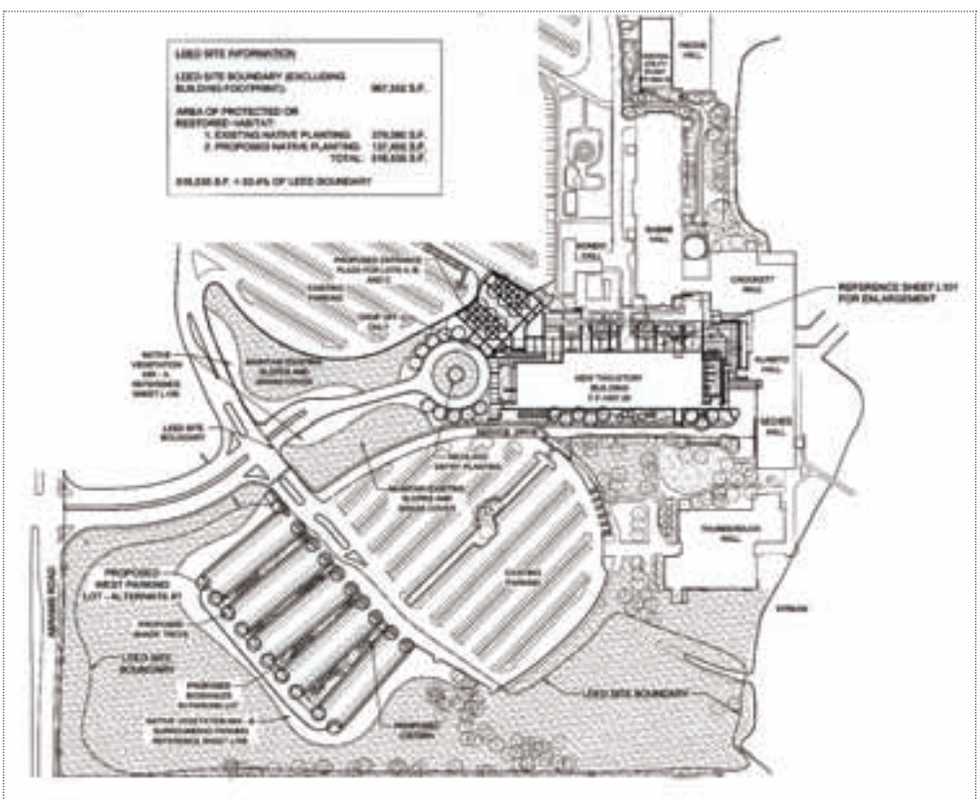
Going Platinum

Incorporating sustainable storm water management methods on a Texas college campus proves a major step toward earning the LEED system's highest rating

By Randy Wilkins



Richland College's landscape development plan.

Linda Tycher & Associates, a landscape architecture firm, was given the task of creating the most sustainable, water-efficient site of its kind in the Dallas-Forth Worth Metroplex in Texas. The blank canvas came in the form of a community college, and the group chose the Atlantis Raintank system to help achieve its objectives.

Richland College started the design of its new $40-million, 141,167-sq-ft science building and parking lots in the fall of 2006. Richland's president, Dr. Steve Mittelstet, gave the design team, headed by Perkins & Will Architects, the goal of achieving

LEED Platinum status under the U.S. Green Building Council's Leadership in Energy and Environmental Design rating system.

LEED is a nationally recognized standard for the design and construction of high-performance green buildings, and platinum is its highest level of certification. Richland College is among the first community colleges in the U.S. to participate in the campaign for sustainability.

Storm Water Features

The new science facility will host Richland's health and science programs. Linda Tycher & Associates' design for the science building and parking lots employs bioinfiltration swales, green roofs, disconnected downspouts and an Atlantis Raintank Water Harvesting System. These basic tools from the low-impact development (LID) toolbox greatly decrease storm water runoff, a key goal in developing sustainable sites, and dramatically increase time of concentration.

The objective is to minimally impact the downstream watershed by keeping runoff from the developed site at or near the volumes and velocity of runoff prior to development of the property. By slowing the water, green roofs, downspouts that are disconnected from impervious surfaces and bioinfiltration swales allow time for infiltration, evaporation, uptake by plants and evapotranspiration. These techniques also provide big benefits for storm water quality. In addition to storm water-related benefits, the green roofs offer gains in energy efficiency, heat island effect reduction and roof membrane life expectancy.

Instead of using traditional storm sewer inlets and piping, the paving in the parking lot will be graded toward landscape islands so that the storm water flows through curb cuts and into the bioinfiltration swales. As water moves through the swales, it slows because it is filtered by the vegetation.

As it slows, the water begins to percolate downward through an engineered sand-soil matrix designed for rapid infiltration rates. This matrix is also designed to remove pollutants such as hydrocarbons and total suspended solids before the water enters a perforated under-drain system. Plants in the swale take up these pollutants, using them as a food source.

The under-drain collection system takes the cleansed water to an underground Atlantis Raintank

water management system cistern. This clean, captured storm water is then reused for onsite landscape irrigation and non-potable water uses inside the building.

Earning Points

Other building features will include special construction for harvesting sunlight, cisterns that irrigate rainwater to other parts of the campus and interactive devices in restrooms that users control. Some building materials such as the carpet will be recycled, and local vendors will be utilized as often as possible to minimize exhaust fumes from lengthy transports. Even the décor will be eco-friendly; a geology pit, for instance, will offer hands-on "field learning" for students.

Utilizing the LID strategies outlined in concert with the water management system, the Richland project will obtain 16 LEED points—a big step toward the 52 total points needed.

Corresponding Commitment

Furthermore, Mittelstet recently agreed to sign the American College and University Presidents Climate Commitment (ACUPCC). This agreement solidifies commitments from college and university presidents to contribute to a more eco-friendly world, both locally and globally. Richland will be one of only two Texas higher education institutions, and the first in northern Texas, to make such an agreement.

The ACUPCC signing means that the participating colleges and universities are to complete a thorough plan to achieve climate neutrality and facilitate policies and procedures such as purchasing energy-efficient appliances and collecting inventory of greenhouse gas emissions and conceptualizing goals to reduce them. Richland will also make sustainability a part of its curriculum and other educational experiences for students. SWS

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