

Due Diligence under FRPA

This infoflip was put together for employees and forestry contractors, including e.g.,

-  Road building contractors
-  Logging contractors and sub-contractors
-  Silviculture contractors
-  Woodlot licence holders and operators
-  BC Timber Sales operators

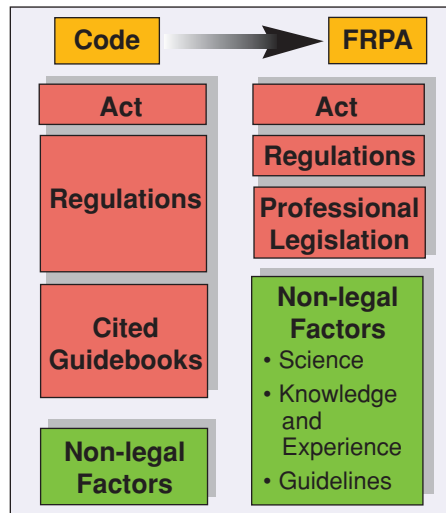
This infoflip will help you recognize your liabilities and responsibilities, and how to operate under the principles of **due diligence (4)**. In addition, it is important that every individual understands the legal requirements under FRPA.

If in doubt about any work practices, procedures, or details in plans, contact your supervisor or employer for clarification.

1 Overview

Where we come from ...

For almost a decade, the *Forest Practices Code of BC Act* (Code) regulated the management of the Province's forest resource. Since it came into force in 1995, the Code set high standards for the protection of social and environmental values. Detailed planning requirements and a comprehensive approval process were combined with strict compliance and enforcement strategies to ensure that the new standards were achieved. Although the desired results were accomplished, the Code was perceived to be too process-oriented, very time-consuming, costly, cumbersome, and too rigid to be applied effectively.



Where we are going ...

On Jan. 31, 2004, the new *Forest and Range Practices Act* (FRPA) was enacted to eventually replace the Code. Like the Code, FRPA includes strict regulatory requirements to ensure the protection of social and environmental **values (2)**. However, the process of how to achieve these results is dramatically different. To meet standards and expectations under FRPA, there is greater reliance on licensees and the sound judgement and well-established work practices of the individuals who work for them – professionals, contractors and employees.

The transition from Code to FRPA is complex and may take several years depending on the type of licence you operate under. However, when this transition is complete, increased operational flexibility, reduced costs, and identical or better forest practices on the ground will become reality.

How does FRPA affect you?

FRPA creates little change to field activities such as road construction, harvesting or silviculture. However, to meet your responsibilities and to improve your performance, it is important to always exercise **due diligence (4)**. Exercising due diligence essentially means taking reasonable care. A due diligence defence is available under both the Code and FRPA.

1 Overview

2 FRPA Values to Manage and Protect

As with the Code, FRPA ensures management, conservation and protection of important social and environmental values which must be addressed in both the planning process and operational activities on the ground. Follow the law and instructions in **plans and work orders (8)** and from your supervisor to meet the FRPA requirements for managing, conserving and protecting these values.

Biodiversity

Conserve biodiversity by harvesting in a manner that reflects how the forest would normally grow and regenerate after natural disturbances such as fire, wind and diseases.



Kitlope Drainage

Cultural Heritage Resources

Conserve or protect cultural heritage resources in the forest.

Fish

Protect fish and fish habitat, including riparian areas. Provide safe fish passage at stream crossings. Maintain the productivity of fisheries-sensitive watersheds.

Forage and Associated Plant Communities

Protect against the introduction or spread of invasive plants.

Recreation Sites and Trails

Do not damage them or render them ineffective.

Resource Features

Protect **resource features (15)** and report any previously unidentified resource features to the Ministry of Forests.

Soils

Maintain the natural storage and transport of water, and conserve the soil so that it can continue to support the growing of forests into the future.

Timber

Manage the availability of timber, including protection from diseases and pests, to provide for a healthy forest industry.

Visual Quality

Maintain the natural view of the landscape in areas identified as scenic areas.

Water

Protect the quality of water diverted for human consumption, including management of riparian areas. Maintain the quality and quantity of water in community watersheds.

Wildlife

Conserve enough habitat for the survival of species at risk, regionally important wildlife, and wintering deer, moose, etc. Manage riparian areas for wildlife habitat. Do not harvest timber from wildlife tree retention areas. Protect wildlife habitat features.

