EXAMPLE 4a

Project Information

- Development ≥ 1 acre disturbance
- Major development
  - Water quantity is required
- Increase of impervious surface ≥ 0.25
  - Water quality is required
- Groundwater recharge is required unless exempt
  - PA1 area, but whether a part of the property is “previously developed” is questionable
Recharge Exemption

- Groundwater recharge requirement does not apply to projects within the "urban redevelopment area."

- "Urban Redevelopment Area" is defined as previously developed portions of areas:
  1. Delineated on the State Plan Policy Map (SPPM) as the Metropolitan Planning Area (MPA), Designated Centers, Cores or Nodes;
  2. Designated as CAFRA Centers, Cores or Nodes;
  3. Designated as Urban Enterprise Zones; and
EXAMPLE 4b

Project Information

- Development ≥ 1 acre disturbance
- Major development
  - Water quantity is required
- Increase of impervious surface ≥ 0.25
  - Water quality is required
- Groundwater recharge is required unless exempt
  - PA1 area, but whether a part of the property is “previously developed” is questionable
Minimum Length to Width Ratio 1:1
One inlet is too close to the outlet

Extended standard constructed wetland

Other Issues
Other Issues

- Nonstructural strategies were incorporated
- Water Quantity Calculation was underestimated

Maintenance Plan

- No responsible party contact information
- No specific preventative tasks for constructed wetland
  - Wetland Vegetation
  - Depth/Settlement
  - Sinuous path pattern
  - Channelization
- No cost estimate
  - Regular maintenance
  - Dredge
  - Permit

EXAMPLE 4c
Soil Testing

Infiltration Basin
- Bottom from EL. 89 to EL. 88 &
- Sand bed 0.5 ft
- Lowest point = EL. 87.5
- Basin area = 6,540 sf
- Max. water quality storm depth EL. 89.1
- Soil Test Pits, TP#1 & TP #2

- No. of soil test pits
  - 6,540 sf
- Location
  - In the infiltration area

Soil Testing

- Soil profit pit depth from basin’s sand bottom:
  - Greater of 8 ft or 2x max water depth (1.18 ft)
- Sand bottom is at EL. 87.5 ft
- Required depth = 8 ft below EL. 87.5 ft

TP#1 Depth
- GL is EL. 93.8 ft,
- The required depth
  = 93.8 – 87.5 + 8 = 14.3 ft (176 in from GL)

SHWT separation
- SHWT at 96 in from GL;
- 20% of 176 in = 35.2 in
- Separation is not enough
**Permeability Test**

- **TP #2 Depth**
  - GL is EL. 91.8
  - Required depth = 91.8 - 87.5 + 8 ft = 12.3 ft (147.6 in) from GL

- **SWHT separation**
  - SWHT at 56 in (EL. 87.13 ft)
  - Sand bottom at EL. 88.5 ft
  - Separation = 88.5 - 87.13 = 1.37 ft
  - Permeability rate test depth
  - Below sand bottom of the basin but above SWHT
    - Most restrictive horizon is Sandy Loam
    - Tested at sandy soil layer

**Consequences**

- Infiltration basin has a sloped bottom
  - Infiltration basin needs to have a level basin bottom in order to even distribute runoff over entire basin bottom for even infiltration

- K4 sand was used for the sand layer of infiltration basin
  - Sand layer must meet the specification of K5 sand

**Other Issues**