



North American Tungsten Corporation Ltd.

ISSUED FOR USE

MACTUNG PROJECT

**2007 ENVIRONMENTAL BASELINE STUDIES
WILDLIFE REPORT**

W23101021.004

March 2008

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EXECUTIVE SUMMARY

North American Tungsten Corporation Ltd. retained EBA Engineering Consultants Ltd. (EBA) to continue the collection of baseline wildlife data at the Mactung property, a proposed tungsten development in the Yukon.

The main objective of the 2007 program was to maintain and replicate the survey components of the 2006 baseline wildlife study program in preparation for regulatory applications that are anticipated for the proposed Mactung development. The wildlife program was carried out in an area (720 km²) that was centred on the existing Mactung camp, Yukon (herein referred to the study area). The 2007 wildlife program involved conducting aerial and ground-based surveys in June, July, August, and September to target breeding birds, ungulates, raptors, and waterfowl. Surveys for these species groups were conducted following methods used during the 2006 wildlife program and meet contemporary survey protocols.

Aerial ungulate surveys in June, July, August, and September resulted in a total of 431 caribou, 11 moose, and zero Dall's sheep observations. However, 93 caribou, 23 moose, and one Dall's sheep were recorded as incidental observations within the study area during this time.

In addition, ground and aerial based bird surveys (June, July, August, and September) resulted in a total of 437 bird observations, representing 51 different species. Spruce-Moss, Fescue-Willow, Willow-Bluebell, and Willow-Sedge habitats had the highest average number of breeding birds detected per station, and Fir-Moss, Spruce-Moss, Willow-Slope, and Fescue-Sedge habitats had the highest breeding bird species richness. In addition, a total of one raptor breeding territory was confirmed within the study area, and additional seven raptor territories are probable. During the waterfowl surveys, a total of ten breeding waterfowl territories were identified within the study area.

Additional incidental wildlife observations were recorded during the 2007 field program. Notable observations include a total of seven grizzly bears (including a sow with three cubs) and two wolverines during the 2007 wildlife field program. One observation of wolf scat was also documented within the study area during this time.



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1.0 INTRODUCTION

North American Tungsten Corporation Ltd. retained EBA Engineering Consultants Ltd. (EBA) to continue the collection of baseline wildlife data at the Mactung property, a proposed tungsten development in the Yukon (Figure 1). The 2007 wildlife program comprised part of the comprehensive environmental baseline program which began in 2006. The main objective of the 2007 program was to maintain and replicate the survey components of the 2006 baseline wildlife study program in preparation for regulatory applications that are anticipated for the proposed Mactung development. This included documenting and characterizing wildlife within the study area to establish baseline conditions at the potential development site. These surveys will also assist in forming the basis for future monitoring programs associated with project implementation and operation.

The 2007 wildlife program involved conducting breeding bird, ungulate, raptor, and waterfowl surveys. The wildlife program was carried out in an area (720 km²) that was centred on the existing Mactung camp, Yukon. Other complementary environmental baseline studies conducted in 2007 included fisheries, hydrology, and water quality studies; the results of these studies are reported in separate baseline reports.

2.0 METHODS

Ungulates, breeding birds, raptors, and waterfowl occurring within the study area were the main focus for the 2007 wildlife field program. Surveys for these targeted species groups were conducted following methods used during the 2006 wildlife program and meet contemporary survey protocols. Although these species groups were targeted, all wildlife observed during the 2007 field program were recorded.

2.1 UNGULATE SURVEYS

Aerial ungulate surveys were flown June 16, July 11, August 15, and September 4 using a Bell 206B helicopter. Based on previous ungulate reports in the study area, mountain caribou (northern mountain population herein referred to as mountain caribou) complete seasonal movements to lower elevations outside the study area for the winter months and return to the area in late spring. These ungulate surveys were completed at a time to best complement when ungulate usage would be highest in the study area. EBA biologists Steve Moore and Karla Langlois completed the June ungulate survey; Karla Langlois and Chris Jastrebski completed the July and August surveys, and Steve Moore and Chris Jastrebski carried out the September survey.

Aerial transect methods were considered most appropriate to determine ungulate presence and general distribution throughout the study area. For comparative purposes, the 2006 and 2007 ungulate surveys maintained similar inventory procedures as Kershaw and Kershaw (1983) who had previously completed wildlife surveys in the Mactung area. Kershaw and Kershaw (1983) used ten fixed-width transects (each spaced 2 km apart) to estimate the relative abundance of ungulates in their study area (approximately 500 square kilometres (km²) predominantly within the NWT, including the Mackenzie Mountain

Barrens). However, in performing fixed-width transects in mountainous terrain Kershaw and Kershaw (1983) made a number of assumptions including:

- Maintaining a constant effective survey width throughout the survey;
- Sustaining a ground survey height of 300 m above the ground; and
- Maintaining relatively constant helicopter speeds (ranging from 130 to 160 kilometres per hour (km/hr)).

For the EBA wildlife study program (both 2006 and 2007), eleven east – west transects (each 36 km long and spaced 2 km apart) were flown following similar methods to those of Kershaw and Kershaw (1983) (Figure 2). Transects were flown in a straight line, whenever possible; however, this proved to be difficult while flying in mountainous terrain. In steep upper valleys, flight paths deviated to consecutive circular paths to drop and regain elevations before returning to straight line transects. Although this deviated from the straight line transect, it reduced survey bias between species occupying high and low elevations. In addition, it was difficult to maintain consistent effective survey widths in mountainous terrain. Survey widths ranged from ten metres while flying next to steep terrain to approximately 1.0 km. As well, the above ground survey height and survey speeds varied with terrain and were difficult to maintain.

For each ungulate observation, the transect number, GPS waypoint (hand-held with a remote antenna for increased accuracy), group composition and numbers, dominant activity, and general habitat type were recorded. These parameters were also recorded for all incidental wildlife observations while carrying out the ungulate surveys.

All ungulate surveys were flown during times with adequate visibility. Surveys were postponed, when necessary, to a time with greatest visibility. However, the July ungulate survey was terminated prior to finishing the last 10 km of the survey due to weather and poor visibility. In addition, all odd numbered transects (transects 1, 3, 5, 7, 9, and 11) during the June caribou survey were omitted due to time constraints (pilot duty day).

For comparative purposes with Kershaw and Kershaw (1983) caribou relative densities were calculated using Jolly's Method (1969). However, calculation indices for relative abundances such as animals per hour and animals per kilometre were also calculated, which are considered the least biased composition data as a result of the challenges associated with surveying in mountainous terrain.

2.2 BREEDING BIRD SURVEY

The main objective of the breeding bird survey was to document species presence and breeding territories within available habitat types. To promote proportional sampling among available habitats, ecosystem types previously classified in the local study area were used (EBA 2007a, b). Consistent with the methods employed in 2006, the 2007 program was designed to survey breeding territories in a manner proportional to the available habitat within the study area.

Breeding bird surveys were conducted in mid June (June 16 to 19), when most songbird species are on territory and most detectable to surveyors. Fixed radius point count stations were surveyed between 0400 – 1000 hours when singing is considered most concentrated, and was discontinued when observation conditions became unsatisfactory due to weather (*e.g.* wind and steady drizzle). All point count stations were accessed on foot and were positioned at least 100 m from a habitat edge, wherever possible. Stations that included two different habitat types were reported as a habitat complex.

Once on station, observers waited at least 5 minutes (min) prior to starting the survey to allow birds to resume their normal behaviour. At each point count station, all birds heard and seen were recorded as either within 0 – 50 m, 50 – 100 m, or greater than 100 m from station centre, as well as at temporal intervals of 0 – 5 min and 5 – 10 min after the survey commenced.

Birds identified more than 100 m from the station centre and those detected outside the 10 min survey interval were recorded as incidentals. In addition, any birds observed flying over the station during the survey time were also recorded as incidentals.

At each survey station, species detected, sex (where possible), and behaviour were recorded during and between surveys, as well as other information such as nest locations and existing habitat.

Once the survey was completed, data sheets were reviewed as part of an internal quality assurance and quality control program, and any additional observations were discussed amongst the biologists and documented on data sheets.

2.3 RAPTOR SURVEYS

The main objective of the raptor surveys was to document species presence and breeding territories of cliff nesting raptors such as Peregrine Falcons, Gyrfalcons, Golden Eagles, and Rough-legged Hawks. Steep mountainous terrain and cliffs were flown during the raptor surveys on June 18, July 11, and August 17. The raptor survey route was planned prior to the field program, using a 1:50,000 map scale to determine possible raptor nesting habitat. The June raptor survey involved an assessment of a similar route to the 2006 raptor survey; whereas, the July and August events involved flying additional terrain.

Steve Moore and Karla Langlois carried out the June raptor survey; Karla Langlois and Chris Jastrebski carried out the July survey, and Karla Langlois and Glenn Rudman performed the August survey.

The survey was performed from a Bell 206B helicopter and involved a slow fly-by of steep mountainous terrain and cliffs. Indicators of an occupied or unoccupied raptor breeding territory included nests and/or nest material, eggs, fledglings, adult birds, whitewash (guano), and orange lichen, or a combination of these observations.

All incidental wildlife including other raptor species were documented while completing the raptor survey.

2.4 WATERFOWL SURVEYS

The main objective of the waterfowl surveys was to document species presence within the study area. Waterfowl surveys were completed by flying the shoreline of lakes, wetlands, beaver ponds, and along creeks with the Bell 206B helicopter on July 10 and September 5. Karla Langlois and Chris Jastrebski carried out the July survey Steve Moore and Chris Jastrebski carried out the September survey.

For each waterfowl observation, the GPS waypoint, species, number of birds observed, adjacent habitat type, and the presence of a breeding territory were documented. Breeding territories were confirmed based on one of the following two criteria: presence of an adult pair during a single visit, or one adult with a brood.

3.0 RESULTS

Although ungulates, breeding birds, raptors, and waterfowl were targeted for the 2007 wildlife program, all wildlife species observed within the study area was recorded and analysed. The results for incidental wildlife observations are provided in Section 3.5 of this baseline report.

Detailed discussions of wildlife behaviour, preferred habitats, seasonal movements, and conservation status of species occupying the study area are provided in the 2006 Wildlife Report (EBA 2007b). The focus of this report is to present the results of the 2007 wildlife surveys.

3.1 UNGULATE SURVEYS

Mountain caribou, moose, and Dall's sheep were observed within the study area during the 2007 wildlife program; however, only mountain caribou and moose were recorded while carrying out the ungulate surveys.

3.1.1 Woodland Caribou (Northern Mountain Ecotype)

Fifty-five percent of the study area was surveyed during the ungulate surveys, except during the June event. Due to time restrictions, a total of 25 % of the entire study area was surveyed during the June ungulate survey (all odd numbered transects were omitted during the June survey).

