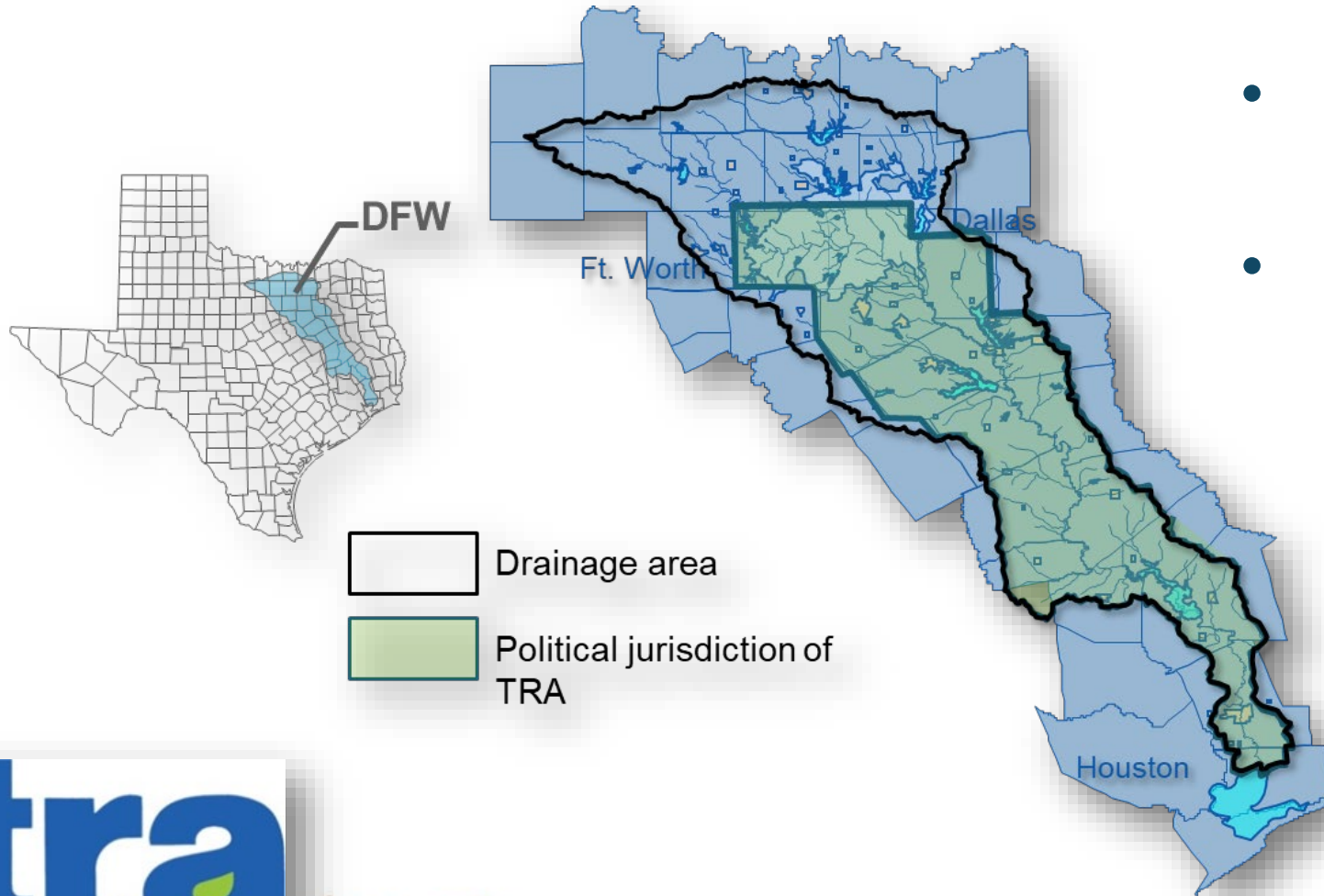


# Caverns of Calloway:

Dirt Pipes are  
Expensive



# Trinity River Authority of Texas



- Created by State of Texas in 1955
- 3 Core Functions
  - Treatment Services
  - Local Sponsor
  - River Basin Management



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# Trinity River Authority of Texas

