

CLAASSEN ADDITION

STORMWATER DRAINAGE REPORT

DECEMBER 2023

Prepared for:

McCall Design and Planning, Inc.
121 Commerce Street, Ste A
McCall, Idaho 83638



Crestline Engineers, Inc.
323 Deinhard Lane, Suite C
PO Box 2330
McCall, Idaho 83638
(208) 634-4140

CLAASSEN ADDITION

STORMWATER DRAINAGE REPORT

DECEMBER 2023

Crestline Engineers, Inc.
323 Deinhard Lane, Suite C
PO Box 2330
McCall, Idaho 83638
(208) 634-4140

CLAASSEN ADDITION
STORMWATER DRAINAGE REPORT
DECEMBER 2023

TABLE OF CONTENTS	PAGE
SECTION I – STORMWATER APPLICATION, CITY OF McCALL	
SECTION II – STORMWATER DRAINAGE REPORT	
A. Basin Characteristics.....	1
B. Erosion and Sediment Control.....	3
C. Conveyance System.....	7
D. First Flush Treatment.....	7
E. Permanent BMP's.....	8
F. Operation and Maintenance.....	8

SECTION III – STORMWATER CALCULATIONS

- A. Stormwater Calculations
 - a. Drainage Area Calculations
 - b. Drainage Area Flow Paths
 - c. Stormwater Detention Basin Volumes
- B. Hydrograph Reports
 - a. 0.81” Storm Model Output (TR-55)
(First flush storm event)

APPENDIX A – FIGURES/DRAWINGS

FIGURE NO. 1 OF 1	VICINTY MAP
DRAWING NO. C-1	EXISTING CONDITIONS WITH SITE PLAN
DRAWING NO. C-2	STORMWATER MANAGEMENT PLAN
DRAWING NO. GC-1	CIVIL TYPICAL DETAILS

SECTION I

STORMWATER APPLICATION, CITY OF MCCALL

STORMWATER APPLICATION
City of McCall

Fill in all information. Submit one copy of signed application and three copies of Stormwater Management Plan/Report to the City Engineer.

1. Project Name: _____
Location: _____

2. Owner's Name: _____
Street: _____ City: _____
State: _____ Zip Code: _____ Phone: _____

3. Project Description: _____

 - a. Total property area, in acres. _____
 - b. Proposed impervious surface (asphalt, rooftop, concrete, sidewalk, etc.) in square feet. _____

 - c. Describe existing vegetation present on site. _____

 - d. Start date of construction. _____
 - e. Estimated length of time to complete improvements. _____

4. Stormwater Management Plan/Report attached? Yes No

5. Circle the section of the Stormwater Management Plan/Report Checklist which are applicable to project.
A B C D E F

6. Party responsible for operation and maintenance of project, including maintenance of temporary and permanent Best Management Practices:

Name	Title	Signature	Date
Address	Daytime Phone	After Hours Phone	

Do not write below this line.

This Stormwater Management Plan/Report is:

Approved: _____

Not Approved: _____

Approved, with conditions: _____

By The City of McCall

Representative	Title	Signature	Date
----------------	-------	-----------	------

SECTION II
STORMWATER DRAINAGE REPORT

CLAASSEN ADDITION
STORMWATER DRAINAGE REPORT
DECEMBER 2023

PART A: BASIN CHARACTERISTICS

The proposed project consists of an addition to the existing residence. Additionally, the gravel driveway will be reshaped upon project completion. The project is located at 601 Lick Creek Road, McCall, Idaho (see Appendix A, Vicinity Map). The total property area is 0.15 acres (6,751.6 S.F.), the development area is 0.15 acres (6,751.6 S.F.). Proposed improvements, as shown on this plan, are based upon drawings provided by McCall Design and Planning, Inc.

The existing site consists of native vegetation as well as conifers and a minor amount of deciduous trees. The topography of the development area is moderately flat to the east of the existing residence and steep to the west along Payette Lake, the average slope is approximately 8.38%. Soils located within the development area consist of McCall Complex. McCall Complex is a somewhat excessively drained soil located on slopes ranging 5-50%. Please, refer to the *Soil Survey of Valley Area, Idaho, Parts of Adams and Valley Counties* for additional information on soils within the project area.

This report addresses the stormwater management and erosion/sediment control measures that will be implemented during the construction of the proposed project, thus showing the project's compliance with the City of McCall's Drainage Management Guidelines (DMGs). Through the implementation of this plan, potential stormwater impacts to downstream water resources and adjoining properties will be mitigated.

The development area associated with this project consists of 0.15 acres (6,751.6 S.F.). The total proposed impervious surface area, which includes the construction of the proposed addition and asphalt driveway is approximately 0.05 acres (2,011.4 S.F.).

1) Project Site

- a. The total site area is 0.15 acres (6,751.6 S.F.).
- b. The development area for this project is 0.15 acres (6,751.6 S.F.).
- c. The development density is one (1) residence per 0.15 acres (6,751.6 S.F.).
- d. The total area of the proposed addition and existing residence will be 0.05 acres (1,991.3 S.F.) after project completion.
- e. The total area of the proposed gravel driveway will be 0.02 acres (847.8 S.F.) after project completion.
- f. The total area of the proposed/existing deck will be 0.01 acres (335.3 S.F.) after project completion.

- g. The total post development impervious area within the development area will be 0.05 acres (2,011.4 S.F.) after project completion.

2) Summary of the physical conditions on-site as well as for the upstream contributing area.

On-site Drainage Area

The existing conditions within the property and upstream contributing areas are provided in Drawing No. C-1, Existing Conditions with Site Plan, and include the following:

- a. The pre-development area is approximately 14.09% impervious.
- b. The pre-development drainage area flow path length is approximately 128.21 feet.
- c. The average slope of the pre-development flow path is approximately 8.38%.
- d. There are no known wetlands located on the property.

Post development land use and associated stormwater improvements are shown within the figures/drawings found in Drawing No. C-2, Stormwater Management Plan. Upon completion of the proposed project, the post development land use conditions will be as follows:

- a. The post development area will be approximately 29.79% impervious.
- b. The post development drainage area flow path length is anticipated to decrease, the length of the flow path will be approximately 126.18 feet.
- c. The average slope of the primary development flow path will be approximately 7.13%
- e. There are no known wetlands located on the property.

Upstream Contributing Drainage Area

Currently a minor amount of runoff enters the site from the eastern property boundary, continues through the existing vegetation, and exits at the western property boundary. Any off-site runoff entering the site will be encouraged to drain to the existing swale and be directed around the property.

3) Existing drainage facilities impacted by the proposed development on the site and downstream of the proposed development.

There are no known existing drainage facilities on-site that will be impacted by the proposed improvements. The existing drainage swale located along the north side of the property will not be impacted by the proposed improvements.

PART B: EROSION AND SEDIMENT CONTROL

1) Description of existing site prior to activity.

- a. Total Property Area = 0.15 acres (6,751.6 S.F.)
Development Area = 0.15 acres (6,751.6 S.F.)
Building Roof = 0.02 acres (807.2 S.F.)
Concrete = 0.00 acres (144.4 S.F.)
Gravel Driveway = 0.01 acres (595.0 S.F.)
Deck/Stairs = 0.01 acres (242.4 S.F.)
Woods/Open Space = 0.11 acres (4,962.6 S.F.)
Total Impervious Surface Area = 0.02 acres (951.6 S.F.)
- b. Off-site runoff currently enters the project site from the eastern property boundary. The runoff flows through the existing vegetation and exits at the western property boundary as shown in Drawing No. C-1, Existing Conditions with Site Plan.

2) Description of proposed land improvement activity.