2 FRPA Values to Manage and Protect

3 Due Diligence Considerations

Due diligence means that those who carry out logging, road building and other activities must take all reasonable care to avoid breaking forest practices legislation and regulations.

To determine whether a person is duly diligent, the law considers what a reasonable person would have done under similar circumstances. The following example of a large culvert installation illustrates some of these considerations.

- ✎ The more likely it is that a harmful event would occur, the higher the duty of care would be required.

Example: Leaving a partially installed culvert exposed over a weekend in November on the West Coast of Vancouver Island with heavy rain in the forecast suggests a high likelihood of sedimentation occurring.

- ✎ The greater the potential damage, the greater the degree of care would be required.

Example: The partially installed and exposed culvert draining directly into a Coho spawning stream could cause serious damage if heavy rain was to occur.

- ✎ Did the person act according to general industry practices and those set out in guidelines, licences, permits, plans, and legislation?

Example: Legislation, documents and industry-related publications do not suggest or allow an excavator operator to leave the partially completed culvert in this example exposed to a high sedimentation risk.

- ✎ Did the person use preventative systems such as environmental management systems, training programs, internal and external audits, risk assessments and contingency plans designed to prevent the event?

Example: Following a road construction SOP to not leave erodible material exposed during drainage installations could have avoided the risk of sedimentation at the above culvert.



Fish Removal before Culvert Replacement

- ✎ Were alternative solutions reasonably available to prevent the occurrence of the event?
Example: Was rock armour available to protect erodible fill, or a larger machine to complete the installation on time?
- ✎ Did the party respond promptly to the problem, and make efforts to mitigate the effects quickly?
Example: Did the contractor or employee stay late or come back the next day to complete the culvert installation?
- ✎ Was the party responsive to suggestions of regulatory officials; and,
- ✎ **To what degree did the person have control over the actions that led to the event?**

3 Due Diligence Considerations

4 Due Diligence Checklist

Where there is evidence of non-compliance, the onus may be put on you and your employees to prove that due diligence was applied. This checklist addresses general due diligence requirements only, such as training or monitoring of activities. It is for general guidance only and is not necessarily complete, nor does it guarantee a successful due diligence defence. Specific topics such as **plans and work orders (8)** or **boundaries and trespass (9)** will show how due diligence considerations may apply in these areas.

Due Diligence Checklist (partial list only)

- ① Train employees and contractors on the rules and regulations of what's expected of them in their daily operational activities.
- ② Employ only experienced, qualified, and reputable individuals or advisors – are you yourself qualified to do the work?
- ③ Establish a process to track and pass on new legal requirements to affected co-workers and employees.
- ④ Establish a system to ensure that **pre-work meetings (8)** take place before new activities begin, to walk critical areas, and to communicate plan details and legal requirements to individuals affected.
- ⑤ Establish **shutdown procedures (16)**. Ensure that everyone knows the possible **reasons for shutdown (15)** and shuts down activities if necessary.
- ⑥ Establish a monitoring plan to inspect activities. Does it reflect risk levels of activities including the influence of weather events? Ensure that inspections are done as per monitoring plan, e.g. a final cutblock completion inspection before freeze-up.
- ⑦ Keep written records to explain reasons for any changes to **plans and work orders (8)**.



Training Session for Operators

Written Records Format

Notes Should Always Contain

- Date and start time of meeting
"Monday, Aug. 5, 2003 at 9:15."
 - Location of the meeting
"Km 32 on Mountain M/L."
 - First and last name of person(s) present, and job function(s)
"Bob Plant, Faller, Jim Page, Driller, LZ Road Contracting."
 - Issue(s) discussed
"Endhaul and runoff control at 0+900 Bush Creek Main."
 - Feedback from others
"No specific concerns."
 - Details of instructions and "next steps" if applicable
"I told Bob to construct a catch basin like at 0+350 before endhauling can continue. He will call at 4:00 with an update".
 - Ending time of meeting
"Meeting ended at 10:35."
- Add/delete details as needed.

4 Due Diligence Checklist

5 When Am I Liable?

The intent of the *Forest and Range Practices Act* (FRPA) is not to make individuals liable; it was created to regulate licensees. However, there are some requirements that apply to individuals. Individuals who contravene these requirements and have not shown **due diligence (4)** may be subject to administrative penalties. They may also face contractual or disciplinary measures by the licensee because licensees may be held accountable for actions of contractors and employees. The simplest way to avoid any such liability is to always operate under the principle of **due diligence (4)** and take reasonable care.

Liabilities under FRPA

Individuals can be held liable for infractions, e.g.

