

Bayou Preservation Association Water Quality Investigation: 2013

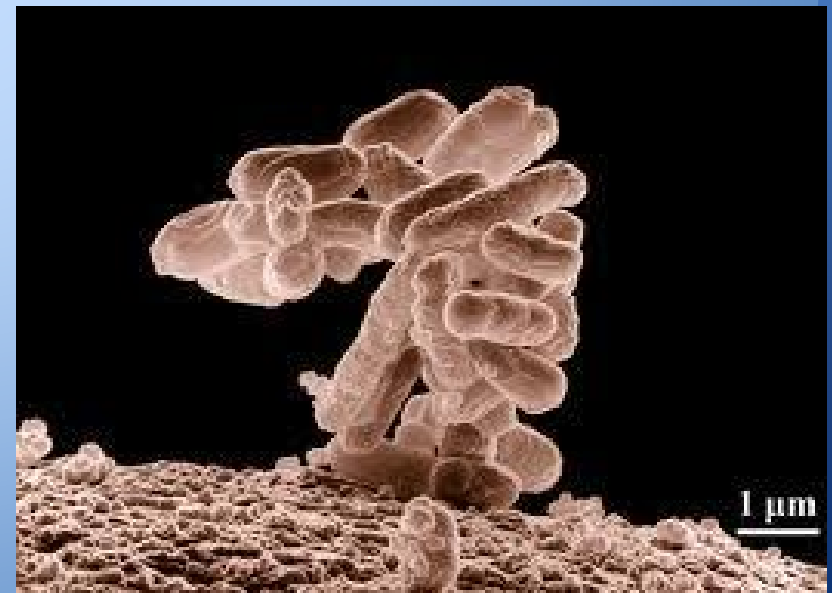
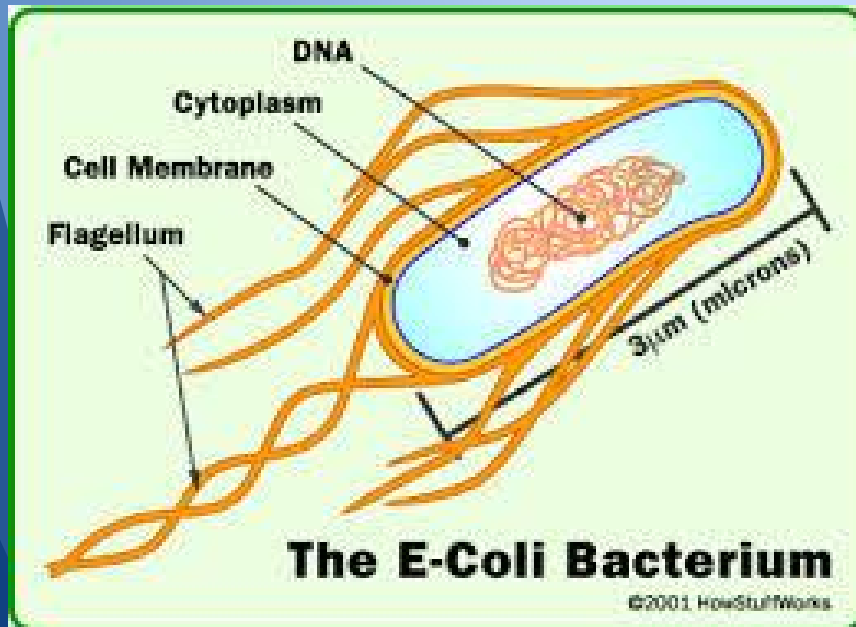


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Problem

Many of Harris County's bayous and waterways are out of compliance for fecal contamination indicator bacteria (*E. coli*) for contact recreation. (126 colony forming units(cfu) per 100 ml)



Using Existing Information

- Top 10 “Most Wanted” Streams as identified by BIG Annual Report, based on 7 yr rolling geomean
- Monitoring data for last year at and upstream of “Most Wanted” spots

Why *E. coli*? Where does it come from?



- *Escherichia coli* (*E. coli*) is a bacterium found in the gut of warm-blooded animals (including humans)
- *E. coli* is used as an indicator bacteria species for fecal contamination
- Pollution sources can be wildlife, pets, agricultural use, birds, human waste, sewage treatment/collection



Objectives

- Collaborate with the Bacteria Implementation Group(BIG) Implementation Plan (I-Plan) by adding further study and data collection on impaired waterways.
- Search out possible nonpoint source and point source pollutants



What Data Did We Collect?

