

Pony Express
2087428

April 16, 1992

Ms. Trudy Bell
Florida Department of Environmental Regulation
Water Management Resource Section
2600 Blair Stone Road
Tallahassee, Florida 33688-2000

Dear Ms. Bell:

RECEIVED
WET. RES. MGT.

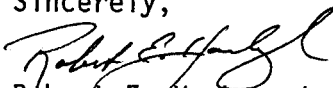
RE: HPS Transmission Line - PA 89-25. Wetland Mitigation **APR 17 1992**

Per your request, I am supplying you with a mitigation plan that will hopefully clarify the submittals for the different segments of the transmission line that we have previously sent you. I have summarized our impacts associated with the line and summarized the mitigation into one table with proposed ratios. We believe these ratios are reasonable considering our efforts in minimizing impacts especially associated with clearing of forested and shrub wetlands. If it would help, we could possibly revise the ratio table to better reflect the varying quality of wetlands that are being impacted.

I have included some new construction drawings and 8/12 x 11 drawings showing the wetland creation area which are signed and sealed. The previously submitted drawings are not signed and sealed so please advise me if you need additional originals. Together the drawings explain the overall project and how the different systems interrelate. A copy of the soils report is also submitted.

We would appreciate as quick a review as possible due to the Corps of Engineers waiting for 401 release from DER and due to our clearing and construction crews having to be demobilized due to lack of work. If it would help we would be glad to meet with you to iron out any remaining problems or explain our mitigation plans. Please understand that anything we can do to expedite this project we will be glad to do. If you need any further information please contact me at 813-963-0994.

Sincerely,


Robert E. Yarbrough
Environmental Engineer

HPS TRANSMISSION LINE
HARDEE POWER STATION TO LEE SUBSTATION
FDER MITIGATION / COMPENSATION PLAN

Seminole Electric Cooperative, Inc. proposes to mitigate for the wetland impacts associated with the transmission line from the Hardee Power Station to the Lee Substation by creating and restoring wetlands within the Myrtle Slough basin in the northern part of the C.M. Webb Wildlife Management Area in Charlotte County. The wetland impacts associated with the transmission line include hand clearing of forested wetlands of varying quality, bush hog clearing of a 20 ft. wide path through shrub areas, installation of corduroy roads, installation of culvert/road crossings, and installation of structure pads for installation of the transmission line poles. These impacts for the entire 78 mile long transmission line are listed below by type of area disturbed.

Wetland Filling

Fill

Forested

HPS to Vandolah	0
Vandolah to Arcadia	0.27 acres
Arcadia to Lee Sub	0.48 acres

TOTAL 0.75 acres

Shrub

HPS to Vandolah	0.84 acres
Vandolah to Arcadia	1.03 acres
Arcadia to Lee Sub	0

TOTAL 1.87 acres

Marsh

HPS to Vandolah	0
Vandolah to Arcadia	0.05 acres
Arcadia to Lee Sub	0.97 acres

TOTAL 1.02 acres

Upland Ditches

HPS to Vandolah	0.05 acres
Vandolah to Arcadia	0.11 acres
Arcadia to Lee Sub	0.46 acres

TOTAL 0.62 acres

TOTAL WETLAND FILL 4.26 acres

RECEIVED
WET. RES. MGT.

APR 17 1992

Wetland Clearing

Forested

HPS to Vandolah	2.66 acres
Vandolah to Arcadia	10.22 acres
Arcadia to Lee Sub	0.48 acres

TOTAL 13.36 acres

Shrub (Predominantly Disturbed Shrub Areas)

HPS to Vandolah	4.19 acres
Vandolah to Arcadia	3.49 acres
Arcadia to Lee Sub	0.72 acres

TOTAL 8.40 acres

RECEIVED
WET. RES. MGT.

APR 17 1992

TOTAL WETLAND CLEARING 21.76 acres

Seminole believes that the impacts associated with clearing activities are minor due to the method in which these wetlands will be cleared. Specifically, no soil disturbance will be caused by the wetland clearing activities which includes hand clearing (chain saws) without use of machinery and low ground pressure rubber tired vehicles such as a Feller-Buncher which shears the trees at the ground line and carries them to upland areas. SWFWMD has recognized our efforts at minimizing impacts due to clearing and have agreed that mitigation should be at the minimum level due to the clearing methodology. The Corps of Engineers are not requiring a permit due to our methodology fitting their Regulatory Guidance Letter on clearing activities.

Two types of compensation are proposed for these wetland impacts. Impacts for the total of 4.26 acres of fill are proposed to be mitigated for by the creation of 12.7 acres of forested wetland and 7.3 acres of herbaceous wetlands from uplands in the Myrtle Slough area (see attached Figures). Impacts for the total of 21.76 acres of clearing will be compensated for by the proposed creation of 109.08 acres of wetlands through enhancement of areas within the historic Myrtle Slough area and through enhancement of 7.69 acres of existing FDER wetlands within three sloughs in Myrtle Slough basin.

Proposed ratios are:

Forested/Shrub Fill 2.62 acres	Mitigation Creation 12.7 acres Forested	Ratio 4.8:1
Marsh/Upland Ditch Fill 1.64 acres	Mitigation Creation 7.3 acres Marsh	4.5:1
Forested/Shrub Clearing 21.76 acres	Creation/Enhancement (Restoration) 116.99 acres	5.4:1

Wetland Creation:

APR 17 1992

In order to mitigate for filling of wetlands for the entire 78 miles of transmission line a total of 20 acres of uplands will be utilized to create 20 acres of wetlands. These areas are indicated on the attached drawings labeled Mitigation Construction Plans, Wetland Creation Area, and the accompanying cross sections.

The forested areas are proposed to be constructed at SHW to 0.5 ft. below SHW. Species to be planted will be planted on 6 ft. centers and will include mostly Pond cypress and Pop Ash with limited numbers of Dahoon Holly, Red Maple, Laurel Oak, and Elms to be planted in specific locations. These locations include a 0.18 acre area required by SWFWMD that demands species similar to one location be planted in the mitigation area. These species include cypress, maple, oak, and elm. Trees will be supplied from nursery stock and will be 75% 1 gallon trees and 25% 3 gallon trees. Understory species will be planted on 5 ft. centers and will include Wax Myrtle, Virginia Willow, Swamp Ferns, Lizard's Tail, Alligator lily, Wild Petunia, in the type for type area. The remaining area will have an understory of Itca, Buttonbush, Wax Myrtle, Red Ludwigia, Smartweed, Wild Petunia, Canna, Baker's Cordgrass, rushes and sedges.

The marsh areas will be constructed from approximately 1.5 ft. below SHW to SHW. Species will include Yellowtop, Smartweed, Redroot, Umbrella grass, Maidencane, Bacopa, Red Ludwigia, Soft rush, Pickerelweed, Arrowhead, sedges, and rushes. Plants will be planted on 3 ft. centers in the appropriate hydroperiod regime for that species and all materials will be approximately 9 " tall when planted. Slopes in these areas will be a maximum of 20:1.

The attached Mitigation Wetland Plant List indicates, along with the Figures, the species to be planted.

Wetland Restoration:

In order to mitigate for clearing of 21.76 acres of forested, shrub, and disturbed shrub areas SECI is proposing to create 109.30 acres of wetlands in the Myrtle Slough area. These areas will be created by the enhancement of the hydroperiod by the construction of berms and scour plugs as shown in Figures 3, 4, 5, 6, and 10 which are designed to reestablish hydroperiod to historical levels. These berms and scour plugs will affect 25.24 acres in the western portion of Slough #3, 50.14 acres in Slough #2, and 33.92 acres in Slough #1 through enhancement of the hydroperiod. These areas are currently not claimed by DER (per Rick Cantrell) and are expected to become DER jurisdiction within 2 wet seasons. Additionally, 0.25 acres in Slough #3, 5.16 acres in Slough #2 and are 2.28 acres in Slough # 3 are currently DER jurisdiction and will be enhanced through restoration of historic hydroperiods.

The methodology for restoring these hydroperiods includes the use of berms placed perpendicular to flow. The functional aspects of these berms and scour plugs were submitted in information supplied with previous submittals.

Monitoring and Maintenance:

APR 17 1992

The wetland monitoring and maintenance plan has been preliminarily described with the initial submittal of this project segment in December, 1991. The vegetation transects are designed as belt transects with variable intervals of sampling dependent on the existing vegetation community conditions determined in each slough. Vegetation transects are located perpendicularly to the slough flow in order to assess the levels of vegetation responses in the different hydrological regimes of each slough. Each sampling point is expected to include a particular type of wetland habitat which can be evaluated over the duration of the monitoring to quantify vegetation changes. The number of transects located in each of the restoration types in the sloughs is expected to provide reproducible data for comparison. This will allow SECI to adequately assess the vegetation changes which will result from the hydroperiod restoration. Water levels will be measured in each slough on permanent staff gauges. The vegetation sampling will determine the type of species present, percent cover of each species and its USF&WS classification. This will allow for a comparison to present conditions to determine the percent vegetation change to a more hydric wetland system.

The wetland monitoring and maintenance plan for the restoration/creation area has been described preliminarily with the initial submittal of this project segment in December 1991. The vegetation monitoring will be conducted using a quadrat sampling technique. Line transects will be permanently established through the wetland creation area. The lines will be located perpendicularly to the slough flow gradient and will be located to ensure sampling of each vegetative community. Sampling points will be established along the line transect and will be permanently marked. The number of sampling points will be determined by the size of the wetland being sampled. Quadrats will be plotted at each sampling point and permanently marked. Quadrat size will be one meter square for herbaceous species and a 5 meter square for shrub and sapling species. The quadrats will be nested for sampling efficiency. In the one meter quadrat, all herbaceous species will be identified, counted and the basal area per plant measured. In the five meter square quadrat sampling will consist of identifying and counting the individual species, and determining the areal coverage of each plant. From this data the density and dominance values can be determined for each dominant species in each sampled wetland. These values will be plotted graphically to facilitate tracking the success of the wetland vegetation.

The quadrat sampling technique will provide a standardized methodology which will ensure the reproducibility of coherent data over the monitoring period. Monitoring will be conducted until the mitigation success criteria are met continuously for a period of at least one year without intervention in the form of irrigation or the addition or removal of vegetation.

