

Curry Court and Old Indian Trail Watershed Study

COMMITTEE OF THE WHOLE MEETING

September 22, 2021





TEAM INTRODUCTIONS

Ann-Marie Kirsch, PE

AE2S Project Manager

Claudia Guy, PE

City of Fitchburg Environmental Engineer

Outline



History of Flooding

Public Engagement

Alternatives Considered

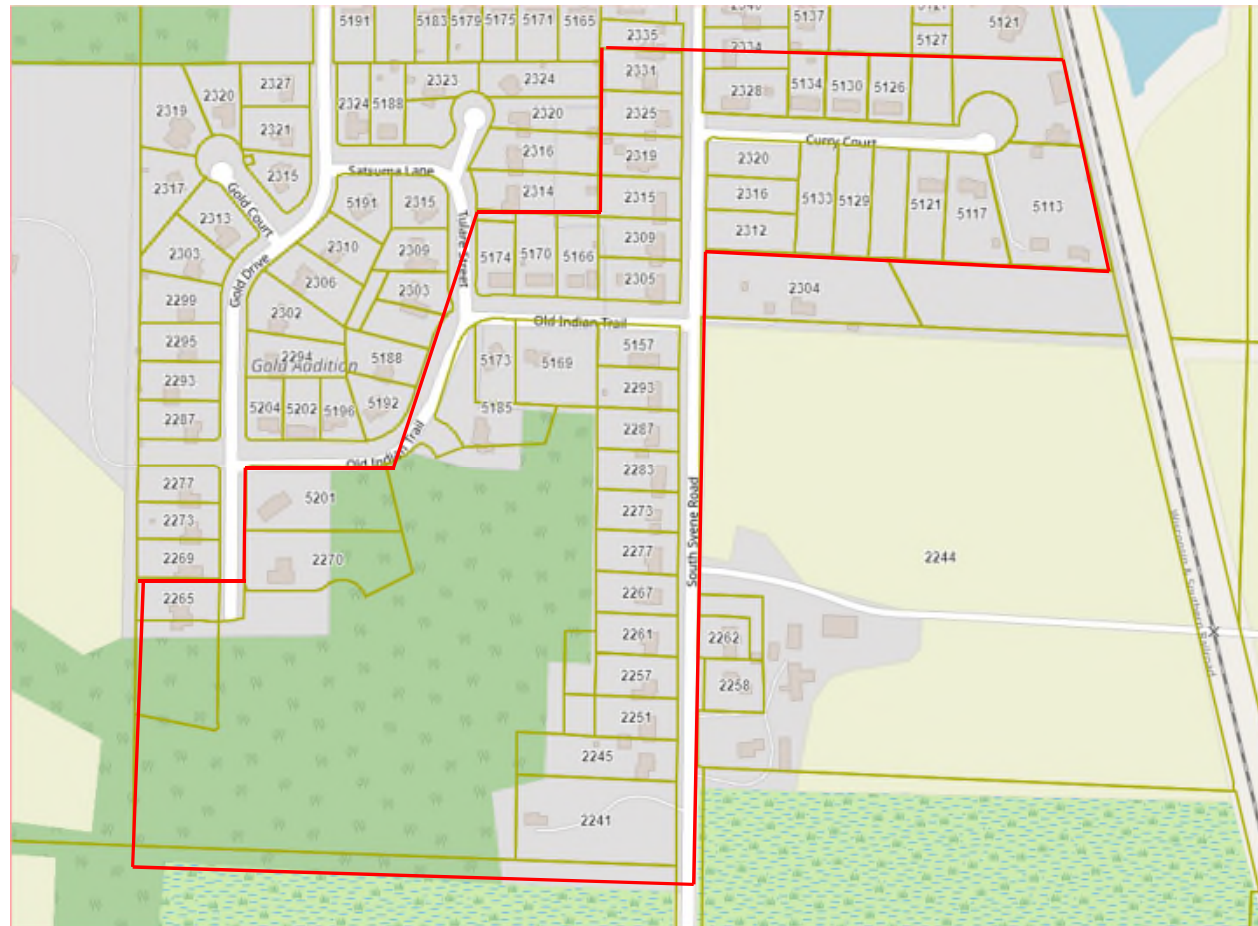
- Wetland Overflow/Railroad Culvert
- Old Indian Trail
- S. Syene Road
- Pump Station to Swan Creek
- South to Murphy's Creek
- Sump Pump Collection System
- Pond in Gold's Addition Park
- Pump Station to Murphy's Creek

Recommendations

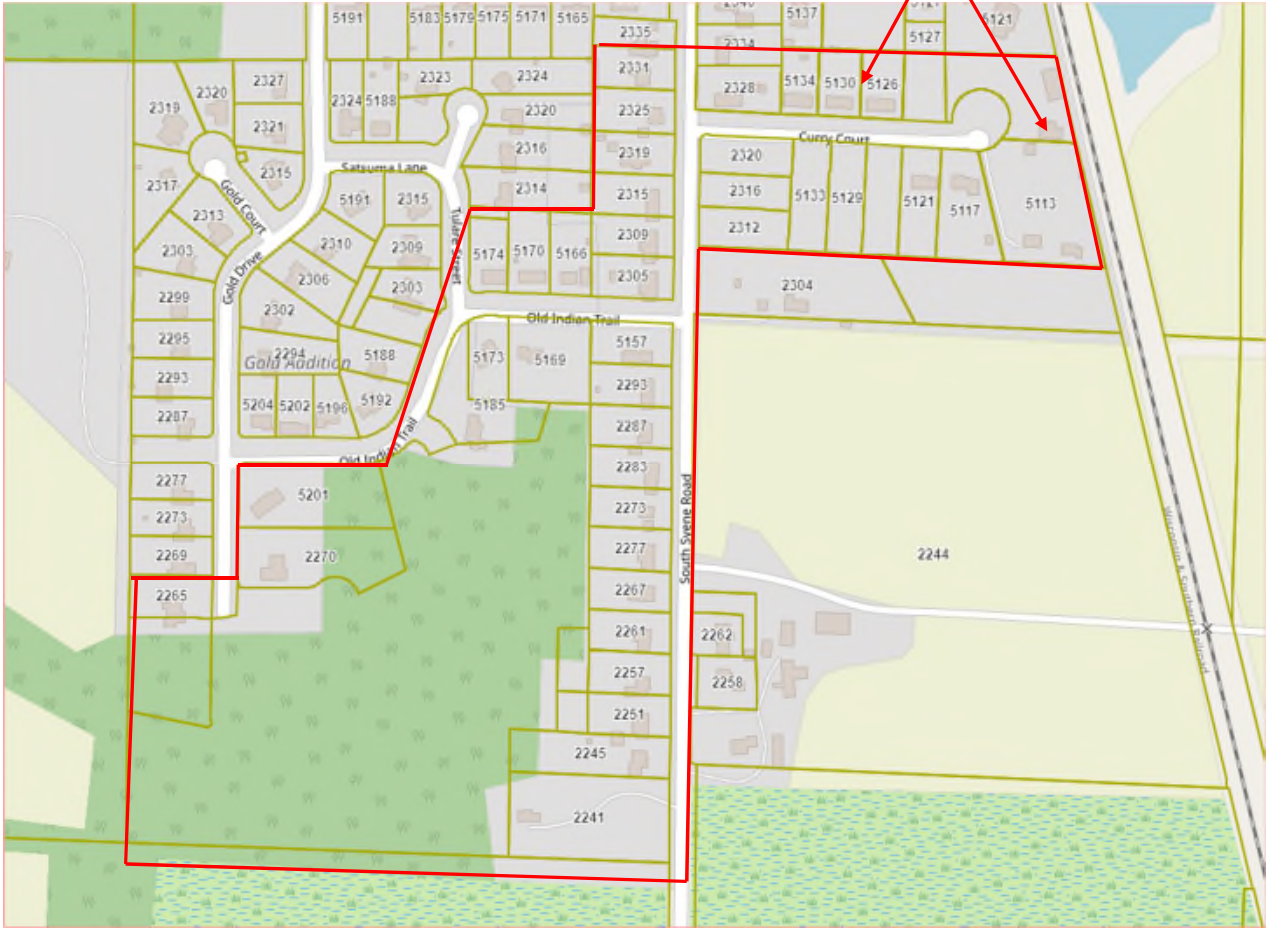
Next Steps

HISTORY OF FLOODING

PRIMARY STUDY AREA

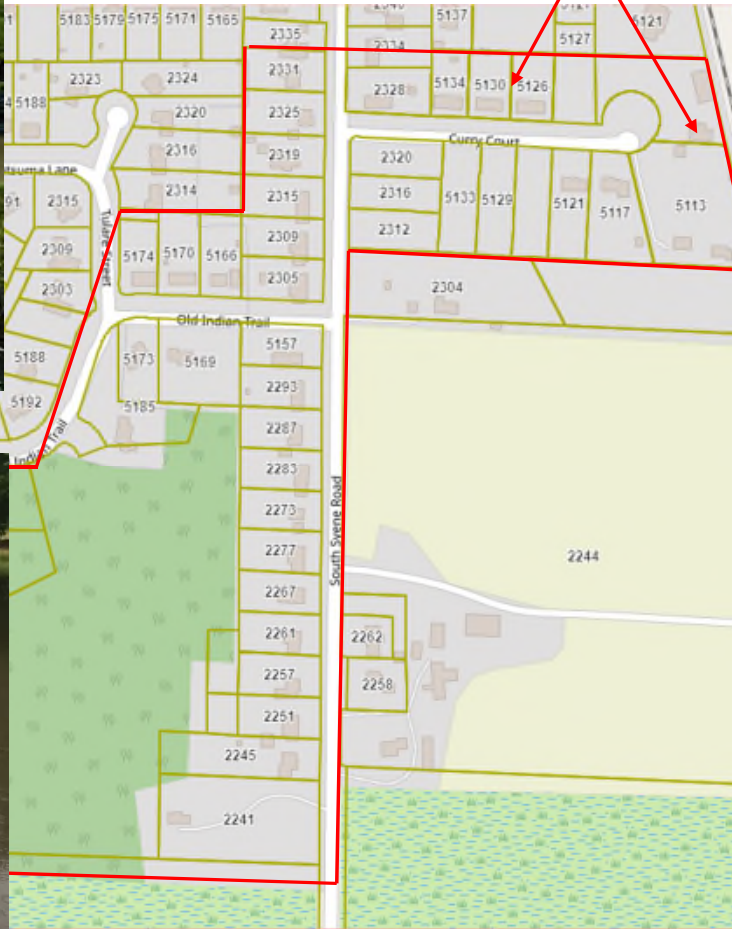


Structures flood during heavy rainfall. Flash flooding in street.

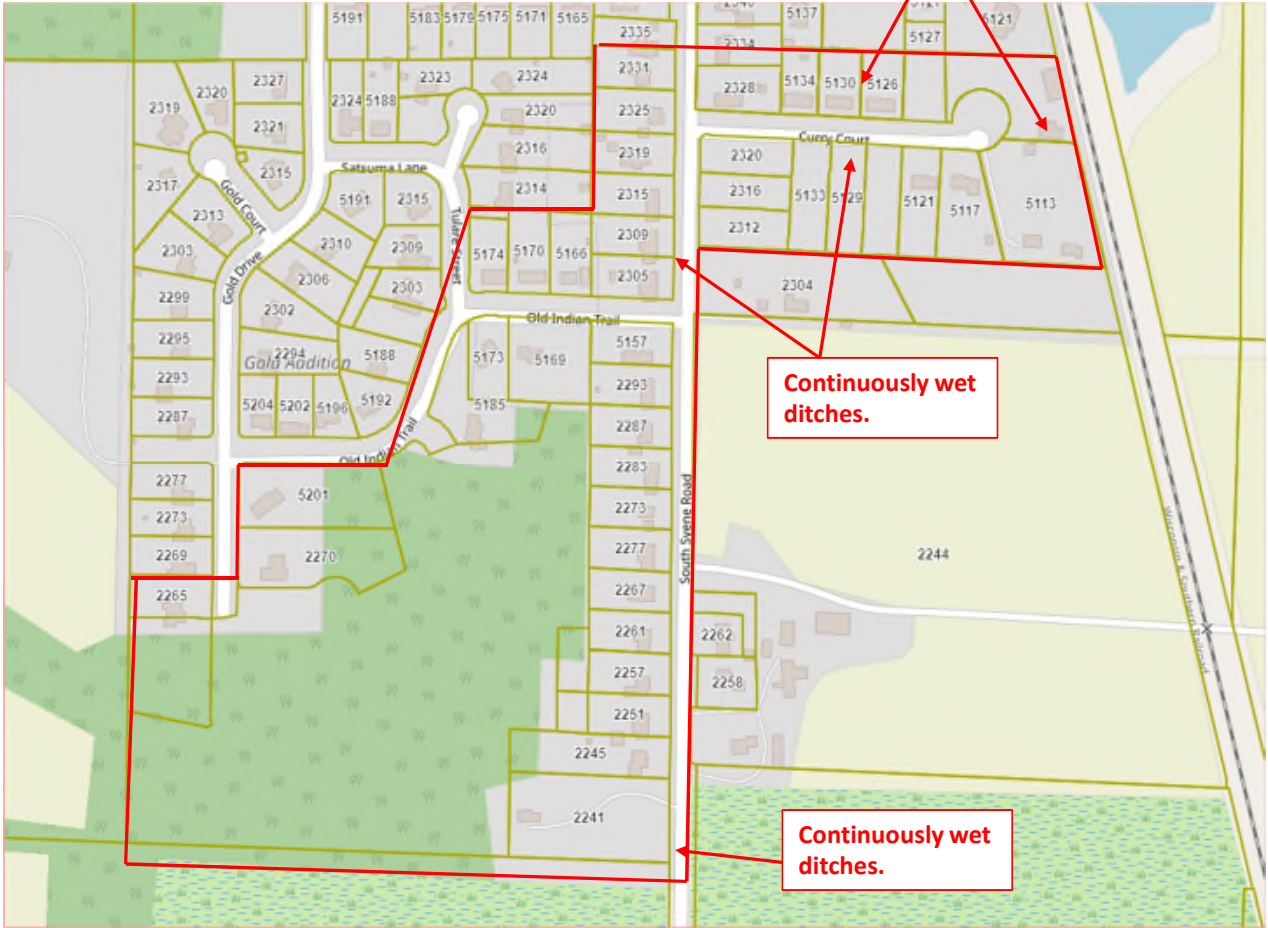




Structures flood during heavy rainfall. Flash flooding in street.



Structures flood during heavy rainfall. Flash flooding in street.



Continuously wet ditches.

Continuously wet ditches.



