PHASE II DRAINAGE REPORT

King Soopers Store #165
Lot 1, Dawson Trails Filing No. 2, Amendment 4
Castle Rock, CO
SDP25-0015

PREPARED FOR:
King Soopers Inc.
65 Tejon Street
Denver, CO 80223
Attn: Mike Scheckel

PREPARED BY:
Galloway & Company, LLC
5500 Greenwood Plaza Boulevard, Suite 200
Greenwood Village, CO 80111

DATE:
November 17, 2025

REVISED:
February 6, 2026
May 5, 2026

King Soopers Store #165– Dawson Trails
May 5, 2026

ENGINEER'S STATEMENT

I affirm that this report and plan for the Phase II drainage design for King Soopers Store #165 was prepared by me (or under my direct supervision) in accordance with the provisions of the Town of Castle Rock Drainage Design and Technical Criteria for the owners thereof. I understand that the Town of Castle Rock does not and will not assume liability for drainage facilities designed by others.

Jennifer Romano, PE #44401
For and on behalf of Galloway & Company, LLC

I hereby certify that the drainage facilities for Phase II drainage design for King Soopers Store #165 will be constructed according to the design presented in this report. I understand that the Town of Castle Rock does not and will not assume liability for drainage facilities designed or reviewed by my engineer. I also understand that the Town of Castle Rock relies on the representations of others to establish that drainage facilities are designed and built in compliance with applicable guidelines, standards, or specifications. Review by the Town of Castle Rock can therefore in no way limit or diminish any liability which I or any other party may have with respect to the design or construction of such facilities.

(Owner/Applicant) AGM Dawson Trails VIII LLC

By: _____, Authorized Signatory

Date: 7/14/26

TABLE OF CONTENTS

II. GENERAL LOCATION AND DESCRIPTION

SITE LOCATION

The project, referred to herein as the 'site' or 'development,' is situated within Tract A of Dawson Trails Filing No. 2, in the Town of Castle Rock, Douglas County, Colorado. Dawson Trails spans portions of Sections 21, 22, 27, and 28, Township 8 South, Range 67 West of the sixth principal meridian. The site is located west of the BNSF railway, south of Territorial Road, west of Dawson Trails, and east of Gambel Ridge Boulevard, encompassing the entire Tract A of Dawson's Trail Filing No. 2. Refer to **Appendix A** and **Appendix C**.

Tract A is located within Planning Area E-2 of the Dawson Trails Planned Development Project (PDP). This zone is designated for mixed-use development, emphasizing pedestrian accessibility and offering a variety of opportunities for shopping, employment, housing, and recreation. Nonresidential uses are permitted within this planning area. For additional information, please reference **Appendix C.**

DESCRIPTION OF PROPERTY

The undeveloped Tract A spans approximately ± 21.45 acres. The overall development plan involves subdividing Tract A into four lots, with the King Soopers parcel designated as the first to be developed. A comprehensive stormwater, water, and sewer infrastructure system will be installed to support the development.

The King Soopers site covers roughly 12 acres. Proposed improvements include constructing the building, sidewalks, paved areas, landscaping, utility connections, and stormwater management, all in accordance with the Town of Castle Rock land development code.

Tract A consists of vacant land primarily covered with native grass. The topography generally slopes from southwest to northeast, with runoff directed to an existing inlet permitted with Filing No. 2 of Dawson Trails. The slope gradients range from 3% to 4% in current conditions.

According to the Natural Resources Conservation Service Web Soil Survey, the site features a variety of soil types and Hydrologic Soil Groups (HSGs), including:

- Bresser-Truckton Sandy Loam, HSG B
- Fondis-Kutch association, HSG C
- Sampson Loam, HSG B

The predominant soil group on-site is HSG C, characterized by slow water infiltration rates due to layers that hinder water movement or soils with moderately fine or fine textures. These soils transmit water slowly. Refer to Appendix A for detailed soil information.

The property lacks significant geological features and is not near irrigation canals or ditches. Currently, the site is classified as Flood Zone X, as indicated by FEMA Flood Hazard Map #08035C0284G, effective as of March 16, 2016.

A geotechnical report is unavailable at the time of this Phase II drainage report. A geotechnical report will be provided in the Phase III drainage report.

III. DRAINAGE BASINS AND SUB BASINS

MAJOR DRAINAGE BASINS

The site is part of the Gambel Ridge Tributary. Water flows within this basin typically drain eastward through existing culverts located beneath the BNSF railroad and Interstate 25 with ultimate discharge into East Plum Creek.

The tributary basins feeding into Gambel Ridge generally encompass road rights-of-way for Gambel Ridge Boulevard, Dawson Trails Boulevard, and Crystal Valley Parkway, as well as Planning Areas E1, E2, F2, and F3. Tract A lies within Planning Area E2 as referenced in the Dawson Trails Filing No. 2.

Tract A covers approximately ± 21.45 acres and is identified as Drainage Basin C-4 in the post-development basin map outlined in the Dawson Trails Filing No. 2 drainage report by EMK Consultants, LLC, dated December 16, 2024. Refer to **Appendix C**.

Post development Basin C-4 was intended to drain into the regional detention pond C1. Pond C1 is designed to manage water quality and detention for the developed conditions of Tract A, assuming 75% imperviousness. All parcels subdivided within Tract A are required to employ site specific conveyance-based control measures.

MINOR DRAINAGE BASINS

The developed condition of Tract A allocates 75% imperviousness for all proposed lots, which is incorporated into the design of the offsite regional detention pond C1. The land use for the outparcels is currently unspecified but will comply with the permitted uses outlined in the Dawson Trails PDP.

Pond C1 designed Tract A based on a maximum imperviousness of 75%. While individual lots may exceed or fall below this threshold, the total imperviousness across the entire commercial plat will not exceed the 75% limit. Compliance will be demonstrated through a comprehensive imperviousness tracking spreadsheet, referenced in the **Appendix A**. This will ensure that the cumulative imperviousness of all parcels remains within the overall design allowance, regardless of variations on individual lots.

The King Sooper site provides conveyance-based Control measures. The master stormwater system for Tract A will consist of receiving pervious areas (swales), inlets, curb and gutter, and storm sewer pipes, with a downstream connection to the existing stormwater stub provided in the design of Dawson Trails Filing No. 2. Flows will discharge offsite to the regional detention pond C1.

OS Basins: These basins include the proposed outparcels, with a developed condition assumed to be 75% imperviousness. Runoff patterns from these OS basins will mimic existing conditions, as the parcels will remain in stabilized vegetated condition.

P Basins: These basins encompass the King Sooper site, including the building, asphalt parking, drive aisles, sidewalks, and landscaping. Runoff from these basins are directed to receiving pervious areas (RPAs) before entering the master stormwater infrastructure and then routed offsite to the regional detention Pond C1.

U Basins: These are un-detained basins, primarily landscape areas, which discharge directly offsite, and runoff is collected via curb and gutter to existing roadway inlets.

Additional information will be included in the Phase III drainage report.

IV. DRAINAGE DESIGN CRITERIA

REGULATION

This Phase II Drainage Report has been prepared in accordance with the Town of Castle Rock Storm Drainage Design and Technical Criteria Manual and the Mile High Flood District (MHFD) Urban Storm Drainage Criteria Manual Volumes 1-3 (USDCM). The proposed onsite stormwater infrastructure will meet the requirements of the Town of Castle Rock drainage standards, including design rainfall, inlet capacity analysis, pipe velocities, runoff reduction measures, and maintenance provisions.

DRAINAGE STUDIES, MASTER PLANS, SITE CONSTRAINTS

The Dawson Trails Filing No. 2 project includes a comprehensive stormwater management system designed to handle runoff from approximately 435.62 acres of land. This system features water quality ponds and regional detention ponds to effectively manage stormwater. Runoff from Tract A is directed to an offsite regional detention pond, designated as C1.

Pond C1 plays a vital role in the drainage system for Dawson Trails Filing No. 2 by providing detention and water quality treatment for development parcels in the lower part of the Gambel Ridge Watershed.

The King Soopers site is located within Tract A of the Dawson Trails Planned Development Project (PDP). The Phase III Drainage Report, prepared by EMK Consultants, LLC, estimates 75% imperviousness for future development of Tract A and includes a stormwater connection for the development of Tract A. Relevant excerpts from this report are provided in **Appendix C**.

HYDROLOGY

The methodology used to determine the rainfall and runoff for the proposed stormwater system is based on the Town of Castle Rock Storm Drainage Design and Technical Manual. The rainfall Intensity-Duration-Frequency data was pulled from Figure 6-1 of the Town of Castle Rock Storm Drainage Design and Technical Manual for use with the Rational Method of runoff analysis. Reference **Appendix A** for the IDF table. Peak runoff flows from the minor (5-year) and major (100-yr) storm events were estimated and provided in **Appendix A**.

The Rational Method was utilized to estimate the peak flow at each designated point. All rational method design calculations were completed utilizing Standard SF-2 and SF-3 forms. Results from the rational method calculations are provided in **Appendix A.**

The 2-year, 5-year and 100-year storm events are the basis for the preliminary drainage system design. The 2-year storm is used to size the conveyance-based Control measures. The 5-year storm is used

for the minor drainage system design. The 100-year storm is used for the major drainage system design.

HYDRAULICS

The information necessary to perform the hydraulic computations for the development is unavailable at the time of the Phase II Drainage Report. However, a conceptual analysis of hydraulics is presented in detail below.

Inlet Capacity

Inlet capacities for minor and major flows, the 5-year and 100-year storms, respectively, will be analyzed and conform to Volume 1 of the MHFD manual. The procedures used to define the capacity of standard inlets for calculating inlet capacities under continuous grade or sump conditions will follow the Town of Castle Rock Storm Drainage Design and Technical Manual.

Storm Sewer

The storm drain system hydraulic analysis will be completed using Bentley StormCAD V8i. This software routes flows based on the longest upstream Time of Concentration (t_c) at each junction. Given the controlling t_c, StormCAD V8i calculates the flow at the junction with the corresponding intensity (e.g., i_5 and i_{100}) and aggregate CA. All storm sewer pipes will be sized for the 100-year storm event. Hydraulic grade lines for the storm drain system will be calculated using StormCAD V8i.

Drainage Swales

The grass-lined swales within the project are provided to meet conveyance-based Control measures. We are disconnecting as much impervious area as we can from the stormwater system and drain through a receiving pervious area (RPA). Calculations for the water quality runoff reduction are provided in **Appendix B** and utilized SCM-V4.02**.**

Detention and Water Quality Storage Facility

The offsite regional detention pond C1 has been designed to account for water quality and 100-year detention volumes for the entirety of Tract A. No additional onsite detention or water quality treatment is required.

WATER QUALITY ENHANCEMENT

The Town of Castle Rock requires development to promote infiltration, attenuation, and water quality enhancement. The King Soopers site will provide grass lined swales (RPAs) to meet runoff reduction and water quality enhancement. Calculations for the water quality runoff reduction are provided in **Appendix B.**

V. STORMWATER MANAGEMENT FACILITY DESIGN

STORMWATER CONVEYANCE

The commercial development is organized into three primary basins: OS Basins, U Basins, and P Basins. The site will be subdivided, including three commercial outparcels and the King Soopers site. The outparcels will remain in a vacant and vegetated state, while the King Soopers site will be developed. Runoff from the basins will be collected through receiving pervious areas (RPAs), curb and gutter, inlets, and stormwater pipes installed as part of the King Soopers permit. All outlets created by the plat will be required to adhere to the maximum 75% imperviousness.

STORMWATER STORAGE FACILITIES

The stormwater storage facility (Pond C1) that will receive runoff from this development has been previously designed and permitted under Dawson Trails Filing No. 2. The allotted imperviousness for Tract A is 75%. The composite imperviousness of the King Sooper parcel is 75%. All parcels created by the commercial plat will be required to adhere to the maximum imperviousness of 75%.

The following is a detailed description of the proposed onsite developed drainage patterns and conveyance facilities. Refer to the Drainage Plan located in **Appendix D** of this report. Pipe routing and hydraulics will be included in the Phase III Drainage Report.

Sub-basin OS-1 is approximately 3.86 acres and is comprised of the outparcel located on the southwest of the site. This basin is allotted to have 75% imperviousness in design calculations and will be conveyed to design point OS1. This basin will remain undisturbed until it gets developed in the future.

Sub-basin OS-2 is approximately 3.15 acres and is comprised of the outparcel located on the southeast of the site. This basin is allotted to have 75% imperviousness in design calculations and will be conveyed to design point OS2. This basin will remain undisturbed until it gets developed in the future.

Sub-basin OS-3 is approximately 2.23 acres and is comprised of the outparcel located on the north of the site. This basin is allotted to have 75% imperviousness in design calculations and will be conveyed to design point OS3. This basin will remain undisturbed until it gets developed in the future.

Sub-basin P-1 (1.15 AC, Q_5= 4.6 cfs, Q_{100}= 9.1 cfs): comprised of landscape areas, parking and a portion of the retail building; with a 95.0% impervious surface area. Runoff from this basin be conveyed through stormwater infrastructure. This basin is considered DCIA and will be collected by a curb inlet and connected to the stormwater infrastructure prior to discharging offsite.

Sub-basin P-1A (0.24 AC, Q_5= 0.6 cfs, Q_{100}= 1.3 cfs): comprised of landscape areas and the rear drive aisle of the retail building with a 59.2% impervious surface area. Runoff from this basin be conveyed through stormwater infrastructure.

Sub-basin P-1B (0.25 AC, Q_5= 0.5 cfs, Q_{100}= 1.1 cfs): comprised of landscape areas, parking and drive aisles; with a 52.0% impervious surface area. Runoff from this basin be conveyed through stormwater

infrastructure. This basin is considered DCIA and will be collected by a curb inlet and connected to the stormwater infrastructure prior to discharging offsite.

Sub-basin P-1C (0.77 AC, Q_5= 2.5 cfs, Q_{100}= 4.9 cfs): comprised of landscape areas, parking and drive aisles; with a 73.7% impervious surface area. Runoff from this basin be conveyed through stormwater infrastructure. This basin is considered DCIA and will be collected by a curb inlet and connected to the stormwater infrastructure prior to discharging offsite.

Sub-basin P-1D (0.55 AC, Q_5= 1.7 cfs, Q_{100}= 3.3 cfs): comprised of landscape areas, parking and receiving pervious area RPA1; with a 71.9% impervious surface area. Runoff from this basin be conveyed through stormwater infrastructure. This basin is considered DCIA and will be collected by a curb inlet and connected to the stormwater infrastructure prior to discharging offsite.

Sub-basin P-1E (0.32 AC, Q_5= 0.8 cfs, Q_{100}= 1.6 cfs): comprised of landscape areas, parking and receiving pervious area RPA1; with a 56.3% impervious surface area. Runoff from this basin will sheet flow into the receiving pervious area (RPA1).

Sub-basin P-2 (1.13 AC, Q_5= 4.5 cfs, Q_{100}= 9.0 cfs): comprised of landscape areas, parking and a portion of the retail building with a 95.0% impervious surface area. Runoff from this basin is considered DCIA and will be collected by a curb inlet and connected to the stormwater infrastructure prior to discharging offsite.

Sub-basin P-2A (0.43 AC, Q_5= 1.2 cfs, Q_{100}= 2.5 cfs): comprised of landscape areas and the rear drive aisle of the retail building; with a 65.5% impervious surface area. Runoff from this basin is considered DCIA and will be collected by a curb inlet and connected to the stormwater infrastructure prior to discharging offsite.

Sub-basin P-2B (0.45 AC, Q_5= 1.1 cfs, Q_{100}= 2.2 cfs): comprised of parking and landscape areas; with a 54.9% impervious surface area. Runoff from this basin will sheet flow into the receiving pervious area (RPA2).

Sub-basin P-2C (1.53 AC, Q_5= 4.4 cfs, Q_{100}= 8.8 cfs): comprised of parking and landscape areas; with a 68.4% impervious surface area. Runoff from this basin will sheet flow into the receiving pervious area (RPA2).

Sub-basin P-3 (0.98 AC, Q_5= 3.0 cfs, Q_{100}= 6.1 cfs): comprised of parking and landscape areas; with a 72.5% impervious surface area. Runoff from this basin will sheet flow into the receiving pervious area (RPA3).

Sub-basin P-4 (1.49 AC, Q_5= 5.6 cfs, Q_{100}= 11.2 cfs): comprised of parking and landscape areas; with a 89.2% impervious surface area. Runoff from this basin is considered DCIA and will be collected by a curb inlet and connected to the stormwater infrastructure prior to discharging offsite.

Sub-basin P-5 (1.20 AC, Q_5= 4.4 cfs, Q_{100}= 8.7 cfs): comprised of parking and landscape areas; with a 86.8% impervious surface area. Runoff from this basin is considered DCIA and will be collected by a curb inlet and connected to the stormwater infrastructure prior to discharging offsite.

Sub-basin P-6 (0.66 AC, Q_5= 2.5 cfs, Q_{100}= 5.0 cfs): comprised of the fueling site and landscape areas; with a 90.4% impervious surface area. Runoff from this basin is considered DCIA and will be collected by a curb inlet and connected to the stormwater infrastructure prior to discharging offsite.

Sub-basin U-1 (0.12 AC, Q_5= 0.25 cfs, Q_{100}= 0.5 cfs): an undetained basin comprised of landscape areas and sidewalk; with a 50.8% impervious surface area. Runoff from this basin discharges offsite to be collected in the existing curb and gutter along Dawson Trails Boulevard.

Sub-basin U-2 (0.29 AC, Q_5= 0.29 cfs, Q_{100}= 0.6 cfs): an undetained basin comprised of landscape areas and sidewalk; with a 20.0% impervious surface area. Runoff from this basin discharges offsite to be collected in the existing curb and gutter along Dawson Trails Boulevard.

Sub-basin U-3 (0.14 AC, Q_5= 0.20 cfs, Q_{100}= 0.4 cfs): an undetained basin comprised of landscape areas and sidewalk; with a 34.1% impervious surface area. Runoff from this basin discharges offsite to be collected in the existing curb and gutter along Dawson Trails Boulevard.

Sub-basin R-1 (0.11 AC, Q_5= 0.39 cfs, Q_{100}= 0.8 cfs): comprised of the internal driveway; with a 86.0% impervious surface area. Runoff from this basin is considered DCIA and will be collected by a curb inlet and connected to the stormwater infrastructure prior to discharging offsite.

Sub-basin R-2 (0.42 AC, Q_5= 1.37 cfs, Q_{100}= 2.7 cfs): comprised of the internal driveway; with a 76.6% impervious surface area. Runoff from this basin is considered DCIA and will be collected by a curb inlet and connected to the stormwater infrastructure prior to discharging offsite.

Sub-basin R-2A (0.30 AC, Q_5= 0.98 cfs, Q_{100}= 2.0 cfs): comprised of the internal driveway; with a 79.0% impervious surface area. Runoff from this basin is considered DCIA and will be collected by a curb inlet and connected to the stormwater infrastructure prior to discharging offsite.

WATER QUALITY ENHANCEMENT BEST MANAGEMENT PRACTICES

The proposed drainage system is designed to safely convey the storm runoff generated from the proposed commercial development and provides conveyance-based BMP's by minimizing directly connected impervious areas. The runoff reduction practice reduces runoff peaks, volumes, and pollutant loads from urbanizing areas.

Runoff from the lots will sheet flow and be collected by proposed storm sewers which will convey the major storm event. Runoff from the site will be diverted within each subbasin via curb and gutter toward various inlets and drainage swales onsite and convey flows through a storm drainage system toward the northeast where the system will connect into the existing storm drain system within Dawson Trails Filing No. 2 by connecting to the existing storm stub. From this connection point, flows will be conveyed into the existing public regional detention pond, Pond C1.

Private on-site water quality treatment and detention are not required since the regional pond C1 is sized to handle flows from the developed condition of the site. However, runoff reduction practices are provided onsite to enhance water quality.

The Four Step Process is used to minimize the adverse impacts of urbanization and is a vital component of developing a balanced, sustainable project. Below identifies the approach to the four-step process:

1. Employ Runoff Reduction Practices

This step uses Low Impact Development (LID) practices to reduce runoff at the source. Optimally, runoff is routed through pervious areas to promote infiltration rather than creating point discharges that are directly connected to impervious areas. Several receiving pervious areas (RPA's) are provided to meet the requirements for runoff reduction. Stormwater will be diverted to slotted curb which will route stormwater to shallow swales that use the plant and soil systems to slow flows and promote infiltrations prior to entering the storm system. A runoff reduction spreadsheet can be found in **Appendix B** quantifying the expected reduction of the overall water quality control volume for the site along with an accompanying exhibit visually showing the SPA, RPA, DCIA, and UIA and the respective upstream impervious areas tributary to each. Flows that do not infiltrate will reach a downstream inlet and be routed via proposed private storm sewer to the northeast corner of the project site where they will be conveyed to an offsite regional detention pond.

2. Implement BMP's That Provide a Water Quality Capture Volume with Slow Release

This step utilizes formalized water quality capture volume to slow the release of runoff from the site. Stormwater from this site will be conveyed to an existing offsite regional detention facility which provides water quality and storage volume up to the 100-year storm event. The outlet structure is designed to provide a controlled release rate for various return period storms. Because this site was previously accounted for in the design of the offsite regional detention pond, the pond meets the required water quality drain times.