A total of 524 caribou were observed during the four aerial surveys conducted for the 2007 wildlife program, including incidental observations. Of the 524 observations, a total of 60 caribou were observed on transect during the June ungulate survey, 128 during July, 63 during August, and 180 in September (Table 1) (Figure 3). A total of 93 caribou were recorded as incidentals during the 2007 wildlife program (Table 1).

Overall, the number of caribou within the study area was lowest in June and August and highest in September (Table 1).

TABLE 1. SUMMARY OF CARIBOU OBSERVATIONS, 2007

Number of Caribou Observations	June 16	July 11	August 15	September 4	Total Observations
On Transect	60	128	63	180	431
Incidentals	27	32	24	10	93
Total Observations	87	160	87	190	524

Small groups of caribou were observed throughout the sampling program during the June survey; however, a number of solitary animals were also recorded. During the June survey, small groups of caribou were located in alpine meadows predominantly within the Yukon Territory. In June, all caribou observed on transect occupied habitat at elevations ranging between 1,450 m to 1,800 m (average elevation was approximately 1,620 m). Approximately 40 % of caribou observed on transect were at or above 1,700 m elevation. Group size ranged from solitary animals to a group of 19 individuals (average group size was 6).

During the June ungulate survey, a total of eight calves were observed on high alpine meadows. Three of these calves were between 1 – 4 days old. All but one of these eight calves were observed in Yukon Territory. Calves were recorded at the following locations: four calves above the Canol Trail east of the Macmillan Pass airstrip (or approximately 8 km south of Mactung camp), one calf approximately 2 km northeast, one approximately 7 km southwest of Mactung camp, and two calves approximately 10 and 11 km directly west of camp.

By the July survey, small groups of caribou (average group size was 6) predominantly occupied mid to high alpine meadows and valleys throughout the study area. Some bulls were recorded in subalpine and low elevation valleys. A total of 22 calves were documented within the study area during the July survey. All caribou observed on transect occupied habitat at elevations ranging between 1,400 m to 1,900 m (average elevation was approximately 1,662 m). Approximately 45% of caribou observed on transect were at or above 1,700 m elevation.

In August, solitary and/or small groups of caribou (average group size was 1.5) were distributed throughout the study area. Approximately 70% of the caribou observed on transect were located in mid to high alpine meadows, ridges, and snow patches; whereas, 30 % were observed in subalpine and lowland scrub birch. All caribou observed on transect occupied habitat at elevations ranging between 1,200 m to 2,000 m (average elevation was approximately 1,669 m). Approximately 53% of caribou observed on transect were at or above 1,700 m elevation.

By September, small groups of caribou (average group size was 6) occupied habitats at lower elevations than in August and were commonly along or near large river valleys, such as the Tschu River and its tributaries and the Hess River tributary. Forty-four percent of the caribou observed on transect were at or above 1,700 m elevation (elevations ranging

between 1,300 m to 1,950 m). On average, caribou occupied elevations at approximately 1,620 m.

Caribou relative densities estimated within the Mactung study area in 2007 were 0.33 caribou/km² during the June survey and 0.32 caribou/km² in July. Caribou relative densities during the August and September surveys were 0.16 caribou/km² and 0.45 caribou/km², respectively. In comparison, for the 2006 surveys, the estimated caribou densities were 0.22 caribou/km² in June, 0.12 caribou/km² in July, 0.15 caribou/km² in August and 0.15 caribou/km² in September (EBA 2007a).

Kershaw and Kershaw (1983) reported caribou densities at 0.42 caribou/km² during the spring surveys (June 1 – 3), 0.53 caribou/km² during the summer surveys (August 7 – 9), and 0.05 caribou/km² during the fall surveys (September 18 – 20).

Calculation indices for relative abundances, such as the number of caribou per hour (caribou/hr) and caribou per kilometre (caribou/km), were also calculated. During the June 2007 survey, a total of 26.7 caribou/hr (assuming approximate survey time of 2.25 hours) was observed, and/or a total of 0.33 caribou/km (assuming five straight line transects each 36 km in length) (Table 2). Assuming approximate survey times of 4.5 hours, a total of 28.4 caribou/hr in July, 14.0 caribou/hr in August, and 40.0 caribou/hr in September (Table 2). Assuming a total of 396 km of straight line transects flown, a total of 0.32 caribou/km, 0.16 caribou/km, and 0.45 caribou/km were documented during the July, August, and September events, respectively (Table 2).

TABLE 2. SUMMARY OF CARIBOU RELATIVE DENSITY AND ABUNDANCE INDICES, 2007

	June 16*	July 11**	August 15**	September 4**
Number of Caribou observed on Transect	60	128	63	180
Relative Density Indices				
Caribou per Square Kilometre	0.33	0.32	0.16	0.45
Relative Abundance Indices				
Caribou per Hour	26.7	28.4	14.0	40.0
Caribou per Kilometre	0.33	0.32	0.16	0.45

* Assuming approximate survey time of 2.25 hours and approximately 180 km of straight line transects flown.

** Assuming approximate survey time of 4.5 hours and approximately 396 km of straight line transects flown.

3.1.2 Moose

Ungulate surveys were flown June 16, July 11, August 15, and September 4, 2007. During these surveys, a total of 55 % of the entire study area was surveyed, except during the June event. Due to time restrictions, only 25 % of the entire study area was surveyed during the June ungulate survey.

A total of 34 moose were observed during the four aerial surveys conducted for the 2007 wildlife program, including incidental observations. Of the 34 moose observed, 11 were recorded on transect during the ungulate survey, and an additional 23 moose were recorded either off transect during the ungulate survey or outside the aerial survey program.

During the ungulate surveys, a total of four cows, two calves, and five bulls (total of 11 moose) were observed on transect (Table 3) and 14 were observed off transect. The other 9 moose observations were recorded incidentally during other wildlife surveys. A total of four calves were recorded within the study area (including the ungulate surveys and incidentals), including a single set of twins.

Similar to the results observed in 2006, no moose were observed in the immediate Mactung Project area and most moose observations were at low elevations, particularly in the Hess River tributary valley bottom (Figure 4). During the 2007 program, moose were commonly recorded in Scrub Birch – Lichen and Willow – Sedge habitats (Photograph 1).

Indices for relative abundances, including the number of moose per hour (moose/hr) and moose per kilometre (moose/km) were calculated. During the June survey, a total of 1.3 moose/hr (assuming approximate survey time of 2.25 hours) were observed, and/or a total of 0.017 moose/km (assuming approximately 180 km) (Table 3). Assuming approximate survey times of 4.5 hours, a total of 0 moose/hr were documented in July, 0.2 moose/hr in August, and 1.6 moose/hr in September (Table 3). Assuming a total of 396 km of straight line transects flown, a total of 0 moose/km, 0.003 moose/km, and 0.018 moose/km were documented during the July, August, and September events, respectively (Table 3).

TABLE 3. SUMMARY OF MOOSE ABUNDANCE INDICES, 2007				
	June 16*	July 11**	August 15**	September 4**
Number of Moose observed on Transect	3	0	1	7
Relative Abundance Indices				
Moose per Hour	1.3	0	0.2	1.6
Moose per Kilometre	0.017	0	0.003	0.018

* Assuming approximate survey time of 2.25 hours and approximately 180 km of straight line transects flown.

** Assuming approximate survey time of 4.5 hours and approximately 396 km of straight line transects flown.

3.1.3 Dall's Sheep

Dall's sheep were surveyed during the June 16, July 11, August 15, and September 4 ungulate surveys. No Dall's sheep were observed during the 2007 aerial ungulate surveys; however, several incidental observations were documented during other 2007 wildlife programs.

A single adult Dall's sheep ram was observed on two occasions (June 16 and 19) during the breeding bird surveys (Photograph 2 and report cover). Based on horn length, the Dall's sheep was approximately 7 years old (horns approximately full circle). During both

observation periods, the ram was resting in mid alpine heath – fescue habitat located above a steep rock slope (escape habitat) with a northern aspect. The ram was observed at distances of approximately 2 and 3 km southwest of the Mactung camp (Figure 5).

One other observation of a single Dall's sheep track along the Canol Road was documented in June (approximately 8 km southeast of Mactung camp) (Photograph 3) (Figure 5). Based on the track pattern, it appeared that this animal had been moving at a fast gait. Based on the condition of the tracks observed, it was estimated that this sheep had travelled along the road approximately 2 – 4 weeks prior to the observation. During the 2006 aerial survey program, no Dall's sheep were observed, but eight incidental observations of sign (pellet groups and tracks) were recorded in June 2006 during other work conducted that year (EBA 2007a).

3.2 BREEDING BIRD SURVEYS

A total of 56 breeding bird stations were surveyed from June 16 – 19, 2007 (Figure 6). A total of 268 birds were recorded, and an additional 90 birds were recorded as incidentals (either outside the survey station or outside the survey time) (Table 4). A total of 34 bird species¹ were detected during the breeding bird survey, and an additional seven species were detected as incidentals (Table 4). Of the species recorded during the breeding bird survey, the American Tree Sparrow was the most common breeding bird detected, followed by Wilson's Warbler, White-crowned Sparrow, American Pipit, Yellow-rumped Warbler, and Golden-crowned Sparrow (Table 4).

Two additional bird species were recorded in July that were not detected during the breeding bird survey. A total of two Barn Swallows and ten Cliff Swallows were recorded within the study area in July.

TABLE 4. SUMMARY OF BIRD OBSERVATIONS DURING THE BREEDING BIRD SURVEY, JUNE 16-19, 2007

Species	Number of Observations during the Breeding Bird Survey	Number of Incidental Observations during the Breeding Bird Survey	Total Number of Observations
Alder Flycatcher	3	1	4
American Pipit	19	8	27
American Robin	7	9	16
American Tree Sparrow	69	5	74
Blackpoll Warbler	7	1	8
Boreal Chickadee	2	0	2
Chipping Sparrow	1	3	4
Common Redpoll	5	5	10
Common Yellowthroat	1	1	2
Dark-eyed Junco	6	1	7

¹ Errata: In the 2006 results an American Redstart was inadvertently recorded on the field data sheet and entered into the database. This happened due to the similarities between the two species codes. This has been rectified.

