

# **C-43 West Basin Storage Reservoir Water Quality Component**

## **Deliverable 9.1.6 *Final* Conceptual Design Plans**

Prepared for  
**South Florida Water Management District**



Date  
**July 1, 2021**

Prepared by  
**J-Tech, an Alliance between Jacobs Engineering and Tetra Tech, Inc.**



## Final Conceptual Design Plans

J-Tech has developed the following conceptual designs for the approved Water Quality Component (WQC) alternatives on parcels of land identified under Task 7, WQC Siting Evaluation. The conceptual designs include necessary design details to provide sufficient information to evaluate the project design from a technical perspective and compile a cost estimate for capital costs, operation and maintenance, net present value, and contingency applied for conceptual level of design. Some of the system and installation costs were supplied directly from the technology vendors. The costs for each alternative are provided separately in the Final Conceptual Design Report.

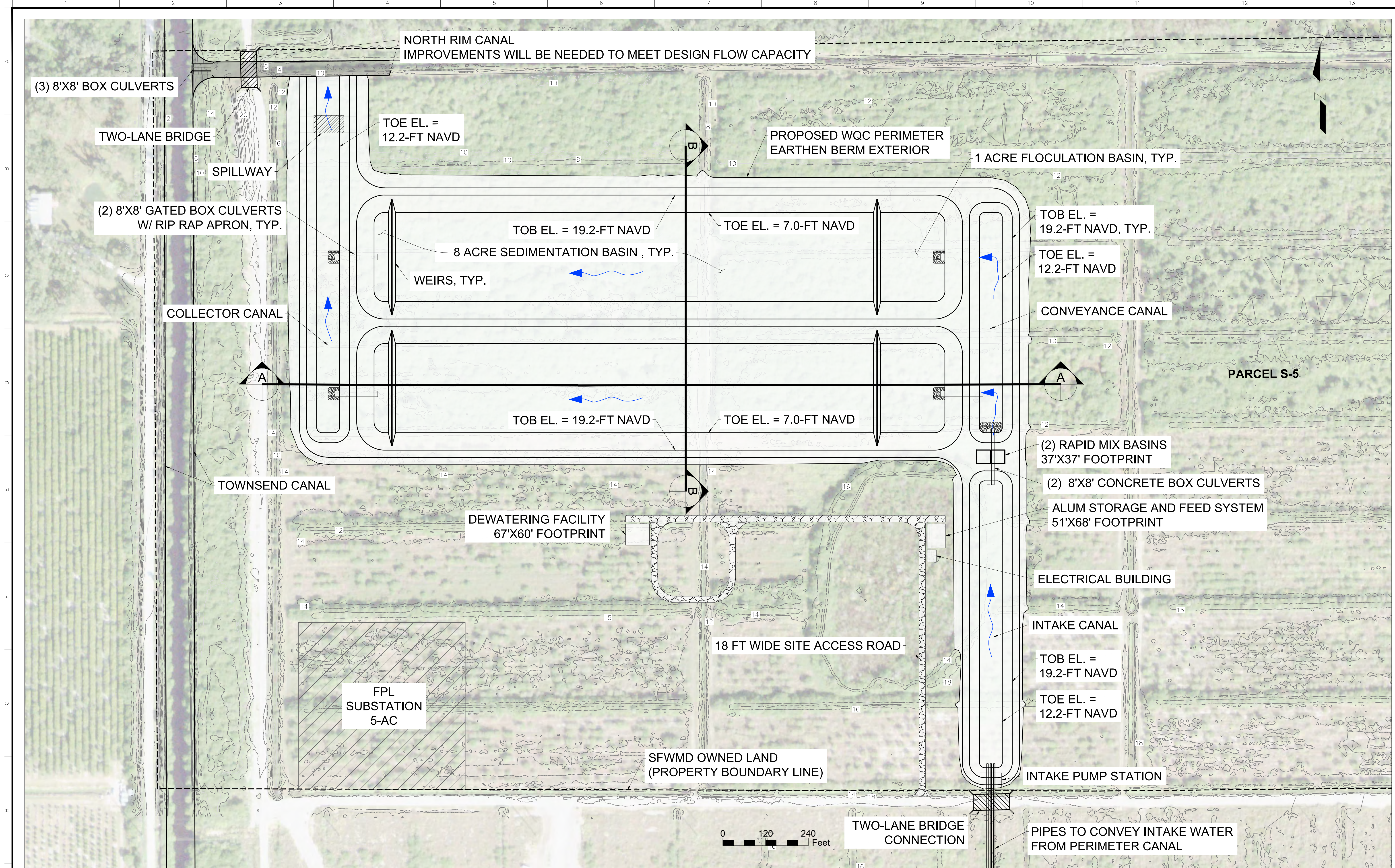
Based on the C-43 West Basin Storage Reservoir (WBSR) Feasibility Study and Siting Evaluation, conceptual designs are provided for the following WQC component options:

1. Option 1: Post-storage alum treatment system
2. Option 2: Sand filter with parallel Bold and Gold® treatment
3. Option 3: Hybrid Wetland Treatment Technology (HWTT)\*
4. Option 4: Stormwater treatment area (STA) with parallel Bold and Gold® treatment
5. Option 5: Sand filter with in-reservoir alum treatment (new option from final conceptual design)

\*Note that HWTT is a patented technology and most of the project details, including sizing and treatment estimation for the system, were provided by Watershed Technologies, LLC.

# Option 1: Post-Storage Alum Treatment System



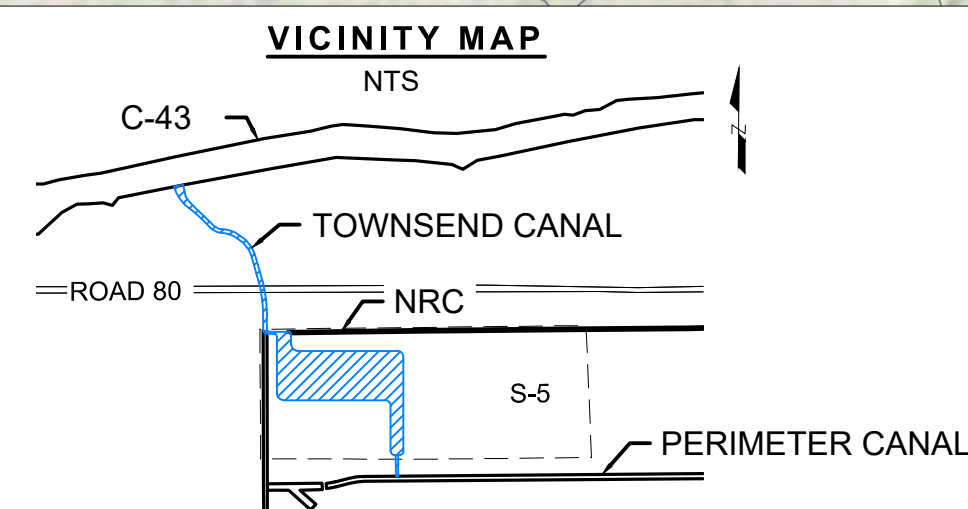


- NOTES:
1. TOPOGRAPHIC SURVEY DATA (LIDAR) WAS PREPARED BY PICKETT AND ASSOCIATES, INC. FOR SFWMD ON 9/12/2019
  2. CUT/FILL EMBANKMENT SLOPES SHOWN AT 3H:1V.

