MISD **POLICY #: S5**

MUNICIPAL SEPARATE STORM SEWER SYSTEM POST CONSTRUCTION STORMWATER RUNOFF CONTROLS FOR NEW DEVELOPMENTS & REDEVELOPMENTS

I. POLICY:

This policy is to establish the Macomb Intermediate School District (MISD) and nested School Districts procedures for post construction stormwater runoff controls for new development & redevelopment.

II. BACKGROUND:

The MDEQ NPDES Phase II Stormwater Discharge Permit Application requires a procedures for post construction stormwater runoff controls for new development and redevelopment. The post construction stormwater runoff controls are necessary to maintain or restore stable hydrology on receiving waters by limiting surface runoff rates and volumes and reducing pollutant loading from sites that undergo development or significant redevelopment.

III. PROCEDURE:

Water Quality Treatment Performance Standard

This policy is to establish MISD and nested school districts goal to include water quality treatment volume standards for each new development or redevelopment of projects where the area of disturbance exceeds one acre, or including projects less than one acre that are part of a larger common plan of development or site that would disturb one acre or more, as required by the MDEQ NPDES phase II Stormwater Discharge Permit.

1. Water Quality control systems must provide a minimum treatment volume equal to one inch of runoff from the project site.

   Water quality Volume (WQV) is determined by Schueler's Simple Method:

   $$WQV = (Rv)\,(A)\,(P) / 12$$

   Where,
   - Rv = Site Runoff Volume Coefficient
   - A = Site Drainage Area (ft^2)
   - P = Design Rainfall Depth (1.0 inches)

2. Water Quality control system must reduce post development total suspended solids (TSS) loadings by 80% or to not exceed solids loadings of 80 milligrams per liter.

Channel Protection Performance Standard

1. Channel Protection is required that the post-development project site runoff volume and peak flow rate must be maintained at or below pre-development levels for all storms up to the 2-year, 24-hour event. Pre-development level means the runoff flow volume and rate for the last land use prior to the planned new development or redevelopment. Compliance with this requirement is determined by calculating the existing ("pre-development") and post-development runoff volume and rate for the 2-year and smaller storm events. The method is

described in the Department of Environmental Quality (DEQ) publication Computing Flood Discharges for Small Ungaged Watersheds, dated July 2003 (updated January 22, 2010).

2. If it is demonstrated using the Alternative Approach Flowchart (below) that the development cannot meet the required channel protection performance standard, the MISD and nested school district shall consider incorporation of green infrastructure (i.e. Rain gardens, green (vegetated) roofs, permeable pavement, impervious cover removal, use of trees, etc.) This includes instances where site conditions (e.g., space limitations, tight soils that prevent infiltration or soil or ground water contamination) challenge or prohibit feasibility of maintaining the project site's pre-development runoff levels for all storms up to the 2-year, 24-hour event. In the case of extended detention when required for channel protection, the volume shall be held for 48 hours or released at the 1-year/24 hour discharge rate. Green Infrastructure shall be allowed under all circumstances consistent with the flowchart. Review of these proposals will be consistent with the "SEMCOG Low Impact Development Manual for Michigan, 2008" or current standards and coordinated with MDEQ staff as appropriate.

Site Specific Criteria

Each site has its's own special circumstances and conditions the following BMPs will be used as appropriate according to the site conditions.

1. Reduce runoff from the site to greatest extent possible
2. Prevent spills and discharges
3. Control waste such as building materials, concrete washout, chemicals, litter, and sanitary waste. Including the area with potential significant pollutant loading and / or the potential for contaminating public water supply intakes (i.e. "hot spots")
4. Phasing will be considered to limit amount of exposed soils
5. Interim soils stabilization methods are to be considered (temporary seeding, mulching etc.)
6. Buffer preservation (avoid exposing soils to property limits)
7. Inspection staff will be trained in proper maintenance and operation of Soil Erosion and Sedimentation Control (SESC) measures.

Site Plan Review

Site plan for review as required by the MDEQ NPDES Phase II Stormwater Discharge Permit. School district will prepare and submit a written application, including a site plan for review and approval of post- construction stormwater runoff BMPs, for all new construction or redevelopment projects where the area of disturbance exceeds one (1) acre. The application will be completed in form and manner as prescribed by local municipality or governing unit in which the property is located. The site plan will be reviewed by the appropriate local municipal, County, State or other governmental agency. The review of the stormwater site plan will provide school district with the ability to ensure that water quality objectives, erosion and sediment control requirements, and BMP maintenance are adequately considered H. Unless provided for otherwise, hydraulic and hydrologic calculations (including rainfall

volumes and distributions) shall be based on current MDEQ standards (i.e. NOAA Atlas 14) and procedures in place at the time of application.

