

RIVER BANK STABILITY MAPS

GSC MAP 8-1973
RIVER BANK STABILITY MAP
To accompany
THE STABILITY OF NATURAL SLOPES IN THE MACKENZIE VALLEY
by J.A. Code

Environmental Social Program Report 73-9
Prepared by the Department of Energy, Mines and Resources
for the Environmental-Social Program, Northern Pipelines

LEGEND

GEOLOGIC AGE	DESCRIPTION	MAP NOTATION	MODE OF EROSION	TYPICAL SLOPE CHARACTERISTICS
Quaternary and Recent	Granular and fine grained (cohesive) uncemented clastic sediments (Soil cover)	Qs	Negligible, some mass transport of beach and lower slope material by water and river ice.	Stable slopes, vegetated, usually 15° or less. Burnt areas unstable at 5° or less.
		Qa	Mass movement confined to active layer. Failures also shallow in non-permafrost areas. Mainly earthflows, detachment slides, solifluction. Gully erosion and slope-wash.	Slope angle 15-35°. Displaced material usually highly deformed due to high moisture contents in active layer. Slopes usually less than 100 feet high.
		Ql	Large scale, retrogressive failures (translational slides, slumps, flows), usually accompanied by large scale gullying. Characteristic of glacio-lacustrine sediments overlain by glaciofluvial sands.	Steep slopes greater than 100 feet in height. Displaced blocks usually relatively undeformed during movement; sometimes consist of frozen soil and often exhibit backward tilt.
Tertiary	Weakly cemented mainly clastic sediments-sandstone, limestone, conglomerate, shale.	Te	Gullying, slope wash, infrequent slumping.	Moderate to steep upper slope; talus accumulation at toe consisting of granular and fragmented rock debris.
Cretaceous	Weak soft shale; weakly cemented sandstone and siltstone.	Ka	Gullying, slope wash, shallow active layer slides.	Bank height less than 100 feet. Weathered slopes generally less than 35°.
		Kl	Large scale retrogressive failures of high shale banks.	Steep shale banks unstable at heights of over 100 feet. Low shale content slopes are less susceptible to slumping.
Devonian	Mainly well cemented, resistant sedimentary rock. Limestone, sandstone, dolomite shale.	K	Undifferentiated	
		D	Rockfalls, infrequent slumping. Some high shale content banks more susceptible to gullying and slumping.	Resistant rocks form steep upper valley walls, flatter talus accumulation at toe. Siltier shales erode to low angle valley walls (< 35°).

- NOTES**
- Vertical sequences of the above units observed in the field are shown with components divided by horizontal stroke. For example $\frac{Qa}{K}$ denotes Quaternary with shallow slides over Cretaceous sediments. Thicknesses of units not measured.
 - Notations showing combinations of above subdivisions such as Qas indicate predominance of Qa with subordinate Qs.
 - Transitions between units are often gradual rather than abrupt; in such instances boundaries are chosen arbitrarily.
 - Where the above notation is applied to meandering rivers, instability if indicated applies only to outside banks of meander loops.

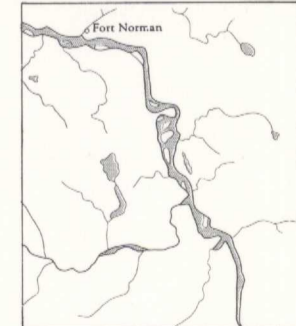
Compiled by J.A. Code from information collected in 1971-1972

Cartography by Geological Survey of Canada

Printed by Surveys and Mapping Branch 1973



DECLINATION OF THE COMPASS NEEDLE, 1957

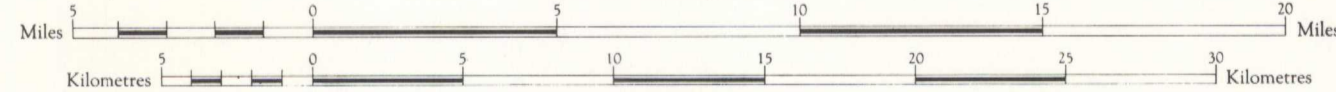


REFERENCE

Road, Hard Surface, All Weather	2 Lines, 2 Lanes, 20' or more
Low Surface, All Weather	2 Lines, 2 Lanes, 10' or more
Low Run, 2 Lanes	All Weather, Dry Weather
Cart Track, Trail	Cart Track
Railway, Multiple Track	Single Track
Boundary, International	Province or State
County or District	Reservation, Indian, Military, etc.

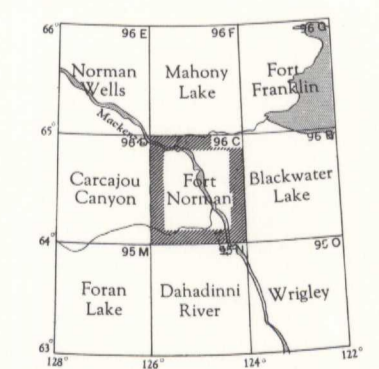
FORT NORMAN
DISTRICT OF MACKENZIE
NORTHWEST TERRITORIES

Scale 1 : 250,000
1 Inch to 4 Miles approximately.



REFERENCE

Church, School	4	Horizontal Control Point	△
Settlement, Town	□	Spot Elevation, in feet	124
Contour, Elevation	100	Fence, Solid	—
Depression	—	Sump or Marsh	—
Approximate	—		
Dry River Bed	—		
Stream, Intermittent	—		
Dam	—	Lighthouse	—
Falls	—	Water	—
Airfield on Land	—	Landing Ground, Anchorage	—
Power Transmission Line	—		



NOTE: On the above index the sheets published are shown shaded.