OFFICE OF

SOTHERN ENGINEERING & CONSTRUCTION COMPANY.

O. A. Hardin, President,
G. T. Hardin, Secretary.

Miami, Fla., July 1st, 1918.

J. P. Jaudon, President
L. T. Highleyman,
J. P. Conrad,
Supervisors Southern Drainage District,

Miami, Fla.

Gentlemen:

In accordance with terms of contract between yourselves and the Southern Engineering & Constuction Company, entered into the ------ day of June, 1918, we submit herewith plan of reclamation of the Southern Drainage District, with the following specifications and explanations of same:

Protection of District by means of levee or dyke.

The Southern Drainage District is to be dyked on all sides necessary to form a basin separated from all adjacent lands and protected from overflow waters of the adjacent territory to which the District has heretofore been subjected. The said dyke is to be constructed from the material excavated from ditches along the boundaries of the District as shown on the accompaning plat. Said material is to be deposited on the side away from the enclosed area so that the ditch will be on the inside and the levee outside. The boundary ditches may be increased in size at such points as necessary to excavate material enough to form a continous and unbroken bank which which shall range in height from 8 to 12 feet elevation above mean low tide and at no place shall levee be lower than 8 feet elevation above mean low tide. The right-of-w way on which the levee shall be constructed shall be cleared of all timber, fallen or standing, so that bare earth will be exposed and a close contact shall be made with the material of which the levee is to be constructed.

DRAINAGE OF DISTRICT.

Nearly all surplus water is to be carried off by means of three main canals, as shown on plat, marked North Boundary Canal, Tamiami Canal and Snapper Creek Canal.

The canals and ditches are designed to take care of and carry off only the water precipitated directly upon the surface of the District, plus an undetermined amount that will naturally seep through and under the protecting dykes, on account of the porosity of soil and underlying rock.

Of the total amount of water thus put upon the District, an inappreciable allowance has been made on account of evaporation, and quite a wholesome allowance for absorbtion. This is because of the fact that, though many test tank have shown that the total annual evaporation from the Glades is quite large, yet during and immediately following storm periods, the atmosphere is surcharged with moisture, and practically no evaporation takes place at that time: also, the records of the U. S. Weather Bureau show that fully 80% of the storm periods are preceded by droughts of more or less duration, hence the soil is in a receptive condition to absorb large quanities of water.

4M.50
6M.40
6M.30
6M.24
6M.14

DESCIPTION OF CANALS.

A The North Boundary Canal shall have its beginning at the Northwest corner of the District and run East along the North line of the District to an intersection with the Miami Canal. At its initial point it shall have a bottom width of 14 feet and a depth of about 5 feet to an elevation of one foot above mean low tide in Biscayne Bay, and shall be enlarged and deepened in successive stages, so that at the discharge end it will have a bottom width of 46 feet, 2 feet below mean low tide.

THE TAMIAMI CANAL.

The Tamiami Canal shall be for the most part the present excavation made and being made by the building of the Tamiami Trail. Beginning at the West side of the District, it is estimated that the first 12 miles as being excavated by Morgan & Co., in contract with the County Commissioners of Dade County, Florida, for the purpose of constucting the Tamiami Trail will be sufficient for drainage purposes when completed. At the end of this 12 miles, (or at the range line between 38 and 39 East) the canal will have a bottom width of at least 20 feet, with an average depth of 6 feet below surface of soil. From this point Eastward for 9 miles, the present excavation shall be widened and deepened to a bottom width of 30 feet, and a depth ~~to elevation of one foot below mean low tide~~. From this pint the Tamiami Canal shall be extended and run in a Northeasterly direction to intersect the North Boundary Canal at the Northwest corner of Section 31, Township 54 South, Range 41 East. This extension shall have a base width of 30 feet at the beginning, at elevation of one foot below mean low tide, and shall be enlarged and deepened to a base width of 33 feet at the first mile and a half and 35 feet width and at elevation of 1.5 feet below mean low tide at its intersection with the North Boundary Canal. The estimate of cost of this extension is included in the cost of Tamiami Canal.

Snapper Creek Canal.

The Snapper Creek Canal shall begin at the West side of the District and run East on a line one and one half miles North of the South line of Township 54 South, through Ranges 37 and 38 East; thence continue East and Southeast to a connection with the contemplated extension of the present Snapper Creek Canal by the State of Florida. At its inception it will have a bottom width of 14 feet, with a depth to elevation of one foot above mean low tide, and shall be enlarged and deepened in successive stages to intersection with the State work, where it will have a bottom width of 24 feet, and a depth to elevation zero, mean low tide. In this connection attention is called to the fact that, for the proposed extension of the canal to this point by the State, the specifications call for a bottom width of only 10 feet.