The goal of the site plan review is to:

1. Minimize clearing and grading
2. Protect waterways
3. Limit soil exposure
4. Project steep slopes and cuts

Operation and Maintenance of Stormwater Controls

MISD and nested school district will identify all stormwater controls and mechanisms for all new construction or redevelopment projects where the area of disturbance exceeds one (1) or more acres and will develop "BMP Operation and Maintenance" guidance manuals for each property, including:

1. Develop a map of each facility identifying the location and type of structural controls, if any exist
2. Develop a guidance manual that will provide a listing of structural controls including a site diagram showing the location of each control, instructions for inspection and operation, and the inspection and/ or maintenance schedules for each control mechanism
3. Stormwater runoff facilities, after construction and approval, shall be maintained in good condition, in accordance with the approved stormwater plan
4. Update and revise the stormwater structural controls on facility site diagrams as identified during scheduled inspections or within 30 days following the completion a new facility or reconstruction/ redevelopment site project

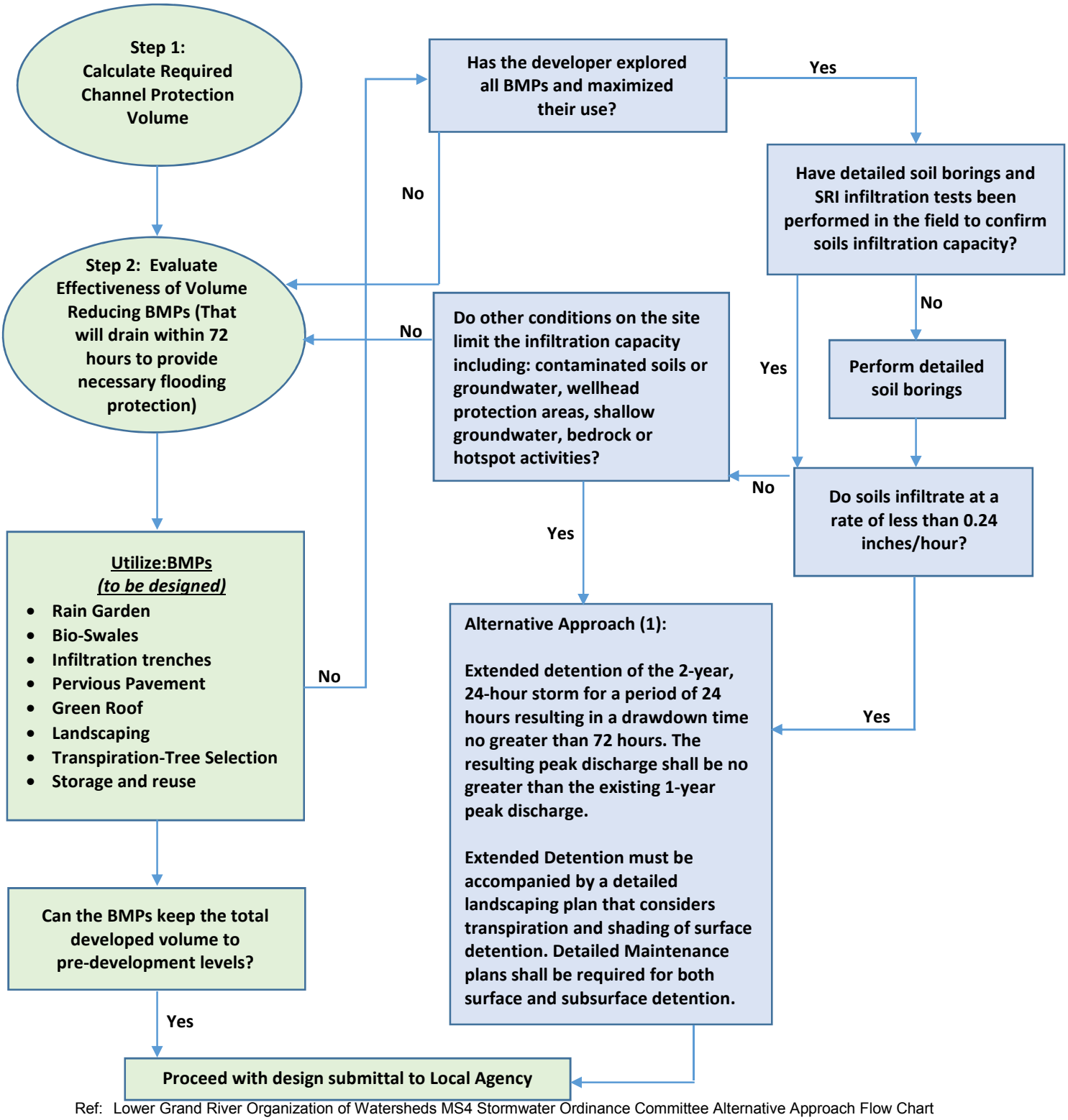
IV. OTHER:

Any questions on this policy and procedure should be directed to the Stormwater Program Manager.

V. PROCESS FOR UPDATING/REVISING THIS PROCEDURE

This procedure shall be reviewed on an annual basis by the MISD or designated agent for any updates to streamline the requirements.

MACOMB INTERMEDIATE SCHOOL DISTRICT
MACOMB COUNTY, MICHIGAN
STORM WATER STANDARDS
CHANNEL PROTECTION PERFORMANCE STANDARD
ALTERNATIVE APPROACH FLOW CHART



Ref: Lower Grand River Organization of Watersheds MS4 Stormwater Ordinance Committee Alternative Approach Flow Chart

1. NOTE: If utilizing extended detention as a post-construction storm water runoff control, additional BMPs likely will be needed to maintain the pre-development volume and peak rate levels for all storms up to the 2-year, 24-hour event, through green infrastructure or specific low impact development (LID) on-site BMPs for meeting the performance standar