



**Office of Water Quality  
Wetlands and Stormwater Section**

**Construction Stormwater General Permit (CSGP)  
Construction/Stormwater Pollution Prevention Plan Development Guidance**

The Construction Stormwater General Permit (CSGP) requires the development of a Construction Plan for both the construction and post-construction phases of a project. An integral part of the Construction Plan includes a Stormwater Pollution Prevention Plan (SWP3). The SWP3 addresses several issues. First, the plan outlines how erosion and sedimentation will be managed on the project site to minimize the discharge of sediment off-site or to a water of the state. Second the plan addresses the proper management of other activities that may generate pollutants during construction. This may include disposal of building materials, management of fueling operations, etc. Finally, the plan should also address pollutants that will be associated with the post-construction land use. The SWP3 must be developed in accordance with the CSGP, and where applicable, the requirements of a local Municipal Separate Storm Sewer (MS4) ordinance. The SWP3 must be signed by a "trained individual "as defined in Appendix B in the permit.

The following information is an outline of items that are required to be contained in a Construction Plan that is submitted pursuant to the CSGP. The items within this document have been divided into three distinct categories, including:

- (1) Construction Plan Elements
- (2) Erosion and Sediment Control/Project Site Management
- (3) Post-construction

Each item is identified with a letter and number that can be directly related back to the review sheet that will be utilized by staff reviewing construction plans in accordance with the CSGP. Each item also contains information that explains the expectation for each plan element and the level to which it should be described or represented within the construction plans.

## **Construction Plan – General Plan Components (Section A)**

### **A1 - Index of the location of required plan elements in the construction plan:**

The plan index should include a list of the required items in the CSGP and where they occur in the plan. Plan preparers often have their plan index mirror items in the IDEM standard plan review checklist. An MS4 may have different requirements and plan expectations based on their local ordinance.

### **A2 - A vicinity map depicting the project site location in relationship to recognizable local landmarks, towns, and major roads:**

The plan should include a map that depicts the site in relation to other areas in the city or county and should be sufficient for someone not familiar with the area to find the project site location. Acceptable map types include USGS topographic maps, county road maps, city street maps, custom drawn maps, or other options if the map adequately depicts the site location.

### **A3 - Narrative of the nature and purpose of the project:**

The plan should include information regarding the nature and purpose of the project. This is a narrative describing the overall objective of the project. For example, is the project a borrow/disposal site, utility/infrastructure project, a subdivision, commercial park, or limited to a specific activity or purpose such as land grading. The narrative and the content of the plan will establish the overall scope of the project and what the application (Notice of Intent) for permit coverage will include.

### **A4 - Latitude and longitude to the nearest fifteen (15) seconds:**

The approximate latitude and longitude in decimal representation at the approximate entrance to the project site if the project is not linear. If the project is linear, use the latitude and longitude for a beginning point of the project. This is the same information that will be included in the Notice of Intent when submitting for permit coverage.

### **A5 - Legal description of the project site:**

The legal description of the project site should be identified to the nearest quarter section and include township, range, and civil township name.

**A6 - 11 X 17-inch plat showing building lot numbers/boundaries and road layout/names:**

The reduced size plat of the project is intended to be a basic representation of the project layout. At a minimum, and where applicable or available, it should include building lot boundaries, lot numbers, road layout, and road names. It is not intended to be a complete representation of the construction plan or the SWP3. The purpose of the reduced plat is primarily to provide the plan reviewer a simplified layout of the project.

The plat should be legible, therefore based on the size of the project it is acceptable to have multiple sheets of 11 X 17.

This plat map must also be included with the Notice of Intent when submitting for permit coverage.

**A7 - Boundaries of the one hundred (100) year floodplains, floodway fringes, and floodways**

This information is relevant to the project if a stream is located on or near the property. If applicable, the plan should at a minimum include a notation of the presence of floodplains, floodway fringes, and floodways and to a further extent delineation on the plan. If this element is not applicable to the project, the plan preparer should note this in the plan.

