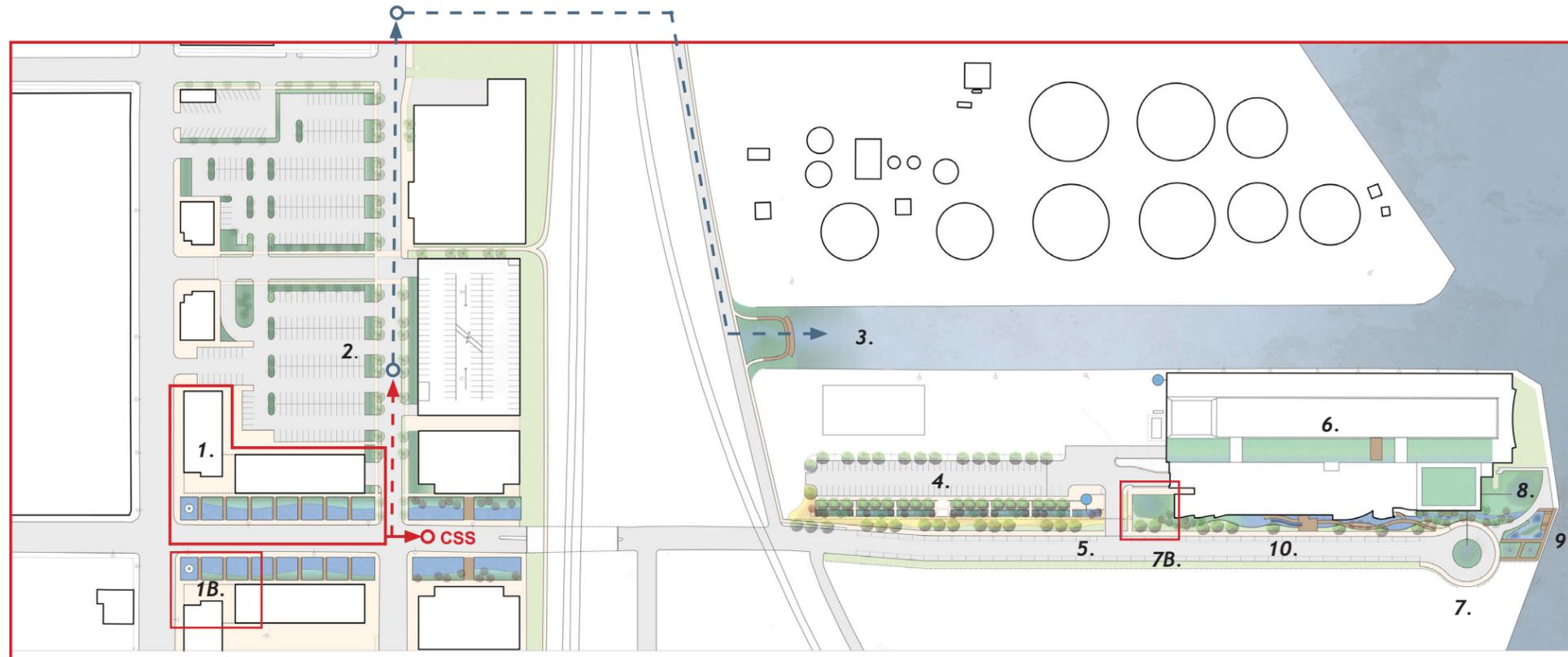


GREENFIELD AVENUE GATEWAY PROJECT

And NEW projects in progress:

THE SFS WEST ENTRY AQUACULTURE FOUNTAIN + THE ROCKWELL GATE



1. *The Greenfield Avenue Gateway
Stormwater Fountain*

1B. *NEW- The Rockwell Gate Parking Lot
Bioswale with River Birch Grove*

2. *The Grede Foundry Combined Sewer
Disconnection*

3. *The Greenfield Slip Wetland*

4. *The Experimental Street Tree Test
Cells*

5. *The West GLRF Roof Fountain and Rain Garden*

6. *The GLRF Green Roof*

7. *The Circle Sluice and Circle Wetland Garden*

7B. *NEW- The SFS West Entry Aquaculture Fountain*

8. *The Administrative Building Scupper*

9. *The SFS Spawning Stream and
Harbor Plaza*

10. *The Aquarium*

Defining a Research and Demonstration Agenda for a Civic Waterscape Showcasing Milwaukee as a Global Water City

