

## **CHAPTER 6 STORMWATER**

### **600.1 Definitions**

The following words and phrases, when used in this Chapter 6, have the following meanings and have no bearing on other Chapters or the Philadelphia City Code.

(a) Applicant: Whenever used in this Chapter 6, a property owner, Developer, or other person or entity who has filed an application to the Department for approval to engage in or be exempt from any Regulated Activity at a Development Site in the City of Philadelphia.

(b) Conceptual Stormwater Management Plan: A preliminary stormwater management plan as described in these Regulations and in the Manual.

(c) Demolition: The razing or destruction, whether entirely or in significant part, of a building, structure, site or object; including the removal of a building, structure, site, or object from its site or the removal or destruction of the façade or surface.

(d) Design Storm: The magnitude and temporal distribution of precipitation from a storm event defined by probability of occurrence (e.g., five-year storm) and duration (e.g., 24-hours), used in the design and evaluation of stormwater management systems.

(e) Developer: Any landowner, agent of such landowner, or tenant with the permission of such landowner, who makes or causes to be made a subdivision of land or land Development project prior to issuance of the Certificate of Occupancy.

(f) Development: Any human-induced change to a tract of land, whether public or private. As used in these Regulations,

Development encompasses, but is not limited to, New Development, Redevelopment, Demolition, and Stormwater Retrofit. It includes the entire Development Site, even when the project is performed in phases.

(g) Development Site: The land area where any Development activities are planned, conducted, or maintained, regardless of individual parcel ownership. It includes contiguous areas of disturbance across Streets and other rights of way, or private streets and alleys, during any stage of or on any portion of a larger common plan of development or sale.

(h) Diffused Drainage Discharge: Drainage discharge not confined to a single point location or channel, such as sheet flow or shallow concentrated flow.

(i) Directly Connected Impervious Area (DCIA): An Impervious Surface that is directly connected to the drainage system as described in the Manual.

(j) Earth Disturbance: Any construction or other activity that disturbs the surface of land including but not limited to, excavations, embankments, land development, subdivision development, and the moving, depositing, or storing of soil, rock or earth.

(k) Erosion and Sediment Control Plan: A site specific plan consisting of both drawings and a narrative that identifies measures to minimize accelerated erosion and sedimentation before, during and after Earth Disturbance.

(l) Groundwater Recharge: The replenishment of existing natural underground water supplies from precipitation or overland flow without degrading groundwater quality.

(m) Impervious Surface: Any building, pavement, or other material that substantially bars the natural infiltration of surface water into the soil.

(n) Management District: Sub-area delineations that determine peak rate attenuation requirements. A Development Site located in more than one Management District shall conform to the requirements of the district into which the site discharges.

(o) Manual: The most recent version of the Philadelphia Stormwater Management Guidance Manual.

(p) New Development: Development project on a tract of land where structures or impervious surfaces never existed or were removed before January 1, 1970.

(q) Operations & Maintenance Agreement (O & M Agreement): An agreement, declaration or other instrument in writing which outlines the maintenance requirements associated with the Post-Construction Stormwater Management Plan.

(r) Post-Construction Stormwater Management Plan (PCSMP): A complete stormwater management plan set as described in these Regulations and in the Manual.

(s) Predevelopment Condition: For New Development and Redevelopment, Predevelopment shall be defined according to the procedures found in the Manual.

(t) Redevelopment: Development on a tract of land that includes, but is not limited to, the demolition or removal of existing structures or impervious surfaces and replacement with new impervious surfaces. This includes replacement of impervious surfaces that have been removed on or after January 1, 1970.

(u) Record Drawings: Construction drawings revised to represent the as-built conditions.

(v) Stormwater Management Practice (SMP): Any man-made or natural structure, system, landscape feature, channel, or improvement designed, constructed, installed, and/or used to detain, infiltrate, or otherwise control stormwater runoff quality, rate, or quantity.

(w) Stormwater Pretreatment: Techniques employed to remove pollutants before they enter the SMP, including, but not limited to, the techniques listed as pretreatment in the Manual.

