United States
Department of
Agriculture

Natural Resources
Conservation Service

P. O. Box 16030
Baton Rouge, Louisiana
71302

November 2, 2000

To: Kevin Roy, Chairman, Environmental Work Group, USFWS, Lafayette

From: QK Quin Kinler, NRCS, Baton Rouge

Subject: WVA for Jonathan Davis Wetland (BA-20)

Background

The Jonathan Davis Wetland Project (BA-20) was approved on PPL2. The project features as permitted and as presented in the Environmental Assessment are depicted on Attachment 1. Features at the following Sites have been constructed: 12, 13, 14, 15, 16, 17, 19, 20, and 21. A second contract is presently being advertised to allow construction at Site 22 and bank / shoreline protection from Site 22 to Site 20. Project funding is insufficient to complete the remainder of the project features.

Proposed Solution

1. Eliminate Site 18 from the project due to difficulties with landrights acquisition. However, by constructing the shoreline protection feature out in Bayou Rigolettes, with a boat/fisheries access point aligned with Site 18, the function of Site 18 can be maintained with no work on private land.

2. Defer indefinitely construction at Sites 1, 2, 3, 6, 8, 9, 10, and 11. All of these features are located along oil and gas access canals that lead from GIWW southward into the project area. DNR and NRCS concur on this proposal for the following reasons: 1) with Davis Pond Diversion, these sites may provide avenues for freshwater (including fine-grain sediments and nutrients) to enter project area marshes from the north; 2) early attempts to secure landrights had made little progress; and 3) presently it does not appear that these sites are causing any significant marsh erosion due to water exchange. Should these sites prove to be problematic over time, a subsequent funding request would be submitted at that time.

3. In the upcoming CWPPRA meetings scheduled for December 2000 and January 2001, seek additional funding from the CWPPRA Task Force to allow full completion of the remaining authorized shoreline protection measures (about 25,300 feet). Presently, NRCS and DNR engineers are developing a preliminary structure design and preparing an updated cost estimate. The cost estimate will be presented to the Engineering Work Group at the earliest possible date.

Wetland Value Assessment and Environmental Work Group Review

NRCS has reviewed the original Project Information Form and WVA for the project (see Attachments 2 and 3). It is our opinion that the alternative approach to Site 18, and the deference

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formerly the Soil Conservation Service, is an
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benefits as originally estimated for the project. By this memorandum, NRCS requests that the EWG review the original Project Information Form and WVA to confirm or refute that the original analysis remains valid. Please advise me of the outcome of this review by November 17, 2000.

cc with attachments:

Joe Saxton, DNR Project Manager
Cheryl Broadnax, DNR EWG Representative
Sue Hawes, COE EWG Representative
Patrick Williams, NMFS EWG Representative
Tim Landers, EPA EWG Representative

cc: w/o attachments:

Allen Bolotte, DC, NRCS
Marty Floyd, NRCS EWG Representative
John Jurgensen, Project Manager, NRCS