Monitoring the success of the restoration areas will necessarily require qualitative and quantitative sampling. Nested quadrat sampling will again be utilized to determine species present and relative dominance. Line transects will permanently established against the hydrological gradient in the locations indicated on Sheet 5 of the construction plans. Sampling points will be permanently marked at regular intervals with sampling points at the anticipated outer edges of each restoration area. The number of sampling points will be determined by the length of the transect

and the area to be represented. At each sample point a quadrat will be established for data collection. Quadrat size will be one meter square for herbaceous (under 3 feet) species, 5 meter square for shrubs and saplings (under 20 feet), and 10 meter square for tree species. Existing tree species within the quadrat will be tagged and measured to monitor their response to the increased water levels. In the one meter square plots, all herbs will be identified, counted and the basal area per plant measured. In the five meter square plot, the individual species will be identified, counted, and the areal coverage of each species will be determined. From this data, the density, and relative dominance values can be determined for each dominant and subdominant species.

$$\text{density} = \frac{\text{number of individuals}}{\text{area sampled}}$$

$$\text{relative density} = \frac{\text{density for a species}}{\text{total density for all species}} \times 100$$

$$\text{dominance} = \frac{\text{total of basal area or areal coverage values}}{\text{area sampled}}$$

$$\text{relative dominance} = \frac{\text{dominance for a species}}{\text{total dominance for all species}} \times 100$$

RECEIVED
WET. RES. UNIT
APR 17 1992

Dominant and subdominant species will be categorized as obligate wetland (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), and obligate upland (UPL) using the National List of Plant Species That Occur in Wetlands: Florida, published by the US Fish and Wildlife Service. Prior to the construction of the earthen berms, the transects will be established and a set of baseline data gathered to provide the control for determining wetland success. Graphs will be prepared for each sample point showing the shift in vegetation from upland and/or facultative species to obligate and facultative wetland species.

Monitoring will be conducted quarterly until the success criteria have been met continuously for a period of one year. Each monitoring report will include water depths measured at each sample point, color photographs taken of each sample point, the graphically depicted vegetational changes, and a narrative discussion of the methodology and results.

Success Criteria:

The marsh areas within the creation area are proposed to be considered successful when the area can be classified as Palustrine, Emergent, Persistent, Seasonally Flooded according the U.S.F. & W.S. Classification of Wetlands and Deepwater Habitats of the United States. We feel these criteria are adequate due to the proposed topography, water depth, and water level fluctuations in the mitigation area are similar to conditions in the permitted wetlands impact areas. The dominant and subdominant species of desirable wetland plants and the overall coverage comprising

each vegetation zone and stratum of each compensation area are as shown on the compensation plans. Coverage of nuisance or exotic species shall not exceed 10% of the compensation area. Coverage by uplands vegetation shall not exceed 10% of the compensation area during the wet season.

The 0.18 acre mitigation area designed to type for type compensate for fill within wetland III will be considered successful when the area can be classified as Palustrine, Forested, Persistent, Seasonally Flooded according to the U.S.F. & W.S Classification of Wetland and Deepwater Habitats of the United States. The topography, water depth, and water level fluctuations in the compensation area are similar to conditions in Wetland III. The dominant and subdominant species of desirable wetland plants and the overall coverage comprising each vegetation zone and stratum of each compensation area shall be as follows

The enhancement area will be determined successful when the anticipated shift in vegetative composition has stabilized showing no significant changes for the period of one year. The restoration/creation area is expected to experience the most significant change with the vegetation shifting from a dominance of upland species to a dominance of facultative wetland and obligate species. This area will be deemed successful when the desirable wetland species achieve a minimum of 30% dominance the first year, 60% the second year, and ultimately a 70% dominance. The existing FDER wetland areas will experience a proposed 30% shift in vegetation toward the obligate and facultative species in order to be considered successful. Nuisance and/or invasive exotic species must not exceed 10% of the vegetative cover.

RECEIVED
WET. RES. MGT.
APR 17 1992

MITIGATION WETLAND PLANT LIST

Forested Systems:

Symbol	Botanical Name	Common Name
TA	<u>Taxodium ascendens</u>	Pond Cypress
FC	<u>Fraxinus caroliniana</u>	Pop Ash
IC	<u>Ilex cassine</u>	Dahoon Holly
LR	<u>Ludwigia repens</u>	Red Ludwigia
PH	<u>Polygonum hydropiperoides</u>	Smartweed
RC	<u>Ruellia caroliniensis</u>	Wild Petunia
CFL	<u>Canna flacida</u>	Golden Canna
SB	<u>Spartina bakeri</u>	Baker's Cordgrass
RS	<u>Rhynchospora sp.</u>	Rush
COD	<u>Cyperus odoratus</u>	Sedge
IV	<u>Itea virginica</u>	Virginia Willow
CO	<u>Cephalanthus occidentalis</u>	Buttonbush
MC	<u>Myrica cerifera</u>	Wax Myrtle
SR	<u>Serenoa repens</u>	Saw Palmetto

Type for type system:

TA	<u>Taxodium ascendens</u>	Pond Cypress
FC	<u>Fraxinus caroliniana</u>	Pop Ash
RC	<u>Ruellia caroliniensis</u>	Wild Petunia
CS	<u>Cyperus sp.</u>	Sedge
MC	<u>Myrica cerifera</u>	Wax Myrtle
SR	<u>Serenoa repens</u>	Saw Palmetto
IV	<u>Itea virginica</u>	Virginia Willow
TS	<u>Thelypteris sp.</u>	Swamp Fern
SC	<u>Saururus cernuus</u>	Lizard's Tail
HP	<u>Humenocallis palmeri</u>	Alligator Lily
PN	<u>Psychotria nervosa</u>	Wild Coffee
WV	<u>Woodwardia virginica</u>	Virginia Chain Fern
EH	<u>Erythrina herbacea</u>	Coral Bean

Marsh Areas:

FL	<u>Flaveria linearis</u>	Yellowtop
PH	<u>Polygonum hydropiperoides</u>	Smartweed
LC	<u>Lachnanthes caroliniana</u>	Redroot
COD	<u>Cyperus odoratus</u>	Sedge
RS	<u>Rhynchospora spp.</u>	Rush
FS	<u>Fuirena scirpoidea</u>	Umbrella Grass
PHE	<u>Panicum Hemitomon</u>	Maidencane
BC	<u>Bacopa caroliniana</u>	Bacopa
LR	<u>Ludwigia repens</u>	Red Ludwigia
JP	<u>Juncus polycephalus</u>	Juncus
PC	<u>Pontedaria cordata</u>	Pickereelweed
SL	<u>Sagittaria lancifolia</u>	Arrowhead

RECEIVED
WET. RES. MGT.

APR 17 1992

SEMINOLE ELECTRIC COOPERATIVE
WETLAND MITIGATION PLAN
AT C.M. WEBB WILDLIFE MANAGEMENT AREA
SOIL INVESTIGATIONS
EAST PASTURE AREA IN MYRTLE SLOUGH BASIN

On January 17, 1992, a preliminary soils investigation was conducted in the area of the proposed wetland mitigation site on the C.M. Webb Wildlife Management Area (CMWWMA). This 20 acre site is located between Slough #3 and Slough #2 in the east pasture area. Four shallow soil borings were completed at the four quadrants of the mitigation site. These correspond to northern (Site #1), eastern (Site #2), southern (Site #3) and western (Site #4) pasture areas. The primary concern of the soils investigation was to determine the depth to any clay confining layer encountered in these pasture areas.

At the northern quadrant, Site #1 showed a brownish-yellow clay/silty fine sand at 3.5' below the ground surface. At the eastern quadrant, Site #2 showed a brownish-yellow clay/silty fine sand from 3' to 5' below the ground surface, below which a light gray sand was encountered. At the southern quadrant, Site #3 showed a brown sand from 3' to 4.5' and then a light gray to gray clayey fine sand at 7'. At the western quadrant, Site #4 (furthest from the existing wetland areas) showed no clay to a depth of 6'. These types of clayey sand layers can impede percolation rates of groundwater by several orders of magnitude relative to the clean sands found above the clay layers.

At Site #1 the clay/silty fine sand lies approximately two feet below the SHWT (24.5' MSL) of the adjacent area of Slough #3. In this area the wetland mitigation area will be variously graded between the SHWT and two feet below the SHWT.

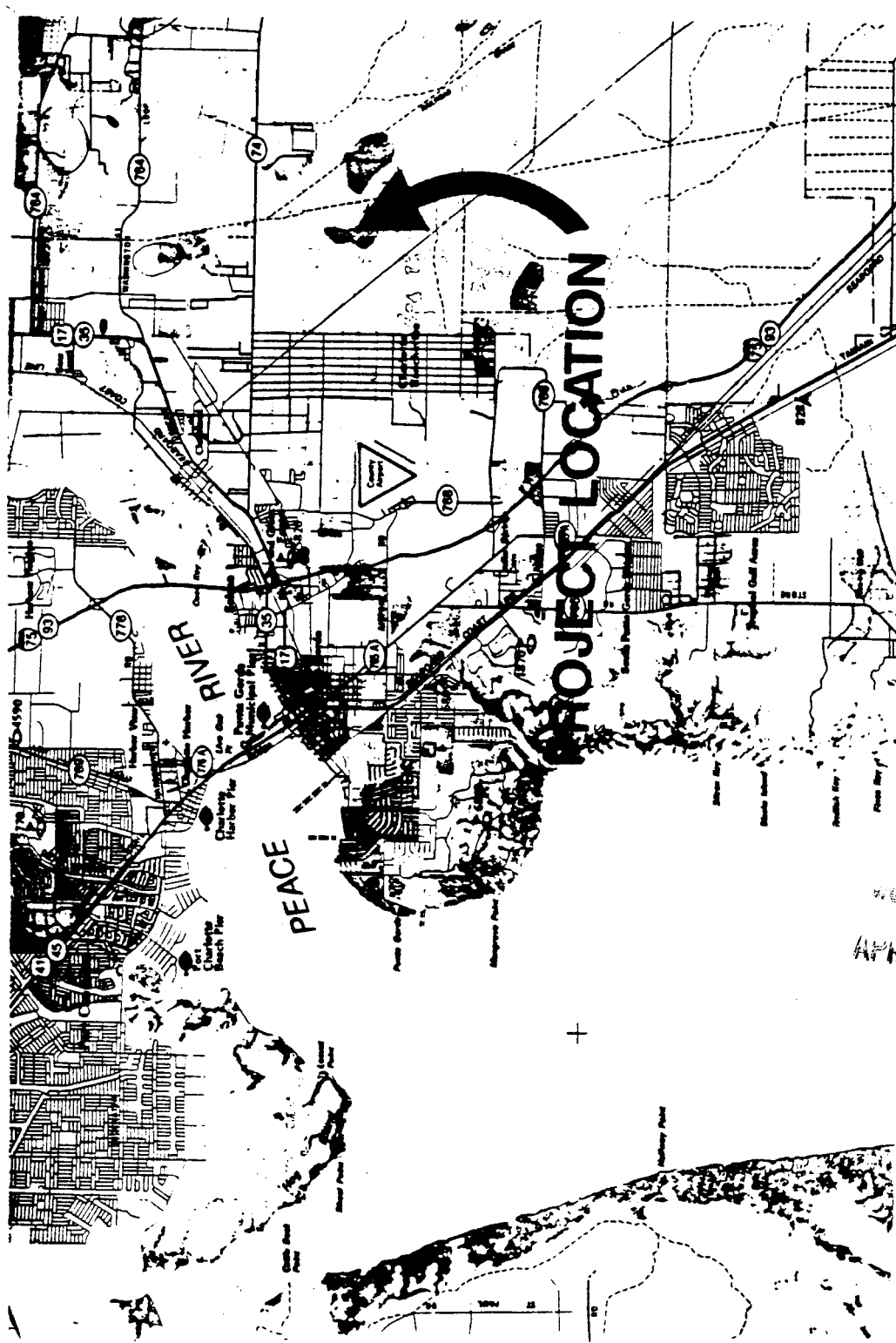
At Site #2 the clay/silty fine sand lies approximately 2.5' below the approximate SHWT (25.2' MSL) of the middle pasture area. In this area the wetland mitigation area will be variously graded between the SHWT and one foot below the SHWT.

