

# Chapter 1 Stormwater Management Requirements

## 1.0 Introduction

The negative impacts of unmanaged stormwater runoff present a challenge to the City of Philadelphia. Such negative impacts include increased runoff pollutant concentrations, reduced groundwater recharge, increased stream channel and bank erosion, loss of aquatic habitat, increased flood frequency, and increased quantity, frequency, and duration of combined sewer overflows. In the United States, some of the largest increases in the frequency and intensity of extreme precipitation are already being observed in the Northeast U.S., which includes the Philadelphia region. Additionally, climate change projections for the Philadelphia region indicate that rainfall events will continue to increase in volume and intensity, leading to the potential for increased stormwater runoff and the exacerbation of negative impacts.

To confront these various challenges, the Philadelphia Water Department (PWD) has developed the **PWD Stormwater Regulations** [water.phila.gov/development/stormwater-plan-review/manual/appendices/c-pwd-stormwater-regulations/](https://water.phila.gov/development/stormwater-plan-review/manual/appendices/c-pwd-stormwater-regulations/) (Stormwater Regulations) to ensure the City has an up-to-date and effective stormwater management program that meets State and Federal requirements and can be coordinated with the evolving regulations adopted by upstream municipalities. The Philadelphia Stormwater Management Guidance Manual (Manual) provides detailed information on how to efficiently comply with the Stormwater Regulations and PWD design criteria for development projects and other stormwater projects. Through compliance with the Stormwater Regulations and these design standards, each project helps to improve the health of Philadelphia's waterways and mitigate the effects of increasing rainfall from climate change.

Chapter 1, Stormwater Management Requirements, provides an overview of the Stormwater Regulations and design criteria and allows the applicant to determine if a project is regulated, and if so, which requirements apply to a particular project, based on the project's characteristics. Once the Stormwater Regulations' applicability to a project is determined, the applicant can find guidance on the necessary submission, review, and approval procedures in **Chapter 2** [water.phila.gov/development/stormwater-plan-review/manual/chapter-2](https://water.phila.gov/development/stormwater-plan-review/manual/chapter-2).

**Section 1.1** [p. 3](#) contains guidance on the project characteristics that determine if a project is regulated, and if so, which requirements of the Stormwater Regulations apply to an applicant's project. The three key applicability factors that determine whether and which specific requirements of the Stormwater Regulations apply to a project are the following:

- Development Type – **Section 1.1.1** [p. 4](#)
- Watershed – **Section 1.1.2** [p. 8](#)
- Earth Disturbance – **Section 1.1.3** [p. 10](#)

**Section 1.2** ☞ p. 14 provides guidance on how the Stormwater Regulations may be applicable to a project, allowing the applicant to determine the specific requirement(s) of the Stormwater Regulations to which a project would be subject. It contains an overview of the Stormwater Regulations, their objectives, and project-specific exemptions. Specific requirements and Section references within this Chapter are as follows:

- Post-Construction Stormwater Management Requirements – **Section 1.2.1** ☞ p. 15
  - Water Quality requirement
  - Channel Protection requirement
  - Flood Control requirement
  - Public Health and Safety Release Rate requirement
- Erosion and Sediment Control Requirement – **Section 1.2.2** ☞ p. 25

**Section 1.3** ☞ p. 26 provides guidance on implementing a Stormwater Retrofit project. These projects are not subject to Stormwater Regulations and have different submission and review standards. This Section provides additional information to interpret the Manual for these projects.

After determining the project’s development type, watershed, and earth disturbance area using **Section 1.1** ☞ p. 3, the applicant will use this information in conjunction with the requirement-specific exemptions detailed in **Section 1.2** ☞ p. 14 to determine which Stormwater Regulation requirements apply to the project. If the applicant is working with a voluntary Stormwater Retrofit, they will also reference **Section 1.3** ☞ p. 26 for guidance on interpreting the Manual for their project.

# 1.1 Applicability Factors

This Section contains guidance on the project characteristics that determine which portions of the **Philadelphia Water Department (PWD) Stormwater Regulations** [water.phila.gov/development/stormwater-plan-review/manual/appendices/c-pwd-stormwater-regulations](https://water.phila.gov/development/stormwater-plan-review/manual/appendices/c-pwd-stormwater-regulations) (Stormwater Regulations) apply to an applicant's project. PWD requires submissions for all projects in the City of Philadelphia that generate earth disturbance of 5,000 square feet or more, yet not all projects will need to comply with all requirements of the Stormwater Regulations. There are three main factors that determine which requirements of the Stormwater Regulations apply to a project:

- Development Type (**Section 1.1.1** [p. 4](#)),
- Watershed (**Section 1.1.2** [p. 8](#)), and
- Earth Disturbance (**Section 1.1.3** [p. 10](#)).

These three project characteristics play an important role in determining how the Stormwater Regulations discussed in **Section 1.2** [p. 14](#) are applied to a project. The applicant will use this Section to identify the project's development type, watershed, and earth disturbance area. This information, in conjunction with the requirement-specific exemptions in **Section 1.2** [p. 14](#) and clarifications provided for Stormwater Retrofits in **Section 1.3** [p. 26](#), is necessary for determining applicability and the project's Review Path in **Chapter 2** [water.phila.gov/development/stormwater-plan-review/manual/chapter-2](https://water.phila.gov/development/stormwater-plan-review/manual/chapter-2).

Of the three key applicability factors, one – earth disturbance – can change during the course of design and construction. If the earth disturbance threshold changes, the applicant must return to **Section 1.1.3** [p. 10](#) to verify whether the project's applicability determinations have changed.

## 1.1.1 Development Type

Development type plays a key role in determining if and how Post-Construction Stormwater Management (PCSM) Requirements ([Section 1.2.1](#) p. 15) will apply to a project.

*Development* is defined in the Stormwater Regulations as *any human-induced change to a tract of land, whether public or private. 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.* The development types listed below are types that PWD recognizes, and the applicant can only select one development type when completing the ERSA Application ([Section 2.1](#) [water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-1-existing-resources-and-site-analysis](http://water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-1-existing-resources-and-site-analysis)).

### New Development

*New Development* is defined in the Stormwater Regulations as a *Development project on a tract of land where structures or impervious surfaces never existed or were removed before January 1, 1970.* The improved tract of land refers to the area of on-site earth disturbance.

### Redevelopment

*Redevelopment* is defined in the Stormwater Regulations as *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.* The improved tract of land refers to the area of on-site earth disturbance.

### Demolition

*Demolition* is defined in the Stormwater Regulations as a project that is limited to *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.*

## Stormwater Retrofit

*Stormwater Retrofit* is defined in the Stormwater Regulations as *a project that is limited to the voluntary rehabilitation and/or installation of stormwater management practices (SMPs) on a property to better manage stormwater runoff*. Often, the motivation to initiate a Stormwater Retrofit project is to reduce the applicant's monthly Stormwater Management Service Charge (Stormwater Charge) by applying for stormwater credits (**Section 6.3** [water.phila.gov/development/stormwater-plan-review/manual/chapter-6/6-3-stormwater-credits/](http://water.phila.gov/development/stormwater-plan-review/manual/chapter-6/6-3-stormwater-credits/)). In addition, these projects are eligible to apply for a Stormwater Grant. For more information on how to apply, applicants are directed to visit the **Stormwater Grants** [water.phila.gov/stormwater/incentives/grants/](http://water.phila.gov/stormwater/incentives/grants/) website or contact **Stormwater Billing and Incentives** [water.phila.gov/development/stormwater-plan-review/manual/introduction#6](http://water.phila.gov/development/stormwater-plan-review/manual/introduction#6). For more information on how voluntary stormwater management may impact a project's requirements and review phases, the applicant is directed to **Section 1.3** [p. 26](#).

