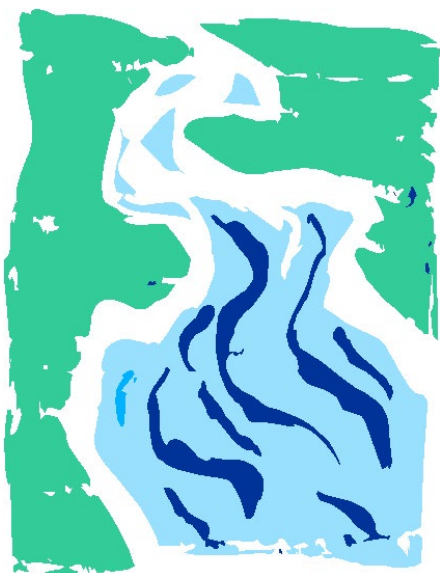




MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

Michigan's Nonpoint Source Program



Guidance for Best
Management Practices
and
Engineering Review



DEFINITIONS:

BMP: Best Management Practice

CMI: Clean Michigan Initiative

Division: An EGLE Division or Office (for ease of reference)

Engineering Review: A technical review of plans and specification to determine if the proposed design meets the requirements of the grant and is utilizing good engineering practices

EGLE: The Michigan Department of Environment, Great Lakes, and Energy

GI: Green Infrastructure

Good Engineering Practices: the utilization of proven and accepted engineering methods, procedures, and practices that are compatible with the NPS grant requirements

LID: Low Impact Development

Managerial BMP: is a Best Management Practice that reduces the potential for NPS pollution or stormwater reduction without utilizing a Structural or Vegetative BMP (e.g. Street Sweeping, Comprehensive Nutrient Management Plan)

MS4: Municipal Separate Storm Sewer System

NPS: Nonpoint Source

TA: Technical Administrator

PA: Project Administrator

Site Plans: engineered plans that show and explain site conditions, as well as the best management practices that are proposed to be implemented at the site

Structural BMP: Is a stationary and permanent Best Management Practice that is designed, constructed, and operated to prevent or reduce the discharge of stormwater and pollutants to waters of the state (e.g. pervious pavers, retention basin)

Vegetative BMP: Is a Best Management Practice that utilizes vegetation in the design to prevent or reduce the discharge of stormwater and pollutants to waters of the state (e.g. grassed waterway, filter strip)

WMP: Watershed Management Plan

Best Management Practices (BMP)

Definition of BMPs:

BMPs are vegetative, managerial, or structural practices used to reduce nonpoint sources of pollution. Specific BMPs are described in technical documents NPS staff develop to help grantees with implementation. All site plans contain BMPs.

BMP Requirements:

- BMPs funded with NPS funds are part of the project contract between the State and the grantee.
- BMPs are to be “packaged” together in a site plan.
- All site plans are reviewed by the NPS Engineer and must receive approval prior to installation.

BMP Guides available from the Nonpoint Source Program Webpage:

BMP reference guides are available on the NPS BMP Manual, Other BMP Design References, and Pollutants Controlled website at [EGLE - NPS BMP Manual, Other BMP Design References, and Pollutants Controlled \(Michigan.gov\)](#) and include:

- [The EGLE NPS BMP Manual](#)
- [SEMCOG \[Southeast Michigan Council of Governments\] Statewide Low Impact Development Manual](#)
- [Michigan Forestry Best Management Practices for Soil and Water Quality](#)
- [U.S. Forest Service BMPs for Water Quality on National Forest Lands](#)
- [NRCS \[Natural Resources Conservation Service\] Electronic Field Office Technical Guide \(eFOTG\)](#)
- And more

Items that may *not* be approvable:

Projects funded with federal Clean Water Act, Section 319 and matching CMI funds cannot fund BMPs required as part of a permit, required in a court or enforcement order, or required by law. In addition, projects funded with federal Clean Water Act, Section 319 funds cannot fund:

- Practices that have a stipulated funding source such as a drain clean-out (i.e., watershed project that are paid for through another process cannot also receive grant funding to cover the same costs).
- Activities associated with the maintenance of established BMPs.
- BMPs designed to address storm water runoff that has already entered a MS4 or drainage district. These ineligible practices would include, but would not be limited to, in-line detention, vortex storm water separators, or any other end of pipe treatment system. A storm water treatment and/or infiltration system located at the edge of a single parking lot may be eligible for funding. A storm water basin designed to treat water discharged from an MS4 (e.g. collected from multiple parking lots and/or roads) would not be eligible and would be considered “end of pipe treatment.”

