

iHGM Analysis

Wetland ID	Cowardin Class	Proposed pipeline collocated with existing utility in this area?	Wetland Acreage w/in Project Footprint	8-digit USGS HUC Code	Watershed Name	iHGM Variables (Pre-Construction)										FCU Pre-Construction			FCU Post-Construction			FCU Differential			
						Vdur	Vfreq	Vtopo	Vwood	Vmid	Vherb	Vdetritus	Vredox	Vsorp	Vconnect	Temp. Storage of Water	Maintain Plant & Animal	Removal of Elements	Temp. Storage of Water	Maintain Plant & Animal	Removal of Elements	Temp. Storage of Water	Maintain Plant & Animal	Removal of Elements	Total FCU Value
Wetland 01	PEM	Yes	1.17	12020003	Lower Neches	0.75	0.25	0.10	0.10	0.25	1.00	0.30	0.10	0.50	0.50	0.60	0.68	0.43	0.00	0.00	0.00	0.60	0.68	0.43	1.72
Wetland 03	PEM	Yes	3.10	12020003	Lower Neches	1.00	1.00	0.10	0.10	0.10	1.00	0.30	0.10	1.00	0.25	2.35	1.40	1.84	0.00	0.00	0.00	2.35	1.40	1.84	5.59
Wetland 05	PEM	Yes	2.44	12020003	Lower Neches	0.50	0.25	0.10	0.10	0.25	1.00	0.30	0.10	1.00	0.25	1.14	1.22	0.86	0.00	0.00	0.00	1.14	1.22	0.86	3.22
Wetland 2	PEM	Yes	31.91	12020003	Lower Neches	1.00	1.00	1.00	0.10	0.25	1.00	1.00	0.10	1.00	0.50	32.89	18.61	22.66	0.00	0.00	0.00	32.89	18.61	22.66	74.16
Wetland 4	PEM	Yes	0.90	12020003	Lower Neches	0.50	0.75	0.10	0.10	0.25	1.00	0.50	0.10	1.00	0.50	0.55	0.53	0.42	0.00	0.00	0.00	0.55	0.53	0.42	1.50
Wetland 6	PEM	Yes	2.29	12020003	Lower Neches	0.75	0.75	0.40	0.25	0.25	1.00	0.30	0.10	1.00	0.75	1.73	1.53	1.27	0.00	0.00	0.00	1.73	1.53	1.27	4.53
WP1001_PEM	PEM	Yes	0.20	12020003	Lower Neches	0.75	1.00	0.40	0.10	0.10	1.00	1.00	0.10	1.00	0.75	0.16	0.12	0.12	0.00	0.00	0.00	0.16	0.12	0.12	0.40
WP1001_PEM_B	PEM	Yes	0.002	12020003	Lower Neches	0.75	0.75	0.70	0.10	0.10	1.00	0.50	0.10	1.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.004
WP1001_PEM_C	PEM	Yes	0.23	12020003	Lower Neches	0.50	0.50	0.70	0.10	0.25	1.00	0.50	0.10	1.00	0.50	0.16	0.13	0.11	0.00	0.00	0.00	0.16	0.13	0.11	0.39
WP1001_PEM_H	PEM	Yes	0.18	12020003	Lower Neches	0.50	1.00	0.70	0.10	0.25	1.00	1.00	0.10	1.00	0.75	0.14	0.12	0.11	0.00	0.00	0.00	0.14	0.12	0.11	0.37
WP1001_PEM_I	PEM	Yes	0.16	12020003	Lower Neches	0.50	1.00	0.70	0.10	0.25	1.00	1.00	0.10	1.00	0.75	0.13	0.11	0.09	0.00	0.00	0.00	0.13	0.11	0.09	0.33
WP1001_PEM_N	PEM	Yes	2.73	12020003	Lower Neches	0.50	1.00	0.70	0.10	0.25	1.00	0.50	1.00	1.00	0.75	2.19	1.82	1.68	0.00	0.00	0.00	2.19	1.82	1.68	5.70
WP1001_PEM_P	PEM	Yes	0.42	12020003	Lower Neches	0.50	1.00	0.70	0.10	0.10	1.00	0.50	0.10	1.00	0.75	0.33	0.26	0.23	0.00	0.00	0.00	0.33	0.26	0.23	0.82
WP1005_PEM	PEM	Yes	0.003	12020002	Lower Neches	0.75	1.00	0.40	0.10	0.10	1.00	0.50	0.10	1.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
WP1005_PEM_B	PEM	Yes	0.004	12020002	Lower Neches	0.75	1.00	0.40	0.10	0.10	1.00	0.50	0.10	1.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
WP1005_PEM_C	PEM	Yes	0.004	12020002	Lower Neches	0.75	1.00	0.40	0.10	0.10	1.00	0.50	0.10	1.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
WP1006_PEM	PEM	Yes	2.56	12020002	Lower Neches	0.75	0.75	0.40	0.10	0.10	1.00	0.50	0.10	1.00	0.75	1.89	1.58	1.35	0.00	0.00	0.00	1.89	1.58	1.35	4.81
WP1006_PEM_B	PEM	Yes	0.001	12020003	Lower Neches	0.75	0.75	0.40	0.10	0.10	0.75	0.50	0.10	1.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.002
WP1006_PEM_C	PEM	Yes	0.76	12020003	Lower Neches	0.75	0.75	0.40	0.10	0.10	0.75	0.50	0.10	1.00	0.50	0.51	0.34	0.39	0.00	0.00	0.00	0.51	0.34	0.39	1.24

Wetland ID	Cowardin Class	Proposed pipeline collocated with existing utility in this area?	Wetland Acreage w/in Project Footprint	8-digit USGS HUC Code	Watershed Name	iHGM Variables (Pre-Construction)										FCU Pre-Construction			FCU Post-Construction			FCU Differential			
						Vdur	Vfreq	Vtopo	Vwood	Vmid	Vherb	Vdetritus	Vredox	Vsorpt	Vconnect	Temp. Storage of Water	Maintain Plant & Animal	Removal of Elements	Temp. Storage of Water	Maintain Plant & Animal	Removal of Elements	Temp. Storage of Water	Maintain Plant & Animal	Removal of Elements	Total FCU Value
WP1007_PEM	PEM	Yes	0.001	12020002	Lower Neches	0.75	1.00	0.70	0.10	0.10	1.00	0.50	0.10	1.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.002
WP1007_PEM_B	PEM	Yes	0.002	12020003	Lower Neches	0.75	1.00	0.70	0.10	0.10	1.00	0.50	0.10	1.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.004
WP1007_PEM_C	PEM	Yes	0.002	12020003	Lower Neches	0.75	1.00	0.70	0.10	0.10	1.00	0.50	0.10	1.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.004
WP1009_PEM	PEM	Yes	0.10	12020003	Lower Neches	0.75	0.75	0.40	0.10	0.10	0.75	0.50	0.10	1.00	0.50	0.07	0.05	0.05	0.00	0.00	0.00	0.07	0.05	0.05	0.16
WP1009_PEM_B	PEM	Yes	1.01	12020003	Lower Neches	0.75	0.75	0.40	0.10	0.10	0.10	0.50	0.10	1.00	0.50	0.46	0.24	0.47	0.00	0.00	0.00	0.46	0.24	0.47	1.17
WP1010_PEM	PEM	Yes	0.02	12020003	Lower Neches	0.75	1.00	0.40	0.10	0.10	1.00	0.50	0.10	1.00	0.50	0.02	0.01	0.01	0.00	0.00	0.00	0.02	0.01	0.01	0.04
TOTAL ACREAGE			50.20	iHGM TOTALS												45.33	28.75	32.10	0.00	0.00	0.00	45.33	28.75	32.10	106.18

Nederland Terminal Buildout Project - iHGM Analysis										
Anticipated PEM Wetland Mitigation Credits per HUC - USACE Galveston District										
8-digit USGS HUC Code	Watershed Name	Wetland Acreage w/in Project Footprint	Temp. Storage of Water (Differential)	Maintain Plant & Animal (Differential)	Removal of Elements (Differential)	Service Area Multiplier	Temp. Storage of Water (Differential)	Maintain Plant & Animal (Differential)	Removal of Elements (Differential)	Total FCU Differential Value
12020003	Lower Neches	50.20	45.33	28.75	32.10	--	--	--	--	106.18
Totals		50.20	45.33	28.75	32.10	--	45.33	28.75	32.10	106.18

Nederland Terminal Buildout Project - iHGM Analysis						
Wetland ID#	<div style="border: 1px solid black; padding: 2px; display: inline-block;">Wetland 01</div>					
	INPUT					
	Pre-Project	Post-Project				
Vdur ¹	0.75	0.00	<div style="border: 1px solid black; padding: 5px;"> Comments Information based on iHGM provided by AECOM </div>			
Vfreq ¹	0.25	0.00				
Vtopo ¹	0.10	0.00				
Vwood ²	0.10	0.00				
Vmid	0.25	0.00				
Vherb	1.00	0.00				
Vdetritus	0.30	0.00				
Vredox ¹	0.10	0.00				
Vsorp ¹	0.50	0.00				
Vconnect ¹	0.50	0.00				
Wetland acreage w/in construction footprint ³ =			<div style="border: 1px solid black; padding: 2px; display: inline-block;">1.17</div>			
Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED						
	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.51	0.00	0.51	0.60	0.00	0.60
Maintain Plant & Animal Community	0.58	0.00	0.58	0.68	0.00	0.68
Removal & Sequestrian of Elements & Compounds	0.37	0.00	0.37	0.43	0.00	0.43
TOTALS						1.72

