

Buck Owen



RECEIVED

APR 1 1992

D. E. R.
CITING COORDINATION

March 27, 1992

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

Ref: Hardee Power Station Transmission Line - Vandolah - Arcadia Segment.
Certification # PA 89-25.

Attached is a response to your insufficiency letter of January 22, 1992. We have also included revised drawings of the impact areas and a revised mitigation plan. We would appreciate your review of this information as soon as possible due to our very tight construction schedules. We would like to request that approval for clearing of the wetland areas be allowed as soon as April 1 and that construction of the line be approved by May 1, 1992.

We hope that the only outstanding issues may be related to mitigation. Our current plans will allow us to submit the remaining impacts associated with the entire transmission line by April 1 and therefore we should have a completed mitigation plan by mid-April. This schedule should allow you to review all impacts associated with the transmission line and review the entire mitigation plan as one package before the May 1, 1992 deadline for receiving approval for construction in wetland areas.

Please advise us as to whether these schedules are possible to meet. We will do everything we can to supply you with adequate information to evaluate all portions of this approval.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Robert E. Yarbrough'.

Robert E. Yarbrough
Environmental Engineer

cc: Hamilton Owen - DER

March 26, 1992

DER INSUFFICIENCY RESPONSE

Hardee Power Station - Vandolah to Arcadia Transmission Line
Certification PA 89-25

In response to the first insufficiency SECI has the following response. The Departments questions are in italics.

1. *Please provide a detailed description of the wetlands to be impacted by the transmission line, including species composition, faunal usage and hydroperiod.*

SECI is of the opinion that this question has previously been addressed in the original submittal. In that submittal we listed wetland by wetland the dominant vegetation species present and a hydroperiod estimate was included on the Figures where any fill or excavation was proposed. Additionally, we submitted a Threatened and Endangered Species Survey as required by the Conditions of Certification for the entire ROW which should alleviate most faunal concerns. The limited amount of fill associated with this line should impact few species and very limited numbers of individuals.

2. *Please clarify why such a short stretch of corduroy road is proposed for wetland VV.*

Wetland VV is a highly disturbed system that has been ditched. This ditched area is the location of the proposed corduroy road. The portion of the wetland that will be required for access (see the attached revised drawing) is normally dry and will not be significantly disturbed.

3. *Please discuss why corduroy roads are proposed rather than geoweb swales.*

Corduroy roads have been designed for this job based on ten years of experience with them indicating that they are more economical to construct than geoweb swales and their life expectancy is adequate with the limited usage they will have.

4. *Please provide additional details regarding the corduroy roads, including construction technology, material specifications, extent of excavation, required and the estimated life expectancy of such a road.*

The corduroy roads will be constructed utilizing trees cleared for the transmission line. These trees will be from 8" to 24" in diameter and will be drilled and tied together with galvanized steel gable on the ends of each log. This "raft" of logs will then be placed in an excavated area adequate to place the tops of the logs at the existing invert elevation of the stream bottom. Excavation

will be limited to approximately 8" to 24" in depth and approximately 20 ft. along the stream bottom and sides. Once in place the entire assembly will be anchored in place using screw type anchors placed in the uplands at the appropriate angle to hold the assembly in place during periods of highest flow velocities. We estimate the life expectancy of these roads to be in excess of ten years as seen on previous corduroy roads constructed.

In association with SWFWMD field inspectors we have located these roads, when possible, at locations within the ROW that are currently being used as low water crossings or where areas exist that are void of vegetation.

5. *Please provide documentation of the soil depths above hard pan in the proposed construction area.*

Attached is a brief report by Dames & Moore of soil conditions within the area designated for wetland creation on the Webb. All indications are that we will have to remove approximately 1-2 ft. of soil in order to achieve the appropriate hydroperiods in the creation area. This amount of excavation will leave approximately 2 -3 ft. of soil for the trees to have adequate room for root growth. Since wetland trees typically have shallow root systems this should be adequate to allow growth of the trees.

6. *The permit and construction drawings are not consistent regarding the weir elevation at Slough No. 2, and the sections on the construction drawing conflict as well. Please clarify this.*

Please see the attached revised drawings that have corrected the elevations.

7. *Please describe the construction techniques, equipment and access proposed to be used for the mitigation.*

The construction areas within the Webb will include the berms, scour plugs, and the creation area. The berms will be constructed from the earth moved from the creation area using pans and/or dump trucks and backhoes. Earth moving equipment such as small bulldozers and backhoes will be utilized to construct the berm which will be stabilized afterward with sod. The weir itself will be constructed using open faced concrete blocks (turf block). Equipment will be limited to areas designated for equipment usage which will be a single path through the uplands and the immediate berm construction areas. Turbidity control such as silt screens and hay bales will be utilized around the construction sites.

The scour plugs will be plugged with topsoil from the creation area by the use of rubber tire equipment such as front end loaders that will utilize the scours as road ways. These plugs will be sodded and turbidity controls will be utilized.

The creation area is located within existing uplands and will require scraping approximately 1 to 2 ft. of material. The existing grass from the pasture will be stockpiled and the remaining material will be scraped using pans and/or backhoes. The grass will then be disced into the remaining soils to add organics. Turbidity controls will be utilized around the excavation sites. These sites will then be planted with appropriate wetland vegetation.

8. *The planting centers for the herbaceous material to be planted as an understory in the forested areas should be planted on 3 ft. centers to ensure that sufficient cover is achieved quickly to prevent erosion.*

The herbaceous material within the forested areas will be planted on 5 foot centers due to the design incorporating extremely shallow slopes. The maximum slope will be located in a type for type 0.18 acre area required by SWFWMD which will have a maximum slope of 40:1. The large majority of the forested areas will have no slope or maximum slopes of 115:1. We also believe that the recruitment of the area should occur relatively quickly due to the large availability of seed from the surrounding wetlands.

9. *A site visit to the proposed mitigation area indicated that cutting down the sides of the deep scour areas and backfilling the scour with mulch would provide an excellent area in which to create a cypress stand. Please discuss the proposal to include this concept.*

We have not proposed to cut down the sides of the scours due the impact this would have to SWFWMD and COE jurisdictional areas and the required mitigation they would require. We also have no nearby source of mulch since we are not excavating any wetlands along the transmission line. We propose to plant the scour plugs with 1 gallon cypress trees which will hopefully encourage the spread of trees in later years.

We have also prepared revised drawings of the wetland impacts along the transmission line. We have made a few changes as to type of impact and have limited impacts in other wetland areas. Additionally, SWFWMD personnel have visited all of the wetland areas and have devised a method of rating wetlands as to quality. We have included all of these changes into the revised attached drawings.

In response to SWFWMD input into the restoration/mitigation within the Webb area, we have created some new drawings to reflect the changes in the mitigation plan. These drawings are also included in the attached package.

TABLE 1
WETLAND ACTIVITIES
(FDER/SWFWMD JURISDICTION)

FORESTED WETLAND			DISTURBED SHRUB WETLAND			MARSH	UPLAND DITCH
WETLAND	CLEARED	FILLED	CLEARED	FILLED	CORD.RD	FILLED	FILLED
M	-	-	-	-	-	**	-
N	-	-	0.01	-	0.01	-	-
O	-	-	-	-	-	**	-
P	-	-	-	-	0.01	-	-
Q	-	-	-	-	-	***	-
R	-	-	-	-	0.01	-	-
S	-	-	**	-	-	-	-
T	-	-	-	-	-	**	-
U	-	-	0.05	-	0.04	-	-
W	-	-	0.32	0.01	-	**	-
X,Y,Z	-	-	-	-	-	-	*
AA	0.60	-	-	-	-	-	-
BB	-	-	0.24	0.06	-	-	-
CC	-	-	0.04	-	-	-	-
DD	-	-	0.19	-	-	**	-
EE	-	-	-	-	-	-	*
FF	-	-	-	-	-	-	*
GG	-	-	-	-	0.04	-	-
HH	1.19	-	-	-	-	-	-
II	-	-	-	-	-	-	**
JJ	-	-	**	-	-	-	-
KK	1.00	-	0.15	-	-	-	0.04
LL,MM	0.52+	-	-	-	-	-	-
NN	2.09	0.20	-	-	-	-	-
SUB-TOTAL	5.40	0.20	1.00	0.07	0.11	0.00	0.04

* COE Jurisdiction Only

*** Isolated Wetlands

** No Clearing or Filling Required

+ Non SWFWMD Jurisdiction

**TABLE 1 (CONTINUED)
WETLAND ACTIVITIES
(FDER/SWFMD JURISDICTION)**

FORESTED WETLAND			DISTURBED SHRUB WETLAND			MARSH	UPLAND DITCH
WETLAND	CLEARED	FILLED	CLEARED	FILLED	CORD.Rd	FILLED	FILLED
OO	0.14	-	0.24	-	-	-	-
PP	-	-	-	-	-	-	0.04
QQ	1.01	-	-	-	0.02	-	-
SS	0.91	-	0.85	0.40	-	-	-
TT	-	-	-	0.18	0.02	-	-
UU	-	-	0.01	-	0.01	-	-
VV	-	-	0.27	-	0.01	-	-
WW, XX, YY	*	-	-	-	-	**	-
ZZ	-	-	0.27	0.22	-	-	-
BBB	-	-	-	-	-	***	-
CCC	-	-	-	-	-	***	-
DDD	-	-	0.03	-	-	**	-
EEE	-	-	0.34	-	-	-	-
FFF	-	-	0.03	-	-	-	-
GGG	-	-	-	-	-	-	-
HHH	-	-	0.03	-	-	-	-
III	0.60	0.07	-	-	-	-	-
JJJ	***	-	***	-	-	-	-
KKK	-	-	0.33	-	-	-	-
LLL	-	-	-	-	-	-	**
MMM	-	-	-	-	-	-	*****
SUB TOTAL	2.66	0.07	2.40	0.80	0.06	0.00	0.04

* Slash Pine Overstory

*** Isolated Wetland

** No Clearing or Filling Required

***** Area is Peace River - Open Water

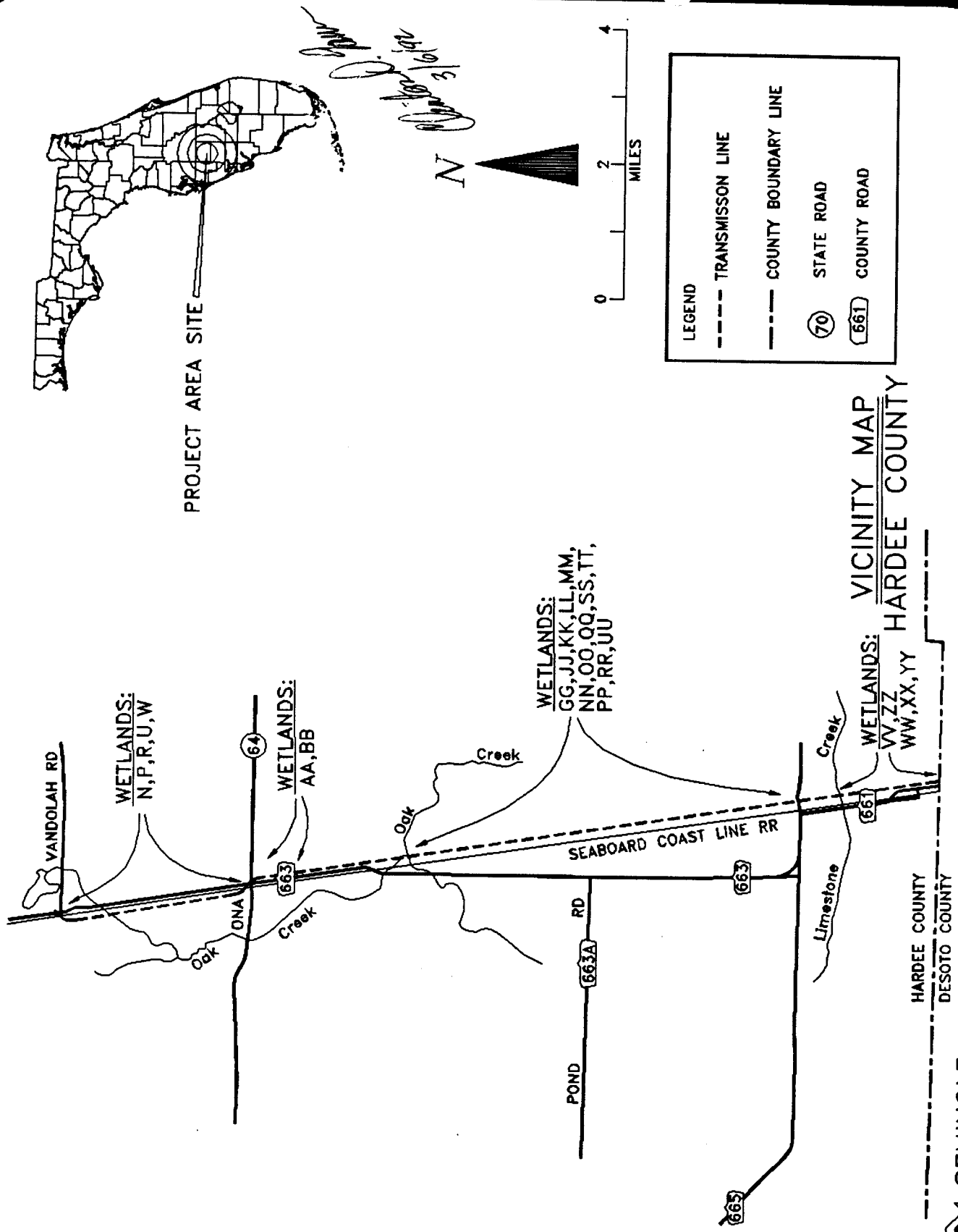
TABLE 1 (CONTINUED)
WETLAND ACTIVITIES
(FDER/SWFWMD JURISDICTION)

FORESTED WETLAND			DISTURBED SHRUB WETLAND			MARSH	UPLAND DITCH
WETLAND	CLEARED	FILLED	CLEARED	FILLED	CORD.RD	FILLED	FILLED
NNN	0.39	-	0.02	-	-	-	0.02
OOO	-	-	-	-	-	0.05*	-
PPP	0.04	-	-	-	-	-	-
QQQ	-	-	-	-	-	-	-
RRR	***	-	-	-	-	-	-
SSS	***	-	-	-	-	-	-
TTT	1.73	-	0.07	-	-	-	-
* *	-	-	-	-	-	-	0.01
SUB TOTAL	2.16	0.00	0.09	0.00	0.00	0.05	0.03
TOTAL DER	10.22	0.27	3.49	0.86	0.17	0.05	0.11

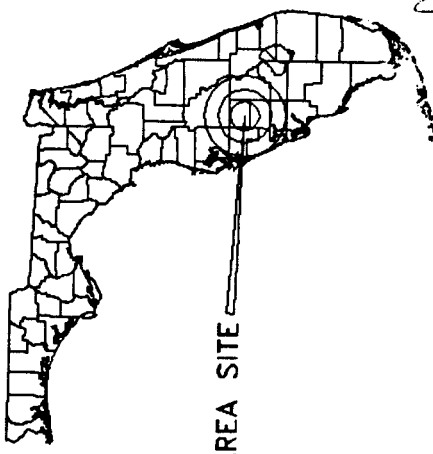
*** Isolated Wetland (Non DER Jurisdiction)

* Existing low water crossing (no actual fill to be used)

* * Ditch located at station 864+00 (Figure 42)

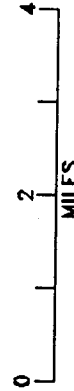
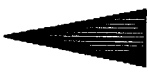


PROJECT AREA SITE



3/6/92

N



LEGEND

- TRANSMISSION LINE
- COUNTY BOUNDARY LINE
- (70) STATE ROAD
- (661) COUNTY ROAD

FIGURE 1



VICINITY MAP
DESOTO COUNTY



**SEMINOLE
ELECTRIC
COOPERATIVE
INCORPORATED**

FIGURE 2

FDER/SWFWMD
JURISDICTION

DISTURBED SHRUB WETLAND

FT. GREEN - ONA RD. N.W.

SEABOARD COAST LINE RR

TRANSMISSION
STRUCTURE

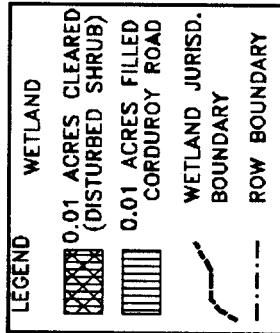
CORDUROY ROAD

PROPOSED
ROW CENTERLINE

DISTURBED SHRUB
WETLAND

NOTE: EDGE OF CORDUROY ROAD IN
WETLAND TO BE STAKED WITH HAY BALES
OR SILT SCREEN DEPENDENT ON SITE CO-
NDITIONS AT TIME OF CONSTRUCTION

NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS



TRANSMISSION STRUCTURE
HEIGHT NOT TO SCALE

CORDUROY ROAD

WETLAND

LEGEND for PROFILE

CORDUROY ROAD

ROW C/L

WETLAND "N" PLAN/PROFILE

SCALE: 1"=200'

SHW ± 86
NWL ± 85
SLW ± 84

N



DATUM: NGVD



FIGURE 3

FDER/SWFWMD
JURISDICTION
DISTURBED SHRUB WETLAND

FT. GREEN - ONA RD. N.W.

SEABOARD COAST LINE RR

TRANSMISSION
STRUCTURE

LEGEND

	WETLAND (DISTURBED SHRUB)
	0.01 ACRES FILLED CORDUROY ROAD
	WETLAND JURISD. BOUNDARY
	ROW BOUNDARY

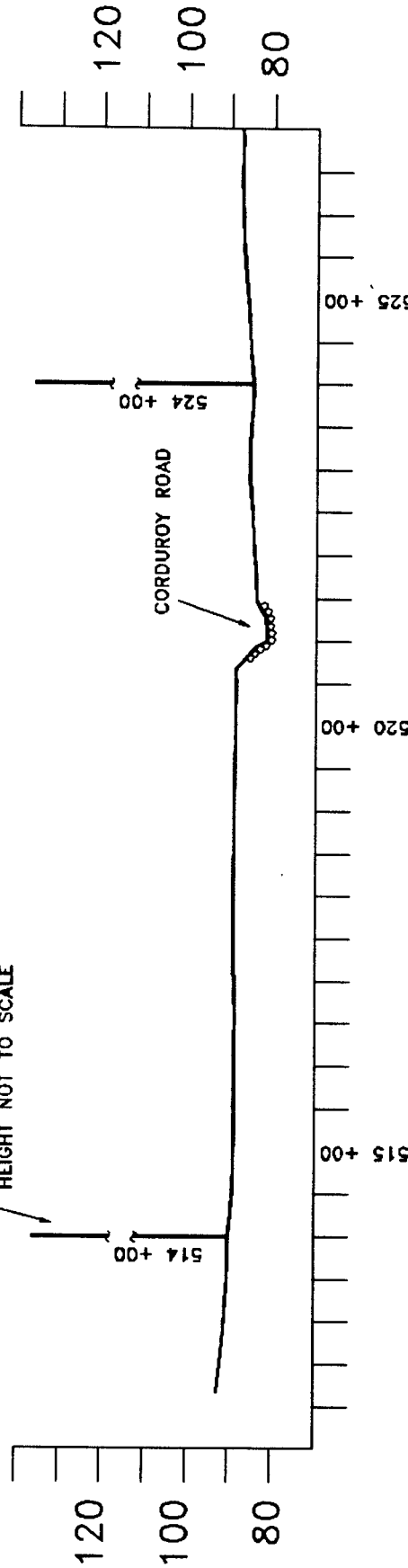
PROPOSED
ROW CENTERLINE

DISTURBED SHRUB
WETLAND

NOTE: EDGE OF CORDUROY ROAD IN
WETLAND TO BE STAKED WITH HAY BALES
OR SILT SCREEN DEPENDENT ON SITE CO-
NDITIONS AT TIME OF CONSTRUCTION

NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS

TRANSMISSION STRUCTURE
HEIGHT NOT TO SCALE



WETLAND "P"
PLAN/PROFILE

SCALE: 1"=200'

LEGEND for PROFILE

	CORDUROY ROAD
	ROW C/L

SHW ± 86
NWL ± 85
SLW ± 84

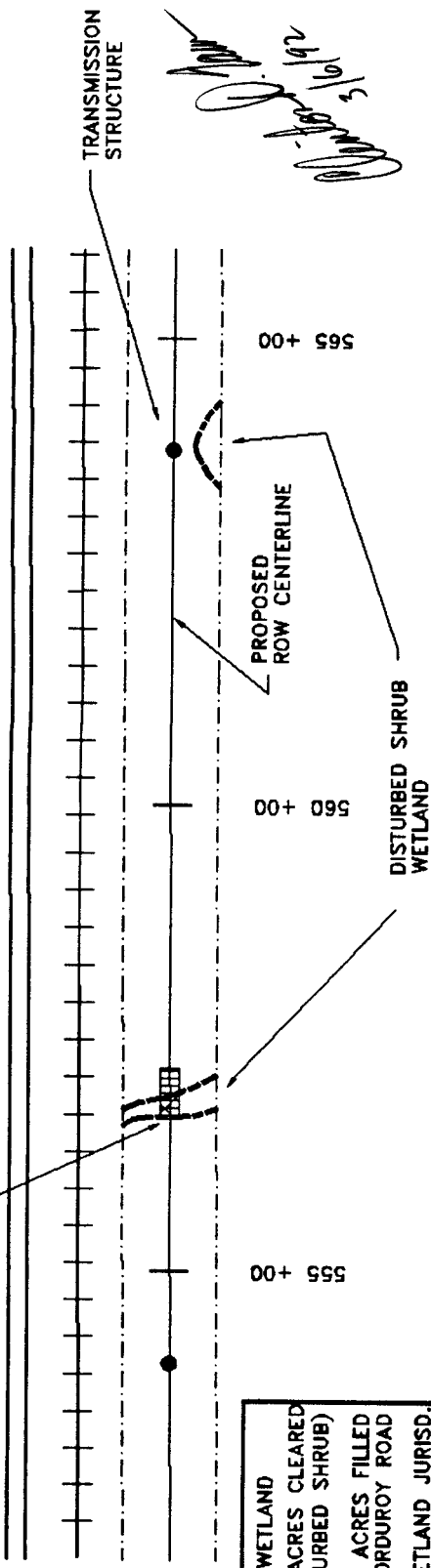


DATUM: NGVD

FIGURE 4

NOTE: EDGE OF CORDUROY ROAD IN WETLAND TO BE STAKED WITH HAY BALES OR A SILT SCREEN DEPENDENT ON SITE CONDITIONS AT TIME OF CONSTRUCTION

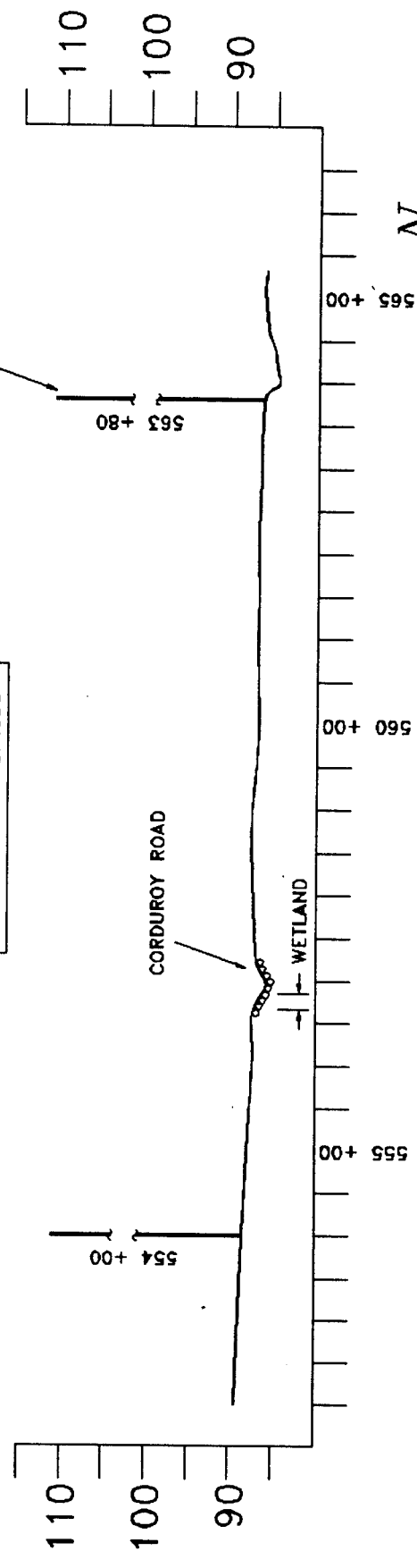
FDER/SWFWMD JURISDICTION
DISTURBED SHRUB WETLAND



LEGEND

	WETLAND 0.01 ACRES CLEARED (DISTURBED SHRUB)
	0.01 ACRES FILLED CORDUROY ROAD
	WETLAND JURISD. BOUNDARY
	ROW BOUNDARY

NOTE: SURVEY INFORMATION DETERMINED BY AERIAL PHOTOMETRIC METHODS



LEGEND for PROFILE

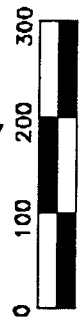
	CORDUROY ROAD
	ROW C/L

SHW ± 86
NWL ± 85
SLW ± 84

WETLAND "R,S" PLAN/PROFILE

SCALE: 1"=200'

N



DATUM: NGVD

**SEMINOLE
ELECTRIC
COOPERATIVE
INCORPORATED**

FIGURE 5

FDER/SWFWMD
JURISDICTION

DISTURBED SHRUB WETLAND

FT. GREEN - ONA RD. N.W.

