



REDMOND PARK-AND-RIDE GETS ONBOARD WITH OLDCASTLE INFRASTRUCTURE STORMWATER TREATMENT TRAIN

Redmond, WA

Protecting nature within our urban environment requires the proper management and treatment of stormwater runoff. To do so, most communities have a maze of drainage networks, and precast concrete typically plays a vital role.

In Redmond, the new Overlake Village park-and-ride is getting a 10' wide by 36' long by 18' deep PerkFilter[®] stormwater treatment system with 65 30" tall cartridges with space for up to 84 additional cartridges. The system

also includes a 12' diameter Downstream Defender[®] for trash and debris capture. As designed, the PerkFilter system has a design flow rate of 1,428 gpm (3.2 cfs), while the Downstream Defender has a treatment flow rate of 18 cfs.

Located adjacent to the Overlake Village park-and-ride on 152nd Avenue NE will be a new light rail station, with a targeted open date of 2023. The station's entrance will be along 152nd Avenue NE, just south of SR520. Once

DESIGN & CONSTRUCTION TEAM

Owner

Sound Transit

General Contractor

Kiewit Hoffman East Link Constructors
Marshbank Construction, Inc.

Engineer

McMillen Jacobs Associates

Manufacturing Facility

Oldcastle Infrastructure
Auburn, WA

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completed, the new light rail line will link Overlake Village to Pioneer Square, with the ride taking about 30 minutes. Contemporary in design, the station was devised in accordance with the City of Redmond's 152nd Avenue Corridor Study and Overlake Village Neighborhood Plan.

PRECAST SOLUTION

Working together, general contractors Kiewit Hoffman and Marshbank Construction along with McMillen Jacobs Associates designed the deep underground PerkFilter vault while also meeting the regulatory requirements of the Washington State Department of Ecology (WADOE). After review, they concluded that a segmented precast concrete panel vault system would be easier to install with its reduced overall pick weight while also saving installation time over a cast-in-place system. The precast solution with the PerkFilter cartridges would also allow sediment and

other pollutants to be removed in accordance with WADOE requirements.

WADOE issues guidelines for how stormwater runoff is treated before being discharged off jobsites. As a developed site with impervious surfaces, the park-and-ride facility ensured its stormwater runoff would be as clean as from an undeveloped site with its new stormwater treatment system.

Oldcastle Infrastructure of Auburn, Washington designed, engineered, manufactured and delivered the precast concrete components of the underground PerkFilter system. Oldcastle Infrastructure Auburn Project Manager Rick Roof remarked that "using precast provided a variety of benefits including strength, durability, flexibility of design, and it vastly improved the construction schedule, operational efficiencies and overall quality of the

detention structures for this project."

In total, Oldcastle Infrastructure supplied the flat-base slabs, wall panels, top slabs, ladders, cast-iron covers and risers for the underground stormwater treatment vault as well as the PerkFilter cartridges and associated installation hardware.

Once operational, the precast concrete PerkFilter vault can treat 1,428 gpm of rainwater before slowly releasing it into the downstream detention system. Each precast panel was sealed using hydrophobic sealer. As soon as water touches the sealer, it triggers the sealer to spread, harden and cure between the panels so there is no seepage.

A parking lot and pedestrian walkway will eventually cover the PerkFilter vault, so stormwater will be piped into the underground structure. According to

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Oldcastle Infrastructure Area Technical Manager Deon Lourens, “these are complicated systems, and it’s great to see what our capabilities are as a company. The benefits of precast include speed, quality and versatility, which saves time and money for onsite contractors.”

“The Oldcastle Infrastructure Auburn plant did an excellent job to make this project happen,” he added.

About Oldcastle Infrastructure

Oldcastle Infrastructure, A CRH Company, is the leading provider of building materials, products and services for infrastructure projects to several market sectors nationwide, including: Building Structures, Communications, Energy, Transportation and Water.

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