Pollutant Source Control Considerations for Designers

Non-Residential Land Use

Introduction

This fact sheet is intended to guide designers of **non-residential land developments** in the identification and implementation of effective and economical low impact development (LID) and pollutant source control practices. These "design stage" considerations, when combined with thoughtful management of the property once occupied, can be effective in *preventing* stormwater pollution from the property by reducing potential pollutants *at the source*.

Low Impact Development Practices

Non-residential land developments can be designed to prevent stormwater pollution when careful efforts are made by the site designer to conserve natural areas, reduce impervious surfaces (e.g., rooftops and pavement), and better integrate land development and stormwater management techniques. Use of a combination of these practices, collectively known as LID practices, makes it possible to reduce the amount of stormwater, and therefore pollutants, that are generated from a non-residential site. This reduction in stormwater can yield multiple benefits for the site owner, including lower costs for stormwater infrastructure construction and maintenance, improved site aesthetics, and in some cases, enhanced site amenities, like natural walking trails and lunchtime picnic areas. Topeka Municipal Code Chapter 13.35 encourages the use of stormwater LID practices and additional guidance is provided in the *City of Topeka Stormwater BMP Design Handbook*.

Pollutant Source Control Design Considerations

DUMPSTERS

- ✓ Location
  - Away from storm drainage inlets and channels
  - In a shaded or covered area, if possible
  - Easily accessible by employees & waste trucks
- ✓ Drainage (dumpster pads)
  - Direct to the sanitary sewer (NOT the storm drainage system) or a gently sloped grass area
  - Direct away from storm drainage inlets and channels, using curbs, dikes, or berms

HEATING, VENTILATION, & AIR CONDITIONING

- ✓ Locate HVAC units to ensure condensate and wash water can drain to an open vegetated area or sanitary sewer

SANITARY SEWER LINES & SEPTIC LATERALS

- ✓ Locate away from roads and driveways, trees, and temporary construction areas
- ✓ Connect to the sanitary sewer system
- ✓ Connection to the storm drainage system is prohibited!

SWIMMING POOLS & SPAS

- ✓ Design/locate the pool so that overflow, splashes, and waves will be directed to a grassy area for ground infiltration, or to a surface drain that will discharge to a grassy area or sanitary sewer
- ✓ Pool/spa and backwash water should be directed into:
  - The sanitary sewer system
  - A constructed infiltration trench or shallow depression to allow water to soak into the ground

SLOPE & STREAMBANK STABLIZATION

- ✓ Slopes
  - Assess slope stability prior to design. To improve stability:
    - Regrade to reduce the slope
    - Use hardy, durable, preferably native plants
    - Use a retaining/crib wall or other structure
    - Use slope drains or divert surface water away
- ✓ Streambanks
  - Do not alter streams without KDHE permits
  - Retain and/or enhance with hardy, durable, preferably native plants
  - Use retaining walls, rock walls, or gabions where necessary
  - Removal of vegetation in buffers is prohibited (TMC Ch 17.10)

ANIMALS & LIVESTOCK

- ✓ Provide a buffer zone and/or a fence to prevent animals/livestock from urinating or defecating into a stream or other stormwater drainage feature
- ✓ Locate animal/livestock dwelling away from ditches, swales, storm drains, pipes, and culverts

TREE PRESERVATION

- ✓ Indicate trees that will remain on grading plans
  - Install high visibility, temporary fencing around the entire canopy dripline
  - Avoid root damage by limiting grading changes near preserved trees
  - Do not locate construction roadways, parking, exits, truck wash-out areas, and materials stockpiles near preserved trees
- ✓ Locate multiple utility lines in the same trench line and as far away from tree trunks as possible (must meet KDHE Separation Requirements)

VEGETATION & PLANTING PLANS

- ✓ Preserving existing vegetation
  - Plant preservation and installation should be planned, and the planting plan prepared, BEFORE site disturbance begins
  - Ensure site contractors install tree/plant protection measures BEFORE site disturbance begins
  - Install high visibility, temporary fencing to protect vegetation
  - Do not locate construction roadways, parking, exits, truck wash-out areas, and materials stockpiles near preserved trees
- ✓ Planting plan considerations
  - Vegetate areas within buffers, wetlands, streambanks, steep slopes, and in floodplains
  - Use native plants as much as possible
  - Select new plants based on:
    - Plant lists in USDA Plant Hardiness Zones 5 and/or 6
    - Life expectancy and present age
    - Health and disease susceptibility
    - Aesthetic values
    - Wildlife benefits
    - Adaptability to the proposed project
    - Water and maintenance needs
    - Relationship to other vegetation
- ✓ Fully describe plant installation, water, and maintenance needs with schedule for each
- ✓ Locate, define, or describe the water source for plant watering during construction