SEABOARD COAST LINE RR

CORDUROY ROAD

DISTURBED SHRUB
WETLAND

580 + 00

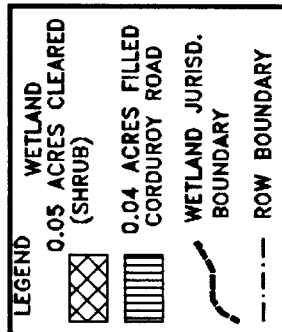
PROPOSED
ROW CENTERLINE

SHRUB
WETLAND

585 + 00

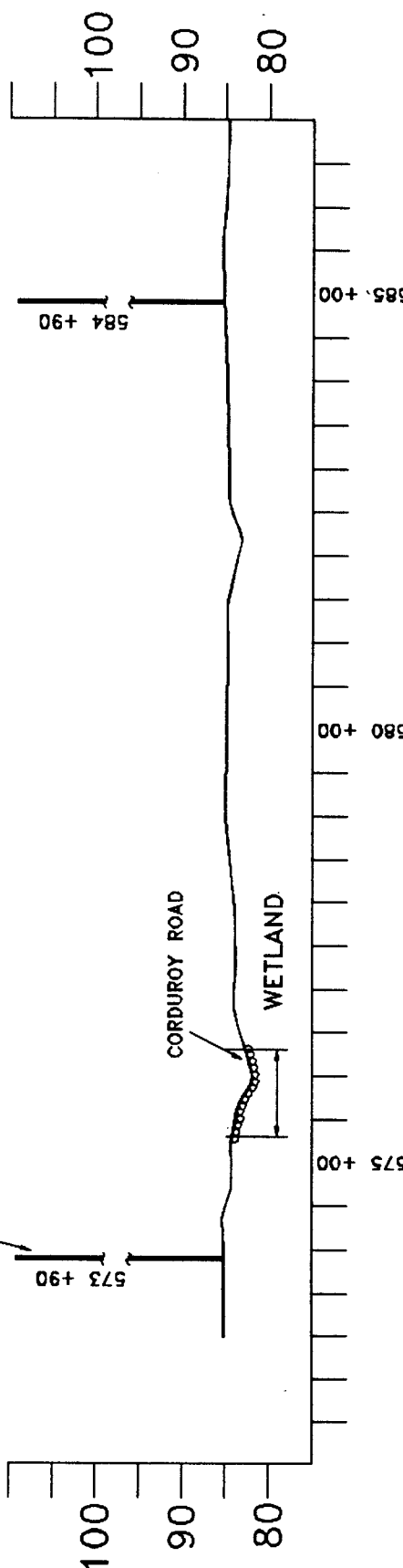
TRANSMISSION
STRUCTURE

NOTE: EDGE OF CORDUROY
ROAD IN WETLAND TO BE
STAKED WITH HAY BALES OR
A SILT SCREEN DEPENDENT
ON SITE CONDITIONS AT TIME
OF CONSTRUCTION



NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS

TRANSMISSION STRUCTURE
HEIGHT NOT TO SCALE



LEGEND for PROFILE

CORDUROY ROAD
 ROW C/L

WETLAND "U,V" PLAN/PROFILE

SCALE: 1"=200'

N



DATUM: NGVD

SHW ± 82
NWL ± 81
SLW ± 80



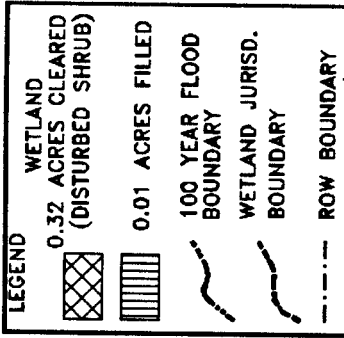
FIGURE 6

FDER/SWFWMD
JURISDICTION
DISTURBED SHRUB WETLAND

FT. GREEN - ONA RD. N.W.

SEABOARD COAST LINE RR

TRANSMISSION
STRUCTURE



PROPOSED
ROW CENTERLINE

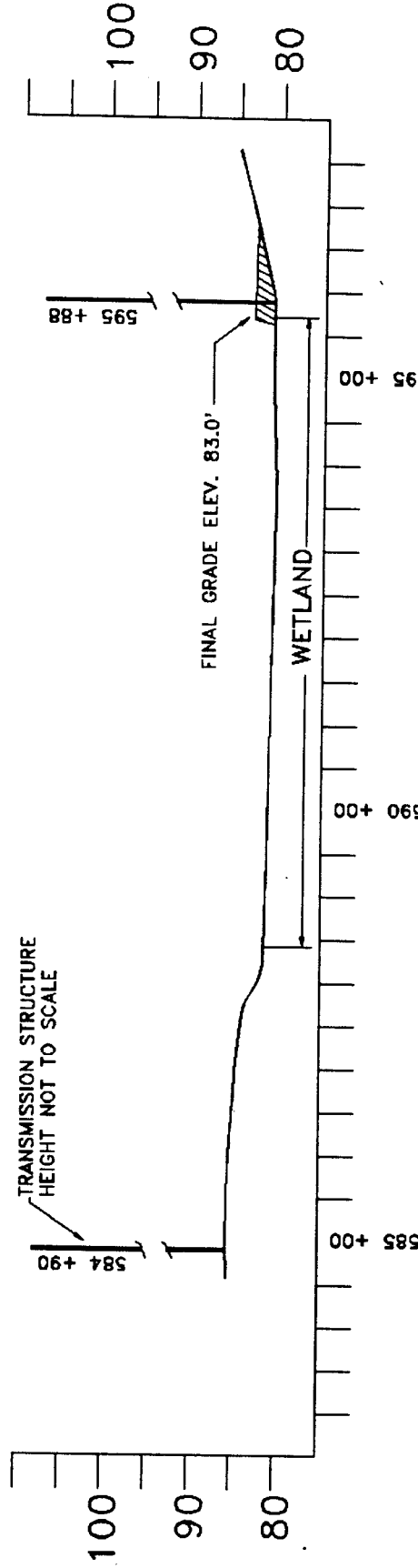
DISTURBED SHRUB
WETLAND

CONSTRUCTION
PAD

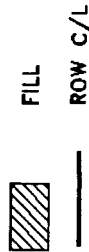
NOTE: EDGE OF CONSTRUCTION PAD
IN WETLAND TO BE STAKED WITH
HAY BALES OR A SILT SCREEN DEP-
ENDENT ON SITE CONDITIONS AT TIME
OF CONSTRUCTION

NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS

TRANSMISSION STRUCTURE
HEIGHT NOT TO SCALE



LEGEND for PROFILE



WETLAND "W" PLAN/PROFILE

SCALE: 1"=200'

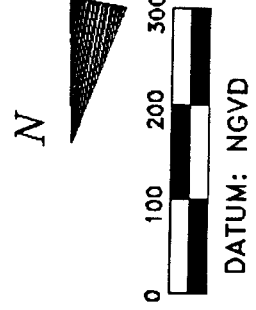


FIGURE 7

FDER/SWFMD
JURISDICTION
FORESTED WETLAND

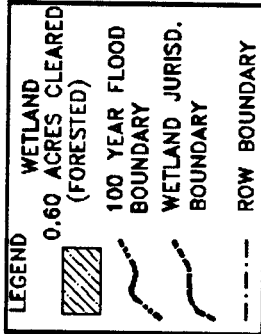
CONNECTED
FORESTED WETLAND

PROPOSED
ROW CENTERLINE

TRANSMISSION
STRUCTURE

FT. GREEN-ONA RD. N.W.

SEABOARD COAST LINE RR



NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS

630 +00 635 +00 640 +00

TRANSMISSION STRUCTURE
HEIGHT NOT TO SCALE

630 +54 640 +50

90 80 70

90 80 70

WETLAND

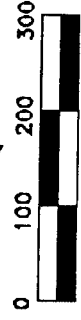
630 +00 635 +00 640 +00

LEGEND for PROFILE

— ROW C/L

WETLAND "AA" PLAN/PROFILE

SCALE: 1"=200'



DATUM: NGVD



FIGURE 8

FDER/SWFWMD

JURISDICTION

DISTURBED SHRUB WETLAND

CONSTRUCTION
PAD

TRANSMISSION
STRUCTURE

LEGEND

	WETLAND 0.24 ACRES CLEARED (DISTURBED SHRUB)
	0.06 ACRES FILLED CONSTR. PAD
	WETLAND JURISD. BOUNDARY
	ROW BOUNDARY

NOTE: EDGE OF FILL LINE TO BE
STAKED WITH HAY BALES OR SILT
SCREEN DEPENDENT OF SITE CON-
DITIONS AT TIME OF CONSTRUCTION

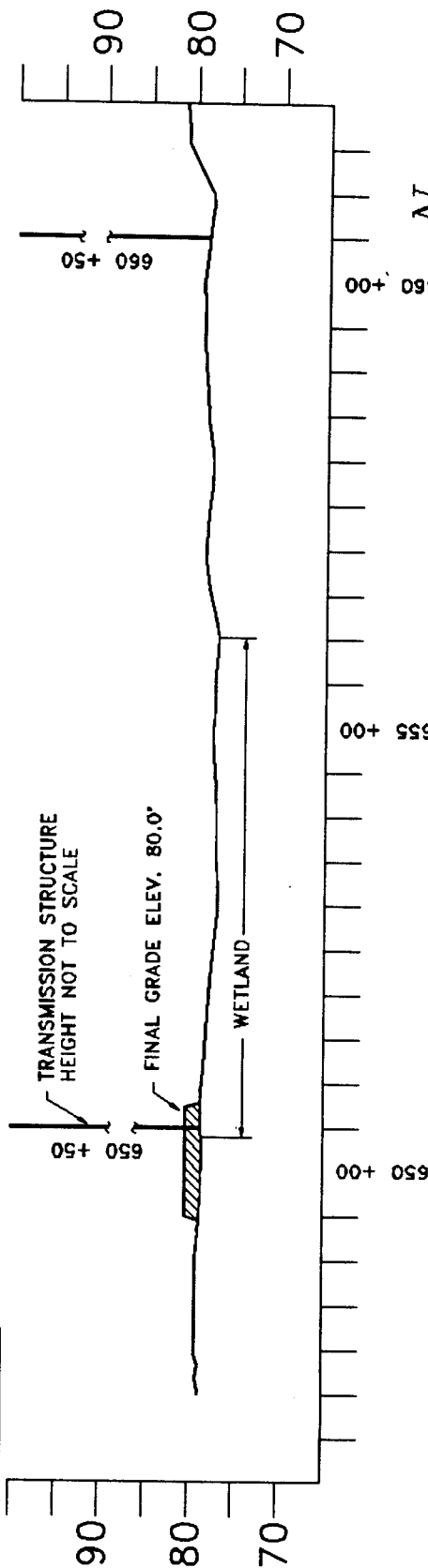
NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS

PROPOSED
ROW CENTERLINE

DISTURBED SHRUB
WETLAND

00 + 099

650 + 00



SHW ± 79
NWL ± 78
SLW ± 77

WETLAND "BB" PLAN/PROFILE

SCALE: 1"=200'

LEGEND for PROFILE

	FILL
	ROW C/L



SEMINOLE
ELECTRIC
COOPERATIVE
INCORPORATED

DATUM: NGVD

FIGURE 9

FDER/SWFWMD
JURISDICTION

SHRUB/MARSH WETLAND

TRANSMISSION
STRUCTURE

FT. GREEN - ONA RD

SEABOARD COAST RR

PROPOSED
ROW CENTERLINE

670 + 00

665 + 00

SHRUB
WETLAND

660 + 00

WETLAND
0.04 ACRES CLEARED
(SHRUB)

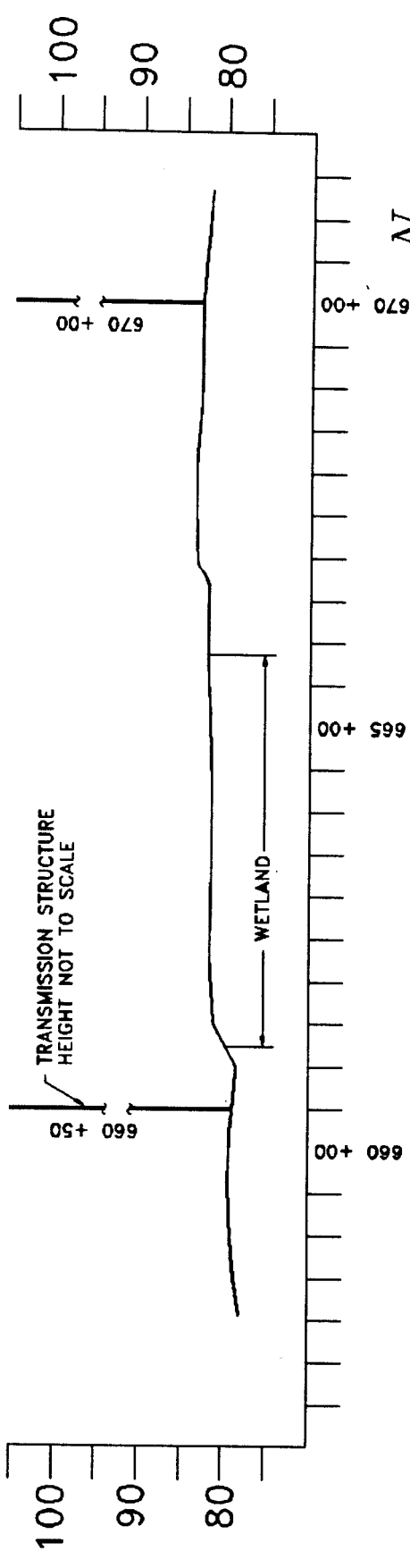
MARSH
NO ACRES

WETLAND JURISD.
BOUNDARY

ROW BOUNDARY

NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS

W. J. ...
3/16/92



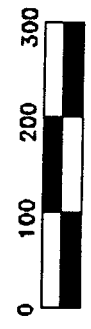
WETLAND "CC" PLAN/PROFILE

SCALE: 1"=200'

LEGEND for PROFILE

— ROW C/L

N



DATUM: NGVD



SEMINOLE
ELECTRIC
COOPERATIVE
INCORPORATED

FIGURE 10

FDER/SWFWM
JURISDICTION

SHRUB/MARSH WETLAND

TRANSMISSION
STRUCTURE

SHRUB
WETLAND

MARSH
WETLAND

FT. GREEN - ONA RD N.W.

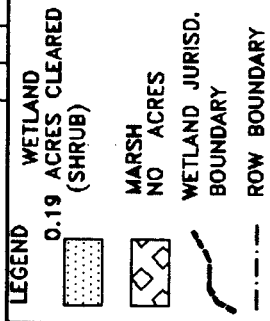
SEABOARD COAST RR

PROPOSED
ROW CENTERLINE

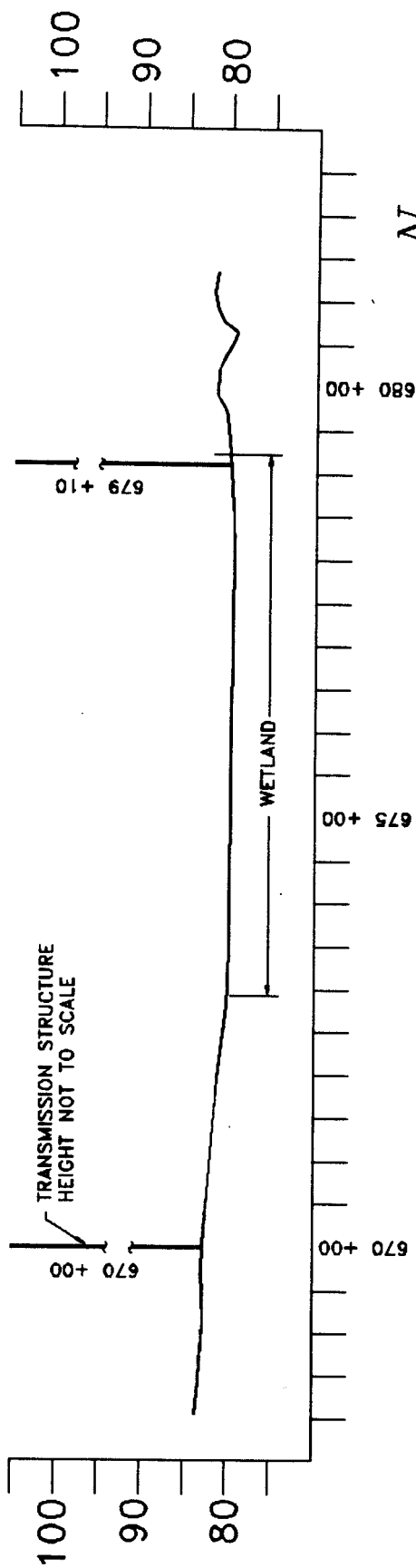
680 + 00

675 + 00

670 + 00



NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS



WETLAND "DD" PLAN/PROFILE

SCALE: 1"=200'

LEGEND for PROFILE

ROW C/L



SEMINOLE
ELECTRIC
COOPERATIVE
INCORPORATED

FIGURE 11

FDER/SWFWMD
JURISDICTION
WETLAND

PROPOSED
ROW CENTERLINE

TRANSMISSION
STRUCTURE

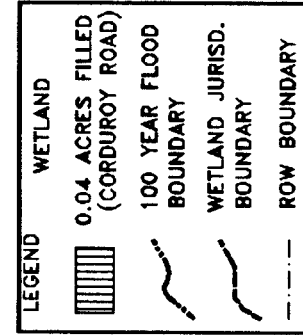
CORDUROY
ROAD

SEABOARD COAST LINE RR

OPEN
WATER

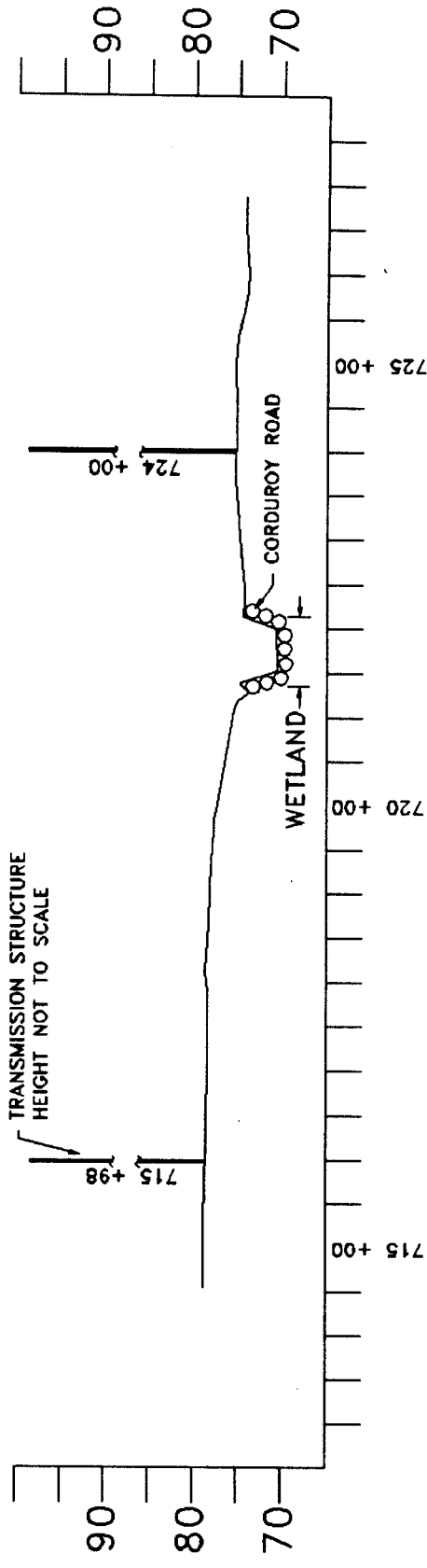
NOTE: EDGE OF CORDUROY ROAD TO
BE STAKED WITH HAY BALES OR SILT
SCREEN DEPENDENT OF SITE CON-
DITIONS AT TIME OF CONSTRUCTION

Handwritten signature and date: 3/16/92



NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS

TRANSMISSION STRUCTURE
HEIGHT NOT TO SCALE

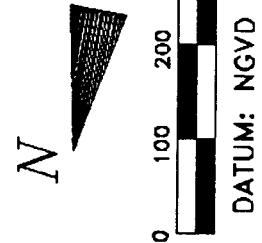


LEGEND for PROFILE

FILL
 ROW C/L

WETLAND "GG" PLAN/PROFILE

SCALE: 1"=200'



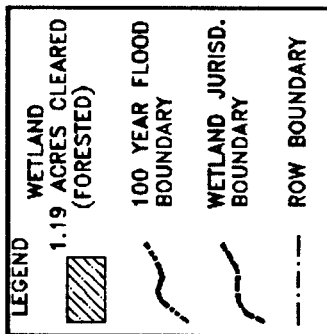
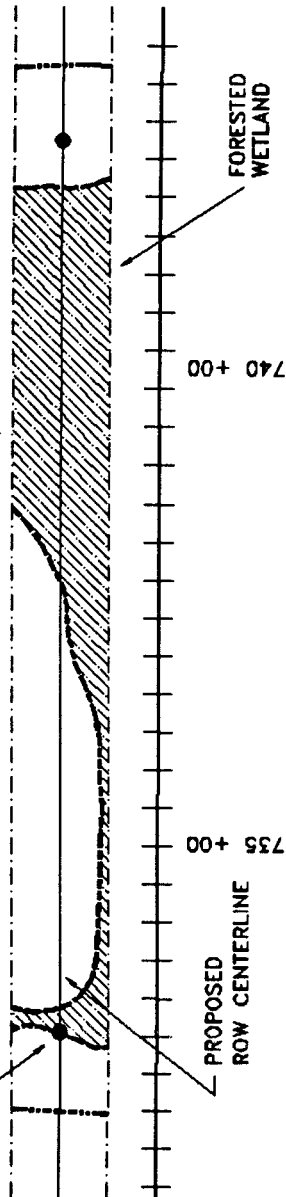
SHW ± 72
NWL ± 71
SLW ± 70



FIGURE 12

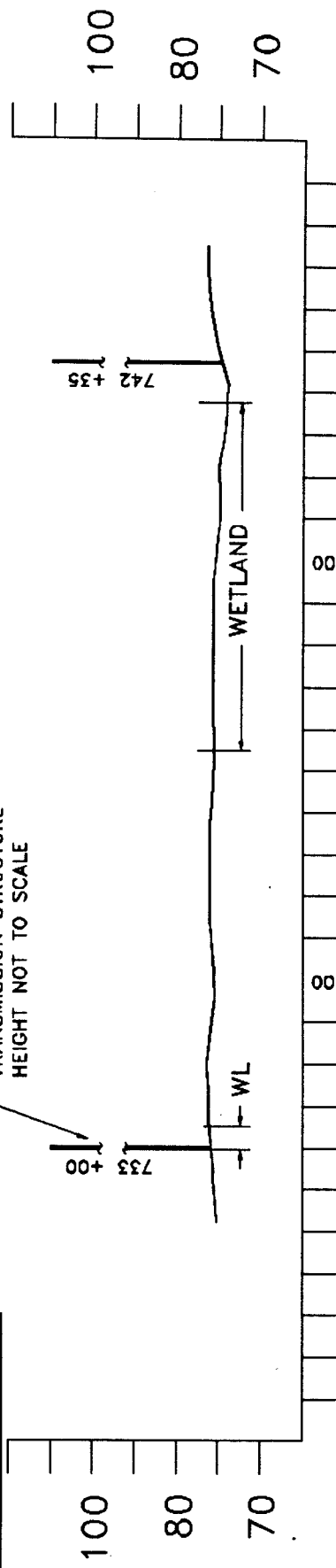
FDER/SWFWMD
JURISDICTION
FORESTED WETLAND

TRANSMISSION
STRUCTURE



NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS

TRANSMISSION STRUCTURE
HEIGHT NOT TO SCALE



LEGEND for PROFILE

— ROW C/L

N

WETLAND "HH" PLAN/PROFILE

SCALE: 1"=200'



FIGURE 13

SWFWMD
JURISDICTION

ISOLATED DISTURBED SHRUB WETLAND

TRANSMISSION
STRUCTURE

Handwritten signature and date: 5/6/92

ISOLATED
DISTURBED SHRUB
WETLAND

SEABOARD COAST LINE RR

PROPOSED
ROW CENTERLINE

770+00

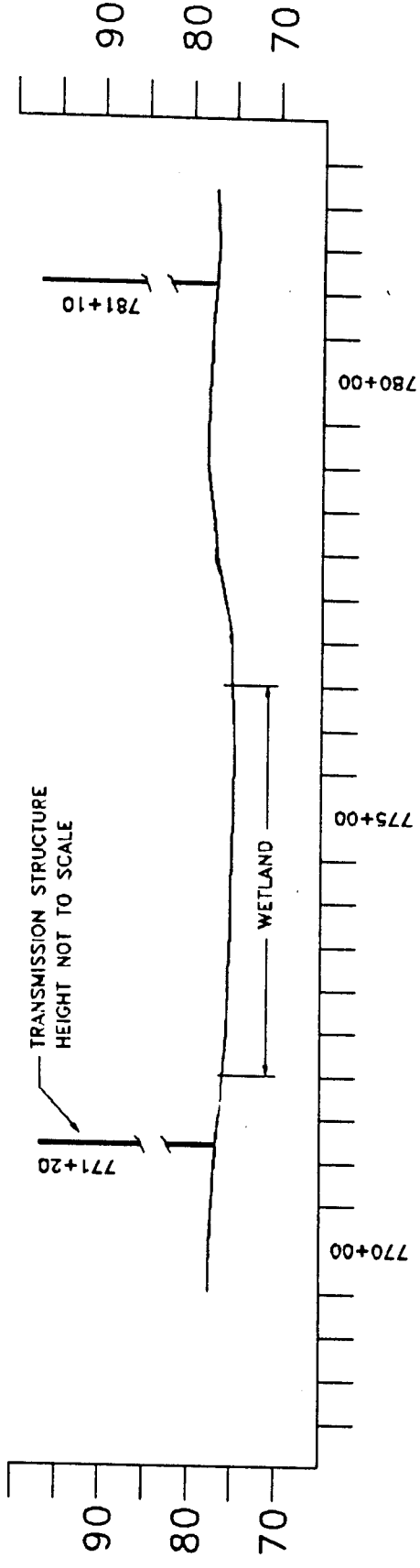
775+00

780+00

NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS

LEGEND

- WETLAND JURISD. BOUNDARY
- 100 YEAR FLOOD BOUNDARY
- ROW BOUNDARY



LEGEND for PROFILE

— ROW C/L

WETLAND "JJ" PLAN/PROFILE

SCALE: 1"=200'