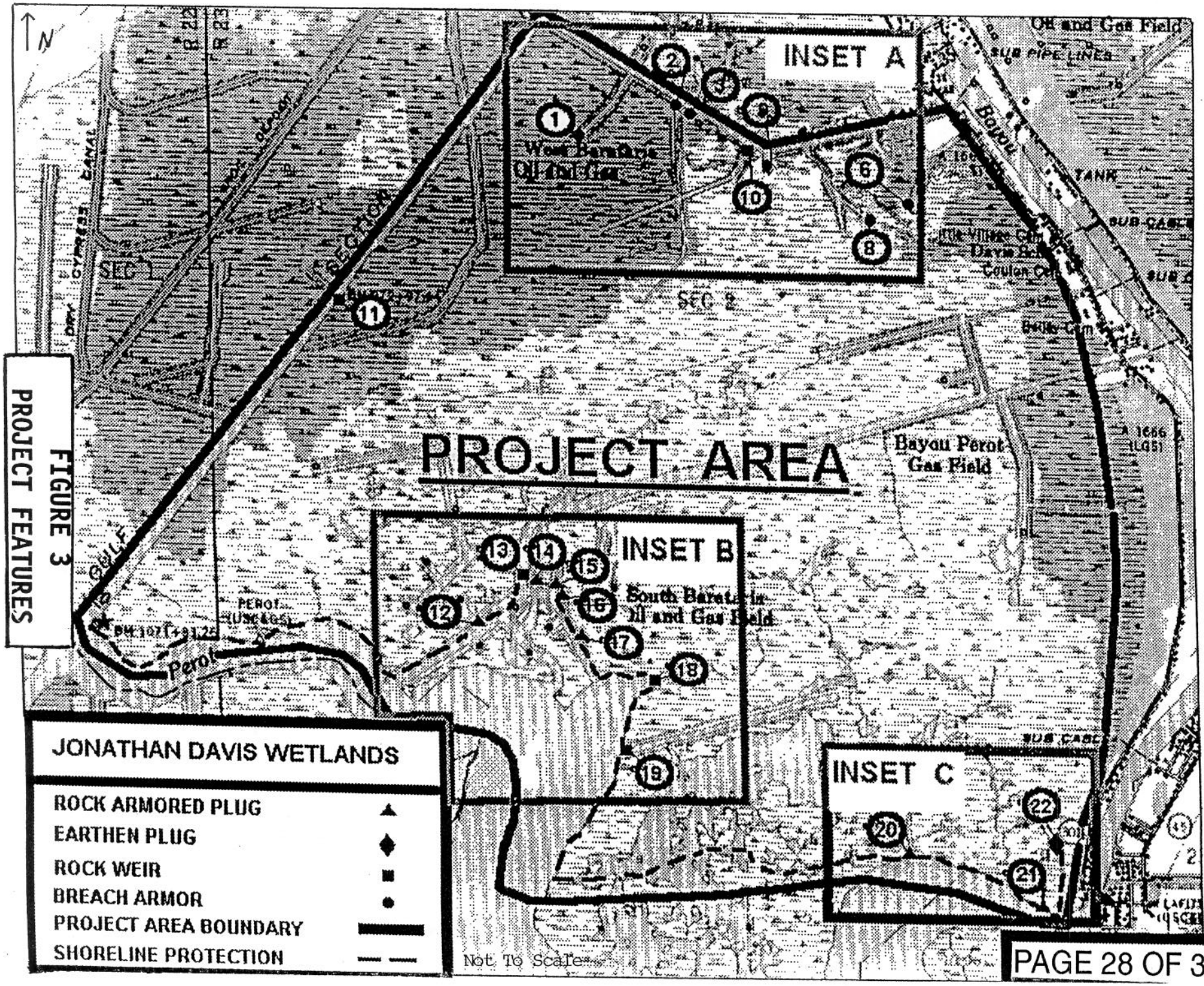


FIGURE 3
PROJECT FEATURES

ATTACHMENT 1

ATTACHMENT 2

COASTAL WETLANDS PLANNING, PROTECTION, AND RESTORATION ACT

Proposed Project Information Form

Project Name: PBA-35 Jonathan Davis Wetland Restoration **Submitted by:** Sherwood Gagliano (504) 383-7451

Project Area Size (acres): ~~7317~~ 7199

Marsh Type or Management Unit: Intermediate **Acres:** ~~7317~~ 7199

Present Conditions

1. **Acres of vegetated marsh (marsh, broken marsh, and scrub/shrub wetlands) and listing of dominant plant species present.**

Intermediate Marsh	4787 ac
Shrub/scrub Spoil	~~118 ac~~ - subtract this

Dominant plant species include:
Spartina patens
Polygonum spp.
Eleocharis spp.

2. **Acres of Open Water.** 2412

3. **Percent of open water area listed in Item 2 dominated (greater than 50% canopy coverage) by aquatic plants.**

5 to 10%

4. **Historical Information on marsh loss trends (provide references if available, or methods used to derive information given).**

0.5% annually (31 ac/yr)
1945-1989 = 1393 ac Land to Water [1]CEI 1991

5. **Brief summary of significant historical hydrological changes.**

Development of minerals lying below the surface of the property and in surrounding wetlands has had a direct impact on the surface through dredging of drilling rig access canals, deposition of dredge spoil, placement of pipelines and flowlines, excavation of brine pits,and other construction. Subsequent to excavation of canals, indirect impacts have occurred. These include canal widening through bank erosion and slumping, accelerated shoreline erosion, and breakup and scouring of interior marshes. These indirect impacts are both cumulative and ongoing.

6. **Recent shoreline erosion rate (provide reference if available).**

1945-1989 20.17 ft/yr[1]

[1]CEI 1991

7. **Percent of open water area ≤ 1.5 feet in depth relative to marsh**

65%

8. **Salinity Data.**

5.32 ppt 1956 - 1989 (See Enclosed Figure)

9. **Location, type, size, and operation schedule (if applicable) of existing permitted and unpermitted structures.**

N/A

10. **If there is an existing management plan for the area, is it permitted? Provide copy of permitted operational scheme and permit number.**

No permitted marsh management plan exists.

11. **Location of structures, culverts, breaks in spoil banks, ect. that serve as hydrological connections and are <u>not</u> identified above or are not easily seen by examination of aerial photography.**

N/A

12. **Estimated subsidence rate (provide references if available)**

Bayou Rigaud at Grand Isle, LA (1947-1978)[2]

Relative Sea Level Rise	1.30 cm/yr	4.26 ft/century
Subsidence	0.80 cm/yr	2.62 ft/century

[2]Penland et al. 1989

Future Conditions

1. **Location, type, size, and operation of proposed structures and water control systems, including plugs.**

   All structures will involve passive management (Figures 1-4)

2. **Proposed hydrologic changes (water introductions, circulation routes, ect.) due to the project.**

   Project will reduce tidal energies within the system through the reduction of channel cross-sections, but should not effect circulation routes to a signifigant degree.

3. **Project Benefits.**

without	-762 ac	-38.1 ac/yr
with	-232 ac	-11.6 ac/yr

4. **Predicted plant species composition of marsh, for future-with and future-without project (general, in terms of dominant species).**

   Plant species are expected to remain the same.

