

# DRY WELL DESIGN & INSTALLATION

## SITING

### Drainage Area

Small to Medium drainage areas;  
500-1000 SF.

### Space

Not used where it may create a risk for ground floor flooding, conflict with sewage disposal systems or under pavement areas.

### Topography

Installation on slopes greater than 20% should be avoided.

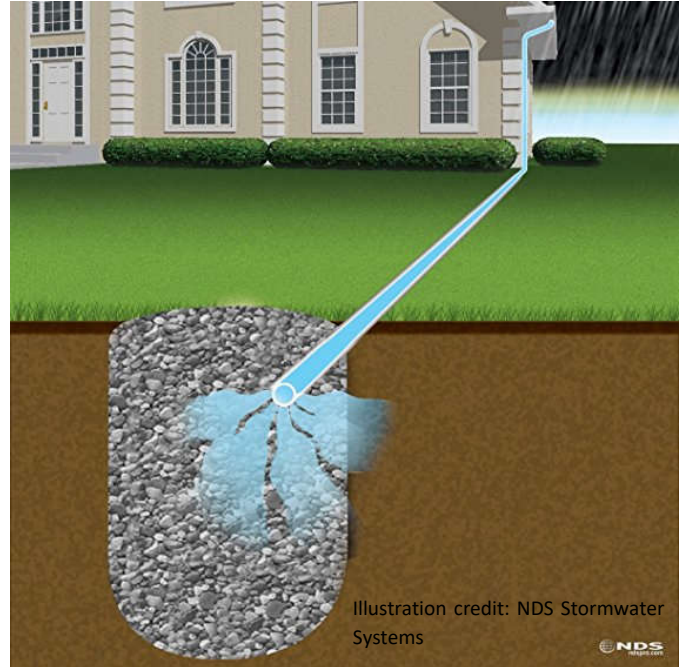
### Soils

Permeable soils are best suited for dry well. HSG shall be Type A or B.

### Setbacks

Depths 2' or less- min. 5' from building foundations, Depth 2' or greater 10' min. from building foundation.

Min 10' from septic systems  
Min. 25' from "404" wetlands.



## DESIGN INFORMATION

### DESCRIPTION

A dry well is a subsurface storage facility that receives and temporarily stores stormwater runoff. Discharge of stored runoff from a dry well occurs through infiltration into the surrounding soils. A dry well may be either a structural chamber and/or an excavated pit filled with aggregate. Drywells are typically used to infiltrate stormwater runoff from roofs via a roof gutter collection system.

### BENEFITS

1. Reduces runoff volume and attenuates peak flows
2. Enhances groundwater recharge.
3. Minimal visual impacts.

### DESIGN CONSIDERATIONS

4. The depth shall be less than the widest surface dimension.
5. Aggregate shall be washed 1-1/2" -3" in size without any fines.
6. The drywell shall be equipped with a system bypass.
7. A 40% void ratio in the aggregate bed shall be utilized.
8. Minimum 24 in. depth, Maximum 48 in. depth.

### SIZING CALCULATIONS

1. Calculate Tributary area in square feet.
2. Divide tributary area by 100, then multiply by 15 to get water quality volume requirement in cubic feet.
3. Calculate the storage volume of your proposed dry well  $L \times W \times H \times .4$ ; see worksheet B for detailed calculations.
4. The total storage volume shall exceed the minimum required water quality

## Vertical Separation

Min. 12" separation from bottom of well to seasonal high-water table.

volume.

- If you are taking advantage of open space credits and stormwater control measure credits, see worksheet A & B for confirmation of volume requirement.

## OPERATION & MAINTENANCE

(TO BE CONDUCTED POST-CONSTRUCTION & ANNUALLY)

### Observation Well

Check Observation wells within 48 hrs. of the end of wet weather. Water should have percolated from the well within this time frame.

### Pre-Treatment Devices

Inspect pretreatment devices, (i.e. downspout filters) for operability and sediment buildup.

### Bypass Devices

Inspect bypass devices to ensure functionality.

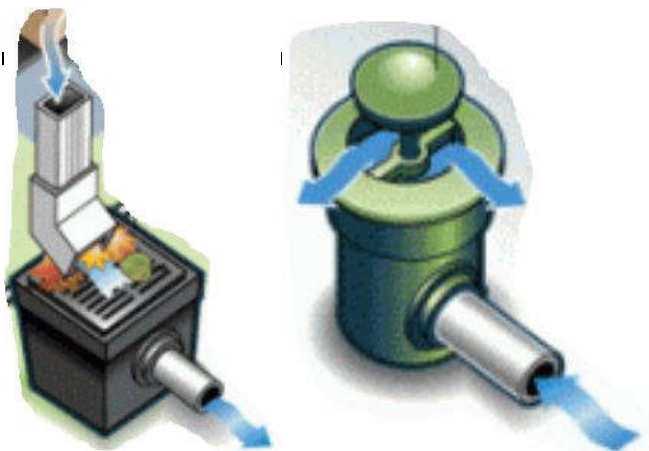
### Remedial Measures

If dry well has not drained within 48 hours after storm, drain dry well via pumping. Excavate around well perimeter to expose clean soil (~2 inches). Replace and reline filter fabric. Clean or replace aggregate and any perforated piping.

# INSTALLATION

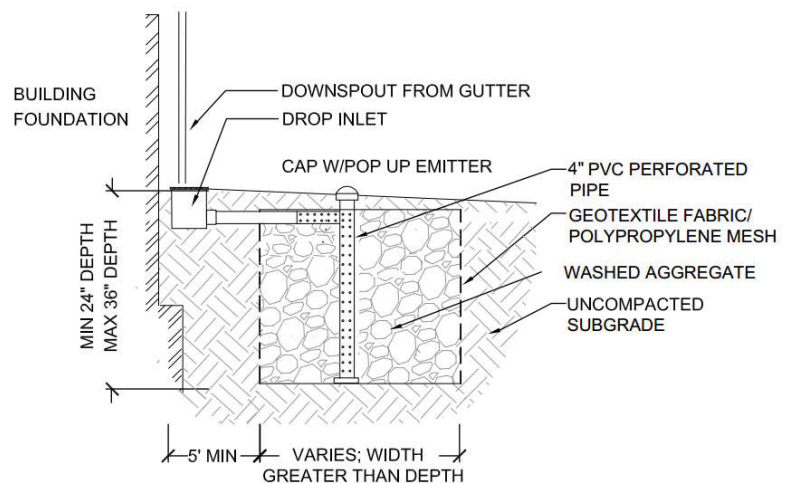
## MATERIALS

- Washed locally available aggregate with a diameter range of 1-1/2" to 3" in size.
- Line the well side walls with non-woven geo textile or polypropylene fabric to minimize sedimentation from lateral soil movement.
- Conveyance- It is recommended that surface runoff be directed via a roof gutter collection system piping.
- Pre-screening- To prolong the operating life of the system, an inline pretreatment mechanism, (i.e. filter downspout filter) shall be installed on the inlet end of the dry well.
- Pre-manufactured products such as round plastic containers with perforations to allow water to exfiltrate is an acceptable alternative.
- A positive outlet shall be required to permit bypass flows more than the water quality volume. Recommended minimum 1 per 50 linear feet.
- An operation and maintenance port to allow inspection and maintenance and the observation of water level is a requirement.



**Bypass device: Typical Pop up Emitter (right)**

**Pre-treatment device: Typical Drop Inlet (left)**



**Typical Dry Well Cross Section**  
Not to Scale