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VERTICAL DATUM:  
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# CONCEPTUAL DESIGN

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SOUTH FLORIDA WATER MANAGEMENT DISTRICT OPERATIONS, ENGINEERING & CONSTRUCTION DIVISION ENGINEERING & CONSTRUCTION BUREAU PHONE: 561-686-8800 3301 GUN CLUB ROAD WEST PALM BEACH, FLORIDA 33406		JTECH AN ALLIANCE OF JACOBS AND TETRA TECH JACOBS FLORIDA COA #6822 TETRA TECH FLORIDA COA #2229		ENGINEER: D. POLSKI DRAWN: D. POLSKI CHECKED: SM/SW DATE: 6/23/2021 SCALE: 1" = 120'	REVISION DESCRIPTION DATE REF#
OPTION 1 ALUM TREATMENT BASINS PLAN VIEW		PROJECT ID NO. DRAWING NUMBER SHEET			

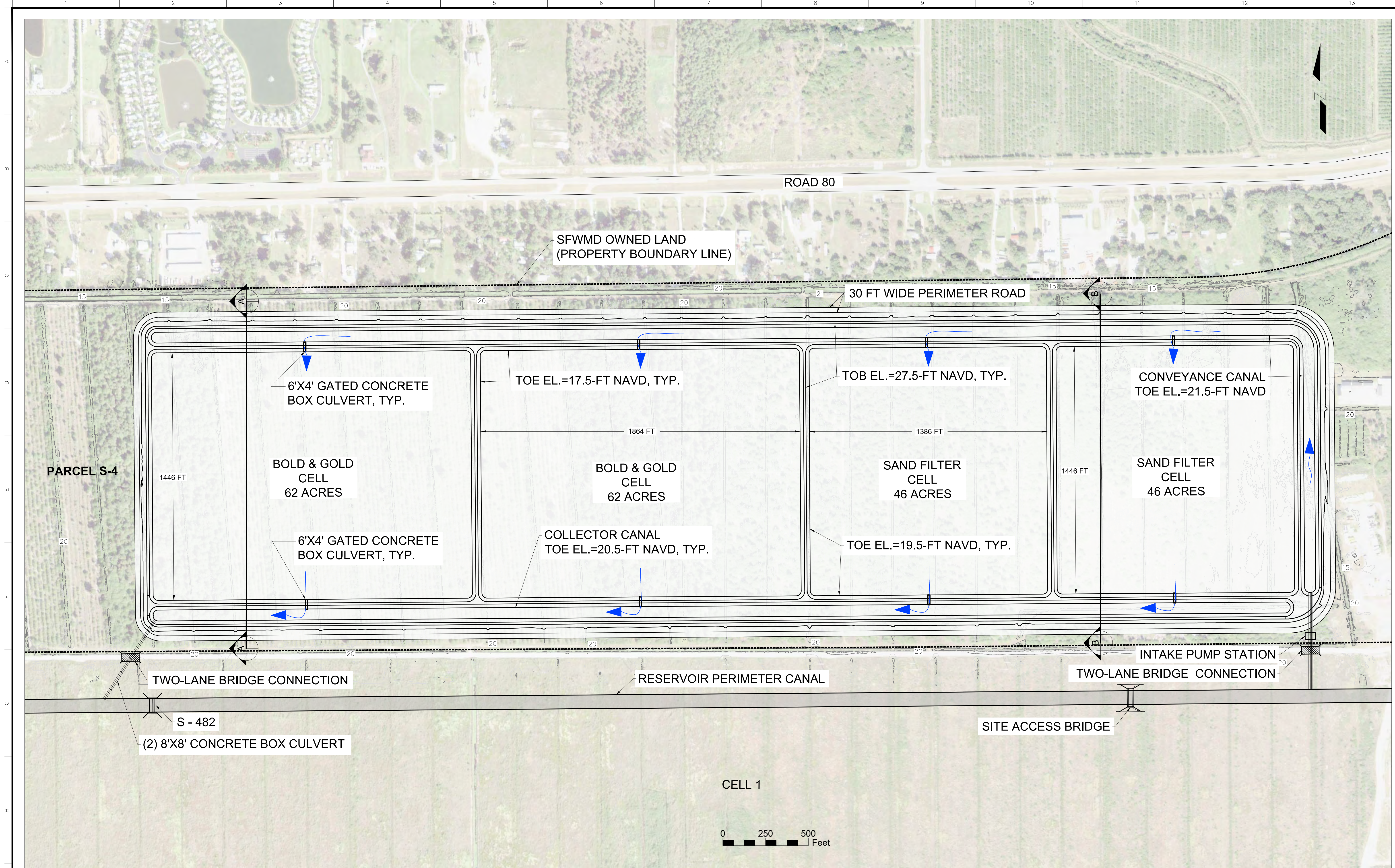






## Option 2: Sand Filter with Parallel Bold and Gold® Treatment



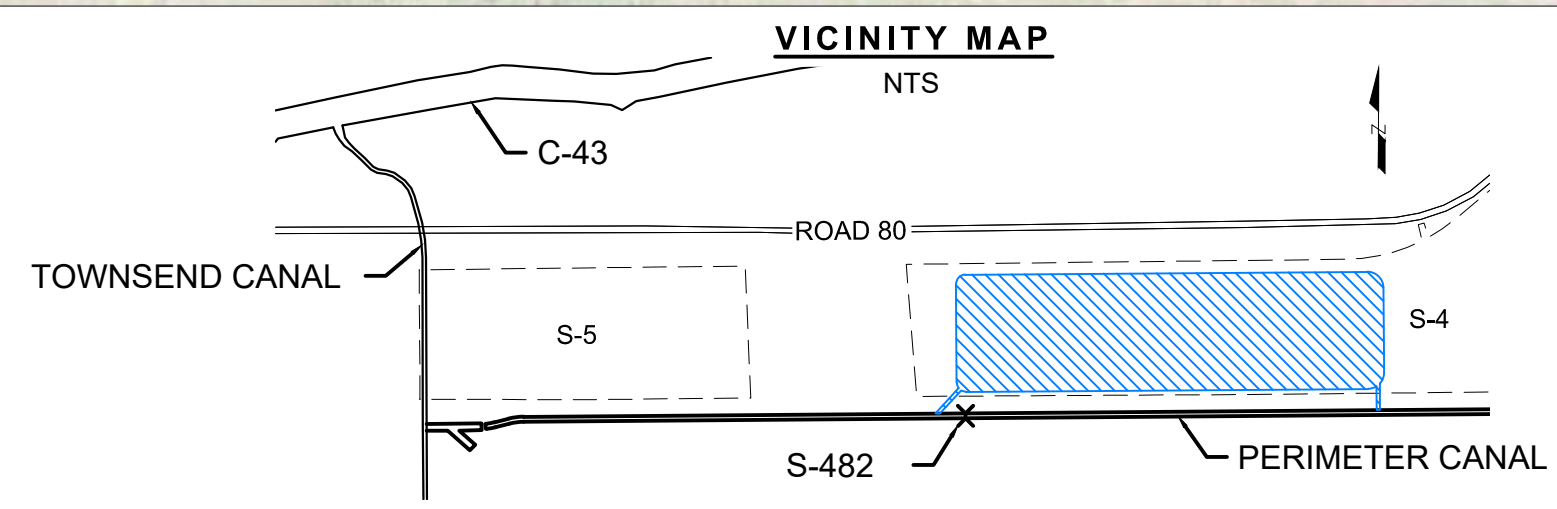


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JTECH

AN ALLIANCE OF JACOBS AND TETRA TECH

JACOBS

TETRA TECH

ENGINEER: D. POLSKI  
DRAWN: D. POLSKI  
CHECKED: SM/SW  
DATE: 6/23/2021  
SCALE: 1" = 250'

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OPERATIONS, ENGINEERING & CONSTRUCTION DIVISION

ENGINEERING & CONSTRUCTION BUREAU

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3301 GUN CLUB ROAD  
WEST PALM BEACH, FLORIDA 33406

OPTION 2

BOLD & GOLD AND SAND FILTER CELLS

PLAN VIEW

PROJECT ID NO.

