



Austin Water Facility Planning for Atlas 14 Flood Risks

January 14, 2021

Facility Engineering Division



Flood Risk and Atlas 14: Overview (<http://www.review.ci.austin.tx.us/atlas14>)

- 💧 The National Weather Service (NWS) has completed a historical rainfall study, called ATLAS 14.
- 💧 ATLAS 14 means the National Oceanic and Atmospheric Administration's Precipitation-Frequency Atlas 14 of the United States, Volume 11, Version 2.0.
- 💧 This study shows that Central Texas is more likely to experience larger storms than previously thought. This means that severe flooding is also more likely.
- 💧 The City's code amendments would redefine the existing 100-year and 25-year floodplain boundaries to reflect our new understanding of flood risk identified by the Atlas 14 study.
- 💧 The proposed code amendments would change existing City regulations that govern development in the floodplain.

| Measure | Current | Updated | Percent Increase |
|----------------------------------|-------------|------------------|------------------|
| 100-year rainfall (24-hour) | 10.2 inches | Up to 13+ inches | 30% |
| Buildings in 100-year floodplain | 4,000 | 7,200* | 80% |

<http://www.review.ci.austin.tx.us/atlas14>

What the City is Doing ?

- City is changing the development code in order to protect the public from flooding.

Ordinance No. 20191114-064

100-year Floodplain:

- (A) For areas amended to incorporate Atlas 14 data, the 100-year floodplain calculated under fully developed conditions as prescribed by the Drainage Criteria Manual as amended to incorporate Atlas 14 data;
- (B) For areas not yet amended to incorporate Atlas 14 data, the 500-year floodplain either as depicted on the FEMA Flood Insurance Rate Map as of January 6, 2016, as subsequently revised, or is calculated under existing conditions as prescribed by the Drainage Criteria Manual using data predating Atlas 14

25-year Floodplain

- (A) For areas amended to incorporate Atlas 14 data, the **25-year floodplain** calculated under fully developed conditions as prescribed by the Drainage Criteria Manual as amended to incorporate Atlas 14 data;
- (B) For areas not yet amended to incorporate Atlas 14 data, the 100-year floodplain either as depicted on the FEMA Flood Insurance Rate Map as of January 6, 2016, as subsequently revised, or is calculated under existing conditions as prescribed by the Drainage Criteria Manual using data predating Atlas 14

Colorado River

- For the Colorado River, the 100-year floodplain as depicted on the FEMA Flood Insurance Rate Map dated January 6, 2016, as subsequently revised.

<https://www.austintexas.gov/FloodPro/>



FloodPro

Legend



2019 INTERIM FLOOD PLAIN



Filter Swatches...



Filter

FloodPro

Fully Developed Floodplain

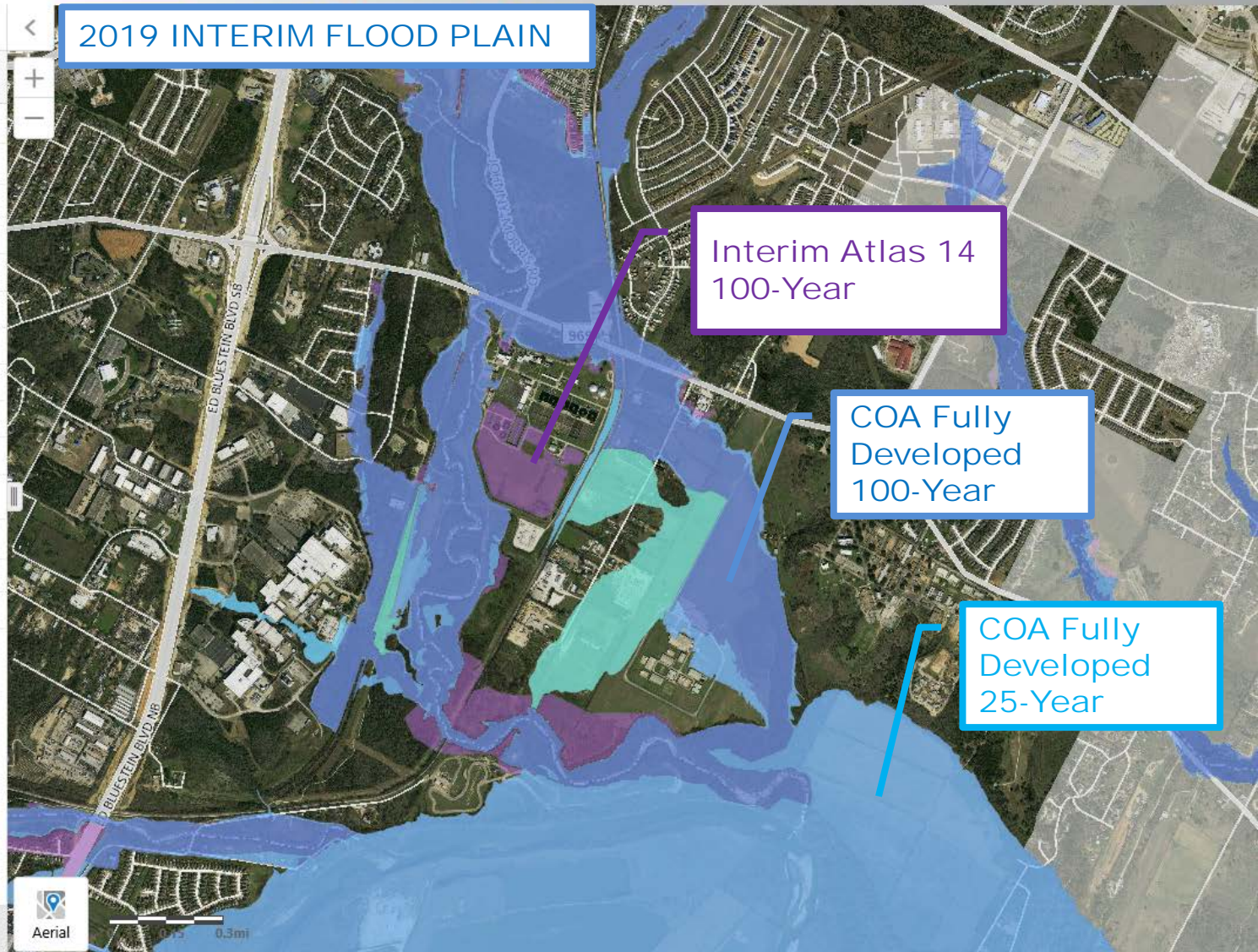
- COA Fully Developed 25-Year
- COA Fully Developed 100-Year
- COA Master Plan 25-Year
- COA Master Plan 100-Year
- 100-Year (Detailed-AE)
- 100-Year (Shallow-AO,AH)
- 100-Year (Approx-A)

