

STANDARD SEDIMENT AND EROSION CONTROL PLAN (SECP) FOR LOW RISK ROAD CONSTRUCTION

TABLE 1 – SECP BMPs for low risk roads

CONSTRUCTION						
TECHNIQUE	LEGEND	REF.	OBJECTIVES	BMP	LOCATION	TIMING OF INSTALLATION
LIMIT SITE DISTURBANCE		1	Protect soil from unnecessary disturbance which creates potential for erosion processes.	No grubbing outside of the road prism. When clearing vegetation within the road right-of-way, cut off (prune back) vegetation leaving root mass intact in soil. Vegetation promotes rainfall interception and infiltration. Store equipment and building materials away from existing vegetation where possible.	Along the entire right-of-way.	During road construction.
		2	Where possible, avoid working in areas of ponded water or saturated soils.	These seasonally wet areas require extra precautions to protect soils and vegetation. If road construction is required in these locations, overland fill/log corduroy may be required to protect the native soils and vegetation.	Any wet ground encountered within the right-of-way.	Ground protection measures should be implemented prior to accessing beyond the saturated area.
DRAINAGE MANAGEMENT		3	Avoid generating greater erosive force and down-cutting of the ditch.	Maintain natural drainage paths and avoid concentrating ditch flows by installing adequate cross drains. Ensure cross drain invert on overland low relief areas, are installed at ground elevation.	Where road intersects drainages and seeps. Install additional cross drains when road cuts bring groundwater to the surface and drainage can be diverted away from the road.	As water is encountered during road construction, establish adequate drainage to ensure flows are controlled and water quality is maintained.
		4	Avoid blocking the inlet and outlet of drains which may be caused by encroachment of eroding road embankment fill.	Ensure cross drains are sufficient length to protrude past end fills and scour protection measures.	Both the inlet and outlet of the cross drain.	During initial planning and also ground truthing during installation.
		5	Divert ditch flows out of ditches and through cross drains or through wing ditches to a location where it can be discharged away from any watercourse.	Construct non-erodible ditch blocks.	At all cross drains and wing ditches on the side with the higher elevation.	As soon as ditches are constructed.
		6	Divert ditch water out of ditches and across vegetated forest floor to allow natural filtration.	Construct wing ditches to prevent ditch water from becoming concentrated.	Wherever terrain allows.	As water is encountered during road construction, establish adequate drainage to ensure flows are controlled and water quality is maintained.
		7	Avoid excavating ditch lines in low relief areas which concentrates ditch flow and does not allow drainage to flow away from the site.	Avoid excavating ditch lines where not necessary and where overland road construction occurs along fill slopes.	Overland road construction.	N/A
		8	Prevent rill/gully formation on the road running surface.	Slope road so that surface flow drains off the running surface.	Any road with significant slope and on side slopes.	During road construction.
		9	Increase the slope length to decrease the erosion potential.	Construct stable cut and fill slopes at designed angles. Consider terracing steep cut slopes. Slopes should be constructed based on soils, aspect, moisture content and climatic conditions.	Any cut or fill slope created during construction.	Throughout road construction.
EROSION CONTROL		10	Protect unstable or erodible fill at cross drain outlets with rock, flumes or other erosion-resistant material.	Install erosion-resistant measures at the outlet of cross drains with highly erodible material.	At the outlet of the cross drain. If water is discharged down an erodible slope, additional armouring may be required down to the toe of the slope.	In conjunction with the installation of the cross drain.
		11	Slow water velocity and limit down-cutting within the ditch lines.	Armour steep, erodible ditch lines with gravel and cobble to minimize erosive potential due to water velocity and volume.	Any erodible ditch line with high gradient should be armoured with hard materials.	Upon completion of ditch construction.
		12	Temporarily prevent rain splash erosion while the site is exposed during construction.	Temporarily cover exposed soils if heavy rainfall is encountered. Tarps, geotextile, hay or logging slash may be utilized.	Any exposed soils that may erode and be carried towards a watercourse.	If heavy rainfall is expected or long construction delays are anticipated.
		13	Provide seeding catchment areas to aid in germination/infiltration.	Surface roughening on all cut slopes and fill slopes. Do not backblade when finishing slopes. Seed all exposed soils.	All exposed soils in ditches and cut/fill slopes.	During final site contouring and after slopes are finished to grade.
		14	Prevent road rutting and road surface degradation which leads to erosion and sedimentation into the ditch lines.	When the road is constructed of fine textured soils, cap road surfaces with non-erodible materials.	Fine textured road surfaces which will be utilized year-round.	At completion of the project.
		15	Reduce ditch water velocity to aid in sediment deposition and stop down-cutting.	Rock check dams. Constructed of non-erodible material tightly packed together with ends higher than the center.	Install in highly erodible ditch lines with high gradient where water cannot be discharged from the ditch line (i.e. large through cut).	After ditch construction is complete.
SEDIMENT CONTROL		16	Provide areas for sediment deposition by temporarily slowing water velocity.	Construct settling basins as required.	Install at the bottom of slopes and prior to any watercourse where there is a direct connection with the ditch line.	As soon as ditch lines are constructed.
		17	Slow the flow of runoff water and aid in sediment deposition by temporarily slowing water velocity.	Install silt fences as required.	At the discretion of the contractor as deemed necessary. Install along contours of grade. Do not install in locations where heavy flows are anticipated.	At completion of the project.