SHW ± 76
NWL ± 75
SLW ± 74

N

0 100 200 300

DATUM: NGVD

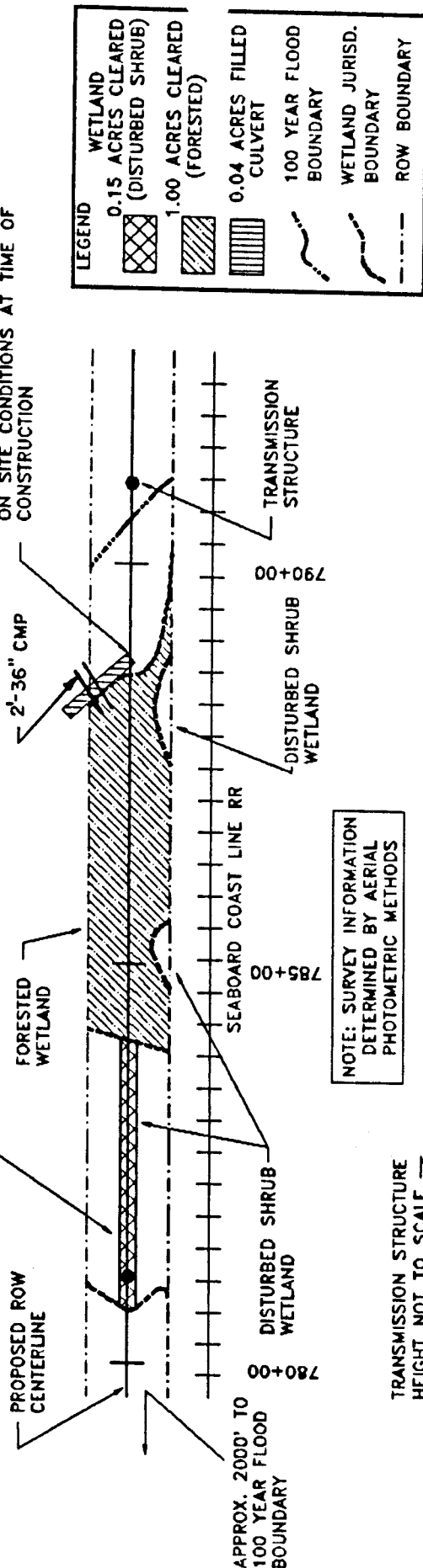


SEMINOLE
ELECTRIC
COOPERATIVE
INCORPORATED

FIGURE 14

FDER/SWFWMD
JURISDICTION
DISTURBED SHRUB/FORESTED WETLAND

NOTE: EDGE OF CULVERT IN
WETLAND TO BE STAKED WITH HAY
BALES OR A SILT SCREEN DEPENDENT
ON SITE CONDITIONS AT TIME OF
CONSTRUCTION



TRANSMISSION STRUCTURE
HEIGHT NOT TO SCALE

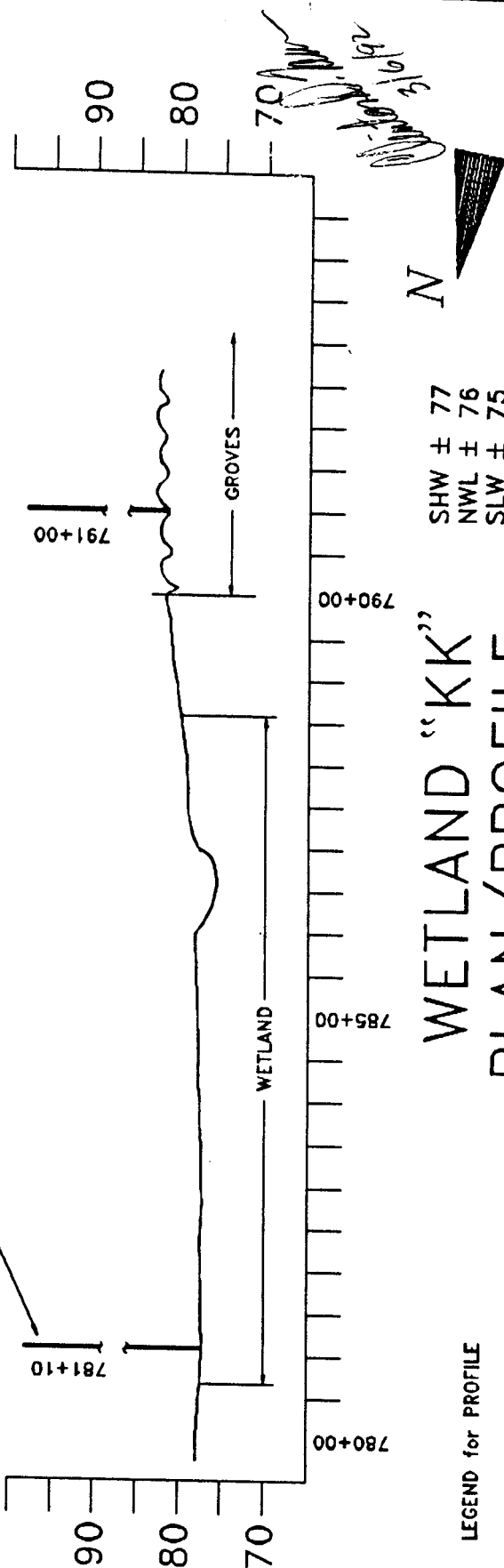


FIGURE 15

FDER
JURISDICTION
FORESTED WETLAND

PROPOSED
ROW CENTERLINE

TRANSMISSION
STRUCTURE

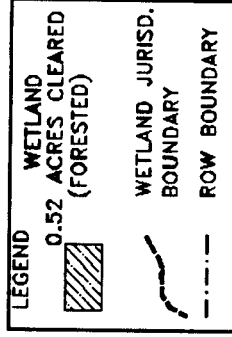
SEABOARD COAST LINE RR

805+00

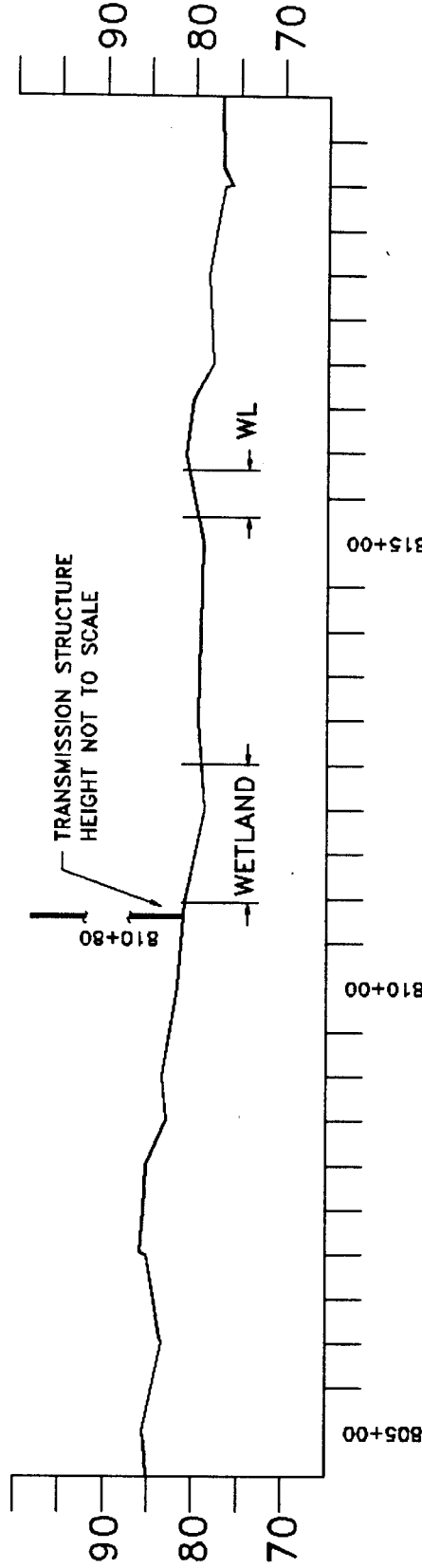
810+00

815+00

FORESTED
WETLAND

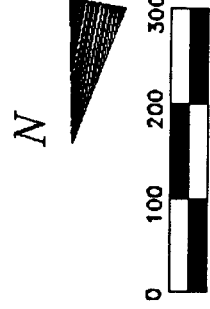


NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS



WETLAND "LL,MM"
PLAN/PROFILE

SLW ± 74
NLW ± 75
SHW ± 76



DATUM: NGVD

SCALE: 1"=200'

LEGEND for PROFILE

— ROW C/L

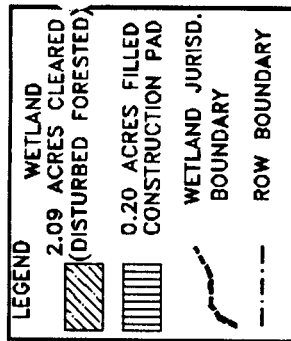
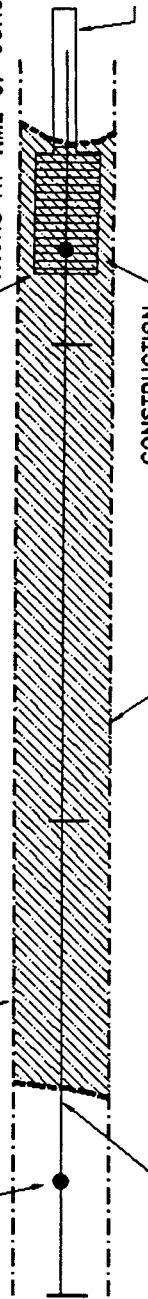


FIGURE 16,17

FDER/SWFWMD
JURISDICTION

DISTURBED FORESTED WETLAND

TRANSMISSION
STRUCTURE



NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS

TRANSMISSION STRUCTURE
HEIGHT NOT TO SCALE

FINAL GRADE ELEV. 79.0'

WETLAND

WETLAND "NN" PLAN/PROFILE

SCALE: 1"=200'

LEGEND for PROFILE



FILL

ROW C/L

SHW ± 76
NWL ± 75
SLW ± 74

N



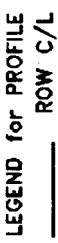
DATUM: NGVD



FIGURE 18

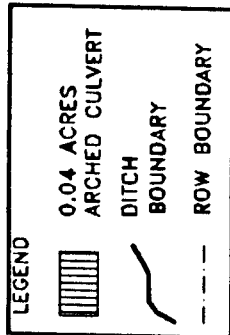
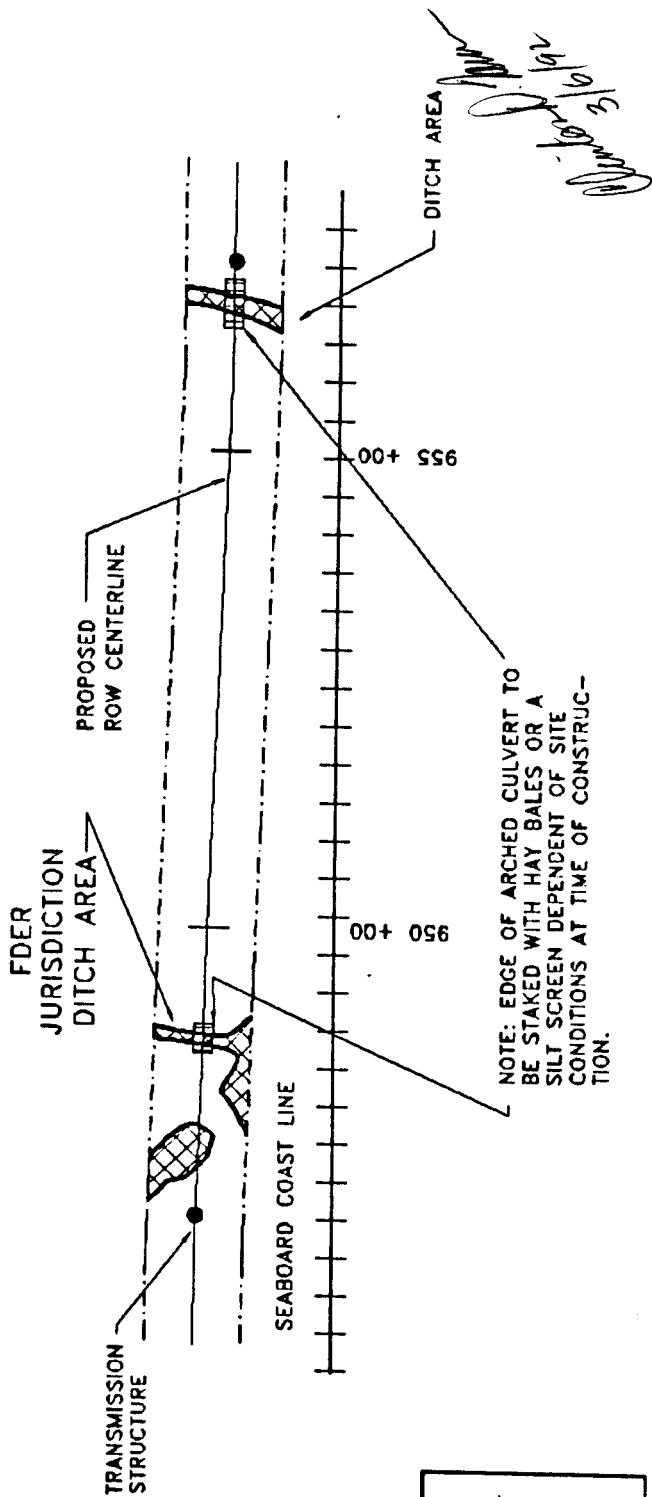


SCALE: 1"=200'



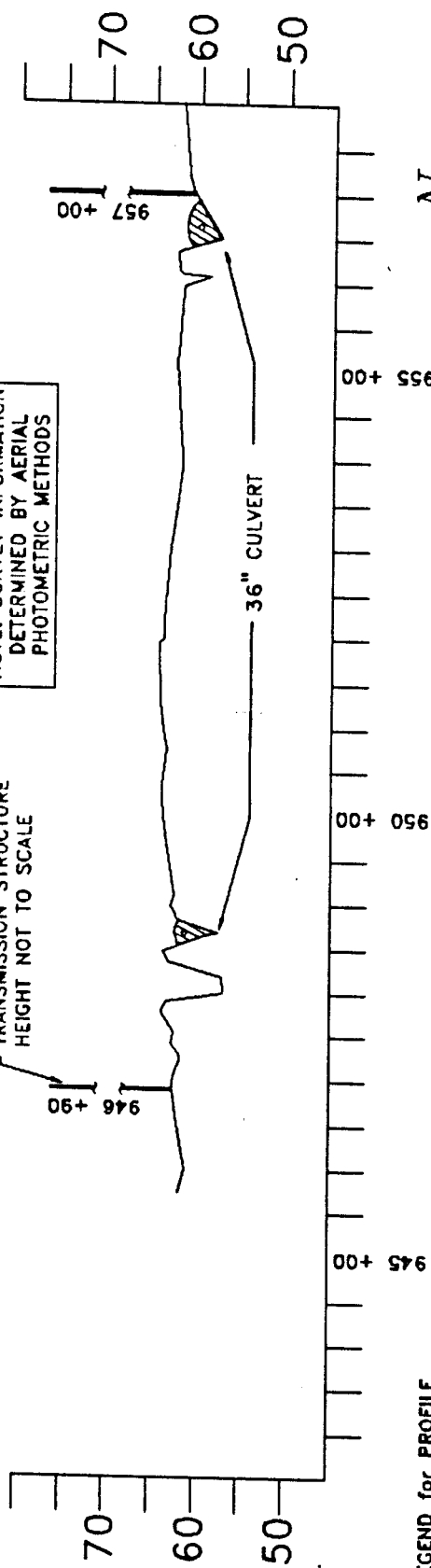
**SEMINOLE
ELECTRIC
COOPERATIVE
INCORPORATED**

FIGURE 19



NOTE: SURVEY INFORMATION DETERMINED BY AERIAL PHOTOMETRIC METHODS

TRANSMISSION STRUCTURE HEIGHT NOT TO SCALE



LEGEND for PROFILE

CORDUROY ROAD

ROW C/L

WETLAND "PP" PLAN/PROFILE SCALE: 1"=200'

SHW ± 62

NWL ± 61

SLW ± 60

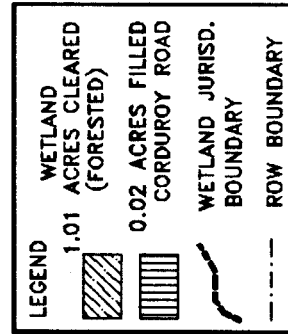
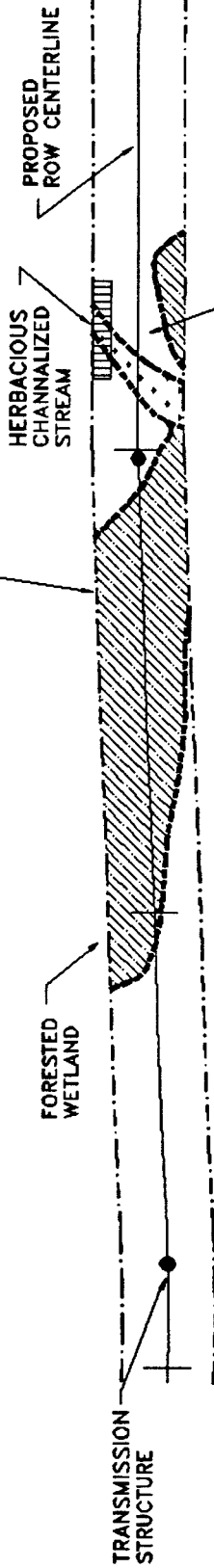


DATUM: NGVD



FIGURE 20

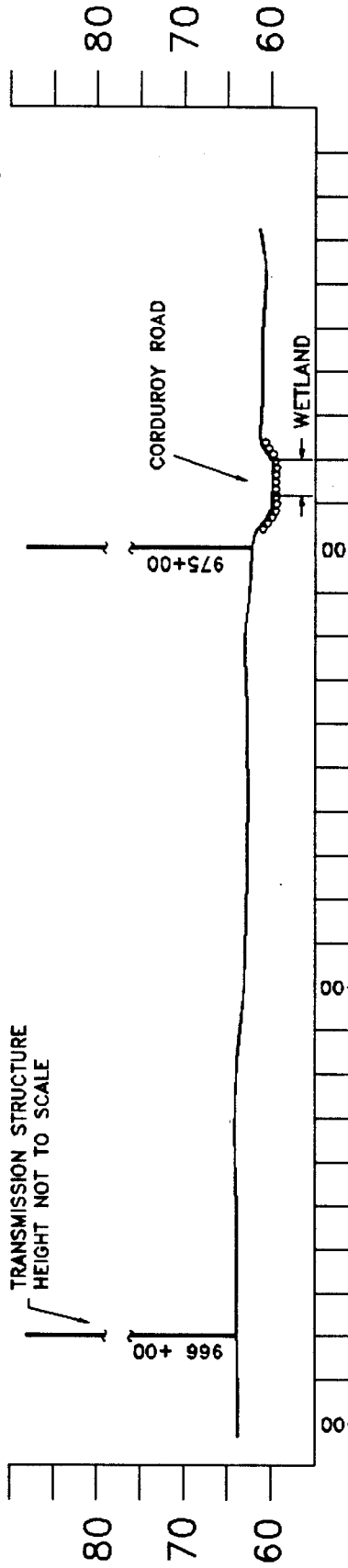
FDER/SWFWMD
JURISDICTION
FORESTED WETLAND



NOTE: EDGE OF CORDUROY ROAD IN WETLAND TO BE STAKED WITH HAY BALES OR A SILT SCREEN DEPENDENT ON SITE CONDITIONS AT TIME OF CONSTRUCTION

NOTE: SURVEY INFORMATION DETERMINED BY AERIAL PHOTOMETRIC METHODS

TRANSMISSION STRUCTURE
HEIGHT NOT TO SCALE

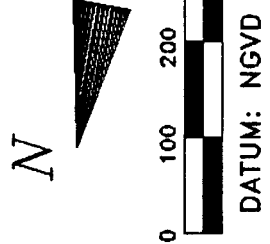


WETLAND "QQ" PLAN/PROFILE

LEGEND for PROFILE



SHW ± 61
NWL ± 60
SLW ± 59



SCALE: 1"=200'

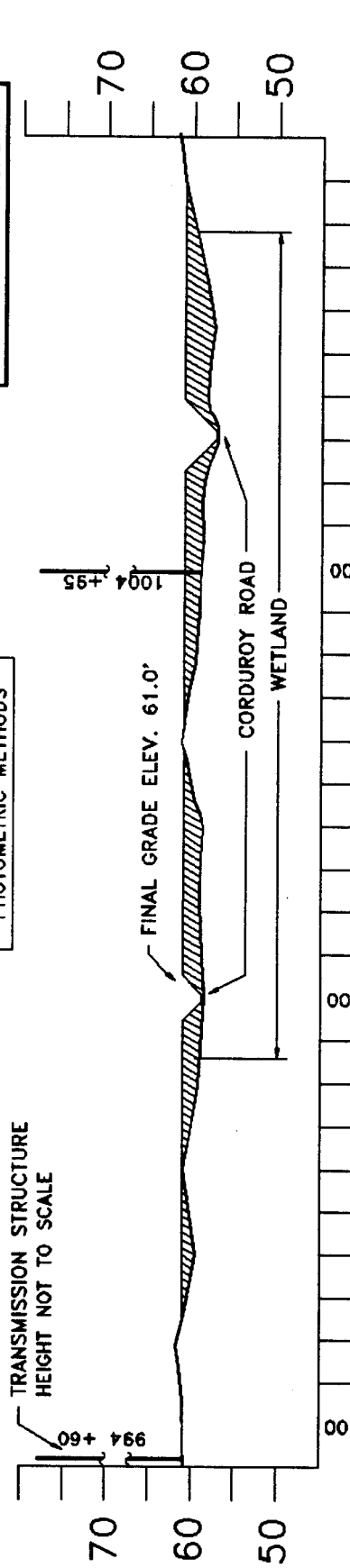
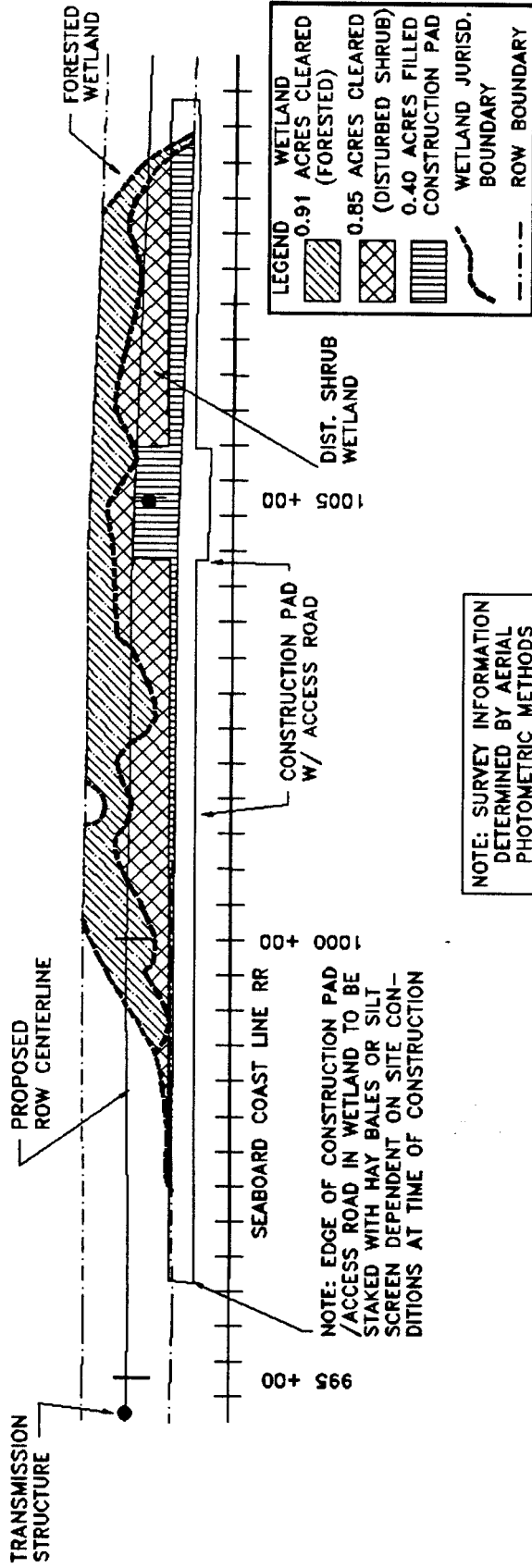


FIGURE 21

FDER/SWFWMD
JURISDICTION

DISTURBED FORESTED WETLAND

Clinton D. Shaw
3/6/92



N

WETLAND "SS"
PLAN/PROFILE

SCALE: 1"=200'

SHW ± 60
NWL ± 59
SLW ± 58

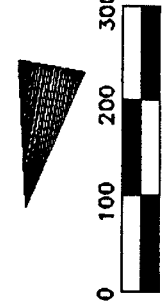


FIGURE 23

M. J. D. Ann
3/6/92

FDER/SWFWMD
JURISDICTION

DISTURBED SHRUB WETLAND

NOTE: EDGE OF CONSTRUCTION PAD /
CORDUROY ROAD IN WETLAND TO BE
STAKED WITH HAY BALES OR A SILT
SCREEN DEPENDENT ON SITE COND-
ITIONS AT TIME OF CONSTRUCTION

PROPOSED
ROW CENTERLINE

EXISTING ROAD

LEGEND

	WETLAND
	0.18 ACRES FILLED CONSTRUCTION PAD
	0.02 ACRES FILLED CORDUROY ROAD
	WETLAND JURISD. BOUNDARY
	ROW BOUNDARY

CORDUROY
ROAD

1020 ± 00

1015 ± 00

1025 ± 00

NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS

TRANSMISSION STRUCTURE
HEIGHT NOT TO SCALE

CORDUROY ROAD

FINAL GRADE ELEV. 61.0'

WETLAND

70
60
50

1015 ± 00

1020 ± 00

1025 ± 00

LEGEND for PROFILE

	FILL
	ROW C/L

WETLAND "TT" PLAN/PROFILE

SCALE: 1"=200'

N

SHW ± 60
NWL ± 59
SLW ± 58



DATUM: NGVD



FIGURE 24

FDER/SWFWMD
JURISDICTION

DISTURBED SHRUB WETLAND

NOTE: EDGE OF CORDUROY ROAD TO
BE STAKED WITH HAY BALES OR A
SILT SCREEN DEPENDENT ON SITE
CONDITIONS AT TIME OF CONSTRUCTION.