**A8 - Land use of all adjacent properties:**

This information provides information for the overall project including potential downstream impacts, but also other contributing factors that are discharging onto the project site. It is important to understand the impact the project may have on surrounding properties and sensitive areas, but also have an understanding of the run-off and other potential pollutants that may be discharged from areas in the watershed above the project.

The intent of this element is to identify the types of land use, such as single-family residential, multi-family residential, commercial, agricultural, forested, etc. that are above and downstream of the project site.

### **A9 - Identification of a U.S. EPA approved or established TMDL:**

Total Maximum Daily Load (TMDL) reports are assessments of water quality in rivers, lakes, and streams in each watershed where impairments exist. TMDL Reports can be found at <https://www.in.gov/idem/nps/resources/total-maximum-daily-load-reports/>. If the project area falls within the watershed for which there is a TMDL, the plan should identify the name of the TMDL and pollutant(s) included in the TMDL. TMDLs can also be found at EPA: <https://mywaterway.epa.gov/>.

This is also a required element when submitting the Notice of Intent.

### **A10 - Name(s) of the receiving water(s):**

The plan should identify all named streams, or other water bodies that will potentially receive run-off from the project site. If the discharge is to a municipal storm sewer, the plan should identify the owner or operator of the storm drainage system as well as the ultimate receiving water for the storm drain system.

### **A11 - Identification of discharges to a water on the current 303(d) list of impaired waters and the pollutant(s) for which it is impaired:**

The 303(d) list identifies where many of Indiana's water quality problems exist and the nature of those impairments. Using <https://mywaterway.epa.gov/> the plan preparer can search by address, zip-code, or watershed to identify if the waterbody to which the project discharges is on the 303(d) list. When you open the Waterbody Report, you will be able to see if there is a TMDL established as well.

For compliance with the CSGP, the plan must identify any direct discharges to a receiving water on the 303(d) list, the category, and the pollutant(s) for which it is impaired.

This is also a required element when submitting the Notice of Intent.

### **A12 - Soils map of the predominate soil types:**

Each plan should provide a soil map for the project site. The map should be accompanied by descriptions of each soil type that occurs on the site. A legible copy of the appropriate soil map from the USDA Soil Survey for the county is sufficient. Boring logs and a geotechnical report or site mapping by a soil scientist is also considered acceptable for satisfying this requirement.

In addition to a soil map and a description of the soil types, the plan should include a discussion of the soil characteristics and limitations associated with the project site and the measures that will be integrated into the project to overcome any limitations. For example, if sanitary sewer does not service the site and on-site septic systems will be

used for waste disposal, the plan preparer should provide information concerning the suitability of the soil and the type of systems that will be required to overcome soil limitations.

**A13 - Identification and location of all known wetlands, lakes, and water courses on or adjacent to the project site (construction plan, existing site layout):**

This information is important in planning the project and identifies the areas that must be considered to ensure stormwater measures are adequate and appropriate to reduce the impact to natural areas associated with the project site. Identification of nearby watercourses and lakes may place an additional importance on sediment control and project management in a particular area of the project.

**A14 - Identification of any other state or federal water quality permits or authorizations that are required for construction activities:**

The plan should identify any permits related to the project site, such as Construction in a Floodway from DNR, 401 Water Quality Certification from IDEM, 404 permits from the U.S. Army Corps of Engineers, etc.

It is not necessary for the project site owner to possess these permits at the time of the plan submittal. However, the plan preparer should be knowledgeable of other permits that may be required and actively working to obtain these permits.

If the permits or authorizations have not been obtained, provide the expected timeline for obtaining the permits or authorizations.

**A15 - Identification and delineation of existing cover, including natural buffers:**

The plan should delineate the boundaries of major vegetative cover types, such as crop or crop residue, grass, brush, trees, etc. It is not necessary for the plan to identify individual vegetative species. As a component of the delineation, the plan preparer should evaluate the areas to determine if natural buffers will require preservation in accordance with the CSGP.

