Erosion and Sediment Control Plan

Mountain Ash Limited Partnership Summit Pit

SLR Project No: 212.06650.00006

April 2021

Revision 1, November 2021

Erosion and Sediment Control Plan for Summit Pit (Revised)

Mountain Ash Limited Partnership

Rocky View County, Alberta

SLR Project No: 212.06650.00006

Prepared by:
Erosion Control Central Ltd.
2333 18 Ave NE #24
Calgary, AB T2E 8T6

for

Mountain Ash Ltd. Partnership
1945 Briar Crescent NW
Calgary, AB, T2N 3V6

November 2021

This document has been prepared by SLR Canada. The material and data in this report were prepared under the supervision and direction of the undersigned.

Prepared by:

David Dinu, CPESC, MEDes
Senior Erosion and Sedimentation Control Professional – Erosion Control Central

Reviewed by:

Jesse Dirom B.Sc., MBA, CESCP
Senior Consultant – SLR Consulting

Distribution: 1 copy (PDF) – Mountain Ash Limited Partnership
1 copy - SLR Consulting (Canada) Ltd.

Table of Contents

FIGURES

APPENDICES

1.0 INTRODUCTION

Mountain Ash Limited Partnership (Mountain Ash) is planning to develop the Summit Pit (the Project) along Highway 567 within NW and SW 31-026-03 W5M, northeast of the Town of Cochrane, in Rocky View County (RVC), Alberta (Figure 1). The Project will encompass approximately 208 acres (84 ha) excluding existing road rights-of-way. Mountain Ash is applying for Phase 1 of a six-phase mining plan. This land is currently owned by 1410266 Alberta Ltd. (a general partner of Mountain Ash). Summit Pit received land use and a master site development plan (MSDP) approval on March 2, 2021 (Land Use Bylaw C-8051-2020).

1.1 Soil Description

Soils across the Project area are loam to clay loam Orthic Black Chernozemics of the Dunvargan soil series, with Gleysolic soils present in poorly drained wetland areas (SLR 2020). These soils have low wind erosion risk and moderate water erosion risk (SLR 2020). No sensitive soils were observed (SLR 2020).

1.2 Surface Conditions

The Project is located within the Foothills Parkland Natural Subregion where hay or feed crops are dominant. Vegetation communities are primarily non-native hay crop, tame pasture and non-native species associated with the residences (SLR 2020). Some native pasture remains, and pockets of aspen trees were found in the south half of the site (SLR 2020).

1.3 Drainage Patterns

The Project area slopes southeast from a topographic high to the north, with a low-relief valley feature running northwest to southeast across the NW ¼ section (SLR 2020). The SW ¼ section slopes steeply south-westerly into a valley running west-northwest to east-southeast, leading to Bighill Creek (SLR 2020).

2.0 EROSION AND SEDIMENT CONTROL

The primary objectives of Erosion and Sediment Control (ESC) are to prevent offsite sedimentation into adjacent vegetated lands and specifically into any adjacent permanent or ephemeral watercourses/wetlands.

2.1 Stormwater Management During Operations

During operations, a series of conveyance ditches will be placed to capture onsite drainage/stormwater and transport it to a series of settlement ponds. The intent is to install these stormwater control measures around the entire site, encompassing all 6 phases. For the purposes of this plan, only controls associated with Phase 1 will be considered and constructed at this time. See Figure 2 for locations of diversion and conveyance ditches and settlement ponds.

See section 2.2.1 for recommended ESC measures for these conveyance ditches.

2.2 Temporary Erosion and Sediment Control Measures

Temporary ESC measures are necessary during construction and will be installed in specified work areas as required. In post-construction, when areas are suitably stabilized, temporary sediment control measures will be removed.

Temporary ESC measures are summarized below and shown on Figure 2.

- temporary sediment control (perimeter silt fence) primarily along south and east boundaries of phase 1
- temporary sediment control (silt fence) along haul route adjacent to wetland preservation area
- temporary sediment control (v-ditch/berm with check dams) to provide some runoff storage in unprotected areas
- temporary erosion control (hydro-mulch/tackifier) to provide temporary cover (e.g., hydro-mulch/tackifier) on bare soil in all disturbed areas
- run-on control (diversion ditch) along west and north boundaries to intercept drainage from upslope areas
- stormwater controls (conveyance ditches and settlement ponds) to convey runoff to ponds to allow sediments to settle
- temporary erosion control (rolled erosion control product) in diversion and conveyance ditches to prevent erosion and reduce potential for downslope sedimentation
- temporary sediment control (check dams) in diversion and conveyance ditches to reduce runoff velocity
- temporary erosion control (hydro-mulch/tackifier) on all overburden areas and other disturbed areas that need to be stabilized beyond the short-term
- good housekeeping (gravel access pad) to reduce dirt/mud tracking onto adjacent paved roadways
- dust control applications, namely Calcium Chloride used on internal haul routes and potentially other gravel surfaces that accommodate common vehicle movements and traffic during operations

2.2.1 Extraction Area and Overburden

Diversion Ditch

- Diversion ditches will be built along north and west boundaries of phase 1 to capture runoff from upslope areas and direct it away from active extraction area.
- To prevent erosion and reduce downstream sedimentation, conveyance ditches will be covered with a Rolled Erosion Control Product (RECP). In most areas, a straw-coconut erosion control blanket will suffice to handle sheer stress velocity and prevent erosion. However, in steeper areas, a more durable RECP such as turf reinforcement matting (TRM) may have to be used to handle a higher runoff velocity. To prevent undermining by runoff, the top or leading edge of RECP is trenched in and covered with soil and an adequate number of staples are used.

Installation will be per manufacturer's specifications and instructions. See construction detail on Figure 3.

- To further reduce runoff velocity in ditches, check dams (e.g., sediment logs, Geo-Ridges) will be installed, especially in steeper areas. In very steep areas, rock check dams will be installed to ensure durability during storm events. See construction detail for rock check dam in Figure 3.

Conveyance Ditch

Conveyance ditch around perimeter of the site is still in conceptual mode. Final design of conveyance ditch may not be exactly as shown in Figure 2. Still, same measures for cover (i.e., RECP) and runoff velocity reduction (i.e., check dams) will apply to conveyance ditch.

Silt Fence

- Before construction, trench in silt fence i) along east and south boundaries of phase 1, ii) along south boundary and around southwest corner of overburden – to the west of phase 1, and iii) along east side of access road at north end, adjacent to wetland preservation area. Locations are shown in Figure 2. See construction detail on Figure 3 for silt fence installation and maintenance instructions. J-hooks will be installed at least every 30 m, and even closer together in steeper areas.
- Silt fence not keyed in properly or otherwise not installed per manufacturer's recommendations must be removed and re-installed.
- Silt fence will be repaired as soon as damaged and sediment build-up removed when it reaches half of fence height
- All silt fencing will be removed once upslope areas have been vegetated or upon project completion.

V-ditch/Berm with Check Dams

- To provide for temporary detainment of runoff, v-ditch/berm with check dams along south boundary between west overburden area and south end of diversion ditch will be installed. Location is shown in Figure 2. ditch will be dug with tilting blade bulldozer, backhoe with articulating bucket or skid steer. Track pack or bucket-pack berms and check dams. Check dams will be installed at minimum intervals of 10 m and below the height of the ditch. See construction detail on Figure 3 for installation instructions.
- Water will be pumped out of ditches when half full to restore storage capacity. Water will be pumped to sediment ponds that do not drain to environmentally sensitive areas.
- Any breaches in ditches or check dams will be repaired. When accumulated sediment reaches one third the depth of the ditch, excess sediment will be removed and spread in an area that will not flow to environmentally sensitive areas.

Slope Track-Packing (Surface Roughening)

- Disturbed (bare) slopes will be track-packed, running machinery up and down slope – not along slope. See construction detail on Figure 3.

2.2.2 Access Road

Access road (Range Road 40), off Highway 567 is paved, and starting in northwest corner of overall site and extending southwards for approximately 200 m and then eastwards to the scale house (Figure 2).

Temporary internal haul road, within site, will be graded and surfaced with a gravel base and treated with Calcium Chloride for dust control. During operations, the north access point will be paved. If temporary stabilization is needed before paving, install gravel pad to help reduce offsite dirt tracking and dust. See construction detail scale area in Figure 3.

2.3 Dust Control

Dust emissions during construction activities will be controlled, as necessary. Water truck will be used on disturbed areas and haul routes, especially during dry, windy conditions.

For comprehensive account of dust control measures, refer to SLR's Dust Control Plan for Summit Pit (April 2021) written for the development permit application.

2.4 Stockpile Stabilization

Stripped materials during the development of Phase 1 will be placed in three stockpiles: topsoil, subsoil and overburden. Overburden removed from the south portion of Phase 1 will be placed along south boundary of Phase 1, and overburden taken from north portion of Phase 1 will be directly placed into the reclamation zone created in the south portion of Phase 1.

Before excavation, silt fence will be installed along the south boundary, downslope of these proposed overburden areas, to address and mitigate the potential for sediment transfer to adjacent areas.

Once overburden areas are in place, hydro-mulch/tackifier will be applied in these areas to provide temporary stabilization until final reclamation occur (See Figure 2). Before stabilization, watering of stockpiles may be necessary to suppress dust. All stockpiles will be vegetated and maintained to prevent soil erosion and stockpile loss.

2.5 Permanent Erosion and Sediment Control Measures

Final reclamation plan for Phase 1 has not yet been completed. The ESC objective is to return all disturbed areas, including overburdens, to a vegetated state.

Ultimately, a 15 m wide berm will be built along the entire east boundary. It will be vegetated, including a row of trees planted along the top of the berm.