Outside Austin City Limits

Interim Atlas 14 100-Year Floodplain

Interim Atlas 14 100-Year Floodplain

- Interim Atlas 14 100-Year Floodplain
- Current 100-Year Floodplain



Interim Atlas 14
100-Year

COA Fully
Developed
100-Year

COA Fully
Developed
25-Year



Aerial

0.3mi

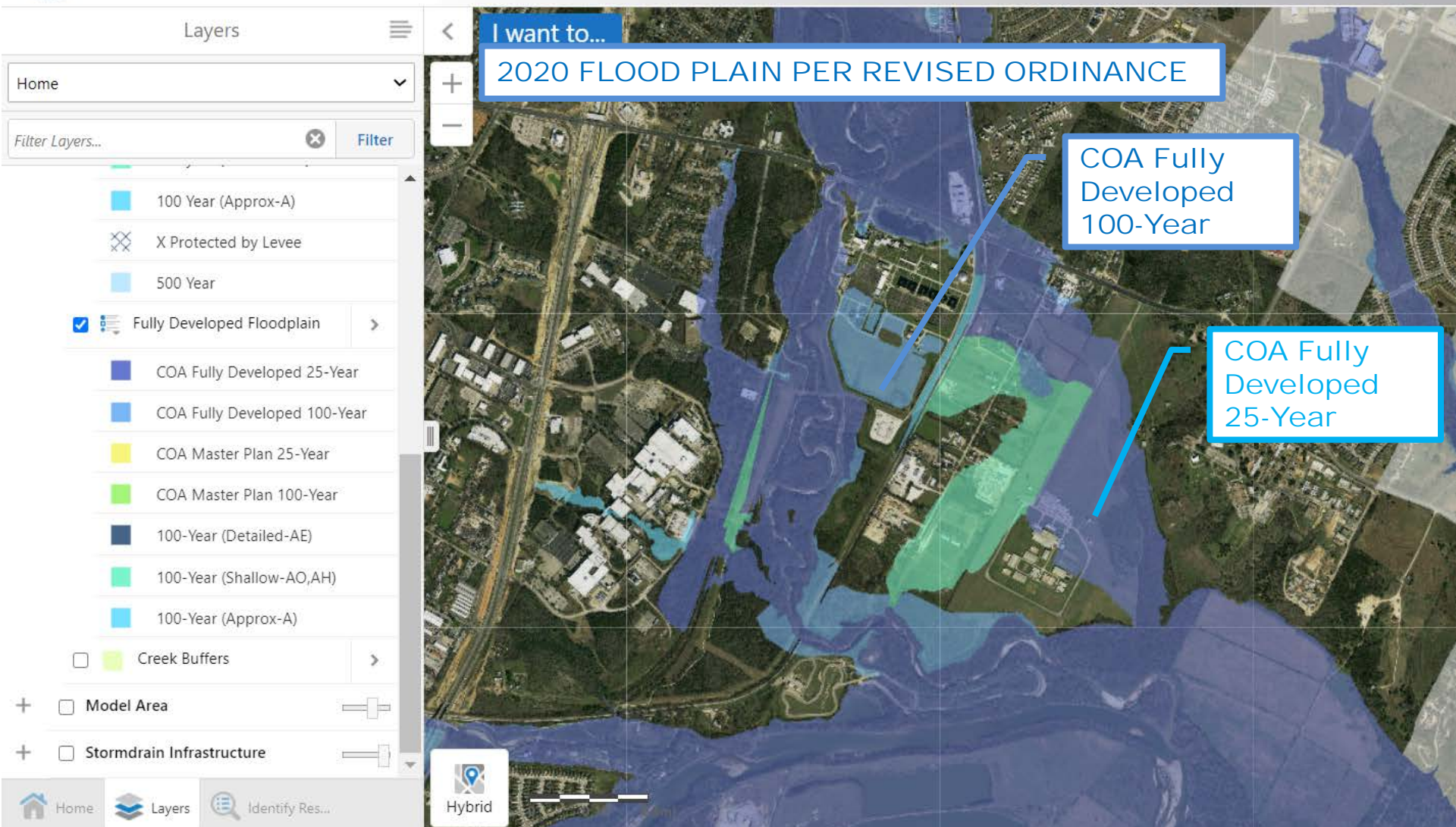


Legend

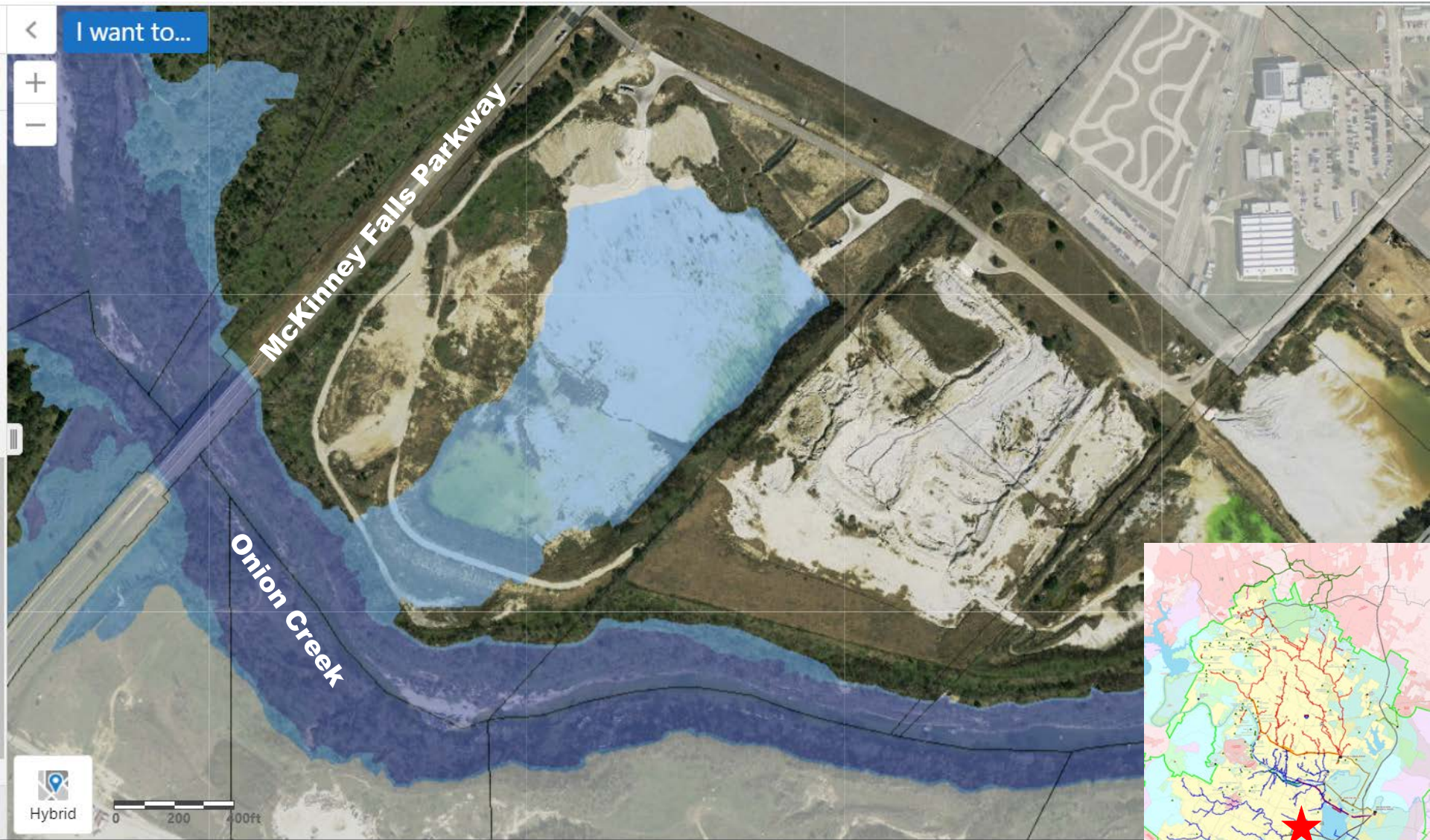
<https://www.austintexas.gov/FloodPro/>



FloodPro



Shaw Lane Water Facility



Austin Water Wastewater Treatment Facilities

2 = Major WWTP (SAR & WC WWTP)
1 = Biosolids Plant (Hornsby Bend BMP)
8= Package Plants
1= Wholesale Customer WWTP