The CSGP defines “Natural Buffer” as an existing (prior to land disturbance) undisturbed area adjacent to or surrounding surface waters within which construction/land-disturbing activity is restricted. For the purposes of implementation of the CSGP buffer requirement the areas that must be preserved include ephemeral, intermittent and perennial streams with a defined bed and bank, natural lakes, and reservoirs. Guidance for determining if an area must be preserved in accordance with the CSGP can be found in the Buffer Guidance Document at <https://www.in.gov/idem/stormwater/resources/stormwater-program-transition-to-master-general-permits/>.

**A16 - Existing site topography at an interval appropriate to indicate drainage patterns:**

This information is critical to properly identify, design and/or layout the proposed stormwater measures. Site topography may be depicted in multiple ways such as continuous contour lines and spot elevations (if there are a sufficient number of locations to be able to demonstrate the site topography). A graphical profile of the project may also be acceptable for highway, road, utility, and other linear projects.

**A17- Location(s) where run-off enters the project site:**

Identify areas where stormwater flows onto the project site. This includes both concentrated flow and areas where sheet flow enters the project site. These areas, including drainage acreage must be considered to properly design the stormwater management system for the project site.

**A18 - Location(s) where run-off discharges from the project site prior to land disturbance:**

The plan should clearly identify where stormwater exits the site. It is not necessary that the location be identified with a notation on the plan unless it is not clear from the topographic or storm drainage system information.

**A19 - Location of all existing structures on the project site:**

Identify all existing structures on the project site, including buildings, ponds, and any other existing infrastructure. Infrastructure may include storm sewers, sanitary sewer, or other utility lines. These items must be clearly labeled on the plan with a legend.

**A20 - Existing permanent retention or detention facilities, including manmade wetlands, designed for the purpose of stormwater management:**

Features may include existing post-construction stormwater measures that may be used or potentially impacted by the proposed project. These measures primarily include but are not limited to permanent regional retention or detention facilities and green infrastructure. Clearly locate these existing features on the plan and that the existing features include capacity for the run-off from the proposed project.

**A21 - Locations where stormwater may be directly discharged into ground water, such as abandoned wells, sinkholes, or karst features:**

The plan should include the location of all areas where stormwater may be potentially discharged to groundwater. These areas include sinkholes or uncapped abandoned wells, which may be located on the project site or downstream of the project site and could potentially be impacted by stormwater discharges. It may also include existing stormwater infiltration systems such as drywells. These existing areas must be located on

the plan, with adequate protection measures to prevent sediment-laden and/or contaminated run-off from entering the groundwater. Abandoned wells should be properly capped.

**A22 - Size of the project area expressed in acres:**

Total size of the project area including areas that will and will not be disturbed.

This information is also required for the Notice of Intent (NOI).

**A23 - Total expected land disturbance expressed in acres:**

The total area of land that is expected to be disturbed by the proposed project. The extent of disturbance has a profound impact on what measures may be necessary to adequately manage stormwater run-off and the selection of stormwater quality measures.

This information is also required for the Notice of Intent (NOI).

**A24 - Proposed final topography:**

The final topography is critical to properly plan project stormwater management measures. This item is typically related to how grading will occur onsite as construction progresses until final grades are achieved. Site topography may be depicted in multiple ways such as continuous contour lines and spot elevations if there are a sufficient number of locations to be able to demonstrate the site topography. A graphical profile view of the project may also be acceptable for highway, road, utility, and other linear projects.

**A25 - Locations and approximate boundaries of all disturbed areas:**

The plan should identify the construction limits of the project. If disturbance boundaries are not identified inside of the project boundary, it will be assumed that the entire site as being disturbed for the purposes of evaluating the proposed stormwater quality measures.

Construction limits are critical in determining the appropriate measures to manage run-off and control sediment. Areas such as unused right-of-way outside construction limits must be clearly delineated as off-limits to disturbance.

**A26 - Locations, size, and dimensions of all stormwater drainage system such as culverts, stormwater sewer, and conveyance channels:**

All proposed stormwater systems, including swales, channels, piping, culverts, etc. should be clearly shown on the plans. In addition to location, the plan should include the size and dimensions of the specific stormwater systems.

