

Wycliffe Avenue Reconstruction Project Wycliffe Working Group Meeting Design and Construction

Thursday, January 23, 2025

2:00 PM – 3:30 PM



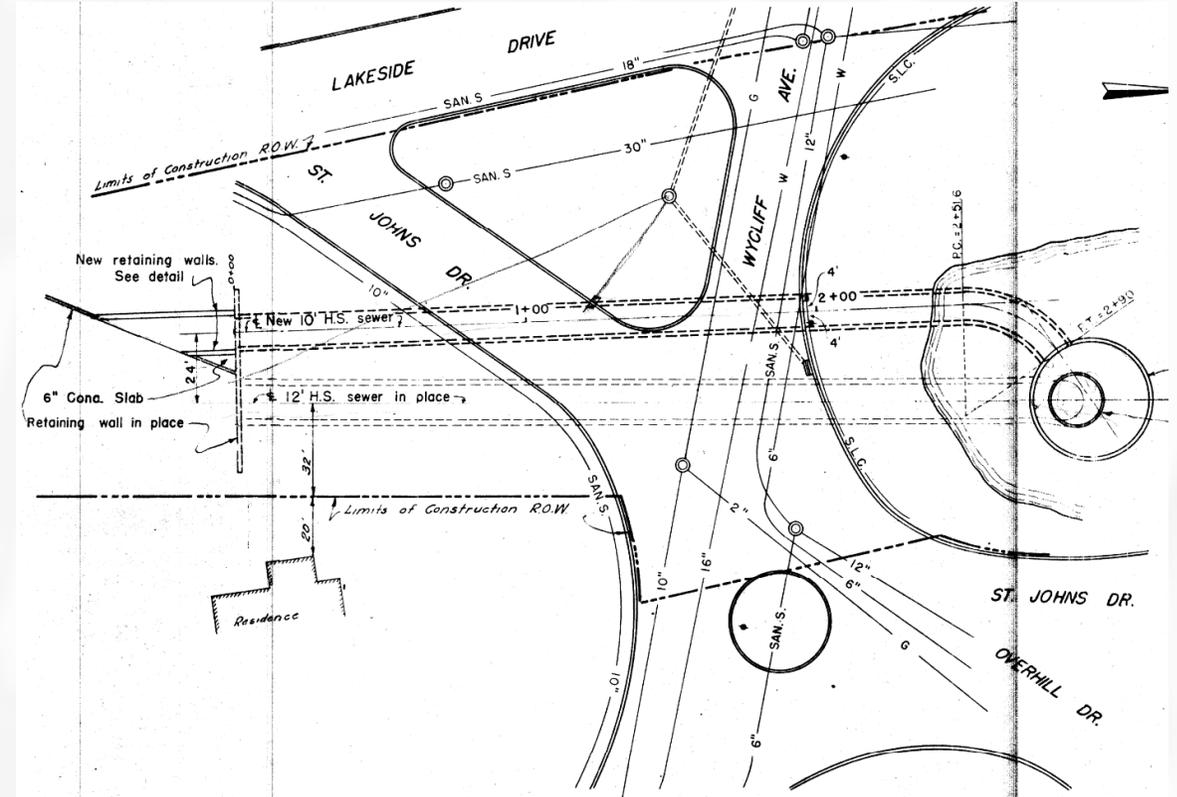
Agenda

- Introduction, Purpose, and Goals
- Committee Introductions
- Existing Conditions
- Project Elements
- Technical Goals/Project Considerations
- Design Iterations



Existing Conditions

- Existing standpipe and culverts have insufficient capacity for everyday rain events
- Maximum capacity of existing standpipe and culverts is 3,100 cfs
- Roadway overtops in < 2-year event
- 100-year design flow is 9,350 cfs
- Recent flooding
 - 6 recorded overtopping events since August 2022
 - Barricading triggered 34 times



Existing Conditions

Wycliffe Avenue is classified as a high hazard dam and is listed on the National Inventory of Dams.

Dam Hazard Classification Definition

Low Hazard	No loss of human life is expected
Significant Hazard	Loss of human life is possible <ul style="list-style-type: none">• 1 to 6 lives• 1 or 2 habitable structures in the inundation area
High Hazard	Loss of human life is expected

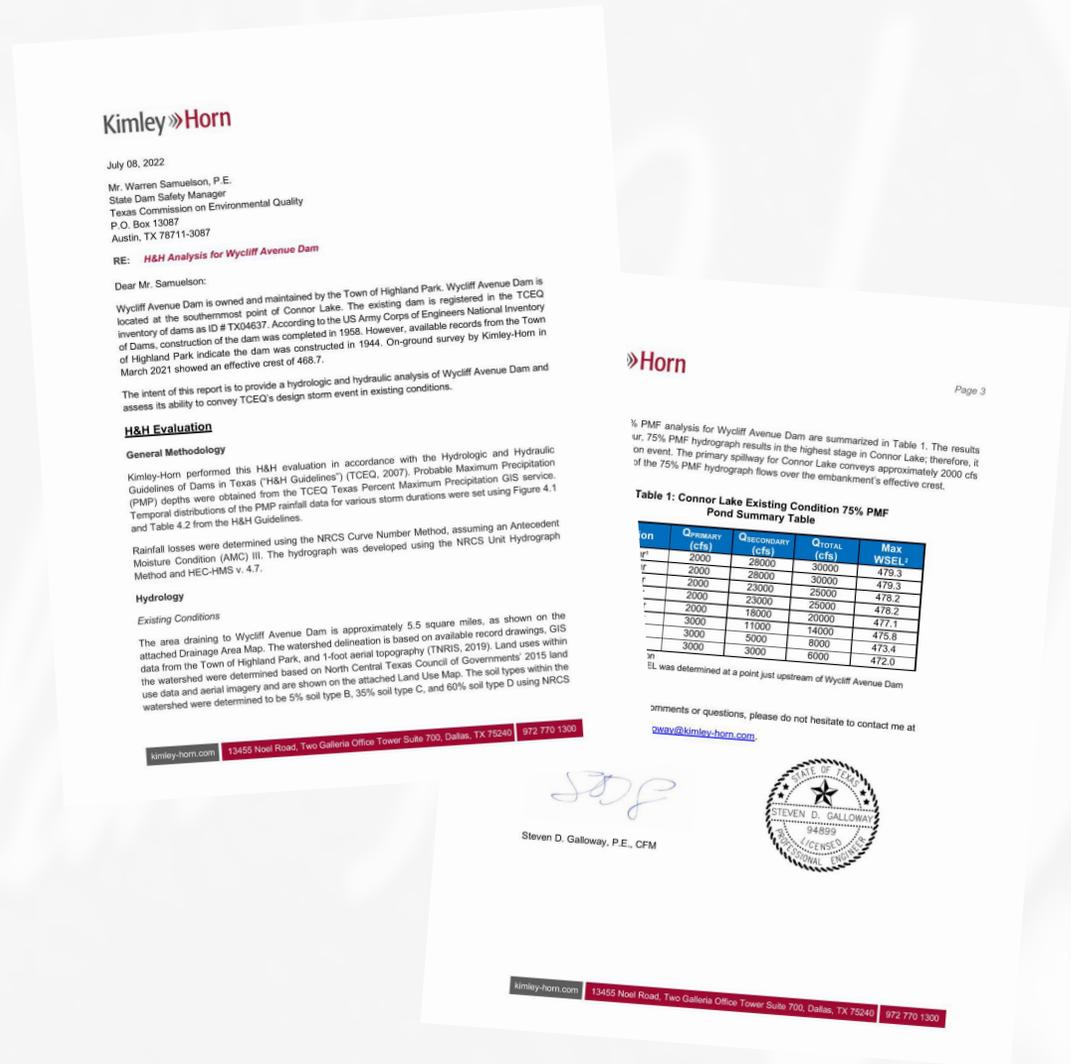
Existing Conditions

- TCEQ regulations for High Hazard dams require:
 - Periodic inspections by state
 - Ongoing dam maintenance
 - Emergency Action Plan
 - Spillways designed for Probable Maximum Flood (PMF)
 - PMF – 33,000 cfs
 - Additional dam improvements needed for compliance



Existing Conditions

- Required Dam Improvements:
 - Dam adequacy analysis submitted to TCEQ in 2022 included geotech analysis and inspection of culverts and standpipe.
 - Deficiencies noted in the geotech analysis and inspections must be addressed to be considered hydraulically adequate.



Existing Conditions

- Required Dam Improvements:
 - Flatten lake bank slope
 - Rehabilitate lake slope adjacent to Wycliffe with "erosion control materials" – armor banks with riprap material/concrete
 - Regrade area between Wycliffe and headwall and add erosion protection measures – concrete/riprap/synthetic reinforcement



Existing Conditions

- Required Dam Improvements:
 - Multiple cracks and joint offsets were identified in the standpipe and the culverts - potentially require replacement
- Town roadway and utilities need rehabilitated/replaced/upgraded
- City of Dallas replacing water and sewer lines through corridor



Project Elements

- Reconstruct roadway and drainage improvements for Wycliffe Avenue between Oaklawn Avenue and Town Limits – PCI = 30
- Construct bridge over Turtle Creek
- Replace earthen dam and standpipe with cascading weir
- Construct channel walls
- Replace Tributary 1 culverts
- Replace/upscale/relocate significant utilities
- Relocate franchise utilities
- Landscaping and aesthetic improvements
- Outside funding
- Multiple agency compliance and review:
 - TCEQ
 - TXDOT
 - FEMA
 - Corps of Engineers
 - City of Dallas
 - Dallas County

Utility Reconstruction

- Town utility reconstruction
 - 30-inch Turtle Creek interceptor
 - 8-inch water line
 - 8-inch and 18-inch wastewater collectors
- Dallas utility relocations
 - 10-inch wastewater line upsized to 18-inch
 - Wastewater flow meter relocations
 - 16-inch water line
- Franchise utility relocations – currently overhead
 - Oncor
 - Atmos
 - AT&T
 - Spectrum

Technical Goals – Non-negotiable

No.	Description
1	Reduce dam classification from high to low hazard
2	Pass the 100-year storm event without overtopping Wycliffe Avenue
3	Remove structures and reduce limits of the 100-year floodplain
4	Maintain existing water level in Connor Lake
5	Conform with USACE's Nationwide Permit Program

Additional Project Considerations

- Roadway geometry
- Land constraints
- Minimize impacts to adjacent properties
- Constructability
- Project duration
- Structural aesthetics
- Enhanced landscaping and pedestrian facilities
- Traffic flow
- Cost
- Utility maintenance – siphon vs gravity (aerial, underground)
- Franchise utilities – overhead vs underground
- Flow monitoring

Design Iteration 1: Add Box Culverts at Existing Roadway Elevation



Modifications
<ul style="list-style-type: none"> - Remove and replace standpipe (40' diameter) - Install 7-10'x10' RCB - Widen DS channel

Goals Met:	Goals Not Met:
<ul style="list-style-type: none"> 4 – Maintain level 5 – Permittable 	<ul style="list-style-type: none"> 1 – High hazard 2 – Overtops 3 – Structures flood

Design Iteration 1a: Add Box Culverts and Increase Size of Standpipe



Modifications
<ul style="list-style-type: none"> - Remove standpipe - New standpipe would need to be 145' diameter (does not fit in Lake) or install series of standpipes - Install 7-10'x10' RCB - Widen DS channel

Goals Met:	Goals Not Met:
<ul style="list-style-type: none"> 2 – No overtop 3 – Reduce flooding 4 – Maintain level 5 – Permittable 	<ul style="list-style-type: none"> 1 – High hazard

Design Iteration 1b: Add Box Culverts and Raise Roadway Elevation



Modifications
<ul style="list-style-type: none"> - Remove and replace standpipe (40' diameter) - Raise roadway by 4' - Install 7-10'x10' RCB - Widen DS channel

Goals Met:	Goals Not Met:
<ul style="list-style-type: none"> 2 – No overtop 3 – Reduce flooding 4 – Maintain level 5 – Permittable 	<ul style="list-style-type: none"> 1 – High hazard

