

## **STRUCTURE 33**

This structure is a reinforced concrete, gated spillway with discharge controlled by cable operated, vertical lift gates. Operation of the gates is automatically controlled so that the gate operating system opens or closes the gates in accordance with the seasonal operational criteria. The structure is located on Canal 12 about 1/2 mile east of State Road #7.

### **PURPOSE**

This structure maintains optimum upstream water control stages in Canal 12; it passes the design flood (50% of the Standard Project Flood) without exceeding the upstream flood design stage, and restricts downstream flood stages and channel velocities to non-damaging levels, and it prevents salt water intrusion into the area west of the structure.

### **OPERATION**

This structure will be operated to maintain an optimum headwater elevation of 3.5 feet, when sufficient water is available to maintain this level. The automatic controls function as follows:

When the headwater elevation rises to 4.0 feet, the gates will open at six inches per minute;

When the headwater elevation rises or falls to 3.5 feet, the gates will become stationary;

When the headwater elevation falls to 3.0 feet, the gates will close at six inches per minute.

#### Salinity Regulation

In addition to maintaining optimum upstream fresh water control, as described above under Flood Control Regulation, the automatic controls on this structure have an overriding control which closes the gates, regardless of the upstream water level in the rare event of a high flood tide, whenever the differential between the head and tailwater pool elevations reaches 0.2 feet.

**FLOOD DISCHARGE CHARACTERISTICS**

|                     | Design*                             | Standard Project Flood*               |
|---------------------|-------------------------------------|---------------------------------------|
| Discharge Rate      | ** <u>920</u> cfs<br><u>50</u> %SPF | ** <u>1180</u> cfs<br><u>100</u> %SPF |
| Headwater Elevation | ** <u>5.9</u> feet                  | * <u>7.1</u> feet                     |
| Tailwater Elevation | ** <u>4.9</u> feet                  | * <u>7.1</u> feet                     |
| Type Discharge      | uncontrolled<br><u>submerged</u>    | uncontrolled<br><u>submerged</u>      |

\*Flow conditions given in the Definite Project Report. No discharge curves for this flow condition available.

\*\*300 cfs added for Old Plantation pump station @ west end of C-12.  
A large portion of the canal had been enlarged; water levels listed are based on increased flows and channel size.

Note: If uncontrolled, probably submerged, but possibly free.

**DESCRIPTION OF STRUCTURE**

Type reinforced concrete, gated spillway

Weir Crest

Net Length 20.0 feet

Elevation -2.0 feet

Service Bridge Elevation 11.5 feet

Water Level which will by-pass structure 10.0 feet

Gates

Number 1

Size 9.0 feet high by 20.0 feet wide

Type vertical slide gate

Top elevation of gates, full closed 7.0 feet

Bottom elevation of gates, full open 8.5 feet

Control on-site, automatic with headwater control with differential water surface control sensed by bubbler system, remote control by C&CS

Lifting Mechanism

Normal power source commercial electricity

Emergency power source LP gas driven generator

Type Hoist direct drive electric motor gear connected to cables

Date of Transfer: November 1, 1954

**ACCESS:** The structure is located on Sunset Blvd. about 3/4 mile east of U.S. 441.

**HYDRAULIC AND HYDROLOGIC MEASUREMENTS**

Water Level on-site dual analog and U.S.G.S. digital upstream and downstream recorders, remote upstream and downstream recorders

Gate Position Recorder on-site, analog recorder & U.S.G.S. digital recorder, remote recorder

Other \_\_\_\_\_

**DEWATERING FACILITIES**

Storage West Palm Beach Field Station

Type Steel needle beam and aluminum needles

Size and Number (per bay) \_\_\_\_\_

Upstream and downstream

Beam 12 WF 40, 21' -11" long

Needles 4 each 5' wide