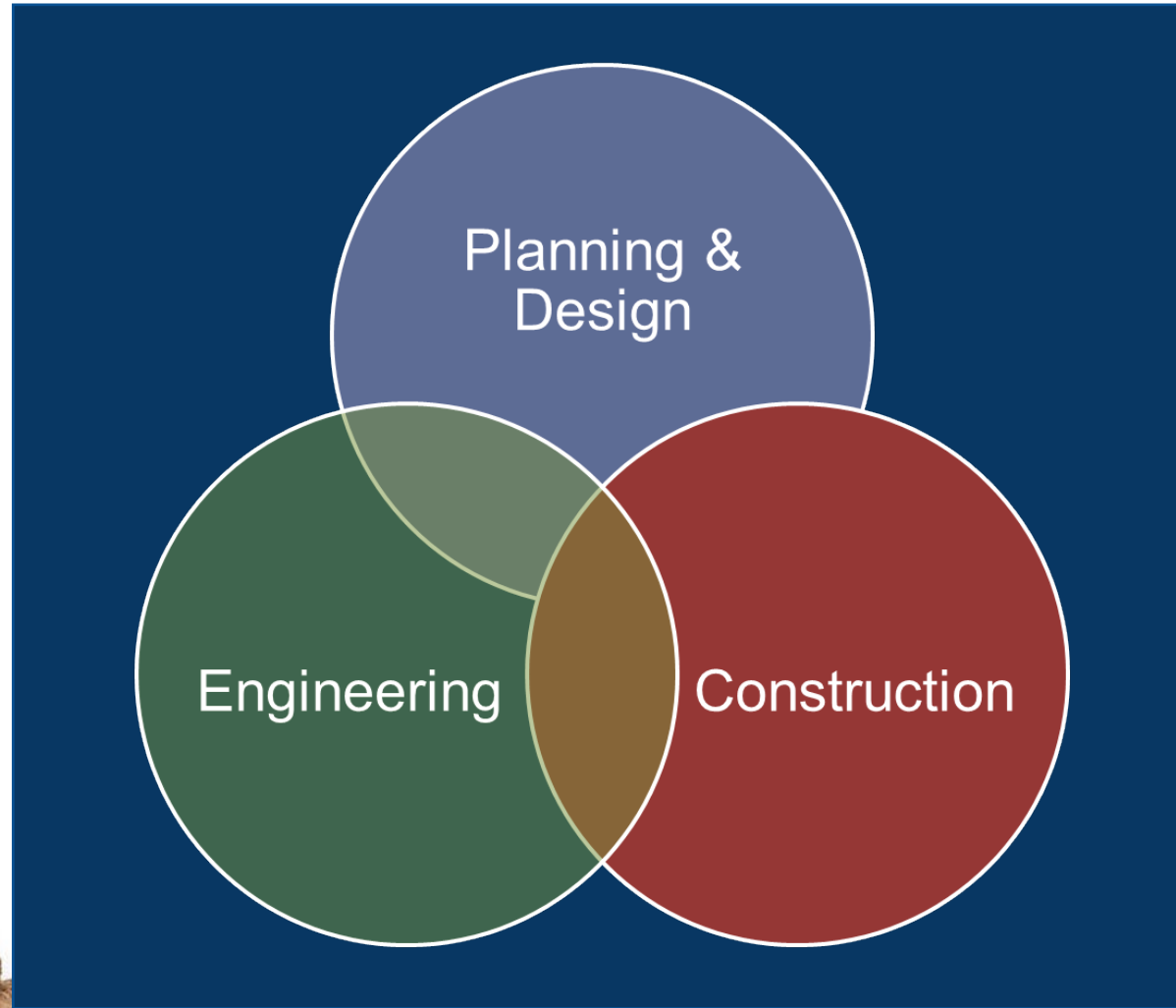
- Conservation and reclamation district
- Water and Wastewater treatment, along with recreation and reservoir facilities within the nearly 18,000 square-mile Trinity River Basin
- Five wastewater treatment facilities (3 MGD to 189 MGD)
- Four water treatment facilities (1.0 MGD to 87 MGD)
- Walker-Calloway Branches Outfall Line

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# Planning, Design and Construction Administration (PDCA)