Nederland Terminal Buildout Project - iHGM Analysis

Wetland ID#

Wetland 03

INPUT

Pre-Project

Post-Project

Vdur¹

1.00

0.00

Vfreq¹

1.00

0.00

Vtopo¹

0.10

0.00

Vwood²

0.10

0.00

Vmid

0.10

0.00

Vherb

1.00

0.00

Vdetritus

0.30

0.00

Vredox¹

0.10

0.00

Vsorpt¹

1.00

0.00

Vconnect¹

0.25

0.00

Comments

Information based on iHGM provided by AECOM

Wetland acreage w/in construction footprint³ =

3.10

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.76	0.00	0.76	2.35	0.00	2.35
Maintain Plant & Animal Community	0.45	0.00	0.45	1.40	0.00	1.40
Removal & Sequestration of Elements & Compounds	0.59	0.00	0.59	1.84	0.00	1.84
TOTALS						5.59

Nederland Terminal Buildout Project - iHGM Analysis						
Wetland ID#	Wetland 05					
	INPUT					
	Pre-Project	Post-Project				
Vdur ¹	0.50	0.00	<div style="border: 1px solid black; padding: 5px;"> Comments Information based on iHGM provided by AECOM </div>			
Vfreq ¹	0.25	0.00				
Vtopo ¹	0.10	0.00				
Vwood ²	0.10	0.00				
Vmid	0.25	0.00				
Vherb	1.00	0.00				
Vdetritus	0.30	0.00				
Vredox ¹	0.10	0.00				
Vsorp ¹	1.00	0.00				
Vconnect ¹	0.25	0.00				
Wetland acreage w/in construction footprint ³ =			2.44			
Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED						
	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.47	0.00	0.47	1.14	0.00	1.14
Maintain Plant & Animal Community	0.50	0.00	0.50	1.22	0.00	1.22
Removal & Sequestrian of Elements & Compounds	0.35	0.00	0.35	0.86	0.00	0.86
TOTALS						3.22

Nederland Terminal Buildout Project - iHGM Analysis						
Wetland ID#	Wetland 2					
	INPUT					
	Pre-Project	Post-Project	Comments			
Vdur ¹	1.00	0.00	Information based on iHGM provided by Whitenton			
Vfreq ¹	1.00	0.00				
Vtopo ¹	1.00	0.00				
Vwood ²	0.10	0.00				
Vmid	0.25	0.00				
Vherb	1.00	0.00				
Vdetritus	1.00	0.00				
Vredox ¹	0.10	0.00				
Vsorp ¹	1.00	0.00				
Vconnect ¹	0.50	0.00				
Wetland acreage w/in construction footprint ³ =			31.91			
Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED						
	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	1.03	0.00	1.03	32.89	0.00	32.89
Maintain Plant & Animal Community	0.58	0.00	0.58	18.61	0.00	18.61
Removal & Sequestration of Elements & Compounds	0.71	0.00	0.71	22.66	0.00	22.66
TOTALS						74.16

Nederland Terminal Buildout Project - iHGM Analysis						
Wetland ID#	<div style="border: 1px solid black; padding: 2px; display: inline-block;">Wetland 4</div>					
	INPUT					
	Pre-Project	Post-Project				
Vdur ¹	0.50	0.00	<div style="border: 1px solid black; padding: 5px;"> Comments Information based on iHGM provided by Whitenton </div>			
Vfreq ¹	0.75	0.00				
Vtopo ¹	0.10	0.00				
Vwood ²	0.10	0.00				
Vmid	0.25	0.00				
Vherb	1.00	0.00				
Vdetritus	0.50	0.00				
Vredox ¹	0.10	0.00				
Vsorp ¹	1.00	0.00				
Vconnect ¹	0.50	0.00				
Wetland acreage w/in construction footprint ³ =			<div style="border: 1px solid black; padding: 2px; display: inline-block;">0.90</div>			
Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED						
	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.61	0.00	0.61	0.55	0.00	0.55
Maintain Plant & Animal Community	0.58	0.00	0.58	0.53	0.00	0.53
Removal & Sequestrian of Elements & Compounds	0.47	0.00	0.47	0.42	0.00	0.42
TOTALS						1.50

Nederland Terminal Buildout Project - iHGM Analysis						
Wetland ID#	Wetland 6					
	INPUT					
	Pre-Project	Post-Project				
Vdur ¹	0.75	0.00	<div style="border: 1px solid black; padding: 5px; background-color: #d9ead3;">Comments</div> <div style="border: 1px solid black; padding: 5px; background-color: #d9ead3;">Information based on iHGM provided by Whitenton</div> <div style="border: 1px solid black; height: 10px; background-color: #d9ead3;"></div> <div style="border: 1px solid black; height: 10px; background-color: #d9ead3;"></div> <div style="border: 1px solid black; height: 10px; background-color: #d9ead3;"></div> <div style="border: 1px solid black; height: 10px; background-color: #d9ead3;"></div> <div style="border: 1px solid black; height: 10px; background-color: #d9ead3;"></div> <div style="border: 1px solid black; height: 10px; background-color: #d9ead3;"></div> <div style="border: 1px solid black; height: 10px; background-color: #d9ead3;"></div> <div style="border: 1px solid black; height: 10px; background-color: #d9ead3;"></div> <div style="border: 1px solid black; height: 10px; background-color: #d9ead3;"></div>			
Vfreq ¹	0.75	0.00				
Vtopo ¹	0.40	0.00				
Vwood ²	0.25	0.00				
Vmid	0.25	0.00				
Vherb	1.00	0.00				
Vdetritus	0.30	0.00				
Vredox ¹	0.10	0.00				
Vsorp ¹	1.00	0.00				
Vconnect ¹	0.75	0.00				
Wetland acreage w/in construction footprint ³ =			2.29			
Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED						
	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.76	0.00	0.76	1.73	0.00	1.73
Maintain Plant & Animal Community	0.67	0.00	0.67	1.53	0.00	1.53
Removal & Sequestration of Elements & Compounds	0.55	0.00	0.55	1.27	0.00	1.27
TOTALS						4.53

Nederland Terminal Buildout Project - iHGM Analysis

Wetland ID#

WP1001_PEM

INPUT

Pre-Project

Post-Project

Vdur¹

0.75

0.00

Vfreq¹

1.00

0.00

Vtopo¹

0.40

0.00

Vwood²

0.10

0.00

Vmid

0.10

0.00

Vherb

1.00

0.00

Vdetritus

1.00

0.00

Vredox¹

0.10

0.00

Vsorp¹

1.00

0.00

Vconnect¹

0.75

0.00

Comments

Approximately 85% of the WAA floods or ponds for 7 to 14 days.

WAA receive hydrology from direct runoff

WAA contains approximately 10% dips and hummocks

No woody cover observed in field

No midstory cover observed in field

100% herbaceous cover observed in field

Approximately 95% of WAA possesses an A or O horizon

Based on data sheet

Based on data sheet

based on data sheet, photos, aerial photography. Habitat types:
PFO wetlands; however, the area is immediately adjacent to
industrial area.Wetland acreage w/in construction footprint³ =

0.20

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.79	0.00	0.79	0.16	0.00	0.16
Maintain Plant & Animal Community Removal & Sequestration of Elements & Compounds	0.62	0.00	0.62	0.12	0.00	0.12
	0.61	0.00	0.61	0.12	0.00	0.12
TOTALS						0.40

Nederland Terminal Buildout Project - iHGM Analysis						
Wetland ID#	WP1001_PEM_B					
	INPUT					
	Pre-Project	Post-Project				
Vdur ¹	0.75	0.00	Comments Approximately 60% of the WAA floods or ponds for 7 to 14 days. WAA receive hydrology from direct runoff and possessed cracked WAA contains approximately 15% dips and hummocks No woody cover observed in field No midstory cover observed in field 80% herbaceous cover observed in field Approximately 75% of WAA possesses an A or O horizon Based on data sheet Based on data sheet based on data sheet, photos, aerial photography. Habitat types: PFO wetlands; however, the area is immediately adjacent to industrial area.			
Vfreq ¹	0.75	0.00				
Vtopo ¹	0.70	0.00				
Vwood ²	0.10	0.00				
Vmid	0.10	0.00				
Vherb	1.00	0.00				
Vdetritus	0.50	0.00				
Vredox ¹	0.10	0.00				
Vsorp ¹	1.00	0.00				
Vconnect ¹	0.25	0.00				
Wetland acreage w/in construction footprint ³ =			0.00			
Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED						
	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.81	0.00	0.81	0.00	0.00	0.00
Maintain Plant & Animal Community	0.45	0.00	0.45	0.00	0.00	0.00
Removal & Sequestration of Elements & Compounds	0.55	0.00	0.55	0.00	0.00	0.00
TOTALS						0.00

Nederland Terminal Buildout Project - iHGM Analysis

Wetland ID#

WP1001_PEM_C

INPUT

Pre-Project

Post-Project

Vdur¹

0.50

0.00

Vfreq¹

0.50

0.00

Vtopo¹

0.70

0.00

Vwood²

0.10

0.00

Vmid

0.25

0.00

Vherb

1.00

0.00

Vdetritus

0.50

0.00

Vredox¹

0.10

0.00

Vsorpt¹

1.00

0.00

Vconnect¹

0.50

0.00

Comments

Approximately 60% of the WAA floods or ponds for 7 to 14 days.

WAA receive hydrology from direct runoff and possessed cracked

WAA contains approximately 15% dips and hummocks

No woody cover observed in field

No midstory cover observed in field

Over 90% herbaceous cover observed in field

Approximately 30% of WAA possesses an A or O horizon

Based on data sheet

Based on data sheet

based on data sheet, photos, aerial photography. Habitat types:
PFO wetlands and upland; however, the area is immediately
adjacent to industrial area.Wetland acreage w/in construction footprint³ =

0.23

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.68	0.00	0.68	0.16	0.00	0.16
Maintain Plant & Animal Community	0.58	0.00	0.58	0.13	0.00	0.13
Removal & Sequestration of Elements & Compounds	0.46	0.00	0.46	0.11	0.00	0.11
TOTALS						0.39

Nederland Terminal Buildout Project - iHGM Analysis

Wetland ID#

WP1001_PEM_H

INPUT

Pre-Project

Post-Project

Vdur¹

0.50

0.00

Vfreq¹

1.00

0.00

Vtopo¹

0.70

0.00

Vwood²

0.10

0.00

Vmid

0.25

0.00

Vherb

1.00

0.00

Vdetritus

1.00

0.00

Vredox¹

0.10

0.00

Vsort¹

1.00

0.00

Vconnect¹

0.75

0.00

Comments

Approximately 60% of the WAA floods or ponds for 7 to 14 days.