ENLARGING SNAPPER CREEK CANAL FROM POINT OF INTERSECTION WITH STATE WORK.

From this point the Snapper Creek Canal shall be widened from a base width of 10 feet to a base width of 24 feet, at this beginning, to a depth equal to that which is shown on the plans of the proposed State work , now in course of construction, to be 8 feet; and shall be enlarged in successive stages until a base width of 28 feet is reached, aproximately 11 miles distant from point of beginning of the enlargement.

LATERAL DITCHES.

All lateral ditches debouching in to main canals shall have a bottom width of 3 feet with a depth of from 3 to 5 feet, depending on the location and length of ditch. On the accompaning plat the ~~red~~ lines running through center of Sections and along bounderies of Sections, ~~North and South~~ indicate lines along which laterals ditches shall be constructed to the above mentioned dimensions, ~~except in Township 55 S. of Ranges 39 and 40 E. where red lines are shown running through natural waterways there may be changes of widening of base width, and also enlargement of ditches, so that the ditches will be ample in size to carry off all standing water from such areas as may be determined for each ditch when the final survey and location of ditches is made.~~ Surveys of Township 55S. Ranges 39 and 40 E. were made along section lines according to ~~c~~ontract between Southern Engineering & Construction Co., and the Board of Supervisors of the Southern Drainage District, and the natural drains were located in this way; beyond this no data is obtainable and no additional surveys were made for drains running South and Southeast thru these townships, ~~but estimates were made on a basis of a 3 foot bottom at initial point of each ditch, with necessary enlargement through successive stages to point of outlet.~~

SLOPES.

X Estimates of yardage were based upon above given dimensions, with bank slopes of ½ foot horizontal to one foot vertical for rock, and one foot horizontal to one foot vertical for earth.

PROFILES.

The accompanying profiles are made up from data obtained in field work while engaged in surveying the Southern Drainage District by the Southern Engineering & Construction Company in contract with the Board of Supervisors of the Southern Drainage District under date of the month of February 1918.

WATER CONTROL GATES.

There shall be approximately 14 control gates in the different canals to control and retain the water supply during the dry season.

ESTIMATE OF COSTS.

North Boundary Canal 14'/6' - 50' /8'		27 miles			
	rock	428.860	cu. yds.	@ 40¢	
	earth	468.820	" "	" 12¢	$228,128.00
Tamiami Canal 16'/6' - 30'/7		24½ miles			
	rock	290.000	cu. yds.	@ 40¢	
	earth	258.600	" "	@ 12¢	$147,032.00
Snapper Creek Canal 14'/6' - 24'/7'		15½ miles			
	rock	170.000	cu. yds.	@ 40¢	
	earth	221.200	" "	@ 12¢	$ 94,544.00
Enlarging Snapper Creek Canal		11-3/10 miles			
	rock	128.000	cu yds.	@ 40¢	
	earth	110.000	" "	@ 12¢	$ 64,400.00
West Side Dyke 3'/3' - 3'/6'		8½ miles			
	rock	12.400	cu yds.	@ 40¢	
	earth	30.750	" "	@ 12¢	$ 8,650.00
South Side Dyle 6'/3'		12 miles			
	rock	18.300	cu yds.	@ 40¢	
	earth	45.000	" "	@ 12¢	$ 12,720.00
Lateral Ditches 3'/3' - 3'/5'		320 miles			
	rock	198.000	cu yds.	@ 40¢	
	earth	1,485.000	" "	@ 12¢	$257,400.00
Canals and Ditches South of Township 54 S.		50 miles			
	rock	140.000	cu yds.	@ 40¢	
	earth	428.000	" "	@ 12¢	$107,360.00
14 Water Control Gates at $2000.00					28,000.00
Right of Way 2000 acres @ $12.00					24,000.00
Clearing of Right of Way					6,000.00
					$978,234.00
10% for Incidentals and Extras					97,823.40
					$1,076,057.40
Engineering and Office Expenses 10% for 3 years					107,615.00
					$1,183,672.40

Respectfully submitted,

SOUTHERN ENGINEERING & CONSTRUCTION CO.

By Otis A Gaddis
President.

Chief Engineer.