- a. Total Property Area = 0.15 acres (6,751.6 S.F.)
Development Area = 0.15 acres (6,751.6 S.F.)
Building Roofs = 0.05 acres (1,991.3 S.F.)
Concrete = 0.00 acres (20.1 S.F.)
Gravel Driveway = 0.02 acres (847.8 S.F.)
Deck/Stairs = 0.01 acres (335.3 S.F.)
Woods/Open Space = 0.07 acres (3,557.1 S.F.)
Total Impervious Surface Area = 0.05 acres (2,011.4 S.F.)
- b. All site grading adjacent to the building shall be sloped to drain away from the building at a minimum of 1.5% in hardscape areas and 4% in landscape areas. Grading of the gravel driveway shall be in accordance with the direction of the drainage flow direction arrows as specified in Drawing No. C-2, Stormwater Management Plan.

The site's overall drainage pattern will be slightly modified due to the proposed project. Proposed improvements will allow for on-site runoff to flow to a proposed detention swale. The proposed detention swale is intended to detain/infiltrate runoff associated with the proposed improvements, including runoff associated with the gravel driveway and roof areas. The proposed detention swale is located west of the existing residence and will capture a majority of the runoff associated with the proposed improvements. Excess runoff will overflow the proposed detention swale to naturally flow through existing vegetation. The detention swale has been designed to detain the first flush storm event per the City of McCall Drainage Management Guidelines (DMGs). Upon completion of the project, the site will utilize an existing vegetated swale to convey runoff around the proposed additions as specified in Drawing No. C-2, Stormwater Management Plan.

3) A plan which demonstrates the methods for sediment and erosion control. The plan should indicate the size, location and method for installation or implementation of the BMPs.

Drawing No. C-2, Stormwater Management Plan, is shown within the figures/drawings found in Appendix A.

4) Details and specifications for the proposed BMPs which describe their installation and maintenance procedures.

Drawing No. C-2, Stormwater Management Plan in Appendix A, identifies the locations of the proposed erosion and stormwater controls to be implemented as part of the project's construction. The following best management practices (BMPs) are presented, as listed in the Idaho Department of Environmental Quality's Catalog of Stormwater Best Management Practices for Idaho Cities and Counties:

- Timing of construction is critical to reduce erosion potential. Schedule and sequence construction work and erosion control applications so that they occur under optimal conditions that is, during periods when the potential for erosion is lowest, such as dry weather (Erosion and Sediment Control BMP 36, Construction Timing).
- The Staging Area is to be located near the project entrance along with portable toilets, garbage receptacles, concrete washout, and all other contractor facilities (Sediment Control BMP 37, Staging Areas).

- Protection of existing vegetation is prescribed for all areas outside of the grading and construction limits. If possible, existing weeds should be maintained to provide a vegetated buffer to filter runoff during construction (Erosion Control BMP 38, Preserve Topsoil and Vegetation).
- Work activities shall take place within the clearing/construction limits as shown on Drawing No. C-2, Stormwater Management Plan. The contractor shall always preserve natural vegetation outside of clearing limits (Erosion Control BMP 39, Clearing Limits).
- Stabilize Construction Entrance/Exit (Erosion and Sediment Control BMP 41, Stabilized Construction Roads, and Staging Areas).
- Additional use of good housekeeping practices, where applicable, during all aspects of the construction project shall be incorporated.
 - BMP 40 Vehicle Sediment Control
 - BMP 43 Dust Control
 - BMP 44 Stockpile Management
 - BMP 45 Minimize Soil Compaction
 - BMP 46 Spill Prevention and Control
 - BMP 47 Vehicle/Equipment Washing and Maintenance
 - BMP 49 Concrete Waste Management
 - BMP 50 Sanitary/Septic Waste Management
 - BMP 51 Solid Waste Storage and Disposal
- Revegetation and stabilization of all disturbed project areas shall be in accordance with the projects landscape design to prevent sediment transport after construction is completed.
 - BMP 31 Topsoiling
 - BMP 32 Landscaping (Seeding, Sodding and Planting)
 - BMP 52 Mulching (Conventional and Hydromulching)
 - BMP 53 Geotextile
 - BMP 54 Matting
 - BMP 55 Soil Binders
- Install fiber rolls and/or silt fence as shown on Drawing No. C-2, Stormwater Management Plan to prevent sediment and runoff from leaving the site. Fiber rolls may be used in place of silt fence where determined appropriate. Fiber

rolls/silt fence shall be used at the contractor's discretion if unforeseen stormwater runoff and erosion takes place at the proposed construction site.

- BMP 64 Fiber Rolls
- BMP 65 Silt Fence

- Landscaping improvements and existing vegetation are intended to provide a vegetative buffer to filter, intercept, and detain stormwater runoff. Vegetative buffers reduce the flow and velocity of surface runoff, promote infiltration, and reduce pollutant discharge by capturing and holding sediments and other pollutants carried in runoff water.
 - BMP 32 Landscaping
 - BMP 38 Preserve Topsoil and Vegetation

- The swale(s) shall be constructed to convey/detain runoff where necessary. The swale(s) are intended to be field fit, functioning to convey runoff around the proposed building and driveway/parking area avoiding site features as necessary while preventing runoff onto neighboring property. Construction of the proposed vegetated swale(s) on the property are intended to detain/convey runoff generated from the construction.
 - BMP 9 Vegetated (biofiltration) Swale

5) A sequence and schedule of construction activities, including when erosion and sediment control devices and practices will be implemented. The sequence and schedule must include a timetable for project finish and a strategy for long term site stabilization as well as removal of temporary BMP's.

Temporary and permanent BMPs described above will be constructed as shown in Drawing No. C-2, Stormwater Management plan; and with guidance from the Idaho Department of Environmental Quality's Catalog of Stormwater Best Management Practices for Idaho Cities and Counties and the City of McCall's Drainage Management Guidelines (DMGs) (Chapters III and IV).

- Fiber rolls and/or silt fence shall be installed prior to the start of any project construction or earth disturbing activities and should remain in place until all disturbed/exposed areas have been stabilized and/or revegetated.
 - BMP 64 Fiber Rolls
 - BMP 65 Silt Fence

- Establish all clearing/construction limits with construction fencing or silt fence to protect on-site vegetation and all trees not identified for removal.
 - BMP 39 Clearing Limits
- Construction of the vegetated swale(s) on the property shall be completed prior to the start of any upslope grading activities.
 - BMP 9 Vegetated (biofiltration) Swale
- Following roof construction, temporary erosion control measures should be installed along the drip lines if excessive erosion occurs.
 - BMP 90 Building, repair, remodeling, and construction
- Final stabilization and grading associated with the project shall take place once construction activities are nearing completion and when significant erosion impacts associated with the proposed improvements can be minimized.
 - BMP 36 Construction Timing
- The project's construction timeline is approximately 6-12 months from the start of construction. The owner and contractor will be responsible for long-term stabilization and maintenance of the newly vegetated areas.

PART C: CONVEYANCE SYSTEM

There are no known existing conveyance facilities on the site or downstream of the area that will be impacted by the development, therefore, it was determined that conveyance calculations for the project were not necessary. Stormwater runoff associated with the site development will be encouraged to drain to the proposed detention swale. The proposed detention swale has been sized to accommodate the amount of water associated with the property/onsite area.

