

Groesbeck Park Drain

2018 MACDC Innovation & Excellence Award Winner

Through innovation, persistence, and collaboration, the ICDC team transformed a 300-acre watershed riddled with groundwater contamination and no stormwater outlet, into a regional stormwater detention facility that improves water quality and protects the region's drinking water supply. The watershed is located in the northern portions of the City of Lansing and Lansing Township.

CHALLENGES

- Contains 11 different sites of varying types and degrees of contamination, including solid waste landfills, industrial disposal sites, and mining operations. Most of the construction work was adjacent to a fly ash disposal pit, an EPA superfund site, and a Class II active landfill.
- Contains a remnant of the Mason Esker, a highly permeable area of sand and gravel that is a large groundwater recharge area.
- Decades of intense urban development caused flooding of properties, local streets and the City of Lansing's Groesbeck Golf Course. Because there was no stormwater outlet, this flooding would push unfiltered stormwater and potentially polluted upstream runoff into the groundwater recharge area, eventually working into the upper portions of the aquifer that provides most of the City of Lansing's drinking water.

DESIGN OVERVIEW & INNOVATIVE SOLUTIONS

- Collection systems were constructed on David St., Barritt St., Wood St., Lake Lansing Rd. and Sam's Way that ultimately discharge through a 3-phase first flush treatment system on the east end of an old landfill site. A specialized treatment system was also constructed on the Builder's Redi-Mix property.
- Once through the first-flush treatment ponds the water is carried onto the Groesbeck Golf Course, largely restructured to accommodate nearly 7.1 acres of new treatment and detention systems.
- A pump recirculation system moves stormwater through the ponds and various limestone spillways on the golf course.

"This project has greatly enhanced Groesbeck Golf Course by improving two holes to accommodate all levels of play. We now have water features in play on 10 of our 18 holes. This project has also greatly enhanced the habitat for wildlife, which has been recognized by many of our residents. Our relationship with the Ingham County Drain Commissioner has been excellent."

