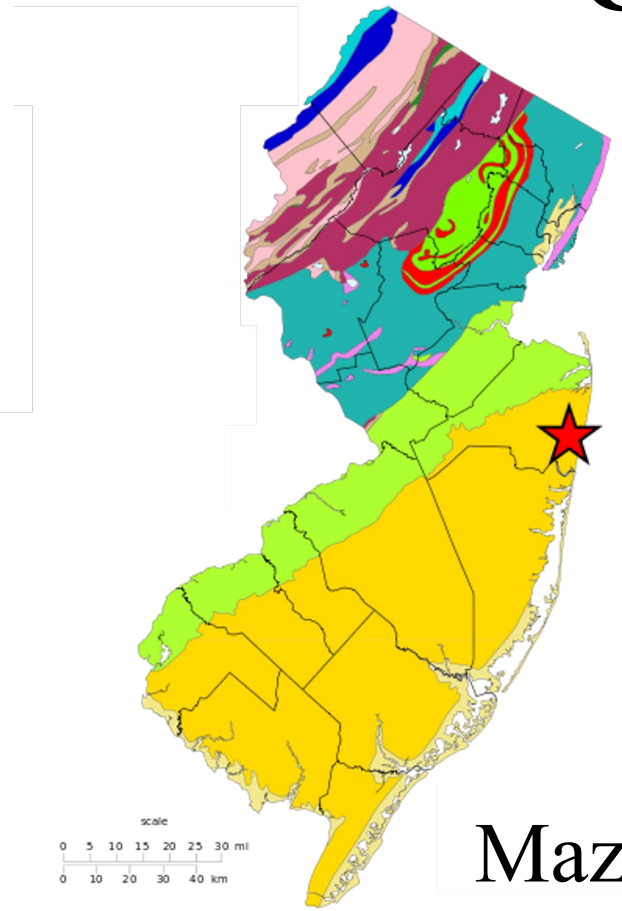
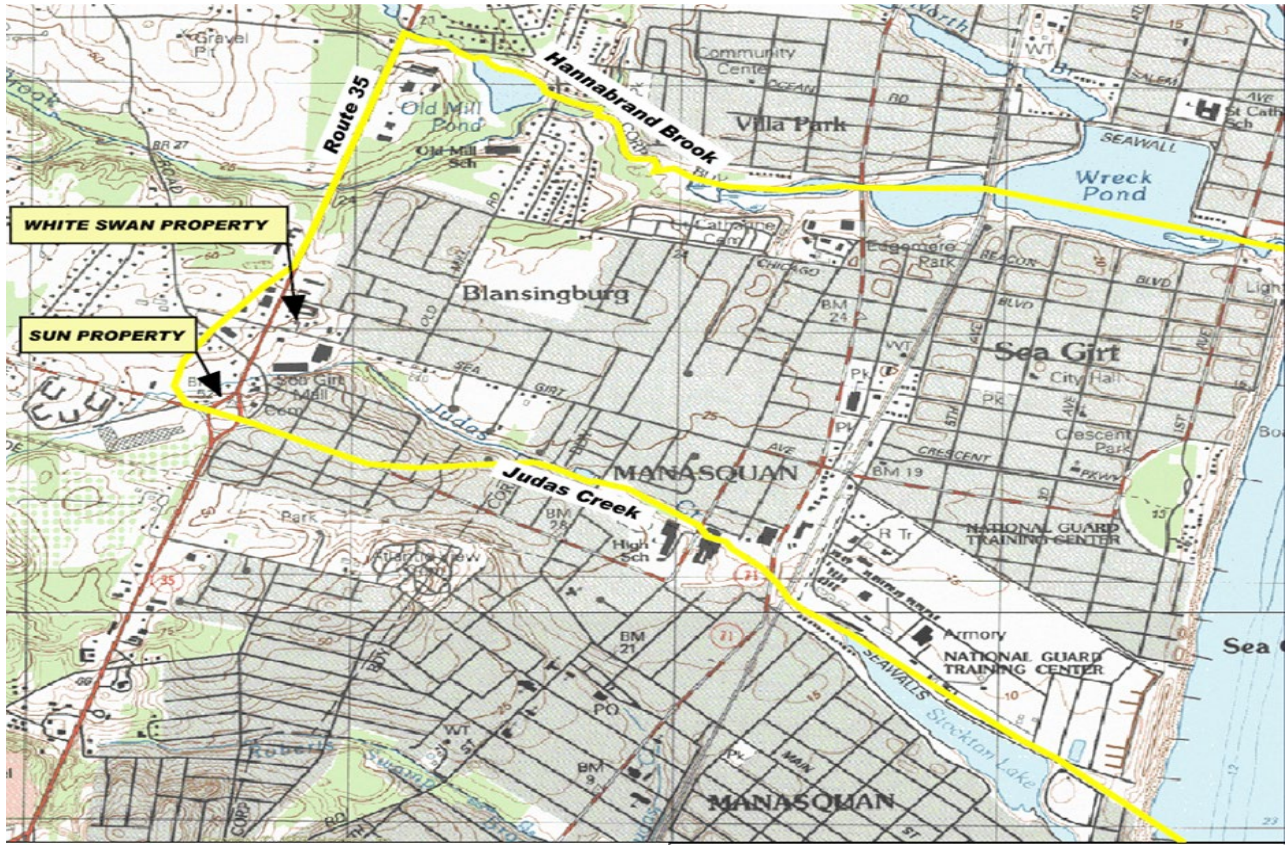
Remedy Resiliency in the RD/RA for the White Swan/Sun Cleaners Area Groundwater Contamination Superfund Site





