Phase II Storm Water Management: Development Guide to the Haw River Basin

Phase II: General Information

In 1990, the United States Environmental Protection Agency (USEPA) implemented the first phase of storm water management. Phase I required large municipal separate storm sewer systems (MS4s) that serve populations greater than 100,000 individuals or construction sites which disturb areas greater than 5 acres and ten selected categories of industrial activity to regulate their storm water. To do so, these MS4s must apply for NPDES permits and follow national and state regulations while implementing programs to regulate the quality of storm water entering natural water systems.

However, the 1996 National Water Quality Inventory found 40 percent of surveyed water bodies in the US were still impaired. Most impairments were based upon polluted runoff, leading to the need for greater regulation.

In response to the failure of Phase I to remove all water bodies from the impaired waters list, Phase II regulations were implemented in 1999. Under Phase II, small MS4s located in urbanized areas will be regulated. These areas are those that consist of either one centralized area or an area which has a surrounding residential population of 50,000 or more individuals and a population density of 1,000 people per square mile or greater. Furthermore, any construction site that disturbs areas between 1 and 5 acres must now regulate their storm water.

While construction sites may not be located directly along the Haw River or its tributaries, runoff from the work site often drains to MS4s which are then released in the local water system. Construction sites release 10 to 20 times more sediment into water systems than agricultural lands and an alarming 1,000 to 2,000 times more than that of forest lands. In one short disturbance, sediment carrying chemical and biological pollutants may accumulate in local water systems at a rate that would naturally take several decades.

What Phase II Means for Development

Phase II storm water management requires that operators of construction programs which will cause 1 to 5 acres of disturbance to establish methods which will limit the amount of storm water entering local water systems which drain to the Haw River.

Small MS4 operators must implement correct erosion and sediment controls, control their wastes, develop site plan reviews for water impact, create site inspection methods to be carried out, establish sanctions to ensure compliance and allow for the acceptance and consideration of information from the public, and use Best Management Practices (BMPs) throughout the project.

Cities in Haw River Watershed Affected by Phase II
- Carrboro
- Chapel Hill
- Elon
- Gibsonville
- Graham
- Haw River
- Mebane
- Reidsville

Counties in Haw River Watershed Affected by Phase II
- Alamance
- Forsyth
- Guilford
- Orange

Six Minimum Control Measures
- Public education and outreach
- Public Participation/Involvement
- illicit discharge detection and elimination
- Construction site runoff control
- Post-construction runoff control
- Prevention/Good housekeeping
Post-Construction Requirements

Furthermore, runoff controls must be implemented to minimize post-construction disturbance. Post-construction runoff flows over the disturbed areas, picking up any loose sediment or chemicals carrying them to streams which will ultimately flow to the Haw. The amount of water entering these tributaries also increases as the amount of impervious surface increases from development.

As a result, Phase II regulations require construction companies to address these situations prior to development. Structural and nonstructural BMPs must be implemented, long-term maintenance of the predetermined controls must be carried out and throughout all construction work goals for these control measures must be addressed.

Nonstructural BMPs deal with the planning and procedures of the development project and site-based local controls. The implementation of buffer strips, riparian zone preservation, or other similar projects should be planned into the project as a method to allow long-term erosion controls. Structural BMPs look at the storage practices, infiltration practices, and vegetative practices used at a construction site. Storage practices require methods that will control storm water volumes and pollutants removal. Infiltration practices ensure that runoff can percolate through soil to groundwater. Vegetative practices guarantee that the best design and vegetation is used for the construction site. Not only will aesthetics make an impact on plant use but their ability to filter and remove pollutants will be addressed.

Permitting Options

**General Permits**
- Strongly encouraged by the EPA
- Notice of Intent (NOI) is drafted including BMPs, management plan, and measurable goals.
- NPDES creates permits based upon NOI, opens them to public comment, finalizes, and issues permit.

**Individual Permits**
- Phase II permit applications must be followed with an estimate of square mile-

Modification of Phase I
- Small MS4s would be able to participate as a limited co-permittee in the neighboring Phase I program.
- Phase I permitting must be followed.

Permit Requirements

MS4s must submit an NOI including the following information to apply for a Phase II permit:
- BMPs for the six minimum control measures
- Measurable goals for minimum control measures
- Estimated timeline of when implementation will occur for each activity will be carried out

Construction Waivers

Waivers are only used for sites which are highly unlikely to have a harmful impact on the Haw River. There are two conditions in which a site could be exempt from Phase II:

First, waivers can be granted to areas with low predicted rainfall and second for an area which is covered under a total maximum daily load (TMDL).

Areas with low rainfall which have an erosivity factor less than 0.5 during construction can fail for exemption. This simply means that using the Revised Universal Soil Loss Equation there is a low potential for polluted discharge to enter surrounding water systems.

Areas which are covered by a TMDL can be waived based upon current water quality analysis. For this waiver to be approved, the construction operator must be certain that all discharge will occur within the area covered by the

Major Pollutant Discharged From Construction:
- Sediment
- Construction Chemicals
- Construction Debris
- Nitrogen
- Oil and Grease
- Phosphorous
- Pesticides
- Solid and Sanitary Wastes (US EPA)