PROPOSED ROW
CENTERLINE

SEABOARD COAST LINE RR

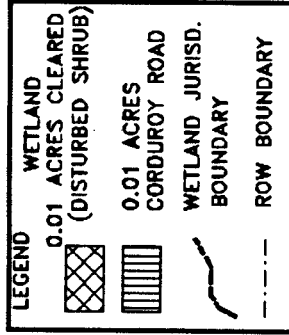
TRANSMISSION
STRUCTURE

DISTURBED SHRUB
WETLAND

1035 +00

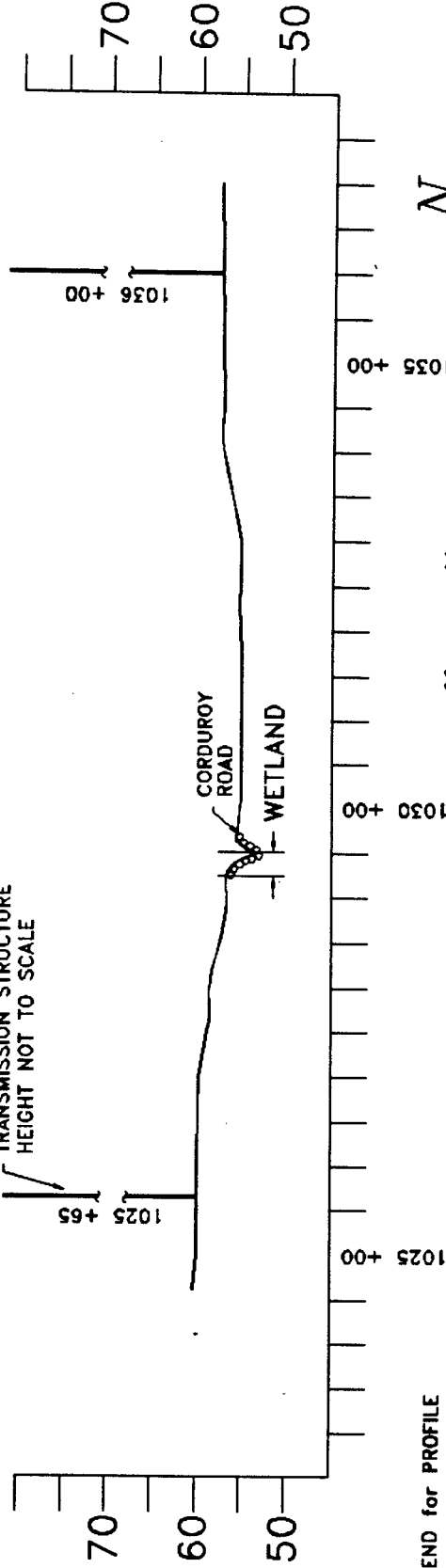
1030 +00

1025 +00



NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS

TRANSMISSION STRUCTURE
HEIGHT NOT TO SCALE



LEGEND for PROFILE

CORDUROY ROAD
 ROW C/L

N

WETLAND "UU" PLAN/PROFILE

SCALE: 1"=200'

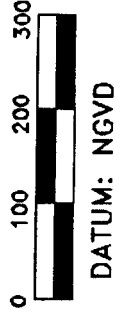
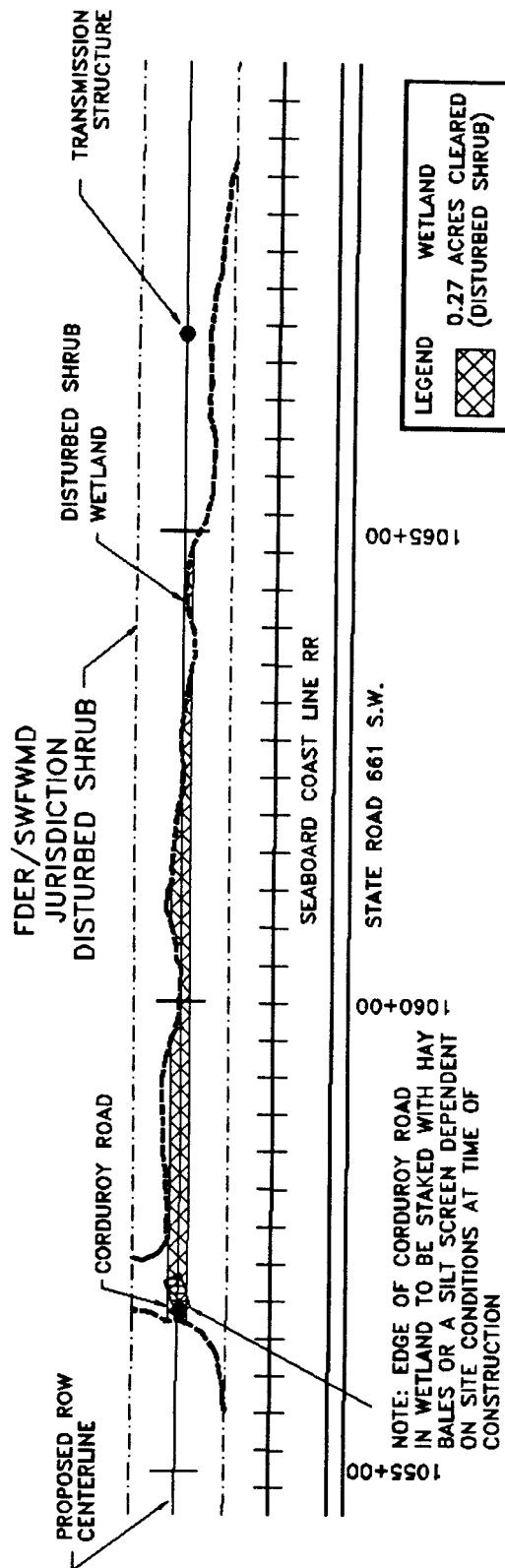
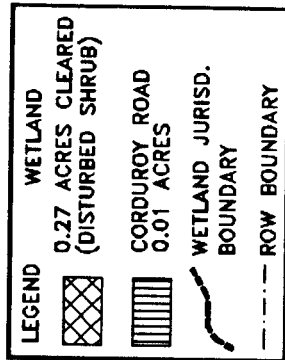


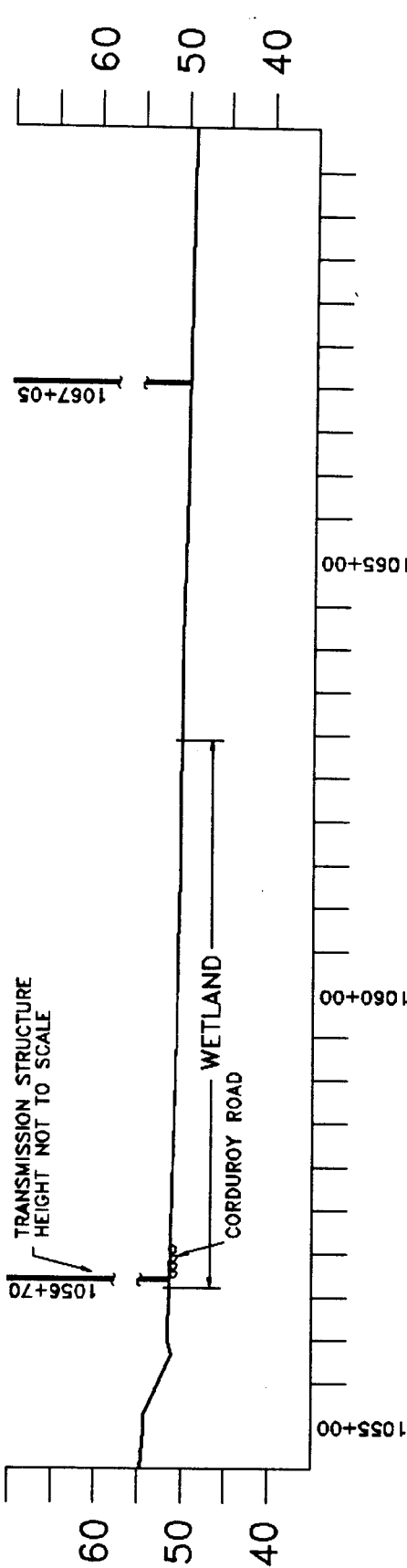
FIGURE 25



NOTE: EDGE OF CORDUROY ROAD
IN WETLAND TO BE STAKED WITH HAY
BALES OR A SILT SCREEN DEPENDENT
ON SITE CONDITIONS AT TIME OF
CONSTRUCTION



NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS



LEGEND for PROFILE

- CORDUROY ROAD
- ROW C/L

WETLAND "VV" PLAN/PROFILE

SCALE: 1"=200'

SHW ± 42
NLW ± 41
SLW ± 40

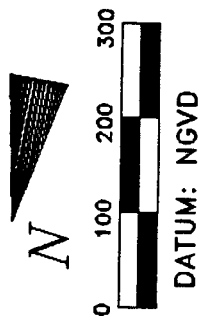
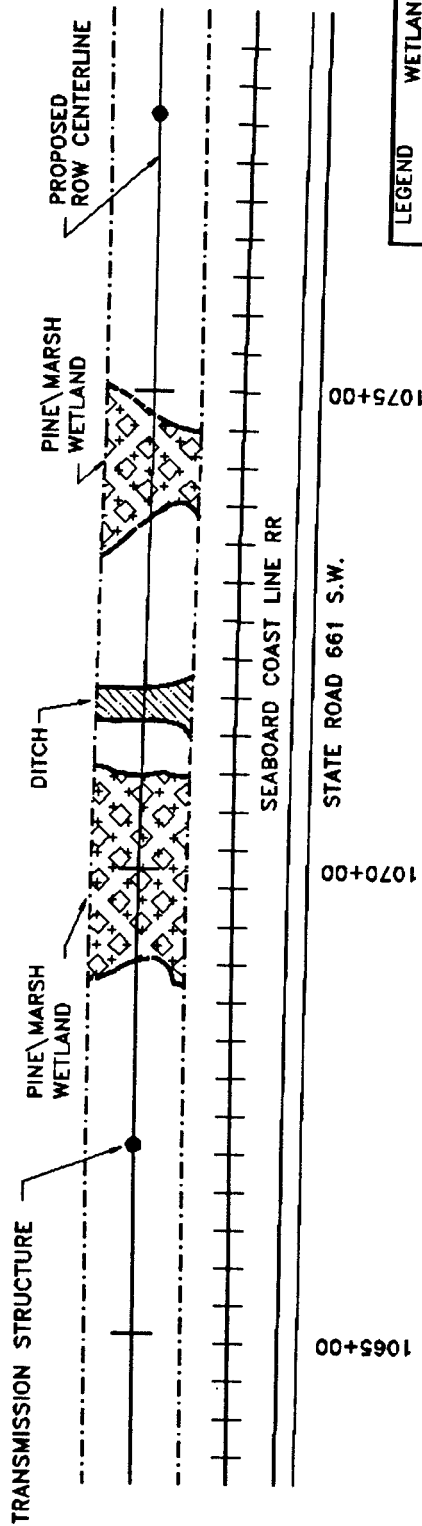
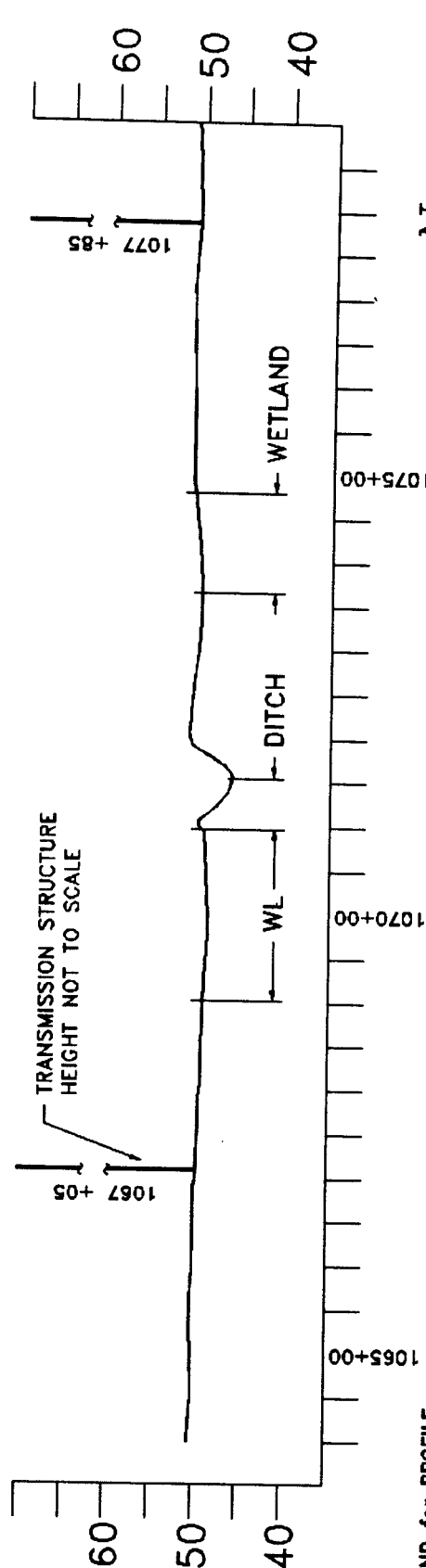


FIGURE 26

FDER/SWFWMD
JURISDICTION



NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS



LEGEND for PROFILE

ROW C/L

WETLAND "WW,XX,YY"

PLAN/PROFILE

SCALE: 1"=200'



DATUM: NGVD



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INCORPORATED

FIGURE 27,28,29

FDER/SWFWMD
JURISDICTION

DISTURBED SHRUB WETLAND

PROPOSED ROW'S
TRANSMISSION
STRUCTURE

CONSTRUCTION PAD

DISTURBED SHRUB
WETLAND

ACCESS ROAD

STATE ROAD 661 S.W.

SEABOARD COAST LINE RR

1145+00

1140+00

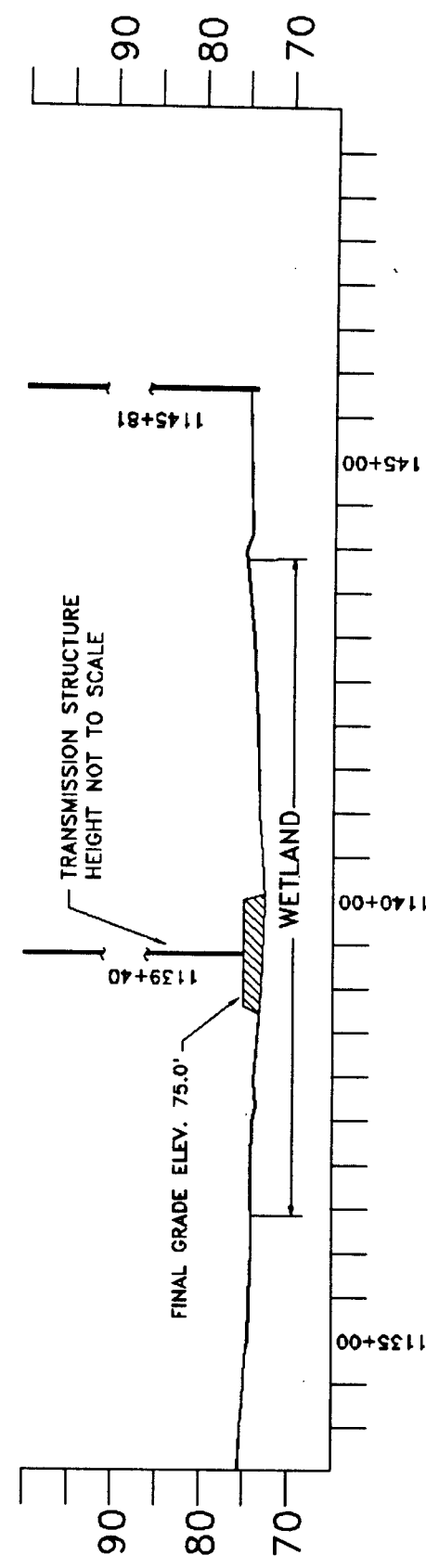
NOTE: EDGE OF CONSTRUCTION PAD
IN WETLAND TO BE STAKED WITH
HAY BALES OR A SILT SCREEN DEP-
ENDENT ON SITE CONDITIONS AT
TIME OF CONSTRUCTION

PROPOSED ROW
CENTERLINE

LEGEND

	WETLAND 0.27 ACRES CLEARED (DISTURBED SHRUB)
	0.22 ACRES FILLED CONSTRUCTION PAD
	WETLAND JURISD. BOUNDARY
	BOUNDARY

NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS



LEGEND for PROFILE

	FILL
	ROW C/L

SHW ± 74
NWL ± 73
SLW ± 72

**WETLAND "ZZ"
PLAN/PROFILE**

SCALE: 1"=200'

DATUM: NGVD



FIGURE 30

FDER/SWFWMD
JURISDICTION
SHRUB/MARSH WETLAND
STATE ROAD 661 S.W.

SEABOARD COAST LINE RR

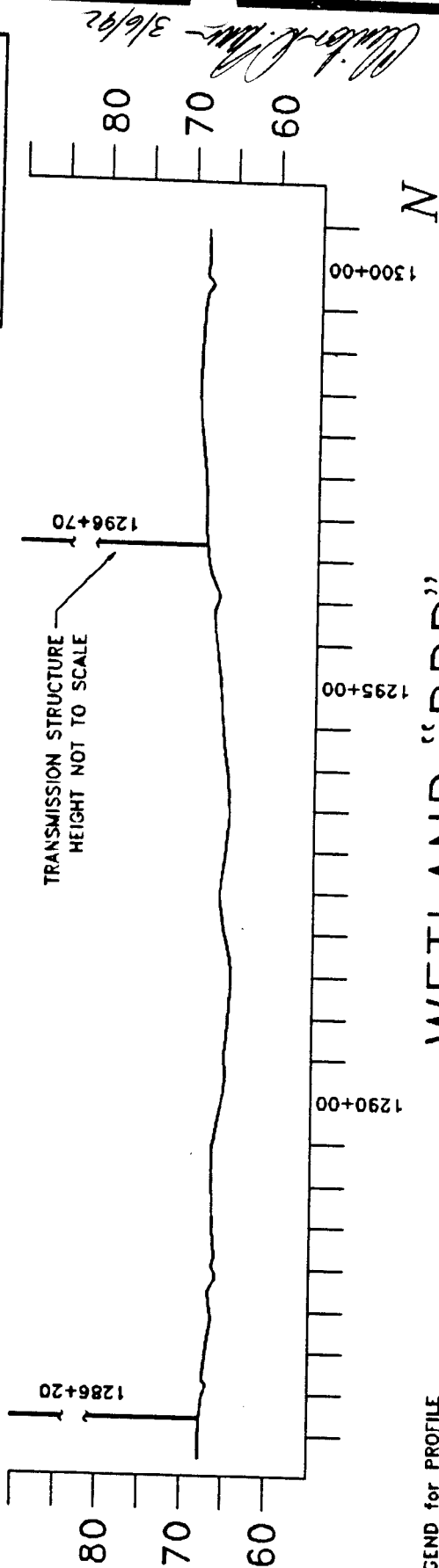
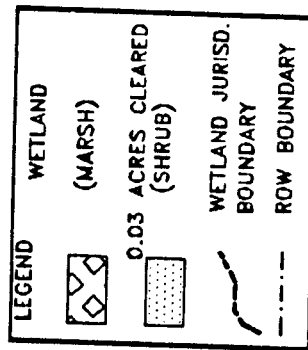
PROPOSED
ROW
CENTERLINE

1290+00
SHRUB
WETLAND
MARSH
WETLAND
1295+00

TRANSMISSION
STRUCTURE

TRANSMISSION STRUCTURE
HEIGHT NOT TO SCALE

NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS



WETLAND "DDD" PLAN/PROFILE

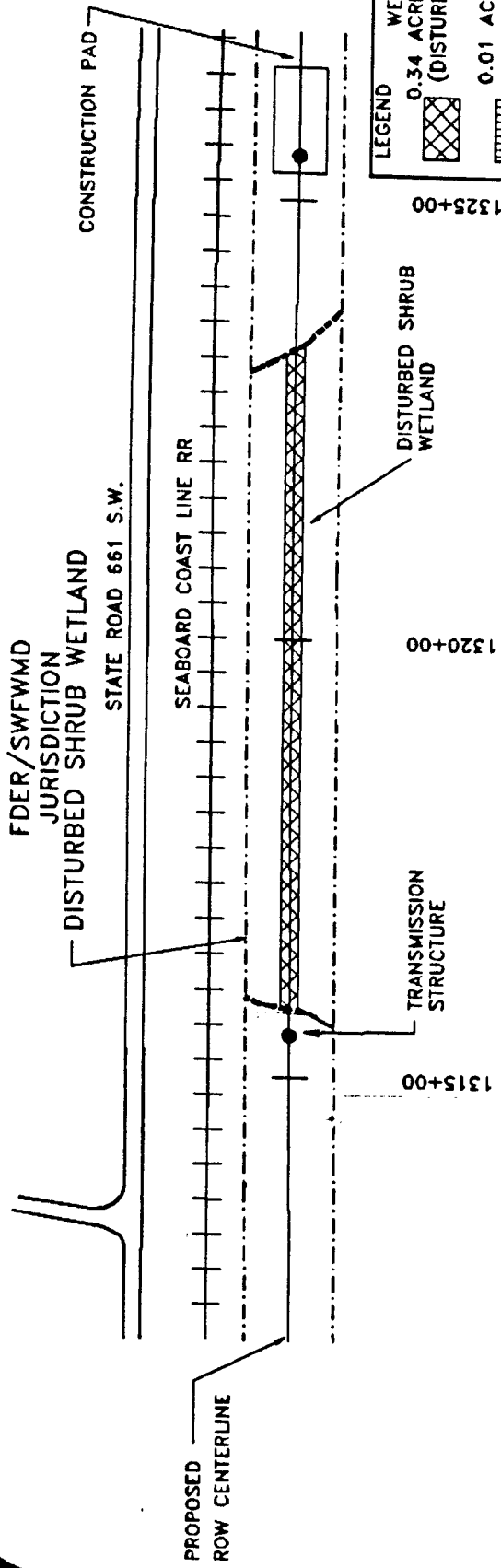
SCALE: 1"=200'

LEGEND for PROFILE

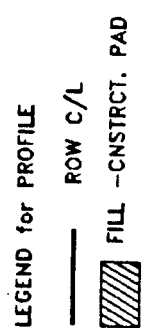
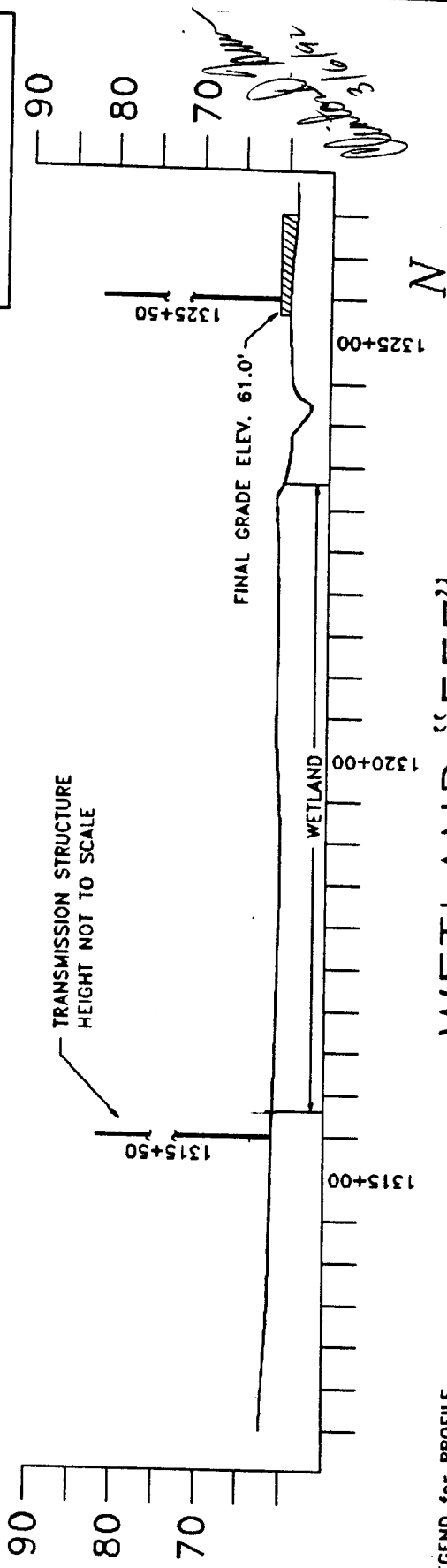
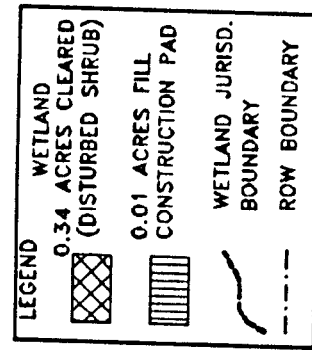
ROW C/L



FIGURE 31



NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS



SHW ± 60
NWL ± 59
SLW ± 58



DATUM: NGVD



FIGURE 32

FDER/SWFWM
JURISDICTION

DISTURBED SHRUB WETLAND

STATE ROAD 661 S.W.