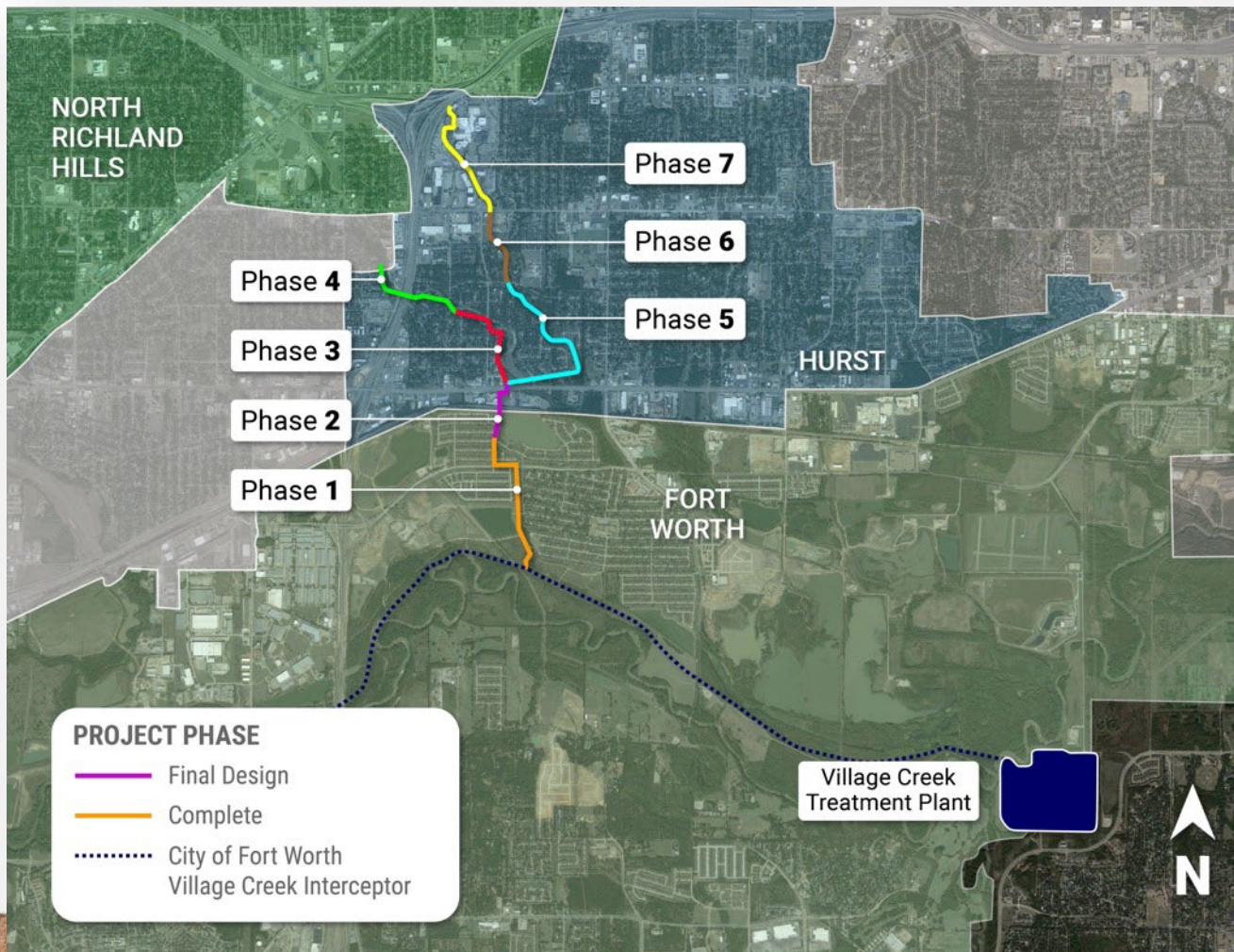


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# Walker-Calloway Sewer System



- North Richland Hills and Hurst flows to Fort Worth system
- ~4.7 Miles
- Constructed in 1970's
- Unlined RCP 18"-42"

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# Phase 4 Preliminary Design Recommendation



