

Challenges of Large Scale Ecosystem Restoration Construction in the Current Economic Climate

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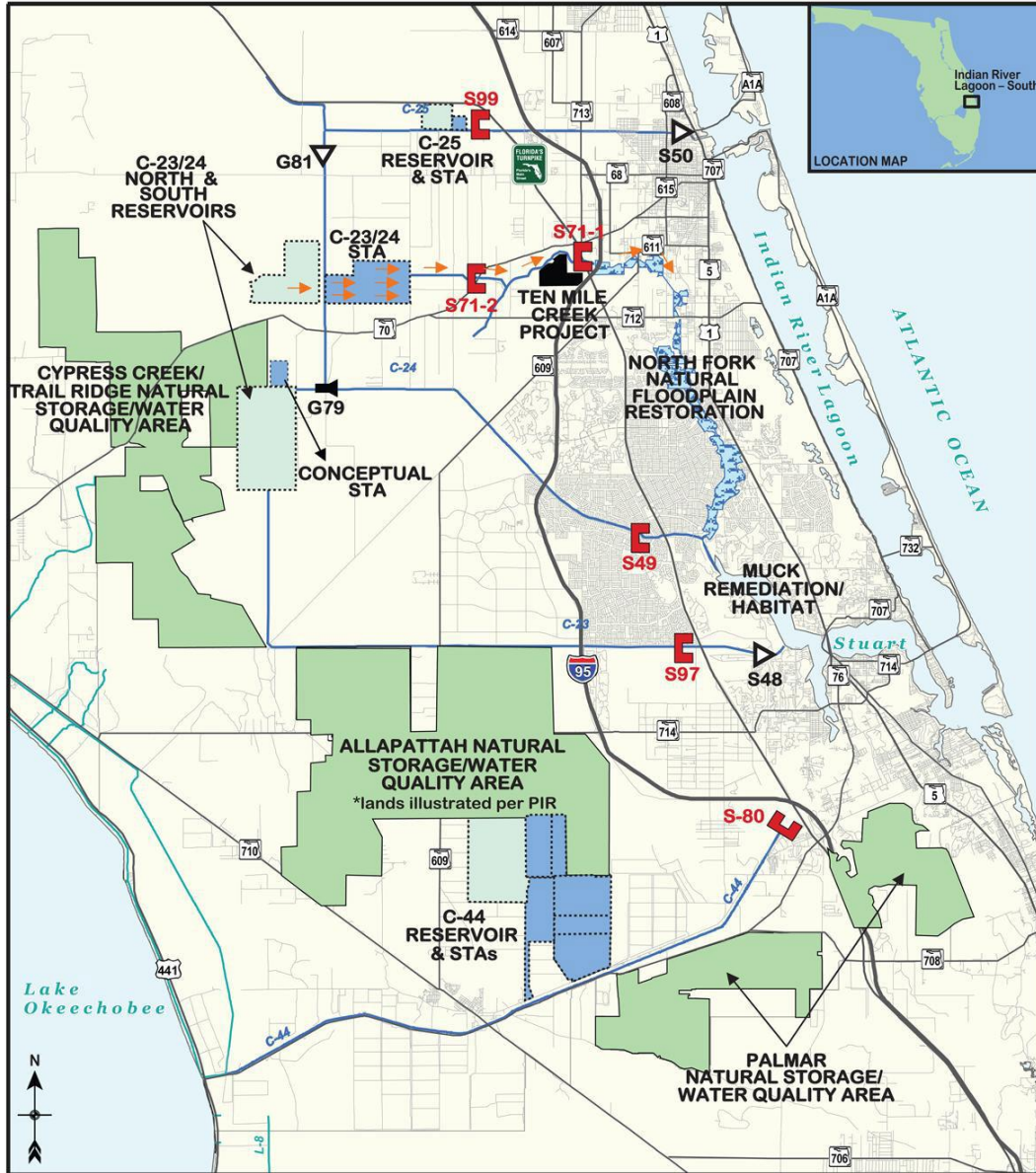