BRETT KASCHINSKE | DIRECTOR OF PARKS & RECREATION
CITY OF LANSING



COST EFFECTIVENESS

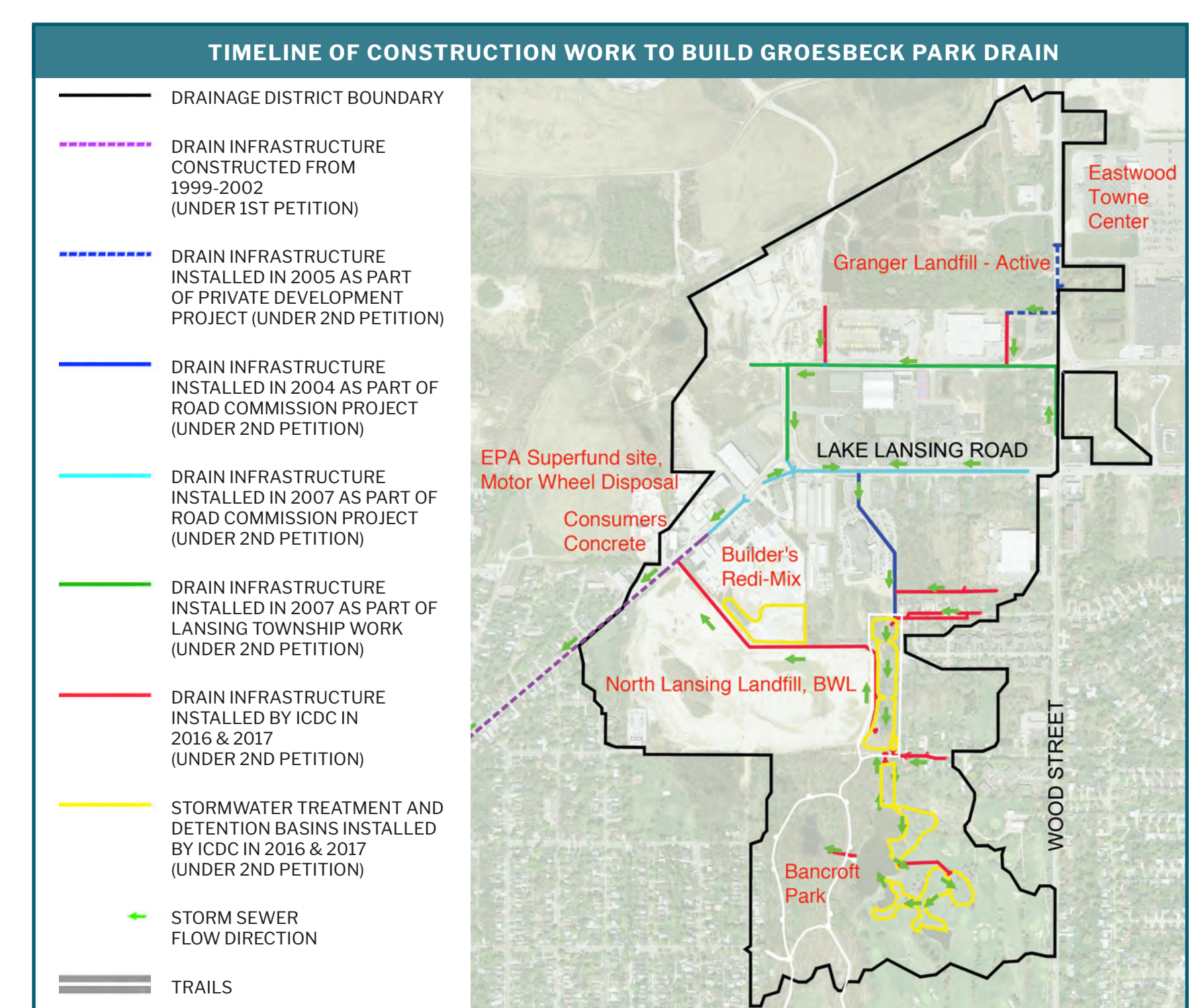
- For several years prior to bidding, the ICDC worked with local developers, the road department, City of Lansing, Lansing BWL, and Lansing Township to integrate construction of the drain into their projects resulting in a 37% (\$4.7M) cost savings.
- Value engineering was done on all items to offset cost increases during a four year gap between bidding and the start of construction (due to litigation).
- 25,000 CYD of excavation spoils from the construction of open water basins and wetlands on holes 6 and 7. When finished, no dirt was hauled off-site and these improvements were made at no cost to the city.

USE OF NEW MATERIALS

Over 75 habitat mitigation structures were installed throughout the project. These structures, like basking rock piles for snakes or sand mounds for turtles, helped to mitigate loss of valuable habitat for insects, reptiles, amphibians and aquatic species.

ENVIRONMENTAL & WATER QUALITY BENEFITS

- Vegetation was selected to maximize the uptake of pollutants, provide for a diverse wildlife habitat and create an aesthetically pleasing ecosystem.
- Instead of the stormwater collecting in low areas and infiltrating into the ground and worsening the pollution plume, the treatment ponds were lined and detention built into the system so no infiltration occurs and stormwater only leaves the site during large rain events.



PROJECT TEAM

ENGINEER Eng. Engineering & Surveying CONTRACTOR MEAD BROS. EXCAVATING, INC.	CONTRIBUTING COMPANIES Herpetological Resource and Management, LLC Miller-Canfield P.L.C. Northern Concrete Pipe PFM Financial Advisors, LLC SME Water & Woods Ecology Woodworth Law Firm
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"The degree of cooperation and collaboration was inspiring. Their sense of purpose and dedication to the impressive design was the linchpin to its success."

RICHARD ZANOTTI, PE | PROPERTY DEVELOPMENT ENGINEER
EDW. C. LEVY CO.