(x) Stormwater Retrofit: The voluntary rehabilitation and/or installation of SMPs on a property to better manage stormwater runoff.

(y) Street: A tract of land or part thereof with public access used for vehicular and/or pedestrian traffic, which is maintained by a City Agency, City Related Agency, other Government Agency, or a Non-Profit Organization Created by the City, as determined by the Department.

(z) Street Maintenance Activities: Earth Disturbance activities within an existing Street as determined by the Department and described in the Manual.

## **600.2 Regulated Activities**

(a) A Regulated Activity under these Regulations is Development on a Development Site in the City of Philadelphia that results in an area of Earth Disturbance greater than or equal to 15,000 square feet, greater than or equal to 5,000 square feet in the Darby and Cobbs Creek Watershed, or as otherwise required by local, state, or federal requirements. The area of Earth

Disturbance during the construction phase determines requirements for the erosion and sediment controls and post-construction stormwater management. Further information about Regulated Activities can be found in the Manual.

(b) The applicability of these Regulations is summarized in the Table of Applicable Stormwater Regulations in Philadelphia.

(c) These Regulations shall apply to the entire Development Site even if Development on that site is to take place in phases.

(d) The Department may at its sole discretion allow the use of existing SMPs if the SMPs meet all of the requirements of these Regulations.

### **600.3 Exemptions**

#### **(a) General Exemptions**

The following cases are exempt from the specified requirements of these Regulations.

(1) Redevelopment that results in an area of Earth Disturbance less than one (1) acre is exempt from the requirements of Section 600.5(b), Channel Protection requirement.

(2) Redevelopment located in the Delaware Direct Watershed or that discharges to the Lower Schuylkill River, Manayunk Canal, or Mingo Creek is exempt from the requirements of Section 600.5(b), Channel Protection.

(3) Redevelopment that results in an area of Earth Disturbance greater than or equal to fifteen thousand (15,000) square feet that can demonstrate a twenty percent (20%) reduction in Impervious Surface from Predevelopment Conditions, is exempt from the requirements of Section 600.5(b),

Channel Protection requirement and 600.5(c), Flood Control requirement.

(4) Development of Streets are exempt from the requirements of Section 600.5(b), Channel Protection requirement, 600.5(c), Flood Control requirement, and 600.5(d), Public Health and Safety Release Rate requirement.

(5) Street Maintenance Activities are exempt from the requirements of Section 600.5(a), Water Quality Requirement, Section 600.5(b), Channel Protection requirement, 600.5(c), Flood Control requirement, and 600.5(d), Public Health and Safety Release Rate requirement

#### **(b) Exemption Responsibilities**

An exemption shall not relieve the Applicant, Developer or property owner from implementing such measures as are necessary to protect public health, safety, property, water quality, and the environment.

#### **(c) Emergency Exemption**

Emergency maintenance work performed for the protection of public health and safety is exempt from the requirements of these Regulations. A written description of the scope and extent of any emergency work performed shall be submitted to the Department within two (2) calendar days of the commencement of the activity. If the Department finds that the work is not an emergency, then the work shall cease immediately and the requirements of these Regulations shall be addressed as applicable.

#### **(d) Special Circumstances**

If conditions exist that prevent the reasonable implementation of water quality and/or quantity control practices on site, upon written request by the property owner,

the Department may at its sole discretion accept off-site stormwater management practices, retrofitting, stream restorations, or other practices that provide water quality and/or quantity control equal or greater than onsite practices for the volume which the Applicant has demonstrated to be infeasible to manage and treat on site.