Design Iteration 1c: Add Box Culverts with Combination of Increasing Size of Standpipe and Raising Roadway Elevation



Modifications
<ul style="list-style-type: none"> - Remove standpipe - Raise roadway by 2.5' - Install larger standpipe (50-60' diameter) - Install 7-10'x10' RCB - Widen DS channel

Goals Met:	Goals Not Met:
<ul style="list-style-type: none"> 2 – No overtop 3 – Reduce flooding 4 – Maintain level 5 – Permittable 	<ul style="list-style-type: none"> 1 – High hazard

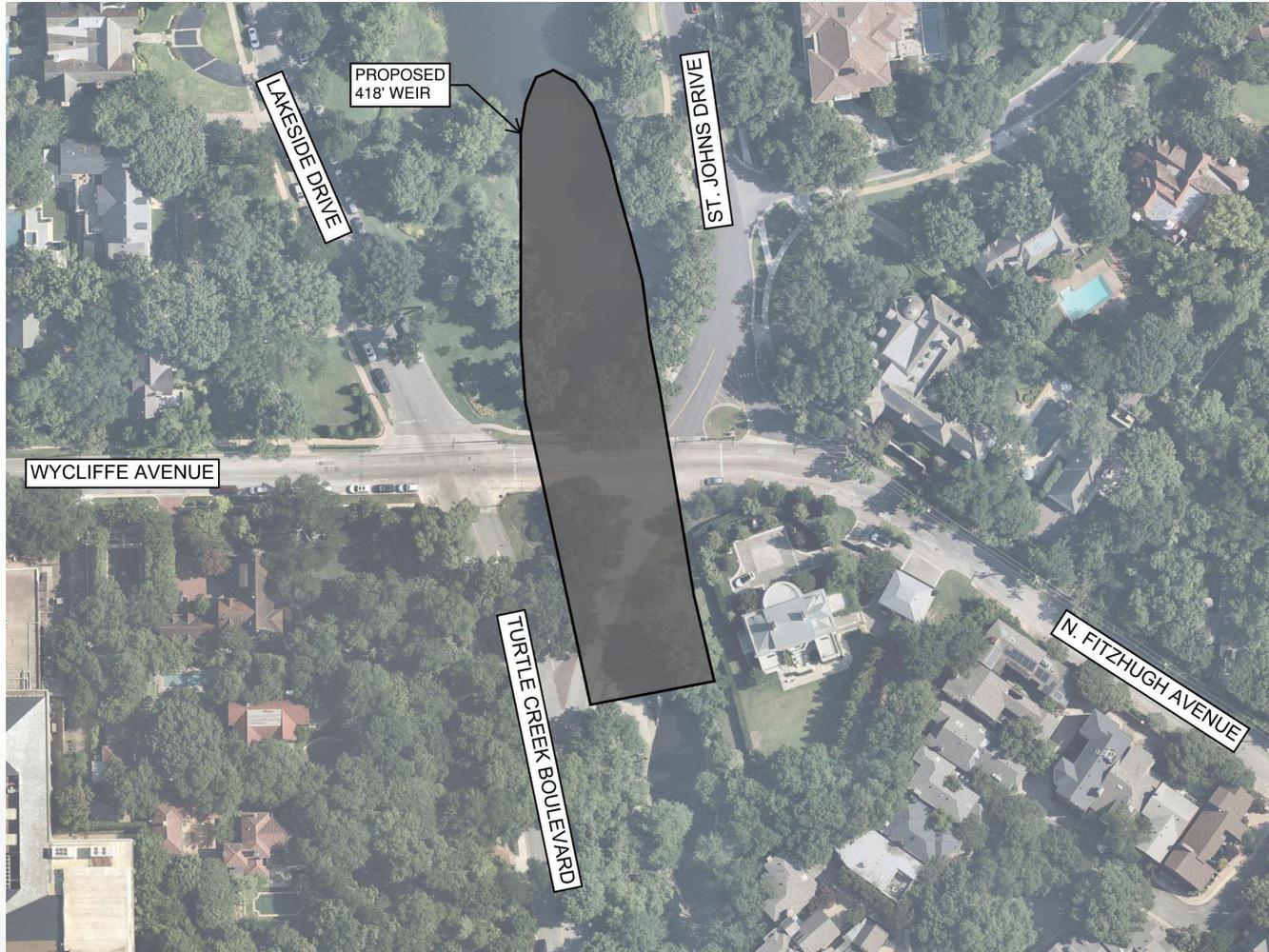
Design Iteration 2: Construct Weir at New Roadway Elevation



Modifications
<ul style="list-style-type: none"> - Raise roadway by 2.5' - Remove standpipe - Construct 143' weir - Construct bridge - Widen DS channel

Goals Met:	Goals Not Met:
<ul style="list-style-type: none"> 1 – Low Hazard 2 – No overtop 3 – Reduce flooding 4 – Maintain level 5 – Permittable 	None

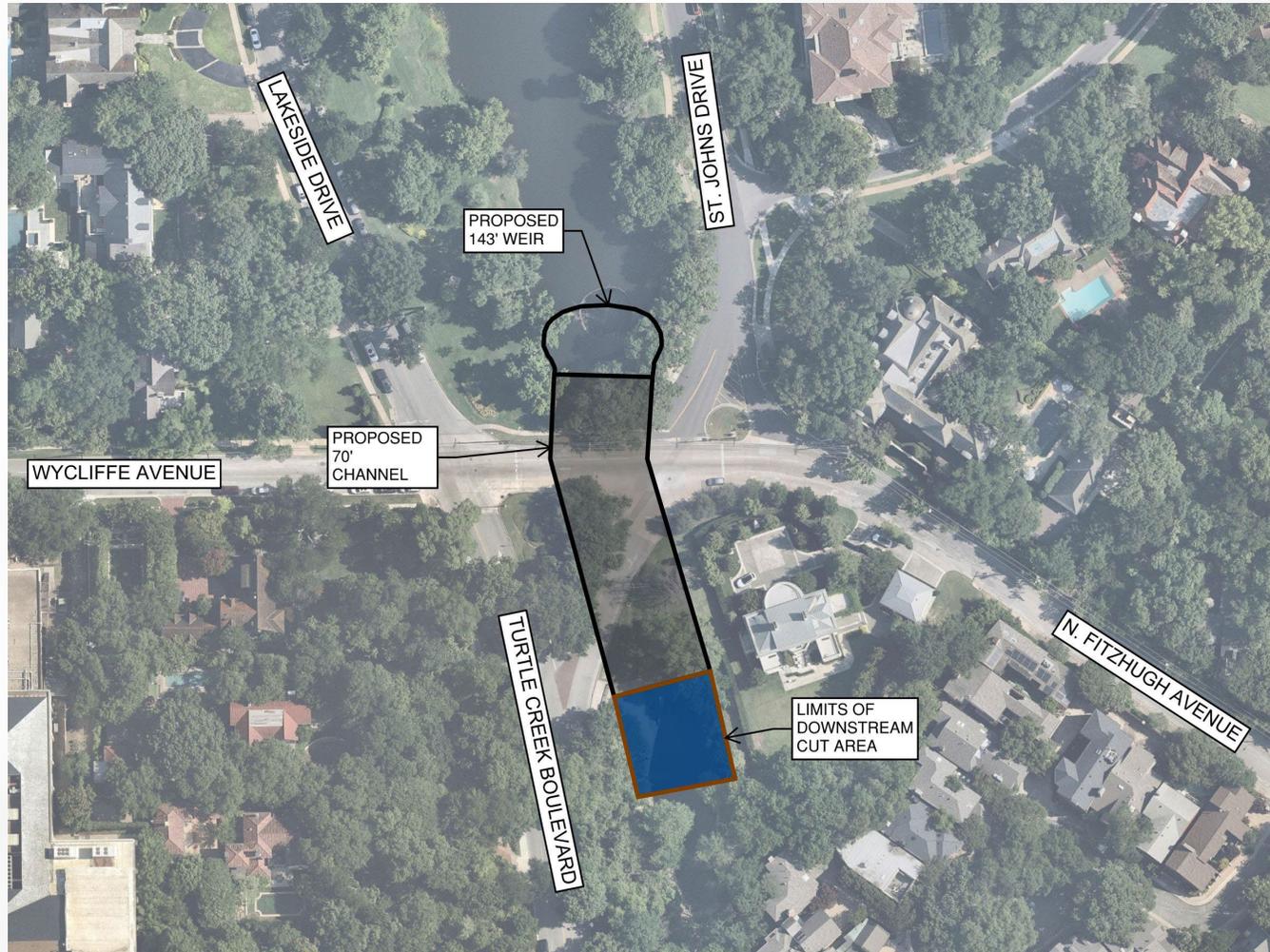
Design Iteration 3: Increase Weir Length at Existing Roadway Elevation



Modifications
<ul style="list-style-type: none"> - Remove standpipe - Construct 418' weir - Construct bridge - Widen DS channel

Goals Met:	Goals Not Met:
1 – Low Hazard 4 – Maintain level 5 – Permittable	2 – Overtops 3 – Structures flood

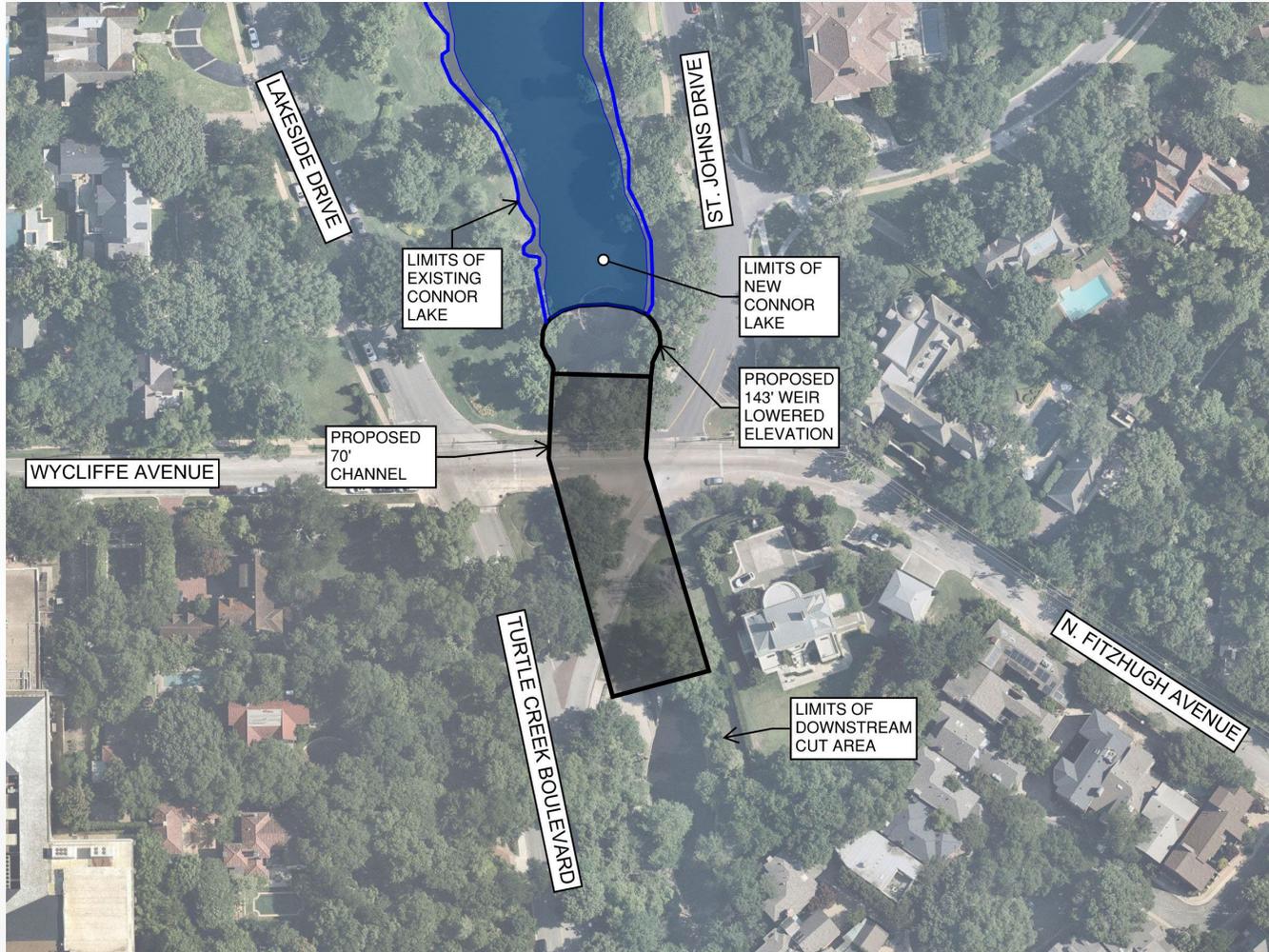
Design Iteration 4: Construct Weir with Lowered Downstream Flowline at Existing Roadway Elevation