PART D: FIRST FLUSH TREATMENT

First flush treatment is not required for the project as the proposed impervious surface improvements are less than 5,000 S.F. and the total property is less than two (2) acres. However, due to the proximity of Payette Lake, a conservative approach was taken into consideration and the proposed detention swale has been sized adequately to detain the first flush storm event. The first flush analysis was done using the Simplified SCS Runoff

Curve Number Method (TR-55) and rainfall intensity data presented in the collusion of the Memorandum “Recommended Modifications to the McCall Drainage Management Guidelines: First Flush Treatment and Storm Size Criteria”, from Nathan Stewart, City Engineers, dated February 17, 2016. The Memorandum presents a recommendation for using a storm size of 0.81 inches from the 24-hour, 95% rainfall event first flush stormwater treatment.

The total proposed development runoff volume and detention size can be found in Table 1 below:

Table 1

Drainage Area	Post Development Volume (CF)	Required Volume (CF)	Available Volume (CF)
	First Flush	First Flush	First Flush
Total	57	57	69

PART E: PERMANENT BMP'S

Permanent BMPs for the project includes the following:

- Native and re-planted vegetation and the proposed vegetated swale(s) will provide filtration of stormwater runoff between the proposed project and adjacent properties.
- Landscaping and re-vegetation of all disturbed areas, providing nutrient uptake and natural filtration.
- The detention swale will provide sedimentation control and filtration of runoff.

PART F: OPERATION AND MAINTENANCE

During construction, operation and maintenance of the Stormwater Management Plan will be the responsibility of the associated Contractor(s). This plan should be implemented in accordance with the Idaho Department of Environmental Quality’s Catalog of Stormwater Best Management Practices for Idaho Cities and Counties and the City of McCall DMGs. All erosion and sediment controls including stormwater treatment facilities shall be inspected weekly during construction. Additional inspections should be completed in anticipation of, and immediately following runoff events (spring snow melt/significant precipitation events). Construction areas with excess sediment build-up around the fiber rolls and/or silt fence should be cleaned at the time of inspections.

Revegetated areas should be monitored for successful vegetation generation. Areas that remain exposed and/or may become eroded shall be stabilized immediately with mulch and/or straw blankets.

Adjustments to the stormwater management plan should be made by the contractor if excessive erosion continues to occur at the site during construction. After construction of the site improvements, upon final stabilization of the site and acceptance by the owner, the owner will assume responsibility for the operation and maintenance of the stormwater BMPs.

REFERENCES

City of McCall. Community Development Department. Drainage Management Guidelines. January 1997. evogov.s3.amazonaws.com/141/media/115536.pdf.

Rasmussen, L.M. 1981. Soil Survey of Valley Area, Idaho, Parts of Adams, and Valley Counties. United States Department of Agriculture, Soil Conservation Service, in cooperation with University of Idaho College of Agriculture and Idaho Soil Conservation Commission. The Service.

State of Idaho. Department of Environmental Quality. Idaho Catalog of Storm Water Best Management Practices. 2020. www2.deq.idaho.gov/admin/LEIA/api/document/download/14968.

SECTION III
STORMWATER CALCULATIONS



CRESTLINE ENGINEERS, INC.
 CIVIL ENGINEERING CONSULTANTS
 323 DEINHARD LANE, SUITE C
 PO BOX 2330
 McCALL, IDAHO 83638
 208.634.4140 · 208.634-4146 FAX

PROJECT: Claassen Addition

CLIENT: McCall Design & Planning, Inc.

JOB NO.: 23035 **DATE:** December 21, 2023

BY: SMR

REVISION DATE: _____

RE: Claassen Addition - Stormwater Calculations

Drainage Area Calculations

Drainage Areas	(ft²)	(Acres)
Total Property Area/Boundary	6,751.6	0.15
Development Area	6,751.6	0.15

Pre-Development: Development Area Surfaces	(ft²)	(Acres)	(%)
Building Roofs (CN = 98)	807.2	0.02	11.96%
Concrete (CN = 98)	144.4	0.00	2.14%
Gravel Driveway (CN = 89)	595.0	0.01	8.81%
Deck/Stairs (CN = 85)	242.4	0.01	3.59%
Woods/Open Space (CN = 76)	4,962.6	0.11	73.50%
	6,751.6	0.15	100.00%

Total Impervious Surface Area = 951.6 0.02 14.09%

Post Development: Development Area Surfaces (At Build-out)	(ft²)	(Acres)	(%)
Building Roofs (CN = 98)	1,991.3	0.05	29.49%
Concrete (CN = 98)	20.1	0.00	0.30%
Gravel Driveway (CN = 89)	847.8	0.02	12.56%
Deck/Stairs (CN = 85)	335.3	0.01	4.97%
Woods/Open Space (CN = 76)	3,557.1	0.07	52.69%
	6,751.6	0.15	100.00%

Total Impervious Surface Area = 2,011.4 0.05 29.79%

Drainage Area Flow Paths

	Length	Elevation Change	Slope
Pre-Development Flow Path:	(ft)	(ft)	(%)
1. Channel Flow (n = 0.24, Grass - Dense Grasses)	128.21	10.75	8.38%

Total Length/Average Slope = 128.21 10.75 8.38%

	Length	Elevation Change	Slope
Post Development Flow Path:	(ft)	(ft)	(%)
1. Sheet Flow (n = 0.011, Smooth Surface - Gravel)	39.39	2.52	6.40%
2. Sheet Flow (n = 0.24, Grass - Dense Grasses)	6.74	0.17	2.52%
3. Channel Flow (n = 0.24, Grass - Dense Grasses)	80.05	6.31	7.88%

Total Length/Average Slope = 126.18 9.00 7.13%



CRESTLINE ENGINEERS, INC.
 CIVIL ENGINEERING CONSULTANTS
 323 DEINHARD LANE, SUITE C
 PO BOX 2330
 McCALL, IDAHO 83638
 208.634.4140 · 208.634-4146 FAX

PROJECT: Claassen Addition

CLIENT: McCall Design & Planning, Inc.

JOB NO.: 23035 **DATE:** December 21, 2023

BY: SMR

REVISION DATE: _____

RE: Claassen Addition - Stormwater Calculations

Stormwater Detention Swale Volume Calculations

Stormwater Detention Swale

Width (FT)	4.5
Length (FT)	41.0
Depth (FT)	0.75
Trench Area (SF) (.5 x L x W x D)	69.2

Total Proposed Detention Volume = 69 (ft³)

Required Water Quality Detention Volume = 57 (ft³)

Proposed stormwater detention is greater than the required water quality detention volume and therefore, storage is adequate.

Notes:

1. The total proposed detention swale volume shown represents the minimum storage volume of the detention swale. As peak flows are routed through the detention swale, additional storage will be attained as stormwater flows are restricted by individual overflows should it release/drain to downslope areas.
2. The proposed detention volume is greater than the detention volume, therefore, the peak discharge for the first flush event is expected to be 0.0 cfs. See hydrograph No. 2 for additional information.

