



Eagle on a Par 5

Fort Worth's Sycamore Creek Relief Interceptor Design

January 30, 2018



Introductions



Liam Conlon



Pierce Smith

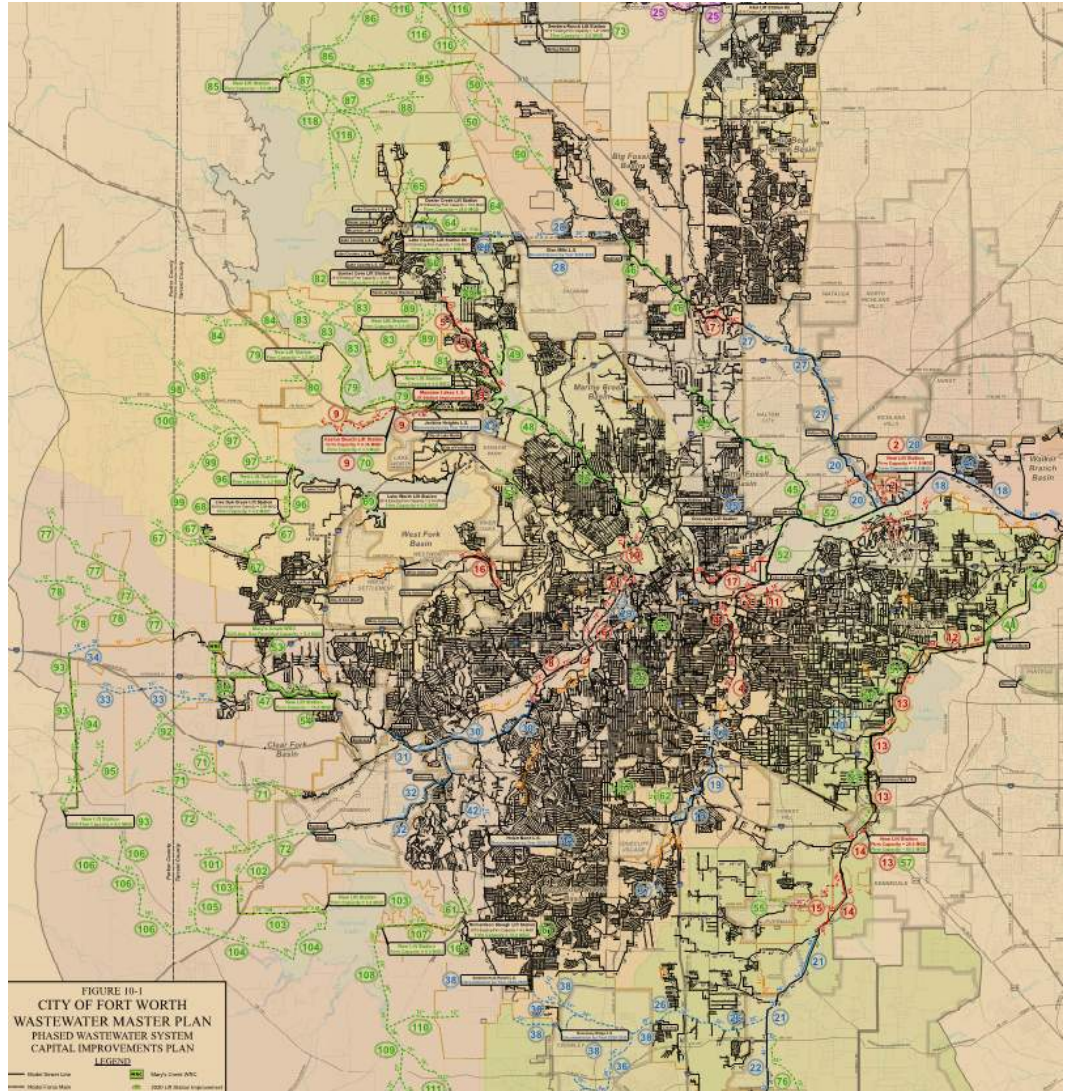


Justin Reeves



City of Fort Worth Water Department Overview

- Provide water and sewer services to more than 1.2 million people
- 497 MGD water treatment capacity
- 166 MGD wastewater treatment capacity
- 3,303 miles of wastewater pipe
 - 255+ miles of 24-inch or larger