DRAWING NUMBER

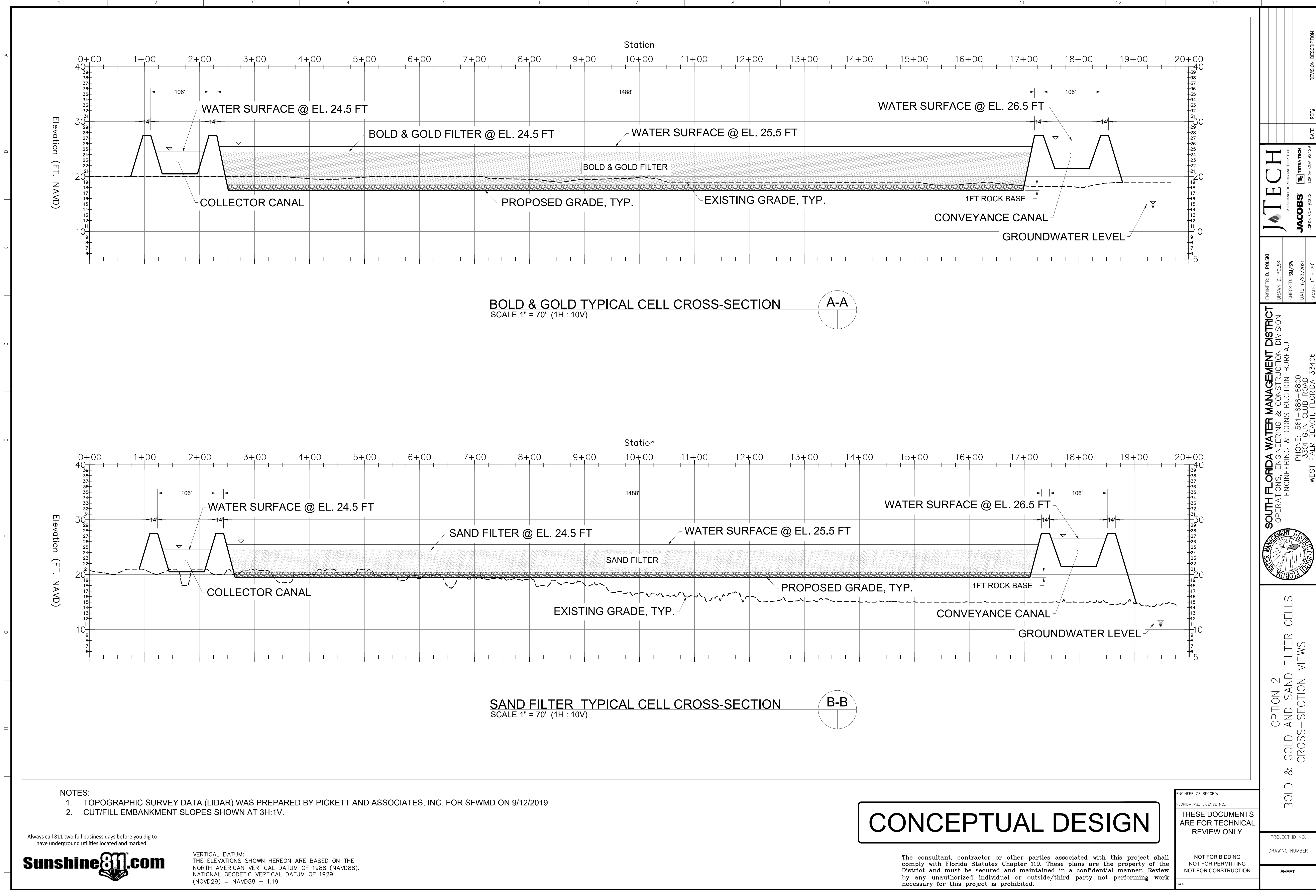
SHEET

REVISION DESCRIPTION

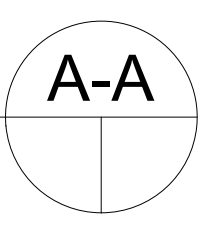
DATE

REF#

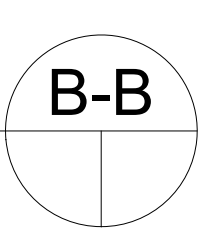




**BOLD & GOLD TYPICAL CELL CROSS-SECTION**  
SCALE 1" = 70' (1H : 10V)



**SAND FILTER TYPICAL CELL CROSS-SECTION**  
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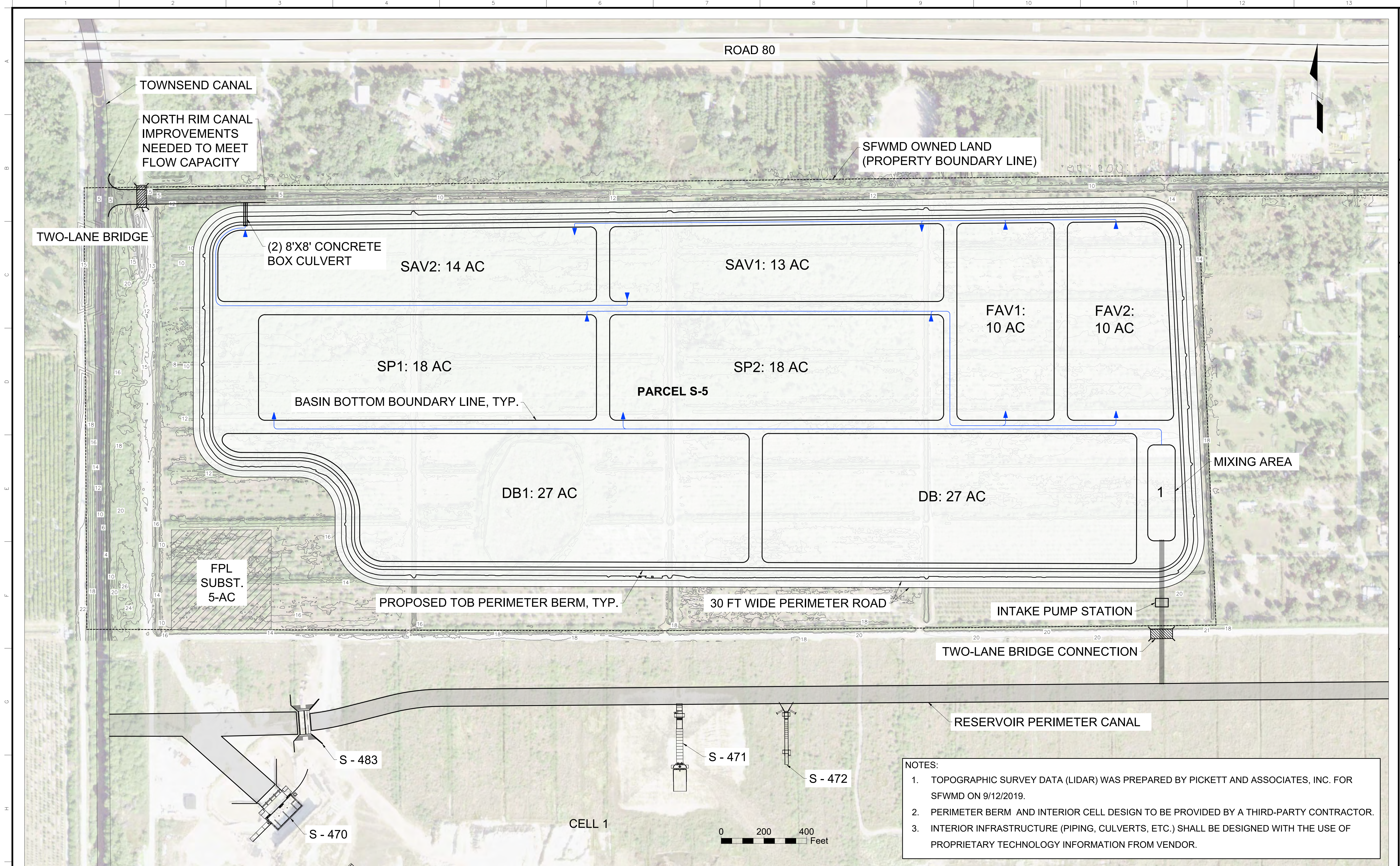
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<b>JTECH</b> AN ALLIANCE OF JACOBS AND TETRA TECH		ENGINEER: D. POLSKI DRAWN: D. POLSKI CHECKED: SM/SW DATE: 6/23/2021 SCALE: 1" = 70'
<b>JACOBS</b> TETRA TECH FLORIDA COA #6822		REVISION DESCRIPTION DATE REF#
<b>SOUTH FLORIDA WATER MANAGEMENT DISTRICT</b> OPERATIONS, ENGINEERING & CONSTRUCTION DIVISION ENGINEERING & CONSTRUCTION BUREAU PHONE: 561-686-8800 3301 GUN CLUB ROAD WEST PALM BEACH, FLORIDA 33406		
<b>OPTION 2</b> <b>BOLD &amp; GOLD AND SAND FILTER CELLS</b> <b>CROSS-SECTION VIEWS</b>		
PROJECT ID NO.		SHEET
DRAWING NUMBER		