2.6 Revised Universal Soil Loss Equation (RUSLE) Evaluation

RUSLE is a tool that provides guidance in choosing appropriate ESC measures to maximize erosion protection and minimize offsite sedimentation. The resulting A-value represents potential sediment delivery from any given slope. Per Section 1200 of Rocky View County's Servicing Standards, all slopes must have an A-value (sediment delivery) of under 2.00 tonnes/hectare/year (Rocky View County 2013).

2.6.1 Annual Rainfall Analysis (R-Value)

R-value is based on average rainfall for the Calgary area, which is represented by City of Calgary default R-value (320) from City of Calgary ESC Guidelines (The City of Calgary 2017).

2.6.2 Site Soil Analysis (K-Value)

Since there is no site-specific soil sieve analysis, The City of Calgary default K-value of 0.079 (The City of Calgary 2017) is used in RUSLE calculations.

2.6.3 Pond Table – During Operations

Per Figure 2, some runoff storage (i.e., v-ditch/berm with check dams) will be placed onsite during operations. Depending on v-ditch/berm storage capacity, corresponding P-value is used for RUSLE calculations. P-value is derived from The City of Calgary Sediment Containment Systems – P-Value Updates (June, 2016 – see Appendix B). Table 1 contains onsite runoff storage information

Table 1: Onsite Runoff Storage During Operations

LS Slope	Pond Identifier	Length of v-ditch	V-ditch Volume* (m^3) = Length of v ditches (m) x 2.5 m^2	Drainage Area (ha)	Storage Capacity (m^3/ha)	P-Value
6	V-ditch/berm with check dams	214	535	0.6	892	0.3

*Formula for v-ditch volume is based on construction detail on ESC3 figure

2.6.4 RUSLE Table – During Operations

The following RUSLE table shows potential sediment delivery totals (A-values) in areas that are either not in an active extraction zone or where overburden material will be stockpiled.

Table 2: RUSLE Calculations During Operations

LS Slope	Slope and Slope Length	R-Value	K-Value	LS-Value	Description of Control Practices	C-Value	P-Value	A-Value (Tonnes/ ha/yr)
1	46 m @ 26.3%	320	0.079	6.70	C - hydro-mulch/tackifier (Flexterra® HP-FGM) P - surface roughening	0.01	0.900	1.52
2	21 m @ 11.4%	320	0.079	1.35	C - hydro-mulch/tackifier (Flexterra® HP-FGM) P - surface roughening	0.01	0.900	0.31
3	26 m @ 7.3%	320	0.079	0.90	C - hydro-mulch/tackifier (Flexterra® HP-FGM) P - surface roughening	0.01	0.900	0.20
4	78 m @ 4.9%	320	0.079	1.14	C - hydro-mulch/tackifier (Flexterra® HP-FGM) P - surface roughening	0.01	0.900	0.26
5	22 m @ 8.6%	320	0.079	0.94	C - hydro-mulch/tackifier (Flexterra® HP-FGM) P - silt fence = 0.6 and surface roughening = 0.9	0.01	0.540	0.13
6	45 m @ 2.4%	320	0.079	0.39	C – none P - silt fence = 0.6 v-ditch berm with check dams = 0.3 and surface roughening = 0.9	1.00	0.162	1.60
7	64 m @ 2.8%	320	0.079	0.54	C - hydro-mulch/tackifier (Flexterra® HP-FGM) P - silt fence = 0.6 and surface roughening = 0.9	0.01	0.540	0.07

2.7 Best Management Practices

2.7.1 Before Construction

- Clearly stake out work area with flagging tape to minimize disturbance of existing vegetation.
- Locate all laydown areas on flat terrain. If necessary, install containment measures (e.g., sediment logs, containment berms) around these areas.
- Install perimeter ESC measures (e.g., silt fence) before earthworks and placement of overburden starts.
- Install stabilized access point into site to reduce potential of dirt/mud tracking onto adjacent roadways.

2.7.2 During Construction

- Install additional ESC measures, as needed, to ensure onsite runoff is dealt with and not leading to offsite sedimentation.
- Provide enough watering or other approved dust control measures (e.g., calcium chloride) to minimize dust on haul roads, stockpiles and any other loose soil onsite, especially during dry windy conditions.
- Complete an erosion and sediment control inspection and report weekly and after a significant or prolonged rainfall event or snowmelt. A significant rainfall event is typically defined as greater than 12 mm of rainfall during a 24-hour period. See Section 2.7.

2.7.3 Post Construction

- Restore/reclaim all disturbed areas as soon as practical and where possible.
- Re-use salvageable subsoil for backfill and remove all other excavated material
- To minimize slope erosion, apply topsoil and regionally approved native grass seed mix.
- Remove and dispose all temporary sediment control measures when no longer needed.
- Remove all unused materials from site and dispose construction debris at an approved waste transfer facility.

2.7.4 General Mitigation Measures

- Ensure all vehicles and equipment brought onsite are free of debris, grease, oil, mud or leaks.
- Conduct cleaning, fueling and servicing of all equipment at a safe distance (preferably 100 m) away from watercourses, wetlands or environmentally sensitive areas. If necessary, conduct these activities in a contained area that is lined and bermed.
- Halt work during heavy rains/snowfall.
- Site-specific spill response plan that includes emergency contact numbers and outlines measures to contain, control, report and clean-up spills and releases of deleterious substances. At a minimum, if a release or spill occurs, immediately notify the Site Construction Supervisor; estimate the volume of fluid released and cease operations to assess the need for and extent of containment measures.
- Report all environmental emergencies and/or releases to:
- Alberta 24 Hour Spill Reporting Line: 1.800.222.6514; and/or
- DFO Emergency Response Line: 1.800.889.8852
- Keep a copy of ESC Plan and all regulatory approvals onsite during construction activity.

2.8 Monitoring

Regular supervision and environmental monitoring during construction process is required, to ensure regulatory compliance, oversee implementation of works in accordance with design plans, minimize site disturbances, limit seepage into work areas and apply preventative control measures.

All erosion and sediment control measures will be continually monitored. A formal inspection and report will be conducted weekly and after a heavy or prolonged rainfall event or snowmelt. A heavy rainfall event is typically defined as greater than 12 mm of rainfall during a 24 hour period.

ESC inspection report will be a written including a photographic record of ESC measures and maintenance requirements. Digital photos will confirm that erosion and sediment control measures were installed and will identify requirements for remedial actions. Each photo will be dated and identified by a photo number.

A copy of each inspection report will be kept onsite. Maintenance must be carried out in timely and diligent manner, ideally within 48 hours of discovering any damaged installation.

Erosion and sediment control inspection reports will be made available to all government regulators on request. In addition, all other regulatory approvals will be kept onsite during construction.

If there is a temporary work stoppage, inspection and maintenance of erosion and sediment control measures must continue.

3.0 REFERENCES

Rocky View County. 2013. *County Servicing Standards.* May 28, 2013.

SLR Consulting (Canada) Ltd. 2020. *Mountain Ash Limited Partnership Aggregate Operation NW and SW 31-26-03 W5M, Rocky View County, Alberta Biophysical Impact Assessment Report.* January, 2020. Calgary, Alberta.

The City of Calgary. 2017. *The City of Calgary Water Resources Erosion and Sediment Control Guidelines*, 2017. Calgary.

4.0 STATEMENT OF LIMITATIONS

This report has been prepared and the work referred to in this report has been undertaken by SLR for Mountain Ash Limited Partnership., hereafter referred to as the "Client". The report has been prepared in accordance with the Scope of Work and agreement between SLR and the Client. It is intended for the sole and exclusive use of the Client. Other than by the Client and as set out herein, copying or distribution of this report or use of or reliance on the information contained herein, in whole or in part, is not permitted without the express written permission of SLR.

This report has been prepared for specific application to this site and site conditions existing at the time work for the report was completed. Any conclusions or recommendations made in this report reflect SLR's professional opinion.

Information contained within this report may have been provided to SLR from third party sources. This information may not have been verified by a third party and/or updated since the date of issuance of the external report and cannot be warranted by SLR. SLR is entitled to rely on the accuracy and completeness of the information provided from third party sources and no obligation to update such information.

