

## APPENDIX I

### Review of St. Clair County's Stormwater Management Standards

#### Review of St. Clair County Drain Commissioner's Stormwater Management Standards

The St. Clair County Drain Commissioner's design standards for storm water management systems currently addresses all three (3) key principles that are recommended to be addressed in a set of design standards. Those principles are:

1. Protection of water quality,
2. Stream channel protection, and
3. Flood control.

Currently, the standards allow for the use of detention and retention systems. The detention requirements require that an outlet be built so that the three principles are addressed. As such, the outlet is designed for the following:

- First-Flush Volume: First 0.5" of runoff from the entire site, released over 24 hours.
- Bankfull Flood Volume: Sized for 1.5 year, 24-hr storm event and released between 24 and 48 hours.
- Flood Control Volume: Sized for 100-year, 24-hr storm event.

The standards also outline the following criteria:

- An allowable release rate from the flood control storage volume at no more than 0.15 cubic feet per second per acre (0.15 cfs/acre), which is well within the range of discharge rates included in most county standards. An exception to this is the allowable release rate for the Crapaud Creek Watershed, which is 0.10 cfs/acre.
- Oil/water separators are required prior to the discharge of any storm water from the site.
- Underground Detention is allowable.
- A method to ensure adequate operation and maintenance of storm water facilities is provided in the guidelines and a series of maintenance agreements and an example annual maintenance budget is available in the Appendix of the Standards.
- Facilities are prohibited from being built in the 100-yr floodplain.
- Thorough checklists are provided in the Appendices for Construction Site Plan Reviews.

The standards may be enhanced by considering the following additional objectives into the criteria:

- Encourage the use of wet ponds over dry ponds (and/or encourage/require a permanent wet pool to improve water quality treatment);

- Encourage or require the use of an adequately sized sediment forebay for all pond designs to reduce sediment build-up and ease of maintenance for management facilities (aside from those already required prior to discharge of storm water to a natural wetland);
- Encourage or require a minimum buffer width of 25' surrounding management facilities and drains within the set easement.
- Encourage or require a landscaping plan be in place that establishes the recommended plantings, with preference to native species, for newly constructed or retrofitted ponds and drains.
- May want to incorporate the standards and specifications required for the Soil Erosion and Sedimentation Control Program and Permit Requirements as part of the Stormwater Management Design Standards Manual.
- May want to include a list of additional allowable storm water management BMPs, with specifications for such BMPs in an Appendix, such as:

Runoff Rate/Volume Minimization BMPs:

- Green roofs
- Pervious pavement
- Rain barrels
- Landscaping with native grasses

Bioretention/Infiltration Practices:

- Rain gardens
- Bioswales
- Infiltration trenches
- Dry wells
- Leaching basins
- Landscaping with native grasses

Filtration Practices:

- Media/sand filters
- Vegetative filters (buffer strips)
- Dry swale
- Wet swale
- Urban stream buffers
- Landscaping with native grasses

Low-Impact Development Techniques for:

- Streets and Access
- Parking
- Site Design

Additional resources on alternative BMPs can be found online at:

- [www.lid-stormwater.net/intro/background.htm](http://www.lid-stormwater.net/intro/background.htm)
- [www.lowimpactdevelopment.org/brochures.htm](http://www.lowimpactdevelopment.org/brochures.htm)
- <http://cfpub.epa.gov/npdes/stormwater/menuofbmps/post.cfm>
- <http://www.stormwatercenter.net/>

### **Review of St. Clair County Road Commission Standards**

The St. Clair County Road Commission addresses road drainage criteria in its “Procedures for Plat Street Development” (updated as of 2003), under Section V, Parts D and E. The following measures related to water quality/ quantity issues are currently included in these criteria:

- Sump pump discharges are strictly prohibited to discharge into open ditches and may only be hooked up to storm sewer manholes at the time the manhole is constructed.
- Required ditch grade and associated stabilization methods for open ditches and enclosed systems, in accordance with MDOT specifications.

The Road Commission currently requires all new developments discharging to the road right-of-way to discharge at a predevelopment flow rate. Although this standard is not written in their “Procedures for Plat Street Development”, they have never had a problem ensuring that this standard is met.

An issue that the Road Commission has expressed problems with is ensuring that inspections by Road Commission personnel are granted prior to a municipality granting a certificate of occupancy. Ensuring this inspection is performed will help protect their roadside ditches from problems associated with erosion and water quantity issues, such as illegal sump pump discharges to ditches in the road right-of-way or inappropriately sized road culverts. The Road Commission has stated the best way for this issue to be addressed would be for the municipalities to incorporate this inspection requirement into their zoning ordinance and ensure its enforcement.