TABLE 4. SUMMARY OF BIRD OBSERVATIONS DURING THE BREEDING BIRD SURVEY, JUNE 16-19, 2007

Species	Number of Observations during the Breeding Bird Survey	Number of Incidental Observations during the Breeding Bird Survey	Total Number of Observations
Fox Sparrow	3	2	5
Golden-crowned Sparrow	17	13	30
Grey-cheeked Thrush	2	3	5
Gray Jay	1	2	3
Harlequin Duck	2	0	2
Horned Lark	14	2	16
Least Sandpiper	2	2	4
Lesser Yellowlegs	1	1	2
Mew Gull	0	1	1
Northern Waterthrush	1	1	2
Orange-crowned Warbler	4	0	4
Olive-sided Flycatcher	1	1	2
Pine Grosbeak	0	1	1
Rock Ptarmigan	0	2	2
Ruby-crowned Kinglet	4	0	4
Ring-necked Duck	1	0	1
Red-necked Phalarope	3	0	3
Rusty Blackbird	4	0	4
Say's Phoebe	1	0	1
Savannah Sparrow	13	2	15
Semi-palmated Plover	0	1	1
Swainson's Thrush	0	1	1
Townsend's Solitaire	1	0	1
Three-toed Woodpecker	1	0	1
Wandering Tattler	0	3	3
White-crowned Sparrow	21	5	26
Willow Ptarmigan	3	4	7
Wilson's Snipe	1	1	2
Wilson's Warbler	28	4	32
White-winged Crossbill	1	0	1
Yellow-rumped Warbler	18	4	22
Total Observations	268	90	358

Large homogeneous habitats were targeted for the breeding bird survey; however, some habitats exist throughout the landscape as only small polygons within larger habitats. Therefore, some breeding bird stations incorporated a mix of two different habitat types (termed as a habitat complex). During the 2007 breeding bird program 13 habitat types and three habitat complexes were surveyed (Table 5). Heath-Lichen habitats were the most surveyed habitat for the 2007 breeding bird surveys, followed by Birch-Lichen and Willow-Sedge (Table 5).

TABLE 5. SUMMARY OF BREEDING BIRD RESULTS PER HABITAT TYPE				
Habitat Type	General Habitat Description ¹	No. Surveyed	Ave. No. of Birds Detected ² per Station	Species Richness ²
Fir-Lichen	Habitat unit dominated by alpine fir and lichen species. The canopy is usually open and may have scrub birch layer. These sites are generally on exposed, well drained soils, convex micro-topography and/or warm aspects.	1	1.00	1.00
Spruce-Moss	Habitat unit dominated by white spruce and a moss understory. Percent canopy cover low. High shrub layer dominated by scrub birch and/or willow species. Generally occurs on moist, well drained soils, and/or cool aspects.	2	9.50	0.58
Willow-Slope	Occurs on steep slopes and avalanche chutes. Dense canopy is dominated by medium to tall willow species and may have an understory of alpine fir, sedge species, and/or a mix of forbs. These sites have steep slopes, with well drained submesic to xeric soils.	3	4.67	0.57
Complex: Fescue-Willow: Birch-Moss	See Fescue-Willow and Birch-Moss	1	7.00	0.57
Fescue-Sedge	These areas are dry alpine meadows. Habitat unit dominated by fescue and lichen species, although, sedge and grass species may occur in high abundance on moister soils. These sites are generally on exposed, well drained soils, convex micro-topography and/or warm aspects.	3	2.67	0.50
Complex: Fescue-Willow: Willow-Slope	See Fescue-Willow and Willow-Slope	1	8.00	0.50
Birch-Moss	Habitat unit dominated by scrub birch and a moss understory. Birch-Moss is generally occurs on sheltered, moist, well drained soils, concave micro-topography and/or cool aspects.	3	5.33	0.44
Willow-Bluebell	Occurs in sheltered valleys, adjacent to streams and seepage. Dense canopy is dominated by medium to tall willow species, and the understory is a diverse mix of forbs including bluebell. These sites are moderately drained, with moist to wet soils.	2	8.00	0.38
Complex: Heath-Lichen: Fescue-Sedge	See Heath-Lichen and Fescue-Sedge	4	4.25	0.35
Birch-Lichen	Occurs on upland terraces. Habitat dominated by scrub birch and lichen species. These sites are generally on exposed well drained soils, convex micro-topography and/or warm aspects.	8	5.38	0.33
Willow-Sedge	Occurs adjacent to streams and rivers in floodplains. Dense canopy is dominated by medium to tall willow species and the understory is characterized by sedge species, horsetail species, and moss species. These sites are generally flat, moderately to well drained with submesic to mesic soils.	5	7.60	0.32
Fescue-Willow	Occur on moist alpine meadows. Habitat unit dominated by fescue and moss species, although, sedge, hairgrass, and rush species may occur in high abundance. These sites are characterized by the occurrence of dwarf willow species, and occur on well drained soils, concave micro-topography and cool aspects.	4	8.75	0.23
Heath-Lichen	These areas are dwarf shrub communities observed in the alpine. Habitat unit dominated by dwarf shrub species mountain heather, crowberry, lingonberry, and lichen species. Few plants grow taller than 20 cm high. These sites are generally on exposed and well drained soils.	11	2.64	0.17
Epilithic Lichen	These areas are mainly exposed bare rock or talus that are covered with crustose lichen communities. At lower elevations, dwarf shrub species and graminoid species may be observed sporadically.	1	0	0.00
Fir-Moss	Habitat dominated by alpine fir and a moss understory. Percent canopy cover is higher than in the Fir-Lichen vegetation unit. Fir-Moss generally occurs on sheltered, moist, well drained soils, concave micro-topography and/or cool aspects. This community also occurs adjacent to seeps streams.	3	3.67	0.64
Sedge-Bluebell	Occur in the lower Alpine. Habitat unit dominated by sedge and a diverse mix of forbs including bluebell, arrow-leaved groundsel, mountain sagewort, and tall Jacob's-ladder. These sites are generally gentle sloping, with moderately drained submesic to mesic soils, in sheltered valleys. This unit is similar to Willow-Bluebell and may occur at higher elevations with submesic soils.	1	5.00	0.60

¹ Refer to the ELC Report for detailed habitat descriptions.

² Analysis does not include incidental birds.

Of the available habitats surveyed during the breeding bird survey (excluding habitats with only a single survey station), Spruce-Moss, Fescue-Willow, Willow-Bluebell, and Willow-Sedge habitats had the highest average number of birds detected per station (Table 5). While the Heath-Lichen and Fescue-Sedge habitats had the lowest number of detections (Table 5).

In addition, species richness (ratio of the number of species recorded to the number of birds observed in each habitat type) differed among habitats. Excluding habitats with only a single survey station, habitat types with the highest species richness include: Fir-Moss, Spruce-Moss, Willow-Slope, and Fescue-Sedge (Table 5). Heath-Lichen and Fescue-Willow habitats had the lowest species richness (Table 5).

Several bird species were recorded in multiple habitat types. Habitat generalists, such as the American Tree Sparrow, Golden-crowned Sparrow, White-crowned Sparrow, Wilson's Warbler, and Yellow-rumped Warbler were recorded in six or more habitat types throughout the study area.

3.3 RAPTOR SURVEYS

Aerial raptor surveys were flown on June 18, July 11, and August 17 to document raptor presence and breeding territories. A total of 28 observations of raptors were recorded during the 2007 wildlife program (including incidentals) (Figure 7), which included five species (Table 6). Golden Eagles were the most common raptor species observed, followed by Northern Harriers (Table 6).

TABLE 6. SUMMARY OF RAPTOR OBSERVATIONS, 2007

Species (Common Name)	Number of Observations (including incidentals)				Total Observations
	June	July	August	September	
Golden Eagle	5	2	7	4	18
Northern Harrier	2	0	2	1	5
Merlin	1	0	1	0	2
Gyr Falcon	1	1	0	0	2
Short-eared Owl	1	0	0	0	1
Total	11	3	10	5	28

The majority of Golden Eagles were observed flying/soaring in mid to high alpine habitats; however, a few were recorded in large river valleys. All Northern Harriers, Merlins, and Short-eared Owl observations were along major valleys in low to mid elevational habitats. All Gyr Falcons were recorded in high elevations, at or near the scrape site.

A single Gyr Falcon breeding territory was detected within the study area. This occupied territory was detected during the June survey, approximately 9 km northeast of the Mactung camp (Figure 7). The territory included a scrape and a number of perch sites, located at

approximately 2,000 m elevation on a cliff face with a south southeast aspect (Photograph 4). An additional perch site was also documented during additional raptor surveys.

Although many adult and immature Golden Eagles were observed, no nests were detected. However, based on visual observations of adult Golden Eagles throughout the 2006 and 2007 field program, a total of three territories are expected to occur within the study area. In addition, based on field observations, one Merlin, two Northern Harrier, and one Short-eared Owl breeding territories are probable (total of four additional breeding territories). A probable Merlin territory is located approximately 5 km east of Mactung camp along an upper tributary of the Hess River. The two probable Northern Harrier territories are located in large river valleys (both the Hess River tributary and Tsichu River valleys). A probable Short-eared Owl breeding territory is located in the Tsichu River valley.

3.4 WATERFOWL SURVEYS

During the 2007 aerial waterfowl surveys, a total of 108 waterfowl observations were recorded on July 10 and 33 waterfowl observations on September 5 (Table 7) (Figure 8). Waterfowl were also documented as incidental observations during the June breeding bird surveys.

A total of nine incidental waterfowl observations were recorded in June. The species recorded were Ring-necked Duck, Canada Goose, Harlequin Duck and Red-breasted Merganser.

A total of 13 waterfowl species (and one shorebird species – Red-necked Phalarope) were documented in the July waterfowl survey (including Teal, Scaup and duck species). Eight waterfowl species were documented in September (including Scaup and unknown duck species) (Table 7). In July, the most commonly observed waterfowl were American Wigeons and Scaup species. In September the most commonly observed species were Green-winged Teals and Scaup species (Table 7).

TABLE 7. SUMMARY OF WATERFOWL SURVEY, 2007

Species (Common Name)	Number of Observations		Total Observations
	July 10 Survey	September 5 Survey	
Scaup species	36	7	43
American Wigeon	38	5	39
Northern Pintail	7	3	13
Green-winged Teal	4	9	13
Northern Shoveler	4	5	9
Unknown Duck species	3	1	4
Red-necked Phalarope**	4	-	4
Canada Goose	2	-	2

TABLE 7. SUMMARY OF WATERFOWL SURVEY, 2007

Species (Common Name)	Number of Observations		Total Observations
	July 10 Survey	September 5 Survey	
Teal species	2	-	2
Ring-necked Duck	2	-	2
Lesser Scaup	2	-	2
Bufflehead	-	2	2
Common Merganser	2	-	2
Blue-winged Teal	-	1	1
Harlequin Duck	1	-	1
Horned Grebe*	1	-	1
Total Observations	108	33	137

* for the purposes of this report grebes are grouped with waterfowl

**shorebird species

During the July survey, a total of ten breeding territories were detected in small ponds and wetlands within the study area and an additional eight territories were observed immediately south of the study area. Five breeding territories were detected along the Tsichu River, five along the Hess River tributary and its associated upper tributaries, and eight territories were documented immediately outside the study area along the South Macmillan River. A total of five broods were observed during the July survey, including four American Wigeon broods (with 21 ducklings total), and a single Northern Pintail brood (with 3 ducklings). However, only one of these broods were observed within the study area, and the remaining were recorded immediately south of the study area along the South Macmillan River.

All waterfowl breeding territories were dissolved by the September survey. The majority of waterfowl were believed to have migrated out of the study area by the September survey; however, some individuals and small groups (ranging from 2 – 5 individuals) remained.