WAA receive hydrology from direct runoff and possessed standing

WAA contains approximately 15% dips and hummocks

No woody cover observed in field

10% midstory cover observed in field

95% herbaceous cover observed in field

Approximately 85% of WAA possesses an A or O horizon

Based on data sheet

Based on data sheet

based on data sheet, photos, aerial photography. Habitat types:
PFO wetlands and upland; however, the area is immediately
adjacent to industrial area.Wetland acreage w/in construction footprint³ =

0.18

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.80	0.00	0.80	0.14	0.00	0.14
Maintain Plant & Animal Community	0.67	0.00	0.67	0.12	0.00	0.12
Removal & Sequestration of Elements & Compounds	0.59	0.00	0.59	0.11	0.00	0.11
TOTALS						0.37

Nederland Terminal Buildout Project - iHGM Analysis

Wetland ID#

WP1001_PEM I

INPUT

Pre-Project

Post-Project

Vdur¹

0.50

0.00

Vfreq¹

1.00

0.00

Vtopo¹

0.70

0.00

Vwood²

0.10

0.00

Vmid

0.25

0.00

Vherb

1.00

0.00

Vdetritus

1.00

0.00

Vredox¹

0.10

0.00

Vsort¹

1.00

0.00

Vconnect¹

0.75

0.00

Comments

Approximately 60% of the WAA floods or ponds for 7 to 14 days.

WAA receive hydrology from direct runoff and possessed saturation,

WAA contains approximately 15% dips and hummocks

No woody cover observed in field

10% midstory cover observed in field

100% herbaceous cover observed in field

Approximately 90% of WAA possesses an A or O horizon

Based on data sheet

Based on data sheet

based on data sheet, photos, aerial photography. Habitat types:
PFO wetlands; however, the area is immediately adjacent to
industrial area.Wetland acreage w/in construction footprint³ =

0.16

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.80	0.00	0.80	0.13	0.00	0.13
Maintain Plant & Animal Community	0.67	0.00	0.67	0.11	0.00	0.11
Removal & Sequestration of Elements & Compounds	0.59	0.00	0.59	0.09	0.00	0.09
TOTALS						0.33

Nederland Terminal Buildout Project - iHGM Analysis

Wetland ID#

WP1001_PEM_N

INPUT

Pre-Project

Post-Project

Vdur¹

0.50

0.00

Vfreq¹

1.00

0.00

Vtopo¹

0.70

0.00

Vwood²

0.10

0.00

Vmid

0.25

0.00

Vherb

1.00

0.00

Vdetritus

0.50

0.00

Vredox¹

1.00

0.00

Vsort¹

1.00

0.00

Vconnect¹

0.75

0.00

Comments

Approximately 60% of the WAA floods or ponds for 7 to 14 days.

WAA receive hydrology from direct runoff and possessed saturation

WAA contains approximately 15% dips and hummocks

No woody cover observed in field

Approximately 20% midstory cover observed in field

100% herbaceous cover observed in field

Approximately 80% of WAA possesses an A or O horizon

Based on data sheet

Based on data sheet

based on data sheet, photos, aerial photography. Habitat types:
PFO wetlands; however, the area is immediately adjacent to
industrial area.Wetland acreage w/in construction footprint³ =

2.73

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.80	0.00	0.80	2.19	0.00	2.19
Maintain Plant & Animal Community	0.67	0.00	0.67	1.82	0.00	1.82
Removal & Sequestration of Elements & Compounds	0.62	0.00	0.62	1.68	0.00	1.68
TOTALS						5.70

Nederland Terminal Buildout Project - iHGM Analysis						
Wetland ID#	WP1001_PEM_P					
	INPUT					
	Pre-Project	Post-Project				
Vdur ¹	0.50	0.00	<div style="border: 1px solid black; background-color: #d9ead3; padding: 5px;"> Comments Approximately 60% of the WAA floods or ponds for 7 to 14 days. WAA receive hydrology from direct runoff and possessed standing WAA contains approximately 15% dips and hummocks No woody cover observed in field No midstory cover observed in field 100% herbaceous cover observed in field Approximately 67% of WAA possesses an A or O horizon Based on data sheet Based on data sheet based on data sheet, photos, aerial photography. Habitat types: PFO wetlands and uplands; however, the area is immediately adjacent to industrial area. </div>			
Vfreq ¹	1.00	0.00				
Vtopo ¹	0.70	0.00				
Vwood ²	0.10	0.00				
Vmid	0.10	0.00				
Vherb	1.00	0.00				
Vdetritus	0.50	0.00				
Vredox ¹	0.10	0.00				
Vsorp ¹	1.00	0.00				
Vconnect ¹	0.75	0.00				
Wetland acreage w/in construction footprint ³ =			0.42			
Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED						
	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.79	0.00	0.79	0.33	0.00	0.33
Maintain Plant & Animal Community	0.62	0.00	0.62	0.26	0.00	0.26
Removal & Sequestration of Elements & Compounds	0.55	0.00	0.55	0.23	0.00	0.23
TOTALS						0.82

Nederland Terminal Buildout Project - iHGM Analysis

Wetland ID# WP1005_PEM

INPUT

Pre-Project Post-Project

Vdur ¹	0.75	0.00
Vfreq ¹	1.00	0.00
Vtopo ¹	0.40	0.00
Vwood ²	0.10	0.00
Vmid	0.10	0.00
Vherb	1.00	0.00
Vdetritus	0.50	0.00
Vredox ¹	0.10	0.00
Vsorp ¹	1.00	0.00
Vconnect ¹	0.50	0.00

Comments

Approximately 85% of the WAA contained approximately 1 inch of standing water.

WAA receive hydrology from direct runoff.

WAA contains approximately 10% dips and hummocks (ruts)

No woody cover observed in field

No midstory cover observed in field

90% herbaceous cover observed in field

Approximately 45% of WAA possesses an A or O horizon

Based on data sheet

Based on data sheet

based on data sheet, photos, aerial photography. Habitat types: PEM wetlands, forest, and shrub/sapling; however, the area is immediately adjacent to industrial area.

Wetland acreage w/in construction footprint 0.003

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post-FCU's
Temporary Storage & Detention of Storage Water	0.79	0.00	0.79	0.00	0.00	0.00
Maintain Plant & Animal Community	0.53	0.00	0.53	0.00	0.00	0.00
Removal & Sequestrian of Elements & Compounds	0.58	0.00	0.58	0.00	0.00	0.00
TOTALS						0.01

Nederland Terminal Buildout Project - iHGM Analysis

Wetland ID#

WP1005_PEM_B

INPUT

Pre-Project Post-Project

Vdur ¹	0.75	0.00
Vfreq ¹	1.00	0.00
Vtopo ¹	0.40	0.00
Vwood ²	0.10	0.00
Vmid	0.10	0.00
Vherb	1.00	0.00
Vdetritus	0.50	0.00
Vredox ¹	0.10	0.00
Vsorp ¹	1.00	0.00
Vconnect ¹	0.50	0.00

Comments

Approximately 85% of the WAA contained approximately 1 inch of standing water.
WAA receive hydrology from direct runoff, ~2" of standing water and algal mat were observed.
WAA contains approximately 10% dips and hummocks (ruts)
No woody cover observed in field
No midstory cover observed in field
85% herbaceous cover observed in field
Approximately 60% of WAA possesses an A or O horizon
Based on data sheet
Based on data sheet
based on data sheet, photos, aerial photography. Habitat types: PEM wetlands, forest, and shrub/sapling; however, the area is immediately adjacent to industrial area.

Wetland acreage w/in construction footprint³ =

0.004

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post-FCU's
Temporary Storage & Detention of Storage Water	0.79	0.00	0.79	0.00	0.00	0.00
Maintain Plant & Animal Community	0.53	0.00	0.53	0.00	0.00	0.00
Removal & Sequestration of Elements & Compounds	0.58	0.00	0.58	0.00	0.00	0.00
TOTALS						0.01

Nederland Terminal Buildout Project - iHGM Analysis

Wetland ID#

WP1005_PEM_C

INPUT

	Pre-Project	Post-Project
Vdur ¹	0.75	0.00
Vfreq ¹	1.00	0.00
Vtopo ¹	0.40	0.00
Vwood ²	0.10	0.00
Vmid	0.10	0.00
Vherb	1.00	0.00
Vdetritus	0.50	0.00
Vredox ¹	0.10	0.00
Vsorp ¹	1.00	0.00
Vconnect ¹	0.50	0.00

Comments

Approximately 85% of the WAA contained approximately 1 inch of standing water.
WAA receive hydrology from direct runoff, ~2" of standing water and algal mat were observed.
WAA contains approximately 10% dips and hummocks (ruts)
No woody cover observed in field
No midstory cover observed in field
85% herbaceous cover observed in field
Approximately 60% of WAA possesses an A or O horizon
Based on data sheet
Based on data sheet
based on data sheet, photos, aerial photography. Habitat types: PEM wetlands, forest, and shrub/sapling; however, the area is immediately adjacent to industrial area.