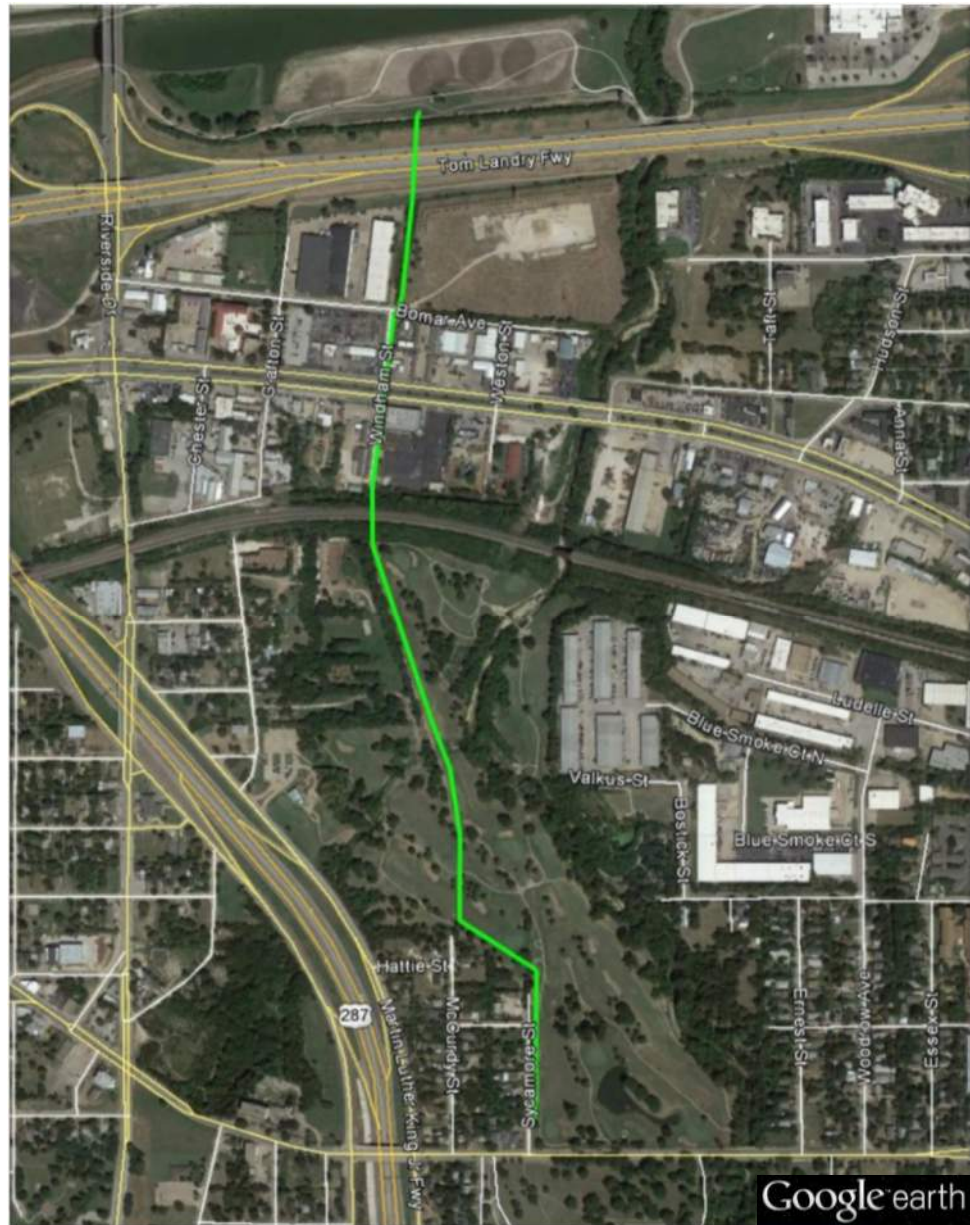
City of Fort Worth Project History

- Existing 48"/54" Interceptor was installed in 1961
- Need for CIPP in 48"/54"
- Rehabilitation project for sections of 54"
- Parallel relief interceptor proposed for bypass during CIPP and to meet 2030 flows
- 2030 Combined Flow = 79 MGD



Alignment Overview

- Parallels existing 48" and 54" Interceptor
- Includes two interconnections to the existing line



Project Stakeholders

- City of Fort Worth Water Department
- City of Fort Worth Park and Recreation Department
- UPRR
- TxDOT
- Trinity River Vision Authority
- Gas Companies
- Private Property Owners