3.5 INCIDENTAL WILDLIFE

In addition to those species specifically targeted during the wildlife surveys, other wildlife were recorded within the study area during the 2007 field program. These included a number of small mammals including Arctic ground squirrels, hoary marmots, and American pikas. Incidental observations of particular interest within the study area included carnivores such as grizzly bear, wolf, and wolverine (Figure 9). A total of seven grizzly bears were recorded during the 2007 field program, including a sow with three cubs. Grizzly bear sign, such as diggings and dens were also observed. Two wolverines were also observed (female and kit) in June as well as wolf scat.

4.0 DISCUSSION AND CONCLUSION

The main objective of the 2007 program was to maintain and replicate the survey components of the 2006 baseline wildlife program (EBA 2007b) in preparation for regulatory applications that are anticipated for the proposed Mactung development. The program included further documentation and characterization of targeted wildlife within the study area to establish baseline conditions for the potential development.

The 2007 wildlife program involved conducting a number of wildlife surveys within the Mactung study area in late spring (mid June), summer (mid July), fall (mid August), and late fall (early September). Wildlife targeted for the surveys included breeding birds, ungulates, raptors, and waterfowl.

4.1 WOODLAND CARIBOU (NORTHERN MOUNTAIN ECOTYPE)

Evidence of potential calving areas within the study area has not been documented in previous years. The Mackenzie Mountain Barrens, located approximately 24 km northeast of Mactung camp (outside the study area) has been documented as the principle calving and post-calving area for the Redstone Caribou Herd (Collin 1983). The majority of caribou typically calve synchronically from the last week of May to the first week of June (Collin 1983). However, eight new born calves were observed within the study area during the June 2007 ungulate survey (June 16th). These observations indicated that the study area is occasionally used for calving and post calving, although is not likely a critical calving area for this herd. Yearlings, bulls, and cows without calves (dry cows) are considered the main users of the study area during calving season.

Small groups of caribou occupied the study area throughout the 2007 field sampling program. Caribou were frequently observed on mid to high alpine meadows and valleys throughout the study area. Slight elevational movements were observed with caribou moving higher in elevation in July and August and descending slightly by September. Caribou observed during the September survey occupied lower elevations and may have been slowly moving towards the larger river valleys in preparation for winter migration east of the study area. Kershaw and Kershaw (1983) reported caribou migrating out of the area by September 19, and consequently, reported small numbers of caribou within their study area at that time.

Although the relative densities are considered skewed as a result of the challenges associated with surveying in mountainous terrain, the density results are useful for the purpose of general comparison with the previous work of Kershaw and Kershaw (1983). Caribou relative densities within the Mactung study area during the 2007 surveys were 0.33 caribou/km² during the June survey, and 0.32 caribou/km² in July.

Caribou relative densities during the August and September surveys were 0.16 caribou/km² and 0.45 caribou/km², respectively. During the 2006 surveys, the estimated caribou densities were 0.22 caribou/km² in June, 0.12 caribou/km² in July, 0.15 caribou/km² in August and 0.15 caribou/km² in September (EBA 2007a).

Kershaw and Kershaw (1983) reported higher caribou densities for the June and August surveys than observed in 2007; whereas, their densities were reported lower in September compared to the 2007 results. This can be attributed to differences in the study areas surveyed. The study area surveyed by Kershaw and Kershaw (1983) was predominantly within the NWT and included the Mackenzie Mountain Barrens, a high elevation plain that has been documented as principle calving and post-calving area for this herd (Beckel 1975; Collin 1983).

Relative abundance indices were calculated, including the number of caribou per hour and the number of caribou per kilometre. Calculations of both indices (caribou per hour and caribou per kilometre) indicated the relative abundance of caribou on transects were similar in June and July. Caribou abundance was lowest in August and highest in September. Variation among relative abundances for the surveys were attributed to a number of factors, including (but not limited to) surveyor detection and natural caribou dispersal. The field surveyors ability to detect caribou varied due to variations in weather conditions and snow cover. In June and July caribou were easily detectable at a distance when on snow patches. However, by August, snow patches were not present within the study area and may have hampered caribou detections at further distances.

In addition, caribou undertake their seasonal movements in response to factors such as available food resources, insect harassment, and heat stress. Upon returning in late May or early June, caribou typically disperse across their summer habitats in response to available food sources, insect harassment, and calving requirements. Caribou abundance in July and August may have been a result of natural caribou dispersal across their summer habitats. In support of this assumption, group size in August declined to an average of 1.5 animals per group, which may indicate caribou continued to disperse into solitary or small (2 - 3 animal) groups in response to numerous biological factors, particularly available food sources and insect harassment. By September, caribou had begun to congregate into larger groups as they moved through the study area to reach their wintering grounds.

4.2 MOOSE

A total of 34 moose were recorded during the 2007 field program; however, only 11 were observed on transect during the ungulate surveys. Moose observations were all within valley systems in Scrub Birch – Lichen and Willow – Sedge habitats.

Relative abundance calculations indicated the abundance of moose within the study area were similar in June and September, and low in July and August. However, these relative abundance indices are considered low, possibly due to survey protocol. Straight line transects are an appropriate survey protocol to document moose presence and general distribution; however, they are a less effective method to document population abundance in mountainous terrain. With the straight line transect method in mountainous terrain, a large amount of time is spent surveying high elevation areas where moose are less likely to occupy.

4.3 DALL'S SHEEP

Two observations of a single adult ram were documented during the June 2007 wildlife surveys (by June rams are typically on their summer range). Both observations were believed to be of the same individual that had only moved approximately 1 km between observations. On both occasions, this ram occupied Heath – Fescue habitat at mid alpine elevations above a steep rock slope (escape habitat). A single Dall's sheep track (laid down approximately 2 – 4 weeks prior) was also documented along the Canol Road in June. These observations, along with track and pellet group observations in 2006 indicate that Dall's sheep are present in the study area at low densities. As indicated by the ewe and lamb tracks observed in 2006 along the Mactung mine road, some lambing may occur in the general area.

Gill (1978) reported a small resident Dall's sheep population within the study area (estimated population at 20 – 25 individuals). From June to September (1974 - 1977) a group of 17 Dall's sheep was recorded on the same mountain block as the 2007 observation and additional groups were recorded across the valley to the north. Gill (1987) reported that lambing probably occurred in the study area based on the presence of broken rugged cliffs, which ewes commonly favour.

4.4 BREEDING BIRD SURVEYS

Fifty-six breeding bird stations were surveyed during the 2007 field program. A total of 268 birds, including 34 bird species were recorded on station, and an additional 90 birds and seven bird species were recorded as incidentals.

A total of 13 habitat types and three habitat complexes were surveyed during the breeding bird survey. Of the available habitats surveyed, Spruce-Moss, Fescue-Willow, Willow-Bluebell, and Willow-Sedge habitats had the highest average number of birds detected per station. While the Heath-Lichen and Fescue-Sedge habitats had the lowest number of bird detections.

Species richness values were also calculated among habitat types, except habitats that were surveyed once during the 2007 field program. Habitat types with the highest species richness included: Fir-Moss, Spruce-Moss, Willow-Slope, and Fescue-Sedge; whereas, Heath-Lichen and Fescue-Willow habitats had the lowest species richness.

4.5 RAPTOR SURVEYS

Five raptor species were observed during the raptor surveys and as incidentals during other wildlife surveys throughout the 2007 program. Raptor species observed in 2007 include: Golden Eagle, Gyrfalcon, Northern Harrier, Merlin, and Short-eared Owl.

Golden Eagles were the most commonly observed raptor species during the 2007 program. Although no Golden Eagle breeding territories were detected, breeding is expected to occur throughout the study area, wherever appropriate habitat exists. Based on adult bird observations during the 2007 field program a total of three breeding territories are expected

to exist within the study area. In Yukon, Golden Eagles almost exclusively nest on cliff faces in mountainous terrain (typically on south facing cliffs); however, two tree nests were reported (Sinclair *et al.* 2003). In the Selwyn Mountains (west of the study area), Golden Eagle active nesting densities were estimated at 392 km² per active nest (Sinclair *et al.* 2003).

One active Gyrfalcon breeding territory was detected within the study area, approximately 9 km northeast of Mactung camp. An adult, scrape, and a number of perch sites were recorded at the site; in addition, the adult was observed during several raptor surveys. The breeding territory appeared to have been used for multiple years.

A number of Northern Harriers were recorded in large valleys and low elevation habitats. Based on Northern Harrier observations throughout the 2007 program, a total of two breeding territories were expected. In Yukon, Northern Harriers have commonly been reported nesting on the ground among low shrubs and other vegetation in either marshy or meadow habitats (Sinclair *et al.* 2003).

One probable Merlin and one Short-eared Owl breeding territory were believed to be present within the study area. The probable Merlin territory is located approximately 5 km east of Mactung camp along an upper tributary of the Hess River. This possible territory is located in habitat commonly associated with nesting Merlins. Sinclair *et al.* (2003) reported Merlin breeding territories were most often associated with riverside cliffs or trees.

The probable Short-eared Owl breeding territory is located in the Tsichu River valley. In Yukon, Short-eared Owls have been reported nesting on the ground in low or dwarf shrub habitats or in wet sedge meadows (Sinclair *et al.* 2003). This type of habitat also commonly occurs along the Tsichu River.

4.6 WATERFOWL SURVEYS

During the 2007 aerial waterfowl surveys, a total of 108 waterfowl observations were recorded on July 10 and 33 waterfowl observations on September 5. Waterfowl were also documented as incidental observations during the June breeding bird surveys.

Of the 13 waterfowl species documented during the July waterfowl survey, American Wigeon and Scaup species were the most common. A total of eight waterfowl species were observed in September including Green-winged Teals and Scaup species.

A total of ten breeding territories were detected in small ponds and wetlands within the study area, which included a single American Wigeon brood. An additional eight breeding territories, including four broods were detected immediately south of the study area along the South Macmillan River. By September, all waterfowl breeding territories were dissolved and the majority of waterfowl were believed to have migrated out of the study area, although, some individuals and small groups still remained.

4.7 INCIDENTAL WILDLIFE

Incidental wildlife species recorded during the 2007 field program include grizzly bear, wolverine, wolf, and small mammals such as hoary marmot, Arctic ground squirrel, and American pika. A total of seven grizzly bears were recorded as well as grizzly bear diggings and dens. Two wolverines were documented, and wolf scat was observed.

5.0 CLOSURE

EBA is pleased to provide to North American Tungsten Corporation Ltd. this 2007 Baseline Wildlife Report for the MacTung Project. The main survey objective was to continue to document wildlife and habitat characteristics within the study area for future regulatory submissions leading to MacTung Project approvals and implementation. We are confident that the data and associated information obtained will assist in supporting this objective.