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Indian River Lagoon – South



Indian River Lagoon – South

2 Phases

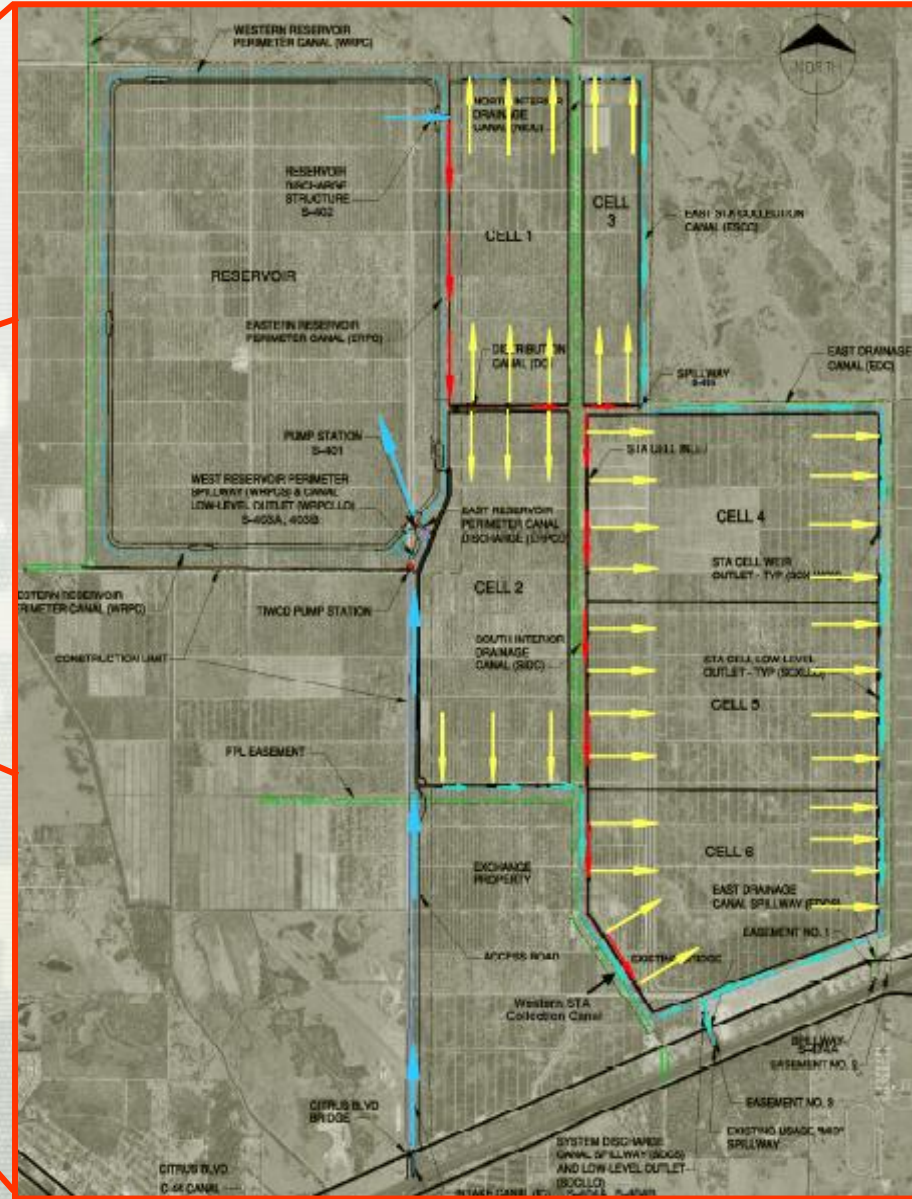
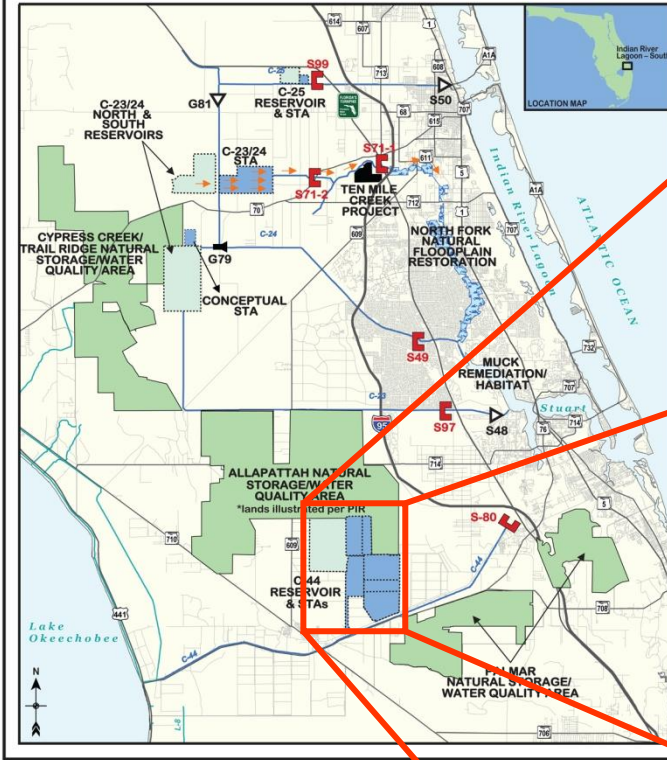
Phase 1 – \$1.2 Billion*
Phase 2 – \$0.8 Billion*