TP 1 Facility in Current 100-Yr Flood Plain

- T-Farms Package Plant


TP 3 Additional Facilities in new ATLAS 14 100-Yr Flood Plain

- SAR WWTP
- Walnut Creek WWTP
- Wild Horse Package Plant




Austin Water Lift Station Facilities

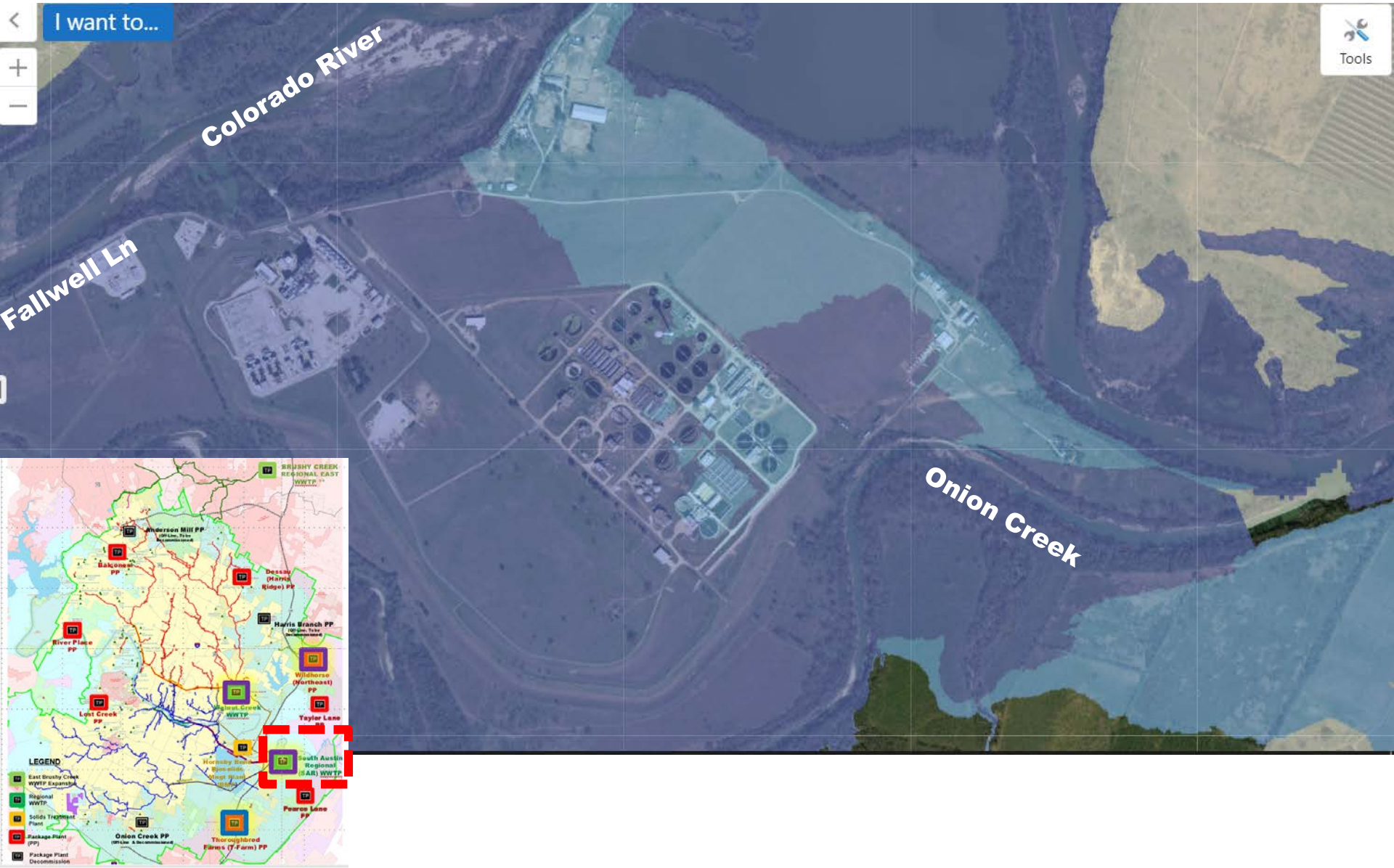
135 = Total Number of Lift Stations
(Does not include influent WWTP LS)

 11 Facilities in Current 100-Yr Flood Plain

 9 Additional Facilities in new ATLAS 14 100-Yr Flood Plain

 6 Facilities adjacent to Colorado River Flood Plain

South Austin Regional (SAR) WWTP



South Austin Regional (SAR) WWTP

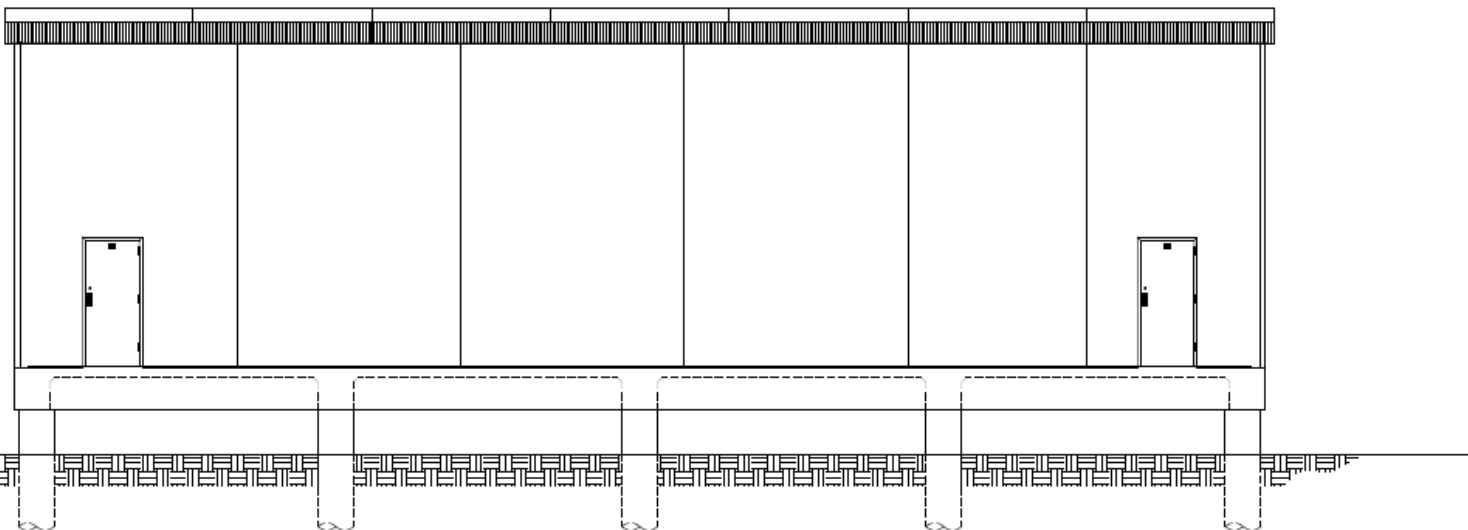
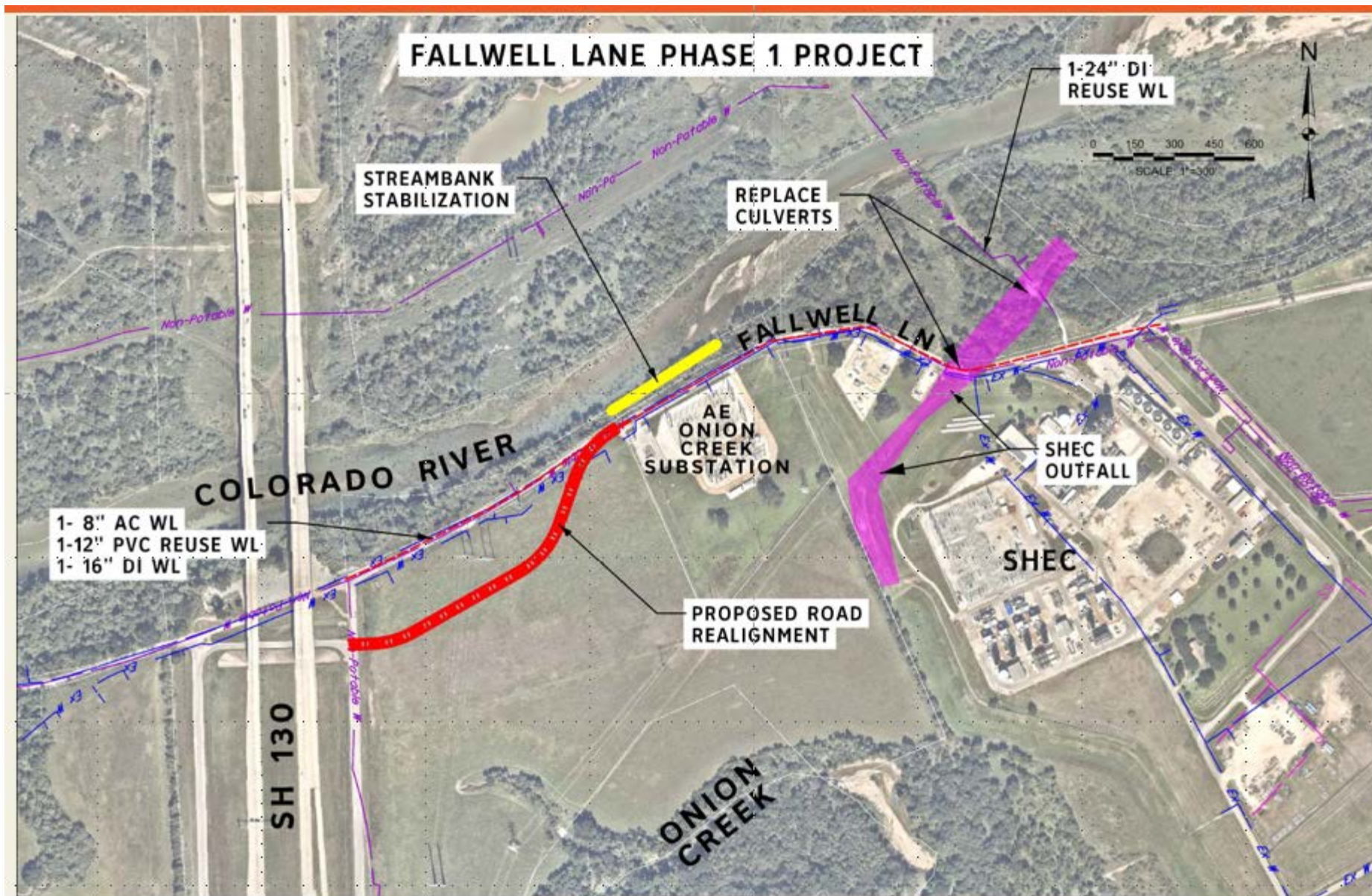