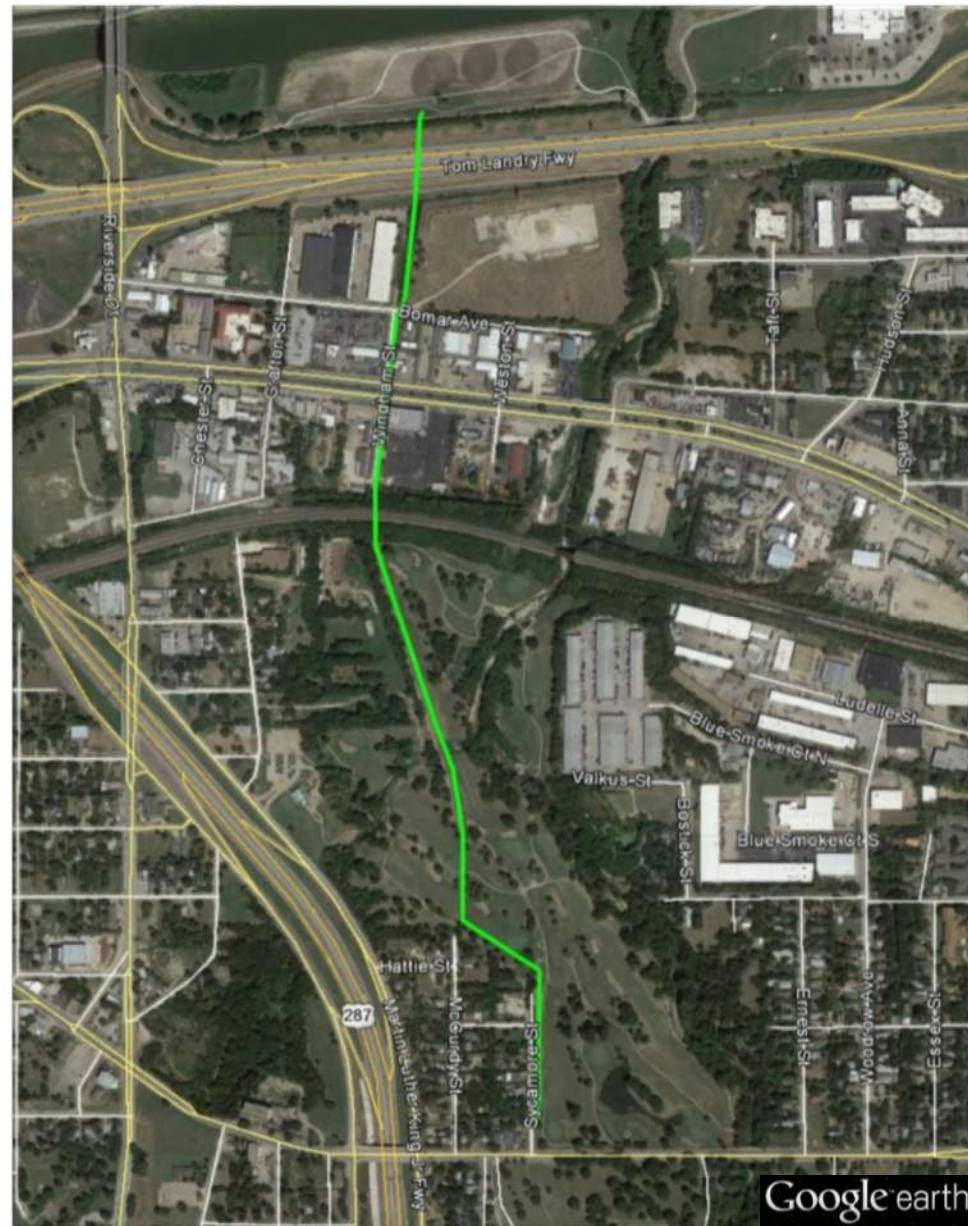
Route Study

- 3 Route Options
- Selection of alignment through City of Fort Worth Golf Course
 - Coordination with COFW Park and Recreation Department
- ~5100 LF of 66" FRP



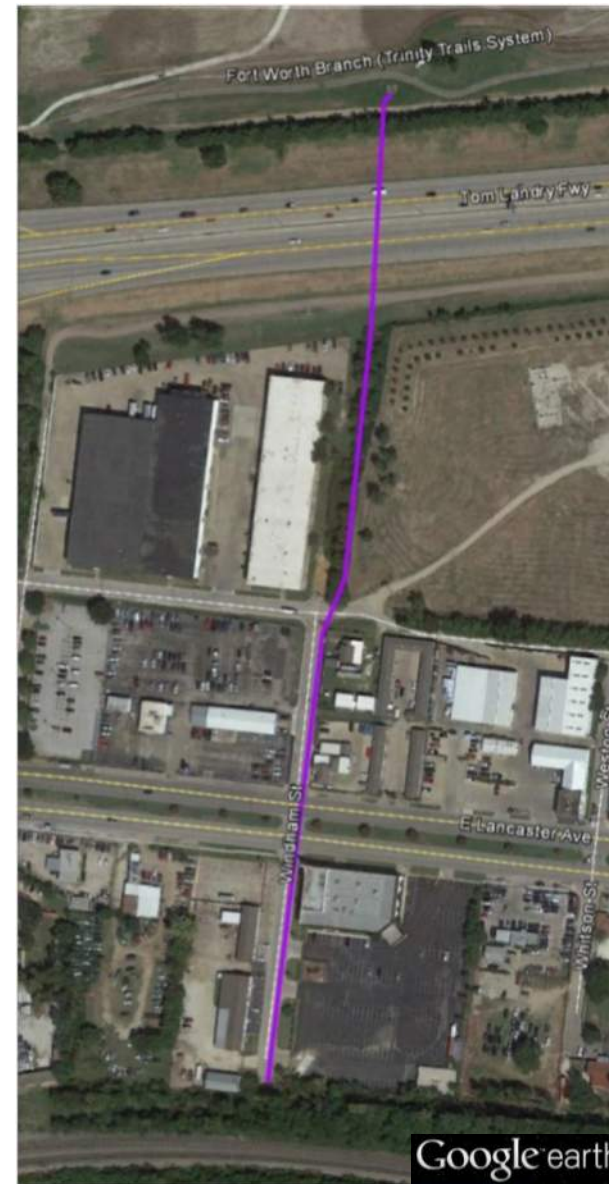
Route Selection

- City Owned Golf Course impacting schedule
 - Parks Conversion process
- Phase I & II