Quantitative Collections

E. coli

Water Temperature

Dissolved Oxygen

Salinity

Conductivity

pH

Nitrate

Chlorine (total)

Secchi Tube Depth

Turbidity (FNU)

Qualitative Observations

Present Weather

Water Flow

Water Conditions

Algae Cover

Water Color

Water Clarity

Water Odor

Materials & Probes

YSI Probe

- Water Temp
- Dissolved Oxygen
- Salinity
- Conductivity
- pH
- Nitrates

Turbidity Meter (FNU)

Chlorine Colorimeter

Secchi Tube

Coliscan EasyGel



Procedure

1. Collect Data

- a. YSI
- b. Turbidity
- c. Secchi
- d. Chlorine
- e. *E. coli*
- f. GPS location

2. Plate samples

- a. 3 dilutions (1ml, 2ml, 5ml)

3. Count results in 28 hrs



Hunting Bayou Watershed

Schramm Gully



from 2012 to 2013

- Last year BPA found 3 potential sources in Schramm Gully and reported to City of Houston
 - Schramm Gully went from #2 "Most Wanted" to #8
 - Success!!
- One of the same pipes was leaking this year

Greens Bayou Watershed

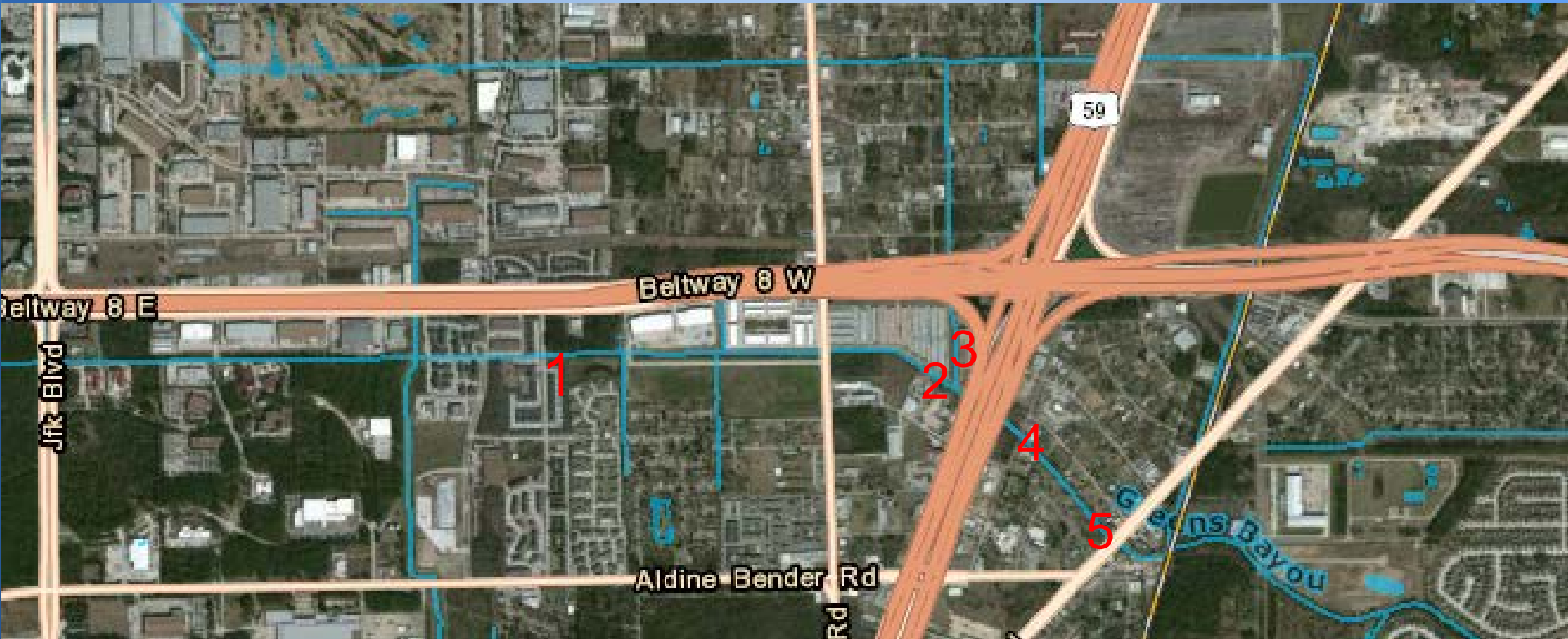
P-133, and tributaries of P-133



Unnamed Tributary of Greens Bayou (P-133)

- # 6 on the BIG's "Top Ten Most Wanted" list; station #16676
- Mean: 9,050 cfu
- Geometric mean: 2,810 cfu
- Has both Waste Water Treatment Facilities (WWTF) and On Site Sewage Facilities (OSSF)

Where We Sampled



1) WWTF: 0 cfu

2) U.S. P133-02: 37 cfu





3) P133-02: 777 cfu 4) D.S. 59: 470 cfu

5) Edmonds Park: 317 cfu

Why are we getting these numbers?

23 OSSFs North

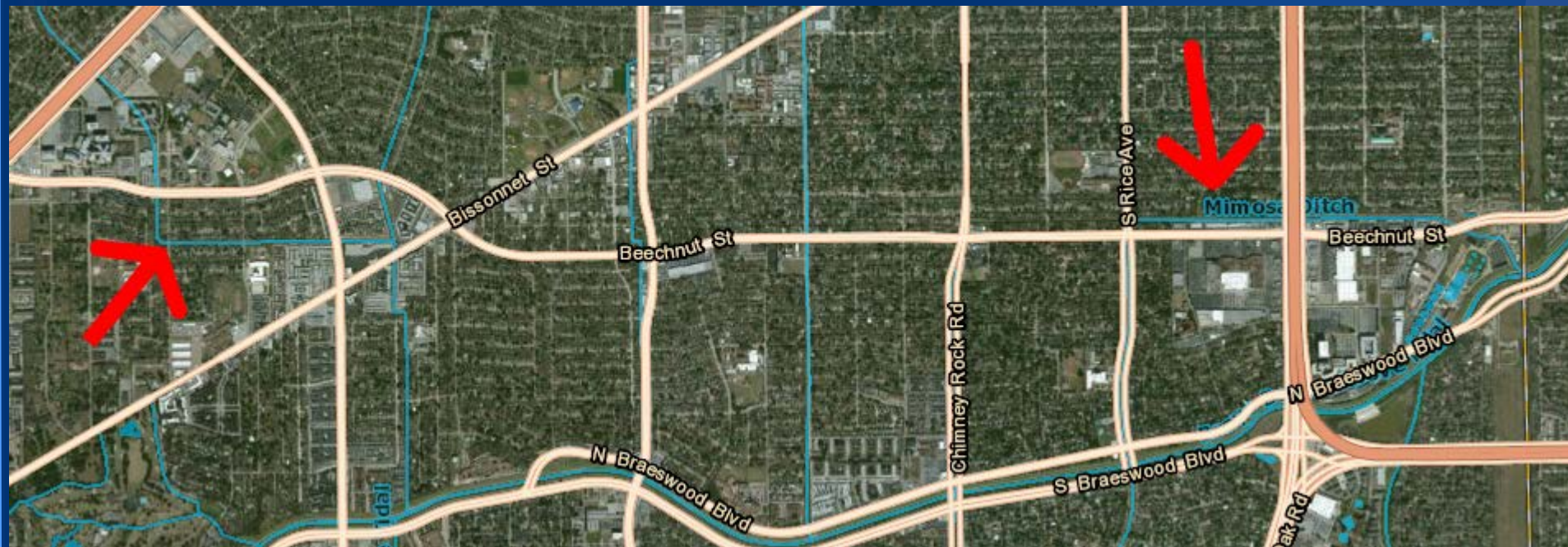


-  Dry during sampling
-  Underground
-  Waste Water Treatment Facility
-  Monitoring Station

15 OSSFs South

Brays Bayou Watershed

Bintliff Ditch, Mimosa Ditch



Mimosa Ditch

- #5 on the BIG I-Plan; station #18691
- Mean: 11,246 cfu
- Geometric Mean 2,904 cfu
- Reported to the TCEQ