5. **Estimate of open water area ≤ 1.5 feet in depth (in relation to marsh surface), future-with and future-without project.**

without	40%
with	65%

6. **Predicted salinities, future-with and future-without project.**

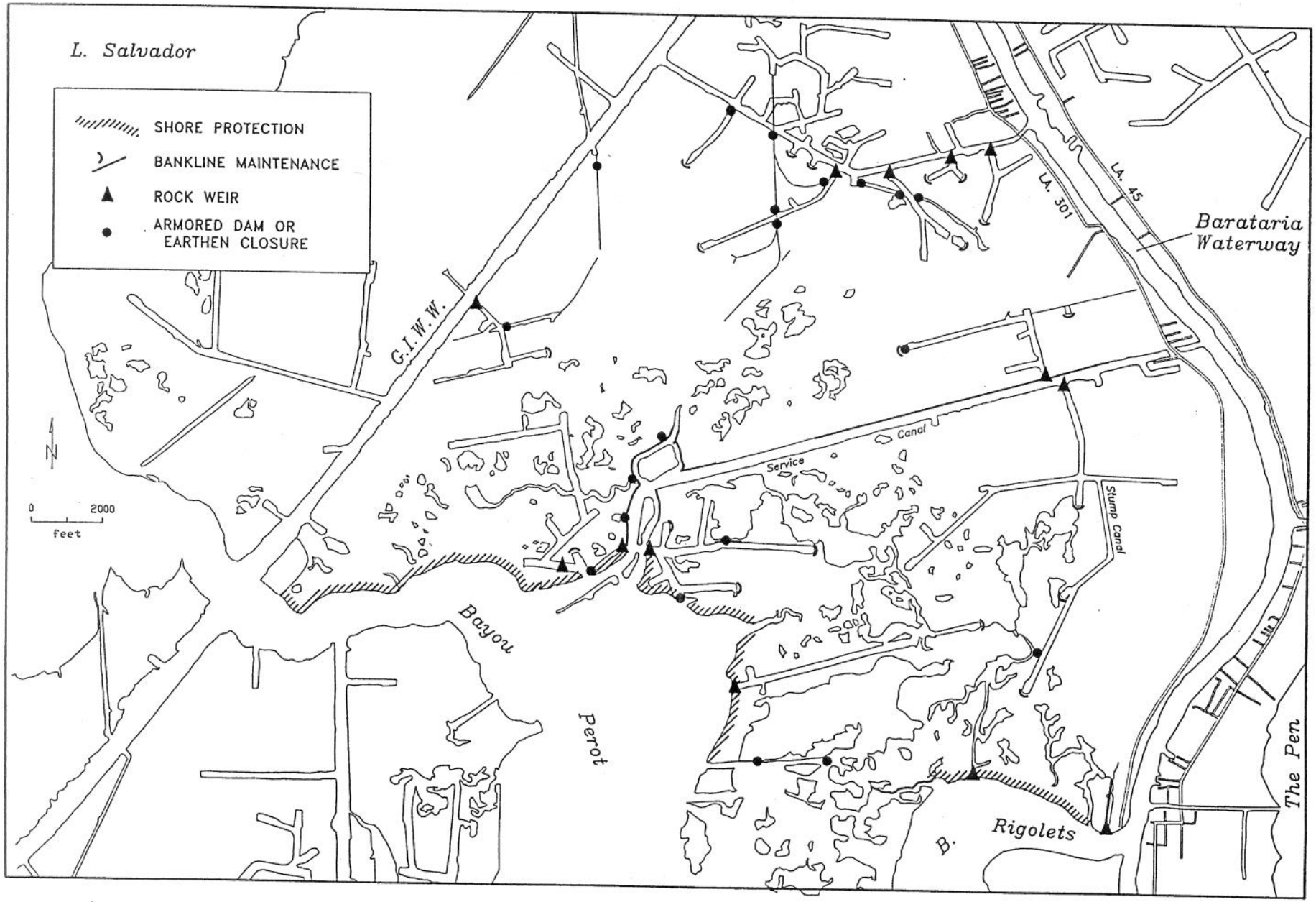
   Project not expected to signifigantly change salinities.

REFERENCES

Coastal Environments, Inc. 1991. Stabilization and Restoration of Erosion and Wetland Deterioration Resulting From Oil and Gas Activities on the Jonathan Davis Plantation Property Jefferson Parish, Louisiana. Coastal Environments, Inc. for Baton Rouge Bank and Trust Co., Baton Rouge.

LA Dept Natural Resources. 1991. GIS Classified Habitat Data. LADNR, GIS Lab. Baton Rouge.

Penland, S., K. E. Ramsey, R. A. McBride, T. F. Moslow, and K. A. Westphal. 1989. Relative sea level rise and subsidence in Louisiana and the Gulf of Mexico. Coastal Geology Tech. Rep. No. 3, Louisiana Geological Survey, Baton Rouge. 65 pp.


