

LID stormwater management design techniques include management and treatment of stormwater as close to the source as possible.

Each phase of construction will be designed to manage the stormwater that falls on that specific site.

The stormwater management design will meet all of the Town of Avon as well as the CTDEEP requirements for water quality as well as water quantity for runoff leaving the site.

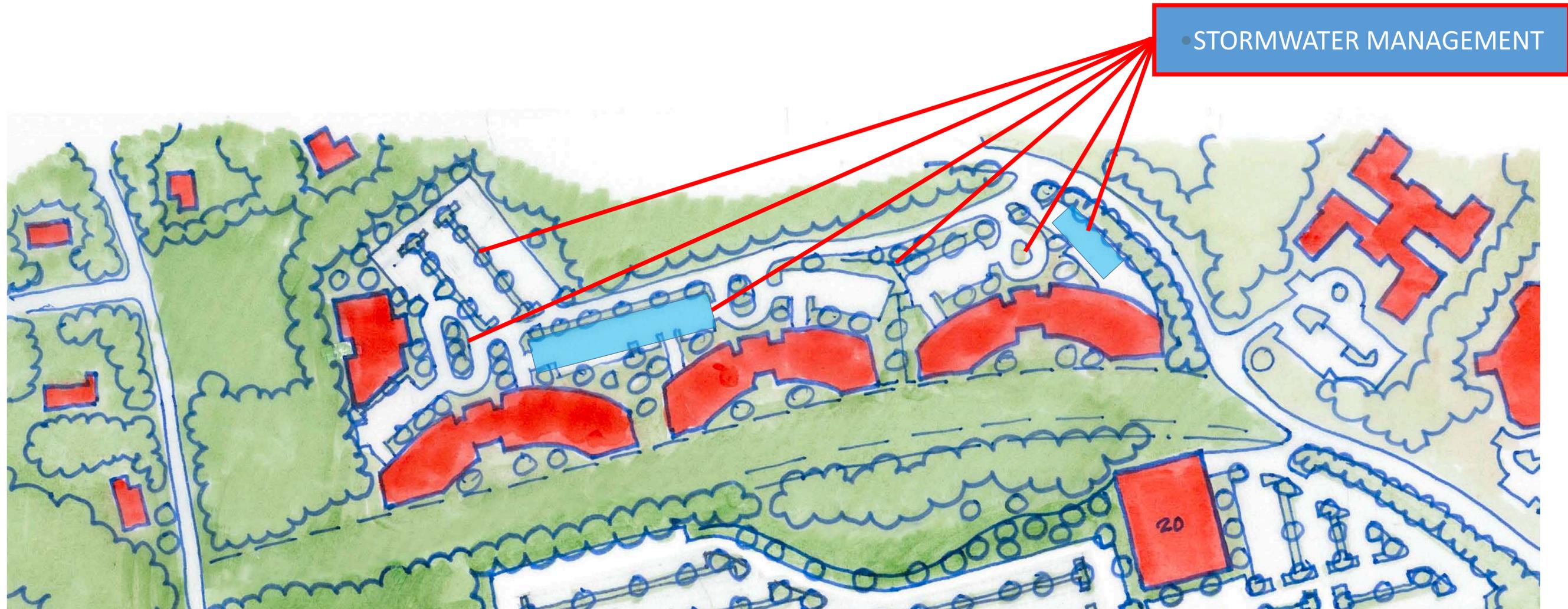


Evergreen Walk



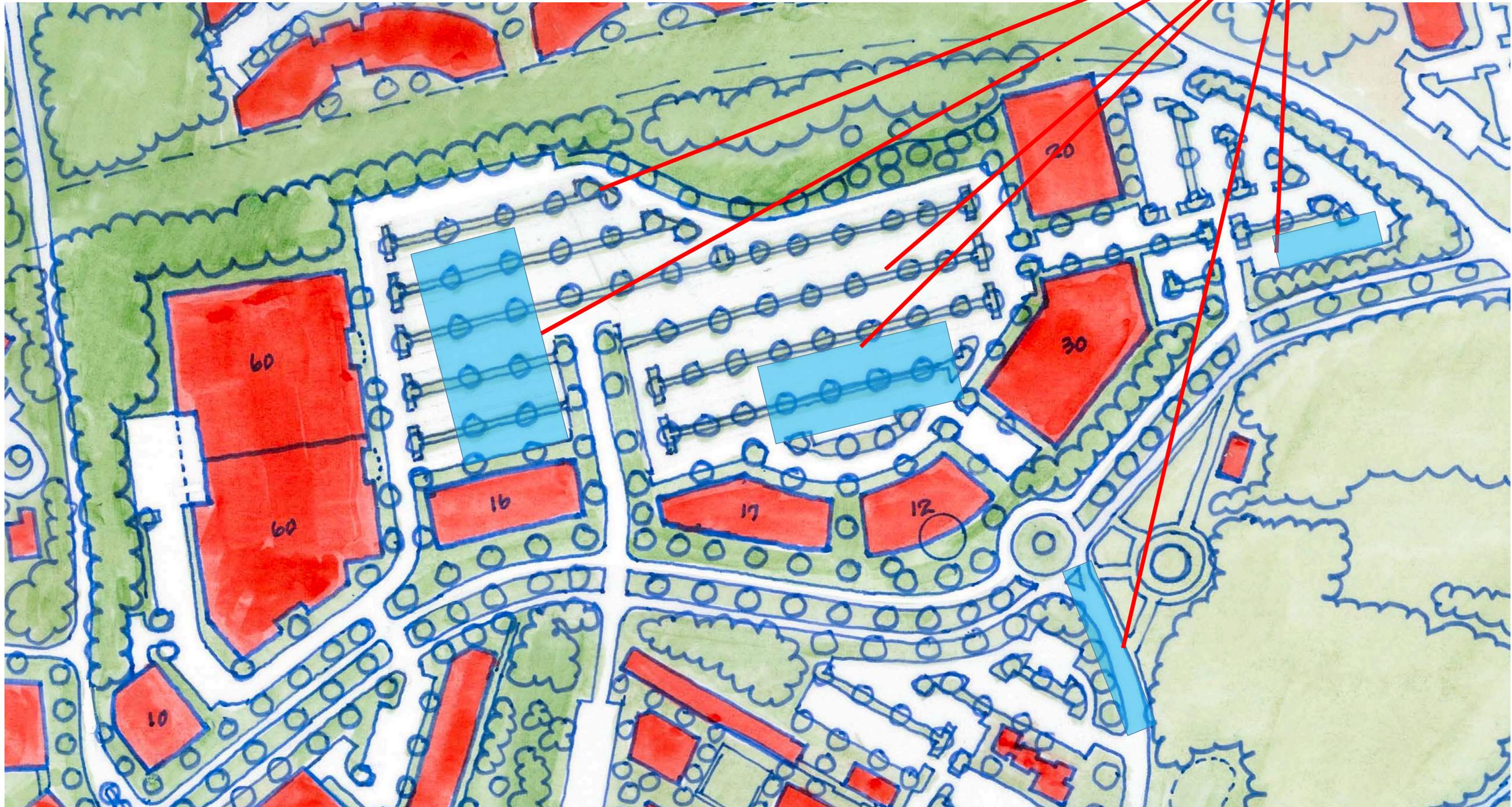
Town of Vernon

Stormwater Management



Stormwater Management

• STORMWATER MANAGEMENT



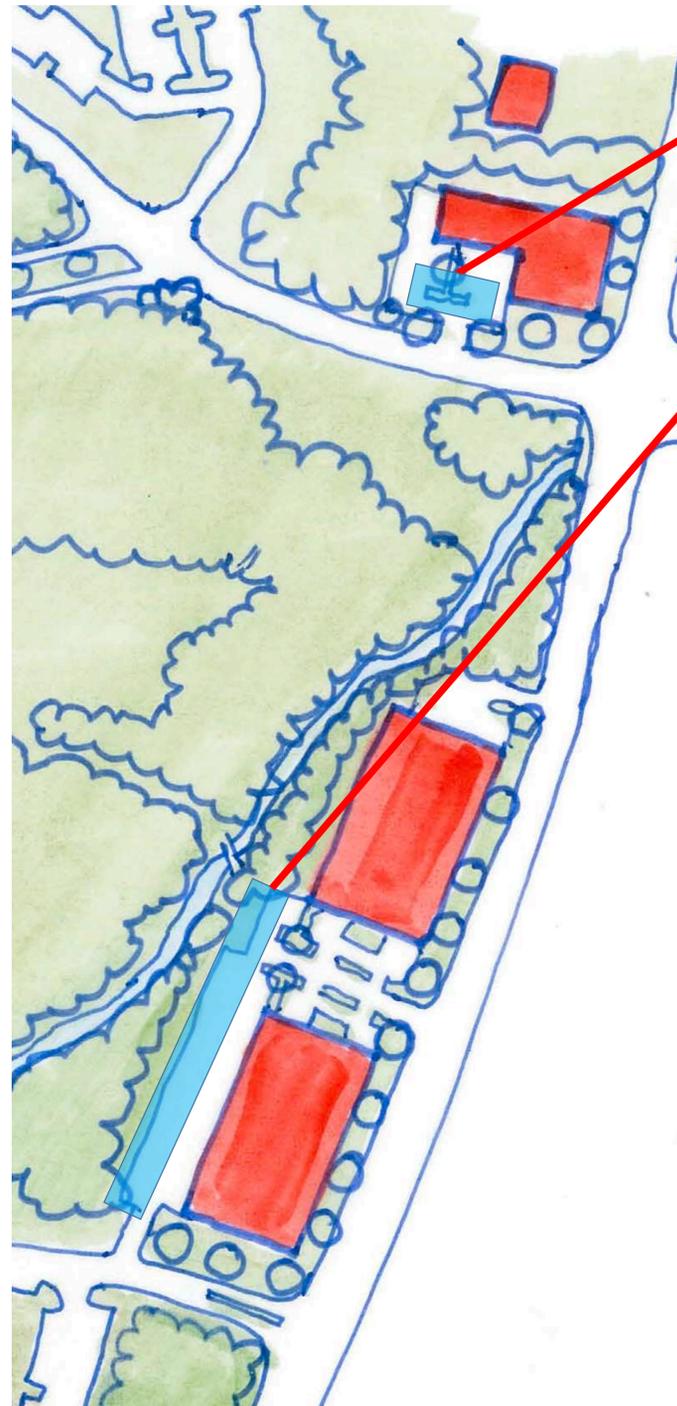
Stormwater Management

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LEED – Leadership in Energy & Environmental Design

U.S. Green Building Council

HEALTHCARE SUPPLEMENT

GREEN BUILDING DESIGN AND CONSTRUCTION

WITH GLOBAL ALTERNATIVE COMPLIANCE PATHS

LEED Reference Guide for Green Building Design and Construction
For the Design, Construction and Major Renovations of Commercial and Institutional Buildings Including Core & Shell and K-12 School Projects
2009 Edition





LEED v4 for BD+C: Core and Shell

Project Checklist

Project Name:

Date:

Y ? N

Y	?	N	Credit	Integrative Process	1