The Greenfield Avenue Gateway is a proposed civic space occupying a 40' right of way along Greenfield Avenue from First Street heading east to the railroad embankment. The goal of the City in creating this civic space is to create a symbolic and sculptural 'gateway' to the UWM School of Freshwater Sciences and the Harbor.

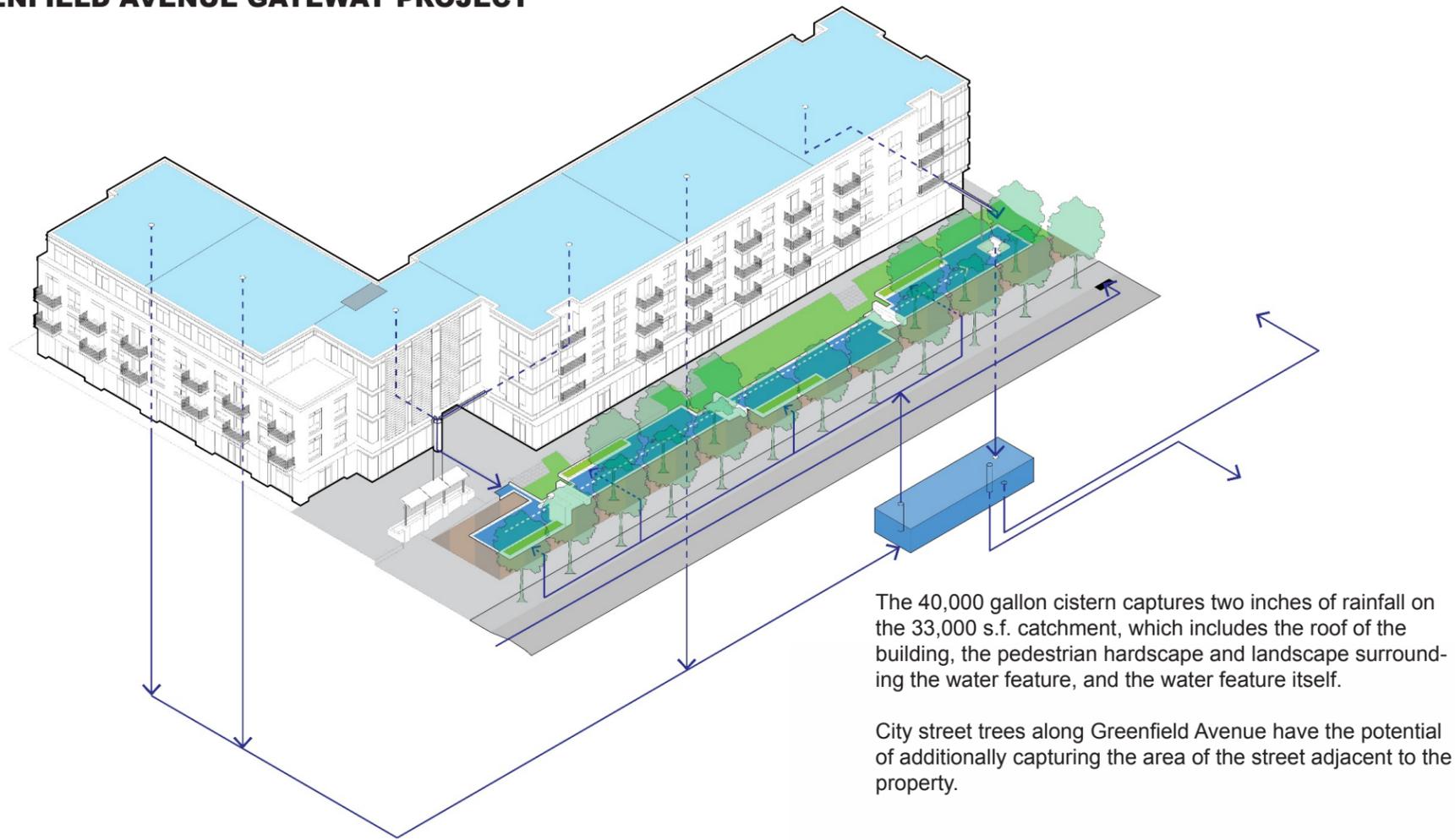
As originally proposed in the 'Ecological Waterscapes Plan for Greenfield Avenue and the UWM School of Freshwater Sciences,' the centerpiece of this civic space is a permanent water feature fed by stormwater and designed to showcase emerging principles and technologies of 'water-centric' urban design. Similarly to the canal-filtering water feature at the Global Water Center, this gateway is meant to announce Milwaukee as a global leader in water technology and design.

