

Energy-Passive Groundwater Recharge Product (EGRP®) Pilot Demonstration Project on Belle Isle, Detroit, Michigan – dated February 10, 2016

Technical Memorandum Highlight Sheet

This memo summarizes the ECT report dated February 10, 2016 (attached) documenting the effectiveness of the Energy-Passive Groundwater Recharge Product (EGRP®) to reduce the total runoff from an urban park. This report includes all of the additional data collected in 2015.

The collected data documents that the EGRP® technology significantly increases infiltration, reduces surface water runoff, and does not adversely affect the groundwater quality or level. The Belle Isle location was selected as a test site because of its history of surface water ponding during precipitation events and because the shallow geology of the island is similar to that of a large portion of Detroit and southeast Michigan.

The results of this study document that:

- 1) ECT observed no standing water at the Test Site once the EGRP® became substantially acclimated.
- 2) There was no measurable impact on the water quality of the affected groundwater (*see Table 1 below*).
- 3) Smaller storms no longer contributed to stormwater runoff from the Test Site (*see Figure 6 below*).
- 4) The groundwater elevation was not negatively impacted by the EGRP® installation (*see Figure 4 below*).
- 5) The total runoff measured in the storm sewers exiting the Test Area was reduced by 80% (*see Figure 6 below*).
- 6) Increased infiltration on the Test Site indicate the upper areas of the soil column (above the storm drain system) in the Test Area became better drained thereby reducing the saturated soils immediately adjacent to the old and permeable drainage network (*see Figure 6 below*) and had a positive impact on the infiltration contribution at the site.

Figures and Tables from Final Technical Memorandum:

Parameter	Units	MDEQ Part 201, Non-residential Drinking Water Criteria	Lake St. Clair Regional Monitoring Project – Median Dry weather (23 sites/16 events) Surface Water	Lake St. Clair Regional Monitoring Project median wet weather (13 sites/10 events) Surface Water	P-2 (Test)	P-4 (Control)
Total Phosphorus	mg/L	240	0.059	0.14	0.082	0.23
Chloride	mg/L	250	130	111	670	1,400
Total Dissolved Solids	mg/L	500	534	420	<40	<40
<i>E. coli</i>	cfu/100 mL		93	1,333	21	12