Respectfully submitted,
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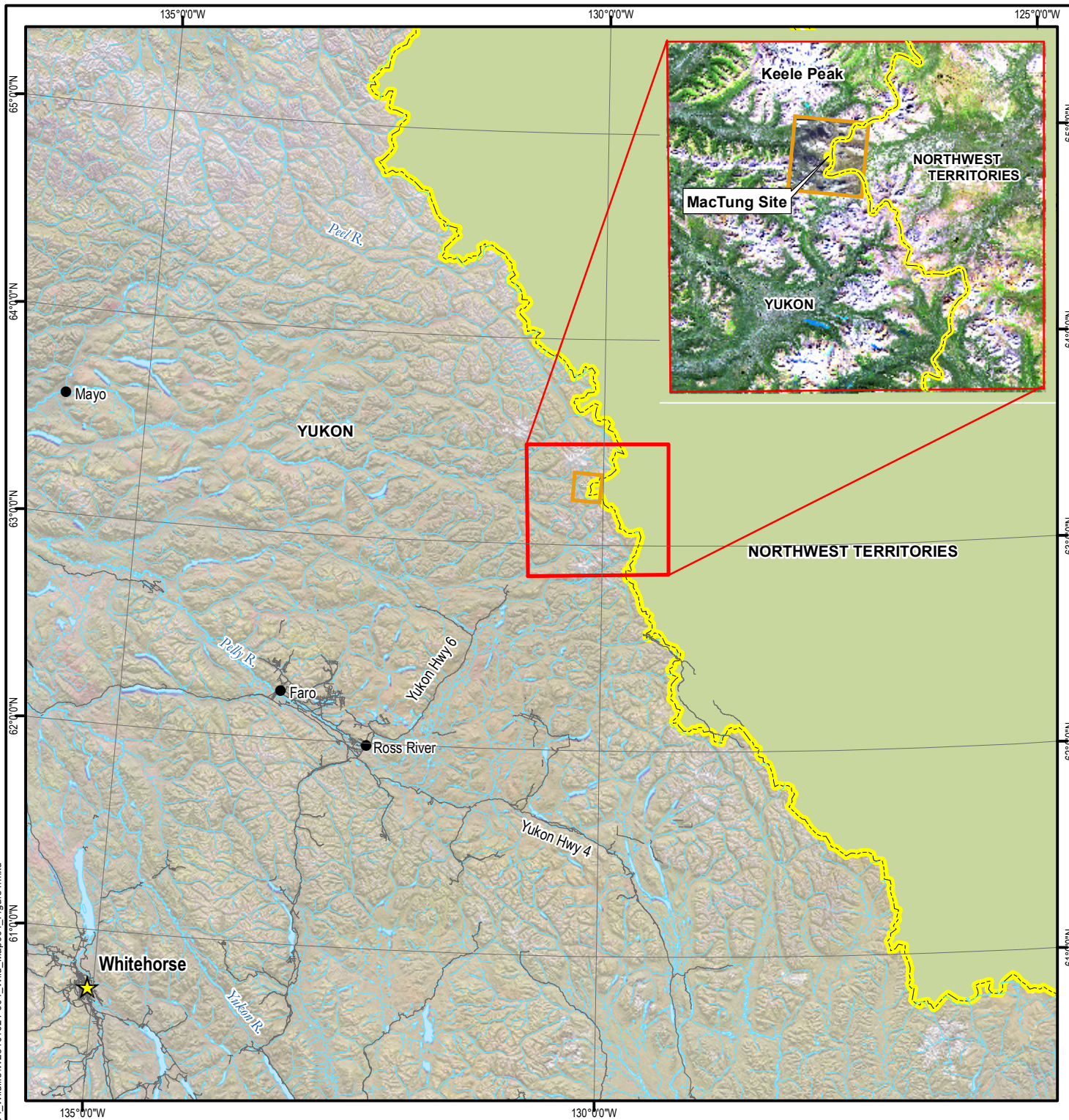
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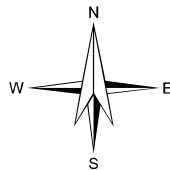
FIGURES





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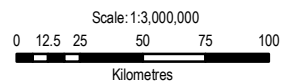
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-  Local Study Area
-  Watercourse
-  Waterbody
-  Roads



**MACTUNG PROJECT
2007 ENVIRONMENTAL BASELINE STUDIES
WILDLIFE REPORT**

Site Location

PROJECTION	DATUM
UTM Zone 9	NAD83



EBA Engineering
Consultants Ltd. 

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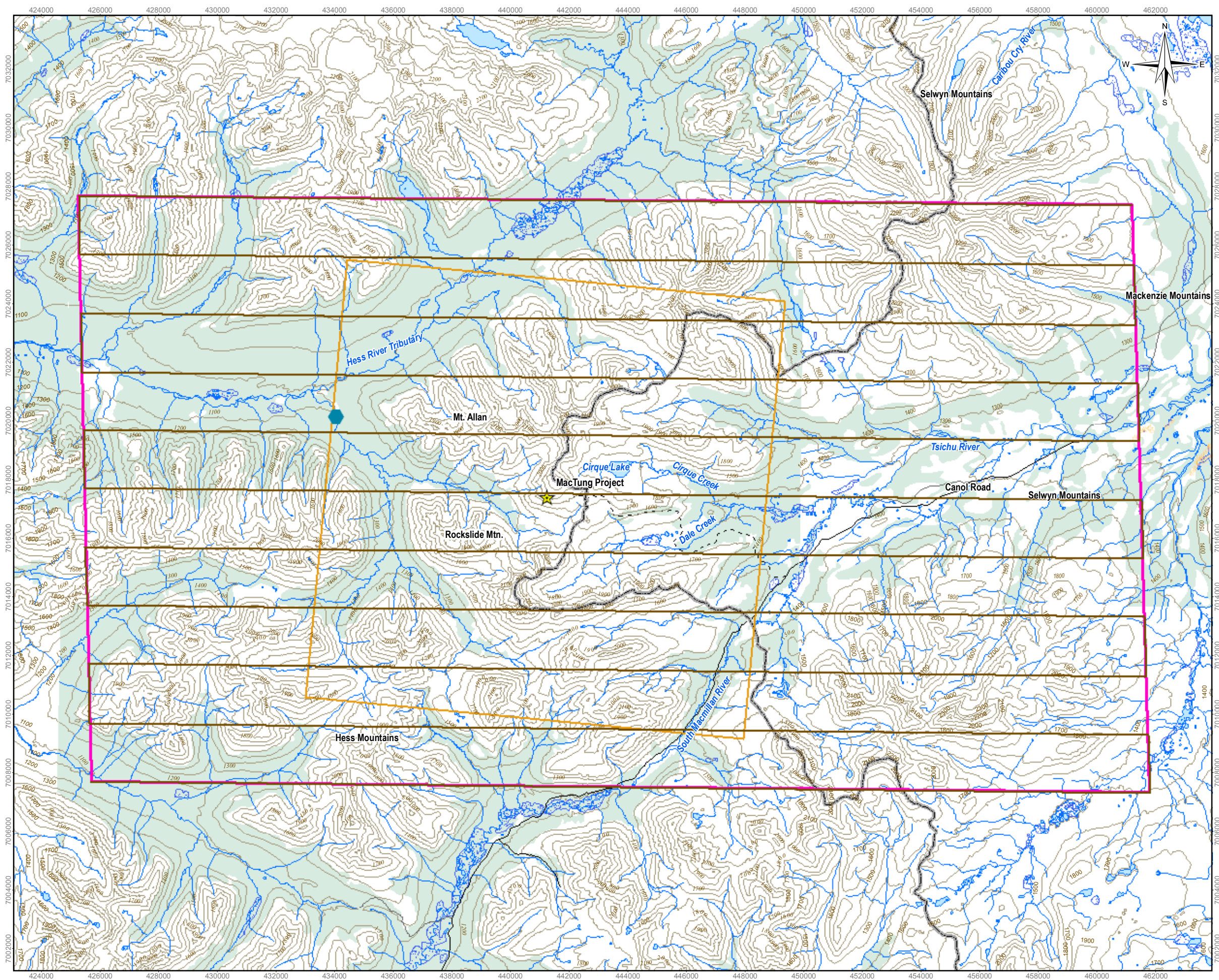
OFFICE	DATE
EBA-VANC	January 14, 2008

Figure 1

NOTES Landsat TM imagery Earthsat acquired Sept.17, 1995
Bands 432 enhanced

ISSUED FOR USE

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LEGEND

- MacTung Project
- Local Study Area
- Wildlife Study Area
- NWT - Yukon Border
- Known Mineral Lick
- Contour (100m interval)
- Esker
- Limited-use Road
- Road
- Trail
- Watercourse
- Waterbody
- Wetland
- Aerial Survey Route

NOTES
Base data source:
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**MACTUNG PROJECT
2007 ENVIRONMENTAL BASELINE STUDIES
WILDLIFE REPORT**

