

Appendix B

TECHNICAL MEMORANDUM: CCSSGI REGULATORY MEMORANDUM



ENGINEERS
PLANNERS
DESIGNERS

SRF No. 0127687 0280

MEMORANDUM

TO: Wes Saunders-Pearce
Water Resource Coordinator

FROM: David Filipiak, PE, CFM

DATE: February 27, 2013

SUBJECT: CENTRAL CORRIDOR SHARED, STACKED GREEN INFRASTRUCTURE
(CCSSGI REGULATORY MEMORANDUM)

Stormwater in the Central Corridor is governed under a number of different regulatory authorities; all within the legal framework identified in the memorandum entitled 'Governmental Authority Relating to Stormwater Infrastructure' (Kennedy and Graven, May 3, 2012). Managing stormwater, and the water resources it flows to, is ever changing, with new technologies and an increasing awareness of the impact on receiving waters due to non-point sources of pollution.

This memorandum is not intended to provide a historical reference nor look into the future of stormwater requirements. Instead, it is intended to provide a snapshot of the rules and regulations that have been applied in the analysis and design of shared, stacked function stormwater concepts developed for the Central Corridor Stormwater and Green Infrastructure study.

Regulations

Projects within the corridor generally need to meet the regulations of the following agencies:

- Cities of Saint Paul and Minneapolis
- Capitol Region Watershed District (CRWD)
- MPCA via the NPDES General Construction Permit

In addition, the Mississippi Watershed Management Organization (MWMO) has a set of guidelines that need to be adhered to if the project is to be submitted for grants from the MWMO.

These rules and guidelines are found in the Table 1. In general, the CCSSGI concepts and advanced designs have, and will continue to, adhere to the following requirements, which are generally the most restrictive of those that apply in each category:

1. Rate Control

- a. Saint Paul – 1.64 cfs/acre for any redevelopment larger than 0.25 acres.

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- b. Minneapolis – No increase over existing (pre-development) conditions for the 2-year, 10-year and 100-year SCS Type II 24-hour rain event. Additional rate control may be required by the SWS reviewer if needed, based on system knowledge of pipe capacity and/or localized flooding issues.

2. Volume Control

- a. Saint Paul (CRWD Criteria)
 - i. Sites less than 1 acre – none required.
 - ii. Sites greater than 1 acre – infiltrate runoff from a 1-inch rainfall (0.9 inches) from impervious surfaces, with a 30 percent increase in volume for filtration-type devices.
- b. Minneapolis (MPCA criteria)
 - i. Sites less than 1 acre – none required.
 - ii. Sites greater than 1 acre – infiltrate ½ inch from new impervious surfaces where soil conditions are conducive to infiltration.

3. Water Quality

- a. Saint Paul – Cumulative increase of impervious surface of 1 acre or more – Water quality volume of ½ inch from new impervious surfaces (treatment via wet sedimentation basin, infiltration/filtration, regional ponds, a combination of practices, or alternative methods) and/or (CRWD criteria) – 90 % TSS removal for the runoff generated by a 2.5-inch rainfall.
- b. Minneapolis – For projects that discharge to Mississippi River, which includes CCSSGI projects: 70% Total Suspended Solids (TSS) removal for the proposed project for runoff generated by a 1.25-inch rainfall and/or (MWMO criteria) – 90% TSS from the 95th percentile daily rainfall total (currently 1.17 inches in 24 hours) over the entire area of the site (not just areas of the site being developed or disturbed).

Anticipated Future Changes

There are a number of initiatives currently being studied and discussed that could change the regulations as they apply to the corridor, including:

- The Minimal Impact Design Standards (MIDS) discussions, which intend to introduce agreed upon computations/etc. for stormwater best management practices.

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- Regular updates to the MS4 programs administered by the MPCA.
- Potential responses by cities to waste load allocations under future TMDL's (total maximum daily load) on downstream water bodies. In the corridor, the Mississippi River is the receiving body.