Wetland acreage w/in construction footprint³ = 0.004

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.79	0.00	0.79	0.00	0.00	0.00
Maintain Plant & Animal Community	0.53	0.00	0.53	0.00	0.00	0.00
Removal & Sequestration of Elements & Compounds	0.58	0.00	0.58	0.00	0.00	0.00
TOTALS						0.01

Nederland Terminal Buildout Project - iHGM Analysis

Wetland ID#

WP1006_PEM

INPUT

Pre-Project Post-Project

Vdur¹

0.75 0.00

Vfreq¹

0.75 0.00

Vtopo¹

0.40 0.00

Vwood²

0.10 0.00

Vmid

0.10 0.00

Vherb

1.00 0.00

Vdetritus

0.50 0.00

Vredox¹

0.10 0.00

Vsorpt¹

1.00 0.00

Vconnect¹

0.75 0.00

Comments

Approximately 85% of the WAA contained approximately 1 inch of standing water.

WAA receive hydrology from direct runoff of gravel road and overflow from drainage ditches.

WAA contains approximately 10% dips and hummocks (ruts)

No woody cover observed in field

No midstory cover observed in field

85% herbaceous cover observed in field

Approximately 80% of WAA possesses an A or O horizon

Based on data sheet

Based on data sheet

based on data sheet, photos, aerial photography. Habitat types: PEM wetlands, forest, and shrub/sapling; however, the area is immediately adjacent to industrial area.

Wetland acreage w/in construction footprint³ =

2.56

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.74	0.00	0.74	1.89	0.00	1.89
Maintain Plant & Animal Community Removal & Sequestration of Elements & Compounds	0.62	0.00	0.62	1.58	0.00	1.58
	0.53	0.00	0.53	1.35	0.00	1.35
TOTALS						4.81

Nederland Terminal Buildout Project - iHGM Analysis

Wetland ID#

WP1006_PEM_B

INPUT

Pre-Project

Post-Project

Vdur¹

0.75

0.00

Vfreq¹

0.75

0.00

Vtopo¹

0.40

0.00

Vwood²

0.10

0.00

Vmid

0.10

0.00

Vherb

0.75

0.00

Vdetritus

0.50

0.00

Vredox¹

0.10

0.00

Vsorp¹

1.00

0.00

Vconnect¹

0.50

0.00

Comments

Approximately 85% of the WAA contained approximately 1 inch of standing water.

WAA receive hydrology from direct runoff of gravel road and overflow from drainage ditches.

WAA contains approximately 10% dips and hummocks (ruts)

No woody cover observed in field

No midstory cover observed in field

70% herbaceous cover observed in field

Approximately 80% of WAA possesses an A or O horizon

Based on data sheet

Based on data sheet

based on data sheet, photos, aerial photography. Habitat types: PEM wetlands, forest, and shrub/sapling; however, the area is immediately adjacent to industrial area.

Wetland acreage w/in construction footprint³ =

0.001

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.67	0.00	0.67	0.00	0.00	0.00
Maintain Plant & Animal Community	0.45	0.00	0.45	0.00	0.00	0.00
Removal & Sequestration of Elements & Compounds	0.51	0.00	0.51	0.00	0.00	0.00
TOTALS						0.00

Nederland Terminal Buildout Project - iHGM Analysis																	
Wetland ID#	WP1006_PEM_C																
	INPUT																
	Pre-Project	Post-Project															
Vdur ¹	0.75	0.00	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center; background-color: #e0ffe0;">Comments</th> </tr> </thead> <tbody> <tr><td>Approximately 85% of the WAA contained approximately 1 inch of standing water.</td></tr> <tr><td>WAA receive hydrology from direct runoff of gravel road and overflow from drainage ditches.</td></tr> <tr><td>WAA contains approximately 10% dips and hummocks (ruts)</td></tr> <tr><td>No woody cover observed in field</td></tr> <tr><td>No midstory cover observed in field</td></tr> <tr><td>70% herbaceous cover observed in field</td></tr> <tr><td>Approximately 80% of WAA possesses an A or O horizon</td></tr> <tr><td>Based on data sheet</td></tr> <tr><td>Based on data sheet</td></tr> <tr><td>based on data sheet, photos, aerial photography. Habitat types: PEM wetlands, forest, and shrub/sapling; however, the area is immediately adjacent to industrial area.</td></tr> </tbody> </table>				Comments	Approximately 85% of the WAA contained approximately 1 inch of standing water.	WAA receive hydrology from direct runoff of gravel road and overflow from drainage ditches.	WAA contains approximately 10% dips and hummocks (ruts)	No woody cover observed in field	No midstory cover observed in field	70% herbaceous cover observed in field	Approximately 80% of WAA possesses an A or O horizon	Based on data sheet	Based on data sheet	based on data sheet, photos, aerial photography. Habitat types: PEM wetlands, forest, and shrub/sapling; however, the area is immediately adjacent to industrial area.
Comments																	
Approximately 85% of the WAA contained approximately 1 inch of standing water.																	
WAA receive hydrology from direct runoff of gravel road and overflow from drainage ditches.																	
WAA contains approximately 10% dips and hummocks (ruts)																	
No woody cover observed in field																	
No midstory cover observed in field																	
70% herbaceous cover observed in field																	
Approximately 80% of WAA possesses an A or O horizon																	
Based on data sheet																	
Based on data sheet																	
based on data sheet, photos, aerial photography. Habitat types: PEM wetlands, forest, and shrub/sapling; however, the area is immediately adjacent to industrial area.																	
Vfreq ¹	0.75	0.00															
Vtopo ¹	0.40	0.00															
Vwood ²	0.10	0.00															
Vmid	0.10	0.00															
Vherb	0.75	0.00															
Vdetritus	0.50	0.00															
Vredox ¹	0.10	0.00															
Vsorp ¹	1.00	0.00															
Vconnect ¹	0.50	0.00															
Wetland acreage w/in construction footprint ³ =			0.76														
Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED																	
	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's											
Temporary Storage & Detention of Storage Water	0.67	0.00	0.67	0.51	0.00	0.51											
Maintain Plant & Animal Community	0.45	0.00	0.45	0.34	0.00	0.34											
Removal & Sequestration of Elements & Compounds	0.51	0.00	0.51	0.39	0.00	0.39											
TOTALS						1.24											

Nederland Terminal Buildout Project - iHGM Analysis

Wetland ID#

WP1007_PEM

INPUT

Pre-Project Post-Project

Vdur ¹	0.75	0.00
Vfreq ¹	1.00	0.00
Vtopo ¹	0.70	0.00
Vwood ²	0.10	0.00
Vmid	0.10	0.00
Vherb	1.00	0.00
Vdetritus	0.50	0.00
Vredox ¹	0.10	0.00
Vsorp ¹	1.00	0.00
Vconnect ¹	0.50	0.00

Comments

Approximately 80% of the WAA contained approximately 1 inch of standing water.
WAA receive hydrology from direct runoff, ~2" of standing water observed.
WAA contains approximately 15% dips and hummocks (ruts)
No woody cover observed in field
No midstory cover observed in field
85% herbaceous cover observed in field
Approximately 25% of WAA possesses an A or O horizon
Based on data sheet
Based on data sheet
based on data sheet, photos, aerial photography. Habitat types: PEM wetlands, forest, and shrub/sapling; however, the area is immediately adjacent to industrial area.

Wetland acreage w/in construction footprint³ = 0.001

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post-FCU's
Temporary Storage & Detention of Storage Water	0.87	0.00	0.87	0.00	0.00	0.00
Maintain Plant & Animal Community	0.53	0.00	0.53	0.00	0.00	0.00
Removal & Sequestration of Elements & Compounds	0.60	0.00	0.60	0.00	0.00	0.00
TOTALS						0.00

Nederland Terminal Buildout Project - iHGM Analysis

Wetland ID#

WP1007_PEM_B

INPUT

Pre-Project Post-Project

Vdur¹

0.75 0.00

Vfreq¹

1.00 0.00

Vtopo¹

0.70 0.00

Vwood²

0.10 0.00

Vmid

0.10 0.00

Vherb

1.00 0.00

Vdetritus

0.50 0.00

Vredox¹

0.10 0.00

Vsorpt¹

1.00 0.00

Vconnect¹

0.50 0.00

Comments

Approximately 80% of the WAA contained approximately 1 inch of standing water.

WAA receive hydrology from direct runoff, ~2" of standing water observed

WAA contains approximately 15% dips and hummocks (ruts)

No woody cover observed in field

No midstory cover observed in field

85% herbaceous cover observed in field

Approximately 25% of WAA possesses an A or O horizon

Based on data sheet

Based on data sheet

based on data sheet, photos, aerial photography. Habitat types: PEM wetlands, forest, and shrub/sapling; however, the area is immediately adjacent to industrial area.

Wetland acreage w/in construction footprint³ =

0.002

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.87	0.00	0.87	0.00	0.00	0.00
Maintain Plant & Animal Community Removal & Sequestration of Elements & Compounds	0.53	0.00	0.53	0.00	0.00	0.00
	0.60	0.00	0.60	0.00	0.00	0.00
TOTALS						0.00

Nederland Terminal Buildout Project - iHGM Analysis

Wetland ID# WP1007_PEM_C

INPUT

Pre-Project Post-Project

Vdur ¹	0.75	0.00
Vfreq ¹	1.00	0.00
Vtopo ¹	0.70	0.00
Vwood ²	0.10	0.00
Vmid	0.10	0.00
Vherb	1.00	0.00
Vdetritus	0.50	0.00
Vredox ¹	0.10	0.00
Vsorp ¹	1.00	0.00
Vconnect ¹	0.50	0.00

Comments

Approximately 80% of the WAA contained approximately 1 inch of standing water.
WAA receive hydrology from direct runoff, ~2" of standing water observed
WAA contains approximately 15% dips and hummocks (ruts)
No woody cover observed in field
No midstory cover observed in field
85% herbaceous cover observed in field
Approximately 25% of WAA possesses an A or O horizon
Based on data sheet
Based on data sheet
based on data sheet, photos, aerial photography. Habitat types: PEM wetlands, forest, and shrub/sapling; however, the area is immediately adjacent to industrial area.