-  Trespasses
-  Damage to streams
-  Reduced water quality
-  Damage to soils

Example of Liabilities in a Trespass Situation

A licensee hired a contractor to log an approved cutblock. The licensee's contract supervisor walked the area with the contractor and the **only** operator who was to fall the cutblock. A section of the falling boundary runs along the Riparian Reserve Zone (RRZ) boundary of a stream located outside the cutblock.

Falling was 50 % complete when the operator did not report for work one day. A different operator moved into the block late that afternoon **on his own account**, to "finish his day". He had fallen 10 trees in the RRZ when the trespass was discovered. Who is liable?

① Licensees may be liable.

Under FRPA, licensees may be liable for a trespass unless they can prove that the area had been clearly marked, maps issued, critical areas walked and that a **pre-work meeting (8)** was held with the logging contractor. In this example, the licensee had shown **due diligence (4)**.

② Contractors may be liable.

If licensees can demonstrate (as in ① above) that they were duly diligent, the logging contractor/sub-contractor may be liable for the trespass unless he/she can prove due diligence. Due to the expectation for daily supervision, due diligence may be harder for the contractor to prove. Accurate **written records (8)** would prove very important to a successful defence.

③ Individuals may be liable.

If logging contractors/sub-contractors can demonstrate that they were duly diligent, employees/operators may be liable unless they can prove due diligence also, e.g. that they followed the map, that they were aware of critical areas, that they have a good track record, and that some other cause triggered the trespass, e.g. an error on the map. In this example, however, the second operator was not authorized to fall in the cutblock and may be held liable.

④ In situations where all parties involved can demonstrate due diligence, nobody will be held liable for the infraction.

5 When Am I Liable?

6 Compliance with FRPA

Compliance and Enforcement (C & E)

Under FRPA, in investigating a contravention, C & E staff will be looking for evidence (or lack of evidence) that due diligence or another defence may be applicable.

Three Types of Defences

Due Diligence, as discussed throughout this infoflip, means taking all reasonable steps to avoid contraventions.

Officially Induced Error – acting on erroneous advice of a recognized official.

Example: you seek advice from a responsible government official on the legality of an intended course of action. You rely in good faith on that advice which later turns out to be flawed.

Mistake of Fact – relying on a fact that was reasonably held to be true, but turns out to be false.

Example: you intend to harvest the timber from your private land, and because it is adjacent to Crown land, you hire a licensed surveyor to run the boundaries.

The surveyor uses a rock cairn as a tie point for the boundaries of your private land, and you log within those boundaries.

The Ministry of Forests investigates the incident, and determines that the boundary is in the wrong location because the rock cairn the surveyor used to tie in his survey was not the legal survey post the surveyor thought it was.

Government will continue to conduct inspections and investigate where there is evidence of non-compliance, and may intervene in certain situations **before** damage occurs. Contraventions will be addressed through actions such as monetary penalties, stop work orders and remediation orders.

Compliance and Enforcement (C & E) staff will enforce results and strategies in approved operational plans, as well as practice requirements specified in FRPA and its regulations.

C & E staff will continue to pursue contraventions against **licensees (5)** first. If it turns out that a licensee has a valid defence, the Crown may choose to pursue a contravention against the contractor or employee, where warranted. This does not mean that C & E staff have to exhaust all options against the licensee before proceeding against a contractor or employee. **The onus is on you to prove that a defence applies.** That means you should be aware of all regulatory requirements, act with reasonable care, demonstrate good **record keeping (8)** etc.

Forest Practices Board Audits

The Forest Practices Board conducts audits and complaint investigations of licensees, and reports its findings publicly. If the Board finds an apparent non-compliance and the licensee can demonstrate due diligence, the Board may then investigate a contractor or **individual (5)** who may have been responsible. If this happens to be you, it will be important for you to be able to demonstrate due diligence.

7 Operating Procedures

Having operating procedures in place, following them, and being able to prove that they are being followed is the most effective way to ensure that all activities are conducted in a way that meets the requirements of applicable legislation.

Have procedures in place

Most licensees and large companies have an Environmental Management System (EMS) in place, combined with Standard Operating Procedures (SOPs) to reduce/eliminate the risk of infractions. Example: "Stop work immediately when site details do not match details on the plan".



Field Manual, CD-ROM, Procedures Manual

Licensees often require contractors to follow their EMS and SOPs unless contractors have their own systems in place. In the absence of SOPs, **due diligence (4)** would suggest

that a contractor adopts SOPs from other sources rather than operating without any documented procedures at all.