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0	0	0	Location and Transportation		20
Y			Credit	LEED for Neighborhood Development Location	20
Y			Credit	Sensitive Land Protection	2
Y			Credit	High Priority Site	3
Y			Credit	Surrounding Density and Diverse Uses	6
Y			Credit	Access to Quality Transit	6
Y			Credit	Bicycle Facilities	1
Y			Credit	Reduced Parking Footprint	1
Y			Credit	Green Vehicles	1

0	0	0	Sustainable Sites		11
Y			Prereq	Construction Activity Pollution Prevention	Required
Y			Credit	Site Assessment	1
Y			Credit	Site Development - Protect or Restore Habitat	2
Y			Credit	Open Space	1
Y			Credit	Rainwater Management	3
Y			Credit	Heat Island Reduction	2
Y			Credit	Light Pollution Reduction	1
Y			Credit	Tenant Design and Construction Guidelines	1

0	0	0	Water Efficiency		11
Y			Prereq	Outdoor Water Use Reduction	Required
Y			Prereq	Indoor Water Use Reduction	Required
Y			Prereq	Building-Level Water Metering	Required
Y			Credit	Outdoor Water Use Reduction	2
Y			Credit	Indoor Water Use Reduction	6
Y			Credit	Cooling Tower Water Use	2
Y			Credit	Water Metering	1

0	0	0	Energy and Atmosphere		33
Y			Prereq	Fundamental Commissioning and Verification	Required
Y			Prereq	Minimum Energy Performance	Required