L. Salvador
SHORE PROTECTION
BANKLINE MAINTENANCE
ROCK WEIR
ARMORED DAM OR EARTHEN CLOSURE
N
0
2000
feet
G.I.W.W.
LA. 45
LA. 301
Barataria Waterway
Service Canal
Stump Canal
Bayou Perot
B. Rigolets
The Pen

March to November, 3 to 13.5 ppt

X_1: Salinity

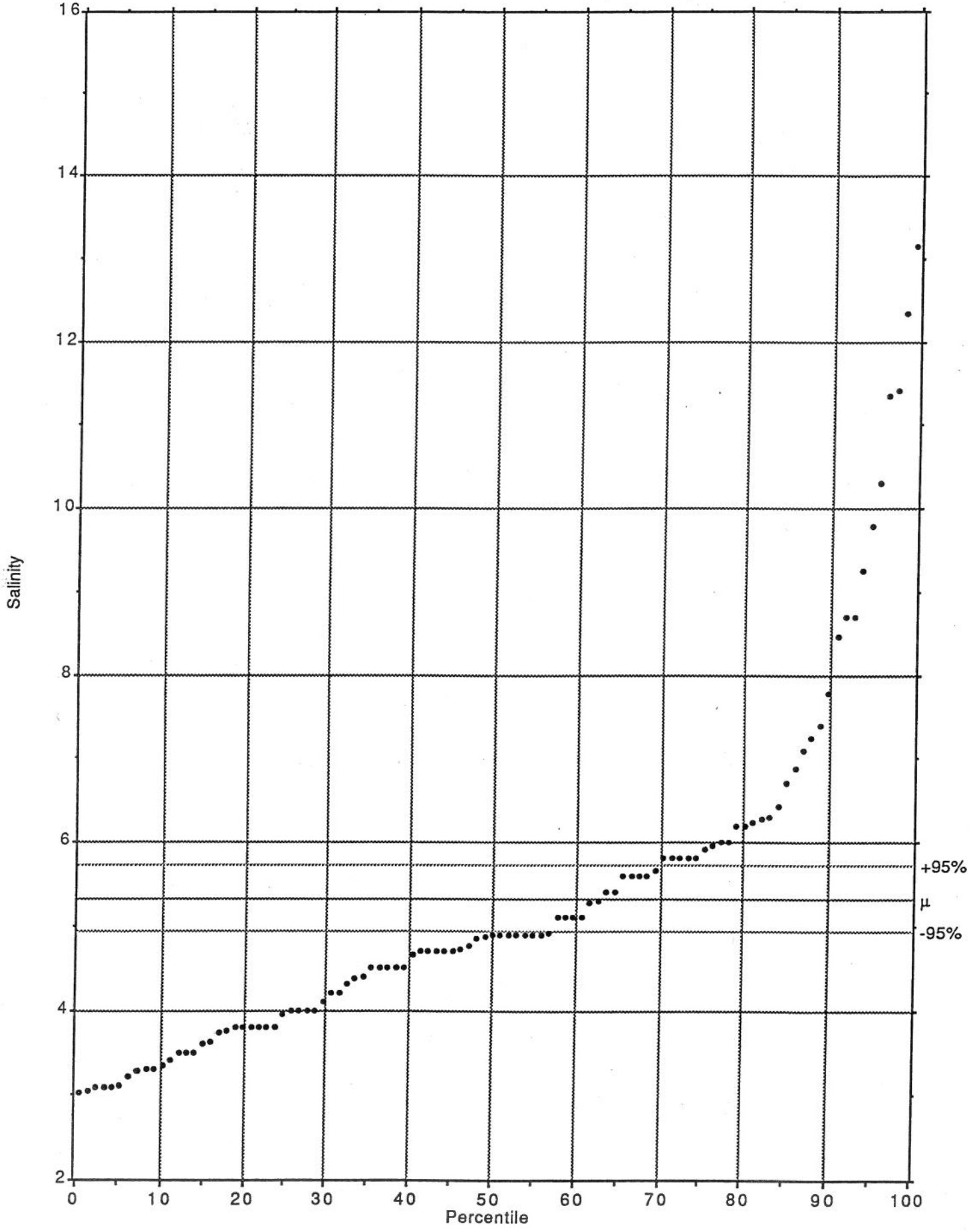
Mean:	Std. Dev.:	Std. Error:	Variance:	Coef. Var.:	Count:
5.32	2.031	.2	4.124	38.173	103
Minimum:	**Maximum:**	**Range:**	**Sum:**	**Sum Squared:**	**# Missing:**
3.03	13.16	10.13	547.93	3335.454	0
t 95%:	**95% Lower:**	**95% Upper:**	**# < 10th %:**	**10th %:**	**25th %:**
.397	4.923	5.717	10	3.332	3.963
50th %:	**75th %:**	**90th %:**	**# > 90th %:**	**Mode:**	**Geo. Mean:**
4.9	5.883	7.926	10	4.9	5.021
Har. Mean:	**Kurtosis:**	**Skewness:**			
4.782	3.39	1.773			

Range Restrictions

	Column Name:	Restriction:
AND	Month	$3 \leq X \leq 11$
AND	Salinity	$3 \leq X \leq 13.2$