In most circumstances, projects classified as Demolition or Stormwater Retrofits will be exempt from PCSM Requirements, regardless of size. Stormwater Retrofits with SMPs must be designed to follow a modified PCSM Requirement, further explained in **Section 1.3** [p. 26](#). However, both Demolition and Stormwater Retrofit project types must still comply with the Erosion & Sediment Control (E&S) requirement. The applicant is referred to **Chapter 2** [water.phila.gov/development/stormwater-plan-review/manual/chapter-2](http://water.phila.gov/development/stormwater-plan-review/manual/chapter-2) for more information.

Due to historic urbanization, New Development projects are uncommon in Philadelphia and must comply with the most stringent PCSM Requirements. The vast majority of development projects in Philadelphia are classified as Redevelopment projects. The applicant can submit supporting documentation (e.g., photographs, past permits, inspection reports, etc.) to confirm a redevelopment classification. If a Redevelopment project meets certain conditions, it may be exempt from the Flood Control and Channel Protection requirements. The applicant is referred to **Section 1.2** [p. 14](#) for the Stormwater Regulations as well as requirement-specific exemptions.

## Hybrid Development Types

It is possible for a project to fall under more than one development type, though only one can be selected on the ERSA Application (**Section 2.1** [water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-1-existing-resources-and-site-analysis](https://water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-1-existing-resources-and-site-analysis)). If an applicant is unsure which development type they should select on their ERSA Application they should contact PWD. Some of the most common hybrid developments are described in the next section.

## New and Redevelopment Projects with Voluntary Retrofit Components

Development projects that must meet Stormwater Regulations may be eligible for incentives if they choose to go “above and beyond”, managing more impervious area on their property than is required by Stormwater Regulations. There are two incentives most commonly available to these projects:

- **Developer Right-of-Way Incentive:** This is for property owners who are able to direct drainage area from the right-of-way (ROW) into their SMP. The designer includes the additional runoff in sizing the SMP and designing conveyance to the SMP while meeting all required project criteria. During construction, the development contractor constructs any on-site structures needed for this management. PWD will later construct infrastructure, such as an inlet and junction box, within the ROW using separate, non-Incentive funding.
- **Stormwater Grant:** This is for property owners with impervious area on their property that is not disturbed or included in the development project and Stormwater Regulations. The designer directs this drainage area to the SMP and meets all applicable design criteria. The grant may be used for design and construction funding for the additional stormwater management. During construction, the development contractor constructs any on-site structures needed for this management. PWD will later construct infrastructure, such as an inlet and junction box, within the ROW using separate, non-Grant funding.

Any applicant interested in incentive or grant opportunities for their project is urged to contact **Stormwater Plan Review** [water.phila.gov/development/stormwater-plan-review/manual/introduction#4](https://water.phila.gov/development/stormwater-plan-review/manual/introduction#4) and **Stormwater Billing and Incentives** [water.phila.gov/development/stormwater-plan-review/manual/introduction#6](https://water.phila.gov/development/stormwater-plan-review/manual/introduction#6) as early as possible in the design process. In addition, each development project submitted to PWD is analyzed for opportunities to over-size SMPs, and the applicant may be contacted by PWD regarding incentive funding. Additional information about funding available to development projects can be found on the **PWD Stormwater Incentives** [water.phila.gov/stormwater/incentives/](https://water.phila.gov/stormwater/incentives/) website.

Development projects that must meet Stormwater Regulations that elect to include a voluntary retrofit component would follow the Development Compliance Review Path (**Section 2.2.1** [water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-2-review-paths#2.2.1](https://water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-2-review-paths#2.2.1)) and should select “New Development” or “Redevelopment” on their ERSA Application. Development projects that do not need to meet the Stormwater Regulations will typically follow the Stormwater Retrofit Review Path (**Section 2.2.4** [water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-2-review-paths#2.2.4](https://water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-2-review-paths#2.2.4)) and should select “Stormwater Retrofit” on their ERSA Application. The project team will coordinate with both Stormwater Plan Review and Stormwater Billing and Incentives throughout review and construction in both scenarios.

## Phased Projects with Demolition then Subsequent Development and/or Retrofit Construction

Many development or retrofit projects begin with a demolition/site clearing phase. In most circumstances, the review of the demolition can occur within the review of the development/retrofit. In these circumstances, the applicant would select “New Development,” “Redevelopment,” or “Stormwater Retrofit” on their ERSA Application and follow the appropriate Development Compliance or Stormwater Retrofit Review Path. If the demolition must occur prior to completion of the review, then the applicant will need to submit a separate ERSA Application using the “Demolition” development type and follow the Demolition Review Path.

## Redevelopment of an Earlier Development or Retrofit Project

Property is constantly being redeveloped in Philadelphia, whether the result of new ownership or when an existing owner wishes to make improvements to their own site. Before undertaking a development or retrofit project, it is important to determine whether the land where the improvement is proposed was previously subject to Stormwater Regulations or managed stormwater through a voluntarily installed SMP. Most properties that fall into this category will have an Operations and Maintenance (O&M) Agreement recorded against the deed (**Section 6.1** [water.phila.gov/development/stormwater-plan-review/manual/chapter-6/6-1-property-owner-inspections-and-maintenance#6.1.2](https://water.phila.gov/development/stormwater-plan-review/manual/chapter-6/6-1-property-owner-inspections-and-maintenance#6.1.2)) and are also identified on the **Green Stormwater Infrastructure Projects Map** [water.phila.gov/green-projects-map](https://water.phila.gov/green-projects-map). If the land was previously subject to Stormwater Regulations or has an existing SMP on-site, the applicant must contact PWD prior to submitting their ERSA Application. This can have a significant impact on the project’s Review Path and whether a new ERSA Application is required or if the improvement should be submitted as a PCSMP Field Change under an existing project tracking number.

## Waterway Encroachments

Waterway encroachments are projects that occur within streambanks or rivers with the purpose of repairing the waterway or an object within the waterway. These projects include streambank stabilization, dam removal projects, and bridge abutment repairs. Earth disturbance that occurs within the waterway will be exempt from the PCSM Requirements. However, ancillary earth disturbance that occurs outside of the waterway, such as trail improvements or other development activities, will be applicable to the PCSM Requirements.

## 1.1.2 Watershed

The watershed in which a project site is located plays an important role in determining how PCSM Requirements ([Section 1.2.1](#) p. 15) are applied to a project. For example, ongoing watershed-wide Pennsylvania Stormwater Management Act (Act 167) planning studies determine Flood Management Districts for controlling peak rates of runoff; watershed locations are also used to determine the applicability of the Channel Protection requirement for Redevelopment projects. For this reason, it is important that the applicant identify the correct watershed early in the design process. Watershed Maps in [Appendix D](#) [water.phila.gov/development/stormwater-plan-review/manual/appendices/d-watershed-maps](http://water.phila.gov/development/stormwater-plan-review/manual/appendices/d-watershed-maps) provide a basic guide, but the applicant can also contact PWD to verify a site's watershed location.

There are seven major watersheds in Philadelphia:

- Darby and Cobbs Creeks,
- Delaware Direct,
- Lower Schuylkill River,
- Pennypack Creek,
- Poquessing Creek,
- Tookany/Tacony-Frankford, and
- Wissahickon Creek.