Modifications
<ul style="list-style-type: none"> - Remove standpipe - Construct 143' weir - Construct bridge - Widen DS channel - Lower DS flowline

Goals Met:	Goals Not Met:
<ul style="list-style-type: none"> 1 – Low Hazard 4 – Maintain level 	<ul style="list-style-type: none"> 2 – Overtops 3 – Structures flood 5 – Not Permittable

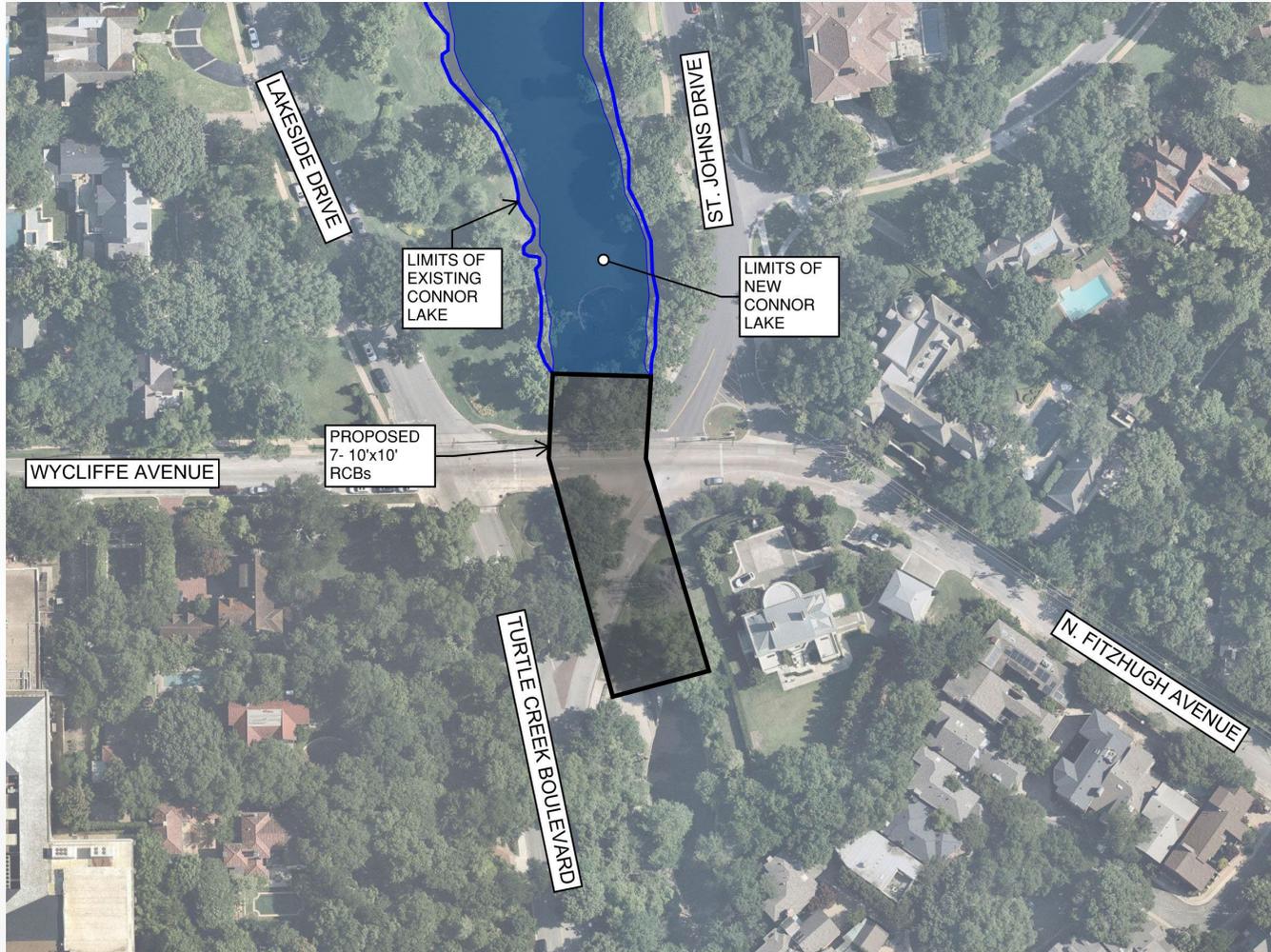
Design Iteration 5: Construct Weir with Lowered Lake Level at Existing Roadway Elevation



Modifications
<ul style="list-style-type: none"> - Remove standpipe - Construct 143' weir - Construct bridge - Lower US water level 2.5' - Widen DS channel

Goals Met:	Goals Not Met:
<ul style="list-style-type: none"> 1 – Low Hazard 2 – No overtop 3 – Reduce flooding 	<ul style="list-style-type: none"> 4 – Level lowered 5 – Not Permittable

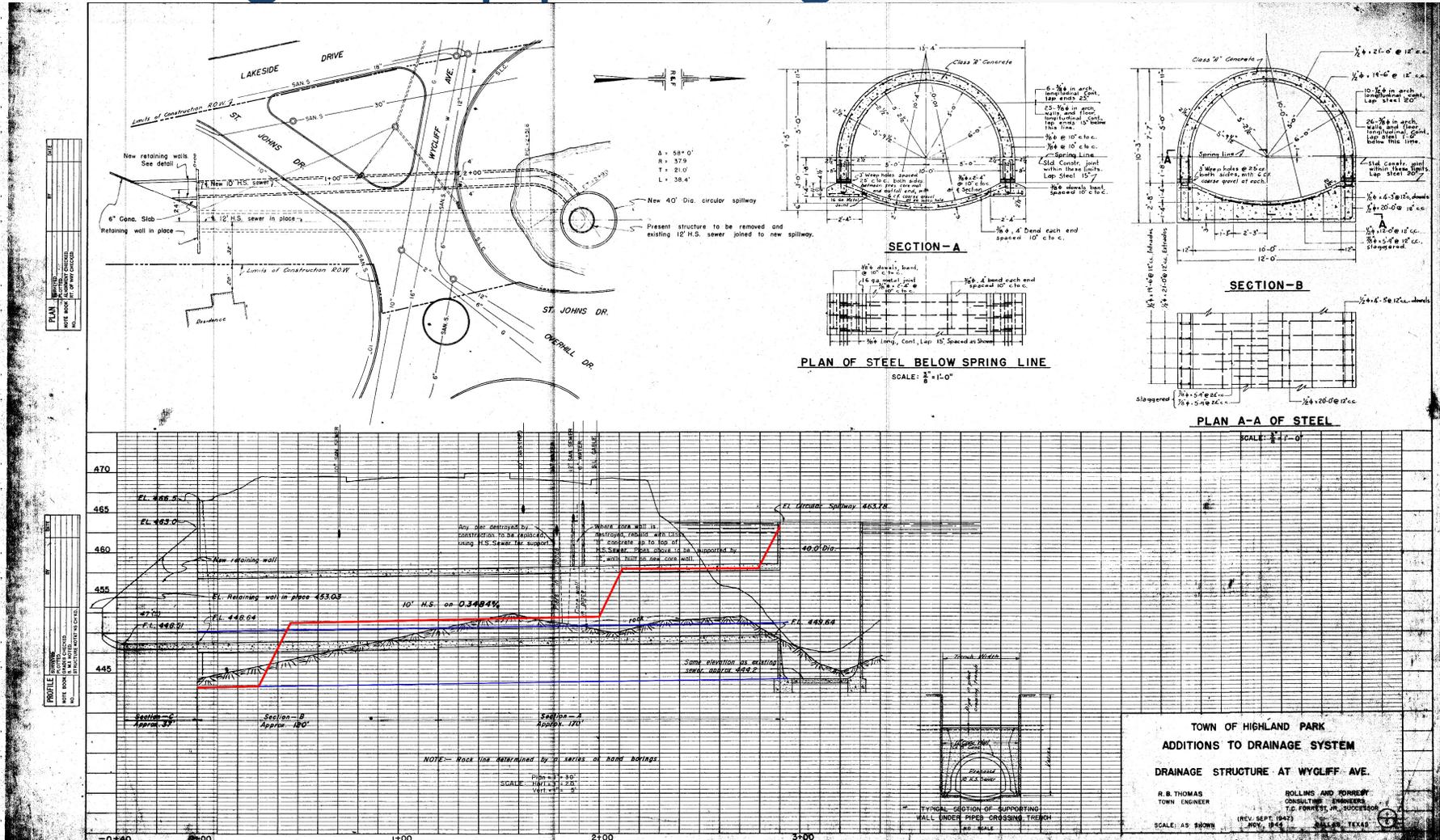
Design Iteration 5a: Add Box Culverts with Lowered Lake Level at Existing Roadway Elevation



Modifications
<ul style="list-style-type: none"> - Remove and replace standpipe (40' diameter) - Install 7-10'x10' RCB - Balance between increasing size of standpipe, lowering normal pool, and raising roadway elevation

Goals Met:	Goals Not Met:
2 – No overtop 3 – Reduce flooding	1 – High Hazard 4 – Level lowered 5 – Not Permittable

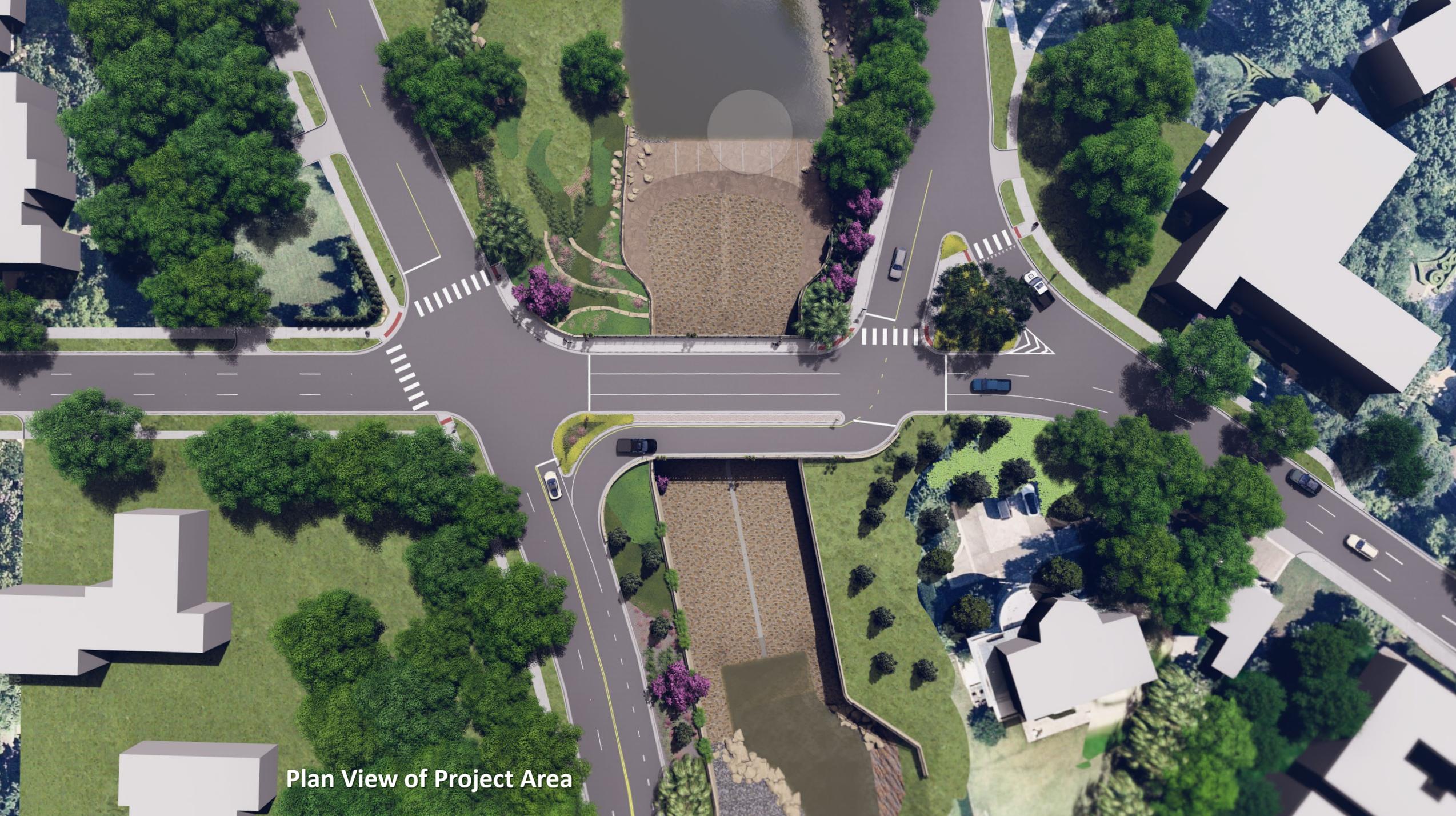
Design Iteration 6: Utilize Existing Standpipe during Construction