Complimenting this gateway element at the School of Freshwater Sciences, the newly defined SFS West Entry Aquaculture Fountain Project repeats the sculptural sluice motif of the Gateway, creating a permanent fountain feature powered not by stormwater but by the previously discarded discharge water from the Aquaculture research facilities within the building. Here the water falls into a pool that will be managed by successive generations of students to create various types of habitat.

Together, these two waterscapes collapse the distance separating the City and the UWM School of Freshwater Sciences. The Gateway project creates a venue for applied research by the designers, technology manufacturers, installers and the City itself, such that all will expand their expertise into new areas. The West Entry Sluice makes the point that all resource flows are resources, not to be wasted but put to ecologically beneficial use.

A second NEW project to gain traction is the ROCKWELL GATE, a completion of the urban design concept of creating a threshold for the Harbor District initiated by the Greenfield Ave. Gateway Stormwater Fountain. The Rockwell International parking lot on the southeastern corner of First and Greenfield will now be reworked to drain to a large bioswale planted with River Birch to match the landscape palette of the Greenfield Gate.

The Ecological Waterscape Plan for Greenfield Avenue
and the UWM School of Freshwater Sciences
GREENFIELD AVENUE GATEWAY PROJECT



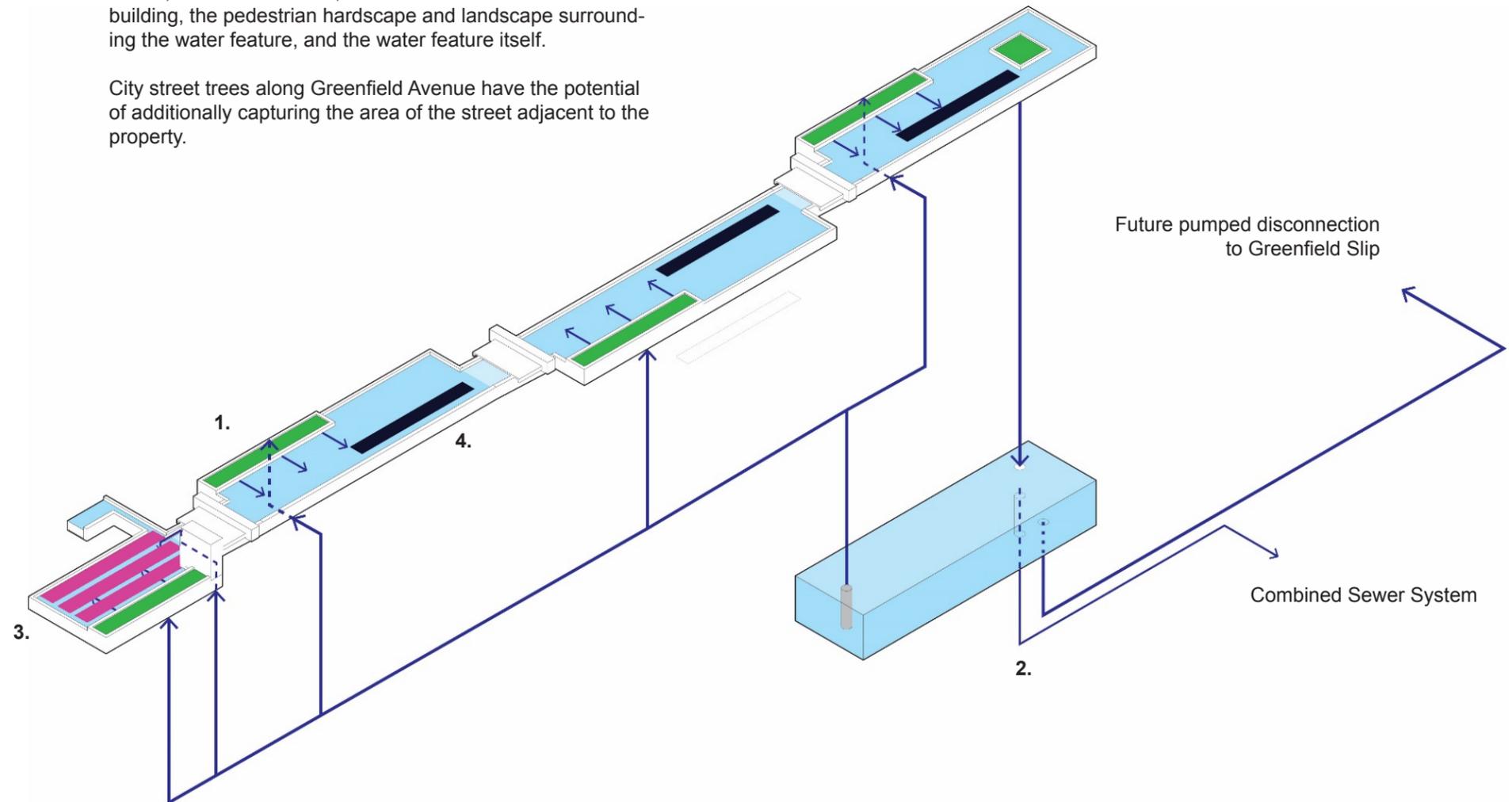
Overall Performance Goals

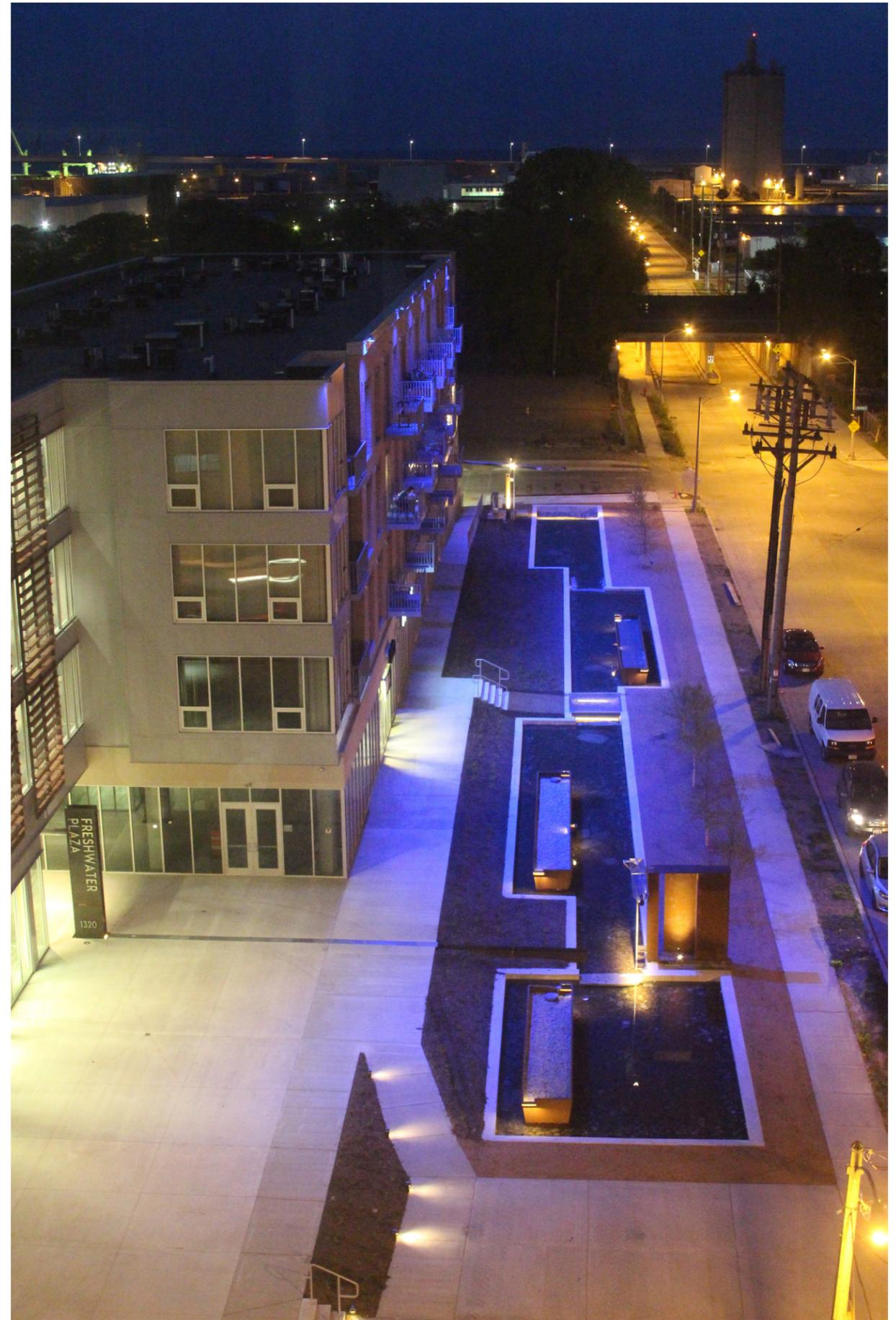
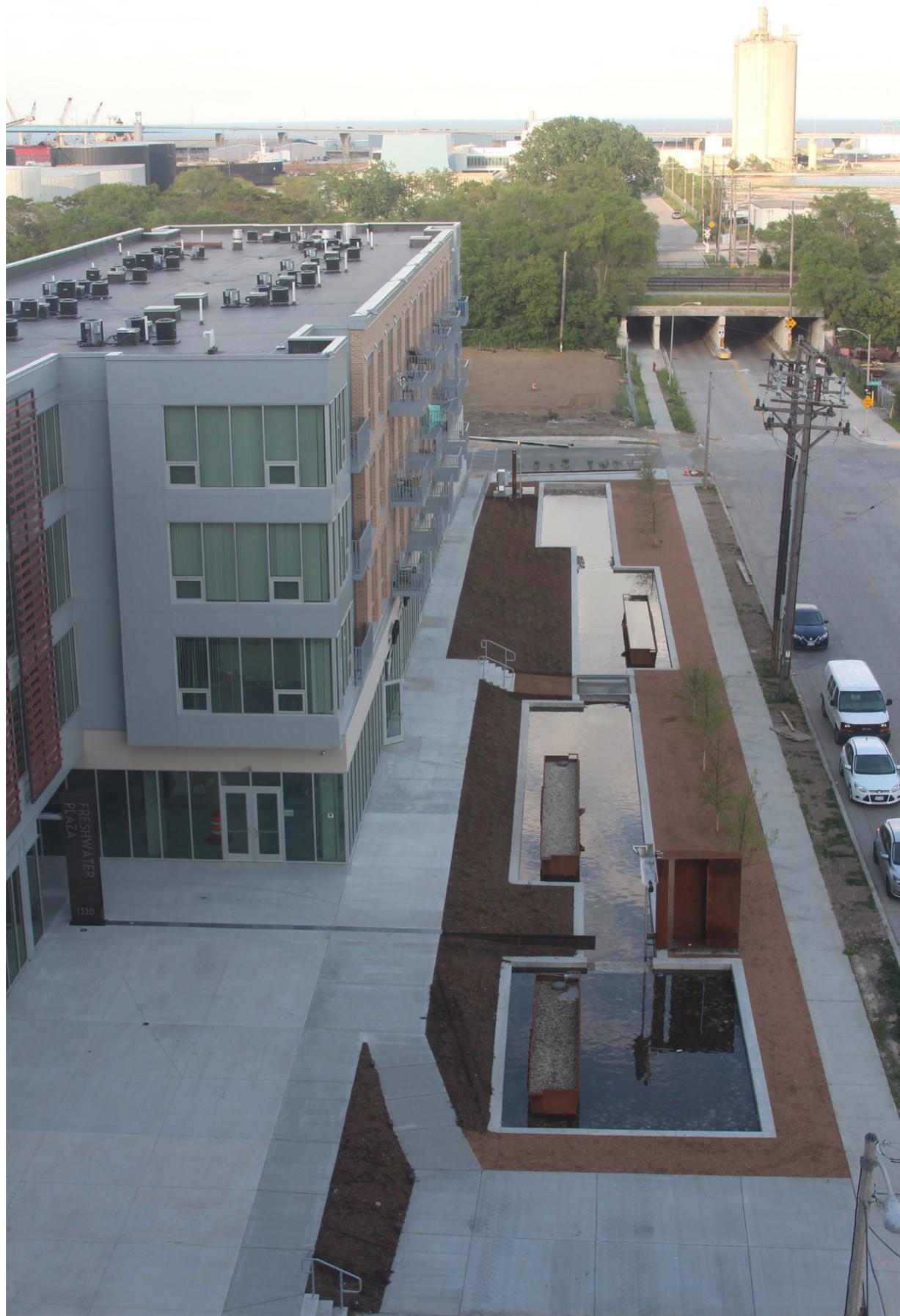
The Greenfield Avenue Gateway is designed to manage stored stormwater dynamically through predictive weather analytics to maximize the capture of a rain event, circulate that water through a suite of passive and low-energy purification technologies to create a fountain that minimizes biofilms without the use of chemicals. The goal is to produce water capable of meeting future TMDL standards, and then discharge that water at will into the combined sewer or pump it into a new stormwater conveyance system designed to be connected to the Greenfield slip.

