

# Luers Park Stormwater Management Project

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## Project Scope

Luers Park experiences significant flooding. Most stormwater in West Burlington drains first into Luers Park and then to Izaak Walton Lake. The culvert there is underwater, and the backup of water causes flooding and erosion. Projects were identified that will slow, reduce, and treat the stormwater before it reaches Luers Park.

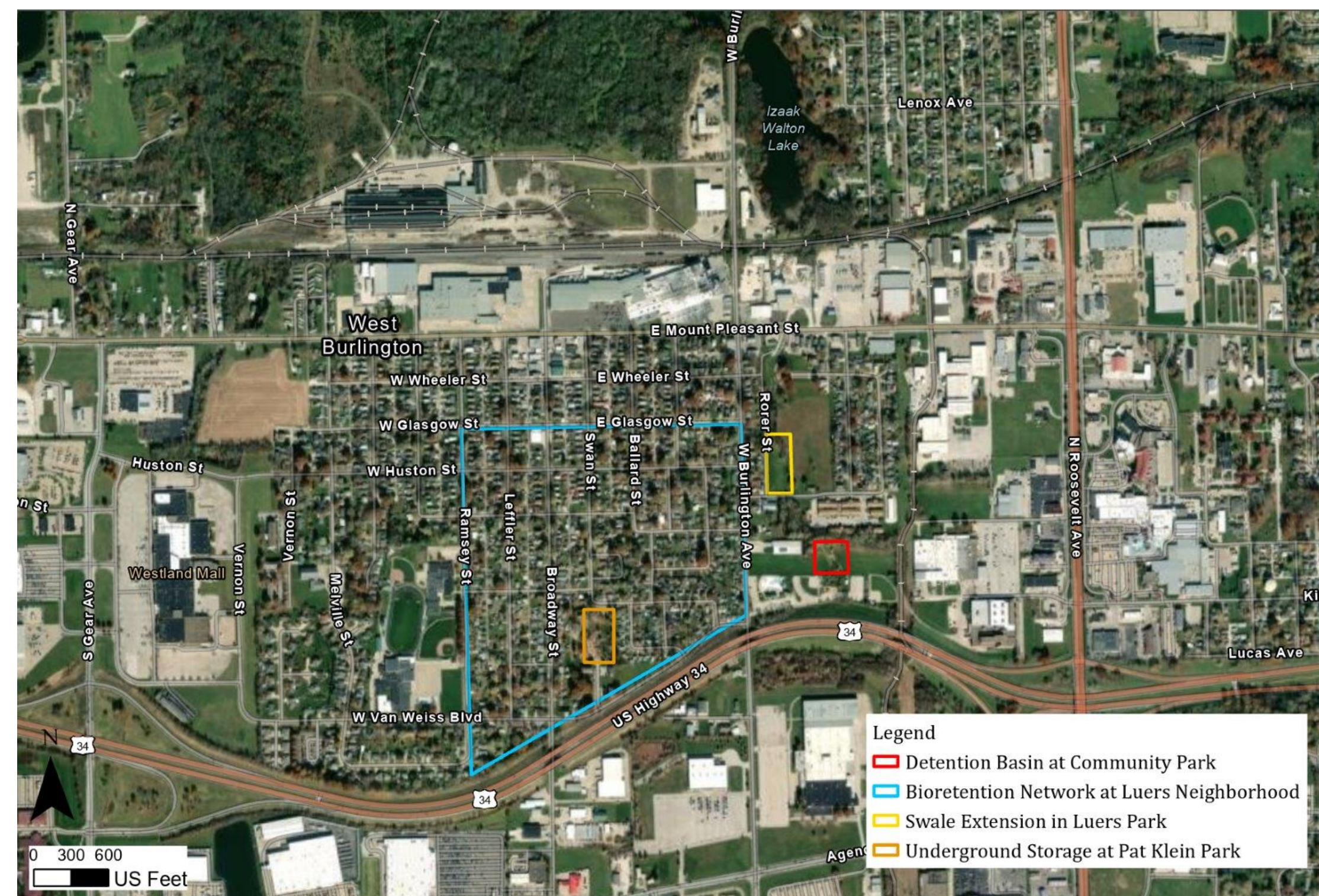


Figure 1. Location of project sites.

