

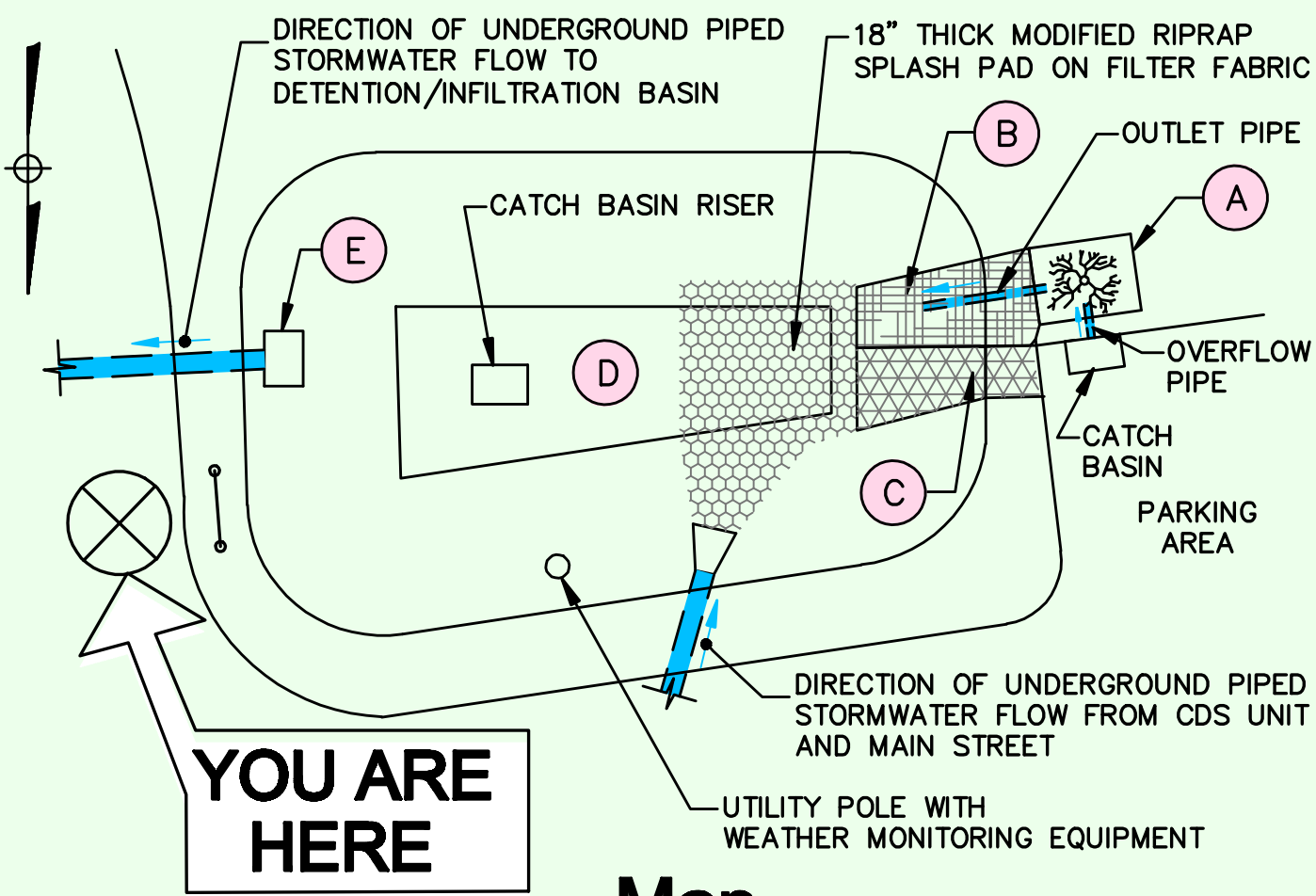
PROBLEM:

STORMWATER FLOWING FROM DOWNTOWN NIANTIC CONTAINS CONTAMINANTS THAT DISCHARGE INTO THE LONG ISLAND SOUND.