Follow the procedures that are in place

Consistent application of procedures is important. Everyone will quickly learn what is expected of them, will accept it as a way of doing business and will see the advantages of operating within the framework of SOPs. Applying SOPs and due diligence will lead to improved forest management.

Do not make exceptions to the consistent application of the SOPs. If you allow exceptions such as: "Don't worry if the map doesn't make sense any more; just finish the day cutting wood," they will soon become the rule. However, it is equally important that operating procedures should be reviewed from time to time, and changed if necessary.

Document that you are following the procedures

Documenting can range from **recording notes (8)** in notebooks to tracking certain issues in a computerized data base. Training records, for example, may become an important part of a due diligence defence, as may records of monitoring of activities. As a rule, you should document anything out of the ordinary, including voluntary **shutdowns (16)** by operators for safety or environmental reasons.

SAFETY OVERRULES ALL OTHER CONSIDERATIONS!

Safety is a **reason for shutdown (15)**, therefore, if a plan or work order suggests a forest practice that seems unsafe to you, stop work and notify your supervisor.

7 Operating Procedures

8 Plans and Work Orders

Responsibilities

Make sure that plans and work orders can be completed safely, without negative impact to other resources, and as described.

If details on plans and work orders do not match what you find in the field, **stop work (16)** until uncertainties have been resolved. Individuals may be held **liable (5)** for not following plans and work orders as described.

Due Diligence Checklist (partial list only)

- ① Make sure to have a pre-work meeting with a supervisor to completely understand the work expected of you.
- ② Walk any critical areas of the plan or work order, e.g. the **RMA (12) (13)**, stream crossings, **resource features (15)**.
- ③ **Keep notes (4)** of discussions and verbal instructions from a supervisor, or unforeseen circumstances on the work site.

Pre-work Meetings

These meetings provide the parties with the opportunity to exchange information in order to complete the job to certain standards. Use pre-work meetings to make sure that you have received all information, to ask questions, clarify details, and possibly question the information presented.

Everyone must understand expectations and rules; check by asking individuals to repeat key points. **Due diligence (4)** suggests critical information be exchanged in print form, e.g. on maps and plans or in writing, in addition to verbally, to avoid misunderstandings or accusations. Consider that you may be **liable (5)** if you fail to pass this information on if new personnel arrive on site.

Walking Critical Areas

Fallers, equipment operators (road builders, feller/buncher operators, etc.) and supervisors use on-site inspections to discuss critical areas such as extensive road cuts or fills, creek crossings, feathered falling boundaries, wildlife tree retention patches or sensitive soils. Discuss alternative work plans and **shutdown procedures (16)** at this time.

Keeping Notes

Always record that meetings took place and if details and possible changes to plans were discussed. Use solid-bound notebooks, not loose pages, and write clearly and legibly. Use cameras to document situations that would be difficult to describe otherwise – “a picture says a thousand words”. Develop and follow a consistent **note keeping format (4)**.

How to Use this Infoflip

When you read this infoflip you will soon realize that operating under the principles of **due diligence (4)** is emphasized throughout. In fact, due diligence affects **all** your work. Four key activities are specifically addressed in terms of due diligence:

- **Plans and Work Orders (8)**
- **Boundaries and Trespass (9)**
- **Riparian Areas (11)**, and
- **Fuel & Environmental Emergencies (14)**

Use the checklists for these activities **as a minimum** to ensure due diligence.

The remaining sections of this infoflip contain a number of checklists and useful ideas, and the coloured topic references make it easy to move to related sections in your search for required information.

9 Boundaries and Trespass

Responsibilities

Boundaries and trespass requirements under FRPA have not changed from the Code. Make sure that the harvesting activity always occurs within the boundaries of the approved cutblock, and road-related activities occur within the authorized clearing width. A trespass can also occur inside a cutblock, e.g. along an internal wildlife tree patch, by removing too many trees from a partial cut, or by removing tree species that were not supposed to be cut.

If details on the map do not match what you find in the field, **stop work (16)** until uncertainties have been resolved.

Remember that you may be held **liable (5)** for trespasses.

Plans and Maps Should Have

- North arrow
- Scale (e.g. 1:10,000 means 1 cm on map = 100 m in the field)
- Cutblock name and field marking, i.e., paint/ribbon colour or blazes
- Cutting permit and hammer mark
- Road name/number and stations, paint and/or ribbon colours used for centreline, slope stakes etc.
- Date of map or map version
- “Drafted” and/or “Approved by”
- Explanation of map symbols used
- Explanation of colour coding

Due Diligence Checklist (partial list only)

- ① Operational plans and maps should always be complete.
- ② Understand the details on the plan that affect your work.
- ③ Discuss critical areas and walk them in the field with a supervisor and other operators.