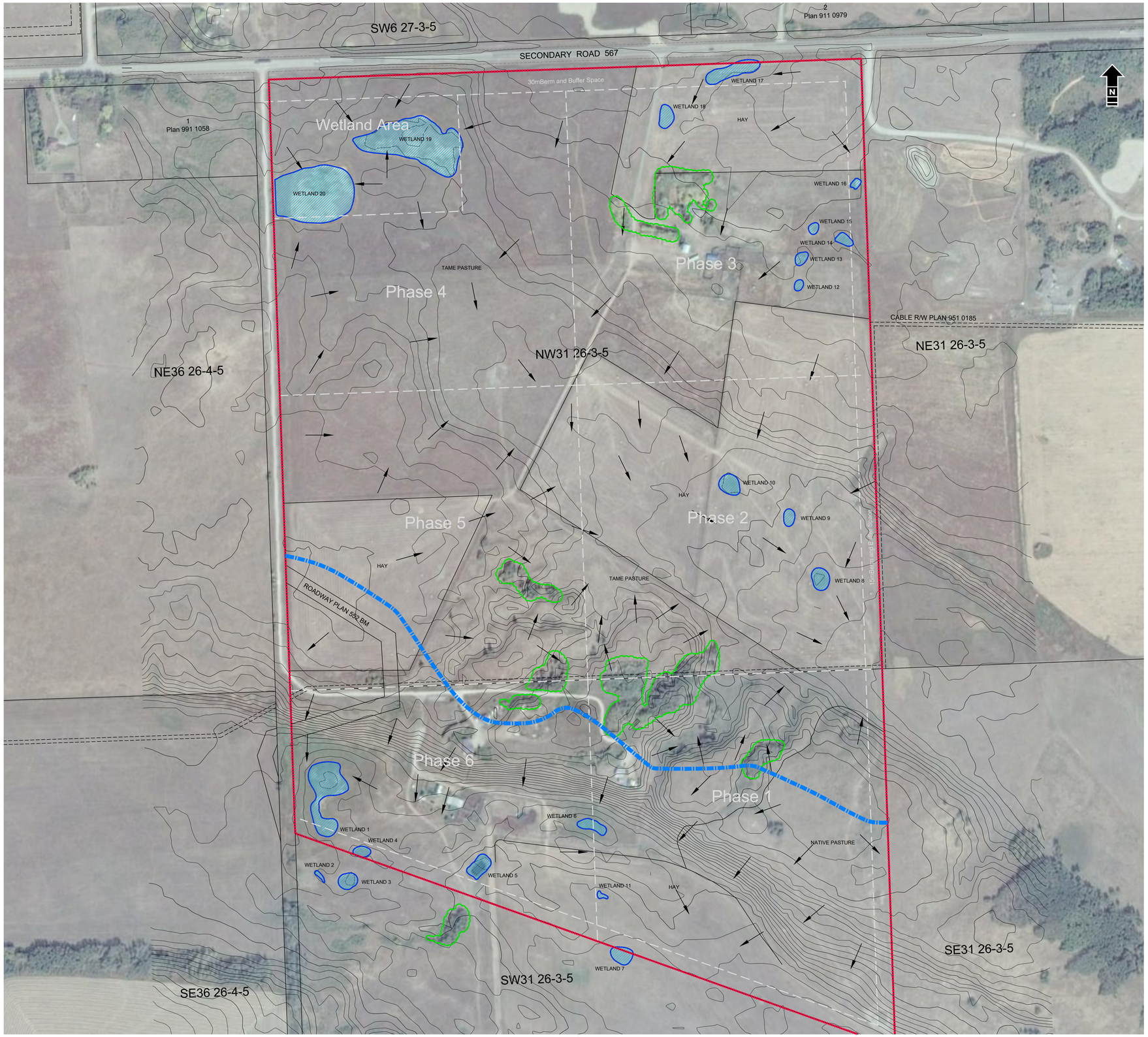
Nothing in this report is intended to constitute or provide a legal opinion. SLR makes no representation as to the requirements of compliance with environmental laws, rules, regulations, or policies established by federal, provincial, or local government bodies. Revisions to the regulatory standards referred to in this report may be expected over time. As a result, modifications to the findings, conclusions, and recommendations in this report may be necessary.

FIGURES

Erosion and Sediment Control Plan

Mountain Ash Limited Partnership Summit Pit

SLR Project No: 212.06650.00006



APPROVING AUTHORITY OFFICE USE

FILE No.

Project Information

Legal Description:
Within of N.W. & S.W. Sec.31-26-03-W5

Construction Start

Autumn 2021

Key Plan

ESC Consultant

EROSION CONTROL CENTRAL

Erosion Control Central (ECC)
#24, 2333 18th Ave NE, Calgary, AB T2E 8T6
David Dinu, CPESC
david@erosioncontrolcentral.com
tel: (403) 909-3700

Legend

- Development Boundary
- Contour (1091)
- Slope Segment
- Spot Elevation (1081.7)
- Slope Number (3)
- RUSLE FAC Slope Factor Value (for freshly prepared construction sites) (LS=#.##)
- Flow Direction
- Drainage Divide
- Drainage Area Boundary
- Wetland
- Treed Area
- Storm Main and Manhole
- Catch Basin

0 50 100 150 200

SCALE 1:2500

REVISION					
2	Nov 4-2021	REVISED TO ADDRESS COUNTY COMMENTS	DD		GM
1	Apr 21-2021	ISSUED FOR REGULATORY APPROVAL	DD		GM
No.	DATE	DESCRIPTION	BY	CHK	DRN

Engineering Consultant
-

CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL — CPESC — David Dinu No.3055

Reference: SLR source material

Rocky View County, Alberta
Mountain Ash Limited Partnership Aggregate Operation

ESC Plan
Before Development

Date:	CAD file:	Printed:	Technical:	Drawn:
April 2021	MountainAsh	November 4, 2021	D. Dinu	GM

Figure 1

APPROVING AUTHORITY OFFICE USE

FILE No.

Project Information

Legal Description:
Within of N.W. & S.W. Sec.31-26-03-W5

Construction Start
Autumn 2021

Key Plan

ESC Consultant

EROSION CONTROL CENTRAL

Erosion Control Central (ECC)
#24, 2333 18th Ave NE, Calgary, AB T2E 8T6
David Dinu, CPESC
david@erosioncontrolcentral.com
tel: (403) 909-3700

Legend

- Development Boundary
- Contour (1091)
- Slope Segment
- Spot Elevation (1081.7)
- Slope Number (3)
- RUSLE FAC Slope Factor Value (for freshly prepared construction sites) (LS=#.##)
- Flow Direction
- Drainage Divide
- Drainage Area Boundary
- Wetland
- Treed Area
- Culvert
- Attenuation/Settlement Pond
- Drainage Ditch
- Temporary Diversion Ditch with Erosion Control Blanket and Check Dams
- Temporary Perimeter Berm
- Overburden Placement Area
- Active Extraction Area
- Silt Fence with J-Hooks
- V-Ditch/Berm with Check Dams
- Hydro-mulch / tackifier
- Surface Roughening and Hydro-mulch / tackifier
- Surface Roughening
- Internal Haul Road
- Paved Access Road
- Stabilized Access Point

0 20 40 80 120

SCALE 1:1500

REVISION					
2	Nov 4-2021	REVISED TO ADDRESS COUNTY COMMENTS	DD		GM
1	Apr 21-2021	ISSUED FOR REGULATORY APPROVAL	DD		GM
No.	DATE	DESCRIPTION	BY	CHK	DRN

Engineering Consultant
-

Reference: SLR source material

CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL — CPESC — David Dinu No.3055

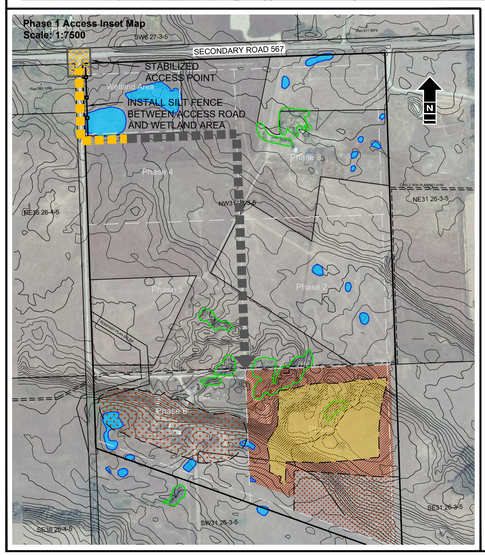
Rocky View County, Alberta
Mountain Ash Limited Partnership Aggregate Operation

ESC Plan
Phase 1 - During Operations

Date:	CAD file:	Printed:	Technical:	Drawn:
April 2021	MountainAsh	November 4, 2021	D. Dinu	GM

Figure 2

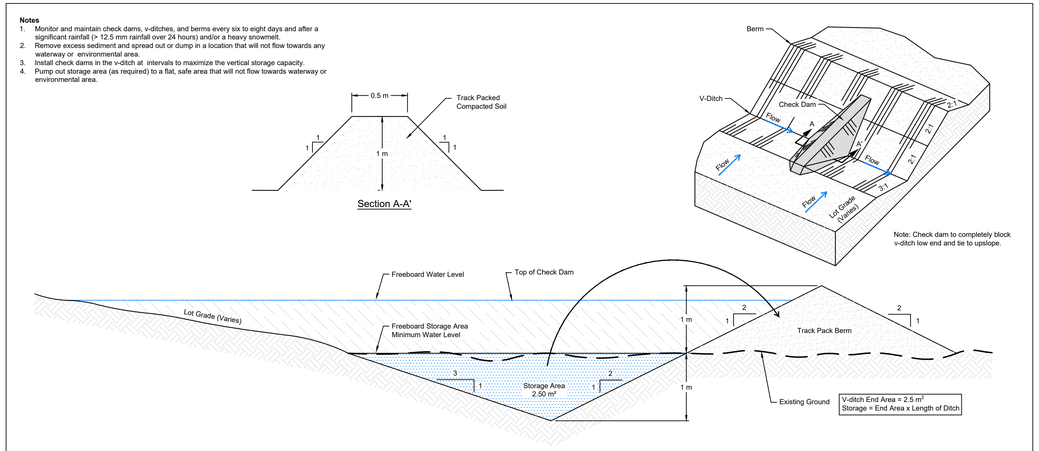
Phase 1 Access Inset Map
Scale: 1:7600



APPROVING AUTHORITY OFFICE USE

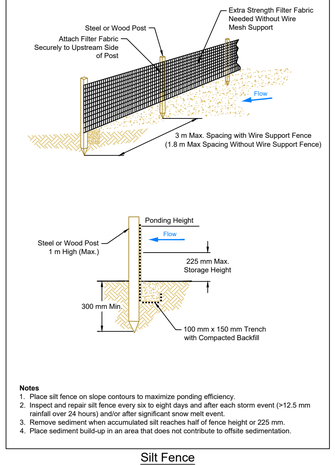
FILE No.