Renderings



Drone View of Upstream Channel



Plan View of Project Area





Drone View of Downstream Channel



Facing North on Turtle Creek Boulevard



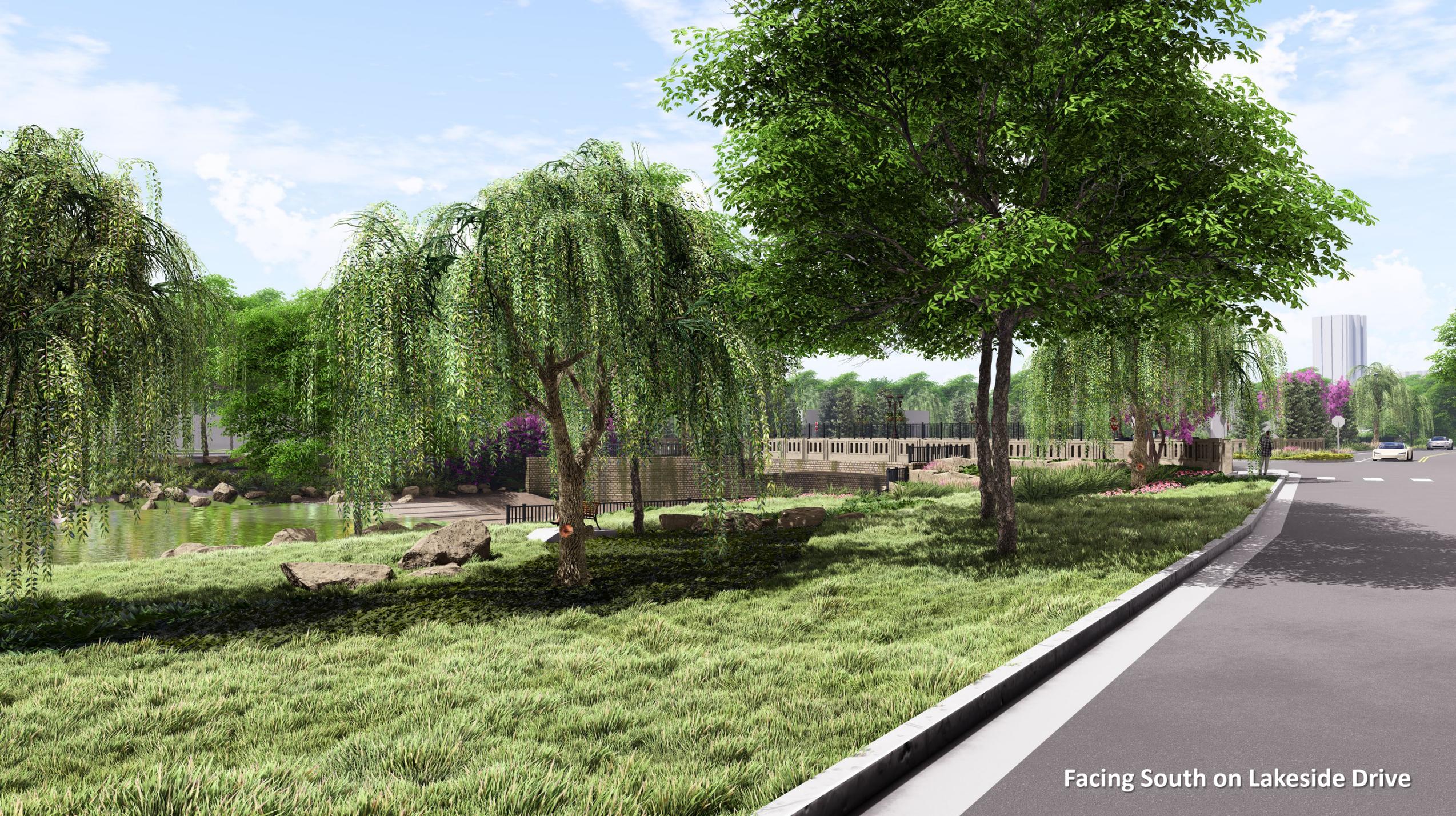
Facing South on St Johns Drive



Facing South on Lakeside Drive



Facing West on Wycliffe Avenue



Facing South on Lakeside Drive



View from Sidewalk on Lakeside Drive



View from Sidewalk on St Johns Drive



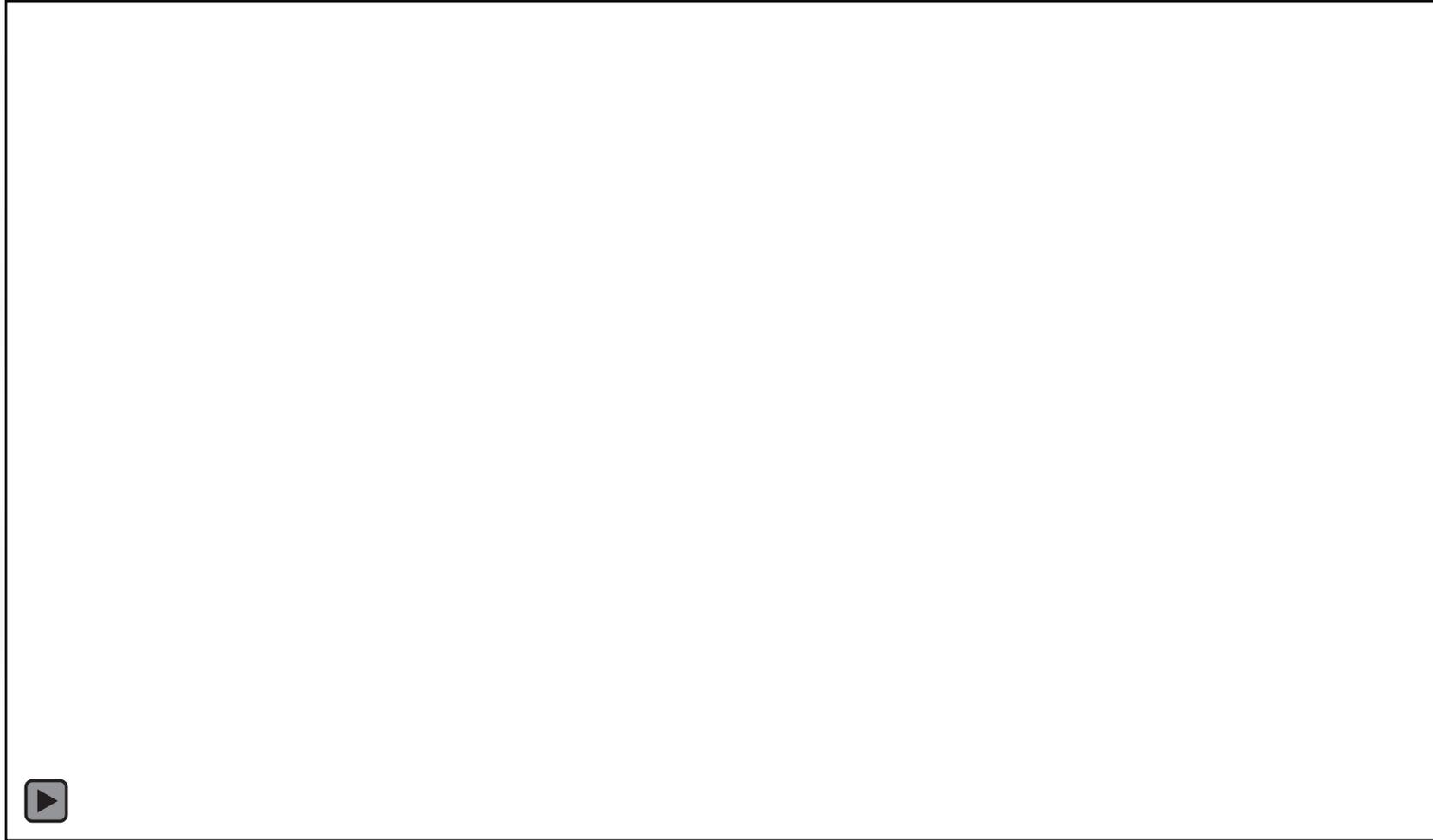
View from Sidewalk on Bridge

Construction Considerations

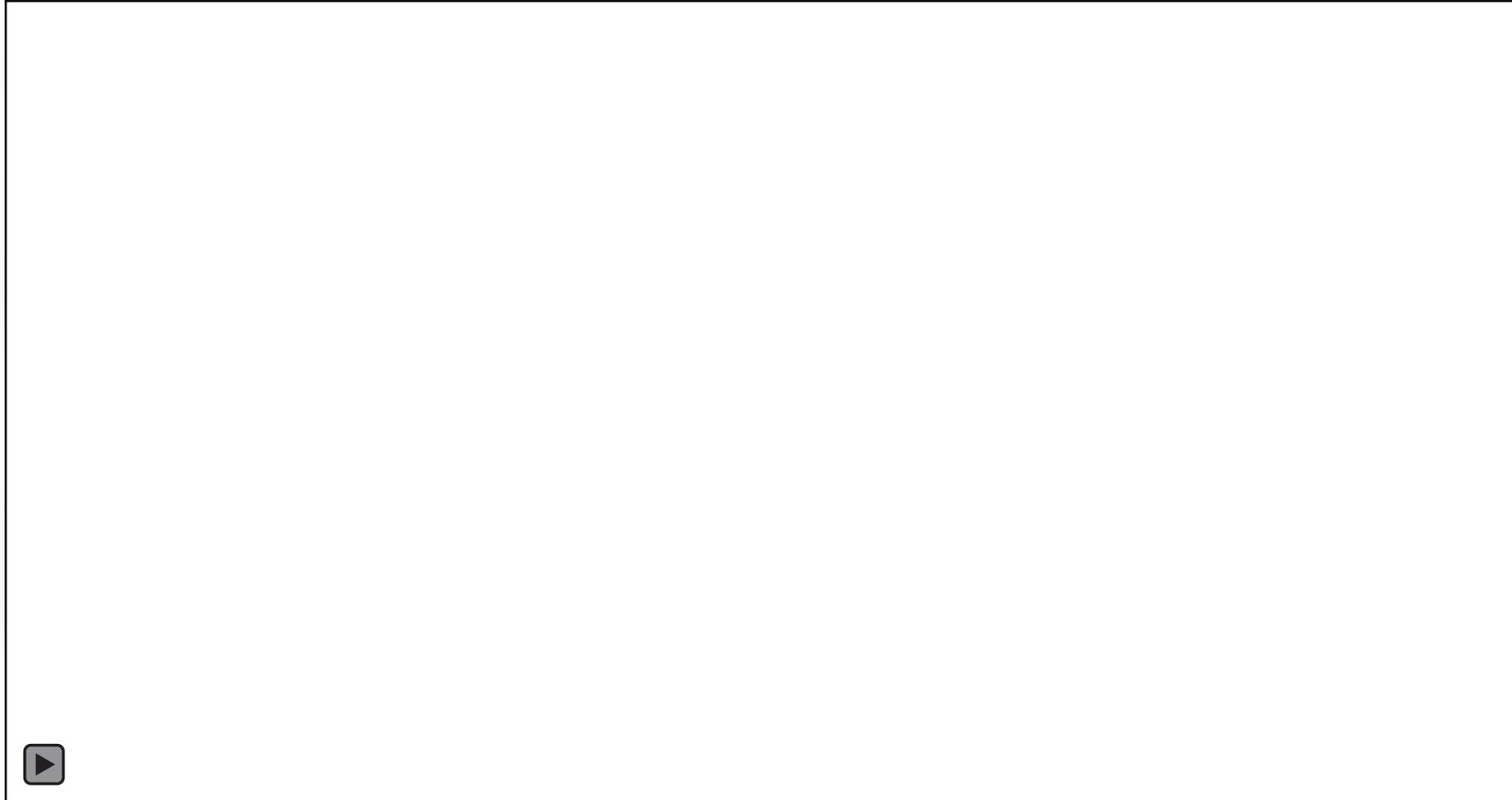
- Contractor relationship
- Sequencing of work
- Construction time limits
- Maintaining water levels in Connor Lake during construction
- Project site organization and cleanup
- Resident coordination and communication
- Regular observation and construction coordination meetings