## Option 3: Hybrid Wetland Treatment Technology (HWTT)

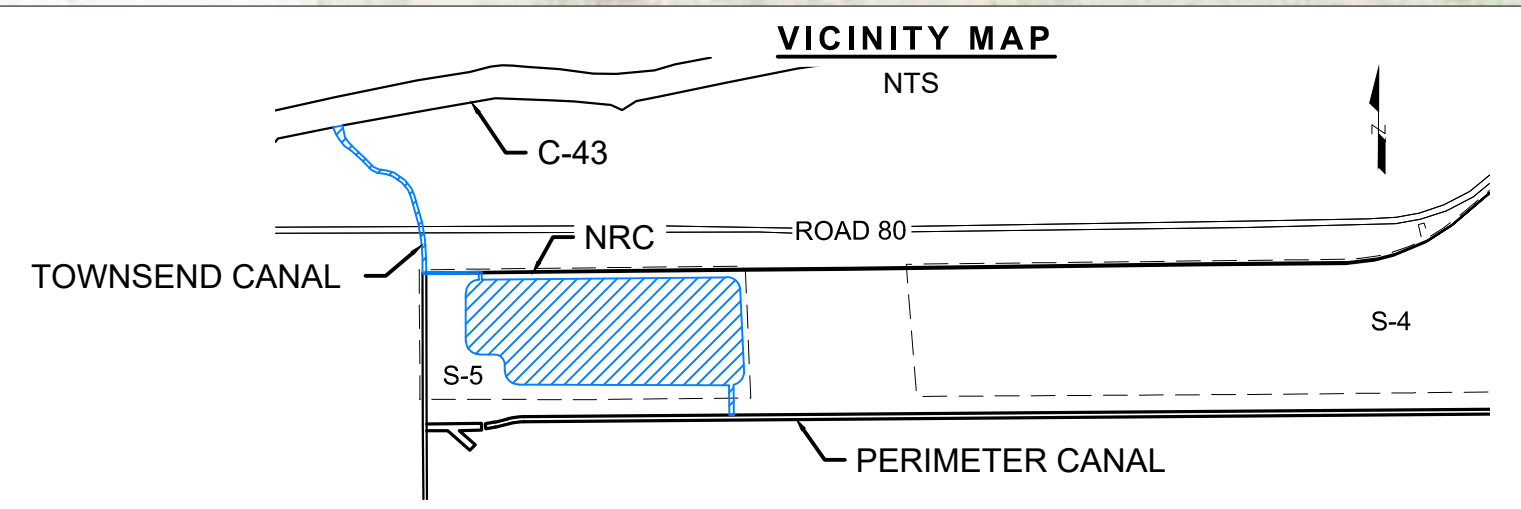




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  3. INTERIOR INFRASTRUCTURE (PIPING, CULVERTS, ETC.) SHALL BE DESIGNED WITH THE USE OF PROPRIETARY TECHNOLOGY INFORMATION FROM VENDOR.

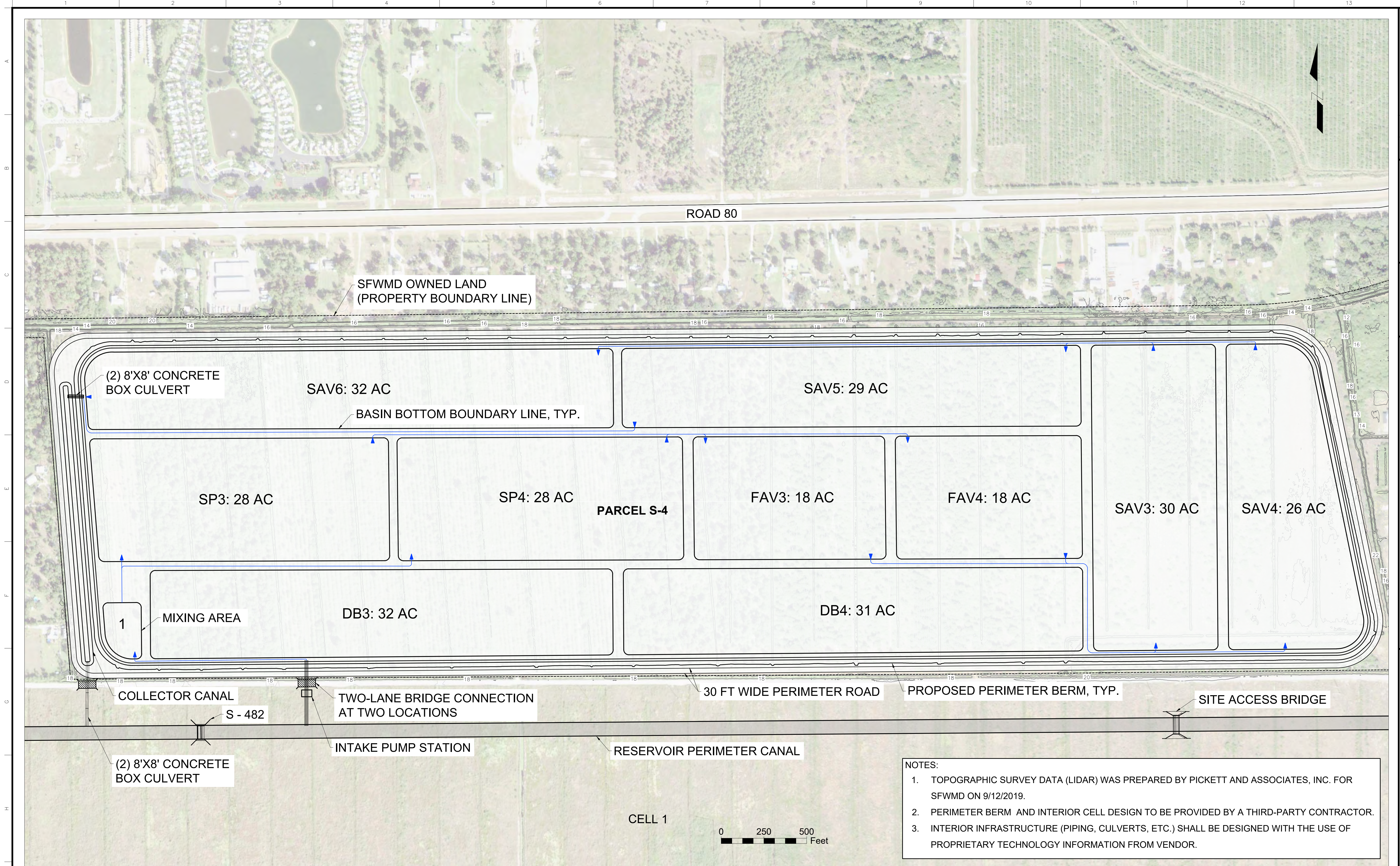
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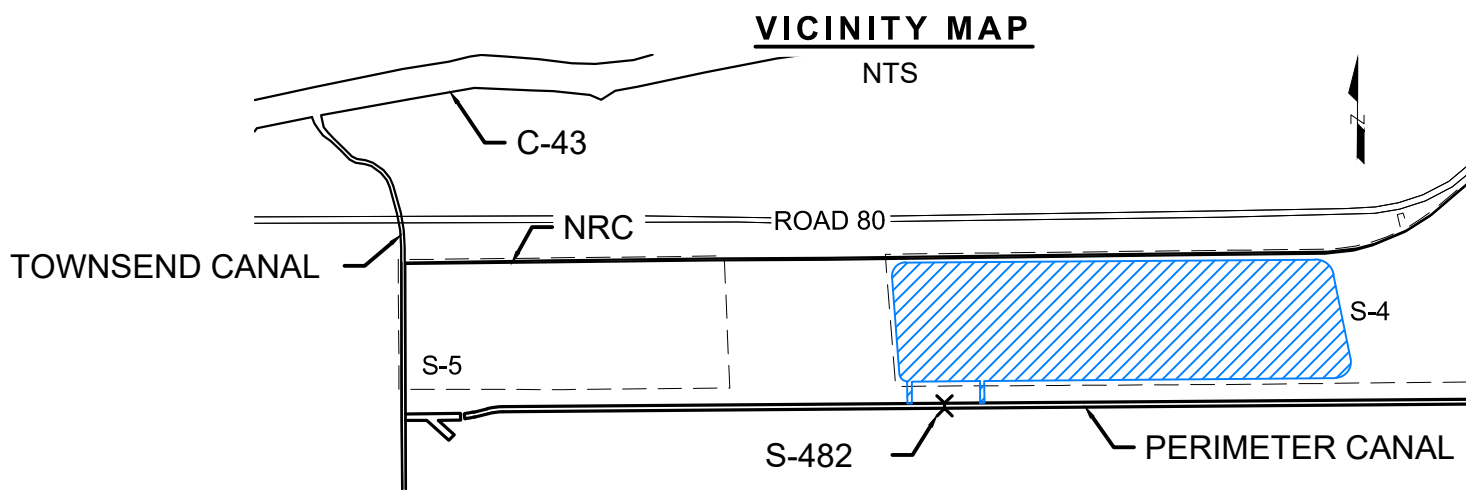
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<b>JACOBS</b> TETRA TECH		DRAWN: D. POLSKI
FLORIDA COA #2229		CHECKED: SM/SW
DATE: 6/23/2021		SCALE: 1" = 200'
DATE	REF#	REVISION DESCRIPTION
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<b>OPTION 3</b> <b>HYBRID WETLAND TREATMENT BASINS (S-5)</b> <b>PLAN VIEW</b>		
PROJECT ID NO.		
DRAWING NUMBER		
SHEET		