- ④ Always know your exact location in the field compared to the map – check your progress from time to time.

- ⑤ Falling boundaries, **Riparian Reserve Zones (12) (13)**, wildlife tree retention patches, etc., must be



Always Know your Position on the Map

- adequately marked considering all the circumstances.
- ⑥ Marked boundaries and the site plan must be consistent. Approved changes must be noted on the map and boundaries amended in the field.
- ⑦ Old boundary marking must be painted out and old flagging removed.
- ⑧ If you are unsure about any aspect of your work including maps and plans, stop work. Unclear plan detail is a **reason for shutdown (15)**.

10 FRPA Requirements in Riparian Areas

Forest practices in riparian areas must protect the water quality in streams, lakes and wetlands. These areas not only provide habitat for fish, wildlife and aquatic species, they also supply drinking water for downstream users.

When licensees enter into an agreement with the Province



Interior Lake and Riparian Area

to harvest timber or build roads they accept the responsibility to protect or manage certain **values (2)**. In your daily work, you must apply operational practices that help licensees in their contractual and regulatory obligations to protect and manage these values.

Riparian Area Requirements (partial list only):

These examples of riparian requirements apply unless otherwise specified in the plan, permit or by your supervisor. If the plan differs from these requirements follow the plan. However, if details on the map do not match what you find in the field, **stop work (16)** and contact your supervisor.

- ✎ Maintain the natural surface drainage patterns during and after the construction of temporary or permanent landings, roads, culverts and bridges.
- ✎ Follow restrictions in Riparian Reserve Zones (below).
- ✎ Protect stream channels and banks at stream crossings. Remove temporary crossings when no longer required.

Activities Not Permitted in Riparian Reserve Zones

- ✎ Do not cut, modify or remove trees except in circumstances as described in green box below
- ✎ No site preparation by way of:
 - grazing or broadcast herbicide applications for brush control
 - mechanized site preparation or broadcast burning
- ✎ No spacing or thinning

- ✎ Retain streamside trees and/or understory vegetation to provide ongoing shade to temperature-sensitive streams. Anticipate risks to retained trees.
- ✎ Know restrictions to using livestock for silvicultural treatments within riparian areas.

- ✎ Protect the quality of water diverted for downstream users and do not damage licensed waterworks.
- ✎ Do not construct excavated or bladed trails in community watersheds if it will cause harmful sediment to enter a stream, wetland or lake.
- ✎ Do not harvest wildlife tree patches or designated wildlife trees.

Activities Permitted in Riparian Reserve Zones

- ✎ Cut down trees **only** to:
 - remove a safety hazard
 - create a corridor for full suspension logging
 - create guyline tiebacks
 - establish and maintain forest sites and trails
 - reduce hazards posed by windthrown/damaged trees
- ✎ Top or prune trees that are not windfirm
- ✎ Construct stream crossings
- ✎ Remove infested trees

10 FRPA Requirements in Riparian Areas

11 Riparian Areas – Soil Disturbance All Areas

Riparian Responsibilities

Make sure that harvesting activities always occur within the boundaries of the approved cutblock, and pay particular attention to special plans for the **Riparian Management Zone (RMZ) (12) (13)** and the location of the **Riparian Reserve Zone (RRZ) (12) (13)**.

Road-related activities within the Riparian Management Area (RMA) must occur within the authorized clearing width. Always be prepared to take steps to prevent sedimentation.

Harvesting and road-related activities must always fulfill **riparian area requirements (10)**.

If details on the map do not match what you find in the field, or if the plan asks you to do work that you can not do safely or without impact on another resource, **stop work (16)** until uncertainties have been resolved.

Due Diligence Checklist (partial list only)

- ① Have you **walked critical areas (8)** and discussed them with a supervisor and other operators?
- ② Are RMAs within the cutblock and other critical areas being harvested according to the plan?
- ③ Are you managing the phases of construction to minimize environmental risks, particularly with respect to installation of bridges and culverts?
- ④ Do you have **sediment control materials (14)** nearby or on site in case of unexpected slides, erosion or sedimentation?
- ⑤ Is a soil disturbance SOP in place?
- ⑥ Have you taken steps to prevent **trespass (9)**?