Mazeeda Khan, PE, PMP

Site History

- 1997 - Local Health Dept sampled irrigation wells

- 1999 - NJDEP sampled ground water, surface water, sediments and indoor air.

- 2001 - EPA initial survey of properties
  - White Swan (PRP led)
  - Sun Cleaners (EPA led)

- 2004 – EPA listed Site on NPL

Major Milestones

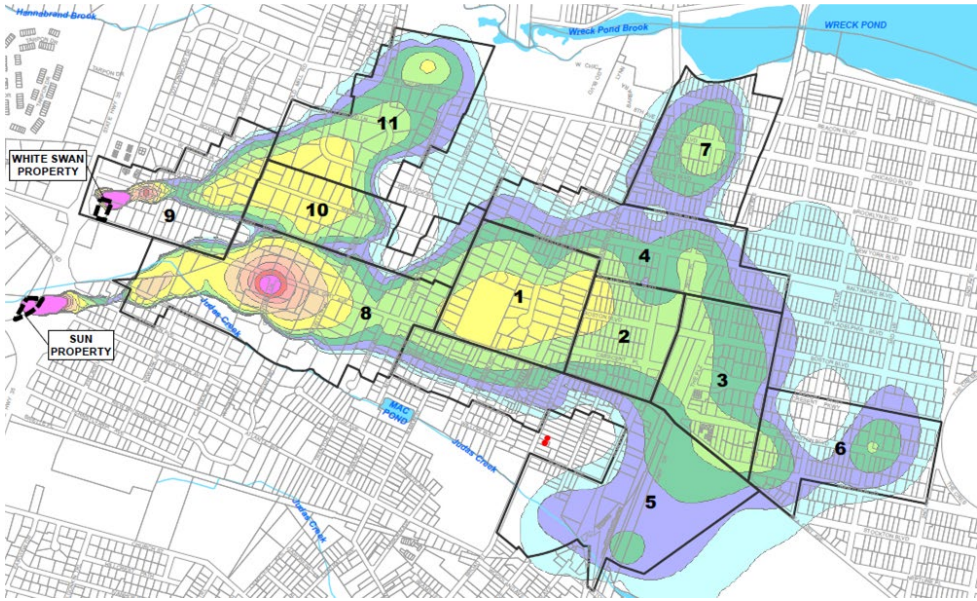
- 2013 ROD
  - 2001 to present — Vapor Intrusion Assessments
  - 2016 to 2018 — Soil Removal at White Swan
  - 2016 to 2024 — Soil Vapor Extraction at Sun Cleaners
  - 2025 to present — GWTS Construction and O&M
  - 2025 — CEA to NJDEP for approval
  - TBD — Groundwater MNA