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OPTION 3  
HYBRID WETLAND TREATMENT BASINS (S-4)  
PLAN VIEW

PROJECT ID NO.  
DRAWING NUMBER  
SHEET

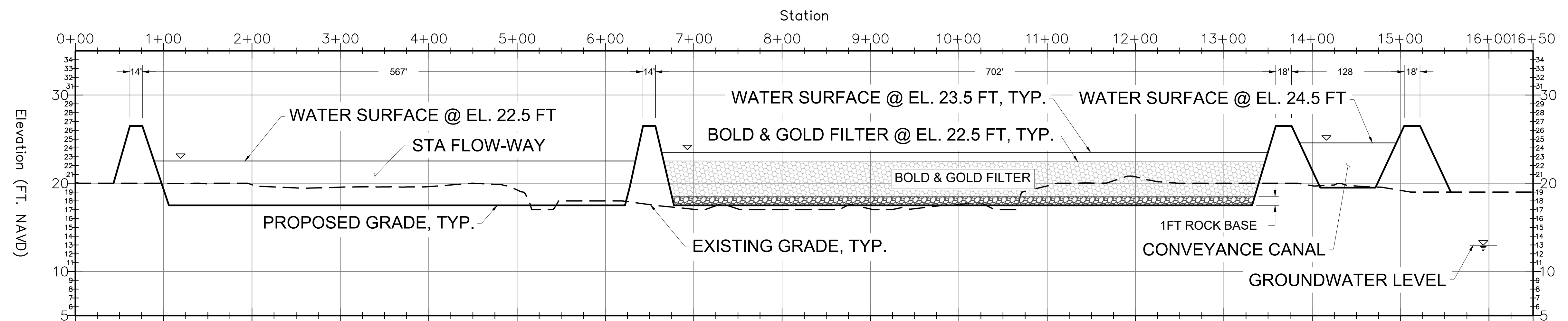


## Option 4: Stormwater Treatment Area (STA) with Parallel Bold and Gold® Treatment

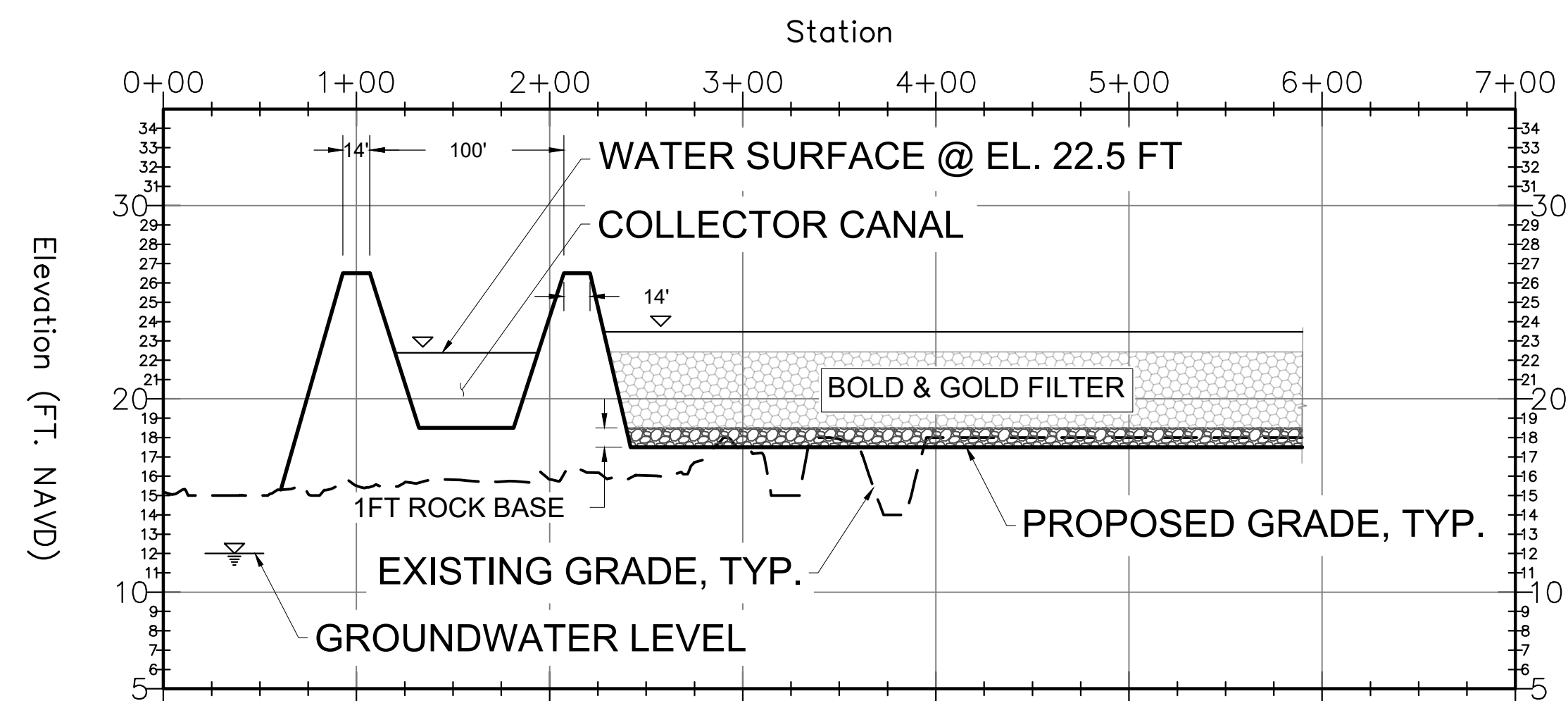








### TYPICAL TREATMENT BASIN CROSS-SECTION



