City of Loveland

Base Design Standard Worksheet for Post Construction Control Measures

DEVELOPMENT NAME:

DEVELOPER/PROPERTY OWNER NAME:

PERMIT #:

DEVELOPMENT LOCATION:

The City of Loveland requires Permanent Stormwater Quality Control Measures on all development and redevelopment within COL including those under 1 acre of disturbance. These Permanent Stormwater Quality Control Measure(s) must meet a Base Design Standard as outline within the Colorado Department of Public Health and Safety (CDPS) Permit No. COR090000. The "base design standard" is the minimum design standard for new development and redevelopment. The purpose of this worksheet is to demonstrate which of the "minimum base standards" are being met on the development/redevelopment and to demonstrate to the COL how the minimum base design standards were met. The worksheet shall address each requirement set forth in the most recent modification of the Colorado Department of Public Health and Safety (CDPS) Permit No. COR090000. The COL refers to the Colorado Department of Public Health and Safety (CDPS) Permit No. COR090000 for definition of development/redevelopment and for exclusions to this requirement.

Please check all that apply to the development/redevelopment being submitted:

☐ **(A) WQCV Standard:**

The control measure(s) is designed to provide treatment and/or infiltration of the WQCV and:

1) 100% of the applicable development site is captured, except the permittee may exclude up to 20 percent, not to exceed 1 acre, of the applicable development site area when the permittee has determined that it is not practicable to capture runoff from portions of the site that will not drain towards control measures. In addition, the permittee must also determine that the implementation of a separate control measure for that portion of the site is not practicable (e.g., driveway access that drains directly to street).

2) Evaluation of the minimum drain time shall be based on the pollutant removal mechanism and functionality of the control measure implemented. Consideration of drain time shall include maintaining vegetation necessary for operation of the control measure (e.g., wetland vegetation).

☐ **(B) Pollutant Removal Standard:**

The control measure(s) is designed to treat at a minimum the 80th percentile storm event. The control measure(s) shall be designed to treat stormwater runoff in a manner expected to reduce the event mean concentration of total suspended solids (TSS) to a median value of 30 mg/L or less.

1) 100% of the applicable development site is captured, except the permittee may exclude up to 20 percent not to exceed 1 acre of the applicable development site area when the permittee has

determined that it is not practicable to capture runoff from portions of the site that will not drain towards control measures. In addition, the permittee must also determine that the implementation of a separate control measure for that portion of the site is not practicable (e.g., driveway access that drains directly to street).

☐ **(C) Runoff Reduction Standard:**

The control measure(s) is designed to infiltrate into the ground where site geology permits, evaporate, or evapotranspire a quantity of water equal to 60% of what the calculated WQCV would be if all impervious area for the applicable development site discharged without infiltration. This base design standard can be met through practices such as green infrastructure. "Green infrastructure" generally refers to control measures that use vegetation, soils, and natural processes or mimic natural processes to manage stormwater. Green infrastructure can be used in place of or in addition to low impact development principles.

☐ **(D) Applicable Development Site Draining to a Regional WQCV Control Measure:**

The regional WQCV control measure must be designed to accept the drainage from the applicable development site. Stormwater from the site must not discharge to a water of the state before being discharged to the regional WQCV control measure. The regional WQCV control measure must meet the requirements of the WQCV in Part as described in *Colorado Department of Public Health and Safety (CDPS) Permit No. COR090000,* I.E.4.a.iv(A).

☐ **(E) Applicable Development Site Draining to a Regional WQCV Facility:**

The regional WQCV facility is designed to accept drainage from the applicable development site. Stormwater from the site may discharge to a water of the state before being discharged to the regional WQCV facility. Before discharging to a water of the state, at least 20 percent of the upstream imperviousness of the applicable development site must be disconnected from the storm drainage system and drain through a receiving pervious area control measure comprising a footprint of at least 10 percent of the upstream disconnected impervious area of the applicable development site. The control measure must be designed in accordance with a design manual identified by the permittee. In addition, the stream channel between the discharge point of the applicable development site and the regional WQCV facility must be stabilized.

