Forestry Stewardship Framework

Best Management Practices | Immediate Measures

Version 1.0

TAKLA NATION

Lands and Stewardship Department

Contents

1) Overview

The Takla Nation (Takla) Forestry Stewardship Framework (FSF) Best Management Practices & Immediate Measures (BMP/IM) Manual has been developed to provide landscape and stand-level direction for forestry development and practices that are designed to protect Takla values within Takla Traditional Territory (TTT). Takla evaluates resource development in the context of The Ability to Meaningfully Exercise (AME) Aboriginal Rights. Takla is undertaking a comprehensive reconciliation negotiation with provincial & federal governments and will determine UNDRIP/FPIC in the context of resource development. As such, the BMP/IMs will form part of this jurisdictional shift towards regulatory and statutory decision-making. The BMP/IMs are a bridge between current forestry practices, which rely on the Forest & Range Practices Act (FRPA) and Forest Stewardship Plan (FSP) legislative regime, and the FSF, which is a detailed framework currently under development that will ultimately guide forestry on TTT. The FSF and hence the BMP/IMs are informed by the Carrier Sekani First Nations (CSFN's) Environmental Stewardship Initiative Omineca Demonstration Project (ESI), the Takla Forestry Advisory Group & Steering Committee, and a compendium of known and emerging Takla Values. ESI is examining approximately 30 values integral to the Rights Title and Interests of the CSFNs. Takla's efforts around Interim Measures and the BMP/IMs are currently focused on the top three values: (1) forest biodiversity, (2) riparian (fish, water, watershed) and (3) moose. Takla believes that the BMP/IMs are best suited to address these concerns immediately, while longer-term strategies are being developed.

The BMP/IMs represent additional requirements to those identified in licensee FSPs in effect with Forest Development Units (FDU) that cover all or portions of TTT. While the BMP/IMs are not currently a legal framework in the sense of provincial or federal legislation, they will become binding in terms of contractual agreements with proponents. Takla expects that licensees operating within TTT will adopt and comply with the BMP/IMs and eventually the FSF regardless of whether formal agreements are in place. All licensees planning or operating within TTT are ultimately responsible to ensure any of their work meets all applicable legal requirements including those within their respective FSPs.

The BMP/IMs and the FSF are intended to achieve each licensees' FRPA/FSP requirements and results. The BMP/IMs require practices beyond those specified in the FRPA, the Forest Planning and Practices Regulation (FPPR) and in all cases, each licensees' FSP.

The BMP/IMs, and upon completion, the FSF, will:

- Demonstrate that Takla is instrumental in developing objectives for forest management on the TTT;
- Ensure Takla has meaningful and tangible input and direction into forestry activities on their TT before, during and after they occur;
- Improve forest stewardship by:
    - Providing more forethought into operational planning by reflecting the values important to Takla;
    - Increasing focus on desired outcomes rather than process or strategies;
    - Not managing to legal minimums or default standards;
    - Avoiding amendments after the fact to bring plans back into compliance;
    - Elevating the significance of professional reliance and the role of the prescribing forester;
    - Increasing the accountability of proponents.
- Ultimately, increase protection and conservation of Takla values within TTT, while providing certainty for industry, thereby providing economic benefit to the Nation, timber products to our partners, while maintaining Takla's AME their Rights Title and Interest (RTI).

A. PURPOSE

To provide direction for forestry planning, development & operations that are consistent with Takla Values.

B. SCOPE

All forestry planning, development & operations within Takla Traditional Territory.

C. LEGAL REQUIREMENTS

Proponents are responsible to meet any and all forestry, environmental, safety and other applicable legislation in their activities, including the requirements of the respective FSPs they are working under. The BMP/IMs are additional requirements.

D. HEALTH & SAFETY

Nothing in the BMP/IM's is to be construed as overriding WCB Act/OH&S regulatory requirements pertaining to worker health and safety. Takla Nation does not consent to the use of herbicides on Takla Traditional Territory.

E. CONTINUOUS IMPROVEMENT - PLANNED & PERIODIC CHANGE

As the ESI Project matures, further research is completed, and traditional knowledge and values identified, Takla will update the BMP/IMs periodically advising proponents of the changes. BMP/IM versions/dates, and those BMP/IM components being implemented, must be documented in professionally prepared Site-Level Plans, e.g., Site Plans, Logging Plans, Pre-Works or other Operational Guidance Documents (e.g.Ver. 1.0 April 30, 2019) for implementation and monitoring purposes. As questions arise with respect to interpretation and implementation of the Takla BMP/IMs they will be brought to the Takla Stewardship Group (TSG) for discussion, interpretation and, where required, decision. Principles of Adaptive Management will guide future direction & development of the BMPs. A key principle of the FSF - BMP/IMs is "*Don't do the same thing everywhere.*"

F. STEWARDSHIP: MONITORING AND COMPLIANCE PROGRAM

The Monitoring & Compliance Program will review Site-Level plans and activities throughout the planning, development, operations, post-harvest and silviculture phases including both office and field components. The program will ensure that planned development and forestry operations comply with the BMP/IMs, legal requirements, including professional reliance and the involvement of the appropriate Natural Resource Professionals, and ultimately that desired outcomes (results) are achieved, thereby protecting Takla Values. Where the Monitoring & Compliance Program reveals non-compliance with the BMP/IMs or legal requirements, the issue will be brought forward to the TSG.

