

City of Evanston's Clearwell 9 Replacement Project Recognized with the Envision® Verified Award for Sustainable Infrastructure

The Clearwell 9 Replacement Project includes the replacement of a five million gallon treated water storage reservoir with a new similarly sized facility, a new overflow, a new submersible pumping system, and site piping modifications. A parking lot was also converted into green space as part of this project.



Above: Clearwell 9 Replacement Project post-construction

The original Clearwell had been operational since 1934. After decades of serving the community, the project deteriorated, which prompted the city of Evanston to determine its long-term needs for treated water storage. A lifecycle cost analysis was undertaken to determine the best course of action for the facility: repair it or replace it. The study concluded that it would be most cost-effective to replace the Clearwell. In addition to a badly deteriorated roof, the characteristics of the existing pumps in the system were such that the bottom several feet of the reservoir could not be pumped out. This meant the city of Evanston was not able to utilize the full stored volume of water.

The Clearwell 9 Replacement Project is located near Lincoln St. Beach. Construction of this \$20 million facility started in February 2019 and was completed in February 2021.

The city of Evanston closely collaborated with CDM Smith and Thieneman Construction Inc. on this Envision-verified sustainable project.

KEY SUSTAINABILITY ACHIEVEMENTS / VERIFIED RESULTS

Improving views, enhancing community aesthetics, and adding new public space. The project site, originally an aging parking lot that detracted from the aesthetics of the area (see leftmost image below), has been upgraded to green space for the residents of the adjacent Northwestern University (NU) dormitories and the community. Converting a parking lot into green space has not only improved aesthetics, but has also added a new public space, and provided a safe area for bikers and walkers, allowing them to enjoy the view of Lake Michigan and giving them better access to the beach. Furthermore, adding green space is aligned with one of the key strategies in the city of Evanston's climate action and resilience plan.

Meaningfully engaging stakeholders. The project team established sound and meaningful programs for stakeholder identification, early and sustained stakeholder engagement, and involved stakeholders—including regulatory organizations, nearby communities such as NU, and Evanston's wholesale water customers—in project decision-making. As part of the temporary construction easement that was required to perform the work, a partnership between Evanston and NU was formed. Working together, the two partners effectively achieved solutions with respect to any issues with project plans and specifications.

Implementing an innovative design. The project utilized an innovative underdrain collection system that provides many benefits, including protection against damage to the Clearwell from underground uplift forces; protection of the potable water supply from groundwater contamination; and significantly lowered capital costs, lowered energy use, and lower operations and maintenance costs over the life of the project compared to constructing a new pump station that would be required for an above-ground Clearwell. To implement this innovative design, the project team needed to overcome barriers—barriers in the form of current regulations that no longer allow for clearwells to be constructed below grade. The team successfully obtained a permit to implement this design from the Illinois Environmental Protection Agency after demonstrating the benefits and safety of the design.

Protecting the natural world. This project is protecting the natural world in many ways, including:

- **Protecting nearby wetlands.** Construction of this project would have been easier had the location been moved to the east side, away from existing NU dormitories; however, identified wetlands would have been impacted so this action was not taken.
- **Preserving undeveloped land.** Siting alternatives included moving the project to a greenfield, but ultimately the team and NU decided to site the project below an aging parking lot used by the University, and they converted the parking lot above the Clearwell to a much-needed green space.
- **Protecting soil health.** Most of the construction work was located within paved and developed areas; thereby, limiting the area disturbed by construction activities. Two small areas of green space, located to the north and south of the construction work area, were used as storage and staging for the contractor. All vegetated areas disturbed by development activities were fully restored with appropriate soil type, structure, and function to support healthy plant and tree growth. Furthermore, existing trees within the storage and staging areas were fully protected.

SOUNDBITES

Dave Stoneback, Public Works Agency Director: "The successful completion of the Clearwell 9 Replacement Project will enhance the ability of the Evanston Water Utility to provide clean, safe and reliable water to more than 480,000 water customers in 10 communities. This \$20M project was completed on schedule and within

budget and was made possible by our partnership with Northwestern University and funding provided by the Illinois Environmental Protection Agency revolving loan fund."

Melissa Peneycad, ISI's managing director: "The city of Evanston has a long-standing commitment to sustainability, climate action, and livability. In keeping with this commitment, the team embraced the principles of sustainable design using Envision as a guide, and ultimately sought third-party verification to confirm the project's sustainability attributes. Congratulations to the city of Evanston and its project partners on earning the Envision Verified Award for the Clearwell 9 Replacement Project."



Above left: Clearwell 9 Replacement Project Pre-Construction; above right: During Construction

PROJECT DETAILS AT-A-GLANCE

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| Envision-verified project: | Clearwell 9 Replacement Project |
| Location: | City of Evanston, Illinois |
| Lead Envision Firm: | City of Evanston |
| Envision Rating: | Verified |
| Award Date: | January 12, 2022 |
| Project Owner: | City of Evanston |
| Project Team: | CDM Smith (engineering services) Thieneman Construction Inc. (construction) |
| Project Phase: | Operational (construction complete) |
| Project Delivery Method: | Design-Bid-Build |
| For more information: | Please visit the Project Website for updates |