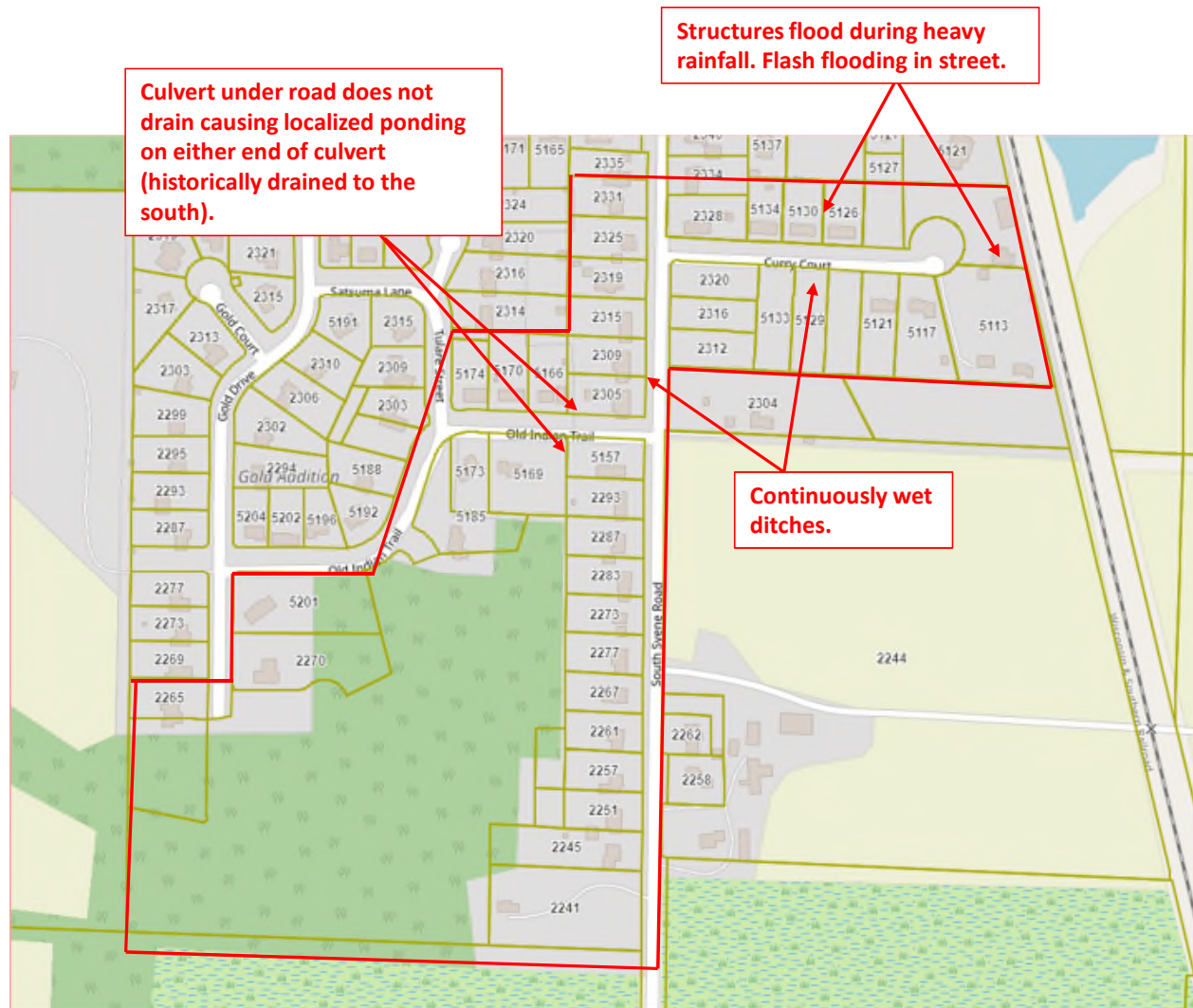
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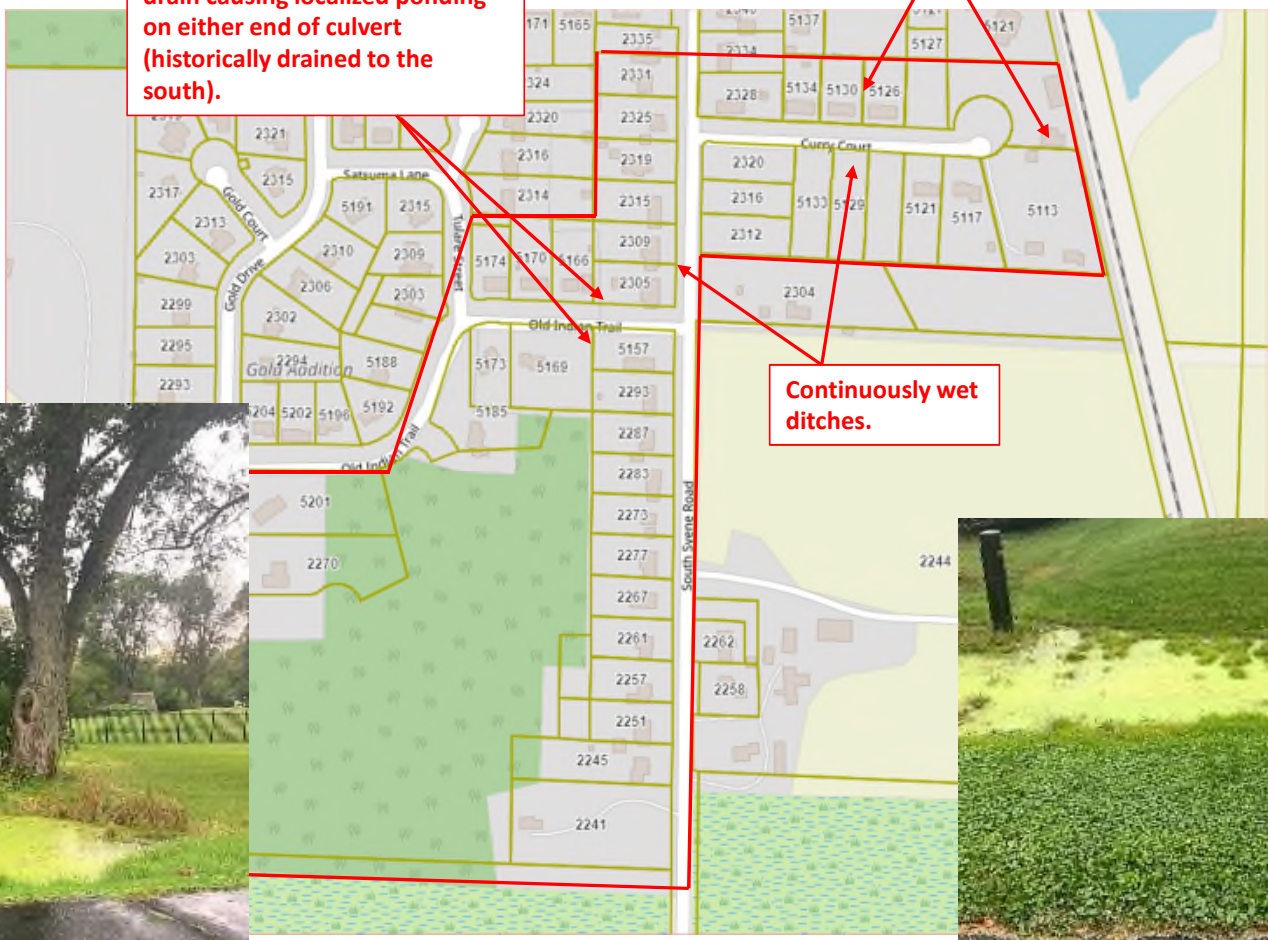


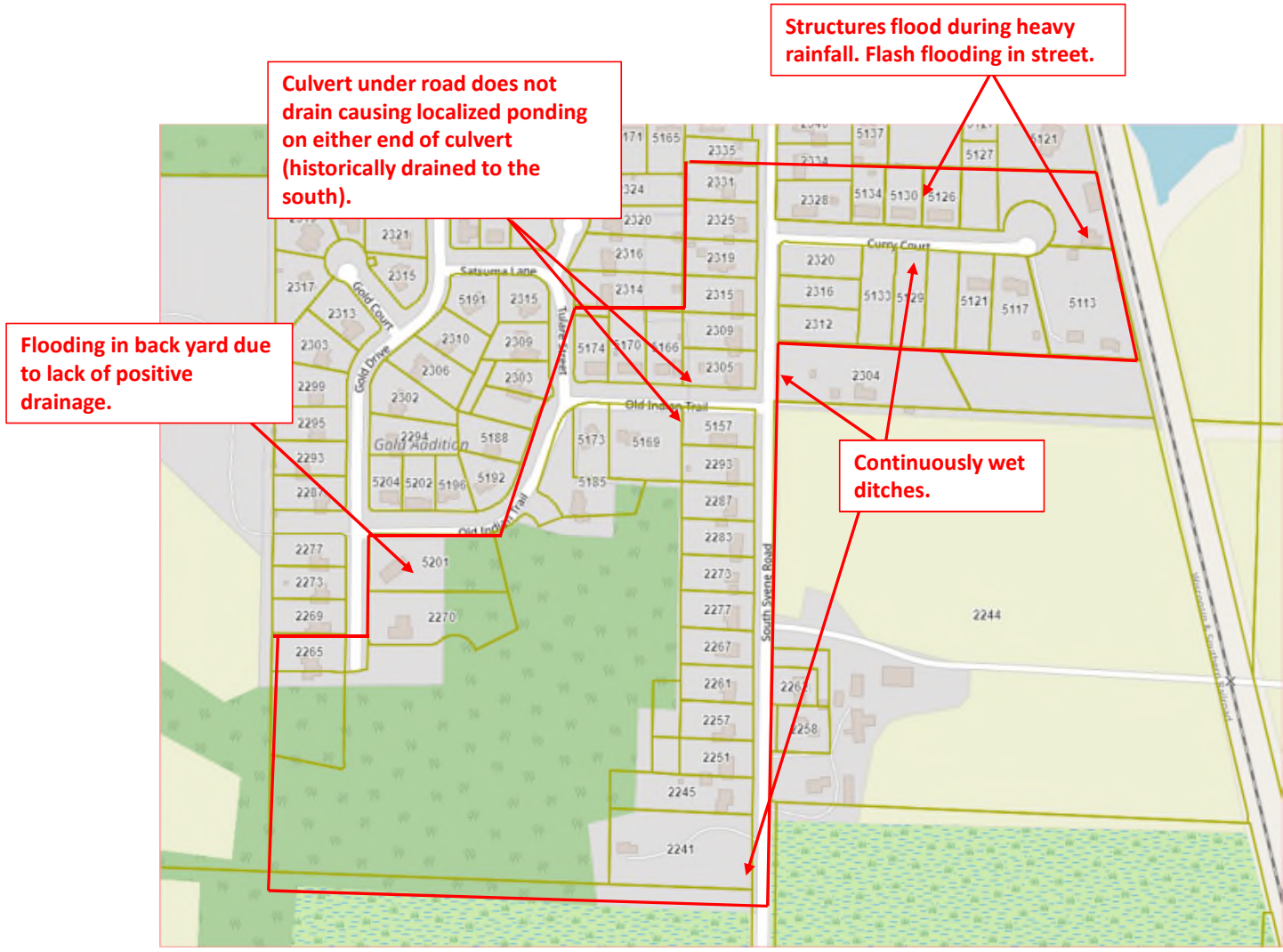


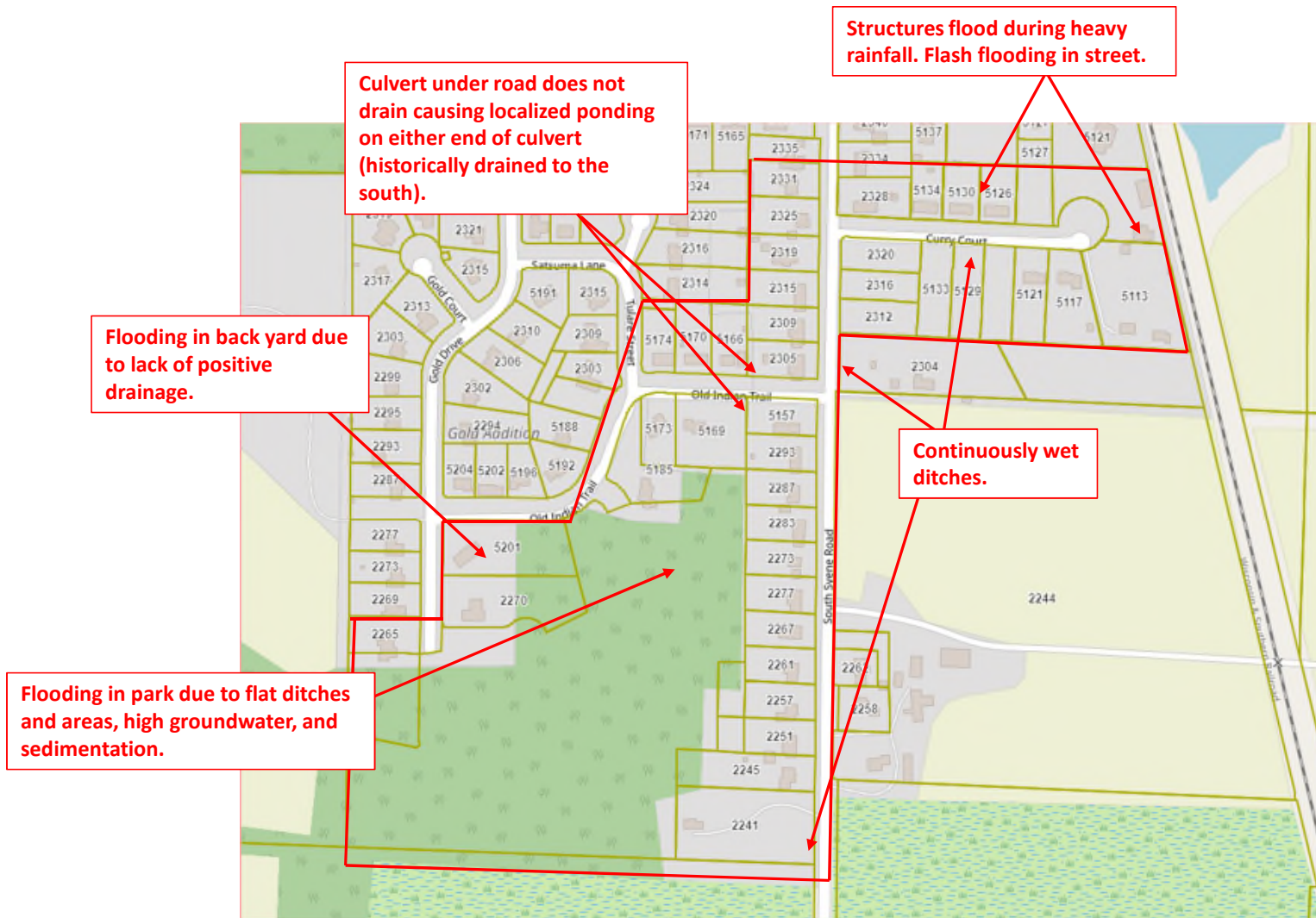
Culvert under road does not drain causing localized ponding on either end of culvert (historically drained to the south).

Structures flood during heavy rainfall. Flash flooding in street.

Continuously wet ditches.