March to November, 3 to 13.5 ppt

Percentiles Plot for column: X_1 Salinity



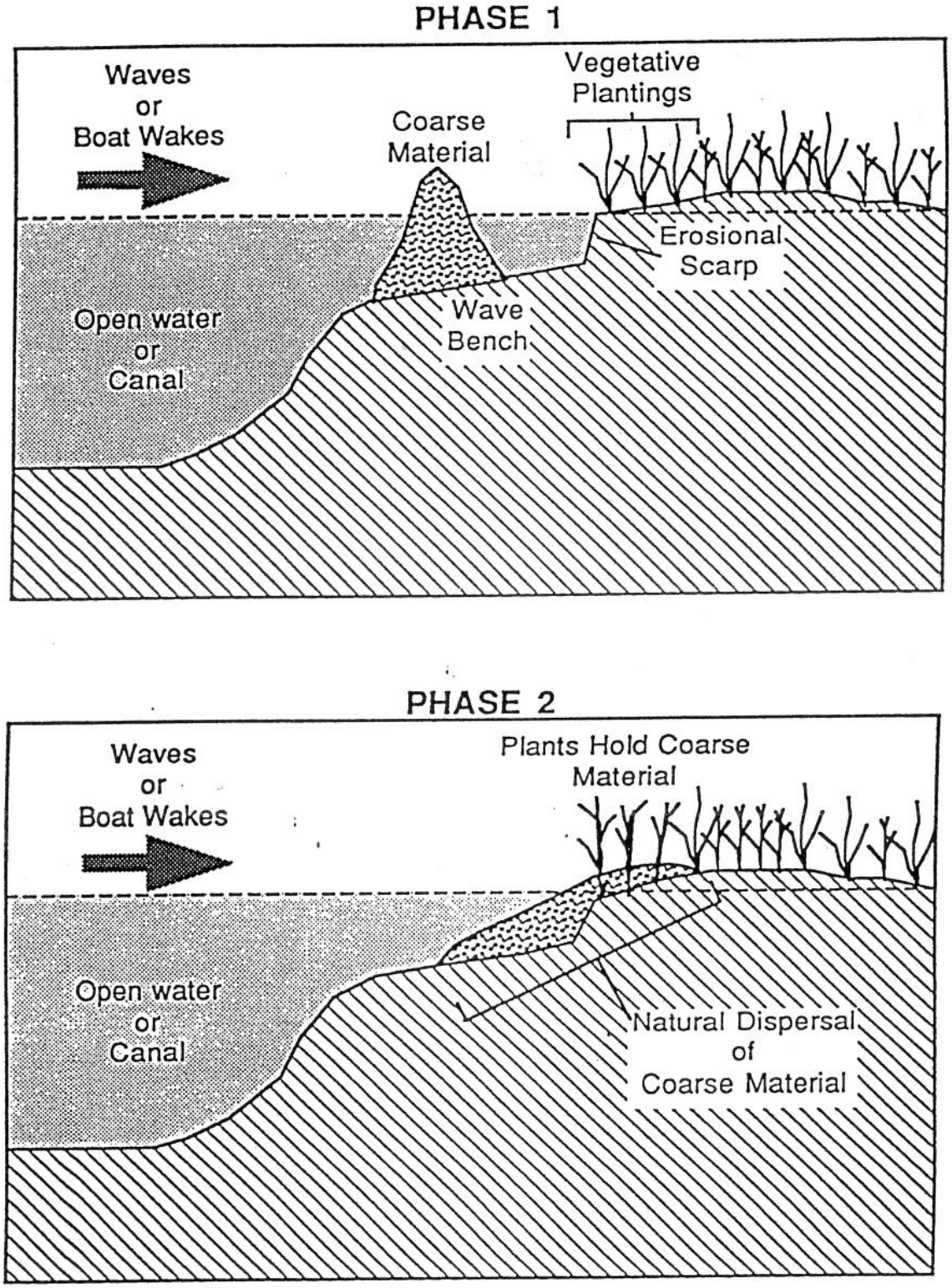
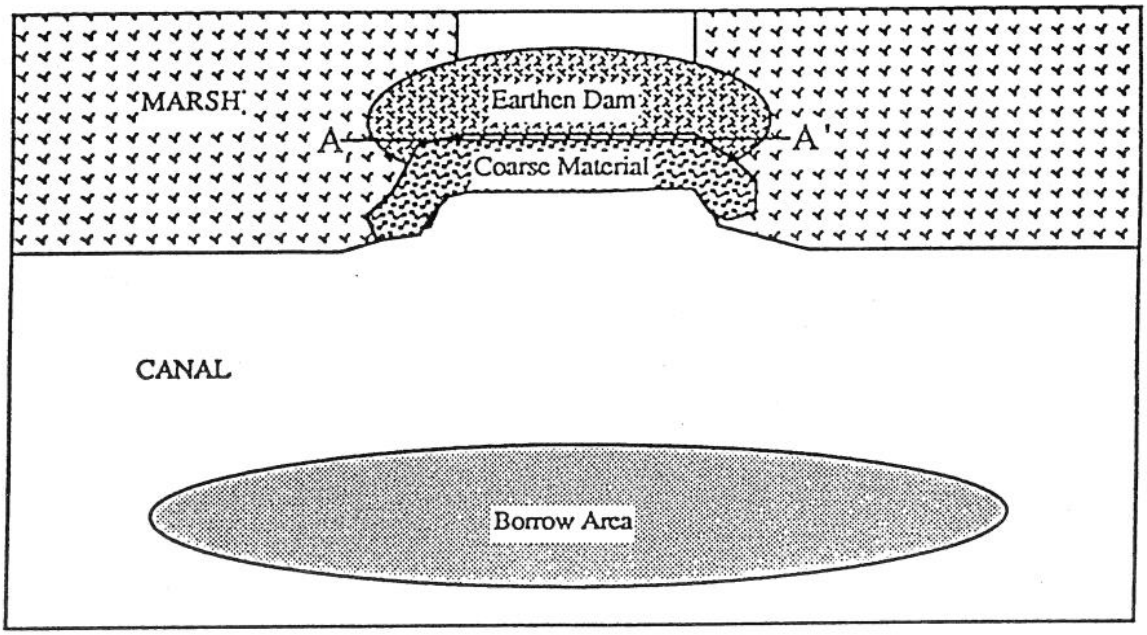