1.0 Objectives

The primary objective of this SECP is to provide a generic plan for low risk road construction projects. Erosion, which causes sediment delivery into the aquatic environment, will be minimized during road construction and operation by; (1) minimizing site disturbance, (2) drainage management, (3) erosion control, and (4) sediment control (in descending priority). Low risk road construction typically includes: **stable soils, gentle grades and moderate cuts/fills.**

2.0 Critical Areas

Critical areas relating to erosion control with respect to road construction include; cut slopes, natural seeps, right-of-way clearing, ditch lines and terrain which drains toward any stream crossing.

3.0 Timing

All road construction should proceed in appropriate dry weather conditions. Mitigation measures and construction techniques must be implemented as the road is constructed (i.e. not waiting until construction is completed before going back to install erosion control measures), or as soon as soil conditions allow. Drainage systems should also be constructed, as much as practicable, concurrently with subgrade construction. Once commenced, all road works will proceed to completion as soon as practicable. Additional timing windows apply to working around all fish bearing waters. Refer to the *Reduced Risk Timing Windows and Measures for the Conservation of Fish and Fish Habitat for the Omineca Region.*

4.0 Accountability

It is the responsibility of the contractor to ensure that this SECP is followed in conjunction with the *BC Timber Sales Prince George Business Area Environmental Management System.*

Should an emergency occur (i.e. significant erosion event due to forestry road construction activities), the event must be dealt with in accordance with the *BC Timber Sales Environmental Management System*, including site specific *Emergency Response Plans* and the *Emergency Response Manual*. Contact numbers and instruction for documentation of the incident are available in these plans.

5.0 Best Management Practices (BMPs)

While it is impossible to prevent sediment from leaving recently constructed roads due to rainfall and snow melt, significant reductions can be realized. This plan does not address all possible mitigation measures that are available to implement; however, information has been incorporated to increase the effectiveness of the most common BMPs found in forestry road construction. Refer to Table 1 for recommended BMPs. For additional information, refer to the *BC Timber Sales Environmental Field Procedures* and the *Forest Road Engineering Guidebook*. All BMPs will be installed as per specifications in the *BC Timber Sales Sediment and Erosion Control Field Guide*.

6.0 Contingency Plans

Contingency plans are additional mitigation measures that will be employed if unforeseen environmental concerns are encountered during road construction. These plans include having extra sediment/erosion control materials on-site and halting operations if heavy or persistent rainfall is encountered.