- 1) Ferris: 6,467 cfu 4) Newcastle: 3,697 cfu
2) S. Rice: 16,300 cfu 5) WWTF: 80 cfu
3) 610 Loop: 1,280 cfu

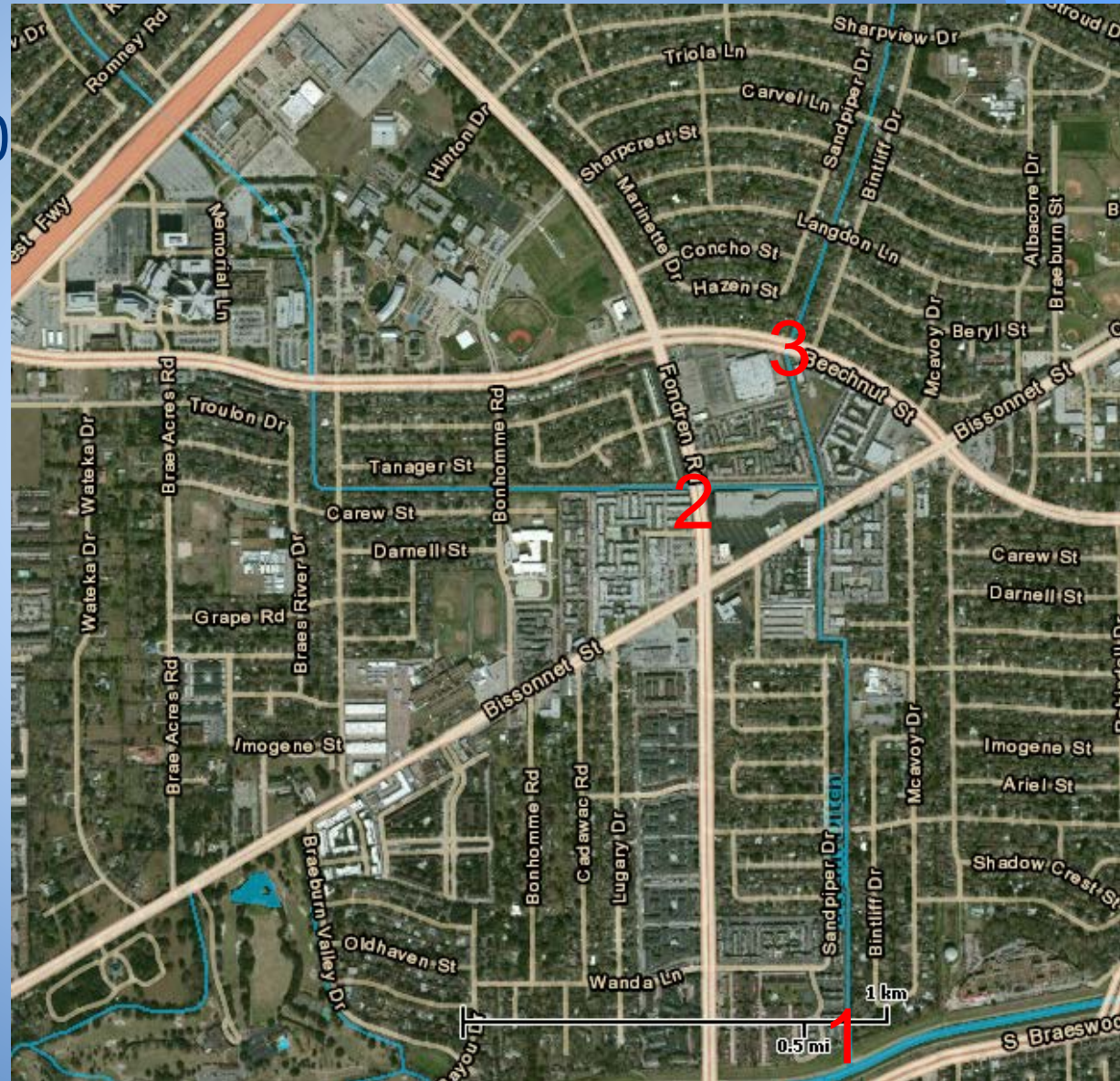


Bintliff Ditch (D-133)

- The #2 spot listed on the BIG's "Top 10 Most Wanted"
- Mean: 17,024 cfu
- Geometric Mean: 4,250 cfu
- Two branches upstream of the Houston Health sample site; station #18690 (D-133 & D-133-01)
- "Followed the bacteria" upstream