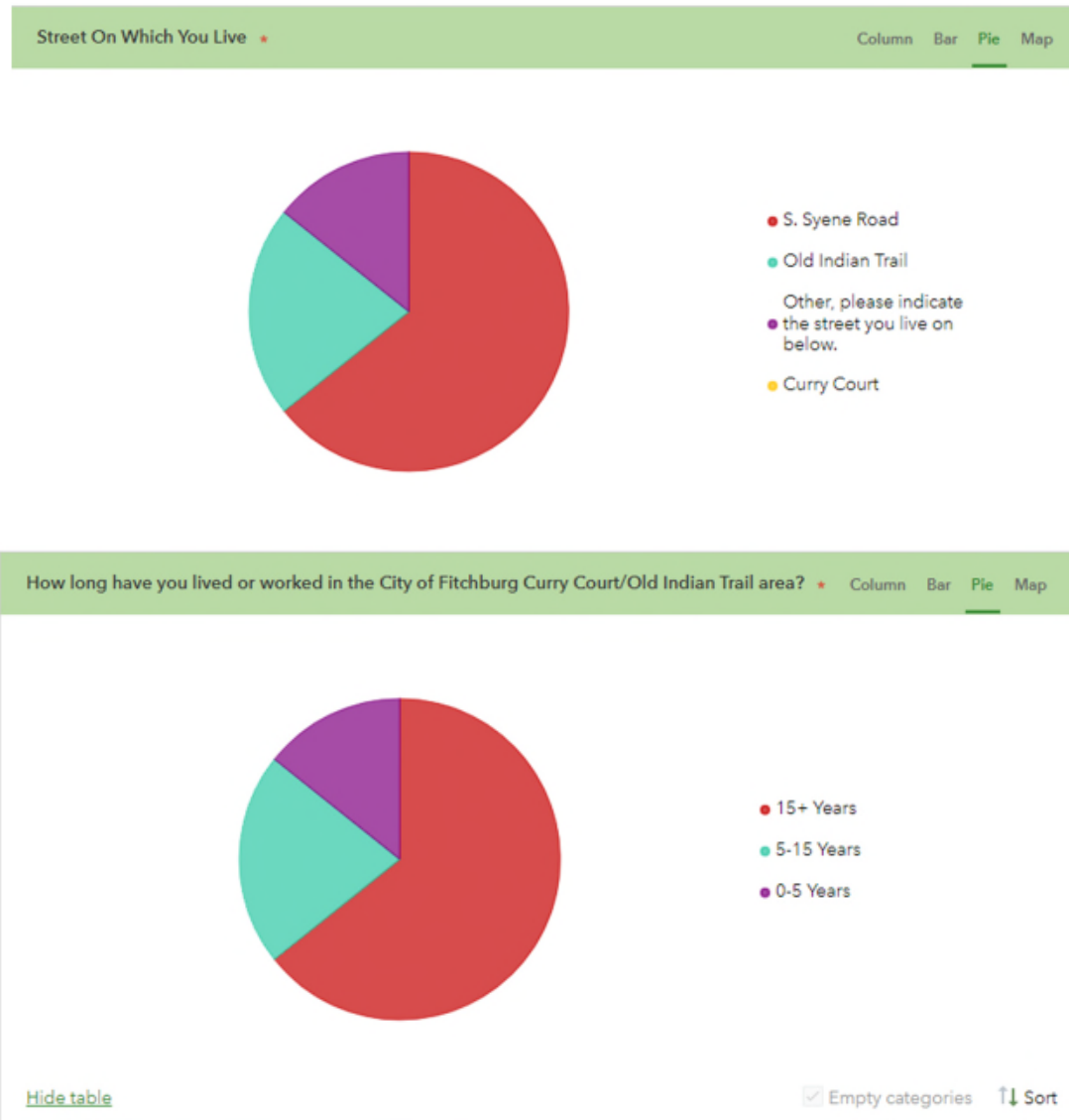


PUBLIC ENGAGEMENT

Public Information Meetings

- PIM 1 (1/6/21) – To introduce the project to the neighborhood and solicit input regarding existing problems as well as input regarding potential solutions.
Survey to solicit input regarding current concerns and potential solutions
- PIM 2 (7/29/21) – To review study results with residents (minus the pumping station alternative).
Survey to solicit input on sump pump collection system
- Committee of Whole (9/22/21) – To review study results with COW and solicit feedback on next steps.

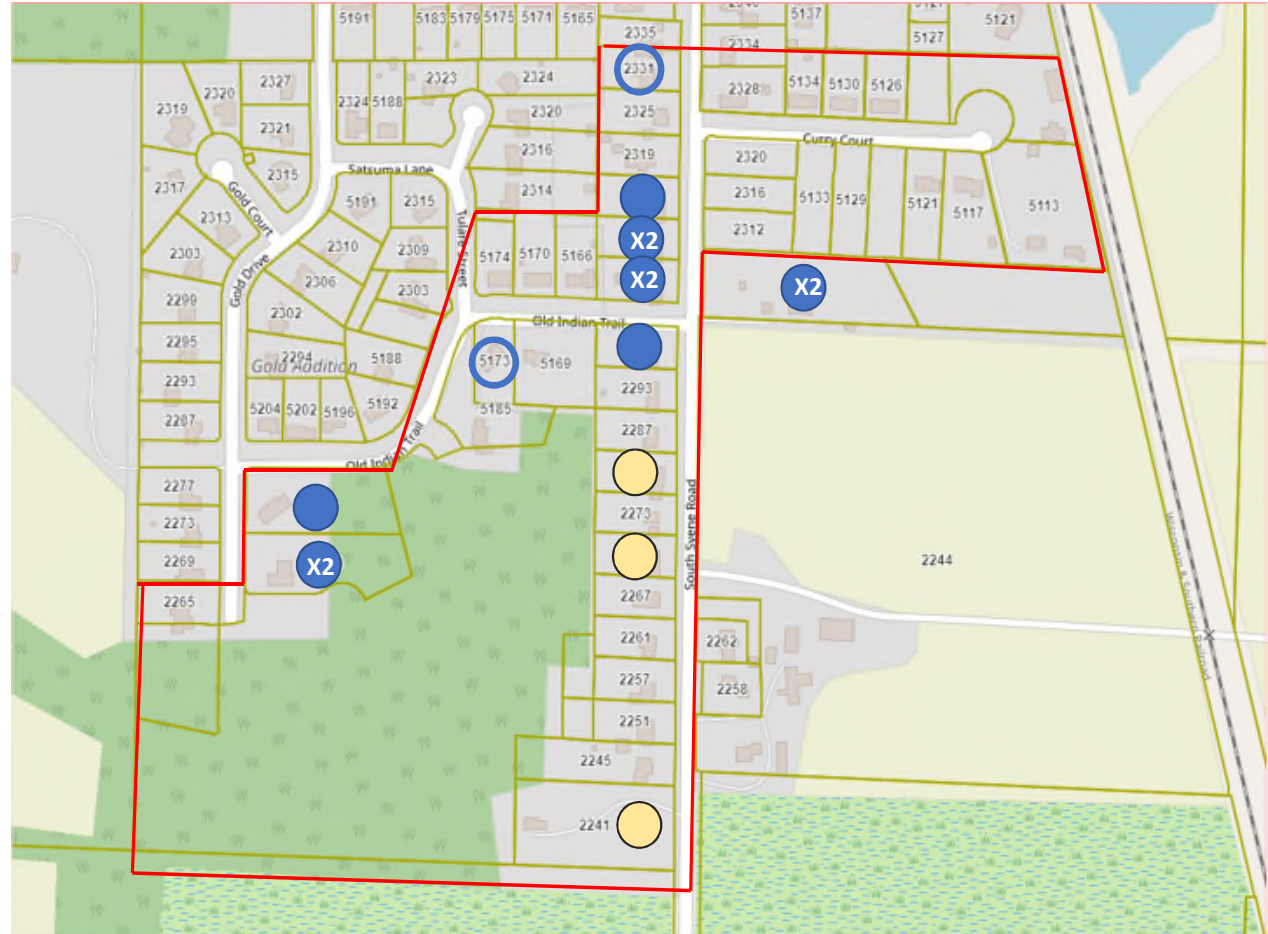
Survey Results - January 2021



Input from 16 people

Survey Results - January 2021

- Sump pump runs daily or more frequently (x2 = two sump pumps at property)
- Sump pump does not run often
- No sump pump at property



Survey Results - January 2021

What is the level of concern regarding the impact to your property? *

Column Bar Pie Map



- Major Concern
- Moderate Concern
- Minor Concern
- Not Concerned at All

[No Title]

Survey Results - January 2021

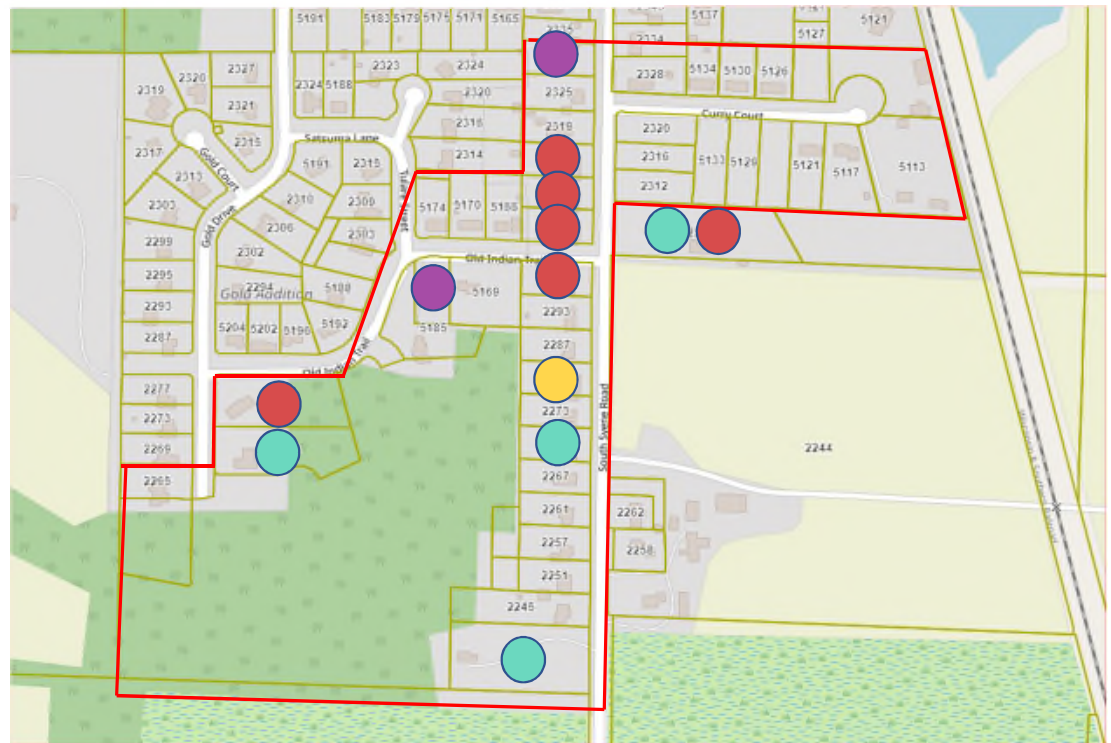
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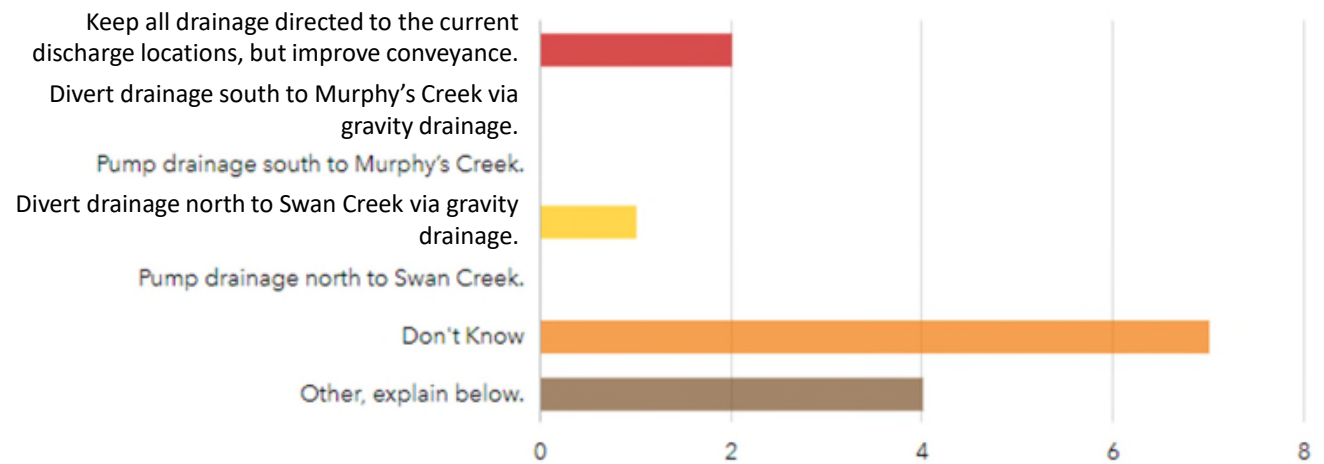
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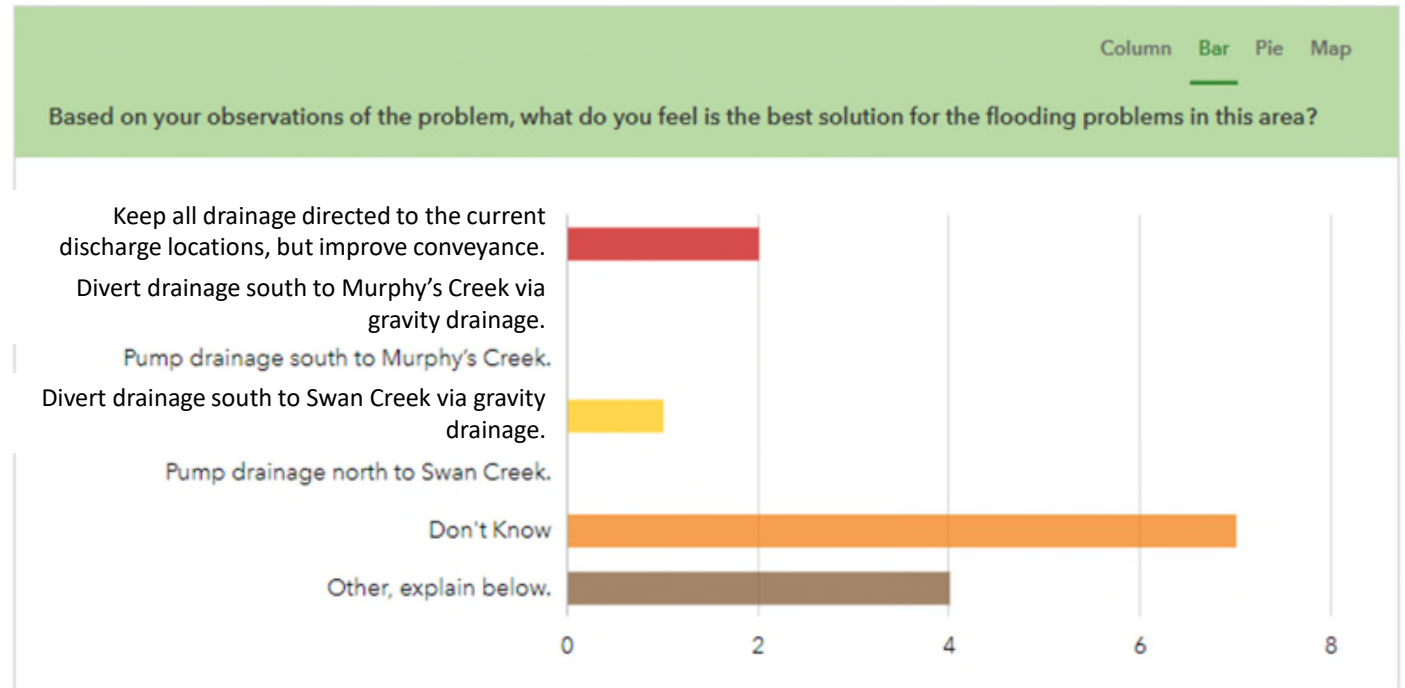
Survey Results - January 2021

Column Bar Pie Map

Based on your observations of the problem, what do you feel is the best solution for the flooding problems in this area?



Survey Results - January 2021



“Other” responses:

- Gravity drainage – unfamiliar with Creeks.
- Dredge ditching in park to drain south from Old Indian Trail, hopefully alleviating some burden to Curry Court.
- Consider running sanitary sewer to area.
- Not enough space to explain.