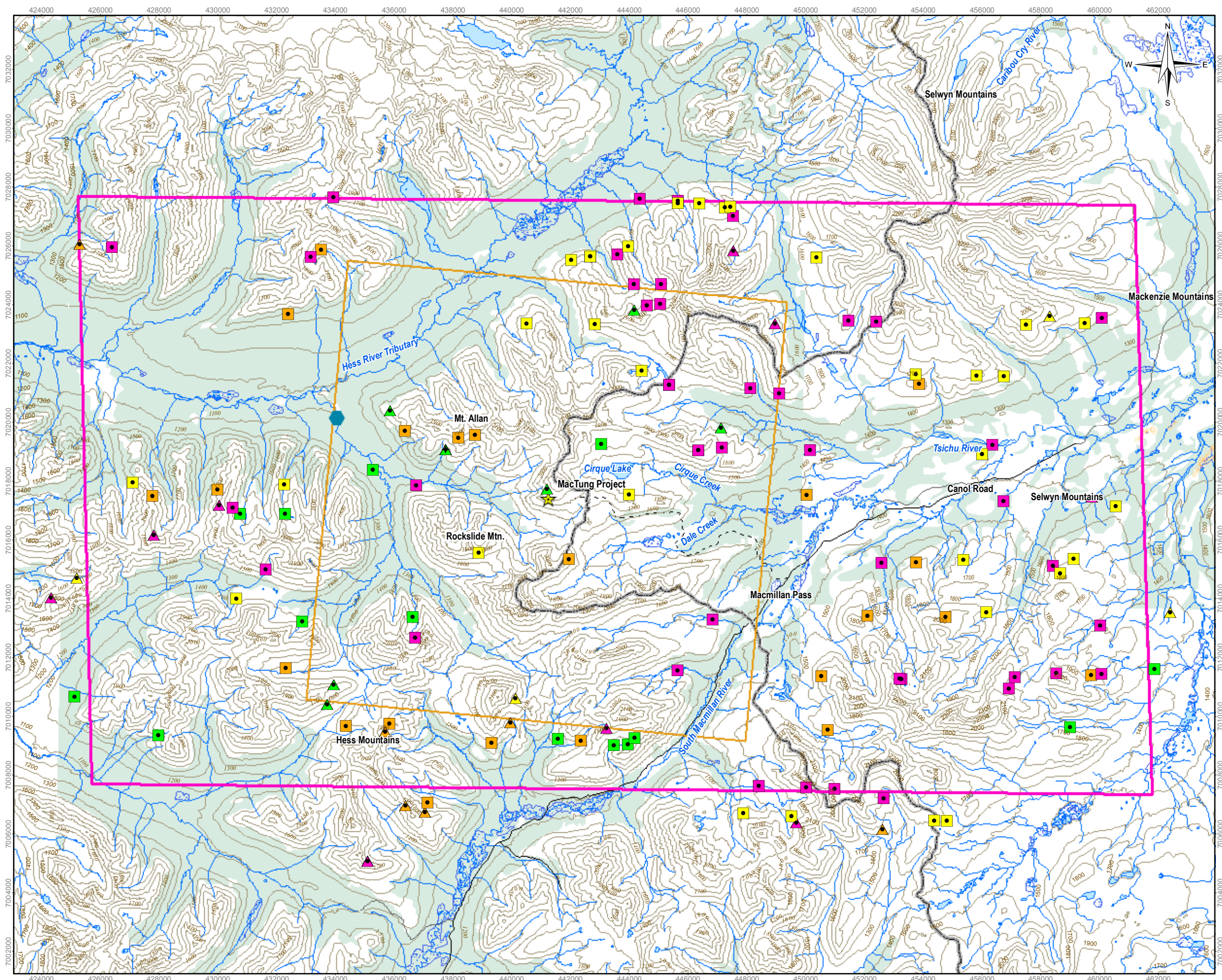
Aerial Ungulate Survey Route

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EBA Engineering Consultants Ltd.

Figure 2

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LEGEND

- MacTung Project
 - Local Study Area
 - Wildlife Study Area
 - NWT - Yukon Border
 - Known Mineral Lick
 - Contour (100m interval)
 - Esker
 - Limited-use Road
 - Road
 - Trail
 - Watercourse
 - Waterbody
 - Wetland
- 2007 Caribou Observations**
- Aerial Ungulate Survey, 16 June
 - Aerial Ungulate Survey, 11 July
 - Aerial Ungulate Survey, 15 August
 - Aerial Ungulate Survey, 4 September
 - Incidental Observation, 17-19 June
 - Incidental Observation, 10-11 July
 - Incidental Observation, 15 & 17 August
 - Incidental Observation, 4 September
- Observation Type**
- Sign
 - Visual

NOTES
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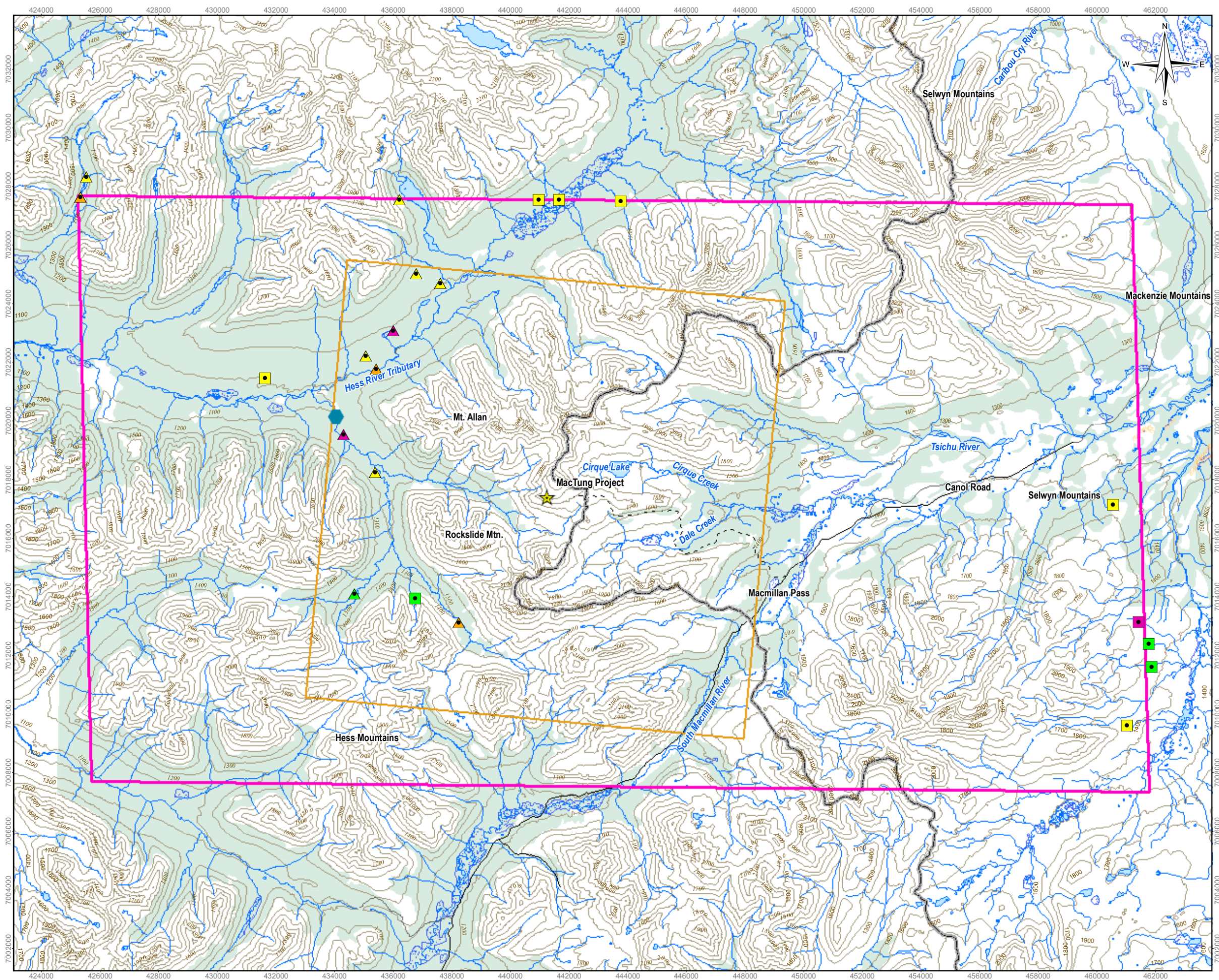
**MACTUNG PROJECT
2007 ENVIRONMENTAL BASELINE STUDIES
WILDLIFE REPORT**

**Woodland Caribou (Northern Mountain)
Observations within the Study Area**

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Scale: 1:130,000			
EBA Engineering Consultants Ltd.			
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PROJECT NO. W23101021.004	DWN MEZ	CKD KL	REV 0
OFFICE EBA-VANC	DATE January 14, 2008		

Figure 3

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LEGEND

- ★ MacTung Project
 - Local Study Area
 - Wildlife Study Area
 - NWT - Yukon Border
 - Known Mineral Lick
 - Contour (100m interval)
 - ▨ Esker
 - - Limited-use Road
 - Road
 - Trail
 - Watercourse
 - Waterbody
 - Wetland
- 2007 Moose Observations**
- Aerial Ungulate Survey, 16 June
 - Aerial Ungulate Survey, 15 August
 - Aerial Ungulate Survey, 4 September
 - ▲ Incidental Observation, 17 June
 - ▲ Incidental Observation, 10-11 July
 - ▲ Incidental Observation, 17 August
 - ▲ Incidental Observation, 4 September
- Observation Type**
- Visual

NOTES
Base data source:
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2007 ENVIRONMENTAL BASELINE STUDIES
WILDLIFE REPORT**

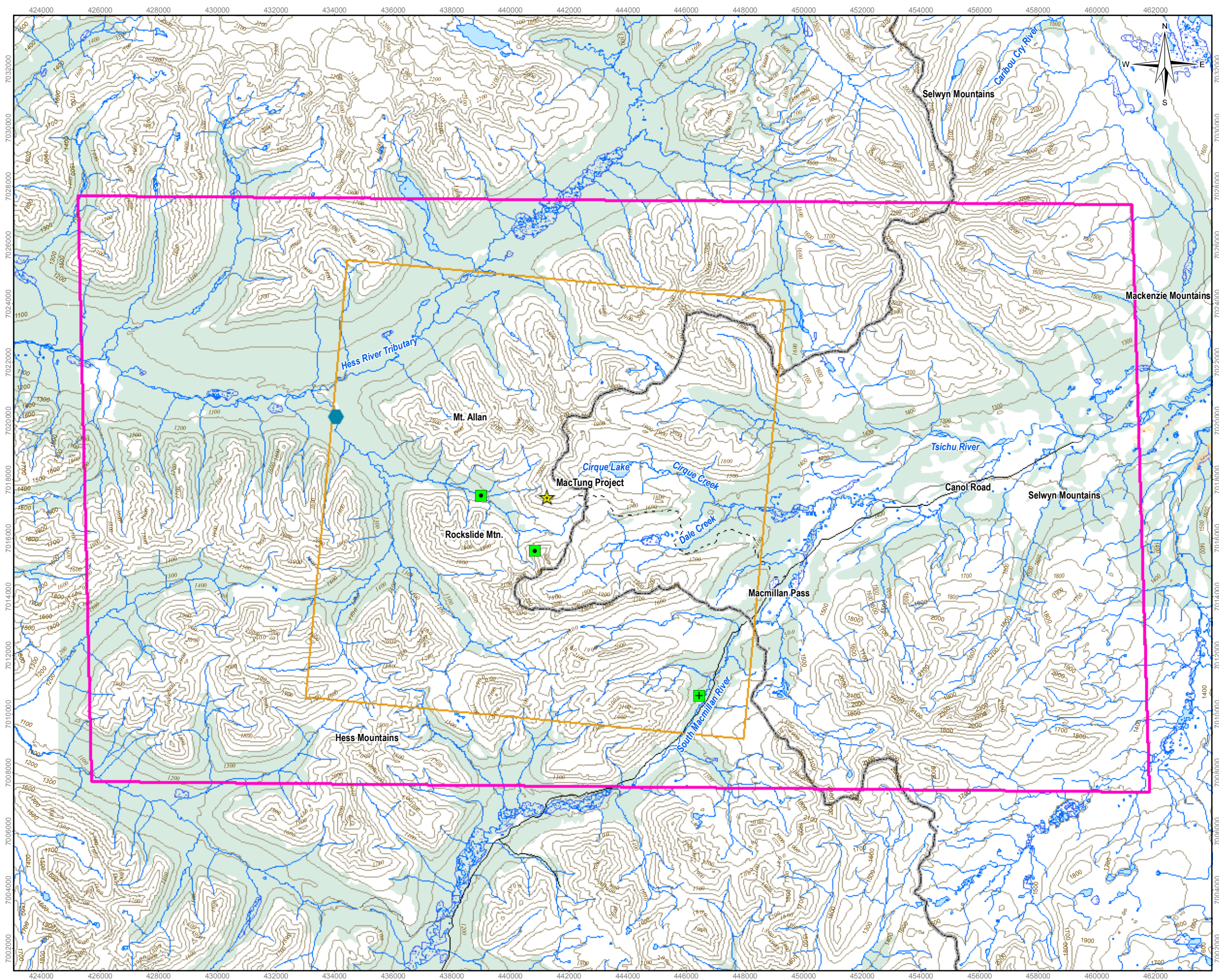
**Moose Observations
within the Study Area**

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PROJECT NO. W23101021.004	DWN MEZ	CKD KL	REV 0
OFFICE EBA-VANC	DATE January 14, 2008		

EBA Engineering Consultants Ltd.