***Planning level estimates**



C-44 Project

Indian River Lagoon – South



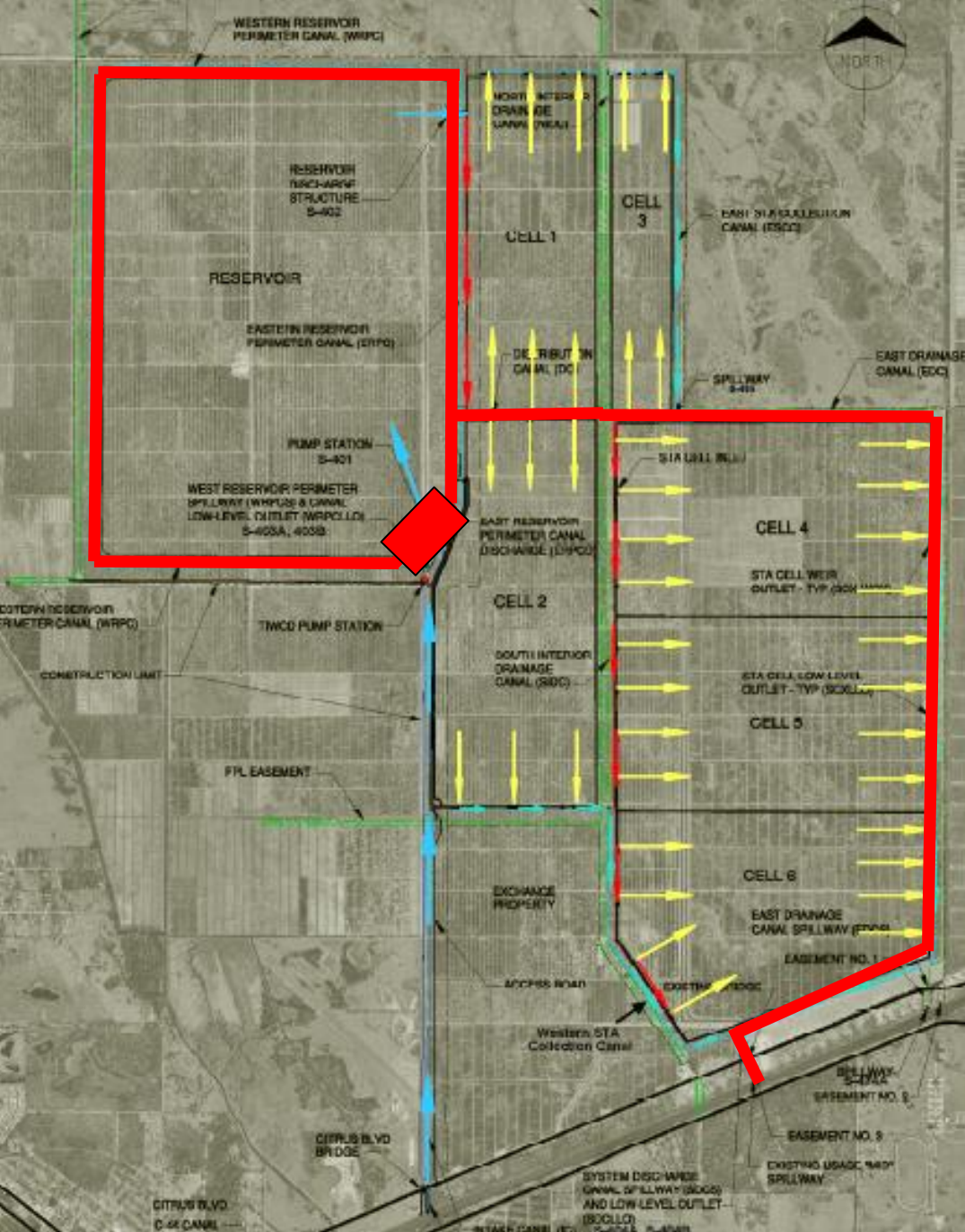
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Background

