

City of Glendale

Stormwater Management Plan Submittal and Review Checklist

Questions about stormwater reviews please contact: Brandon Flunker, Clark Dietz, Inc – 414-831-2864, brandon.flunker@clarkdietz.com

The stormwater management plan required under Section 6-5-8(b)(1) of this Chapter shall contain any information the City may need to evaluate the environmental characteristics of the area affected by land development activity, the potential impacts of the proposed development upon the quality and quantity of stormwater discharges, the potential impacts upon water resources and drainage utilities, and the effectiveness and acceptability of proposed stormwater management measures in meeting the performance standards set forth in this Chapter. The stormwater management plans shall contain, at a minimum, the following information:

		Y	N	N.A.
1		Name, address, and telephone number for the following or their designees: landowner, developer, project engineer for practice design and certification; person(s) responsible for installation of stormwater management practices; person(s) responsible for maintenance of stormwater management practices prior to the transfer, if any, of maintenance responsibility to another party.		
2		Narrative Description		
	a	A proper legal description of the property proposed to be developed referenced to the U.S. Public Land Survey system or to block and lot numbers within a recorded land subdivision plat.		
	b	Site location including watershed and subwatershed boundaries		
	c	Description of existing and proposed conditions		
	d	Discussion of the stormwater detention approach. Specifically describe which method of management will be used (<i>Volumetric Design Procedure or Peak Discharge Rates</i>). Volumetric Design Procedure must be used for a Multi-Site Analysis. List rainfall, distribution and modeling types used in analysis (Atlas 14, MSE3/SEWRPC Distributions, etc.)		
	e	Summary of Calculations and Results		
3		Pre-development site conditions:		
	a	One or more site maps at a scale of not less than 1 inch equals 100 feet. The site maps shall show the following: site location and legal property description; Owner's property line; district and municipal easements; Public Streets; state plane coordinate reference; storm sewers; existing buildings and structures; existing detention facilities including those of adjacent properties if affected by drainage from the site; predominant soil types and hydrologic soil groups; existing cover type and condition; topographic contours of the site at a scale not to exceed 2 feet; topography and drainage network including enough of the contiguous properties to show runoff patterns onto, through, and from the site (existing contours should extend 100 feet minimum distance into adjacent parcels); watercourses that may affect or be affected by runoff from the site, flow path and direction for all stormwater conveyance sections, including time of travel and time of concentration applicable to each; watershed boundaries		

		used in determination of peak flow discharge rates and discharge volumes from the site; lakes, streams, ponds, channels, ditches, and other watercourses on and immediately adjacent to the site; limits of the 100 year floodplain; location of wells located within 1200 feet of stormwater detention ponds, infiltration basins or infiltration trenches; delineation of wellhead protection areas delineated pursuant to NR 811.16, Wis. Adm. Code.			
	b	Amount of existing impervious surface in square feet and acres.			
	c	Existing Conditions Hydrograph (<i>if Volumetric Design Procedure is used</i>)			
4		Post-development site conditions			
	a	Explanation of the provisions to preserve and use natural topography and land cover features to minimize changes in peak flow runoff rates and volumes to surface waters and wetlands.			
	b	Explanation of any restrictions on stormwater management measures in the development area imposed by wellhead protection plans and ordinances.			
	c	One or more site maps at a scale of not less than 1 inch equals 100 feet showing: revised pervious land use including vegetative cover type and condition; impervious land use including all buildings, structures, and pavement; Owner's property line; revised topographic contours of the site at a scale not to exceed 2 feet; revised drainage network including enough of the contiguous properties to show runoff patterns onto, through, and from the site (existing contours should extend 100 feet minimum distance into adjacent parcels); locations and dimensions of drainage easements; locations of maintenance easements specified in the maintenance agreement; flow path and direction for all stormwater conveyance sections, including time of travel and time of concentration applicable to each; location and type of all stormwater management conveyance and treatment practices, including the on-site and off-site tributary drainage area; location and type of conveyance system that will carry runoff from the drainage and treatment practices to the nearest adequate outlet such as a curbed street, storm drain, or natural drainage way; watershed boundaries used in determinations of peak flow discharge rates and discharge volumes; any changes to lakes, streams, ponds, channels, ditches, and other watercourses on and immediately adjacent to the site.			
	d	Amount of proposed impervious surface in square feet and acres			
	e	Computation of peak flow discharge rates and discharge volumes for the 2-year/24 hour and the 100-year/24 hour storm events. All major assumptions used in developing input parameters shall be clearly stated. The computations shall be made for each discharge point in the development, and the geographic areas used in making the calculations shall be clearly cross-referenced to the required map(s). Must use Atlas 14 rainfall for area and either MSE3/MSE4 or SEWRPC approved distributions.			
	f	Results of investigations of soils and groundwater required for the placement and design of stormwater management measures.			
	g	Results of impact assessments on lake and stream functional values			
	h	Design computations and all applicable assumptions for the stormwater conveyance (open channel, closed pipe) system			
	i	Design computations and all applicable assumptions for stormwater quality practices (sedimentation type, filtration-type, infiltration-type) as needed. For practice designs that depart from those specified in the " <u>Wisconsin Storm Water Manual, Part 2: Technical Design Guidelines for Storm Water Best Management Practices</u> ," the results of continuous simulation modeling, conducted according to the guidelines established in this manual, shall be presented in such a way as to show the reduction in average annual total suspended solids loading from the developed site. For new development, by design, reduce to the maximum extent practicable, the TSS load by 80%, based on an average annual rainfall, as compared to no runoff management controls. No person shall be required to exceed an 80% TSS reduction to meet the requirements of this subdivision. For redevelopment, by design, reduce to the maximum extent practicable, the TSS load by 40%, based on an average annual rainfall, as compared to no runoff management controls. No person shall be required to exceed a 40% TSS reduction to meet the requirements of this subdivision.			