- 2020 - RD finalized by EPA

- 2023 – CD finalized by EPA

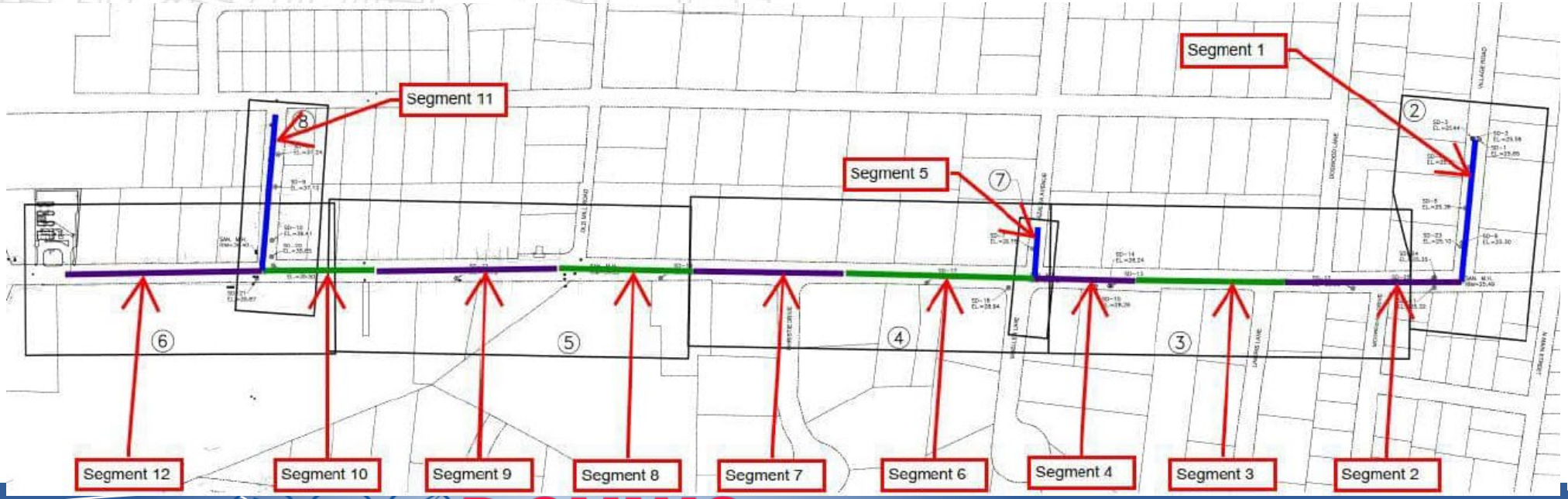
- 2024 – Original RD for GWTS revised

- 2025 – GWTS construction initiated

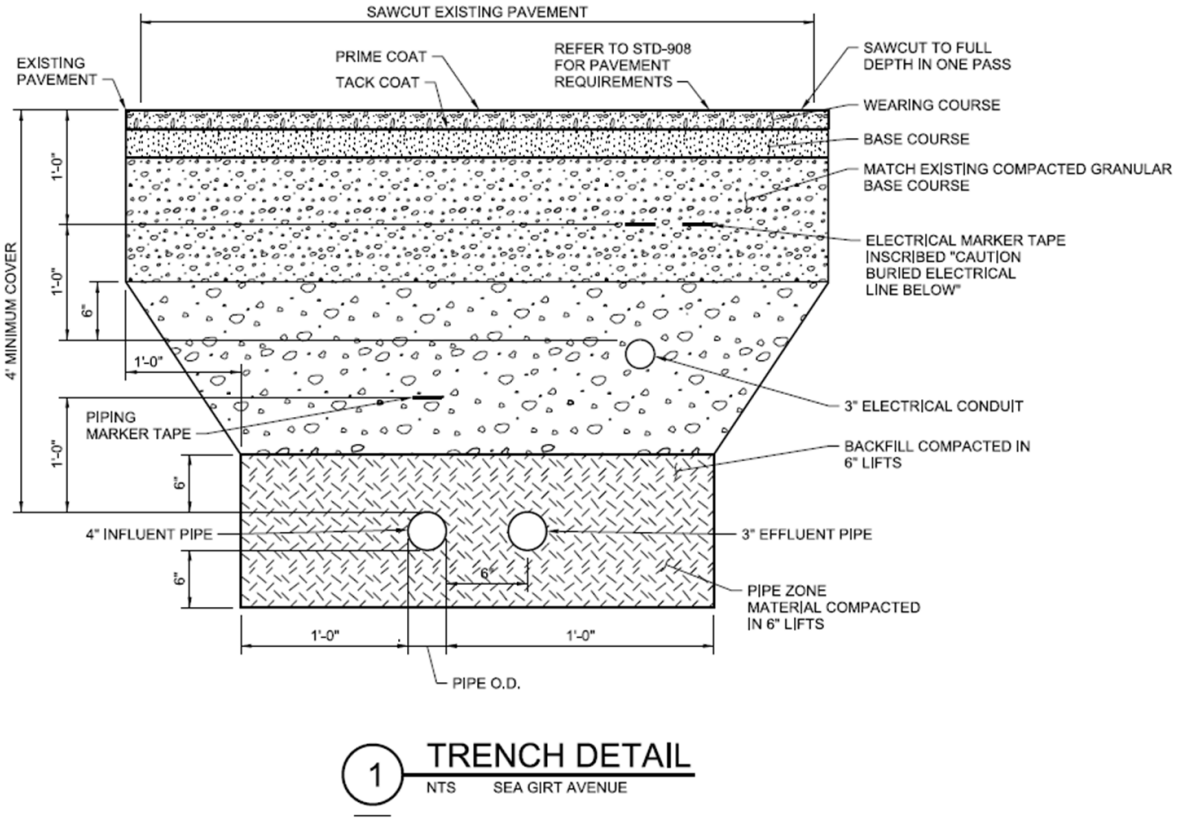


2020 RD Trenching Plan

2024 Revised RD HDD Plan

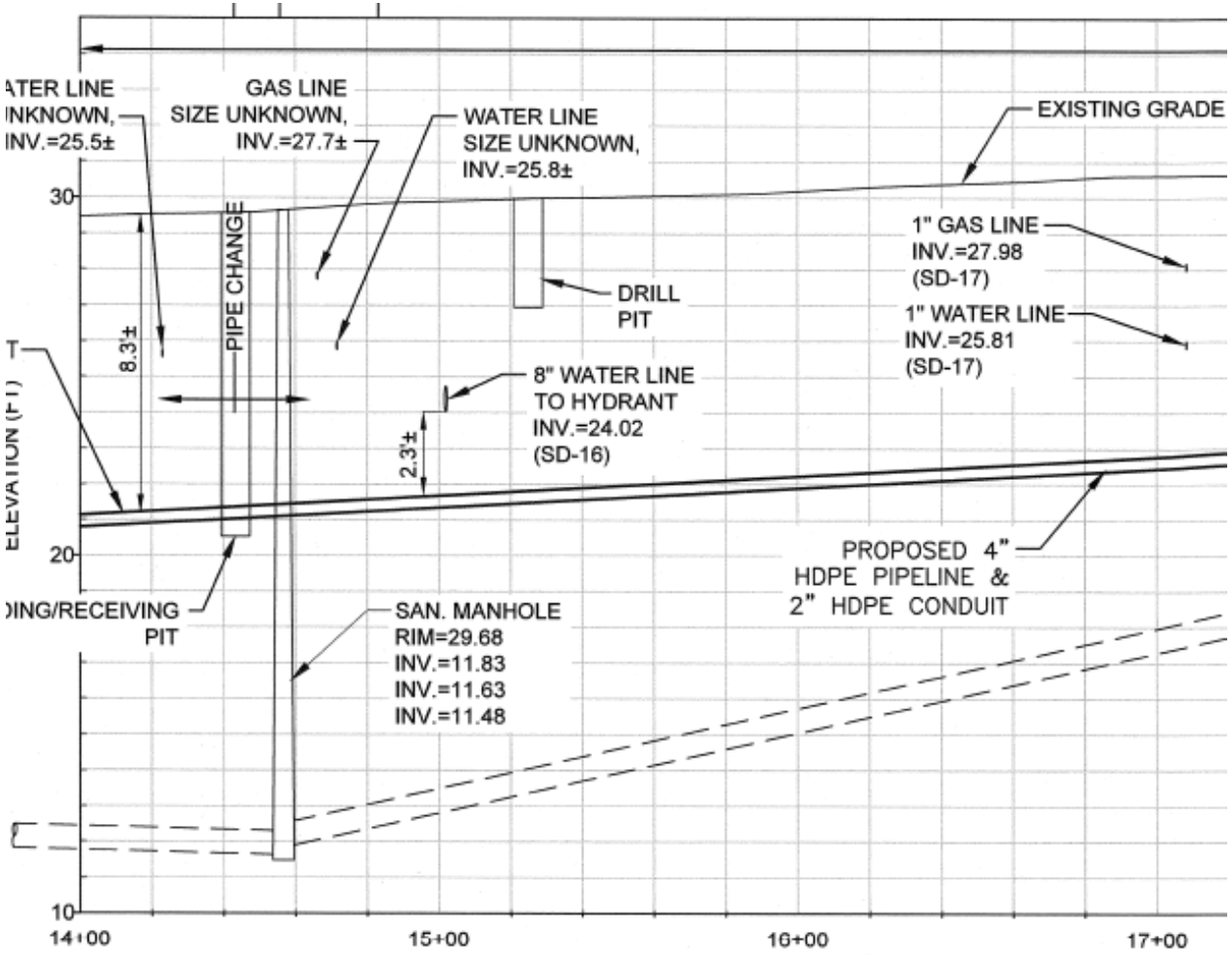


2020 RD Trenching Plan Profile



1 TRENCH DETAIL
NTS SEA GIRT AVENUE

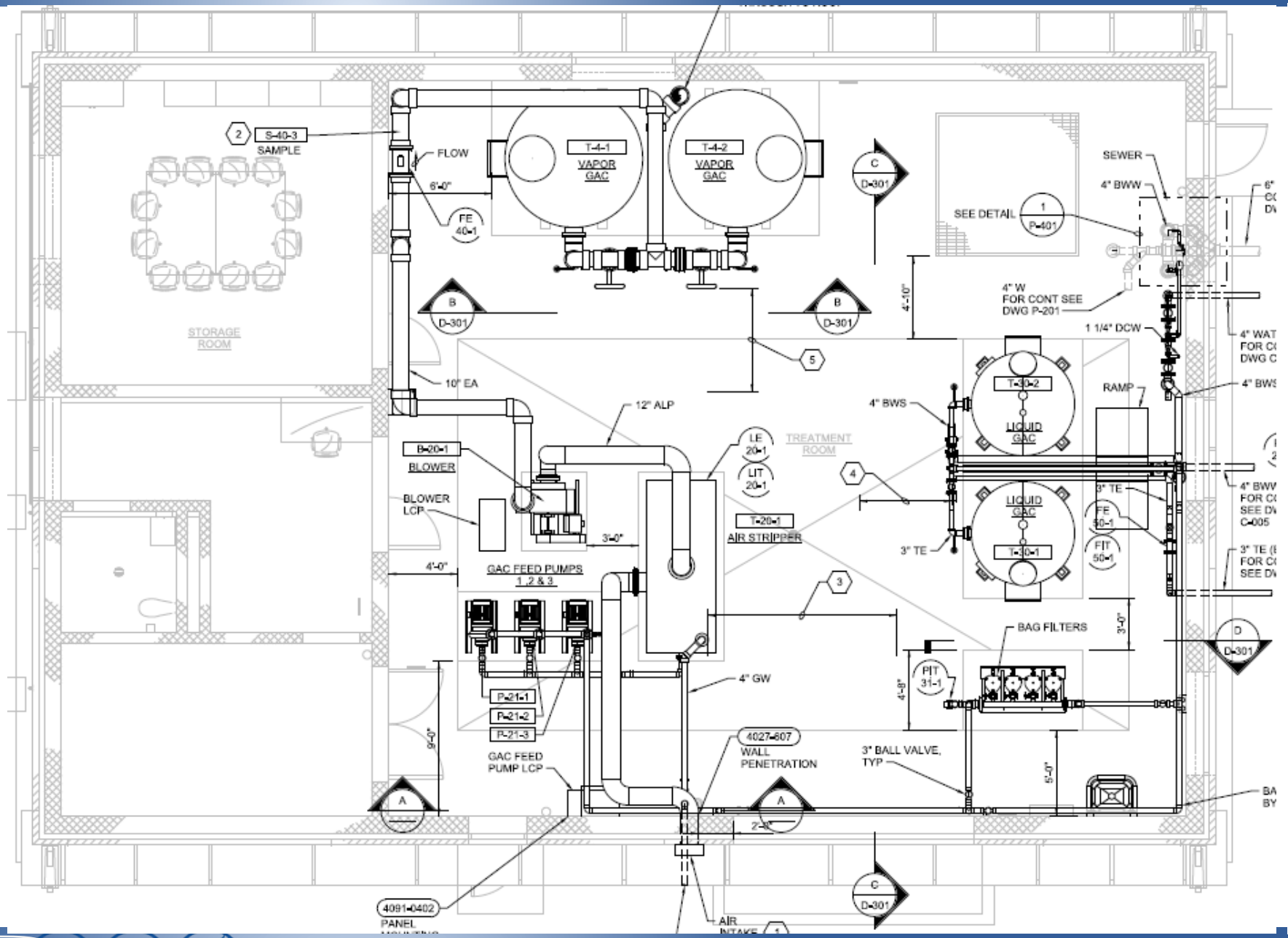
2024 Revised RD HDD Profile