Wetland acreage w/in construction footprint³ = 0.002

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.87	0.00	0.87	0.00	0.00	0.00
Maintain Plant & Animal Community	0.53	0.00	0.53	0.00	0.00	0.00
Removal & Sequestration of Elements & Compounds	0.60	0.00	0.60	0.00	0.00	0.00
TOTALS						0.00

Nederland Terminal Buildout Project - iHGM Analysis

Wetland ID#

WP1009_PEM

INPUT

Pre-Project

Post-Project

Vdur¹

0.75

0.00

Vfreq¹

0.75

0.00

Vtopo¹

0.40

0.00

Vwood²

0.10

0.00

Vmid

0.10

0.00

Vherb

0.75

0.00

Vdetritus

0.50

0.00

Vredox¹

0.10

0.00

Vsorpt¹

1.00

0.00

Vconnect¹

0.50

0.00

Comments

Approximately 85% of the WAA contained approximately 1 inch of standing water.

WAA receive hydrology from direct runoff of gravel road and overflow from drainage ditches.

WAA contains approximately 10% dips and hummocks (ruts)

No woody cover observed in field

No midstory cover observed in field

70% herbaceous cover observed in field

Approximately 80% of WAA possesses an A or O horizon

Based on data sheet

Based on data sheet

Based on data sheet, photos, aerial photography. Habitat types: PEM wetlands and forest; however, the area is immediately adjacent to industrial area.

Wetland acreage w/in construction footprint³ =

0.10

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.67	0.00	0.67	0.07	0.00	0.07
Maintain Plant & Animal Community	0.45	0.00	0.45	0.05	0.00	0.05
Removal & Sequestrian of Elements & Compounds	0.51	0.00	0.51	0.05	0.00	0.05
TOTALS						0.16

Nederland Terminal Buildout Project - iHGM Analysis

Wetland ID#

WP1009_PEM_B

INPUT

Pre-Project Post-Project

Vdur¹

0.75

0.00

Vfreq¹

0.75

0.00

Vtopo¹

0.40

0.00

Vwood²

0.10

0.00

Vmid

0.10

0.00

Vherb

0.10

0.00

Vdetritus

0.50

0.00

Vredox¹

0.10

0.00

Vsorpt¹

1.00

0.00

Vconnect¹

0.50

0.00

Comments

Approximately 85% of the WAA contained approximately 1 inch of standing water.

WAA receive hydrology from direct runoff of gravel road and overflow from drainage ditches.

WAA contains approximately 10% dips and hummocks (ruts)

No woody cover observed in field

No midstory cover observed in field

70% herbaceous cover observed in field

Approximately 80% of WAA possesses an A or O horizon

Based on data sheet

Based on data sheet

based on data sheet, photos, aerial photography. Habitat types: PEM wetlands and forest (PFO); however, the area is immediately adjacent to industrial area.

Wetland acreage w/in construction footprint³ = 1.01

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.45	0.00	0.45	0.46	0.00	0.46
Maintain Plant & Animal Community	0.23	0.00	0.23	0.24	0.00	0.24
Removal & Sequestration of Elements & Compounds	0.47	0.00	0.47	0.47	0.00	0.47
TOTALS						1.17

Nederland Terminal Buildout Project - iHGM Analysis

Wetland ID# WP1010_PEM

INPUT

Pre-Project Post-Project

Vdur¹

0.75

0.00

Vfreq¹

1.00

0.00

Vtopo¹

0.40

0.00

Vwood²

0.10

0.00

Vmid

0.10

0.00

Vherb

1.00

0.00

Vdetritus

0.50

0.00

Vredox¹

0.10

0.00

Vsorpt¹

1.00

0.00

Vconnect¹

0.50

0.00

Comments

Approximately 85% of the WAA contained approximately 1 inch of standing water.

WAA receive hydrology from direct runoff of gravel road and overflow from drainage ditches.

WAA contains approximately 10% dips and hummocks (ruts)

No woody cover observed in field

No midstory cover observed in field

100% herbaceous cover observed in field

Approximately 20% of WAA possesses an A or O horizon

Based on data sheet

Based on data sheet

based on data sheet, photos, aerial photography. Habitat types: PEM wetlands and forest (PFO); however, the area is immediately adjacent to industrial area.

Wetland acreage w/in construction footprint³ 0.02

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.79	0.00	0.79	0.02	0.00	0.02
Maintain Plant & Animal Community	0.53	0.00	0.53	0.01	0.00	0.01
Removal & Sequestration of Elements & Compounds	0.58	0.00	0.58	0.01	0.00	0.01
TOTALS						0.04

Nederland Terminal Buildout
iHGM Analysis

Nederland Terminal Buildout Project
Sunoco Partners Marketing Terminals L.P.

iHGM PSS Riverine Calculations
USACE Galveston District

Wetland ID	Cowardin Class	Wetland Acreage w/in Project Footprint	8-digit USGS HUC Code	Watershed Name	iHGM Variables (Pre-Construction)										FCU Pre-Construction			FCU Post-Construction			FCU Differential			
					Vdur	Vfreq	Vtopo	Vwood	Vmid	Vherb	Vdetritus	Vredox	Vsorpt	Vconnect	Temp. Storage of Water	Maintain Plant & Animal	Removal of Elements	Temp. Storage of Water	Maintain Plant & Animal	Removal of Elements	Temp. Storage of Water	Maintain Plant & Animal	Removal of Elements	Total FCU Value
Wetland 5 (Permanent)	PSS	0.001	12020003	Lower Neches	0.75	0.75	0.40	0.50	0.75	1.00	0.30	0.10	1.00	0.50	0.001	0.001	0.001	0.00	0.00	0.00	0.001	0.001	0.001	0.002
Wetland 5 (Temporary)	PSS	0.66	12020003	Lower Neches	0.75	0.75	0.40	0.50	0.75	1.00	0.30	0.10	1.00	0.50	0.54	0.50	0.42	0.49	0.26	0.34	0.05	0.23	0.08	0.36
Wetland 7	PSS	2.25	12020003	Lower Neches	0.50	0.75	0.10	0.50	0.50	0.50	0.50	0.10	1.00	0.50	1.15	1.13	1.19	0.00	0.00	0.00	1.15	1.13	1.19	3.47
Wetland 10	PSS	0.38	12020003	Lower Neches	0.25	0.75	0.70	0.50	0.50	0.75	0.30	0.10	1.00	1.00	0.23	0.29	0.20	0.00	0.00	0.00	0.23	0.29	0.20	0.71
WP1006_PSS	PSS	0.11	12020003	Lower Neches	0.75	1.00	0.40	0.25	0.50	1.00	0.50	0.10	1.00	0.75	0.09	0.08	0.07	0.00	0.00	0.00	0.09	0.08	0.07	0.25
ACREAGE TOTALS		3.40	iHGM TOTALS												2.01	1.99	1.88	0.49	0.26	0.34	1.52	1.72	1.54	4.79

Nederland Terminal Buildout Project - iHGM Analysis										
Anticipated PSS Wetland Mitigation Credits per HUC - USACE Galveston District										
8-digit USGS HUC Code	Watershed Name	Wetland Acreage w/in Project Footprint	Temp. Storage of Water (Differential)	Maintain Plant & Animal (Differential)	Removal of Elements (Differential)	Service Area Multiplier	Temp. Storage of Water (Differential)	Maintain Plant & Animal (Differential)	Removal of Elements (Differential)	Total FCU Differential Value
12020003	Lower Neches	3.40	1.52	1.72	1.54	--	--	--	--	4.78
Totals		3.40	1.52	1.72	1.54	--	1.52	1.72	1.54	4.78

Nederland Terminal Buildout Project - iHGM Analysis						
Wetland ID#	<div style="border: 1px solid black; padding: 2px; background-color: #d9ead3;">Wetland 5 (Permanent)</div>					
	INPUT					
	Pre-Project	Post-Project	Comments			
Vdur ¹	0.75	0.00	Information based on iHGM provided by Whitenton			
Vfreq ¹	0.75	0.00				
Vtopo ¹	0.40	0.00				
Vwood ²	0.50	0.00				
Vmid	0.75	0.00				
Verb	1.00	0.00				
Detritus	0.30	0.00				
Vredox ¹	0.10	0.00				
Vsorpt ¹	1.00	0.00				
Vconnect ¹	0.50	0.00				
Wetland acreage w/in construction footprint ³ =			<div style="border: 1px solid black; padding: 2px; background-color: #d9ead3;">0.001</div>			
Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED						
	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.82	0.00	0.82	0.001	0.00	0.001
Maintain Plant & Animal Community Removal &	0.75	0.00	0.75	0.001	0.00	0.001
Equestrian of Elements & Compounds	0.64	0.00	0.64	0.001	0.00	0.001
TOTALS						0.002

Nederland Terminal Buildout Project - iHGM Analysis

Wetland ID#

Wetland 5 (Temporary)

INPUT

	Pre-Project	Post-Project
Vdur ¹	0.75	0.75
Vfreq ¹	0.75	0.75
Vtopo ¹	0.40	0.40
Vwood ²	0.50	0.10
Vmid	0.75	0.10
Vherb	1.00	1.00
Vdetritus	0.30	0.30
Vredox ¹	0.10	0.10
Vsorpt ¹	1.00	1.00
Vconnect ¹	0.50	0.10

Comments

Information based on iHGM provided by Whitenton

Wetland acreage w/in construction footprint³ =

0.66

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post-FCU's
Temporary Storage & Detention of Storage Water	0.82	0.74	0.08	0.54	0.49	0.05
Maintain Plant & Animal Community	0.75	0.40	0.35	0.50	0.26	0.23
Removal & Sequestration of Elements & Compounds	0.64	0.51	0.12	0.42	0.34	0.08
TOTALS						0.36