SEABOARD COAST LINE RR

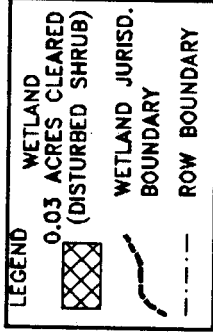
PROPOSED ROW
CENTERLINE

1350 +00

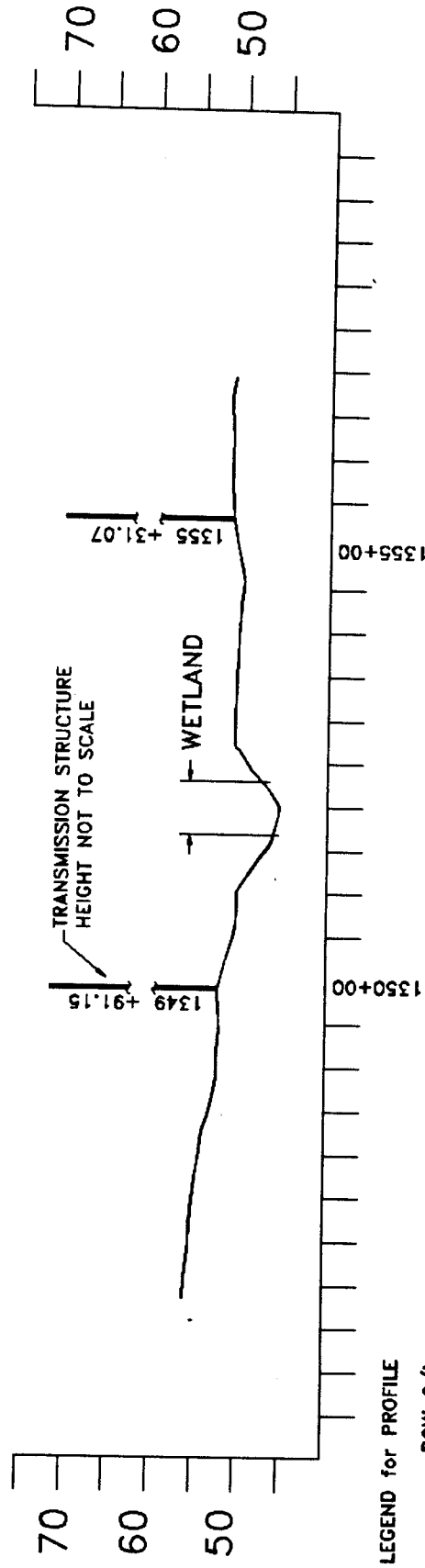
1355 +00

DISTURBED SHRUB
WETLAND

TRANSMISSION
STRUCTURE



NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS

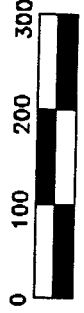


LEGEND for PROFILE
— ROW C/L

WETLAND "FFF" PLAN/PROFILE

SCALE: 1"=200'

N



DATUM: NGVD



FIGURE 33

FDER/SWFWM D
JURISDICTION

DISTURBED SHRUB WETLAND

COUNTY ROAD 661

1520 +00

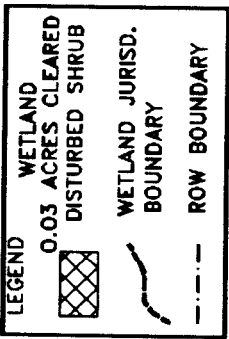
TRANSMISSION
STRUCTURE

1515 +00

DISTURBED SHRUB
WETLAND

1510 +00

PROPOSED
ROW CENTERLINE



NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS

TRANSMISSION STRUCTURE
HEIGHT NOT TO SCALE

1516 +65

WETLAND

1510 +25

1520 +00

1515 +00

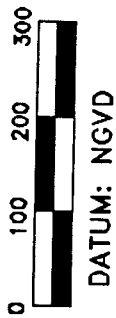
1510 +00

LEGEND for PROFILE
— ROW C/L

WETLAND "HHH" PLAN/PROFILE

SCALE: 1"=200'

N



Handwritten signature and date: 3/16/92



FIGURE 36

FDER/SWFWM
JURISDICTION

DISTURBED FORESTED WETLAND

TRANSMISSION STRUCTURE

PROPOSED ROW
CENTERLINE

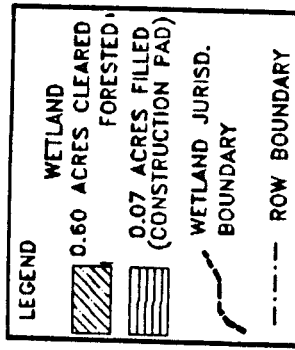
CONSTRUCTION PAD

DISTURBED FORESTED
WETLAND

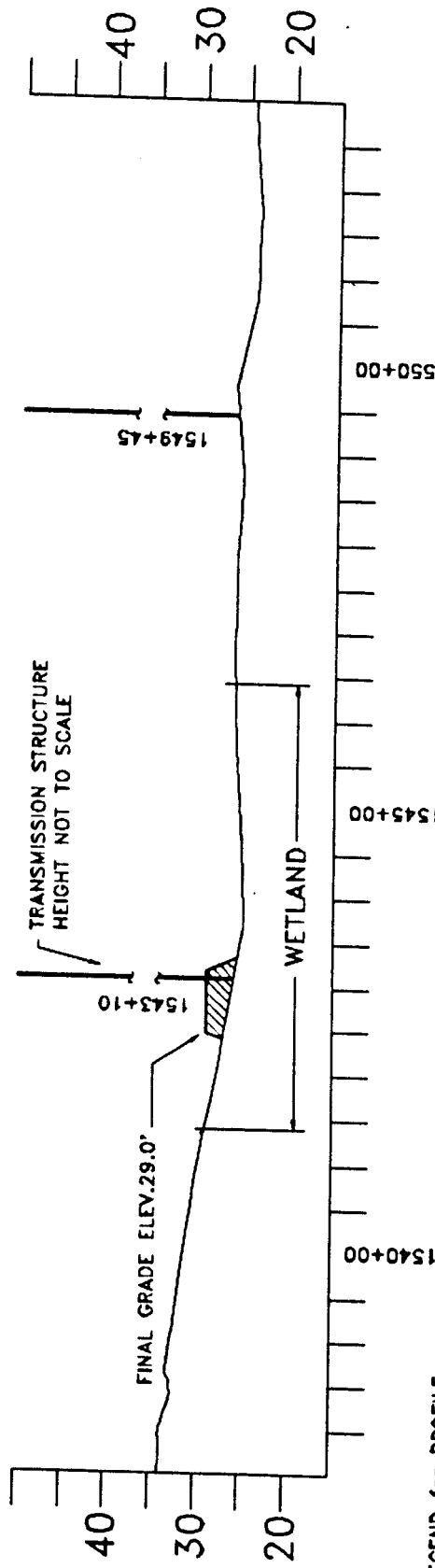
NOTE: EDGE OF CONSTRUCTION PAD
IN WETLAND TO BE STAKED WITH
HAY BALES OR A SILT SCREEN DEP-
ENDENT ON SITE CONDITIONS AT TIME
OF CONSTRUCTION

1540+00

1550+00



NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS



LEGEND for PROFILE

FILL

ROW C/L

WETLAND "III" PLAN/PROFILE

SCALE: 1"=200'

SHW ± 28
NWL ± 27
SLW ± 26

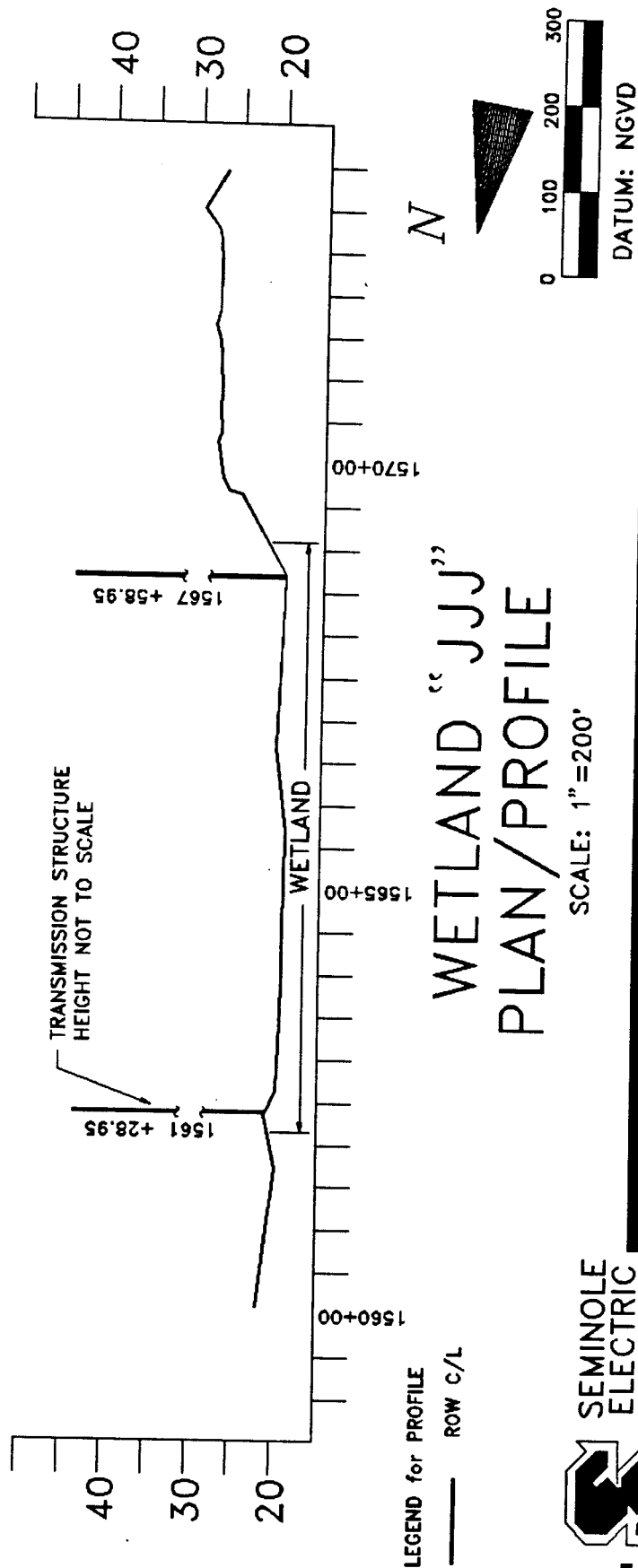
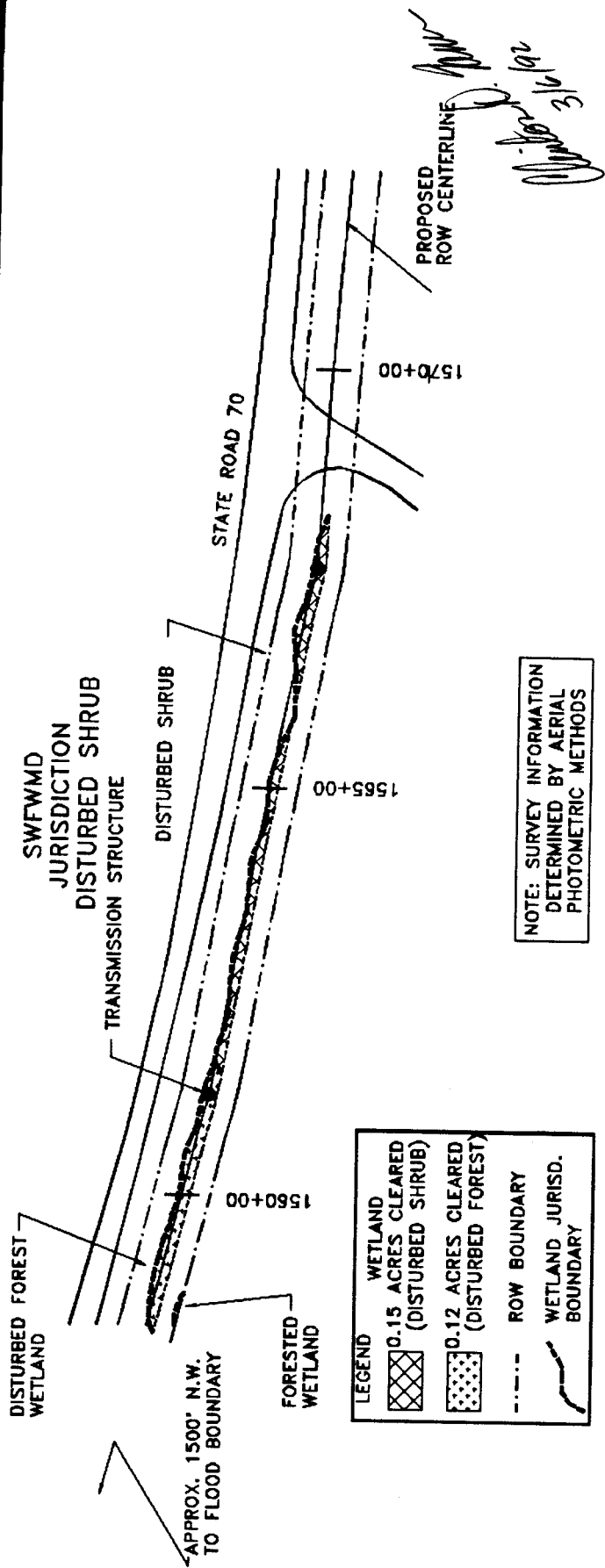
N



DATUM: NGVD



FIGURE 37



FDER
JURISDICTION
DISTURBED SHRUB

PROPOSED ROW
CENTERLINE

TRANSMISSION STRUCTURE

DISTURBED SHRUB
WETLAND

APPROX. 4000' N.W.
TO FLOOD BOUNDARY

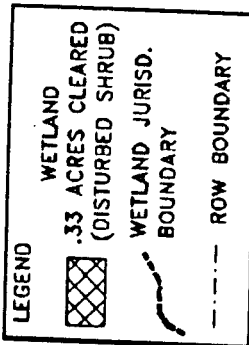
S.R. 70

1595+00

1590+00

1585+00

NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS



30
20
10

TRANSMISSION STRUCTURE
HEIGHT NOT TO SCALE

1585 +40

30
20
10

1585+00

1590+00

1595+00

LEGEND for PROFILE

— ROW C/L

WETLAND "KKK" PLAN/PROFILE

SCALE: 1"=200'



DATUM: NGVD

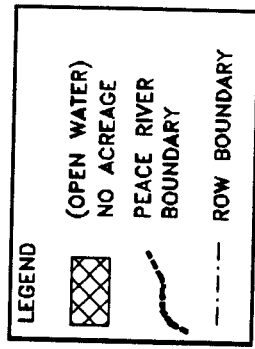
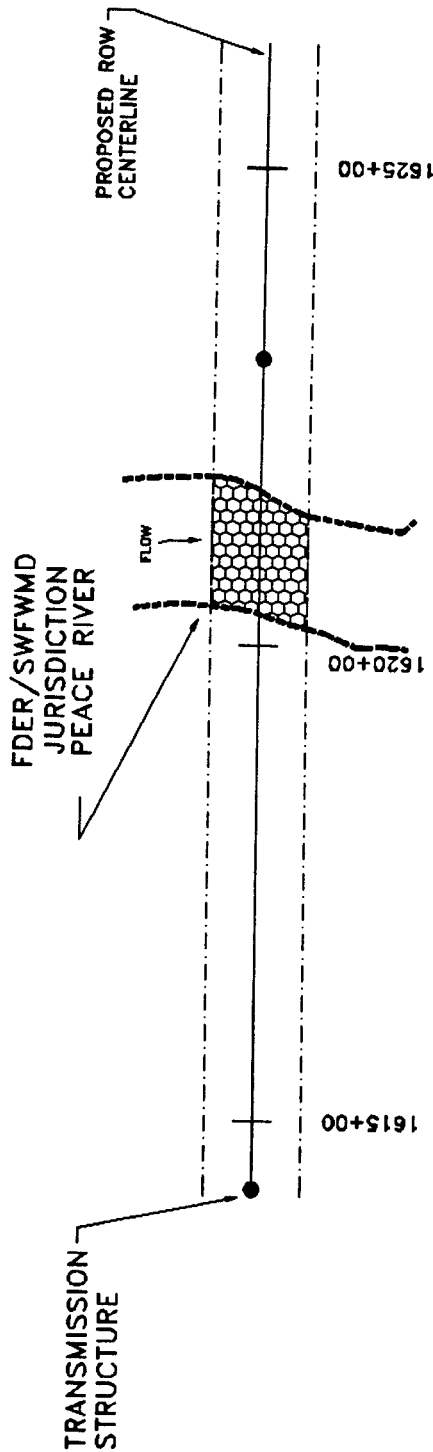


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COOPERATIVE
INCORPORATED

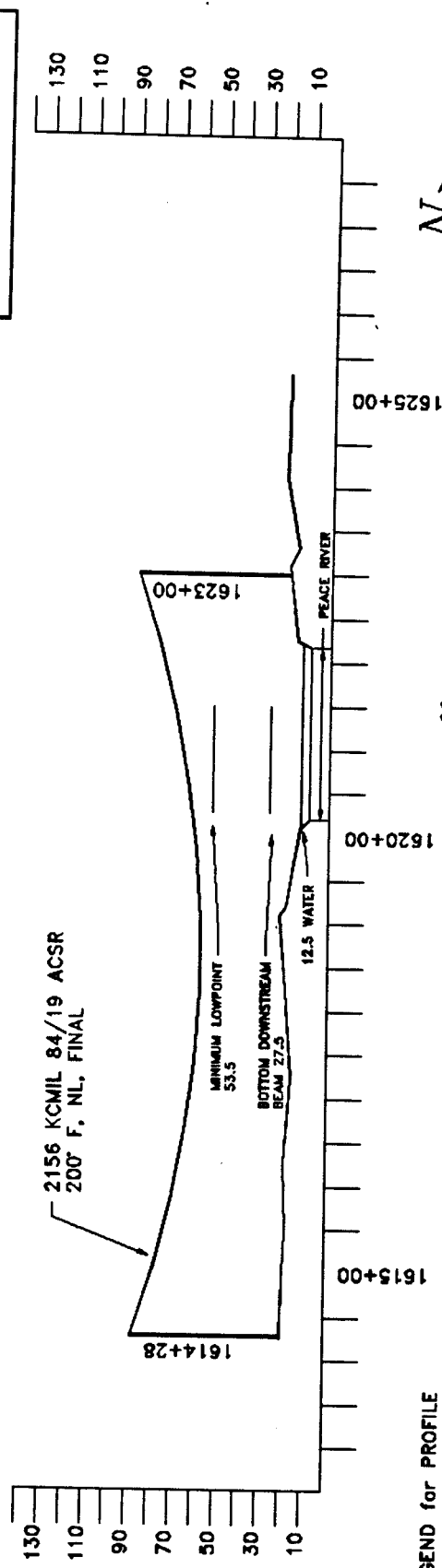
FIGURE 39

Wetland Plan
3/6/92

Wetland
3/6/92



NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS



LEGEND for PROFILE

— ROW C/L

WETLAND "MMM" PLAN/PROFILE

SCALE: 1"=200'

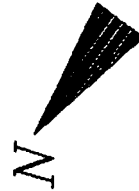


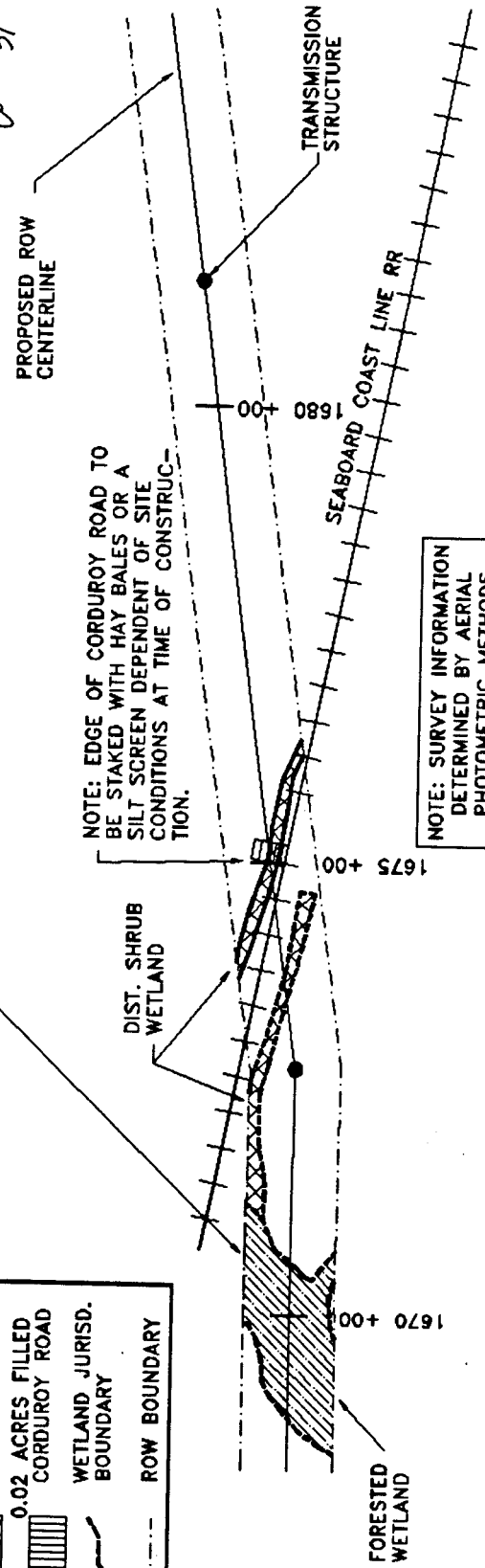
FIGURE 39A

Approved
3/16/92

LEGEND

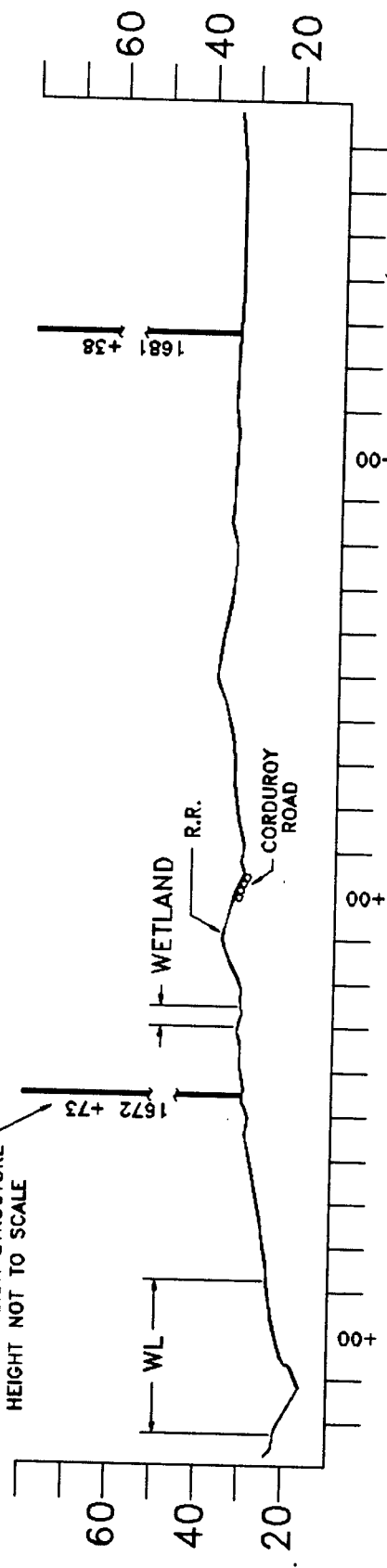
	WETLAND 0.39 ACRES CLEARED (FORESTED)
	0.02 ACRES CLEARED (DISTURBED SHRUB)
	0.02 ACRES FILLED CORDUROY ROAD
	WETLAND JURISD. BOUNDARY
	ROW BOUNDARY

FDER/SWFWMD
 JURISDICTION
 FORESTED WETLAND



NOTE: SURVEY INFORMATION
 DETERMINED BY AERIAL
 PHOTOMETRIC METHODS

TRANSMISSION STRUCTURE
 HEIGHT NOT TO SCALE



LEGEND for PROFILE

	CORDUROY ROAD
	ROW C/L

WETLAND "NNN"
 PLAN/PROFILE

SHW ± 26
 NWL ± 25
 SLW ± 24

SCALE: 1" = 200'

N

DATUM: NGVD

SEMINOLE
 ELECTRIC
 COOPERATIVE
 INCORPORATED

FIGURE 41

FDER/SWFWM
JURISDICTION

EXISTING LOW WATER CROSSING

TRANSMISSION
STRUCTURE

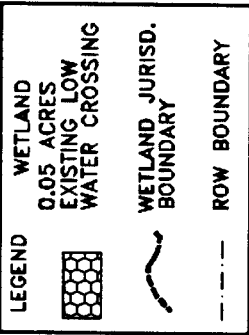
PROPOSED
ROW CENTERLINE

1695 +00

1700 +00

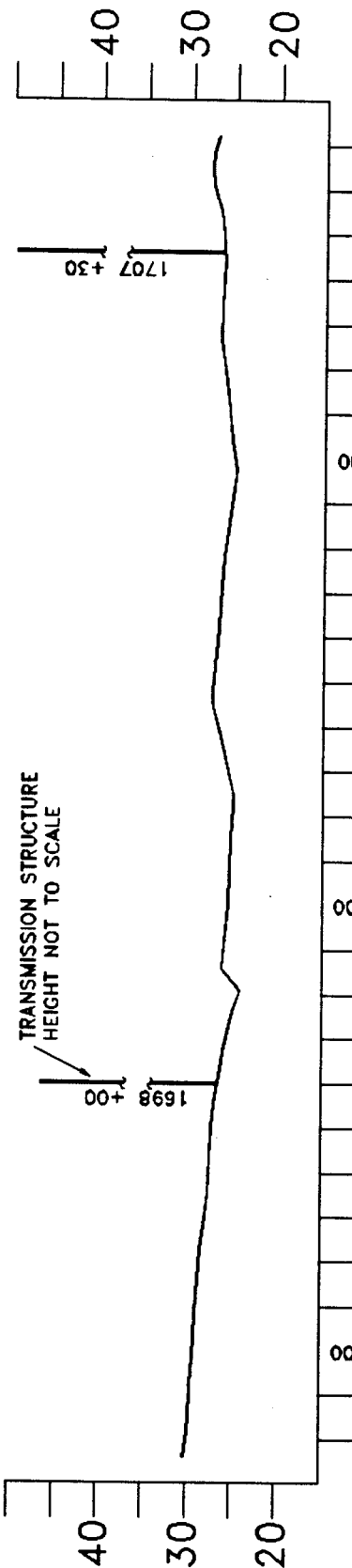
1705 +00

EXISTING LOW
WATER CROSSING



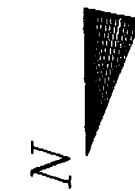
NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS

Handwritten signature and date: 3/16/92



TRANSMISSION STRUCTURE
HEIGHT NOT TO SCALE

LEGEND for PROFILE
— ROW C/L



DATUM: NGVD

WETLAND "000" PLAN/PROFILE

SCALE: 1"=200'



SEMINOLE
ELECTRIC
COOPERATIVE
INCORPORATED

FIGURE 42

FDER/SWFWMD
JURISDICTION
FORESTED WETLAND

TRANSMISSION
STRUCTURE

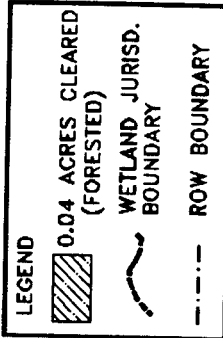
PROPOSED ROW
CENTERLINE

WETLAND
(UPLAND FOREST
NO ACRES)