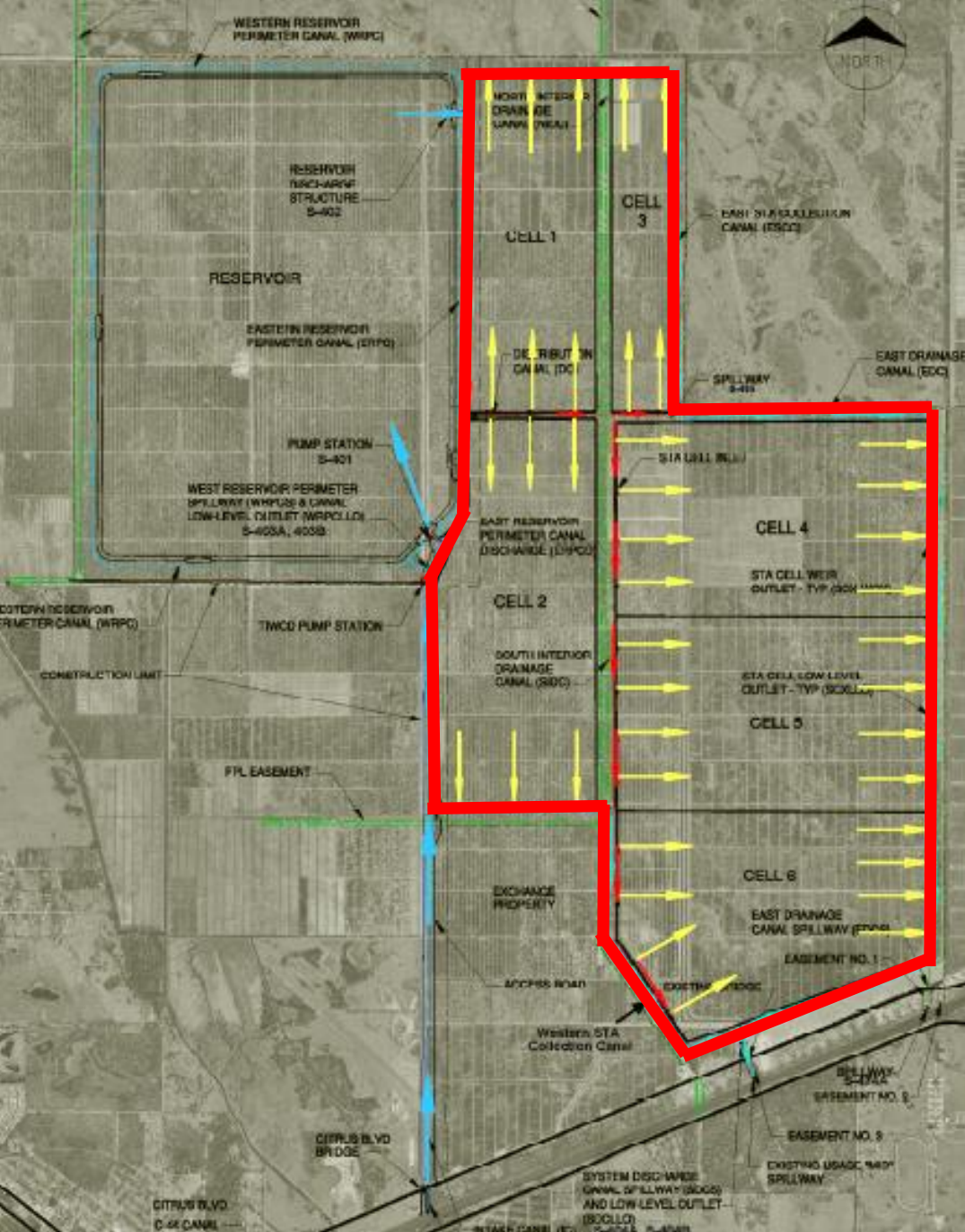
- **Case study : IRL-S C-44 Reservoir and STA**
- **SFWMD Design and Construction**
- **SFWMD funding constraints moved the construction to USACE and split project into three phases**
 - Contract 1 – Intake Canal, C-133
 - Contract 2 – Reservoir and Discharge Canal
 - Contract 3 – Stormwater Treatment Areas
- **USACE continuing to convert the design to USACE standards for all phases**
- **Construction Contract 1 – Intake Canal, C-133**
 - Awarded on 14 Jul 11 for ~ \$32,000,000