	j	Design computations and all applicable assumptions for stormwater infiltration requirements, per NR151.124. This shall include any exemptions, imperviousness assumptions, and modeling input/output (WinSLAMM or P8)			
	k	Detailed drawings including cross-sections and profiles of all permanent stormwater conveyance and treatment practices			
5		A stormwater practice installation schedule.			
6		A maintenance plan developed for the life of each stormwater management practice including the required maintenance activities and maintenance activity schedule.			
7		Cost estimates for the construction, operation, and maintenance of each stormwater management practice			
8		Other information as needed by the City to determine compliance of the proposed stormwater management measures with the provisions of this Chapter.			
9		All site investigations, plans, designs, computations, and drawings shall be certified by a licensed professional engineer to be prepared in accordance with accepted engineering practice and in accordance with "The Wisconsin Storm Water Manual, Part 2.' Technical Design Guidelines for Storm Water Best Management Practices."			

The Stormwater Management Plan shall contain a description of the following anticipated impacts of stormwater runoff from the proposed development, redevelopment, or land division as managed by the facilities and measures recommended in the plan:

			Y	N	N.A.
10		Computed 100-year, 24-hour, SEWRPC or MSE3/MSE4 Rainfall Distribution runoff rate at each location where runoff enters and leaves the site, expressed in cubic feet per second using Atlas 14 Storm Event			
11		Computed 2-year, 24-hour, SEWRPC or MSE3/MSE4 Rainfall Distribution runoff rate at each location where runoff enters and leaves the site, expressed in cubic feet per second using Atlas 14 Storm Event			
12		Computed peak runoff rate corresponding to 0.15 cfs/acre at each location where runoff leaves the site, expressed in cubic feet per second			
13		Computed peak runoff rate corresponding to 0.50 cfs/acre at each location where runoff leaves the site, expressed in cubic feet per second			
14		For <i>Volumetric Design Procedure</i> , additional items below are required:			
	a	Existing Conditions Hydrograph			
	b	Flood Volume Calculations including the critical time period used, and computations of existing and proposed flood volumes			
15		All major assumptions used in developing input parameters shall be clearly stated. The computations shall be made for each discharge point into and out of the site, and the geographic areas used in making the calculations shall be clearly cross-referenced to the required map(s), including off-site tributary watershed areas			
16		Changes in the locations and conveyance capacities of stormwater discharge points from and to the site concerned			
17		Adequacy of receiving storm sewer, engineered stormwater management facility or watercourse to convey or store the anticipated peak rate of stormwater discharge from the site concerned, giving due consideration to existing and off-site flows			
18		Changes in the location and extent of the 100-year recurrence interval flood hazard area of any perennial watercourse location within, through, or within 100 feet of, the site concerned			
19		Results of investigations of soils and groundwater required for the placement and design of stormwater management measures			

ONCE THE SWMP IS APPROVED, AN APPROVAL LETTER (FROM CITY) AND PACKAGE WILL BE SENT TO MMSD FOR CONCURRENCE!