Open-cut only where physical condition  
of pipe precluded CIPP

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# Challenging Access



Access Issues  
Under Bridge



Concrete cap on  
existing line inside  
creek and channel



25' Channel sidewalls  
hinder access

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# Following 4" Rain Event

06/05/2022: PDCA notified of SSO at MH 200WC

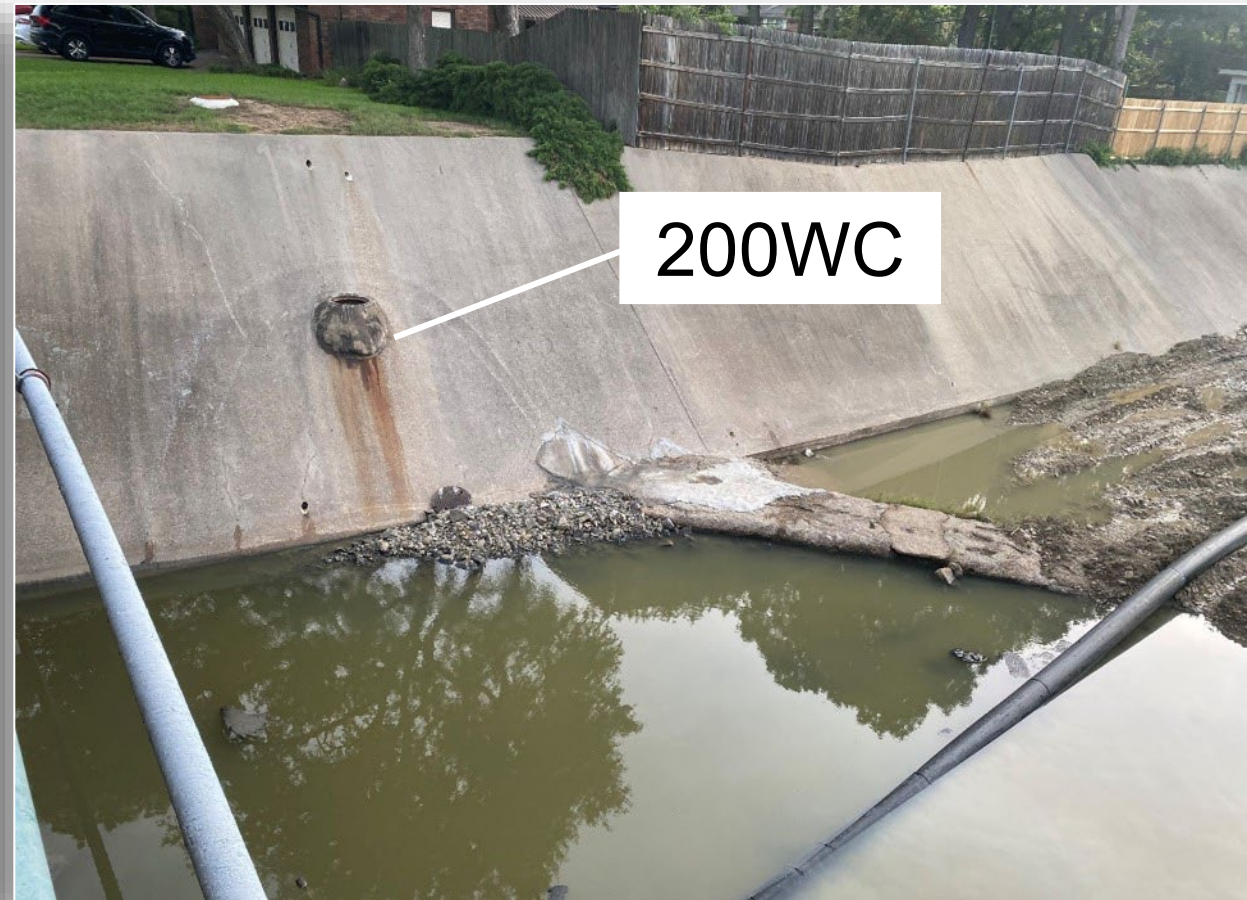


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# 06/06/2022: Bypass Pumping Set Up

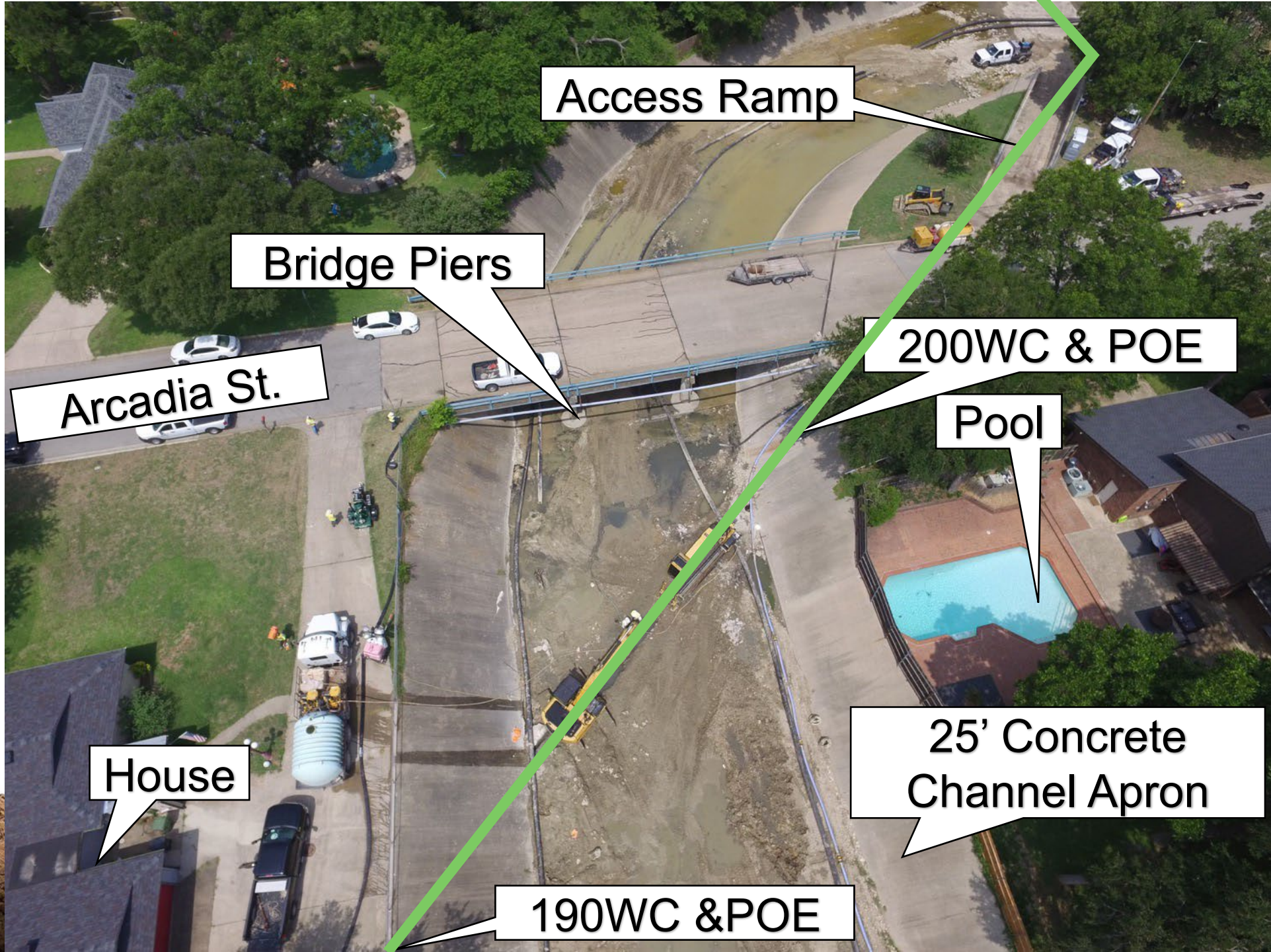


# One Equipment Access Point



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Access Ramp

Bridge Piers

Arcadia St.