Table of Elevations & Calculations:

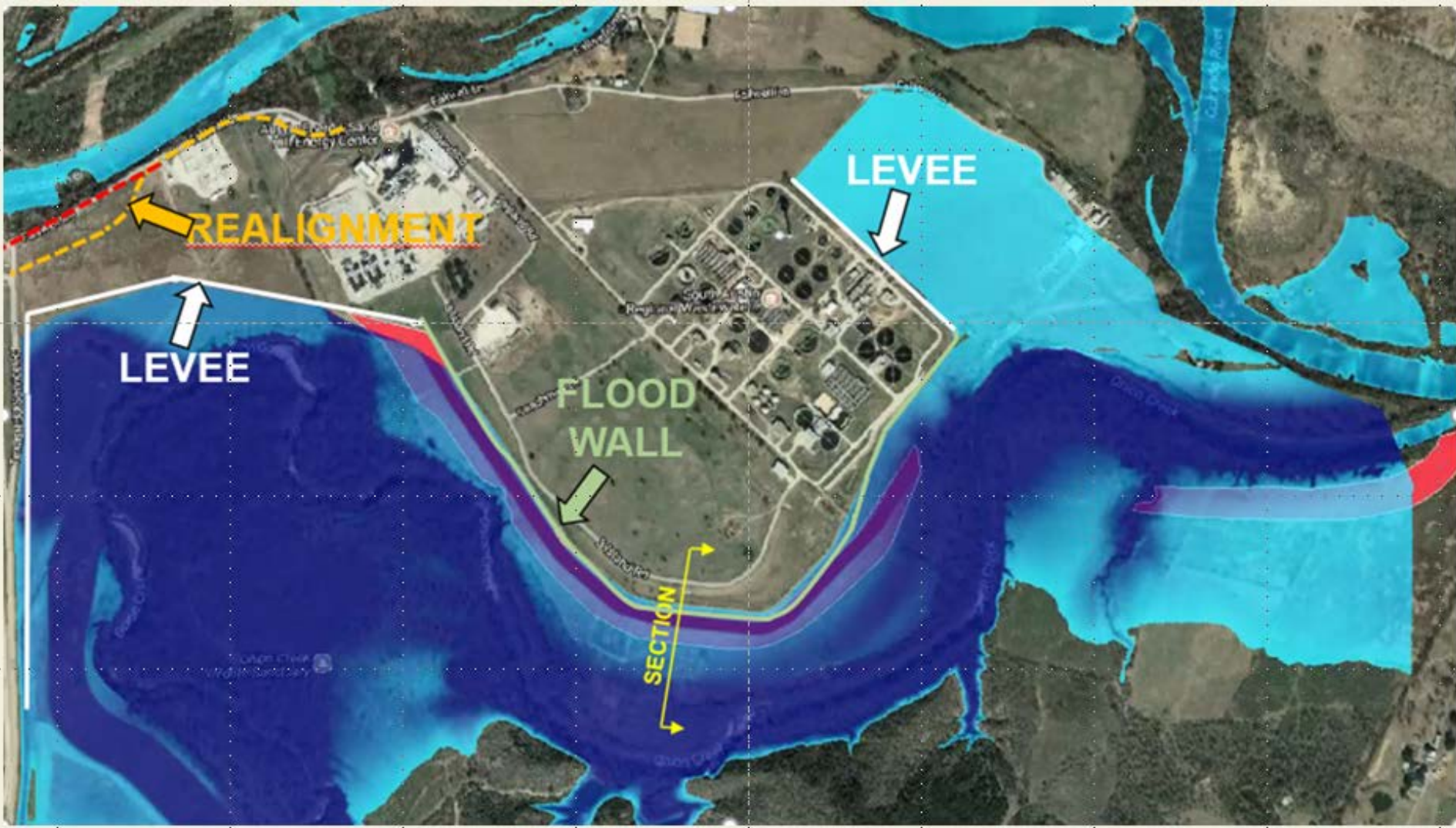
| Building | FEMA_0.2% (500-yr EX) | FF Elev | FF Elev Check | Exist Grade Elevation | Height Above Grd |
|--------------|--------------------------|---------------|------------------|--------------------------|---------------------|
| Train A PTB | 430.29 | 432.50 | OK | 427.00 | 5.50 |
| Train A SSPB | 429.38 | 431.50 | OK | 427.00 | 4.50 |
| Train B PTB | 431.28 | 433.50 | OK | 427.50 | 6.00 |
| Train B SSPB | 429.93 | 432.00 | OK | 427.00 | 5.00 |