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

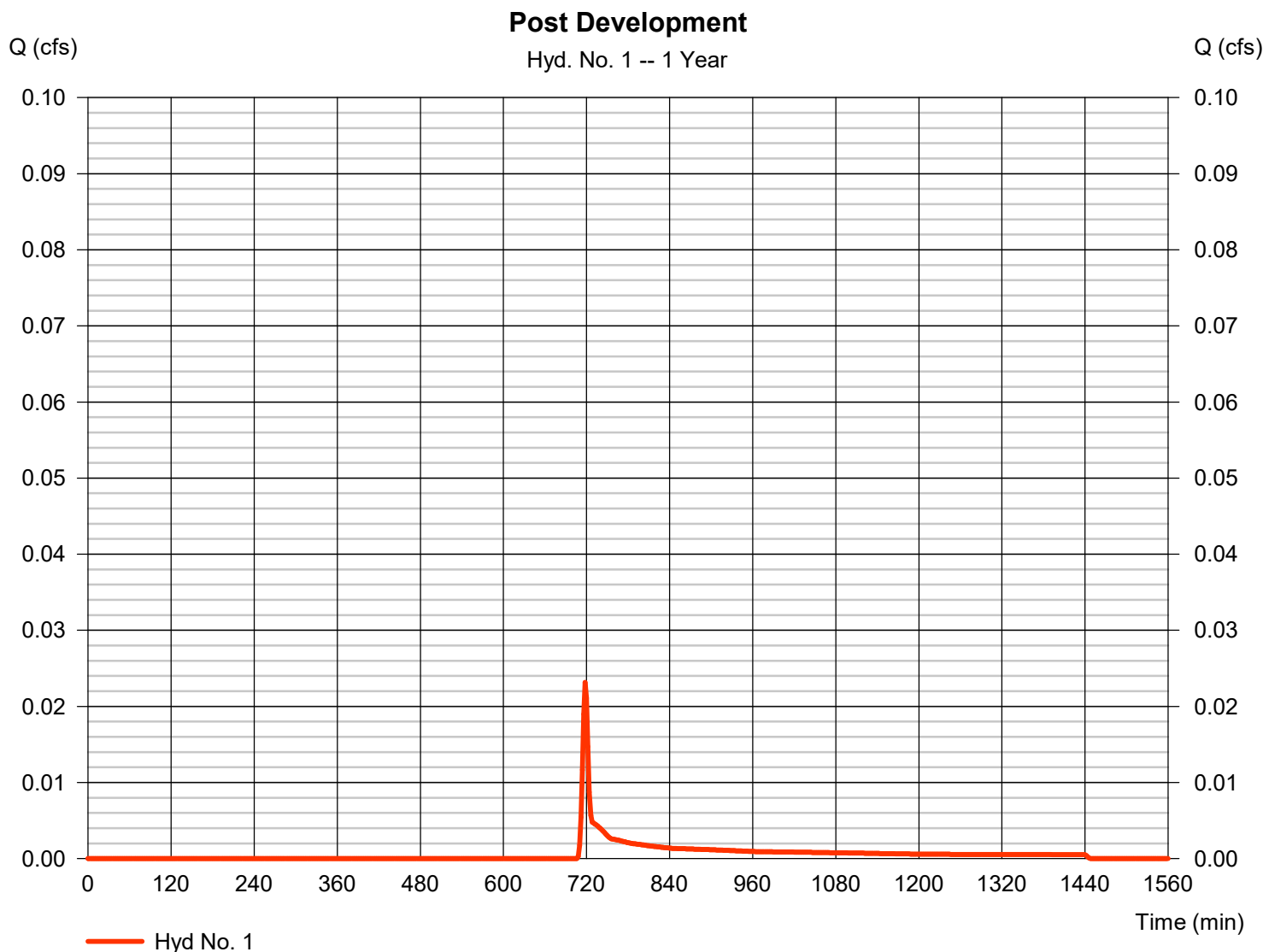
Thursday, 12 / 21 / 2023

Hyd. No. 1

Post Development

Hydrograph type	= SCS Runoff	Peak discharge	= 0.023 cfs
Storm frequency	= 1 yrs	Time to peak	= 718 min
Time interval	= 2 min	Hyd. volume	= 57 cuft
Drainage area	= 0.150 ac	Curve number	= 86*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 4.70 min
Total precip.	= 0.81 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.050 x 98) + (0.020 x 89) + (0.010 x 85) + (0.070 x 76)] / 0.150



TR55 Tc Worksheet

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

Hyd. No. 1

Post Development

<u>Description</u>	<u>A</u>		<u>B</u>		<u>C</u>		<u>Totals</u>
Sheet Flow							
Manning's n-value	= 0.011		0.240		0.011		
Flow length (ft)	= 39.4		6.7		0.0		
Two-year 24-hr precip. (in)	= 1.13		1.13		0.00		
Land slope (%)	= 6.40		2.52		0.00		
Travel Time (min)	= 0.61	+	2.53	+	0.00	=	3.14
Shallow Concentrated Flow							
Flow length (ft)	= 0.00		0.00		0.00		
Watercourse slope (%)	= 0.00		0.00		0.00		
Surface description	= Paved		Paved		Paved		
Average velocity (ft/s)	=0.00		0.00		0.00		
Travel Time (min)	= 0.00	+	0.00	+	0.00	=	0.00
Channel Flow							
X sectional flow area (sqft)	= 1.69		0.00		0.00		
Wetted perimeter (ft)	= 4.74		0.00		0.00		
Channel slope (%)	= 7.88		0.00		0.00		
Manning's n-value	= 0.240		0.015		0.015		
Velocity (ft/s)	=0.87		0.00		0.00		
Flow length (ft)	{{0}}80.1		0.0		0.0		
Travel Time (min)	= 1.53	+	0.00	+	0.00	=	1.53
Total Travel Time, Tc							4.70 min

Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2022

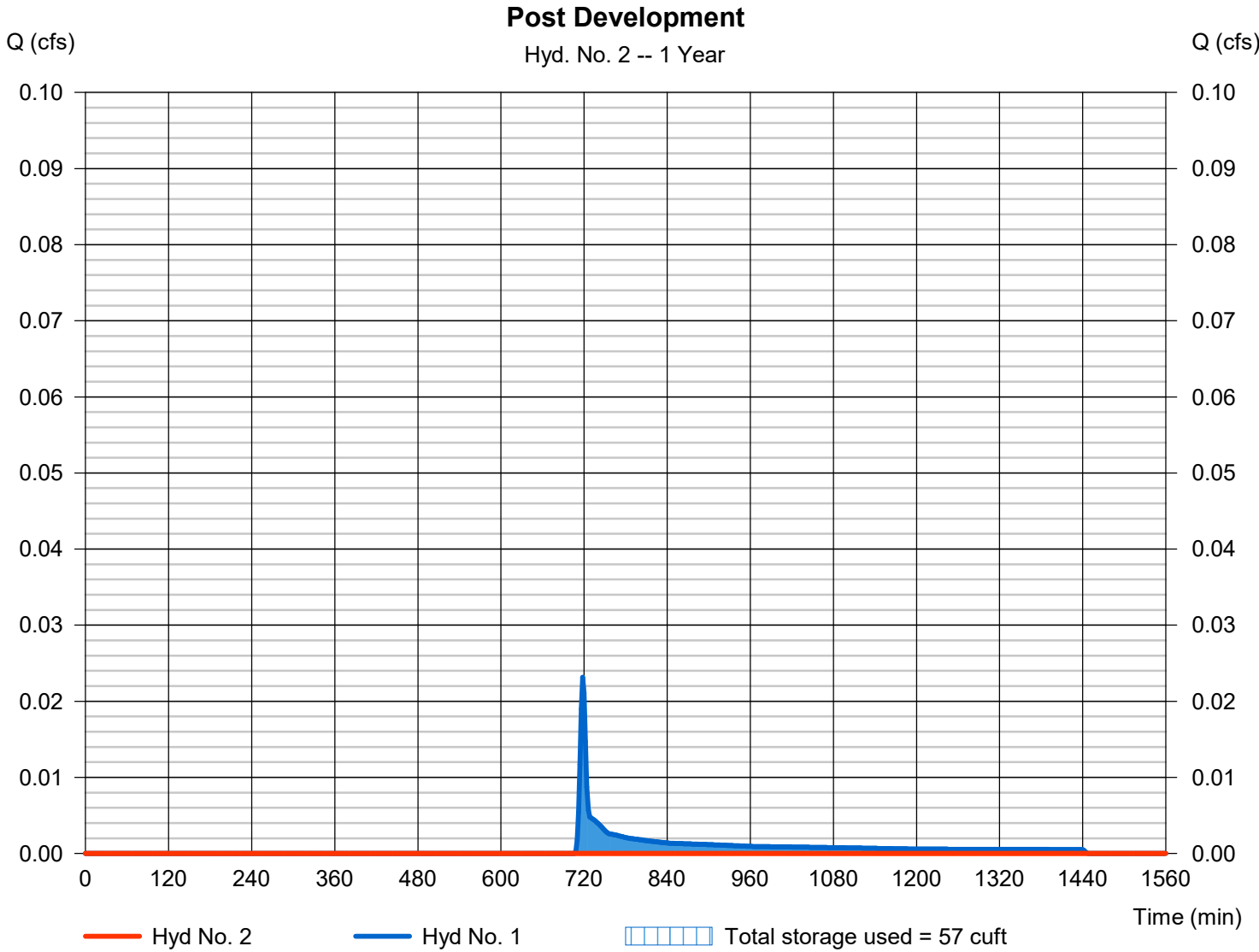
Thursday, 12 / 21 / 2023

Hyd. No. 2

Post Development

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 1 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 1 - Post Development	Max. Elevation	= 5006.37 ft
Reservoir name	= Detention Swale	Max. Storage	= 57 cuft

Storage Indication method used.



Pond No. 1 - Detention Swale

Pond Data

Pond storage is based on user-defined values.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	5005.75	n/a	0	0
0.75	5006.50	n/a	69	69

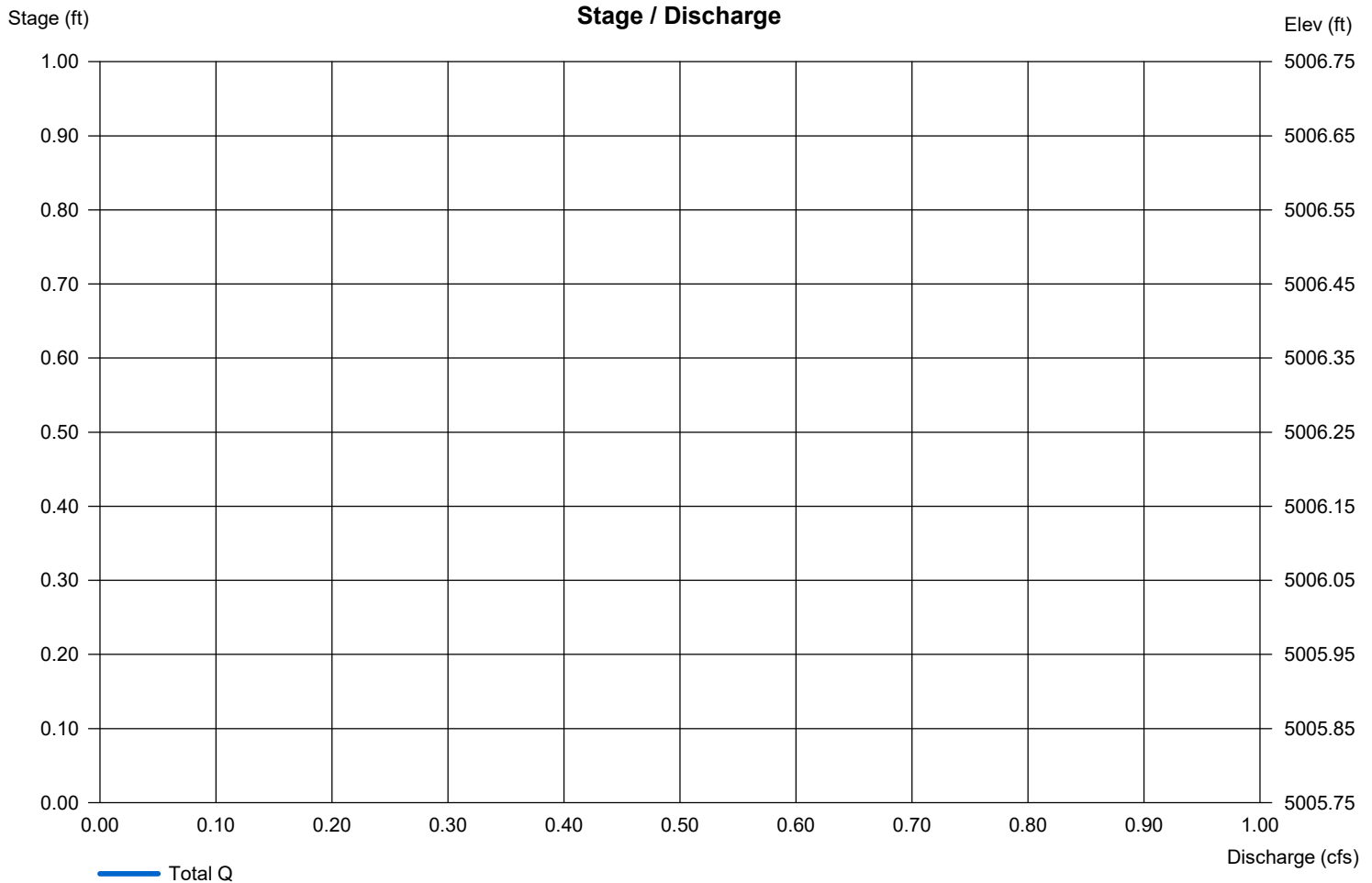
Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .000	.000	.000	n/a
Orifice Coeff.	= 0.00	0.00	0.00	0.00
Multi-Stage	= n/a	No	No	No