Y			Prereq	Building-Level Energy Metering	Required
Y			Prereq	Fundamental Refrigerant Management	Required
Y			Credit	Enhanced Commissioning	6
Y			Credit	Optimize Energy Performance	18
Y			Credit	Advanced Energy Metering	1
Y			Credit	Demand Response	2
Y			Credit	Renewable Energy Production	3
Y			Credit	Enhanced Refrigerant Management	1
Y			Credit	Green Power and Carbon Offsets	2

0	0	0	Materials and Resources		14
Y			Prereq	Storage and Collection of Recyclables	Required
Y			Prereq	Construction and Demolition Waste Management Planning	Required
Y			Credit	Building Life-Cycle Impact Reduction	6
Y			Credit	Building Product Disclosure and Optimization - Environmental Product Declarations	2
Y			Credit	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
Y			Credit	Building Product Disclosure and Optimization - Material Ingredients	2
Y			Credit	Construction and Demolition Waste Management	2

0	0	0	Indoor Environmental Quality		10
Y			Prereq	Minimum Indoor Air Quality Performance	Required
Y			Prereq	Environmental Tobacco Smoke Control	Required
Y			Credit	Enhanced Indoor Air Quality Strategies	2
Y			Credit	Low-Emitting Materials	3
Y			Credit	Construction Indoor Air Quality Management Plan	1
Y			Credit	Daylight	3
Y			Credit	Quality Views	1