Watershed-based regulations are evolving to address stormwater challenges within Philadelphia. While the Stormwater Regulations apply to all New Development and Redevelopment projects that result in earth disturbance totals of 15,000 square feet or more ([Section 1.1.3](#) p. 10), watershed-specific regulations trigger the Stormwater Regulations at a lower disturbance threshold. Project sites located in the Darby and Cobbs Creeks Watershed and in the Wissahickon Creek Watershed are subject to additional watershed-specific stormwater management requirements. The latest information about [watershed-specific regulations](#) [water.phila.gov/development/stormwater-plan-review/manual/appendices/c-pwd-stormwater-regulations/](http://water.phila.gov/development/stormwater-plan-review/manual/appendices/c-pwd-stormwater-regulations/) can be found on the [PWD Stormwater Plan Review](#) [www.pwdplanreview.org](http://www.pwdplanreview.org) website.


### Darby and Cobbs Creeks Watershed


Projects located in the Darby and Cobbs Creeks Watershed are subject to the provisions of the [Darby and Cobbs Creeks Watershed Act 167 Stormwater Management Plan](#) [water.phila.gov/pool/files/Darby\\_Cobbs\\_WMP.pdf](http://water.phila.gov/pool/files/Darby_Cobbs_WMP.pdf). Because the Stormwater Regulations were developed to comply with the plan for the Darby and Cobbs Creeks Watershed, all projects that propose 5,000 square feet or more of earth disturbance in the Darby and Cobbs Creeks Watershed are subject to the Stormwater Regulations and their associated PCSM Requirements ([Section 1.2.1](#) p. 15).



## Wissahickon Watershed Overlay

To help reduce flooding, erosion, siltation, and channel enlargement resulting from development within the Wissahickon Creek Watershed, additional stormwater management requirements and impervious coverage limits may apply to projects within this watershed.

Projects located in the Wissahickon Creek Watershed are subject to the Philadelphia Code §14-510 / WWO, Wissahickon Watershed Overlay District. The applicability of these requirements depends on the location of the project within the watershed and the amount of impervious cover proposed in comparison to the existing impervious condition. A map of the Wissahickon Watershed Overlay (WWO) District can be found within the Code and can also be viewed using the City's [Atlas map](https://atlas.phila.gov/)  <https://atlas.phila.gov/> tool.

For projects located within the WWO District, the Philadelphia City Planning Commission (PCPC) will determine if additional stormwater management requirements are applicable; however, PWD Stormwater Plan Review will be responsible for review of the Post-Construction Stormwater Management Plan (PCSMP). The applicant is referred to [Section 2.6](https://water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-6-pwds-role-in-philadelphias-development-process)  [water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-6-pwds-role-in-philadelphias-development-process](https://water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-6-pwds-role-in-philadelphias-development-process) for more information on the WWO as it relates to project-specific requirements.

## 1.1.3 Earth Disturbance

Earth disturbance is the primary factor that determines whether a project is subject to the Stormwater Regulations. It is also a primary factor in determining the applicability of PCSM Requirements ([Section 1.2.1](#) p. 15) and the E&S requirement ([Section 1.2.2](#) p. 25). As such, applicants must properly and accurately assess the limits of earth disturbance associated with development projects to determine applicable requirements and the Review Path required.

While earth disturbance of 15,000 square feet or more triggers the PCSM Requirements for New Development or Redevelopment projects in most areas of the City, earth disturbance of 5,000 square feet or more triggers the PCSM Requirements for these project types in the Darby and Cobbs Creek Watershed. Some projects located in the Wissahickon Creek Watershed may also be required to comply with PCSM Requirements at even lower earth disturbance totals. The applicant is referred to [Section 1.1.2](#) p. 8 above for specific requirements regarding projects located within the Wissahickon Creek Watershed or the Darby and Cobbs Creeks Watershed.

*Earth disturbance* is defined in the Stormwater Regulations as *any construction or other activity that disturbs the surface of land.*

Examples of activities that consist of, or can commonly involve, earth disturbance include, but are not limited to, the following:

- Excavation;
- Embankments;
- Land development;
- Subdivision development;
- Moving, depositing, stockpiling, or storing of soil, rock, or earth materials, except as excluded below;
- Demolition activity that results in the disturbance of the land beneath or surrounding a structure, including foundation or building slab removal;
- Concrete slab removal;
- Development above subsurface structures where earth, such as gravel or dirt, is exposed;
- Stormwater Retrofits that include ground-level SMP installation;
- Utility connections, including work in the public rights-of-way;
- Installation of new Streets;
- Street Maintenance Activities;
- New paving and full depth pavement replacement;
- Installation of E&S controls and construction-related disturbance located over existing pervious areas, such as establishment of rock construction entrances, stockpiles, silt fencing, construction vehicle paths, staging, and fill areas;

### Quick Tip

A project may have multiple boundaries, each of which is significant when determining stormwater management applicability during the development process. For example, the parcel boundary, limits of earth disturbance, and area that must be managed for stormwater may all be different. Only the limit of earth disturbance is used to determine whether or not, and which PCSM Requirements of, the Stormwater Regulations apply to most projects.

- Grading;
- Clearing and grubbing; and
- Landscaping.

Activities that are not typically classified as earth disturbance include the following:

- Interior building renovations;
- Temporary stockpiles or rock construction entrances located over existing impervious surfaces;
- Restriping of paved areas; and
- Milling and repaving of existing paved areas, as long as the pavement subbase is not exposed during the milling process. The pavement subbase is defined as the layer of aggregate material laid on the subgrade, on which the base course layer is laid.

Some earth disturbance activities and their associated areas count toward the regulatory disturbance threshold for triggering PCSM Requirements, but are not required to be managed in the post-development condition. Such activities include the following:

- Demolition, provided the surface of the land is returned to a pervious condition;
- Waterway encroachment activities occurring within streambanks, rivers, or other waterways for the purpose of repairing the waterway. This can include streambank stabilization, dam removal, bridge abutment repairs, dredging, stream restoration, and erosion stabilization activities;
- Artificial turf areas specifically reserved for dog use;
- Certain water features, as determined by PWD, such as spraygrounds, swimming pools, and fountains that will be chlorinated; and
- Earth disturbance located beneath an undisturbed existing impervious superstructure, such as a highway overpass.

There are other earth disturbance areas that do not count toward the regulatory disturbance threshold for triggering PCSM Requirements and are not required to be managed in the post-development condition. When calculating the total limit of earth disturbance for a development project, the earth disturbance area associated with the following activities should not be counted toward the total disturbance value triggering the PCSM Requirements. These areas include:

- Street Maintenance Activities within an existing Street that do not result in increased impervious areas. Examples include sidewalk replacement, asphalt repaving, utility trenching, curb cuts, street tree planting, and installation of associated street features such as ADA ramps, light poles, signs, benches, decorative planters, and Green Stormwater Infrastructure (GSI);
- New sidewalk installation along an existing paved Street; and
- Area disturbed for Stormwater Retrofit installation ([Section 1.3](#) p. 26).

Applicants who wish to claim exemption from PCSM Requirements as a result of these earth disturbance areas should delineate them separately on E&S Plans submitted to PWD as part of the Conceptual Review Phase.

Earth disturbance activities that are exempt from PCSM Requirements are still required to comply with all appropriate E&S submission and review requirements, which may include PWD approval of an E&S Plan. Submission of an ERSA application is required for all projects that propose more than 5,000 square feet of earth disturbance. The applicant is referred to [Chapter 2](https://water.phila.gov/development/stormwater-plan-review/manual/chapter-2) for more information on submission requirements. Exemption of a project from PWD's PCSM Requirements does not necessarily imply that the project is also exempt from PCSM Requirements from other City and State agencies. The applicant is referred to [Section 2.6](https://water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-6-pwds-role-in-philadelphias-development-process) and [Section 2.7](https://water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-7-pwd-and-pennsylvania-department-of-environmental-protection) for more information.