Reservoir and Outflow

- 52,000 acres feet reservoir
- Intake pump station
- Outflow channel and discharge structures
- Buried conduit for power
- Construction of FP&L sub-station





STA

- 6,300 Acres of STA
- All gravity fed from outflow of Reservoir
- Returning treated flow to C-44



Challenges

- Design
- Relocations
- NFS Adjacent Projects
- Funding
- Operations



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Common Design Challenges

- **IT: Instrumentation and Controls**
- **Changes in Agency Policy**
- **Changes in Agency & Industry Design Standards**
- **Changes in Technology**
- **Changes in Personnel**
- **Incorporation of Lessons Learned**

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Specific Design Challenges

SFWMD

- **One Project with several components**
 - Fully Funded
- **Allows Construction Contractor freedom without directing means and measures**

USACE

- **Phasing of Project**
 - Limited Annual Funding
 - Impacts to schedule
- **More Prescriptive Design Specifications**
 - Package/SOW/Design Detail
 - Contracting & FAR
- **Required Reviews**
 - IEPR, PARC
- **Relocations**
 - Additional Pre-Construction

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Relocations

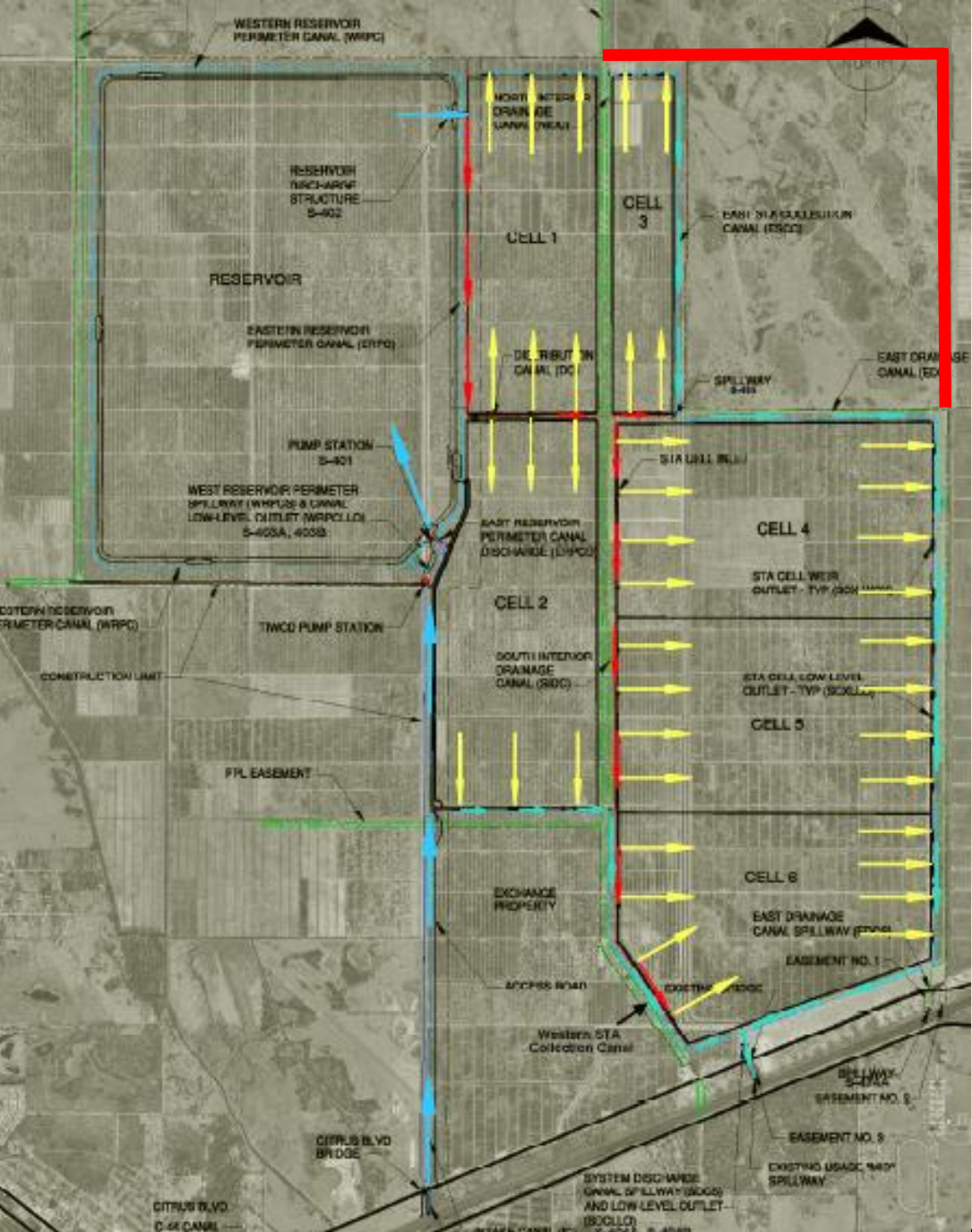
- Relocations are considered the responsibility of non-federal sponsor.
- USACE needed to break out relocations for SFWMD to perform prior to USACE construction, where practicle.
- USACE will carry out some relocations paid for by SFWMD as they cannot be phased.
 - Citrus Blvd
- SFWMD will phase their relocations for TIWCD to maintain operation for TIWCD.

NFS Adjacent Projects

- **SFWMD intended to carry out work on C-133 and C-132 Northern Sections as part of the project.**
- **Since this work is not part of the Federally Authorized project, USACE cannot carry out this work, but design does need to tie into final work.**
- **SFWMD and USACE maintained same Designer of Record to allow synchronization.**