DWF/bls

Attachment

H:\Projects\7687\WR\DOC\130124 CCSSGI Draft Regulatory Memorandum.docx

TABLE 1 - REGULATORY CRITERIA FOR STORMWATER – SUMMARY

ENTITY	SURFACE WATER QUANTITY- RATE CONTROL	SURFACE WATER QUANTITY- VOLUME CONTROL	SURFACE WATER QUALITY	FLOODPLAIN	PERMIT REQUIREMENTS	OTHER REQUIREMENTS
City of Saint Paul (Chapters 52, 63, and 69)	- Peak stormwater discharge rates from the site for all storms up to and including the critical 100-year frequency will not exceed: $Q = 1.64 \times A$ - where Q = the maximum acceptable discharge rate in cubic feet per second and A = the site area in acres. Discharge of all stormwater runoff and surface water shall be in a fashion so as to preclude drainage onto adjacent property or toward buildings.		- Permanent stormwater pollution controls: - Where a project's ultimate development replaces vegetation and/or other pervious surfaces with one (1) or more acres of cumulative impervious surface, a water quality volume of one-half (½) inch of runoff from the new impervious surfaces created by the project must be treated.	Flood control for buildings: The low floor elevation for new construction must be a minimum of one (1) foot above the critical one hundred-year flood elevation and at least four (4) feet above normal groundwater elevation.	Stormwater Runoff Rate Control: Stormwater runoff rate control is required for sites larger than one-quarter (¼) of an acre which go through the city's site plan review process. Construction activity of one (1) acre or more within the city shall submit a stormwater pollution control plan to the city for approval.	Sustainable stormwater 'overlay' policy for public projects and private projects receiving \$200k in public funding Parking lot stormwater landscape requirements (Section 63.319 (b))
City of Minneapolis (Chapters 54 and 551)	Projects must not increase rate from existing conditions (pre-development) for the 2-year, 10-year, and 100-year, SCS Type II 24 hour storm. Additional rate control may be required by the SWS reviewer if needed, based on system knowledge of pipe capacity and/or localized flooding issues.		For projects on sites 1 acre or more that discharge to Mississippi River, which includes CCSSGI projects: 70% Total Suspended Solids (TSS) removal for the proposed project for runoff generated by a 1.25-inch rainfall	The low floor elevation for new construction must be a minimum of one (1) foot above the critical one hundred-year flood elevation	- For projects on sites 1 acre or more: Stormwater Management Plan must be approved, and typically includes the following elements: - Narrative - Plans and specifications - Site area calculations - Hydrologic and hydraulic modeling results - Water quality modeling results - Operation and maintenance plan - Soil reports - Additional as needed	
Capitol Region Watershed District	- Rate control - Runoff rates shall not exceed existing runoff rates for the 2-year, 10-year, and 100-year critical storm events. - Peak flow rate and the total volume of flow must not cause new water conveyance problems or exacerbate existing water conveyance problems. Enlargement of existing connections is considered a new connection.	- Volume reduction - Stormwater runoff volume reduction shall be achieved onsite in the amount of one inch of runoff from impervious surfaces. - The required Stormwater runoff volume reduction shall be calculated as follows: $\text{Required Volume (ft}^3\text{)} = \text{Impervious surfaces (ft}^2\text{)} \times 1.0 \text{ (in)} \times 0.9 \text{ coefficient} \times 1/12 \text{ (ft/in)}$ - If infiltration is not possible, the volume to be filtrated shall be increased by 30%.	Water quality - Stormwater BMPs shall remove 90% of total suspended solids from the runoff generated by a 2.5-inch rainfall event (NURP water quality storm).	No placement of fill within the 100-year floodplain is allowed unless compensatory storage is provided. Compensatory storage must be provided on the development or immediately adjacent to the development within the affected floodplain. Compensatory storage must be completed prior to or concurrently with permitted floodplain filling.	- Permit required for projects disturbing greater than one acre of land, or 10,000 sq. ft. of land adjacent to a waterbody and repairs, replaces, or creates impervious surface - Permit required for new direct connections or replacement of existing connections to the Trout Brook Storm Sewer Interceptor or other components of CRWD's municipal storm sewer system. CRWD must approve the methods for making a new direct connection or replacing an existing connection.	- Maintenance plans - Pretreatment of infiltration facilities - Design and placement of infiltration BMPs shall be done in accordance with the Minnesota Department of Health guidance called "Evaluating Proposed Stormwater Infiltration Projects in Vulnerable Wellhead Protection Areas." (Final version to govern) - Excess volume reduction may be banked for use on another project. Excess banked volume reduction amounts shall not exceed the volume of two inches over the total drainage area to the BMP