Wetland ID#

Wetland 7

Nederland Terminal Buildout Project - iHGM Analysis

INPUT

	Pre-Project	Post-Project
Vdur ¹	0.50	0.00
Vfreq ¹	0.75	0.00
Vtopo ¹	0.10	0.00
Vwood ²	0.50	0.00
Vmid	0.50	0.00
Vherb	0.50	0.00
Vdetritus	0.50	0.00
Vredox ¹	0.10	0.00
Vsorpt ¹	1.00	0.00
Vconnect ¹	0.50	0.00

Comments
Information based on iHGM provided by Whitenton

Wetland acreage w/in construction footprint³ =

2.25

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post-FCU's
Temporary Storage & Detention of Storage Water	0.51	0.00	0.51	1.15	0.00	1.15
Maintain Plant & Animal Community	0.50	0.00	0.50	1.13	0.00	1.13
Removal & Sequestrian of Elements & Compounds	0.53	0.00	0.53	1.19	0.00	1.19
TOTALS						3.47

Wetland ID#

Wetland 10

INPUT

	Pre-Project	Post-Project
Vdur ¹	0.25	0.00
Vfreq ¹	0.75	0.00
Vtopo ¹	0.70	0.00
Vwood ²	0.50	0.00
Vmid	0.50	0.00
Vherb	0.75	0.00
Vdetritus	0.30	0.00
Vredox ¹	0.10	0.00
Vsorpt ¹	1.00	0.00
Vconnect ¹	1.00	0.00

Comments

Information based on iHGM provided by Whitenton

Wetland acreage w/in construction footprint³ =

0.38

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post-FCU's
Temporary Storage & Detention of Storage Water	0.61	0.00	0.61	0.23	0.00	0.23
Maintain Plant & Animal Community Removal & Sequestrian of Elements & Compounds	0.75	0.00	0.75	0.29	0.00	0.29
	0.52	0.00	0.52	0.20	0.00	0.20
TOTALS						0.71

Wetland ID#

WP1006_PSS

INPUT

	Pre-Project	Post-Project
Vdur ¹	0.75	0.00
Vfreq ¹	1.00	0.00
Vtopo ¹	0.40	0.00
Vwood ²	0.25	0.00
Vmid	0.50	0.00
Vherb	1.00	0.00
Vdetritus	0.50	0.00
Vredox ¹	0.10	0.00
Vsorpt ¹	1.00	0.00
Vconnect ¹	0.75	0.00

Comments

Approximately 85% of the WAA floods or ponds for 7 to 14 days.
WAA receive hydrology from direct runoff, ~1" of standing water observed.
WAA contains approximately 10% dips and hummocks
Approximately 20% woody cover observed in field
Approximately 45% midstory cover observed in field
Approximately 77% herbaceous cover observed in field
Approximately 15% of WAA possesses an A or O horizon
Based on data sheet
Based on data sheet
based on data sheet, photos, aerial photography. Habitat types: PFO wetlands; however, the area is immediately adjacent to industrial area.

Wetland acreage w/in construction footprint³ =

0.11

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post-FCU's
Temporary Storage & Detention of Storage Water	0.85	0.00	0.85	0.09	0.00	0.09
Maintain Plant & Animal Community	0.75	0.00	0.75	0.08	0.00	0.08
Removal & Sequestrian of Elements & Compounds	0.63	0.00	0.63	0.07	0.00	0.07
TOTALS						0.25

Nederland Terminal Buildout
iHGM Analysis

Nederland Terminal Buildout Project
Sunoco Partners Marketing Terminals L.P.

iHGM PFO Riverine Calculations
USACE Galveston District

Wetland ID	Cowardin Class	Wetland Acreage w/in Project Footprint	8-digit USGS HUC Code	Watershed Name	iHGM Variables (Pre-Construction)															FCU Pre-Construction			FCU Post-Construction			FCU Differential			
					Vdur	Vfreq	Vtopo	Vcwd	Vwood	Vtree	Vrich	Vbasal	Vdensity	Vmid	Vherb	Vdetritus	Vredox	Vsorpt	Vconnect	Temp. Storage of Water	Maintain Plant & Animal	Removal of Elements	Temp. Storage of Water	Maintain Plant & Animal	Removal of Elements	Temp. Storage of Water	Maintain Plant & Animal	Removal of Elements	Total FCU Value
Wetland 04	PFO	39.15	12020003	Lower Neches	0.75	1.00	0.10	0.30	0.25	0.30	1.00	0.40	0.40	1.00	1.00	0.30	0.10	1.00	0.50	16.96	22.84	21.01	0.00	0.00	0.00	16.96	22.84	21.01	60.81
Wetland 1 (Perm)	PFO	61.52	12020003	Lower Neches	0.50	0.75	0.70	0.50	0.75	0.30	0.40	0.60	0.60	0.75	1.00	0.30	0.10	1.00	1.00	38.81	37.68	38.35	0.00	0.00	0.00	38.81	37.68	38.35	114.84
Wetland 1 (Temp)	PFO	0.47	12020003	Lower Neches	0.50	0.75	0.70	0.50	0.75	0.30	0.40	0.60	0.60	0.75	1.00	0.30	0.10	1.00	1.00	0.30	0.29	0.29	0.20	0.15	0.20	0.10	0.14	0.09	0.32
Wetland 3 (Perm)	PFO	26.02	12020003	Lower Neches	0.50	0.75	0.25	0.30	0.75	0.30	0.40	0.40	0.40	1.00	1.00	0.50	0.10	1.00	0.75	13.40	13.66	15.44	0.00	0.00	0.00	13.40	13.66	15.44	42.50
Wetland 3 (Temp)	PFO	0.81	12020003	Lower Neches	0.50	0.75	0.25	0.30	0.75	0.30	0.40	0.40	0.40	1.00	1.00	0.50	0.10	1.00	0.75	0.42	0.43	0.48	0.25	0.23	0.33	0.17	0.20	0.15	0.52
WP1001_PFO (Perm)	PFO	1.24	12020003	Lower Neches	0.50	1.00	0.70	0.30	0.25	0.30	0.40	0.40	0.60	1.00	0.30	0.50	0.10	1.00	0.75	0.67	0.60	0.67	0.00	0.00	0.00	0.67	0.60	0.67	1.94
WP1001_PFO (Temp)	PFO	0.13	12020003	Lower Neches	0.50	1.00	0.70	0.30	0.25	0.30	0.40	0.40	0.60	1.00	0.30	0.50	0.10	1.00	0.75	0.07	0.06	0.07	0.05	0.04	0.05	0.03	0.02	0.02	0.06
WP1001_PFO_B (Perm)	PFO	61.51	12020003	Lower Neches	0.50	1.00	0.70	0.30	0.50	0.30	0.40	0.40	0.60	1.00	0.30	0.50	0.10	1.00	0.75	36.57	29.73	37.32	0.00	0.00	0.00	36.57	29.73	37.32	103.62
WP1001_PFO_B (Temp)	PFO	1.92	12020003	Lower Neches	0.50	1.00	0.70	0.30	0.50	0.30	0.40	0.40	0.60	1.00	0.30	0.50	0.10	1.00	0.75	1.14	0.93	1.16	0.67	0.62	0.77	0.47	0.30	0.39	1.16
WP1006_PFO	PFO	0.47	12020003	Lower Neches	0.75	0.75	0.70	0.30	0.50	0.30	0.40	0.40	0.40	0.75	0.30	0.30	0.10	1.00	0.50	0.29	0.19	0.28	0.00	0.00	0.00	0.29	0.19	0.28	0.76
WP1009_PFO	PFO	0.52	12020003	Lower Neches	0.50	0.25	0.70	0.30	0.50	0.30	0.40	0.40	0.60	0.25	1.00	0.30	0.10	1.00	0.50	0.22	0.23	0.23	0.00	0.00	0.00	0.22	0.23	0.23	0.68
WP1009_PFO_B	PFO	0.002	12020003	Lower Neches	0.50	0.25	0.70	0.30	0.75	0.30	0.40	0.40	0.60	0.25	1.00	0.30	0.10	1.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WP1009_PFO_C	PFO	0.004	12020003	Lower Neches	0.50	0.25	0.70	0.30	0.50	0.30	0.60	1.00	1.00	0.50	1.00	0.30	0.10	1.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
TOTAL ACREAGE		193.77	iHGM TOTALS																	108.86	106.63	115.30	1.16	1.05	1.36	107.69	105.58	113.95	327.23

Nederland Terminal Buildout Project - iHGM Analysis										
Anticipated (Permanent Fill) PFO Wetland Mitigation Credits per HUC - USACE Galveston District										
8-digit USGS HUC Code	Watershed Name	Wetland Acreage w/in Project Footprint	Temp. Storage of Water (Differential)	Maintain Plant & Animal (Differential)	Removal of Elements (Differential)	Service Area Multiplier	Temp. Storage of Water (Differential)	Maintain Plant & Animal (Differential)	Removal of Elements (Differential)	Total FCU Differential Value
12020003	Lower Neches	193.77	107.69	105.58	113.95	--	--	--	--	327.23
Totals		193.77	107.69	105.58	113.95		107.69	105.58	113.95	327.23

Wetland ID#

Wetland 04

INPUT

Pre-Project

Post-Project

Vdur¹

0.75

0.00

Vfreq¹

1.00

0.00

Vtopo¹

0.10

0.00

Vcwd²

0.30

0.00

Vwood²

0.25

0.00

Vtree²

0.30

0.00

Vrich

1.00

0.00

Vbasal

0.40

0.00

Vdensity

0.40

0.00

Vmid

1.00

0.00

Vherb

1.00

0.00

Vdetritus

0.30

0.00

Vredox¹

0.10

0.00

Vsorpt¹

1.00

0.00

Vconnect¹

0.50

0.00

Comments

Information based on iHGM provided by AECOM

Wetland acreage w/in construction footprint³ =

39.15

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.43	0.00	0.43	16.96	0.00	16.96
Maintain Plant & Animal Community	0.58	0.00	0.58	22.84	0.00	22.84
Removal & Sequestrian of Elements & Compounds	0.54	0.00	0.54	21.01	0.00	21.01
TOTALS						60.81