Soil Disturbance (All Areas including Riparian Areas)

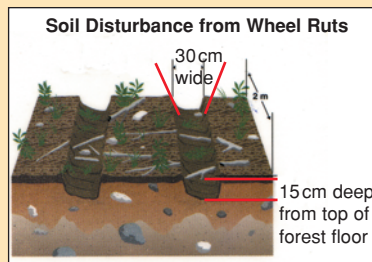
If, in your experience, an activity in any work location may cause soil disturbance, follow **shutdown procedures (16)**. Soil disturbance is primarily caused by ground-based equipment or the yarding of heavy logs in deep organic soil in cable yarding operations.

Stop Ground-Based Activities or Move to a New Area if:

- Soils are visibly soft or muddy
- Machine travel is causing rutting
- Puddling is visible on soil surface
- Water is flowing over soil surface
- Water runoff is muddy

Soil Disturbance Includes (unless otherwise specified):

- Track and tire ruts (5 to 15 cm deep, 2 m long);
- Compaction from repeated travel over same ground;
- Gouges (5 to 30 cm deep) into mineral soil;
- Scalps removing the surface organic layer.



11 Riparian Areas – Soil Disturbance All Areas

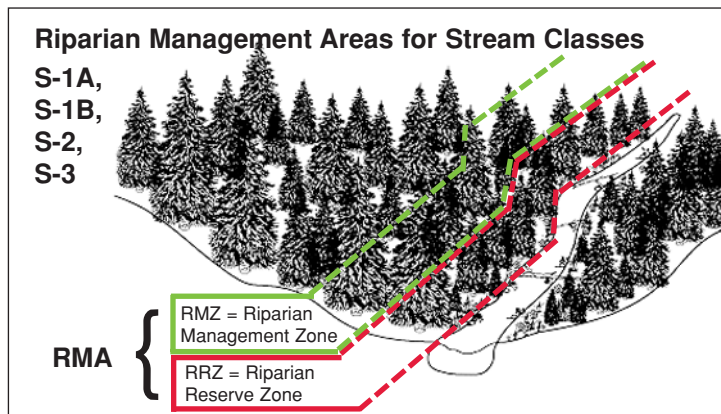
12 RMAs for Streams

The Riparian Management Area (RMA) is the area adjacent to a stream. RMAs for larger streams consist of a Riparian Reserve Zone (RRZ) **and** a Riparian Management Zone (RMZ). RMAs for smaller streams, those without fish populations, or streams flowing into a community watershed consist of a Riparian Management Zone (RMZ) **only**.

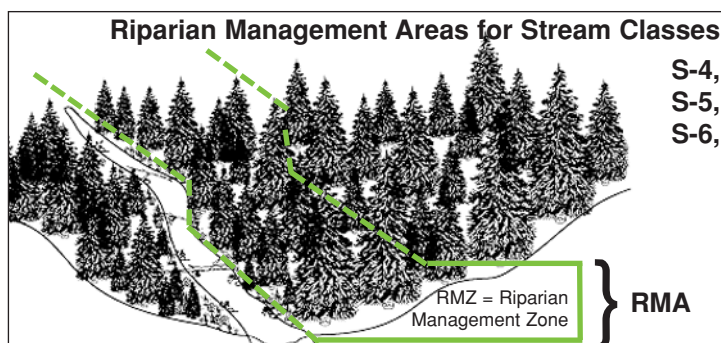
A variety of operational practices may be applied in the RMZ, ranging from clearcutting to individual tree selection, while only very few **activities are permitted (10)** in the RRZ. Your plans will specify which operational practices are permitted in the RMZ and RRZ. For RMA widths, see the table below.

Stream Classes and RMA Widths					
	Stream Class	Channel Width	RRZ (m)	RMZ (m)	Total RMA(m)
<i>Fish Stream or Community Watershed</i>	S-1A	≥ 100	variable	100	variable
	S-1B	> 20	50	20	70
	S-2	$>5 \leq 20$	30	20	50
	S-3	$1.5 \leq 5$	20	20	40
	S-4	<1.5	0	30	30
<i>Neither of the Above</i>	S-5	> 3	0	30	30
	S-6	≤ 3	0	20	20

The widths of RMZs and RRZs are measured on the ground (slope distance) from the top of the streambank.



RMAs exist on both sides of streams; to keep it simple, these figures show the RMA only on one side of the stream.