Supplementary Content

Existing Conditions Modeling



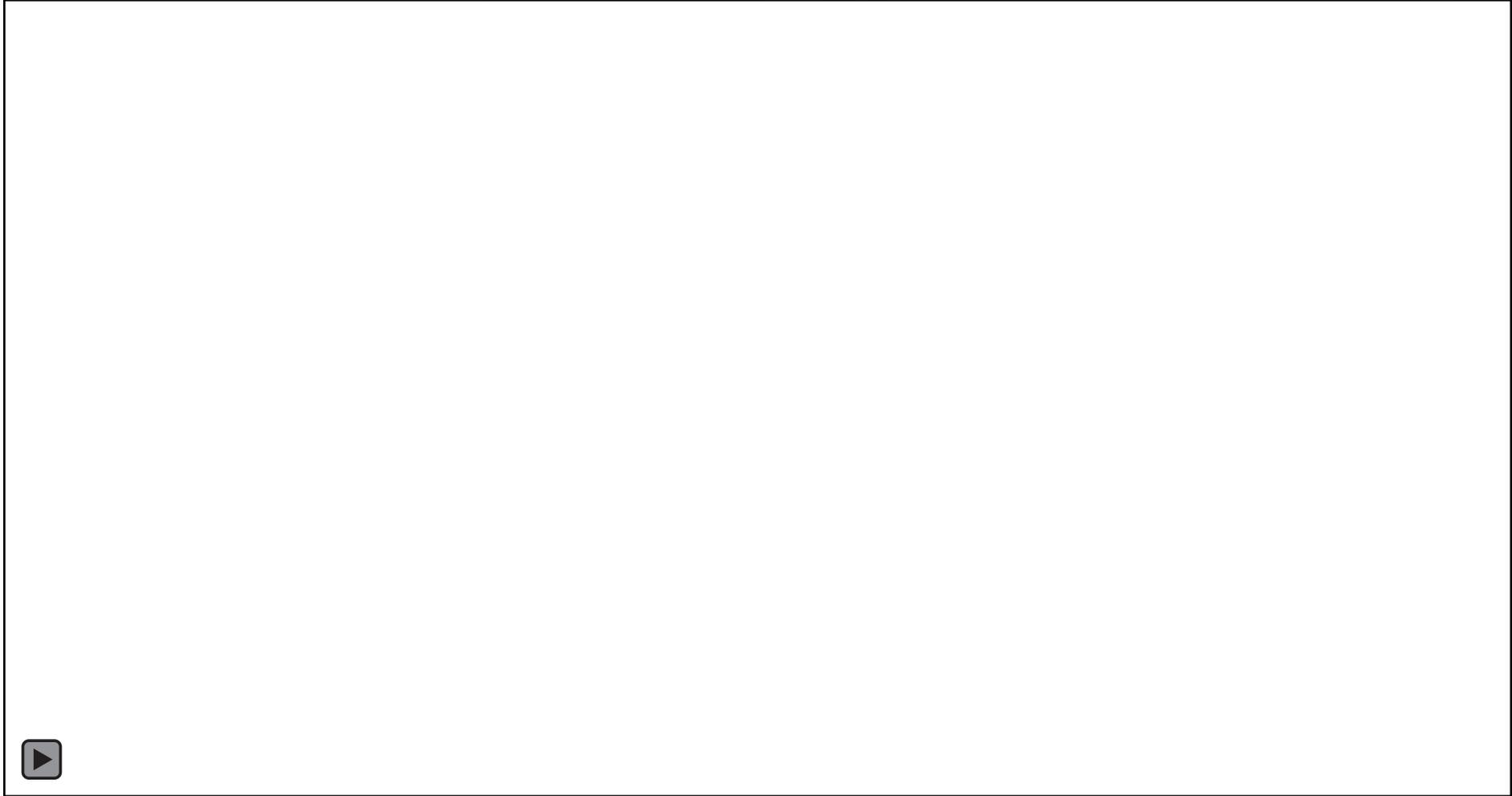
Proposed Conditions Modeling



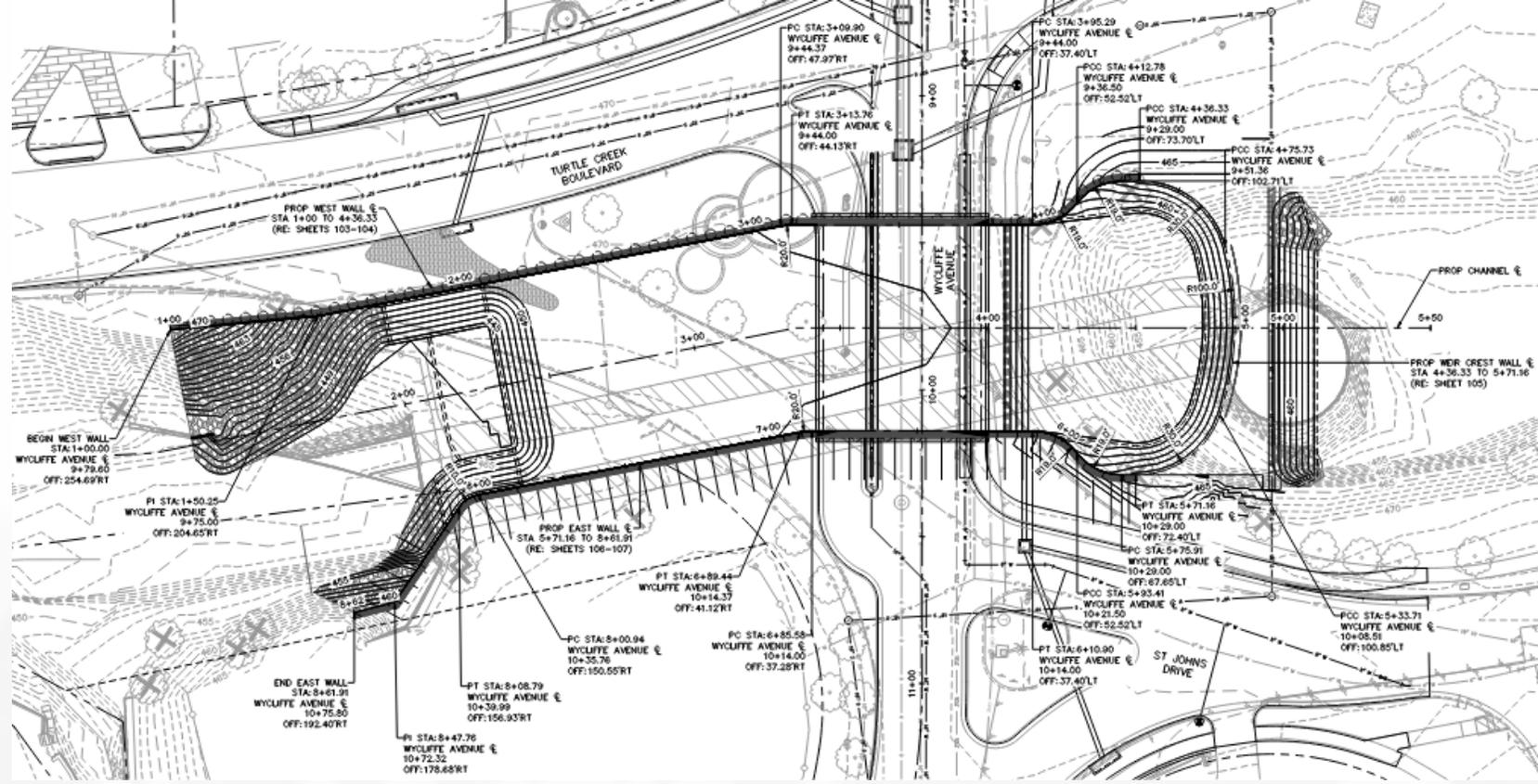
Existing Conditions Modeling



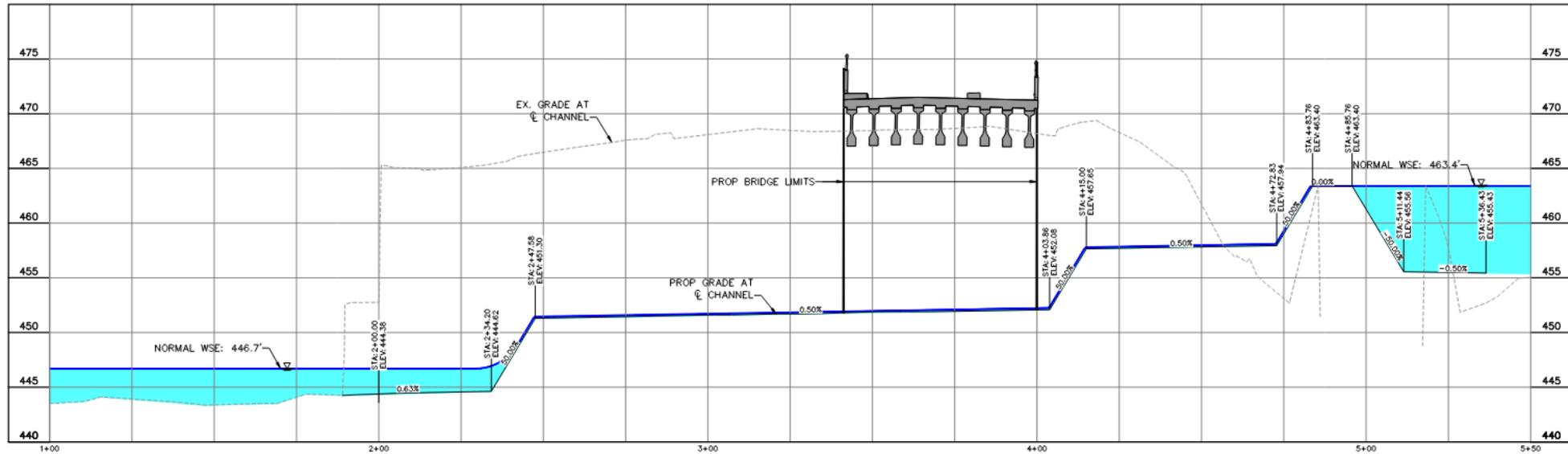
Proposed Conditions Modeling