NFS Works

C-132 and C-133 North Improvements



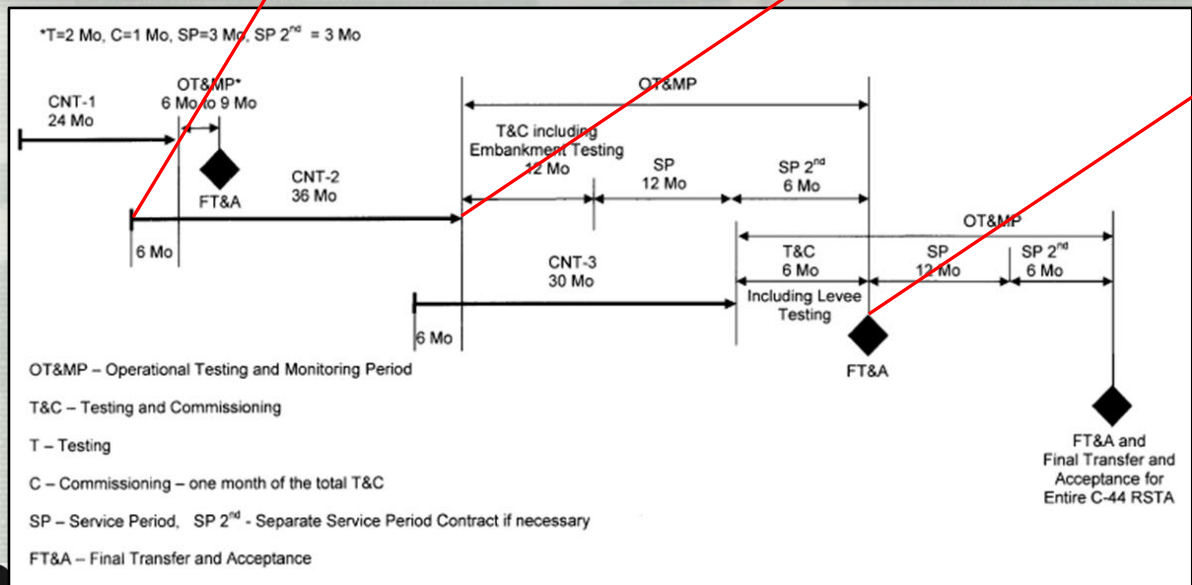
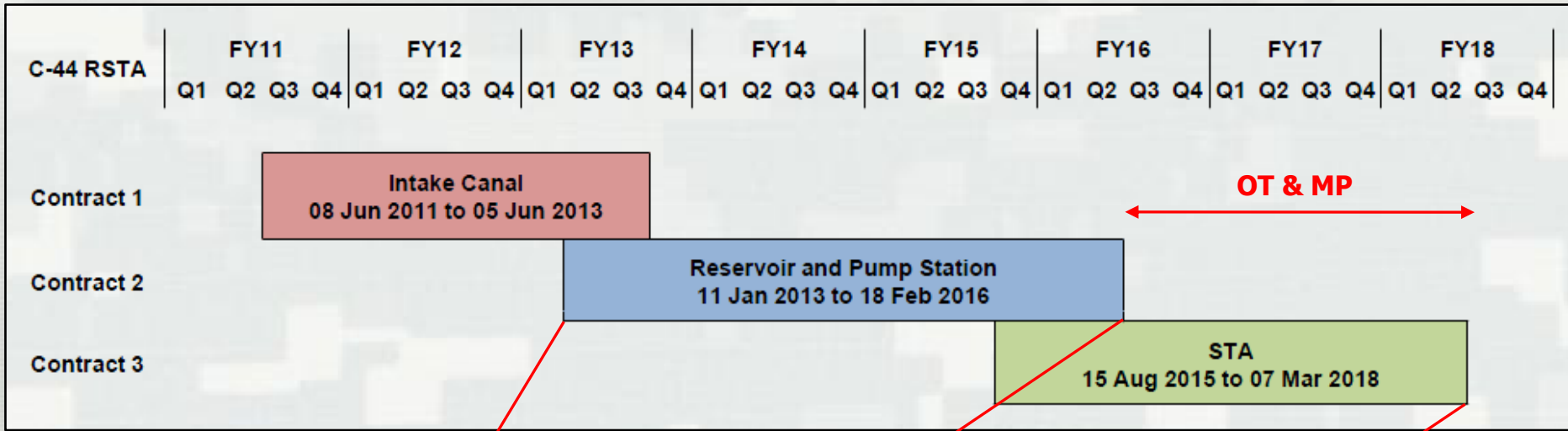
Funding Challenges

- **Increasing economic climate pressures**
- **Contract Earnings vs. Expected Funding Streams**
- **Incremental Funding**
- **Identify Usable Increments**
- **EC-11-2-191, 19 Apr 07**
 - Appendix I – Conditions and Approval Levels for Use of Continuing Contracts
- **EC-11-2-198, 7 Jan 10**
 - Appendix N - Conditions and Approval Levels for Use of Contract Clauses
 - Appendix O - Format for Approval to Award a Continuing Contract

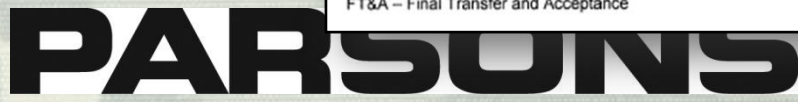
Operational Challenges

- **A balance between time and funding had to be struck against operating individual components of the project**
- **Each component must be fully functional for transfer**
- **Each component must be able to function for it's intended useful purpose should the next not receive funding**

