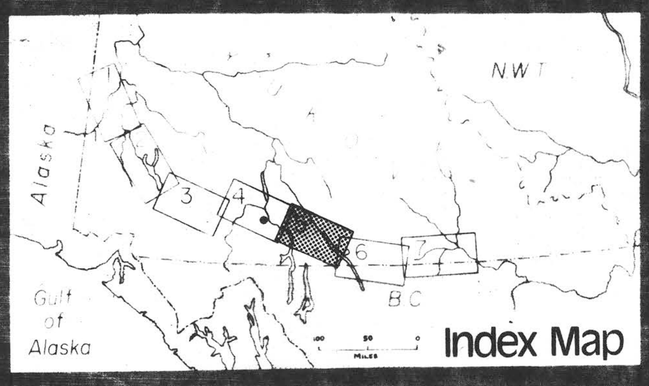
MAP 5
TERRAIN OVERVIEW
ALCAN PIPELINE
YUKON TERRITORY



Index Map

Refer to Geologic Legend on Front Page.

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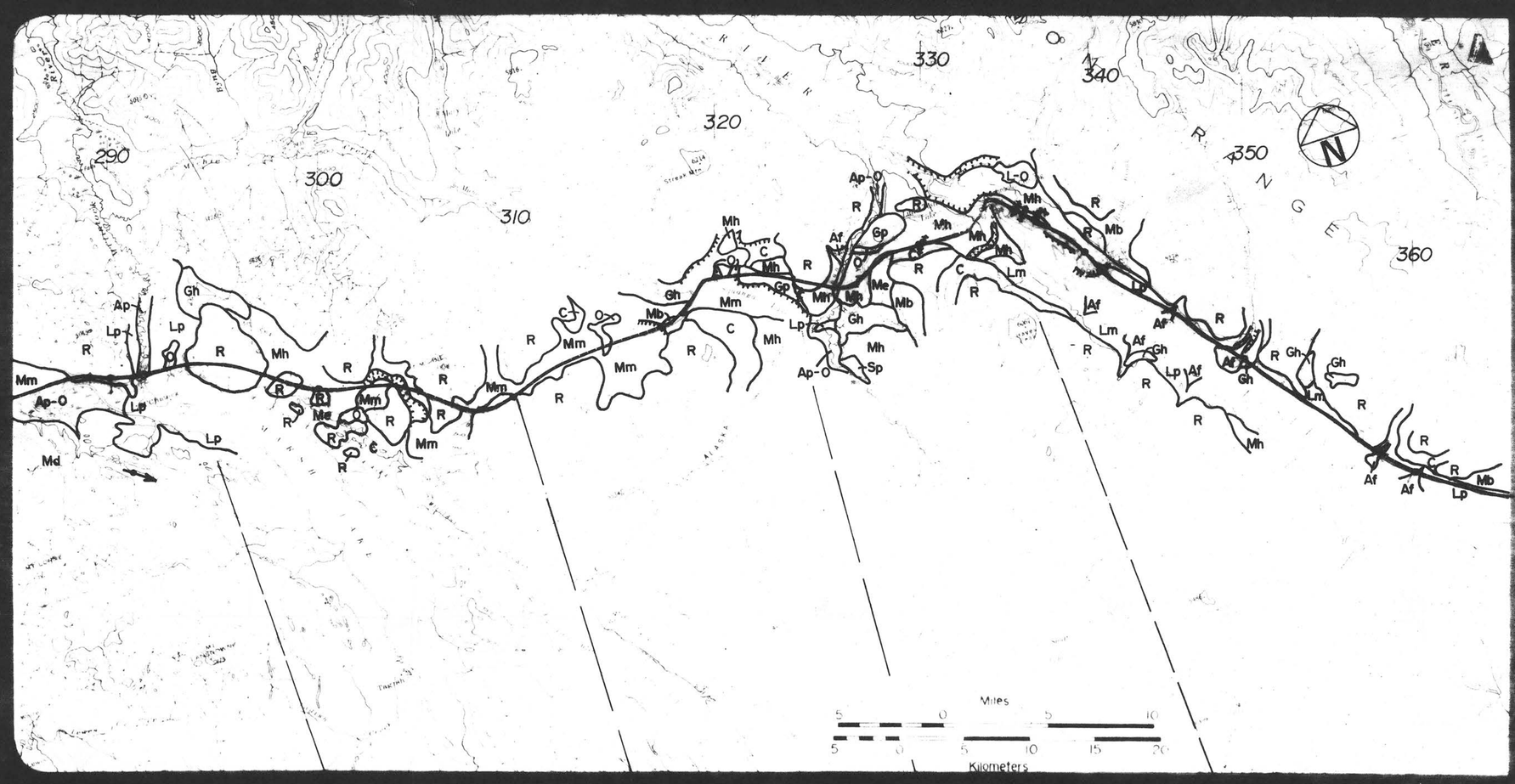

PHYSIOGRAPHIC UNITS	TESLIN PLATEAU	TESLIN PLATEAU	TESLIN PLATEAU	TESLIN PLATEAU	TESLIN PLATEAU SOUTH OF TESLIN LAKE BIG SALMON RANGE NORTH OF TESLIN LAKE
PHYSICAL ENVIRONMENT — TERRAIN TYPES	Gently rolling bouldery till plain, bedrock and glaciolacustrine plain (raised beaches locally).	Primarily bedrock, eroded rolling till plains, and deeply incised meltwater channels.	Gently rolling till plain, eroded in places, and hummocky glaciofluvial unit.	Hummocky bouldery till generally, bedrock in western section and colluvial unit south of Little Teslin Lake.	Mainly glaciolacustrine silt or sand plain or terrace, hummocky till moraine near Johnson's Crossing; numerous streams and alluvial fans.
LOCAL RELIEF AND DRAINAGE	Low relief to planar in all but rock terrain where slope is moderately steep; well drained except for M°Clintock River flood plain and organic locality.	Bedrock areas are moderately steep with abrupt minor scarps; incised valleys are abrupt and steep; morainic areas have low slopes.	Low relief generally, a few abrupt low scarps in till or outwash; well drained except for minor organic patches northeast of Squanga Lake.	Low to moderately steep locally; well drained except for Sianga Creek alluvium; steep scarp in till at Johnson's Crossing.	Low relief to gently rolling numerous scarps at creek crossings. Well drained.
GROUND ICE AND PERMAFROST	Scattered permafrost patches occur in vicinity of M°Clintock.	West flank of Mt. Migbie probably contains pockets of ground ice scattered permafrost.	Scattered permafrost occurs as patches along this section of the highway; probably common at higher elevations along route.	Possible ground ice in north-facing colluvial unit. Scattered permafrost. (see notes).	Scattered permafrost occurs along this section of the highway, perenially frozen silt encountered during construction. Thaw settlement still occurring; scattered. (50)