Notes
1. Monitor and maintain check dams, v-ditches, and berms every six to eight days and after a significant rainfall (> 12.5 mm rainfall over 24 hours) and/or a heavy snowmelt.
2. Remove excess sediment and spread out or dump in a location that will not flow towards any waterway or environmental area.
3. Install check dams in the v-ditch at intervals to maximize the vertical storage capacity.
4. Pump out storage area (as required) to a flat, safe area that will not flow towards waterway or environmental area.



V-Ditch / Berm with Check Dam

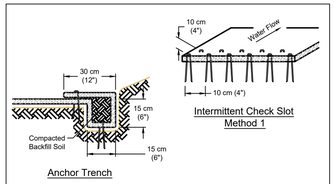
N.T.S.



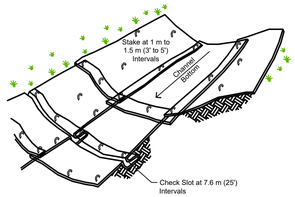
Notes
1. Place silt fence on slope contours to maximize ponding efficiency.
2. Inspect and repair silt fence every six to eight days and after each storm event (>12.5 mm rainfall over 24 hours) and/or after significant snow melt event.
3. Remove sediment when accumulated silt reaches half of fence height or 225 mm.
4. Place sediment build-up in an area that does not contribute to offsite sedimentation.

Silt Fence

N.T.S.



Anchor Trench



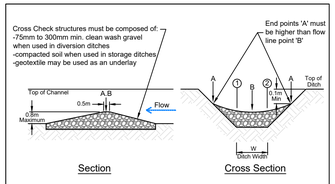
Intermittent Check Slot Method 1

Isometric View

Notes
1. Check slots to be constructed per manufacturer's specifications.
2. Staking or stapling layout per manufacturer's specifications.

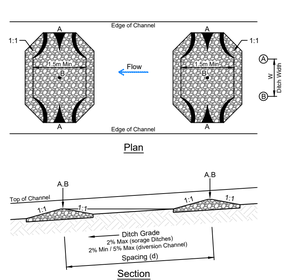
Erosion Blanket Channel Installation

N.T.S.



Section

Cross Section

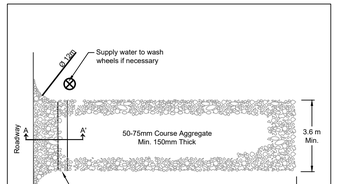


Section

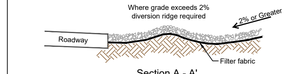
Plan

Rock Check Dams

N.T.S.



Plan



Section A - A'

Notes
1. Maintain the entrance in a condition that will prevent tracking or flowing of sediment onto public right-of-ways. This may require top dressing, repair, and/or clean out of any measures used to trap sediment.
2. When necessary, clean wheels prior to entrance onto public right-of-way.
3. When washing is required, conduct it on an area stabilized with crushed aggregate.

Gravel Access Pad

N.T.S.

General Construction ESC Notes:

1) Keep the following information on site and available upon request::
   a. The Erosion and Sediment Control (ESC) Drawing(s), including all amendments; and,
   b. Weekly documentation (including photos and up-to-date written records) detailing implementation, inspection and maintenance of ESC measures.
2) Complete and document inspections of all ESC measures weekly and at critical times when erosion or sediment releases could occur - after heavy and/or prolonged rainfall and rapid snowmelt (defined as >12 mm precipitation within any 24 hour period or snowmelt on wet or thawing soils).
3) Update approved ESC Report and/or Drawing(s) when there are changes to the erosion and sediment control measures or implementation.
4) Promptly address deficiencies documented during inspection of ESC measures and document the maintenance. Immediately report off-site releases of sediment-laden water or other contaminants to the environment. Contact Alberta 24 Hour Spill Reporting Line: 1.800.222.6514
5) Cover or stabilize longer term stockpiles (in place more than 30 days) with mulch and tackifier, vegetation cover or other suitable measures. Place stockpiles on site so material will not be eroded to off-site areas. Where necessary, install sediment control measures (silt fence, sediment logs, etc.) on the down-gradient side of stockpiles.
6) Where necessary, control dirt tracking at all site access points during construction, by means of a stabilized, well-maintained entrance/exit.
7) Should all or part of the site be left in a state where active construction is not occurring for a period greater than six months, the following conditions must be met:
   a. Maintain the inspection frequency listed in #2 unless there is written approval from Rockyview County that states otherwise; and,
   b. Keep pertinent documentation onsite. Documentation may be kept at an alternate specified location via an amendment.
8) Conduct a pre-winter inspection to note any ESC deficiencies that need to be addressed before freeze-up.

Specific Site ESC Notes:

1) Before construction, trench in silt fence i) along east and south boundaries of phase 1, ii) along south boundary and around southwest corner of overburden - to the west of phase 1, and iii) along east side of access road at north end, adjacent to wetland preservation area. Locations are shown in Figure 2. See construction detail on Figure 3 for silt fence installation and maintenance instructions. Ensure j-hooks are installed at least every 30 m, and even closer together in steeper areas.

2) During operations, the north access point will be paved. If temporary stabilization is needed before paving, install gravel pad to help reduce offsite dirt tracking. See construction detail for gravel pad in Figure 3.

3) To provide for temporary detainment of runoff, install v-ditch/berm with check dams along south boundary between west overburden area and south end of diversion ditch. Location is shown in Figure 2. Dig ditch with tilting blade bulldozer, backhoe with articulating bucket or skid steer. Track pack or bucket pack berms and check dams. Install check dams at minimum intervals of 10 m and below the height of the ditch. See construction detail on Figure 3 for installation instructions.

4) To prevent erosion and reduce downstream sedimentation, conveyance ditches will be covered with a Rolled Erosion Control Product (RECP). In most areas, a straw-coconut erosion control blanket will suffice to handle sheer stress velocity and prevent erosion. However in steeper areas, a more durable RECP such as turf reinforcement matting (TRM) may have to be used to handle a higher runoff velocity. To prevent undermining by runoff, ensure that the top or leading edge of RECP is trenched in and covered with soil and that enough staples are used. Always install per manufacturer's specifications and instructions. See construction detail on Figure 3.

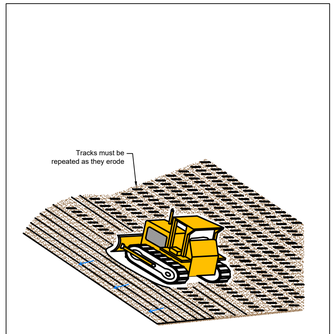
5) To further reduce runoff velocity in ditches, check dams (e.g. sediment logs, Geo-Ridges) should be installed, especially in steeper areas. In very steep areas, rock check dams should be installed to ensure durability during storm events. See construction detail for rock check dams in Figure 3.

6) To prevent erosion at exit points of diversion ditches into surrounding natural environment, install ScourStop™ (or equivalent product) at exit points. Locations are shown in Figure 2. Once ditch is in place install, ScourStop™ per manufacturer's specifications. See Appendix A for ScourStop™ design and installation guide.

7) Dust emissions during construction activities will be controlled as necessary. Water truck should be used on disturbed areas and haul routes, especially during dry, windy conditions. In addition, for haul routes, an approved dust suppressant (e.g. calcium chloride) may be used to keep dust down. Developer is responsible for dust control twenty-four hours a day, seven days a week throughout the duration of the project.

8) Once overburden areas are in place, hydro-mulch/tackifier will be applied in these areas to provide temporary stabilization until final reclamation efforts occur. See Figure 2. Before stabilization, watering of stockpiles may be necessary to suppress dust.

9) Promptly clean any dirt/mud tracked onto adjacent roadways.



Track-packing on slope

N.T.S.

Profile — Solutions for your Environment™

Flexterra® HP-FGM™
High Performance Erosion Control

Absolutely The Most Effective Erosion Control Medium Available.

When your site demands the most from your erosion control solution, you need to demand Flexterra® High Performance-Flexible Growth Medium® (HP-FGM®) — the pinnacle of the erosion control industry. Fine grading and extensive soil preparation are unnecessary, allowing you to apply the product for immediate protection and superior performance at reduced overall costs.

Flexterra HP-FGM Delivers:
- The highest germination and vegetative establishment when compared to any rolled blanket or other hydraulically applied mulch available
- Greater than 99% erosion control effectiveness immediately upon application
- 100% biodegradability
- Safe for even the most sensitive environments because it's non-toxic

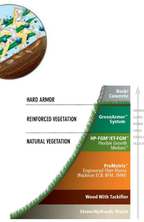
HP Technology: Greener By Design

100% recycled, Thermally Refined® virgin wood fibers produce the highest yield and coverage per unit weight and are phyto-sanitized, eliminating weed seeds and pathogens

100% biodegradable, interlocking fibers increase mechanical bonding of the matrix to provide immediate performance upon installation

100% non-toxic biopolymers and water absorbents enhance erosion resistance and vegetative establishment

Revolutionary patented Micro-Pore particles optimize water and nutrient retention



Flexterra® HP-FGM™ Technical Data:

	TEST METHOD	UNITS	TESTED VALUE
PHYSICAL PROPERTIES*			
Mass/Unit Area	ASTM D6566	g/m² (oz/yd²)	≥ 390 (11.6)
Thickness	ASTM D6525	mm (in)	≥ 5.6 (0.22)
Ground Cover	ASTM D6567	%	≥ 99
Water-Holding Capacity	ASTM D7367	%	≥ 1,700
Material Color	Observed	n/a	Green
ENVIRONMENTAL PROPERTIES*			
Biodegradability	ASTM D5338	n/a	Yes
Ecotoxicity	EPA 2021.0	%	48-Hr LC_{50} > 100%
Effluent Turbidity	Large Scale*	NTU	< 250
PERFORMANCE PROPERTIES*			
Cover Factor†	Large Scale*	n/a	≤ 0.01
Percent Effectiveness‡	Large Scale*	%	≥ 99
Functional Longevity*	ASTM D5338	months	≥ 18
Cure Time	Observed	hours	0.2
Vegetation Establishment	ASTM D7322	%	≥ 800
PRODUCT COMPOSITION			**TYPICAL VALUE**
Thermally Processed® (with a pressurized vessel) 100% Recycled Virgin Wood Fibers			85%
Wetting agents (including high-viscosity colloidal polysaccharides, cross-linked biopolymers, and water absorbents)			10%
Crimped Biodegradable Interlocking Fibers			5%
Micro-Pore Granules			5%

** When uniformly applied at a rate of 3,500 lbs/ac (3,924 kg/ha) under laboratory conditions.*

1. *ASTM test methods developed for Rolled Erosion Control Products that have been modified to accommodate Hydraulic Erosion Control Products.*
2. *Cover Factor is calculated as soil loss ratio of treated surface versus an untreated control surface.*
3. *Percent Effectiveness = One minus Cover Factor multiplied by 100%.*
4. *Functional Longevity is the estimated time period, based upon field observations, that a material can be anticipated to provide erosion control and agronomic benefits as influenced by composition, as well as site-specific conditions, including, but not limited to—temperature, moisture and light conditions, soils, biological activity, vegetative establishment and other environmental factors.*
5. *Large Scale testing conducted at Utah Water Research Laboratory. For specific testing information please contact a Profile technical service representative at 800-508-8601 (US and Canada) or +1-847-215-1144 (International).*
6. *Heated to a temperature greater than 193 degrees C (380 degrees F) for 5 minutes at a pressure greater than 345 kPa (50 psi) in order to be Thermally Refined®/Processed and to achieve phyto-sanitization.*

SETTING THE BAR EVEN HIGHER

Better Erosion Control—Flexterra® HP-FGM® immediately bonds to the soil surface. Its flexible yet stable matrix retains > 99% of soil, vastly reducing turbidity of runoff for up to 18 months.

Greater Seed Germination and Growth—Flexterra HP-FGM delivers the highest growth establishment in the market, a 900% via ASTM D7322, due to a combination of optimized water and nutrient retension.

Safer for the Environment—Unlike rolled erosion control blankets, Flexterra HP-FGM has no nets or threads to endanger wildlife. It uses 100% biodegradable crimped interlocking fibers and 100% recycled and phyto-sanitized wood fibers. Flexterra HP-FGM is 100% safe in even the most sensitive environments.

Earth-Friendly and Sustainable Results—Flexterra HP-FGM is a result of Profile's Green Design Engineering™, creating cost-effective and environmentally superior solutions through the design, manufacture and application of sustainable erosion control and vegetation establishment technologies.

GREEN DESIGN ENGINEERING™ EARTH-FRIENDLY SOLUTIONS FOR SUSTAINABLE RESULTS™

Green Design Engineering™ is a holistic approach that combines agronomic and engineering expertise with advanced technologies to provide cost-effective and earth-friendly solutions. Profile strives to deliver Green Design Engineering across our team of consulting professionals, innovative products and educational resources.

PS³ PROFILE SOIL SOLUTIONS SOFTWARE

PS³ is a free, comprehensive 24/7 online resource you can use to design a project and select the right products that address both the physical and agronomic needs of your site. It will help you develop holistic, sustainable solutions for cost-effective erosion control, vegetation establishment and subsequent reductions in sediment and other pollutants from leaving disturbed sites. Because good plans start with the soil, PS³ offers free soil testing to ensure this critical step is considered. To access the site, design your project and take advantage of a free soil analysis, visit **profilepss3.com**.

Profile — Solutions for your Environment™

For technical information or distribution, **please call 800-508-8601.**
For customer service, call 800-366-1180.
Fax: 847-215-1192
visit profileproducts.com

750 W. Lake Cook Road • Suite 440
Buffalo Grove, IL 60089
profile@profileproducts.com

Profile, Thermally Refined, Flexterra, HP-FGM and High Performance Flexible Growth Medium are registered trademarks of PROFILE Products LLC. ET-FGM, Flexible Growth Medium, GreenAnchor, ProMatrix, Green Design Engineering, Earth-Friendly and Sustainable Results and Solutions for your Environment are trademarks of PROFILE Products LLC.

IECA — Find us on facebook.com/profileESS

Project Information

Legal Description:
Within of N.W. & S.W. Sec.31-26-03-W5

Construction Start
Autumn 2021

Key Plan

ESC Consultant

EROSION CONTROL CENTRAL

Erosion Control Central (ECC)
#24, 2333 18th Ave NE, Calgary, AB T2E 8T6
David Dinu, CPESC
david@erosioncontrolcentral.com
tel: (403) 909-3700

REVISION					
2	Nov 4-2021	REVISED TO ADDRESS COUNTY COMMENTS	DD		GM
1	Apr 21-2021	ISSUED FOR REGULATORY APPROVAL	DD		GM
No.	DATE	DESCRIPTION	BY	CHK.	DRN.

CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL — CPESC — David Dinu No.3055

Reference: SLR source material

Rocky View County, Alberta
Mountain Ash Limited Partnership Aggregate Operation

ESC Plan
Construction Notes and Details

Date:	CAD file:	Printed:	Technical:	Drawn:
April 2021	MountainAsh	November 4, 2021	D. Dinu	GM

Figure 3

APPENDIX A
SCOUR STOP SPECIFICATIONS AND INSTALLATION GUIDE

Erosion and Sediment Control Plan

Mountain Ash Limited Partnership Summit Pit

SLR Project No: 212.06650.00006

ScourStop®

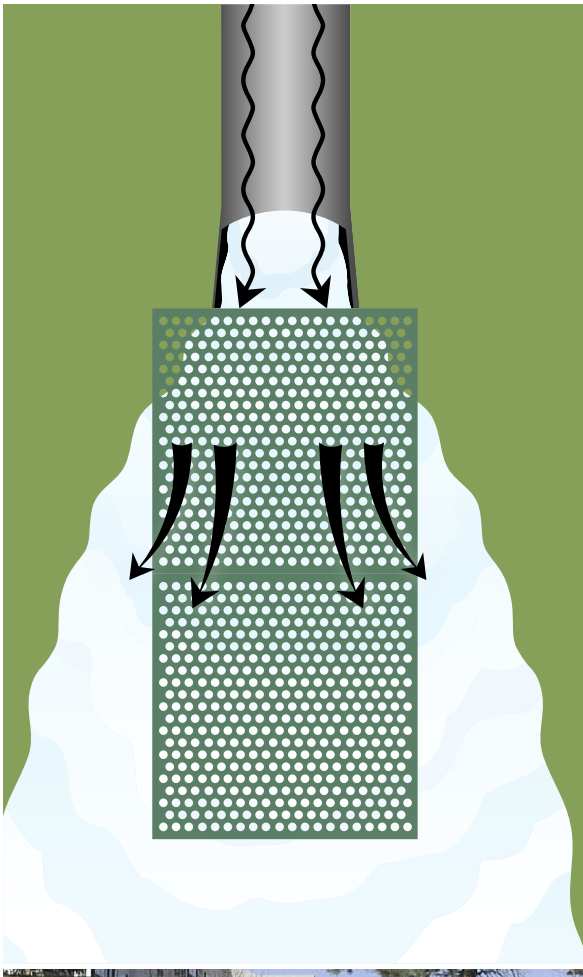
DESIGN GUIDE
Circular Culvert Outlet Protection

why use the

SCOURSTOP SYSTEM?

ScourStop transition mats protect against erosion and scour at culvert outlets with a vegetated solution in areas traditionally protected with rock or other hard armor.

ScourStop is part of a system that includes semi-rigid transition mats installed over sod or turf reinforcement mats. Each 4' x 4' x $^{1}/_{2}$" mat is made of high-density polyethylene and secured tightly to the ground with anchors.



Circular Culvert Outlet Protection

PIPE DIAMETER	VELOCITY ≤ 10 FT/SEC		10 < VELOCITY < 16 FT/SEC	
	TRANSITION MAT W x L	QUANTITY OF MATS	TRANSITION MAT W x L	QUANTITY OF MATS
12"	4' x 4'	1	4' x 8'	2
24"	8' x 8'	4	8' x 12'	6
36"	8' x 12'	6	12' x 20'	15
48"	12' x 16'	12	12' x 24'	18
60"	12' x 20'	15	16' x 32'	32
72"	16' x 24'	24	20' x 36'	45

These are minimum recommendations. More ScourStop protection may be needed depending upon site and soil conditions, per project engineer.