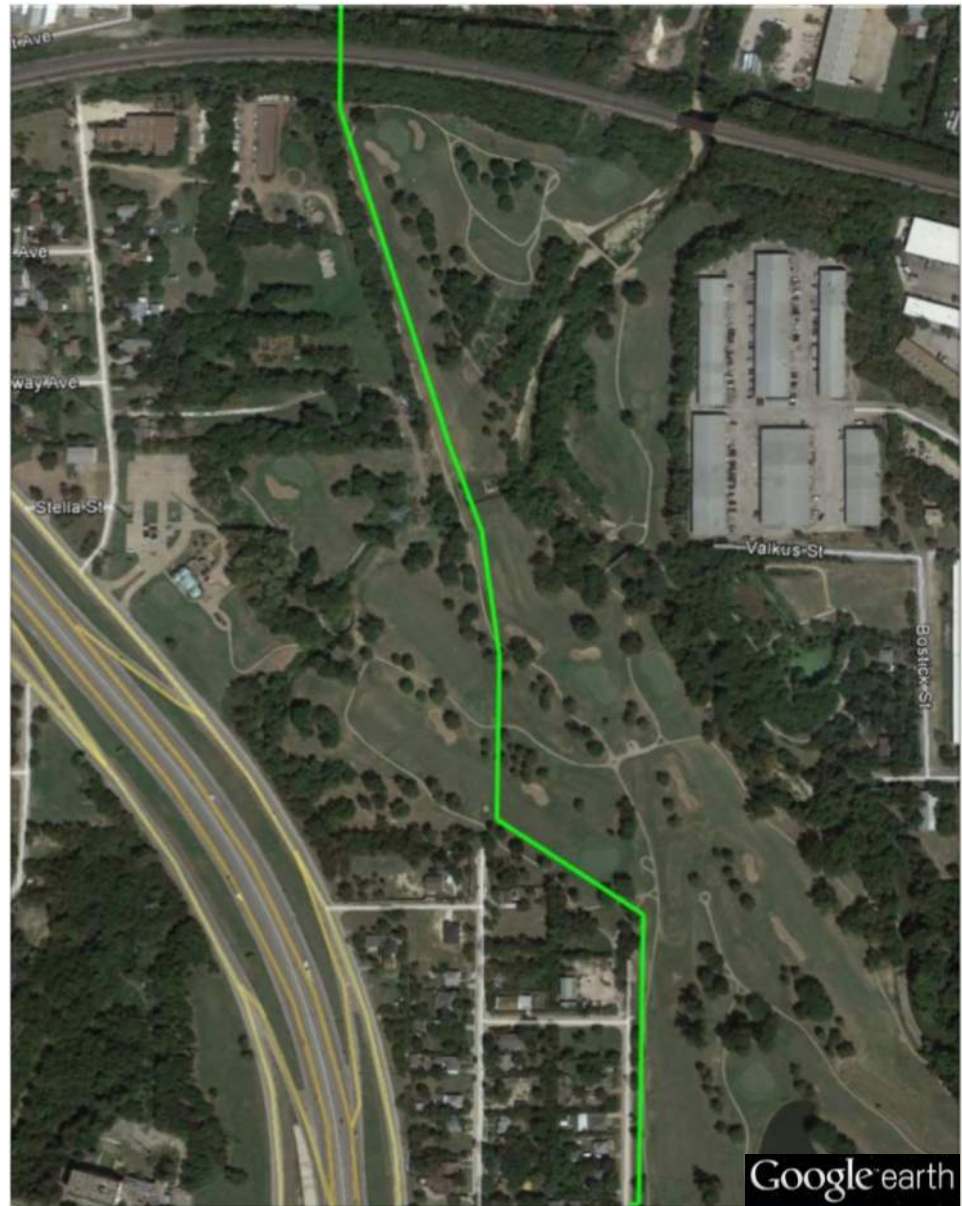
Phasing

- Phase I
 - 1800 LF of 66” FRP
 - Start in TRVA Trinity Trail Area
 - TxDOT Crossings at I-30 & E Lancaster
 - Gas company easement
 - Ends north of UPRR Crossing



Phasing

- Phase II
 - Start North of UPRR Crossing
 - Total of ~3300' with 3000' on Golf Course Property
 - Connect to existing 48" at southern upstream end



Golf Course Overview

- Sycamore Creek Golf Course
- Par 70 on a 9 hole course
 - Two par 5 holes
 - Affected holes



Alignment Challenges

- Disturbance Area
 - Approximately 50-75' wide
- Alignment Prioritizations
 - Avoid Crossing Greens
 - Tree Removal
 - Minimize Manholes
 - Avoid Hazards
 - Avoid Tee Boxes