3. Stabilize Drainageways

This step implements stabilization to channels to accommodate developed flows while protecting infrastructure and controlling sediment loading from erosion in the drainageways. There are no existing drainageways located on-site. No drainageways are being proposed. Runoff from the site will be piped to the northeast corner of the site and connect to the existing storm sewer system of Dawson Trails.

4. Implement Site Specific and Other Source Control Measures

The proposed site is planned as a multi-tenant commercial development. Each lot must implement both structural and non-structural source controls to minimize the risk of illicit, direct, or indirect discharges into the stormwater system. All sanitary sewer gravity mains and services will be connected to the wastewater infrastructure, strictly prohibiting any connection to the stormwater system.

Public education is a key source control measure, focusing on topics such landscaping maintenance, leaf disposal, and responsible use of deicers during snow melt. A strict no vehicle maintenance policy will be enforced onsite to prevent potential contaminants from activities such as fluid changes, equipment replacement, and repairs. Private contractors will manage landscaping and snow removal, ensuring that lawn mowing, grass clipping disposal, aeration, and fertilizer application adhere to all operational and maintenance requirements designed to protect water quality.

FLOODPLAIN MODIFICATION
No floodplain modifications are required for this development.

OPERATION AND MAINTENANCE
The commercial property will be subdivided, and a property owner's association, or similar, will be established to serve as the entity responsible for operation and maintenance. An Operation and Maintenance Manual will be included with the Phase III Drainage Report. This manual will outline the required periodic maintenance activities to ensure that all drainage facilities function properly and fulfill their purpose of minimizing the potential for illicit discharges into the stormwater system. Inspection and maintenance requirements for all source control measures will also be detailed in the Phase III Drainage Report.

ADDITIONAL PERMITTING REQUIREMENTS
No additional permitting requirements are required for this development.

VI. CONCLUSIONS

COMPLIANCE WITH STANDARDS
The proposed storm drainage design has been performed in accordance with the Town of Castle Rock Storm Drainage Design and Technical Criteria Manual and the Mile High Flood District (MHFD) Urban Storm Drainage Criteria Manual Volumes 1-3 (USDCM).

VARIANCES
No variance(s) requested at this time.

DRAINAGE CONCEPT
The proposed drainage system is designed to properly and safely reduce peak runoff, and pollutant loads and convey the developed runoff offsite to regional detention pond C1. This project will not have adverse downstream impacts and is designed in conformance with the Dawson Trails Filing No. 2 Phase III Final Drainage Report.

VII. REFERENCES

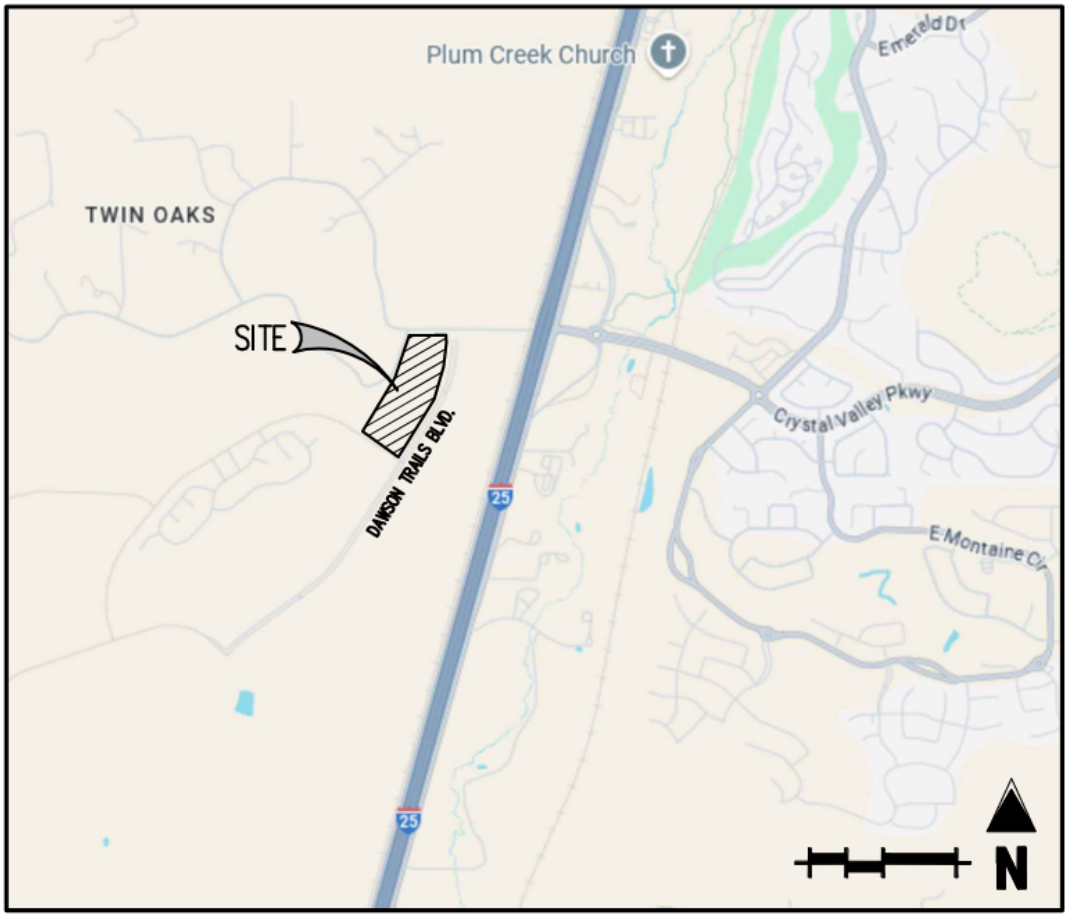
1. Urban Storm Drainage Criteria Manual, Urban Drainage and Flood Control District
2. FEMA National Flood Hazard Map #08035C0284G effective date 3/16/2016.
3. Soil Map – Natural Resources Conservation Service via Web Soil Survey 2.0.
4. Dawson Trails Filing No. 2 Drainage Report, EMK Consultants, Inc., dated September 9, 2025
5. Crystal Valley Interchange CIP, Town of Castle Rock
6. Dawson Trails PDP, CORE Consultants, Inc., dated June 9, 2022
7. Town of Castle Rock Storm Drainage Design and Technical Criteria Manual – February 18, 2025
8. Mile High Flood District, Volumes I, II, and III – March 2024

VIII. APPENDICES

- **A. REFERENCE INFORMATION**
- **B. HYDROLOGIC COMPUTATIONS**
- **C. HYDRAULIC COMPUTATIONS**
- **D. WATER QUALITY ENHANCEMENT BEST PRACTICES**
- **E. EXCERPTS FROM APPROVED REPORTS**
- **F. DETAILED DRAINAGE PLAN**
- **G. MS4 APPLICATION**
- **H. WQ QUESTIONNAIRE**

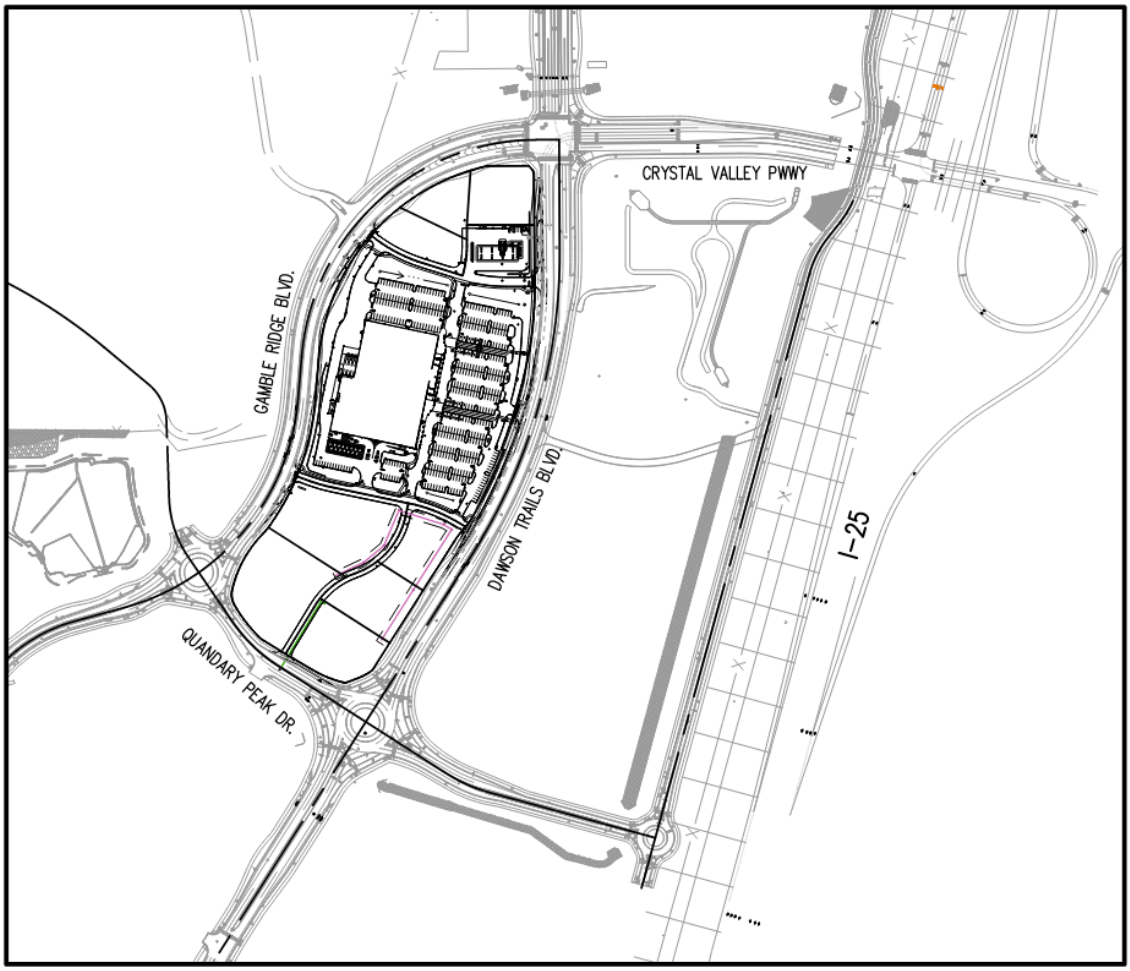
APPENDIX A

Reference Information



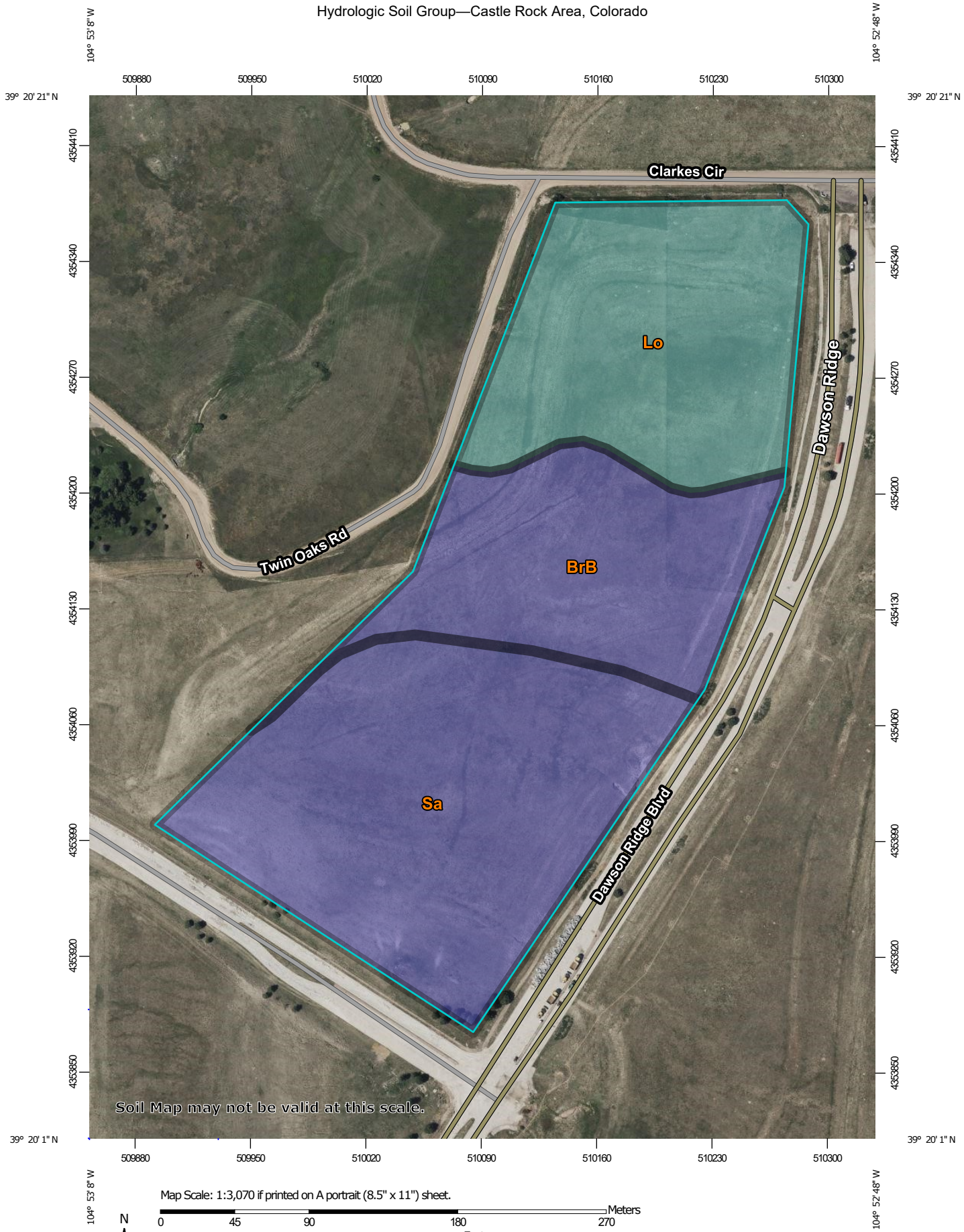
VICINITY MAP

SCALE: 1" = 2000'



SITE MAP

SCALE: 1" = 500'



Map Scale: 1:3,070 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 45 90 180 270

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Lines

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Soil Rating Points

A

A/D

B

B/D

C

C/D

D

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Castle Rock Area, Colorado
Survey Area Data: Version 18, Aug 29, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 1, 2023—Sep 1, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BrB	Bresser sandy loam, cool, 1 to 3 percent slopes	B	6.1	25.2%
Lo	Loamy alluvial land	C	7.1	29.7%
Sa	Sampson loam	B	10.8	45.0%
Totals for Area of Interest			**24.0**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

National Flood Hazard Layer FIRMette

FEMA

104°53'16"W 39°20'26"N

104°52'38"W 39°19'58"N

Feet

0 250 500 1,000 1,500 2,000

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

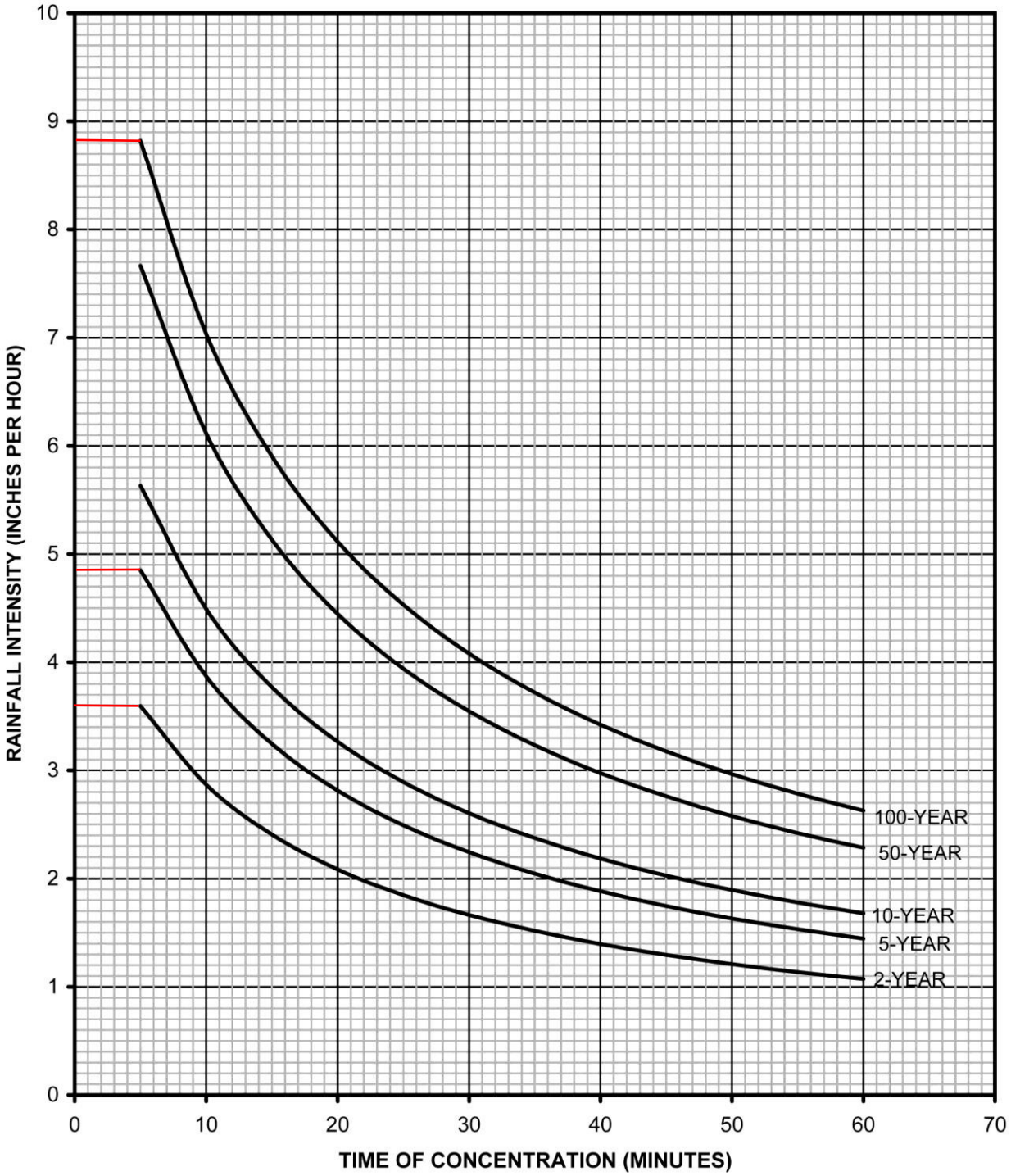
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 12/1/2025 at 9:20 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

APPENDIX B

Hydrologic Computations

FIGURE 6-1
RAINFALL INTENSITY-DURATION CURVE
TOWN OF CASTLE ROCK



COMPOSITE % IMPERVIOUS CALCULATIONS

Subdivision: Dawson Trails Filing No. 2, Amd 5
Location: CO, Castle Rock

Project Name: King Soopers Store #165
Project No.: KSS165.20
Calculated By: JKG
Checked By: JRR
Date: 5/5/26

Basin ID	Total Area (ac)	Hardscape & Roof			Landscaping			Bioretention & RPAs			Basins Total Weighted % Imp.
		% Imp.	Area (ac)	Weighted % Imp.	% Imp.	Area (ac)	Weighted % Imp.	% Imp.	Area (ac)	Weighted % Imp.	
A1	1.07	95	0.70	62.0	20	0.37	6.9			0.00	68.9
A2	0.48	95	0.32	62.0	20	0.17	7.0			0.00	69.0
A3	0.35	95	0.20	53.9	20	0.01	0.8	20	0.14	7.90	62.6
B1	1.13	95	0.74	62.7	20	0.38	6.8			0.00	69.5
B2a	1.28	95	0.84	62.7	20	0.43	6.8			0.00	69.5
B2b	1.10	95	0.73	62.7	20	0.37	6.8			0.00	69.5
B3	0.41	95	0.41	95.0	20	0.00	0.0			0.00	95.0
B4a	1.35	95	0.89	62.7	20	0.46	6.8			0.00	69.5
B4b	0.49	95	0.33	62.7	20	0.17	6.8			0.00	69.5
B4c	1.02	95	0.67	62.7	20	0.35	6.8			0.00	69.5
B5	0.23	95	0.23	95.0	20	0.00	0.0			0.00	95.0
B6	0.21	95	0.21	95.0	20	0.00	0.0			0.00	95.0
B7	1.45	95	1.33	87.3	20	0.12	1.6			0.00	88.9
B8	1.20	95	1.09	86.9	20	0.10	1.7			0.00	88.6
C1	1.04	95	0.63	57.4	20	0.41	7.9			0.00	65.3
C2	1.20	95	0.80	63.0	20	0.03	0.5	20	0.37	6.20	69.7
D1	2.30	95	2.30	95.0	20	0.00	0.0			0.00	95.0
D2	1.01	95	0.91	85.4	20	0.10	2.0	20	0.20	4.00	91.4
D3	0.25	95	0.00	0.0	20	0.25	20.0			0.00	20.0
D4a	0.73	95	0.48	62.7	20	0.25	6.8			0.00	69.5
D4b	0.61	95	0.40	62.7	20	0.21	6.8			0.00	69.5
D5	0.70	95	0.65	87.0	20	0.06	1.7			0.00	88.7
D6a	0.41	95	0.32	74.0	20	0.09	4.4			0.00	78.4
D6b	0.24	95	0.18	72.3	20	0.06	4.8			0.00	77.1
D7b	0.91	95	0.54	57.0	20	0.36	8.0			0.00	65.0
D7	0.14	95	0.00	0.0	20	0.14	20.0			0.00	20.0
E1	0.19	95	0.00	0.0	20	0.19	20.0			0.00	20.0
Total On-Site	21.50	95	15.90	70.3	20	5.09	4.7		0.71	0.00	75.0
OS-1	1.51	95	1.27	79.8	20	0.24	3.2			0.00	83.0
OS-2	0.60	95	0.48	76.1	20	0.12	4.0			0.00	80.1
OS-3	1.94	95	1.60	78.6	20	0.34	3.5			0.00	82.1
OS-4	0.38	95	0.38	95.0	20	0.00	0.0			0.00	95.0
OS-5	0.94	95	0.69	69.3	20	0.26	5.4			0.00	74.7
OS-6	0.26	95	0.26	95.0	20	0.00	0.0			0.00	95.0