(e) Fee in Lieu

(1) The Department may grant a request for a fee in lieu of on-site or off-site stormwater management practices under the following conditions:

(A) The Applicant has conclusively demonstrated the infeasibility of on-site stormwater management; and the Department, in its sole discretion, has determined that: (i) off-site stormwater management, pursuant to Section 600.3(d) of its regulations, is also infeasible and (ii) granting the fee in lieu of onsite stormwater management will not adversely affect flooding, stream protection, neighboring properties or be inconsistent with its requirements under its stormwater program, combined sewer overflow program, National Pollutant Discharge Elimination System permits, or any other federal or state law;

or

(B) The Applicant has conclusively demonstrated the feasibility of directing stormwater from the Development Site to an existing off-site SMP owned by the City and maintained by PWD; and the Department, in its sole discretion, has determined that: (i) the existing City-owned SMP has sufficient capacity to manage the additional stormwater and (ii) granting the fee in lieu of onsite stormwater management will not adversely affect flooding, stream protection, neighboring properties or be inconsistent

with its requirements under its stormwater program, combined sewer overflow program, National Pollutant Discharge Elimination System permits, or any other federal or state law.

(2) An applicant requesting approval to direct stormwater from the Development Site to an existing SMP owned by the City and maintained by PWD will be responsible for all costs associated with connection to the City-owned SMP.

(3) The amount of the fee in lieu charge is set forth in Section 8.2 of the Department's Rates and Charges.

(4) Application Requirements. The Applicant for fee in lieu must follow the requirements outlined in the Manual.

(5) Nothing herein shall require the Department to grant an Applicant its request for fee in lieu of onsite or off-site stormwater management.

**Table of Applicable Stormwater Regulations in Philadelphia\***

		Earth Disturbance Associated with Development		
		0-14,999 sq. ft.	15,000 sq. ft.-1 acre	> 1 acre
Section 600.5(a) Water Quality	New Development	N/A**	Yes	Yes
	Redevelopment	N/A**	Yes	Yes
Section 600.5(b) Channel Protection	New Development	N/A**	Yes	Yes
	Redevelopment	N/A	Exempt	Yes
Section 600.5(c) Flood Control	New Development	N/A**	Yes	Yes
	Redevelopment	N/A**	Yes	Yes
Section 600.5(d) Public Health and Safety Rate	New Development	N/A**	Yes	Yes
	Redevelopment	N/A**	Yes	Yes
Section 600.7 PCSMP Requirements	New Development	N/A**	Yes	Yes
	Redevelopment	N/A**	Yes	Yes

\*– requirements of section may be waived depending on post-development site conditions (See Sections 600.3(a)(2, 3, 4, and 5), 600.5(b) and 600.5(c) for further details).

N/A - Not Applicable, Development project is generally not subject to requirements of indicated Regulations section. If the proposed development results in stormwater discharge that exceeds stormwater system capacity, causes a combined sewer overflow, or degrades receiving waters, the design specifications presented in these Regulations may be applied to proposed development activities as warranted to protect public health, safety, or property.

Exempt – Development project is not subject to requirements of indicated Regulations section.

\*\* - If the Development results in an area of Earth Disturbance greater than or equal to 5,000 square feet in the Darby and Cobbs Creek Watershed, the Development is subject to the requirements of indicated Regulations section.

**Any local, state, or federal requirements still apply.**

#### **600.4 Erosion and Sediment Control during Earth Disturbance**

(a) All Earth Disturbance must comply with the Erosion and Sediment Control requirements of the Pennsylvania Department of Environmental Protection (PADEP) as specified in 25 Pa. Code § 102.4.

(b) No Earth Disturbance greater than or equal to fifteen thousand (15,000) square feet, 5,000 square feet in the Darby and Cobbs Creek Watershed, shall commence until the Department approves an Erosion and Sediment Control Plan conforming to the regulations of the PADEP.

#### **600.5 Post-Construction Stormwater Management Requirements**

(a) Water Quality: The Water Quality requirement is designed to recharge the groundwater table and to provide water quality treatment for stormwater runoff.

(1) The following formula shall be used to determine the water quality volume (WQ<sub>v</sub>) in cubic feet of storage for the development site:

$$WQ_v = \left(\frac{P}{12}\right) * (I) \quad \text{Eqn: 600.1}$$

Where:

WQ<sub>v</sub> = Water Quality Volume (cubic feet)

P = 1.5 inches

I = DCIA within the limits of earth disturbance (square feet)

(2) In order to preserve or restore a more natural water balance on a Development Site, the water quality volume shall be infiltrated on site. A list of

acceptable practices for infiltration is provided in the Manual.