## **Phased Projects, Common Plans of Development, and Contiguous Areas of Earth Disturbance**

It is not uncommon for large real estate projects to be developed and permitted in phases. When phasing is proposed, PWD will look at the earth disturbance associated with the entire Development Site to determine applicable requirements under the Stormwater Regulations. The Development Site is defined in the Stormwater Regulations as *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.*

A project may be considered a “common plan of development” if it is associated with any announcement or piece of documentation (including a sign, public notice, hearing, sales pitch, advertisement, website, drawing, zoning request, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor marking, etc.) indicating construction activities may occur on a specific plot. As an example, a redevelopment of a former industrial site that lays out streets, public parks, schools, areas of commercial development, and residential lots that may be sold to another developer are all considered part of the same development site.

Disturbance along multiple parcels separated by an existing street will not be considered contiguous in cases where the linking disturbance activity is limited to sidewalk replacement and/or improvements to PWD infrastructure such as a Private Cost water or sewer extension or GSI installation.

## Being Conservative

PWD often observes earth disturbances that occur during construction activity that exceed initial estimates provided on plans. To avoid costly delays, PWD recommends that the applicant be conservative when estimating the disturbance area at each stage of the review process. Should a site inspection reveal that 15,000 or more square feet of earth disturbance has occurred on a Redevelopment site, the site will be required to comply with the Stormwater Regulations and will be subject to the enforcement actions outlined in the Stormwater Regulations.

Should a site inspection reveal that more than one acre of earth has been disturbed, the site will be required to apply for a Pennsylvania Department of Environmental Protection (PA DEP) National Pollutant Discharge Elimination System (NPDES) Permit. The site will be subject to the enforcement actions outlined in the Stormwater Regulations until the applicant receives a NPDES Permit. The applicant is referred to

**Section 2.7** [water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-7-pwd-and-pennsylvania-department-of-environmental-protection](http://water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-7-pwd-and-pennsylvania-department-of-environmental-protection) for more information on the interaction between PWD and PA DEP.

PWD should be contacted prior to plan submittal and before any construction activities whenever there are questions or a need for clarification regarding earth disturbance activities.

# 1.2 Stormwater Regulations

This Section provides an overview of the Philadelphia Water Department (PWD) Stormwater Regulations (Stormwater Regulations), their objectives, and project-specific exemptions. After determining the project's development type, watershed, and earth disturbance area using [Section 1.1](#) p. 3, the applicant will use this information, in conjunction with the requirement-specific exemptions detailed in this Section, to determine which portions of the Stormwater Regulations apply to the project.

The Stormwater Regulations can be found in [Appendix C](#) [water.phila.gov/development/stormwater-plan-review/manual/appendices/c-pwd-stormwater-regulations](https://water.phila.gov/development/stormwater-plan-review/manual/appendices/c-pwd-stormwater-regulations) of this Manual. They have been developed in accordance with [Philadelphia Code §14-704\(3\)](#) [https://codelibrary.amlegal.com/codes/philadelphia/latest/philadelphia\\_pa/0-0-0-203439](https://codelibrary.amlegal.com/codes/philadelphia/latest/philadelphia_pa/0-0-0-203439), and they consist of four major Post-Construction Stormwater Management (PCSM) Requirements: Water Quality, Channel Protection, Flood Control, and Public Health and Safety (PHS) Release Rate. In addition, all earth disturbance activity must comply with the Erosion and Sediment Control (E&S) requirements of the Pennsylvania Department of Environmental Protection (PA DEP), as specified in [25 Pa. Code §102.4](#) [https://www.dep.pa.gov/Business/Water/CleanWater/StormwaterMgmt/Stormwater%20Construction/Documents/025\\_0102.pdf](https://www.dep.pa.gov/Business/Water/CleanWater/StormwaterMgmt/Stormwater%20Construction/Documents/025_0102.pdf).

## 1.2.1 Post-Construction Stormwater Management Requirements

PCSM Requirements regulate how stormwater runoff leaves a project site in the built or post-development condition. PCSM Requirements have four components: Water Quality, Channel Protection, Flood Control, and PHS Release Rate requirements. All projects in the City of Philadelphia that generate earth disturbance of 15,000 square feet or more, or 5,000 square feet in the Darby and Cobbs Creeks Watershed, are subject to the PCSM Requirements and will follow the Development Compliance Review Path. The applicant is referred to [Section 2.1.2](https://www.water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-1-existing-resources-and-site-analysis#2.1.2) [water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-1-existing-resources-and-site-analysis#2.1.2](https://www.water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-1-existing-resources-and-site-analysis#2.1.2) for an explanation of, and further guidance regarding, Review Paths.

### Water Quality

#### Background

The objectives of the Water Quality requirement are as follows:

1. Reduce pollution in runoff;
2. Recharge the groundwater table and increase stream base flows;
3. Restore more natural site hydrology; and
4. Reduce combined sewer overflows (CSOs) from the City's combined sewer systems.

The Water Quality requirement focuses on the removal of pollutants from stormwater runoff and is similar to requirements in surrounding states and other major cities across the country. Water quality benefits are provided, in part, by slowing water down and allowing suspended solids to settle. Because some nutrients, metals, organics, and other contaminants are bound to these sediment particles, this basic treatment mechanism can have multiple benefits. Generally, the physical, chemical, and biological processes that take place in a system that incorporates soil, water, and plants provide the best water quality improvements.

Infiltration of stormwater runoff can significantly reduce pollutant loads reaching surface water and generally does not pose a threat to groundwater quality if there is sufficient separation from the water table. Infiltrating stormwater runoff also has a direct impact on reducing the quantity of water in the sewer system that can contribute to CSOs and pollution of receiving waters. As such, infiltration is a major focus of the Water Quality requirement.

Attenuation of stormwater flows also contributes to water quality goals. In combined sewer systems, CSOs must be reduced by maintenance of a slow release rate set to match the area-weighted wet weather treatment rate of PWD's Water Pollution Control Plants. Therefore, when infiltration is not feasible, water quality improvement in combined sewer areas must be achieved not only by reducing runoff pollutant load concentrations, but also by managing the quantity and timing of stormwater discharge. Detention and slow release reduces peak flows in the combined sewer during wet weather events, thus reducing the frequency and magnitude of CSOs.

## Requirement

**The Water Quality requirement stipulates infiltration of the first 1.5 inches of runoff from all directly connected impervious area (DCIA) within the limits of earth disturbance.** This volume of stormwater runoff is referred to as the Water Quality Volume (WQv). If infiltration is feasible on the project site, the Water Quality requirement must be met by infiltrating 100% of the WQv through stormwater management practices (SMPs).

One strategy to address the Water Quality requirement is to minimize the amount of DCIA, which reduces the WQv that must be treated on-site. DCIA can be reduced through the use of disconnected impervious cover (DIC), which includes green roofs, porous pavement, and rooftop, pavement, and tree disconnections, which are outlined in greater detail in **Section 3.2** [water.phila.gov/development/stormwater-plan-review/manual/chapter-3/3-2-stormwater-management-design](http://water.phila.gov/development/stormwater-plan-review/manual/chapter-3/3-2-stormwater-management-design). Projects that propose to disconnect 95% or more of their post-development impervious area may qualify for an expedited Disconnection Green Review as described in **Section 2.4** [water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-4-expedited-pcsmp-reviews](http://water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-4-expedited-pcsmp-reviews).

Guidance for calculating the WQv and design requirements for DIC and SMPs can be found in **Chapter 3** [water.phila.gov/development/stormwater-plan-review/manual/chapter-3](http://water.phila.gov/development/stormwater-plan-review/manual/chapter-3).