200WC & POE

Pool

House

25' Concrete  
Channel Apron

190WC & POE



# What We Thought We Knew...



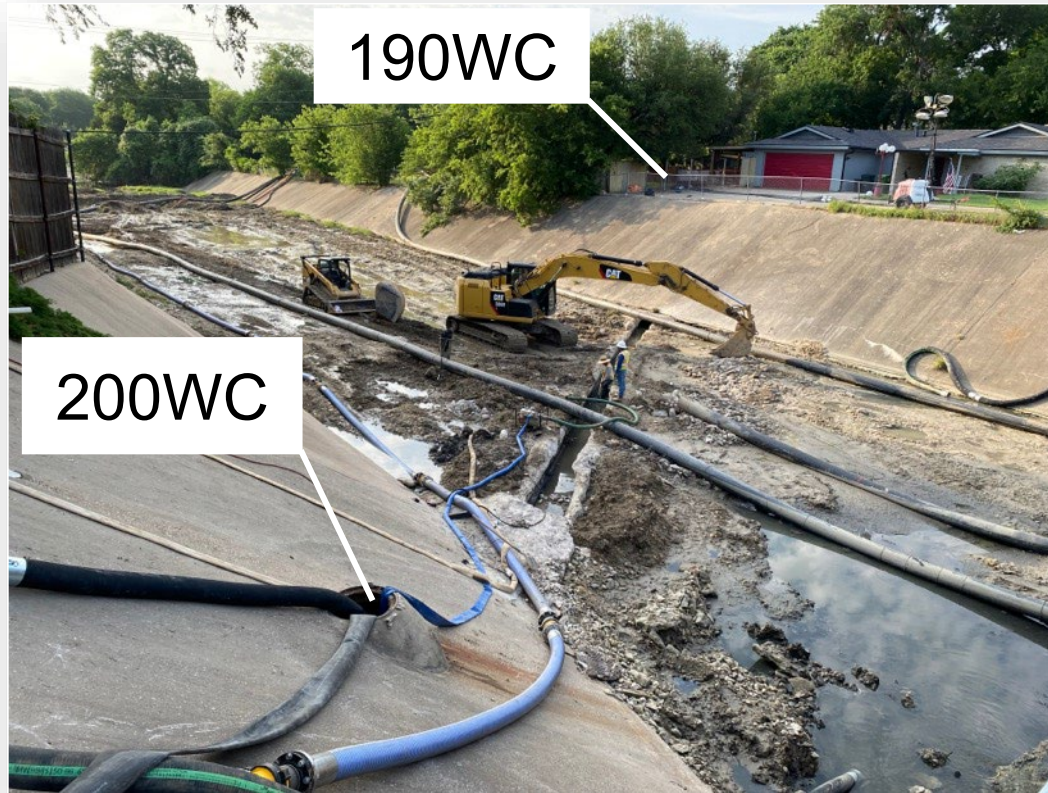
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# W-C Emergency Repair

06/08/2022: Open-cut channel bottom & pipe jack under concrete apron and driveway