(3) To determine if infiltration is appropriate on the Development Site, follow the infiltration testing and soil assessment for SMP design procedures found in the Manual.

(4) If the infiltration testing and soil assessment demonstrates that the soil is unsuitable for infiltration, the Applicant shall follow the Infiltration Waiver Request procedure found in the Manual.

(5) Where it has been demonstrated, in accordance with Section 600.5(a)(2) of these Regulations, that a portion or all of the water quality volume cannot be infiltrated on site, the water quality volume which cannot be infiltrated on site must be treated for water quality.

(6) Treatment of the water quality volume is attained differently in combined sewer areas than other areas as specified in the Manual.

(b) Channel Protection: The Channel Protection requirement is designed to minimize accelerated channel erosion resulting from stormwater runoff from the Development Site.

(1) To meet the Channel Protection requirement, SMPs shall retain or detain the runoff from all DCIA within the limits of Earth Disturbance from a one-year, 24-hour Natural Resources Conservation Service (NRCS) Type II design storm in the proposed site condition such that the runoff takes a minimum of 24 hours and a maximum of 72 hours to drain from the facility.

(2) The infiltration and water quality volumes may be incorporated into the

channel protection portion of the design provided the design meets all requirements concurrently.

(3) Design criteria and a list of SMPs for channel protection are included in the Manual.

(c) Flood Control

(1) To prevent flooding caused by extreme events, the City of Philadelphia is divided into Management Districts that require different levels of stormwater attenuation depending on location. Management Districts shall be determined for the Development Site using the maps provided in the Manual.

(A) The Table of Peak Runoff Rates for Management Districts lists the attenuation requirements for each Management District.

(B) A Development Site located in more than one Management District shall conform to the requirements of the district where the discharge point is located.

(d) Public Health and Safety Release Rate

(1) The Public Health and Safety Release Rate requirement is designed to minimize the impact of stormwater runoff from Development Sites to City infrastructure with capacity restrictions as identified by the Department.

### Table of Peak Runoff Rates for Management Districts

District	Column A NRCS Type II 24-hour Design Storm applied to Proposed Condition	Column B NRCS Type II 24 –hour Design Storm applied to Predevelopment Condition
A	2 – year	1 – year
A	5 – year	5 – year
A	10 – year	10 – year
A	25 – year	25 – year
A	50 – year	50 – year
A	100 – year	100 – year
B	2 – year	1 – year
B	5 – year	2 – year
B	10 – year	5 – year
B	25 – year	10 – year
B	50 – year	25 – year
B	100 – year	50 – year
B-1	2 – year	1– year
B-1	5 – year	2 – year
B-1	10 – year	5 – year
B-1	25 – year	10 – year
B-1	50 – year	25 – year
B-1	100-year	100 – year
B-2	2 – year	1– year
B-2	5 – year	2 – year
B-2	25 – year	5 – year
B-2	50 – year	10 – year
B-2	100 – year	100 – year
C*	Conditional Direct Discharge District	
C – 1**	Conditional Direct Discharge District	

SMPs shall be designed such that peak rates from Column A are less than or equal to Peak Rates from Column B. \* In District C, a Development Site that can discharge directly without use of City infrastructure may do so without control of proposed conditions peak rate of runoff.

\*\* In District C-1, a Development Site that can discharge directly to the Tookany/Tacony-Frankford Creek or major tributaries without the use of City infrastructure may do so without the control of proposed conditions peak rate of runoff greater than the 5–year storm.

Redevelopment situated outside of District C that is located in the Delaware Direct Watershed or that discharges to the Lower Schuylkill River, Manayunk Canal, or Mingo Creek, that can discharge directly without the use of City infrastructure, may do so without the control of proposed conditions peak rate of runoff according to the procedures found in the Manual.

For Conditional Direct Discharge Districts, the proposed conditions peak rate of runoff for a Development Site that discharges to City infrastructure must be controlled to the Predevelopment Conditions peak rate as required in District A provisions for the specified Design Storms. The Predevelopment Condition shall be defined according to the procedures found in the Manual.