Operational Challenges

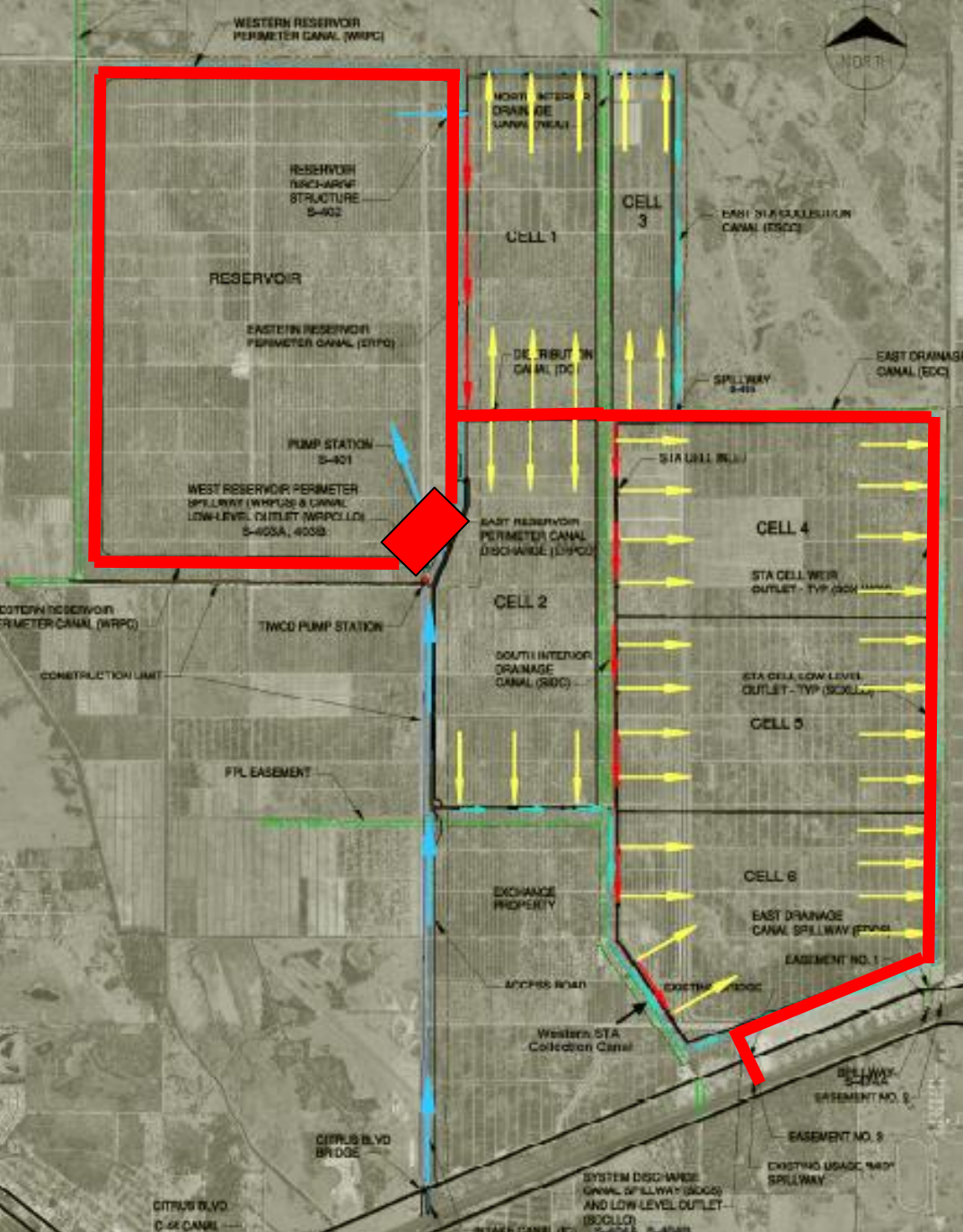


- Interim Operations of Reservoir Required for:**
1. Testing and Commissioning (minimum 9 months but realistically 1-1.5 years)
 2. Operation of Reservoir for Attenuation and/or Water Supply
 3. Not Required for Discharges to STA



Discharge Canal

Required to allow the reservoir to be a functional element and operate



Management Decision

- Go back to INTERMEDIATE plans and specifications
- Project team re-develops schedule and budget which accounts for design and technology changes, required reviews and multiple year funding requirements
- Cost reviews at key design milestones
- Develop P&ID up front for Electrical/IT work

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Questions

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