Galloway

STANDARD FORM SF-2
TIME OF CONCENTRATION

Subdivision: Dawson Trails Filing No. 2, Amd 5
Location: CO, Castle Rock

Project Name: King Soopers Store #165
Project No.: KSS165.20
Calculated By: JKG
Checked By: JRR
Date: 5/5/26

SUB-BASIN DATA							INITIAL/OVERLAND (Sheet Flow) (T_i)			Shallow Concentrated Flows (T_t)					Tc CHECK		FINAL
BASIN ID	D.A. (AC)	Hydrologic Soils Group	Impervious (%)	C_{100}	C_5	C_2	L (FT)	S (%)	T_i (MIN)	L (FT)	S (%)	Cv	VEL. (FPS)	T_t (MIN)	COMP. T_c (MIN)	Regional T_c (MIN)	T_c (MIN)
A1	1.07	C	68.9	0.77	0.60	0.55	45	1.4	5.5	430	0.5	20.0	1.4	5.1	10.6	19.7	10.6
A2	0.48	C	69.0	0.77	0.60	0.55	45	1.2	5.8	70	2.2	20.0	2.9	0.4	6.2	14.7	6.2
A3	0.35	C	62.6	0.74	0.55	0.49	25	2.0	4.0	85	2.1	15.0	2.2	0.7	4.6	15.9	5.0
B1	1.13	C	69.5	0.77	0.60	0.55											5.0
B2a	1.28	C	69.5	0.77	0.60	0.55											5.0
B2b	1.10	C	69.5	0.77	0.60	0.55											5.0
B3	0.41	C	95.0	0.87	0.81	0.79	30	2.5	2.1	610	3.2	20.0	3.6	2.8	5.0	12.4	5.0
B4a	1.35	C	69.5	0.77	0.60	0.55											5.0
B4b	0.49	C	69.5	0.77	0.60	0.55											5.0
B4c	1.02	C	69.5	0.77	0.60	0.55											5.0
B5	0.23	C	95.0	0.87	0.81	0.79	14	2.0	1.6	500	0.8	20.0	1.8	4.7	6.2	14.0	6.2
B6	0.21	C	95.0	0.87	0.81	0.79	14	2.0	1.6	500	0.8	20.0	1.8	4.7	6.2	14.0	6.2
B7	1.45	C	88.9	0.85	0.76	0.73	220	1.7	7.8	250	2.6	20.0	3.2	1.3	9.1	12.1	9.1
B8	1.20	C	88.6	0.85	0.76	0.73	250	2.8	7.0	140	0.7	20.0	1.6	1.4	8.4	12.3	8.4
C1	1.04	C	65.3	0.75	0.57	0.52	65	2.2	6.0	260	0.7	20.0	1.6	2.7	8.7	17.9	8.7
C2	1.20	C	69.7	0.77	0.60	0.56	130	1.6	8.9	195	2.1	15.0	2.2	1.5	10.4	15.3	10.4
D1	2.30	C	95.0	0.87	0.81	0.79	280	2.0	7.1	370	1.0	20.0	2.0	3.1	10.1	12.6	10.1
D2	1.01	C	91.4	0.86	0.78	0.75	140	2.7	5.0	150	2.1	15.0	2.2	1.2	6.1	11.3	6.1
D3	0.25	C	20.0	0.57	0.20	0.14	30	23.0	3.2	300	2.3	20.0	3.0	1.6	4.8	25.4	5.0
D4a	0.73	C	69.5	0.77	0.60	0.55											5.0
D4b	0.61	C	69.5	0.77	0.60	0.55											5.0
D5	0.70	C	88.7	0.85	0.76	0.73	50	0.9	4.6	195	1.0	20.0	2.0	1.6	6.2	12.4	6.2
D6a	0.41	C	78.4	0.80	0.67	0.63	14	2.3	2.2	500	3.5	20.0	3.7	2.2	4.5	14.9	5.0
D6b	0.24	C	77.1	0.80	0.66	0.62	14	2.3	2.3	500	3.5	20.0	3.7	2.2	4.5	15.1	5.0
D7b	0.91	C	65.0	0.75	0.56	0.51											5.0
D7	0.14	C	20.0	0.57	0.20	0.14	16	5.0	3.9	115	1.0	20.0	2.0	1.0	4.8	24.2	5.0
E1	0.19	C	20.0	0.57	0.20	0.14	11	7.0	2.9	235	2.0	20.0	2.8	1.4	4.2	24.9	5.0
OS-1	1.51	C	83.0	0.82	0.71	0.68	40	2.0	3.6	880	2.0	20.0	2.8	5.2	8.8	16.9	8.8
OS-2	0.60	C	80.1	0.81	0.69	0.65	34	2.0	3.5	380	2.3	20.0	3.0	2.1	5.6	14.5	5.6
OS-3	1.94	C	82.1	0.82	0.70	0.67	40	2.0	3.7	870	2.5	20.0	3.2	4.6	8.3	16.5	8.3
OS-4	0.38	C	95.0	0.87	0.81	0.79	30	2.0	2.3	410	2.5	20.0	3.2	2.2	4.5	11.8	5.0
OS-5	0.94	C	74.7	0.79	0.64	0.60	30	2.0	3.7	760	2.5	20.0	3.2	4.0	7.7	17.4	7.7
OS-6	0.26	C	95.0	0.87	0.81	0.79	30	2.0	2.3	200	2.5	20.0	3.2	1.1	3.4	10.8	5.0

NOTES:
T_i = (0.395*(1.1 - C_5)*(L)^0.5)/((S)^0.33), S in ft/ft
T_t=L/60V (Velocity From Fig. 501)
Velocity V=Cv*S^0.5, S in ft/ft
Tc Regional = (26-17i)+(L/(60(14i+9)S^0.5)), S in ft/ft, i= Imperviousness expressed as decimal
For Urbanized basins a minimum T_c of 5.0 minutes is required.
For non-urbanized basins a minimum T_c of 10.0 minutes is required

Galloway

STANDARD FORM SF-3
STORM DRAINAGE SYSTEM DESIGN
(RATIONAL METHOD PROCEDURE)

Subdivision: Dawson Trails Filing No. 2, Amd 5
Location: CO, Castle Rock
Design Storm: 2-Year

Project Name: King Soopers Store #165
Project No.: KSS165.20
Calculated By: JKG
Checked By: JRR
Date: 5/5/26

STREET	Design Point	DIRECT RUNOFF							TOTAL RUNOFF				STREET		PIPE			TRAVEL TIME			REMARKS
		Basin ID	Area (Ac)	Runoff Coeff.	Tc (min)	C*A (Ac)	I (in/hr)	Q (cfs)	Tc (min)	C*A (Ac)	I (in/hr)	Q (cfs)	Slope (%)	Street Flow (cfs)	Design Flow (cfs)	Slope (%)	Pipe Size (inches)	Length (ft)	Velocity (fps)	Tt (min)	
	A1	A1	1.07	0.55	10.6	0.59	2.81	1.7													Type 16 inlet
	A2a	A2	0.48	0.55	6.2	0.27	3.39	0.9													Type 16 inlet
	A2								10.6	0.86	2.81	2.4									4' dia. MH
	A3	A3	0.35	0.49	5.0	0.17	3.60	0.6	10.6	1.03	2.81	2.9									Rain Garden RPA-1, type C area inlet
		OS-6	0.26	0.79	5.0	0.21	3.60	0.8													
	B1	B1	1.13	0.55	5.0	0.62	3.60	2.2	5.0	0.83	3.60	3.0									Future pad lot
	B2a	B2a	1.28	0.55	5.0	0.70	3.60	2.5	5.0	1.53	3.60	5.5									Future pad lot
	B2	B2b	1.10	0.55	5.0	0.60	3.60	2.2	5.0	2.13	3.60	7.7									Future pad lots, temporary inlet in top of MH and temporary grass swale GS-2
	B3	B3	0.41	0.79	5.0	0.32	3.60	1.2	5.0	2.45	3.60	8.8									Type R inlet
	B4a	B4a	1.35	0.55	5.0	0.74	3.60	2.7													Future pad lot
	B4b	B4b	0.49	0.55	5.0	0.27	3.60	1.0	5.0	1.01	3.60	3.6									Future pad lot
	B4	B4c	1.02	0.55	5.0	0.56	3.60	2.0	5.0	4.02	3.60	14.5									Future pad lots, temporary inlet in top of MH and temporary grass swale GS-3
		OS-4	0.38	0.79	5.0	0.30	3.60	1.1													
	B5	B5	0.23	0.79	6.2	0.18	3.38	1.7	6.2	4.50	3.38	15.2									Type R inlet
	B6	B6	0.21	0.79	6.2	0.17	3.38	0.6	6.2	4.67	3.38	15.8									Type R inlet
	B6a								10.6	5.70	2.81	16.0									4' dia. MH
	B7	B7	1.45	0.73	9.1	1.06	2.97	3.1	10.6	6.76	2.81	19.0									Type R inlet
	B8	B8	1.20	0.73	8.4	0.87	3.06	2.7	10.6	7.63	2.81	21.4									Type R inlet
	C1	C1	1.04	0.52	8.7	0.54	3.02	1.6													Type 16 inlet
	C2	C2	1.20	0.56	10.4	0.67	2.82	1.9	10.4	1.21	2.82	3.4									Grass Swale RPA-2
	D1	D1	2.30	0.79	10.1	1.82	2.85	5.2													King Soopers roof
	D2	D2	1.01	0.75	6.1	0.76	3.40	2.6	10.1	2.58	2.85	7.4									Grass Swale RPA-3
		OS-2	0.60	0.65	5.6	0.39	3.49	1.4													Ex. Dawson Trails Blvd basin, type R inlet
	D3	D3	0.25	0.14	5.0	0.04	3.60	0.1	10.6	10.64	2.81	29.9									Type R inlet
	D4b	D4b	0.61	0.55	5.0	0.33	3.60	1.2													Future pad lot
	D4a	D4a	0.73	0.55	5.0	0.40	3.60	1.4	5.0	0.73	3.60	2.6									Future pad lot
	D4								10.4	1.94	2.82	5.5									5' dia. MH
	D5a	D5	0.70	0.73	6.2	0.51	3.39	1.7													King Soopers fueling facility
	D5								10.4	2.45	2.82	6.9									5' dia. MH
	D6a	D6a	0.41	0.63	5.0	0.26	3.60	0.9													Type R inlet
	D6b	D6b	0.24	0.62	5.0	0.15	3.60	0.5													Type R inlet
	D6								10.4	2.86	2.82	8.1									6' dia. MH
	D7b	D7b	0.91	0.51	5.0	0.46	3.60	1.7													KeyBank

Galloway

STANDARD FORM SF-3
STORM DRAINAGE SYSTEM DESIGN
(RATIONAL METHOD PROCEDURE)

Subdivision: Dawson Trails Filing No. 2, Amd 5
Location: CO, Castle Rock
Design Storm: 2-Year

Project Name: King Soopers Store #165
Project No.: KSS165.20
Calculated By: JKG
Checked By: JRR
Date: 5/5/26

STREET	Design Point	DIRECT RUNOFF							TOTAL RUNOFF				STREET		PIPE			TRAVEL TIME			REMARKS
		Basin ID	Area (Ac)	Runoff Coeff.	Tc (min)	C*A (Ac)	I (in/hr)	Q (cfs)	Tc (min)	C*A (Ac)	I (in/hr)	Q (cfs)	Slope (%)	Street Flow (cfs)	Design Flow (cfs)	Slope (%)	Pipe Size (inches)	Length (ft)	Velocity (fps)	Tt (min)	
	D7	OS-3	1.94	0.67	8.3	1.30	3.08	4.0	10.6	13.96	2.81	39.2									6' dia. MH Ex. Dawson Trails Blvd basin, type 16 inlet
	D7a	D7	0.14	0.14	5.0	0.02	3.60	0.1	10.6	15.28	2.81	42.9									Type 16 inlet
		OS-1	1.51	0.68	8.8	1.02	3.01	3.1													Ex. Dawson Trails Blvd basin, type R inlet
	E1	E1	0.19	0.14	5.0	0.03	3.60	0.1	8.8	1.05	3.01	3.2									Type R inlet
	F1	OS-5	0.94	0.60	7.7	0.56	3.16	1.8													Type R inlet

Galloway

STANDARD FORM SF-3
STORM DRAINAGE SYSTEM DESIGN
(RATIONAL METHOD PROCEDURE)

Subdivision: Dawson Trails Filing No. 2, Amd 5
Location: CO, Castle Rock
Design Storm: 5-Year

Project Name: King Soopers Store #165
Project No.: KSS165.20
Calculated By: JKG
Checked By: JRR
Date: 5/5/26

STREET	Design Point	DIRECT RUNOFF							TOTAL RUNOFF				STREET		PIPE			TRAVEL TIME			REMARKS
		Basin ID	Area (Ac)	Runoff Coeff.	Tc (min)	C*A (Ac)	I (in/hr)	Q (cfs)	Tc (min)	C*A (Ac)	I (in/hr)	Q (cfs)	Slope (%)	Street Flow (cfs)	Design Flow (cfs)	Slope (%)	Pipe Size (inches)	Length (ft)	Velocity (fps)	Tt (min)	
	A1	A1	1.07	0.60	10.6	0.64	3.79	2.4													Type 16 inlet
	A2a	A2	0.48	0.60	6.2	0.29	4.57	1.3													Type 16 inlet
	A2								10.6	0.93	3.79	3.5									4' dia. MH
	A3	A3	0.35	0.55	5.0	0.19	4.85	0.9	10.6	1.12	3.79	4.2									Rain Garden RPA-1, type C area inlet
		OS-6	0.26	0.81	5.0	0.21	4.85	1.0													
	B1	B1	1.13	0.60	5.0	0.68	4.85	3.3	5.0	0.89	4.85	4.3									Future pad lot
	B2a	B2a	1.28	0.60	5.0	0.77	4.85	3.7	5.0	1.66	4.85	8.1									Future pad lot
	B2	B2b	1.10	0.60	5.0	0.66	4.85	3.2	5.0	2.32	4.85	11.3									Future pad lots, temporary inlet in top of MH and temporary grass swale GS-2
	B3	B3	0.41	0.81	5.0	0.33	4.85	1.6	5.0	2.65	4.85	12.9									Type R inlet
	B4a	B4a	1.35	0.60	5.0	0.81	4.85	3.9													Future pad lot
	B4b	B4b	0.49	0.60	5.0	0.30	4.85	1.5	5.0	1.11	4.85	5.4									Future pad lot
	B4	B4c	1.02	0.60	5.0	0.61	4.85	3.0	5.0	4.37	4.85	21.2									Future pad lots, temporary inlet in top of MH and temporary grass swale GS-3
		OS-4	0.38	0.81	5.0	0.31	4.85	1.5													
	B5	B5	0.23	0.81	6.2	0.19	4.56	2.4	6.2	4.87	4.56	22.2									Type R inlet
	B6	B6	0.21	0.81	6.2	0.17	4.56	0.8	6.2	5.04	4.56	23.0									Type R inlet
	B6a								10.6	6.16	3.79	23.3									4' dia. MH
	B7	B7	1.45	0.76	9.1	1.10	4.01	4.4	10.6	7.26	3.79	27.5									Type R inlet
	B8	B8	1.20	0.76	8.4	0.91	4.13	3.8	10.6	8.17	3.79	31.0									Type R inlet
	C1	C1	1.04	0.57	8.7	0.59	4.08	2.4													Type 16 inlet
	C2	C2	1.20	0.60	10.4	0.72	3.81	2.7	10.4	1.31	3.81	5.0									Grass Swale RPA-2
	D1	D1	2.30	0.81	10.1	1.86	3.85	7.2													King Soopers roof
	D2	D2	1.01	0.78	6.1	0.79	4.58	3.6	10.1	2.65	3.85	10.2									Grass Swale RPA-3
		OS-2	0.60	0.69	5.6	0.42	4.71	2.0													Ex. Dawson Trails Blvd basin, type R inlet
	D3	D3	0.25	0.20	5.0	0.05	4.85	0.2	10.6	11.29	3.79	42.8									Type R inlet
	D4b	D4b	0.61	0.60	5.0	0.36	4.85	1.7													Future pad lot
	D4a	D4a	0.73	0.60	5.0	0.44	4.85	2.1	5.0	0.80	4.85	3.9									Future pad lot
	D4								10.4	1.75	3.81	6.7									5' dia. MH
	D5a	D5	0.70	0.76	6.2	0.54	4.57	2.5													King Soopers fueling facility
	D5								10.4	2.29	3.81	8.7									5' dia. MH
	D6a	D6a	0.41	0.67	5.0	0.28	4.85	1.4													Type R inlet
	D6b	D6b	0.24	0.66	5.0	0.16	4.85	0.8													Type R inlet
	D6								10.4	2.73	3.81	10.4									6' dia. MH
	D7b	D7b	0.91	0.56	5.0	0.51	4.85	2.5													KeyBank

Galloway

STANDARD FORM SF-3
STORM DRAINAGE SYSTEM DESIGN
(RATIONAL METHOD PROCEDURE)

Subdivision: Dawson Trails Filing No. 2, Amd 5
Location: CO, Castle Rock
Design Storm: 5-Year

Project Name: King Soopers Store #165
Project No.: KSS165.20
Calculated By: JKG
Checked By: JRR
Date: 5/5/26

STREET	Design Point	DIRECT RUNOFF							TOTAL RUNOFF				STREET		PIPE			TRAVEL TIME			REMARKS
		Basin ID	Area (Ac)	Runoff Coeff.	Tc (min)	C*A (Ac)	I (in/hr)	Q (cfs)	Tc (min)	C*A (Ac)	I (in/hr)	Q (cfs)	Slope (%)	Street Flow (cfs)	Design Flow (cfs)	Slope (%)	Pipe Size (inches)	Length (ft)	Velocity (fps)	Tt (min)	
	D7	OS-3	1.94	0.70	8.3	1.36	4.16	5.7	10.6	14.53	3.79	55.1									6' dia. MH Ex. Dawson Trails Blvd basin, type 16 inlet
	D7a	D7	0.14	0.20	5.0	0.03	4.85	0.1	10.6	15.92	3.79	60.3									Type 16 inlet
		OS-1	1.51	0.71	8.8	1.07	4.07	4.4													Ex. Dawson Trails Blvd basin, type R inlet
	E1	E1	0.19	0.20	5.0	0.04	4.85	0.2	8.8	1.11	4.07	4.5									Type R inlet
	F1	OS-5	0.94	0.64	7.7	0.60	4.26	2.6													Type R inlet

STANDARD FORM SF-3
STORM DRAINAGE SYSTEM DESIGN
(RATIONAL METHOD PROCEDURE)

Subdivision: Dawson Trails Filing No. 2, Amd 5
Location: CO, Castle Rock
Design Storm: 100-Year

Project Name: King Soopers Store #165
Project No.: KSS165.20
Calculated By: JKG
Checked By: JRR
Date: 5/5/26