G. AMENDMENTS TO APPROVED PLANS

Proponents are encouraged to put forward their best plans up front. Amendments (e.g., to an Approved Harvest Plan, or Site-Level Plan) should only be encouraged for reasons specific to forest health, emerging cultural information or other forces of nature such as fire. Amendments to plans should be minimized, and where the proponent feels an amendment is necessary, it must be referred to the TSG so that the amended plan is used to inform the Monitoring & Compliance Program. Proposed amendments to approved plans will be weighed against Takla Stewardship Advice and Adaptive Management Recommendations, which is registered to an approved plan, in Takla's Information Portal.

Harvest Plans should be consistent with the intent of the "Prince George Timber Supply Area Rationale for Allowable Annual Cut (AAC) Determination Effective October 11, 2017", Diane Nicholls, RPF Chief Forester, British Columbia Ministry of Forests, Lands, Natural Resource Operations and Rural Development (PG TSA TSR5), and subsequent license criteria. To this end, Takla supports operational consistency with AAC determinations and rationales across both Prince George and Mackenzie TSAs.

2) Takla Forestry Stewardship Framework – BMPs/IMs

A. LANDSCAPE-LEVEL RETENTION PLANNING & PRACTICES BMP/IM

Landscape-level Retention Planning will be directed by Takla Lands & Stewardship; incorporating Takla Values, ESI outcomes and other values as determined by Takla (including Takla Staff, Community, Takla Forestry Advisory (TFA) and the TFA-Steering Committee). The Priority for completing Landscape-level Retention Planning will be in areas of active planning and development with forestry partner(s), and other forestry proponents/licensees.

Takla will work with their forestry partners to develop a consistent, reliable and transparent methodology so that forestry partners may carry out their own Landscape-level Retention Planning within their operating areas falling within the TTT, to the standards set by Takla Lands & Stewardship. As Landscape-level Retention Planning is completed, a consolidated Landscape-level Retention Spatial Data Set will be maintained by Takla Lands and shared with Takla's Partners, proponents, licensees and government for transparency and implementation.

Operational timber development planning should continue, to the extent practicable, to focus on Mountain Pine Beetle (MPB) salvage, Sx beetle sanitation and salvage and/or addressing other stand damage or problem forest types consistent with PG TSA – TSR 5. PG TSA TSR5 addresses Takla's Concerns of harvest rate and flow over time from the TTT by establishing a partition to supply blocks A & B of 1.5 million cubic meters per year, and a requirement to evenly distribute harvesting across pine, spruce and balsam species profiles (ensuring balsam is not avoided).

Key concepts in locating Landscape-level Retention areas may include, but are not limited to:

- Co-location of multiple values and/or constraints to timber harvesting;
- Old forest or other high-value forest types adjacent to or in proximity to riparian areas;
- High-value wildlife habitat, Forests with Exceptional Conservation Values (FECVs), e.g., established OGMAs, UWRs, WHAs, Old Forest, Old Interior forest, Patch size and other biodiversity targets;
- CSFN/Takla Values expressed through ESI; i.e., Biodiversity (NRV); riparian, moose;
- Sound principles of Forest Connectivity, e.g., reference FPC Biodiversity Guidebook (1995);
- Sacred, cultural or other traditional use areas;
- Watershed Assessments: Results used as a guide to plan retention and harvest areas/levels.

Three (3) Types of Landscape-level Retention Areas Exist:
1. Landscape Retention;
2. Riparian Corridors;
3. Upland Corridors.

MANAGEMENT STRATEGIES FOR LANDSCAPE-LEVEL RETENTION AREAS

- Site- or Stand-level areas identified by Takla specifically as spiritual, cultural or sacred value will be respected & treated as reserves or "No-Go" areas, and will not be altered; such areas are not the same as Landscape-level Retention Areas, however, they may inform Landscape-level Retention.
- Takla understands that Landscape-level Retention plans are dynamic and require flexibility in specific areas for specific situations, e.g., forest health, fire suppression, fire salvage, windthrow management, changing biodiversity objectives, etc. Due to the nature of completing vast areas of Landscape-level planning often with limited or emerging information, having a process that allows for flexibility, adaptive management and continuous improvement is prudent.
- Takla expects Licensees to respect current & future Landscape-level Retention plans on TTT and to follow the Takla Stewardship Process, seeking Takla direction on implementation.

MANAGEMENT STRATEGIES FOR RIPARIAN AND UPLAND CORRIDORS

- Consistency with "Access Structures, Deactivation & Rehabilitation BMP/IM"
  - No permanent roads (exception is long-term mainlines);
  - Temporary & On-Block roads are to be re-habilitated;
  - Site-specific circumstances may warrant Permanent Deactivation as a substitute for rehabilitation, with TSG approval;
  - All riparian crossings are to be re-contoured and vegetated (trees, shrubs, non-invasive seed mix), in a timely manner.
- Focus on visual screening from wetlands and lakes.
- Target sight lines of 400m or less, from permanent roads (not along roads), and across harvest openings.
- Utilize natural features for locating block boundaries (timber types, terrain features).
- Plan and locate windfirm or "feathered" boundaries. Irregular boundaries are preferred over straight/ simple boundaries.
- Target distance to cover of 200m or less.
- Focus on Connective corridors for mammals to facilitate crossing of openings (utilizing CWD, stream retention and DTC patches).
- Focus on DWT's retention of deciduous, poles, saplings and understory in clumps preferred over individual stems.
- No herbicide treatments and focus on minimum brushing treatments, to the extent practicable.