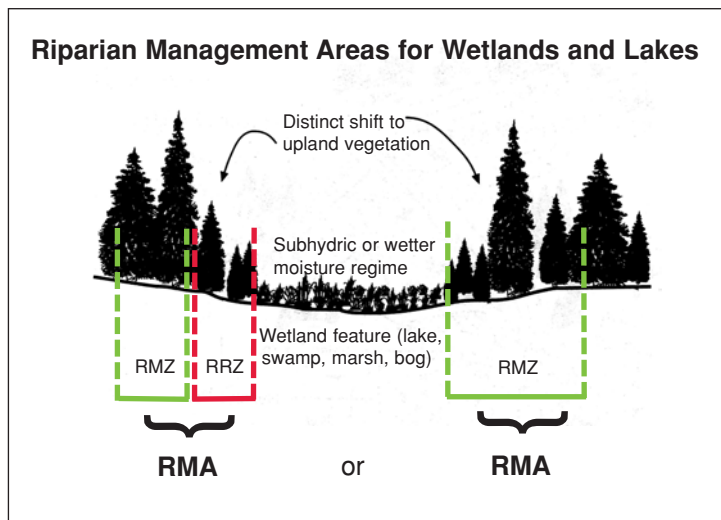


12 RMAs for Streams

13 RMAs for Wetlands, Lakes and Gullies

Wetlands and Lakes

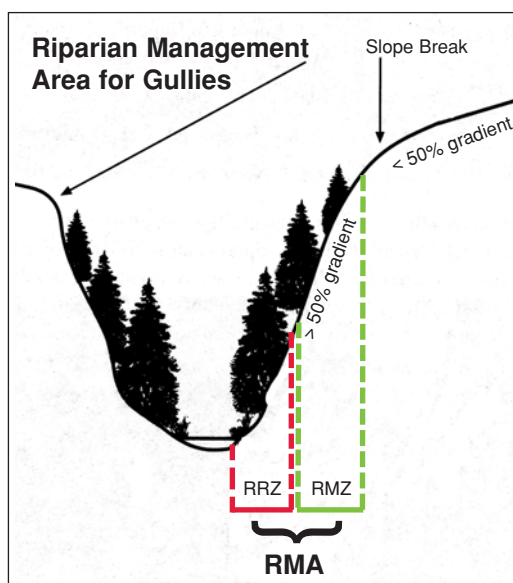
The classification of lakes and wetlands is more complicated than the classification of streams. It is important to know that lakes and wetlands all have Riparian Management Areas (RMAs). Similar to **streams (12)**, they all have a Riparian Management Zone (RMZ), and some of the bigger lakes and wetlands also have a Riparian Reserve Zone (RRZ). If you need additional information, ask your supervisor.



Gullies

In many parts of British Columbia, streams have carved out deep gullies into sidehills and valley floors. These gullies may present operational and safety challenges. In such cases, the cutblock boundary is often located at the slope break where the steep gully walls change to a more gentle sidehill.

The Code refers to the slope break as “Top of Inner Gorge”, and in gullies with side slopes over 50%, the RMA must be extended to the slope break. FRPA, however, allows for a



site-specific management of these situations.

Remember that safety overrules all other considerations!

14 Fueling and Environmental Emergencies

Responsibilities

Requirements under FRPA for fueling and environmental emergencies have not changed from the Code.

Fuel Handling

All refueling activities must be conducted to prevent negative impacts to other resources, and to ensure the safety of others nearby. All mobile fuel tanks must also comply with the *Transportation of Dangerous Goods Act (TDG)*, *Fire Code*, and *Motor Vehicle Act (MVA)*.

Rules About Fuels

- Do not refuel equipment in RMAs
- Do not mix or store fuels in RMAs
- Do not park or repair equipment in RMAs
- Fuel delivery contractors must follow your fueling SOP
- Do not leave equipment unattended during refueling.

Due Diligence Checklist (partial list only)

Re-Fueling SOP should state:

- Turn off engine while refueling
- Do not jam nozzles
- Do not leave nozzles unattended
- Eliminate safety hazards such as caulk boots on metal surfaces.

① Have a copy of spill plan on-site.

② Develop and follow a refueling SOP.

③ Ensure machines have spill kits that are stocked as required.

Environmental Emergencies

Even the best planning for emergencies may not prepare you for situations where fast decisions and actions are required to prevent or minimize environmental impact. A rule of thumb suggests to take action if **no** action would result in greater impact. Consider this **due diligence (4)** example:

During a rain storm, a culvert is almost completely plugged. A road maintenance operator who happens to be close by removes the obstruction with several scoops of his excavator bucket. Although this action creates some sedimentation, the impact is far less than if the culvert was allowed to plug up completely and, as a result, an entire section of road was washed out.