Proposed Improvements: Dam and Channel

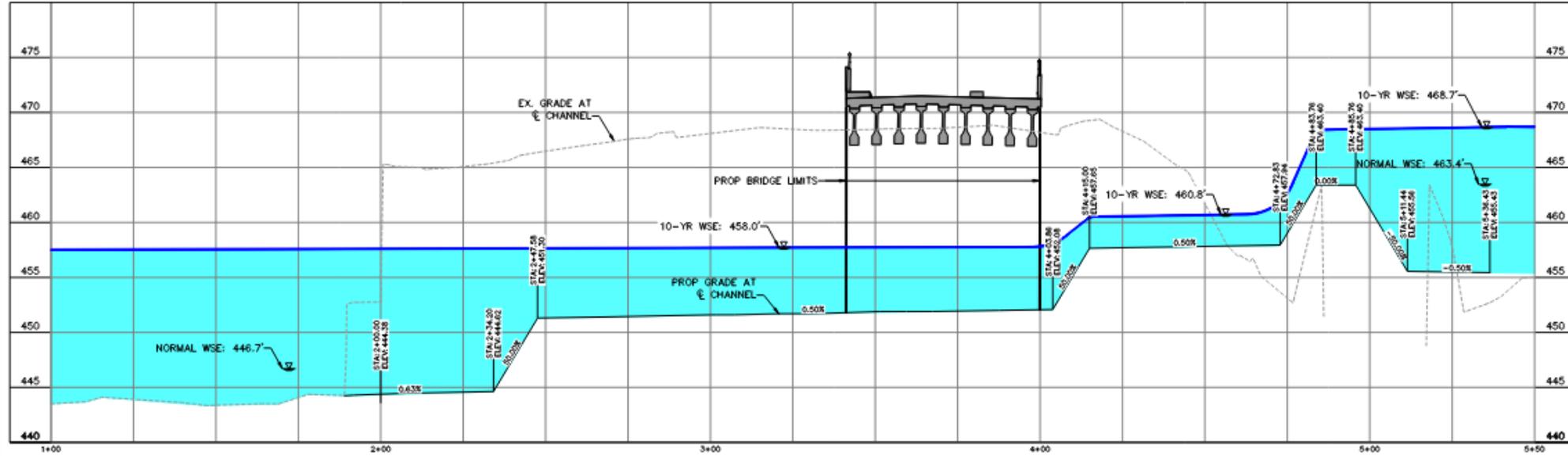


Normal WSE

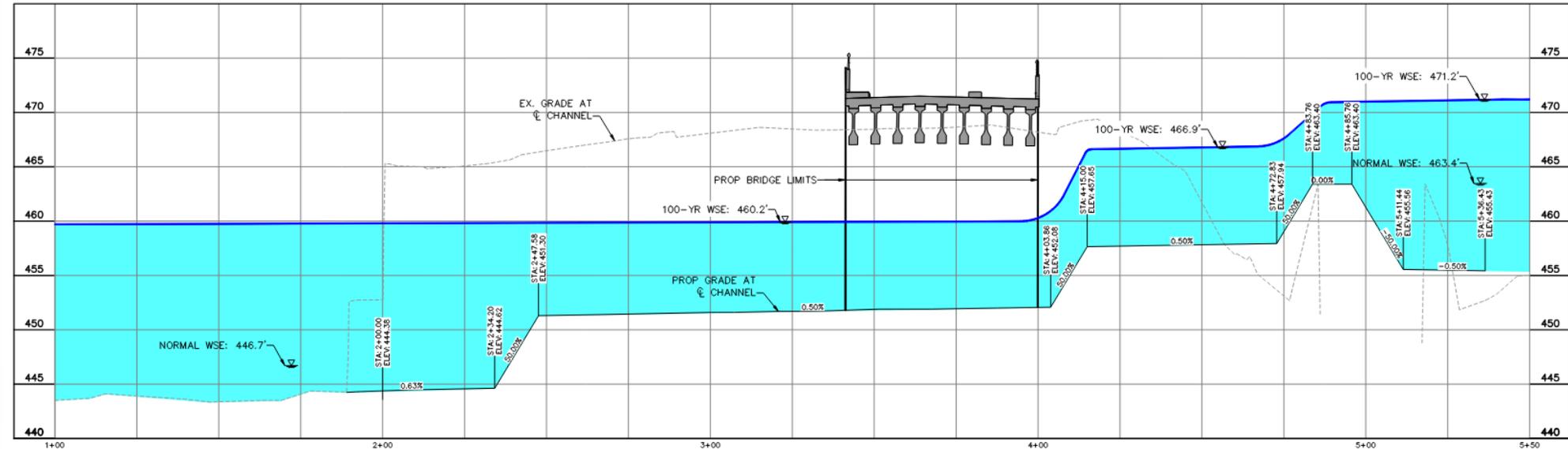


Proposed Improvements: Dam and Channel

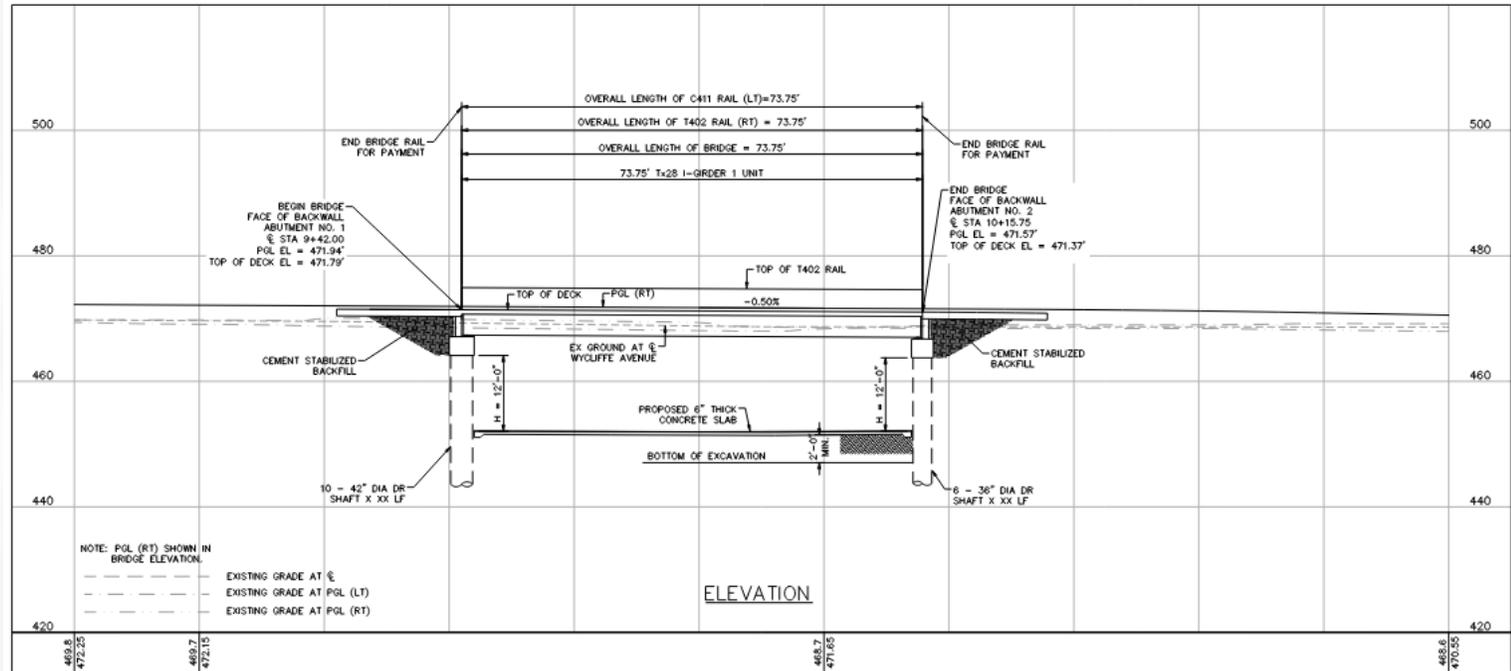
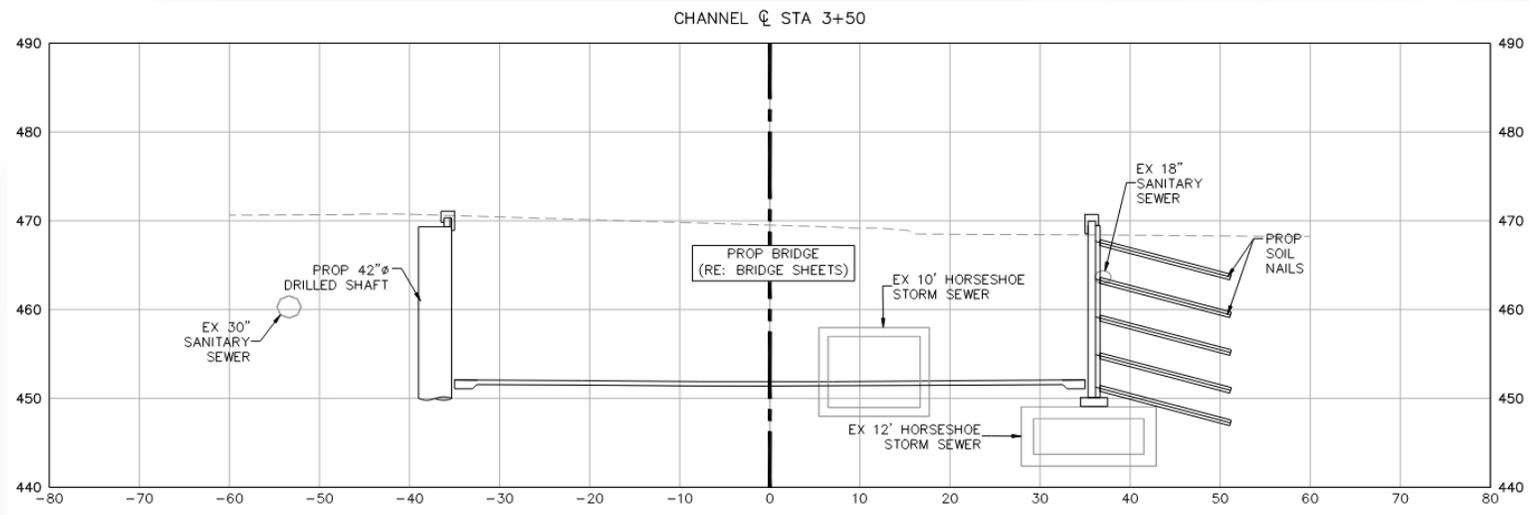
10-YR



