

STRUCTURE G-54

This structure is a reinforced concrete gated spillway, with discharge controlled by three cable operated, vertical lift gates. Operation of the gates is automatically or telemetry controlled. The new structure was completed in 1992 to replace the old Sewell Lock Structure. The structure is located on the North New River about 3/4 mile west of the Sunshine State Parkway. The contract number of the new structure is C91-2000. The drawing number is G-54-001.

PURPOSE

This structure maintains optimum water control stages in the North New River. It passes flood flows or regulatory releases from WCA 2 while limiting the upstream stage, downstream stage, and channel velocity.

OPERATION

If the structure is operated automatically, the gates will operate to maintain the optimum upstream water surface elevation as follows:

When the headwater elevation rises to 4.5 feet, the gates will open at six inches per minute.

When the headwater elevation rises or falls to 4.0 feet, the gate will become stationary.

When the headwater elevation falls to 3.5 feet, the gates will close at six inches per minute.

Under normal condition, the structure maintains headwater elevation between 3.5 to 4.5 feet. During a flood event or when making regulatory releases from S-34, structure G-54 may maintain at a lower than normal headwater elevation. During the dry period, the headwater elevation at the structure may be raised to 5.5 feet, top elevation of the full closed gate, for water conservation purposes, or operate as follows:.

When the headwater elevation rises to 5.0 feet, the gates will open at six inches per minute.

When the headwater elevation rises or falls to 4.5 feet, the gate will become stationary.

When the headwater elevation falls to 4.0 feet, the gates will close at six inches per minute.

FLOOD DISCHARGE CHARACTERISTICS

	Design
Design Frequency	25 year
Discharge Rate	1600 cfs
Headwater Elevation	4.6 feet
Tailwater Elevation	4.3 feet

In 1974, the District made a study combining the NNR Canal basin with the C-13 basin. Those two basins are interconnected in the N.W. corner of the basins. The design discharge rate is based on this study.

DESCRIPTION OF STRUCTURE

Type Fixed crest, reinforced concrete gated spillway

Weir Crest

Net Length 48 feet

Elevation -4.0 feet

Service Bridge Elevation 10 feet

Water Level which will by-pass structure 8.0 feet

Gates

Number 3

Size 9.5 feet high by 16 feet wide

Type Vertical slide gate

Top elevation of gate, full closed 5.5 feet

Bottom elevation gate, full open 6.5 feet

Control on-site, automatic with headwater elevation control or telemetry remote control

Lifting Mechanism

Normal Power Source commercial electricity

Emergency Power Source on-site LP gas electric generator

Type of Hoist Hydraulic cable lift hoist

ACCESS: Structure is located on the north side of SR 84 about 3/4 mile west of Florida's Turnpike.

HYDRAULIC AND HYDROLOGY MEASUREMENTS

Water Level Staff gauge and remote digital recorder at upstream and downstream of the structure

Gate Position Remote digital recorder at all gates

Rain gauge Remote digital recorder

DEWATERING FACILITIES

Dewatering beam and aluminum needles are located at the structure maintenance facility in West Palm Beach.