At Site #3 the light gray to gray clayey fine sand lies approximately 6' below the approximate SHWT (25.4' MSL) of the adjacent Slough #2. In this area the wetland mitigation area will be variously graded between the SHWT and two feet below the SHWT.

At Site #4 there was no clay encountered to a depth of 5.0' below the approximate SHWT (25.2' MSL) of the middle pasture area. In this area the wetland mitigation area will be variously graded between the SHWT and one foot below the SHWT.

RECEIVED
WET. RES. MGB

APR 17 1992



SEMINOLE ELECTRIC WETLAND RESTORATION

FIGURE 1

LOCATION MAP

RECEIVED
WET. RES. MGT.
APR 17 1992

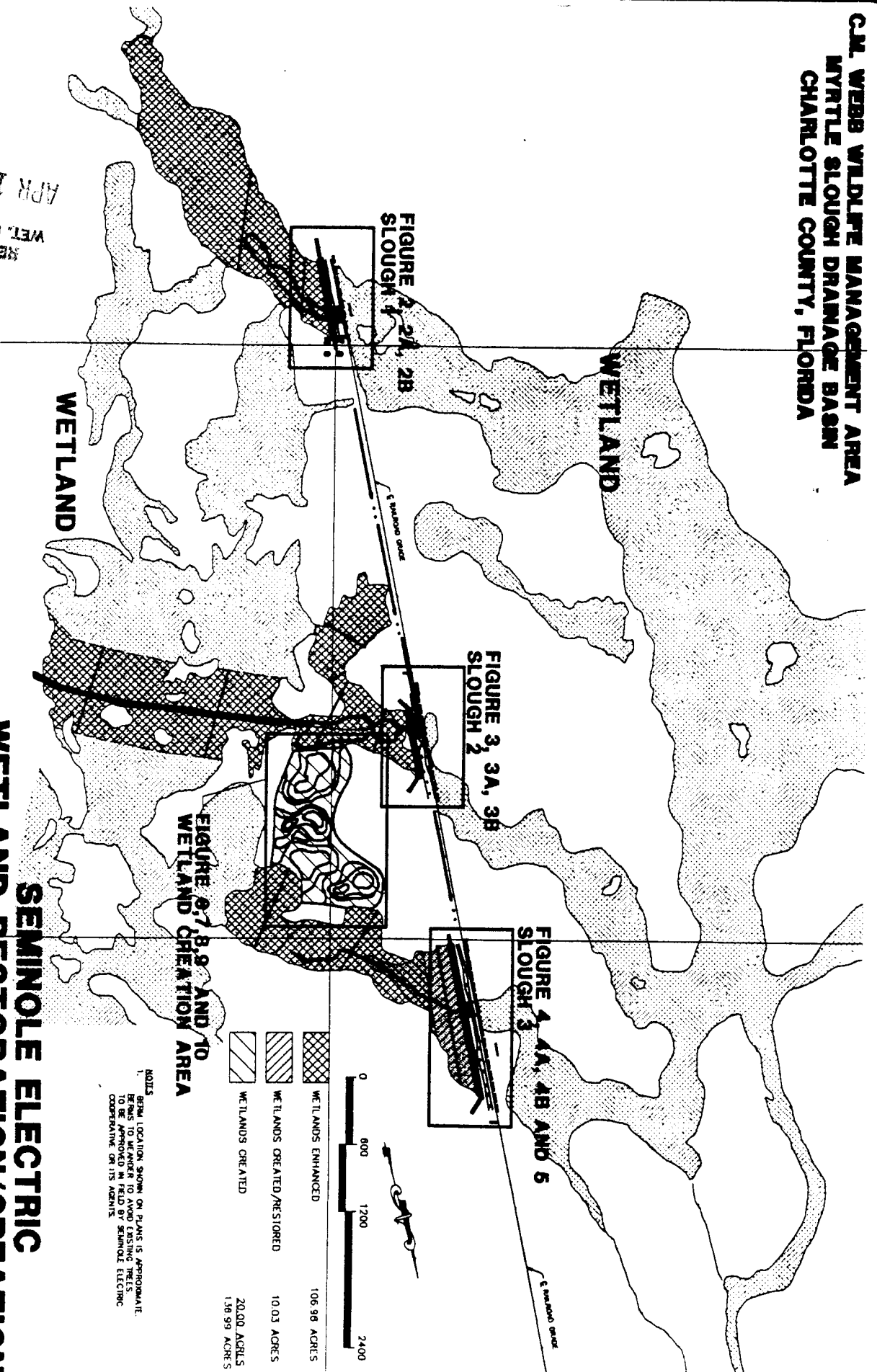
Dames & Moore

Civil Engineering/Water Resources/Waste Management/Planning
Environmental Services/Geotechnical Engineering

One North Lake Mary Suite Seven Hundred Tampa Florida 33602



**C.M. WEBB WILDLIFE MANAGEMENT AREA
MYRTLE SLOUGH DRAINAGE BASIN
CHARLOTTE COUNTY, FLORIDA**



**FIGURE 2, 2A, 2B
SLOUGH 1**

**FIGURE 3, 3A, 3B
SLOUGH 2**

**FIGURE 4, 4A, 4B AND 5
SLOUGH 3**

	WETLANDS ENHANCED	106.96 ACRES
	WETLANDS CREATED/RESTORED	10.03 ACRES
	WETLANDS CREATED	20.00 ACRES
		136.99 ACRES

NOTES:
BEST LOCATION SHOWN ON PLANS IS APPROXIMATE.
BEARS NO WEIGHT TO LAND EXISTING TITLES.
COOPERATIVE OR ITS AGENTS

**SEMINOLE ELECTRIC
WETLAND RESTORATION/CREATION
PROJECT MAP**

FIGURE 1

DAMES & MOORE

CIVIL ENGINEERING/WATER RESOURCES/HAZARD MANAGEMENT/
ENVIRONMENTAL SERVICES/GEOTECHNICAL ENGINEERING/
PLANNING/LANDSCAPE ARCHITECTURE
ONE NORTH DALL WAY, SUITE 700 TAMPA, FLORIDA 33606
TAMPA (813) 870-1116 PINELLAS (813) 443-4827



RECEIVED
WET. RES. MGT.
APR 17 1992

FORESTED MITIGATION CONSTRUCTION
AREA (SEGMENT 1A - 5.67 AC.)

MARSH MITIGATION CONSTRUCTION
AREA (SEGMENT 1A - 1.29 AC.)

TYPE FOR TYPE FORESTED MITIGATION
CONSTRUCTION AREA (SEGMENT 1A - 0.18 AC.)

MARSH MITIGATION CONSTRUCTION
AREA (SEGMENT 2 - 0.90 AC.)

MARSH MITIGATION CONSTRUCTION
AREA (SEGMENT 2 - 1.09 AC.)

MARSH MITIGATION CONSTRUCTION
AREA (SEGMENT 1 - 1.46 AC.)

IMPROVED
PASTURE

TYPE FOR TYPE MARSH MITIGATION CONSTRUCTION
AREA (SEGMENT 1 - 0.47 AC.)

FORESTED MITIGATION CONSTRUCTION
AREA (SEGMENT 2 - 1.59 AC.)

PROPOSED WETLAND CREATION AREAS FOR
WETLAND FILLING AND CLEARING
FOR SEGMENT 1 - HARDEE POWER STATION TO
VANDOLAH SUBSTATION, SEGMENT 1A - VANDOLAH
SUBSTATION TO ARCADIA P.I. 37, AND
SEGMENT 2, ARCADIA P.I. 37 TO LEE SUBSTATION

LEGEND

MARSH MITIGATION

FORESTED MITIGATION

SEDIMENT CONTROL BARRIERS

MITIGATION TOTALS

● SEGMENT 1	
TYPE FOR TYPE MARSH	0.47 ACRES
MARSH	1.46 ACRES
● SEGMENT 1A	
MARSH	1.15 ACRES
MARSH	1.29 ACRES
FORESTED	5.67 ACRES
TYPE FOR TYPE FORESTED	0.18 ACRES
● SEGMENT 2	
MARSH	0.54 ACRES
MARSH	0.90 ACRES
MARSH	0.39 ACRES
MARSH	1.08 ACRES
FORESTED	4.46 ACRES
FORESTED	0.38 ACRES
FORESTED	1.59 ACRES
FORESTED	0.10 ACRES
● TOTAL MITIGATION	20.00 ACRES

FORESTED MITIGATION CONSTRUCTION
AREA (SEGMENT 2 - 0.10 AC.)

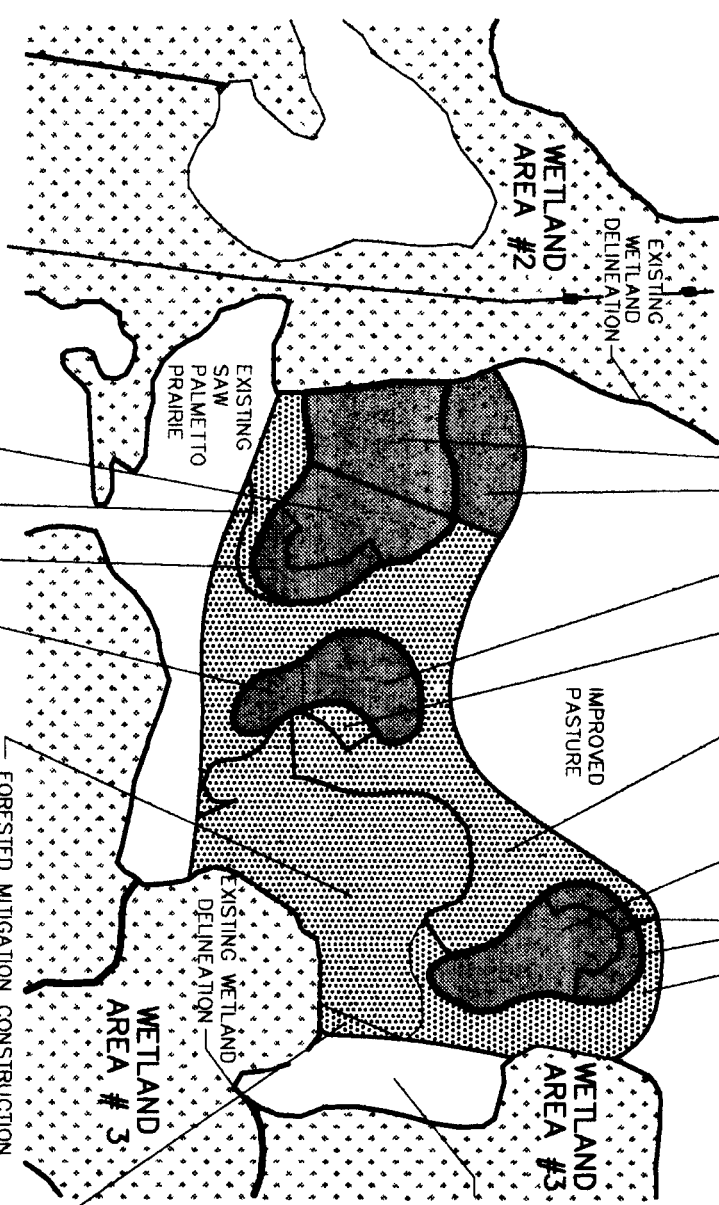
FORESTED MITIGATION CONSTRUCTION
AREA (SEGMENT 2 - 4.46 AC.)