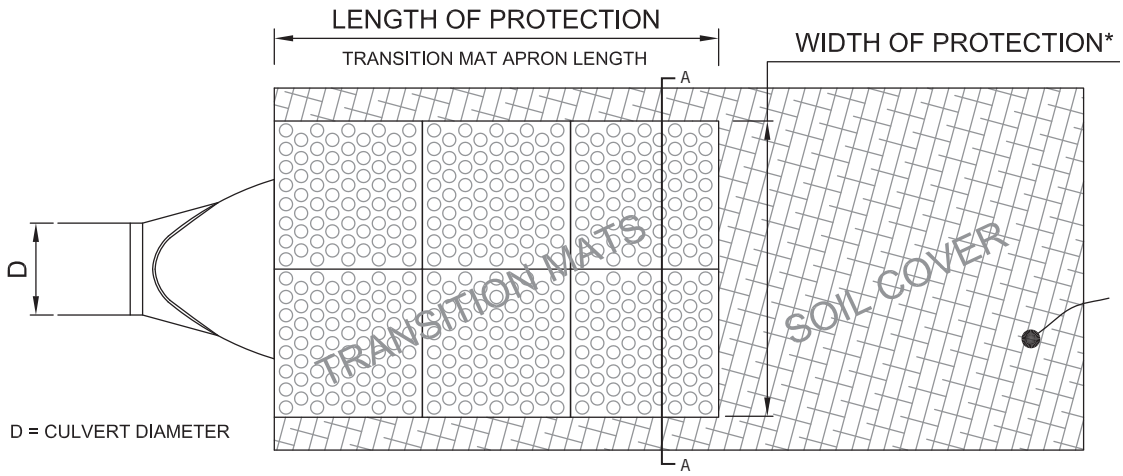
- If velocity is greater than 16 fps, contact manufacturer for design assistance.
- ScourStop mats have been shown to at least double the effectiveness of turf reinforcement mats.
- ScourStop fully vegetated channel (2:1 slope): velocity = 31 fps, shear stress = 16 psf.

PERFORMANCE ◦ AESTHETICS
NPDES-COMPLIANT ◦ COST-EFFECTIVE

the green solution to riprap
scourstop®
scourstop.com

ScourStop®
Installation Recommendations

1. ScourStop mats must be installed over a soil cover: sod, seeded turf reinforcement mat (TRM), geotextile, or a combination thereof.
2. For steep slopes (>10%) or higher velocities (>10 ft/sec), sod is the recommended soil cover.
3. Follow manufacturer's **ScourStop Installation Guidelines** to ensure proper installation.
4. Install ScourStop mats at maximum 1-2" below flowline of culvert or culvert apron. (No waterfall impacts onto ScourStop mats.)
5. Performance of protected area assumes stable downstream conditions.

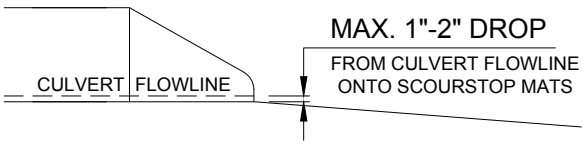


Transition mat apron protects culvert outlet.
*Width of protection:
Bottom width of channel and up both side slopes to a depth at least half the culvert diameter.

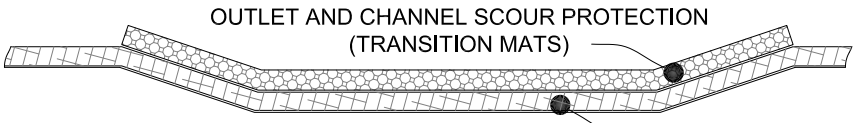
Protect bare/disturbed downstream soils from erosion with appropriate soil cover.

Use normal-depth calculator to compute for downstream protection.

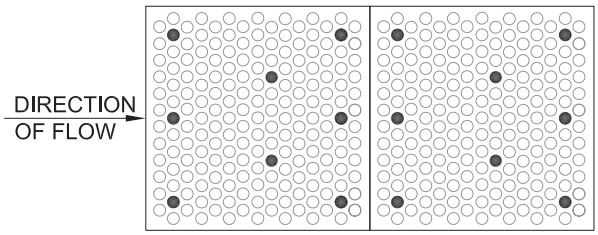
CULVERT OUTLET PROTECTION – PLAN VIEW



PROFILE VIEW

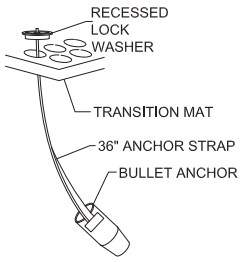


SECTION VIEW AA



ANCHOR PATTERN

Abut transition mats to end of culvert or culvert apron.
Adjacent mats abut together laterally and longitudinally.
Minimum 8 anchors per mat.
Extra anchors as needed for loose or wet soils.
Extra anchors as needed for uneven soil surface.



ANCHOR ILLUSTRATION

Install anchors per **ScourStop Installation Guidelines.**
Minimum depth 24" in compacted, cohesive soil.
Minimum depth 30" in loose, sandy, or wet soil.
Extra anchors as needed to secure mat tightly over soil cover.

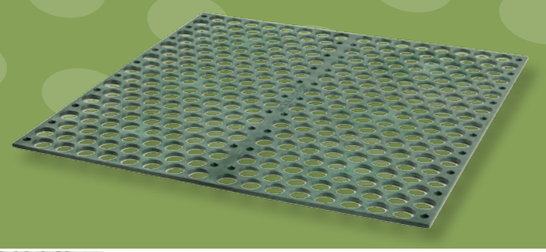
HANES® GEO COMPONENTS™
A Leggett & Platt® COMPANY

A LEADER in the GEOSYNTHETIC and EROSION CONTROL industries
Learn more about our products at: **HanesGeo**.com | 888.239.4539

the green solution to riprap
scourstop®

ScourStop®

INSTALLATION GUIDELINES



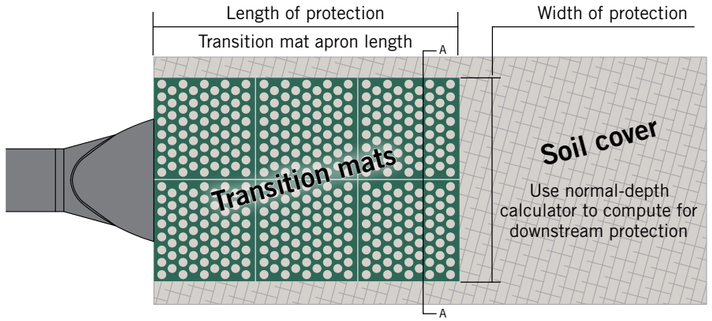
ScourStop may be used in many applications: culvert outlets, curb outfalls, spillways, overflow structures, stream banks, slopes, etc. The details in this example are for typical culvert outlet protection. Project engineer shall determine the limits of soil cover and ScourStop.

Downstream:

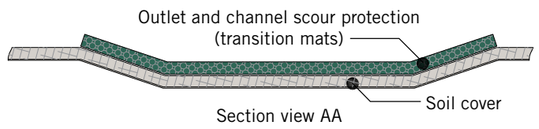
Continue soil cover beyond outlet apron area to properly protect downstream channel and prevent head-cutting.

Width:

Install soil cover wider than proposed ScourStop protection (recommend soil cover full width of channel – across bottom and up both slopes).



Culvert outlet protection – plan view



Section view AA

Electric Hammer:

- **Rotary hammer or demolition hammer** – the greater the impact energy (ft/lbs) and the heavier the hammer, the greater the driving force to install bullet anchors into soil (e.g., Makita HM1214C, Hilti or other).
- Use **hammer-only mode**, no rotation.
- Use 3/4” Ground Rod Driver, which fits onto ScourStop HD Driver.
- Recommend two ScourStop drivers per electric hammer to achieve maximum efficiency.

Maintenance:

- No maintenance is required for a ScourStop solution.
- Mowing over a vegetated ScourStop solution is allowed – minimum height of 4” recommended.
- Mowing is not recommended where soft, saturated soils exist.
- ScourStop surface may be slippery when wet – **use caution**.
- New construction: soil may consolidate, so lock washers may need to be re-tightened after settling.

PERFORMANCE ◦ AESTHETICS
NPDES-COMPLIANT ◦ COST-EFFECTIVE

the green solution to riprap
scourstop®
HanesGeo.com

HANES® GEO COMPONENTS™
A Leggett & Platt® COMPANY

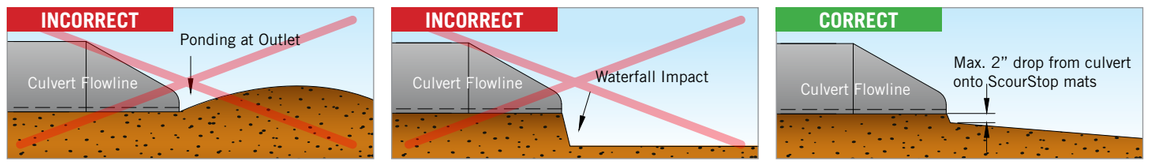
A LEADER in the **GEOSYNTHETIC** and **EROSION CONTROL** industries
Learn more about our products at: **HanesGeo.com** | 888.239.4539

ScourStop®

INSTALLATION GUIDELINES

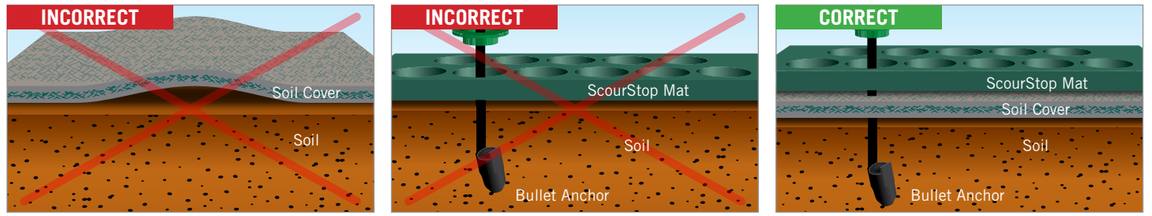
Site Preparation:

1 Finish grading to ensure positive drainage and eliminate ponding.
2 Create defined drainage channel to carry stormwater at outlet and downstream.
3 Compact soil in all areas of fill to create firm seed bed.
4 Install subsurface drainage tile if constant water is expected.
5 Grade a smooth transition from outlet to discharge area (allow for soil cover thickness and ScourStop thickness).
6 Max. 2” drop from culvert outlet/curb opening to top of ScourStop mats (no waterfall impact).



