Management Plan – February 5th, 2009
ROGERS FILE: MARA LAKE * New Road Construction W2580

Section A – Project Overview

- New road extension required to provide access to a cellular communications site.
- Tenure Area 470m x 20m.
- Located in the vicinity of the Village of Mara Lake, the subject road extension is approx. 2km up the Hunter Burton Forestry Road from Hwy 97A.
- Access is via the Hunter Burton forestry road which starts at Zettergreen Road and Hwy 97A. The new section of road is to be built 2km up this road.
- Construction for the road extension will take place in August 2009.

Section B – Project Description

a. Purpose

- A Crown Tenure on this road is required because it is new construction and it is needed to provide access off the existing forestry road to span the distance to the proposed communications site on Crown Land that is being applied for concurrently.
- Access over this road will take place between 6 and 8 times per year with a 4 x 4 truck and via snowmobile in winter months.
- 30 year life expectancy of the road, the term should match the term of the adjacent communications tenure.
- This road will be built to allow good quality 4-wheel drive access.

b. Construction

- This road will connect to the Hunter Burton Forestry road at 2km from Hwy 97A
- Tenure Area is 470m x 20m and with a running surface of 4 meters.
- The road has an S-shape to avoid a rock outcropping.
- The road routing was determined by a professional forest consultant DWD Forestry Services. The roadway has been flagged with wide pink survey tape with a C/L label in heavy black. A road report with field notes is attached in support of this application.

c. Materials

- The majority of the road grade is between 6% -10 % with one steeper section at the beginning in the range of 17% -20% (see road report).
- Fill required can be borrowed from material on site.
- Merchantable timber to be removed and slash disposed of as per MOF permit.
- An existing barb wire fence will be replaced with a locking gate for the road access.
- Side ditching and a culvert is required in one section for water control.
- No water courses or marsh areas are in the vicinity and there will be no impacts on the environment.

Rogers Communications Inc. _____ Date: Jan 29/09

Rogers Communications Inc.
Mara Tower Site.

Access road notes for portion requiring construction.

Access route location: By DWB Forestry Services Ltd, Oct 29, 2008.
Access route survey: Centerline location was surveyed by Underhill and Underhill as part of the Tower Site Legal survey.

General notes

- Existing access: Hunter Blurton FSR for approximately 2km. Ashton Ptarmigan Creek FSR for approximately 100m. An FSR road use permit (from Ministry of Forests) will be required for these road sections.
- Road centerline is flagged in pink ribbon with 'road centerline' written on it in black.
- Running surface proposed width: 4m
- Total road length: 470m

Specific Section notes.

SECTION	NOTES
POC – 0+035	• Road grade is -2-+3% with side slopes of 2%. • Cut slope right-of-way width: 8m. Fill slope right-of-way width: 6m • A cross drain, 400mm x 9m CMP will need to be installed at approx 0+010m. There is no visible drainage channel at this point, however, the low swale the road crosses does accumulate water and by 75-100m below the road crossing has accumulated enough water to produce an organic bottomed channel. • There is a fence at about 0+015m. This is a two strand barbed wire fence attached to trees (see photo #3203). This fence is down/not visible about 75-100m south of the road crossing, however, it appears again along the side of the road and crosses the Hunter Blurton FSR with a cattle guard. A post and wire gate will likely need to be installed here. • Timber: small diameter cedar (<50cm)
0+035 - 0+120	• Road grade is approximately 20-22% (fav.) with 30% cut slope and a 20% fill slope. • Cut slope right-of-way width: 11m. Fill slope right-of-way width: 6m • There is borrow pit potential along the cut slope side of the road at the beginning of this section. • Timber: small diameter cedar at the beginning , transitioning into young/mature Douglas fir (< 60cm diameter)
0+120 - 0+165	• This section of road is located on a bench with exposed bedrock on either side (see photos #3204 and #3205). • Road grade is 17% with 20% cut slope and a 0% fill slope. • Cut slope right-of-way width: 9m. Fill slope right-of-way width: 6m • Timber: young/mature Douglas fir (< 60cm diameter)
0+165 - 0+200	• Road grade is 6% with 3% cut slope and a -5% fill slope. • Cut slope right-of-way width: 8m. Fill slope right-of-way width: 6m • Flat bedrock exposure is visible at 0+200. This bedrock can likely be buried. • Timber: young/mature Douglas fir (< 60cm diameter).

0+200 – 0+255	• This road section follows a shallow gully with exposed bedrock ridges on both sides. • Road grade is -7% with 2% cut slope and a -2% fill slope. • Cut slope right-of-way width: 8m. Fill slope right-of-way width: 6m • Timber: young/mature Douglas fir (< 60cm diameter).
0+255 - 0+275	• Road leaves shallow gully. • Road grade is 0% with side slopes of 5-10%. • Cut slope right-of-way width: 8m. Fill slope right-of-way width: 6m • Timber: young/mature Douglas fir (< 60cm diameter).
0+275 - 0+335	• Road grade is 10% with side slopes of 0-10%. • Cut slope right-of-way width: 8m. Fill slope right-of-way width: 6m • There is flat bedrock exposed at the surface along this road section. It is likely that this bedrock can be buried. • At 0+335 the road crosses a bedrock exposure approximately 1m tall. Blasting will be required here (approx 5m long section see photo # 3206). It is possible to wiggle an access trail around this bedrock exposure about 10m to the left of the current alignment, however this would result in three tight radius curves over 30m of road length, so the straighter alignment was chosen. • Timber: young/mature Douglas fir (< 60cm diameter).
0+335 – 0+365	• Road grade is 12% with side slopes of 0-3%. • Cut slope right-of-way width: 7m. Fill slope right-of-way width: 7m • There is flat bedrock exposed at the surface at the end of this road section. It is likely that this bedrock can be buried. • Timber: young/mature Douglas fir (< 60cm diameter).
0+365 – 0+415	• Road grade is 1% with side slopes of 0-3%. • Cut slope right-of-way width: 7m. Fill slope right-of-way width: 7m • Timber: young/mature Douglas fir (< 60cm diameter).
0+415 -0+470 0+470 = Tower	• Road grade is 3% with side slopes of 0%. • Cut slope right-of-way width: 7m. Fill slope right-of-way width: 7m • There is flat bedrock exposed at the surface for this entire road section. It is possible that this bedrock can be buried (see photo # 3207). • Timber: very sparse mature Douglas fir and ponderosa pine. Most of the timber is dead with numerous broken off snags.
Tower.	Hazard tree falling of danger trees around the tower site will be required.

Section lengths are approximate.

Right of way widths are based on the Forest Road Engineering Guidebook, 4m subgrade width, 1.5:1 cut and fill slopes, and are made ***without consideration*** of additional clearing width to accommodate a power line right-of-way.

Dan Bedford
DWB Forestry Services Ltd.
Oct 30, 2008.