BEDROCK LITHOLOGY	Volcanics, unknown age in north; Jurassic greywacke, arkose, quartzite, conglomerate siltstone hornfels, argillite in south. (8)	Greywacke, siltstone, argillite, conglomerate, Triassic and Jurassic age, volcanics. (7)	Volcanics or altered volcanics, chert, quartzite. (7)	Volcanic Permean and Triassic ages. Argillaceous sandstone and siltstone greywacke Triassic or Jurassic age. (7, 26)	Cache Creek group (limestone) and volcanics and altered volcanics south of Teslin Lake. Undifferentiated volcanic and sedimentary rocks Triassic or Jurassic in age north of Teslin Lake. (7, 26)
HYDROLOGY	M°Clintock River mean annual runoff 0.6 CFSM; maximum annual runoff 6.6 CFSM; slope 3.9 feet per mile; ice thickness 2.17 feet in April. (54, 65, 66)	Teslin River drainage basin normal to north with high gradient streams; flash floods during high intensity summer storms.	Mitchie Creek, Squanga Lake.	Squanga Creek, Teslin River, mean annual runoff 0.9 CFSM maximum annual runoff of 5.6 CFSM. Slope 12.7 feet per mile; ice thickness 2.69 feet in March. (54, 65, 66)	Teslin Lake fluctuates 13 feet. Brooks Brook, Deadmans Creek (largest), Tree Creek and Ten Mile Creek, Fox Creek. (54)
PROCESSES AND STABILITY	Soil creep along bedrock slope where local surficial material occurs; flood hazard of M°Clintock River.	Frost action at higher elevations and soil creep on most slopes.	Possible gully erosion into Squanga Lake at crossing.	Gully erosion at Teslin River Crossing; soil creep in colluvial unit, possible icing.	Flash floods, gully erosion at crossings. Shoreline erosion of Teslin Lake. Thaw settlement. (50)
ENGINEERING IMPLICATIONS AND CONSTRUCTION MATERIALS	Possible bedrock excavation northwest of M°Clintock, also slopes may be difficult to traverse. Aggregate in beach ridges and glaciofluvial unit.	Considerable steep bedrock terrain and several abrupt scarps could be avoided. A very difficult location as shown. Aggregate may be rare.	Permafrost probably common. Aggregate abundant.	Some bedrock excavation in the western part; highway crossing, and crossing of Teslin River. Aggregate abundant. Rare permafrost.	Numerous narrow valleys may pose minor construction difficulty; aggregate available. Some pockets of ice rich silt possible.