## **600.6 Requirements for the Design of SMPs**

### **(a) General Requirements**

(1) In order to provide for the protection of public health and safety and to more effectively manage stormwater in Philadelphia, all SMPs shall meet the requirements of these Regulations.

(2) The existing points of concentrated drainage that discharge onto adjacent land shall not be altered in any manner that could cause property damage without written permission of the owner of the adjacent land.

(3) The design of all SMPs shall incorporate sound engineering principles and practices as detailed in the Manual. The Department may reject any design that would result in the creation or continuation of a stormwater problem area.

(4) All stormwater runoff in excess of any volume infiltrated on site must be routed through a dedicated stormwater pipe and conveyed to an approved connection or point of discharge.

(5) Areas of existing diffused drainage discharge shall be subject to any applicable discharge criteria in the general direction of existing discharge, whether proposed to be concentrated or maintained as diffused drainage areas, except as otherwise provided by these Regulations. If diffused drainage discharge is proposed to be concentrated and discharged onto adjacent land, the Applicant must document that adequate downstream conveyance facilities exist to safely transport the concentrated discharge, or otherwise prove that no erosion, sedimentation, flooding or other impacts will result from the concentrated discharge.

(6) All SMPs shall incorporate maximum ponding and/or draw down requirements consistent with the Manual.

(7) Acceptable calculation methods for the design of SMPs are provided in the Manual.

## **600.7 PCSMP Requirements**

### **(a) General Requirements**

For any activities regulated by these Regulations and the Philadelphia Code Section §14-704(3):

(1) No zoning permit may be issued until the Water Department has approved a Conceptual Stormwater Management Plan.

(2) No Earth Disturbance may commence and no building permit may be issued until the Department has approved a PCSMP. The City may issue a Stop Work Order for projects that disturb earth without an approved PCSMP.

### **(b) Conceptual Approval**

To initiate the conceptual review phase and obtain approval from the Department, the Applicant must evaluate nonstructural stormwater management alternatives, develop a Conceptual Stormwater Management Plan, and submit an online Exiting Resources and Site Analysis (ERSA) application as outlined in the Manual.

### **(c) PCSMP Approval**

(1) To initiate the PCSMP review phase and obtain PCSMP Approval from the Department, the Applicant must prepare and submit a PCSMP. A list of required contents of the PCSMP submittal can be found in the Manual.

(2) For any activities that require state or federal permits, proof of application or approval of those permit(s) shall be included as part of the PCSMP.

(3) All PCSMP materials shall be submitted to the Department in accordance with submittal procedures as outlined in the Manual.

(d) Project Expirations

Conceptual Stormwater Management Plan approval will expire after one year from the date of issuance. PCSMP approval will expire after two years from the date of issuance. An applicant may apply for extensions based on the procedures found in the Manual.

**600.8 Permit Requirements by Other Government Entities**

(a) Other government entities may require permits for certain regulated Earth Disturbance activities.

(b) Requirements for these permits must be met prior to commencement of Earth Disturbance.

**600.9 Construction and Inspection**

(a) No regulated Earth Disturbance activities shall commence until the Department has approved a PCSMP in accordance with the procedures set forth in these Regulations and the Manual.

(b) Erosion and Sediment Control measures shall be implemented at the start of and maintained throughout Earth Disturbance activities.

(c) All SMPs shall be constructed in accordance with the approved PCSMP.

(d) The Department or its designee may inspect during any stage of Development construction to ensure, at minimum, the ongoing maintenance of Erosion and Sediment Control measures and the proper installation of the SMPs.

(e) An onsite meeting between the Department and the Applicant is required prior to the start of Development.

(f) During any stage of the Development construction, if the Department or its designee determines that any component of the PCSMP is not being installed as approved by the Department, the City may issue a Stop Work Order preventing other on-site construction from proceeding until the deficiencies are corrected.

(g) A final inspection of all PCSMP components shall be conducted by the Department or its designee to confirm compliance with the approved PCSMP prior to the issuance of Certificate of Occupancy, or other equivalent issuance, or use of the Development Site.

