

AEC STORM WATER MANAGEMENT PROCEDURES-ABBREVIATED

1.

PRE-DESIGN PHASE

Kickoff Meeting

- **Note:** storm water goals are set at programming phase.
- Discuss U-M storm water management plans and requirements (umstormwaterplanning@umich.edu)
- **Storm Water Best Management Practices (BMPs)**
- Discuss maintenance concerns and storm water outlet
- Confirm minimum soil boring/test pit requirements
- Review regulatory requirements

Soils Evaluation

- Geotechnical firm to determine site's suitability for retention (infiltration)
- Soil borings and infiltration testing to be performed at potential design depths
- Deep borings to be performed for investigation of soil composition and identification of water table

Preliminary Basis of Design (BOD)

- Project Team to create and document evolution of storm water management strategies:
 - Project name/number
 - General site description
 - Map with drainage boundary, including off-site drainage impacts
 - On-site drainage infrastructure
 - Adjacent projected drainage impacts
 - Water table elevation
 - Status of presence of known contaminated soils
 - Soil characteristics data
 - Evaluate drainage outlet capacity
 - List of preliminary BMP options with cost/benefits identified. Recommend viable options to pursue.

Meeting Minutes

- Project Team to record and distribute meeting minutes, including documenting action items/decision points

2.

CONCEPTUAL DESIGN

Preliminary Basis of Design

- Update information to include:
 - Limit of total earth disturbance
 - Volume of runoff (CF) generated on-site to be managed for multiple storm events
 - Brief drainage narrative describing proposed system
 - Infiltration/retention options
 - Feasibility of on-site infiltration/retention to meet permit requirements and effectively manage storm water or other options to be considered
 - Conceptual design storm water management target volume calculations (permit requirements and 100-year/24-hr storm event)
 - Potential options for managing storm water preliminary volume calculations for each option and at various storm events
 - **Above and beyond:** Identify opportunities for maximizing storm water on-site infiltration
 - Indicate and address existing site flooding issues
 - Verify no impacts to upstream, downstream, adjacent properties - identify need for no rise analysis
 - Expand and update BMP list with calculations
 - Conceptual layout for storm water management options and proposed drainage collection system

Meet With Storm Water Team

- Project Team and Storm Water Team to review information and determine best approach to schematic design
- Initiate internal review of regulatory requirements (City of Ann Arbor or Washtenaw County)

Meeting Minutes

- Project Team to record and distribute meeting minutes, including documenting action items/decision points

3.

SCHEMATIC DESIGN

Soils Evaluation/ Verification

- Infiltration testing to be performed at actual storm water infiltration proposed design locations and design depths

Update Basis of Design

- Update BOD to include:
 - Proposed topography to be affected by construction
 - Storm Water Management Plan incorporating **post-construction permit requirements**, BMPs and **Soil Erosion and Sedimentation Control Procedures (SESC)**
 - Schematic design layout for drainage collection system
 - Calculations used in designing storm water management systems components
 - Update cost/benefit analysis
 - Overall storm water management system (grading plan)

Meet With Storm Water Team

- Review plan refinements and calculations
- Review preliminary submittals (plans, and calcs with **narrative**) for regulatory requirements
- Follow **U-M plan format** for storm water management

Meeting Minutes

- Project Team to record and distribute meeting minutes, including documenting action items/decision points

4.

DD, CD, CONSTRUCTION AND POST CONSTRUCTION

Update Basis of Design

- Update BOD
- Provide storm water management plans meeting U-M and regulatory format for graphics, narrative, and calcs

Meet With Storm Water Team

- Meet with Storm Water Team as necessary and if there are changes to storm water management approach

AEC Project Review

- Follow AEC plan review process
- Follow post-construction storm water permit requirements
- Follow SESC design requirements

Regulatory Agency Submittal

- Follow AEC requirements for City of Ann Arbor plan submittal
- Work with EH&S and Storm Water Team if external agency regulatory requirements

Meeting Minutes

- Project Team to record and distribute meeting minutes, including documenting action items/decision points

Complete Storm Water Management Procedure is available [here](#).