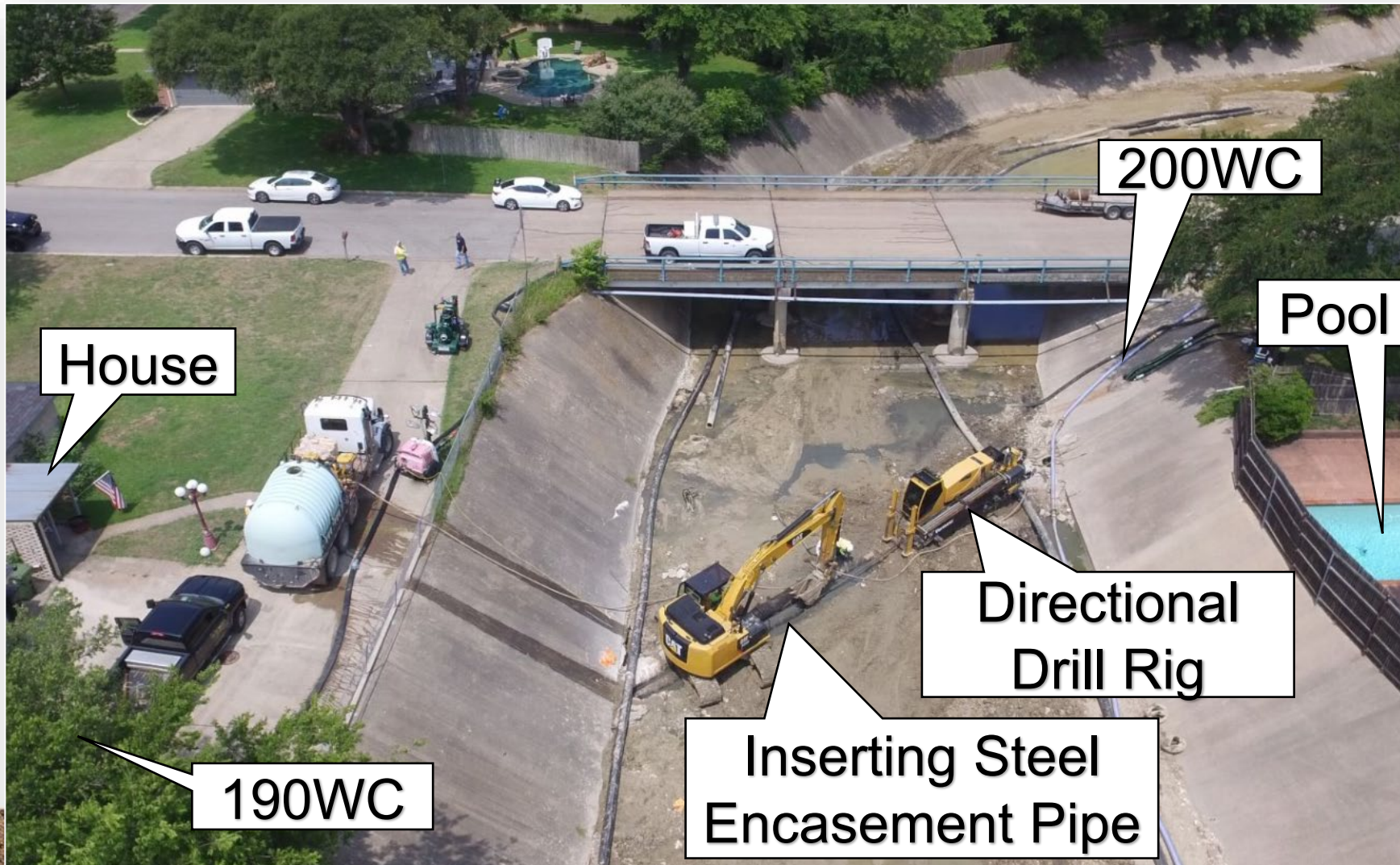


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# Directional Drilling Under Channel Wall



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# What We Couldn't See...



06/10/2022  
Jacking  
revealed  
complete pipe  
failure and  
void under  
concrete  
embankment  
and driveway

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# W-C Emergency Repair

06/11/2022: Replacement by open-cut / Manhole 190WC shaft

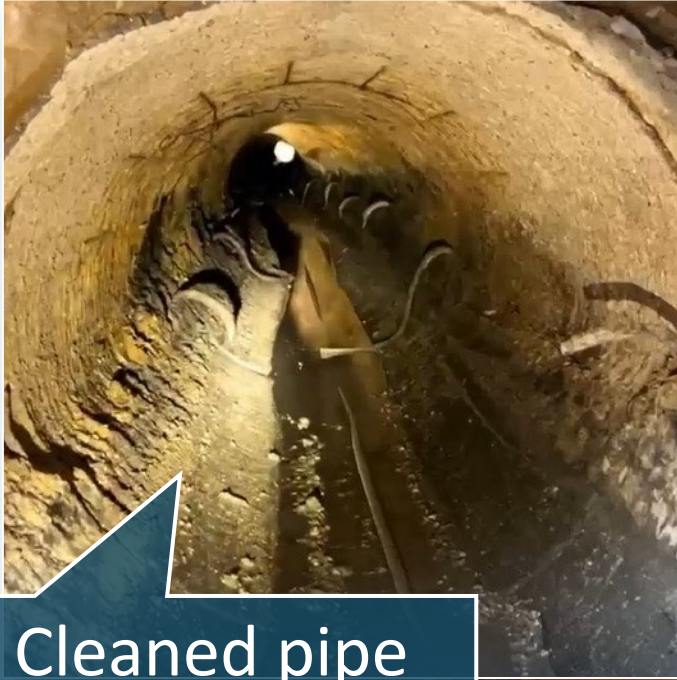


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# 06/11-06/23: Debris Downstream of MH 190WC



Cleaned pipe  
180WC- 190WC

Large debris  
( $\leq 15''$ )