- Activities that are not consistent with the State's NPS Program Plan (e.g. removal of atmospheric deposition and contaminated sediments, alum treatment or aeration of a lake and seawall installation).
- Activities that do not address the high priority activities identified in an approved Watershed Management Plan.
- Projects that address hydrologic symptoms as opposed to the hydrologic causes (e.g. dredging or sand traps vs runoff volume or rate).

Engineering Review

Engineering Review and Approval of Best Management Practices (BMP)

Why are Engineering Reviews Conducted:

Engineering review of site plans are conducted by NPS Program Engineers under the authority provided in the CMI Rules. The review is done to ensure plans developed for NPS grant projects are technically sound, protect water quality, and meet the goals of the project. This requirement applies to all BMPs funded with grant dollars and BMPs that are used as match.

Engineering Review Objectives:

Engineering review is provided primarily for three reasons:

1. To determine if the selected practices funded with NPS grant money or used as match are technically sound, will address a water quality or quantity issue, and are applied in a way that will help reach the goal of the project. BMPs are selected by grantees as part of a project to reach a water quality or quantity goal. Sometimes the selected practices have not been used before or are being applied to new situations. As a result, there is often no specific guidance for the use of the practice to address a specific NPS issue. Other times, existing specifications have not been applied correctly for the given situation or are not the right specifications to properly address water quality issues at the site.
2. Provide engineering technical support to Water Resources Division (WRD) District and NPS Unit staff, grantees and others in Michigan who require assistance in the design and implementation of BMPs. Nonpoint Source staff and grantees often seek advice on BMP selection, design, placement, and operation. Much of this work is done on-site or at meetings of interested individuals. Generally, this activity is conducted at the request of NPS Staff or in the course of reviewing site plans.
3. Allows EGLE engineers to identify and evaluate BMP designs and performance to determine suitability for use in the BMP guidance documents. Engineering staff of the NPS Unit are responsible for developing and maintaining BMP guidance documents, which provide guidance to watershed managers and EGLE staff on effective techniques for preventing and controlling nonpoint source runoff.

Engineering Review Requirements:

- Grantees or their subcontractors must submit site plans for any vegetative or structural BMPs, including any earth change activities, physical modifications of the stream channel and practices that modify hydrology in accordance with contract boilerplate language. Site plans must meet the requirements listed in the sections below.
- Clean Michigan Initiative Rules require that all structural and vegetative practices be designed and stamped by a licensed professional engineer, registered landscape architect or other professional working under a licensed engineer's authority.

Note: *EGLE Nonpoint Source engineers will not design structures, will not sign the designs as the responsible engineer, nor give anyone else permission to do so.*

When plans should be submitted to EGLE:

- An Administratively Complete Site Plan Design Package (**See Required [Checklist](#)**) needs to be submitted to an NPS Technical Administrator (TA) at least nine (9) weeks prior to the desired time of installation. If the plans are not administratively complete or are not adequate to perform the technical review the NPS TA will request the additional information and the review clock will restart when the plans are resubmitted.
- The NPS Program recommends the Grantee work with the NPS Engineer before the design process begins and when the plans are 50% complete to help avoid delays in the review process.

Requirement to submit Site Plans:

- An engineered site plan is required for all sites where vegetative or structural BMPs will be installed.
- An electronic copy of plans shall be submitted to the NPS TA in the District Office for an initial review of administrative completeness. The NPS TA will notify the Grantee and copy the NPS Project Administrator (PA) if additional information is required to make the submittal administratively complete.
- Grantee shall identify any additional individuals to receive the site plan approval letter and/or approved plans.