		DIRECT RUNOFF							TOTAL RUNOFF				STREET		PIPE			TRAVEL TIME			
STREET	Design Point	Basin ID	Area (Ac)	Runoff Coeff.	Tc (min)	C*A (Ac)	I (in/hr)	Q (cfs)	Tc (min)	C*A (Ac)	I (in/hr)	Q (cfs)	Slope (%)	Street Flow (cfs)	Design Flow (cfs)	Slope (%)	Pipe Size (inches)	Length (ft)	Velocity (fps)	Tt (min)	REMARKS
	A1	A1	1.07	0.77	10.6	0.82	6.88	5.6													Type 16 inlet
	A2a	A2	0.48	0.77	6.2	0.37	8.31	3.1													Type 16 inlet
	A2								10.6	1.19	6.88	8.2									4' dia. MH
	A3	A3	0.35	0.74	5.0	0.26	8.82	2.3	10.6	1.45	6.88	10.0									Rain Garden RPA-1, type C area inlet
		OS-6	0.26	0.87	5.0	0.23	8.82	2.0													
	B1	B1	1.13	0.77	5.0	0.87	8.82	7.7	5.0	1.10	8.82	9.7									Future pad lot
	B2a	B2a	1.28	0.77	5.0	0.99	8.82	8.7	5.0	2.09	8.82	18.4									Future pad lot
	B2	B2b	1.10	0.77	5.0	0.85	8.82	7.5	5.0	2.94	8.82	25.9									Future pad lots, temporary inlet in top of MH and temporary grass swale GS-2
	B3	B3	0.41	0.87	5.0	0.36	8.82	3.2	5.0	3.30	8.82	29.1									Type R inlet
	B4a	B4a	1.35	0.77	5.0	1.04	8.82	9.2													Future pad lot
	B4b	B4b	0.49	0.77	5.0	0.38	8.82	3.4	5.0	1.42	8.82	12.5									Future pad lot
	B4	B4c	1.02	0.77	5.0	0.78	8.82	6.9	5.0	5.50	8.82	48.5									Future pad lots, temporary inlet in top of MH and temporary grass swale GS-3
		OS-4	0.38	0.87	5.0	0.33	8.82	2.9													
	B5	B5	0.23	0.87	6.2	0.20	8.29	4.6	6.2	6.03	8.29	50.0									Type R inlet
	B6	B6	0.21	0.87	6.2	0.19	8.29	1.6	6.2	6.22	8.29	51.6									Type R inlet
	B6a								10.6	7.67	6.88	52.8									4' dia. MH
	B7	B7	1.45	0.85	9.1	1.23	7.29	9.0	10.6	8.90	6.88	61.2									Type R inlet
	B8	B8	1.20	0.85	8.4	1.02	7.50	7.7	10.6	9.92	6.88	68.2									Type R inlet
	C1	C1	1.04	0.75	8.7	0.78	7.41	5.8													Type 16 inlet
	C2	C2	1.20	0.77	10.4	0.92	6.92	6.4	10.4	1.70	6.92	11.8									Grass Swale RPA-2
	D1	D1	2.30	0.87	10.1	2.00	7.00	14.0													King Soopers roof
	D2	D2	1.01	0.86	6.1	0.87	8.33	7.2	10.1	2.87	7.00	20.1									Grass Swale RPA-3
		OS-2	0.60	0.81	5.6	0.49	8.57	4.2													Ex. Dawson Trails Blvd basin, type R inlet
	D3	D3	0.25	0.57	5.0	0.14	8.82	1.2	10.6	13.42	6.88	92.3									Type R inlet
	D4b	D4b	0.61	0.77	5.0	0.47	8.82	4.1													Future pad lot
	D4a	D4a	0.73	0.77	5.0	0.56	8.82	4.9	5.0	1.03	8.82	9.1									Future pad lot
	D4								10.4	2.26	6.92	15.6									5' dia. MH
	D5a	D5	0.70	0.85	6.2	0.60	8.31	5.0													King Soopers fueling facility
	D5								10.4	2.86	6.92	19.8									5' dia. MH
	D6a	D6a	0.41	0.80	5.0	0.33	8.82	2.9													Type R inlet
	D6b	D6b	0.24	0.80	5.0	0.19	8.82	1.7													Type R inlet
	D6								10.4	3.38	6.92	23.4									6' dia. MH
	D7b	D7b	0.91	0.75	5.0	0.68	8.82	6.0													KeyBank
	D7								10.6	17.48	6.88	120.3									6' dia. MH

Galloway

STANDARD FORM SF-3
STORM DRAINAGE SYSTEM DESIGN
(RATIONAL METHOD PROCEDURE)

Subdivision: Dawson Trails Filing No. 2, Amd 5
Location: CO, Castle Rock
Design Storm: 100-Year

Project Name: King Soopers Store #165
Project No.: KSS165.20
Calculated By: JKG
Checked By: JRR
Date: 5/5/26

STREET	Design Point	DIRECT RUNOFF							TOTAL RUNOFF				STREET		PIPE			TRAVEL TIME			REMARKS
		Basin ID	Area (Ac)	Runoff Coeff.	Tc (min)	C*A (Ac)	I (in/hr)	Q (cfs)	Tc (min)	C*A (Ac)	I (in/hr)	Q (cfs)	Slope (%)	Street Flow (cfs)	Design Flow (cfs)	Slope (%)	Pipe Size (inches)	Length (ft)	Velocity (fps)	Tt (min)	
		OS-3	1.94	0.82	8.3	1.59	7.56	12.0													Ex. Dawson Trails Blvd basin, type 16 inlet
	D7a	D7	0.14	0.57	5.0	0.08	8.82	0.7	10.6	19.15	6.88	131.8									Type 16 inlet
		OS-1	1.51	0.82	8.8	1.24	7.39	9.2													Ex. Dawson Trails Blvd basin, type R inlet
	E1	E1	0.19	0.57	5.0	0.11	8.82	1.0	8.8	1.35	7.39	10.0									Type R inlet
	F1	OS-5	0.94	0.79	7.7	0.74	7.75	5.7													Type R inlet

Galloway

APPENDIX C

Hydraulic Computations

TO BE PROVIDED IN PHASE III DRAINAGE REPORT

APPENDIX D

Water Quality Enhancement Best Practices

Site Layout

SCM Design, Version 4.02 (June 2025)

Designer: Jessica Greenough
Company: Galloway
Date: April 1, 2026
Project: KSS165
Location: Castle Rock, CO

SITE LAYOUT INFO (User Input in Blue Cells)

Water Quality Event (WQE): 0.60 inches

Outfall ID	RPA1	RPA2	RPA3	Remainder
Total Tributary Area (ft^2)	82,887	97,747	144,111	611,778
Total Tributary Area (ac)	1.90	2.24	3.31	14.04
Imperviousness (%)	67.7%	67.7%	93.9%	73.7%
MS4 Design Standard	Runoff	Runoff	Runoff	None
SCM Type	RPA	RPA	RPA	None

Notes:

OUTFALL RESULTS

SCM Worksheet Name	RPA_RPA1	RPA_RPA2	RPA_RPA3	--
Untreated Area (ft^3)	0	0	0	611,778
Default WQCV (ft^3)	1,830	2,159	5,243	14,926
Optional Override WQCV (ft^3)				
WQCV Reduction (ft^3)	0	151	109	0
Remaining WQCV (ft^3)	1,830	2,007	5,134	14,926
WQCV Reduction (%)	0%	7%	2%	0%
Design WQCV of SCM (ft^3)	0	0	0	0
Pollutant Removal (ft^3)	0	0	0	0
Untreated WQCV (ft^3)	1,830	2,007	5,134	14,926

TOTAL SITE RESULTS (Sums results from all Outfalls)

Total Site Area	936,523	ft^2	21.50	acres
Treated Area	324,745	ft^2	7.46	acres
Untreated Area	611,778	ft^2	14.04	acres
Total Site Imperviousness	75.7%	%		
Default (or Override) WQCV	24,158	ft^3	0.555	acre-feet
Remaining WQCV	23,898	ft^3	0.549	acre-feet
WQCV Reduction	1%	%		
Design WQCV	0	ft^3	0.000	acre-feet
Untreated WQCV	23,898	ft^3	0.549	acre-feet

Confirm with local jurisdiction whether design meets Runoff Reduction Standard

Receiving Pervious Areas (Including Grass Buffers and Grass Swales)

SCM Design, Version 4.02 (June 2025)

Designer: Jessica Greenough
Company: Galloway
Date: April 1, 2026
Project: KSS165
Location: Castle Rock, CO
Outfall ID: RPA1

DESIGN PROCEDURE AND CRITERIA FOR ALL RPAs (User Input in Blue Cells)

1. Apply Four-Cover Land Use Model to Site Layout

Design Point ID	RPA1	SPA	Treated - UIA	RPA1							
Area Type	RPA	SPA	UIA	RPA_Swale							
Downstream Design Point ID	--	RPA1	RPA1	RPA2							
DCIA (ft^2)	--	--		--							
UIA (ft^2)	--	--	54,313	--							
RPA (ft^2)	--	--		340							
SPA (ft^2)	--	28,234		--							

2. Protect the RPA from Traffic

RPA Protection Type	--	--		Slotted Curb							

3. Characterize On-site Topsoil and Determine Suitability for the RPA

HSG A (%)	--	--		0.0%							
HSG B (%)	--	--		0.0%							
HSG C/D (%)	--	--		100.0%							

4. Select Appropriate Vegetation

RPA Vegetation Type	--	--		Seed							
Irrigation Type	--	--		Permanent							

Notes:

GRASS BUFFER ADDITIONAL DESIGN PROCEDURE AND CRITERIA (User Input in Blue Cells)

1. Define the UIA:RPA pair, Ratio, and Interface Width

Sheet Flow Inflow Feature	--	--		--							
Is Concrete Edger used?	--	--		--							
Spacing between slots (ft)	--	--		--							
Slot Opening Length (in)	--	--		--							
Blind Swale Type	--	--		--							
Spreader Energy Dissipation	--	--		--							
Total Area of UIA:RPA (ft^2)	--	--	--	--							
UIA:RPA Ratio	--	--	--	--							
UIA:RPA Interface Width (ft)	--	--		--							
L / W Ratio of UIA:RPA	--	--	--	--							

2. Buffer Length

Average Buffer Length (ft)	--	--	--	--							

3. Buffer Slope

Average Buffer Slope (ft/ft)	--	--		--							
Effective Distance (ft)	--	--	--	--							
Number of Level Spreaders	--	--	--	--							

4. Provide a Vertical Drop

Vertical Drop (in)	--	--		--							
Mowing Strip Provided?	--	--		--							

5. Calculate Runoff for UIA and RPA Pair

Imperviousness (%)	--	--	--	--							
UIA:RPA Runoff (in)	--	--	--	--							
UIA:RPA Runoff (ft^3)	--	--	--	--							

6. Compare Runoff from UIA:RPA Pair to Runoff from UIA Only

UIA Runoff (ft^3)	--	--	--	--							
Runoff Reduction (ft^3)	--	--	--	--							
Runoff Reduction (%)	--	--	--	--							

Notes:

GRASS SWALE ADDITIONAL DESIGN PROCEDURE AND CRITERIA (User Input in Blue Cells)

1. Delineate Areas Tributary to Swale											
Total Tributary Area (ft^2)	--	--	--	82,887							
Imperviousness (%)	--	--	--	65.5%							
2. Swale Inflows											
Concentrated Flow Type	--	--		Swale							
Blind Swale Type	--	--		--							
Spreader Energy Dissipation	--	--		--							
Vertical Drop (in)	--	--		--							
Gutter Depression (in)	--	--		--							
Curb Opening Length (ft)	--	--	--	--							
Concrete Sediment Pad	--	--		--							
Min. Forebay Volume (ft^3)	--	--	--	--							
Design Forebay Volume (ft^3)	--	--		--							
Max. Forebay Depth (in)	--	--	--	--							
Design Forebay Depth (in)	--	--		--							
Calculated Notch Width (in)	--	--	--	--							
Design Notch Width (in)	--	--		--							
Drain Time (minutes)	--	--	--	--							
Energy Dissipation Type	--	--		Rock							
3. Swale Cross Section											
Length of Swale (ft)	--	--		85.00							
Bottom Width (ft)	--	--		4.00							
Bottom Area (ft^2)	--	--	--	340							
Side Slopes (horiz/vert)	--	--		4.00							
4. Longitudinal Slope											
Available Slope (ft/ft)	--	--		4.000							
Design Slope (ft/ft)	--	--		0.020							
Total Drop Height (ft)	--	--	--	338.30							
Underdrains Provided?	--	--		NO							
5. Calculate Runoff from Tributary Area											
Tributary Runoff (ft^3)	--	--	--	2,280							
Reduced Trib. Runoff (ft^3)	--	--		2,280							
6. Calculate Runoff Reduction through Swale Bottom											
Volume Infiltrated (ft^3)	--	--	--	28							
Swale Discharge (ft^3)	--	--	--	2,252							
Runoff Reduction (%)	--	--	--	1.2%							
7. Design Discharge											
2-year Discharge, Q2 (cfs)	--	--		2.9							
8. Design Velocity											
Vegetal Retardance Curve	--	--	--	E							
Velocity, V2 (fps)	--	--	--	1.7							
9. Design Flow Depth											
Flow Depth, D2 (ft)	--	--		0.32							
Flow Area, A (ft^2)	--	--	--	1.7							
Wetted Perimeter, P (ft)	--	--	--	6.6							
Top Width, T (ft)	--	--	--	6.6							
Hydraulic Radius, Rh (ft)	--	--	--	0.25							
VR Product (ft^2/sec)	--	--	--	0.44							
Manning's n value	--	--		0.048							
Hydraulic Depth, Dh (ft)	--	--	--	0.26							
Froude Number	--	--	--	0.11							
10. Swale Outflows											
Outflows Considered?	--	--		YES							

Notes:

DESIGN POINT RESULT (Sums results for current column and all upstream design point columns.)

Design Point ID	RPA1	SPA	Treated - UIA	RPA1							
Area Type	RPA	SPA	UIA	RPA_Swale							
Total Area (ft^2)	82,547	28,234	54,313	82,887							
Imperviousness (%)		0.0%	100.0%	65.5%							
Tributary Runoff (ft^3)		0	2,263	2,280							
Runoff Reduction (ft^3)	0	0	0	28							
Runoff Remaining (ft^3)	2,263	0	2,263	2,252							

Total Tributary Area entered on Site Layout Worksheet is: 82,887 square feet

Receiving Pervious Areas (Including Grass Buffers and Grass Swales)

SCM Design, Version 4.02 (June 2025)

Designer: Jessica Greenough
Company: Galloway
Date: April 1, 2026
Project: KSS165
Location: Castle Rock, CO
Outfall ID: RPA2

DESIGN PROCEDURE AND CRITERIA FOR ALL RPAs (User Input in Blue Cells)

1. Apply Four-Cover Land Use Model to Site Layout

Design Point ID	RPA2	SPA	UIARPA	Treated							
Area Type	RPA	SPA	UIA	RPA_Swale							
Downstream Design Point ID	--	RPA2	RPA2	RPA2							
DCIA (ft^2)	--	--	--	--							
UIA (ft^2)	--	--	60,653	--							
RPA (ft^2)	--	--	--	3,024							
SPA (ft^2)	--	34,070	--	--							

2. Protect the RPA from Traffic

RPA Protection Type	--	--	--	Slotted Curb							

3. Characterize On-site Topsoil and Determine Suitability for the RPA

HSG A (%)	--	--	--	0.0%							
HSG B (%)	--	--	--	0.0%							
HSG C/D (%)	--	--	--	100.0%							

4. Select Appropriate Vegetation

RPA Vegetation Type	--	--	--	Seed							
Irrigation Type	--	--	--	Permanent							

Notes:

GRASS BUFFER ADDITIONAL DESIGN PROCEDURE AND CRITERIA (User Input in Blue Cells)

1. Define the UIA:RPA pair, Ratio, and Interface Width

Sheet Flow Inflow Feature	--	--	--	--							
Is Concrete Edger used?	--	--	--	--							
Spacing between slots (ft)	--	--	--	--							
Slot Opening Length (in)	--	--	--	--							
Blind Swale Type	--	--	--	--							
Spreader Energy Dissipation	--	--	--	--							
Total Area of UIA:RPA (ft^2)	--	--	--	--							
UIA:RPA Ratio	--	--	--	--							
UIA:RPA Interface Width (ft)	--	--	--	--							
L / W Ratio of UIA:RPA	--	--	--	--							

2. Buffer Length

Average Buffer Length (ft)	--	--	--	--							

3. Buffer Slope

Average Buffer Slope (ft/ft)	--	--	--	--							
Effective Distance (ft)	--	--	--	--							
Number of Level Spreaders	--	--	--	--							

4. Provide a Vertical Drop

Vertical Drop (in)	--	--	--	--							
Mowing Strip Provided?	--	--	--	--							

5. Calculate Runoff for UIA and RPA Pair

Imperviousness (%)	--	--	--	--							
UIA:RPA Runoff (in)	--	--	--	--							
UIA:RPA Runoff (ft^3)	--	--	--	--							

6. Compare Runoff from UIA:RPA Pair to Runoff from UIA Only

UIA Runoff (ft^3)	--	--	--	--							
Runoff Reduction (ft^3)	--	--	--	--							
Runoff Reduction (%)	--	--	--	--							

Notes:

GRASS SWALE ADDITIONAL DESIGN PROCEDURE AND CRITERIA (User Input in Blue Cells)

1. Delineate Areas Tributary to Swale												
Total Tributary Area (ft^2)	--	--	--	3,024								
Imperviousness (%)	--	--	--	0.0%								
2. Swale Inflows												
Concentrated Flow Type	--	--	--	Swale								
Blind Swale Type	--	--	--	--								
Spreader Energy Dissipation	--	--	--	--								
Vertical Drop (in)	--	--	--	--								
Gutter Depression (in)	--	--	--	--								
Curb Opening Length (ft)	--	--	--	--								
Concrete Sediment Pad	--	--	--	--								
Min. Forebay Volume (ft^3)	--	--	--	--								
Design Forebay Volume (ft^3)	--	--	--	--								
Max. Forebay Depth (in)	--	--	--	--								
Design Forebay Depth (in)	--	--	--	--								
Calculated Notch Width (in)	--	--	--	--								
Design Notch Width (in)	--	--	--	--								
Drain Time (minutes)	--	--	--	--								
Energy Dissipation Type	--	--	--	Rock								
3. Swale Cross Section												
Length of Swale (ft)	--	--	--	189.00								
Bottom Width (ft)	--	--	--	16.00								
Bottom Area (ft^2)	--	--	--	3,024								
Side Slopes (horiz/vert)	--	--	--	3.00								
4. Longitudinal Slope												
Available Slope (ft/ft)	--	--	--	0.020								
Design Slope (ft/ft)	--	--	--	0.020								
Total Drop Height (ft)	--	--	--	0.00								
Underdrains Provided?	--	--	--	NO								
5. Calculate Runoff from Tributary Area												
Tributary Runoff (ft^3)	--	--	--	151								
Reduced Trib. Runoff (ft^3)	--	--	--	151								
6. Calculate Runoff Reduction through Swale Bottom												
Volume Infiltrated (ft^3)	--	--	--	151								
Swale Discharge (ft^3)	--	--	--	0								
Runoff Reduction (%)	--	--	--	100.0%								
7. Design Discharge												
2-year Discharge, Q2 (cfs)	--	--	--	3.2								
8. Design Velocity												
Vegetal Retardance Curve	--	--	--	E								
Velocity, V2 (fps)	--	--	--	1.0								
9. Design Flow Depth												
Flow Depth, D2 (ft)	--	--	--	0.19								
Flow Area, A (ft^2)	--	--	--	3.1								
Wetted Perimeter, P (ft)	--	--	--	17.2								
Top Width, T (ft)	--	--	--	17.1								
Hydraulic Radius, Rh (ft)	--	--	--	0.18								
VR Product (ft^2/sec)	--	--	--	0.19								
Manning's n value	--	--	--	0.065								
Hydraulic Depth, Dh (ft)	--	--	--	0.18								
Froude Number	--	--	--	0.07								
10. Swale Outflows												
Outflows Considered?	--	--	--	YES								

Notes:

DESIGN POINT RESULT (Sums results for current column and all upstream design point columns.)