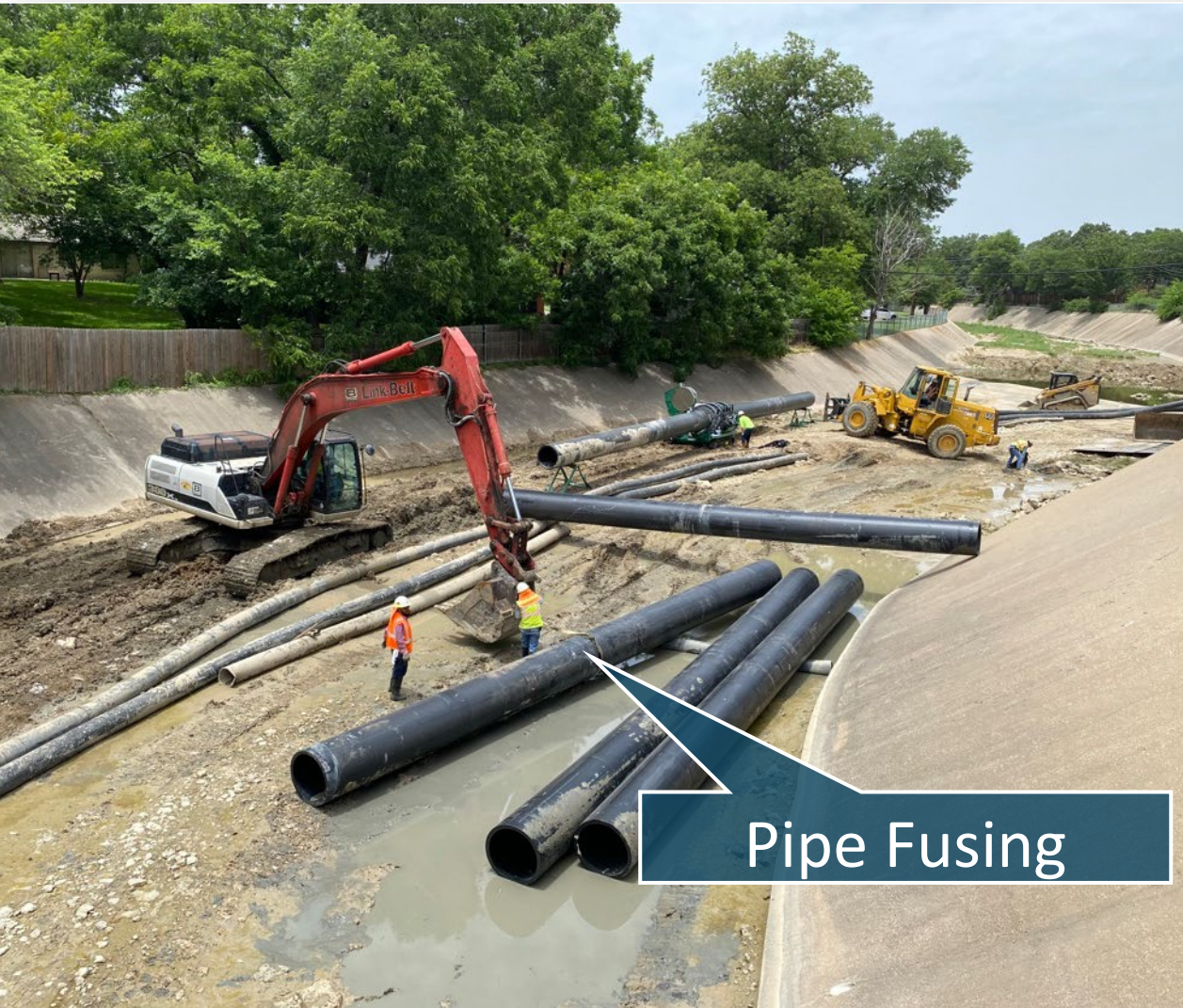
Debris  
removed  
prior to pipe  
bursting

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# 06/16-06/23: Preparation for Pipe Bursting



Pipe Fusing



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# 06/24/2022: Pipe Bursting(190WC-180WC)



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# 06/24/2022: Pipe Bursting (190WC-180WC)



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# July – August 2022: Site Restoration



Site Restoration at Arcadia St.



Site Restoration near Fanning

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# Site Restoration – Concrete Apron



July – August 2022

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# Site Restoration – 400 Arcadia Street