1705 +00

1710 +00

1715 +00



NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS

TRANSMISSION STRUCTURE
HEIGHT NOT TO SCALE

1707 +30

1717 +00

WL

WETLAND

LEGEND for PROFILE

— ROW C/L

N

WETLAND "PPP,QQQ" PLAN/PROFILE

SCALE: 1"=200'

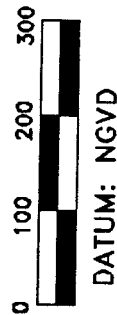


FIGURE 43,44

SWFWMD
JURISDICTION
FORESTED

Michael D. ...
3/6/92

PROPOSED
ROW CENTERLINE

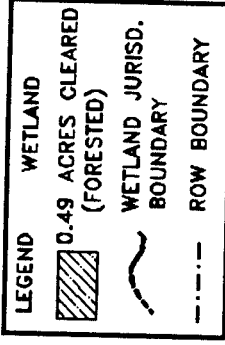
1725 +00

FORESTED
WETLAND

1720 +00

TRANSMISSION
STRUCTURE

1715 +00



NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS

TRANSMISSION STRUCTURE
HEIGHT NOT TO SCALE

1717 +00

1725 +70

WETLAND

1725 +00

1720 +00

1715 +00

N

WETLAND "RRR" PLAN/PROFILE

SCALE: 1"=200'

LEGEND for PROFILE
ROW C/L

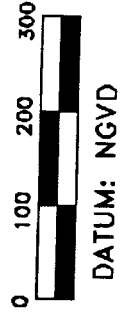
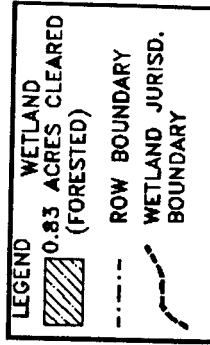
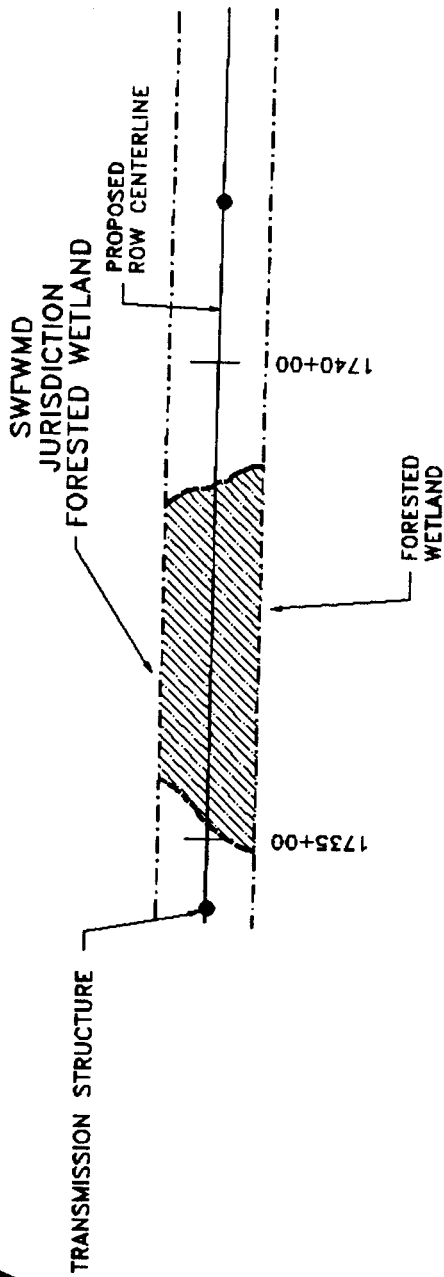


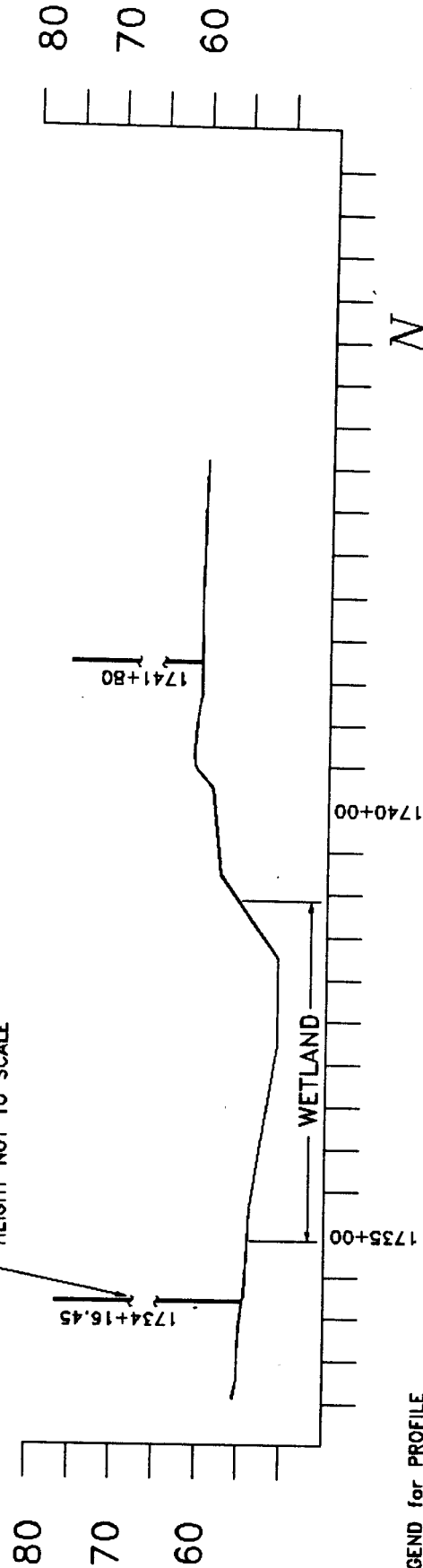
FIGURE 45



NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS

John D. D. [Signature]
3/6/92

TRANSMISSION STRUCTURE
HEIGHT NOT TO SCALE

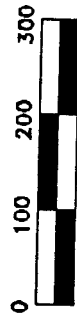


LEGEND for PROFILE

— ROW C/L

WETLAND "SSS" PLAN/PROFILE

SCALE: 1"=200'



DATUM: NGVD



FIGURE 46

FDER/SWFWMD
JURISDICTION
FORESTED WETLAND

PROPOSED
ROW CENTERLINE

TRANSMISSION
STRUCTURE

DISTURBED SHRUB
WETLAND

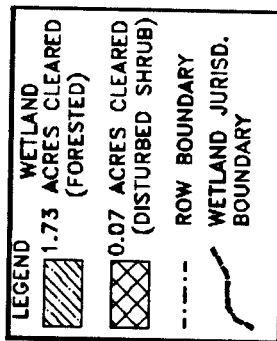
FORESTED
WETLAND

1760+00

1755+00

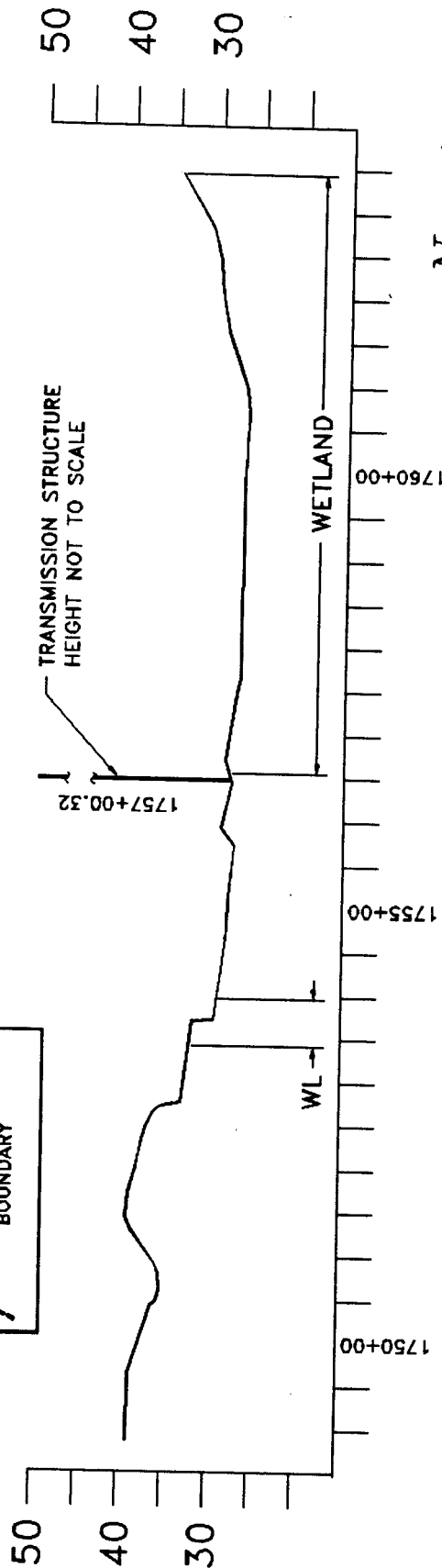
DITCH

1750+00



NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS

[Signature]
3/6/92



DATUM: NGVD

WETLAND "TTT" PLAN/PROFILE

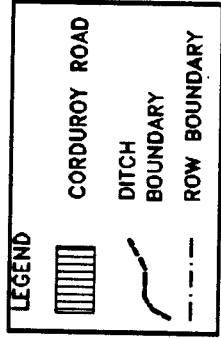
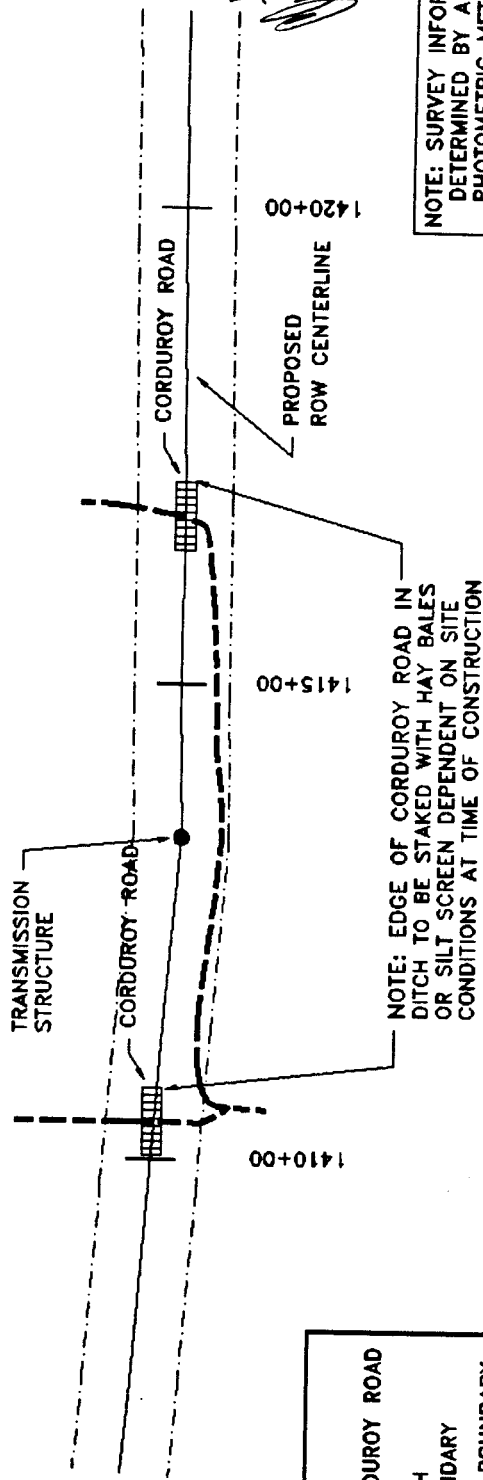
SCALE: 1"=200'

LEGEND for PROFILE

ROW C/L

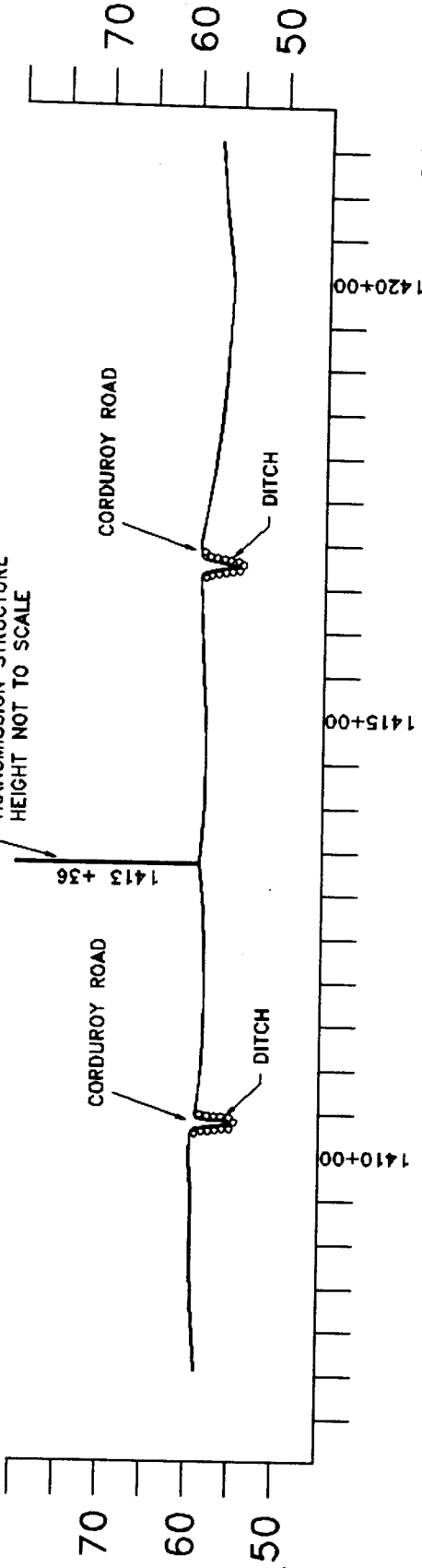


FDER/SWFWMD
JURISDICTION
DITCH



NOTE: SURVEY INFORMATION
DETERMINED BY AERIAL
PHOTOMETRIC METHODS

TRANSMISSION STRUCTURE
HEIGHT NOT TO SCALE



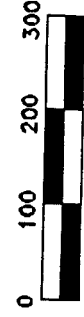
LEGEND for PROFILE

— ROW C/L

WETLAND "DITCH"
PLAN/PROFILE

SHW ± 60
NWL ± 59
SLW ± 58

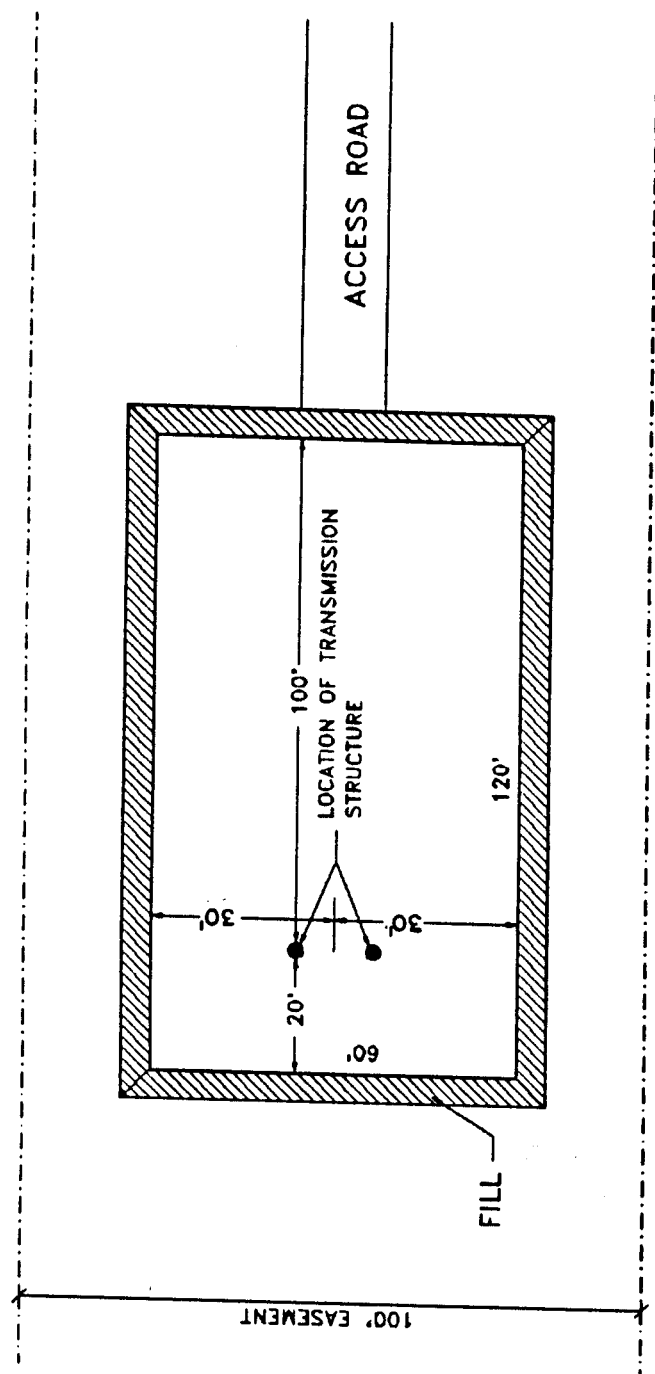
SCALE: 1"=200'



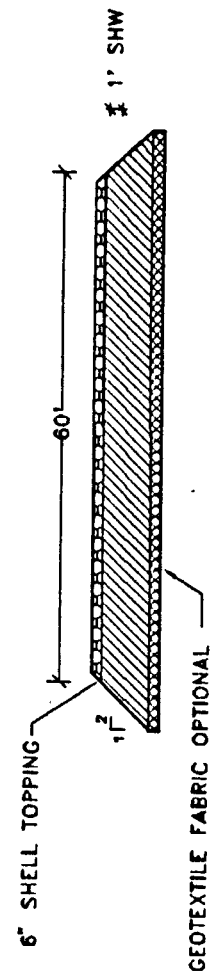
DATUM: NGVD



FIGURE 34



N.T.S.

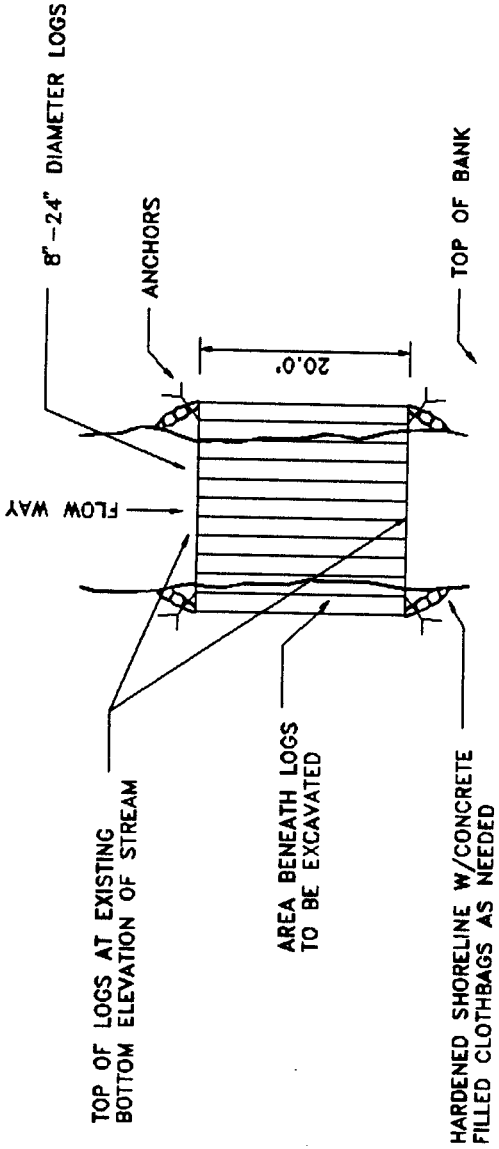


N.T.S.

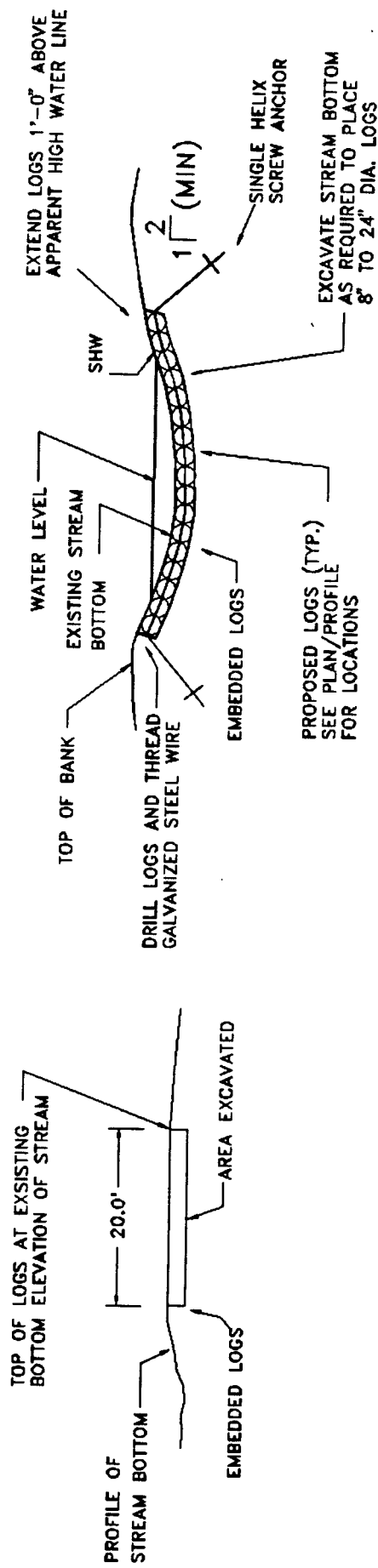
TYPICAL PAD LAYOUT

Handwritten signature and date: 10/16/12

CORDUROY ROAD



TYPICAL PLAN DETAIL
N.T.S.



TYPICAL PROFILE DETAIL
N.T.S.

Handwritten signature and date:
3/6/92

REVISED WETLAND COMPENSATION PLAN

VANDOLAH - ARCADIA

Seminole Electric Cooperative, Inc. in coordination with SWFWMD has revised the wetland impacts and the mitigation plan for the Vandolah to Arcadia transmission line. Impacts include limited clearing of forested wetlands of varying quality, 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. The impacts associated with each wetland are indicated on Table 1 and are summarized below.

Wetland Filling

	Fill	
Forested	0.27 acres	
Shrub	1.03 acres	(including corduroy roads)
Marsh	0.05 acres	"
Upland Ditches	0.11 acres	"
TOTAL	1.46 acres	"

Clearing

Forested (Hand Clearing)	10.22 acres
Shrub Clearing (Bush Hog)	3.49 acres
TOTAL	13.71 acres

Two types of compensation are proposed for these wetland impacts. Filling impacts are mitigated for by the creation of forested and herbaceous wetlands from uplands in the Myrtle Slough area (see attached Figures 7, 8, 9. Clearing impacts will be compensated for by enhancement and creation of wetlands within the historic Myrtle Slough area through hydroperiod control (see Figures 1, 2, 2A, 2B, 3, 3A, 3B, 4, 4A, 4B, and 5).

Wetland Creation:

In order to mitigate for filling of 1.46 acres of mostly disturbed shrub areas SECI is proposing to create 5.85 acres of forested area and 2.44 acres of marsh areas. These areas are indicated on the attached drawings and construction plans (Figures 6, 7, 8). These areas are shown as the hatched areas on the attached drawings.

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 cyress, 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 5.67 acres will have an understory of Itea, 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.

Wetland Restoration:

In order to mitigate for clearing of 13.71 acres of forested, shrub, and disturbed shrub areas SECI is proposing to create 21.86 acres of wetlands in the western portion of Slough #3 (excludes area permitted for Hardee - Vandolah T-Line and scour), 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. In summary, 105.92 acres of wetlands will be created through enhancement and 7.69 acres of wetlands will be enhanced as mitigation for wetland clearing activities or as needed for other impacts.

The methodology for restoring these hydroperiods includes the use of berms placed perpendicular to flow. The details of these berms are indicated in Figure 2, 2A, 2B, 3, 3A, 3B, 4, 4A, 4B, and 5 and explanation of berm designs and functional aspects were submitted previously.

Monitoring and Maintenance:

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.

The placement of the earthen berms will cause an increase in water elevations and duration of inundations throughout all delineated areas of Slough #3 and #2 and #1. These areas are delineated on the wetland restoration plan sheet. Different types and amounts of slough restoration are expected and therefore three types of restoration are proposed: restoration creation, restoration Type A and restoration Type B. The restoration/creation area is that which is presently not considered jurisdictional wetlands, but which is expected to become jurisdictional with the reestablished wetland hydroperiod. This area is located in the western portion of Slough #3. Type A restoration is that area which is currently a jurisdictional wetland but is expected to experience a substantial shift in vegetative composition when the hydroperiods are restored.

Type B restoration is that wetland area which will benefit less from the hydroperiod restoration, but a significant shift in vegetative composition is still expected.

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.