MARSH MITIGATION CONSTRUCTION
AREA (SEGMENT 2 - 0.38 AC.)

MARSH MITIGATION CONSTRUCTION
AREA (SEGMENT 2 - 0.56 AC.)

FORESTED MITIGATION CONSTRUCTION
AREA (SEGMENT 2 - 0.70 AC.)

MARSH MITIGATION CONSTRUCTION AREA
(SEGMENT 1A - 1.15 AC.)



SCALE: 1" = 400'



RECEIVED
WET. RES. MGMT.
APR 17 1992

WETLAND CREATION AREA OVERALL PLAN

DAMES & MOORE

CIVIL ENGINEERING/WATER RESOURCES/WASTE MANAGEMENT/
ENVIRONMENTAL SERVICES/GEOTECHNICAL ENGINEERING/
PLANNING/LANDSCAPE ARCHITECTURE
ONE NORTH DALE MARY, SUITE 700 TAMPA, FLORIDA 33609
TAMPA (813)976-1115 PHOENIX (619)443-8827



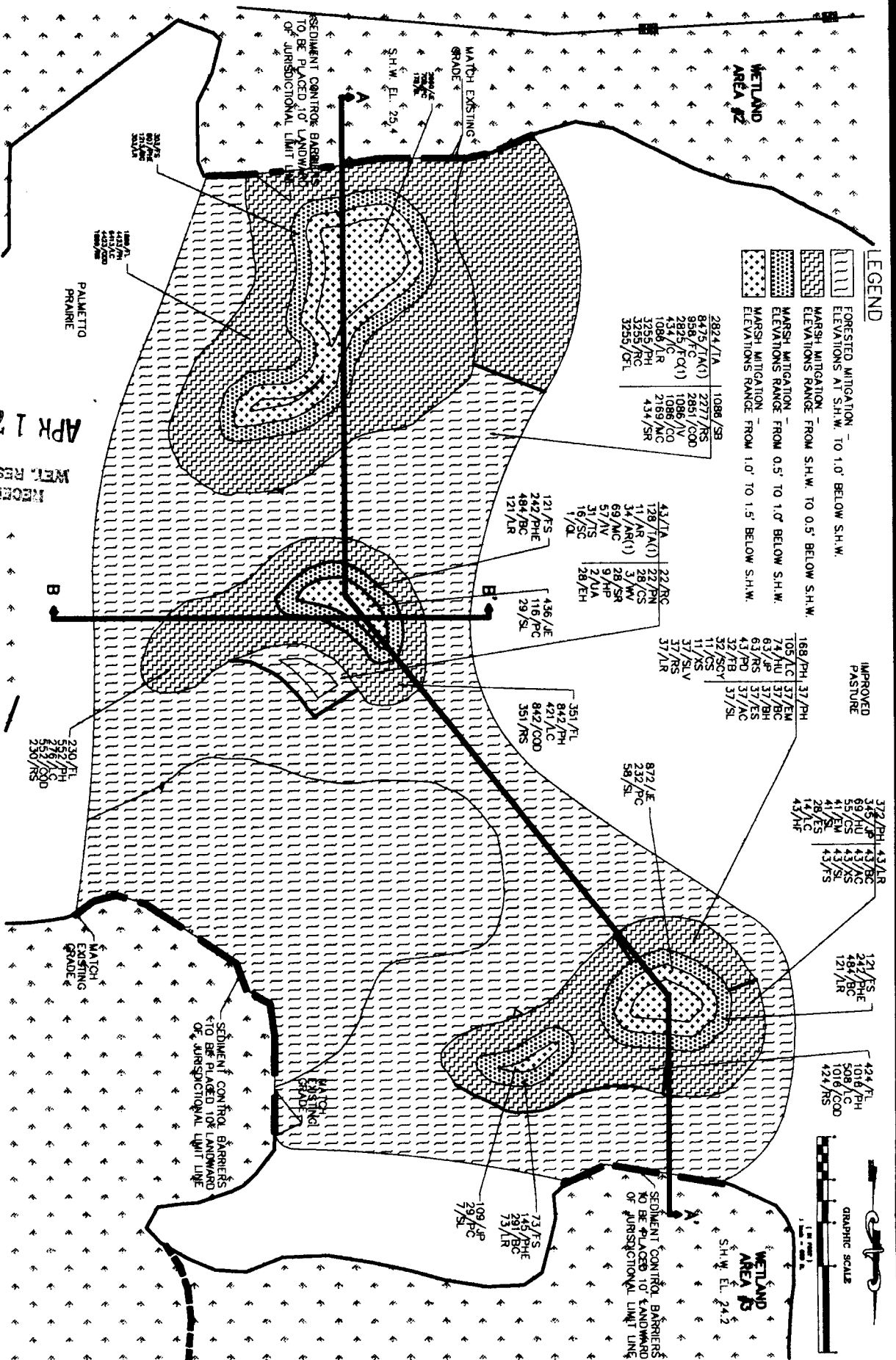
7/21/92
4-15-92

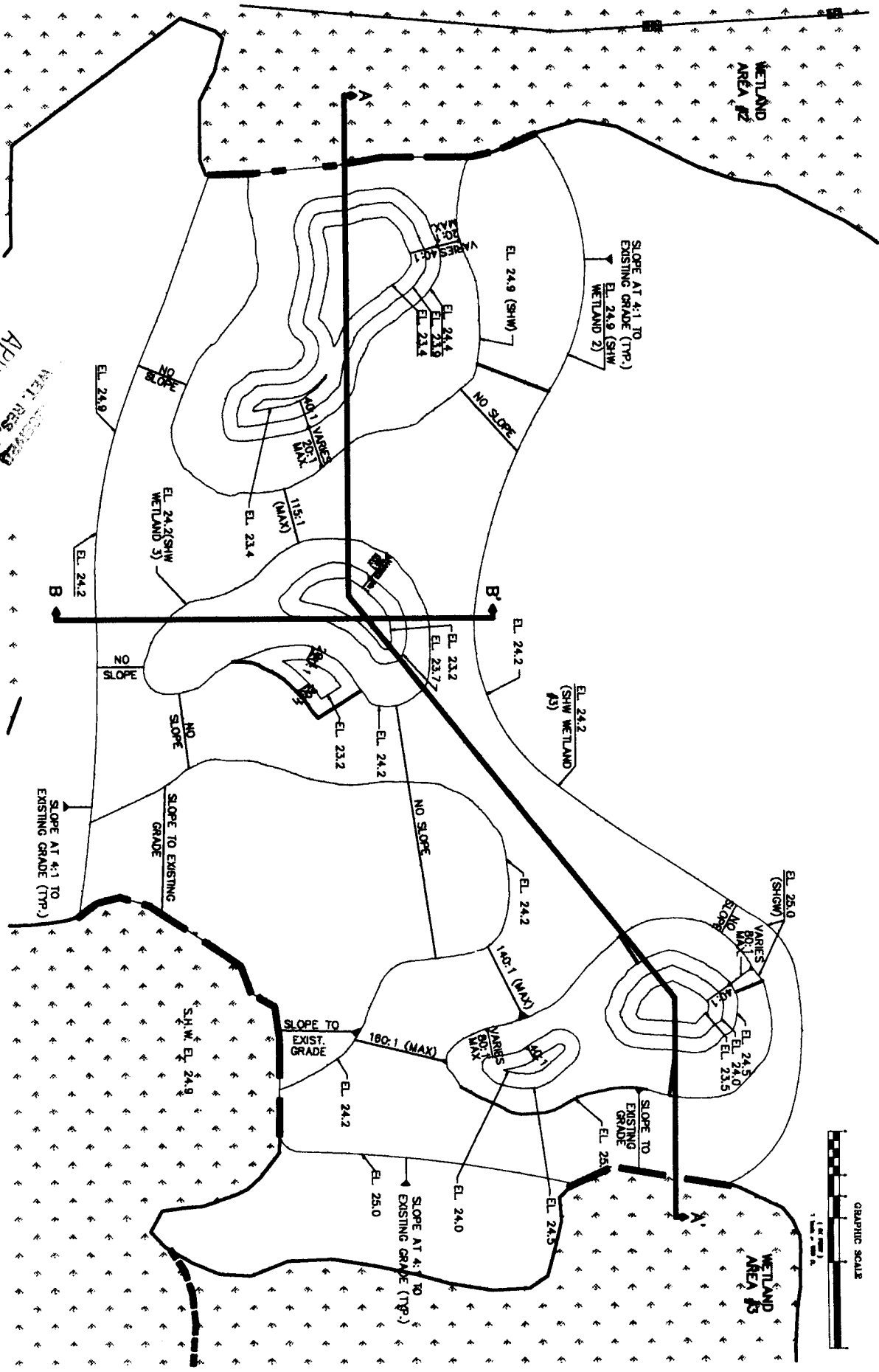


SECTION CONSTRUCTION PLANS SEGMENTS 1, 1A & 2

APR 17 1992

RECEIVED
MET. RES. MGT.



