

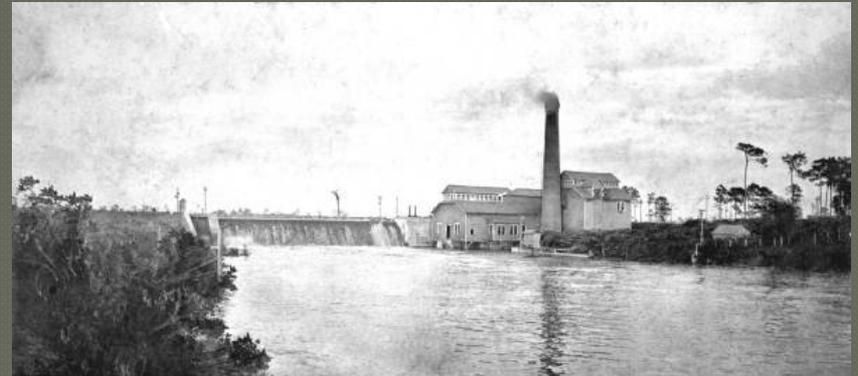
The Water Department Dam Safety Program

2020 General Engineering Services Consultant Selection

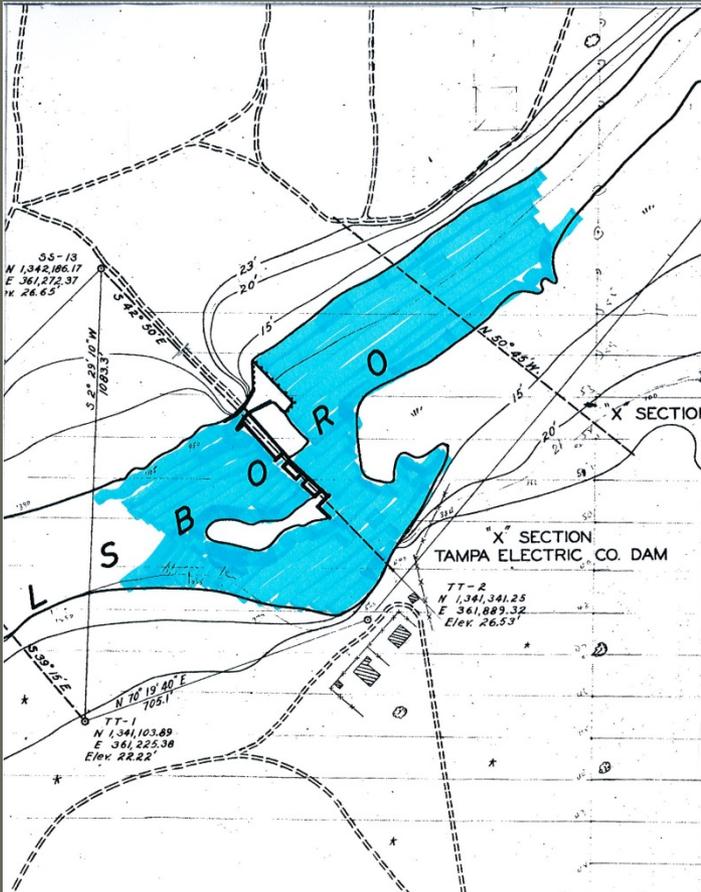
March 2020



Power Generation Years- Late 1890s to 1933



The Effect of the Flood of Record - 1933



Reconstruction, Expansion & Calm – 1945 - 1960



The Department's Concerns in the Late 1990s

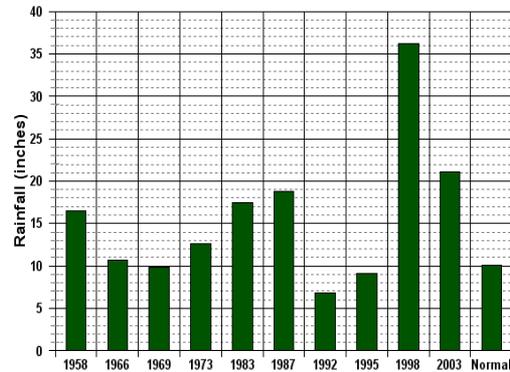
- Condition of Structural Components of Radial Crest Gates
- Effects of El Niño Rainfall of 1998