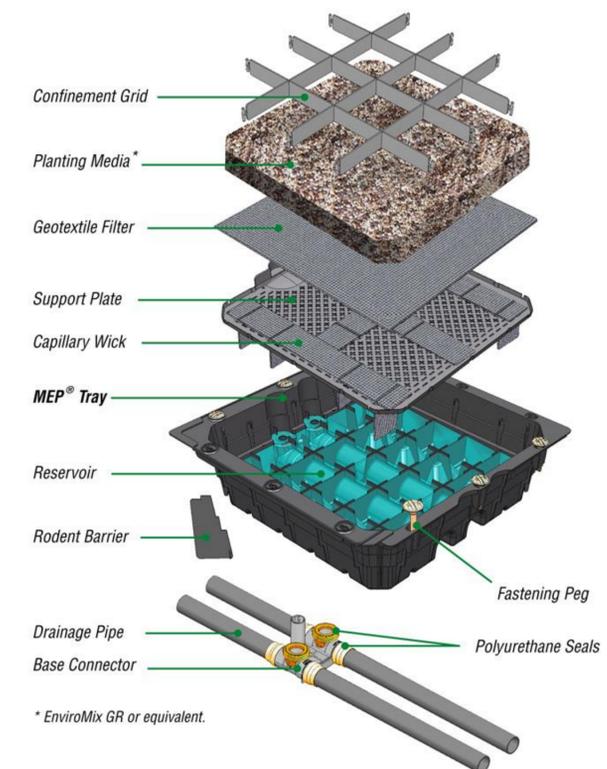
0	0	0	Innovation		6
Y			Credit	Innovation	5
Y			Credit	LEED Accredited Professional	1

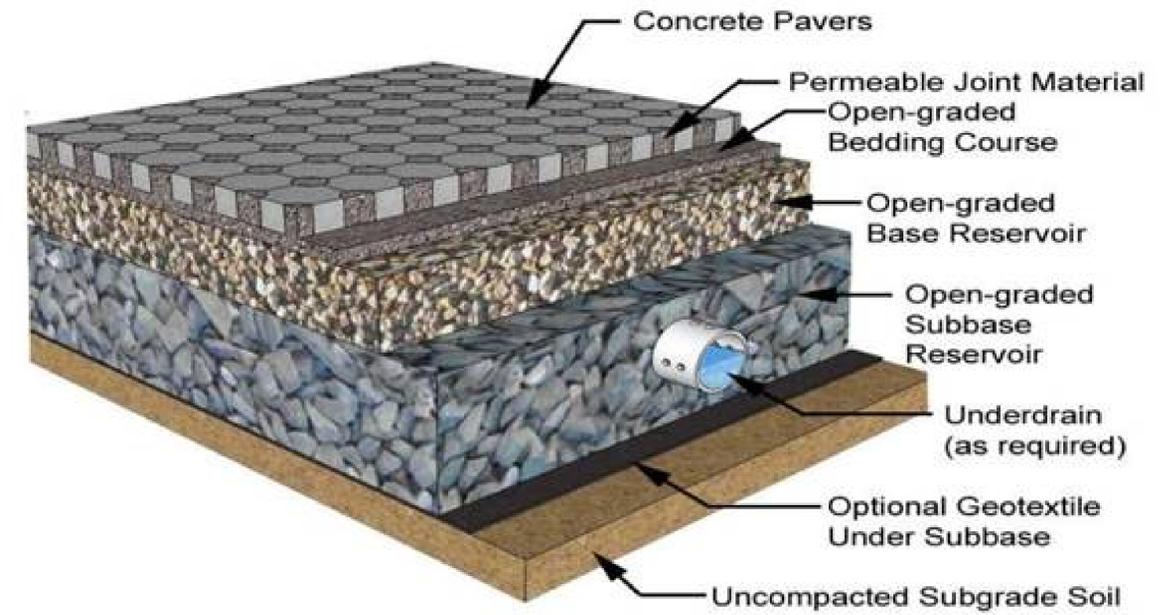
0	0	0	Regional Priority		4
Y			Credit	Regional Priority: Specific Credit	1
Y			Credit	Regional Priority: Specific Credit	1
Y			Credit	Regional Priority: Specific Credit	1
Y			Credit	Regional Priority: Specific Credit	1

0	0	0	TOTALS		Possible Points: 110
Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum: 80 to 110					



Everbright Lighting Solutions







Building Roof Solar Panels



Bike Share Program



Designated Car Charging Parking Spaces



- **The site will be designed to minimize total earth cuts and export of materials by finding a balance that will make the development functional, aesthetically pleasing, and minimizing hauling of materials from the site.**
- **Trucking Plan will be developed and provided to the Town of Avon during the detailed site plan approval process.**
- **Schedule will be developed and approved by the Town of Avon**
- **Hauling Route will be developed and approved by the Town of Avon**
- **Keeping trucks off of neighborhood streets (Climax Road) by creating approved routes on State Route 44 and State Route 10**

LID is a site development and stormwater management design technique that focusses on mitigating development impacts to land, water resources, and air.