**A27 - Locations of specific points where stormwater and non-stormwater discharges will leave the project site:**

The plan should clearly identify where stormwater and non-stormwater discharges are likely to leave the project site. Topographic or drainage system information can be used to identify the location of the discharges. If the location is not easily discernable then a notation must be provided for clarification.

**A28 - Location of all proposed site improvements, including roads, utilities, lot delineation and identification, proposed structures, and common areas:**

Lot boundaries and numbers are required to be shown on the plan. In addition, the plan should show all proposed site improvements, including but not limited to utilities, roads (names, if available), structures, and common areas. Single lot projects should show the location of any proposed structures.

Any services such as sanitary sewers, waterlines, other utilities, roads, etc. which are located within the proposed project site or located off-site and under the control of the project site owner must be included in the plan.

It is important that the project site owner understand that all land disturbance associated with their project is subject to compliance with the CSGP. The same burden of compliance is necessary for these off-site areas as they are for the project site itself. If there are no off-site activities, or others are conducting the off-site activities, a simple notation should be sufficient to satisfy this requirement.

**A29 - Location of all on-site and off-site soil stockpiles and borrow areas:**

Plans should show the location of on-site stockpiles and borrow areas within disturbance limits. Often borrow and disposal areas occur off the project site. If these off-site areas are known at the time of plan submittal they need to be included as part of the plan submittal. If there are no stockpile, borrow or disposal areas planned, a simple notation should be sufficient to satisfy this requirement.



**A30 - Construction support activities that are expected to be part of the project:**

This item should include the approximate location of all other support activities that may be necessary during construction. Location of support activities, where possible, should avoid sensitive areas, such as proximity to water resources or sensitive resource features (i.e., karst). These activities include but are not limited to concrete or asphalt batch plants, staging areas, and material storage areas. Support activities must be directly related to the construction site and not a commercial/industrial operation or serve multiple unrelated construction projects. Support Activities must not continue to operate beyond the completion of the construction activity for the project it supports.

**A31 - Location of any in-stream activities that are planned for the project including, but not limited to, stream crossings and pump arounds:**

Locate areas where activities are anticipated that will require contractors to cross or work within waterbodies (creeks and streams) and/or wetlands to perform work on the project site. These activities are often left unaddressed during the initial planning of a project. These activities often require other permits from DNR, IDEM, and the U.S. Army Corps of Engineers. If these activities are not considered early in the project planning, delays may occur while the appropriate permits are obtained.

## **Stormwater Pollution Prevention - Construction Component (Section B)**

### **B1 - Description of the potential pollutant generating sources and pollutants, including all potential non-stormwater discharges:**

This item is included in the permit to place an emphasis on identification of pollutants that are associated with construction and land-disturbing activities. Potential pollutant sources include material and fuel storage areas, fueling locations, leaking vehicles and equipment, etc. Sediment is one of the major pollutants that is associated with active construction sites.

To satisfy this item, the plan needs to contain a written description of the expected pollutants that have the potential to be generated and come in contact with stormwater during active land-disturbing and construction operations. In addition, the plan preparer should include the measures and/or operational activities that will be initiated to minimize the discharge of pollutants.

### **B2 - Stable construction entrance locations and specifications:**

All projects except for some linear projects and residential strip developments should include designated areas for ingress and egress to the project site. These areas will require a stable construction entrance. The plan should clearly show the location of all proposed entrance locations, as well as specifications as to how the entrance is to be constructed and maintained.

### **B3 – Specifications for temporary and permanent stabilization:**

The plan should provide detailed specifications, including sequencing information, regarding which stabilization methods that are to be employed. There should be multiple methods provided, as the various seasons need to be considered. Even if the project is expected to be short lived, these seasonal options must be provided. Delays are common in the construction industry and projects may take longer than expected. The plan needs to cover these contingencies. The stabilization methods should be clearly specified, including sequencing information, in the plan.

For applications that include seeding, the plan should include application rates for soil amendments and seed mixtures. The type and application rate for mulch and the method of anchoring must also be provided. Where erosion control blanket is used, the type of blanket and the installation specifications for the product.