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

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

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

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

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:

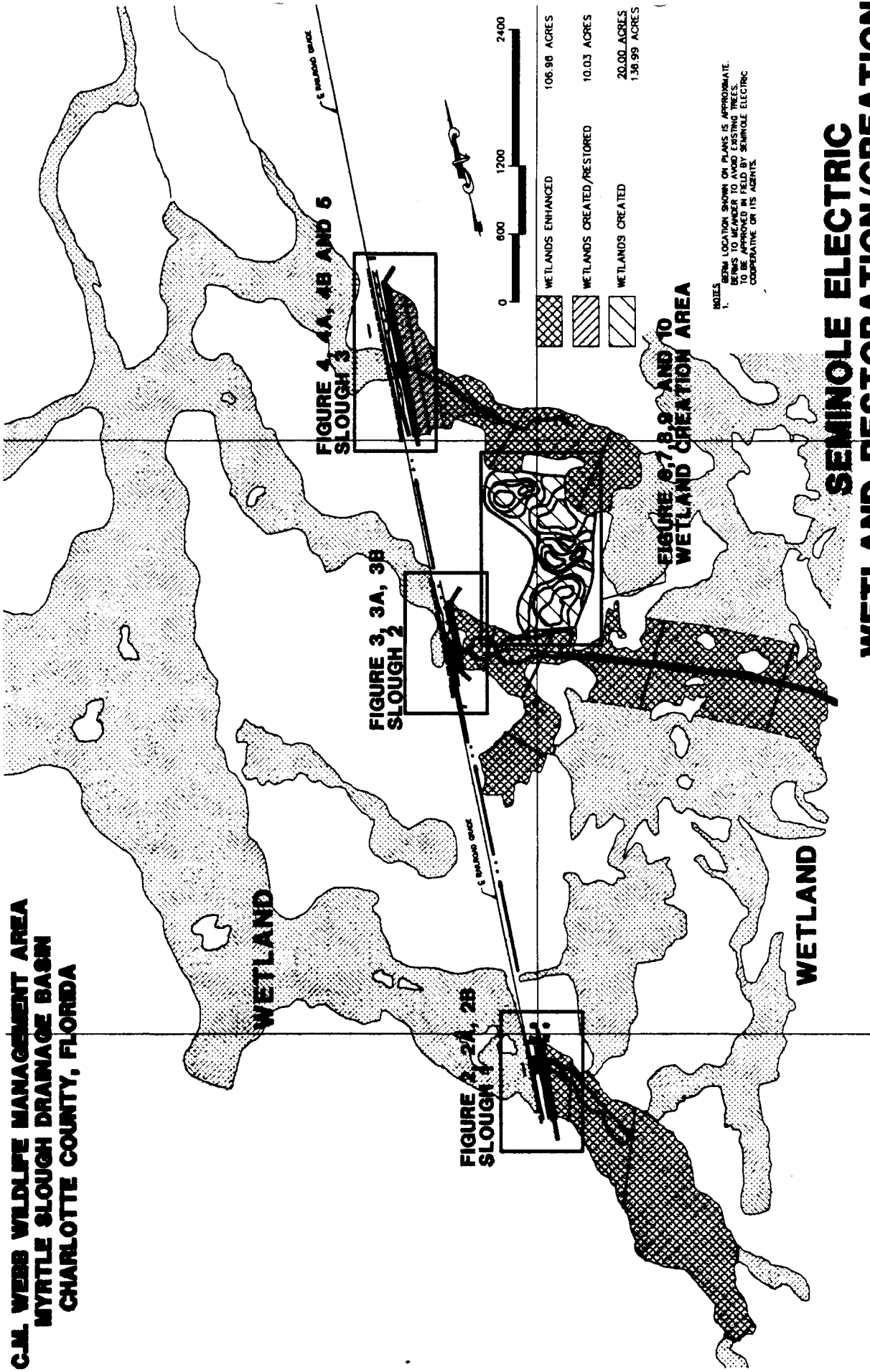
Areas A-1, B-1, A-2, B-2, A-3, B-3 are submitted as non-type mitigation for marsh impacts on the transmission line. These areas will be considered successful when the area can be classified as Palustrine, Emergent, Persistent, Seasonally Flooded according the U.S.F. & W.S. Classification of Wetlands and Deepwater

Habitats of the United States. The topography, water depth, and water level fluctuations in the mitigation area are as indicated on the construction plans which 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 type A restoration areas will experience a 30% shift in vegetation toward the obligate and facultative species in order to be considered successful. Type B restoration areas will experience a 10% shift toward the dominance of obligate and facultative wetland species to be deemed successful. Nuisance and/or invasive exotic species must not exceed 10% of the vegetative cover.

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

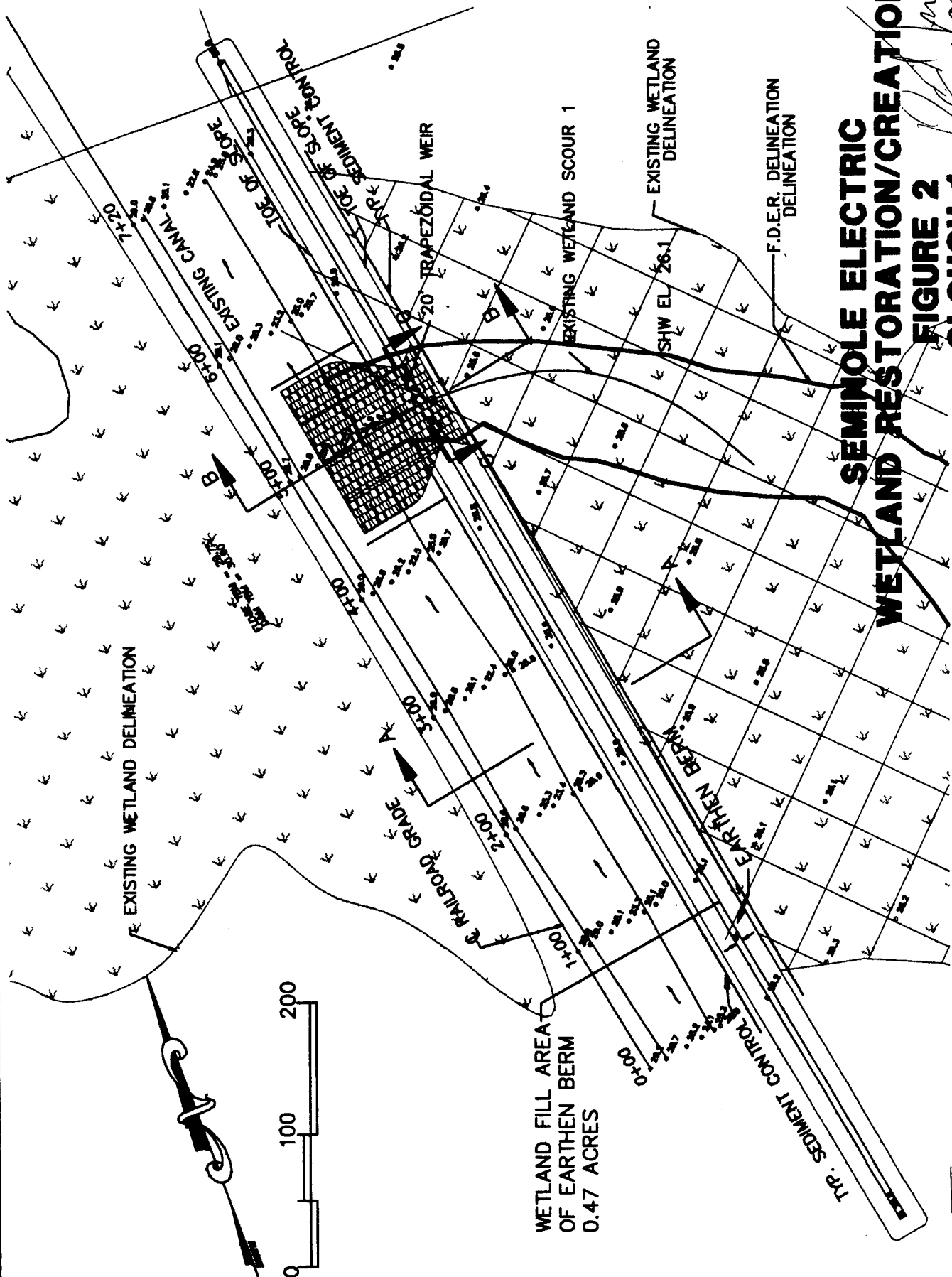


**SEMINOLE ELECTRIC
WETLAND RESTORATION/CREATION
FIGURE 1
PROJECT MAP**

DAMES & MOORE



CIVIL ENGINEERING/WATER RESOURCES/WASTE MANAGEMENT/
ENVIRONMENTAL SERVICES/GEOTECHNICAL ENGINEERING/
PLANNING/LANDSCAPE ARCHITECTURE
ONE NORTH DALE MARRY, SUITE 700 TAMPA, FLORIDA 33609
TAMPA (813)876-1115 PINELLAS (813)443-6827

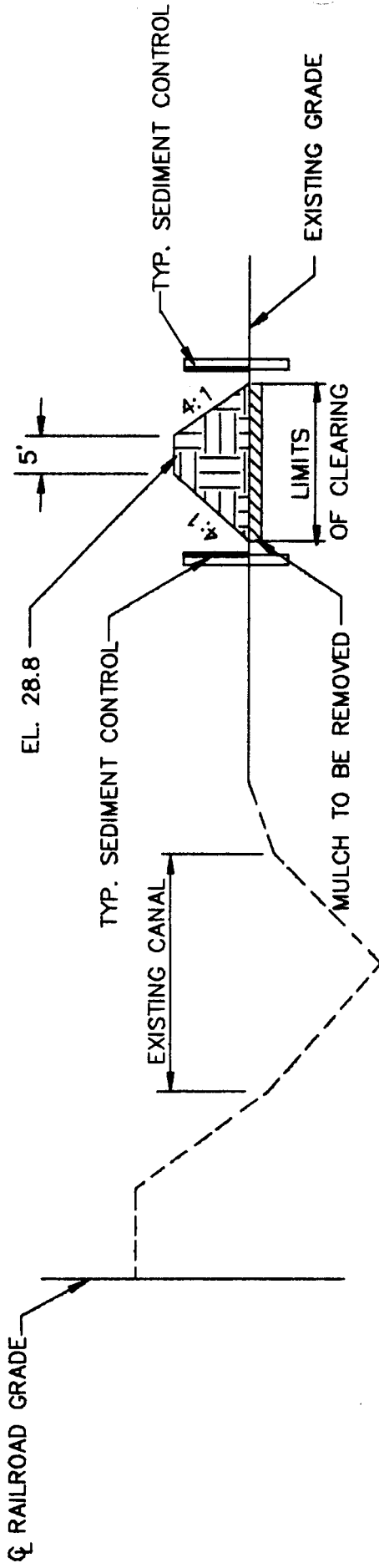


**SEMINOLE ELECTRIC
WETLAND RESTORATION/CREATION
FIGURE 2
SLOUGH 1**

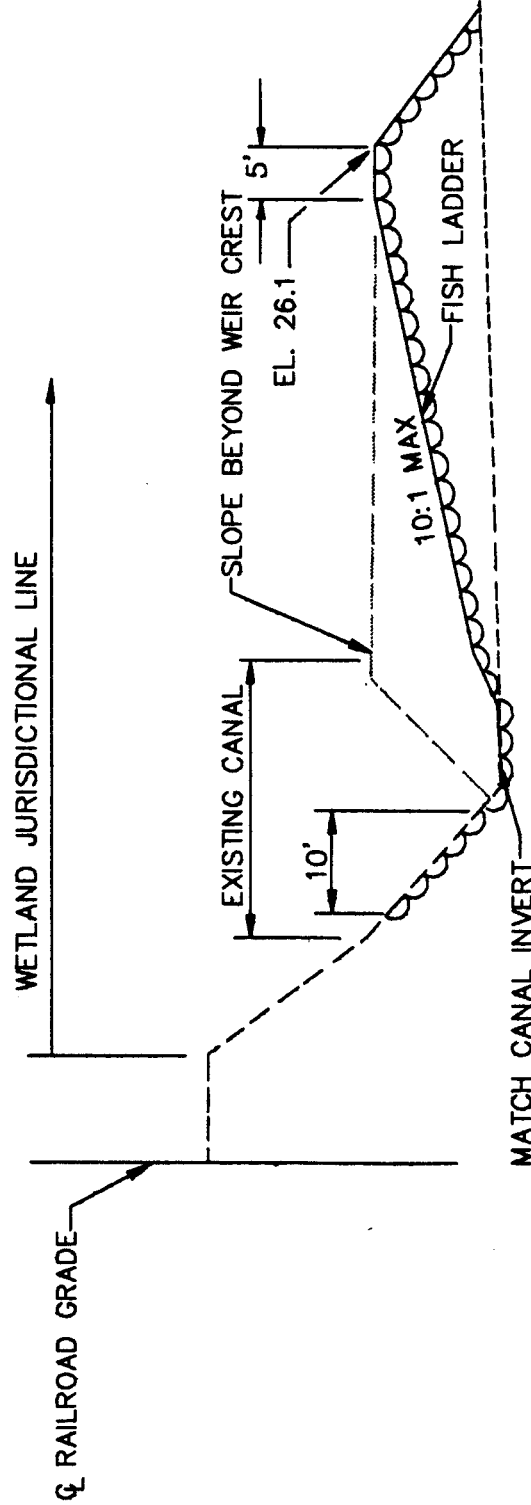
DAMES & MOORE



CIVIL ENGINEERING/WATER RESOURCES/WASTE MANAGEMENT/
ENVIRONMENTAL SERVICES/GEOTECHNICAL ENGINEERING/
PLANNING/LANDSCAPE ARCHITECTURE
ONE NORTH DALE MABRY, SUITE 700 TAMPA, FLORIDA 33609
TAMPA (813) 278-1111, PINE BLAIS (813) 443-6827



SECTION A-A



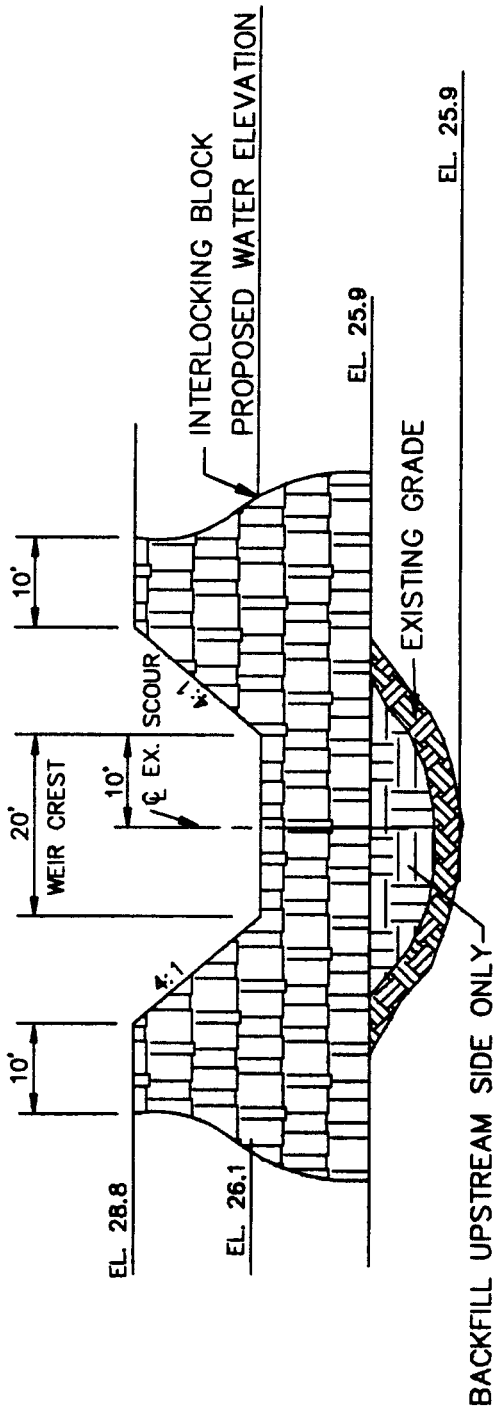
SEMINOLE ELECTRIC WETLAND RESTORATION/CREATION FIGURE 2A

DAMES & MOORE



CIVIL ENGINEERING / WATER RESOURCES / WASTE MANAGEMENT /
ENVIRONMENTAL SERVICES / GEOTECHNICAL ENGINEERING /
PLANNING / LANDSCAPE ARCHITECTURE
ONE NORTH DALE MAHER, SUITE 700 TAMPA, FLORIDA 33609
PH: 813.291.1000 FAX: 813.291.1001

3-2A-92



SECTION C-C

**SEMINOLE ELECTRIC
WETLAND RESTORATION/CREATION**

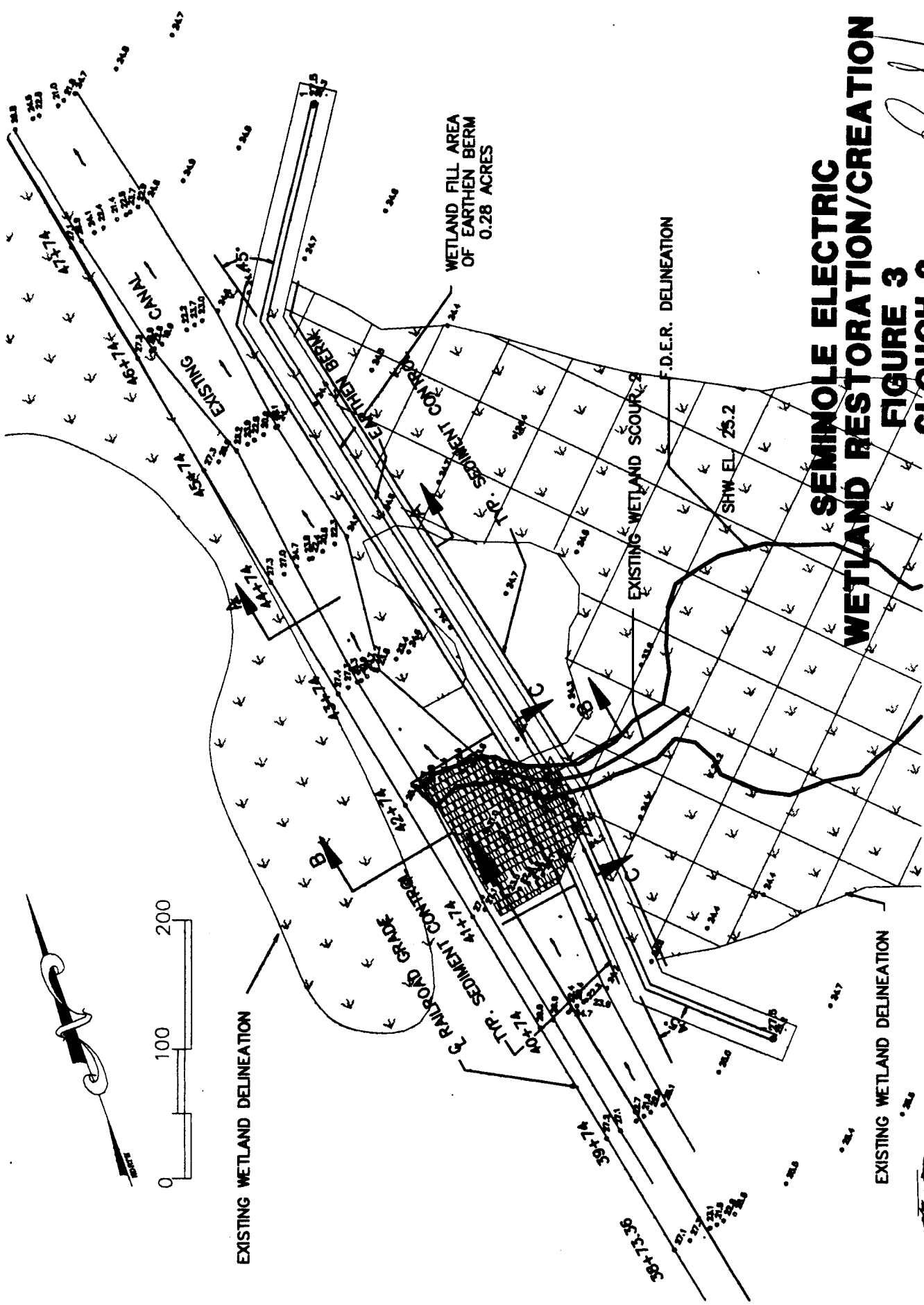
FIGURE 2B

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, FLORIDA 33609 (813) 441-4441

3-2A-92



SEMINOLE ELECTRIC WETLAND RESTORATION/CREATION FIGURE 3 SLOUGH 2

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3-2A-92

DAMES & MOORE



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ENVIRONMENTAL SERVICES/GEOTECHNICAL ENGINEERING/
PLANNING/LANDSCAPE ARCHITECTURE
ONE NORTH DALE MABRY, SUITE 700 TAMPA, FLORIDA 33609
TELEPHONE: (813) 281-1111 FAX: (813) 281-1112

EXISTING WETLAND DELINEATION

EXISTING WETLAND DELINEATION

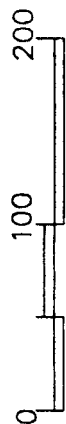
WETLAND FILL AREA
OF EARTHEN BERM
0.28 ACRES

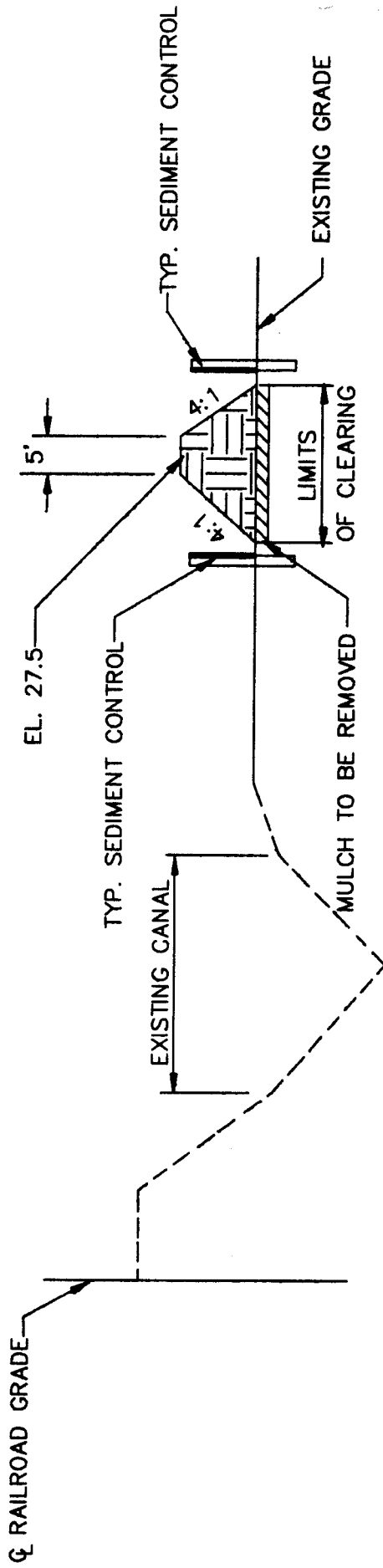
F.D.E.R. DELINEATION

EXISTING WETLAND SCOUR

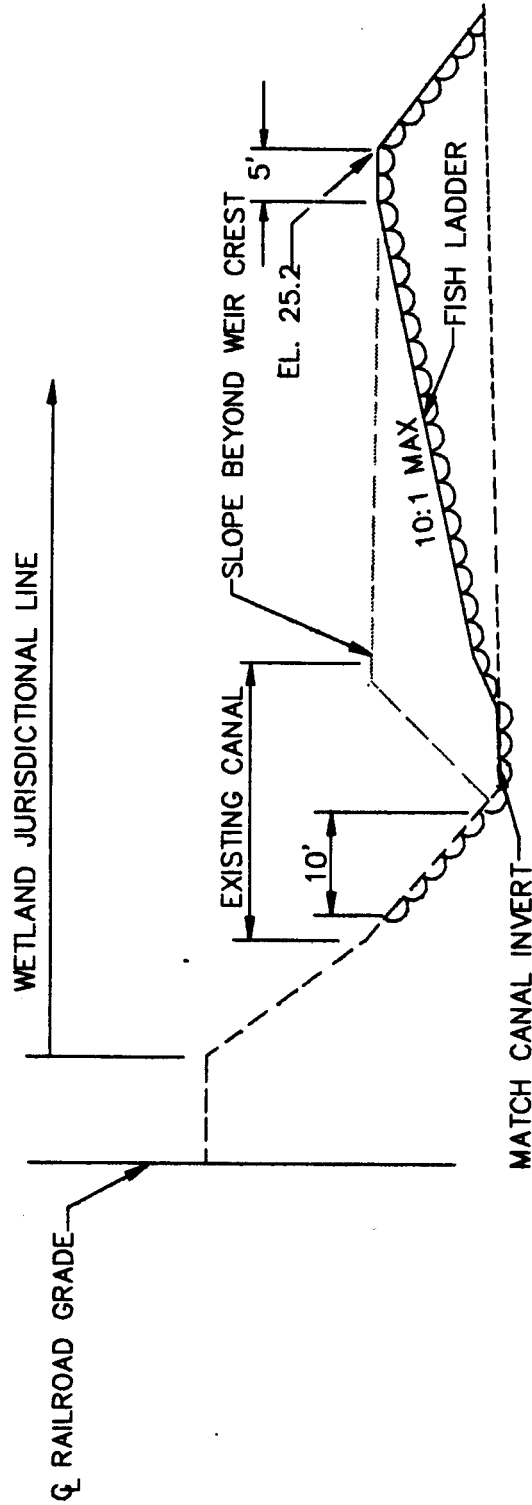
TRP. SEDIMENT CONTROL

EARTHEN BERM





SECTION A-A



SECTION B-B

SEMINOLE ELECTRIC WETLAND RESTORATION/CREATION FIGURE 3A



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PLANNING/LANDSCAPE ARCHITECTURE
ONE NORTH DALE MARRY, SUITE 700 TAMPA, FLORIDA 33609
TAMPA (813) 974-1115 PHOENIX (613) 443-6827

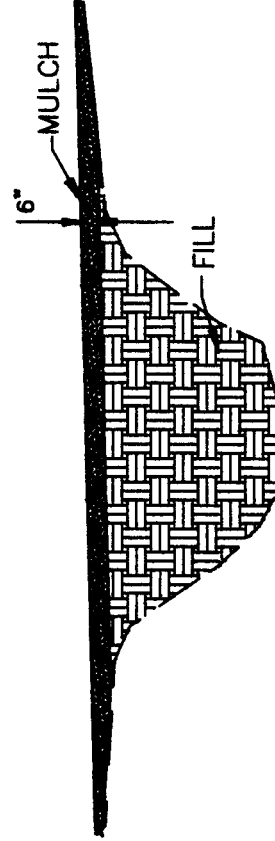
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PLANNING/LANDSCAPE ARCHITECTURE
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TAMPA (813)870-1115 PINELLAS (813)443-0827

