Green Stormwater Infrastructure Policy: The University of Illinois at Urbana-Champaign has made a commitment toward more sustainable development. Through the Illinois Climate Action Plan (iCAP) signed in 2010 (updated in 2015), and the Resilience Commitment signed in 2016, sustainability has been at the forefront for university operations. As a part of this, the university recognizes that stormwater leaving the campus and entering into surrounding communities of Urbana, Champaign, and Savoy contributes to localized flooding, and nutrient / pollutant loading of the floodwaters downstream.

Per the Stormwater Drainage Systems standard, the goal of the U of I is to minimize water outflows to the surrounding community systems through the use of Green Stormwater Infrastructure (GSI). Using GSI in our stormwater systems accomplishes many benefits, including; reduction of peak flow rates, filtering stormwater prior to discharge into regional stormwater systems, filtering stormwater prior to recharging the regional aquifer, native pollinator support and carbon sequestration. It also reduces the U of I’s stormwater fees paid to Champaign and Urbana.

Any conventional stormwater piping system proposed for university projects are required to also incorporate GSI. If possible, GSI should be given priority for all stormwater solutions.

Scope of Policy: This Green Stormwater Infrastructure policy is created to augment the F&S Stormwater Drainage Systems policy. Projects that are applicable to those standards in addition, have the goal of providing on-site detention for the 1 year / 24 hour storm event. This detention shall be accomplished through GSI. Projects should consider providing detention for larger storm events if possible. If this goal is not met, Green Stormwater Infrastructure is still required to be utilized as a part of any project’s stormwater plan.

Calculations: The U of I requires that the AE or designer prepare and submit plans and calculations during the project design review process illustrating conformance with this policy.

Improvements: The use of GSI can be achieved through a variety of methods. This may include, but not be limited to; permeable pavements, bioswales, infiltration basins, rain gardens, green roofs, planter boxes, detention basin, trees, and underground detention basins.

- Permeable pavements include pervious asphalt and concrete. Pervious concrete should be used in areas that receive less salt, and that are not plowed by larger trucks. Permeable pavers can be used in many applications, from plazas to parking lots. Aggregate base courses should be designed to filter and detain water.

- Rain Gardens and Infiltration Basins should include native and sustainable plantings. Emphasis in these improvements should be water detention and filtering. Soil mixes should have high porosity. Drain inlets should typically be 6” to 12” higher than surrounding grades, and only function as overflow protection.

- Bioswales and Planter Boxes should be treated similarly to Rain Gardens. Planter boxes are curbed planting islands along roadways which function as detention and filtration. Curbs to be slotted to allow for water to enter. Finished grades will be lower than surrounding pavements.

- Green Roofs can be used as part of the overall stormwater plan. Design of green roofs shall consider maintenance duties including easy worker access and water access for irrigation. Building parapets should be sized correctly for fall protection or improvements will need to maintain a proper safety zone from the edge of the plants to the edge of the roof, including a zone for workers to walk around the plantings.

- Underground Detention Facilities should be designed with a preference for the ability to naturally drain into the soil profile. Overflow events should still be routed through storm sewer connections. Access points for maintenance and cleanout need to be properly located and designed. Facilities should be designed to support any potential vehicular traffic occurring above them.
Underground detention also presents an opportunity for stormwater harvesting and reuse. This reuse could be in conjunction with a new building in which greywater piping is installed. The ability for reuse should always be considered as the campus moves toward this concept.

- Tree plantings have a positive effect on the stormwater capture by slowing water flow, increasing infiltration and evapotranspiration, and removing pollutants. Trees also assist in wildlife habitat and carbon sequestration. Small tree pits should be avoided. If trees are to be planted in pavements, connected soil cells and permeable pavements should be used to increase the soil volume, water infiltration and long term viability of the plants. Stormwater can also be piped into the soil cells to allow for recharge as long as water is also allowed to drain out to avoid water stagnation.

**Soil Borings:** When planning GSI, soil borings should be done in strategic areas to assess water infiltration rates. Some solutions may require deeper infiltration wells to break through impermeable soil layers.

**Underdrains:** When underdrains are deemed necessary (in permeable pavers or bioswales, etc.), they should be designed such that the outflow is higher in the designed profile. A perforated pipe can be used in a lower elevation, with the associated outflow located at a higher elevation. A priority should be given to allowing water to be allowed to infiltrate the soil profile and recharge the groundwater. If soils reach saturation, then the water that leaves the site through conventional pipes will have been filtered by the soil profile.

**Future Considerations:** As the university is always building and adding to the impervious area, consideration for all GSI improvements to be larger and handle additional volume should occur.