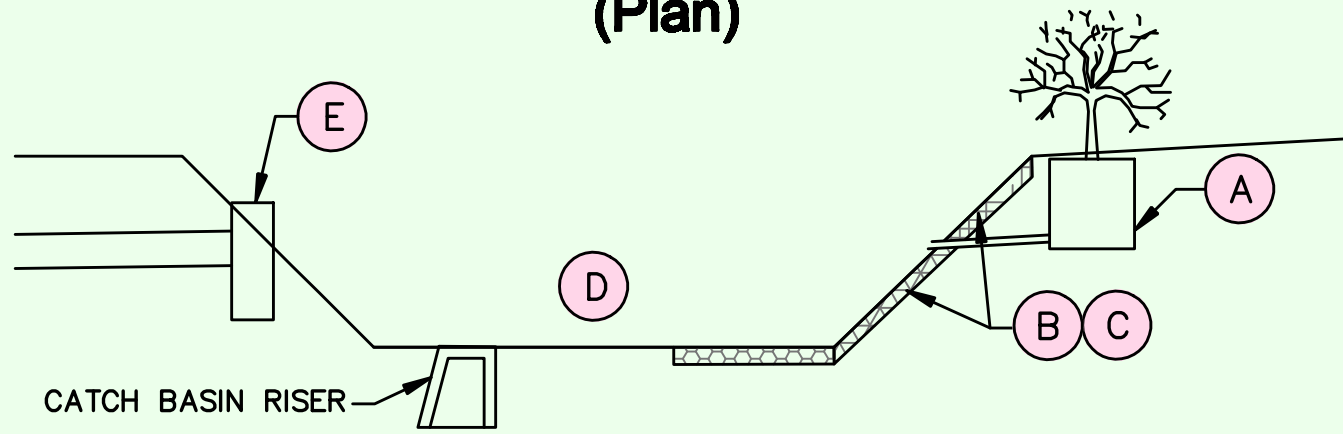
HOLE-IN-THE-WALL PARKING LOT  
LONG ISLAND SOUND STORMWATER QUALITY IMPROVEMENTS  
RAIN GARDEN, LANDLOK®, PYRAMAT®,  
DETENTION / INFILTRATION BASIN,  
"V" NOTCH WEIR OUTLET STRUCTURE

SOLUTION:

STORMWATER TREATMENT COMPONENTS WERE ADDED TO THE PARKING LOT TO DETAIN, CONTROL AND TREAT STORMWATER BEFORE DISCHARGING INTO THE LONG ISLAND SOUND.



Map  
(Plan)



Side View

Interesting Facts

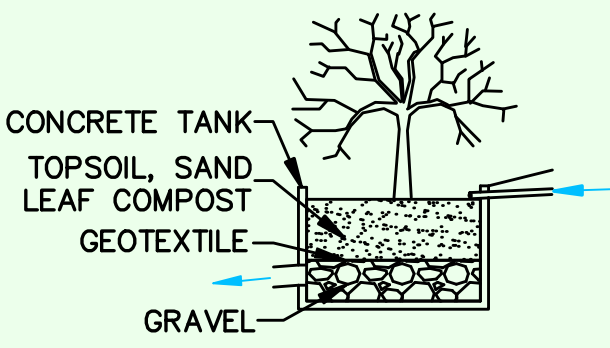
Water flows from the CDS unit and the Rain Garden into the basin where it is detained and infiltrated. Pollutants are removed from the stormwater through bio-uptake by the grass, filtration by the underlying sand and settling action from the ponding. Stormwater then overflows through a "V" notch weir opening in an outlet structure and into another detention basin.

At the bottom of the detention basin is a 5 foot deep catch basin riser with a flat top, grate, no outlets, and gravel bottom that houses equipment to measure the depth of stormwater. This grate may be intermittently replaced in order to test different configurations of floatable debris separators.