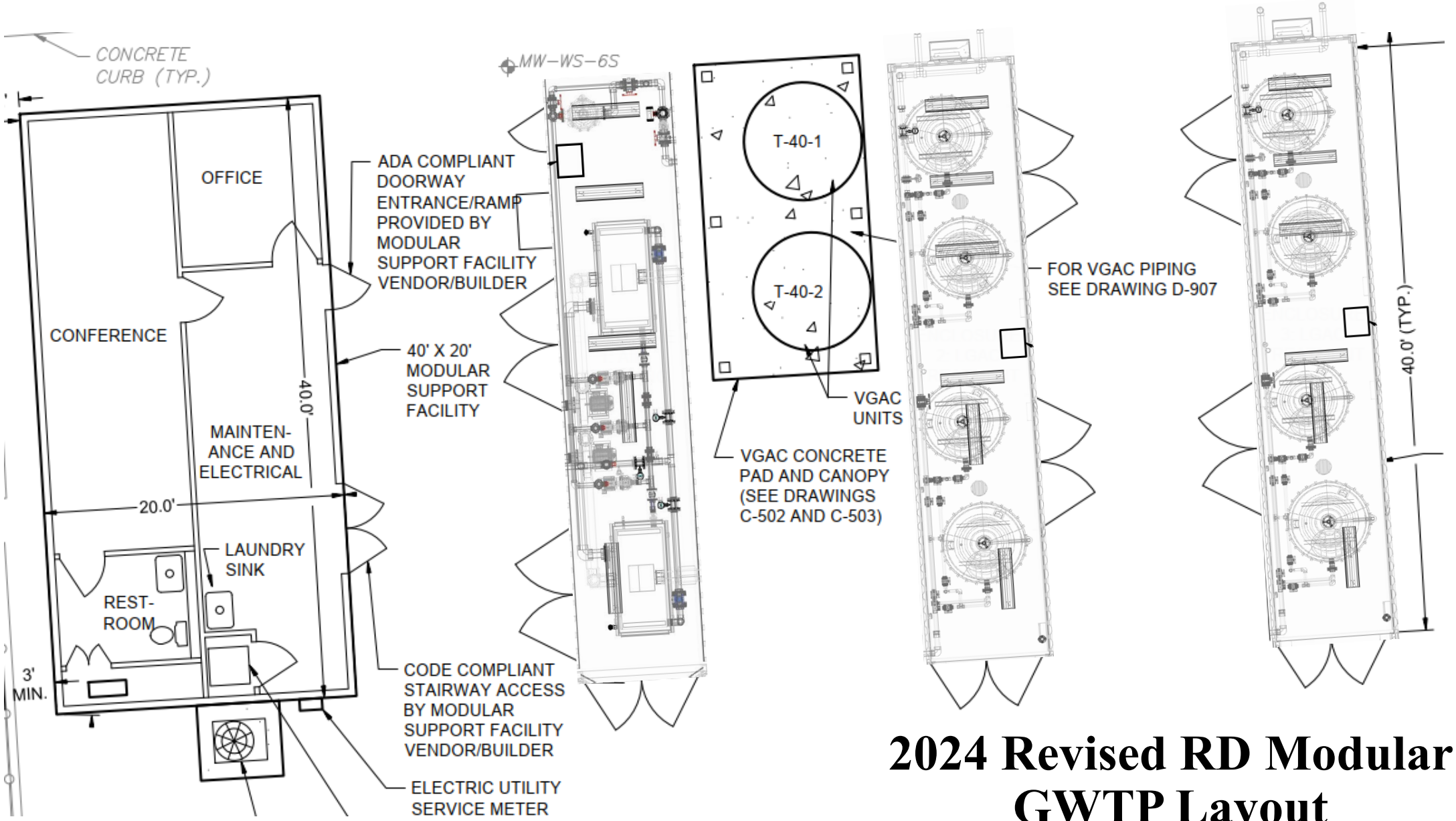


2024 Revised RD HDD Activities

2024 Revised RD HDD Activities

2020 RD Permanent GWTP Layout





2024 Revised RD Modular GWTP Layout

Modular GWTP construction at White Swan property

Side by Side Comparison

	2020 RD	2024 Revised RD
Work space	558 sq ft	800 sq ft modular facility
Vapor Barrier	Liquid boot	6” asphalt, 1 ft clearance
Influent piping	10,866 linear ft (4463 ft*)	4300 linear ft
EW 1 (1R) Pump	5 HP	1.5 HP
EW 8 Pump	2 HP	2 HP