Design Point ID	RPA2	SPA	UIARPA	Treated							
Area Type	RPA	SPA	UIA	RPA_Swale							
Total Area (ft^2)	97,747	34,070	60,653	3,024							
Imperviousness (%)		0.0%	100.0%	0.0%							
Tributary Runoff (ft^3)		0	2,527	151							
Runoff Reduction (ft^3)	151	0	0	151							
Runoff Remaining (ft^3)	2,527	0	2,527	0							

Total Tributary Area entered on Site Layout Worksheet is: 97,747 square feet

Receiving Pervious Areas (Including Grass Buffers and Grass Swales)

SCM Design, Version 4.02 (June 2025)

Designer: Jessica Greenough
Company: Galloway
Date: April 1, 2026
Project: KSS165
Location: Castle Rock, CO
Outfall ID: RPA3

DESIGN PROCEDURE AND CRITERIA FOR ALL RPAs (User Input in Blue Cells)

1. Apply Four-Cover Land Use Model to Site Layout

Design Point ID	RPA3	SPA	UIARPA	Treated								
Area Type	RPA	SPA	UIA	RPA_Swale								
Downstream Design Point ID	--	RPA3	RPA3	RPA3								
DCIA (ft^2)	--	--	--	--								
UIA (ft^2)	--	--	129,560	--								
RPA (ft^2)	--	--	--	2,184								
SPA (ft^2)	--	12,367	--	--								

2. Protect the RPA from Traffic

RPA Protection Type	--	--	--	Slotted Curb								

3. Characterize On-site Topsoil and Determine Suitability for the RPA

HSG A (%)	--	--	--	0.0%								
HSG B (%)	--	--	--	0.0%								
HSG C/D (%)	--	--	--	100.0%								

4. Select Appropriate Vegetation

RPA Vegetation Type	--	--	--	Seed								
Irrigation Type	--	--	--	Permanent								

Notes:

GRASS BUFFER ADDITIONAL DESIGN PROCEDURE AND CRITERIA (User Input in Blue Cells)

1. Define the UIA:RPA pair, Ratio, and Interface Width

Sheet Flow Inflow Feature	--	--	--	--								
Is Concrete Edger used?	--	--	--	--								
Spacing between slots (ft)	--	--	--	--								
Slot Opening Length (in)	--	--	--	--								
Blind Swale Type	--	--	--	--								
Spreader Energy Dissipation	--	--	--	--								
Total Area of UIA:RPA (ft^2)	--	--	--	--								
UIA:RPA Ratio	--	--	--	--								
UIA:RPA Interface Width (ft)	--	--	--	--								
L / W Ratio of UIA:RPA	--	--	--	--								

2. Buffer Length

Average Buffer Length (ft)	--	--	--	--								

3. Buffer Slope

Average Buffer Slope (ft/ft)	--	--	--	--								
Effective Distance (ft)	--	--	--	--								
Number of Level Spreaders	--	--	--	--								

4. Provide a Vertical Drop

Vertical Drop (in)	--	--	--	--								
Mowing Strip Provided?	--	--	--	--								

5. Calculate Runoff for UIA and RPA Pair

Imperviousness (%)	--	--	--	--								
UIA:RPA Runoff (in)	--	--	--	--								
UIA:RPA Runoff (ft^3)	--	--	--	--								

6. Compare Runoff from UIA:RPA Pair to Runoff from UIA Only

UIA Runoff (ft^3)	--	--	--	--								
Runoff Reduction (ft^3)	--	--	--	--								
Runoff Reduction (%)	--	--	--	--								

Notes:

GRASS SWALE ADDITIONAL DESIGN PROCEDURE AND CRITERIA (User Input in Blue Cells)

1. Delineate Areas Tributary to Swale												
Total Tributary Area (ft^2)	--	--	--	2,184								
Imperviousness (%)	--	--	--	0.0%								
2. Swale Inflows												
Concentrated Flow Type	--	--	--	Swale								
Blind Swale Type	--	--	--	--								
Spreader Energy Dissipation	--	--	--	--								
Vertical Drop (in)	--	--	--	--								
Gutter Depression (in)	--	--	--	--								
Curb Opening Length (ft)	--	--	--	--								
Concrete Sediment Pad	--	--	--	--								
Min. Forebay Volume (ft^3)	--	--	--	--								
Design Forebay Volume (ft^3)	--	--	--	--								
Max. Forebay Depth (in)	--	--	--	--								
Design Forebay Depth (in)	--	--	--	--								
Calculated Notch Width (in)	--	--	--	--								
Design Notch Width (in)	--	--	--	--								
Drain Time (minutes)	--	--	--	--								
Energy Dissipation Type	--	--	--	Rock								
3. Swale Cross Section												
Length of Swale (ft)	--	--	--	156.00								
Bottom Width (ft)	--	--	--	14.00								
Bottom Area (ft^2)	--	--	--	2,184								
Side Slopes (horiz/vert)	--	--	--	4.00								
4. Longitudinal Slope												
Available Slope (ft/ft)	--	--	--	0.020								
Design Slope (ft/ft)	--	--	--	0.020								
Total Drop Height (ft)	--	--	--	0.00								
Underdrains Provided?	--	--	--	NO								
5. Calculate Runoff from Tributary Area												
Tributary Runoff (ft^3)	--	--	--	109								
Reduced Trib. Runoff (ft^3)	--	--	--	109								
6. Calculate Runoff Reduction through Swale Bottom												
Volume Infiltrated (ft^3)	--	--	--	109								
Swale Discharge (ft^3)	--	--	--	0								
Runoff Reduction (%)	--	--	--	100.0%								
7. Design Discharge												
2-year Discharge, Q2 (cfs)	--	--	--	2.2								
8. Design Velocity												
Vegetal Retardance Curve	--	--	--	E								
Velocity, V2 (fps)	--	--	--	0.9								
9. Design Flow Depth												
Flow Depth, D2 (ft)	--	--	--	0.17								
Flow Area, A (ft^2)	--	--	--	2.5								
Wetted Perimeter, P (ft)	--	--	--	15.4								
Top Width, T (ft)	--	--	--	15.4								
Hydraulic Radius, Rh (ft)	--	--	--	0.16								
VR Product (ft^2/sec)	--	--	--	0.14								
Manning's n value	--	--	--	0.071								
Hydraulic Depth, Dh (ft)	--	--	--	0.16								
Froude Number	--	--	--	0.07								
10. Swale Outflows												
Outflows Considered?	--	--	--	YES								

Notes:

DESIGN POINT RESULT (Sums results for current column and all upstream design point columns.)

Design Point ID	RPA3	SPA	UIARPA	Treated							
Area Type	RPA	SPA	UIA	RPA_Swale							
Total Area (ft^2)	144,111	12,367	129,560	2,184							
Imperviousness (%)		0.0%	100.0%	0.0%							
Tributary Runoff (ft^3)		0	5,398	109							
Runoff Reduction (ft^3)	109	0	0	109							
Runoff Remaining (ft^3)	5,398	0	5,398	0							

Total Tributary Area entered on Site Layout Worksheet is: 144,111 square feet

APPENDIX E

Excerpts from Approved Reports

PHASE III DRAINAGE REPORT

FOR

DAWSON TRAILS FILING NO. 2
TOWN OF CASTLE ROCK, COLORADO
PROJECT NO. CD23-0045

Prepared for:

ACM Dawson Trails JV LLC
4100 Mississippi Ave, Ste 500
Glendale, CO 80246
Contact: Lawrence Jacobson
Phone: 303-984-9800

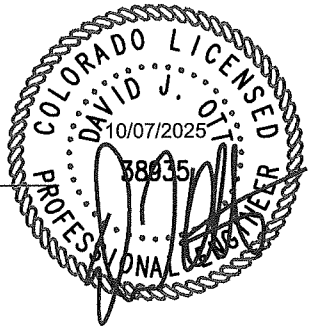
Prepared by:

EMK Consultants, Inc.
7006 S. Alton Way, Bldg F
Centennial, CO 80112
Contact: Eric R. McDaniel
Phone: 303-694-1520
EMK Job No 13466

September 9, 2025

Engineer's Statement:

I affirm that this report and plan for the Phase III drainage design of Dawson Trails Filing No. 2 was prepared by me (or under my direct supervision) in accordance with the provisions of the Town of Castle Rock Drainage Design and Technical Criteria for the owners thereof. I understand that the Town of Castle Rock does not and will not assume liability for drainage facilities designed by others.



David J. Ott, P.E.
Colorado Professional Engineer
License #38935

DEVELOPMENT SERVICES
APPROVED
By tkucewesky
on 10/21/2025
Approved-CD23-0045 Ph III Drn Rpt.pdf
Record Document on File

Developer's Statement:

ACM Dawson Trails JV LLC hereby certifies that the drainage facilities for Dawson Trails Filing No. 2 shall be constructed according to the design presented in this report. I understand that the Town of Castle Rock does not and will not assume liability for the drainage facilities designed and/or certified by my engineer and that the Town of Castle Rock reviews drainage plans pursuant to the Municipal Code; but cannot, on behalf of Dawson Trails Filing No. 2 , guarantee that final drainage design review will absolve ACM Dawson Trails JV LLC and/or their successors and/or assigns of future liability for improper design.

Lawrence Jacobson
Owner/Developer

oriented use. The area is assigned a build-out imperviousness of 71.4% for hydrologic analysis. This basin is tributary to the Regional Pond C1 and has been accounted for in its sizing. Release rates from Pond C1 have been coordinated with the design of the Gambel Ridge Tributary as to release at acceptable rates. This avoids any capacity issues in crossing the railroad in following historic drainage patterns. No impacts to wetlands or water rights are anticipated as a result of this inter-watershed transfer. Interim discharge from this basin continues east to culverts under I-25 and the railroad via sheet flow.

Basin C-3 *(19.6 acres | 70% Impervious | Q100 = 57.9 cfs)*
Major Basin C-3 is bounded by Dawson Trails Boulevard on the west, Crystal Valley Parkway on the north, Ike Street on the east, and Quandary Peak Drive on the South. It is designated within Planning area F3 in the development plan. Non-residential and residential uses are permitted within the development parcel, with a specific anticipation of commercial oriented use. The area is assigned a build-out imperviousness of 70% for hydrologic analysis. This basin is tributary to the Regional Pond C1 and has been accounted for in its sizing.

Basin C-4 *(20.6 acres | 75% Impervious | Q100 = 43.8 cfs)*
Major Basin C-4 is bounded by Dawson Trails Boulevard on the east, Arterial A on the north and west, and Quandary Peak Drive on the south. It is designated within Planning area E2 in the development plan. Non-residential and residential uses are permitted within the development parcel, with a specific anticipation of commercial oriented use. The area is assigned a build-out imperviousness of 75% for hydrologic analysis. This basin is tributary to the Regional Pond C1 and has been accounted for in its sizing.

Basin C-5 *(24.2 acres | 80% Impervious |Q100 = 50 cfs)*
Major Basin C-5 includes the road rights-of-way for Arterial A, Dawson Trails Boulevard, Crystal Valley Parkway and the western segment of Quandary Peak Drive. Specific sub-areas of Basin C-5 are further detailed in Section II.B of this report, along with the proposed drainage improvements for the included roadways. The area is assigned a build-out imperviousness of 80% for hydrologic analysis. This basin is tributary to the Regional Pond C1 and has been accounted for in its sizing.

Basin C-6 *(8.4 acres | 80% Impervious | Q100 = 15 cfs)*
Major Basin C-6 includes the road rights-of-way for Ike Street and the eastern segment of Quandary Peak Drive. Specific sub-areas of Basin C6 are further detailed in Section II.B of this report, along with the proposed drainage improvements for the included roadways. The area is assigned a build-out imperviousness of 80% for hydrologic analysis. This basin is tributary to the Regional Pond C1 and has been accounted for in its sizing.

North Dawson Tributary Watershed: On-site Basins used in CUHP/SWMM Analysis:
[Proposed Overall SWMM Map 1]

Basin A-1 *(13.4 acre | 12% Impervious| Q100 = 27.0 cfs)*
Major Basin A-1 is bounded by development parcels to the north, Dawson Trails Boulevard to the west, The CORE Electric substation to the south, and the BNSF Railraod to the east. Major Basin A-1 contains the Regional Flood Control Pond A1 and associated open space. Basin A-1 is located within the planning area OSP-4 in the development plan. This area has an anticipated use of open space and landscape features. The area is assigned a build out imperviousness of 12% for hydrologic analysis. Flows from this basin

B6.21 *(8.15 acres | 90% Impervious | Q100 = 9.8 cfs)* and
B6.22 *(1.20 acres | 90% Impervious | Q100 = 9.3 cfs)*
Sub-basins B6.21 and B6.22 contain the south and north halves of Gambel Ridge Blvd., respectively, between road stations 34+75 and 47+25. The areas surface drain via curb/gutter to a pair of on-grade curb inlets on Gambel Ridge Blvd. at 47+25. B6.21 and B6.22 accept bypass flows from B6.11 and B6.12, respectively. B6.22 is designed for full capture of major and minor storm gutter flows upstream of the planned intersection.

B6.20 *(6.69 acres | 2% Impervious | Q100 = 14.7 cfs)*
Sub-basin B6.20 includes the hillside south of sub-basin B6.21. Runoff from the slope is collected in a swale and captured in area inlet B6.20

B6.31 *(4.87 acres | 90% Impervious | Q100 = 8.8 cfs)* and
B6.32 *(0.83 acres | 90% Impervious | Q100 = 6.5 cfs)*
Sub-basins B6.31 and B6.32 contain the south and north halves of Gambel Ridge Blvd., respectively, between road stations 47+25 and 56+00. The areas surface drain via curb/gutter to a pair of on-grade curb inlets on Gambel Ridge Blvd. at 56+00.

B6.30 *(3.65 acres | 2% Impervious | Q100 = 9.1 cfs)*
Sub-basin B6.30 includes the hillside south of sub-basin B6.31. Runoff from the slope is collected in a swale and captured in area inlet B6.30

B6.41 *(1.63 acres | 90% Impervious | Q100 = 5.7 cfs)* and
B6.42 *(0.49 acres | 90% Impervious | Q100 = 4.4 cfs)*
Sub-basins B6.41 and B6.42 contain the south and north halves of Gambel Ridge Blvd., respectively, between road stations 56+00 and 61+00. The areas surface drain via curb/gutter to a pair of on-grade curb inlets on Gambel Ridge Blvd. at 61+00. B6.41 and B6.42 accept bypass flows from B6.31 and B6.32, respectively. B6.42 is designed for full capture of major and minor storm gutter flows upstream of a planned intersection.

B6.40 *(0.87 acres | 2% Impervious | Q100 = 2.7 cfs)*
Sub-basin B6.40 includes the hillside south of sub-basin B6.41. Runoff from the slope is collected in a swale and captured in area inlet B6.40

B6.51 *(0.66 acres | 90% Impervious | Q100 = 4.9 cfs)* and
B6.52 *(0.63 acres | 90% Impervious | Q100 = 4.8 cfs)*
Sub-basins B6.09 and B6.10 contain the south and north halves of Gambel Ridge Blvd., respectively, between road stations 61+00 and 65+50. The areas surface drain via curb/gutter to a pair of on-grade curb inlets on Gambel Ridge Blvd. at 65+50. B6.52 also includes the adjacent hillside and accepts bypass flows from B6.41. B6.51 and B6.52 are designed for full capture of major and minor storm gutter flows before routing to Pond B1.

Basin C5 sub-basins (Rational Method Analysis): [Proposed Detailed Drainage Maps 6-7, 12]

Basin C5 is defined as the areas of road-right-of way, including Dawson Trails Boulevards and roadways west, that are tributary to regional Pond C1.

C5.01 *(2.61 acres | 90% Impervious | Q100 = 9.6 cfs)* and
C5.02 *(2.11 acres | 90% Impervious | Q100 = 9.6 cfs)*

Sub-basins C5.01 and C5.02 contain the north and south halves of Arterial A, respectively, between road stations 65+50 and 81+50. The areas surface drain via curb/gutter to a pair of on-grade curb inlets on Arterial A at 81+50. C5.01 is designed for full capture of major and minor storm gutter flows upstream of the intersection with Twin Oaks Drive

C5.03 *(1.36 acres | 90% Impervious | Q100 = 10.1 cfs)* and
C5.04 *(1.22 acres | 90% Impervious | Q100 = 9.0 cfs)*
Sub-basins C5.03 and C5.04 contain the north and south halves of Arterial A, respectively, between road stations 81+50 and 88+45. The areas surface drain via curb/gutter to a pair of on-grade curb inlets on Arterial A at 88+45. C5.03 and C5.04 accept bypass flows from C5.01 and C5.02, respectively. Both inlets are designed for full capture of major and minor storm gutter flows upstream of the intersection with Dawson Trails Boulevard

C5.11 *(1.56 acres | 90% Impervious | Q100 = 9.6 cfs)* and
C5.12 *(1.56 acres | 90% Impervious | Q100 = 9.6 cfs)*
Sub-basins C5.11 and C5.12 contain the west and east halves of Dawson Trails Boulevard, respectively, between the high point at road stations 148+33 and road station 160+00. The areas surface drain via curb/gutter to a pair of on-grade curb inlets just south of the Dawson Trails Boulevard/Quandary Peak Drive roundabout. Inlet C5.12 is previously constructed with the Dawson Trails Boulevard project (CIP22-0012). Inlet C5.11 is proposed with this project but its flows are accounted for by the Dawson Trails storm sewer design.

C5.13 *(1.80 acres | 90% Impervious | Q100 = 13.6 cfs)* and
C5.14 *(0.76 acres | 90% Impervious | Q100 = 5.7 cfs)*
Sub-basins C5.13 and C5.14 contain the north and south halves of Quandary Peak Drive, respectively, between Arterial A and Dawson Trails Boulevard. C5.13 also receives bypass flow from C5.14. The areas surface drain via curb/gutter to a pair of sump inlets just west of the Dawson Trails Boulevard/Quandary Peak Drive roundabout.

C5.15 *(1.81 acres | 90% Impervious | Q100 = 11.3 cfs)* and
C5.16 *(1.65 acres | 90% Impervious | Q100 = 8.3 cfs)*
Sub-basins C5.15 and C5.16 contain the west and east halves of Dawson Trails Boulevard, respectively, between the Quandary Peak Drive roundabout and road station 174+75. The areas surface drain via curb/gutter to a pair of existing on-grade curb inlets at174+75. Inlets C5.15 and C5.16 mark the northern limits of Dawson Trails Boulevard construction with the Filing 2 project, and are designed to fully capture roadway runoff before leaving the project limits.

Basin C6 sub-basins (Rational Method analysis): [Proposed Detailed Drainage Map 7]

Basin C6 is defined as the areas of road-right-of way east of Dawson Trails Boulevards that are tributary to regional Pond C1.

C6.01 *(1.89 acres | 90% Impervious | Q100 = 13.3 cfs)* and
C6.02 *(1.13 acres | 90% Impervious | Q100 = 8.3 cfs)*
Sub-basins C6.01 and C6.02 contain the north and south halves of Quandary Peak Drive, respectively, between Dawson Trails Boulevard and Ike Street. The areas surface drain

all flow can be released via the main stem of the North Dawson Tributary or the main stem of the Gambel Ridge tributary. Impacts to water rights or wetlands are not anticipated with this basin transfer.

5. Mile High Flood District drainage policy states that the maximum allowable 100-year release rate from detention ponds is 0.9 of the pre-development peak 100-year flows. However, to account for upstream drainageway flows while meeting the constraint described in (4) above, 100-year detention release rates will need to be further restricted beyond 0.9 of pre-development peak to ensure existing capacities downstream are not exceeded. The railway crossings and I-25 culverts are the governing restriction for the detention ponds in this project.

Drainage components specifically integrated with the Crystal Valley Interchange:
Two components of the Crystal Valley Interchange are key elements of the Gambel Ridge Watershed as it relates Filing 2 drainage design. These elements—the Gambel Ridge Channel Improvements and Regional Pond C1—are explained as follows:

Gambel Ridge Channel Improvements (by others)
The runoff analysis in the Gambel Ridge and Douglas Lane Tributary Master Plan [Ref. G] indicates that Gambel Ridge Tributary will see an increase of flow under developed conditions, and that channel stabilization improvements will be warranted.

The design of the Gambel Ridge Tributary improvements is not within the scope of the Filing 2 project or within the scope of this drainage report.

Improvements to the 1,000-foot segment of Gambel Ridge Tributary between the BNSF right-of-way and Dawson Trails Boulevard are included in the design of the Crystal Valley Interchange by Jacobs Engineering Group. The appendices contain design calculations from the Crystal Valley Interchange project relevant to this project.

Regional Pond C1 (by others)
Pond C1 is located immediately south of Crystal Valley Parkway, between Dawson Trails Boulevard and Intestate 25. Because Pond C1 is responsible for detention and water quality treatment of the segment of Crystal Valley Parkway between Dawson Trails Boulevard and Interstate 25, its design is programmed with the Crystal Valley Interchange project, by Jacobs Engineering Group. However, Pond C1 also plays an important role in the Dawson Trails Filing No. 2 drainage design because it provides detention and water quality treatment for development parcels in the lower part of the Gambel Ridge watershed. Land use assumptions for basins tributary to Pond C1 within Filing 2 fit within the assumptions of the Pond C1 design in the CVI project.