Specifications for item B3 must be included on the plans and not by reference.

**B4 - Sediment control measures for concentrated flow areas:**

This item is intended to address areas of the site where run-off will occur in a concentrated flow condition. The plan preparer should evaluate these areas and design the stormwater control measures to ensure that the proposed measures are adequate for the site characteristics and drainage area. Each proposed measure must include the location accompanied by construction details and specifications.

**B5 - Sediment control measures for sheet flow areas:**

This item is intended to identify the areas of the site where run-off will primarily be discharged under a sheet flow condition. The plan preparer should evaluate these areas and select adequate sediment control measures that are properly sized for site characteristics and the expected drainage area. It may also be necessary to evaluate if concentrated flow measures might be more applicable rather than just relying on sheet flow measures. Each proposed measure must include the location and accompanied by construction details and specifications.

**B6 – Run-off control measures:**

This item refers to measures that are utilized to manage and direct run-off. Run-off control measures include but are not limited to diversions, rock check dams, and slope drains. These types of measures may not be necessary on every project but are often utilized in conjunction with sediment control measures. Each proposed measure must include the location and be accompanied by construction details and specifications.

**B7 - Stormwater outlet protection location and specifications:**

All stormwater discharge locations need to be adequately protected to prevent scour erosion. The plan should specify protection measures appropriate for site characteristics. Each proposed measure must include the location and be accompanied by construction details and specifications.

**B8 - Grade stabilization structure locations and specifications:**

This item includes but is not limited to measures such as rock chutes, toe wall, and drop structures. These types of measures may not be necessary on every project but should be considered during the plan development stage. Each proposed measure must include the location and be accompanied by construction details and specifications.

### **B9 - Dewatering applications and management methods:**

If dewatering activities are anticipated appropriate measures should be identified and included on the plans. This plan element is primarily associated with activities that include pumping of accumulated water associated with excavated areas.

If dewatering is planned or becomes necessary on site, identify the method or methods that will be used. As part of the plan, it may be useful to specify measures as a contingency in the event dewatering is required. Discharged water must be treated with an appropriate sediment control measure or measures, prior to discharge.

Other measures such as sediment basins and sediment traps or the use of flocculants should be considered components of items (B4) and (B5) above.

### **B10 - Measures utilized for work within waterbodies:**

The plan should identify the type of measure(s) that are proposed for any in-stream activities. Measures include, but are not limited to crossings, cofferdams, isolation of work areas, or other measures. Identify if the measures are temporary or permanent. Each proposed measure must include the location and be accompanied by construction details and specifications.

### **B11 - Maintenance guidelines for each proposed stormwater quality measure:**

Each proposed temporary measure must be accompanied by criteria/standards and instructions for evaluating the measure for maintenance once installed. While permanent measures are considered long-term it will also be necessary to have criteria/standards in the plan while the permanent measures are being constructed or until final stabilization of the measure is achieved.

While the CSGP identifies a schedule for self-monitoring inspections, it is not uncommon for specific measures to include a more aggressive maintenance/evaluation schedule to ensure the integrity of measures are maintained and remain functional. This is particularly true of inlet protection measures which many stormwater manuals and guidance documents specify daily monitoring to ensure functionality. This item in the plan should include specific criteria and/or standards for each measure.

It is not necessary to outline the self-monitoring schedule as described in the CSGP. The self-monitoring program is a requirement of the CSGP, and project site owner and their designated representatives must comply with this requirement. When establishing the self-monitoring program refer to the CSGP to ensure the schedules and requirements of the self-monitoring program are met.

## **B12 - Planned construction sequence that describes the implementation of stormwater quality measures in relation to land disturbance:**

A complete construction sequence is required and should reflect what measures will be implemented on the project site and when these measures will be installed in relation to land disturbance and construction activities. All measures, including but not limited to run-off control, sediment control, and stabilization should be part of the sequencing that is specified for the project.