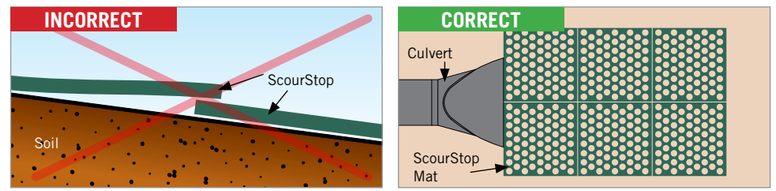
Soil Cover:

1 ScourStop must be placed over soil cover (sod, TRM, or geotextile) – not over bare ground, therefore, install soil cover first.
2 Channel flow data must be evaluated to determine proper soil cover.
3 Install sod; water thoroughly after completing installation.
4 Or install turf reinforcement mat (TRM), after seed and fertilizer, then water thoroughly after completing installation.
5 Non-vegetated: install geotextile (minimum 6 oz. non-woven geotextile fabric).

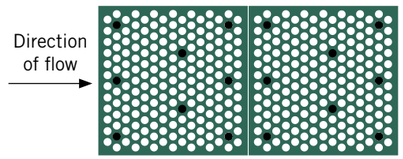


ScourStop Transition Mat Installation:

1 After proper grading and installation of selected soil cover, place ScourStop mats beginning at culvert outlet/curb opening, or at toe of slope, stream bank, or spillway.
2 Place ScourStop mat(s) adjacent to culvert/curb and adjacent to other ScourStop mats to avoid gaps.
3 Do not overlap adjacent mats unless necessary to conform to channel geometry.
4 If desired, ScourStop mats may be cut with circular saw or hand saw.

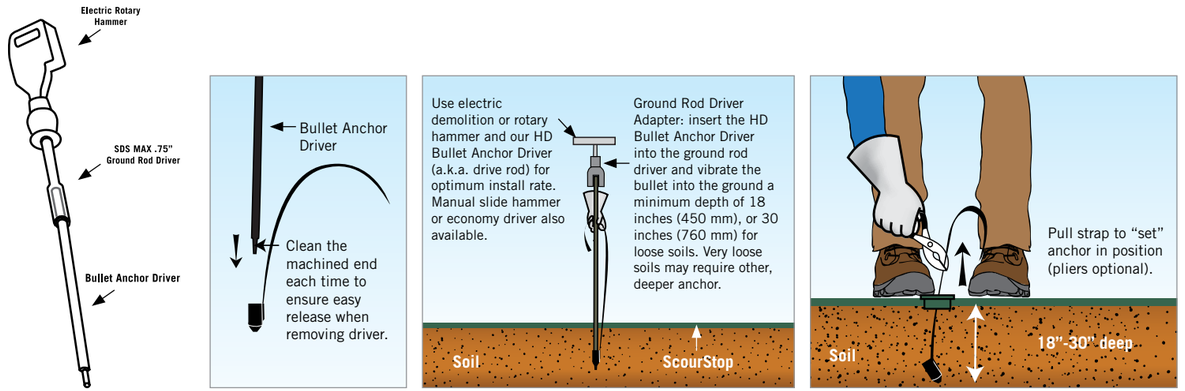


ScourStop Bullet Anchors:



Anchor pattern

1 Use ScourStop bullet anchors (minimum of 8 anchors per mat) to secure mats on top of soil cover and tightly to the soil surface.
2 Insert bullet anchor strap into lock washer (3”-4”).
3 Insert the machined end of the driver into the bullet anchor.
4 Drive anchor through a 2” hole in mat (per recommended anchor pattern), stopping before lock washer is at least 1” above mat.
5 Twist and pull the driver out of the soil. Wipe driver tip with rag or glove to remove soil.
6 Grasp end of strap with one hand and push down on lock washer with the other until lock washer is flush with mat.
7 Place foot on top of lock washer, then give a firm tug on the strap (quick tug, like setting a fish hook) to set the pivoting bullet anchor.
8 Use additional anchors if necessary to secure mats tightly to soil surface.



PERFORMANCE ◦ AESTHETICS ◦ NPDES-COMPLIANT ◦ COST-EFFECTIVE

HANES® GEO COMPONENTS™
A Leggett & Platt® COMPANY

815 Buxton Street | Winston Salem, NC | 27101
PH: 888.239.4539 | FAX: 336.747.1652
www.HanesGeo.com

ScourStop® Transition Mats

ScourStop® Transition Mats are an engineered, proven, bio-technical alternative to traditional hard-armor systems. ScourStop® Transition Mats are manufactured of a semi-rigid HDPE. When combined with soft-armor soil cover and deep-soil earth anchors, the ScourStop® system mechanically protects soil from severe scour and erosion. The ScourStop® system offers greater protection than vegetation alone or rip rap and is lab-tested and field-proven to protect against considerably higher shear stresses and velocities. ScourStop® Transition Mats provide a permanent, low-maintenance solution with immediate, day-one protection and impact resistance over highly erosive areas such as stormwater outfalls, curb outfalls, overflow structures, drainage channels, levees, and shorelines. ScourStop® Transition Mats conform to the property values listed below:

PROPERTY	TEST METHOD	ENGLISH	METRIC
Properties			
Mass/Unit Area	ASTM D6566	**0.942** lbs/ft^2	**4.599** kg/m^2
Thickness	ASTM D6525	**0.463** in	**11.735** mm
Wide Width Tensile Strength	ASTM D4595	**3053** lbs/ft	**4.139** kN/m
Percent Open Area	Calculated	**50** %	**50** %
UV Stability	ASTM D4355	**87** %	**87** %
Manning's n	Calculated	**0.039**	**0.039**
Culvert Outfall Test Exit Velocity Discharge	Prototype	**16** ft/sec	**4.877** m/sec
Velocity Day 1 Performance Fully Vegetated	Flume Testing ASTM D6460	**19** ft/sec	**5.791** m/sec
Shear Day 1 Performance Fully Vegetated	Flume Testing ASTM D6460	**13** lbs/ft^2	**63.472** kg/m^2

11/20/2018

APPENDIX B
RUSLE SUPPORTING DOCUMENTS

Erosion and Sediment Control Plan

Mountain Ash Limited Partnership Summit Pit

SLR Project No: 212.06650.00006

TABLE 4-4. C-FACTOR AND P-FACTOR VALUES FOR CONSTRUCTION-SITE RAINFALL BMPS (ISRAELSEN ET AL., 1980; HDI, 1987; SCS, 1978; AND WISCHMEIER AND SMITH, 1978)

TREATMENT	C-FACTOR	P-FACTOR
Bare Soil		
Packed and smooth	1.00	1.00
Freshly disked or rough, irregular surface	1.00	0.90
Sediment Containment Systems (a.k.a. Sediment Trap/Basin)	1.00	0.10-0.90[A]
Bale or Sandbag Barriers	1.00	0.90
Rock (Diameter = 25-50 mm) Barriers at Sump Location	1.00	0.80
Silt-Fence Barrier	1.00	0.60
Asphalt/Concrete Pavement	0.01	1.00
Gravel (Diameter = 60-400 mm) at 300 tonnes/ha	0.05	1.00
Established Vegetation	Figs. 4-3, 4-4	1.00
Sod Grass	0.01	1.00
Temporary Vegetation/Cover Crop	0.45[B]	1.00
Hydraulic Mulch at 4.5 tonnes/ha	0.10[C]	1.00
Soil Sealant	0.10 - 0.60[D]	1.00
Rolled Erosion Control Products	0.10 - 0.30[D]	1.00
Hay or Straw Dry Mulch Applied at 4.5 tonnes/ha and anchored *Assumes planting of grass seed has occurred before application, otherwise C-factor = 1.00.*		
Slope (%)		
1 to 10	0.06	1.00
11 to 15	0.07	1.00
16 to 20	0.11	1.00
21 to 25	0.14	1.00
26 to 33	0.17	1.00
> 33	0.20	1.00
Contour Furrowed Surface *Must be maintained throughout construction activities, otherwise P-factor = 1.00. Maximum length refers to downslope length.*		
Slope (%) **Max. Length (m)**		
1 to 2 120	1.00	0.60
3 to 5 90	1.00	0.50
6 to 8 60	1.00	0.50
9 to 12 40	1.00	0.60
13 to 16 25	1.00	0.70
17 to 20 20	1.00	0.80
> 20 15	1.00	0.80

[A] Should be constructed as the first step in over-lot grading.
[B] Assumes planting occurs within optimal climatic conditions.
[C] Some limitation on use in arid and semiarid climates.
[D] Value used must be substantiated by documentation.

TABLE 4-4. (CONTINUED)

TREATMENT	C-FACTOR	P-FACTOR
Terracing		
Must contain 2-year runoff volumes without overflowing, otherwise P-factor = 1.00		
Slope (%)		
1 to 2	1.00	0.12
3 to 8	1.00	0.10
9 to 12	1.00	0.12
13 to 16	1.00	0.14
17 to 20	1.00	0.16
> 20	1.00	0.18
Grass Buffer Strips to Filter Sediment-Laden Sheet Flows		
Strips must be at least 15 m (50 ft.) wide and have a ground-cover value of 65% or greater, otherwise P-factor = 1.00.		
Basin Slope		
0% to 10%	1.00	0.60
11% to 24%	1.00	0.80

NOTE: Use of C-factor or P-factor values not in this table must be supported by documentation.