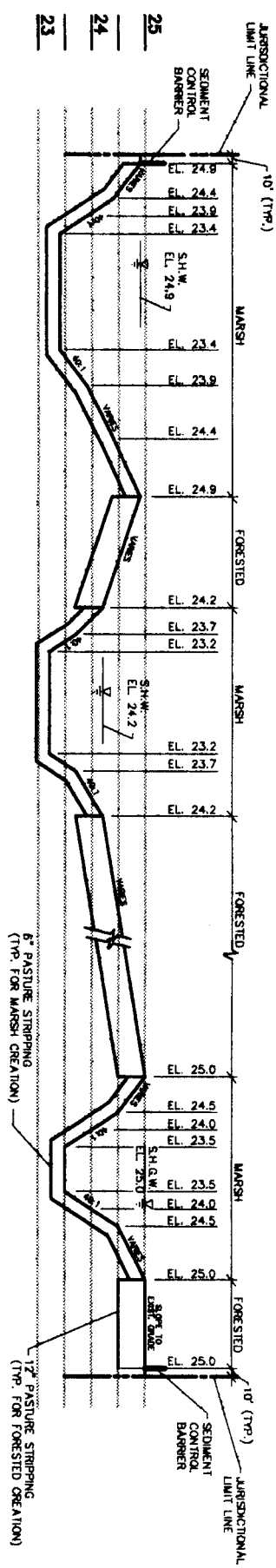


RECEIVED
FBI - MEMPHIS
APR 17 1992

DAMES & MOORE

**CIVIL ENGINEERING/WATER RESOURCES/WASTE MANAGEMENT/
ENVIRONMENTAL SERVICES/GEOTECHNICAL ENGINEERING/
PLANNING/LANDSCAPE ARCHITECTURE**
ONE NORTH DALE MAHRY, SUITE 700 TAMPA, FLORIDA 33609
TAMPA (813)676-1116 PINELLAS (813)443-6827





SECTION A - A'

N.T.S.

RECEIVED
WFLA NEWS, MGT.
APR 17 1992

Handwritten signature and initials

DAMES & MOORE

CIVIL ENGINEERING/WATER RESOURCES/WASTE MANAGEMENT/
ENVIRONMENTAL SERVICES/GEOTECHNICAL ENGINEERING/
PLANNING/LANDSCAPE ARCHITECTURE
ONE NORTH DALE MABRY, SUITE 700 TAMPA, FLORIDA 33609
TAMPA (813) 676-1116 PINELLAS (813) 443-8827





DAMES & MOORE

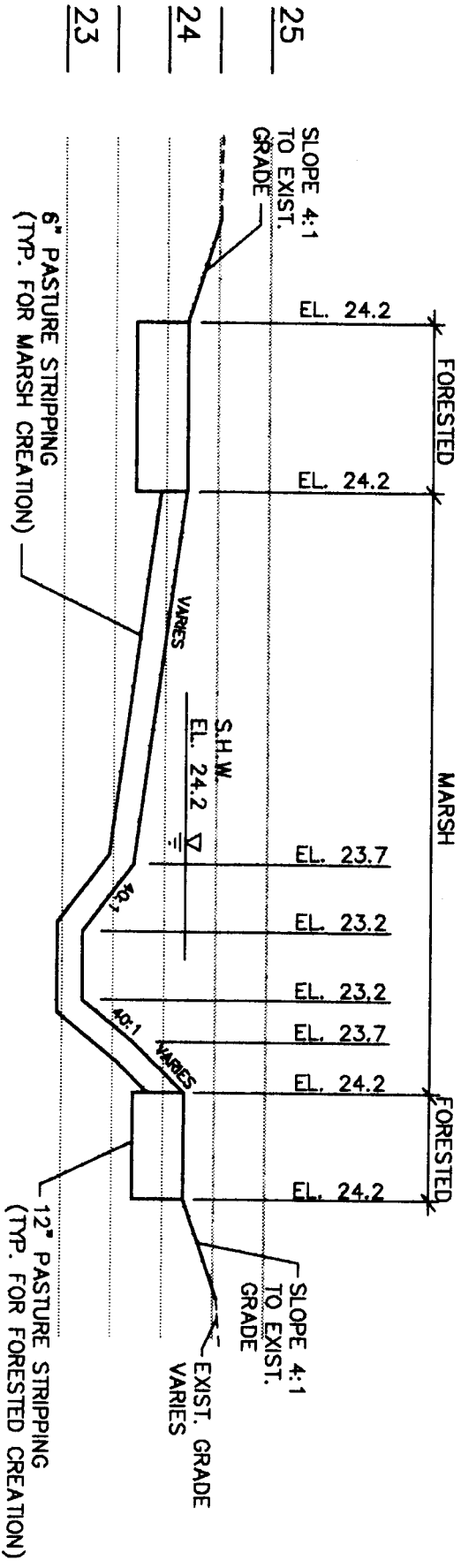
CIVIL ENGINEERING/WATER RESOURCES/WASTE MANAGEMENT/
ENVIRONMENTAL SERVICES/GEOTECHNICAL ENGINEERING/
PLANNING/LANDSCAPE ARCHITECTURE
ONE NORTH DADE AVENUE, SUITE 700 TAMPA, FLORIDA 33609
TAMPA (813) 976-1115 PINELLAS (813) 443-6827

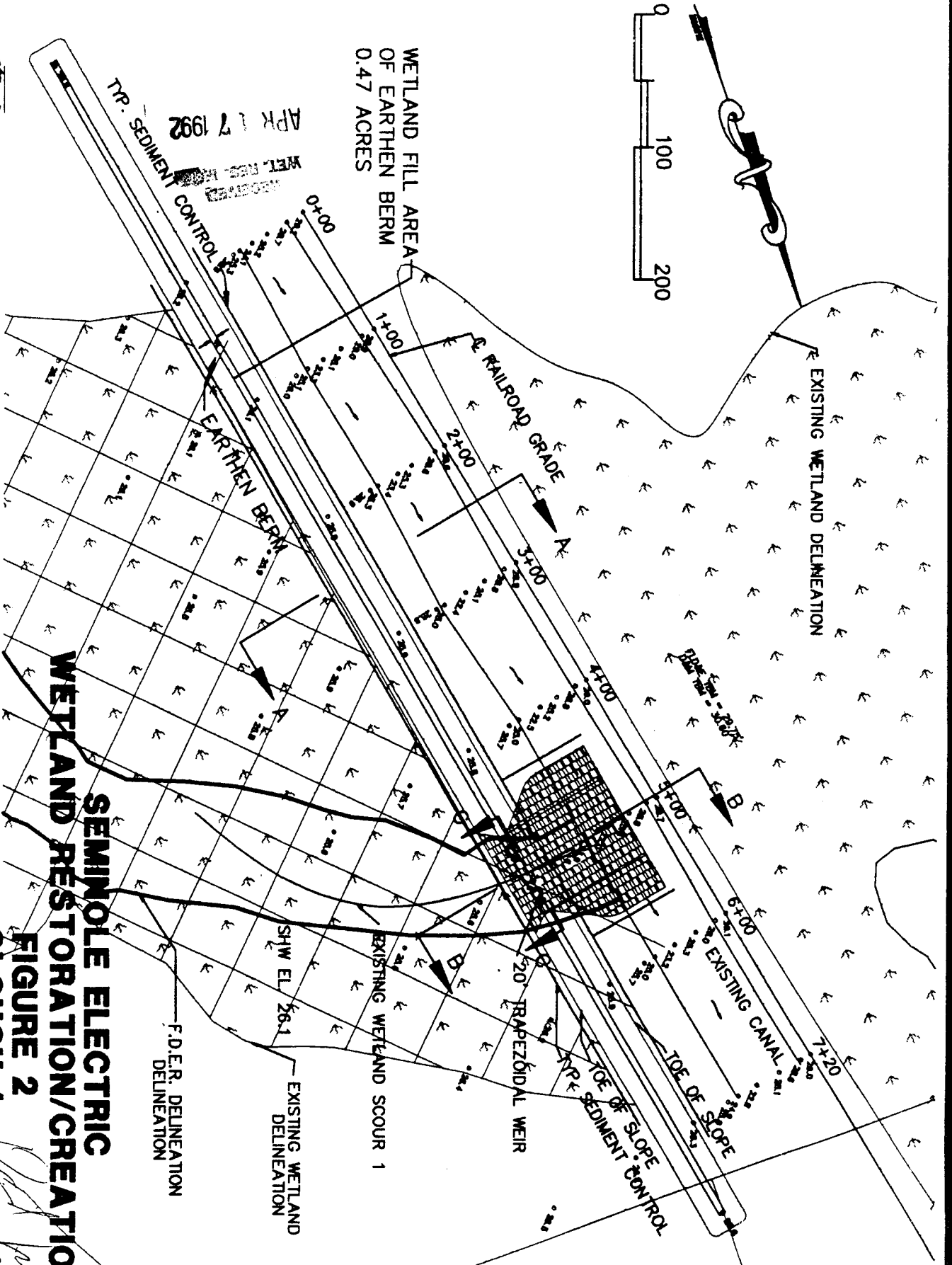
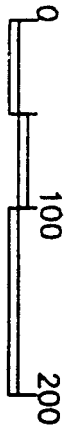
John A. Moore

RECEIVED
WET. RES. MGMT.
APR 17 1992

SECTION B - B'

M.T.S.