Table 1: Groundwater Quality Results – Belle Isle, Michigan

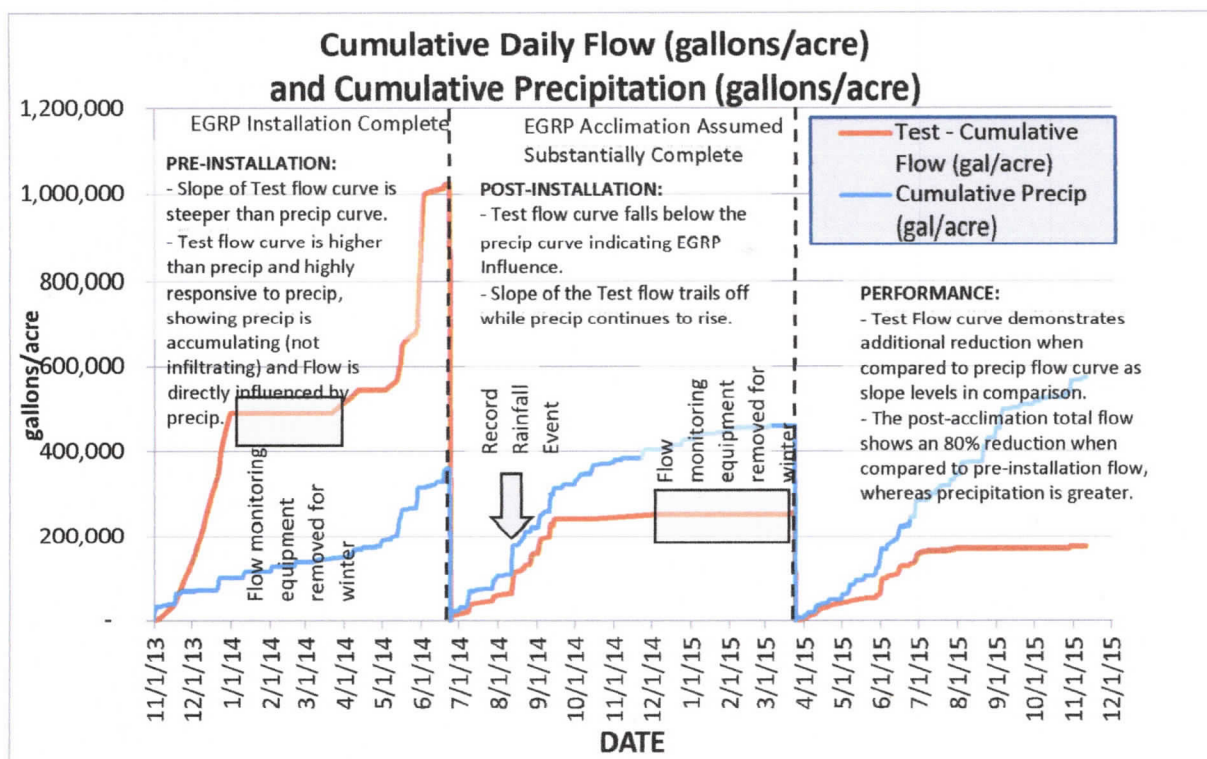


Figure 6: Test Site Cumulative Daily Flow

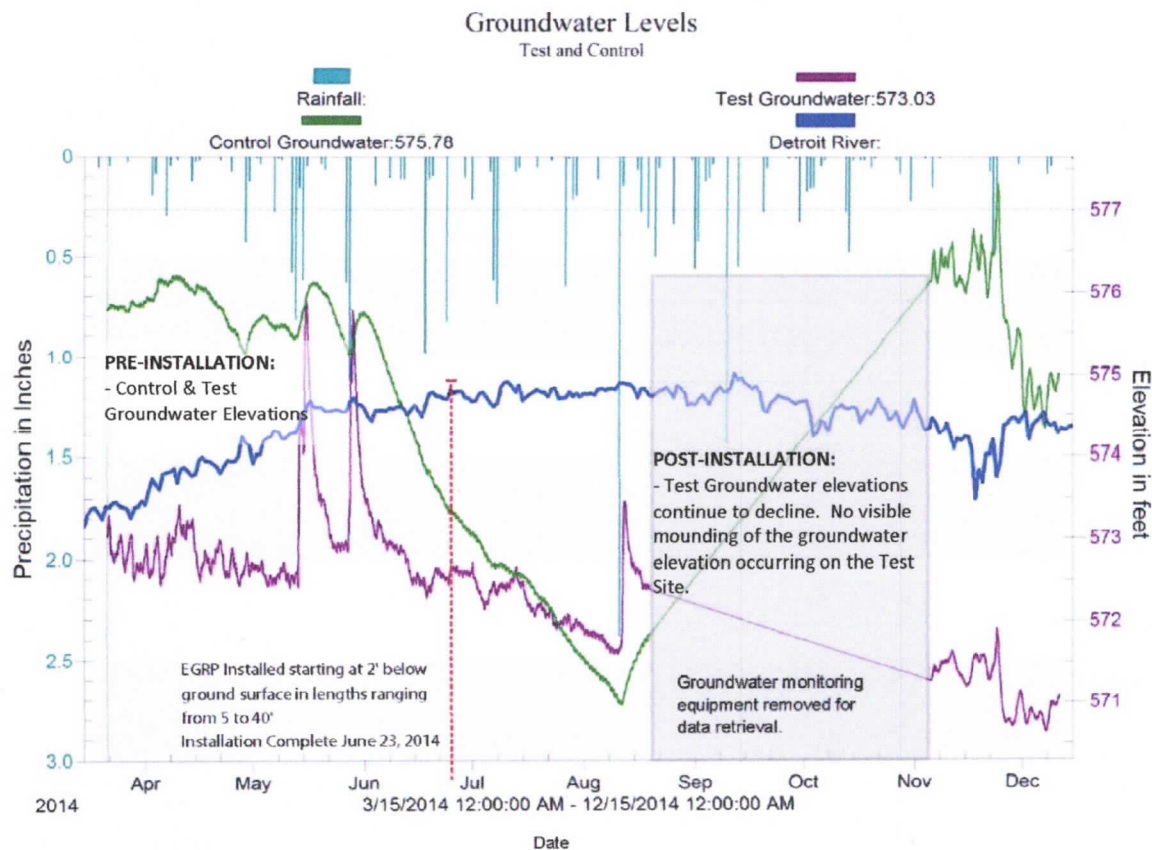


Figure 4: Groundwater and Detroit River Level Elevations