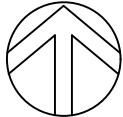
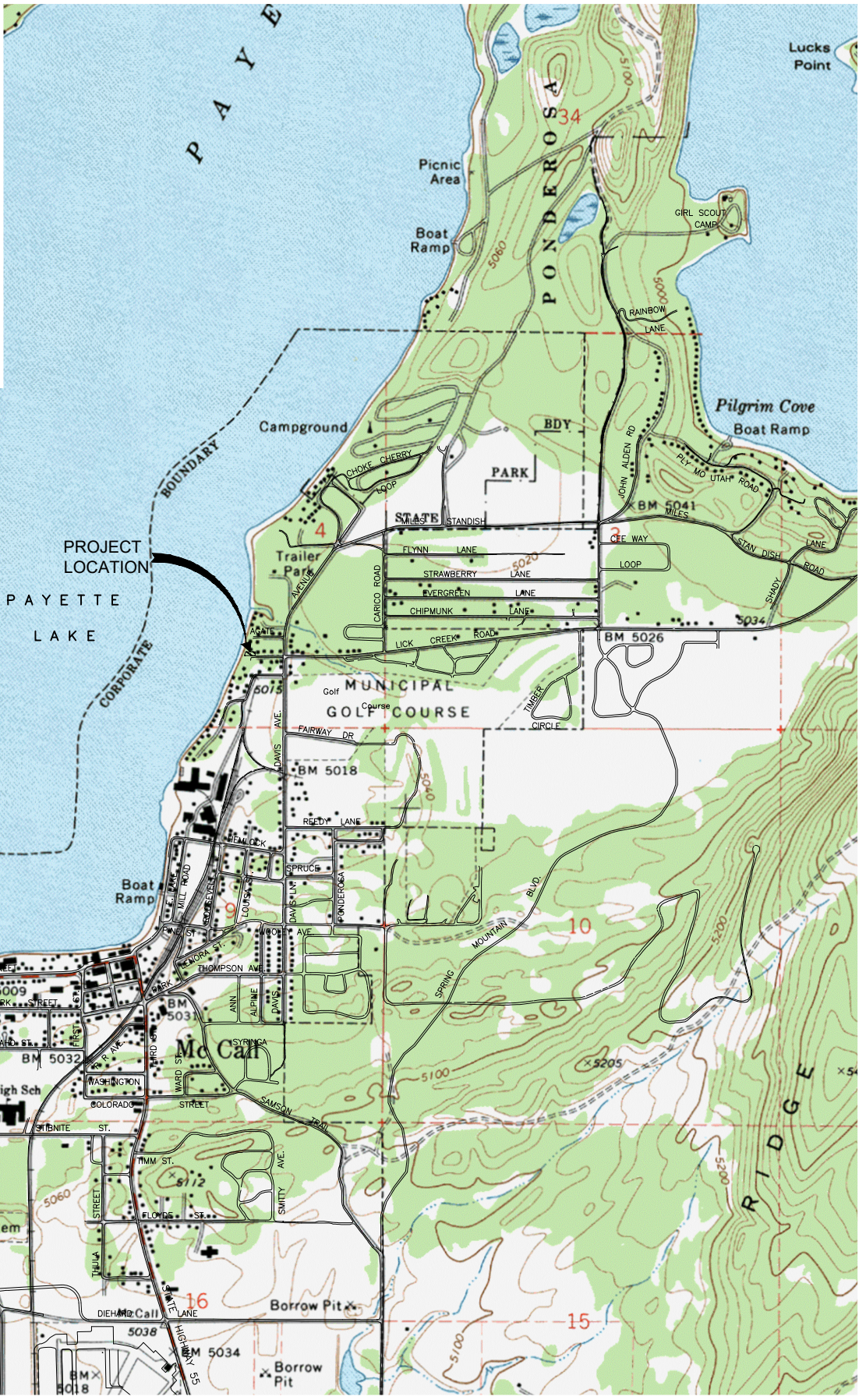
Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 0.00	0.00	0.00	0.00
Crest El. (ft)	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 0.00	0.00	0.00	0.00
Weir Type	= ---	---	---	---
Multi-Stage	= No	No	No	No
Exfil.(in/hr)	= 0.000 (by Wet area)			
TW Elev. (ft)	= 0.00			

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



APPENDIX A
FIGURES/DRAWINGS



NORTH
SCALE: 1" = 2000'

CRESTLINE ENGINEERS

323 DEINHARD LANE, SUITE C · PO BOX 2330
McCALL, IDAHO 83638
208.634.4140 · 208.634.4146 FAX

CLAASSEN ADDITION VICINITY MAP

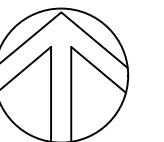
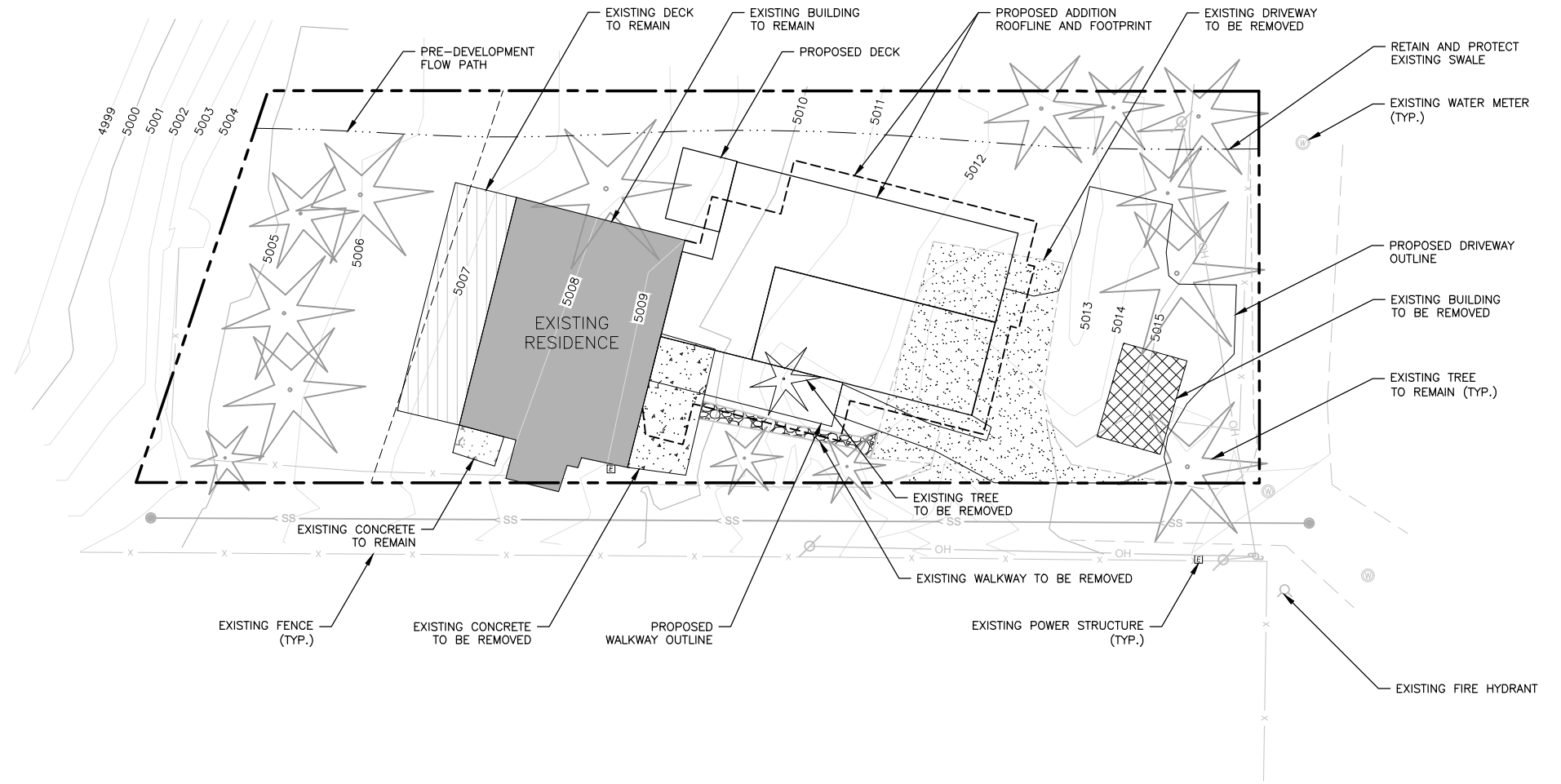
PROJECT	23035	DRAWN	FIGURE NO.
DATE	12/21/2023	TMS	1 OF 1

NOTES:

- 1. EXISTING TOPOGRAPHY AND PROPERTY BOUNDARIES AS SHOWN ON THIS PLAN ARE BASED UPON SURVEY DATA PROVIDED BY SAWTOOTH LAND SURVEYING, LLC. PROPOSED IMPROVEMENTS AS SHOWN ON THE PLAN ARE BASED UPON DRAWINGS PROVIDED BY McCALL DESIGN AND PLANNING, INC.
- 2. THE EXISTING SITE INFORMATION IS PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR'S CONSTRUCTION SURVEY PRIOR TO THE START OF ANY PROJECT CONSTRUCTION. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE COMPLETENESS OR ACCURACY OF THE EXISTENCE OF OBJECTS OR UTILITIES ENCOUNTERED, BUT WHICH ARE NOT SHOWN ON THESE DRAWINGS.