Figure 4

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LEGEND

- MacTung Project
- Local Study Area
- Wildlife Study Area
- NWT - Yukon Border
- Known Mineral Lick
- Contour (100m interval)
- Esker
- Limited-use Road
- Road
- Trail
- Watercourse
- Waterbody
- Wetland
- 2007 Dall's Sheep Observations**
-
- Observation Type**
- Sign
- Visual

NOTES
Base data source:
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**MACTUNG PROJECT
2007 ENVIRONMENTAL BASELINE STUDIES
WILDLIFE REPORT**

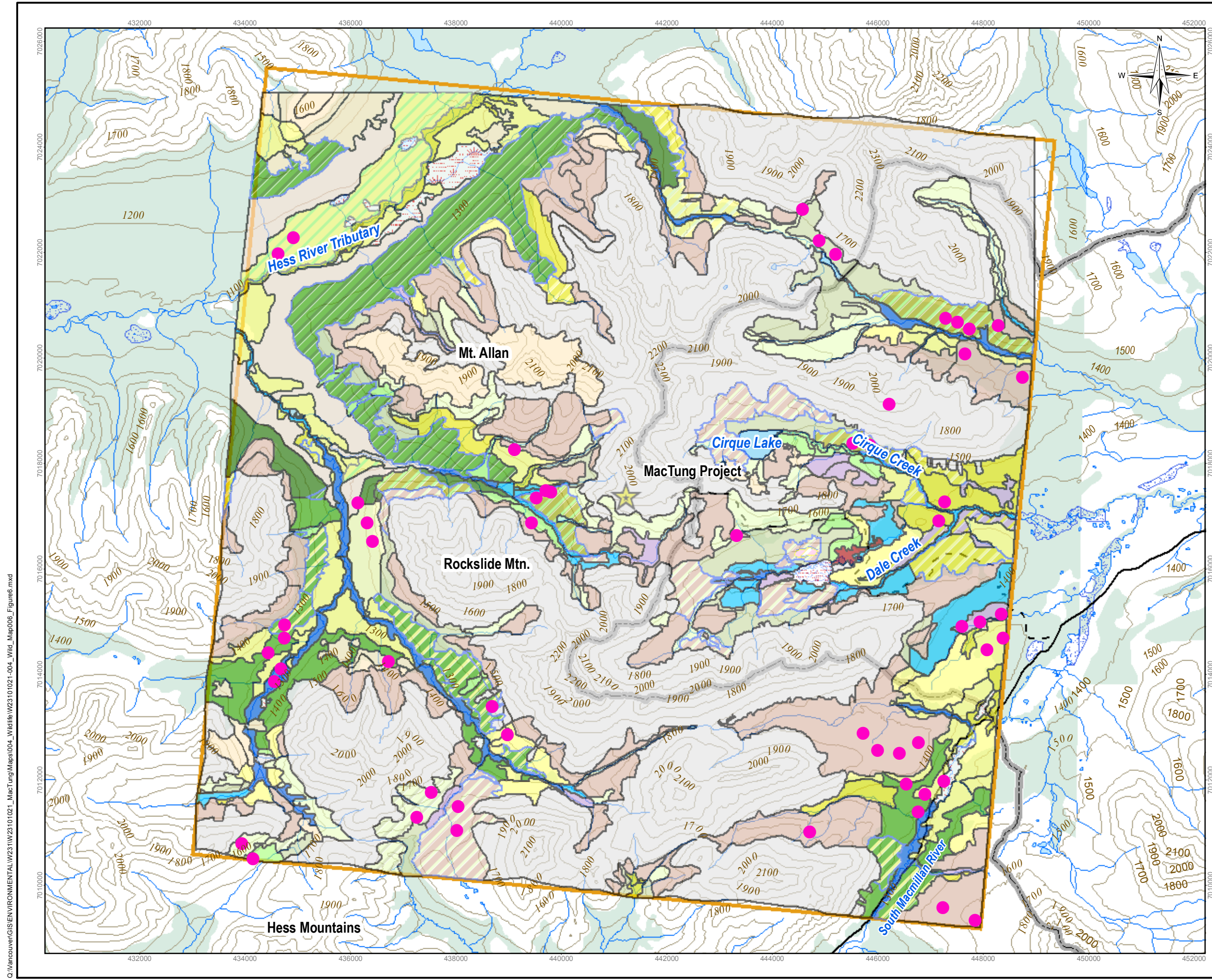
**Dall's Sheep Observations
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Scale: 1:130,000	
Kilometres	

EBA Engineering Consultants Ltd.

FILE NO. W23101021-004_Wild_Map005_Figure5.mxd			
PROJECT NO. W23101021.004	DWN MEZ	CKD KL	REV 0
OFFICE EBA-VANC	DATE January 14, 2008		

Figure 5



LEGEND

- ★ MacTung Project
 - Local Study Area
 - NWT - Yukon Border
 - Contour (100m interval)
 - Esker
 - Limited-use Road
 - Road
 - Trail
 - Watercourse
 - Waterbody
 - Wetland
 - 2007 Breeding Bird Plot Locations
- Site Series**
- Map Unit Polygons**
- Birch-Moss:Fir-Moss
 - Fir-Lichen
 - Fir-Lichen:Fir-Moss
 - Fir-Moss
 - Birch Lichen
 - Birch-Lichen:Fir-Lichen
 - Birch-Lichen:Fir-Moss
 - Birch-Lichen:Spruce-Moss
 - Birch-Moss
 - Birch-Moss:Fir-Moss
 - Birch-Moss:Heath-Lichen
 - Heath-Lichen
 - Heath-Lichen:Fescue-Sedge
 - Sedge-Bluebell
 - Sedge-Bluebell: Birch-Moss
 - Sedge-Cinquefoil
 - Epilithic Lichen
 - Fescue-Sedge
 - Fescue-Sedge: Birch-Lichen
 - Fescue-Sedge:Fescue-Willow
 - Fescue-Willow
 - Fescue-Willow:Willow Slope
 - No Data
 - Spruce Moss
 - Willow-Sedge
 - Willow-Sedge:Marsh/Fen
 - Willow-Bluebell
 - Marsh/Fen
 - Water
 - Willow-Slope

NOTES
Base data source:
NTS 1:50,000

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2007 ENVIRONMENTAL BASELINE STUDIES
WILDLIFE REPORT**

**Breeding Bird Station Locations
within the Study Area**

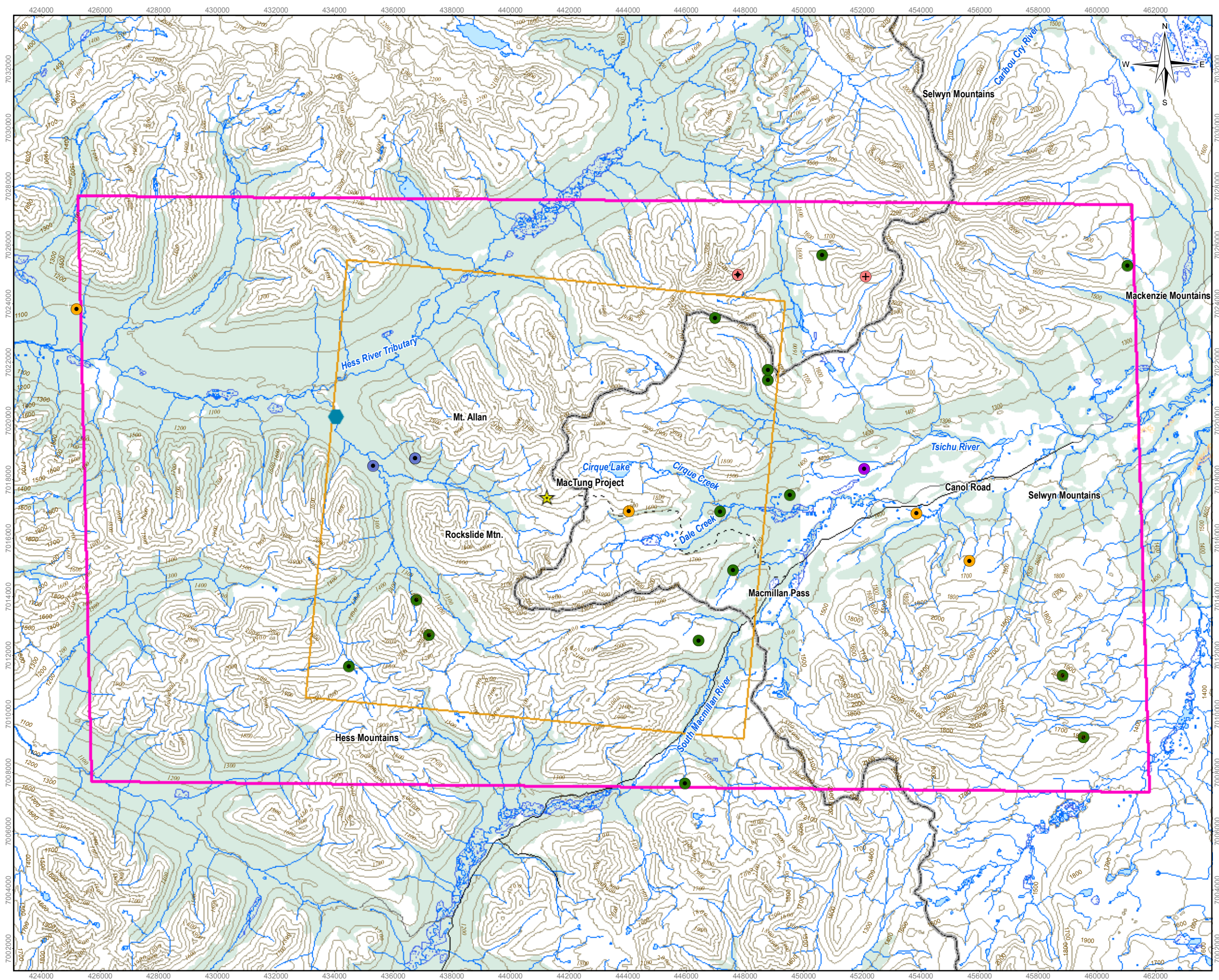
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PROJECT NO. W23101021.004	DWN MEZ
OFFICE EBA-VANC	CKD KL
DATE January 14, 2008	REV 0