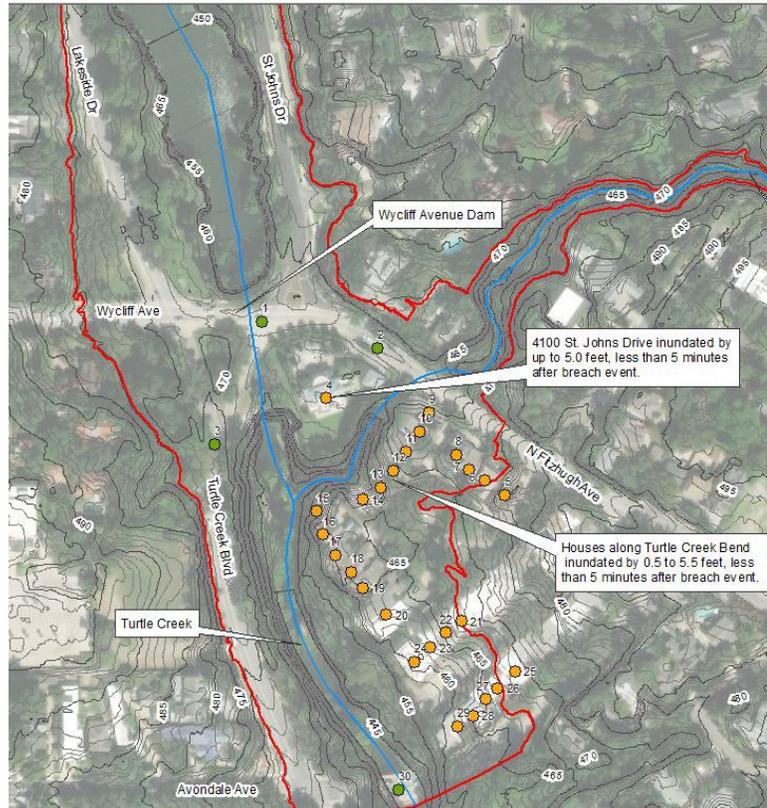
100-YR



Proposed Improvements: Dam and Channel

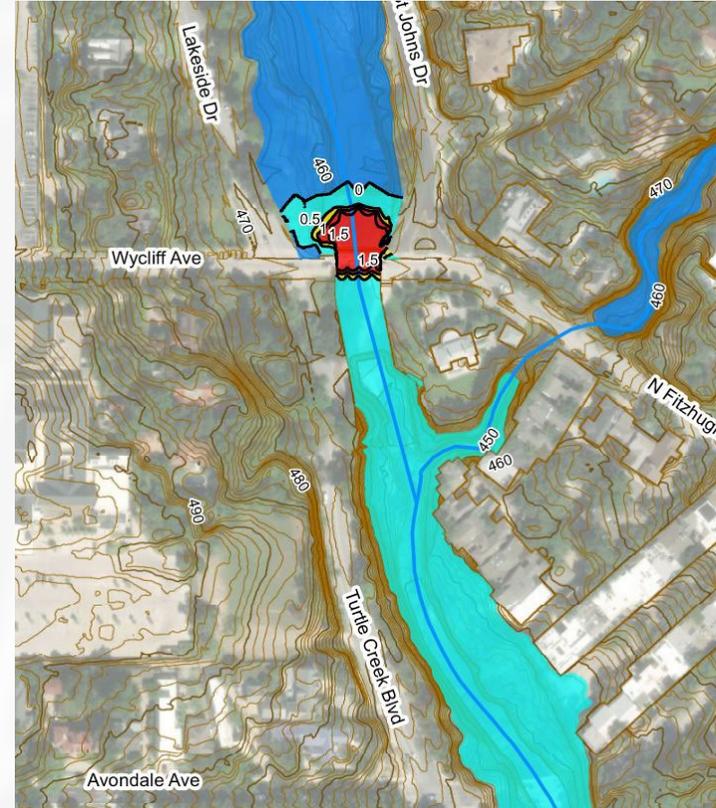


Proposed Improvements: Dam and Channel



Existing Structure and Culverts

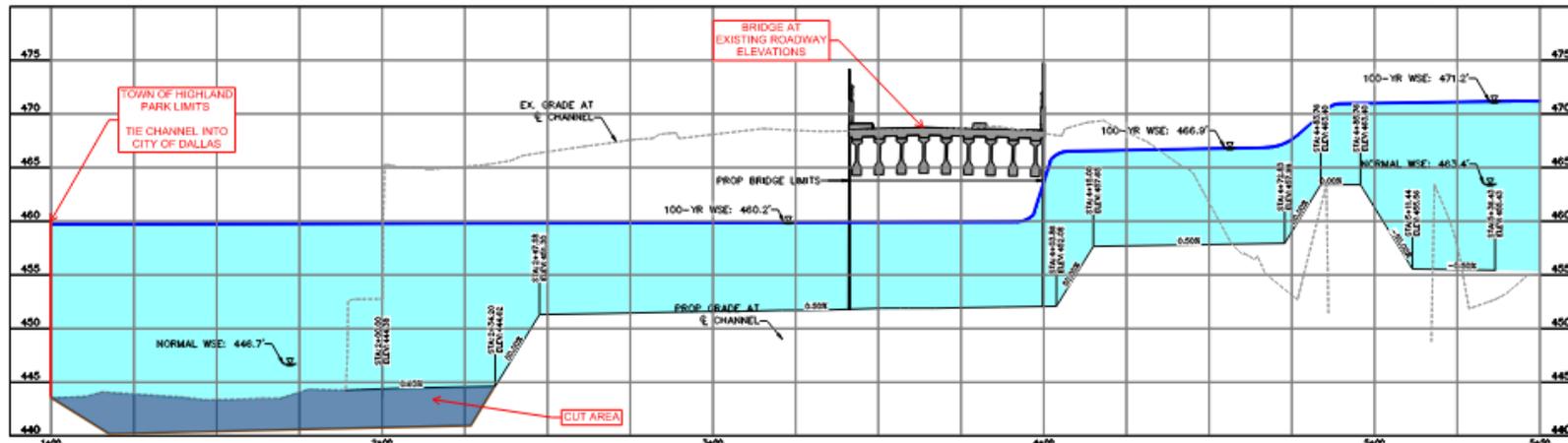
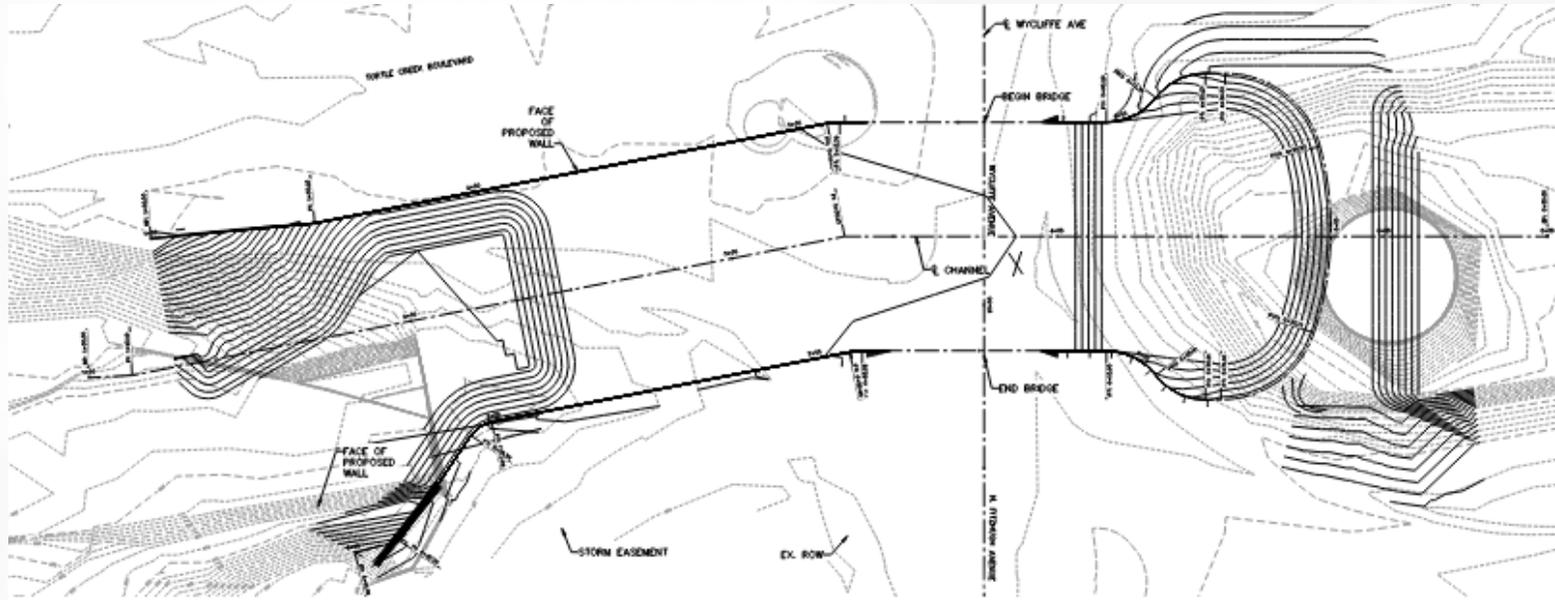
- Conveys minor rain events
- Wycliffe Ave classified as a high-hazard structure
- Downstream homes, roadways would be affected in event of breach



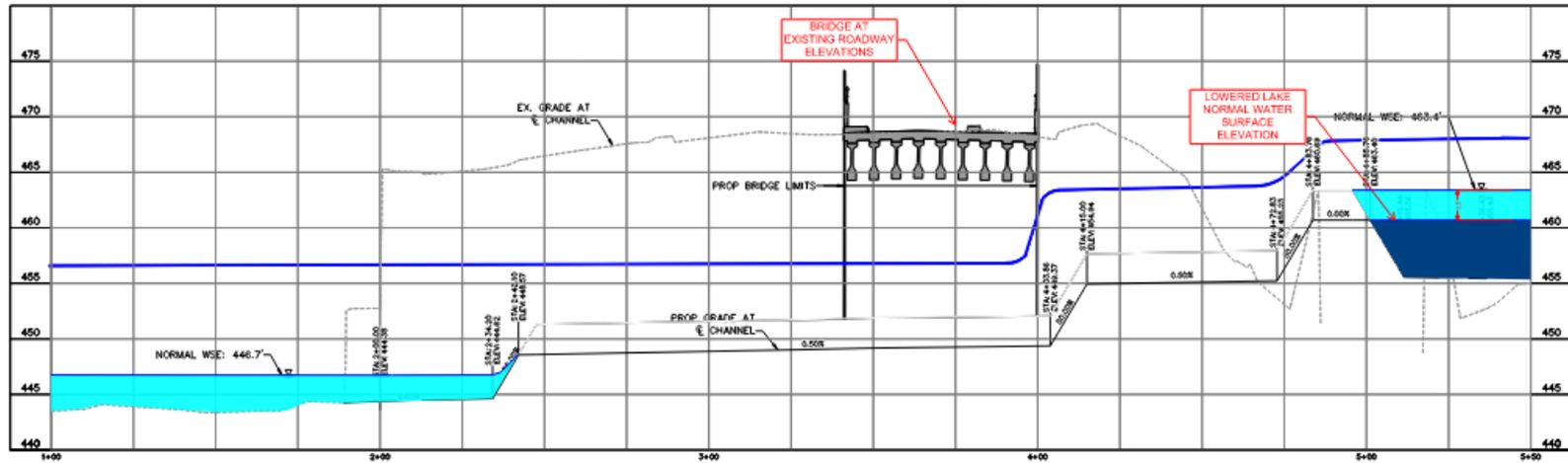
Proposed Dam and Channel

- Conveys significant rain events
- Dam reclassified as low-hazard
- Breach event would create <1 ft water surface elevation rise in channel