## Alternative Designs

A bioswale south of Luers Park and an underground storage tank (R-tank by Ferguson Waterworks) were designed for the alternative design plans.

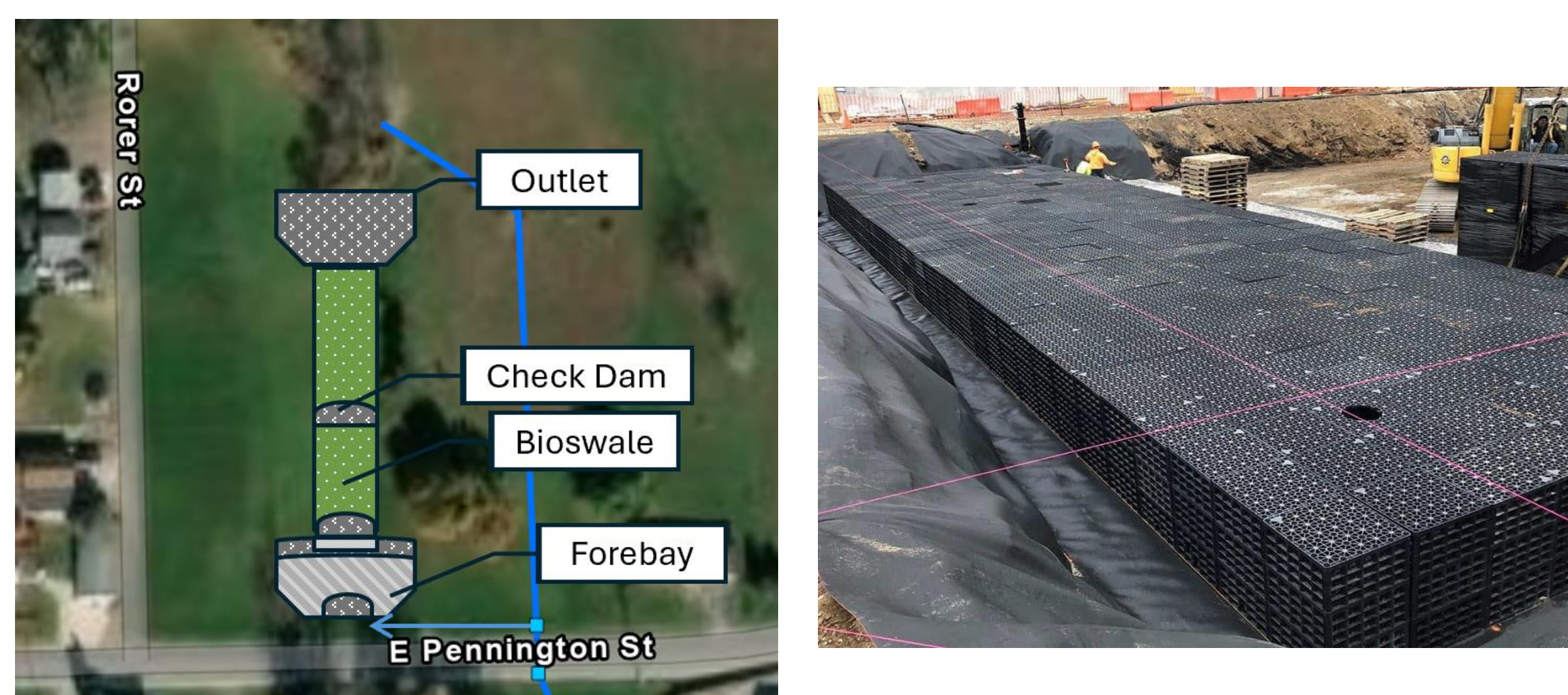


Figure 2. Luers Park bioswale (left) and underground storage tank, R-tank (right).

## Design Recommendations

The selected plan has the lowest cost per storage provided. Up to 130 bioretention cells (10'x100') will reduce and treat runoff in the neighborhood west of Luers Park (Figure 3). A detention basin in Community Park will slow the flow from the southeast portion of the watershed (Figure 4). These will provide storage for 10% of runoff for a typical 2-year storm.