Nederland Terminal Buildout Project - iHGM Analysis

Wetland ID#

Wetland 1 (Temp)

INPUT

Pre-Project

Post-Project

Vdur¹

0.50

0.50

Vfreq¹

0.75

0.75

Vtopo¹

0.70

0.70

Vcwd²

0.50

0.10

Vwood²

0.75

0.10

Vtree²

0.30

0.10

Vrich

0.40

0.10

Vbasal

0.60

0.10

Vdensity

0.60

0.10

Vmid

0.75

0.10

Vherb

1.00

1.00

Vdetritus

0.30

0.30

Vredox¹

0.10

0.10

Vsorpt¹

1.00

1.00

Vconnect¹

1.00

1.00

Comments

Information based on iHGM provided by Whitenton

Wetland acreage w/in construction footprint³ =

0.47

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.63	0.43	0.20	0.30	0.20	0.10
Maintain Plant & Animal Community	0.61	0.33	0.29	0.29	0.15	0.14
Removal & Sequestrian of Elements & Compounds	0.62	0.42	0.20	0.29	0.20	0.09
TOTALS						0.32

Wetland ID#

Wetland 3 (Perm)

INPUT

Pre-Project

Post-Project

Vdur¹

0.50

0.00

Vfreq¹

0.75

0.00

Vtopo¹

0.25

0.00

Vcwd²

0.30

0.00

Vwood²

0.75

0.00

Vtree²

0.30

0.00

Vrich

0.40

0.00

Vbasal

0.40

0.00

Vdensity

0.40

0.00

Vmid

1.00

0.00

Vherb

1.00

0.00

Vdetritus

0.50

0.00

Vredox¹

0.10

0.00

Vsorpt¹

1.00

0.00

Vconnect¹

0.75

0.00

Information based on iHGM provided by Whitenton

Wetland acreage w/in construction footprint³ =

26.02

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.52	0.00	0.52	13.40	0.00	13.40
Maintain Plant & Animal Community	0.53	0.00	0.53	13.66	0.00	13.66
Removal & Sequestrian of Elements & Compounds	0.59	0.00	0.59	15.44	0.00	15.44
TOTALS						42.50

Wetland ID#

Wetland 3
(Temp)

INPUT

	Pre-Project	Post-Project
1. Project Definition	<ul style="list-style-type: none"> Project goals and objectives are not clearly defined. Project scope is not well understood. Project timeline is not established. Project budget is not set. 	<ul style="list-style-type: none"> Project goals and objectives are clearly defined. Project scope is well understood. Project timeline is established. Project budget is set.
2. Team Formation	<ul style="list-style-type: none"> Team members are not clearly defined. Team roles and responsibilities are not assigned. Team communication is not established. Team collaboration is not encouraged. 	<ul style="list-style-type: none"> Team members are clearly defined. Team roles and responsibilities are assigned. Team communication is established. Team collaboration is encouraged.
3. Resource Allocation	<ul style="list-style-type: none"> Resources are not allocated efficiently. Resources are not used effectively. Resources are not monitored. Resources are not updated. 	<ul style="list-style-type: none"> Resources are allocated efficiently. Resources are used effectively. Resources are monitored. Resources are updated.
4. Communication	<ul style="list-style-type: none"> Communication is not clear. Communication is not frequent. Communication is not effective. Communication is not documented. 	<ul style="list-style-type: none"> Communication is clear. Communication is frequent. Communication is effective. Communication is documented.
5. Progress Monitoring	<ul style="list-style-type: none"> Progress is not monitored. Progress is not reported. Progress is not analyzed. Progress is not improved. 	<ul style="list-style-type: none"> Progress is monitored. Progress is reported. Progress is analyzed. Progress is improved.
6. Risk Management	<ul style="list-style-type: none"> Risks are not identified. Risks are not assessed. Risks are not mitigated. Risks are not managed. 	<ul style="list-style-type: none"> Risks are identified. Risks are assessed. Risks are mitigated. Risks are managed.
7. Quality Assurance	<ul style="list-style-type: none"> Quality is not assured. Quality is not checked. Quality is not improved. Quality is not maintained. 	<ul style="list-style-type: none"> Quality is assured. Quality is checked. Quality is improved. Quality is maintained.
8. Project Closure	<ul style="list-style-type: none"> Project is not closed. Project is not evaluated. Project is not reviewed. Project is not archived. 	<ul style="list-style-type: none"> Project is closed. Project is evaluated. Project is reviewed. Project is archived.

	Pre-Project	Post-Project
Vdur ¹	0.50	0.50
Vfreq ¹	0.75	0.75
Vtopo ¹	0.25	0.25
Vcwd ²	0.30	0.10
Vwood ²	0.75	0.10
Vtree ²	0.30	0.10
Vrich	0.40	0.10
Vbasal	0.40	0.10
Vdensity	0.40	0.10
Vmid	1.00	0.10
Vherb	1.00	1.00
Vdetritus	0.50	0.50
Vredox ¹	0.10	0.10
Vsorp ¹	1.00	1.00
Vconnect ¹	0.75	0.75

Information based on iHGM provided by Whitenton

Wetland acreage w/in construction footprint³	0.81
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Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.52	0.30	0.21	0.42	0.25	0.17
Maintain Plant & Animal Community	0.53	0.28	0.24	0.43	0.23	0.20
Removal & Sequestrian of Elements & Compounds	0.59	0.41	0.19	0.48	0.33	0.15
TOTALS						0.52

Nederland Terminal Buildout Project - iHGM Analysis

Wetland ID#

WP1001_PFO

INPUT

Pre-Project Post-Project

Vdur¹

0.50

0.00

Vfreq¹

1.00

0.00

Vtopo¹

0.70

0.00

Vcwd²

0.30

0.00

Vwood²

0.25

0.00

Vtree²

0.30

0.00

Vrich

0.40

0.00

Vbasal

0.40

0.00

Vdensity

0.60

0.00

Vmid

1.00

0.00

Vherb

0.30

0.00

Vdetritus

0.50

0.00

Vredox¹

0.10

0.00

Vsorpt¹

1.00

0.00

Vconnect¹

0.75

0.00

Comments

Approximately 60% of the WAA floods or ponds for 7 to 14 days.

WAA receive hydrology from direct runoff and possessed water stained leaves.

WAA contains approximately 15% dips and hummocks

2 pieces observed along 100' transect.

30% tree cover observed.

Only tallow tree observed.

Only tallow tree observed.

Extrapolated to acre.

Extrapolated to acre.

75% midstory cover observed in field

100% herbaceous cover observed in field

Approximately 20% of WAA possesses an A or O horizon

Based on data sheet

Based on data sheet

based on data sheet, photos, aerial photography. Habitat types: PFO wetlands and upland; however, the area is immediately adjacent to industrial area.

Wetland acreage w/in construction footprint³ =

1.24

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.54	0.00	0.54	0.67	0.00	0.67
Maintain Plant & Animal Community	0.48	0.00	0.48	0.60	0.00	0.60
Removal & Sequestration of Elements & Compounds	0.54	0.00	0.54	0.67	0.00	0.67
TOTALS						1.94

Nederland Terminal Buildout Project - iHGM Analysis

Wetland ID#

WP1001_PFO

INPUT

Pre-Project Post-Project

Vdur¹

0.50

0.50

Vfreq¹

1.00

0.75

Vtopo¹

0.70

0.40

Vcwd²

0.30

0.10

Vwood²

0.25

0.10

Vtree²

0.30

0.10

Vrich

0.40

0.10

Vbasal

0.40

0.10

Vdensity

0.60

0.10

Vmid

1.00

0.10

Vherb

0.30

1.00

Vdetritus

0.50

0.30

Vredox¹

0.10

0.10

Vsorpt¹

1.00

1.00

Vconnect¹

0.75

1.00

Comments

Approximately 60% of the WAA floods or ponds for 7 to 14 days.

WAA receive hydrology from direct runoff and possessed water stained leaves.

WAA contains approximately 15% dips and hummocks

2 pieces observed along 100' transect.

30% tree cover observed.

Only tallow tree observed.

Only tallow tree observed.

Extrapolated to acre.

Extrapolated to acre.

75% midstory cover observed in field

100% herbaceous cover observed in field

Approximately 20% of WAA possesses an A or O horizon

Based on data sheet

Based on data sheet

based on data sheet, photos, aerial photography. Habitat types: PFO wetlands and upland; however, the area is immediately adjacent to industrial area.

Wetland acreage w/in construction footprint³ = 0.13

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.54	0.35	0.19	0.07	0.05	0.03
Maintain Plant & Animal Community	0.48	0.33	0.16	0.06	0.04	0.02
Removal & Sequestration of Elements & Compounds	0.54	0.40	0.14	0.07	0.05	0.02
TOTALS						0.06

Nederland Terminal Buildout Project - iHGM Analysis

Wetland ID#

WP1001_PFO_B

INPUT

Pre-Project Post-Project

Vdur¹

0.50

0.00

Vfreq¹

1.00

0.00

Vtopo¹

0.70

0.00

Vcwd²

0.30

0.00

Vwood²

0.50

0.00

Vtree²

0.30

0.00

Vrich

0.40

0.00

Vbasal

0.40

0.00

Vdensity

0.60

0.00

Vmid

1.00

0.00

Vherb

0.30

0.00

Vdetritus

0.50

0.00

Vredox¹

0.10

0.00

Vsorpt¹

1.00

0.00

Vconnect¹

0.75

0.00

Comments

Approximately 60% of the WAA floods or ponds for 7 to 14 days.

WAA receive hydrology from direct runoff and possessed water stained leaves and water marks.

