Review of State and Federal Stormwater Regulations

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By:

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NH DES Alteration of Terrain Program

- Current rules written in mid 1990s
- Permit required to alter 100,000 sf or 50,000 sf if within protected shoreline
- Permit regulates the following impacts resulting from new construction.
  - Temporary Erosion and Sediment Control
  - Water Quality
  - Water Quantity

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Proposed Rules

- NH DES is performing much needed revisions to the rules. These revisions are extensive and will impact the planning, design, and construction of all medium and large projects in New Hampshire.
  - Application thresholds and regulated activities remain generally unchanged.
- As of October 29, 2007, DES Legal Unit has reviewed the rules that were in the DES Commissioners Office.

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Significant Changes

- Temporary Erosion and Sediment Control
  - Individual practices are now listed in the rules
    - Mulching
    - Temporary seeding
    - Crushed stone cover
    - Check dams
    - Erosion control mix berms
    - Silt fencing
    - Straw/hay bale barriers
    - Temporary sediment traps
    - Temporary gravel construction entrances

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Temporary Erosion and Sediment Control - Continued

- Cold weather stabilization now included – similar to what has been *requested* by DES staff in recent years.
  - Applicable October 15th to May 15th
  - Limit area of disturbance to 1 acre without specific plan prepared by a professional
  - Mulch or erosion control blankets on slopes
  - Stone or erosion control blankets in swales
  - Sand/gravel on roads/parking areas

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Permanent Stormwater Measures

- Significantly revised
  - Utilizes Water Quality Volume and Water Quality Flow
- Includes ground water recharge requirements related to proposed impervious area and NRCS soil type
- Includes specific water quality impact requirements. Must address pollutant loading and TMDL impacts if applicable

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Stormwater Treatment Practices

- Significantly revised; provides for the following practices:
  - Stormwater ponds (extended detention)
  - Stormwater wetlands
  - Infiltration practices
  - Filtering practices
  - Vegetated buffers

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Stormwater Quantity Requirements

- Channel protection requirements
  - 2-yr, 24-hr post-dev rate less than/equal to 50% pre-dev flow rate or
  - 2-yr, 24-hr post-dev rate less than/equal to the 1-yr, 24-hr pre-dev flow rate

- Peak control requirements
  - 10-yr, 24-hr post dev-peak rate shall not exceed the pre-dev peak rate

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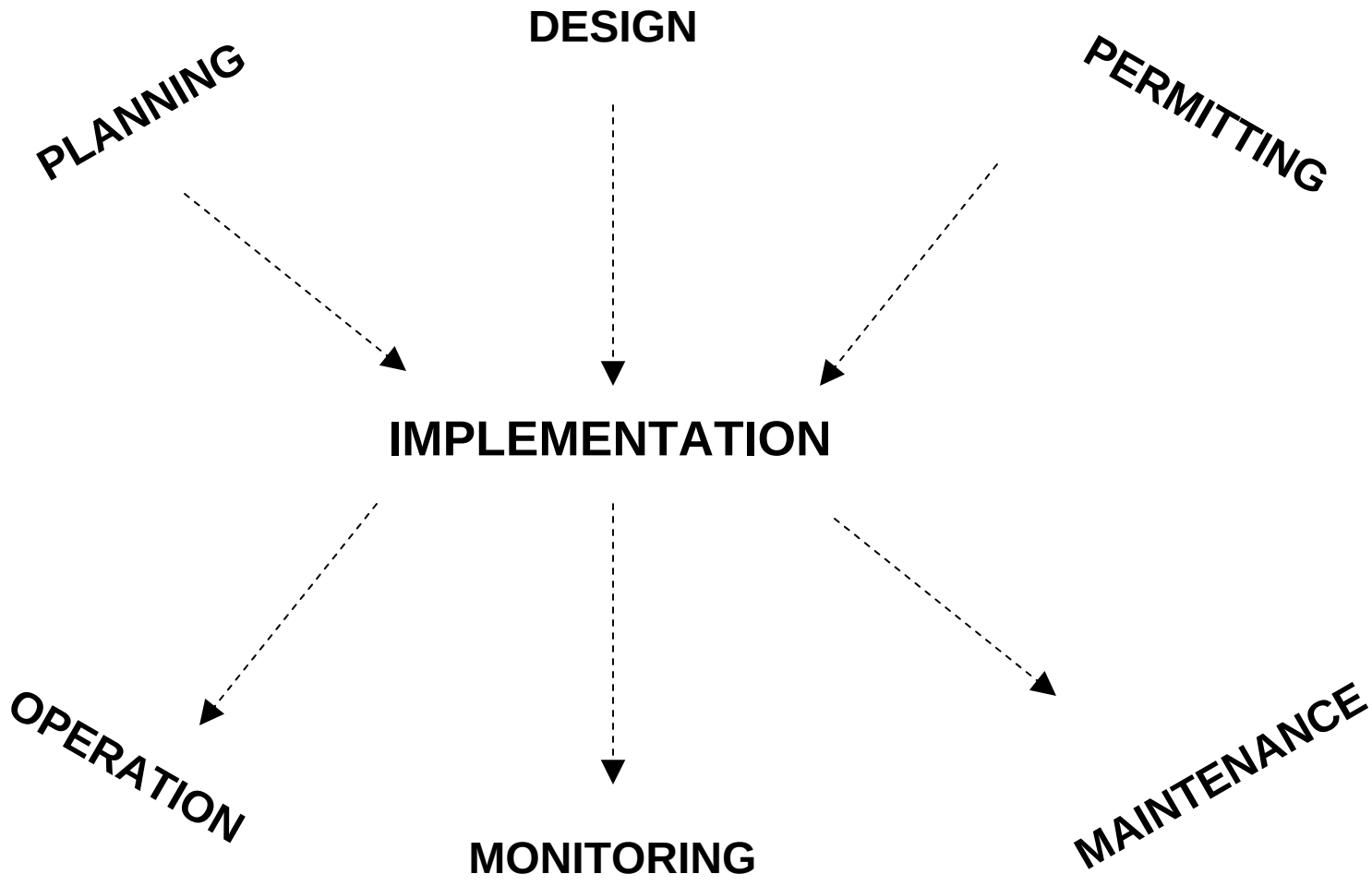
U.S. Environmental Protection Agency (EPA) Stormwater Program

"Stormwater discharges are generated by runoff from land and impervious areas such as paved streets, parking lots, and building rooftops during rainfall and snow events that often contain pollutants in quantities that could adversely affect water quality. Most stormwater discharges are considered point sources and require coverage by an NPDES permit. The primary method to control stormwater discharge is through the use of Best Management Practices (BMP)."


DESIGN
PLANNING
PERMITTING
IMPLEMENTATION
OPERATION
MONITORING
MAINTENANCE

Permitting

EPA National Pollutant Discharge Elimination System (NPDES)

1972 Clean Water Act (amended)

1987 Federal Water Quality Act

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NPDES Stormwater Permit Program

Phase I regulations

published in 1990

implemented in 1992

Phase II regulations

published in 1999

implemented in 2003

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NPDES Stormwater Permit Program

Construction Activities (CGP)

Industrial Activities (MSGP)

Municipal Separate Storm Sewer Systems (MSA)

NPDES Stormwater Permits Program

- Construction General Permit
  - Reissued by EPA on 7/1/2003
  - Sites ≥ 1 acre
  - Conditions to protect endangered species & historic properties
- Requires site owner and operator to:
  - Develop & implement a SWPPP and post public notice confirming permit coverage
  - Develop detailed site map identifying drainage & BMP's
  - Qualified personnel to inspect & maintain E&S controls
  - Maintain a record of all inspections
  - Control wastes during construction
  - File a Notice of Termination form when site is stabilized

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Planning • Design

Smart Growth

development that incorporates protection, preservation and reuse

Sustainable Infrastructure

policies, approaches and planned expenditures to provide consistently effective water infrastructure systems over the long term

Green Infrastructure

systems that mimic natural landscapes to capture, cleanse, and reduce stormwater runoff using plants, soils, and microbes

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EPA Green Infrastructure Policy

April 19, 2007 EPA and four national groups signed an agreement to promote the use of green infrastructure to reduce stormwater runoff and sewer overflows.

EPA
National Association of Clean Water Agencies
Natural Resources Defense Council
Low Impact Development Center
Association of State & Interstate Water Pollution Control Administrators

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Benefits of Green Infrastructure

- Reduced/Delayed stormwater runoff volumes
- Enhanced groundwater recharge
- Stormwater pollutant reductions
- Reduced sewer overflow events
- Increased carbon sequestration
- Urban heat island mitigation & reduced energy demands
- Improved air quality

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Common Green Infrastructure Approaches

- Conservation easements
- Green parking
- Rain gardens / bio-retention
- Riparian buffers / forested buffers
- Infiltration trenches / grassed swales
- Porous pavements
- Green roofs
- Protection of natural features
- Stormwater wetlands
- Low Impact Development (LID)

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Low Impact Development

LID = comprehensive stormwater management and site design

GOAL – to design a hydrologically functional site that mimics predevelopment conditions.

APPLY – design techniques that infiltrate, filter, evaporate and store runoff close to its source

USE – small, cost-effective landscape features located on-site

ACHIEVE – environmental protection while allowing for development or infrastructure rehabilitation to occur

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LID Techniques

- Bio-retention cells
- Cisterns and rain barrels
- Green roofs
- Permeable and porous pavements
- Grass swales

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LID Effects

- Controls stormwater at its source
- Restores natural, pre-developed ability of an urban site to absorb stormwater
- Reduces peak runoff
- Captures first flush

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Conclusions

- Effective stormwater management is a challenge to planners, designers, & regulators
- Holistic planning and better site design practices will continue to improve stormwater quality
- Must balance among the interests of environmental quality, pressure for continued growth, application of appropriate green design / LID's, and the cost to sustain water quality infrastructure

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