EW 9 Pump	1.5 HP	0.75 HP
Flow meter	100 – 200 gpm	50 – 200 gpm

Side by Side Comparison Continued

	2020 RD	2024 Revised RD
Air stripper	1 at 20 to 400 gpm w/ blower at 2100 cfm	2 at 50 to 100 gpm each w/ 2 blower 900 cfm
Bag filters	3 parallel + 1 standby 10 microns	2-4 bag series 5 & 10 microns
Duct heater	NONE	RH<50%, temp<110F
LGAC feed pumps	2 + 1 standby pump at 100 gpm, 5 HP	2 + 1 standby pump at 100 gpm, 7.5 HP
LGAC	2 - 5000 lb carbon, 6/7 min EBCT	8-2200 lb carbon 13 min EBCT
VGAC	2 - 5000 lb carbon	2-5000 lb carbon

Comparison of RD/RA Implementation Schedules

	2020 RD	2025 Actual
Mobilize/survey	2.5 months	1 month
Well installation	2 months	1 month
Well vaults	2.5 months	1 week
PM for piping	214 days	60 days
Trench/HDD	110 days	60 days
GWTP Construction	370 days	200 days
Total time	**21 months**	**13 months**

Delays by Nature

Rain

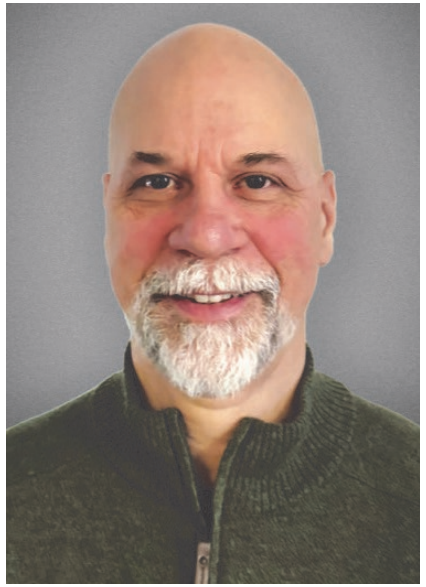
Osprey Nest

Lessons Learned

- Trench vs HDD, community concerns and disruptions
- Brick/mortar vs modular, sustainability
- Proper communication with municipalities and other agencies
- Town easements not what you think
- No matter how well you look for utilities, there will be surprises
- HDD rain issues and heavy vac truck
- Tighter scheduling with weather
- GWTS Redundant system components
- pH issue with carbon

Project team after crane lifts on 7/24/25

WSP



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