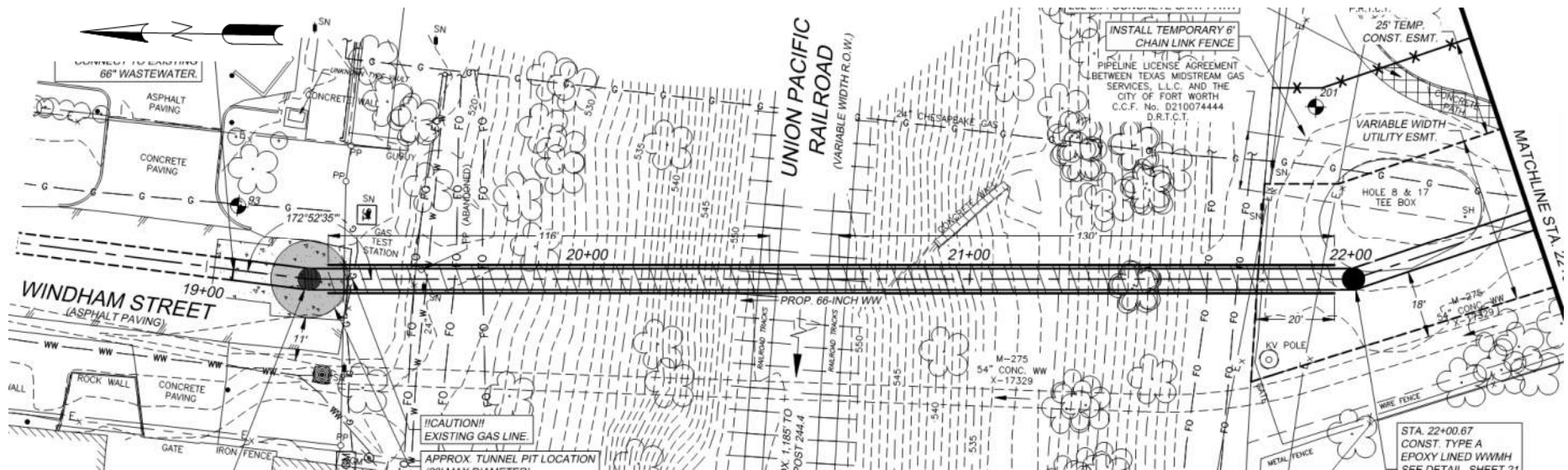
Design Challenges

- North Tunnel
 - Haul Route
 - Approach to minimize golf course downtime



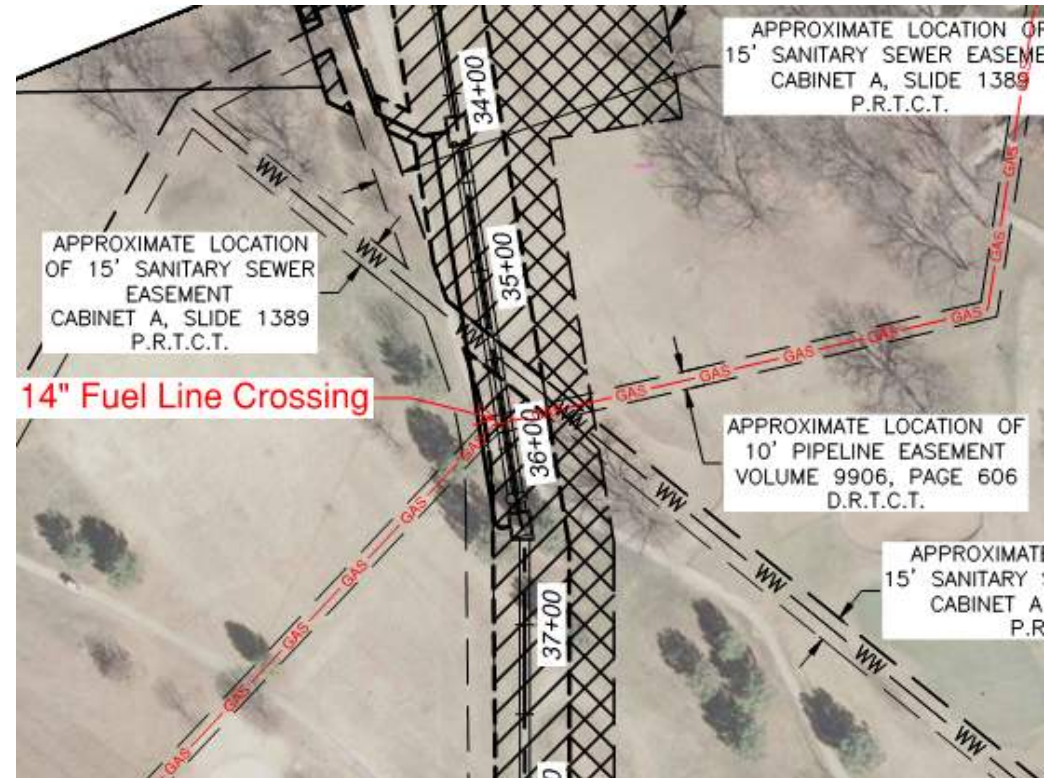
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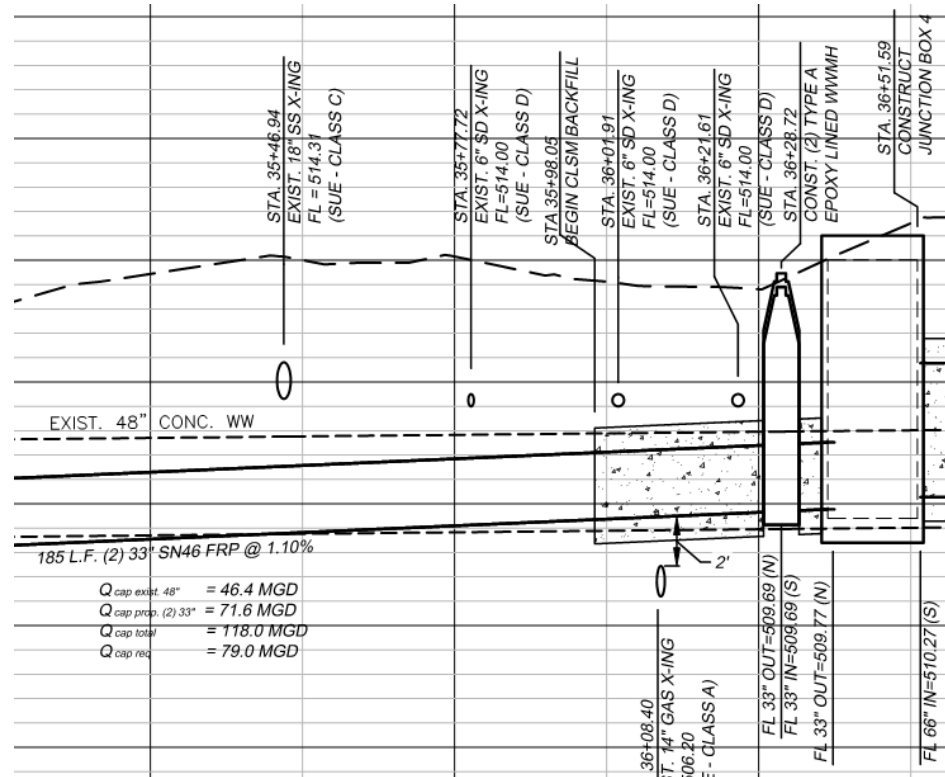
Fuel Line Crossing