Conditions at Dam in the Late 1990s



Dec - Mar Rain Total at Tampa
During Strong El Niño Years



Rainfall data since 1950

The Improvements to the Dam (1999 – 2013)

- **Transformational Changes (1999 – 2001)**
 - ❑ Recognition of Protection Provided by LHDA & TBC
 - ❑ Elimination of Antiquated Crest Gate Lifting System
 - ❑ Conversion of Nine of Fifteen Crest Bays to Spill Walls
 - ❑ Replacement of Six Crest Gates and Two End Gates
 - ❑ Extension of Cut-off Wall at South End of Dam
 - ❑ Earthen Improvements at South Abutment
 - ❑ Construction of Building for Emergency Operations
- **The Effects of the 2001 Terrorist Attacks**
 - ❑ Increased Security
 - ❑ Flood Inundation Study for Postulated Failure of Dam (2003)
 - ❑ Emergency Action Plan (2005)

View of the Dam After the Early 2000s Improvements



View of the Walkway After 2013 Improvements

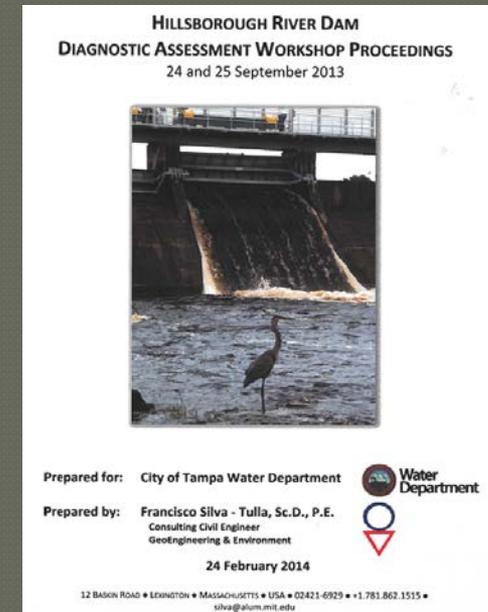


The Beginnings of the Formal Dam Safety Program

The Diagnostic Assessment

2013 - 2014

- **Issues Identified**
- **Reference Document for DA Team**
 - Synthesis of Available Information
- **Two Day Workshop**
 - Introductory Work Session
 - Field Visit
 - Concluding Work Session
- **Workshop Proceedings Report**
 - Findings
 - Recommendations



Procurement of General Engineering Services Consultant & Activities Undertaken

- **Services Concept – General Engineering (5 Years)**
- **Activities & Projects – 2014 to 2019**
 - North Embankment Stability and Seepage Evaluation
 - Operation & Maintenance Manual
 - End Gate Bay Isolation and Dewatering Study
 - MFL Control Gate (**Unexpected at Outset**)
 - North End Gate Urgent Repair (**Unexpected at Outset**)
 - Miscellaneous
 - MFL Siphon Geotechnical Opinion
 - Depression Near Dam Tender's Residence
 - Review of South Abutment Monitoring Reports

MFL Control Gate (2018) & North End Gate Repair (2019)



On-going & Possible Future Projects

- North Embankment Remediation
- South Abutment Ground Remediation
- Probable Failure Mode Assessment
- Annual Inspection
- Digital Inspection Tool Integration
- Gate Isolation Feasibility
- Hydrologic & Hydraulic Modeling
- Hydroelectric Proof of Concept Study
- Assessment of Dam Core
- Operator Training Program
- Performance Monitoring
- Emergency Action Plan Update
- Emergency Preparedness Exercises

The End