APPENDIX A

PROJECT INFORMATION & HYDROLOGIC COMPUTATIONS

VICINITY MAP
HYDROLOGIC SOIL GROUP
FLOODPLAIN MAPS
EXISTING CUHP CALCULATIONS
PROPOSED CUHP CALCULATIONS
PROPOSED SWMM ANALYSIS
RATIONAL METHOD CALCULATIONS

GAMBEL RIDGE TRIBUTARY

CUHP MODEL RESULTS

INTERIM BUILDOUT CONDITION

CUHP SUBCATCHMENTS

Columns with this color heading are for required user-input
Columns with this color heading are for optional override values
Columns with this color heading are for program-calculated values

								Maximum Depression Storage (Watershed inches)		Horton's Infiltration Parameters			DCIA
Subcatchment Name	EPA SWMM Target Node	Raingage	Area (mi^2)	Length to Centroid (mi)	Length (mi)	Slope (ft/ft)	Percent Imperviousness	Pervious	Impervious	Initial Rate (in/hr)	Decay Coefficient (1/seconds)	Final Rate (in/hr)	Level 0, 1, or 2
H-1	J_H1	100-year	0.0725514	0.221212121	0.5210227	0.058	2	0.4	0.1	3.7	0.0018	0.5	0
H-2	J_H2	100-year	0.1187964	0.357386364	0.7441288	0.045	2	0.35	0.05	3.5	0.0018	0.5	0
H-3	J_H3	100-year	0.0086165	0.098863636	0.1977273	0.033	45	0.35	0.05	3	0.0018	0.5	0
H-4	J_H4	100-year	0.0126001	0.131439394	0.2606061	0.045	45	0.35	0.05	3	0.0018	0.5	0
H-5	J_H5	100-year	0.0614924	0.2	0.4005682	0.036	45	0.35	0.05	3.1	0.0018	0.5	0
H-6	J_H6	100-year	0.0394709	0.359469697	0.7189394	0.045	32.6	0.35	0.1	3	0.0018	0.5	0
H-7	J_H7	100-year	0.0100076	0.052840909	0.1988636	0.031	51.5	0.35	0.05	4.2	0.0018	0.6	0
H-8	J_H8	100-year	0.0165493	0.225776932	0.4346471	0.0533	2	0.4	0.01	3	0.0018	0.5	0
C-1	J_C1	100-year	0.0570767	0.16969697	0.4077652	0.06321412	75	0.35	0.1	4	0.0018	0.6	0
C-2	J_C2	100-year	0.0760191	0.226704545	0.4401515	0.022934596	75	0.35	0.1	3.3	0.001745	0.5	0
C-3	J_C3	100-year	0.0508346	0.219128788	0.4765152	0.019475358	75	0.35	0.1	3.4	0.0018	0.5	0
C-4	J_C4	100-year	0.033502	0.130681818	0.3314394	0.024257143	75	0.35	0.1	3.7	0.0018	0.5	0
C-5	J_C5	100-year	0.0377594	0.358522727	0.7168561	0.018124174	80.4	0.35	0.1	3.7	0.0018	0.5	0
C-6	J_C6	100-year	0.0130523	0.21969697	0.5893939	0.01722365	80.4	0.35	0.1	4.2	0.001714589	0.6	0
C-7	J_C7	100-year	0.0210999	0.148674242	0.2666667	0.011576705	88.6	0.35	0.1	4.4	0.001010314	0.9	0
C-8	J_C8	100-year	0.030106	0.130492424	0.2907197	0.015	95	0.35	0.1	4.5	0.001	0.9	0
C-9	J_C9	100-year	0.0066354	0.131439394	0.2712121	0.02	2	0.35	0.05	3	0.0018	0.5	0
OS-1	J_O1	100-year	0.1084434	0.422916667	0.7518939	0.066	8.7	0.4	0.05	4.1	0.0018	0.6	0
OS-2	J_O2	100-year	0.1579448	0.522727273	0.9541667	0.059	3.9	0.4	0.05	4.2	0.0018	0.6	0
OS-3	J_O3	100-year	0.1543167	0.297727273	0.8047348	0.059	10.4	0.4	0.05	3	0.0018	0.5	0
OS-4	J_O4	100-year	0.0394811	0.148106061	0.4035985	0.057	11.5	0.4	0.05	3	0.0018	0.5	0

INTERIM BUILDOUT CONDITION - 100 YEAR STORM EVENT

Summary of Unit Hydrograph Parameters Used By Program and Calculated Results (Version 2.0.1)

		Unit Hydrograph Parameters and Results									Excess Precip.		Storm Hydrograph			
Catchment Name/ID	User Comment for Catchment	CT	Cp	W50 (min.)	W50 Before Peak	W75 (min.)	W75 Before Peak	Time to Peak (min.)	Peak (cfs)	Volume (c.f)	Excess (inches)	Excess (c.f.)	Time to Peak (min.)	Peak Flow (cfs)	Total Volume (c.f.)	Runoff per Unit Area (cfs/acre)
H-1		0.156	0.144	35.8	5.45	18.6	3.85	9.1	61	168,551	1.53	257,995	45.0	66	257,577	1.43
H-2		0.156	0.179	45.5	7.77	23.7	5.49	13.0	78	275,988	1.59	438,879	50.0	96	438,634	1.26
H-3		0.091	0.060	24.3	2.63	12.7	1.86	4.4	11	20,018	2.13	42,550	40.0	12	41,629	2.24
H-4		0.091	0.071	24.9	2.87	13.0	2.03	4.8	15	29,273	2.13	62,222	40.0	18	61,250	2.23
H-5		0.091	0.146	19.4	3.67	10.1	2.59	6.1	95	142,859	2.12	303,242	35.0	106	301,391	2.69
H-6		0.098	0.098	51.8	5.39	27.0	3.81	9.0	23	91,699	1.96	180,024	50.0	33	179,860	1.30
H-7		0.088	0.069	15.5	2.32	8.1	1.64	3.9	19	23,250	2.12	49,276	35.0	19	47,053	2.95
H-8		0.156	0.074	65.8	5.23	34.2	3.70	8.7	8	38,447	1.57	60,277	55.0	10	60,204	0.92
C-1		0.079	0.174	11.4	3.03	6.0	2.14	5.0	150	132,601	2.42	320,554	35.0	141	312,291	3.86
C-2		0.079	0.198	15.3	3.82	7.9	2.70	6.4	149	176,608	2.45	433,560	35.0	168	431,561	3.46
C-3		0.079	0.165	19.5	3.96	10.1	2.80	6.6	78	118,099	2.46	290,053	35.0	95	288,347	2.93
C-4		0.079	0.137	14.6	3.03	7.6	2.14	5.1	69	77,832	2.45	190,843	35.0	74	186,479	3.45
C-5		0.077	0.147	33.6	5.29	17.5	3.74	8.8	34	87,723	2.52	220,908	45.0	50	220,635	2.08
C-6		0.077	0.091	39.5	4.26	20.5	3.01	7.1	10	30,323	2.49	75,389	45.0	15	75,187	1.83
C-7		0.075	0.115	19.0	3.17	9.9	2.24	5.3	33	49,019	2.53	124,250	35.0	41	122,947	3.01
C-8		0.074	0.136	14.4	3.01	7.5	2.13	5.0	63	69,942	2.66	186,018	35.0	70	181,518	3.61
C-9		0.156	0.049	77.2	4.40	40.2	3.11	7.3	3	15,415	1.62	24,918	60.0	4	24,888	0.83
OS-1		0.134	0.150	46.5	6.86	24.2	4.84	11.4	70	251,936	1.50	377,209	50.0	81	377,215	1.17
OS-2		0.150	0.196	50.7	9.14	26.3	6.46	15.2	94	366,937	1.44	526,741	55.0	108	526,352	1.07
OS-3		0.128	0.169	35.3	6.07	18.3	4.29	10.1	131	358,509	1.66	596,421	45.0	153	596,044	1.55
OS-4		0.125	0.090	33.6	3.81	17.4	2.69	6.4	35	91,722	1.68	153,820	45.0	40	153,345	1.58

ULTIMATE BUILDOUT CONDITION

CUHP SUBCATCHMENTS

Columns with this color heading are for required user-input
Columns with this color heading are for optional override values
Columns with this color heading are for program-calculated values

								Maximum Depression Storage (Watershed inches)		Horton's Infiltration Parameters			DCIA
Subcatchment Name	EPA SWMM Target Node	Raingage	Area (acre)	Length to Centroid (ft)	Length (ft)	Slope (ft/ft)	Percent Imperviousness	Pervious	Impervious	Initial Rate (in/hr)	Decay Coefficient (1/seconds)	Final Rate (in/hr)	Level 0, 1, or 2
H-1	J_H1	2-year	46.432874	1168	2751	0.058	7.8	0.4	0.1	3.7	0.0018	0.5	0
H-2	J_H2	2-year	76.029706	1887	3929	0.045	28.2	0.35	0.05	3.5	0.0018	0.5	0
H-3	J_H3	2-year	5.5145776	522	1044	0.033	45	0.35	0.05	3	0.0018	0.5	0
H-4	J_H4	2-year	8.0640496	694	1376	0.045	45	0.35	0.05	3	0.0018	0.5	0
H-5	J_H5	2-year	39.355119	1056	2115	0.036	45	0.35	0.05	3.1	0.0018	0.5	0
H-6	J_H6	2-year	25.261364	1898	3796	0.045	32.6	0.35	0.1	3	0.0018	0.5	0
H-7	J_H7	2-year	6.4048898	279	1050	0.031	51.5	0.35	0.05	4.2	0.0018	0.6	0
H-8	J_H8	2-year	10.591578	1192	2295	0.053	2	0.4	0.01	3	0.0018	0.5	0
C-1	J_C1	2-year	36.529109	896	2153	0.063	75	0.35	0.1	4	0.0018	0.6	0
C-2	J_C2	2-year	48.652227	1197	2324	0.023	75	0.35	0.1	3.3	0.001745	0.5	0
C-3	J_C3	2-year	32.53416	1157	2516	0.019	75	0.35	0.1	3.4	0.0018	0.5	0
C-4	J_C4	2-year	21.441253	690	1750	0.024	75	0.35	0.1	3.7	0.0018	0.5	0
C-5	J_C5	2-year	24.166001	1893	3785	0.018	80.4	0.35	0.1	3.7	0.0018	0.5	0
C-6	J_C6	2-year	8.3534605	1160	3112	0.017	80.4	0.35	0.1	4.2	0.001714589	0.6	0
C-7	J_C7	2-year	13.503926	785	1408	0.012	88.6	0.35	0.1	4.4	0.001010314	0.9	0
C-8	J_C8	2-year	19.267837	689	1535	0.015	95	0.35	0.1	4.5	0.001	0.9	0
C-9	J_C9	2-year	4.2466253	694	1432	0.020	2	0.35	0.05	3	0.0018	0.5	0
OS-1	J_O1	2-year	69.403792	2233	3970	0.066	8.7	0.4	0.05	4.1	0.0018	0.6	0
OS-2	J_O2	2-year	101.08469	2760	5038	0.059	3.9	0.4	0.05	4.2	0.0018	0.6	0
OS-3	J_O3	2-year	98.762718	1572	4249	0.059	10.4	0.4	0.05	3	0.0018	0.5	0
OS-4	J_O4	2-year	25.267883	782	2131	0.057	11.5	0.4	0.05	3	0.0018	0.5	0

ULTIMATE BUILDOUT CONDITION - 2 YEAR STORM EVENT

Summary of Unit Hydrograph Parameters Used By Program and Calculated Results (Version 2.0.1)

		Unit Hydrograph Parameters and Results									Excess Precip.		Storm Hydrograph			
Catchment Name/ID	User Comment for Catchment	CT	Cp	W50 (min.)	W50 Before Peak	W75 (min.)	W75 Before Peak	Time to Peak (min.)	Peak (cfs)	Volume (c.f)	Excess (inches)	Excess (c.f.)	Time to Peak (min.)	Peak Flow (cfs)	Total Volume (c.f.)	Runoff per Unit Area (cfs/acre)
H-1		0.140	0.130	35.5	5.05	18.5	3.57	8.4	61	168,551	0.07	11,034	40.0	3	11,009	0.06
H-2		0.104	0.141	38.7	5.68	20.1	4.01	9.5	92	275,988	0.32	88,762	40.0	21	88,680	0.27
H-3		0.092	0.059	24.8	2.63	12.9	1.86	4.4	10	20,018	0.52	10,368	35.0	3	10,151	0.53
H-4		0.092	0.070	25.4	2.88	13.2	2.03	4.8	15	29,273	0.52	15,161	35.0	4	14,940	0.53
H-5		0.092	0.144	19.8	3.68	10.3	2.60	6.1	93	142,859	0.52	73,722	30.0	25	73,175	0.64
H-6		0.100	0.095	54.0	5.44	28.1	3.85	9.1	22	91,699	0.37	33,623	40.0	6	33,596	0.23
H-7		0.089	0.068	15.8	2.32	8.2	1.64	3.9	19	23,250	0.54	12,647	30.0	5	12,098	0.73
H-8		0.157	0.074	65.8	5.25	34.2	3.71	8.8	8	38,447	0.04	1,465	45.0	0	1,464	0.03
C-1		0.079	0.173	11.5	3.03	6.0	2.14	5.1	149	132,601	0.78	103,829	30.0	45	101,107	1.24
C-2		0.079	0.197	15.4	3.83	8.0	2.70	6.4	148	176,608	0.80	141,348	30.0	54	140,725	1.12
C-3		0.079	0.164	19.6	3.97	10.2	2.81	6.6	78	118,099	0.80	94,626	30.0	31	94,031	0.94
C-4		0.079	0.136	14.7	3.04	7.6	2.15	5.1	68	77,832	0.80	62,147	30.0	24	60,766	1.12
C-5		0.077	0.146	33.8	5.29	17.6	3.74	8.8	34	87,723	0.86	75,055	35.0	16	74,963	0.68
C-6		0.077	0.091	39.7	4.27	20.7	3.02	7.1	10	30,323	0.84	25,500	40.0	5	25,432	0.58
C-7		0.075	0.115	19.0	3.18	9.9	2.25	5.3	33	49,019	0.92	45,075	30.0	15	44,607	1.08
C-8		0.074	0.136	14.5	3.01	7.5	2.13	5.0	62	69,942	1.00	70,115	30.0	27	68,423	1.38
C-9		0.157	0.049	77.2	4.42	40.2	3.13	7.4	3	15,415	0.09	1,340	45.0	0	1,338	0.05
OS-1		0.139	0.154	46.7	7.03	24.3	4.96	11.7	70	251,936	0.07	16,883	40.0	4	16,884	0.05
OS-2		0.152	0.199	50.7	9.25	26.4	6.54	15.4	93	366,937	0.03	10,527	45.0	2	10,520	0.02
OS-3		0.132	0.173	35.5	6.21	18.4	4.39	10.4	131	358,509	0.11	40,206	40.0	11	40,179	0.11
OS-4		0.128	0.092	33.8	3.87	17.6	2.74	6.5	35	91,722	0.12	11,260	40.0	3	11,229	0.13

ULTIMATE BUILDOUT CONDITION - 5 YEAR STORM EVENT

Summary of Unit Hydrograph Parameters Used By Program and Calculated Results (Version 2.0.1)

		Unit Hydrograph Parameters and Results									Excess Precip.		Storm Hydrograph			
Catchment Name/ID	User Comment for Catchment	CT	Cp	W50 (min.)	W50 Before Peak	W75 (min.)	W75 Before Peak	Time to Peak (min.)	Peak (cfs)	Volume (c.f)	Excess (inches)	Excess (c.f.)	Time to Peak (min.)	Peak Flow (cfs)	Total Volume (c.f.)	Runoff per Unit Area (cfs/acre)
H-1		0.139	0.129	35.4	5.01	18.4	3.54	8.4	61	168,551	0.32	54,347	40.0	15	54,227	0.33
H-2		0.103	0.143	37.8	5.65	19.7	3.99	9.4	94	275,988	0.62	171,597	40.0	40	171,306	0.53
H-3		0.091	0.060	24.6	2.63	12.8	1.86	4.4	10	20,018	0.85	16,973	30.0	5	16,614	0.90
H-4		0.091	0.071	25.2	2.87	13.1	2.03	4.8	15	29,273	0.85	24,820	30.0	7	24,439	0.89
H-5		0.091	0.145	19.6	3.68	10.2	2.60	6.1	94	142,859	0.84	120,707	30.0	43	119,890	1.09
H-6		0.099	0.096	53.1	5.42	27.6	3.83	9.0	22	91,699	0.68	62,565	40.0	11	62,507	0.43
H-7		0.088	0.068	15.7	2.32	8.1	1.64	3.9	19	23,250	0.86	19,981	30.0	8	19,101	1.20
H-8		0.157	0.074	65.8	5.25	34.2	3.71	8.7	8	38,447	0.29	11,330	45.0	2	11,317	0.19
C-1		0.079	0.173	11.5	3.03	6.0	2.14	5.0	149	132,601	1.14	151,819	30.0	67	147,868	1.82
C-2		0.079	0.197	15.3	3.82	8.0	2.70	6.4	149	176,608	1.17	207,162	30.0	80	206,234	1.64
C-3		0.079	0.165	19.5	3.97	10.2	2.80	6.6	78	118,099	1.17	138,658	30.0	45	137,811	1.38
C-4		0.079	0.136	14.7	3.04	7.6	2.15	5.1	69	77,832	1.17	91,068	30.0	35	89,021	1.63
C-5		0.077	0.146	33.7	5.29	17.5	3.74	8.8	34	87,723	1.24	108,383	35.0	23	108,251	0.96
C-6		0.077	0.091	39.6	4.26	20.6	3.01	7.1	10	30,323	1.21	36,726	35.0	7	36,629	0.82
C-7		0.075	0.115	19.0	3.18	9.9	2.25	5.3	33	49,019	1.28	62,765	30.0	20	62,111	1.48
C-8		0.074	0.136	14.5	3.01	7.5	2.13	5.0	62	69,942	1.39	97,150	30.0	36	94,804	1.85
C-9		0.157	0.049	77.2	4.42	40.2	3.12	7.4	3	15,415	0.34	5,297	45.0	1	5,290	0.19
OS-1		0.137	0.152	46.6	6.95	24.2	4.91	11.6	70	251,936	0.26	64,435	40.0	15	64,438	0.22
OS-2		0.152	0.198	50.7	9.21	26.4	6.51	15.3	93	366,937	0.20	72,312	45.0	17	72,264	0.17
OS-3		0.130	0.171	35.4	6.15	18.4	4.35	10.3	131	358,509	0.39	139,202	40.0	39	139,114	0.40
OS-4		0.126	0.090	33.7	3.84	17.5	2.71	6.4	35	91,722	0.40	36,795	35.0	10	36,688	0.41

ULTIMATE BUILDOUT CONDITION - 100 YEAR STORM EVENT

Summary of Unit Hydrograph Parameters Used By Program and Calculated Results (Version 2.0.1)

		Unit Hydrograph Parameters and Results									Excess Precip.		Storm Hydrograph			
Catchment Name/ID	User Comment for Catchment	CT	Cp	W50 (min.)	W50 Before Peak	W75 (min.)	W75 Before Peak	Time to Peak (min.)	Peak (cfs)	Volume (c.f)	Excess (inches)	Excess (c.f.)	Time to Peak (min.)	Peak Flow (cfs)	Total Volume (c.f.)	Runoff per Unit Area (cfs/acre)
H-1		0.137	0.127	35.4	4.96	18.4	3.50	8.3	62	168,551	1.60	269,381	45.0	69	268,785	1.48
H-2		0.102	0.146	36.6	5.61	19.0	3.96	9.3	97	275,988	1.90	524,509	45.0	125	523,680	1.64
H-3		0.091	0.060	24.3	2.63	12.7	1.86	4.4	11	20,018	2.13	42,550	40.0	12	41,629	2.24
H-4		0.091	0.071	24.9	2.87	13.0	2.03	4.8	15	29,273	2.13	62,222	40.0	18	61,250	2.23
H-5		0.091	0.146	19.4	3.67	10.1	2.59	6.1	95	142,859	2.12	303,242	35.0	106	301,391	2.69
H-6		0.098	0.098	51.8	5.39	27.0	3.81	9.0	23	91,699	1.96	180,024	50.0	33	179,860	1.30
H-7		0.088	0.069	15.5	2.32	8.1	1.64	3.9	19	23,250	2.12	49,276	35.0	19	47,053	2.95
H-8		0.156	0.074	65.8	5.23	34.2	3.70	8.7	8	38,447	1.57	60,277	55.0	10	60,204	0.92
C-1		0.079	0.174	11.4	3.03	6.0	2.14	5.0	150	132,601	2.42	320,554	35.0	141	312,291	3.86
C-2		0.079	0.198	15.3	3.82	7.9	2.70	6.4	149	176,608	2.45	433,560	35.0	168	431,561	3.46
C-3		0.079	0.165	19.5	3.96	10.1	2.80	6.6	78	118,099	2.46	290,053	35.0	95	288,347	2.93
C-4		0.079	0.137	14.6	3.03	7.6	2.14	5.1	69	77,832	2.45	190,843	35.0	74	186,479	3.45
C-5		0.077	0.147	33.6	5.29	17.5	3.74	8.8	34	87,723	2.52	220,908	45.0	50	220,635	2.08
C-6		0.077	0.091	39.5	4.26	20.5	3.01	7.1	10	30,323	2.49	75,389	45.0	15	75,187	1.83
C-7		0.075	0.115	19.0	3.17	9.9	2.24	5.3	33	49,019	2.53	124,250	35.0	41	122,947	3.01
C-8		0.074	0.136	14.4	3.01	7.5	2.13	5.0	63	69,942	2.66	186,018	35.0	70	181,518	3.61
C-9		0.156	0.049	77.2	4.40	40.2	3.11	7.3	3	15,415	1.62	24,918	60.0	4	24,888	0.83
OS-1		0.134	0.150	46.5	6.86	24.2	4.84	11.4	70	251,936	1.50	377,209	50.0	81	377,215	1.17
OS-2		0.150	0.196	50.7	9.14	26.3	6.46	15.2	94	366,937	1.44	526,741	55.0	108	526,352	1.07
OS-3		0.128	0.169	35.3	6.07	18.3	4.29	10.1	131	358,509	1.66	596,421	45.0	153	596,044	1.55
OS-4		0.125	0.090	33.6	3.81	17.4	2.69	6.4	35	91,722	1.68	153,820	45.0	40	153,345	1.58