Evergreen Walk

This design approach integrates the site design and planning techniques that conserve the natural integrity of the land and hydrologic functions of the site.



Town of Vernon

- **The purpose for LID is to maintain or replicate the pre-development hydrologic conditions of the site.**
 - **Stormwater storage**
 - **Groundwater recharge**
 - **Volume reduction**
 - **Frequency of discharges**

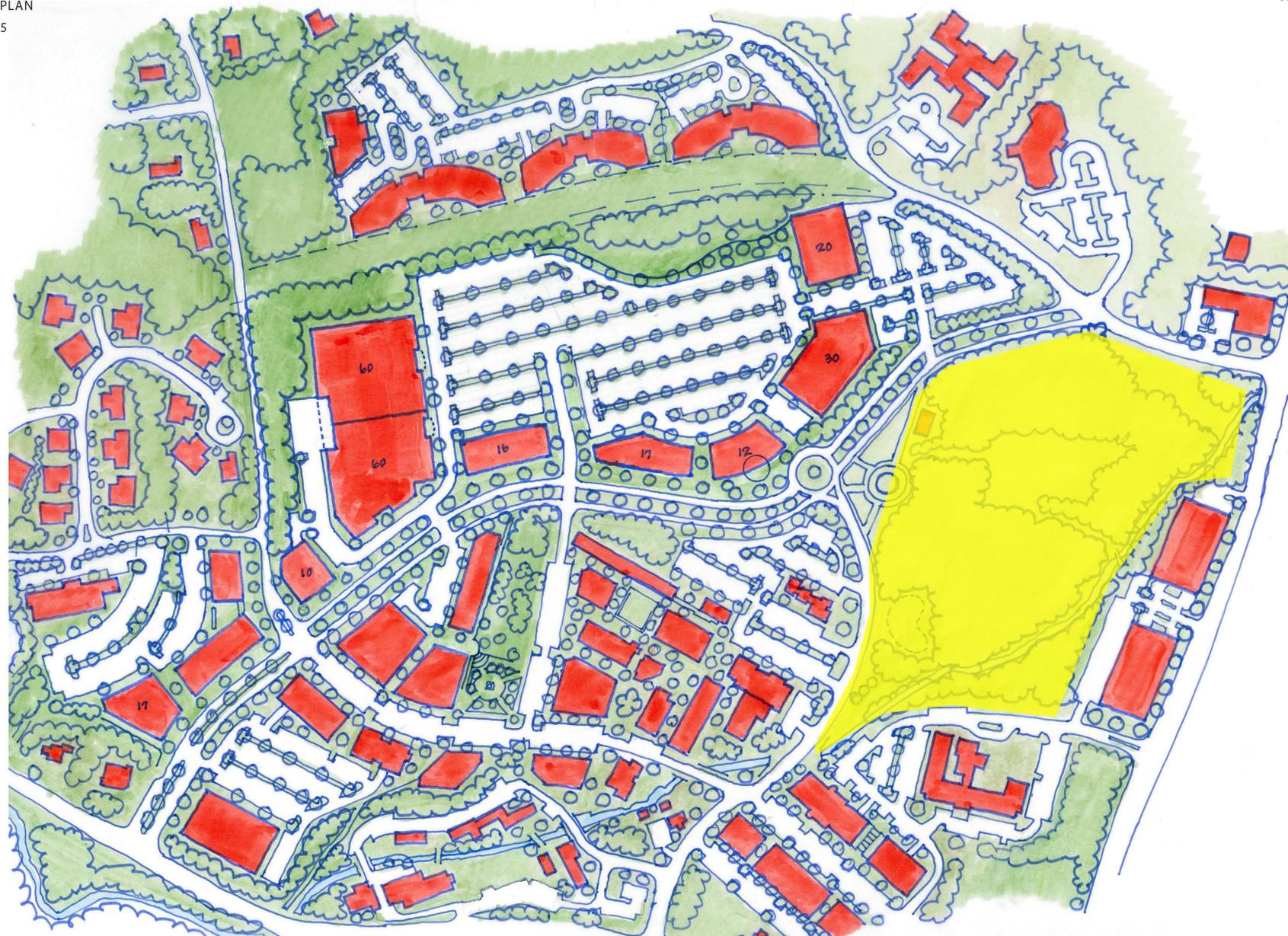
- **Managed through the use of:**
 - **Micro-scale stormwater retention and detention areas**
 - **Reduction of impervious surface**
 - **Lengthening of flow paths and runoff times**