WAA contains approximately 15% dips and hummocks

2 pieces observed along 100' transect.

Averages 63% tree cover observed.

Predominantly tallow tree observed. Three other species observed spread throughout nine soil stations.

Predominantly tallow tree observed. Three other species

Extrapolated to acre.

Extrapolated to acre.

Average of 80% midstory cover observed in field

Average of 62% herbaceous cover observed in field

Approximately 82% of WAA possesses an A or O horizon

Based on data sheet

Based on data sheet

based on data sheet, photos, aerial photography. Habitat types: PFO wetlands and upland; however, the area is immediately adjacent to industrial area.

Wetland acreage w/in construction footprint³ =

61.51

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.59	0.00	0.59	36.57	0.00	36.57
Maintain Plant & Animal Community	0.48	0.00	0.48	29.73	0.00	29.73
Removal & Sequestrian of Elements & Compounds	0.61	0.00	0.61	37.32	0.00	37.32
TOTALS						103.62

Nederland Terminal Buildout Project - iHGM Analysis

Wetland ID#

WP1001_PFO_B

INPUT

Pre-Project Post-Project

Vdur¹

0.50

0.50

Vfreq¹

1.00

0.75

Vtopo¹

0.70

0.40

Vcwd²

0.30

0.10

Vwood²

0.50

0.10

Vtree²

0.30

0.10

Vrich

0.40

0.10

Vbasal

0.40

0.10

Vdensity

0.60

0.10

Vmid

1.00

0.10

Vherb

0.30

1.00

Vdetritus

0.50

0.30

Vredox¹

0.10

0.10

Vsorpt¹

1.00

1.00

Vconnect¹

0.75

1.00

Comments

Approximately 60% of the WAA floods or ponds for 7 to 14 days.

WAA receive hydrology from direct runoff and possessed water stained leaves and water marks.

WAA contains approximately 15% dips and hummocks

2 pieces observed along 100' transect.

Averages 63% tree cover observed.

Predominantly tallow tree observed. Three other species observed spread throughout nine soil stations.

Predominantly tallow tree observed. Three other species

Extrapolated to acre.

Extrapolated to acre.

Average of 80% midstory cover observed in field

Average of 62% herbaceous cover observed in field

Approximately 82% of WAA possesses an A or O horizon

Based on data sheet

Based on data sheet

based on data sheet, photos, aerial photography. Habitat types: PFO wetlands and upland; however, the area is immediately adjacent to industrial area.

Wetland acreage w/in construction footprint³ =

1.92

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.59	0.35	0.24	1.14	0.67	0.47
Maintain Plant & Animal Community	0.48	0.33	0.16	0.93	0.62	0.30
Removal & Sequestrian of Elements & Compounds	0.61	0.40	0.20	1.16	0.77	0.39
TOTALS						1.16

Nederland Terminal Buildout Project - iHGM Analysis

Wetland ID#

WP1006_PFO

INPUT

Pre-Project Post-Project

Comments

Vdur¹

0.75

0.00

Vfreq¹

0.75

0.00

Vtopo¹

0.70

0.00

Vcwd²

0.30

0.00

Vwood²

0.50

0.00

Vtree²

0.30

0.00

Vrich

0.40

0.00

Vbasal

0.40

0.00

Vdensity

0.40

0.00

Vmid

0.75

0.00

Vherb

0.30

0.00

Vdetritus

0.30

0.00

Vredox¹

0.10

0.00

Vsort¹

1.00

0.00

Vconnect¹

0.50

0.00

Approximately 80% of the WAA floods or ponds for 7 to 14 days.

WAA receive hydrology from direct runoff and possessed water stained leaves and saturation.

WAA contains approximately 15% dips and hummocks

0 pieces observed along 100' transect.

35% tree cover observed.

Only tallow tree observed.

Only tallow tree observed.

Extrapolated to acre.

Extrapolated to acre.

45% midstory cover observed in field

75% herbaceous cover observed in field

10% of WAA possesses an A or O horizon

Based on data sheet

Based on data sheet

based on data sheet, photos, aerial photography. Habitat types: PFO wetlands and upland; however, the area is immediately adjacent to industrial area.

Wetland acreage w/in construction footprint³ = 0.47

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.61	0.00	0.61	0.29	0.00	0.29
Maintain Plant & Animal Community	0.40	0.00	0.40	0.19	0.00	0.19
Removal & Sequestration of Elements & Compounds	0.59	0.00	0.59	0.28	0.00	0.28
TOTALS						0.76

Nederland Terminal Buildout Project - iHGM Analysis

Wetland ID#

WP1009_PFO

INPUT

Pre-Project Post-Project

Vdur ¹	0.50	0.00
Vfreq ¹	0.25	0.00
Vtopo ¹	0.70	0.00
Vcwd ²	0.30	0.00
Vwood ²	0.50	0.00
Vtree ²	0.30	0.00
Vrich	0.40	0.00
Vbasal	0.40	0.00
Vdensity	0.60	0.00
Vmid	0.25	0.00
Vherb	1.00	0.00
Vdetritus	0.30	0.00
Vredox ¹	0.10	0.00
Vsorp ¹	1.00	0.00
Vconnect ¹	0.50	0.00

Comments

Approximately 60% of the WAA floods or ponds for 7 to 14 days.
WAA receive hydrology from direct runoff and possessed water stained leaves and saturation.
WAA contains approximately 15% dips and hummocks
1 pieces observed along 100' transect.
40% tree cover observed.
Only willow tree observed.
Only willow tree observed.
Extrapolated to acre.
Extrapolated to acre.
10% midstory cover observed in field
10% herbaceous cover observed in field
10% of WAA possesses an A or O horizon
Based on data sheet
Based on data sheet
based on data sheet, photos, aerial photography. Habitat types: PFO wetlands and upland; however, the area is immediately adjacent to industrial area.

Wetland acreage w/in construction footprint

0.52

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.42	0.00	0.42	0.22	0.00	0.22
Maintain Plant & Animal Community	0.44	0.00	0.44	0.23	0.00	0.23
Removal & Sequestration of Elements & Compounds	0.44	0.00	0.44	0.23	0.00	0.23
TOTALS						0.68

Nederland Terminal Buildout Project - iHGM Analysis

Wetland ID#

WP1009_PFO_B

INPUT

Pre-Project Post-Project

Vdur¹

0.50

0.00

Vfreq¹

0.25

0.00

Vtopo¹

0.70

0.00

Vcwd²

0.30

0.00

Vwood²

0.75

0.00

Vtree²

0.30

0.00

Vrich

0.40

0.00

Vbasal

0.40

0.00

Vdensity

0.60

0.00

Vmid

0.25

0.00

Vherb

1.00

0.00

Vdetritus

0.30

0.00

Vredox¹

0.10

0.00

Vsorpt¹

1.00

0.00

Vconnect¹

0.50

0.00

Comments

Approximately 60% of the WAA floods or ponds for 7 to 14 days.

WAA receive hydrology from direct runoff and possessed water stained leaves and saturation.

WAA contains approximately 15% dips and hummocks

1 pieces observed along 100' transect.

70% tree cover observed.

Only tallow and willow trees observed.

Only tallow and willow trees observed.

Extrapolated to acre.

Extrapolated to acre.

0% midstory cover observed in field

15% herbaceous cover observed in field

5% of WAA possesses an A or O horizon

Based on data sheet

Based on data sheet

based on data sheet, photos, aerial photography. Habitat types: PFO wetlands and upland; however, the area is immediately adjacent to industrial area.

Wetland acreage w/in construction footprint³ = 0.00

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.45	0.00	0.45	0.00	0.00	0.00
Maintain Plant & Animal Community	0.44	0.00	0.44	0.00	0.00	0.00
Removal & Sequestration of Elements & Compounds	0.51	0.00	0.51	0.00	0.00	0.00
TOTALS						0.00

Nederland Terminal Buildout Project - iHGM Analysis

Wetland ID#

WP1009_PFO_C

INPUT

	Pre-Project	Post-Project
Vdur ¹	0.50	0.00
Vfreq ¹	0.25	0.00
Vtopo ¹	0.70	0.00
Vcwd ²	0.30	0.00
Vwood ²	0.50	0.00
Vtree ²	0.30	0.00
Vrich	0.60	0.00
Vbasal	1.00	0.00
Vdensity	1.00	0.00
Vmid	0.50	0.00
Vherb	1.00	0.00
Vdetritus	0.30	0.00
Vredox ¹	0.10	0.00
Vsorpt ¹	1.00	0.00
Vconnect ¹	0.50	0.00

Comments

Approximately 60% of the WAA floods or ponds for 7 to 14 days.
WAA receive hydrology from direct runoff and possessed water stained leaves and saturation.
WAA contains approximately 15% dips and hummocks
1 pieces observed along 100' transect.
50% tree cover observed.
Only ash, sugarberry, and willow trees observed.
Only ash, sugarberry, and willow trees observed.
Extrapolated to acre.
Extrapolated to acre.
15% midstory cover observed in field
8% herbaceous cover observed in field
2% of WAA possesses an A or O horizon
Based on data sheet
Based on data sheet
based on data sheet, photos, aerial photography. Habitat types: PFO wetlands and upland; however, the area is immediately adjacent to industrial area.

Wetland acreage w/in construction footprint³ =

0.00

Calculating Functional Capacity Unit (FCU) Impact - NO INPUTS NEEDED

	Pre-Project	Post Project	FCI Difference	Pre-Project FCU's	Post Project FCU's	Difference in Pre- and Post- FCU's
Temporary Storage & Detention of Storage Water	0.42	0.00	0.42	0.00	0.00	0.00
Maintain Plant & Animal Community	0.58	0.00	0.58	0.00	0.00	0.00
Removal & Sequestration of Elements & Compounds	0.44	0.00	0.44	0.00	0.00	0.00
TOTALS						0.01