



## Low Impact Development and Environmental Site Design

### *What are Low Impact Development Designs?*

Low Impact Development (LID) designs are stormwater structures that are intended to reduce stormwater volumes and improve water quality. These designs allow the stormwater to be filtered through a natural system before it runs off into surface waters. Incorporating more natural designs for stormwater management structures facilitates the infiltration of stormwater back into the water table. Replenishing the water table allows for groundwater and surface water recharging. Examples of LID designs include bioretention areas/rain gardens, green roofs, pervious surfaces, open meadows, vegetative swales, converting turf to shrubs and trees, reduced pavement widths, shared or shorter driveways, cluster development, rain barrels, and eliminating curbs and gutters. Many of these structures are commonly incorporated into new designs to meet the requirements of the Maryland Stormwater Management Act of 2007, which was created to improve the quality of water in the Chesapeake Bay and its tributaries.

*Rain Garden*



*Green Roof*





### *Ways to Improve Water Quality and Cash Flow*

The U.S. Environmental Protection Agency (EPA) recently released a report on the cost analysis of LID. The study revealed that in most cases integrating LID designs into projects reduced costs by 15 to 80% over conventional stormwater control methods. Most of the savings were seen in the reduction of concrete and other hard materials used to control stormwater flows. The study looked at the short term effects of using LID designs; however, there are many long term benefits to using LID designs. For instance, conventional storm water structures are costly to maintain and replace, while LID designs require only minor upkeep. LID has shown to reduce pollutants in stormwater, such as metals, by 20 to 40%. In addition, LID minimizes the need for larger stormwater management structures because it reduces stormwater volumes by 20%. Decreasing the load on the stormwater structures leads to improved water quality. The full EPA report about LID can be downloaded at [www.epa.gov/nps/lid](http://www.epa.gov/nps/lid).

### *LID Structures – Why We Want Them*

Homeowners have accepted Environmental Site Designs positively. Many property owners considered the LID stormwater structures to be more aesthetically pleasing than unsightly conventional stormwater structures. Think about it. Would you buy a house with a view of a stormwater pond? Imagine all the debris and murky water it collects. On the contrary, rain gardens are landscaping marvels with purpose and benefits. Open meadows possess possibilities that open lawns do not. Who doesn't appreciate the shade provided by trees? Imagine the wildlife that would be attracted to the flowers and shrubs.

### *LID Practices at Goddard*

Goddard has already developed plans to build a bioretention area. Bioretention basins are shallow landscaped depressions that naturally filter pollutants from surface water runoff. The first bioretention will be installed at the building 32 parking lot. Installation on this bioretention area, which will hopefully be the first of many, could begin in 2008. Goddard has already secured "no mow" areas and started replacing them with open meadows. Likewise, trees have been planted in large lawn areas where meadows are not feasible. This can be observed in the lawn area near the parking lot between buildings 16 and 23.