- Multiple Gas Line crossings
- 1 Line in Conflict with Alignment and Original Proposed Profile
 - 14" Fuel line
 - 11' Below Grade



Fuel Line Crossing

- 2' Separation Required
- Thread the Needle
 - Twin 33" lines
- CLSM Encasement



Siphon

- Siphon Analysis
- Existing Low flow
14 MGD
- Existing WW Peak
43 MGD
- 2030 Combined Demand
79 MGD



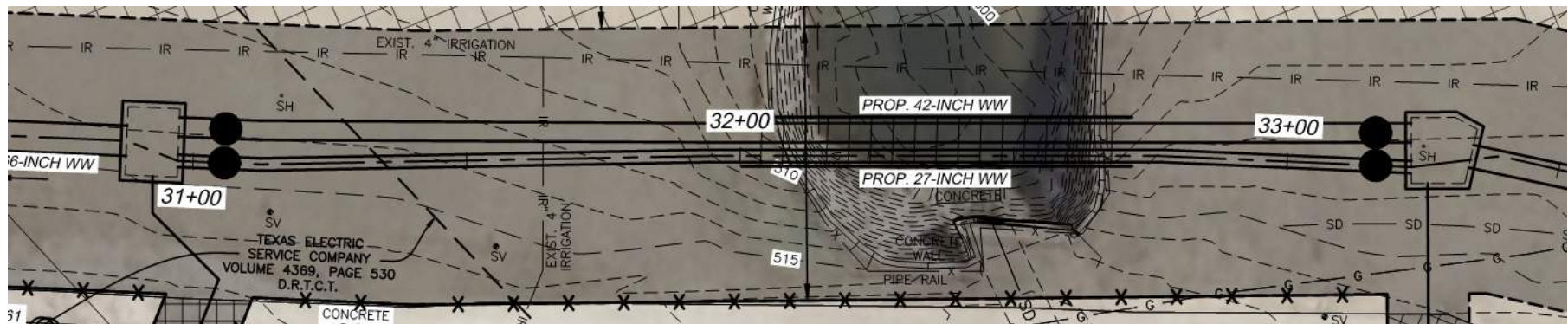
Siphon

→ Recommended Solution

- 27" & 42" Barrels
- Minimize Size of Junction Boxes

→ Siphon Installation Methods