Appendix D - Referenced Material

Gambel Ridge and Douglas Lane FHAD

Gambel Ridge and Douglas Lane Master Plan

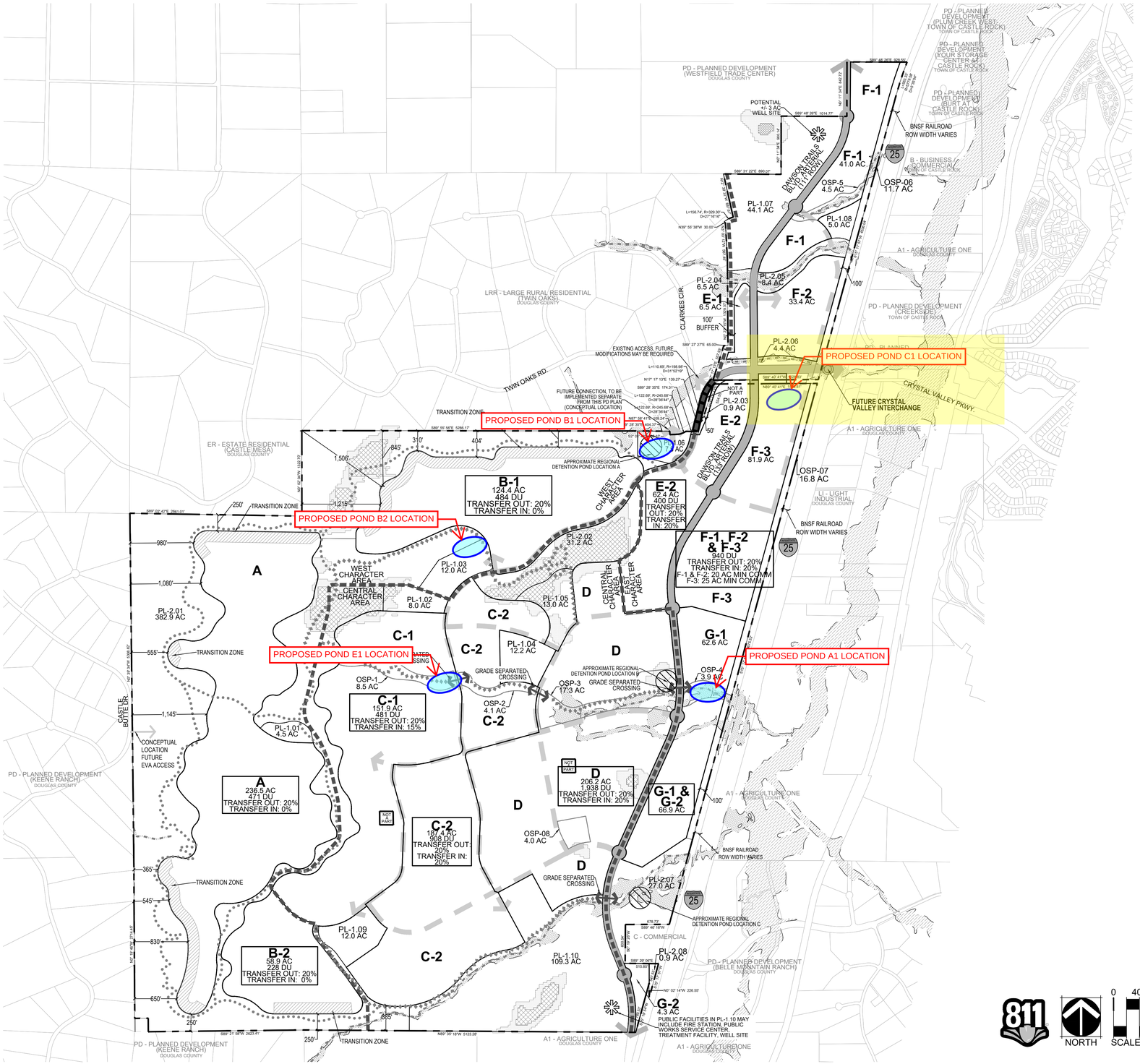
North and South Dawson Watershed Master Plan

DAWSON TRAILS

PLANNED DEVELOPMENT PLAN AND ZONING REGULATIONS

(AN AMENDMENT TO THE DAWSON RIDGE PRELIMINARY P.U.D SITE PLAN AND A PORTION OF THE WESTFIELD TRADE CENTER PRELIMINARY P.U.D. SITE PLAN)

TWO PARCELS OF LAND BEING ALL OF SECTION 28 AND PORTIONS OF SECTIONS 15, 21, 22, 27, 29, 32, 33 & 34, TOWNSHIP 8 SOUTH, RANGE 67 WEST OF THE SIXTH PRINCIPAL MERIDIAN, TOWN OF CASTLE ROCK, COUNTY OF DOUGLAS, STATE OF COLORADO



OPEN SPACE AND PUBLIC LAND SUMMARY

	ACREAGE	% OF TOTAL
PUBLIC LAND		
PL-1 (DEDICATED TO TOWN)	227.6	**11.0%**
OPEN SPACE		
PL-2 (DEDICATED TO TOWN)	462.2	22.4%
OSP (PRIVATE)	70.8	3.4%
SUBTOTAL	*533.0*	*25.8%*
FUTURE OPEN SPACE (1)	215.0	10.4%
OPEN SPACE TOTAL	**748.0**	**36.2%**
OPEN SPACE AND PUBLIC LAND TOTAL	**975.6**	**47.3%**

NOTE: (1) FUTURE OPEN SPACE DESIGNATION (PL-1, PL-2, OSP) TO BE DETERMINED AT TIME OF PLAT.

LEGEND

- PROPERTY BOUNDARY
- PLANNING AREA BOUNDARY
- CHARACTER AREA BOUNDARY
- MAJOR DRAINAGEWAY
- TRANSITION ZONE
- MODERATE SKYLINE
- MINOR SKYLINE
- 100 YEAR FLOODPLAIN (TOWN OF CASTLE ROCK)
- PROPOSED ARTERIAL RIGHT OF WAY
- FUTURE COLLECTOR RIGHT OF WAY
- 5' NATURAL SURFACE TRAIL
- 10' HARD SURFACE TRAIL
- 100 YEAR FLOODPLAIN (FEMA)

CHECKED BY: MB, SW
DRAWN BY: DJ, JR

811 NORTH 0 400 800 1,600 SCALE 1" = 800'

PLANNER/LANDSCAPE ARCHITECT
NORRIS DESIGN
Planning | Landscape Architecture | Branding
1101 Bannock Street
Denver, Colorado 80204
P 303.892.1166
www.norris-design.com

APPLICANT:
WESTSIDE INVESTMENT PARTNERS
4100 E. MISSISSIPPI AVE
SUITE 500
DENVER, CO 80246
303-984-9800

ENGINEER & SURVEYOR:
CORE CONSULTANTS, INC.
LIVEYOURCORE.COM
CORE CONSULTANTS
3473 S. BROADWAY
ENGLEWOOD, CO 80113
303-730-5960

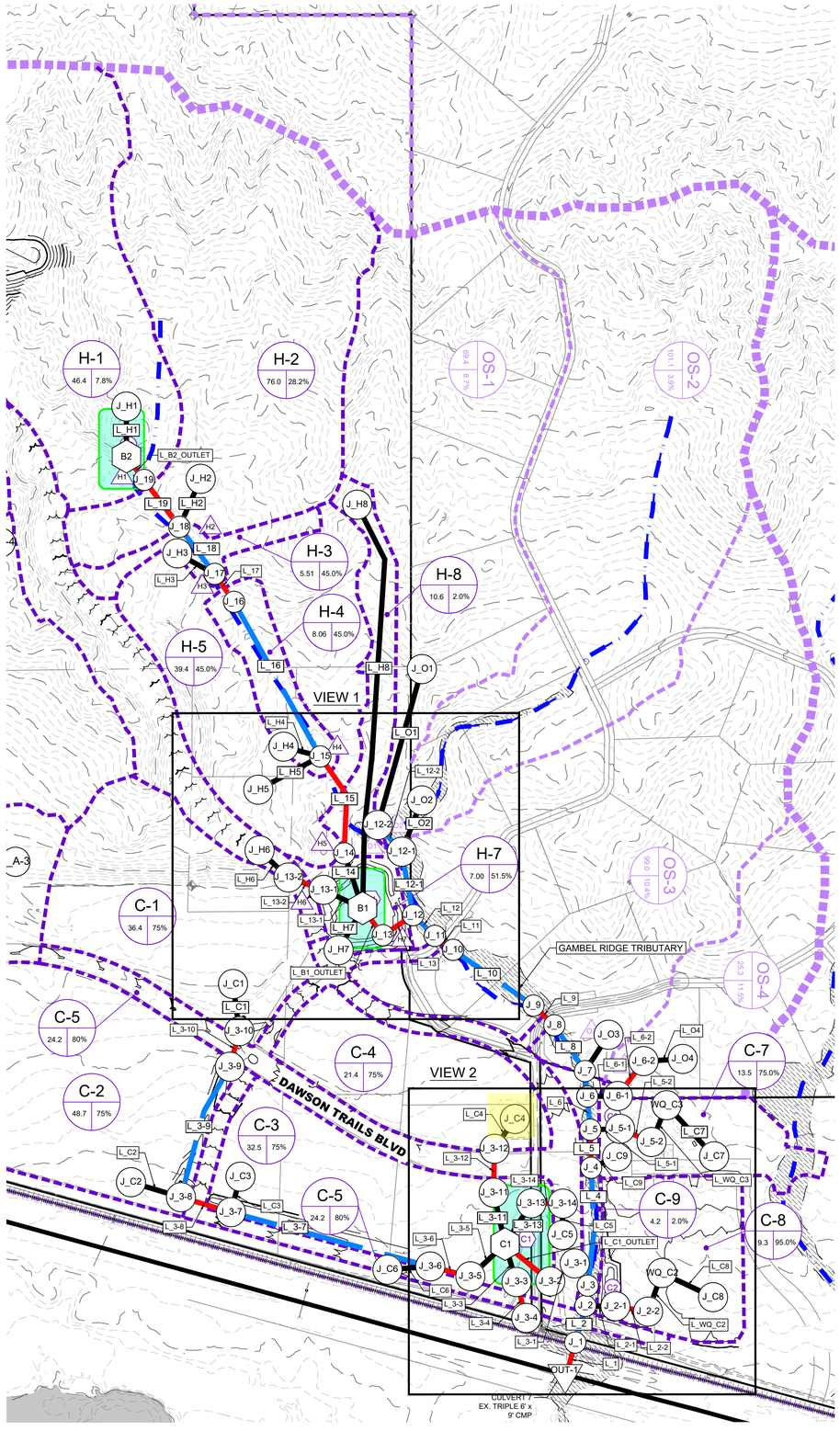
DAWSON TRAILS

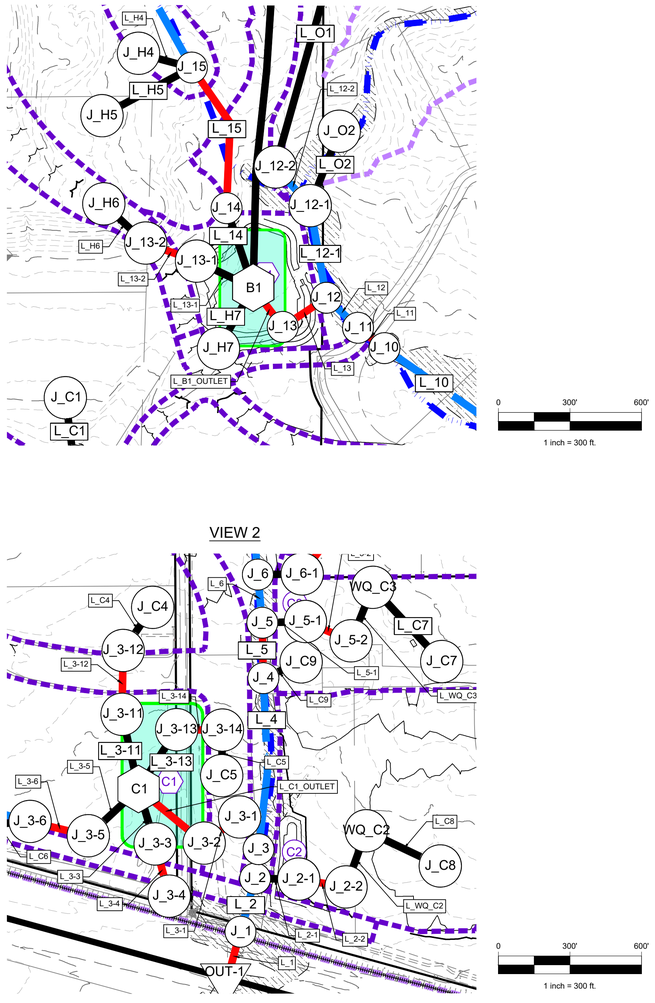
DAWSON TRAILS
PLANNED DEVELOPMENT PLAN AND ZONING REGULATIONS
(AN AMENDMENT TO THE DAWSON RIDGE PRELIMINARY P.U.D SITE PLAN AND A PORTION OF THE WESTFIELD TRADE CENTER PRELIMINARY P.U.D. SITE PLAN)

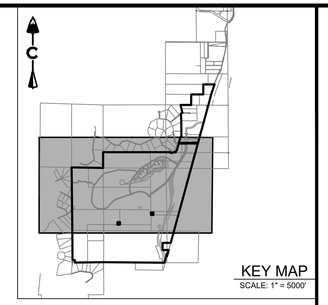
DATE:
PDP-01 07/08/2021
PDP-02 12/03/2021
PDP-03 04/13/2022
PDP-04 05/27/2022
PDP-05 06/09/2022

SHEET TITLE:
OVERALL PD PLAN

SHEET 3 OF 20







LEGEND

- OUTFALL DESIGNATION
- DESIGN POINT/JUNCTION DESIGNATION
- POND DESIGNATION
- PIPE/CHANNEL DESIGNATION
- JUNCTION/NODE DESIGNATION
- DUMMY LINK
- PROPOSED STORM SEWER
- PROPOSED CHANNEL

0 400' 800'

1 inch = 400 ft.

LEGEND

EXISTING	PROPOSED	
X 00.0 00.0%	X 00.0 00.0%	BASIN DESIGNATION / AREA (AC) / IMPERVIOUSNESS
X	X	DESIGN POINT
		DIRECTIONAL FLOW ARROW
		EMERGENCY OVERFLOW ROUTE
		PROPOSED DRAINAGE BASIN
		EXISTING DRAINAGE BASIN
	5280	PROPOSED MAJOR CONTOUR
	5279	PROPOSED MINOR CONTOUR
	5280	EXISTING MAJOR CONTOUR
	5279	EXISTING MINOR CONTOUR
		EASEMENT
		RIGHT OF WAY (R.O.W.)
		CENTERLINE
		PROJECT BOUNDARY
		PROPOSED STORM & STUB OUT
		EXISTING STORM & STUB OUT
		100-YEAR FEMA FLOODPLAIN
		100-YEAR TOWN FLOODPLAIN

NOTES:

1. DRAINAGE BASINS AND POND LOCATIONS ARE APPROXIMATE.
2. POND CONFIGURATIONS AND LOCATIONS ARE CONCEPTUAL AND MAY CHANGE DUE TO FIELD CONDITIONS AND/OR FINAL SITE CONFIGURATIONS.
3. THE SITE LIES WITHIN FEMA FLOOD ZONE X.
4. TOWN 100-YEAR FLOODPLAINS ASSOCIATED WITH THE SOUTH DAWSON, NORTH DAWSON, GAMBEL RIDGE, AND GAMBEL RIDGE NORTH TRIBUTARIES WILL BE RE-EVALUATED BY A FLOODPLAIN MODIFICATION STUDY.
5. EFFORTS WILL BE MADE TO STABILIZE, PROTECT, AND PRESERVE THE MAJOR DRAINAGEWAYS ON-SITE. IMPACTS WILL BE LIMITED TO IMPROVEMENTS IN THE AREAS OF DISCHARGES FROM THE PROPOSED DETENTION FACILITIES AND AS IDENTIFIED IN THE MASTER DRAINAGE PLANS FOR THE DRAINAGEWAYS. THE IMPROVEMENTS WILL CONFORM TO THE TOWN OF CASTLE ROCK STORM DRAINAGE DESIGN AND TECHNICAL CRITERIA MANUAL. THESE IMPROVEMENTS WILL BE DESIGNED TO MITIGATE EROSION AND PRESERVE THE NATURAL CHARACTER AND HISTORICAL DRAINAGE PATTERNS TO THE GREATEST EXTENT FEASIBLE.
6. THE INTERCHANGE AT TERRITORIAL ROAD, CRYSTAL VALLEY PARKWAY, AND I-25 (CVI) IS A TOWN, COUNTY AND STATE PROJECT. CHANNEL IMPROVEMENTS FOR THE GAMBLE RIDGE MAJOR DRAINAGEWAY THROUGH THE SITE WILL BE PART OF THE CVI PROJECT.

LAND DEVELOPMENT | ENERGY | PUBLIC INFRASTUCTURE

CORE CONSULTANTS. INC.
3473 S. BROADWAY
ENGLEWOOD, CO 80113
303.703.4444
LIVEYOURCORE.COM

CORE

Know what's below. Call before you dig. 811

#	REVISION DESCRIPTION	DATE	BY
1	1ST SUBMITTAL	10/09/2023	JCK

DAWSON TRAILS - FILING 2 INFRASTRUCTURE

CASTLE ROCK, COLORADO

PHASE III DRAINAGE REPORT

PROPOSED BASIN D SWMM MAP

NOT FOR CONSTRUCTION

DESIGNED BY: JCK
DRAWN BY: EKT
CHECKED BY: ____

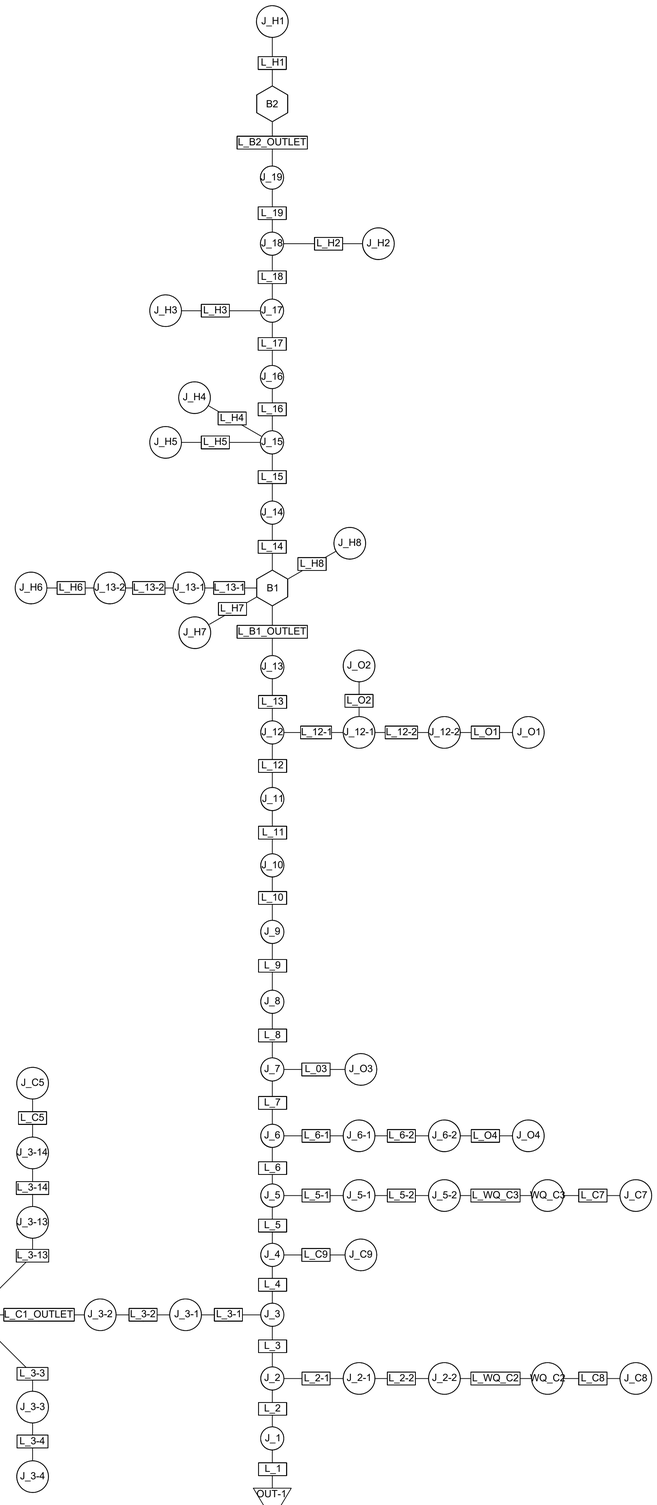
JOB NO. 20-224

SHEET 1 OF 1

2022-10-25 (9:44 AM) Emily Townsend X:\20-224 Dawson\Civil\CAD\Plans_Overall\Master Drainage Report Proposed Overall SWMM Map - Master.dwg

2021-09-11 (4:30 PM) X:\20-224 Dawson\Civil\CAD\Plans_Overall\Master Drainage Report Proposed Overall SWMM Map - Master.dwg

GAMBEL RIDGE TRIBUTARY



LEGEND

- X — OUTFALL DESIGNATION
- X — DESIGN POINT/JUNCTION DESIGNATION
- X — POND DESIGNATION
- X — PIPE/CHANNEL DESIGNATION
- X — JUNCTION/NODE DESIGNATION

0 400' 800'

1 inch = 400 ft.