LEGEND:

- PROPERTY BOUNDARY
- EXISTING EASEMENT
- EXISTING ROAD
- EXISTING CONTOUR
- EXISTING WATER METER
- EXISTING SEWER MAIN AND MANHOLE
- EXISTING OVERHEAD POWER AND POLE
- EXISTING FENCE
- EXISTING DRAINAGE SWALE
- EXISTING CONCRETE AREA
- EXISTING ROOF AREA
- EXISTING DECK AREA
- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- EXISTING ROOF AREA TO BE REMOVED
- EXISTING GRAVEL AREA TO BE REMOVED
- EXISTING WALKWAY AREA TO BE REMOVED
- EXISTING CONCRETE AREA TO BE REMOVED
- EXISTING POWER STRUCTURE



NORTH



SCALE: 1" = 10'

NO.	REVISION	BY	DATE	DESIGN
				SMR
				SMR
				AMD
				AMD

CRESTLINE
ENGINEERS
323 DEINHARD LANE, SUITE C · PO BOX 2330
McCALL, IDAHO 83638
208.634.4140 · 208.634.4146 FAX

CLAASSEN ADDITION
McCALL, ID
EXISTING CONDITIONS WITH SITE PLAN

VERIFY SCALE BAR IS ONE INCH ON FULL SIZE DRAWING	
PROJECT	23035
DATE	12/21/2023
DRAWING NO.	SHEET NO.
C-1	1 OF 3

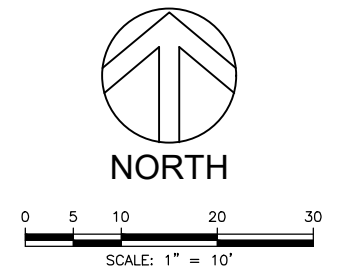
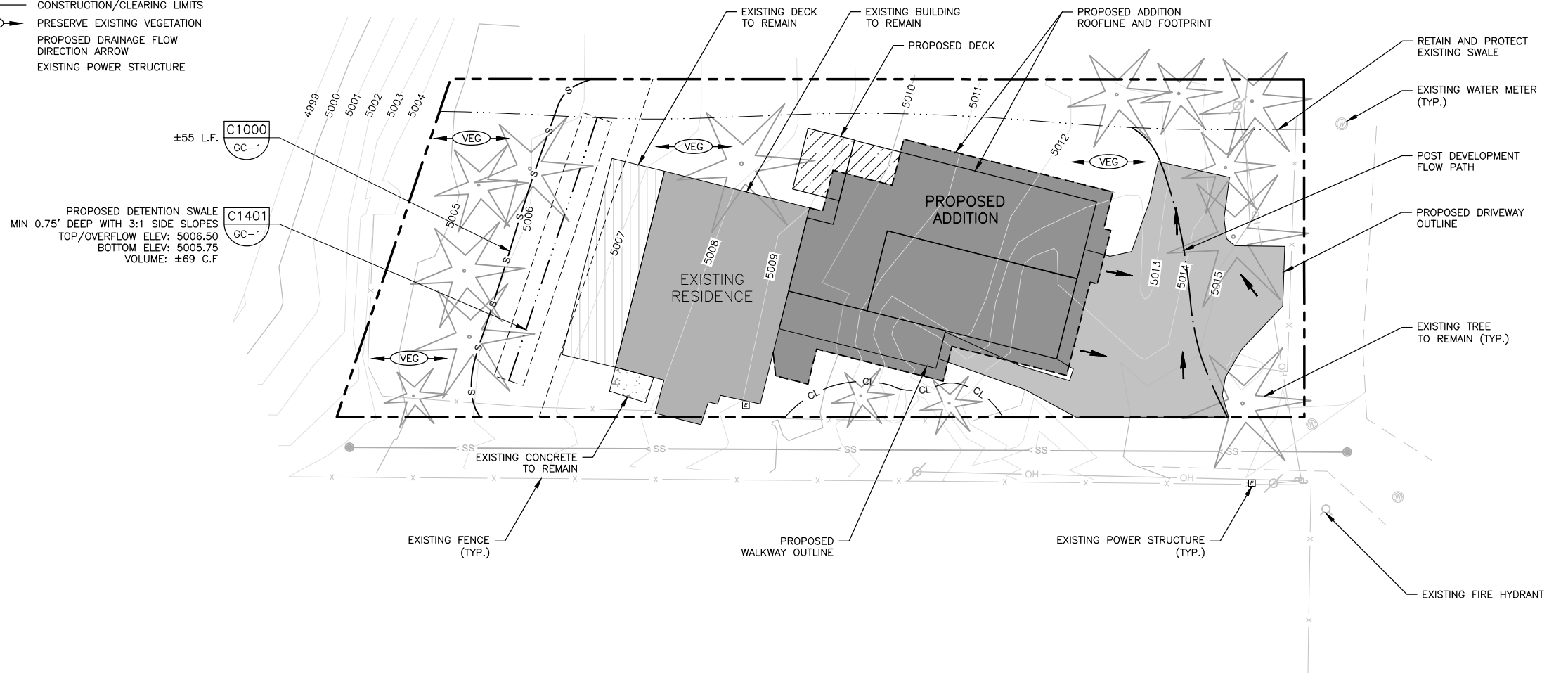
Path: C:\Users\staincres\OneDrive\Desktop\Crestline Engineers\Office\Crestline\Engineers\23035\Civil\Drawings\23035-Civil\Drawings\Plan.dwg File Name: 23035_StormwaterManagementPlan.dwg Plot Date: 12/21/2023 2:13 PM atstainc

NOTES:

- REFER TO THE "STATE OF IDAHO, CATALOG OF STORMWATER BEST MANAGEMENT PRACTICES FOR IDAHO CITIES AND COUNTIES" FOR FURTHER DETAILS ON BMP IMPLEMENTATION AND INSTALLATION.
- ALL EROSION AND SEDIMENT CONTROL BMP'S SHALL BE INSTALLED PRIOR TO THE START OF ANY PROJECT CONSTRUCTION OR EARTH DISTURBING ACTIVITIES AND SHOULD REMAIN IN PLACE UNTIL ALL DISTURBED/EXPOSED AREAS HAVE BEEN STABILIZED AND/OR REVEGETATED.
- THE OWNER AND/OR THEIR SELECTED CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL BMP'S IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REQUIREMENTS.
- THE IMPLEMENTATION OF THESE EROSION AND SEDIMENT CONTROL MEASURES INCLUDING INSTALLATION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THIS PLAN IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL PROJECT CONSTRUCTION IS COMPLETED AND APPROVED BY THE OWNER. THE OWNER SHALL BE RESPONSIBLE FOR ALL MAINTENANCE AFTER THE PROJECT IS APPROVED.
- WATTLES MAY BE USED IN PLACE OF SILT FENCE WHERE DETERMINED APPROPRIATE. SILT FENCE HAS BEEN SHOWN ON THE PROPERTY LINES IN SOME AREAS TO PREVENT ENCROACHMENT ONTO NEIGHBORING PROPERTIES.
- WORK ACTIVITIES SHALL TAKE PLACE WITHIN THE CLEARING LIMITS AS SHOWN ON THIS PLAN. CONTRACTOR SHALL PRESERVE NATURAL VEGETATION OUTSIDE OF CLEARING LIMITS AT ALL TIMES.
- STAGING AREA(S) TO BE LOCATED NEAR THE PROJECT ENTRANCE ALONG WITH PORTABLE TOILETS, GARBAGE RECEPTACLES, CONCRETE WASHOUT, AND ALL OTHER CONTRACTOR FACILITIES.
- ALL SITE GRADING ADJACENT TO THE NEW RESIDENCE SHALL BE SLOPED TO DRAIN AWAY FROM THE BUILDING AT A MINIMUM OF 1.5% IN HARDSCAPE AREAS AND 4% IN LANDSCAPE AREAS.
- DRIVEWAY GRADES SHALL BE SLOPED AWAY FROM THE GARAGE AT MINIMUM SLOPE OF 2% AND A MAXIMUM SLOPE OF 6% FOR A DISTANCE OF NO LESS THAN TEN (10) FEET. GRADING OF THE DRIVEWAY SHALL BE IN ACCORDANCE WITH THE DIRECTION OF THE DRAINAGE FLOW DIRECTION ARROWS AS SPECIFIED IN THE STORMWATER MANAGEMENT PLAN.
- AREAS BETWEEN NEW BUILDING STRUCTURES AND PROPERTY BOUNDARIES SHALL BE SLOPED TO INSURE RUNOFF IS KEPT ON-SITE. SWALES SHALL BE CONSTRUCTED ADJACENT TO/NEAR SIDE PROPERTY LINES TO TO PREVENT RUNOFF FROM FLOWING ONTO ADJOINING PROPERTIES. THESE SWALES ARE INTENDED TO BE FIELD FIT AND MEANDERED AROUND EXISTING VEGETATION AND SITE FEATURES AS NECESSARY.
- REVEGETATION AND STABILIZATION OF ALL DISTURBED PROJECT AREAS SHALL BE IN ACCORDANCE WITH THE PROJECTS LANDSCAPE DESIGN. IF A LANDSCAPE DESIGN/PLAN IS NOT AVAILABLE, DISTURBED AREAS SHALL BE REVEGETATED WITH A GRASS MIXTURE NATIVE TO THAT AREA.

