

STRUCTURE 5AE

This structure is a double-barreled reinforced concrete box culvert, located on Canal 51 (West Palm Beach Canal) at the point where Levee 8 crosses that canal. Control is effected by motor operated sluice gates mounted in a reinforced concrete wall structure.

PURPOSE

This structure functions with S-5AW, S-5AS and S-5A to control irrigation releases in the area served by C-51 (the West Palm Beach Canal) and to discharge flood runoff from L-8 via C-51 to tidewater and from C-51 into Water Conservation Area 1 by pumping at S-5A.

OPERATION

The criteria which govern the operation of this structure are a function of either the flood or low-water conditions, which are as follows:

Flood Condition

The gates shall be closed whenever a downstream flood condition is imminent in C-51, that is, whenever the stage at the Palm Beach Locks exceeds 8.0 feet, or the tailwater at S-5AE exceeds 13.0 ft. m.s.l. and the headwater at S-5AE is larger than the tailwater.

The gates may be opened to release excess water to the east whenever the previously described downstream flood conditions do not exist and when a flood potential exists upstream in the Levee 8 area, that is, whenever the stage in L-8 at Sand Cut exceeds 17.0.

The gates may also be opened to release excess water to the west from C-51 whenever the ability of pump station S-5A to remove excess water from the L-10, L-12 basin is not jeopardized.

The use of the gates is also determined by other factors, such as stage in WCA 1, environmental concerns, and water supply. It will be considered case by case.

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Low-water Conditions

When flood conditions are not imminent, the gate will be operated, subject to water availability, to meet water use requirements in C-51 east of Conservation Area No. 1.

HYDRAULIC AND HYDROLOGIC MEASUREMENTS

Water Level:

Upstream - U.S.G.S. on-site digital recorder (designated L-8)
and remote digital recorder.

Downstream - U.S.G.S. digital recorder and remote digital recorder.

Gate Position Recorder: Remote digital recorders on both gates.

DEWATERING FACILITIES (per barrel)

Storage: West Palm Beach Field Station

Type: Stop Logs

Size and Number:

Upstream and Downstream
9 each, 6" x 12" x 7' -9"

NOTE: For other instrumentation see S-5A, S-5AW and S-5AS.

FLOOD DISCHARGE CHARACTERISTICS

	Design
Discharge Rate	<u>700</u> cfs
	* <u> </u> % SPF
Headwater Elevation	<u>11.5</u> feet
Tailwater Elevation	<u>10.0</u> feet
Type Discharge	<u>uncontrolled submerged</u>

*Design flow not related to Standard Project Flood

DESCRIPTION OF STRUCTURE

Type reinforced concrete box culvert

Number of barrels 2
Size of barrels 7 ft. x 7 ft.
Length of barrels 65 feet
Flow line elevation 1.0 feet
Service bridge elevation 24.5 feet
Water Level which will by-pass structure 24.0 feet
Control Structure The control structure is a wet well in the center of the culvert. Slide gates in this well control discharges from the structure.

Gates

Number 2
Type sluice gates mounted in the wet well
Size 7' x 7'
Control manual
Lifting Mechanism pedestal mounted, motor operated hoist

Date of Transfer: April 15, 1954

ACCESS: structure located on U.S. Highway 441