CORE CONSULTANTS. INC.
3473 S. BROADWAY
ENGLEWOOD, CO 80113
303.703.4444
LIVEYOURCORE.COM

LAND DEVELOPMENT
ENERGY
PUBLIC INFRASTUCTURE

Know what's below. Call before you dig. 811

#	REVISION DESCRIPTION	DATE	BY
1	1ST SUBMITTAL	10/09/2023	JCK

DAWSON TRAILS - FILING 2 INFRASTRUCTURE
CASTLE ROCK, COLORADO

PHASE III DRAINAGE REPORT
SWMM LINK TREE DIAGRAM

NOT FOR CONSTRUCTION

DESIGNED BY: JCK
DRAWN BY: EKT
CHECKED BY: ____

JOB NO. 20-224

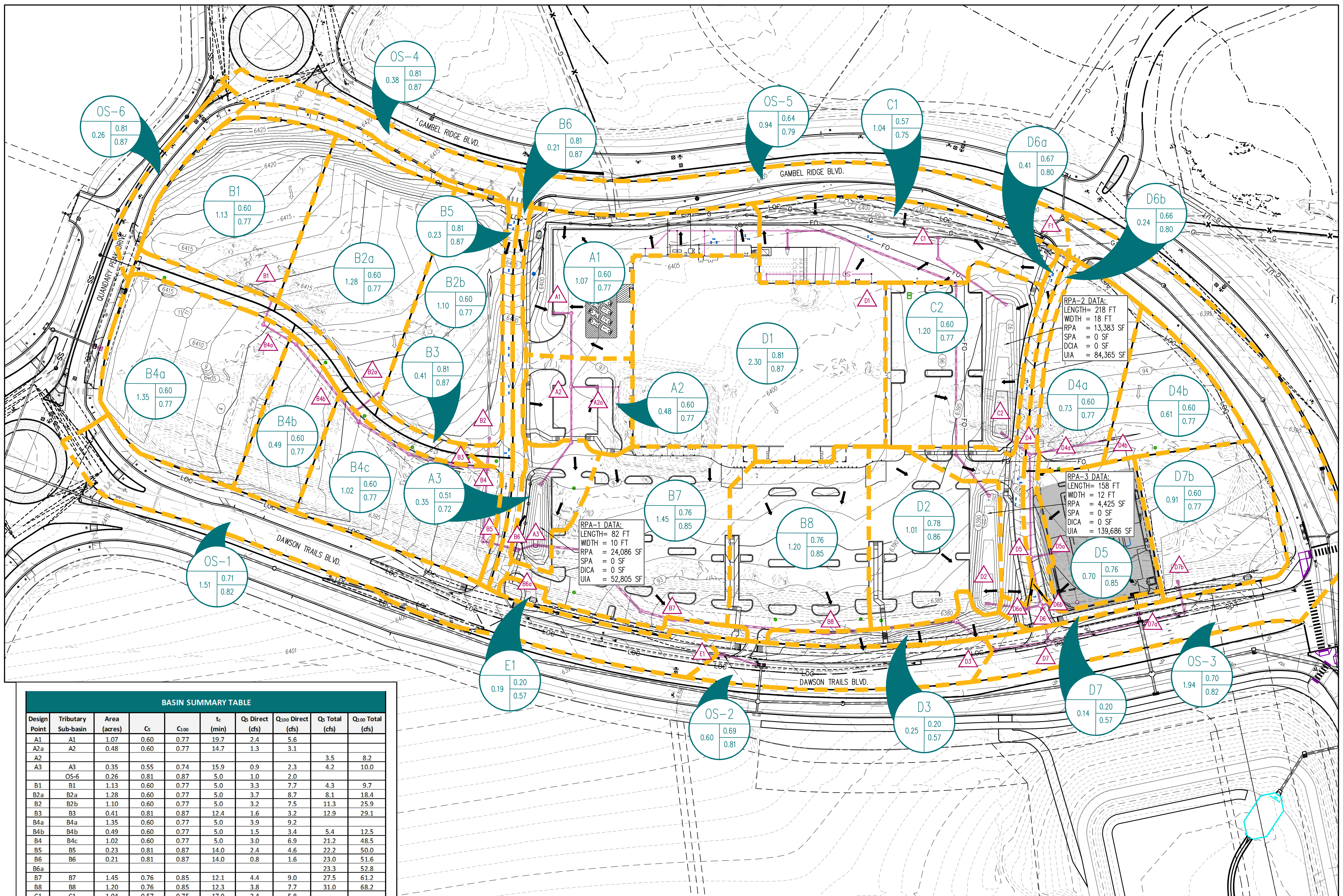
SHEET 1 OF 1

2022-10-25 (9:44 AM) Justin Keller X:\20-224 Dawson\Civil\CAD\Plans_Overall\Master Drainage Report Proposed Overall SWMM Link Tree Map - Master.dwg

2021-09-11 (4:30 PM) X:\20-224 Dawson\Civil\CAD\Plans_Overall\Master Drainage Report Proposed Overall SWMM Link Tree Map - Master.dwg

APPENDIX F

Detailed Drainage Map



DRAINAGE LEGEND

- PROPERTY BOUNDARY LINE
- ADJACENT PROPERTY BOUNDARY LINE
- RIGHT OF WAY BOUNDARY LINE
- ROAD CENTERLINE
- EXISTING EASEMENT LINE
- PROPOSED EASEMENT LINE
- EXISTING STORM SEWER (LESS THAN 12"ø)
- EXISTING STORM SEWER (12"ø AND LARGER)
- PROPOSED STORM SEWER (LESS THAN 12"ø)
- PROPOSED STORM SEWER (12"ø AND LARGER)
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- MAJOR BASIN BOUNDARY LINE
- DESIGN POINT
- EXISTING FLOW ARROW
- PROPOSED FLOW ARROW
- BASIN DESIGNATION
- 5-YEAR RUNOFF COEFFICIENT
- 100-YEAR RUNOFF COEFFICIENT
- BASIN AREA IN ACRES

BASIN SUMMARY TABLE

Design Point	Tributary Sub-basin	Area (acres)	C_5	C_{100}	t_c (min)	Q_5 Direct (cfs)	Q_{100} Direct (cfs)	Q_5 Total (cfs)	Q_{100} Total (cfs)
A1	A1	1.07	0.60	0.77	19.7	2.4	5.6		
A2a	A2	0.48	0.60	0.77	14.7	1.3	3.1		
A2								3.5	8.2
A3	A3	0.35	0.55	0.74	15.9	0.9	2.3	4.2	10.0
	OS-6	0.26	0.81	0.87	5.0	1.0	2.0		
B1	B1	1.13	0.60	0.77	5.0	3.3	7.7	4.3	9.7
B2a	B2a	1.28	0.60	0.77	5.0	3.7	8.7	8.1	18.4
B2	B2b	1.10	0.60	0.77	5.0	3.2	7.5	11.3	25.9
B3	B3	0.41	0.81	0.87	12.4	1.6	3.2	12.9	29.1
B4a	B4a	1.35	0.60	0.77	5.0	3.9	9.2		
B4b	B4b	0.49	0.60	0.77	5.0	1.5	3.4	5.4	12.5
B4	B4c	1.02	0.60	0.77	5.0	3.0	6.9	21.2	48.5
B5	B5	0.23	0.81	0.87	14.0	2.4	4.6	22.2	50.0
B6	B6	0.21	0.81	0.87	14.0	0.8	1.6	23.0	51.6
B6a								23.3	52.8
B7	B7	1.45	0.76	0.85	12.1	4.4	9.0	27.5	61.2
B8	B8	1.20	0.76	0.85	12.3	3.8	7.7	31.0	68.2
C1	C1	1.04	0.57	0.75	17.9	2.4	5.8		
C2	C2	1.20	0.60	0.77	15.3	2.7	6.4	5.0	11.8
D1	D1	2.30	0.81	0.87	12.6	7.2	14.0		
D2	D2	1.01	0.78	0.86	11.3	3.6	7.2	10.2	20.1
	OS-2	0.60	0.69	0.81	14.5	2.0	4.2		
D3	D3	0.25	0.20	0.57	25.4	0.2	1.2	42.8	92.3
D4b	D4a	0.73	0.60	0.77	0.0	2.1	4.9		
D4								6.7	15.6
D5a	D5	0.70	0.76	0.85	12.4	2.5	5.0		
D5								8.7	19.8
D6a	D6a	0.41	0.67	0.80	14.9	1.4	2.9		
D6b	D6b	0.24	0.66	0.80	15.1	0.8	1.7		
D6								10.4	23.4
D7								55.1	120.3
	OS-3	1.94	0.70	0.82	16.5	5.7	12.0		
D7a	D7	0.14	0.20	0.57	24.2	0.1	0.7	60.3	131.8
	OS-1	1.51	0.71	0.82	16.9	4.4	9.2		
E1	E1	0.19	0.20	0.57	24.9	0.2	1.0	4.5	10.0
F1	OS-5	0.94	0.64	0.79	17.4	2.6	5.7		

SCALE: 1"=100'

Galloway
5500 Greenwood Plaza Blvd., Suite 200
Greenwood Village, CO 80111
303.770.8884
GallowayUS.com

PRELIMINARY
NOT FOR BIDDING
NOT FOR CONSTRUCTION

CONSTRUCTION DOCUMENT
LOT 1, DAWSON TRAILS FILING No. 2, AMENDMENT 4

KING SOOPERS #165

CRYSTAL VALLEY PKWY & DAWSON TRAILS BLVD
CASTLE ROCK, COLORADO

#	Date	Issue / Description	Init.
A	12/29/25	1st CD Submittal	JRR
B	4/8/26	2nd CD Submittal	JRR
C	5/8/26	3rd CD Submittal	JRR

Project No:	KSS000165
Drawn By:	RDG
Checked By:	JRR
Date:	12/05/25

DRAINAGE MAP

APPENDIX G

MS4 Application

Summary of Water Quality Conformance to MS4 Permit

The purpose of this worksheet is to document conformance with the Town of Castle Rock's MS4 permit with regard to permanent water quality on land disturbance projects.

Project Name King Sooper Dawson Trails

Project Owner ACM Dawson Trails VIII JV LLC

Project Location Dawson Trails PD - E-2 Planning Area

ToCR Project Number _____

Total Site Area 21.45 **acres**

Total Size of Common Plan of Development 21.45 **acres**

Check all that apply:

- ☑ **Project within Plum Creek Basin**
- ☐ **Project within Cherry Creek Basin**

Estimated construction completion date July 2027

---

1. The water quality control measure(s) for applicable development sites shall meet one of the following base design standards as per the SDDTCM Section 14.4. Please select all design standards that were applied to meet conformance with the MS4 on this site.

   - ❒ WQCV standard
   - ❒ Pollutant removal standard
   - ☑ Runoff reduction standard
   - ❒ Applicable site draining to regional WQVC control measure (accepts drainage prior to discharging to WOTS)
   - ☑ Applicable site draining to regional WQVC control facility (with receiving pervious area control measure upstream of WOTS)
   - ❒ Constrained redevelopment sites standard
     - Imperviousness of existing site _____/_____(Imp. Ac/Site Ac) =____%
     - Variance required TCV No. _____
   - ❒ Existing control measure with WQCV per previous criteria standards
     - Reference Construction Permit No. _____
   - ❒ Cherry Creek Basin only, choose one: ☐ Tier 1 ☐ Tier 2 ☐ Tier 3
   - ❒ No control measures provided (See Permanent WQ Worksheet for applicability)

Summary of Water Quality Conformance to MS4 Permit

2. Was an exclusion to water quality applied as per SDDTCM Section 13.1.5? ☐ Yes ☑ No

   i. If yes, please select all that apply, provide total excluded impervious area(s) and submit variance, as applicable: TCV No. _____

   - ❒ Pavement management site
     Excluded impervious area: _____ acres
   - ❒ Excluded roadway redevelopment
     Excluded impervious area: _____ acres
   - ❒ Excluded existing roadway areas
     Excluded impervious area: _____ acres
   - ❒ Above ground and below ground utilities
   - ❒ Large lot single family home
   - ❒ Non-residential and non-commercial infiltration
     Excluded impervious area: _____ acres
   - ❒ Land disturbance for land to remain undeveloped
     Excluded impervious area: _____ acres
   - ❒ Stream Stabilization Sites
     Excluded impervious area: _____ acres
   - ❒ Trails
     Excluded impervious area: _____ acres
   - ❒ Oil and Gas Exploration

3. For Development and Redevelopment sites, following any exclusions claimed above, was any portion of the site excluded up to 20% of the site and not to exceed one acre? ☐ Yes ☑ No

   If yes, complete the following:

   Excluded area: _____ acres

   Total Site area: _____ acres, _____ % site excluded

4. For Constrained sites, was any portion of the site excluded up to 50% of the site and not to exceed 50% of the impervious area? ☐ Yes ☑ No

   If yes, complete the following:

   Excluded area: _____ acres

   Excluded impervious area: _____ acres

   Total Site area: _____ acres, _____ % site excluded

   Total Impervious area: _____ acres, _____ % impervious excluded

APPENDIX H

WQ Questionnaire

Permanent Water Quality Determination Worksheet (Taken from 2019 SDDTCM Sections 13.1.4 and 13.1.5)

Project:		**Project#**		**Applicant:**
Section	**Questions**	**Response**	**Check those that apply**	**Instructions**
1	**Non-applicable Sites**			
1.1	Will the project result in a temporary disturbance of greater than one acre?	No	☐	Proceed to section 1.2.
		Yes	✔	Proceed to section 2.
1.2	Is the project part of a larger common plan of development or sale where multiple separate and distinct construction activities may be taking place at different times on different schedules, but remain related and are within 1/4 mile of each other? (A common plan of development will generally be documented on a site development plan, master plan, or equivalent, for the property/project)	No	☐	Proceed to section 1.3.
		Yes	✔	Proceed to section 2.
1.3	Is the project within the Cherry Creek Watershed?	Yes	☐	Permanent water quality control measures may be required. Refer to Water Qualtiy Control Regulation 72.7 for details and allowable exclusions.
		No	✔	Permanent water quality control measures are not required.
2	**Applicable Site Types and Exclusions by Variance**			
2.1	Does the project have more than 35% impervious area on the existing site?	No	✔	Project is an applicable Development Site. Proceed to section 3.
		Yes	☐	Proceed to 2.2.
2.2	Does the project have greater than 75% impervious area on the existing site?	No	✔	Project is an applicable Redevelopment Site. Proceed to section 3.
		Yes	☐	Project is an applicable Constrainted Redevelopment Site. Proceed to 2.3.
2.3	Will 100% of the runoff from the existing and proposed site be captured and treated using one or more of the allowable design standards for permanent water quality?	Yes	☐	No further action required.
		No	✔	Proceed to 2.4.
2.4	Do any other water quality exclusions apply to the site?	No	✔	Portions of the project are excluded. Proceed with design in accordance with Constrained Redevelopment standards and apply for **variance** for Constrained Redevelopment Sites.
		Yes	☐	Proceed to section 3. Following approval of other exclusions, design remaining site in accordance with Constrained Redevelopment standards and apply for **variance** for Constrained Redevelopment Sites.
3	**Applicable Sites with Other Exclusions by Variance** N/A			
3.1	**Category 1: Roadways, bridges and trails only**			
3.1.1	Is the project a bike or pedestrian trail?	Yes	☐	Proceed to next line.
		No	☐	Proceed to 3.1.2.
	Is the trail for a roadway?	Yes	☐	Proceed to 3.1.2.
		No	☐	Project is excluded. Submit **variance** for Trails Excluded from Permanent Water Quality Requirements.
3.1.2	Is the project primarily used for parking or access to parking?	Yes	☐	This exclusion does not apply. Permanent water quality is required.
		No	☐	Proceed to 3.1.3.
3.1.3	Does the project add impervious area?	No	☐	Project is excluded. Submit **variance** for Pavement Management Sites Excluded from Permanent Water Quality Requirements.
		Yes	☐	Proceed to 3.1.4.

Section	Questions	Response	Check those that apply	Instructions
3.1.4	Does the project add more than 8.25 feet of paved width at any location to the existing roadway?	No	☐	Project is excluded. Submit **variance** for Roadway Redevelopment Sites Excluded from Permanent Water Quality Requirements.
		Yes	☐	Proceed to next line.
	Does the project add more than one acre of paved area per mile to an existing roadway?	No	☐	Project is excluded. Submit **variance** for Roadway Redevelopment Sites Excluded from Permanent Water Quality Requirements.
		Yes	☐	Proceed to next line.
	Does the project increase the width by two times or more, on average, of the original roadway area?	No	☐	Existing areas of site are excluded only. Submit **variance** for Existing Roadway Surfaces Only Excluded from Permanent Water Quality Requirements.
		Yes	☐	This exclusion does not apply. Permanent water quality is required.
3.2	**Category 2: Non-residential and non-commercial projects only** N/A			
3.2.1	Is the project associated with oil and gas exploration, production, processing, or treatment operations or transmission facilities, including activities necessary to prepare a site for drilling and the movement and placement of drilling equipment?	Yes	☐	Project is excluded. Submit **variance** for Oil and Gas Exploration Sites Excluded from Permanent Water Quality Requirements.
		No	☐	Proceed to 3.2.2.
3.2.2	Is the project for stream stabilization?	Yes	☐	Project is excluded. Submit **variance** for Stream Stabilization Sites Excluded from Permanent Water Quality Requirements.
		No	☐	Proceed to 3.2.3.
3.2.3	Is the project for installation or maintenance of aboveground or underground utilities or infrastructure that does not permanently alter the terrain, ground cover, or drainage patterns from those present prior to the construction activity including activities to install, replace or maintain utilities under roadways or other paved areas that return the surface to the same condition?	Yes	☐	Project is excluded. Submit **variance** for Aboveground and Underground Utilities Excluded from Permanent Water Quality Requirements.
		No	☐	Proceed to 3.2.4.
3.2.4	Is the project on undeveloped land (land with no human-made structures such as buildings or pavement) that will remain undeveloped after the project?	Yes	☐	Project is excluded. Submit **variance** for Sites with Land Disturbances to Undeveloped Land that will Remain Undeveloped Excluded from Permanent Water Quality Requirements.
		No	☐	Proceed to 3.2.5.
3.2.5	Will the post-project condition result in surface water discharge during the 80th percentile storm runoff event?	No	☐	Project is excluded. Submit **study** along with **variance** for Non-residential and Non-commercial Infiltration Conditions Excluded from Permanent Water Quality Requirements.
		Yes	☐	This exclusion does not apply. Permanent water quality is required.
3.3	**Category 3: Residential, Agricultural and Commercial projects**			
3.3.1	Is the project a single-family residential lot, or agricultural zoned lands, greater than or equal to 2.5 acres in size per dwelling unit?	Yes	☐	Proceed to next line.
		No	✔	Proceed to 3.3.2.
	Is the project site greater than 10% impervious?	No	☐	Project is excluded. Submit **variance** for Large Lot Single Family Sites Excluded from Permanent Water Quality Requirements.
		Yes	✔	Proceed to next line.
	Is the project site greater than 20% impervious?	Yes	✔	This exclusion does not apply. Permanent water quality is required.
		No	☐	Proceed to next line.
	Will the post-project condition result in surface water discharge during the 80th percentile storm runoff event?	No	☐	Project is excluded. Submit **study** along with **variance** for Large Lot Single Family Sites Excluded from Permanent Water Quality Requirements.
		Yes	✔	This exclusion does not apply. Permanent water quality is required.

Section	Questions	Response	Check those that apply	Instructions
3.3.2	Will 100% of the runoff from the residential or commercial site be captured?	Yes	✔	This exclusion does not apply. Permanent water quality is required.
		No	☐	Proceed to next line.
	Is all or a portion of the site undeveloped or will it remain undeveloped after construction?	Yes	✔	This portion of the project is excluded. Submit **variance** for Sites with Land Disturbance to Undeveloped Land that will Remain Undeveloped Excluded from Permanent Water Quality Requirements. Proceed to next line.
		No	☐	Proceed to next line.
	Is the remaining untreated impervious area greater than 20% of the site?	Yes	☐	This exclusion does not apply. Permanent water quality is required.
		No	✔	Proceed to next line.
	Is the remaining untreated impervious area greater than one acre?	Yes	☐	This exclusion does not apply. Permanent water quality is required.
		No	✔	Proceed to next line.
	Is it practicable to capture runoff from portions of the site that will not drain to a control measure?	No	☐	Document justification demonstrating that it is not practicable to capture runoff from this portion of the site in the **drainage report**. No further action is needed.
		Yes	✔	This exclusion does not apply. Permanent water quality is required.