Additional Input

Additional input received via:

- Email, Phone Calls, On-site meetings with residents throughout the neighborhood

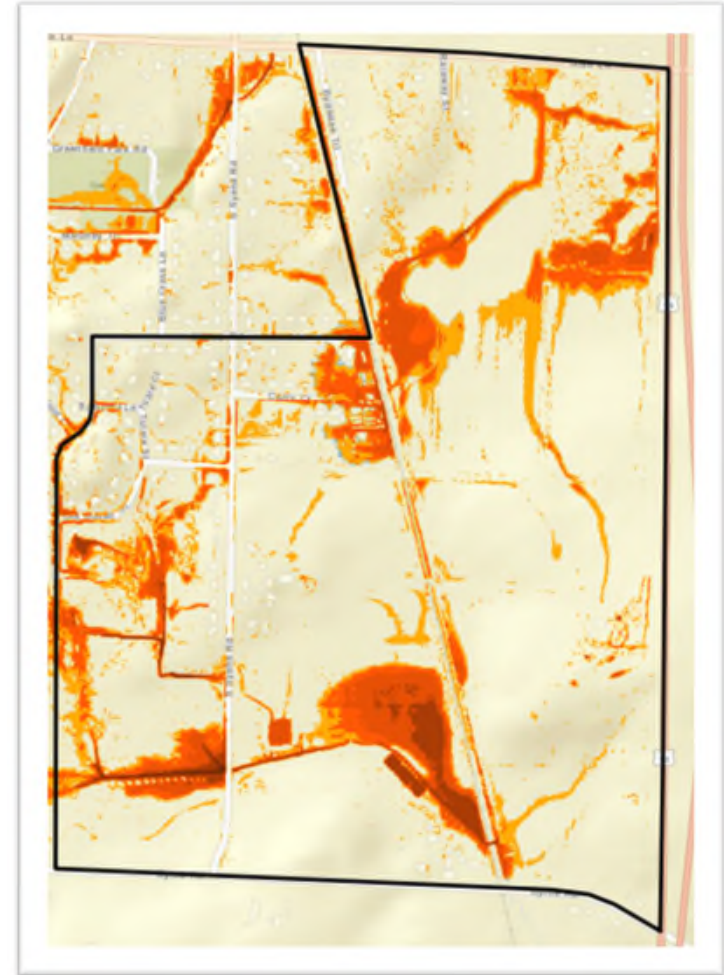
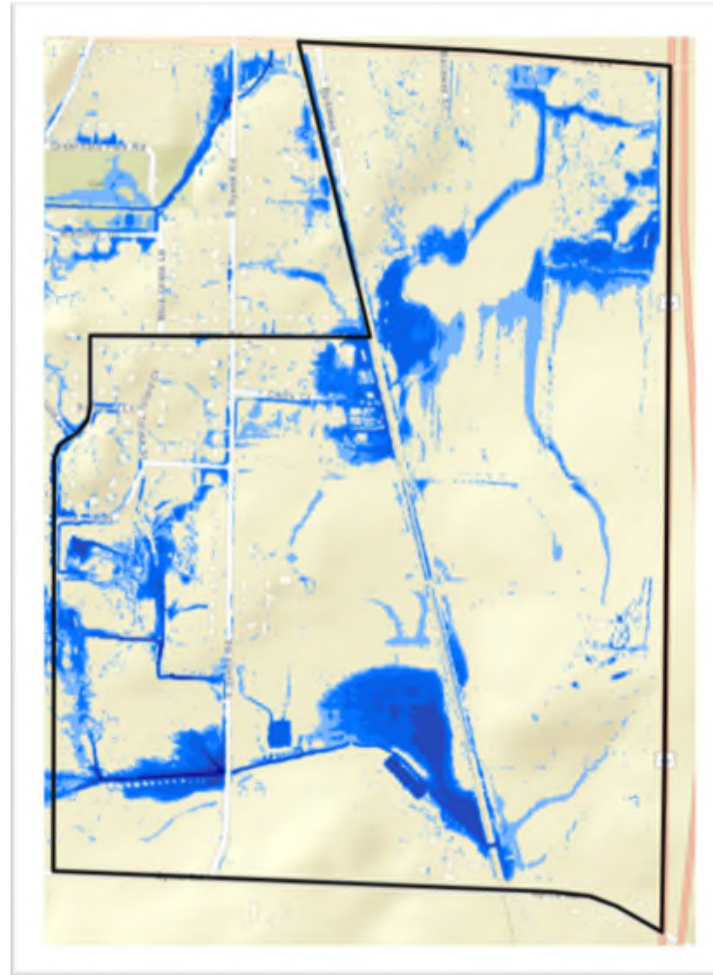
Input included:

- Ideas regarding gravity drainage along S. Syene Road.
- Ideas regarding gravity drainage along railroad corridor through Marc Jones' property
- Ideas regarding ditching through the park
- Assistance reaching out to property owner east of the railroad tracks regarding potential ditchwork
- Meetings and input from stakeholders who we may need easements from for certain alternates to gauge their level of interest in working with the City for a potential easement (property owners on south of Old Indian Trail, property owner at end of Curry Court, property owner east of the railroad tracks)

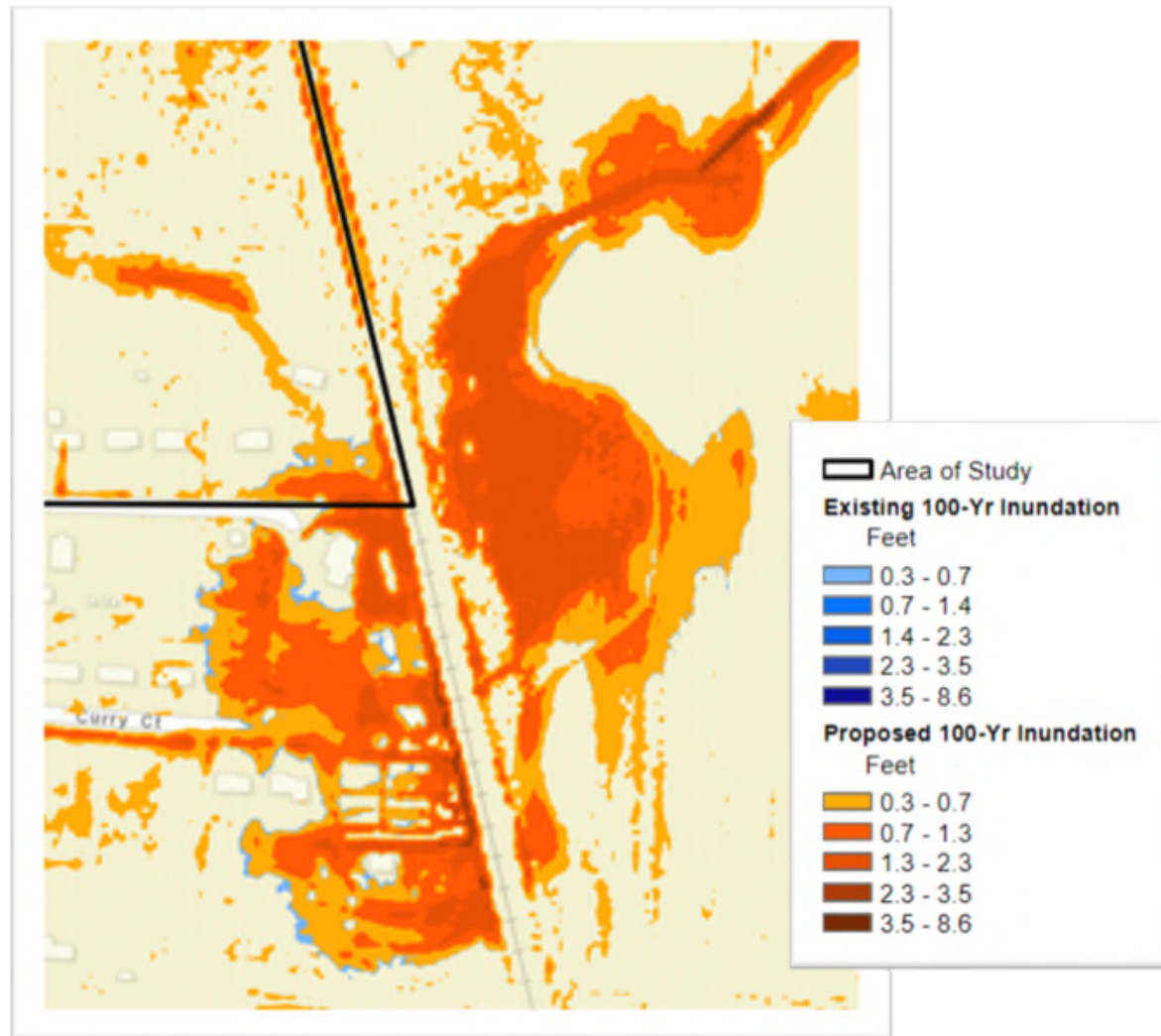
More recently, we also sent out a survey regarding the sump pump collection system alternative, which will be discussed in more detail later.

MODELING

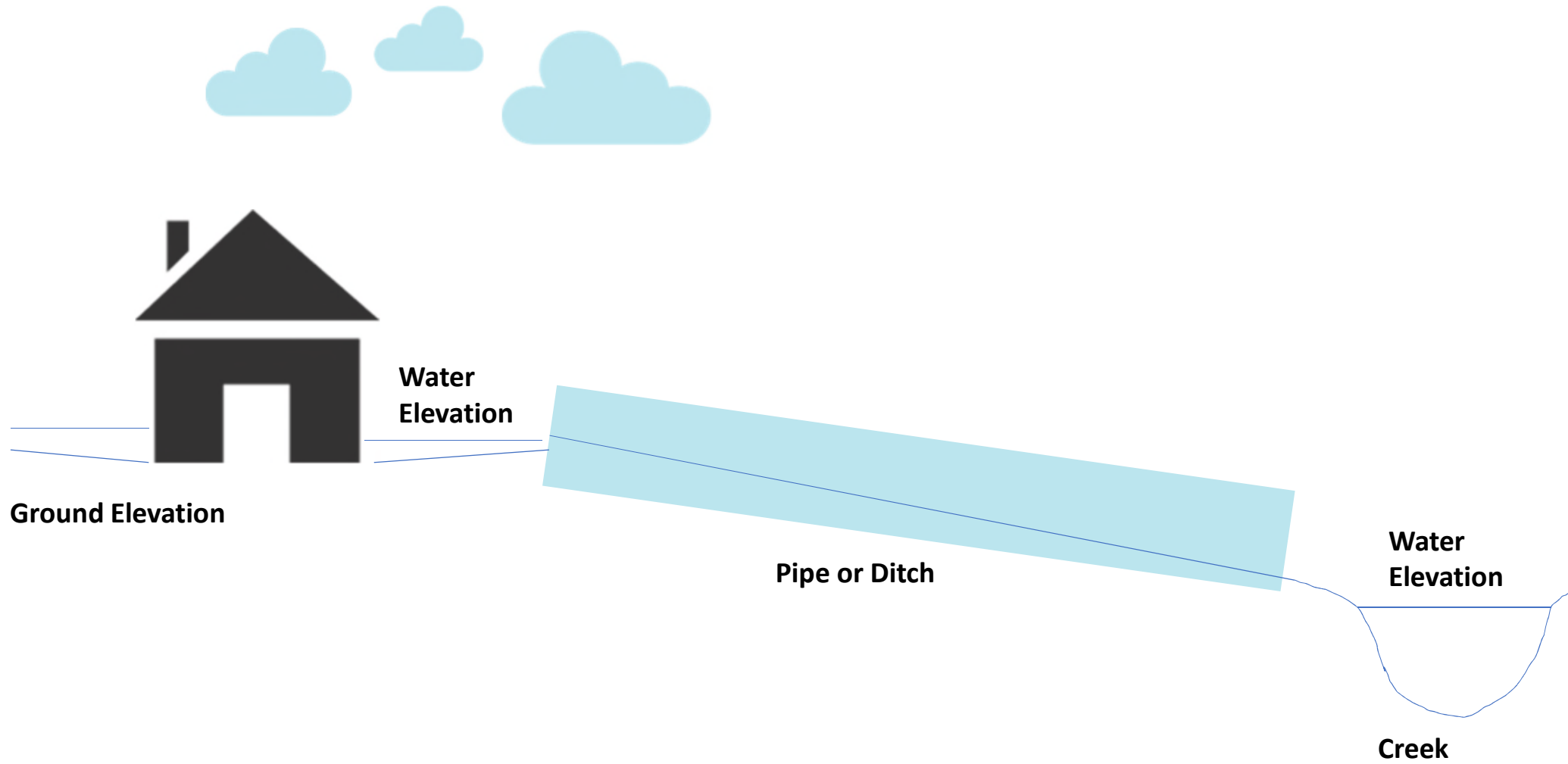
What is the Difference?



Superimpose Maps



Conveyance

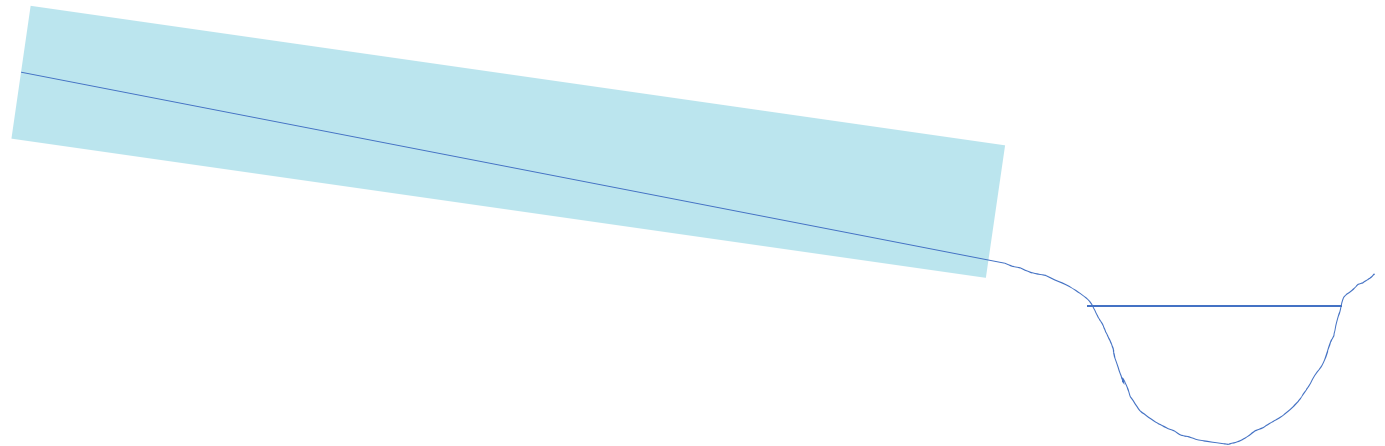


Increase Conveyance

- Larger Pipe/Ditch

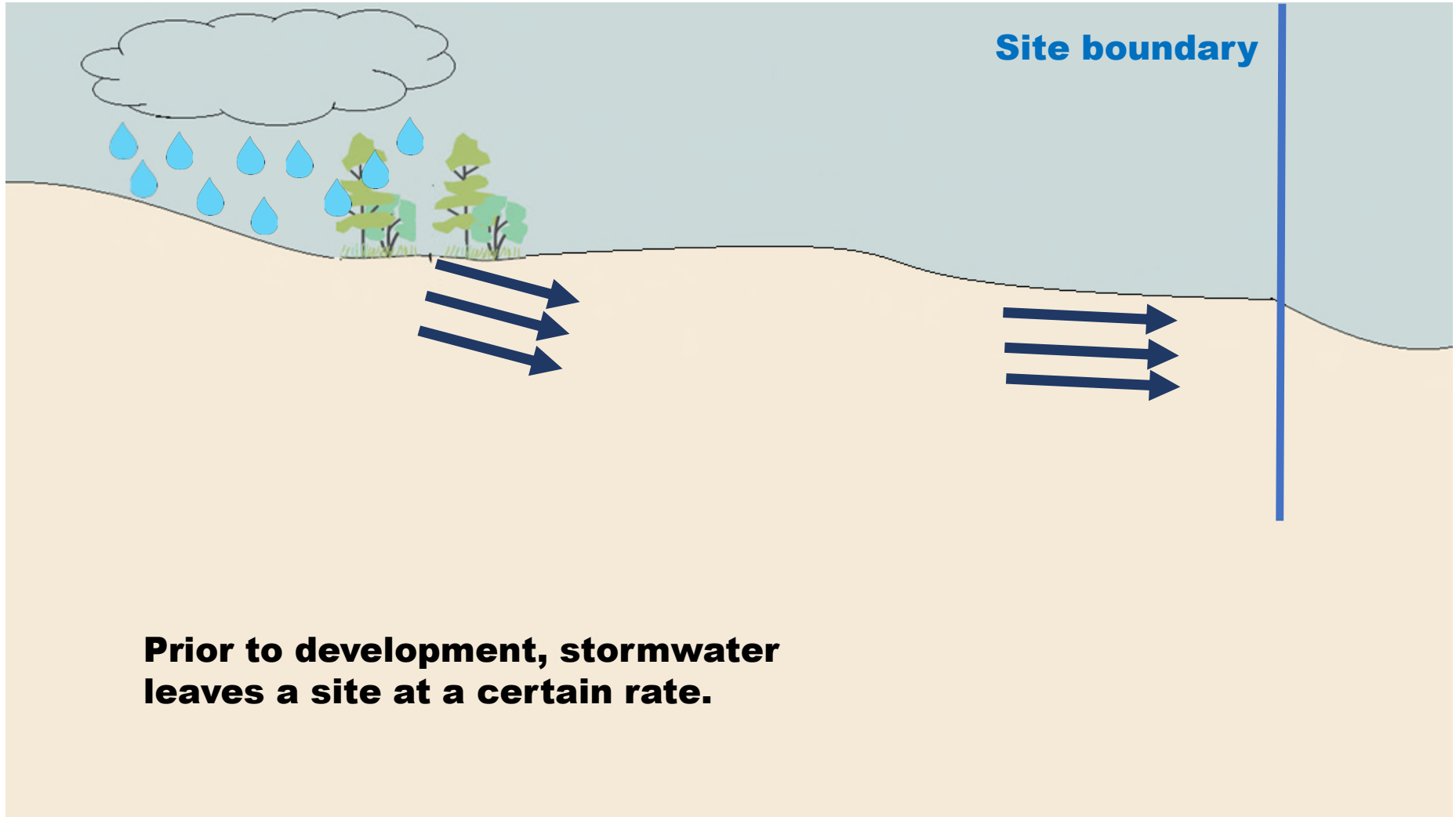


- Steeper Pipe/Ditch

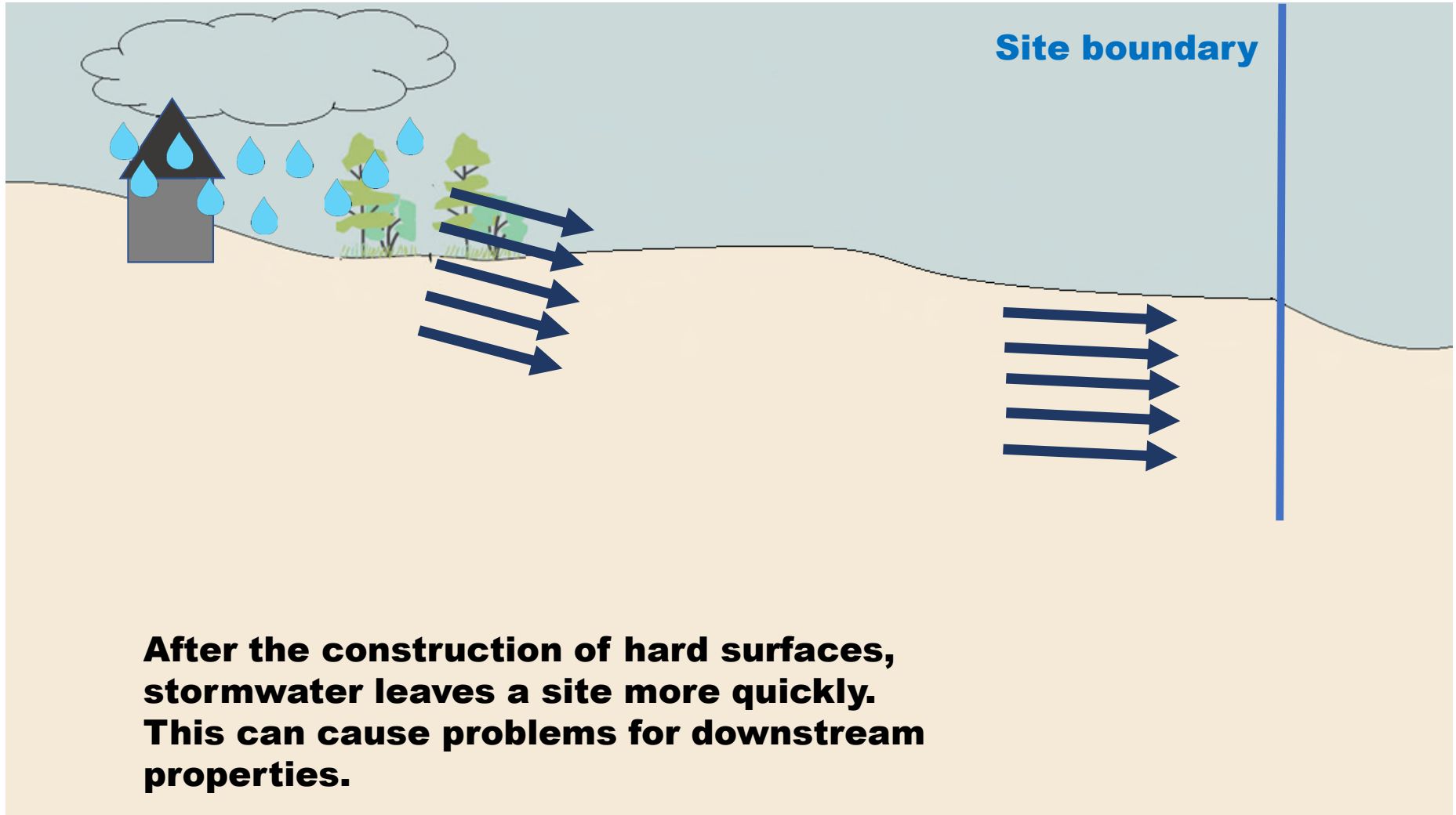


Storage/Ponds

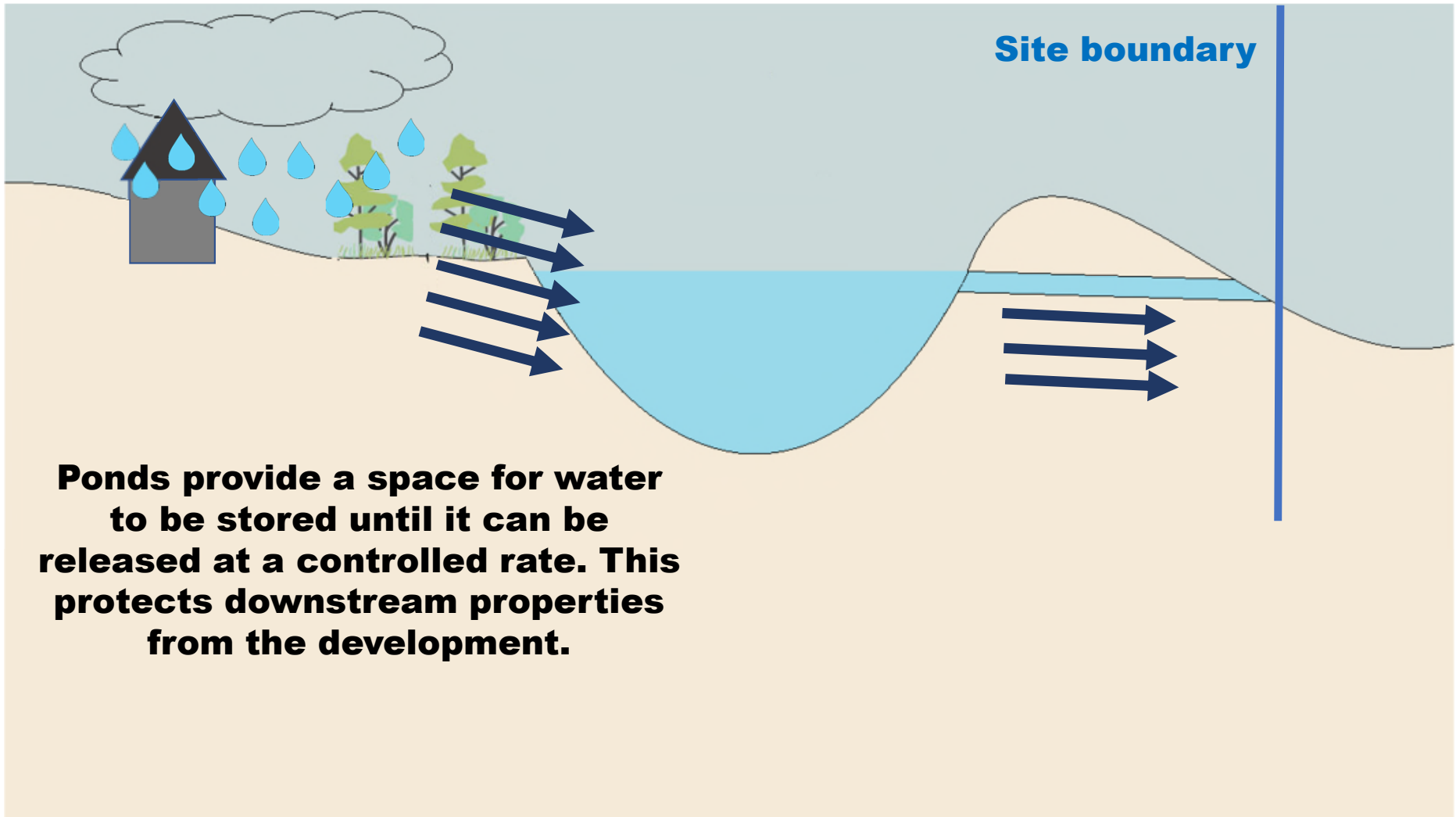
Why do we have stormwater ponds and how do they work?



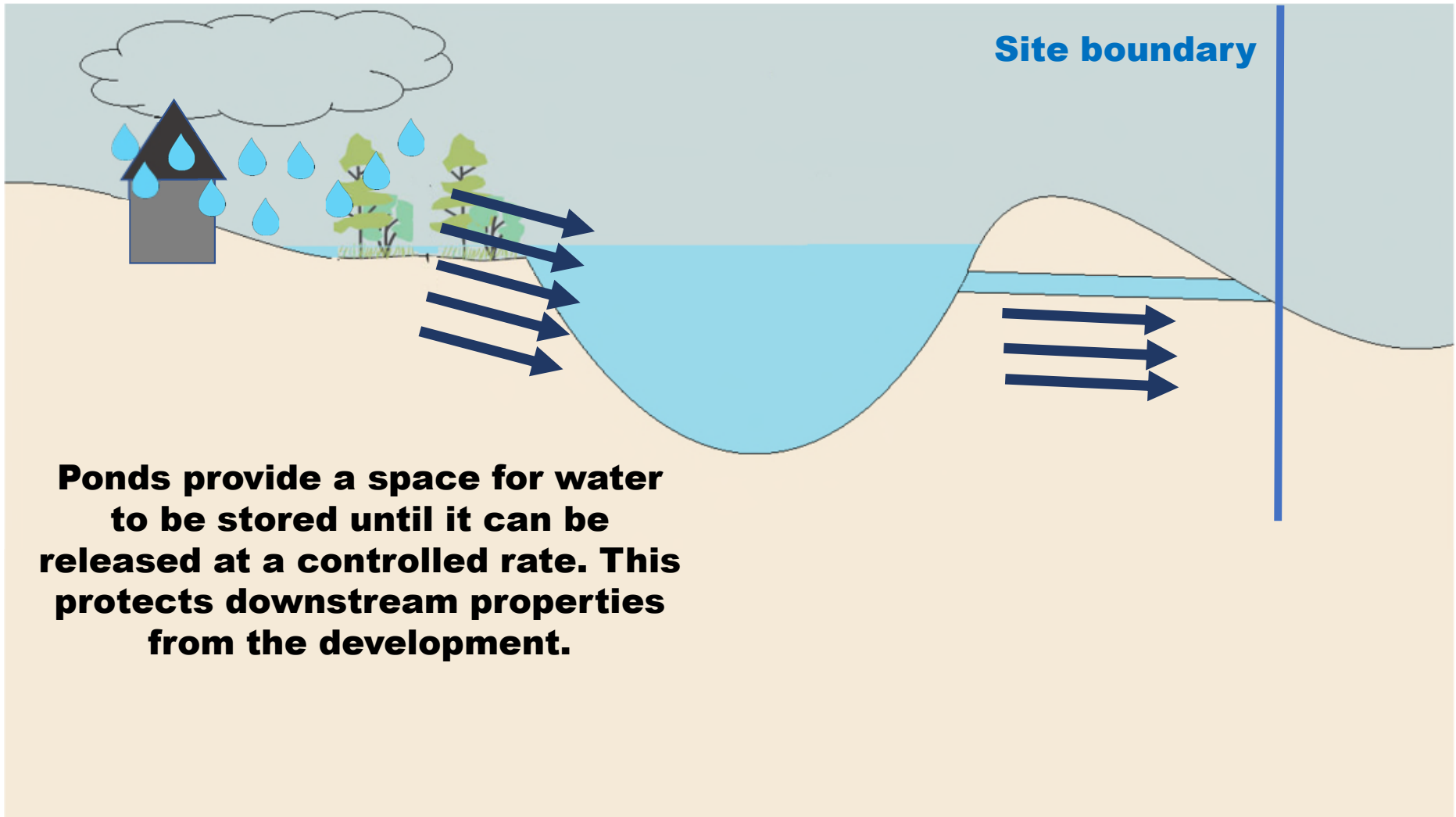
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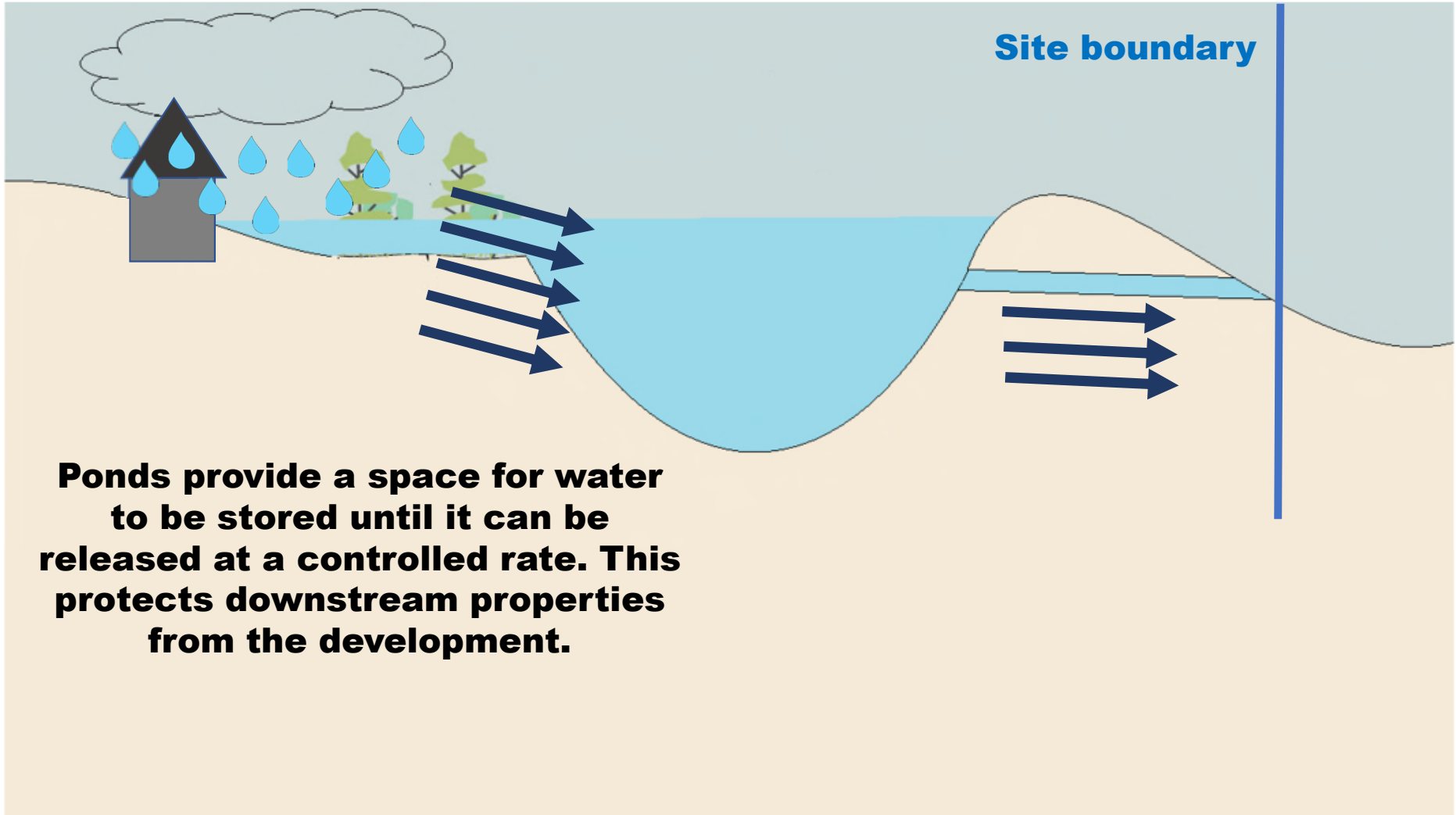
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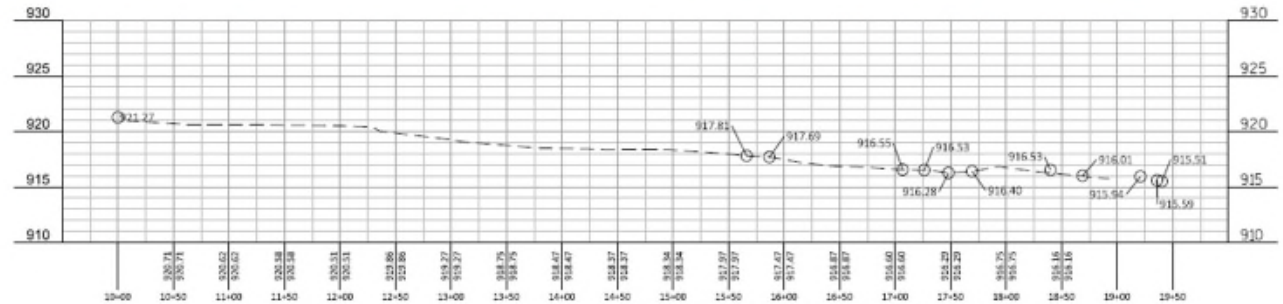


Ponds provide a space for water to be stored until it can be released at a controlled rate. This protects downstream properties from the development.

ALTERNATIVES

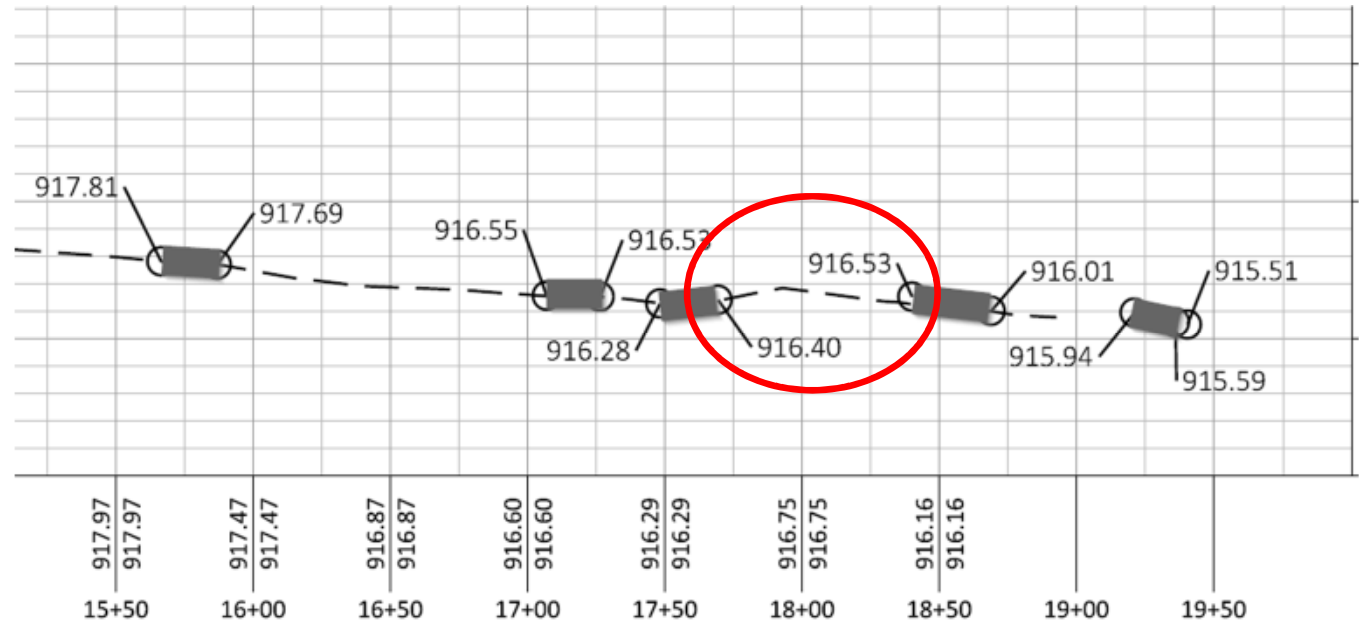
Local Curry Court Ditch Improvements

Re-Ditch south side of Curry Court



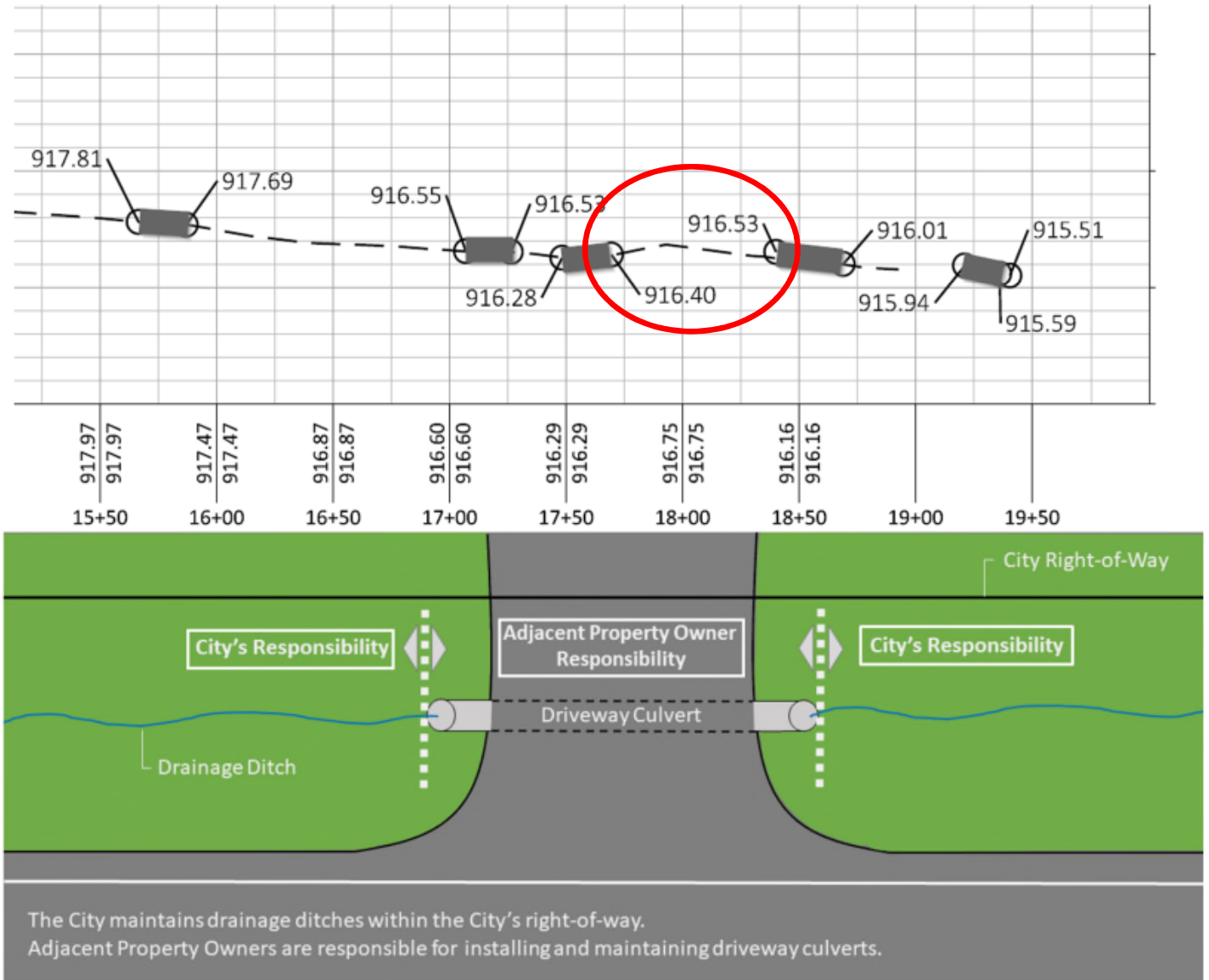
Average slope of ditch is around 0.6%, with some areas slightly flatter and some slightly steeper than that average.

Re-Ditching Curry Court



There is a lot of slope variability in front of the homes at the end of Curry Court. In order to improve drainage in this area, we'd need to remove and replace the driveway culverts to set them at new elevations. The driveway culverts (and any work to the driveway apron) would be 100% assessed to the adjacent property owner.

Re-Ditching Curry Court



Bottom Line

Re-ditching the South side of Curry Court would provide marginal improvement of slopes. Instead of a 0.6% average slope (with variability), we would be able to achieve closer to a 0.6% consistent slope. This would reduce localized low points where water can pool in the ditch.

However, keep in mind, this area sees a lot of water from sump pump discharge. If that continues, the constant supply of water would keep the ditch wet and soggy regardless of a slightly improved slope.

New Ditch at the End of Curry Court

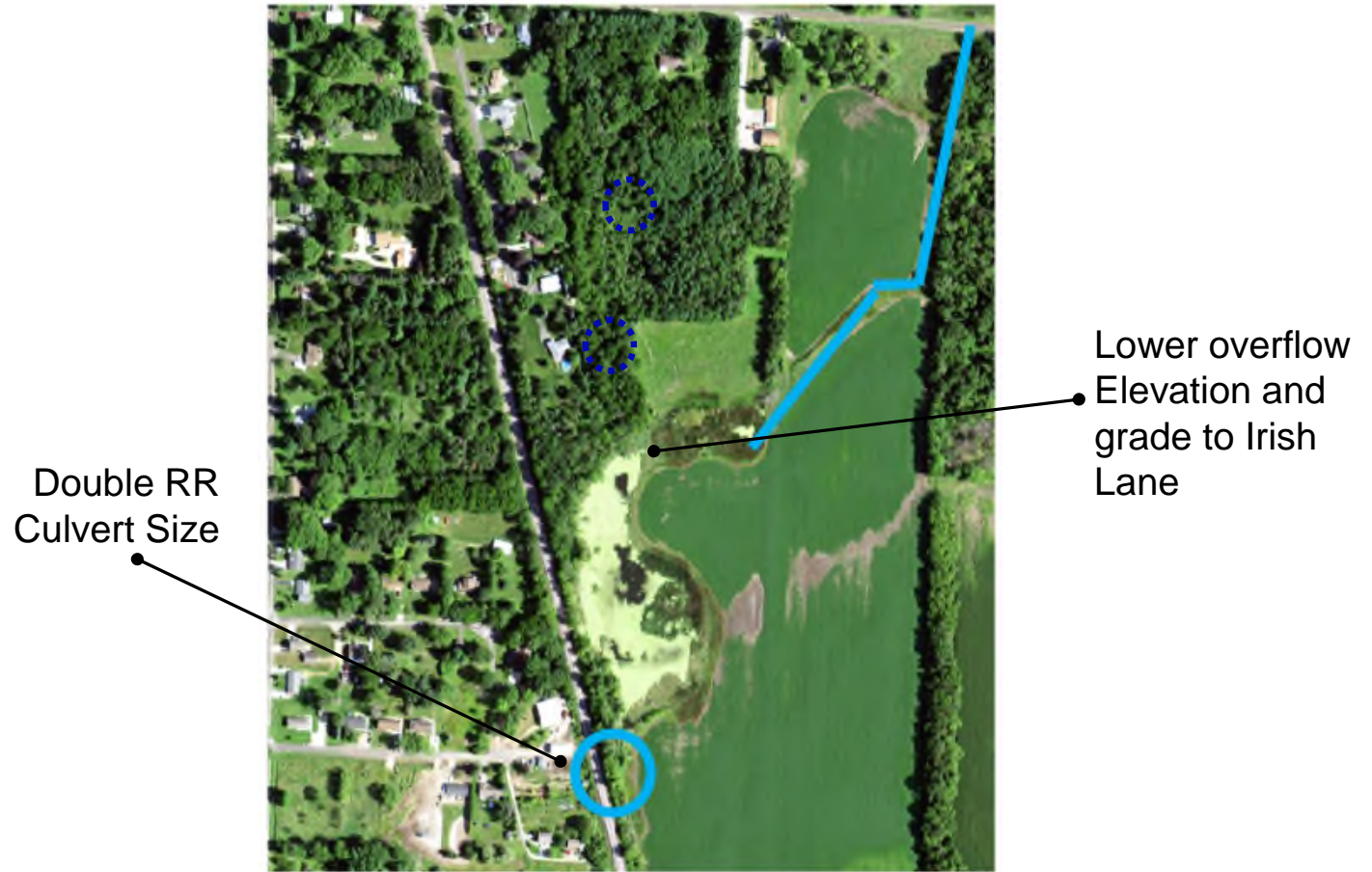


Bottom Line

- Modeling shows no improvement, and
- Existing pipes are in good structural condition and show no signs of blockage, but
- Currently, there is no easement over the existing pipes to allow for future maintenance to occur, and
- It may benefit both the property owner and the City to move the current easement (which goes through the shed) to south of the shed in the desired location

Conveyance Improvements to Swan Creek

Lower Wetland Overflow Elevation And Enlarge RR Culvert





Existing Railroad Culvert 3-ft x 3.5-ft



Wetland Overflow Elevation = 914.5

Alternative Bottom Line

- Marginal improvement for Curry Court flooding



- Railroad coordination is difficult
- Requires significant downstream easement, and landowner not interested in granting or selling easement

Alternative Bottom Line

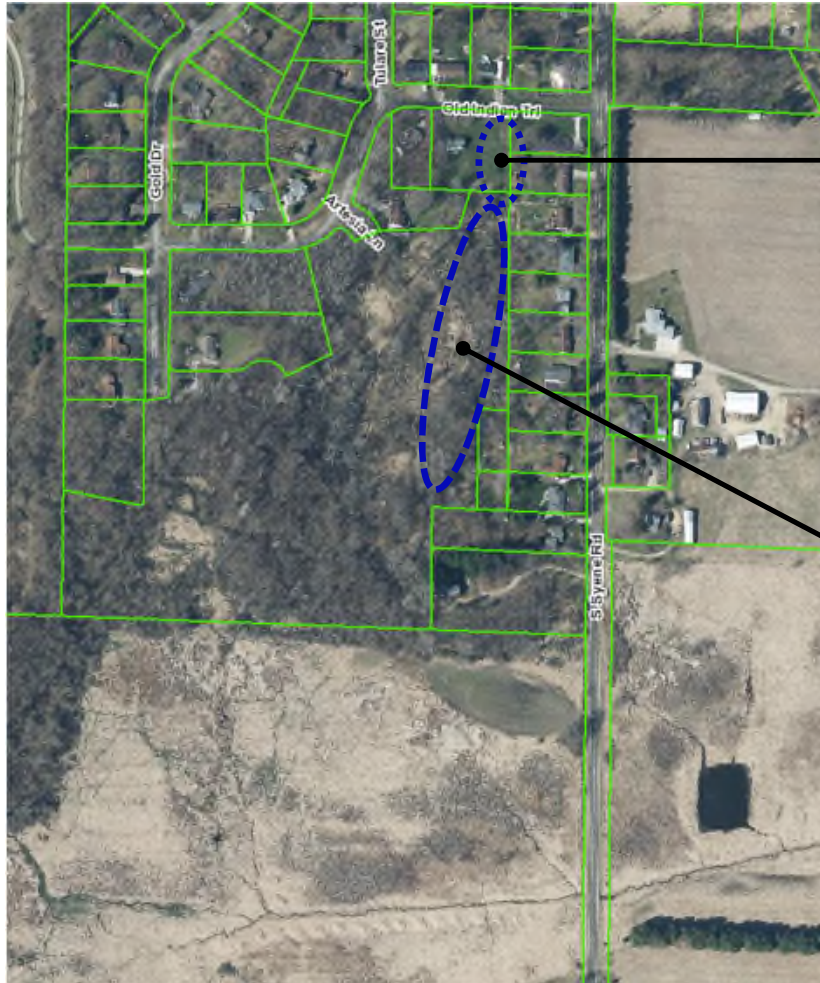


- Marginal improvement for Curry Court flooding
- Railroad coordination is difficult
- Requires significant downstream easement, and landowner not interested in granting or selling easement

- Alternative not under consideration, due to limited benefit and unlikely easement acquisition

Old Indian Trail Improvements

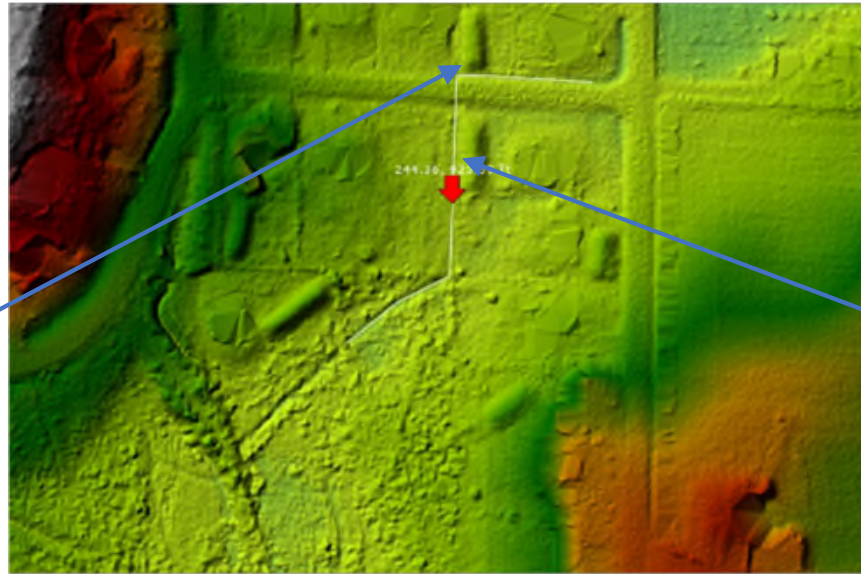
Old Indian Trail Drainage



New culvert south of Old Indian Trail

Restore Ditching

OLD INDIAN TRAIL AREA



Alternative Bottom Line

- Eliminates standing water at Old Indian Trail on both sides of culvert, but limited impact outside of immediate area
- Relatively inexpensive
- Relies on gravity drainage
- OPC \$226,000 - \$285,000

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- Relatively inexpensive
- Relies on gravity drainage
- OPC \$226,000 - \$285,000

Gravity Drainage along S. Syene Road

Drain South to Murphy's Creek along Syene Rd.



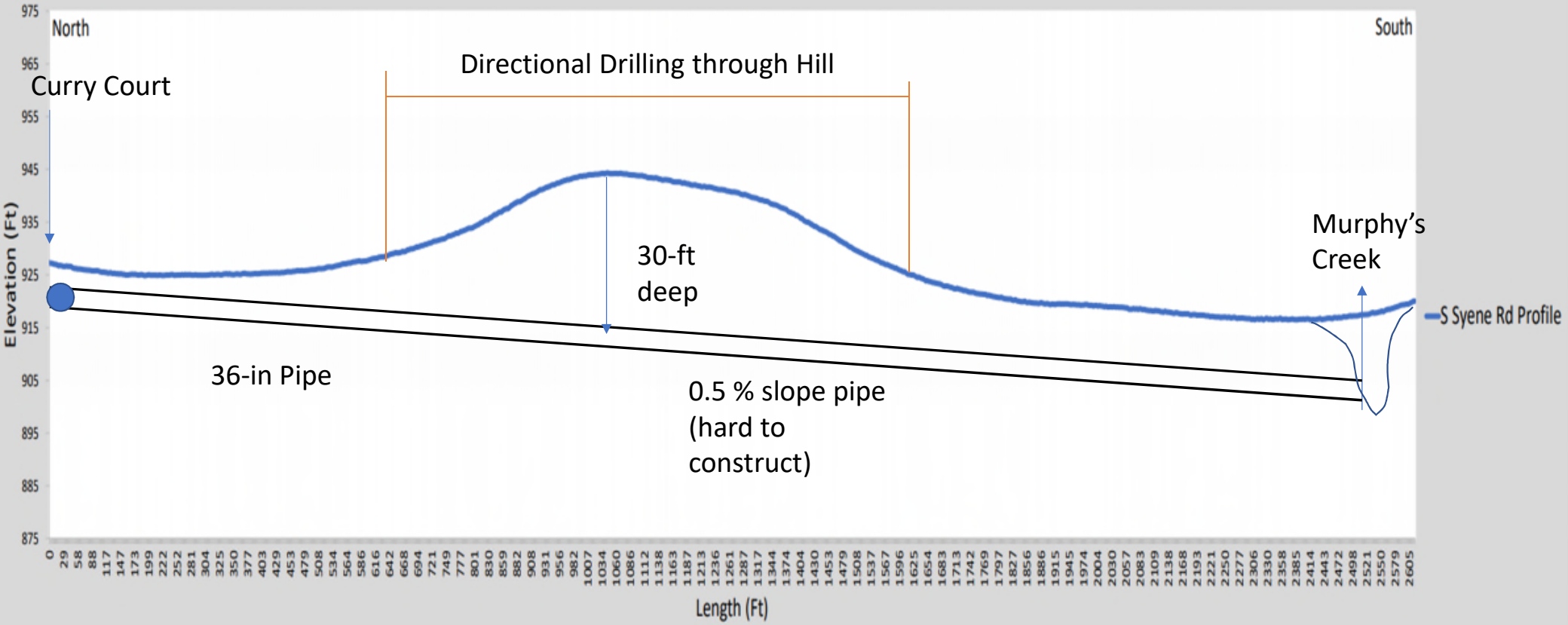


S. Syene Rd. Looking North



S. Syene Rd. Looking South

S Syene Rd Centerline Profile



Alternative Bottom Line

- Most costly option
- Very disruptive construction process
- Less benefit per dollar spent—similar results to later gravity alternative

Alternative Bottom Line

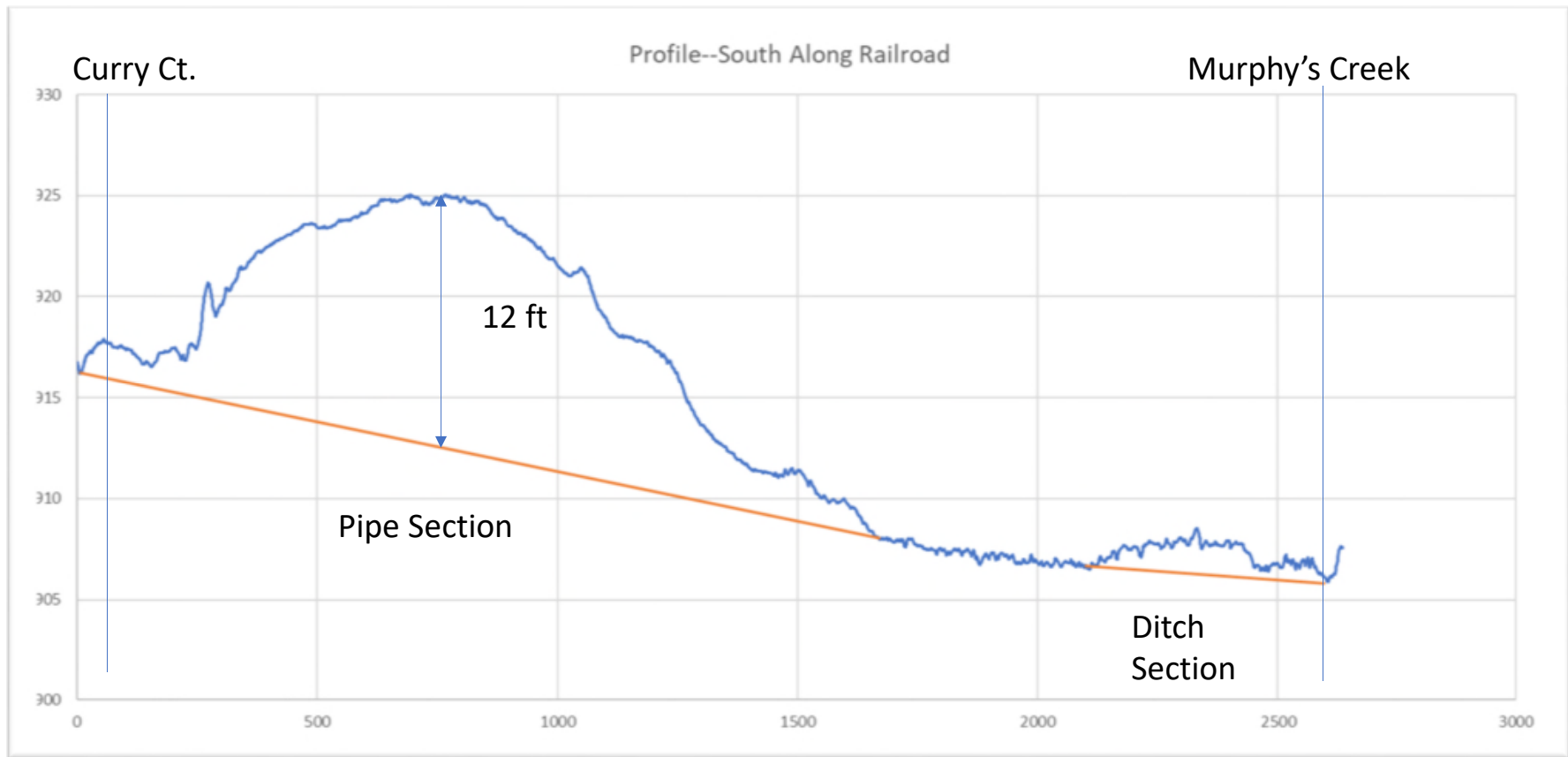


- Most costly option
- Very disruptive construction process
- Less benefit per dollar spent—similar results to later gravity alternative
- Not recommended for further consideration because of high cost and low confidence in constructability
- OPC \$2,107,000

Gravity Drainage to Murphy's Creek

Drain South to Murphy's Creek Near Railroad





Alternative Bottom Line

- Willing landowner for easement acquisition
- Easier construction
- Provides flexibility for pipe or ditch section
- Lower project construction cost