- HDD
- Tunneling
- Open Cut



Junction Boxes/Manholes

- Minimize Size
- Keep at Grade
- Flood Plain Design
- Stop Log Access



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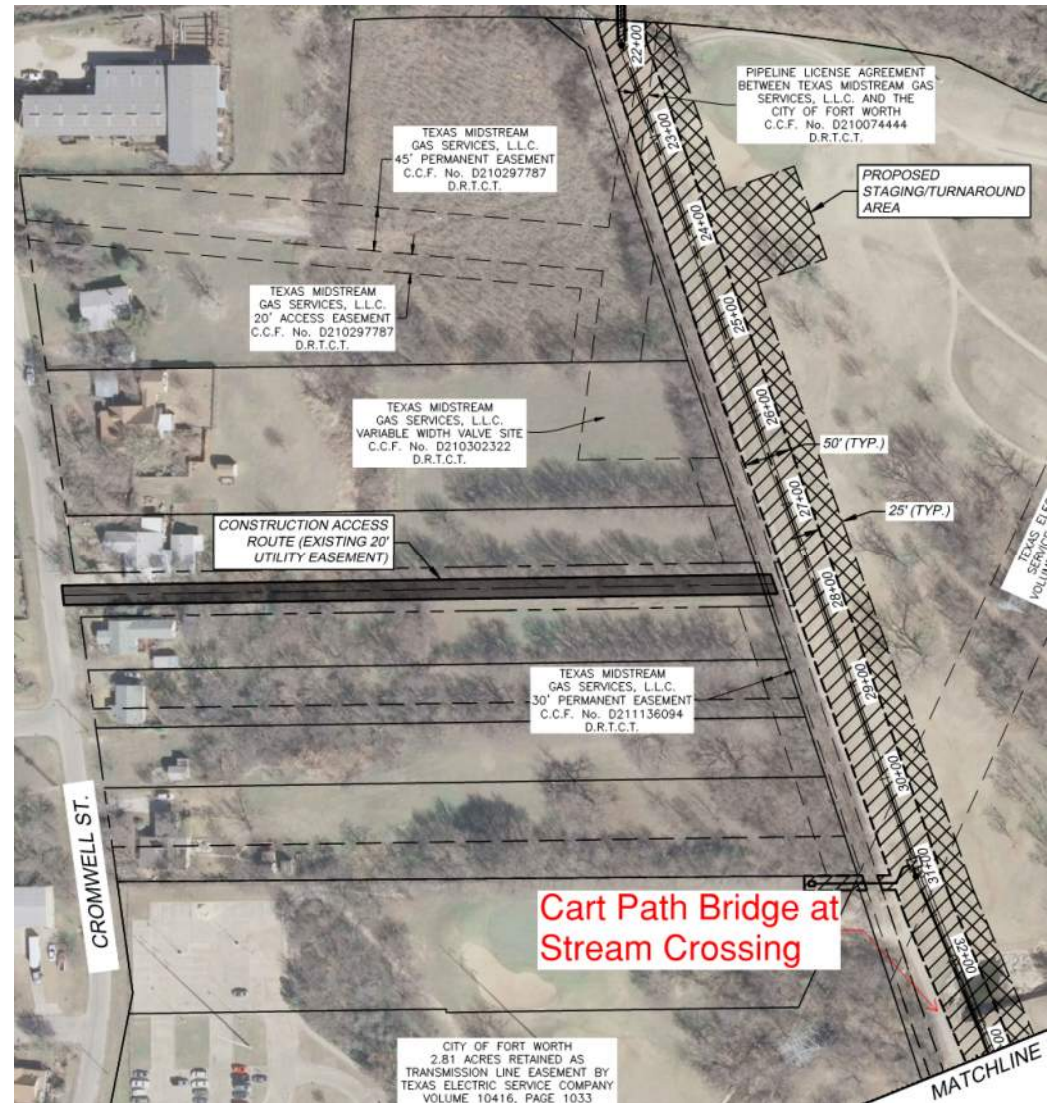
Access Routes

- Clear Restrictions for Heavy Trucks
- Clear access routes
- Stream Crossing
 - Northern Route
 - Southern Routes



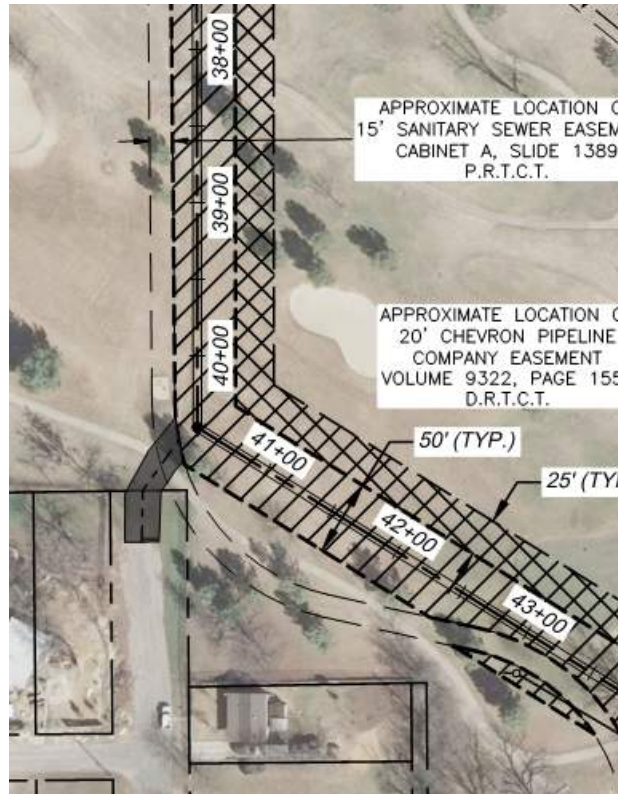
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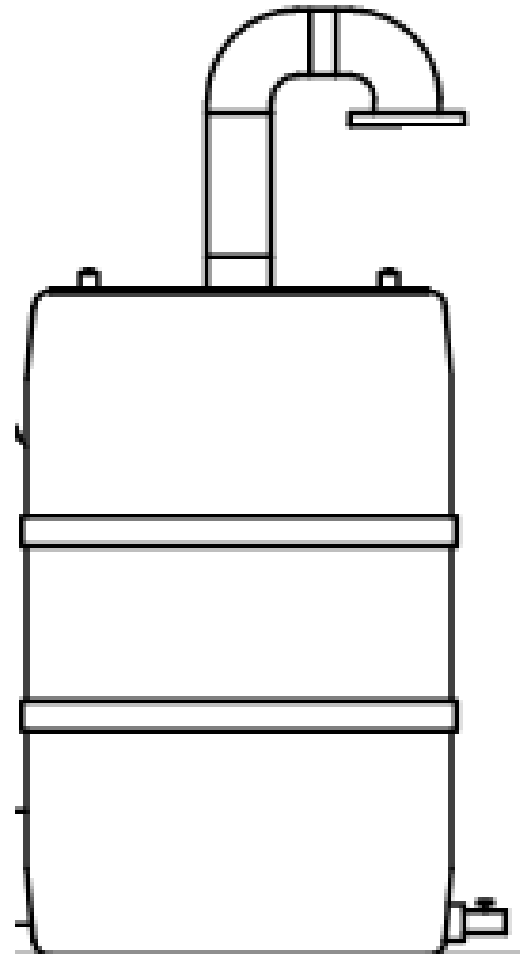
Irrigation