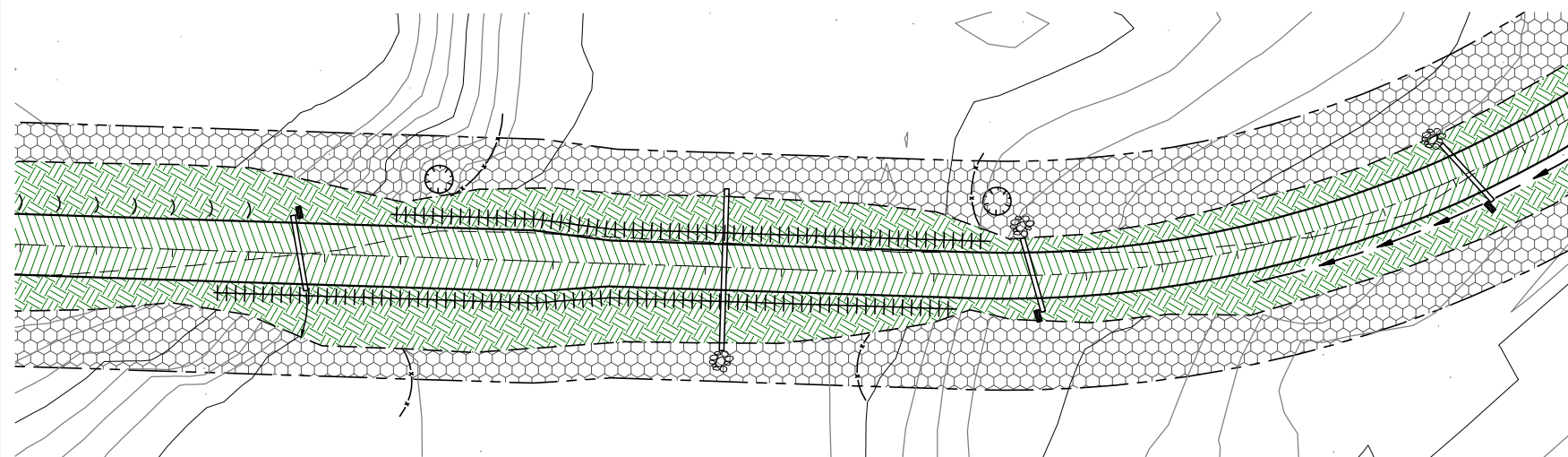
An emergency supply of sediment control materials will be available on-site which may include; silt fencing, tarps, sandbags, seed and straw bales. In addition, stockpile an adequate supply of culverts, riprap and geotextile on-site for immediate and future use, should the need arise.

If works are temporarily suspended due to heavy precipitation, the site will be monitored during the shutdown period to ensure environmental concerns are adequately addressed.

Should unanticipated site conditions (i.e. significant seeps flowing out of cut slopes or hidden layers of highly erodible, fine textured soils) or extreme weather be encountered during construction, the BC Timber Sales representative will be immediately contacted to reassess the project. If increased environmental risk is perceived, site specific plans/measures may be required.

7.0 Inspection and Maintenance

During construction, inspections of the BMPs will be made, especially after heavy precipitation events. If any measure is not functioning as intended, it will be immediately repaired/replaced. All inspections and actions shall be documented.



PROJECT TITLE		DESIGNED BY: BAA, RPBio
PROJECT LOCATION(S)		
DATE		REV.: CHECKED BY: RT, BCTS E.O.
NAME	SIGNATURE	DATE ISSUED: 02/05/06
BCTS REPRESENTATIVE		DRAWN BY: WG
CONTRACTOR		DWB Forestry Services Ltd. 1A, 1750 Quinn Street Prince George, B.C. V2N 1X3 Phone: (250) 562-5541 Fax: (250) 562-5561