(h) Record Drawings for all PCSMP components must be submitted to the Department within 90 days of the conclusion of the final inspection.

**600.10 Operations and Maintenance, and Inspection**

(a) The property owner or designee shall maintain and perform the work necessary to keep SMPs and other stormwater management controls in good working order and performing to their intended design function.

(b) Additional operation and maintenance responsibilities shall be defined as part of the approved PCSMP and in the O & M Agreement.

(c) At such time as the property is transferred, the new property owner shall have the responsibilities as defined in these Regulations, in the approved PCSMP, and in the O & M Agreement.

(d) The property owner shall conduct inspections of the SMPs and other stormwater management controls as necessary to ensure safe and proper functionality.

(e) No SMP, or other stormwater management control, required by an approved PCSMP shall be altered or removed without the approval of the Department. The property owner shall not allow the property to remain in a condition which does not conform to an approved PCSMP and O & M Agreement.

(f) The Department may accept or reject the operations and maintenance responsibility for any SMPs.

(g) The Department or its designee may inspect the long-term operation and maintenance of the SMPs and other stormwater management controls.

#### **600.11 Stormwater Management Easements**

(a) Stormwater management easements or rights of way are required for all areas used for off-site SMPs or stormwater conveyance, unless a waiver is granted by the Department.

(b) Stormwater management easements shall be provided by the property owner if necessary for access for inspections and maintenance, or for the preservation of stormwater runoff conveyance, infiltration, detention areas and/or other stormwater controls and SMPs, by persons other than the property owner.

(c) The stormwater management easement and its purpose shall be specified when recorded in accordance with section 600.12 of these Regulations.

#### **600.12 Recording of O & M Agreement, Stormwater Management Easements**

(a) The owner of any land upon which SMPs will be placed, constructed or implemented as described in the PCSMP shall be responsible for the recording of the following documents with the Philadelphia Department of Records:

(1) The O & M Agreement, which shall be included as part of the PCSMP submitted under Section 600.7, and

(2) Easements under Section 600.11 of these Regulations, if applicable.

(b) All recordings shall be at the property owner's expense.

(c) For property owned by the City of Philadelphia, the Commonwealth of Pennsylvania or the United States government, the recording of the O & M Agreement is not required until the transfer of the land containing the SMPs occurs.

#### **600.13 Prohibited Discharges**

(a) No person shall allow, or cause to allow, a discharge into the City's separate storm sewer system that is not composed entirely of stormwater.

(b) In the event that the Department determines that any discharge to a storm sewer is not composed entirely of stormwater, the Department will notify the responsible person to immediately cease the discharge. The Department may pursue additional enforcement actions as described in City Code §13-603.

(c) Nothing in this Section shall affect a discharger's responsibilities under state law.

#### **600.14 Prohibited Connections**

(a) The following connections are prohibited, except as otherwise provided:

(1) Any drain or conveyance, whether on the surface or subsurface, which allows any non-stormwater discharge including sewage, groundwater, process wastewater, and wash water, to enter the separate storm sewer system.

(2) Any connections to the storm drain system from indoor drains and sinks.

(3) Any drain or conveyance connected from a commercial or industrial land use to the separate storm sewer system that has not been documented in plans, maps, or equivalent records, and approved by the City.

#### **600.15 Enforcement**

(a) Whenever a property owner, Applicant, Developer, or other responsible party has engaged in conduct prohibited by, or failed to meet a requirement of this Chapter 6, the Department may order compliance by notifying the responsible party.

(b) Such notification shall set forth the nature of the violation(s) and establish a time limit for correction of the violation(s).

(c) Failure to comply within the time specified may subject the responsible party to any and all available penalties, including but not limited to a Stop Work Order, fines, a court order, and/or abatement by the City. Such penalties shall be cumulative and shall not prevent the City from pursuing all remedies available in law or equity.

(d) The Department may withhold, suspend, or revoke any approvals upon discovery of the failure of the property owner, Applicant or Developer to comply with these Regulations.