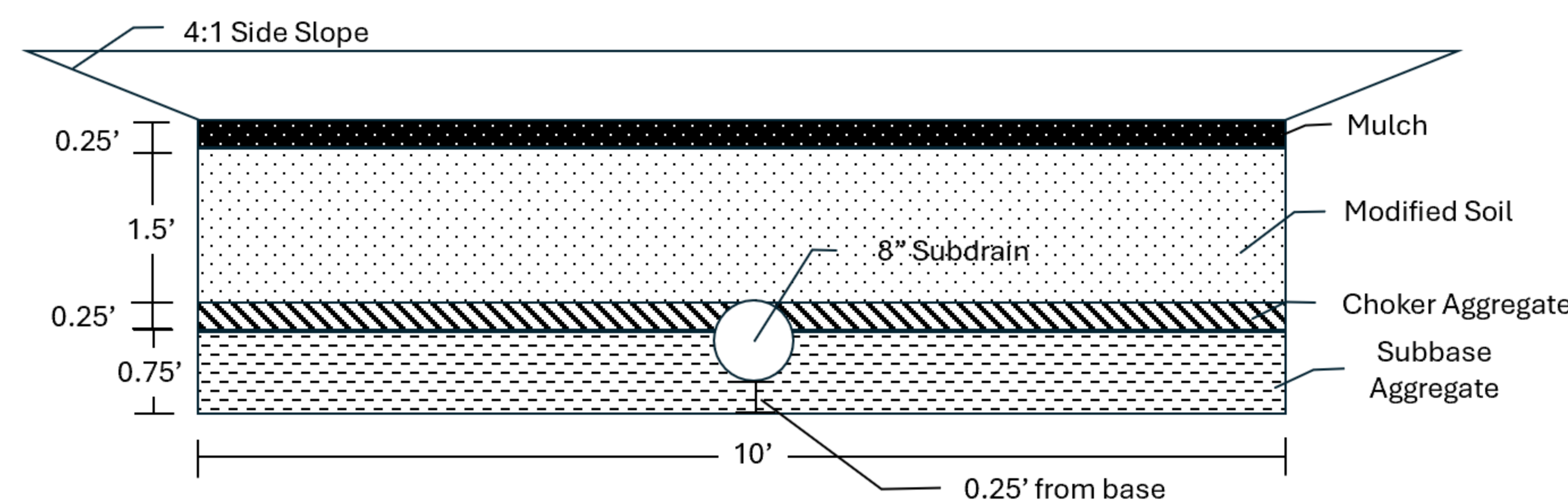


Figure 3. Cross-section of typical bioretention cell.