Item

Description

(A) RAIN GARDEN



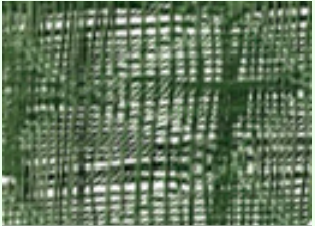
A RAIN GARDEN is a landscaped area planted with native flowers, shrubs and trees that soaks up rain water. The rain garden fills with a few inches of water during a storm (mostly from the parking area) and the water slowly filters into the ground rather than running off into formal drainage system. Plants absorb some contaminants in a process called bio-uptake while micro-organisms in the soil digest others.

Advantages:

- An increase of water filtered into the ground helps recharge local aquifers
- Added stream and lake protection from contaminants such as lawn fertilizers, pesticides and oil
- More habitat for birds, butterflies and beneficial insects
- Native plantings enhance the beauty of yards and neighborhoods
- Simple stormwater treatment method that can be used anywhere including residential and commercial properties



(B) LANDLOK® TURF REINFORCEMENT MAT



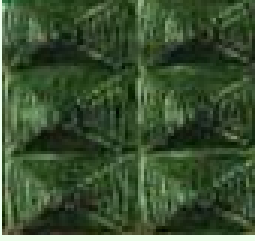
LANDLOK® TURF REINFORCEMENT MAT (TRM) consists of 100% polypropylene fiber woven material. This material is used for erosion protection and turf reinforcement where stormwater velocities exceed the stability of the soils and vegetation. Applications include detention basin banks, channels or swales, and steep slopes.

Advantages:

- High strength for loading and longevity
- Material flexibility allows for fast seeding emergence and minimal soil loss
- Helps prevent soil loss and root damage during storm events
- UV resistant
- Preferred alternative to concrete and riprap stone



(C) PYRAMAT® HIGH PERFORMANCE TURF REINFORCEMENT MAT

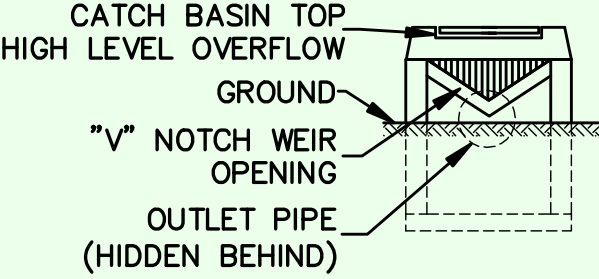


PYRAMAT® HIGH PERFORMANCE TURF REINFORCEMENT MAT (HPTRM) consists of 100% polypropylene fiber woven material. This material is similar to standard TRM's like Landlok® except has a higher tensile strength capable of reinforcement on aggressive slopes. This material is used for erosion protection and turf reinforcement where stormwater velocities exceed the stability of the soils and vegetation. Applications include detention basin high level overflows, channels or swales and at extreme steep slopes.

(D) DETENTION/ INFILTRATION BASIN

DETENTION/INFILTRATION BASINS are low-lying, typically grass-lined, stretches of land used for the storage of stormwater. Basins are designed to manage stormwater volume, filter contaminants and increase rainwater infiltration to reduce flooding and downstream erosion. For this demonstration a man-made basin was designed and constructed using topsoil and grass on the sides and gravel on the bottom.

(E) "V" NOTCH WEIR OUTLET STRUCTURE WITH CATCH BASIN TOP HIGH LEVEL OVERFLOW



An OUTLET STRUCTURE is typically constructed of concrete and releases specific amounts of stormwater through specially designed openings. For this demonstration the openings that stormwater discharges through is a "V" notch-shaped weir, a catch basin top as a high level overflow, and an outlet pipe for exiting stormwater flow. The height of the water in the "V" notch weir is proportional to the stormwater flow exiting the detention basin. This water can be measured to get an instantaneous rate of flow (cfs) leaving the basin.

Acknowledgements

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donated by:  
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Michael W. DePew,  
Agronomist, Soil Scientist



Educational Corner

- Terms to study:
- Rain Garden
  - Detention/Infiltration Basin
  - Turf Reinforcement Mat (TRM)
  - Weir
  - Outlet structure