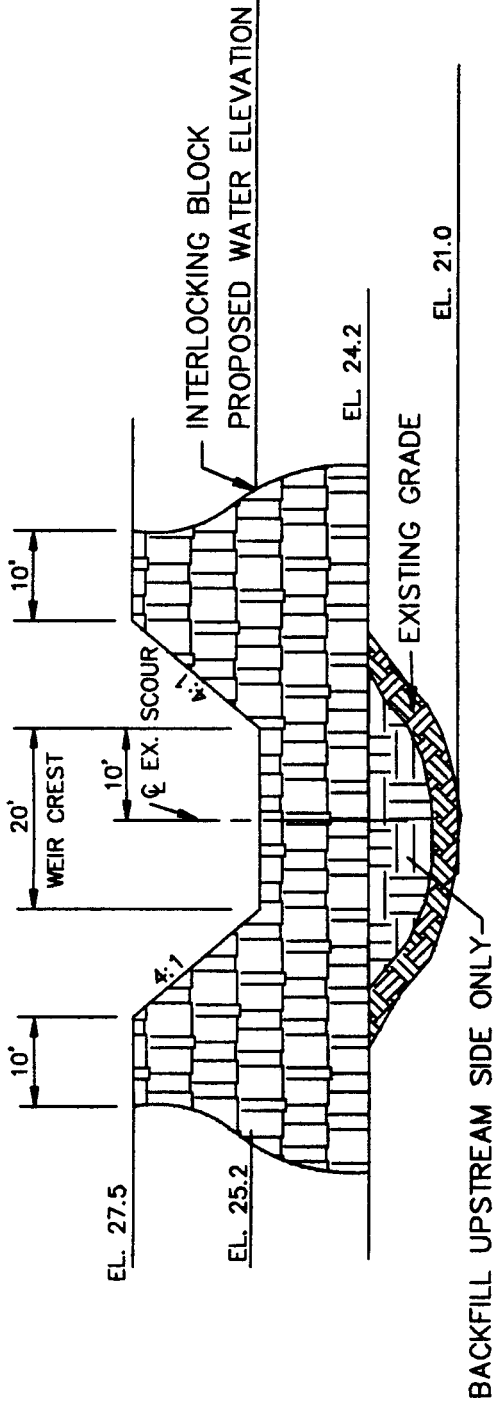
SECTION D-D



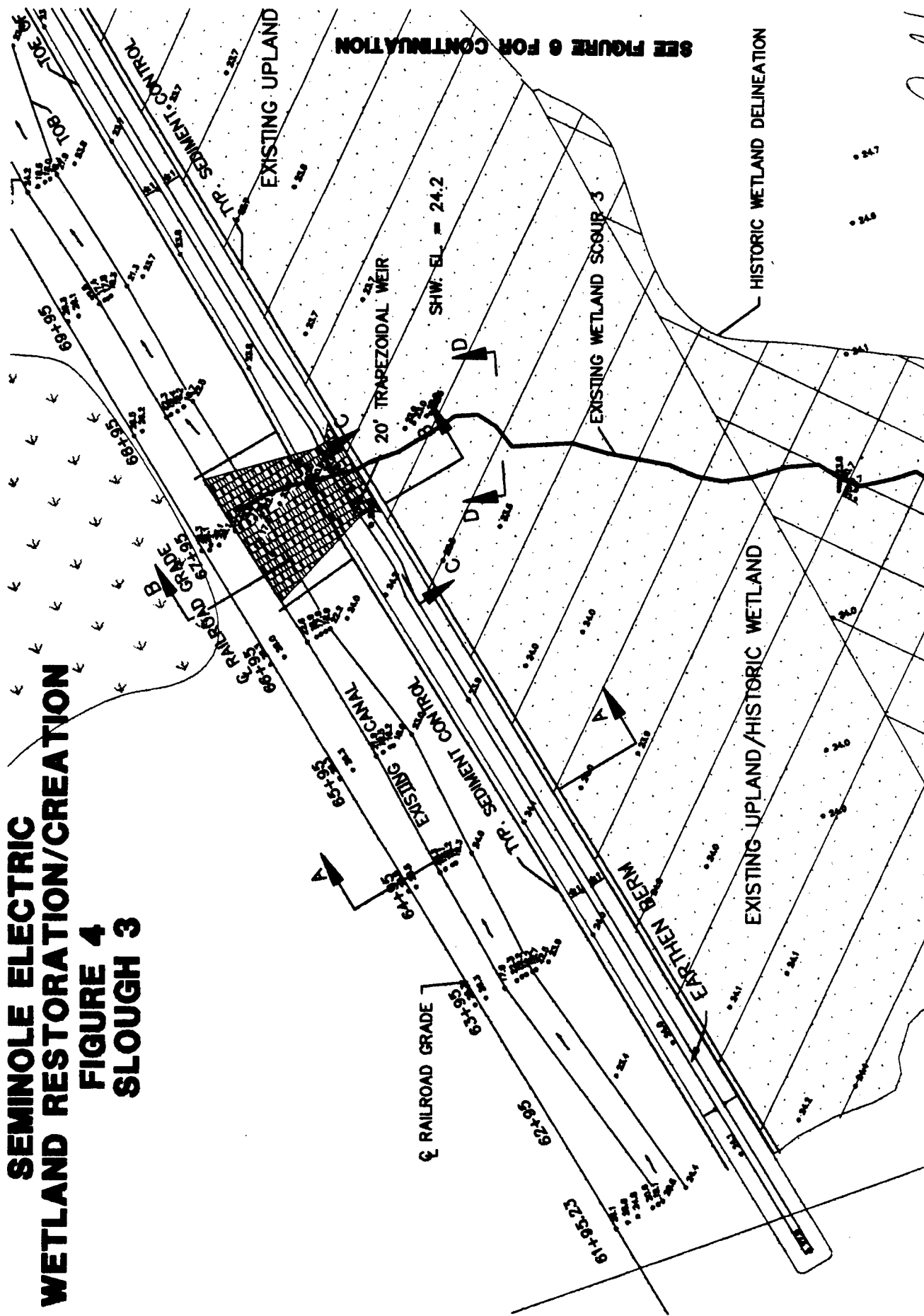
SEMINOLE ELECTRIC WETLAND RESTORATION/CREATION FIGURE 3B

Handwritten signature and date:
3-24-92

SECTION C-C



SEMINOLE ELECTRIC WETLAND RESTORATION/CREATION FIGURE 4 SLOUGH 3



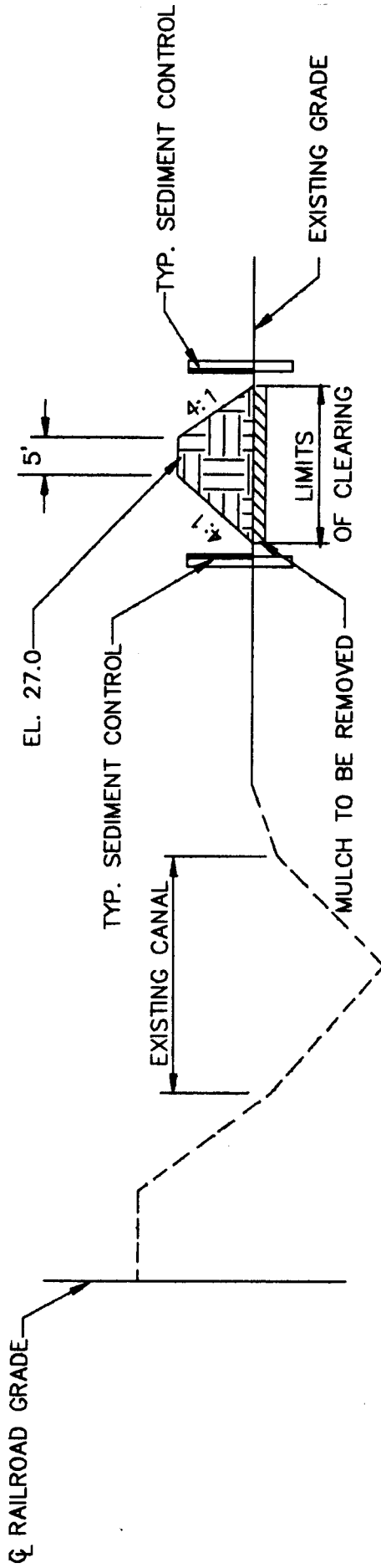
SEE FIGURE 6 FOR CONTINUATION

DAMES & MOORE

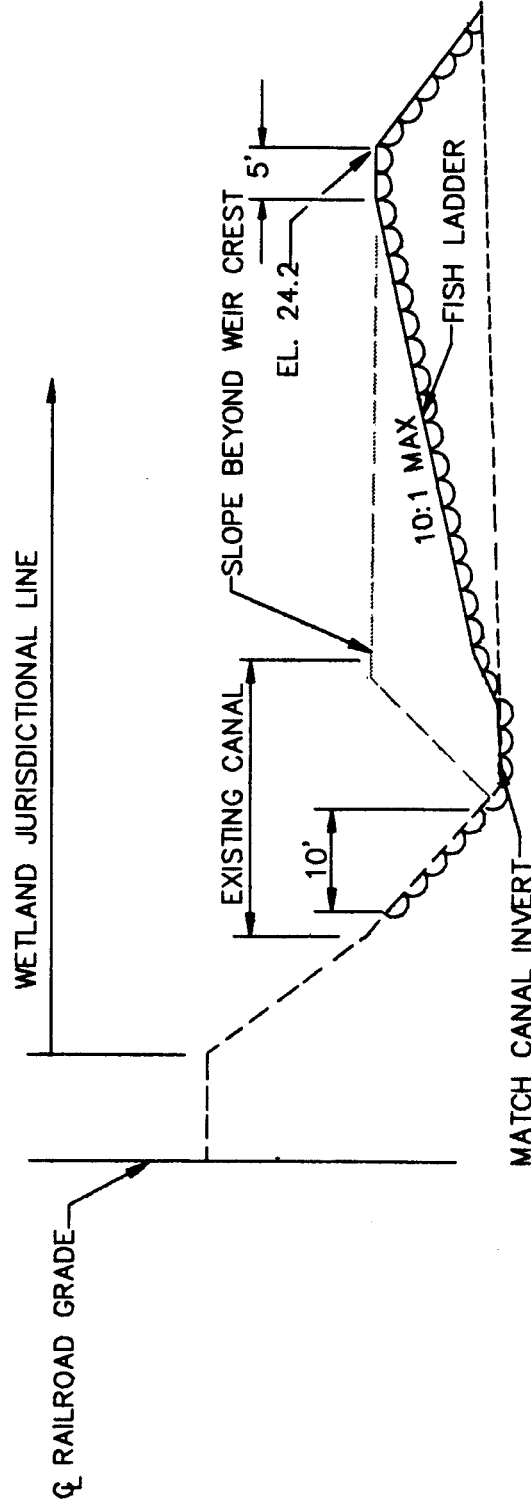
CIVIL ENGINEERING/WATER RESOURCES/WASTE MANAGEMENT/
ENVIRONMENTAL SERVICES/GEOTECHNICAL ENGINEERING/
PLANNING/LANDSCAPE ARCHITECTURE
ONE NORTH DALE MARRY, SUITE 700 TAMPA, FLORIDA 33608
TAMPA (813)876-1116 PINELLAS (813)443-6627



3-2A-92
V. J. J. J.



SECTION A-A



SECTION B-B

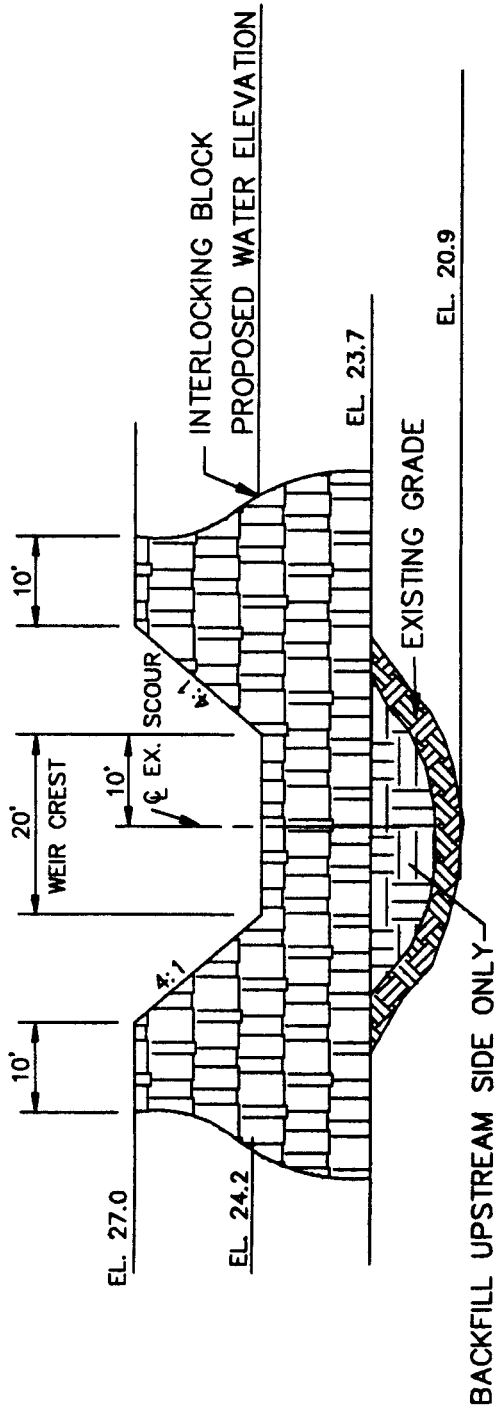
SEMINOLE ELECTRIC WETLAND RESTORATION/CREATION FIGURE 4A



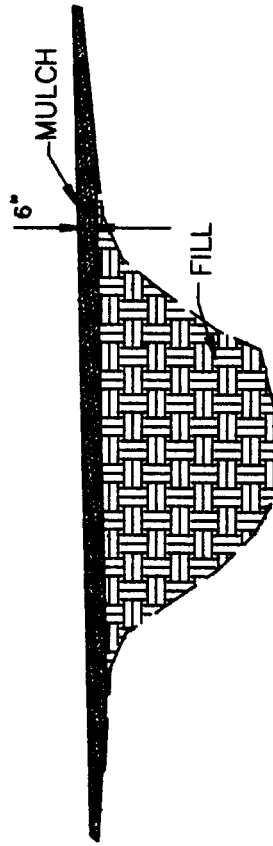
DAMES & MOORE

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ENVIRONMENTAL SERVICES/GEOTECHNICAL ENGINEERING/
PLANNING/LANDSCAPE ARCHITECTURE
ONE NORTH DALE MAIRY, SUITE 700 TAMPA, FLORIDA 33609
PHONE (813) 291-1111 FAX (813) 291-1112

3-24-92



SECTION C-C



SECTION D-D

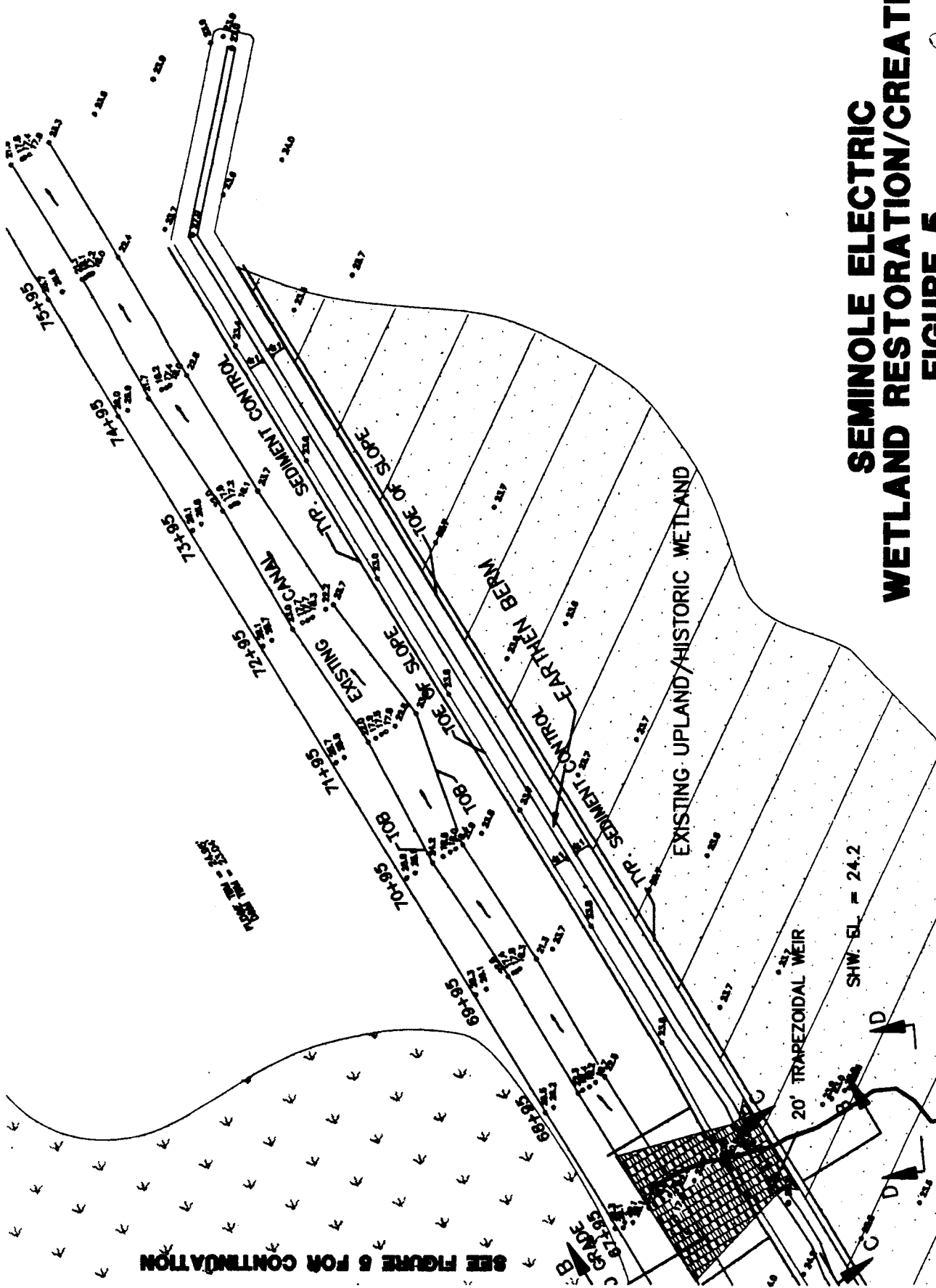
SEMINOLE ELECTRIC WETLAND RESTORATION/CREATION FIGURE 4B

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CIVIL ENGINEERING/WATER RESOURCES/MAST MANAGEMENT/
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PLANNING/LANDSCAPE ARCHITECTURE
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SEE FIGURE 6 FOR CONTINUATION

SHW. EL. = 24.2

20' TRAPEZOIDAL WEIR

EXISTING UPLAND/HISTORIC WETLAND

TYP. SEDIMENT CONTROL

EARTHEN BERM

TOE OF SLOPE

TYP. SEDIMENT CONTROL

EXISTING 12" CANAL

TOE OF SLOPE

DAMES & MOORE

**SEMINOLE ELECTRIC
WETLAND RESTORATION/CREATION
FIGURE 5
SLOUGH 3**

CIVIL ENGINEERING/WATER RESOURCES/WASTE MANAGEMENT/
ENVIRONMENTAL SERVICES/GEOTECHNICAL ENGINEERING/
PLANNING/LANDSCAPE ARCHITECTURE
ONE NORTH DALE MABRY, SUITE 700 TAMPA, FLORIDA 33609
TAMPA (813) 876-1116 PINELLAS (813) 441-6827



Handwritten signature
3-24-92



SEMINOLE ELECTRIC WETLAND CREATION

FIGURE 6

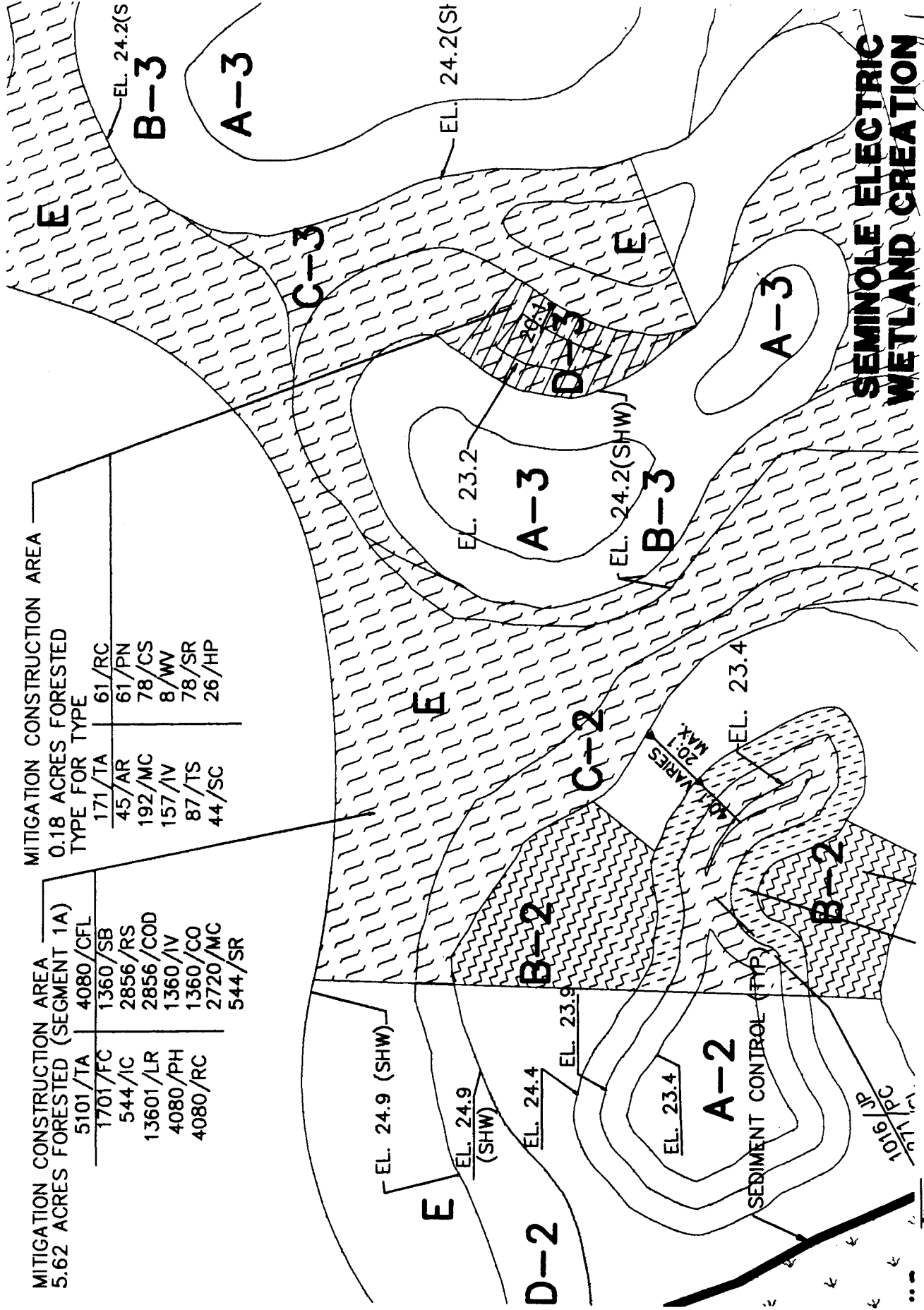
3-2A-92

MITIGATION CONSTRUCTION AREA
5.62 ACRES FORESTED (SEGMENT 1A)

5101/TA	4080/CFL
1701/FC	1360/SB
544/IC	2856/RS
13601/LR	2856/COD
4080/PH	1360/IV
4080/RC	1360/CO
	2720/MC
	544/SR

MITIGATION CONSTRUCTION AREA
0.18 ACRES FORESTED
TYPE FOR TYPE

171/TA	61/RC
45/AR	61/PN
192/MC	78/CS
157/IV	8/WV
87/TS	78/SR
44/SC	26/HP



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FIGURE 8

CIVIL ENGINEERING / WATER RESOURCES / WATER MANAGEMENT /
ENVIRONMENTAL SERVICES / GEOTECHNICAL ENGINEERING /
PLANNING / LANDSCAPE ARCHITECTURE
ONE MONTE DALE BLVD., SUITE 700 TAMPA, FLORIDA 33606
TAMPA (813) 270-1111 PORTLAND (503) 463-7777

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SEMINOLE ELECTRIC WETLAND CREATION

FIGURE 9



DAMES & MOORE

CIVIL ENGINEERING/WATER RESOURCES/HAZARD MANAGEMENT/
ENVIRONMENTAL SERVICES/GEOTECHNICAL ENGINEERING/
PLANNING/LANDSCAPE ARCHITECTURE
ONE NORTH DALE MAHART, SUITE 700 TAMPA, FLORIDA 33606
TAMPA (813) 291-1111 PORTLAND (503) 461-1111

- A-1 ISOLATED MARSH- ELEVATIONS RANGE FROM 0.5' TO 2.0' BELOW S.H. GROUNDWATER.
- B-1 ISOLATED MARSH- ELEVATION RANGE FROM S.H. GROUNDWATER TO 0.5' BELOW S.H. GROUNDWATER.
- C-1 ISOLATED FOREST- ELEVATIONS AT S.H. GROUNDWATER.
- A-2 MARSH- ELEVATIONS RANGE FROM 0.5' TO 2.0' BELOW WETLAND #2 S.H.W.
- B-2 MARSH- ELEVATIONS RANGE FROM WETLAND #2 S.H.W. TO 0.5' BELOW S.H.W.
- C-2 FOREST- ELEVATIONS AT WETLAND #2 S.H.W. TO 0.5' BELOW S.H.W.
- D-2 FOREST- ELEVATIONS RANGE FROM WETLAND #2 S.H.W. TO 0.5' BELOW S.H.W.
- A-3 MARSH- ELEVATIONS RANGE FROM 0.5' TO 2.0' BELOW WETLAND #3 S.H.W.
- B-3 MARSH- ELEVATIONS RANGE FROM WETLAND #3 S.H.W. TO 0.5' BELOW S.H.W.
- C-3 FOREST- ELEVATIONS AT WETLAND #3 S.H.W. TO 0.5' BELOW S.H.W.
- D-3 FOREST- ELEVATIONS RANGE FROM WETLAND #3 S.H.W. TO 0.5' BELOW S.H.W.
- E FOREST- ELEVATIONS RANGE TO S.H.W. OF ADJACENT WETLANDS

324-92