Note: Revised plans submitted to satisfy a technical revision request shall be submitted to the NPS Engineer

Engineering Review Process:

- NPS Engineers review site plans to determine if the project design is eligible to receive grant funding or may be used as match funding.

(Note: This is not an approval for any required permits. All required local, state, and federal permits must be applied for separately but can be done concurrently. The NPS engineering review often exceeds the minimum requirements of other local, state, and federal programs.)

- NPS Engineer will try to review the plans within one (1) week upon arrival for administrative completeness when schedule allows. If the plans are not complete or the information submitted is not adequate to perform the review, the NPS Engineer will request the additional information. **If the NPS engineer requests additional information, the 9-week “clock” starts over.**
- NPS Engineer will conduct a technical review of the plans within nine (9) weeks of the Department receiving the plans.
- If the NPS Engineer approves the site plans an approval letter along with a signed site plan will be sent to the grantee for their files.

Grantees and sub-contractors that implement BMPs without the prior written approval of an EGLE NPS engineer will not be reimbursed for the implemented BMPs, nor can the project be used as match.

- If the site plans are NOT approvable as submitted the grantee will receive notification of the deficiencies and/or changes needed.
- Grantee will submit revised plans to the NPS engineer. Unless indicated otherwise, the submittal will contain complete sets of revised plans and/or specifications, signed and sealed by a licensed professional engineer, registered landscape architect or other professional working under a licensed engineer's authority.
- **Upon receipt of the revised plans the NPS engineer will restart the nine (9) week “clock” for the plan review.** The NPS engineers are encouraged to complete the review of revised plans as quickly as possible when their schedule permits.

Helpful hints for grantees:

1. A pre-meeting to discuss the site can be requested by the grantee during proposal development as well as prior to the design phase.
2. Before a detailed engineering plan is developed, an 8.5” x 11” drawing can be sent to the NPS TA, NPS PA and the NPS Engineer to discuss the system of BMPs proposed for a site. This can help reduce revision requests in the site plan review process. A skeletal plan, also called a water quality resource management plan, should include:
 - A drawing showing the location of each BMP proposed for the site and the waterbody and other important natural features.
 - Basic design considerations, including soils, specific site conditions, flow information, contributing watershed area or any other information that might be helpful to the NPS engineer.
3. The NPS Program recommends the Grantee schedule an interim design review meeting with the NPS Engineer when site plans are 50% complete to help avoid delays in the site plan review process.
4. The NPS Program recommends the Grantee initiate the site plan review process as early as possible. The development of approvable site plans can be complicated and often requires one or more revision requests that could lead to

longer than anticipated plan approval timeframes (i.e. multiple review periods that could be up to nine (9) weeks each).

5. A WMP that only identifies water quality pollutants shall size BMPs to handle the entire Water Quality Volume (i.e. if the WMP identifies phosphorous as a water quality issue, a BMP designed to address phosphorous must treat the entire Water Quality Volume (i.e. First Flush) to be considered for grant funding).
6. A WMP that only identifies flashy flow or streambank erosion shall size BMPs for the Channel Protection Volume and/or Rate (i.e. if the WMP identifies flashy flows, the proposed BMPs shall be designed to address the difference in the Presettlement/Post Development volume and/or rate to the extent possible to be considered for grant funding).
7. BMPs should be designed to address the Water Quality Volume and Presettlement/Post Development two-year/24-hour runoff volume and/or rate, whichever is greater, if the WMP identifies a Water Quality Pollutant and Flashy Flows or is targeting the LID/GI area of emphasis as described in the Request for Proposals.
8. The NPS Program will typically not approve projects that specify erosion control products with non-natural netting (e.g. soil erosion control blankets with synthetic, non-UV degradable, non-biodegradable netting), gabion baskets, excessive amounts of riprap or crushed concrete.

For information or assistance on this publication, please contact the Water Resources Division through EGLE Environmental Assistance Center at 800-662-9278. This publication is available in alternative formats upon request.

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