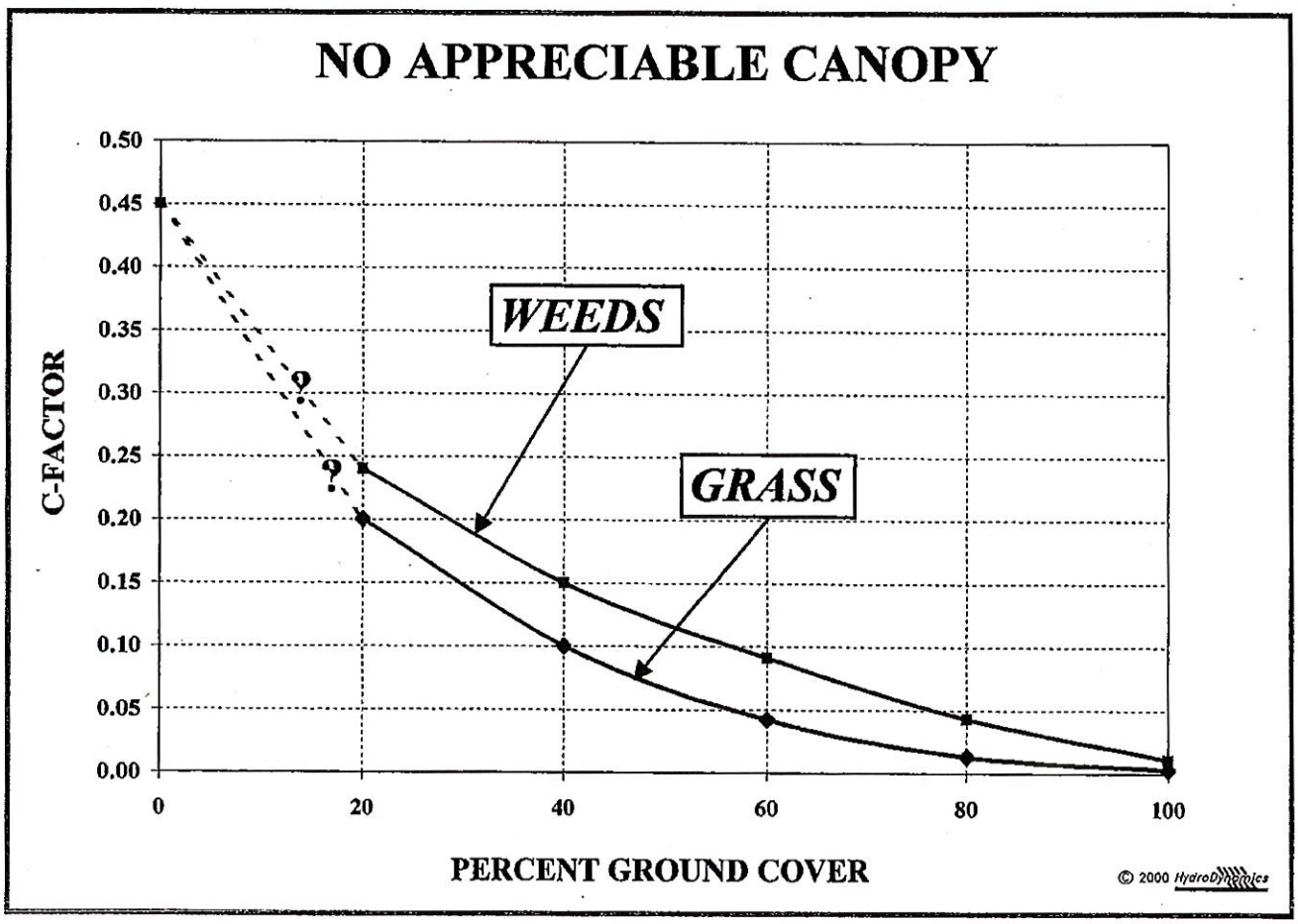


Figure 4-3. C-Factor Values for Established Grass and Weeds (Wischmeier and Smith, 1978)

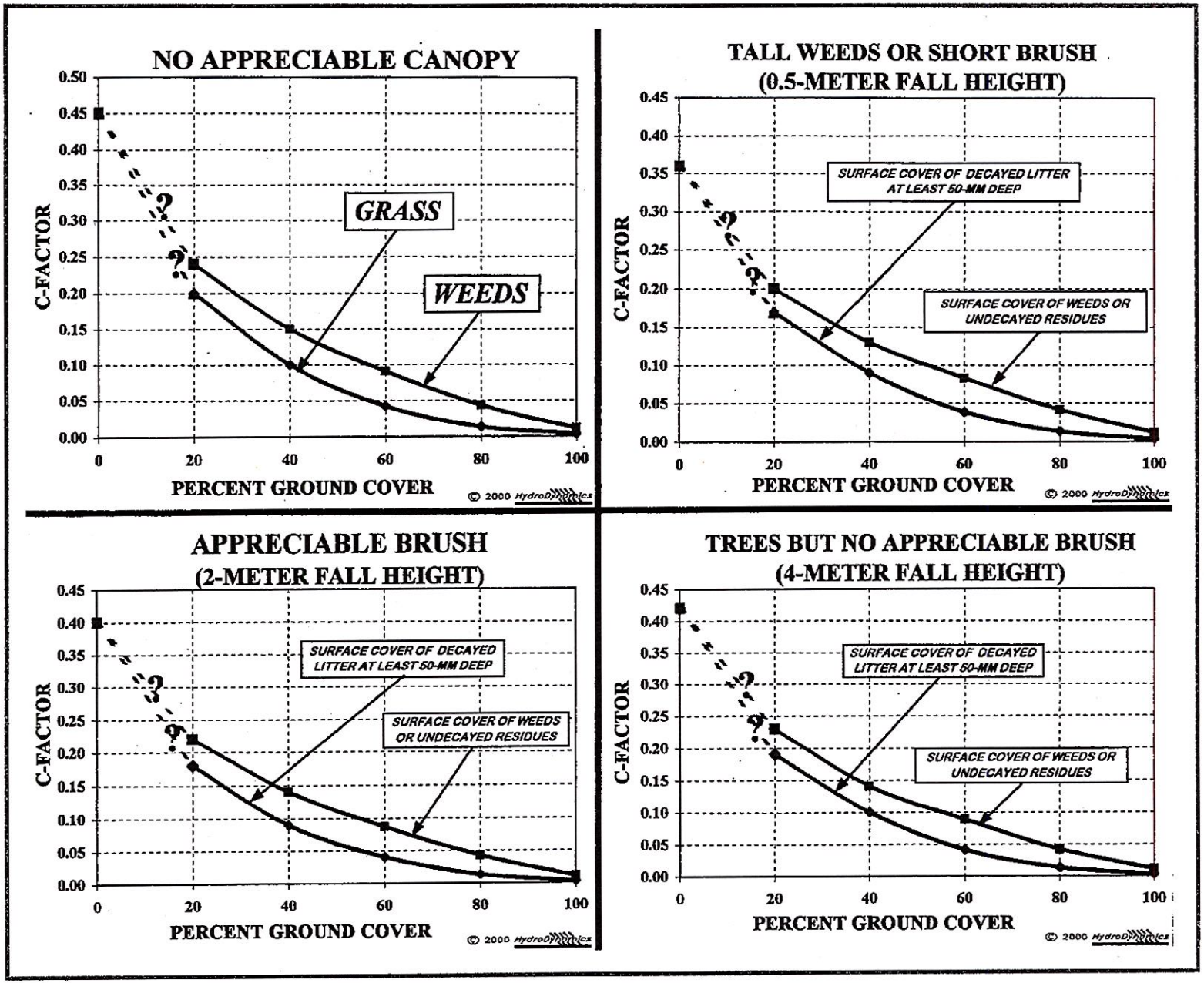


Figure 4-4. C-Factor Values for Various Existing Vegetative Conditions (Wischmeier and Smith, 1978)

Industry Bulletin
June 2016

WATER QUALITY SERVICES – SEDIMENT CONTAINMENT SYSTEMS – P-VALUE UPDATES

This Bulletin is to provide Calgary specific sediment containment system efficiency ratings to improve the accuracy of soil loss calculations and reduce the risk of sediment releases from construction sites. Effective July 1, 2016, the following design volumes and efficiency ratings shall apply:

Design Volume in m3	Percent Efficiency	P-Value
150	34	0.7
200	39	0.6
300	49	0.5
500	61	0.4
750	70	0.3
1200	80	0.2
1750	86	0.1

Sediment containment systems, such as sediment ponds, traps and storage ditches, are a common best management practice used on construction sites to reduce soil loss. These practices are given a P-value, or support practice factor, which is indicative of how effective they are at reducing soil loss from a construction site. The P-value is consequently used in soil loss calculations, where the goal is to propose best management practices that will reduce soil estimated from all slopes on site to below 2 tonnes/ha*yr. Calculations which are below this limit indicate a high probability that soil loss from the site will not have an adverse effect on our rivers , impair the quality of storm drainage or the integrity of the storm drainage system.

Recent modeling, using fifty years of rainfall data for The Calgary area, have resulted in more accurate local efficiency ratings for different sized sediment containment systems. The model was run to include pond volumes ranging from 150m3 to 1750m3. This new range of numbers provides consultants greater flexibility in their designs than the previous single volume of 250m3.

Implementation of these updated targets will increase the accuracy of predicted soil losses from construction sites. There will be a reduction in the number of sediment releases on sites using sediment ponds and this will result in improved compliance with municipal, provincial and federal legislation.

For more information contact:

Nicole Sparks
Team Lead, Stormwater Pollution Prevention
Water Quality Servcies
Nicole.Sparks@calgary.ca.