There are three (3) critical phases of construction sequencing that should be identified which include initial perimeter control, interim erosion and sediment control, and project completion. Specific dates of installation are not necessary or is the intent of this requirement. Details on construction sequencing can be found in the Indiana Stormwater Quality Manual at <https://www.in.gov/idem/stormwater/resources/indiana-storm-water-quality-manual/>.

## **B13 - Provisions for erosion and sediment control on individual residential building lots regulated under the proposed project:**

The CSGP places specific requirements on activities conducted on individual building lots within a project site. The plan should meet the minimum lot standards established in Section 3.8 of the CSGP. Plan preparers should take into consideration the size of the lots and topography (steepness) of the lots when identifying applicable stormwater quality measures.

If the overall project site owner will be responsible for activities on each lot or will only have responsibility for a few of the lots an individual lot SWP3 should be developed for those lots and included in the overall SWP3 for the project site.

**Note:** If residential lots within the larger project site will be developed by lot operators (builders) other than the overall project site owner it is required for the builder on those lots to obtain their own permit coverage or submit a “Construction Stormwater Residential Registration Form” as specified in Appendix A (a)(1). An individual lot SWP3 must be developed but is not required to be submitted with the overall project site construction/SWP3.

**B14 - Material handling and spill prevention and spill response plan meeting the requirements in 327 IAC 2-6.1:**

The plan should identify expected materials that may be present on the site during construction. A written description of how these materials will be managed to minimize the potential for the materials to be released and become comingled with stormwater run-off must be addressed in the plan. There should also be procedures directing the contractor and others operating on the project site on the required response to any spills that may occur during construction operations. Contact information for state and local emergency spill response should always be included on the plan.

**B15 - Material handling and storage procedures associated with construction activity:**

Appropriate measures must be implemented to manage wastes or unused building materials including, but not limited to garbage, debris, cleaning wastes, wastewater, concrete or cementitious washout water, mortar/masonry products, soil stabilizers, lime stabilization materials, and other substances. Wastes and unused building materials must be managed and disposed of in accordance with all applicable statutes and regulations. Proper storage and handling of materials, such as fuels or hazardous wastes, and spill prevention and clean-up measures must be implemented to minimize the potential for pollutants to contaminate surface or ground water or degrade soil quality.

Concrete or cementitious washout areas, where washout is permissible, must be identified for the site and locations clearly posted. Wash water must be directed into leak-proof containers or leak-proof containment areas which are located and designed to divert stormwater run-off away from the measure and sized to prevent the discharge and/or overflow of the wash water.

## **Stormwater Pollution Prevention - Post-construction Component (Section C)**

The post-construction stormwater pollution prevention plan must include the implementation of stormwater quality measures to address pollutants that will be associated with the final land use of the project. Post-construction stormwater quality measures should be functional upon completion of the project. Long-term functionality of the measures is critical to their performance and should be monitored and maintained.

### **Post-construction is not required for:**

- Land-disturbing activities where there will be no additional impervious surfaces added.
- Single-family residential developments of four lots or less.
- Single-family residential strip developments.
- Individual building lots within a permitted project site.
- Single family residences and private ponds that are not part of a larger common plan of development or sale.

Off road courses or other sites that will remain disturbed in perpetuity, must utilize post-construction measures to control sediment and other pollutants that may be associated with the post-construction land use.

### **C1 - Description of pollutants and their sources associated with the proposed land use:**

The plan should include a narrative description of the final land use and the expected pollutants that will typically be generated by this type of land use. The description should also discuss the sources of these pollutants within the completed project site. Common pollutants include, oil, grease, antifreeze, brake fluid, brake dust, rubber fragments, gasoline, diesel fuel and other hydrocarbons, metals from vehicular and other sources, grit (sediment) from wearing of the road surface and falling or washing off of vehicles, trash (including bacteria and other biological agents contained in the trash) from littering and other types of improper disposal or storage, and elevated receiving water temperatures from stormwater run-off contact with impervious surfaces.

