



WHOLE FOODS MARKETPLACE

Paver System increases retail footprint and improves life cycle costs

LOCATION:

101 N. Loop West
Houston, Texas

MANUFACTURED BY:

Oldcastle® APG, Inc., Jewell

PRODUCT:

AquaRoc II® & Moduline® 3" x 18"

COLOR:

Storm, Graphite, Linen

QUANTITY:

38,000 SF, 1,800 SF

SPECIFIER/ENGINEER:

ALJ Lindsey

LANDSCAPE ARCHITECT:

Boucher Design Group

DEVELOPER:

Fidelis

GENERAL CONTRACTOR:

WDS

INSTALLER:

Creative Paving Concepts



Background

The site chosen for the new Whole Foods had a history of flooding, as did the adjacent intersection. When approached by the development team, the City of Houston was concerned about redeveloping the site and stated that any proposed development could not increase flooding in the intersection, and ideally would reduce the incidence of flooding.

The Challenge

The site was tight. An above-ground detention system was taking up too much space, and storage vaults were too deep to connect to the shallow storm sewers. The developer was struggling to make the property work within the given budget until the City of Houston recommended exploring permeable pavers. The civil engineer then reached out to Jamie Rodriguez, Belgard Senior Hardscapes

Consultant for a better understanding of permeable pavers as a stormwater control measure.

The Solution

Belgard Paver Design Services worked with engineering firm ALJ Lindsey to develop a preliminary pavement system design. Permeable pavers in the parking stalls would provide stormwater detention in the voids of

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the stone beneath both the permeable parking stalls and the impervious concrete drive aisles. Stone-filled trenches were designed to provide conveyance from the parking stalls to the detention area. Belgard Paver Design Services created an innovative detail to transition from the permeable paver parking lot to the standard paver area used for the food trucks, without using a concrete curb.

The on-site soils had a significant swell potential, which could be exacerbated by water introduced through the permeable paver system. Working with ALJ Lindsey and the geotechnical engineer, Belgard Paver Design Services created custom details for the installation of an impermeable liner to protect the subgrade from swelling and to ensure the landscape islands had adequate access to native soil. Belgard worked closely with the General Contractor, the Civil Engineer, and the Paver Installer during construction to

provide real-time support to keep the project on schedule.

The Result

Upon substantial completion, Belgard tested the surface infiltration rate per ASTM C1781, *Standard Test Method for Surface Infiltration Rate of Permeable Unit Pavement Systems* and determined that the system had an initial surface infiltration rate of 833 in/hr. The test was provided to the City of Houston as part of the stormwater permit close-out documentation.

By utilizing a permeable paver system to capture, convey, and store stormwater, Whole Foods was able to develop several retail spaces where the detention basin was originally sited. While the permeable paver stormwater system was more expensive than the above-ground detention originally in the

design, Fidelis (the developer) stated that the rental income from the retail space would pay for the added cost within 6 years, allowing the property to significantly outperform financial forecasts for the life of the project.

About Belgard®

Belgard, part of Oldcastle APG, offers a complete collection of paver and wall products for outdoor living spaces, walkways, driveways, parking areas and retaining walls. Available in a range of styles, premium Belgard products have been found in America's finest homes and award-winning commercial and retail properties since 1995. For more information, visit Belgard.com or call 1-877-Belgard (235-4273). Oldcastle APG is part of CRH's Building Products division. CRH is a leading global diversified building materials group, employing c.85,000 people at c.3,600 operating locations in 32 countries worldwide. CRH is the largest building materials company in North America and the second largest worldwide.