The regional WQCV facility must meet the following requirements:

1) The regional WQCV facility must be implemented, functional, and maintained following good engineering, hydrologic and pollution control practices.

2) The regional WQCV facility must be designed and maintained for 100% WQCV for its entire drainage area.

3) The regional WQCV facility must have capacity to accommodate the drainage from the applicable development site.

4) The regional WQCV facility be designed and built to comply with all assumptions for the development activities planned by the permittee within its drainage area, including the imperviousness of its drainage area and the applicable development site.

5) Evaluation of the minimum drain time shall be based on the pollutant removal mechanism and functionality of the facility. Consideration of drain time shall include maintaining vegetation necessary for operation of the facility (e.g., wetland vegetation).

6) The permittee shall meet the requirements in *Colorado Department of Public Health and Safety (CDPS) Permit No. COR090000,*Parts I.E.4.a.v. and vii. and Part I.E.4.b. for the regional WQCV facility consistent with requirements and actions for control measures.

7) The regional WQCV facility must be subject to the permittee's authority consistent with requirements and actions for a Control Measure in accordance with *Colorado Department of Public Health and Safety (CDPS) Permit No. COR090000,* Part I.E.4.a.iv.

8) Regional Facilities must be designed and implemented with flood control or water quality as the primary use. Recreational ponds and reservoirs may not be considered Regional Facilities.

☐ **(F) Constrained Redevelopment Sites Standard:**

1) Applicability: The constrained redevelopment sites standard applies to redevelopment sites meeting the following criteria:

(a) The applicable redevelopment site is for a site that has greater than 75% impervious area, and

(b) The permittee has determined that it is not practicable to meet any of the design standards in Parts (A),(B), or (C).

2) Constrained Redevelopment Sites Design Standard: The control measure(s) is designed to meet one of the following:

(a) Provide treatment of the WQCV for the area captured. The captured area shall be 50% or more of the impervious area of the applicable redevelopment site. Evaluation of the minimum drain time shall be based on the pollutant removal mechanism and functionality of the control measure implemented,

(b) The control measure(s) is designed to provide for treatment of the 80th percentile storm event. The control measure(s) shall be designed to treat stormwater runoff in a manner expected to reduce the event mean concentration of total suspended solids (TSS) to a median value of 30 mg/L or less. A minimum of 50% of the applicable development area including 50% or more of the impervious area of the applicable development area shall drain to the control measure(s). This standard does not require that 100% of the applicable redevelopment site area be directed to control measure(s) as long as the overall removal goal is met or exceeded (e.g., providing increased removal for a smaller area), or

(c) Infiltrate, evaporate, or evapotranspirate, through practices such as green infrastructure, a quantity of water equal to 30% of what the calculated WQCV would be if all impervious area for the applicable redevelopment site discharged without infiltration.

Please provide a narrative describing how the development/redevelopment meets the above checked Base Design Standard/s and any supporting documentation and/or calculations that support meeting the above checked Base Design Standard/s.

The following are permissible exclusions to the Base Design Standard, please check all that apply and include supporting documentation to demonstrate how the development/redevelopment meets the criteria for an exclusion:

☐ **(A) "Pavement Management Sites":**

Sites, or portions of sites, for the rehabilitation, maintenance, and reconstruction of roadway pavement, which includes roadway resurfacing, mill and overlay, white topping, black topping, curb and gutter replacement, concrete panel replacement, and pothole repair. The purpose of the site must be to provide additional years of service life and optimize service and safety. The site also must be limited to the repair and replacement of pavement in a manner that does not result in an increased impervious area and the infrastructure must not substantially change. The types of sites covered under this exclusion include day-to-day maintenance activities, rehabilitation, and reconstruction of pavement. "Roadways" include roads and bridges that are improved, designed or ordinarily used for vehicular travel and contiguous areas improved, designed or ordinarily used for pedestrian or bicycle traffic, drainage for the roadway, and/or parking along the roadway. Areas primarily used for parking or access to parking are not roadways.

