

# APPENDIX

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**ACRONYMS**

AASHTO	American Association of State Highway and Transportation Officials
ARDOT	Arkansas Department of Transportation
ASCE	American Society of Civil Engineers
ASTM	American Society for Testing and Materials
ASWCC	Arkansas Soil and Water Conservation Commission
BMP	Best Management Practice
CMP	Corrugated Metal Pipe
CN	Curve Number
CPP	Corrugated Polyethylene Pipe
CWB	Constructed Wetland Basin
DCIA	Directly Connected Impervious Area
DEQ	Arkansas Department of Energy & Environment Division of Environmental Quality
EDB	Extended Dry Detention Basin
EOR	Engineer of Record
EWDB	Extended Wet Detention Basin
GB	Grass Buffer
GS	Grass Swale
IMP	Integrated Management Practice
LID	Low Impact Development
MBP	Modular Block Porous Pavement
MEP	Maximum Extent Practicable
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
POA	Property Owners Association
PLD	Porous Landscape Detention
PVC	Polyvinylchloride
RCB	Reinforced Concrete Box
RCHEP	Reinforced Concrete Horizontal Elliptical Pipe
RCP	Reinforced Concrete Pipe
SCS	Soil Conservation Service
SLCCP	Smooth Lined Corrugated Polyethylene Pipe
SLCMP	Smooth Lined Corrugated Metal Pipe
STS	Storm Sewer
TMDL	Total Maximum Daily Load
TRM	Turf Reinforcement Mat
UDC	Unified Development Code

## DRAINAGE CRITERIA MANUAL

UDFCD	Urban Drainage and Flood Control District
USACE	United States Army Corps of Engineers
USDCM	Urban Storm Drainage Criteria Manual
USFWS	United States Fish and Wildlife Service
USEPA	United States Environmental Protection Agency
WEF	Water Environment Federation
WCRS	Watershed Conservation Resource Center
WQCV	Water Quality Capture Volume

DEFINITIONS <sup>1</sup>

**Basin:** A hydrologic unit consisting of a part of the surface of the earth covered by a drainage system consisting of a surface stream or body of impounded surface water plus all tributaries.

**Best Management Practices (BMPs):** A wide range of structural treatment processes, pollution prevention practices, schedules of activities, prohibitions on practices, and other management practices. Nonstructural BMPs, such as preventative maintenance and preserving natural vegetation, are mainly definitions of operational or managerial techniques. Structural BMPs include physical processes ranging from diversion structures to silt fences to retention ponds.

**Clean Water Act:** Legislation that provides statutory authority for the National Pollutant Discharge Elimination System (NPDES) program; Public law 92-500; 33 U.S.C. 1251 et seq. Also known as the Federal Water Pollution Control Act.

**Culvert:** A short, closed (covered) conduit or pipe that passes stormwater runoff under an embankment, usually a roadway.

**Design Storm:** A rainfall event of specific depth, duration, intensity, and return frequency (e.g., the 1-year storm) that is used to calculate runoff volume and peak discharge rate.

**Detention:** The storage and slow release of stormwater from an excavated pond, enclosed depression, or tank. Detention is used for pollutant removal, stormwater storage, and peak flow attenuation. Both wet (permanent pool) and dry (completely drained between runoff events) detention methods can be applied.

**Drainage Facility:** Systems including but not limited to watercourses, constructed channels, natural channels, storm drains, culverts, and detention/retention facilities that are used for conveyance and/or storage of stormwater runoff. See also *Stormwater Facility*.

**Erosion:** When land is diminished or worn away due to wind, water, or glacial ice. Often the eroded debris (silt or sediment) becomes a pollutant via stormwater runoff. Erosion occurs naturally, but can be intensified by land clearing activities that remove established vegetation such as farming, development, road building, and timber harvesting.

**Grading:** Stripping, excavating, filling and/or stockpiling soil to shape land area for development or other purposes.

**Grass Buffer:** Uniformly graded and densely vegetated area of turf grass. This BMP requires sheet flow to promote filtration, infiltration, and settling to reduce runoff pollutants.

**Grass Swale:** Vegetated drainageway with low-pitched side slopes that collects and slowly conveys runoff. Design of longitudinal slope and cross-section size forces the flow to be slow and shallow, thereby facilitating sedimentation and promoting infiltration while limiting erosion.

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<sup>1</sup> Definitions provided in this chapter have been compiled from several references and websites including: Denver Wastewater Management Division Rules and Regulations <http://www.denvergov.org/admin/template3/forms/Sewer%20charges.PDF>, Urban Drainage and Flood Control District, Volume 3 <http://www.udfcd.org/usdcm/vol3.htm>, Blueprint Denver Glossary [http://www.denvergov.org/admin/template3/forms/BD\\_glossary.pdf](http://www.denvergov.org/admin/template3/forms/BD_glossary.pdf), CWQCD <http://www.cdphe.state.co.us/wq/>, Utah APWA <http://www.ulct.org/apwa/Glossary.htm>, USGS web site, Stormwater Magazine Glossary: [http://www.forester.net/sw\\_glossary.html](http://www.forester.net/sw_glossary.html), EPA website glossaries <http://www.epa.gov/ednrmrli/main/gloss.htm> and [http://cfpub.epa.gov/npdes/glossary.cfm?program\\_id=0](http://cfpub.epa.gov/npdes/glossary.cfm?program_id=0), the Low Impact Development web site: <http://www.lowimpactdevelopment.org/school/glossary.html>, the Maryland web site <http://www.mde.state.md.us/assets/document/sedimentstormwater/Glossary.pdf>, and the NRDC web site <http://www.nrdc.org/water/pollution/storm/gloss.asp>.