B. WTP, RESERVE AND STAND-LEVEL BLOCK DESIGN (BMP/IM)

WTP/RESERVE QUALITY & LOCATION

Wildlife Tree Patches (WTP) and single or grouped Dispersed Wildlife Trees (DWT) are required to maintain complex stand structure in the new, regenerating stands. Horizontal or vertically complex stand remnants are ideal candidates to be represented in a WTP. WTP placement should focus on ecological anchors including wildlife features (e.g., nests, dens, licks, major game trails), rock outcrops, rare plant communities, non-Timber Harvesting Land Base (THLB) stand remnants, riparian features (especially L3, W3, NCL, NCW, NP), deciduous stems & patches, large diameter & older trees with veteran/wolf tree characteristics and high-value snags (large diameter, Fdi, Act, Sx.). Where the stand structure does not provide anchors, logical representative stand placement is desired. To the extent practicable, WTPs should be placed with consideration of the Distance to Cover concept for wildlife; however, the concept of dash distance should not override WTP quality.

WTP/DWT quality, placement and purpose is far more important than quantity and arbitrarily placed retention based on dash distance. Coarse woody debris piles/ windrows will be used to bridge cutblock features to the undisturbed forest/riparian areas.

Other guidance to be considered includes: (1) the Chief Forester's Guidance on Landscape- and Stand-level Structural Retention in Large Scale Mountain Pine Beetle Salvage operations (December 2005); and, the Omineca Region Guidance, Stand and Landscape-Level Retention for Harvesting in Response to Spruce Beetle Outbreaks (September 9, 2017) noting much of the guidance is built into the FSF and BMP/IM documents. The intention is to integrate these guidance concepts under the FSF umbrella.

It may not always be necessary, nor always desirable, to isolate operable, merchantable THLB and timber on a block-by-block basis just to meet recommended stand-level retention targets; however, where opportunities exist they should be used (e.g., if a block boundary follows the Riparian Reserve Zone for an S3 stream fill the length of that RRZ/boundary with a WTP. Individual block location and layout should incorporate elements of good block design using natural features and types as boundaries focusing retention around riparian and other high-value features. Block boundaries should incorporate complexity, irregular shape and design to improve conditions favourable to wildlife.

Layout of boundaries along features should not target minimum retention requirements or RRZ widths; rather using key layout concepts looking for opportunities to widen riparian reserves where it makes sense and only be down to the recommended minimums for specific and defensible reasons.

ROADSIDE SCREENING

Roadside screening can form a part of the retention target with a reasonable net down calculation applied. Various areas and road systems are being identified as critical areas for moose and moose habitat. As these areas are identified, proponents will be informed and direction provided from Takla. One strategy for the protection of moose and other wildlife in these areas is the retention or incorporation of effective visual screening buffers along heavily traveled roads. This can be achieved by retaining components of the right-of-way regeneration between the block and the road (recognizing that some or all of this in some areas may need to be removed for road maintenance and safety objectives).

Other approaches will be to prescribe some form of partial cutting or a Special Management Zone within the block boundary itself. A narrow, full/hard reserve between the block and road to achieve the visual screening objective alone would not be encouraged in most cases. The best approach may be a combination of retaining a portion of the existing right-of-way regeneration and some form of retention in-block within a special management zone. This requirement and meeting the plan objectives will have more than one approach and will need to be clearly detailed in the Site-level Plans to ensure that effective visual screening is achieved.

General guidance for Roadside Screening:

- Does not apply to block roads;
- May apply to Temporary roads if deemed high-value moose habitat and road is pre-existing, and will be in place for an additional 5 or more years;
- Priority given to Permanent roads, FSRs, Secondary roads that are popular to hunting traffic, and known to be high-value moose habitat, especially where conditions are conducive to meeting the objective;
- Applying this to a mainline will require on-block spurs and/or parallel roads inside of the screening area to facilitate operations;
- Mainlines needed for Fire Safety access (e.g., The Driftwood FSR) will require special consideration in this application, in order to not undermine the Safety objectives;
- Look for opportunities to co-locate, potentially in areas of non-recoverable losses due to dead pine, etc. (potential opportunities for wider reserves here);
- Will require communication with, and guidance from, TSG.

C. RIPARIAN MANAGEMENT BMP/IM

RIPARIAN ASSESSMENTS

Riparian assessments must be completed for riparian features noting lakes and wetland assessments are generally GIS based, however, the stands surrounding lakes, wetlands and streams must be assessed to determine how retention requirements will be applied. Assessments should clearly describe the riparian management area conditions (considerations given to soils, stand type, timber, terrain, WTH, retention opportunities, vegetation, wildlife habitat, etc.) and for streams (specifically S4s/S6s); representative widths to determine the average.

Use of the RIC stream measurement procedure should be modified to include more measurements (refer to Takla Nation Lands & Stewardship Department for the methodology used to assess small stream widths) spread out over a greater distance to ensure that accurate stream width measurements are obtained. Accurate classification of small streams (i.e., S6 & S4) is critical, so that a stream's value & subsequent management is adequately addressed.

RIPARIAN RETENTION

The riparian requirements provided in the riparian tables are the minimum (merchantable-sized stems) retention requirements for riparian features on the TTT. The intent is to retain large woody debris, provide visual screening, retain vertical structure, maintain wind firm boundaries, reduce sedimentation risk, conserve overall riparian function, and maintain connectivity corridors adjacent to and between riparian features.

Lakeshore Riparian Management Table

LAKESHORE CLASS / LAKE CLASS	SIZE (HA)	TAKLA RMA (M)	TAKLA RRZ (M)	TAKLA RMZ (M)	TAKLA RETENTION (%)	MANAGEMENT HIERARCHY & PRESCRIPTIONS
LAKESHORE CLASS A **(IF LAKE TROUT – ENTIRE LAKE-SHORE)**	>5 ≤ 500	250	200	50 Or 25	25 Or 50	1) Addressed w/ LL Reserve, and if not: 2) Defer to Takla Lands for feature-specific direction otherwise; 3) 200m TRRZ & 25% Retention w/in 50m TRMZ or 50% w/in 25m. Within the TRMZ, focus on: a) Removal of dominant & co-dominant stems; b) Retaining Deciduous; DWTs, stubs, L2-L4 and brush.
LAKESHORE CLASS A MODIFIED (LAKE TROUT SPAWNING AREAS) ——— **MACK TSA LAKE CLASS L1-A >1000HA**	>500 (Refer to Inventory) ——— >1000	250	100	50 Or 25	25 Or 50	1) Addressed w/ LL Reserve, and if not: 2) Defer to Takla Lands for feature-specific direction otherwise; 3) 100m TRRZ & 25% retention w/in 50m or 50% w/in 25m. Within the TRMZ focus on: a) Removal of dominant & co-dominant stems; b) Retaining deciduous; DWTs, stubs, L2-L4 and brush. **Exception is Williston Lake – treat as FPPR L1-A (after Steps 1 & 2)*
LAKESHORE CLASS B (IF NO SPAWNING LT AREAS) ——— **LAKE CLASS MACK TSA L1-B 5 – 1000HA**	>500 (Refer to inventory) ——— 5-1000	100	50	50 Or 25	25 Or 50	1) Addressed w/ LL Reserve, and if not: 2) Defer to Takla Lands for Feature-specific Direction, otherwise; 3) 50m TRRZ & 25% retention w/in 50m TRMZ, or 50% retention w/in 25m. Within the TRMZ, focus on: a) Removal of Dominant & Co-dominant Stems; b) Retaining Deciduous; DWTs, stubs, L2-L4, Brush.
LAKESHORE CLASS L1-C **(PG TSA ONLY)**	>5 ≤500 (Refer to Inventory)	100	50	50 Or 25	25 Or 50	1) Addressed w/ LL Reserve, and if not 2) Defer to Takla Lands for feature-specific direction otherwise; 3) 50m TRRZ & 50m TRMZ w/ 25% retention w/in 50m; or 50m TRMZ w/ 50% retention w/ in 25m TRMZ. Within the TRMZ, focus on: a) Removal of dominant & co-dominant stems; b) Retaining deciduous; DWTs, stubs, L2-L4 and brush.
LAKE CLASS L3 **PG & MACK TSA'S**	≥1 ≤ 5	30	15	15	25	15m TRRZ & 15m TRMZ; within 15m TRMZ focus on: 1) Removal of dominant & co-dominant stems; 2) Retaining 25% of the merchantable stems; deciduous; DWTs, stubs, L2-L4 steams and brush.

Stream Riparian Management Table

*Multiple TRMAs for S3 & S5 (i.e., 40 & 30m), and S4 (<1.0m) & S6 (1m 3m) (i.e., 30 & 20m) reflect Legal RMAs for each feature.

STREAM CLASS	WIDTH (M)	TAKLA RMA (M)	TAKLA RRZ (M)	TAKLA RMZ (M)	TAKLA RETENTION (%)	MANAGEMENT HIERARCHY & PRESCRIPTIONS
S1-A	≥100	100	55	15	50	1) Address w/ LL Reserve, and if not; 2) Defer to Takla for Feature-specific Direction, otherwise; 3) 55m TRRZ w/ 50% Retention w/in 15m TRMZ; focus on: a) Removal of Dominant & Co-dominant Stems, b) Retaining Deciduous; DWTs, stubs, L2-L4, Brush
S1-B	>20	70	55	15	50	1) Address w/ LL Reserve, and if not; 2) Defer to Takla for Feature-specific Direction, otherwise; 3) 55m TRRZ w/ 50% Retention w/in 15m TRMZ; focus on: a) Removal of Dominant & Co-dominant Stems; b) Retaining Deciduous; DWTs, stubs, L2-L4, Brush
S2	>5 ≤20	50	35	15	50	35m TRRZ w/ 50% Retention w/in 15m TRMZ; focus on: a) Removal of Dominant & Co-dominant Stems; b) Retaining Deciduous; DWTs, stubs, L2-L4, Brush
S3 & S5	>1.5 & <5	*40 *30	25	15	50	25m TRRZ w/ 50% Retention w/in 15m TRMZ; focus on: a) Removal of Dominant & Co-dominant Stems; b) Retaining Deciduous; DWTs, stubs, L2-L4, Brush
S4 (1.0M - 1.5M)	1.0m – 1.5m	30	10	10	25	10m TRRZ w/10m TRMZ; w/in 10m TRMZ; focus on: 1) Removal of Dominant & Co-dominant (wind-prone) stems; 2) Retaining >25% of Merch Stems, AND; 3) Deciduous, DWTs, Stubs, L2 – L4 & Brush.
S4 (<1M) & S6 (1M-3M)	<1.0m (S4) & 1.0 – 3.0 m (S6)	*30 *20	0	10	As per Mngt Rx's	10m MFZ, w/in 10m MFZ; focus on: 1) Removal of Dominant & Co-dominant (wind-prone) stems; 2) Retaining >15 merch stems per 100m of stream length (per side); 3) Where voids, i.e.,<15/100m; retain all merch stems w/in 10m; 4) AND: Deciduous, DWTs, Stubs, L2 – L4, Brush.
S6 (<1M) & NCD	VARIABLE	20	0	20	As per Mngt Rx's	5m MFZ; w/in this 5m MFZ; focus on: a) Removing Merch Stems; b) Retaining Deciduous; DWTs, stubs, L2-L4, Brush.

NCD = NON-CLASSIFIABLE DRAINAGE
A watercourse that does not meet the definition of a stream (i.e., continuously defined streambed with alluvium) but shows signs of significant water flow and therefore has some ability to transport/deposit materials downstream. This includes continuous organic channels, defined channels less than 100m long, non-classifiable watercourses with year-round flow and watercourses that are not classifiable as streams.

WD = WET DRAW
A wet draw is a gully or depression often associated with a change in ecotype that has seasonal, overland flow. It may consist of an intermittent organic channel separated by flow over terrestrial vegetation. Channel definition is typically very poor. These include alder swales, low-lying willow areas, spiraea and devil's club/horsetail-dominated areas.

NVC = NO VISIBLE CHANNEL
Watercourses shown on TRIM maps that show complete lack of channel characteristics when verified in the field. These features are completely overgrown with terrestrial vegetation. They may have overland flow during spring melt (like all gullies do).

RIPARIAN MANAGEMENT NOTES
Fort St. James Lakeshore Classification (August 2000) based on protecting lake values, lake trout spawning habitat, and other high value biological features. Note that some lakes may have more than one lakeshore classification for the shoreline and the user should refer to the data generated by the Government of BC for Lakeshore Classification is available for download. Present (January 2019) data location is ***https://icw.for.gov.bc.ca/ftp/DJA/external/!publish/lakeclass/Lakeclass%20ShapeFiles/***
Verify with Stuart-Nechako District that data is current.

Wetland Riparian Management Table

WETLAND CLASS	SIZE (HA)	TAKLA RMA (M)	TAKLA RRZ (M)	TAKLA RMZ (M)	TAKLA RETENTION (%)	MANAGEMENT HIERARCHY & PRESCRIPTIONS
W1 & W5	>5	50	30	20	25	1) Addressed w/ LL Reserve, and if not; 2) Defer to Takla for Feature-specific Direction, otherwise; 3) 30m TRRZ w/ 25% Retention w/in 20m TRMZ; focus on: a) Removal of Dominant & Co-Dominant Stems; b) Retaining Deciduous; DWTs, stubs, L2-L4, Brush
W3	>1<5	30	15	15	25	15m TRRZ w/25% Retention w/in 15m TRMZ; focus on: a) Removal of dominant & co-dominant stems; b) Retaining Deciduous; DWTs, stubs, L2-L4 and brush.
NCW & NCL	<1	10	0	10	25	10m TRMZ, within 10m TRMZ; focus on: a) Removal of dominant & co-dominant stems; b) Retaining 25% of the merchantable stems deciduous; DWTs, stubs, L2-L4 and brush

L1-C: Default if no other Lakeshore Class in inventory. No D or E class Lakeshores identified in the lakes dataset. Do not mange any Lakeshores as D or E Class.

Mackenzie TSA: L1 Class A (>5 < 500ha with Lake Trout): Needs an inventory for Mackenzie. Can rely on Traditional/Local knowledge. 200m TRRZ + 50m TRMZ (25%). Regionally Significant Lake Trout Populations due to small size and remote locations of lakes. Locally important populations of bull trout, arctic grayling or other species may trigger this classification as well. The concerns are around protecting lakes from access, overfishing, and the protection of sensitive spawning habitat, while maintaining a unique, remote wilderness setting.
**Exception is Williston Lake – treat as FPPR L1-A (after Steps 1 & 2 in the Management Hierarchy & Prescriptions)*

L4 <1.3m, L2 1.3m – 7.5cm dbh, L3 7.5-12.5cm dbh (essentially non-merch)

Takla RMA's (i.e. TRMA) remain consistent with FRPA / FSP RMA's, often following the more conservative width when FRPA and FSP's values differ.

Riparian Tables: Where TRRZ & TRMZ do not add up to the full width TRMA; general RMA restrictions still apply to this unallocated width or area. This is intended for consistency with legal or FSP requirements. Also; for certain Riparian features, more than one minimum RMZ option (i.e. width and % retention) may be shown. The intent is that the increased RRZ, with an added RMZ to protect the RRZ, shall provide added protection for the Riparian feature, thus the entire RMA may not be required to be specifically managed.

Takla Retention (%) is Merch (or merch-sized) stems, and applies to the Takla RMZ (TRMZ). TRMZ's are the minimum area/width expected to be managed, above the TRRZ. Partial cutting is required to protect riparian reserve zones and to create complex habitat.

RRZ's & RMZ's shown are minimums. Licensees are not encouraged to default to minimums, and where RRZ's are wider than the minimums, Takla recommends applying full-width RMZ's to these RRZ's (to a point where the RRZ reaches the full RMA width, but not wider), to the extent practicable, for the purpose of providing maximum protection of the RRZ.
RMA's should consider windthrow however windthrow risk does not determine the retention level regardless of FSP requirements noting that defaulting windthrow hazard is a common practice. The riparian tables show the minimum acceptable retention which should meet current licensee and BCTS FSP requirements.

Variances for retention may be required for small streams (i.e. S6 & S4) in cases of aerial or cable yarding, skid crossings or other stream crossings, removing trees for safety concerns; Discuss with TSG.

D. COARSE WOODY DEBRIS & POST-HARVEST WITHIN-STAND RETENTION BMP/IM

COARSE WOODY DEBRIS (CWD)

Consists of large diameter (>30cm diameter) and long-length (>10m) merchantable and non-merchantable logs. CWD beyond the FPPR sec. 68(1)(b) minimum practice requirement is required to provide connectivity for small mammals/fur bearers, contribute to stand-level structural diversity, provide habitat for plants, animals and insects, influence slope and stream stability and provide a source of nutrients for soil development.

The highest value CWD is long length and large diameter, and preferably elevated off the ground to some extent. Maintaining CWD after harvesting is a critical element of managing stand-level biodiversity.

The major sources of CWD should be existing CWD, non-merchantable logs, broken pieces, fallen leave trees, tops of stub trees and other remnants left on the forest floor following harvesting and post-harvest activities. Where sufficient CWD is not available on-site such as low volume/small piece size Pli stands, merchantable tree length stems will be retained such that at least one large piece per hectare grid point is retained on-site; Targets are: SBSmc-mk-mw-vk-wk = 6/ha; ESSF = 18/ha (reference various CF & FREP Guidance).
Dispersed CWD is preferred over large accumulations

(not aligned, as in the case of deciduous or other non-merch bunches). Large, non-merchantable CWD brought to roadside must be left on-site, not piled and burned, but rather thrown from the piling area or re-skidded & distributed in the NAR. Large diameter/long-length pieces are to be excluded from slash piles. Where roads are prescribed for rehabilitation, CWD can be left close to the road for placement across the road area during rehabilitation.

WINDROWS

Are required to provide connectivity by bridging gaps and linking habitat within cutblocks. They are intended to connect standing timber, block boundaries, WTPs, DWTs, riparian reserves and Critter Piles while providing complex ground-level structure for small mammals, fur bearers and their prey. Windrows are to be loosely piled, larger CWD pieces ~ 3m (w) * 2m (h) with short breaks at intervals of approximately 100m allowing access for ungulates and other larger mammals. Windrows will follow the general intended direction for connectivity but should not be straight but meander to create a more natural route. Windrows can be augmented with critter piles at breaks creating a shorter dash distance to cover.

The amount, density and spacing of windrows is not pre-determined due to the inherent difficulty in prescribing them. Windrows are required on cutblocks with riparian features and internal WTPs, and will be designed & prescribed to bridge gaps between internal WTPs, RRZs and block boundaries, as well as joining riparian reserves/MFZs at road/trail crossings during deactivation to make the area functional for small mammal travel.

CRITTER PILES

Similar to windrows, critter piles are intended to complement WTPs, DWTs, riparian reserves and windrows to provide complex ground-level structure for small mammals, fur bearers and their prey. CWD piles (critter piles) are focused on connecting any road/trail riparian crossings, WTPs or other bottlenecks to block edges.

Critter piles are to be loosely piled larger CWD pieces ~ 3m (l) * 3m (w)* 2m (h). As with windrows, fine slash and fuels should be excluded from the piles to the extent possible. Some longer, larger pieces should extend out of the tops of piles/windrows to allow entry & exit of small mammals.

Density of critter piles must be considered for all cutblocks. While no pre-determined density (piles/ha) is set, the focus is on connectivity by bridging gaps and linking habitat. Critter piles are most effective within 30m of standing timber and adjacent to riparian features, windrows or clumps of DWTs, and are best used in conjunction with windrows of varying lengths placed at the breaks for ungulate and wildlife access.

PRESCRIBING

Critter piles and/or windrows will be prescribed at the stand level with the Site-level Plan (and shown on the Logging Plan) clearly showing how the critter piles and/or windrows are expected to be placed with clear direction provided to contractor(s) in the pre-work. This will be confirmed at the Post-Harvest Assessment Phase.

CONSTRUCTION

Should occur during the logging and/or post-harvest clean-up phase with minor adjustment and refinement at the Deactivation/rehabilitation phase. This is an opportunity for a Takla Contractor to provide this work through a fee for service to the proponents in combination with deactivating, rehabilitation, site preparation and other post-harvest work.

PROTECTION & RETENTION OF CONSTRUCTED PILES, WINDROWS & DWTS

It is critical that sufficient messaging & education is delivered to community members and the public about the objective and importance of creating and retaining vital post-harvest structures. Signage, in the form of biodegradable, picket-style signs, will be beneficial to place in and around newly constructed piles and windrows to prevent passersby from attempting to burn, remove or alter them in any way. This would be most effective in areas of high traffic, adjacent to main roads, and should be done in cooperation with Takla. It is important that people understand these structures are to be left as critical components of the harvested and regenerating stands to provide habitat that would otherwise not exist until the second growth forest develops old forest characteristics.

INDIVIDUAL OR GROUPED DISPERSED WILDLIFE TREES (DWTS)

Prescribed to further create complex stand structure in regenerating stands increasing habitat value while providing CWD recruitment over time. DWTs across the NAR of the block will augment WTPs, CWD, Windrows and Critter Piles to further benefit wildlife and biodiversity. Deciduous stems, large diameter wolf trees, snags and stubs are to be retained as DWTs where not used as an anchor for WTP. Stubs should be prescribed in areas with little to no other suitable stems (>2–5/ha, min.). Advanced regeneration and secondary stand structure must be protected and retained in clumps (as large a clump as possible).

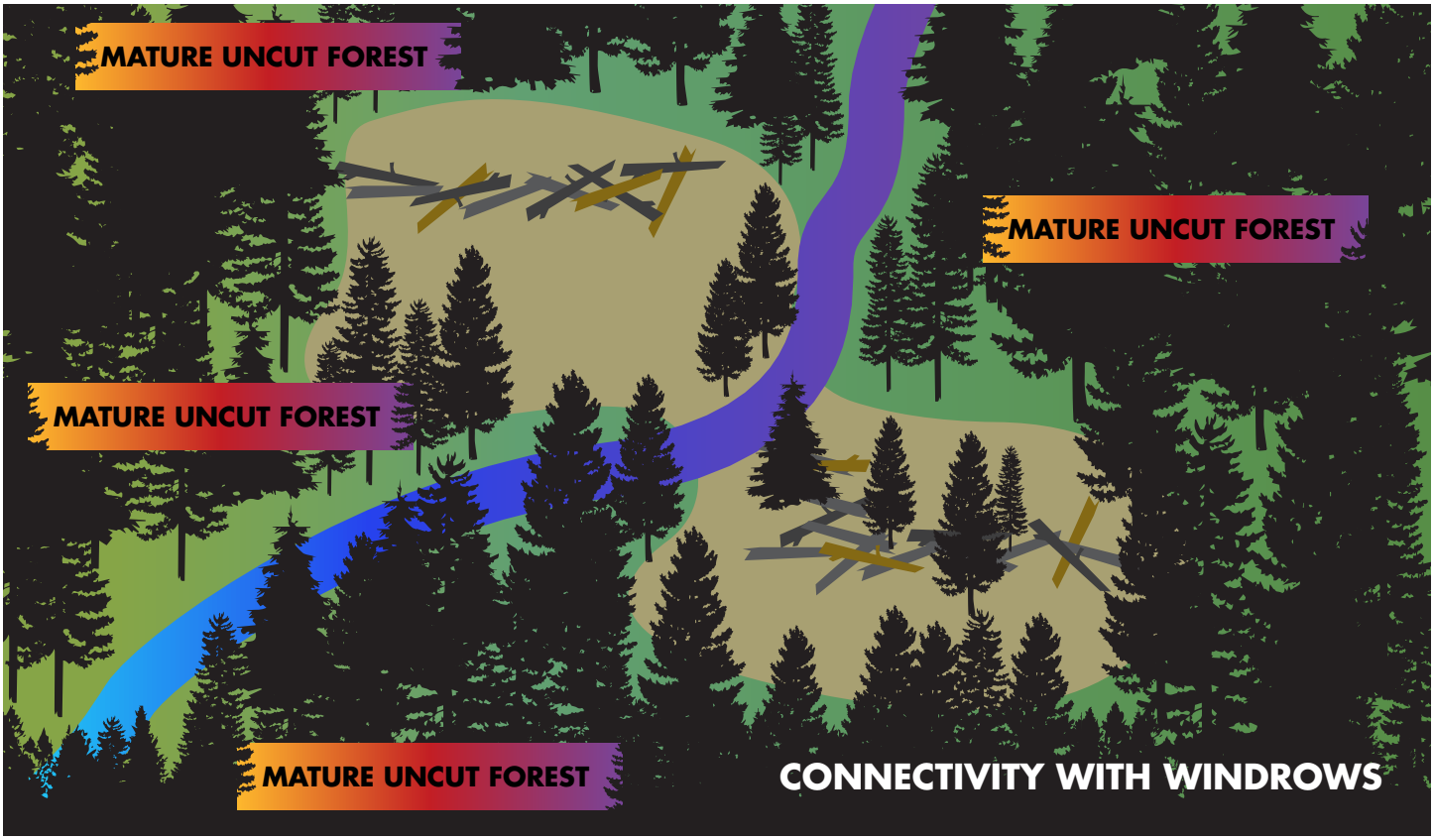
SUGGESTED SITE-LEVEL PLAN WORDING (DWTS)
"Retention of Dispersed Wildlife Trees" (DWTs): Retain, where feasible and outside of roadside decking areas, most (i.e., > 75%) of the mature: Douglas-fir, Cottonwood, Birch, (Hemlock & Cedar). Stub some (e.g., 2 – 5 /ha) "sturdy" balsam snags or dead pine stems in the absence of other preferred leave trees. Efforts must be made to retain high-value DWTs (i.e., large Douglas-fir, Cottonwood or wolf trees, trees with stem deformities, galls, brooms, etc.) in roadside work areas, where safe to do so. In addition, these features are to be targeted in roadside screening areas for both screening and their high value in creating complex habitat.

» **Figure:** Adapted from Tom Sullivan's small mammal research showing the placements of windrows

E.ACCESS STRUCTURES*, DEACTIVATION & REHABILITATION – BMP/IM

ACCESS MANAGEMENT
(*Includes drainage structures)

Road deactivation, rehabilitation, timing of operations and other access control methods will be used to manage access. Access management is intended to minimize impacts to wildlife & wildlife habitat, wilderness quality, hydrological function, and to minimize reductions to the THLB due to access created for forestry operations. Landscape-level planning will aid in identifying road categories (i.e., Permanent, Temporary, On-Block) and roads and road systems with specific access objectives. Block-level planning will identify strategies such as deactivation or rehabilitation. In general, if there are no requirements for further use, On-Block roads will be rehabilitated post-harvest.



Roads accessing Forests with Exceptional Conservation Value (FECVs) such as UWRs, WHAs, sensitive wildlife habitat, high-value riparian features or specific areas of cultural importance to Takla will have the appropriate level of road categories, access and levels of deactivation identified by Takla Lands & Stewardship, as part of plan review.

3 CATEGORIES OF ROADS

1) PERMANENT ROADS

Roads that access current and future blocks providing access for a period longer than 5 years.

- Require maintenance or temporary deactivation as required.
- May be considered for access restriction through various means, as determined by Takla.

2) TEMPORARY ROADS

Temporary roads are those roads that access one to several cutblocks or cutting permits, will not continue in the future and have a life cycle of less than 5 years.

- Require maintenance or temporary deactivation during the life cycle.
- Require rehabilitation at the end of the life cycle.
- Exceptions may be considered for Roads where construction standards make rehabilitation impractical, in which case permanent deactivation or other practices may substitute rehabilitation (e.g., cwd placement)

3) ON-BLOCK ROADS

Any road or structure that is not in either Permanent or Temporary categories, e.g., on-block roads & spurs, bladed or excavated trails, landings and turn arounds. The intention is to minimize the level of permanent disturbance on each cutblock, to the extent practicable.

- Require rehabilitation.

DEACTIVATION & REHABILITATION

TIMING

Deactivation and rehabilitation shall be completed as soon as possible following harvest to re-establish natural drainage patterns, avoid establishing a pattern of use and to start the recovery of valuable habitat. Winter operations may create delays due to site conditions; however, other times of the year are appropriate for immediate rehabilitation. Rehabilitation or deactivation may not always be possible immediately following harvesting operations. Safety concerns around planter access, operational constraints or efficiency, i.e., large block, season of operations, i.e., winter logging, may all warrant a delay for either deactivation or rehabilitation.

Takla supports safe access for planting. The proponent maintains the responsibility for both appropriate & timely completion of either deactivation or rehabilitation and the quality of the work completed.

REHABILITATION

A main objective of Rehabilitation is to return access structures back to productive forest land, while removing motorized access. Rehabilitation may be achieved by a combination of the following methods: Ripping the running surface, filling in ditches, out-sloping and/or re-contouring road surfaces, re-establishing natural drainage patterns, scattering CWD & strippings on the road prism, and planting. All riparian crossings are to be pulled back, re-contoured and re-vegetated with suitable trees, shrubs and seeded with an acceptable seed mix (i.e., no invasive species).

DEACTIVATION

Deactivation is required on all roads after primary use is complete. Deactivation will range from temporary to permanent depending on timing of next use, access management concerns or other values identified by Takla.

3 LEVELS OF DEACTIVATION FOR PERMANENT OR TEMPORARY ROADS:

1) TEMPORARY DEACTIVATION

Erosion control, using waterbars and/or shallow cross ditches to control surface runoff and prevent erosion – intended for Roads to be re-activated within 5 years.

2) SEMI-PERMANENT DEACTIVATION

More aggressive water management techniques on roads intended to be deactivated beyond 5 years (allowing for CP/Harvest Completion & reforestation), such as cross-ditches, drainage structure removal (or culvert/drainage structure back-up) and/or fill pullbacks. Road remains either ATV and/or 4x4 accessible with the intent to leave the road in a self-maintaining state resulting in minimal adverse impacts on forest resources during the time regular use of the road is suspended.

3) PERMANENT DEACTIVATION

Intent is to place the road in a self-maintaining state to indefinitely protect resources at risk, and that the road will no longer be used. Involves a range of measures similar to Semi-Permanent deactivation, but more aggressively applied. Drainage structures removed, Cross Drains with ditch blocks, unstable fill pullbacks, tank traps. Will eliminate vehicle access in most cases.

Authority

Prepared on behalf of Takla Nation – Lands & Stewardship Department.

"I certify that the work described herein fulfills the standards expected of a member of the Association of British Columbia Forest Professionals, and that I did personally supervise the work."

Ralph M. Hausot, RPF #4278
Planning Superintendent, TAKLA NATION.
Version 1.0, Signed on: April 30, 2019

Approved on behalf of Takla Nation – Lands & Stewardship Department.

Lisa Krebs, MA, RPP, MCIP
Director of Lands & Stewardship, TAKLA NATION
Version 1.0, Signed on: April 30, 2019

TAKLA NATION

Lands and Stewardship Department