DNREC Sediment & Stormwater Listserve Update: February 2020

This month's topics:
1. **DNREC Sediment and Stormwater Program Contact Information**
2. **Blue Card Course Dates for 2020**
3. **SAS GIS App: Bug Notice**
4. **2019 Regulations Highlight: Hydrologic Routing of Bioretention Facilities**
5. **Link Of The Month: Making Retention Ponds Smarter**
   ****

1. **DNREC Sediment and Stormwater Program Contact Information**

   Questions specific to eNOIs should be directed to DNREC_eNOIadmin@state.de.us.

   Sediment and Stormwater certification or any other program general questions should be directed to DNREC.Stormwater@delaware.gov.

2. **Blue Card Course Dates for 2020**

   The Contractor Training Program, also known as the "Blue Card Course", is a ½-day course that gives an overview of the Sediment and Stormwater Program, its regulations, and required erosion and sediment control measures in the State of Delaware. Under the Delaware Sediment & Stormwater Regulations, at least one person in responsible charge of a construction site must have successfully completed the Contractor Training Program. The Blue Card Course dates set for 2020 are **February 13**, **May 21**, **September 10** and **December 3**.

   - Registration for the February 13, 2020 course date is closed.
   - Registration for the May 21, 2020 course date will be accepted beginning March 9, 2020.

   Additional information and the registration form can be found on the Sediment & Stormwater Program website at the following link:

   http://www.dnrec.delaware.gov/swc/Drainage/Pages/BlueCard.aspx

3. **SAS GIS App: Bug Notice**

   It has come to our attention that the legends for some of the layers in the SAS GIS App are not displaying correctly using the print function. As of the date of this Listserve, this is known to affect the HSG legend for the Soils layer and the wetland category legend for the State Wetlands Mapping Project layer. This is a known bug in the ESRI ArcGIS web app that can only be addressed by ESRI in a planned update to the printing service. Additional information on the bug is available at ESRI's technical support page:

   https://support.esri.com/en/bugs/nimbus/QlVHLTAwMDA5OTgxNg==

4. **2019 Regulations Highlight: Hydrologic Routing of Bioretention Facilities**

   Bioretention practices can be conservatively designed by providing enough storage to accommodate the full RPv volume required to be managed. Designers, however, often prefer to

fine tune their designs using hydrologic routing. The Sediment & Stormwater Program (SSP) has, in the past, recommended procedures for hydrologic routing of bioretention facilities for compliance with the Delaware Sediment & Stormwater Regulations (DSSR). These procedures have been updated for the 2019 DSSR and are presented below.

Given:
1. Bio-soil flow rate controls (f =2.83"/hr); if designed as infiltration system, design soil infiltration rate (DIR) controls if DIR< 2.83"/hr.
2. Available storage in bio-soil mix based on porosity (n = 0.40)
3. Available storage in aggregate based on porosity (n = 0.40)

Determine: Routed hydrograph results for RPv (2.7"), Cv (10-YR) and Fv (100-YR) storm events, as applicable.

Procedure:
1. Develop stage-storage-discharge relationship for bioretention system.
    a. Starting elevation to be bottom of bioretention system for infiltrating designs or invert of underdrain.
    b. Multiply each incremental volume by porosity (0.40) to determine available storage in the stone aggregate and bio-soil mix; continue with this adjustment to top surface of bioretention system.
    c. Add incremental ponding volume above top surface of bioretention system.
    d. Discharge is determined based on given condition #1 above.
2. Route 2.7" (RPv) rainfall event.
    a. Adjust Ia/S value to 0.05 in hydrologic modeling software.
    b. Recommended maximum surface ponding depth is 12" for the RPv.
    c. Bioretention practices shall be designed so that the required RPv volume either infiltrates or discharges within 48 hours.
3. Route Cv and Fv storm events.
    a. Adjust Ia/S value to default 0.20 in hydrologic modeling software.
    b. Recommended maximum surface ponding depth is 18" for the Cv and 24" for the Fv.
    c. System meets quantity control requirements if routed outflow meets compliance criteria in accordance with 2019 DSSR, Section 5.0.
    d. System meets design specifications when all freeboard, conveyance and non-erosive velocity criteria have been met in accordance with the Delaware Post Construction Stormwater Management BMP Standards & Specifications with an effective date of February 2019.
    e. Bioretention practices shall be designed so that they will 1) infiltrate the required Fv volume within 72 hours or 2) dewater the Fv volume within 72 hours, or 3) manage the Fv on site with no adverse impact.

5. **Link of the Month: Making Retention Ponds Smarter**

Maryland DOT is partnering with Walmart and Boston-based Opti to test a pilot installation of a next-generation technology for regulating the function of stormwater management retention ponds. These so-called "smart ponds" make use of a continuous monitoring and adaptive control system to take the guesswork out of retention pond operation. By outfitting stormwater ponds with sensors, the smart pond software constantly monitors water levels and remaining storage volumes.
The internet-enabled system also receives up-to-the-minute weather forecasts. When expecting rain, the system automatically opens valves at the bottom of the pond to a degree that minimizes

flood risks while maximizing retention time. Longer retention times increase water quality by enabling the pond to capture more sediment and nutrients before draining the runoff.

In November, the Maryland Department of Transportation (MDOT) announced that it would invest $4 million in 2020 to retrofit a pilot-sized group of retention ponds with the system. The terms of MDOT's investment fall in line with a state stormwater credit trading program established by MDE in early 2019. MDOT's $4 million will purchase 40 ha (100 ac) of stormwater management credits generated by the smart retention ponds – signaling the first-ever credit purchase in the U.S. from a state transportation agency, according to the MDOT release. Pending a successful pilot, MDOT says it hopes to roll out the technology to more of its 800 stormwater ponds across the state. Additional information is available at the following link:

https://stormwater.wef.org/2019/12/maryland-partners-with-opti-and-walmart-on-smart-pond-trials/