If infiltration is infeasible, or where it can be demonstrated that infiltration would cause property or environmental damage, the method of compliance with the Water Quality requirement differs based on the type of sewershed in which a project is located. The applicant is referred to the sewershed maps in **Appendix D** [water.phila.gov/development/stormwater-plan-review/manual/appendices/d-watershed-maps](http://water.phila.gov/development/stormwater-plan-review/manual/appendices/d-watershed-maps) to determine the type of sewershed in which their project is located. These maps are approximations of sewershed boundaries. The applicant must refer to their project's point of stormwater discharge when determining which requirements apply to their project.

If the applicant believes that infiltration is not feasible, a waiver from the infiltration requirement must be requested via the Online Technical Worksheet (**Section 3.4.3** [water.phila.gov/development/stormwater-plan-review/manual/chapter-3/3-4-how-to-show-compliance/#Worksheet](http://water.phila.gov/development/stormwater-plan-review/manual/chapter-3/3-4-how-to-show-compliance/#Worksheet)) for PWD Stormwater Plan Review approval. The applicant is referred to **Section 3.3** [water.phila.gov/development/stormwater-plan-review/manual/chapter-3/3-3-infiltration-testing-and-soil-assessment-for-smp-design](http://water.phila.gov/development/stormwater-plan-review/manual/chapter-3/3-3-infiltration-testing-and-soil-assessment-for-smp-design) for guidance on determining and documenting infiltration feasibility. For projects in which greater than one acre of earth is disturbed and a waiver from infiltration is requested due to soil or groundwater contamination, PA DEP must evaluate the waiver request concurrently with PWD.

### Quick Tip

Property owners often find that by incorporating landscape elements to reduce their DCIA, they simultaneously increase their property value and retail sales, reduce crime, and improve mental health and worker productivity. For more information regarding the triple bottom line benefits of green stormwater management practices, the applicant is encouraged to visit the **National Resources Defense Council website** <http://www.nrdc.org/water/commercial-value-green-infrastructure.asp>.



### ***Non-Infiltrating Projects Located in Combined Sewer Areas***

For all areas served by a combined sewer and for which infiltration is infeasible for all or a portion of the WQv, 100% of the WQv that is not infiltrated must be routed through an acceptable pollutant-reducing practice and detained in each SMP for no more than 72 hours. 100% of the WQv that is not infiltrated must also be released from the site at a maximum rate of 0.05 cubic feet per second (cfs) per acre of associated DCIA.

### ***Non-Infiltrating Projects NOT Located in Combined Sewer Areas***

For all areas not served by a combined sewer — including separate sewer areas, direct discharge projects, and unsewered areas — for which infiltration is infeasible for all or a portion of the WQv, 100% of the WQv that is not infiltrated must be routed through an acceptable pollutant-reducing practice and detained in each SMP for no more than 72 hours. Acceptable non-infiltrating pollutant-reducing practices are listed in **Table 3.1-3** [water.phila.gov/development/stormwater-plan-review/manual/chapter-3/3-1-site-assessment#Table\\_3.1-3](http://water.phila.gov/development/stormwater-plan-review/manual/chapter-3/3-1-site-assessment#Table_3.1-3).

**Figure 1.2-1: Water Quality Requirements**

<b>Infiltration Feasible</b>	
<b>PROJECT LOCATION</b>	<b>REQUIREMENTS</b>
All	Infiltrate 100% of the WQv

<b>Infiltration NOT Feasible</b>	
<b>PROJECT LOCATION</b>	<b>REQUIREMENTS</b>
In Combined Sewer Area	100% of the WQv that is not infiltrated must be: <ul style="list-style-type: none"> <li>• Routed through an acceptable pollutant-reducing practice*</li> </ul> <i>AND</i> <ul style="list-style-type: none"> <li>• Detained in each SMP for no more than 72 hours</li> </ul> <i>AND</i> <ul style="list-style-type: none"> <li>• Released from the site at a maximum rate of 0.05 cfs per acre of associated DCIA</li> </ul>
<b>Not In</b> Combined Sewer Area	100% of the WQv that is not infiltrated must be: <ul style="list-style-type: none"> <li>• Routed through an acceptable pollutant-reducing practice</li> </ul> <i>AND</i> <ul style="list-style-type: none"> <li>• Detained in each SMP for no more than 72 hours</li> </ul>

\* Not required for Stormwater Retrofit projects

The applicant is referred to **Section 3.4.1** [water.phila.gov/development/stormwater-plan-review/manual/chapter-3/3-4-how-to-show-compliance#3.4.1](http://water.phila.gov/development/stormwater-plan-review/manual/chapter-3/3-4-how-to-show-compliance#3.4.1) for detailed information on how to demonstrate a project’s compliance with the Water Quality requirement.

There are no exemptions from the Water Quality requirement.

Stormwater Retrofit projects should be designed to meet most of the Water Quality requirement design standards. For clarification on what requirements are applicable, the applicant is referred to **Section 1.3** [p. 26](#) for more information.

# Channel Protection

## Background

In addition to having an effect on the quality of stormwater runoff, the rate and frequency of stormwater discharge also poses a threat to the downstream environment and infrastructure. Management of peak rates from smaller storm events is referred to as Channel Protection because one of its benefits is to reduce erosive flows in downstream channels.

The objectives of the Channel Protection requirement are as follows:

1. Protect the quality of stream channels and banks, fish habitat, and man-made infrastructure from the influence of the erosive forces and downstream sedimentation due to high stream velocities; and
2. Reduce the quantity, frequency, and duration of CSOs.

## Requirement

**The Channel Protection requirement stipulates the detention and release of runoff from the one-year, 24-hour Natural Resources Conservation Service Type II design storm event for all DCIA within the limits of earth disturbance at a maximum rate of 0.24 cfs per acre of associated DCIA in no more than 72 hours.**

This requirement applies equally to rivers, streams, and sites discharging to drainage ditches, natural or man-made ponds, and sewers that ultimately discharge to receiving waters, even if this discharge is indirect.

The applicant is referred to [Section 3.4.1](https://www.water.phila.gov/development/stormwater-plan-review/manual/chapter-3/3-4-how-to-show-compliance#3.4.1) for detailed information on how to demonstrate a project's compliance with the Channel Protection requirement.

## Exemptions

Projects meeting the following characteristics are exempt from the Channel Protection requirement:

- Redevelopment projects with less than one acre of earth disturbance.
- Redevelopment projects which reduce impervious area within the limits of earth disturbance (excluding public right-of-way) by at least 20%, based on a comparison of predevelopment impervious area to post-development DCIA.
- Redevelopment projects located in the Delaware Direct Watershed or that discharge to the Lower Schuylkill River, Manayunk Canal, or Mingo Creek.
- Development of new Streets and Street Maintenance Activities.

### Quick Tip

The Water Quality and Channel Protection requirements are not additive; however, management of the WQv may reduce the storage volume needed to meet the Channel Protection requirement. The designer is referred to [Chapter 3](https://www.water.phila.gov/development/stormwater-plan-review/manual/chapter-3) for more information on stormwater management design strategies.

For the purposes of calculating impervious area reduction, the predevelopment impervious area is determined by the dominant land use for the ten years preceding the date of the project's Existing Resources and Site Analysis (ERSA) Application ([Section 2.1](https://www.water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-1-existing-resources-and-site-analysis) water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-1-existing-resources-and-site-analysis) submission. To claim a predominant land use which differs from the existing condition, the applicant must submit a predominant land use plan, in addition to an Existing Conditions Plan, to PWD Stormwater Plan Review.