☐ **(B) Excluded Roadway Redevelopment:**

Redevelopment sites for existing roadways, when one of the following criteria is met:

1) The site adds less than 1 acre of paved area per mile of roadway to an existing roadway, or

2) The site does not add more than 8.25 feet of paved width at any location to the existing roadway.

☐ **(C) Excluded Existing Roadway Areas:**

For redevelopment sites for existing roadways, only the area of the existing roadway is excluded from the requirements of an applicable development site when the site does not increase the width by two times or more, on average, of the original roadway area. The entire site is not excluded from being considered an applicable development site for this exclusion. The area of the site that is part of the added new roadway area is still an applicable development site.

☐ **(D) Aboveground and Underground Utilities:**

Activities for installation or maintenance of underground utilities or infrastructure that does not permanently alter the terrain, ground cover, or drainage patterns from those present prior to the construction activity. This exclusion includes, but is not limited to, activities to install, replace, or maintain utilities under roadways or other paved areas that return the surface to the same condition.

☐ **(E) Large Lot Single Family Sites:**

A single-family residential lot, or agricultural zoned lands, greater than or equal to 2.5 acres in size per dwelling and having a total lot impervious area of less than 10 percent. A total lot imperviousness greater than 10 percent is allowed when a study specific to the watershed and/or MS4 shows that expected soil and vegetation conditions are suitable for infiltration/filtration of the WQCV for a typical

site, and the permittee accepts such study as applicable within its MS4 boundaries. The maximum total lot impervious covered under this exclusion shall be 20 percent.

☐ **(F) Non-Residential and Non-Commercial Infiltration Conditions:**

This exclusion does not apply to residential or commercial sites for buildings. This exclusion applies to applicable development sites for which post-development surface conditions do not result in concentrated stormwater flow during the 80th percentile stormwater runoff event. In addition, post-development surface conditions must not be projected to result in a surface water discharge from the 80th percentile stormwater runoff events. Specifically, the 80th percentile event must be infiltrated and not discharged as concentrated flow. For this exclusion to apply, a study specific to the site, watershed and/or MS4 must be conducted. The study must show rainfall and soil conditions present within the permitted area; must include allowable slopes, surface conditions, and ratios of impervious area to pervious area; and the permittee must accept such study as applicable within its MS4 boundaries.

☐ **(G) Sites with Land Disturbance to Undeveloped Land that will Remain Undeveloped:**

Permittees may exclude sites with land disturbance to undeveloped land (land with no human-made structures such as buildings or pavement) that will remain undeveloped after the site.

☐ **(H) Stream Stabilization Sites:**

Permittees may exclude stream stabilization sites.

☐ **(I) Trails:**

Permittees may exclude bike and pedestrian trails. Bike lanes for roadways are not included in this exclusion, unless attached to a roadway that qualifies under another exclusion in this section.

☐ **(J) Oil and Gas Exploration:**

Permittees may exclude facilities associated with oil and gas exploration, production, processing, or treatment operations, or transmission facilities, including activities necessary to prepare a site for drilling and for the movement and placement of drilling equipment, whether or not such field activities or operations may be considered to be an applicable construction activity.

☐ **(K) Less than 1 Acre**

Permitees may exclude facilities where land disturbance is less than 1 acre and site is not part of a common plan of development. This exclusion will only be permitted if permitee demonstrates a stormwater facility cannot be installed meeting any of the base design standards. This exclusion must be approved by City of Loveland Stormwater Engineer. Most sites under this exclusion will be required to provide stormwater quality but may not be required to meet base design standards criteria.

"I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. The information submitted is to the best of my knowledge and belief, true, accurate and complete. "

Name: Signature:

Date: