

BLOCK REPORT

Client: Yukon Forest Management Branch
Job #: 040313
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Revised Date: July 30, 2004



COSH CREEK BLOCK C12

Location and Access

This block is located in the vicinity of Cosh Creek, ± 51 km east of the town of Watson Lake, Yukon within the Y02 Forest Management Unit and the Liard Basin Ecoregion.

The town of Watson Lake is situated along the Alaska Hwy at Mile 635. From Watson Lake, proceed eastward along the Alaska Hwy for approximately 75 km to reach the beginning of the Cosh Mainline Road (about 2 km west of the Contact Creek Lodge). Heading north along the Cosh Mainline Road, continue for about 6.8 km to the junction with a large branch road (the C9 Branch Road) at GPS 36. Keeping to the Cosh Mainline Road, stay left at this junction and continue for another 260m to reach the point of commencement (P.O.C.) of the C12-2 Road. This road is located on the left side of the Cosh Mainline and utilizes an existing spur road for most of its length. The C12-1 Road commences off of the C9 Branch Road approximately 290m from the large intersection.

The total distance to Watson Lake is approximately 82.1 km.

Located Roads

Seven block roads (the Cosh Creek Mainline and most of the C12-2 road are already constructed) and eleven landings (two of which are built) have been proposed for this block. While the total harvesting area of this block is comparatively small, the road system and number of landings were deemed necessary to meet skidding specifications on sloped terrain in the various sections broken up by previously logged blocks. All roads and landings should be constructed to allow for easy rehabilitation following harvesting activities.

Areas of note along the Block C12 road system include the following:

- The P.O.C. of the C12-1 Road commences off of the C9 Branch Road at the location of a built switchback. This location has been chosen as it allows good alignment from the entrance to the switchback northward to Landing #1. To maintain alignment, the first 70m of this road cross through an existing plantation. The road follows a bench through otherwise broken terrain, with side slopes ranging from 15 to 30%. The bench on which Landing #1 is located is rather small, but will accommodate the construction of a 40m x 40m landing.

- The entire length of the C12-2 Road is 1,598m with all of it utilizing an existing road except for the final 200m. Major upgrading is required along the built section of road. The grades along the C12-2 Road are quite moderate with the exception of the switchback at the northern end (near GPS #682) where adverse grades reach 11%. However the average grade through the switchback is about 9%. The first portion of proposed road, between GPS #682 and 683, is located on adverse grades of 8%. To alleviate the potential difficulties with adverse hauling in this area, the remainder of the C12-2 Road to Landing #6 is located on flat ground, allowing trucks to gain momentum before reaching the steep sections of road. All landings that are accessed via the C12-2 Road can be constructed to a 50m x 50m scale (i.e., Landings 2-6).
- The C12-4 Road utilizes a short (100m) built road with steep (8-13%) favourable grades to access the existing Landing #8. Upgrading will be required to improve the approach onto the Cosh Mainline Road, especially if the sharp curve, located on the mainline to the southeast of this junction, is realigned. Exposed, rippable rock is found at the start of this road and will require excavating if the approach is to be upgraded.
- The C12-5 Road is located on favourable, mesic slopes with good alignment as it gradually climbs, utilizing natural grade lines, to reach a large bench upon which Landing #9 is located.
- The C12-6 and 7 Roads are short (75m and 100m respectively) spur roads that access proposed landing locations on benches well off of the Cosh Mainline Road. The C12-7 Road is located on adverse grades of 6-8%, while the C12-6 Road is located on gentle, favourable slopes. Maximum side slopes encountered on both roads are about 15%.

The majority of skidding in Block C12 will be favourable on moderate slopes with the following exceptions:

- Favourable to the built Landing #2 from the north. This landing is being utilized because of its proximity to the block. Skidding may be done directly to this landing and processing can be done on either side of the C12-2 Road. Minor upgrading of this landing will be required.
- Adverse to Landing #3 from the west along slopes of 15-20% for very short distances. Much of this timber can be directionally felled or hoe-chucked to the landing.
- Adverse to Landing #4 from the southwest along slopes of 15-20% for very short distances. Much of this wood can be directionally felled to the roadside then skidded to the landing.
- Adverse to Landing #6 from the southwest along slopes of less than 10%.
- Favourable to Landing #8 along a designated skid trail located through an existing cut-block. Skidding within the section of the block north of GPS #78 will be on a sustained 25-35% slope until the designated skid trail is reached. Skidding along this skid trail will be on slopes of about 20% favourable.
- Adverse to Landing #9 from the southwest along slopes of 5-15%. Areas deemed too steep to skid to Landing #9 can be skidded favourable to Landing #10.

- Adverse to Landing #11 from the north and the west, along slopes of 10-15%. Adverse skidding is also encountered in the vicinity of GPS #94, where timber can be directionally felled to a defined bench that parallels this section of boundary, than along the bench to Landing #11.

Block Boundary

The Block C12 harvesting boundary has been significantly modified from the area that was proposed in the Interim Wood Supply Plan. The most noticeable change is the reduction in block size from a proposed 105 ha. to 75.2 ha. The areas of note that helped to determine the location of the proposed harvesting boundary are as follows:

- The northernmost section of boundary, from GPS #82 and partway between GPS #91 and 92, follows an ideal natural boundary along an open non-commercial brush (NCBr) and defined timber edge. This naturally occurring boundary is an old fire edge that will be windfirm.
- The western boundary of Block C12B, in the vicinity of GPS #93, contours the top of a slope break that excludes steep, inoperable slopes that are part of the landscape level Forest Ecosystem Network (FEN).
- The southern boundary of Block C12 B, between GPS #94 to 78, follows existing cut-block edges and a small portion of the Cosh Mainline Road right of way edge.
- From GPS #78 to 79, the harvesting boundary is located to exclude most of the riparian management zone (RMZ) of Stream 'E' located between Blocks C12B and C12A. The boundary has been located in this area utilizing natural stand openings instead of fixed RMZ widths.
- The section of Block C12B, between GPS #79 and 82, is located to exclude steep upper slopes utilizing any small stand openings possible. Operability and excessive skidding distances were also a determining factor in the location of this boundary section.
- The northern section of Block C12C between GPS #519 and 520 is located to exclude most of the RMZ of Stream 'E' using the natural topographic slope break where possible, and flaring the boundary where it joins the landscape level FEN.
- The southern section of Block C12C, between GPS #516 and 517, contours the topography on the north side of a non-classifiable drain (NCD). The boundary is located on dry ground leaving the sub-hygic site and associated large white spruce and fir.
- The southern boundary, between GPS #522 and 516, and the eastern boundary of Block C12C follow existing cut-block edges.
- The section of Block C12A between GPS #63 and 66 follows the southern edge of a NCD and excludes wet ground with scattered large fir and spruce.
- The section of C12A between GPS #61 and 63 excludes a small, flat, wet site containing mature white and black spruce, non-productive (NP) brush and clumps of white spruce regeneration. The area that is excluded offers poor operability but potentially high habitat value.
- The section of Block C12A boundary between GPS #55 and 57 contours a steep (60-70%) draw connecting several NCBr patches with scattered white spruce and balsam poplar vets. This high value habitat was excluded.

- The section of C12A between GPS #1 and 55 utilizes a small bench and excludes the steeper, inoperable mature forest located to the east of the harvesting boundary.
- The section of C12A boundary between GPS #11 and 14 (near Landing #3) contours the slope break utilizing the more open stand types along a draw and ridge for the boundary.
- The finger of boundary between GPS #14 and 68 follows the natural break of a small NCD containing sub-hygric soils and large spruce and fir vets.

Harvesting Strategy

- This block will be managed for coniferous species.
- Season of Harvest: Winter. *
- Harvest System: Variable Retention (with even age silviculture).
- Harvest Method: Ground-based Conventional. Skidding to landings.
- Suggested Equipment: Feller buncher and grapple skidder.

**Summer Option* – only the upper pine types (V22) are suitable for potential summer harvesting, whereas summer harvesting the other spruce leading types could result in excessive site disturbance due to the relatively wetter soils. The upper (V22) pine types that may be considered for summer harvesting include the entire Block C12B and the section of Block C12A that is located to the east of Cosh Mainline Road. For harvesting these areas during the summer months, the following steps must be taken:

- All access routes must be upgraded to allow for summer haul.
- Harvesting must be done during dry soil conditions to minimize site degradation.
- Minimize duff disturbance to reduce aspen suckering (i.e., use a dispersed skidding pattern, do not blade skid trails and if available, use rubber tired skidders).
- A minimum 5m Machine Free Zone must be placed on either side of all non-classifiable drains (NCD's). Designated skidder crossings of these drains will be proposed where required.

Potential Resource Conflicts:

- marten boxes were found at various points along the Cosh Mainline Road. Consultation with the trapper before harvesting will allow him/her to relocate these “sets”.

Temporary Access Structures and Drainage Control

- Scatter construction and harvesting debris away from seasonal draws.
- Maintain natural drainage patterns immediately after harvesting.
- Rehabilitate all roads and landings that have been designated as “Temporary Access” and are included within the “Net Area to be Reforested” (refer to the

FMB Site and Harvest Plan for further details concerning temporary and permanent access).

Biodiversity Areas and Wildlife Tree Retention

One internal reserve has been located totaling 13.7 hectares to provide stand structural diversity and representative wildlife habitat. This area has been excluded from consideration for harvesting due to the following reasons:

- The internal reserve excludes a sub-hygric drain with a large diameter spruce and fir stand.

Lack of internal reserves is not a concern, however because the highest value habitat areas have been excluded from the block entirely as follows:

- The area outside the northeast corner of this block, between GPS #81 and 86, contains a large, open NCB_r patch with a narrow island of large, mature pine in the center.
- The large exclusion that separates Block C12B from C12A, includes a Class '4' stream (marked Stream 'E' on the Site and Harvest Plan map) along with the Riparian Reserve Zone (RRZ) and most of the Riparian Management Zone of this stream. The block boundaries followed natural stand types, excluding the open, nutrient-rich sites (typical of riparian areas) from the harvest area. This excluded area contains much more abundant and diverse vegetation than in the adjacent harvest block. It is composed of scattered fir, balsam poplar, and spruce that are among the highest volume trees in the vicinity.
- The area between Block C12A and C12C, and between C12A and C11 both exclude small NCDs and their associated sub-hygric, nutrient rich sites that contain potentially high habitat value, structural diversity and escape cover connected to the main FEN along Cosh Creek.
- The small area excluded southeast of GPS #63 contains a flat, wet black spruce stand that has been excluded for silviculture reasons and for potential habitat value (see 'Block Boundary' section of this report). This wet area combined with the adjacent internal reserve helps protect down slope water resources.

To meet the objectives of a Variable Retention silviculture system, 30-40 trees/hectare (preferably large, mature, and wind firm trees) will be retained uniformly throughout the harvested area of this block (as per the FMB Site and Harvest Plan leave tree specifications)

Streams and Wetlands

The Cosh Creek, a Class 3 stream, and two small Class 4 streams (labeled Stream 'E' and 'D' on the site plan map) are located within, or in the vicinity of, this block. A small portion (0.91ha) of the Riparian Management Area (RMA) of Stream 'E' lies within portions of Block C12A, B, and C, while another very small portion (.03ha) of the Stream 'D' RMA touches the southern tip of Block C12A. The RMA is made up of the Riparian Reserve Zone (RRZ), that has been excluded from the harvesting boundary, and the Riparian Management Zone (RMZ). The sections of RMZ that lie within the harvesting

boundary will be treated as per the adjacent treatment unit (i.e. retention at 30-40 trees/ha). The entire RMA of Cosh Creek lies well outside of the harvesting boundary of this block.

Wildlife

Wildlife sign noted in the vicinity of this block include bear dropping along the Cosh Creek mainline and in the vicinity of built Landing #8, as well as moose tracks found along the Cosh Mainline Road.

Terrain Stability

No indicators of terrain instability were noted within the harvesting area of this block. Steep (45+%) terrain located to the east of Block C12A and B has been excluded from the block boundary.

Visual Sensitivity

This block has been classified, in the IWSP, as having potential visual sensitivity from viewpoints along the Alaska Hwy. A Digital Terrain Model (DTM) has been completed for this block to help determine the level of variable retention that will be required. Based on the results of the DTM it has been found that this block is highly visible from the Alaska Highway however, dispersed retention of 30-40 trees/hectare, increased retention in the SMZ, as well as the proposed aggregated retention, is sufficient to ameliorate visual concerns. The existing visual quality will also improve since the retention proposed in Block C12 will help to feather the edges of the existing cut-blocks (also highly visible), allowing them to better blend in with adjacent stands.

Cultural Heritage

Crewmembers from the local First Nation community assisted in all operational field stages of this project. No observations were made by any of the field crews that would suggest cultural, archaeological, or historical sites were in the vicinity of, this block. However, as no formal archaeological assessment has been carried out, harvest supervisors must be aware of the potential for such sites and cease operations immediately should any be discovered during harvest operations.

Site Specific Block Refinements

The following refinements to the proposed block boundaries (presented at the end of Phase I to the Interim Wood Supply Committee) were made during the final layout phase to better address site-specific issues particular to each block:

- With regard to Stream 'E', the entire RRZ and nearly 100% of the RMZ have been excluded from harvest utilizing topography (slope breaks), windfirmness, operability, stand structure, ecotype, and other site specific attributes to define the harvest boundary location.

- East-west connectivity at the landscape level is served by FENs centered on riparian features as described in the Interim Wood Supply Plan (IWSP). The merchantable timber excluded from harvest along Stream 'E' has been increased beyond the RMA where terrain and habitat warrant, thus reducing the proposed size of blocks C12A, B & C in this area.
- Sufficient old growth stands have been maintained in FENs and reserves to provide marten trapping opportunities throughout the Cosh Creek landscape. Also, stand level boundaries have been located to ensure that the most valuable stands are reserved from harvest and linked to the FENs. High value marten habitat has been defined on the stand criteria outlined in the 'Values Tables' provided in the IWSP and harvest actions in the block have also been based on actions suggested in those tables.
- The harvest area generally contains stands of 139-145 years of age, dense uniform stand structure with very low passability and low value habitat (dry pine/moss). In-block retention is provided by a uniform 30-40 trees per hectare of mature coniferous stems with additional snags and deciduous stems retained where they exist. Aggregated internal reserves are of high windthrow risk in dense stand structures so these were not used in any stands north of Stream 'E'.
- Further reduction in the size of Block C12 will decrease harvestable volume.
- All significant wet sites and NCDs have been excluded from the harvest boundary or are in the internal reserve to minimize the impact of harvesting on the water resources of this area. In addition, the large FENs adjacent to Cosh Creek also serve to buffer the hydrologic impacts of harvesting dry upland sites.
- The sight distance from the main haul road will be minimized by the 30-40 stems/ha of mature trees left standing throughout the harvest area.

Field Crew

Timber reconnaissance in this block was done by Kevin Parker and Paul Schuetz, while silviculture and ecotype information was collected by Barry Mills and Greg Jonuk. Engineering related fieldwork (including boundary and roads) was done by Barry Mills and Paul Schuetz and the timber cruising was completed by Greg Jonuk and Kevin Parker. First Nation crewmembers that worked in this block include Glenis Allen, Sylvia Crouse, Dustin Dickson, Richard Dickson, Neona Pitman, and Ken Stewart. All phases of fieldwork were completed from September to November 2003, with the final revisions and block boundary painting being completed in May of 2004.