

## STRUCTURE 176

This structure is a reinforced concrete, gated spillway, with discharge controlled by a cable operated, vertical lift gate. Operation of the gate is automatically controlled so that the gate hydraulic operating system opens or closes the gate in accordance with the operational criteria. The structure is located on Canal 111 about 5 miles west of Homestead.

### PURPOSE

This structure maintains a desirable water control stage upstream in L-31N. It passes the design flood (40% of the Standard Project Flood) without exceeding upstream flood design stage, and restricts downstream flood stages and discharge velocities to non-damaging levels.

### OPERATION

This structure will be operated in accordance with the IOP.

To meet structural and stability requirements, the maximum allowable hydrostatic head on the structure should not be allowed to exceed 6.6 feet.

No WCA-3A Regulatory Releases to SDCs or Shark Slough.	WCA-3A Regulatory Releases to SDCs
Open: 5.0	Open: 4.9
Close: 4.75	Close: 4.7

### FLOOD DISCHARGE CHARACTERISTICS

	Design	Standard Project Flood
Discharge Rate	<u>630</u> cfs	<u>1100</u> cfs
	<u>40</u> % SPF	<u>100</u> % SPF
Headwater Elevation	<u>6.0*</u> feet	<u>7.5*</u> feet
Tailwater Elevation	<u>5.5</u> feet	<u>6.3*</u> feet
Type Discharge	uncontrolled <u>submerged</u>	uncontrolled <u>submerged</u>

\*Some question of stages because later Corps' studies of lower reaches of C-111 raised the stage 0.7 feet at S-18C when compared with the earlier studies upon which the stages at S-176 were based.

Revised 4/07/03

**DESCRIPTION OF STRUCTURE**

Type Fixed crest, reinforced concrete gated spillway

Weir Crest

Net Length 20.0 feet

Elevation -1.0 feet

Service bridge elevation 11.0 feet

Water level elevation which will by-pass structure 11.0 feet

Gates

Number 1

Size 8.0 ft. high X 20.8 ft. wide

Type Vertical lift gate

Bottom elevation of gates full open 9.0 feet

Top elevation of gates full closed 7.0 feet

Control automatic, on-site upstream control, remote control by  
Communications and Control System

Lifting Mechanism

Normal power source commercial electricity

Emergency power source L.P. gas driven generator

Type Hoist hydraulic cylinder actuated by electric motor  
driven pump, with emergency hand pump; connected  
to gate by steel cables.

Date of Transfer: August 15, 1967

**ACCESS:** from Loveland Road via north right-of-way of C-113 about one mile  
access road to structure.

**HYDRAULIC & HYDROLOGIC MEASUREMENTS**

Water Level On-site, dual recorder and remote digital recorders

Gate Position Recorder On-site and remote digital recorder

Rain Gauge Remote digital recorder

**DEWATERING FACILITIES**

Storage Needles at Homestead Field Station; beams at West Palm Beach Field Station

Type Needle beams and vertical aluminum needles

Size & number (per bay)

Upstream and Downstream

Number 1 beam; needles, 5 @ 4'

Size Beam 24WF145, Length 21'-10", needles 20" long