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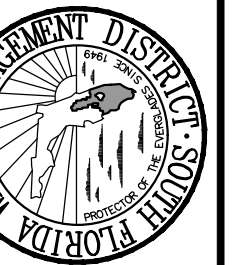
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OPTIONS 4A AND 4B  
BOLD & GOLD AND STA CELLS  
CROSS-SECTION VIEWS A & B



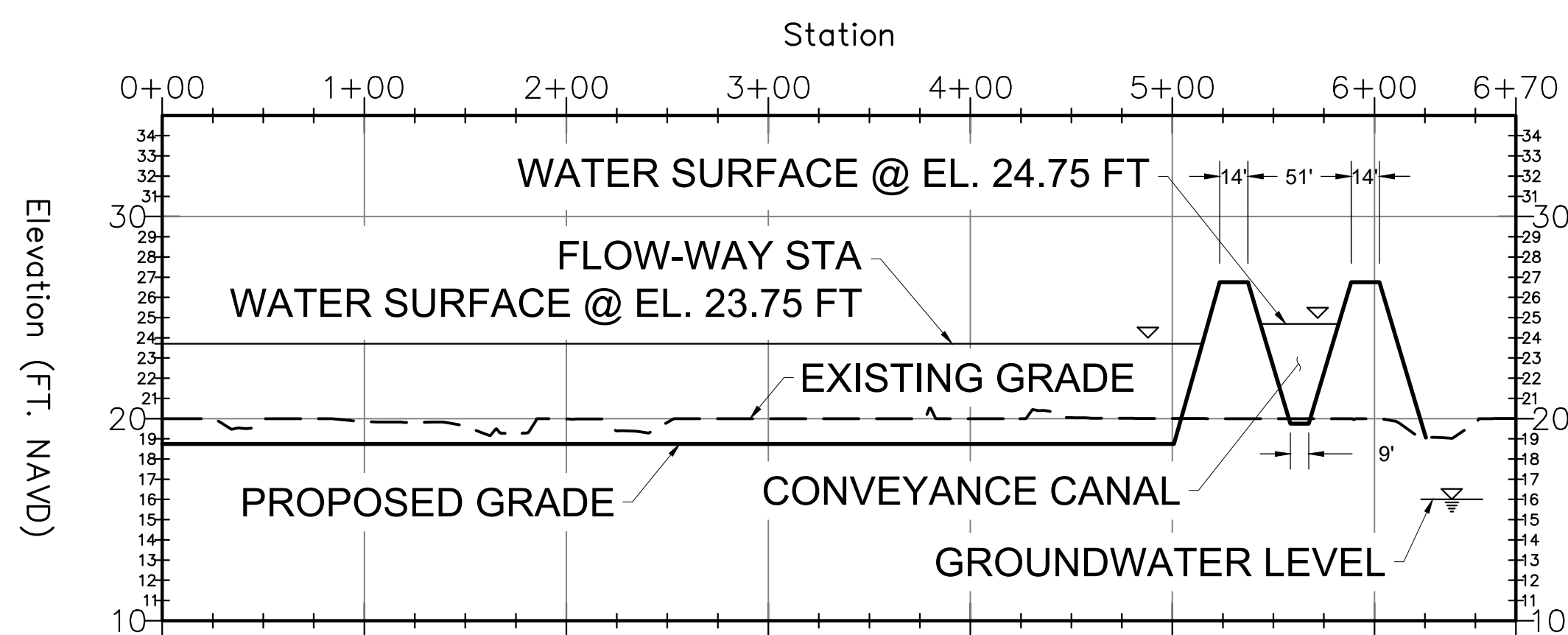
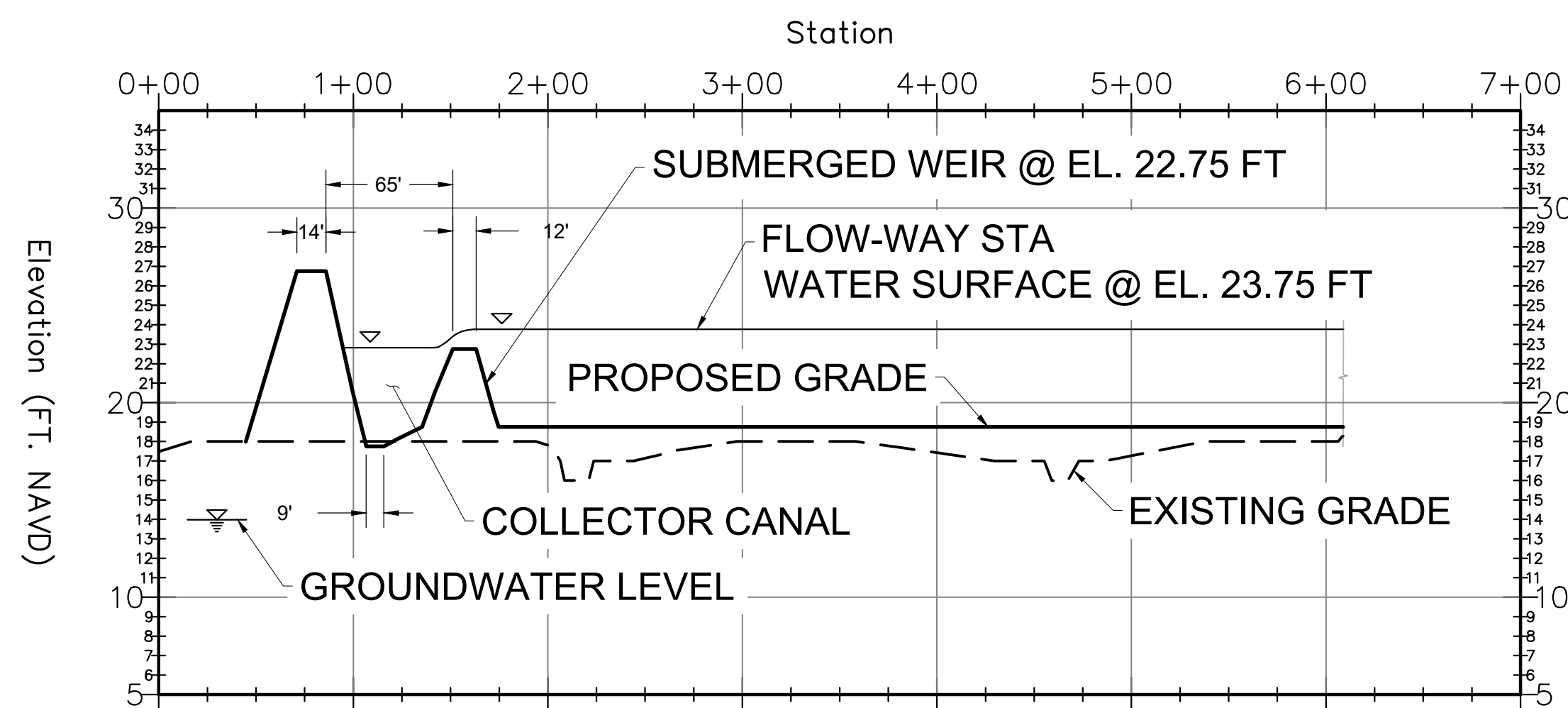
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PHONE: 561-686-8800  
3301 GUN CLUB ROAD  
WEST PALM BEACH, FLORIDA 33406