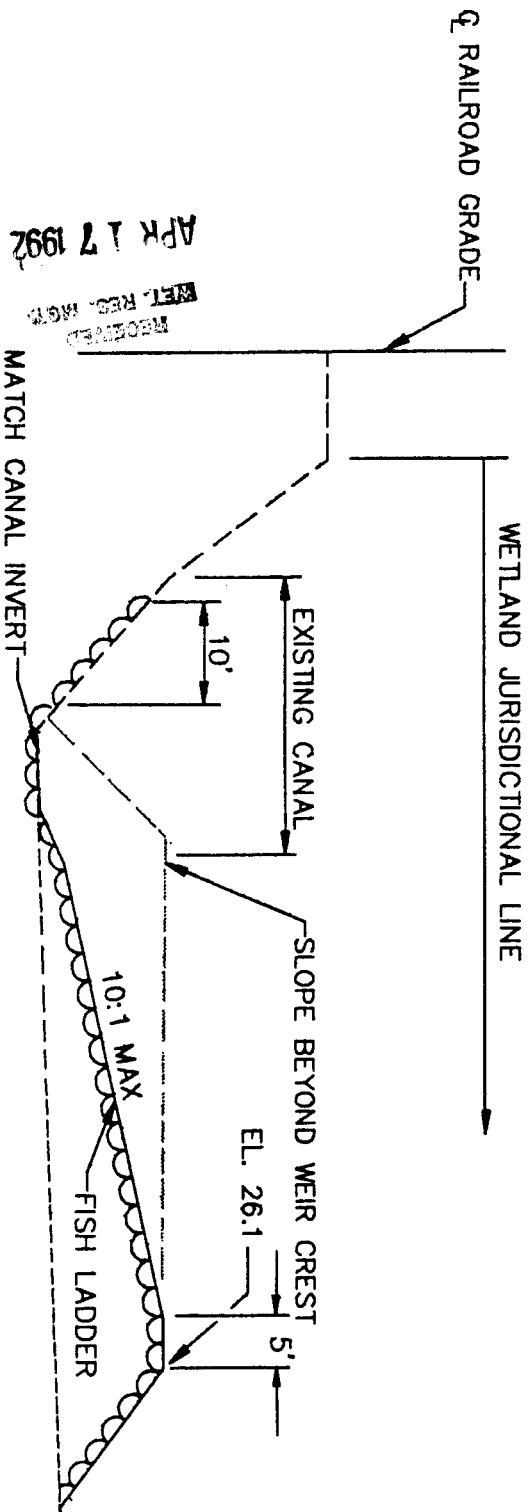
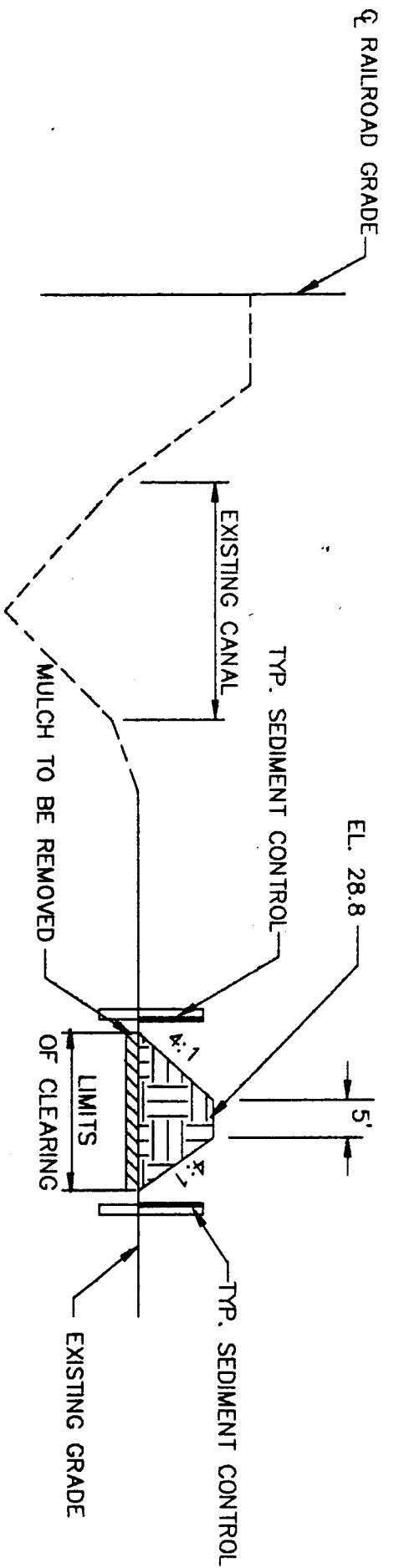
DAMES & MOORE

**SEMINOLE ELECTRIC
WETLAND RESTORATION/CREATION**

**FIGURE 2
SLOUGH 1**

3-24-92

CIVIL ENGINEERING/WATER RESOURCES/WASTE MANAGEMENT/
ENVIRONMENTAL SERVICES/GEOTECHNICAL ENGINEERING/
PLANNING/LANDSCAPE ARCHITECTURE
ONE NORTH DALE MAHRT, SUITE 700 TAMPA, FLORIDA 33609
TAMPA (813) 276-1116 PINELLAS (813) 443-0827



APR 17 1992
WET. RES. MGT.

DAMES & MOORE

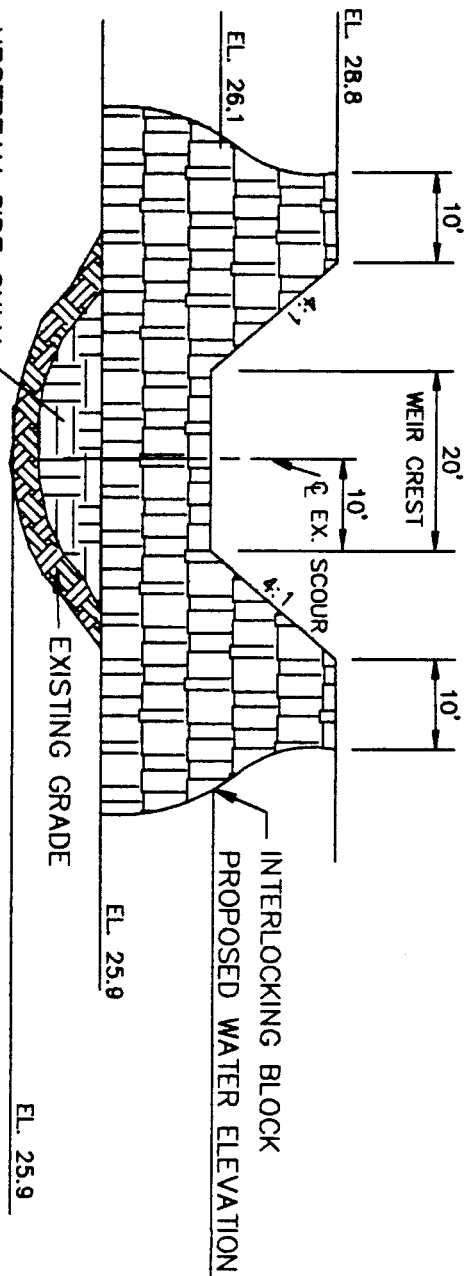
**SEMINOLE ELECTRIC
WETLAND RESTORATION/CREATION**

FIGURE 2A



CIVIL ENGINEERING/WATER RESOURCES/FASTE MANAGEMENT/
ENVIRONMENTAL SERVICES/GEOTECHNICAL ENGINEERING/
PLANNING/LANDSCAPE ARCHITECTURE
ONE NORTH DALE MARRY, SUITE 700 TAMPA, FLORIDA 33609
TELEPHONE 813 271 1000 FAX 813 271 1001

3-24-92



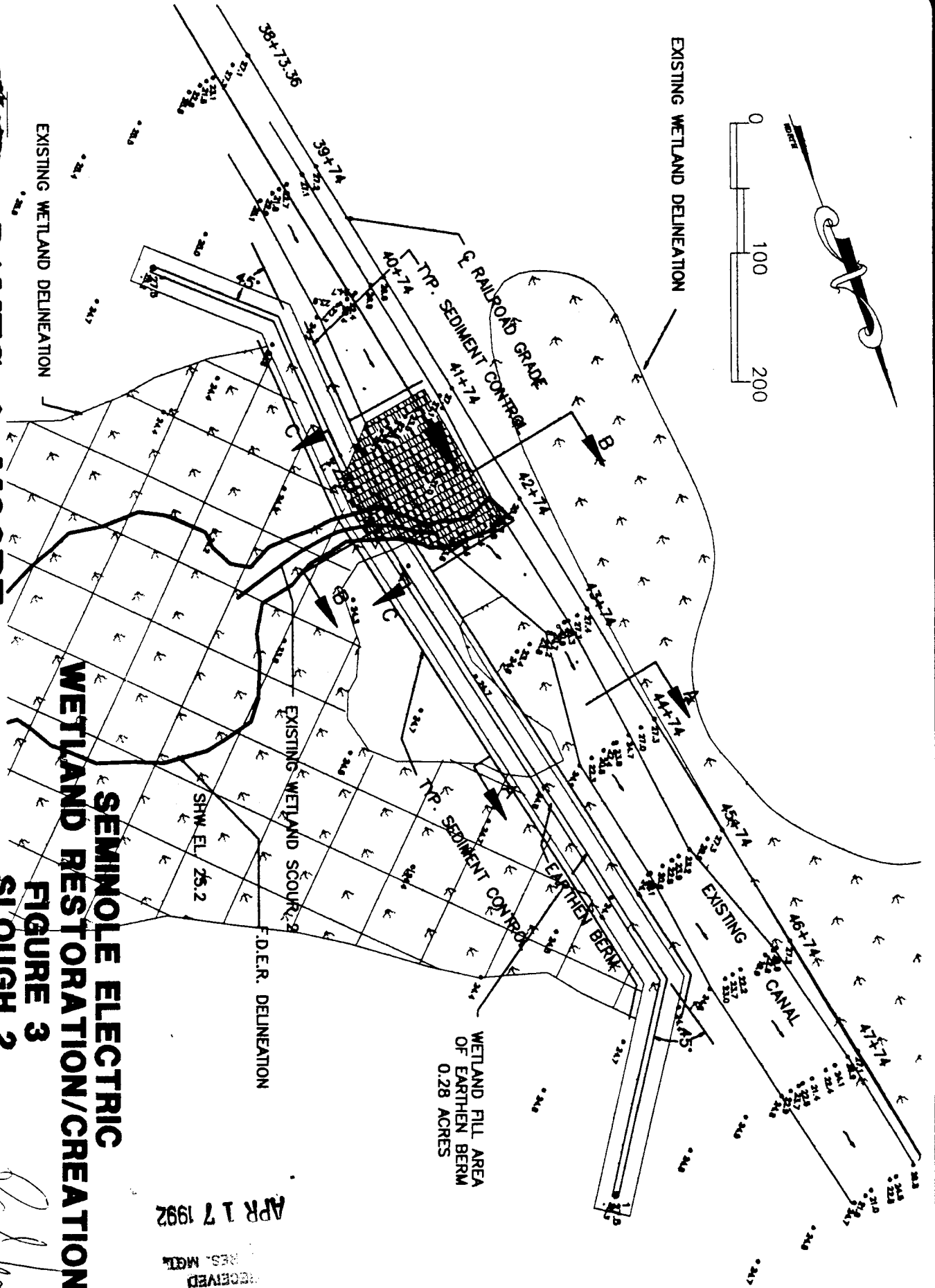
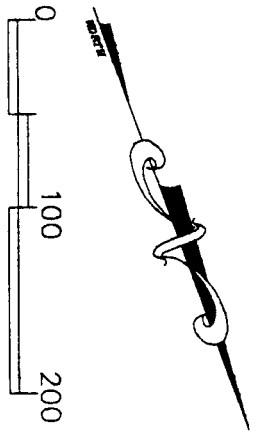
RECEIVED
WET. RES. MGMT.
APR 17 1992

DAMES & MOORE

**SEMINOLE ELECTRIC
WETLAND RESTORATION/CREATION
FIGURE 2B**

CIVIL ENGINEERING/WATER RESOURCES/FASTER MANAGEMENT/
ENVIRONMENTAL SERVICES/GEOTECHNICAL ENGINEERING/
PLANNING/LANDSCAPE ARCHITECTURE
ONE NORTH DADE AVENUE, SUITE 700 TAMPA, FLORIDA 33609
FAX: (813) 291-1111