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Figure 6

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LEGEND

- MacTung Project
- Local Study Area
- Wildlife Study Area
- NWT - Yukon Border
- Known Mineral Lick
- Contour (100m interval)
- Esker
- Limited-use Road
- Road
- Trail
- Watercourse
- Waterbody
- Wetland
- 2007 Raptor Species**
- Golden Eagle
- Gyrfalcon
- Merlin
- Northern Harrier
- Short-eared Owl
- Observation Type**
- Sign
- Visual

NOTES
Base data source:
NTS 1:50,000

ISSUED FOR USE

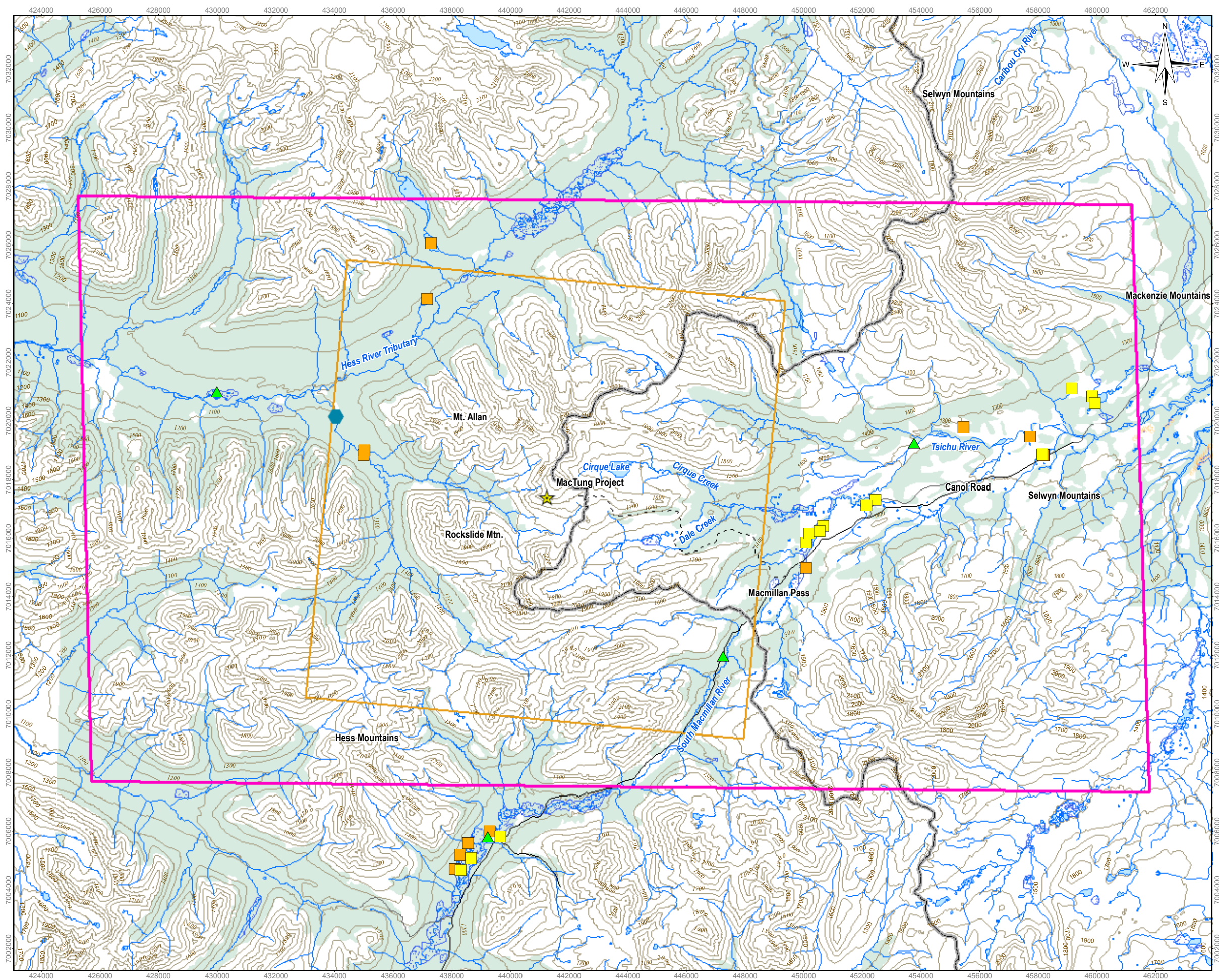
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WILDLIFE REPORT**

**Raptor Observations
within the Study Area**

PROJECTION UTM Zone 9	DATUM NAD83		
Scale: 1:130,000			
EBA Engineering Consultants Ltd.			
FILE NO. W23101021-004_Wild_Map007_Figure7.mxd			
PROJECT NO. W23101021.004	DWN MEZ	CKD KL	REV 0
OFFICE EBA-VANC	DATE January 14, 2008		

Figure 7

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LEGEND

- MacTung Project
 - Local Study Area
 - Wildlife Study Area
 - NWT - Yukon Border
 - Known Mineral Lick
 - Contour (100m interval)
 - Esker
 - Limited-use Road
 - Road
 - Trail
 - Watercourse
 - Waterbody
 - Wetland
- 2007 Waterfowl Observations**
- June
 - July
 - September

NOTES
Base data source:
NTS 1:50,000

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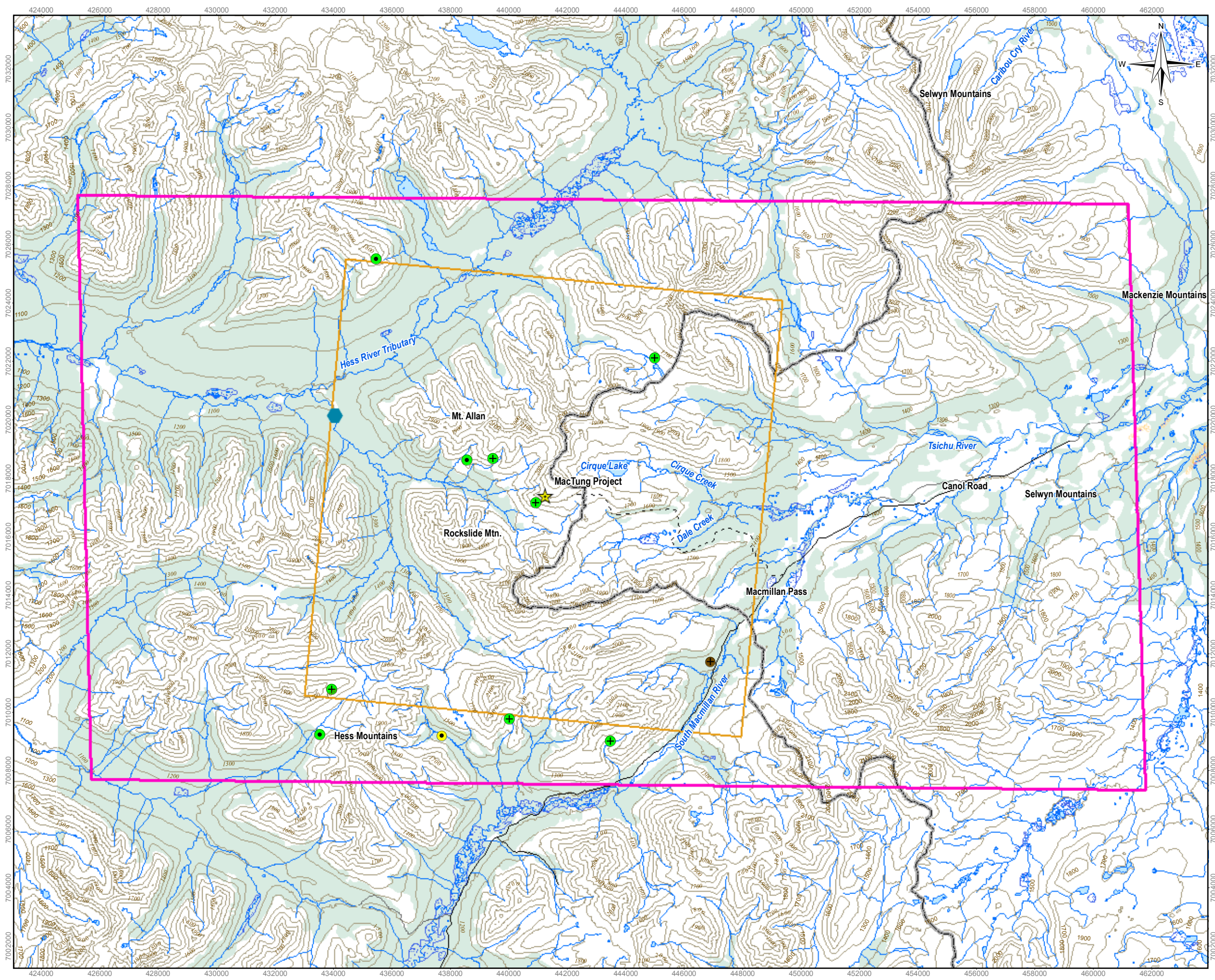
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2007 ENVIRONMENTAL BASELINE STUDIES
WILDLIFE REPORT**

**Waterfowl Observations
within the Study Area**

PROJECTION UTM Zone 9	DATUM NAD83		
Scale: 1:130,000			
EBA Engineering Consultants Ltd.			
FILE NO. W23101021-004_Wild_Map008_Figure8.mxd			
PROJECT NO. W23101021.004	DWN MEZ	CKD KL	REV 0
OFFICE EBA-VANC	DATE January 14, 2008		

Figure 8

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LEGEND

- MacTung Project
- Local Study Area
- Wildlife Study Area
- NWT - Yukon Border
- Known Mineral Lick
- Contour (100m interval)
- Esker
- Limited-use Road
- Road
- Trail
- Watercourse
- Waterbody
- Wetland
- 2007 Species**
- Grizzly Bear
- Wolf
- Wolverine
- Observation Type**
- Sign
- Visual

NOTES
Base data source:
NTS 1:50,000

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2007 ENVIRONMENTAL BASELINE STUDIES
WILDLIFE REPORT**

**Incidental Wildlife
within the Study Area**

PROJECTION UTM Zone 9	DATUM NAD83		
Scale: 1:130,000			
FILE NO. W23101021-004_Wild_Map009_Figure9.mxd			
PROJECT NO. W23101021.004	DWN MEZ	CKD KL	REV 0
OFFICE EBA-VANC	DATE January 14, 2008		

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Figure 9



PHOTOGRAPHS





Photo 1
Typical moose habitat in low valley habitats.



Photo 2
Dall's sheep ram observed within the study area.



Photo 3
Dall's sheep track recorded along the Canol Road.



Photo 4
Occupied Gyrfalcon territory detected within the study area.