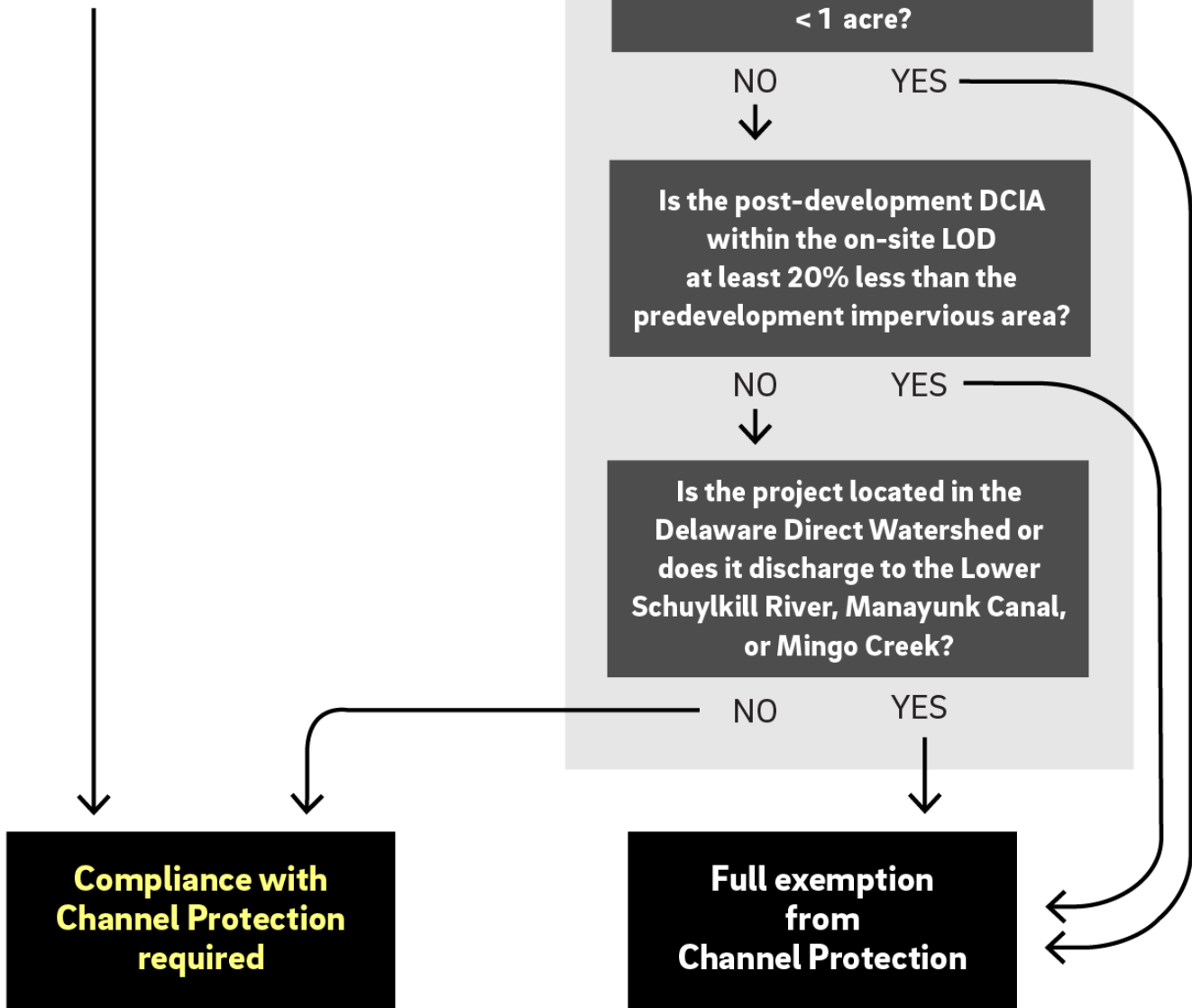
**Figure 1.2-2: Channel Protection Exemption Conditions**

**New Development Project**

with earth disturbance  $\geq 15,000$  sf  
(5,000 sf in Darby and Cobbs Creeks Watershed)

**Redevelopment Project**

with earth disturbance  $\geq 15,000$  sf  
(5,000 sf in Darby and Cobbs Creeks Watershed)



# Flood Control

## Background

Uncontrolled large storm events have the potential to overwhelm the capacity of sewer infrastructure and receiving streams, particularly in areas that already experience high flows or have capacity limitations.


The objectives of the Flood Control requirement are as follows:

1. Reduce or prevent the occurrence of flooding in areas downstream of the development site, as may be caused by inadequate sewer capacity or stream bank overflow; and
2. Reduce the frequency, duration, and quantity of CSOs.

The Flood Control requirement is based upon the ongoing watershed-wide Pennsylvania Stormwater Management Act (Act 167) planning studies determining Flood Management Districts for controlling peak rates of runoff.


## Requirement

**The Flood Control requirement stipulates that a development project meet or reduce peak rates of runoff, as determined by its Flood Management District, from predevelopment to post-development conditions during certain storm events.**


The applicant is referred to [Table 3.4-1](#)  [water.phila.gov/development/stormwater-plan-review/manual/chapter-3/3-4-how-to-show-compliance#Table\\_3.4-1](http://water.phila.gov/development/stormwater-plan-review/manual/chapter-3/3-4-how-to-show-compliance#Table_3.4-1) for a listing of Flood Management Districts and their associated rate reductions by storm event. Detailed information on how to demonstrate a project's compliance with the Flood Control requirement can also be found in the Section.

## Exemptions

Projects meeting the following characteristics are exempt from the Flood Control requirement:

- Redevelopment projects that reduce impervious area within the limits of earth disturbance (excluding public right-of-way) by at least 20%, based on a comparison of predevelopment impervious area to post-development DCIA.
- Redevelopment projects located in Flood Management District C ([Appendix D](#)  [water.phila.gov/development/stormwater-plan-review/manual/appendices/d-watershed-maps](http://water.phila.gov/development/stormwater-plan-review/manual/appendices/d-watershed-maps)) that discharge directly to the Delaware Direct or Lower Schuylkill main channels without the use of City infrastructure. Location within the District C boundary does not automatically exempt a project from this requirement. To apply for this exemption, the applicant must provide sufficient documentation regarding the proposed point of discharge as part of their application to PWD.

### Quick Tip

One common tool used by the development community to meet the 20% reduction in impervious area exemption condition is installing a green roof. Green roofs help with reducing annual energy costs, typically last twice as long as conventional roofs, and increase rental values. The applicant is referred to [Section 4.3](#)  [water.phila.gov/development/stormwater-plan-review/manual/chapter-4/4-3-green-roofs](http://water.phila.gov/development/stormwater-plan-review/manual/chapter-4/4-3-green-roofs) for more information on green roofs.

- Redevelopment projects located in District C-1 that discharge directly to the Tookany/Tacony-Frankford main channel or major tributaries without the use of City infrastructure. This exemption applies only to peak rates of runoff for storm events greater than the five-year storm. Location within the District C-1 boundary does not automatically exempt a project from this requirement. To apply for this exemption, the applicant must provide sufficient documentation regarding the proposed point of discharge as part of their application to PWD.
- Redevelopment projects located in the Delaware Direct Watershed or that discharge to the Lower Schuylkill River, Manayunk Canal, or Mingo Creek, but situated outside of District C, that can discharge directly to the Delaware Direct or Lower Schuylkill main channels without the use of City infrastructure. Location within the Delaware Direct Watershed or Lower Schuylkill Watershed does not automatically exempt a project from this requirement. To apply for this exemption, the applicant must provide sufficient documentation regarding the proposed point of discharge as part of their application to PWD.
- Development of new Streets and Street Maintenance Activities.