Fallwell Lane



Fallwell Lane

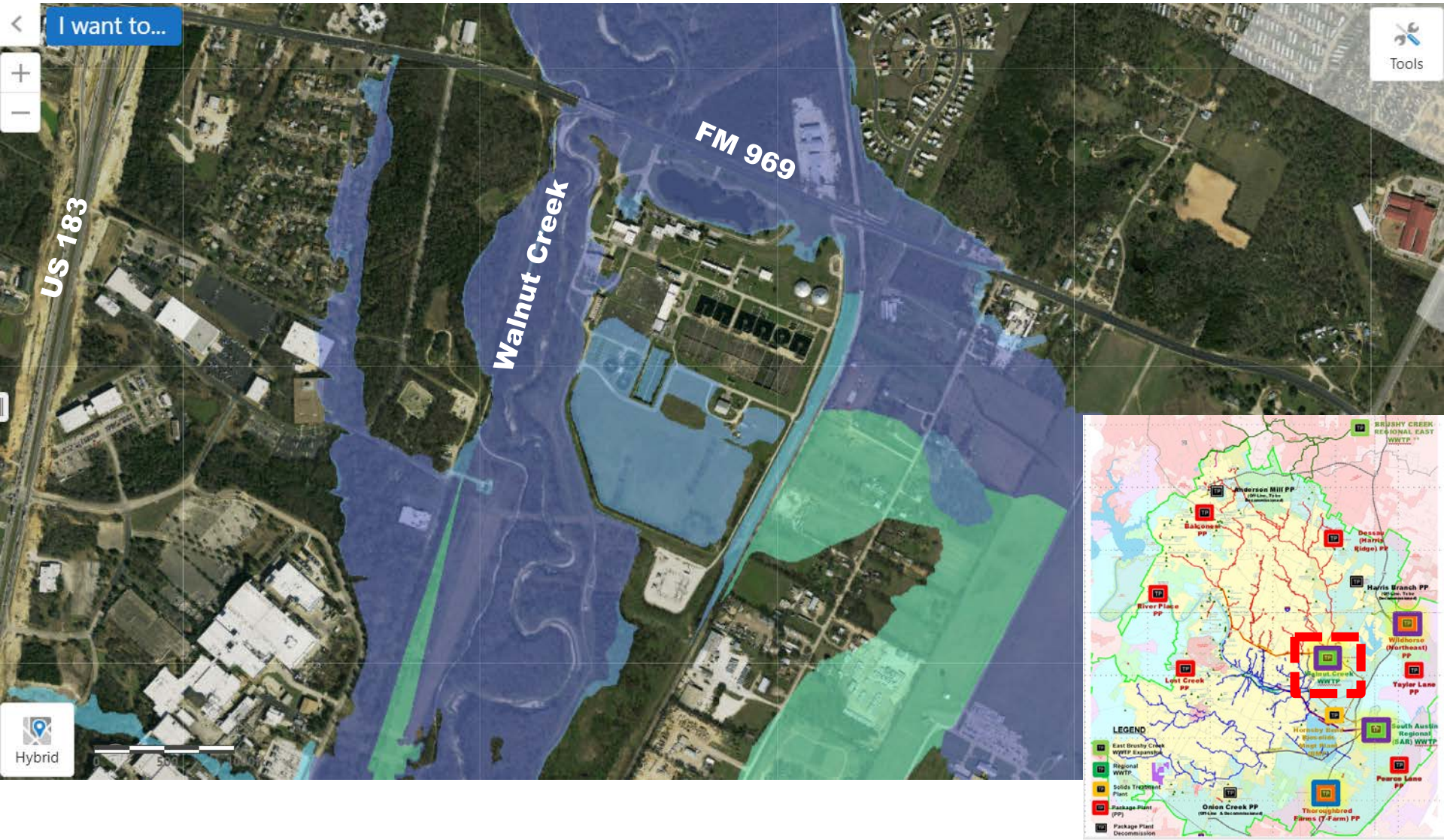
Flood Wall & Sheet Pile Option



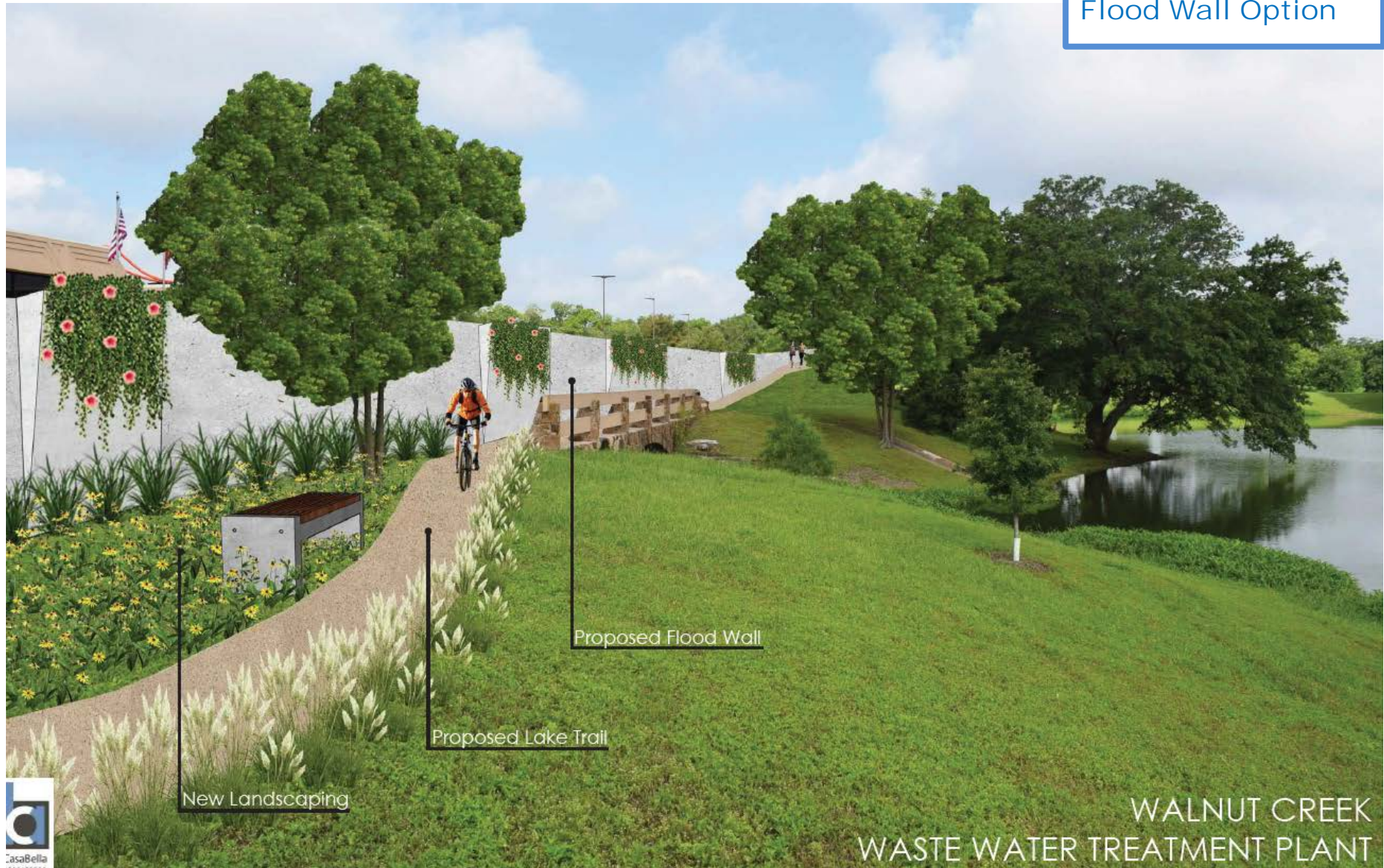
Fallwell Lane – Grant and Funding Opportunities

-  **Texas Water Development Board Flood Infrastructure Fund (FIF):**
Funding Agency: Texas
Administered by: TWDB (Texas Water Development Board)
-  **General Land Office Community Block Development Grant Mitigation (CDBG-MIT) funds:**
Funding Agency: HUD (Housing and Urban Development)
Administered by: GLO (Texas General Land Office)
-  **FEMA Flood Mitigation Assistance (FMA):**
Funding Agency: FEMA (Federal Emergency Management Agency)
Administered by: TWDB (Texas Water Development Board)
-  **FEMA Pre-Disaster Mitigation (PDM) / Building Resilient Infrastructure & Communities (BRIC):**
Funding Agency: FEMA (Federal Emergency Management Agency)
Administered by: TDEM (Texas Division of Emergency Management)
-  **Tax Increment Reinvestment Zone (TIRZ):**
Tax increment financing (TIF) is method local governments can use to pay for improvements that will draw private investment to an area. Tax increment financing isn't a new tax; instead, it redirects some of the ad valorem tax from property in a geographic area designated as a Tax Increment Reinvestment Zone (TIRZ) to pay for improvements in the zone.