July – August 2022

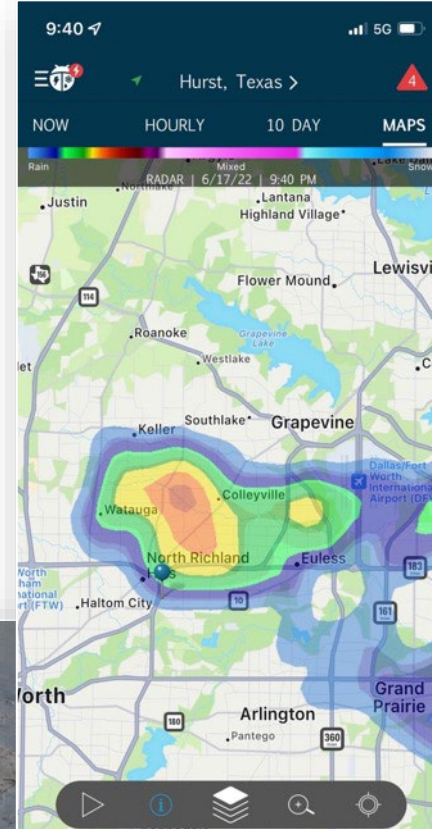


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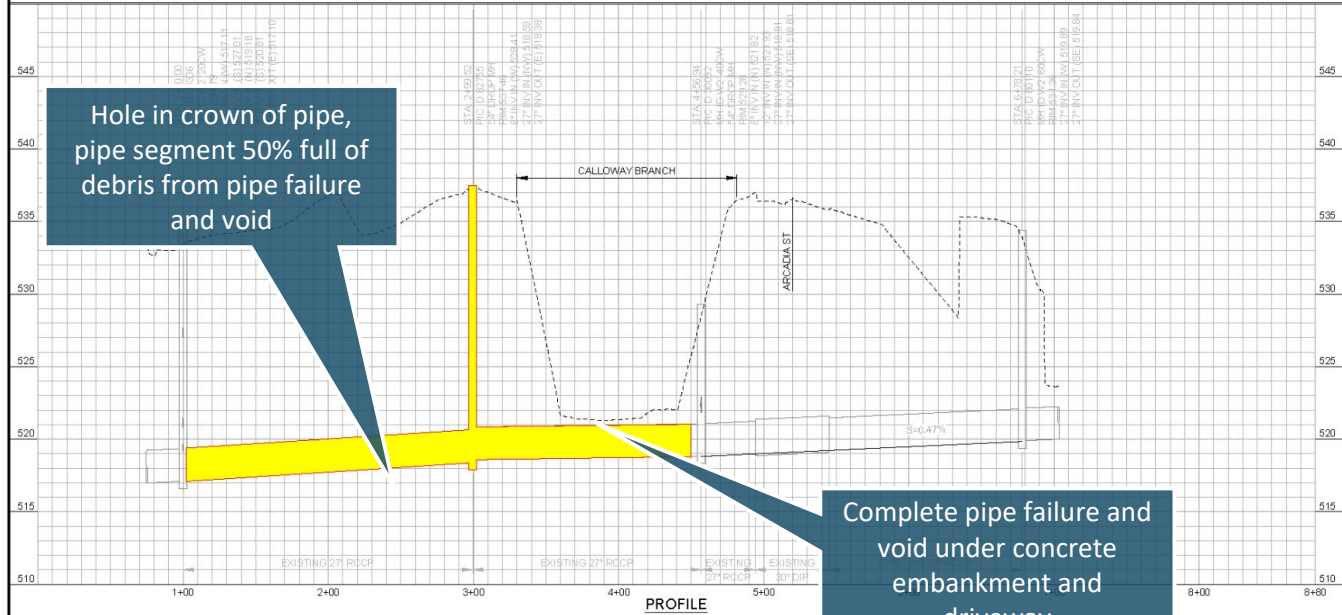
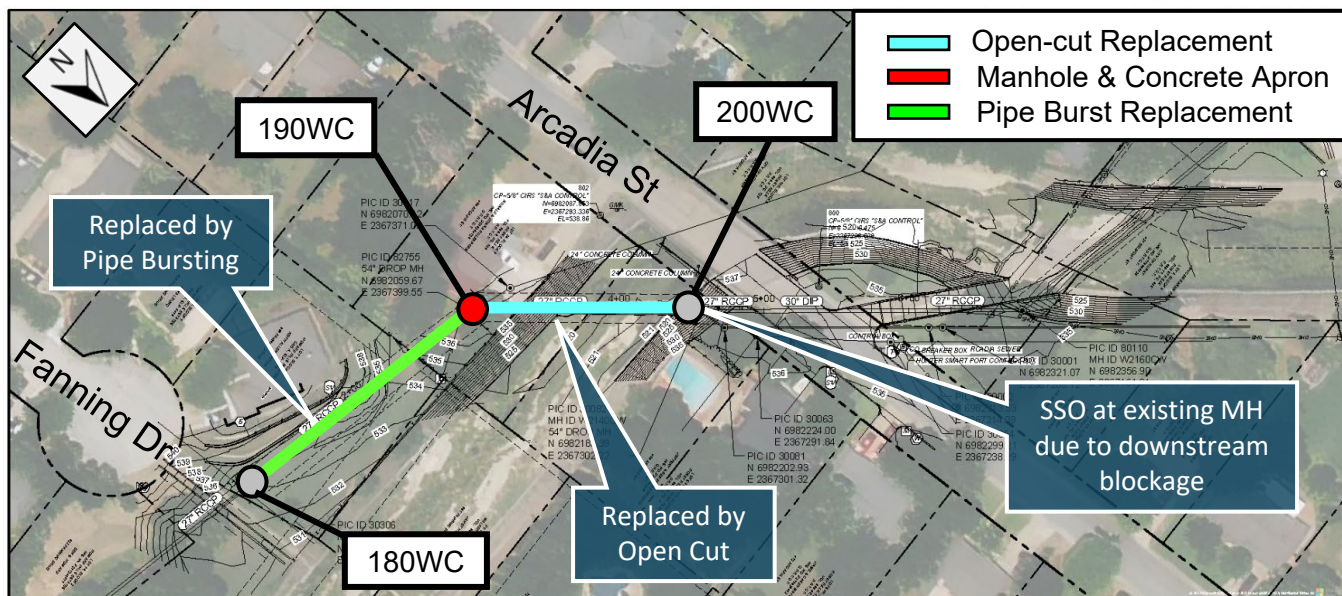



# Other Surprises...



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REV	DATE		DESCRIPTION		B
					
Trinity River Authority of Texas					
<b>WALKER CALLOWAY PHASE 4 REGIONAL WASTEWATER SYSTEM</b>					
<b>WALKER CALLOWAY, PHASE 4 SEWER</b>					
<b>WALKER CALLOWAY PHASE 4 CALLOWAY CROSSING</b>					
DESIGN	CONTRACT NO.			REGION	
K/J/JNC	NA			-	
DRAWINGS	PROJECT ID NO.			SYSTEM	
K/J/KRC	NA			-	
CHECK	CADD FILE NAME			SHEET NO.	
K/J/KPF	NA			-	
GM	DATE			PAGE NO.	
K/J/KPF	June 2022			-	



# Conclusion

- Dirt Pipes are ***Expensive***
- Cost of prevention is cheaper than the emergency cure
- Be flexible with approach and materials
- Maintaining good relationships with suppliers, contractors, and engineers is valuable in an emergency
- Expect the unexpected
- Just keep going

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