The basic design provides greater capacity and flow control than a comparable green roof at less than half the price per gallon captured, and the proposed demonstration technologies will enhance the quality of that stored water significantly. This makes it a high-value system for dense urban environments where the amenity value of green infrastructure is a compelling selling point. Finally, these technologies as a suite may have broader relevance to improving the ecological function of a wide variety of existing detention strategies, which currently address TSS standards but make other aspects of water quality worse by increasing biological oxygen demand.

An Experiment in Integrating Demonstration Technologies

1. **Aquascapes Inc.- Forced Upflow Wetland Planters**- overflowing planters provide a primary visual source of water for the fountain and the primary means for water quality filtration.
2. **Veolia Rain:Net**- Web connected predictive controls that provide a signal to purge the cistern in anticipation of a rain event. Veolia has committed to including the Greenfield Avenue Gateway in their pilot project as one of seven active sites to be equipped and monitored.
3. **Solar Water Works**- Solar-powered, catalytic oxidation process for stormwater disinfection. This system will be designed to treat 20 gallons/ minute at pool 1. Recent conversations suggest a novel application of the technology that may allow us to treat a far greater volume of water for the same cost. The idea is to dispense with the housing, pump and plumbing for the catalytic surface and suspend the catalyst panels within the basin proper.
4. **UWM Phosphorous Sequestering Tea Bags**- Blankets of multi-layered filtering geotextiles with closable pouches filled with treated zeolite, suspended below the surface of the pools in a rack system similar to the optional method of deploying the Solar Water Works catalytic surface.







FRESHWATER
PLAZA
1320

110



NO PARKING
ANY TIME



en-Bridley AB

S 1st St