1. Preserve Open Space and Minimize Land Disturbance

THE CARPIONATO GROUP
AVON, CT MASTER PLAN
SEPTEMBER 09, 2015

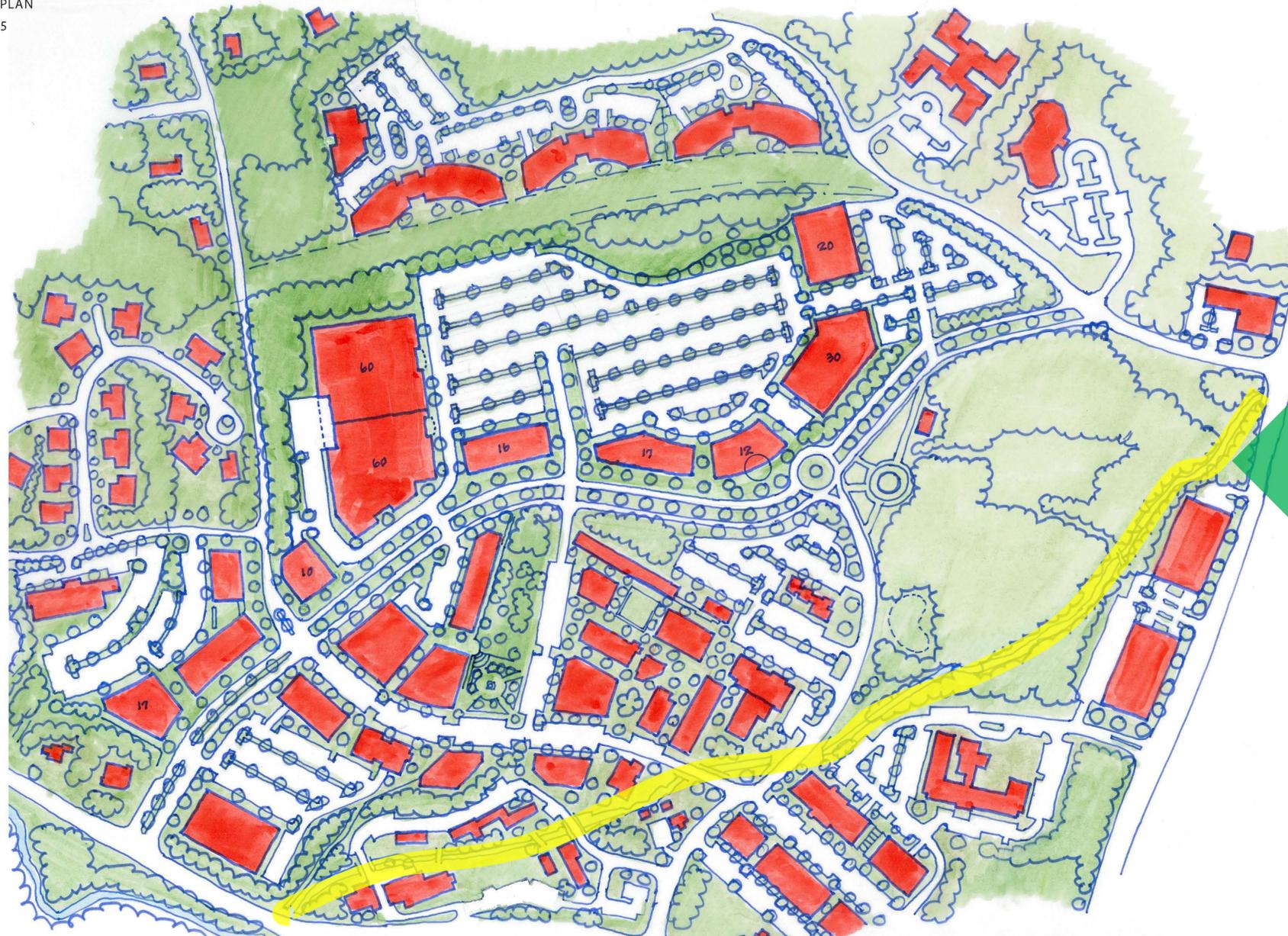
REVISED MASTER PLAN



2. Protect and Incorporate Natural Systems

THE CARPIONATO GROUP
AVON, CT MASTER PLAN
SEPTEMBER 09, 2015

REVISED MASTER PLAN



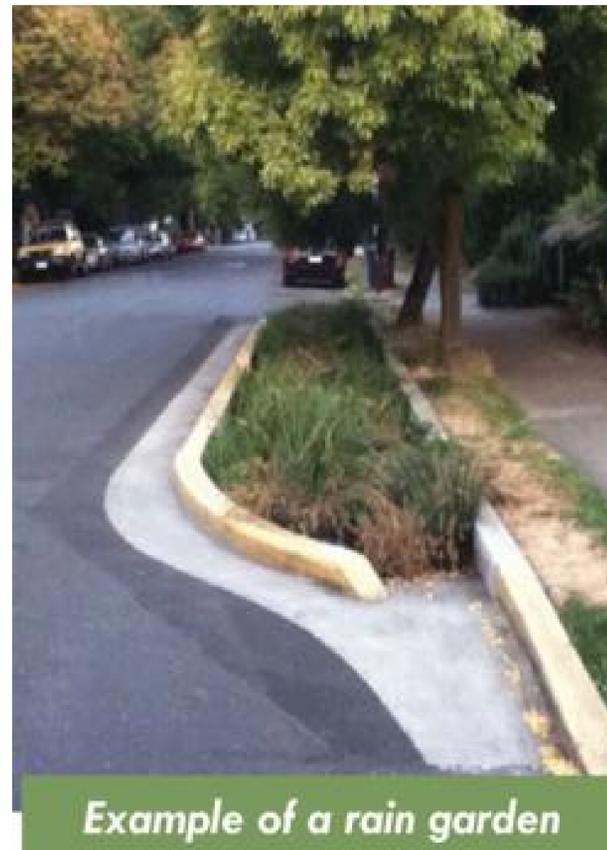
Approximately 3,000 linear feet of Nod Brook

- **Conventional stormwater management design techniques typically convey stormwater to the base of the drainage watershed area where the water quality will be managed in large hydrodynamic separators and detained in large detention basins then discharged to receiving watershed areas.**
