at least 80% of site either floods or ponds for at least 14 days	**Vdur**
	(duration of flooding)	0.75	In average year, at least 80% of site either floods or ponds for at least 7 days	**(duration of flooding)**
		0.50	In average year, 50 to 79% of site floods or ponds for at least 7 days	
		0.25	In average year, 25 to 50% of site floods or ponds for at least 7 days	
		0.10	In average year, all or portions floods or ponds from 1 - 7 days	
		0.00	The area is not subject to flooding or ponding	
0.50	**Vfrq**	1.00	Floods or ponds annually 5 out of 5 years	**Vfrq**
	(frequency of flooding)	0.75	Floods or ponds 3 of 5 years or 4 of 5 years	**(frequency of flooding)**
		0.50	Floods or ponds 2 of 5 years	
		0.25	Floods or ponds less than 2 of 5 years	
		0.00	The area is not subject to flooding or ponding	
0.70	**Vtopo**	1.00	> 30% of the site is represented by rises, dips, hummocks, channel sloughs and other topographic features	**Vtopo**
	(topography)	0.70	15 to 30% of the site is represented by rises, dips, hummocks, channel sloughs and other topographic features	**(topography)**
		0.40	< 15%of the site is covered by rises, dips, hummocks, channel sloughs and other topographic features	
		0.00	Smooth, flat, or very gently undulating with little or no topographic relief	
0.75	**Vherb**	1.00	Herbaceous cover averages >75	**Vherb**
	(herbaceous layer)	0.75	Herbaceous cover averages between 50-75%	**(herbaceous layer)**
		0.50	Herbaceous cover averages between 25-50%	
		0.25	Herbaceous cover averages between 1-25%	
		0.10	Herbaceous cover is equal to or <1%	
0.25	**Vmid**	1.00	Midstory cover averages > 75%	**Vmid**
	(midstory)	0.75	Midstory cover averages 50 to 75%	**(midstory)**
		0.50	Midstory cover averages 25 to 50%	
		0.25	Midstory cover averages 1 to 25%	
		0.10	The site is openland	
0.50	**Vconnect**	1.00	Wetland plus four habitats and/or surrounded by forested	**Vconnect**
	(connection to other habitat)	0.75	Wetland plus two or more habitat type (other than forested) OR three or more habitat types	**(connection to other habitat)**
		0.50	Wetalnd plus one other habitat types or two other habitat types	
		0.25	One other habitat types other than urban habitat	
		0.10	Surround by urban (homes, lawn, concrete, etc)	
0.25	**Vwood**	1.00	> 90% of area is covered by woody vegetation	**Vwood**
	(woody vegetation)	0.75	67 to 89% of area is covered by woody vegetation	**(woody vegetation)**
		0.50	34 to 66% of area is covered by woody vegetation	
		0.25	11 to 33% of are is covered by woody vegetation	
		0.10	1 to 10% of area is covered by woody vegetation	
0.50	**Vdetritus**	1.00	> 85% of the area possesses an O or A horizon	**Vdetritus**
	(detritus)	0.50	From 11 to 84% of the area possesses an O or A horizon	**(detritus)**
		0.30	< 10% of the area possesses and O or A horizon	
		0.10	Site is plowed	
1.00	**Vredox**	1.00	Redox features represent >20% of the pedon within the top 4" of soil surface (mottles = many)	**Vredox**
	(redoximorphic processes)	0.10	Redox features < 20% (mottles = common or few)	**(redoximorphic processes)**
1.00	**Vsorp**	1.00	Site is dominated by clays (clay, clay loam, silty clay loams) or highly organic (value=2/chroma=1; 2/2; 3/1)	**Vsorp**
	(sorptive soil properties)	0.50	Site is dominated by loams (silt loams, very fine sandy loams, fine sandy loams, loams) OR non-montmorillonitic clays	**(sorptive soil properties)**
		0.10	Site is dominated by sands (sands, loamy fine sands, loamy sands)	

HGM Class: HERBACEOUS

HGM subclass: LOW GRADIENT

Project: Port of Beaumont **Pre-Construction** **Acre(s): 2.096**

WAA 2

Temporary Storage and Detention of Surface Water

Storage Coefficient (FCI) =

$([V_{dur} \times V_{frq}^{2}] \times [V_{topo}+\{(V_{herb}+V_{mid})/2\}]/2)^{2}$

Storage Coefficient (FCI):

0.37

Acres:

2.096

Functional Unit (FCU) = Coefficient (FCI) * Acres:

0.77

Maintenance of Plant and Animal Communities

Maintenance Coefficient (FCI) =

(Vmid+Vherb+Vconnect)/3

Maintenance Coefficient (FCI):

0.50

Acres:

2.096

Functional Unit (FCU) = Coefficient (FCI) * Acres:

1.05

Removal and Sequestration of Elements and Compounds

Removal Coefficient (FCI) =

[Vwood+Vfreq+Vdur+{(Vtopo+Vherb+Vmid)/3}+{(Vdetritus+Vredox+Vsorpt)/3}]/5

Removal Coefficient (FCI):

0.45

Acres:

2.096

Functional Unit (FCU) = Coefficient (FCI) * Acres:

0.94

Site Score	VARIABLES	Score	Criteria	
0.10	**Vdur**	1.00	In average year, at least 80% of site either floods or ponds for at least 14 days	**Vdur**
	(duration of flooding)	0.75	In average year, at least 80% of site either floods or ponds for at least 7 days	**(duration of flooding)**
		0.50	In average year, 50 to 79% of site floods or ponds for at least 7 days	
		0.25	In average year, 25 to 50% of site floods or ponds for at least 7 days	
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0.50	**Vfrq**	1.00	Floods or ponds annually 5 out of 5 years	**Vfrq**
	(frequency of flooding)	0.75	Floods or ponds 3 of 5 years or 4 of 5 years	**(frequency of flooding)**
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