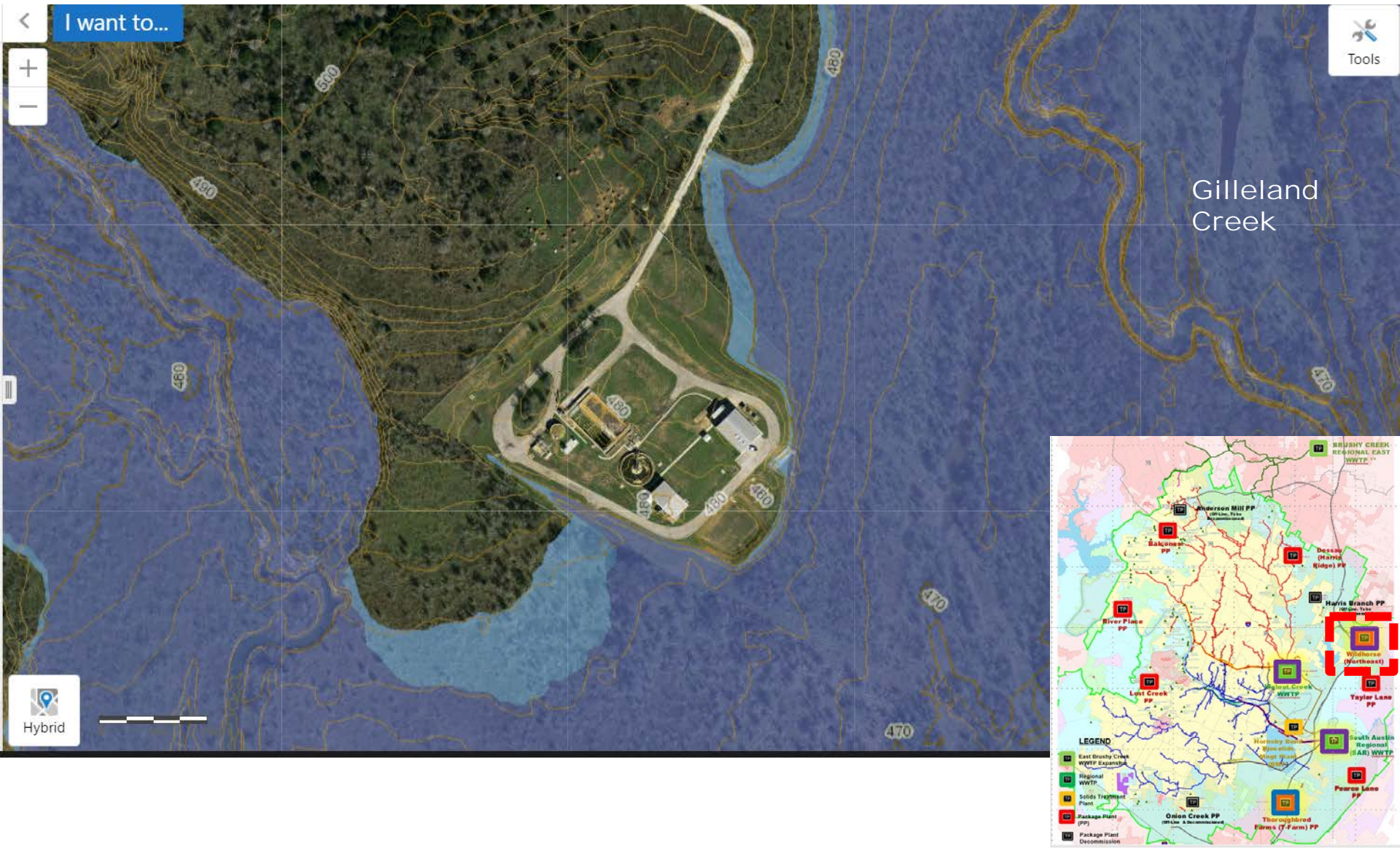
Walnut Creek WWTP



Flood Wall Option

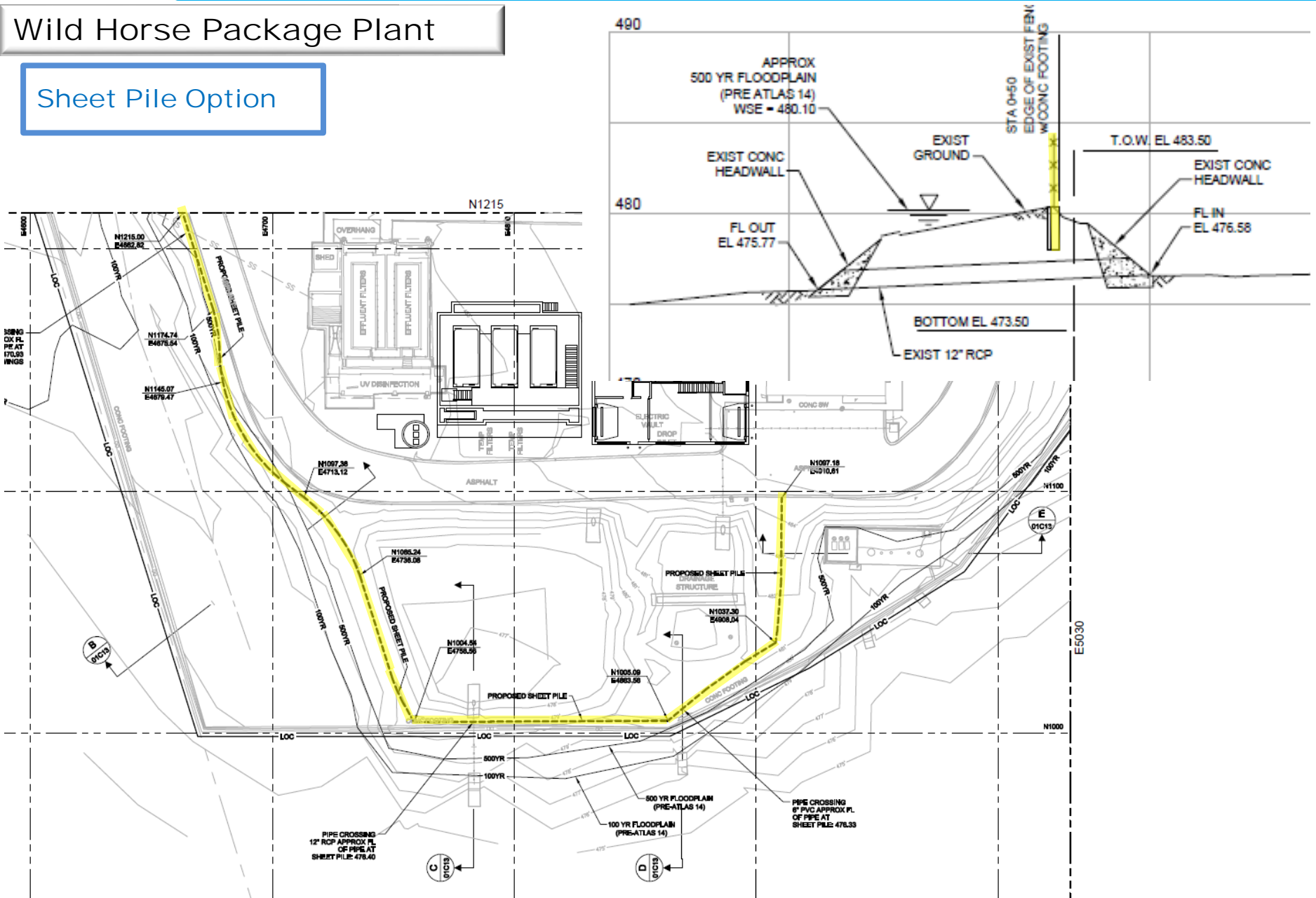


Wild Horse Package Plant

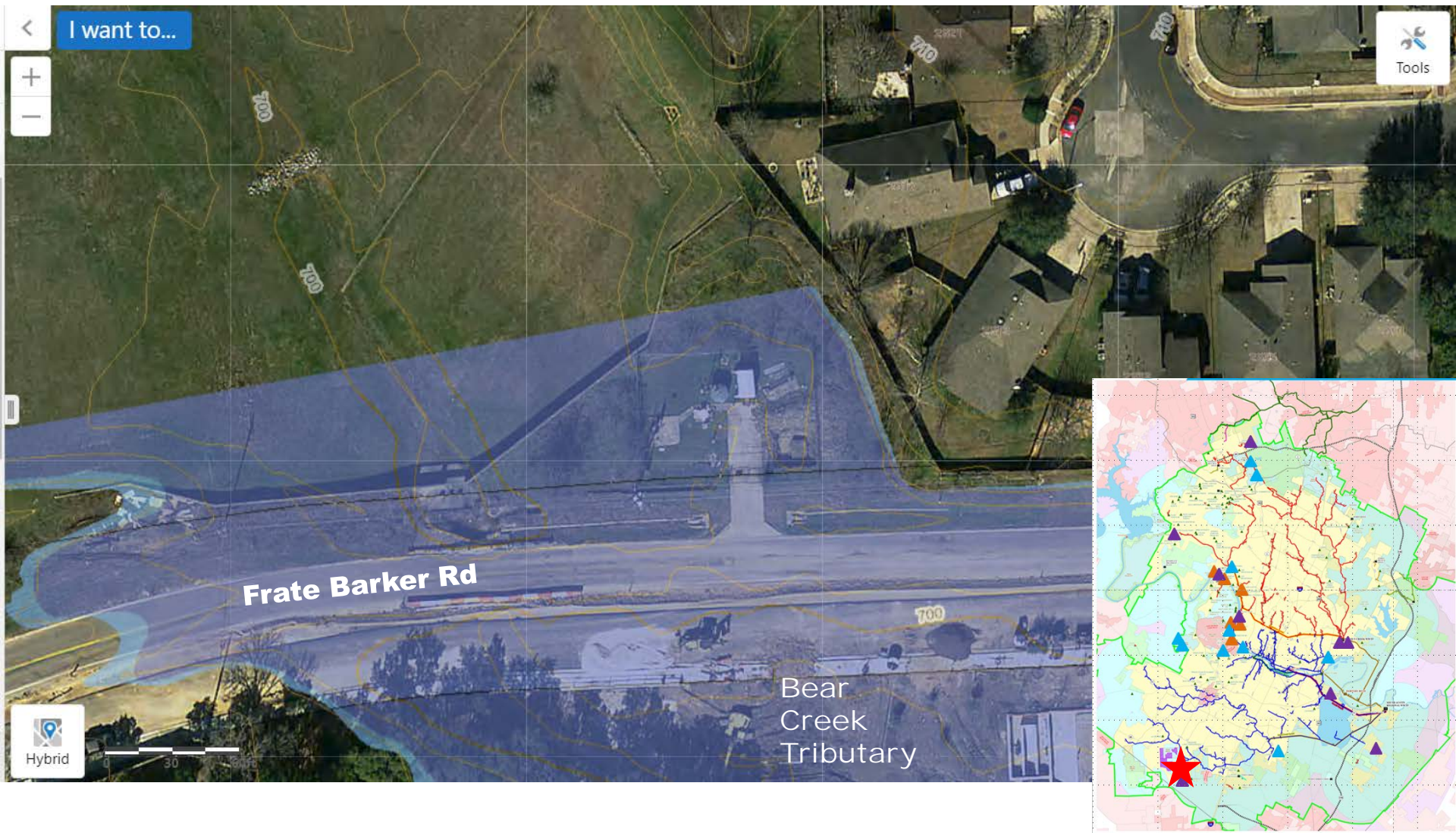


Wild Horse Package Plant

Sheet Pile Option



Southland Oaks Lift Station

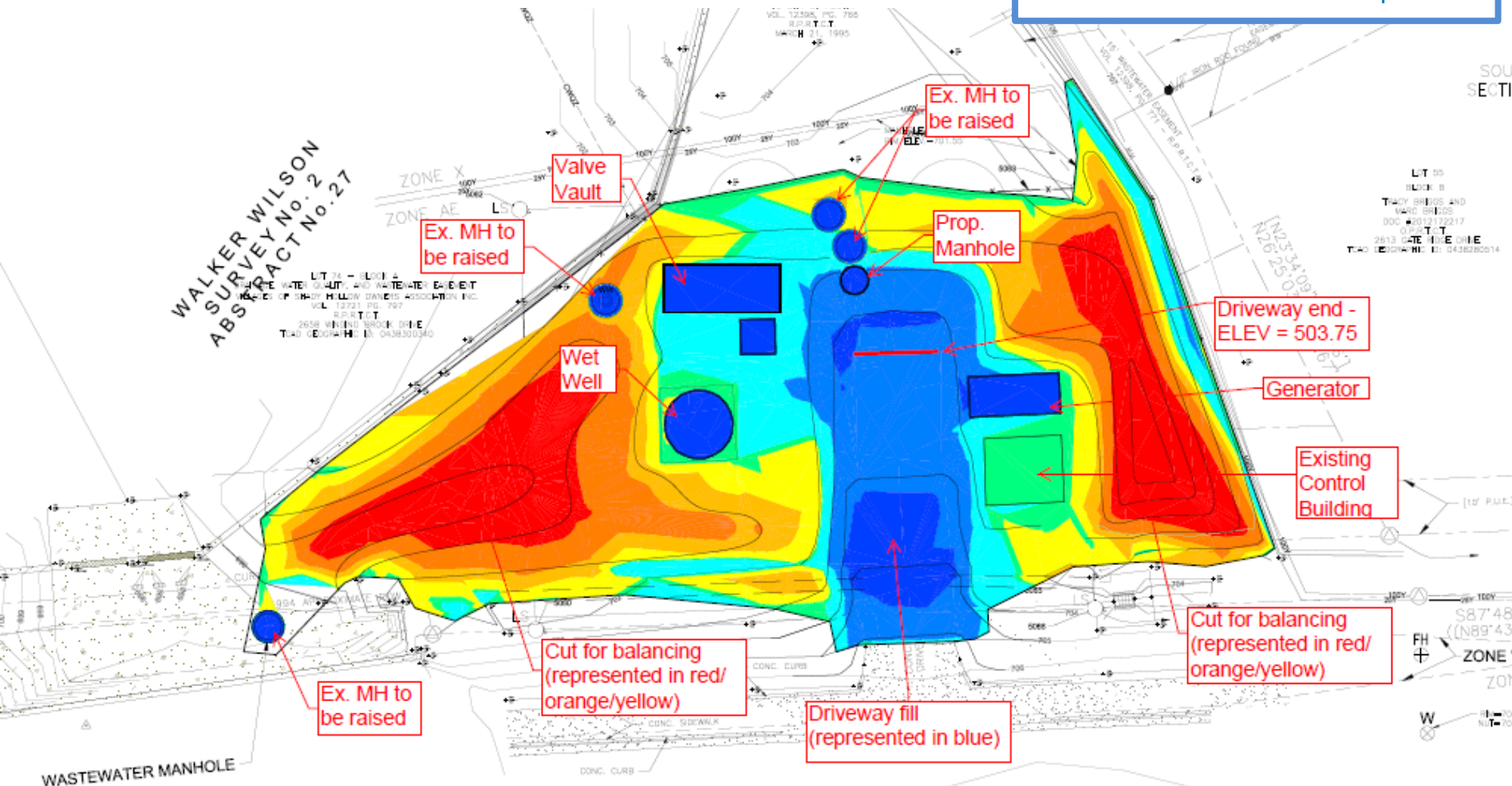


Southland Oaks Lift Station



Southland Oaks Lift Station

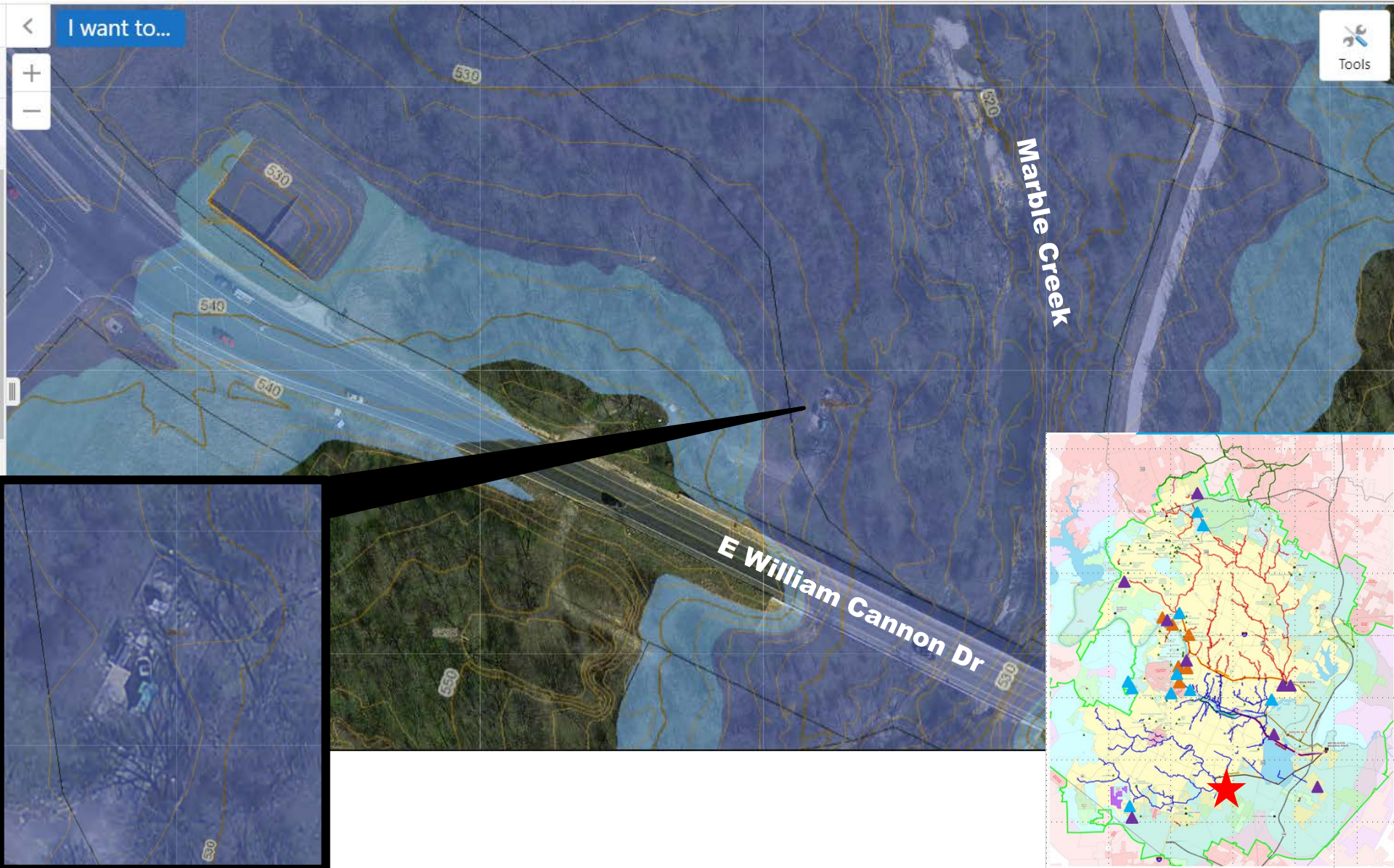
Cut and Fill Balance Option



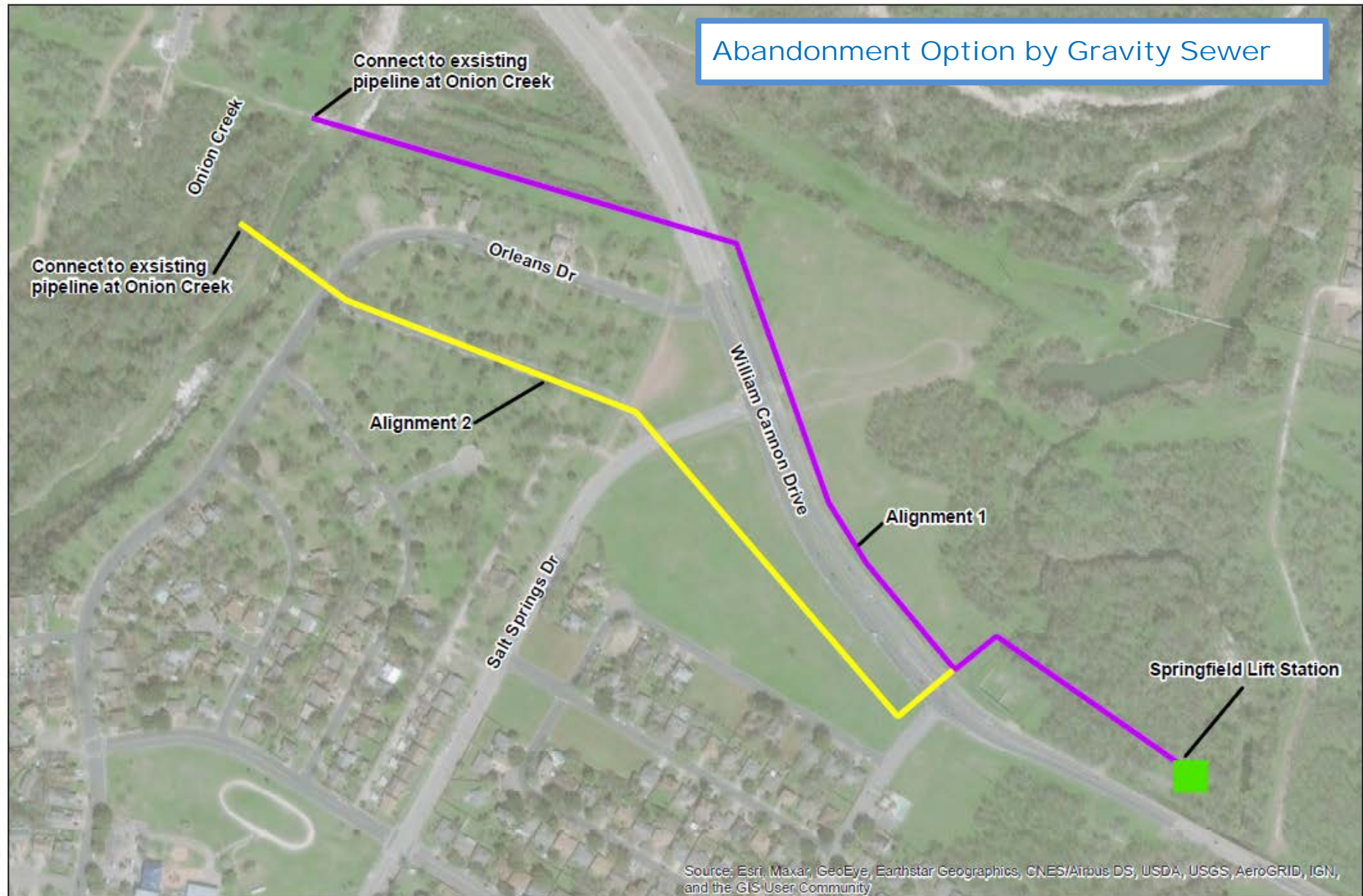
Cut/Fill Summary

| Name | Cut Factor | Fill Factor | 2d Area | Cut | Fill | Net |