LEGEND:

- PROPERTY BOUNDARY
- EXISTING EASEMENT
- EXISTING ROAD
- EXISTING CONTOUR
- EXISTING WATER METER
- EXISTING SEWER MAIN AND MANHOLE
- EXISTING OVERHEAD POWER AND POLE
- EXISTING FENCE
- EXISTING DRAINAGE SWALE
- EXISTING CONCRETE
- EXISTING ROOF AREA
- EXISTING DECK AREA
- EXISTING TREE TO REMAIN
- PROPOSED ROOF AREA
- PROPOSED GRAVEL DRIVEWAY AREA
- PROPOSED DECK AREA
- SILT FENCE
- CONSTRUCTION/CLEARING LIMITS
- PRESERVE EXISTING VEGETATION
- PROPOSED DRAINAGE FLOW DIRECTION ARROW
- EXISTING POWER STRUCTURE



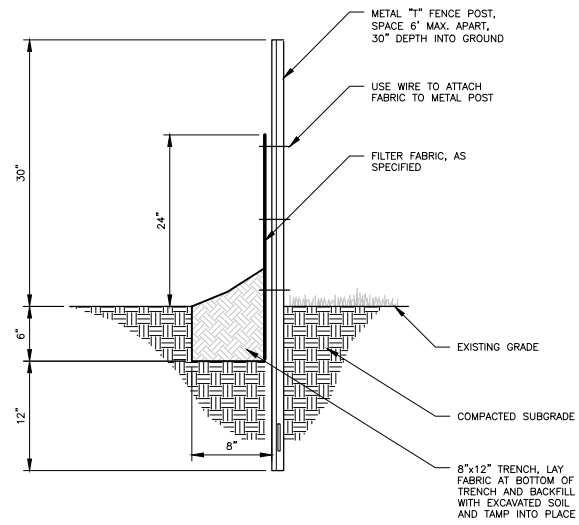
Path: C:\Users\mccrestline\OneDrive\Desktop\Crestline Engineers\Dropbox\Crestline Engineers\Office\Crestline Engineers\23035\Civil\DWG\23035-StormwaterManagementPlan.dwg File Name: 23035_StormwaterManagementPlan.dwg Plot Date: 12/21/2023 2:50 PM arshes

NO.	REVISION	BY	DATE	DESIGN
				SMR
				DRAWN
				SMR
				CHECKED
				AMD
				APPROVED
				AMD

CRESTLINE ENGINEERS
 323 DEINHARD LANE, SUITE C · PO BOX 2330
 McCALL, IDAHO 83638
 208.634.4140 · 208.634.4146 FAX

CLAASSEN ADDITION
 McCALL, ID
 STORMWATER MANAGEMENT PLAN

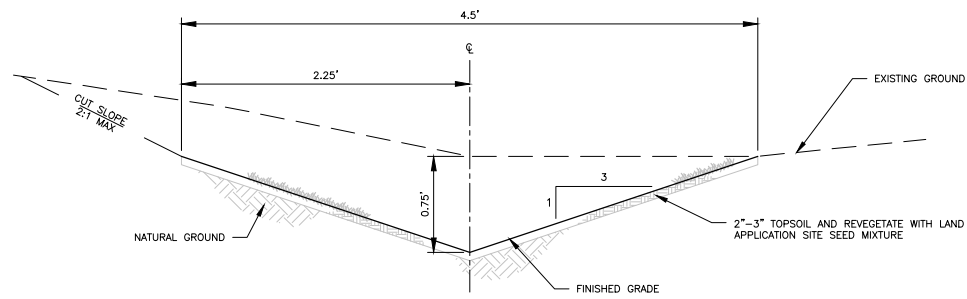
VERIFY SCALE	
BAR IS ONE INCH ON FULL SIZE DRAWING	
PROJECT	23035
DATE	12/21/2023
DRAWING NO.	SHEET NO.
C-2	2 OF 3



NOTES:

1. INSTALL SILT FENCE AT TOE OF FILL SLOPES, AS INDICATE ON THE PLANS AND LOCATION WHERE SEDIMENT MAY MOVE OFF SITE.
2. SILT FENCES SHALL REMAIN IN PLACE UNTIL SLOPES HAVE STABILIZED.
3. SEE STATE OF IDAHO CATALOG OF STORM WATER BEST MANAGEMENT PRACTICES, BMP #25 FOR ADDITIONAL INFORMATION.

C1000 SILT FENCE DETAIL
TYP NOT TO SCALE



NOTES:

1. REFER TO IDAHO DEPARTMENT OF ENVIRONMENTALLY QUALITY'S CATALOG OF STORMWATER BEST MANAGEMENT PRACTICES, VOLUME 4, SECTION 3, BMP 9 AT WWW.DEQ.IDAHO.GOV/MEDIA/622263-STORMWATER.PDF FOR ADDITIONAL INFORMATION.

C1401 BIOFILTRATION SWALE (VEGETATED SWALE)
TYP NOT TO SCALE

Path: C:\Users\mccall\OneDrive\Documents\Crestline Engineers\Dropbox\Crestline Engineers\Office\Crestline\Engineers\23035\Civil\Design\23035\Civil\Design\DD\23035_GC-1.dwg File Name: 23035_GC-1.dwg Pld Date: 12/21/2023 12:29 PM smines

NO.	REVISION	BY	DATE	DESIGN
				DRAWN
				CHECKED
				APPROVED

CRESTLINE
ENGINEERS
323 DEINHARD LANE, SUITE C · PO BOX 2330
McCALL, IDAHO 83638
208.634.4140 · 208.634.4146 FAX

CLAASSEN ADDITION
McCALL, ID
CIVIL TYPICAL DETAILS

VERIFY SCALE	
BAR IS ONE INCH ON FULL SIZE DRAWING	
PROJECT	23035
DATE	12/21/2023
DRAWING NO.	SHEET NO.
GC-1	3 OF 3



Civil Engineering Consultants

323 Deinhard Lane, Suite C

PO Box 2330

McCall, Idaho 83638

(208) 634-4140