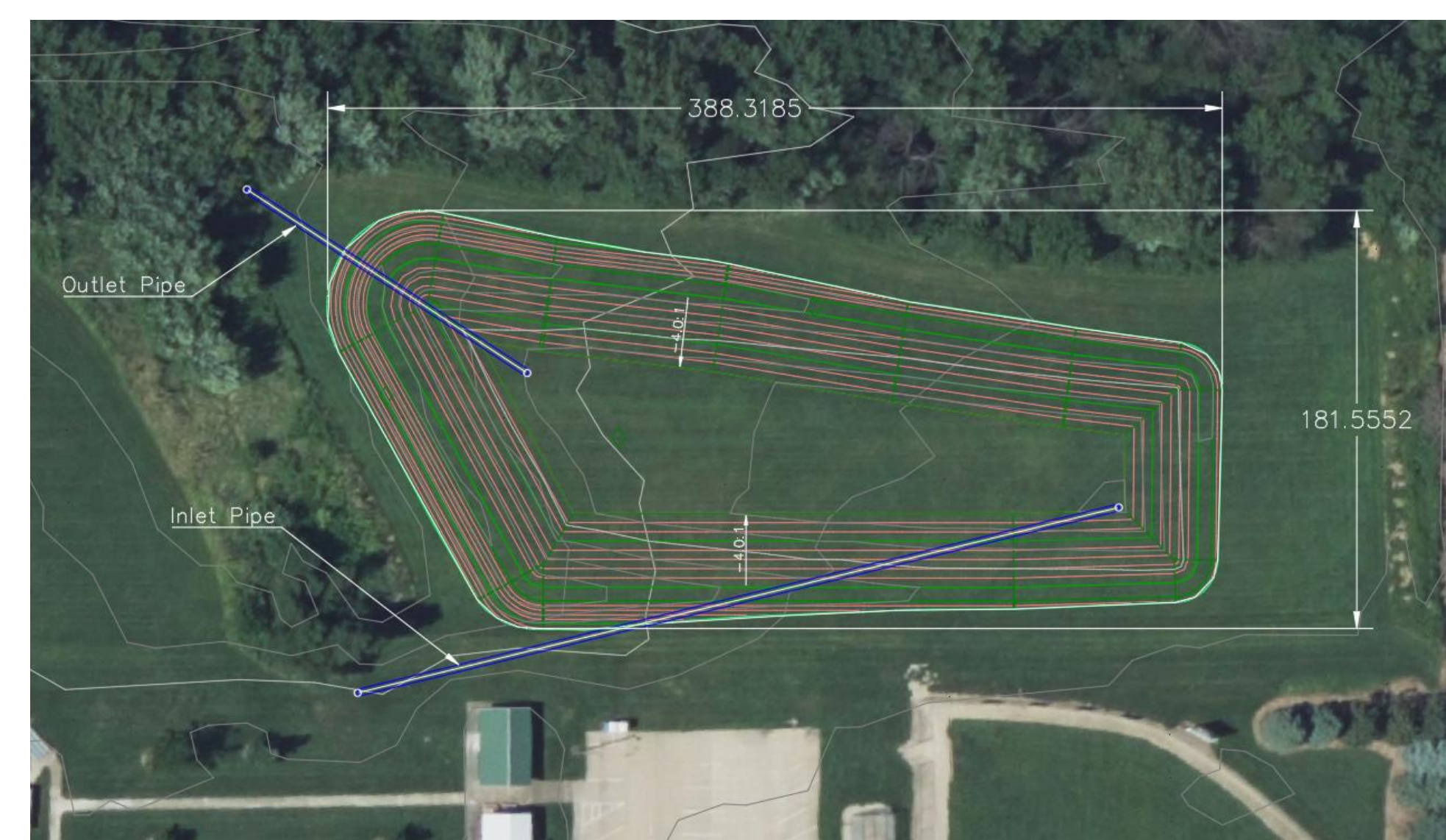


Figure 4. Detention basin design for Community Park.

## Cost Estimate

The 10% reduction of runoff plan (Figure 5) is estimated to cost \$2.04 million.

10% Runoff Reduction Plan		
	Storage Volume (acre-ft)	Cost
115 Bioretention Cells	3.4	\$1,792,000
Community Park Detention Basin	4.3	\$251,500
<b>Total</b>	<b>7.7</b>	<b>\$2,043,000</b>

Figure 5. Cost and storage estimation for 10% stormwater reduction plan.

## Cost Estimate of Alternative Designs

Three alternative plans were designed to provide the city with further options (Figure 6).

5% Runoff Reduction Plan		
	Storage Volume (acre-ft)	Cost
115 Bioretention Cells	3.4	\$1,792,000
<b>Total</b>	<b>3.4</b>	<b>\$1,792,000</b>
15% Runoff Reduction Plan		
	Storage Volume (acre-ft)	Cost
130 Bioretention Cells	3.6	\$2,026,000
R-tank, 0.46 acres, 6'	2.6	\$2,222,000
Community Park Detention Basin	4.3	\$251,500
<b>Total</b>	<b>10.5</b>	<b>\$4,499,500</b>
25% Runoff Reduction Plan		
	Storage Volume (acre-ft)	Cost
130 Bioretention Cells	3.6	\$2,026,000
R-tank, 1.69 acres, 6'	9.3	\$8,095,000
Community Park Detention Basin	4.3	\$251,500
Luers Park Bioswale	0.16	\$30,800
<b>Total</b>	<b>17.4</b>	<b>\$10,403,300</b>

Figure 6. Cost estimation summary for alternative design plans.

## Conclusions

Lake Izaak Walton Lake is a major cause of the water backup in Luers Park and the surrounding areas. The 10% reduction plan is the best option to work within city limits and help store and treat the stormwater before it reaches Luers Park.

## References

1. Iowa Department of Transportation
2. Ferguson Waterworks
3. United States Geological Survey