|----------------|------------|-------------|------------------|----------------|----------------|-------------------|
| EX-GR-VS-PR-GR | 1.00 | 1.00 | 10313.75 Sq. Ft. | 199.04 Cu. Yd. | 195.05 Cu. Yd. | 3.98 Cu. Yd.<Cut> |
| Totals | | | 10313.75 Sq. Ft. | 199.04 Cu. Yd. | 195.05 Cu. Yd. | 3.98 Cu. Yd.<Cut> |

Springfield Lift Station



- Springfield Lift Station



Austin Water Flood Mitigation Strategies

- 💧 Each AW facility will need to be evaluated for its unique flood risk and best mitigation measures
 - 💧 Sites to be evaluated for flood berms/levees, raised buildings and structures, or flood proofing buildings at plants and lift stations
 - 💧 AW continues to convert dry-pit, canned lift stations to submersibles lift stations with electrical and controls located above ground and above the flood plain
- 💧 Current projects include:
 - 💧 Northwest and South Lift Station Area Improvements programs are addressing the Southland Oaks and Springfield Lift Stations
 - 💧 Parmer Lane Tunnel will eliminate risk at some of AW's more vulnerable lift stations, Lake Creek and Rattan Lift Stations
- 💧 AW will work collaboratively with Watershed Protection Department on a site-by-site basis to address flood risk while keeping a focus on Affordability – one of the City's six Strategic Outcomes