Figure 1. Shore/bank erosion protection. In Phase I shell, or other coarse granular material is placed on the wave bench and vegetation is planted on the shore or bank. In Phase II waves and boat wakes transport the granular material to the shore or bank and a beach is formed.

TYPICAL PLAN VIEW



TYPICAL CROSS SECTION

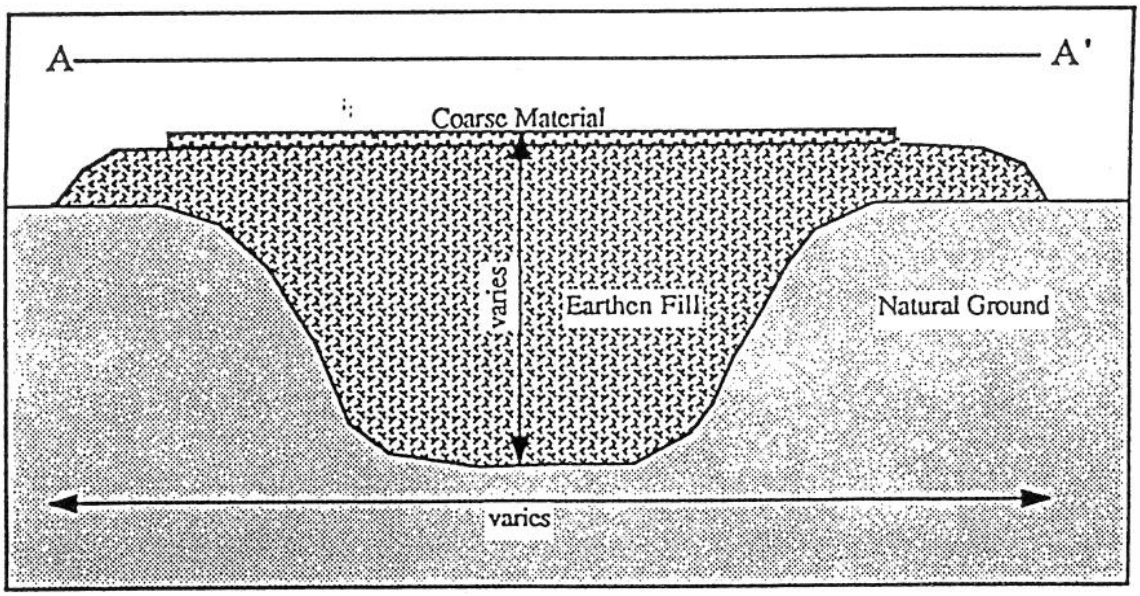
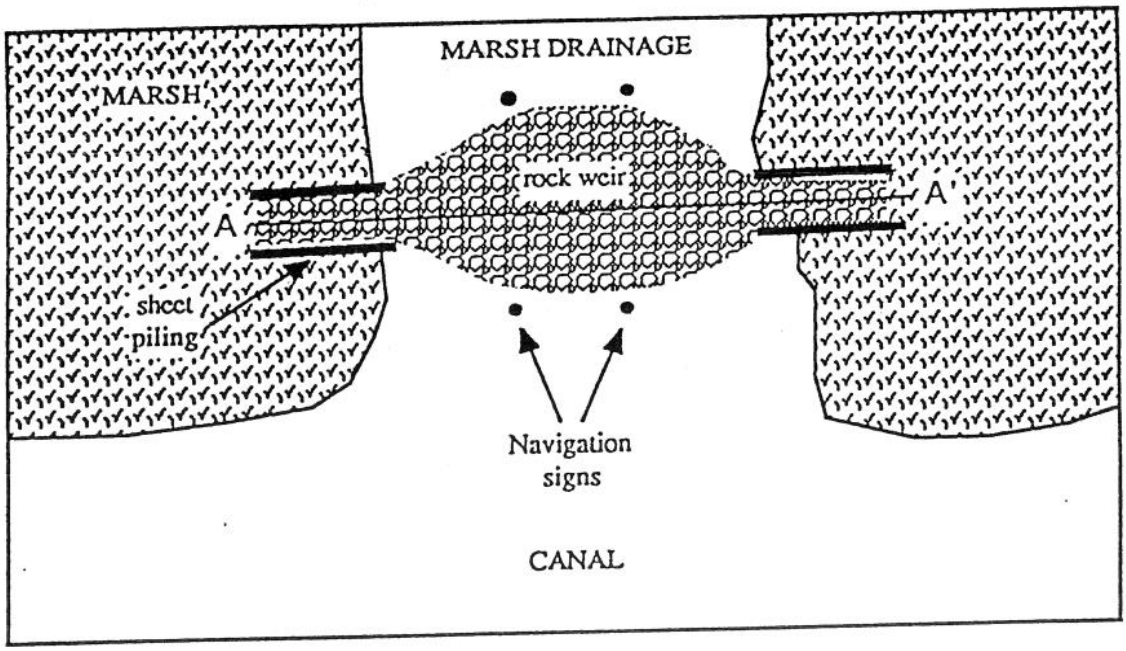