DRAWN: D. POLSKI  
CHECKED: SM/SW  
DATE: 6/23/2021  
SCALE: 1" = 70'

**JACOBS**  
AN ALLIANCE OF JACOBS AND TETRA TECH  
**Tt TETRA TECH**  
FLORIDA COA #2822 FLORIDA COA #2429

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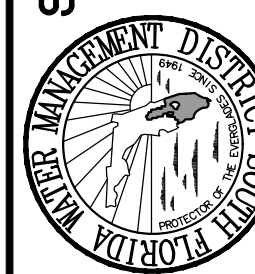
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OPTIONS 4A AND 4B  
BOLD & GOLD AND STA CELLS  
CROSS-SECTION VIEWS C & D



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**J+TECH**  
AN ALLIANCE OF JACOBS AND TETRA TECH

**JACOBS**  
TETRA TECH

FLORIDA COA #2822 FLORIDA COA #2429

[illegible]

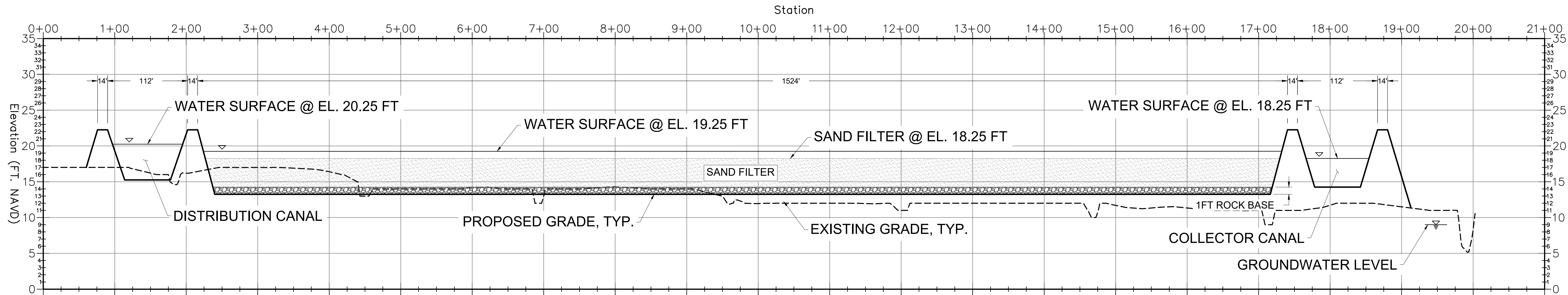


## Option 5: Sand Filter with In-reservoir Alum Treatment

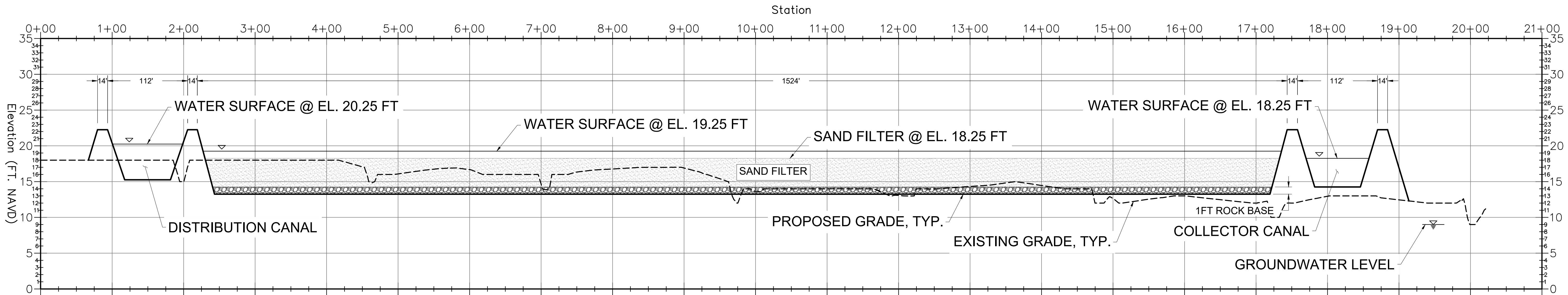
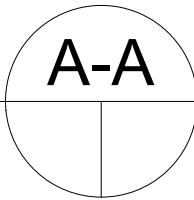




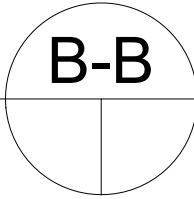




SAND FILTER TYPICAL CELL CROSS-SECTION  
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<b>OPTION 5 150-ACRE SAND FILTER TREATMENT BASIN CROSS-SECTION VIEWS</b>		
PROJECT ID NO. DRAWING NUMBER		SHEET