3-22A-92



EXISTING WETLAND DELINEATION

DAMES & MOORE

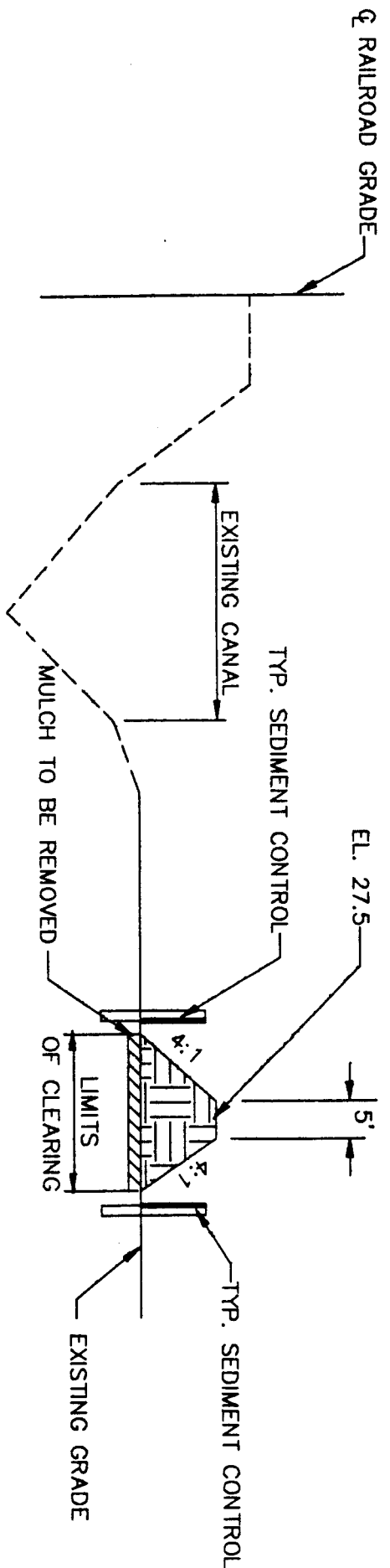
**SEMINOLE ELECTRIC
WETLAND RESTORATION/CREATION
FIGURE 3
SLOUGH 2**

RECEIVED
RES. MGT.
APR 17 1992

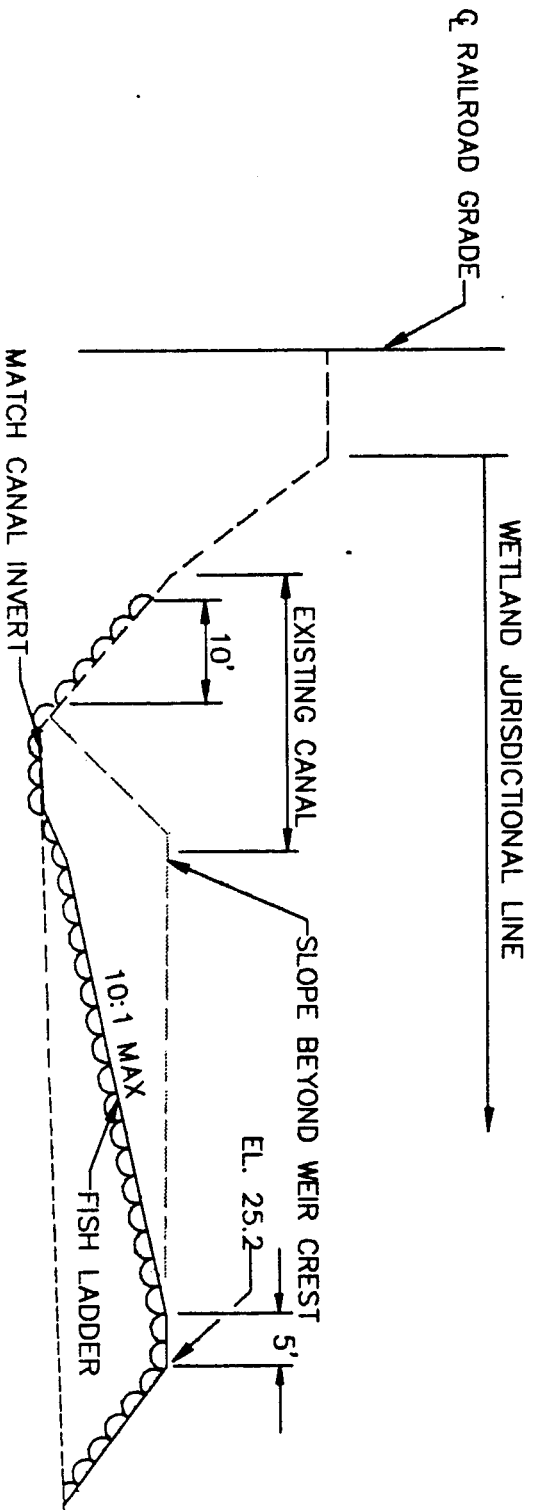
CIVIL ENGINEERING/WATER RESOURCES/WASTE MANAGEMENT/
ENVIRONMENTAL SERVICES/GEOTECHNICAL ENGINEERING/
PLANNING/LANDSCAPE ARCHITECTURE
ONE NORTH DALE WABRY, SUITE 700 TAMPA, FLORIDA 33609



3-24-92



SECTION A-A



SECTION B-B

SEMINOLE ELECTRIC
WETLAND RESTORATION/CREATION

FIGURE 3A

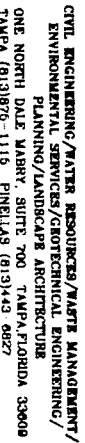
RECEIVED
WET. RES. MGT.
APR 17 1992



DAMES & MOORE

CIVIL ENGINEERING/WATER RESOURCES/WASTE MANAGEMENT/
ENVIRONMENTAL SERVICES/GEOTECHNICAL ENGINEERING/
PLANNING/LANDSCAPE ARCHITECTURE
ONE NORTH DALE MARY, SUITE 700 TAMPA, FLORIDA 33608
TAMPA (813) 274-1111 DUNELLAS (813) 443-6627

3-24-92

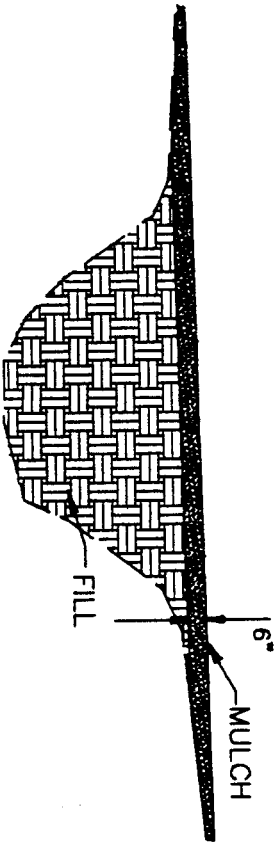


DAMES & MOORE

SECTION D-D

SEMINOLE ELECTRIC WETLAND RESTORATION/CREATION

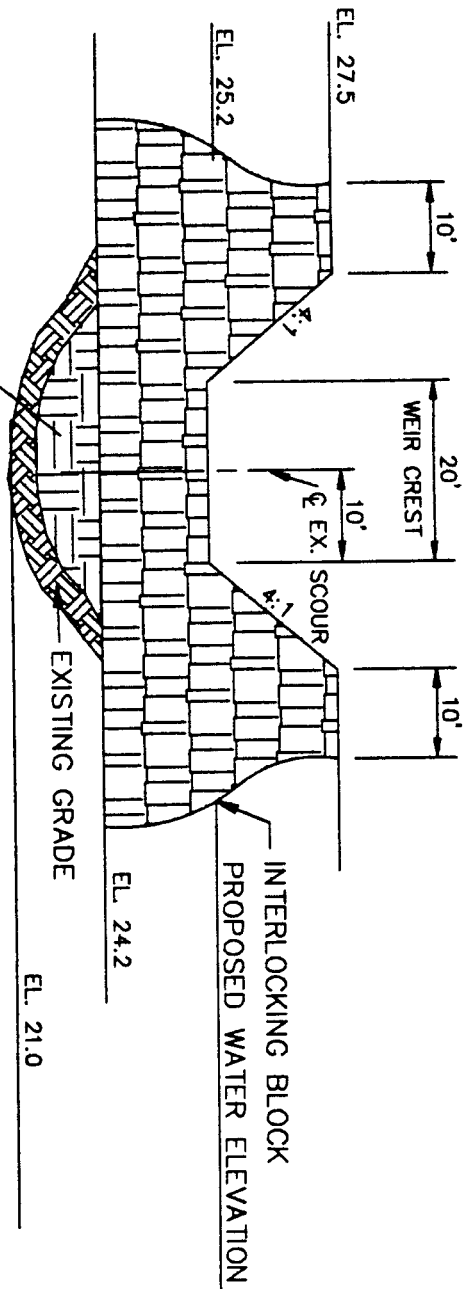
FIGURE 3B



APR 17 1992
RECEIVED
MET. RES. MGT.