Figure 2. Plan and section of canal plug. Earthern fill is excavated from a borrow area. Coarse material is brought to the construction site by barge.

TYPICAL PLAN VIEW



TYPICAL CROSS SECTION

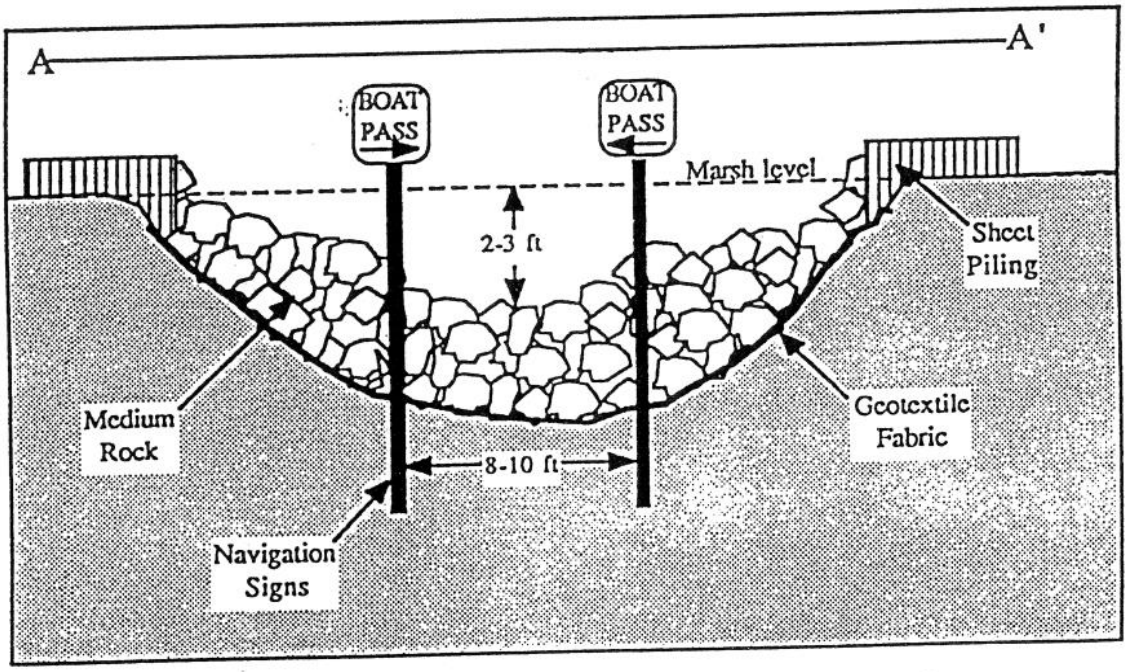


Figure 3. Plan and section of partial weir.

ATTACHMENT 3

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project.....Jonathan Davis Wetland Restoration (PBA–35)

Marsh type acres:
Fresh.....
Intermediate.. 7199

Condition: Future With Project

Variable		TY 0		TY 1		TY 10	
		Value	SI	Value	SI	Value	SI
V1	% Emergent	66	0.69	66	0.69	65	0.69
V2	% Aquatic	5	0.15	5	0.15	20	0.28
V3	Interspersion	%		%		%	
	Class 1		0.50		0.50		0.50
	Class 2	50		50		50	
	Class 3	50		50		50	
	Class 4						
	Class 5						
V4	Hydrology	%		%		%	
	Class 1		1.00		1.00		1.00
	Class 2						
	Class 3	100		100		100	
	Class 4						
V5	%OW <= 1.5ft	65	0.75	65	0.75	65	0.75
V6	Salinity (ppt)						
	fresh		0.80		0.80		1.00
	intermediate	5		5		3	
V7	Access Value	1.00	1.00	0.80	0.86	0.80	0.86
		HSI =	0.54	HSI =	0.53	HSI =	0.62