## DRAINAGE CRITERIA MANUAL

**Hydrologic Soil Group:** Soils are classified by the Natural Resource Conservation Service into four Hydrologic Soil Groups based on the soil's runoff potential. The four Hydrologic Soils Groups are A, B, C and D. Where A's generally have the smallest runoff potential and Ds the greatest.

**Hydrology:** The science addressing the properties, distribution, and circulation of water across the landscape, through the ground, and in the atmosphere.

**Inlet:** An entrance into a ditch, storm culvert, or other conveyance.

**Jointing and Bedding Aggregate:** ASTM C-33 sand or another aggregate material for the use of in-fill between paver blocks as well as a leveling course for the blocks as specified by the paver blocks' manufacturer's specs.

**National Pollutant Discharge Elimination System (NPDES):** The national program under Section 402 of the *Clean Water Act* for regulation of discharges of pollutants from point sources to waters of the United States. Discharges are illegal unless authorized by an NPDES permit.

**Nonstructural BMPs:** Stormwater runoff treatment techniques that use natural measures to reduce pollution levels and do not require extensive construction efforts and/or promote pollutant reduction by eliminating the pollutant source.

**Outfall:** The point where wastewater or drainage discharges from a sewer pipe, ditch, or other conveyance to a receiving body of water.

**Peak Flow:** The maximum instantaneous discharge of a stream or river at a given location. It usually occurs at or near the time of maximum stage.

**Peak Runoff Rate:** The highest actual or predicted flow rate (measured in cubic feet per second) for runoff from a site for a given frequency event.

**Receiving Waters:** Natural or manmade water systems into which materials are discharged.

**Retention Pond:** A BMP consisting of a permanent pool of water designed to treat runoff by detaining water long enough for settling, filtering, and biological uptake. Retention (aka wet) ponds may also be designed to have an aesthetic and/or recreational value. These BMPs have a permanent pool of water that is replaced with stormwater, in part or in total, during storm runoff events. In addition, a temporary extended detention volume is provided above this permanent pool to capture storm runoff and enhance sedimentation. It requires a perennial supply of water to maintain the pool. Retention ponds are more common in larger catchments.

**Runoff:** Water from rain, melted snow, or irrigation that flows over the land surface.

**Runoff Coefficient:** A value ranging from 0.0 to 1.0 representing the fraction of precipitation volume that becomes runoff. The runoff coefficient,  $C$ , is used in the Rational Formula to calculate a peak flow rate (cfs) by multiplying the runoff coefficient by the rainfall intensity,  $I$  (inches/hour), and the tributary drainage area,  $A$  (acres).  $Q = CIA$ .

**Sediment:** Soil, sand, and materials washed from land into water, usually after rain. Sediment can destroy fish-nesting areas, clog animal habitats, and cloud water so that sunlight does not reach aquatic plants.

**Slope:** Angle of land measured in horizontal distance necessary for the land to fall or rise one foot, expressed by horizontal distance in feet to one vertical foot. Slope may also be expressed as a percent or decimal as the quotient of vertical elevation change divided by the horizontal distance over which the change occurs.

**Stormwater Facilities:** Systems including but not limited to watercourses, constructed channels, natural channels, storm drains, culverts, and detention/retention facilities that are used for conveyance and/or storage of stormwater runoff. See also *Drainage Facility*.

**Stormwater Management:** Functions associated with planning, designing, constructing, maintaining, financing, and regulating the facilities (both constructed and natural) that collect, store, control, and/or convey stormwater.

**Stormwater:** Precipitation that accumulates in natural and/or constructed storage and stormwater systems during and immediately following a storm event.

**Structural BMPs:** Devices that are constructed to provide temporary storage and/or treatment of stormwater runoff. Examples of structural BMPs used on construction sites include sediment basins, silt fence, and inlet protection.

**Surface Water:** Water that remains on the surface of the ground, including rivers, lakes, reservoirs, streams, wetlands, impoundments, seas, estuaries, etc.

**Suspended Sediment:** Soil particles that remain in suspension in water for a considerable period of time without contact with the solid fluid boundary at or near the bottom. They are maintained in suspension by the upward components of turbulent currents.

**Traffic Areas:** Any area used by vehicular traffic (cars, trucks, buses, etc.) to travel to destinations or gain access to such destinations; essentially any area where vehicular traffic could likely be anticipated to operate. Including but not limited to: paved and unpaved streets; residential, commercial, and industrial driveways; parking lots; etc.

**Waters of the State:** "Waters of the state" means all streams, lakes, marshes, ponds, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface and underground, natural or artificial, public or private, which are contained within, flow through, or border upon this state or any portion of the state.

**Watershed:** That geographical area that drains to a specified point on a watercourse, usually a confluence of streams or rivers (also known as drainage area, catchment, or river basin).

**Wetlands:** Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Classification of an area as a wetland depends on hydrology, soils and vegetation. The USACE has jurisdiction for determining areas that are or are not jurisdictional wetlands.