Lower Downstream Channel Elevation



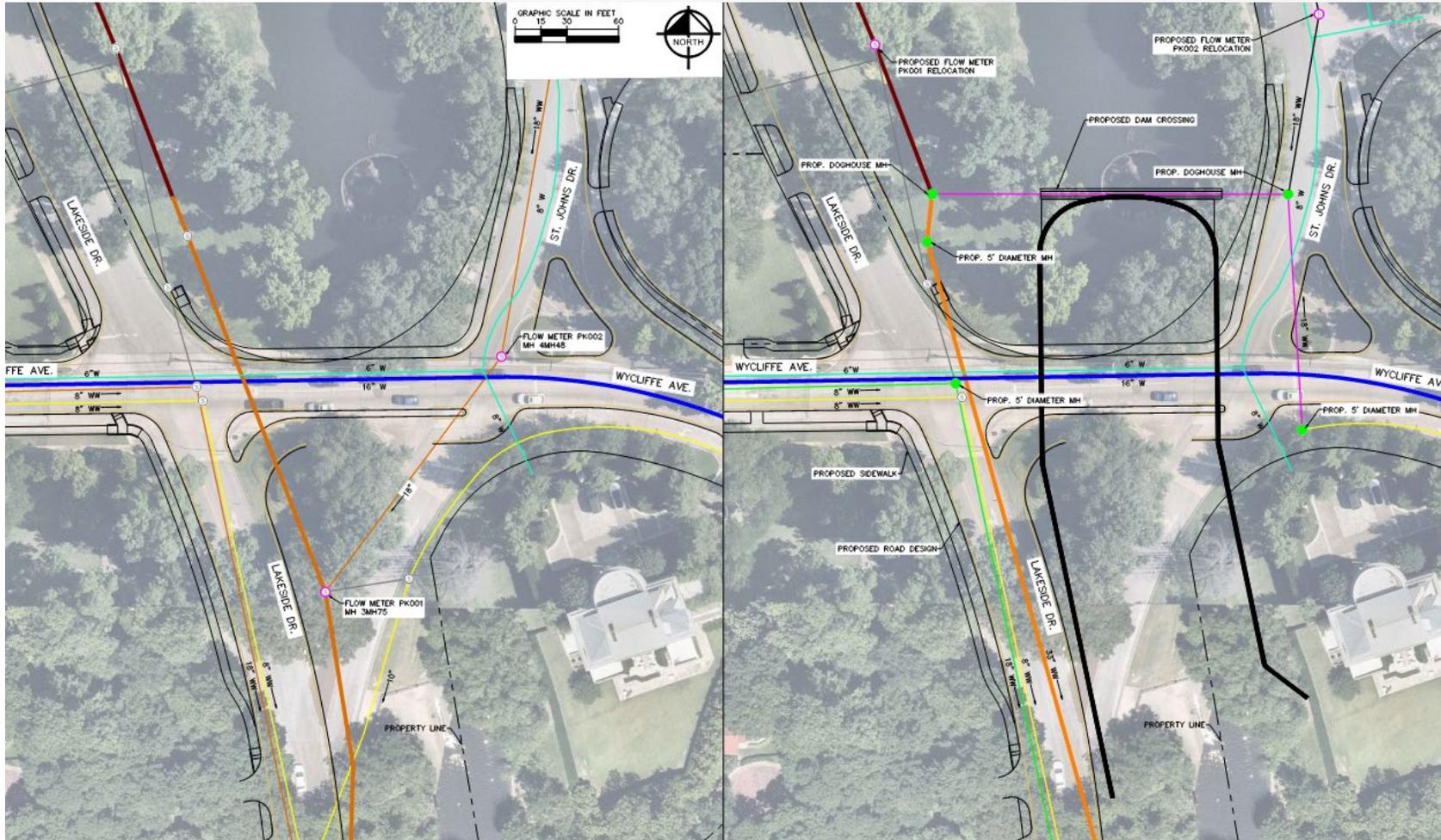
Lower Lake Level



Utility Relocations

- Town utility relocation
 - 30-inch Turtle Creek interceptor
 - 8-inch water line
 - 8-inch and 18-inch wastewater collectors
- Dallas utility relocations
 - 10-inch wastewater upsizing to 18-inch
 - Wastewater flow meter relocations
 - 16-inch water line
- Franchise utility relocations
 - Oncor
 - Atmos
 - AT&T
 - Spectrum

Utility Relocations



Detailed Cost Breakdown

Cost Summary	
Mobilization/Site Prep/Traffic Control	\$ 1,881,250.00
Street	\$ 2,960,000.00
Bridge	\$ 1,275,000.00
Channel	\$ 7,027,500.00
Drainage	\$ 760,000.00
Tributary 1 Crossing	\$ 1,412,500.00
Sanitary Sewer (Dallas)	\$ 835,000.00
Sanitary Sewer (Town)	\$ 188,750.00
Interceptor (Town/UP)	\$ 511,250.00
Water (Town)	\$ 826,250.00
Betterments/Landscape Allowance	\$ 1,875,000.00
Total Estimated Construction Cost	\$ 19,552,500.00
Design Cost (to date)	\$ 1,838,956.00
Total Project Cost	\$ 21,391,456.00

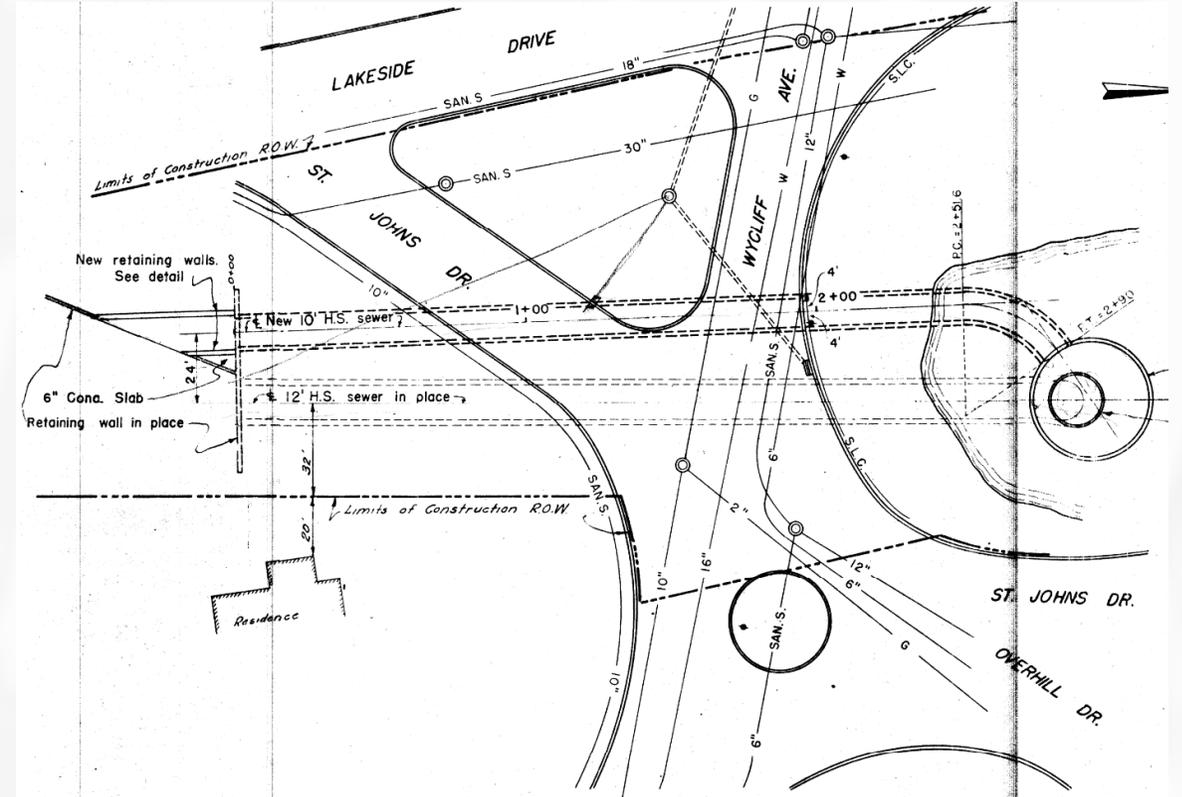
Outside Funding	
TXDOT (80/20)	\$ 12,253,000.00
Dallas County (50/50)	\$ 1,000,000.00
City of Dallas Tributary	\$ 400,000.00
City of Dallas Utilities (50/50)	\$ 417,500.00
External Funding	\$ 500,000.00
University Park (50/50)	\$ 255,625.00
TCEQ Grant (Design) (65/35)	\$ 461,619.00
Total Outside Funding	\$ 15,287,744.00
Total Estimated Cost to Town	\$ 6,103,712.00
Town Design Cost	\$ 1,377,337.00
Town Construction Cost	\$ 4,726,375.00

Current Project Schedule

90% Design Submittal	December 2024
Stakeholder Review	Through March 2024
100% Design (Bid) Submittal	April 2025
Advertisement	April – May 2025
Construction Award	June 2025
Construction	June 2025 – May 2027

Existing Conditions

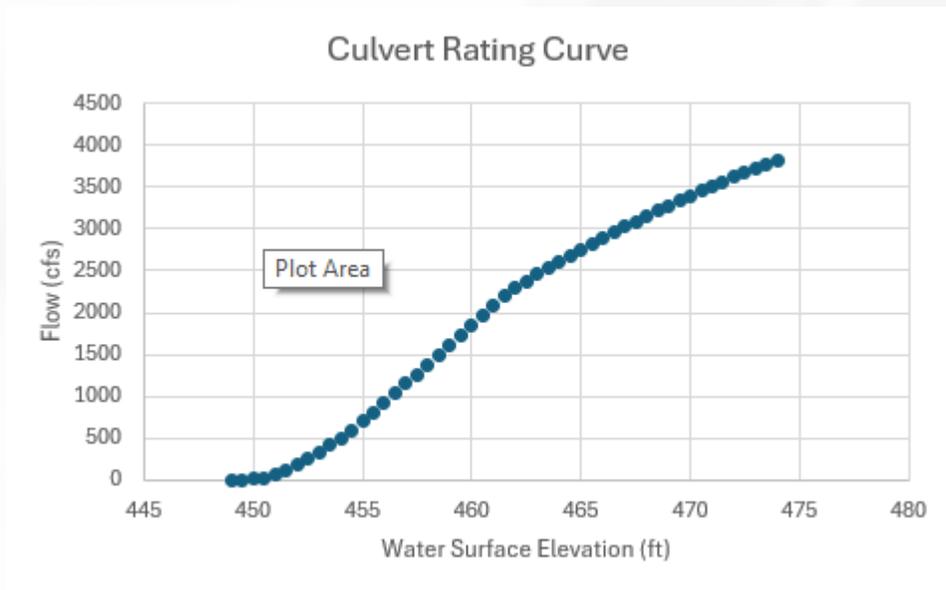
- Existing vertical spillway and buried culverts have insufficient capacity for everyday rain events
 - Capacity is significantly less than local and state standards
- Periodic flooding over Wycliffe Avenue
 - 6 overtopping events since August 2022
 - Barricading triggered 34 times
 - 6 minutes from barricades triggered to roadway overtopping in 100-year storm



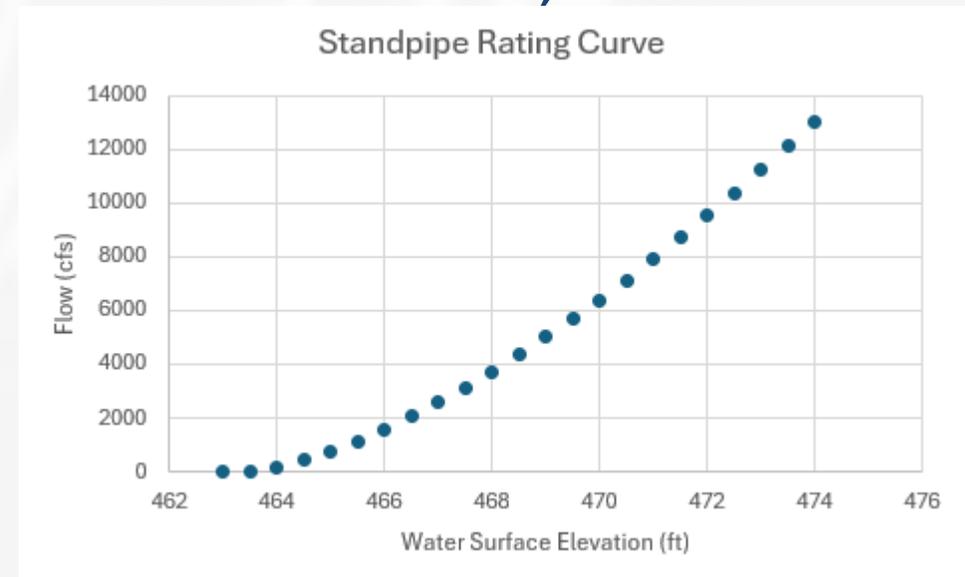
Existing Conditions

100-year design flow at Wycliffe Avenue is 9,350 cfs – maximum capacity of existing culverts and standpipe is 3,100 cfs.

The existing capacity of the culverts at the roadway elevation is 3,100 cfs.



The existing capacity of the standpipe at the roadway elevation is 3,100 cfs.



Existing Morning Glory Capacity