For the purposes of calculating impervious area reduction, the predevelopment impervious area is determined by the dominant land use for the ten years preceding the date of a project's ERSA Application (**Section 2.1** [water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-1-existing-resources-and-site-analysis](https://water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-1-existing-resources-and-site-analysis)) submission. To claim a predominant land use which differs from the existing condition, the applicant must submit a predominant land use plan, in addition to an Existing Conditions Plan, to PWD Stormwater Plan Review.

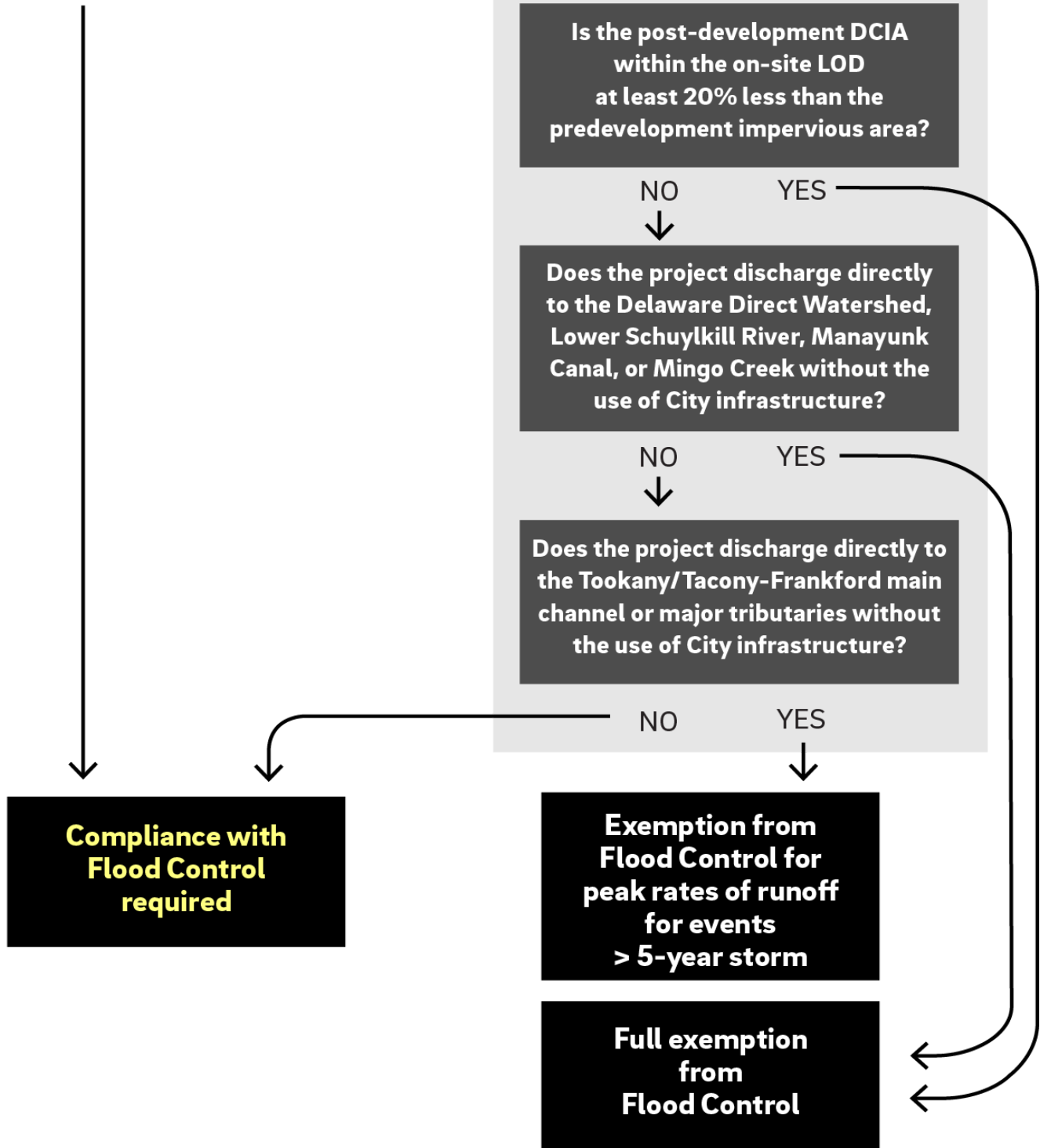
Figure 1.2-3: Flood Control Exemption Conditions

**New Development Project**

with earth disturbance  $\geq 15,000$  sf  
(5,000 sf in Darby and Cobbs Creeks Watershed)

**Redevelopment Project**

with earth disturbance  $\geq 15,000$  sf  
(5,000 sf in Darby and Cobbs Creeks Watershed)



# Public Health and Safety Release Rate

## Background

In some areas, sewer capacity limitations have the potential to impact public health and safety. To address this, peak flow control beyond the requirements of the Channel Protection and Flood Control requirements is necessary in accordance with the PHS Release Rate requirement.

## Requirement

Sites located in certain combined sewer areas of the Delaware Direct and Lower Schuylkill River Watersheds where known flooding has occurred due to constraints in the sewer network are required to comply with a maximum release rate (cfs per acre) for the one-year through ten-year storm events. This rate is determined by PWD based upon analysis of available pipe capacity for the project within the sewershed and will differ depending on the location of the project's sewer connection(s). If a PHS release rate is required for the site, it will be noted by PWD during the Conceptual Review Phase for projects in the Development Compliance Review Path. PHS rates will not be applied to projects in other Review Paths. The applicant is referred to **Section 2.2** [water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-2-review-paths](https://water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-2-review-paths) and **Section 2.3** [water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-3-review-phases](https://water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-3-review-phases) for information on Review Paths and Review Phases, respectively. A PHS Release Rate requirement applies to all areas within a project's limit of earth disturbance, pervious and impervious alike.

An applicant with a project believed to be located within a designated PHS boundary, or wishing to learn more about whether a PHS Release Rate applies to the project, is advised to contact PWD Stormwater Plan Review prior to submittal.



## 1.2.2 Erosion and Sediment Control Requirement

### Background

While the four previously discussed Stormwater Regulations relate to PCSM Requirements, effective stormwater management is also critical during the construction process. Clearing, grading, and other site development activities expose soil surfaces, leaving them vulnerable to erosion. Soil erosion and sediment loss not only affect the development site, but can also block downstream inlets and sewers, causing localized flooding, and carry sediment and associated pollutants to the City's Water Pollution Control Plants or receiving waters. These impacts can contribute to flooding, maintenance concerns, and significant environmental issues.

### Quick Tip

A handy [Erosion & Sediment FAQ](https://water.phila.gov/pool/files/erosion-and-sedimentation-faq-for-contractors.pdf) is available for contractors and applicants alike, covering such topics as the importance of E&S controls, typical E&S control measures, E&S requirements based on earth disturbance, and failure to install and maintain E&S controls.

### Requirement

The owner of a development site is responsible for ensuring that active construction activities are not in violation of 25 Pa. Code Chapters 92 and/or 102 or the Clean Streams Law, the act of June 22, 1937, P.L. 1987, 35 P.S. §691.1 et seq. At minimum, all earth disturbance must comply with the E&S requirements of the PA DEP as specified in 25 Pa. Code §102.4.

Specific submittal preparation requirements vary depending on the limit of earth disturbance and project location. All E&S Plans must be prepared in accordance with PA DEP guidelines as laid out in the latest edition of the [PA DEP Erosion and Sediment Pollution Control Program Manual](https://www.dep.pa.gov/Business/Water/CleanWater/StormwaterMgmt/Stormwater%20Construction/Pages/E-S%20Resources.aspx) (2012 or latest).