Due Diligence Checklist (partial list only)

- ① Develop and be prepared to follow a contingency plan in the event of a slide, erosion or sedimentation hazard.
- ② Have sediment control materials nearby or on site so that you can deal with unexpected situations.
- ③ Remember not to take any actions that may jeopardize your own safety or the safety of others during an environmental hazard.

Sediment Control Materials

- Hay (straw) bales
- Silt fences, shovels
- Geotextile or filter fabric
- Sand and/or plastic bags
- Volume pump(s), tools and hoses for pump-arounds or dewatering for “dry” installations of culverts.

14 Fueling and Environmental Emergencies

15 Reasons for Shutdowns

If you decide to stop work in your present work site for any reason, you may consider continuing in an alternative “safe” work area if available close by until the reason for the shutdown has been resolved. **Notify your supervisor (16).**

The list below is for general guidance only, if your activity is not governed by an existing Environmental Management System (EMS) or Standard Operating Procedure (SOP), or if an existing EMS or SOP procedure is incomplete.

Emergencies and Safety

Stop work in circumstances that place co-workers’ health and safety at risk, in hazardous situations with unpredictable outcomes such as confrontations, or in the event of unforeseen emergencies.

Unclear Map or Plan Detail

Stop work if you are unsure of details on the plans, if you cannot find ribboned/painted boundaries or lines referred to in **pre-work meeting (8)**, or if you cannot carry out plans.

Slope Instability

Look for factors contributing to slope instability and stop all activities if

landslides occur. Follow **shutdown procedures (16).**

Contributing Factors to, and Indicators of Slope Instability

- Periods of intense rainfall
- Excessive ground water on sidehills
- Heavy rainfall on melting snowpack
- Tension cracks, slumps or slides
- Recent windthrow during wet weather

Road Surface Deterioration

Stop hauling before road surfaces become “soupy”, before fines begin to move placing fish habitat and water quality at risk, and when the stability of the road bed is threatened.

Damage to Stands and Plantations

Stop work if your activities could damage adjacent stands.

Soil Damage

Stop activities of ground-based equipment when it appears that **soil disturbance (11)** limits in the plan will be exceeded.

Hazardous Material Spill

Stop work and follow actions as outlined in your Emergency Response Plan.

Damage to Resource Features

Stop work if activities could damage or disturb identified or previously unidentified resource features.

Resource Features Include

- A cultural heritage resource (e.g. cultural use of cedar)
- A recreational facility or feature of biological, physical, cultural, historic or scenic significance
- A wildlife habitat feature (bear den, raptor nest)
- A licensed waterworks or related infrastructure
- A stream, wetland, lake, marine- or fisheries-sensitive zone
- An experimental project, growth and yield plot
- A snow course, or a range development.

If in doubt, consider anything unusual a resource feature.

15 Reasons for Shutdowns

16 Shutdown Procedures



Do Dangerous Trees Create a Hazard for Silviculture Workers?

When you decide to stop an activity for any **reason (15)** and the activity is not governed by an existing Environmental Management System (EMS) or Standard Operating Procedures (SOP), consider taking the following steps:

① Assessment

Assess your situation for one of the following options:

- ✎ Can your operational practice be modified and continued without further negative impact?
- ✎ Can your activity be relocated so that you can continue to work without further negative impact?

If you answer both questions with a “NO”, stop work.

② Notification

Notify your supervisor of your decision and the reason(s) for your shutdown, and **record it (8)** in your notebook.

③ Immediate Remedial Action

In the event that the shutdown is due to some form of environmental damage, take remedial action where, in your opinion, inaction will lead to further damage.

④ Before You Leave the Site

If a shutdown of your activity is required, park all equipment in an environmentally safe location. Avoid riparian management areas, steep terrain, areas of excessive soil moisture, and areas within reach of standing timber (blowdown). If a shutdown affects more than your work site, account for all your fellow workers before leaving the site.



Account for Co-Workers before Leaving Site

⑤ Return to Work

Your supervisor/employer, possibly with the help of consultants or agencies, will determine appropriate remedial actions if required before you can continue to work.

Remember that a voluntary shutdown or a modification to a work procedure is often more productive in the long term than continuing a work practice that has adverse effects and may lead to a Stop Work Order or a non-compliance charge.

16 Shutdown Procedures