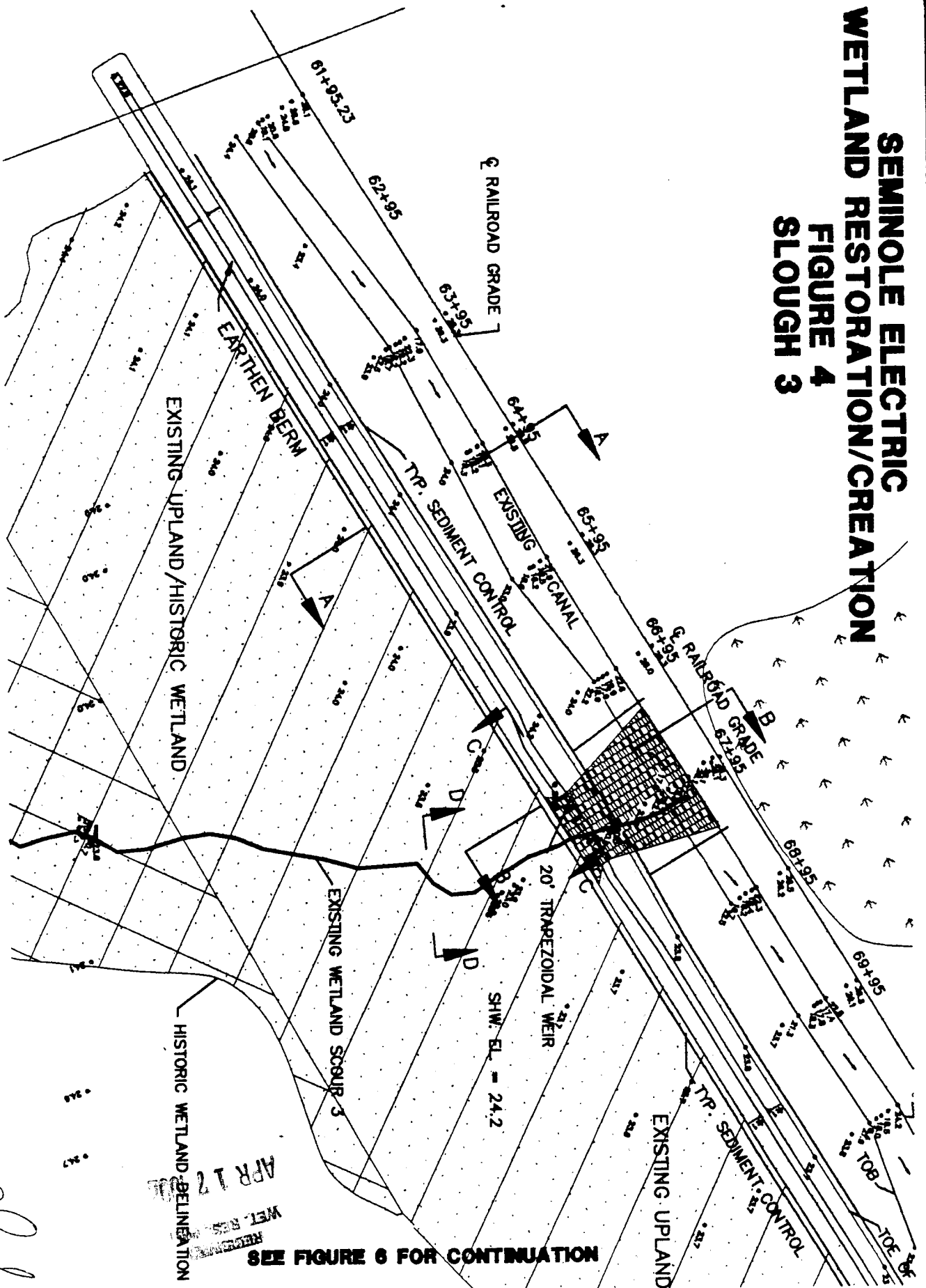
SECTION C-C

BACKFILL UPSTREAM SIDE ONLY-



3-24-92

SEMINOLE ELECTRIC WETLAND RESTORATION/CREATION FIGURE 4 SLOUGH 3



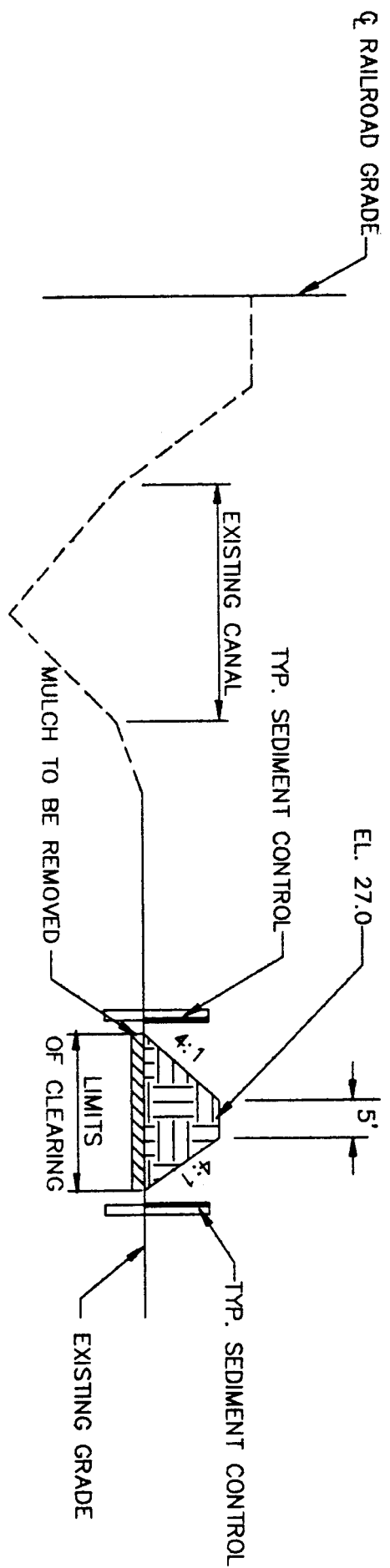
SEE FIGURE 6 FOR CONTINUATION

APR 17 2001
WET. RES. DELINEATION

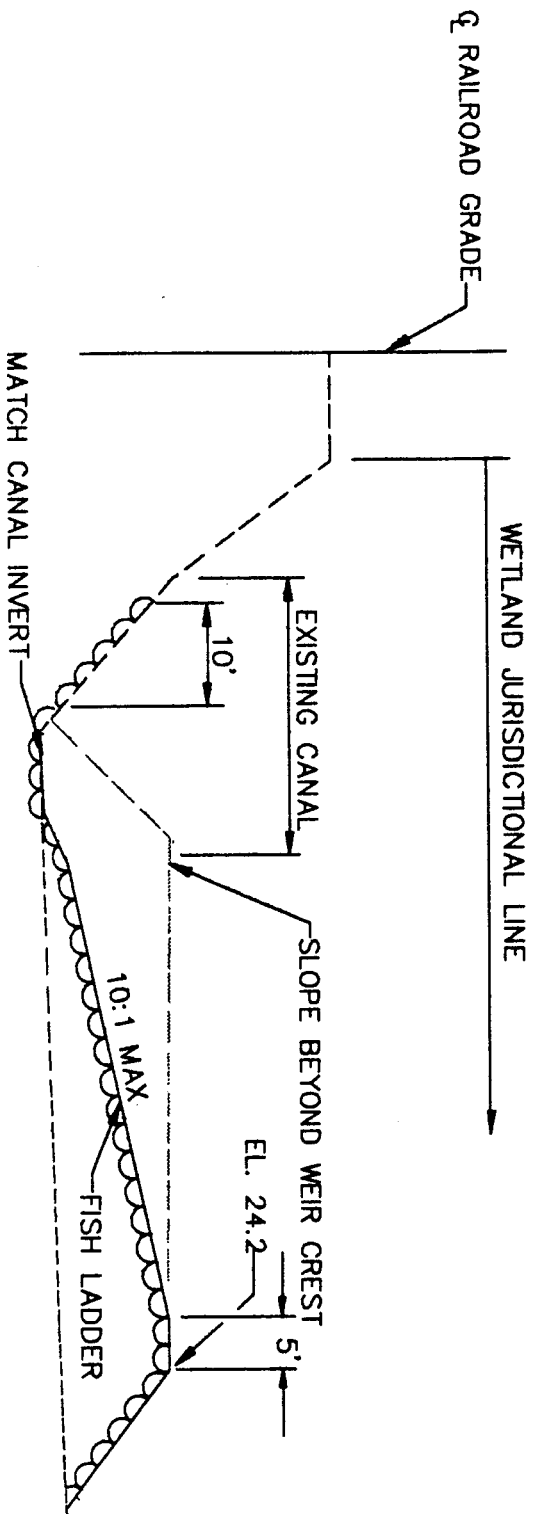
DAMES & MOORE

CIVIL ENGINEERING/WATER RESOURCES/TRAFFIC MANAGEMENT/
ENVIRONMENTAL SERVICES/GEOTECHNICAL ENGINEERING/
PLANNING/LANDSCAPE ARCHITECTURE
ONE NORTH DALE MAHRT, SUITE 700 TAMPA, FLORIDA 33609
TAMPA (813) 970-1116 PINEHILLS (813) 443-6627

3-22-A-92



SECTION A-A



SECTION B-B

SEMINOLE ELECTRIC
WETLAND RESTORATION/CREATION
FIGURE 4A



DAMES & MOORE

CIVIL ENGINEERING/WATER RESOURCES/WASTE MANAGEMENT/
ENVIRONMENTAL SERVICES/GEOTECHNICAL ENGINEERING/
PLANNING/LANDSCAPE ARCHITECTURE
ONE NORTH DALE MAHRY, SUITE 700 TAMPA, FLORIDA 33608
TELEPHONE 813/291-1000 FAX 813/291-1001

RECEIVED
WET. RES. MGR.
APR 17 1992

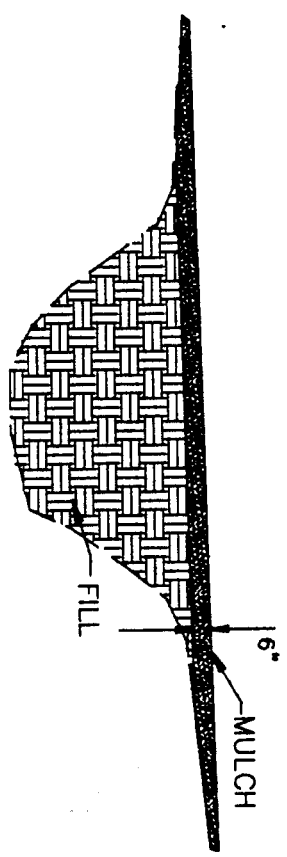
3-24-92



CIVIL ENGINEERING/WATER RESOURCES/MASTE MANAGEMENT/
ENVIRONMENTAL SERVICES/GEOTECHNICAL ENGINEERING/
PLANNING/LANDSCAPE ARCHITECTURE
ONE NORTH DADE AVE., SUITE 700 TAMPA, FLORIDA 33609
TAMPA (813) 975-1116 PINEHILLS (813) 443-6627

DAMES & MOORE

SECTION D-D

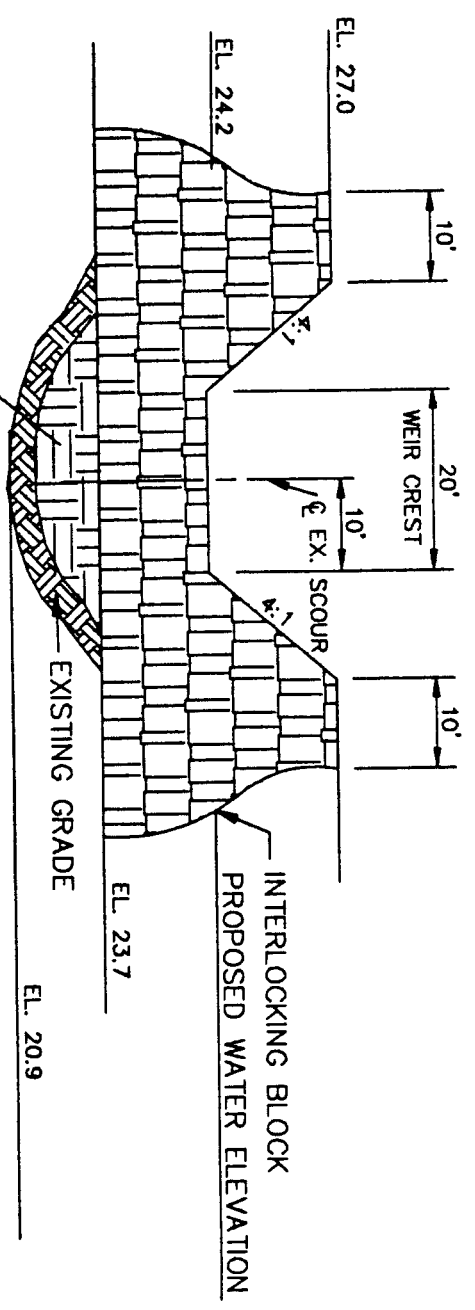


SEMINOLE ELECTRIC
WETLAND RESTORATION/CREATION
FIGURE 4B

APR 17 1992
WATER RES. MGT.
ENGINEER

SECTION C-C

BACKFILL UPSTREAM SIDE ONLY



3-24-92