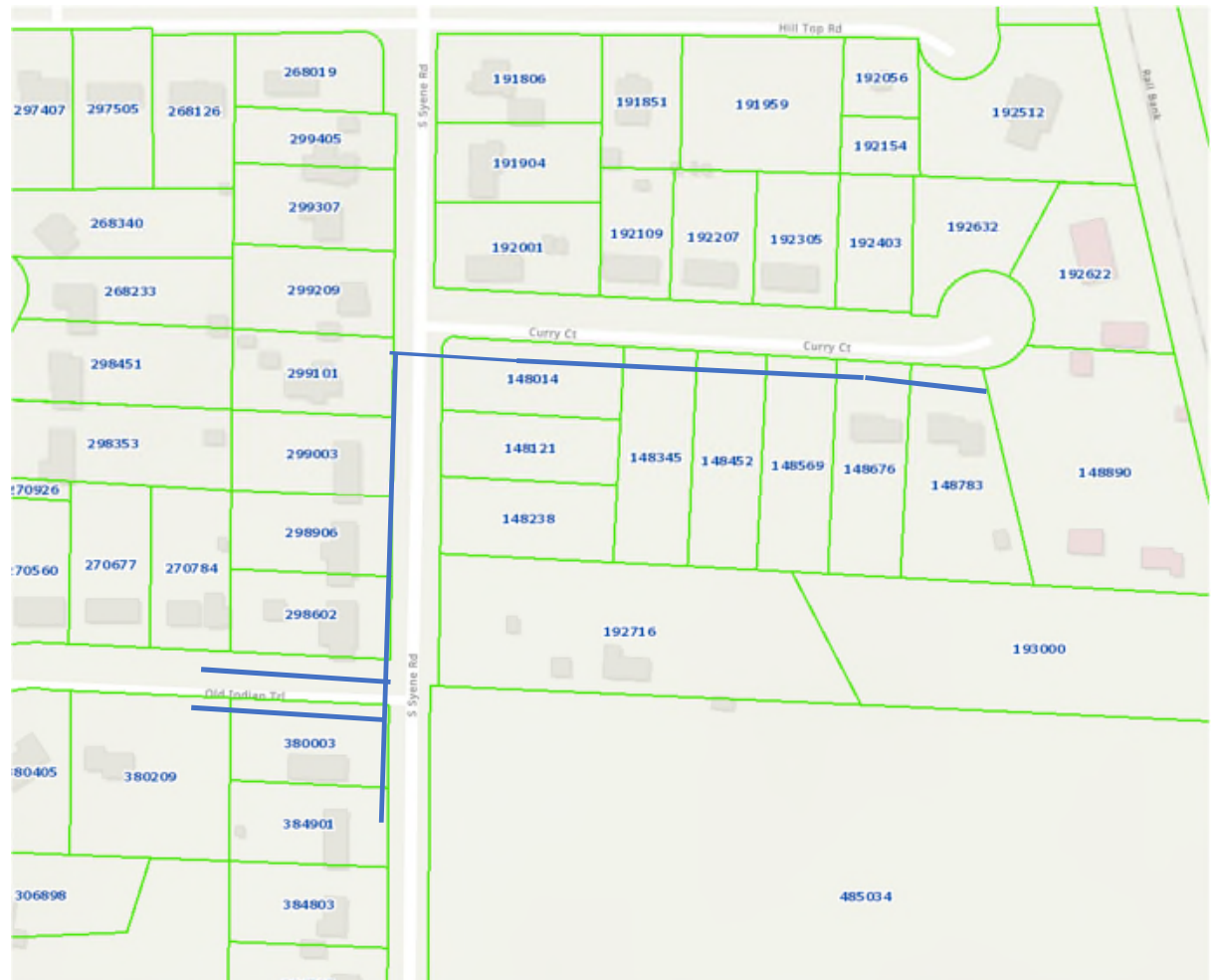
Alternative Bottom Line



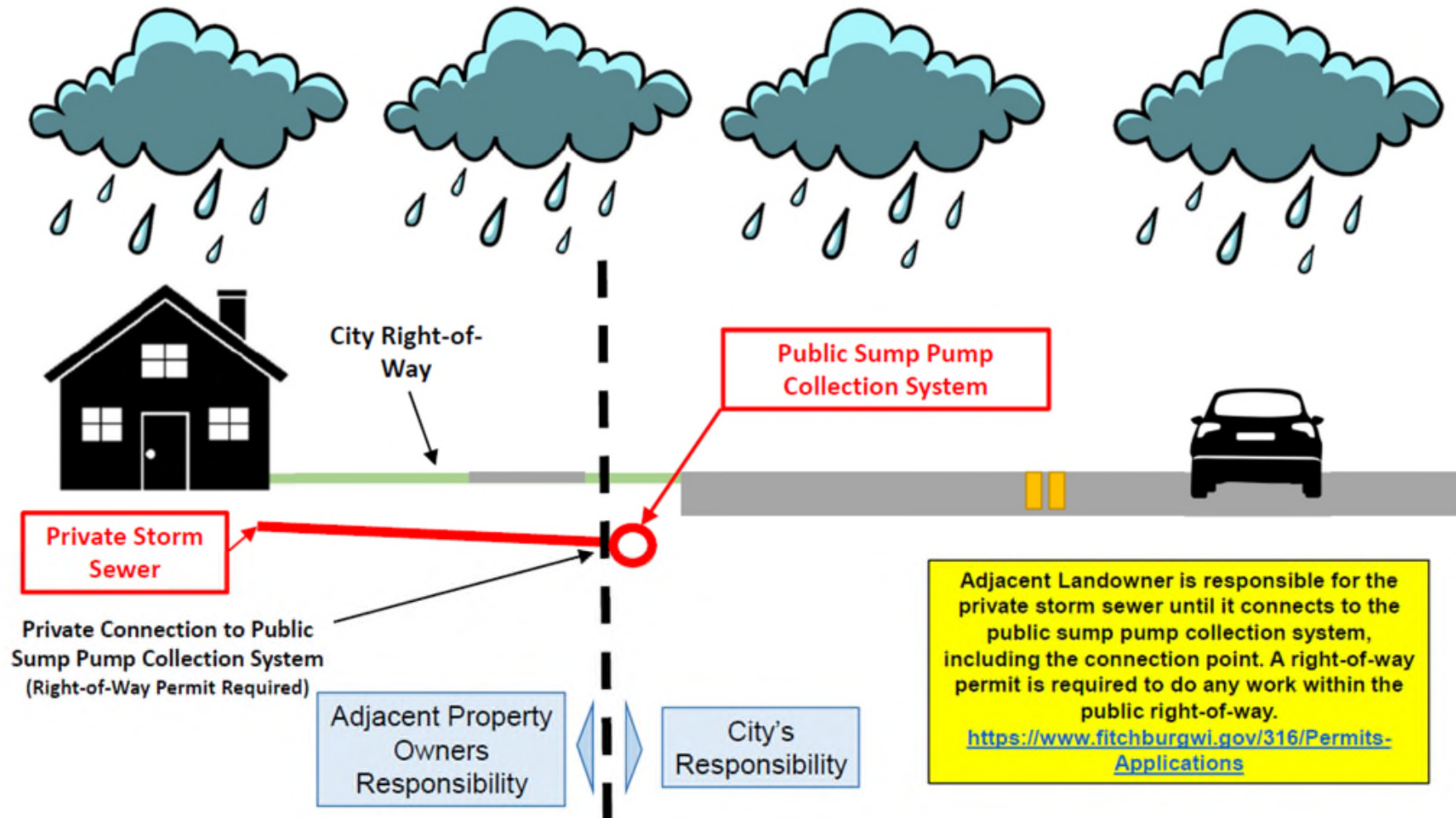
- Willing landowner for easement acquisition
- Easier construction
- Provides flexibility for pipe or ditch section
- Lower project construction cost
- OPC \$669,000-\$721,000

Sump Pump Drainage

Potential Sump Pump Collection Network



Homeowner vs. City Responsibilities



Alternative Bottom Line



- Reduction in “soggy ditches” and “recirculation”
 - System for groundwater influenced flooding, not surface water flooding
 - Less expensive option
-
- OPC \$192,000

Alternative Bottom Line

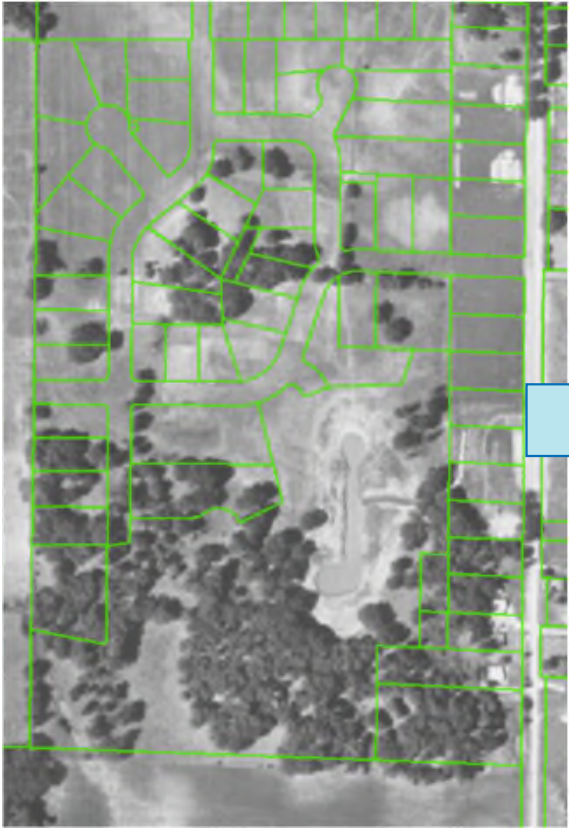


- Reduction in “soggy ditches” and “recirculation”
- System for groundwater influenced flooding, not surface water flooding
- Less expensive option
- Very little public support

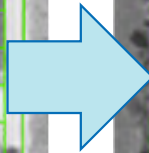
- OPC \$192,000

Gold's Addition Park Pond

GOLD'S ADDITON PARK



1955



1974



2010

Alternative Bottom Line

- Located DOWNSTREAM of flooding, so no benefit to Curry Court/Old Indian Trail for surface flooding
- Potential expense of construction and liability outweigh the benefit to address flooding from storm events

Alternative Bottom Line



- Located DOWNSTREAM of flooding, so no benefit to Curry Court/Old Indian Trail for surface flooding
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Pump Station at Curry Park

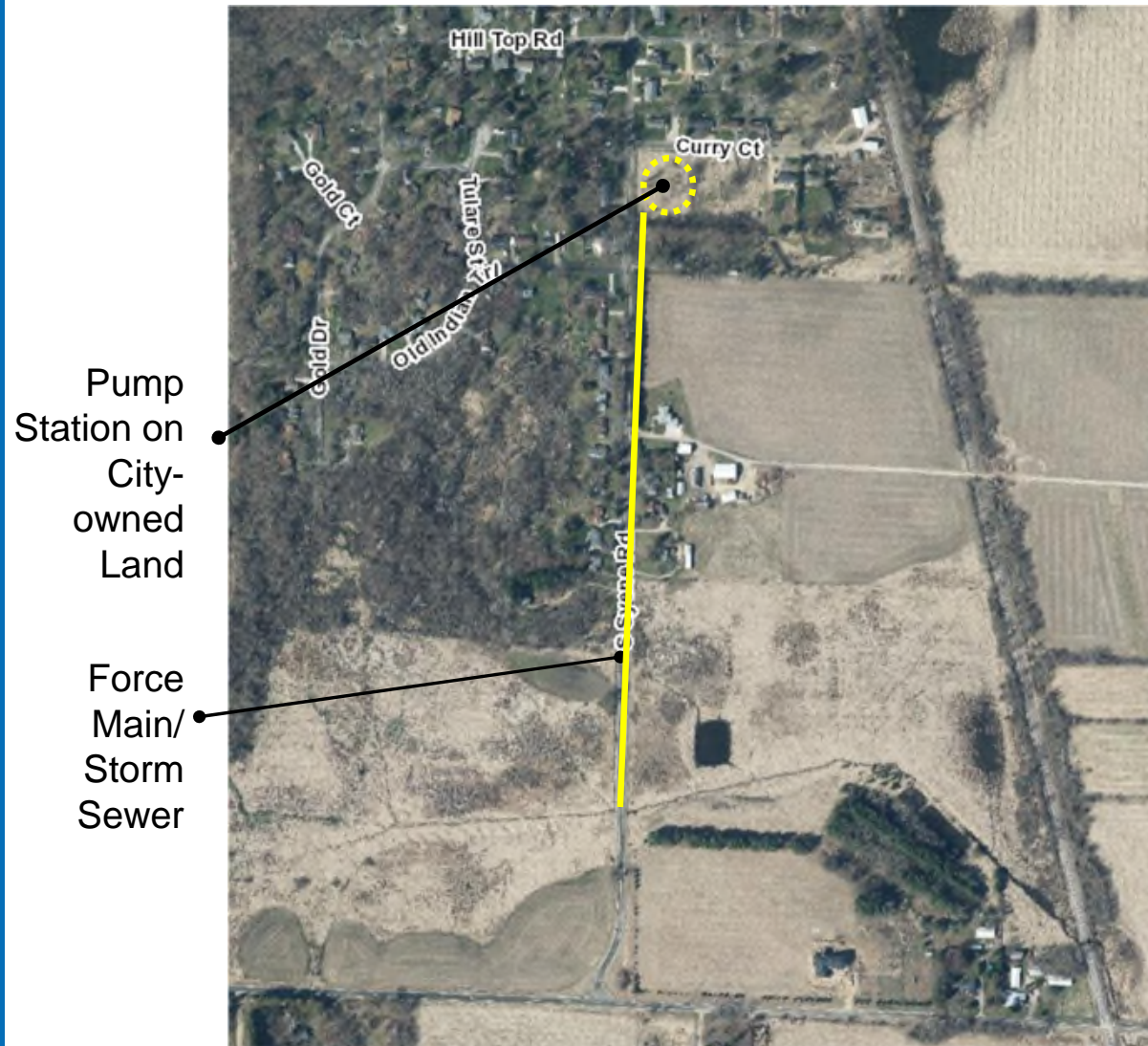
Pump Station to Swan Creek

Force Main/ Storm Sewer

Pump Station on City-owned Land



Pump Station to Murphy's Creek



Typical Pump Station



Alternative Bottom Line

- City owns land for pump station construction
- Less interruption to Syene Road for construction
- Pumping to Murphy's Creek discharge location is more feasible because no easement required to reach waterway
- Requires maintenance and operation

Alternative Bottom Line



- City owns land for pump station construction
- Less interruption to Syene Road for construction
- Pumping to Murphy's Creek discharge location is more feasible because no easement required to reach waterway
- Requires maintenance and operation
- OPC \$2.2 Million

RECOMMENDATIONS

RECOMMENDATIONS

Primary

- Sump Pump System** - Next year if grades have enough pitch
- Discharge to Curry Court/RR Ditch

RECOMMENDATIONS

Primary

- Sump Pump System** - Next year if grades have enough pitch
- Discharge to Curry Court/RR Ditch
 - No longer recommended because of community feedback
 - Only works when homeowners connect to the system

RECOMMENDATIONS

Primary

Sump Pump System - Next year if grades have enough pitch

- Discharge to Curry Court/RR Ditch

Old Indian Trail

- Install pipe along property line
- Clean ditches through park

RECOMMENDATIONS

Primary

Sump Pump System - Next year if grades have enough pitch

- Discharge to Curry Court/RR Ditch

Old Indian Trail

- Install pipe along property line
- Clean ditches through park

Secondary

South Along Railroad

- Willing landowner
- Lower construction costs than S. Syene Road option
- Extend drainage system to north side of Curry Court
- Reduces duration of flooding, but has little impact on peak elevations

NEXT STEPS

Capital Improvement Program (CIP)

2022 *thru* 2031

City of Fitchburg, WI

Project #	4717
Project Name	Curry Court Flooding

Type	Improvement	Department	Public Works - Storm
Useful Life	20 Years	Contact	PW Director/City Engineer
Category	Utility & Urban Services	Priority	Storm Rank 1



Description

Notes - The purpose of this project would be to analyze the flooding problem at Curry Court, determine alternatives to fix the issue, and provide a price estimate for each alternative. We anticipate that fixing the issue would involve building a pump station to send the water south to Murphy Creek. Any alternative to fix the flooding at Curry Court would be contingent upon first improving the street to include curb, gutter, and storm sewers to collect the water. This would be assessed to the home owners.

2021-2030 CIP Update: Accelerated from starting in 2023 to starting in 2021.

Current timeline:

2021 - Collect data and model flooding problems, determine alternatives to fix the problem, provide concept-level plans and a cost estimate for each alternative. Select alternative that will be selected for design. (accelerated from 2023)

2022 - Develop design plans. (accelerated from 2024)

2023 - Improve the road and construct the selected alternative. The cost to improve the road is approximately \$160,000, of which approximately \$110,000 is assessable. We anticipate that the average lot would be assessed approximately \$10,000. The actual cost of the solution to the flooding problem will be determined once it has been designed. The cost to construct the alternative to address the flooding will be determined when it is designed. A placeholder of \$400,000 has been included. (accelerated from 2025)

Previously authorized funding:
 2021: Planning and design \$40,000 (rates)

Note: Staff intends to propose a change in the City's Assessment Policy during 2021 that may change how this project is funded.

Justification

The Curry Court neighborhood was built during a time when stormwater drainage was not always considered and houses were often built using the natural topography of the land. Unfortunately, Curry Court was built on a very flat area with no natural outlet and the neighborhood has dealt with stormwater issues for years. In the past few years, flooding has been worse than normal due to the record-high groundwater throughout the community.

Expenditures	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total
Planning/Design/Eng	45,000										45,000
Construction of New Facilities/Additions		560,000									560,000
Total	45,000	560,000									605,000

NEXT STEPS

- Gold Addition Park
 - Dredge Ditches
 - 2022 – Design/Permitting for dredging ditches within park
 - 2022/2023 – Dredge ditches
- Old Indian Trail
 - Adding a culvert between Old Indian Trail and Gold Addition Park is recommended
 - 2021/2022 – Work with property owner to determine if there is willingness to provide the City with a Public Stormwater Easement to install a pipe in this area
 - 2022 - Install pipe if agreement can be reached allowing the City to install a public storm sewer in this area

NEXT STEPS

- Curry Court
 - Sump pump collection system
 - A sump pump collection system is recommended; however, there is very little buy-in from residents in this area. Therefore, pursuing this option is not recommended.
 - Re-do ditch on South side of Curry Court
 - 2021 - Reach out to residents on Curry Court to see if this is any interest in having their driveway culverts removed/replaced (with appropriate assessment for driveway culvert replacement) in order to improve slopes within the drainage ditch.
 - 2023 – Work to be completed in 2023 with road reconstruction, if able to get buy-in for re-ditching.

NEXT STEPS

- Curry Court (continued)
 - New Ditch to east of Curry Court
 - 2022 - Work with resident at the end of Curry Court to see if we can agree on a new Public Stormwater Easement for new ditch east of Curry Court.
 - 2022/2023 – Ditching to be completed in 2022 or 2023 depending on timing of easement.

NEXT STEPS

- Seeking Council input on alternates that are viable, but cost-benefit is less clear:
 - Jones Property Alternative (Best option of the more costly alternatives, but cost-benefit is unclear)
 - S. Syene Alternative (Not recommended)
 - Pump Station Alternatives (Not recommended)

Questions?

<http://www.fitchburgwi.gov/2667/Curry-Court-and-Old-Indian-Trail-Study>



Contact

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