- **This method efficiently controls stormwater flows however typically will not maximize groundwater recharge, it increases runoff volume.**



- **Bio-retention or Rain Gardens**

- **Curb cuts with leak-offs**
- **Capable of treating the first flush (1/2 inch of rainfall)**
 - **Removal of Metals such as lead, copper, and zinc**
 - **Removal of Nutrients such as phosphorus, ammonium and nitrate**

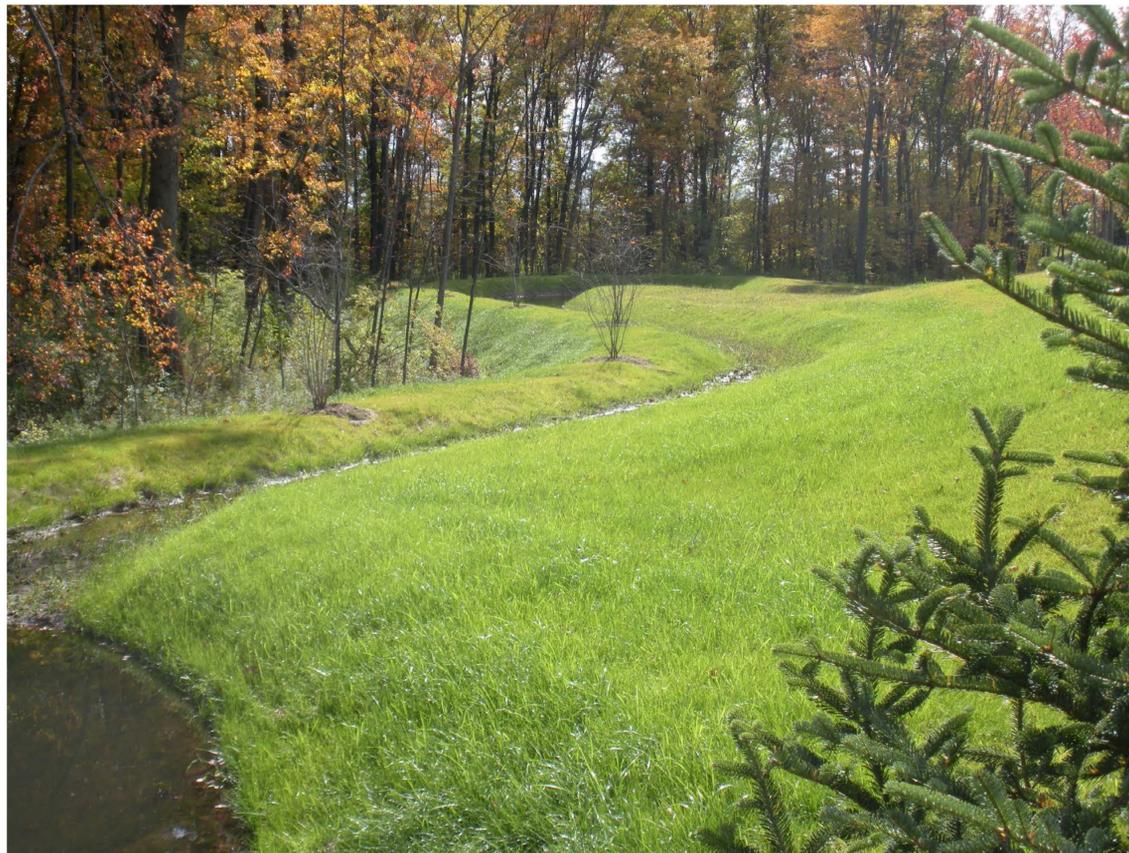


Example of a rain garden



- **Grass/Vegetated Swales**

- Eliminate curbs all together
- Promote surface runoff from paved areas directly into a grass or vegetated swale.