The applicant is referred to [Section 2.3](https://water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-3-review-phases) for more information on E&S Plan preparation and review requirements. At minimum, all projects, regardless of size, must install E&S controls which are appropriate given the site layout, neighboring features, and proposed disturbance activities.

# 1.3 Stormwater Retrofits

This Section of the Philadelphia Water Department (PWD) Stormwater Management Guidance Manual (Manual) is intended to aid applicants and vendors who are developing Stormwater Retrofit projects in navigating the Manual and additional relevant resources. This Section also highlights the differences between the Stormwater Retrofit Review Path and other Review Paths presented in [Section 2.2](#) [water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-2-review-paths](http://water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-2-review-paths).

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## 1.3.1 Retrofit Project Applicability and Initiation

As discussed in [Section 1.1.1](#) [p. 4](#) of this Manual, development projects categorized as Stormwater Retrofits are defined as *the voluntary rehabilitation and/or installation of SMPs on a property to better manage stormwater runoff*. These projects are implemented by property owners who are motivated to:

- Lower their Stormwater Management Service Charge (Stormwater Charge) with [stormwater credits](#) [water.phila.gov/stormwater/incentives/credits/](http://water.phila.gov/stormwater/incentives/credits/);
- Provide triple bottom line benefits to their property's occupants that SMPs with green surface expressions can provide;
- Demonstrate commitment to sustainability or environmental stewardship goals; and
- Transform underutilized space on their property to benefit Philadelphia's waterways and health.

In order for a project to be classified as a Stormwater Retrofit and not a different development type, the project must follow the following criteria:

- Development work and earth disturbance is limited to the installation of the approved stormwater management practice (SMP) and its components. Minor non-stormwater related work may be approved if it does not meet the earth disturbance threshold for applying Stormwater Regulations in the project's watershed.
- Existing cover types in the predevelopment condition must remain consistent in the post-development condition, unless:
  - Impervious area (or area functioning as impervious area, such as compacted gravel) is converted to well-draining pervious grass area or a surface SMP. The new cover type must provide stormwater management benefits and generally comply with requirements within the [Stormwater Management Service Charge Credits and Appeals Manual](#) [water.phila.gov/pool/files/stormwater-credits-appeals-manual.pdf](http://water.phila.gov/pool/files/stormwater-credits-appeals-manual.pdf) (*Credits and Appeals Manual*) for open space stormwater credits (Applicants of Stormwater Retrofit projects proposing any depaving work are encouraged to contact Stormwater Billing and Incentives to confirm exemption from Stormwater Regulations); or
  - The earth disturbance involved with any site improvements or changes in cover type is less than 15,000 square feet (or the appropriate disturbance threshold for triggering Stormwater Regulations, dependent on the project's watershed).

Property owners who are interested in voluntarily managing stormwater on-site are encouraged to apply for a Stormwater Grant. More information about the Stormwater Grant Program, including how to apply, is available on the **Stormwater Grants** [water.phila.gov/stormwater/incentives/grants/](http://water.phila.gov/stormwater/incentives/grants/) website. This website also provides a link to the **Stormwater Grants Application Guide** [water.phila.gov/pool/files/stormwater-grants-application-guide.pdf](http://water.phila.gov/pool/files/stormwater-grants-application-guide.pdf), which outlines the requirements needed for a Stormwater Grant Application. These requirements include, but are not limited to, a Conceptual Stormwater Management Plan, environmental due diligence, and a project budget. If a Stormwater Retrofit project applies for a Stormwater Grant, their Stormwater Grant Application will serve as their Conceptual Review Phase, with their Stormwater Grant award serving as their Conceptual Approval. These Stormwater Grant projects will enter the Post-Construction Stormwater Management Plan (PCSMP) Review Phase after being awarded a Stormwater Grant unless their Conceptual Stormwater Management Plan significantly changes after their Stormwater Grant award.

Classification of a project as a Stormwater Retrofit is ultimately determined by the judgement of PWD staff. Once a project has been confirmed as a Stormwater Retrofit, it will be reviewed by Stormwater Billing and Incentives. The applicant is referred to Sections **2.2.4** [water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-2-review-paths#2.2.4](http://water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-2-review-paths#2.2.4) and **2.3.4** [water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-3-review-phases#2.3.4](http://water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-3-review-phases#2.3.4) for more information on how Stormwater Billing and Incentives reviews Stormwater Retrofit plans.

Stormwater Billing and Incentives can be reached during normal business hours (8 am to 5 pm) at (215) 685-6070 or [pwd.stormwatercredits@phila.gov](mailto:pwd.stormwatercredits@phila.gov) for Credits and Incentives Program-related questions.

## 1.3.2 Retrofit Project Requirements and Guidance

Stormwater Billing and Incentives reviews stormwater management plans for compliance with managing the first 1.5 inches of runoff, as described in the Post-Construction Stormwater Management (PCSM) Water Quality requirement of the Stormwater Regulations. Plans should also meet all criteria for the Erosion and Sediment Control Requirement listed in [Section 1.2.2](#) ☞ p. 25. To learn more about Stormwater Credit eligibility after completion of the Stormwater Retrofit project, the applicant is referred to [Section 6.3](#) ☞ water.phila.gov/development/stormwater-plan-review/manual/chapter-6/6-3-stormwater-credits/. Stormwater Retrofit projects do not need to incorporate aspects from Flood Control, Channel Protection, or Public Health and Safety Release Rate requirements.

Applicants designing a Stormwater Retrofit project should reference [Section 1.2.1](#) ☞ p. 15 for understanding the full Water Quality requirement. However, key differences to note for Stormwater Retrofit reviews are listed below.

### Administrative Differences

- There are no review or approval fees for Stormwater Retrofit projects.
- There are no expedited reviews for Stormwater Retrofits. Certain SMP types and stormwater management strategies are considered more competitive in the Stormwater Grant award process.
- Stormwater Retrofit projects do not need to submit a full Construction Certification Package, including material receipts. However, projects should submit construction photographs of key installation points along with their Record Drawings.
- Stormwater Retrofits that receive Stormwater Grant funding will have additional timeline requirements. Applicants should follow recommendations in [Section 2.3.4](#) ☞ water.phila.gov/development/stormwater-plan-review/manual/chapter-2/2-3-review-phases#2.3.4 and contact the Stormwater Billing and Incentives team to review intended project timelines.

### Technical Design Differences

- The applicant is encouraged to manage any feasible drainage area on the private property, which is not limited to the earth disturbance area.
- The area within the limit of earth disturbance is not required to be managed. Earth disturbance is less indicative of the amount of stormwater management for Stormwater Retrofit projects than projects required to meet PCSM Requirements.
- Stormwater Retrofits are not required to implement pollutant-reducing practices in the combined sewer area of the city where infiltration is not feasible. These systems are only required for subsurface detention SMPs proposed in the Municipal Separate Storm Sewer System (MS4) for Stormwater Retrofits. Due to this Water Quality difference, Stormwater Retrofits do not consider roof runoff isolation as a design factor.

- Stormwater Billing and Incentives will review disconnected impervious cover (DIC) disconnection strategies on a case-by-case basis, as the majority of Stormwater Retrofits involve SMPs and depaving funded by Stormwater Grants. Tree credits, as described in this Manual, are not a credited stormwater management type for Stormwater Retrofit projects. However, tree canopies can be a strategy for obtaining stormwater credits on a property's stormwater bill, according to the *Credits and Appeals Manual* — [water.phila.gov/pool/files/stormwater-credits-appeals-manual.pdf](http://water.phila.gov/pool/files/stormwater-credits-appeals-manual.pdf). Additionally, some DIC features such as green roofs, may have different management requirements as a Stormwater Retrofit. For up-to-date information, the applicant should discuss any DIC strategies with Stormwater Billing and Incentives.