D-133-01

- 1) Brays: 4,570 cfu
- 2) Fondren: 9,357 cfu
- 3) Beechnut: 296 cfu



Bracketing

1)Romney:

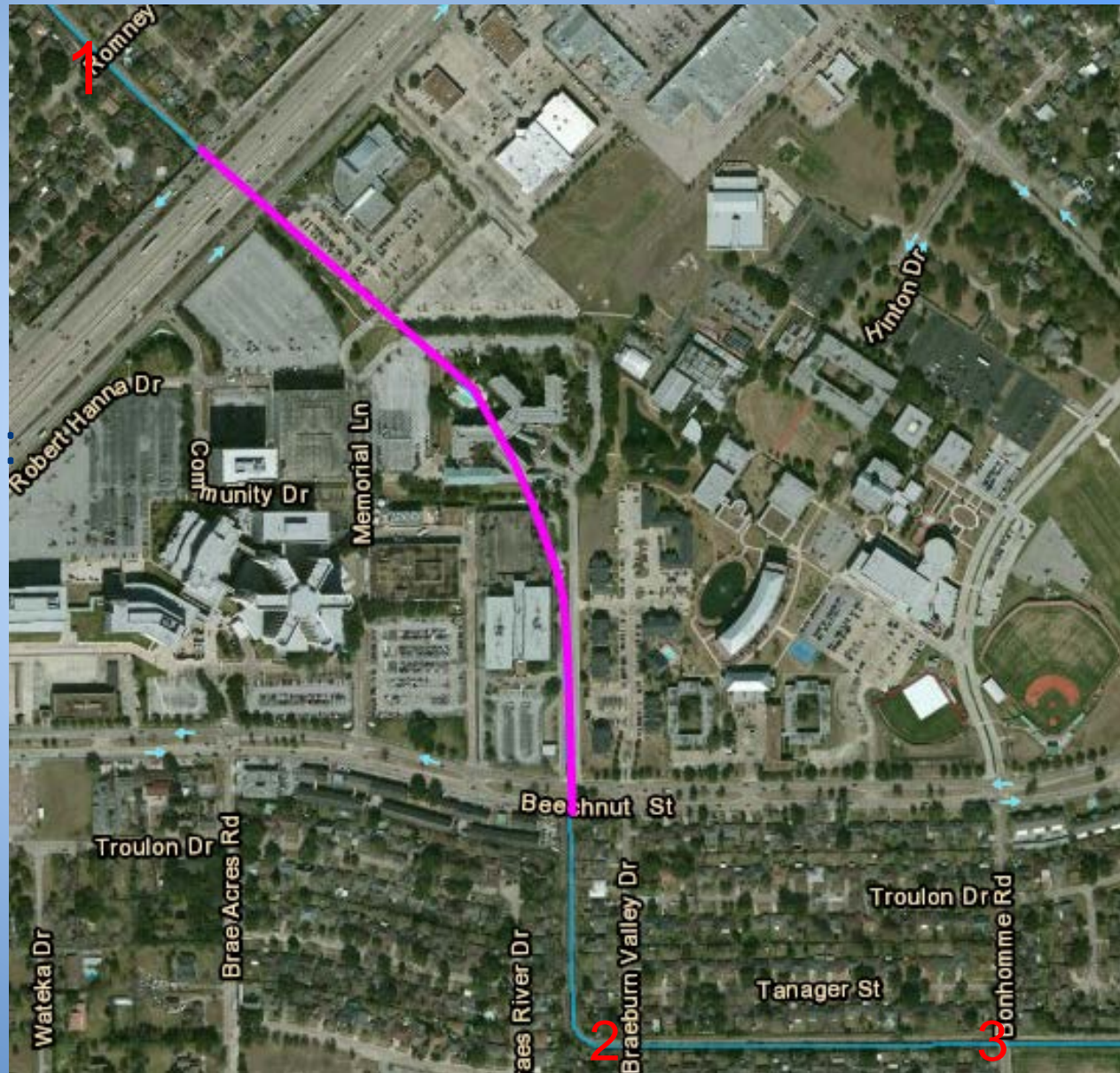
123 cfu

2)Braeburn Valley:

10,250 cfu

3)Bonhomme:

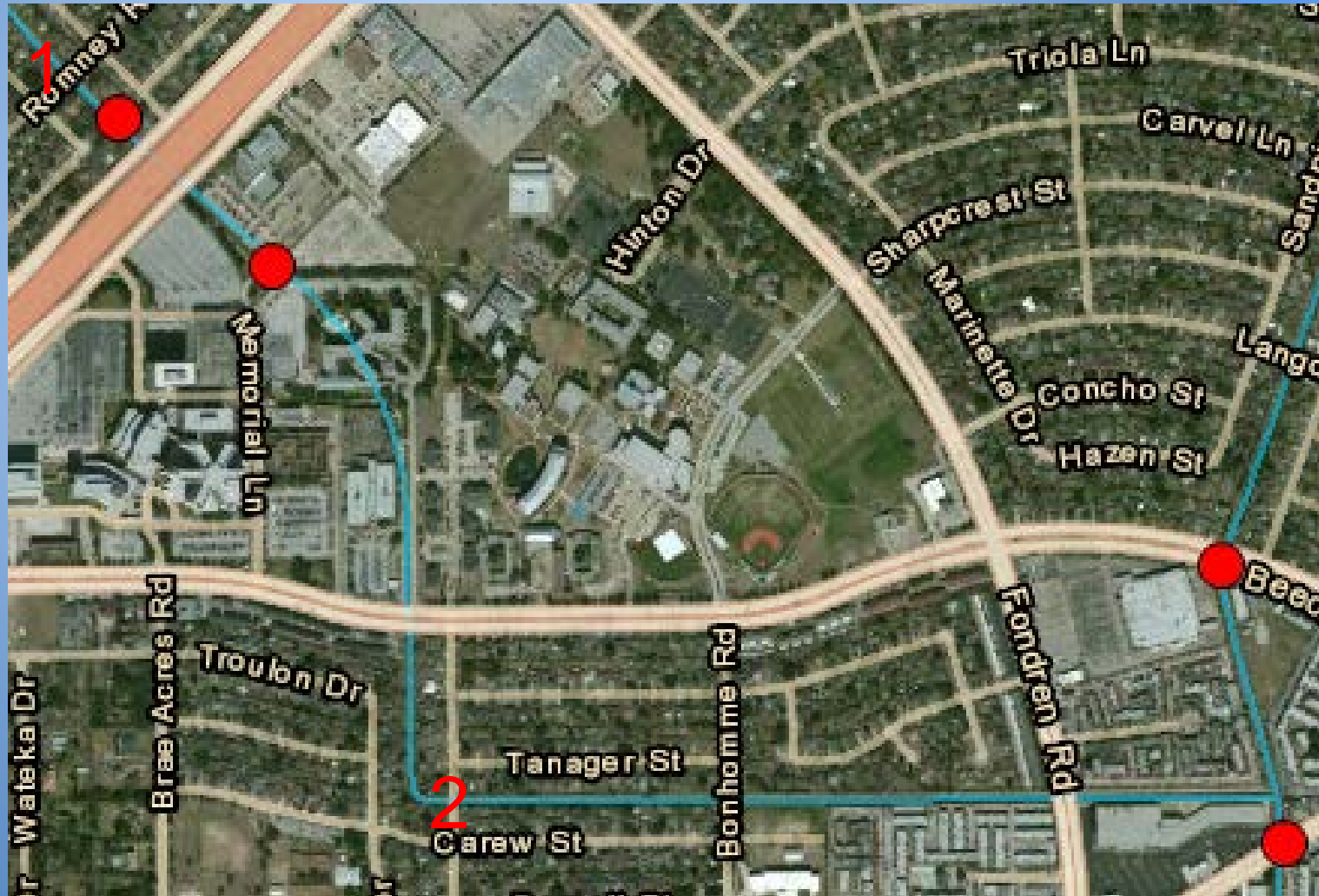
6,467 cfu



1) Romney: 221 cfu

What was done?

2) Braeburn Valley: 1,226 cfu





Conclusions

- **Schramm Gully: #2 to #8;** City of Houston will address the issue further
- **Greens watershed:** Needs further investigation; unsure of results
- **Mimosa Ditch:** Reported to TCEQ
- **Bintliff Ditch:** Reported; resolved by City of Houston

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Questions???