- **Subsurface Infiltration**

- Promotes Groundwater Recharge
- Isolator rows allow the systems to serve as filtration as well as retention/detention



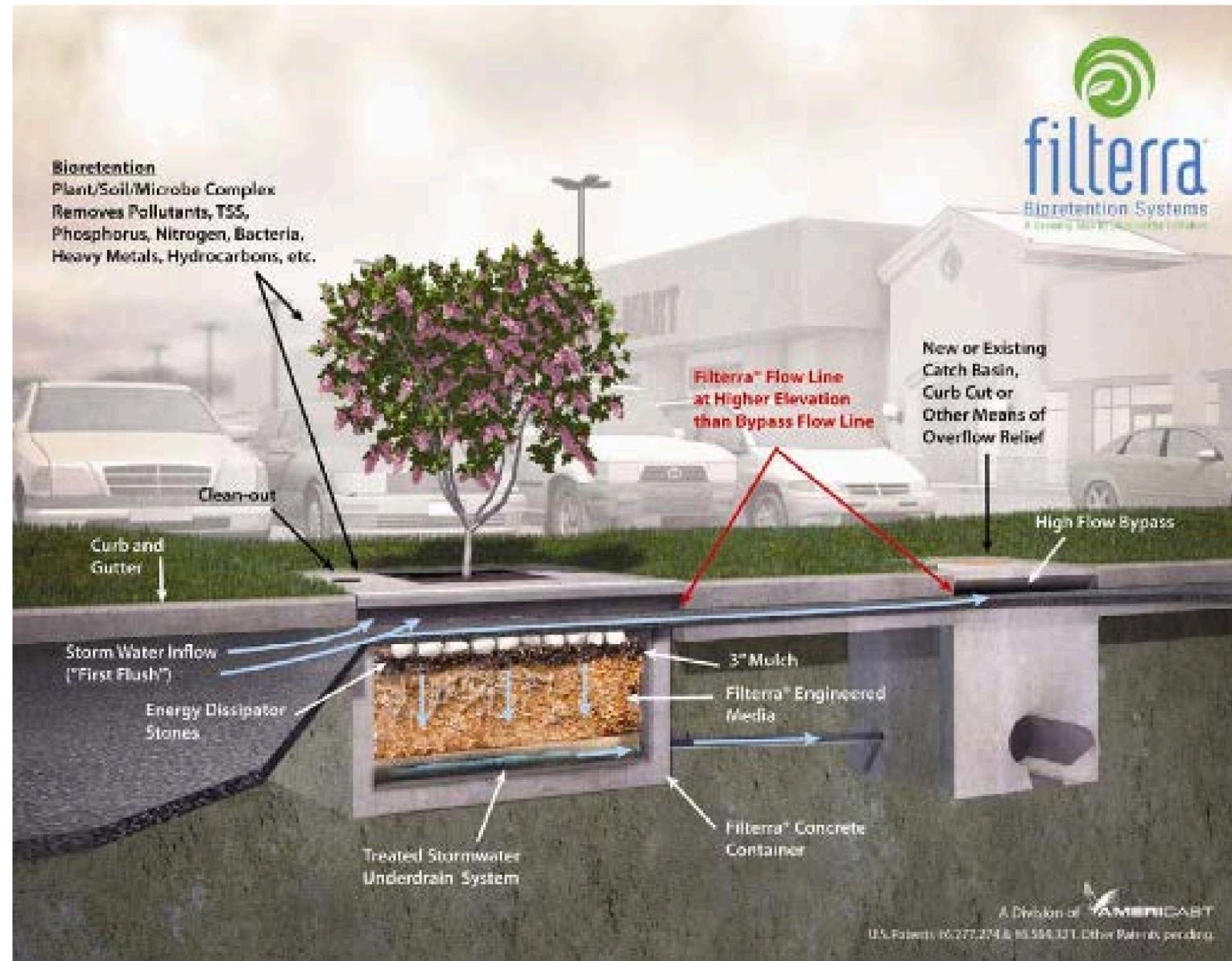
Stormtech Infiltration



StormTrap Infiltration

• Tree Filters

- Removes Total Suspended Solids, Total Phosphorus, and metals
- Effective for small sub-basins only



Filterra