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Mississippi Watershed Management Organization	- Runoff rates for the proposed activity shall not exceed pre-development runoff rates for the Type II distribution 2-, 10-, and 100-year critical storm events (as defined by TP-40 and/or subsequent revisions – see Table 3). - Runoff rates may be restricted to less than the pre-development rates when the capacity of the downstream conveyance system is limited.	Recommended procedures for volume control projects are found in Appendix F of the Watershed Management Plan.	- Projects shall achieve a removal of 90% TSS (Total Suspended Solids) from the 95th percentile daily rainfall total (currently 1.17 inches in 24hrs) over the entire area of the site (not just areas of the site being developed or disturbed). - Alternative compliance is available on in Appendix F of the MWMO Watershed Management Plan.	All habitable buildings, roads, and parking structures on or adjacent to a project site shall comply with the flood control and freeboard requirements depending on 1 of 4 conditions as described in Appendix F.		- Activity shall be phased to minimize disturbed areas subject to erosion at any one time. - Drainage Alterations allowed only under review and City permit
Mississippi Watershed Management Organization Incentivized Standards		The MWMO encourages developers to use volume infiltration practices where site conditions are favorable. The MWMO prefers that sites with soils classified as Hydrologic Soil Group A or B meet the MWMO's water quality standard or goal through infiltration for at least that part of the site where Hydrologic Soil Group A or B soil is present.	- Stormwater best management practices should mimic, as close as feasibly possible, the site's historic water quality condition for the 95th percentile daily rainfall total (1.17 inches in 24hrs). Best management practices shall be selected on the basis of site-specific conditions, including soil types, depth to water table, and the presence of known or suspected contaminated soils. - The MWMO encourages developers to use volume infiltration practices where site conditions are favorable. The MWMO prefers that sites with soils classified as Hydrologic Soil Group A or B meet the MWMO's water quality standard or goal through infiltration for at least that part of the site where Hydrologic Soil Group A or B soil is present.		All Member Grant, Greening and capital projects funded by the MWMO will need to meet the Standards defined in section 3.1.3 The MWMO's Standards Language. In addition, funding requests for capital projects that work towards achieving the following rate, water quality and volume goals for onsite stormwater treatment will benefit in the MWMO's project selection process.	
Minnesota Pollution Control Agency via the NPDES Construction Stormwater Permit Program			For projects adding one or more acres of connected impervious surface: - Treat ½ inch of runoff from the new impervious surfaces by one of the following: - Wet Sedimentation Basin, a) Infiltration (required if within 1 mile of the Mississippi River in b) /Filtration designed for 80% TSS removal, 3. Regional ponds designed for no more than 5.66 cfs per acre discharge, 4. A combination of the above practices, or 5. An alternative, pre-approved method designed to achieve 80% TSS on an average annual basis. - Linear projects may use grasses swales, smaller ponds or grit chambers, if amount of available right of way is lacking.		- The development and implementation of a SWPPP is required when an NPDES Permit is needed (see below). - The NPDES Permit is required for stormwater discharges associated with construction activity (5 acres or more) and with small construction activity (1 acre or more that is part of a common plan or development) as defined in 40 C.F. R. part 122.26(b)(14)(x) and (b)(15).	Include access for maintenance of outlet structure and of the facility in general.