### **C2 - Description of proposed post-construction stormwater measures:**

The plan should include a description of how the project was designed to minimize the generation of post-construction pollutants, and how the proposed post-construction stormwater measures will manage the quality and quantity of stormwater discharges from the completed project. It may be feasible for a project to comply with the post-construction requirements without installing elaborate and expensive treatment systems. Reducing impervious surfaces and increasing vegetative surfaces to trap pollutants may be sufficient. Post-construction measures may include but are not limited to stormwater

retention and detention, bio-retention, vegetated swales, and infiltration systems. Low impact development and green infrastructure strategies are encouraged to enhance water quality and to reduce stormwater run-off. Generally, these strategies are designed to mimic natural processes, minimize land disturbance, reduce surface imperviousness, and maximize green space.

The run-off rate of stormwater run-off and/or volume from the project site must meet local requirements to address stormwater quantity as established by ordinance or other regulatory mechanism. When a local requirement does not exist, the post-development run-off discharge from the project site must not exceed the pre-development run-off discharge based on the two-year, ten-year, and one-hundred-year peak storm events. As a component of plan development, the plan preparer should research and apply any local post-construction quantity requirements to the selection and design of post-construction stormwater measures. If there is a local requirement to manage the quantity of stormwater it would be helpful to include a reference to the local ordinance.

When impervious surfaces are added to a project site, post-construction stormwater quality measures must be sized to treat the Water Quality Volume (WQv) or water quality flow rates. Indiana utilizes a one (1) inch precipitation depth to calculate WQv, which is a sufficient depth to minimize pollutants and reduce channel and stream bank erosion.

The preferred equation to calculate water quality volume (WQv) is:

$$WQv = Rv \times A \times P$$

Rv = Run-off Coefficient,  $Rv = 0.05 + 0.9i$

Variable	Definition
WQv	“Water Quality Volume” is the volume of stormwater run-off which must be captured and treated prior to discharge from the developed site after construction is complete. WQv is based on the expected run-off generated by the mean storm precipitation volume from post-construction site conditions at which rapidly diminishing returns in the number of run-off events captured begins to occur.
A	“Drainage Area” is the total surface area that will drain to a certain point, such as a detention basin inlet.
P	“Precipitation Depth” is the depth of design storm that is used to treat most storm events. The standard in Indiana is one (1) inch of rainfall over 24 hours. This corresponds to the 90th percentile of events, and therefore, provides treatment for most events.
Rv	“Run-off Volumetric Coefficient” is the fraction of total rainfall that will appear at the outlet as run-off.
i	“Percentage of Impervious Area” is the fraction of the drainage area that is impervious.



### **C3 – Plan details for each stormwater measures:**

All proposed post-construction stormwater measures should be clearly located on the plan, and include dimensions, specifications, and construction details.

### **C4 - Sequence describing stormwater measure implementation.**

The plan should provide a sequence of when the proposed post-construction stormwater quality measures will be installed. Consider post-construction measures, like basins or ponds that can be utilized during construction for sediment control. If a measure serves a dual purpose this should be identified in the sequencing for construction and how and when it will be modified for use as a post-construction measure.

If a post-construction measure that does not tolerate sediment impacts is installed early in the construction phase, sediment control measures and management practices should be implemented to ensure that it is not inundated with construction phase sedimentation.

### **C5 - Maintenance guidelines for proposed post-construction stormwater measures:**

Provide an operation manual and where applicable a narrative description of the maintenance guidelines for all post-construction stormwater measures to facilitate their proper long-term function. This documentation must be made available to future parties who will assume responsibility for the operation and maintenance of the post-construction stormwater measures. All proposed measures must be accompanied by guidelines for monitoring and maintenance. If manufactured products are utilized, the manufacturers operation and maintenance manual/guidance may be referenced and is acceptable.

### **C6 - Entity that will be responsible for operation and maintenance of the post-construction stormwater measures:**

If known, the plans should also identify the parties or individuals that will be responsible for the future long-term maintenance of the post-construction measures. Identification does not need to be a name of an individual but should include the entity that will assume responsibility. This may include, but is not limited to the project site owner, governmental entity, or a homeowner's association.