- Existing irrigation plans in contract set
- Holes unaffected by construction
 - Maintain watering with temporary connection



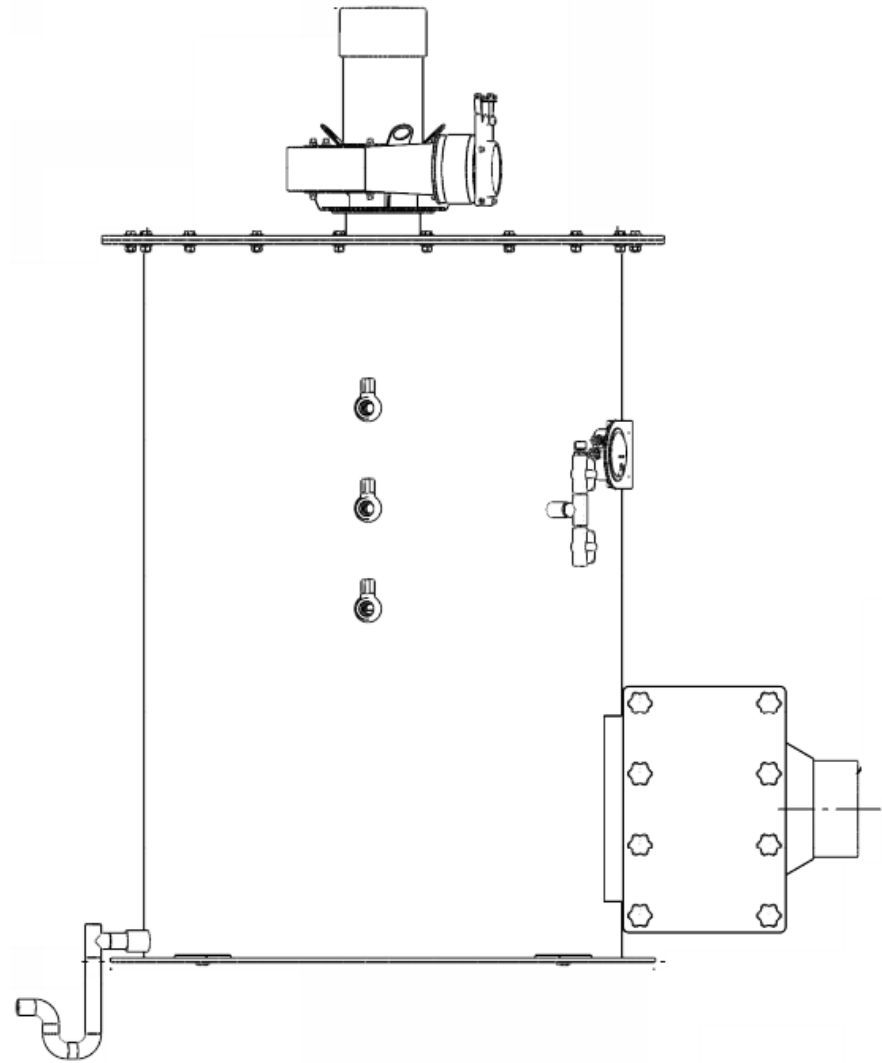
Odor Control

- Passive
- Active
- Enclosure



Odor Control

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Odor Control

- Passive
- Active
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Construction Operations

- Keep Course in Operation
- Generates Some Revenue
- Requires very clear limit of disturbance, fenced on both sides
- Rolling work zone
- Trucks accessing work zone
- Players crossing



Construction Operations

- Shutdown Approach
- Complete work asap
- No working time lost to coordination of player crossings
- Fastest restoration
- Shortest schedule
- Cost Savings



Course Rehab

- Large Disturbance area
– 75' in most areas
- New cart paths in all areas affected
- GC does rough grading
- Certified Contractor completes final grading and restoration



Status Report

- Phase I – Bidding in the Coming Months
- Phase II – Final Alignment Adjustments with Parks/ Golf Course Staff



Final Thoughts



Final Thoughts



Questions



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Underground Construction Technology

International Conference & Exhibition