Project.....Jonathan Davis Wetland Restoration (PBA–35)
FWP

Variable		TY 20					
		Value	SI	Value	SI	Value	SI
V1	% Emergent	64	0.68				
V2	% Aquatic	20	0.28				
V3	Interspersion	%		%		%	
	Class 1		0.50				
	Class 2	50					
	Class 3	50					
	Class 4						
	Class 5						
V4	Hydrology	%		%		%	
	Class 1		1.00				
	Class 2						
	Class 3	100					
	Class 4						
V5	%OW <= 1.5ft	65	0.75				
V6	Salinity (ppt)						
	fresh		1.00				
	intermediate	3					
V7	Access Value	0.80	0.86				
		HSI =	0.62	HSI =		HSI =	

WETLAND VALUE ASSESSMENT COMMUNITY MODEL
Fresh/Intermediate Marsh

Project.....Jonathan Davis Wetland Restoration (PBA–35)

Marsh type acres:
Fresh.....
Intermediate.. 7199

Condition: Future Without Project

Variable		TY 0		TY 1		TY 10	
		Value	SI	Value	SI	Value	SI
V1	% Emergent	66	0.69	66	0.69	62	0.66
V2	% Aquatic	5	0.15	5	0.15	5	0.15
V3	Interspersion	%	0.50	%	0.50	%	0.47
	Class 1						
	Class 2	50		50		35	
	Class 3	50		50		65	
	Class 4						
	Class 5						
V4	Hydrology	%	1.00	%	1.00	%	1.00
	Class 1						
	Class 2						
	Class 3	100		100		100	
	Class 4						
V5	%OW <= 1.5ft	65	0.75	65	0.75	52	0.62
V6	Salinity (ppt)		0.80		0.80		1.00
	fresh						
	intermediate	5		5		3	
V7	Access Value	1.00	1.00	1.00	1.00	1.00	1.00
		HSI =	0.54	HSI =	0.54	HSI =	0.53

Project.....Jonathan Davis Wetland Restoration (PBA–35)
FWOP

Variable		TY 20					
		Value	SI	Value	SI	Value	SI
V1	% Emergent	57	0.61				
V2	% Aquatic	5	0.15				
V3	Interspersion	%	0.45	%		%	
	Class 1						
	Class 2	25					
	Class 3	75					
	Class 4						
	Class 5						
V4	Hydrology	%	1.00	%		%	
	Class 1						
	Class 2						
	Class 3	100					
	Class 4						
V5	%OW <= 1.5ft	40	0.50				
V6	Salinity (ppt)		1.00				
	fresh						
	intermediate	3					
V7	Access Value	1.00	1.00				
		HSI =	0.51	HSI =		HSI =	

AAHU CALCULATION

Project: Jonathan Davis Wetland Restoration (PBA–35)

Future With Project				
TY	Acres	x HSI	Total HU's	Cummulative HU's
0	7199	0.54	3887.46	
1	7199	0.53	3829.27	3858.36
10	7199	0.62	4449.02	37252.27
20	7199	0.62	4431.40	44402.07
			AAHU's =	4275.63

Future Without Project				
TY	Acres	x HSI	Total HU's	Cummulative HU's
0	7199	0.54	3887.46	
1	7199	0.54	3887.46	3887.46
10	7199	0.53	3814.72	34659.80
20	7199	0.51	3639.17	37269.44
			AAHU's	3790.83

NET CHANGE IN AAHU'S DUE TO PROJECT	
A. Future With Project AAHU's =	4275.63
B. Future Without Project AAHU's =	3790.83
Net Change (FWP – FWOP) =	484.80

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Wetland Value Assessment Worksheet

Project: Jonathan Davis Wetland Restoration (PBA-35) **Date:** 8/20/92

Condition: FWOP

Area = 7199 ac (intermediate)

TY	V_1	V_2	V_3	V_4	V_5	V_6	V_7
0	4787 66%	5%	50% - 2 50% - 3	All Class 3	65%	5 ppt	1.0
1	4756 66%	5%	50% - 2 50% - 3	3	65%	5 ppt	1.0
10	4477 ac 62%	5%	35% - 2 65% - 3	3	52%	3 ppt	1.0
20	4117 ac 57%	5%	25% - 2 75% - 3	3	40%	3 ppt	1.0

COASTAL WETLANDS PLANNING, PROTECTION AND RESTORATION ACT

Wetland Value Assessment Worksheet

Project: Jonathan Davis Wetland Restoration (PBA - 35) **Date:** 8/20/92

Condition: FWP

Area = 7199 ac (intermediate)

TY	V_1	V_2	V_3	V_4	V_5	V_6	V_7
Ø	4787 66%	5%	50% - 2 50% - 3	All class 3	65%	5 ppt	1.0
1	4779ac 66%	5%	50% - 2 50% - 3	3	65%	5 ppt	0.8
10	4707ac 65%	20%	50% - 2 50% - 3	3	65%	3 ppt	0.8
20	4627 64%	20%	50% - 2 50% - 3	3	65%	3 ppt	0.8