LIVING ENVIRONMENT — VEGETATION	Lodge Pole Pine with scattered aspen and grassy meadows along M°Clintock Creek.	This section is in subalpine region above 3000'. The prevalent vegetation is willows scrub birch, aspen and stunted spruce on dryer south facing slopes. Grassland is common.	Squanga Lake, Mitchie Creek complex highly convolved shoreline with aquatic vegetation.	Scrub forest of coniferous aspen, dominate along the shores of Teslin Lake.	Scrub forests of coniferous trees and aspen.
FISHERIES	M°Clintock River is used in late summer by Chinook salmon in their upstream migration to outlet of Mitchie lake to spawn.			North end of Teslin Lake is good habitat for lake trout and asco. Important lake trout spawning area near outlet of Teslin River. Teslin River is migratory route for Chum and Chinook salmon. Precise spawning locations in Teslin River system not known.	Grayling populations are found in most streams entering Teslin Lake.
MAMMALS AND BIRDS	Waterfowl staging and breeding area at northeast end of Marsh Lake and along the Yukon River. Beaver habitat along M°Clintock River.	Marsh Lake waterfowl staging in spring and fall.	Squanga Lake is known summer range of Moose. Mt. Mitchie Squanga Lake, Judith Creek valley are wintering areas of woodland caribou.	Waterfowl and raptor breeding area east of Teslin air strip. Caribou and Moose range, small mammal habitat and wildfowl staging along Teslin River valley northwest of route.	
RESEARCH PRIORITIES	Bedrock localities. Erosion on banks of M°Clintock River.	Bedrock localities. Possible permafrost. Relocation study.	Location of permafrost	Relocation study to avoid bedrock in Western part. Spawning locations of salmon in Teslin River system.	Location of permafrost.
	The rivers of the Upper Yukon drainage that are crossed in this section of the route include the M°Clintock, Mitchie Creek, Squanga Creek and Teslin River. Further hydrological and environmental information is necessary for design of crossings.				
NOTES	*Permafrost at MP 890. (21) *Samples, no permafrost at MP 891.5. (50)	*Permafrost at MP 882; 1°10" deep, 3" thick. (50) *Permafrost at MP 885. (21) *Samples, no permafrost at MP 886.5. (21)	*Samples, no permafrost at MP 854. (50) *Permafrost at MP 863.6. (13) *Permafrost at MP 864-866. (50)	*Permafrost at MP 844, 1°7" deep, 8" thick. (50) *Sampled, no permafrost at MP 849. (50) *Sampled, no permafrost at MP 849.8. (50)	*Permafrost at MP 809. (21) *Samples, no permafrost MP 814. (50) *Permafrost at MP 815. (21) *Permafrost at MP 816. (21) *Permafrost at MP 818. (21) *Permafrost at MP 819, 2°0" deep, 1°7" thick. (50) *Permafrost at MP 825.2, 1°7" deep, 1°7" thick. (50) *Permafrost at MP 828.8, 1°10" deep, 5°8" thick. (50) *Permafrost from MP 828 to 833. (21) *Sampled, no permafrost at MP 834. (21,43) *Sampled, no permafrost from MP 835 to 838.5 (21)