PRELIMINARY

BASIC ENVIRONMENTAL DATA

WHITESAND CREEK BRIDGE

REFERENCE MILE 460 MACKENZIE HIGHWAY

DEPARTMENT OF PUBLIC WORKS

EDMONTON, CANADA

January , 1973

F. F. SLANEY & COMPANY LIMITED

Vancouver, Canada

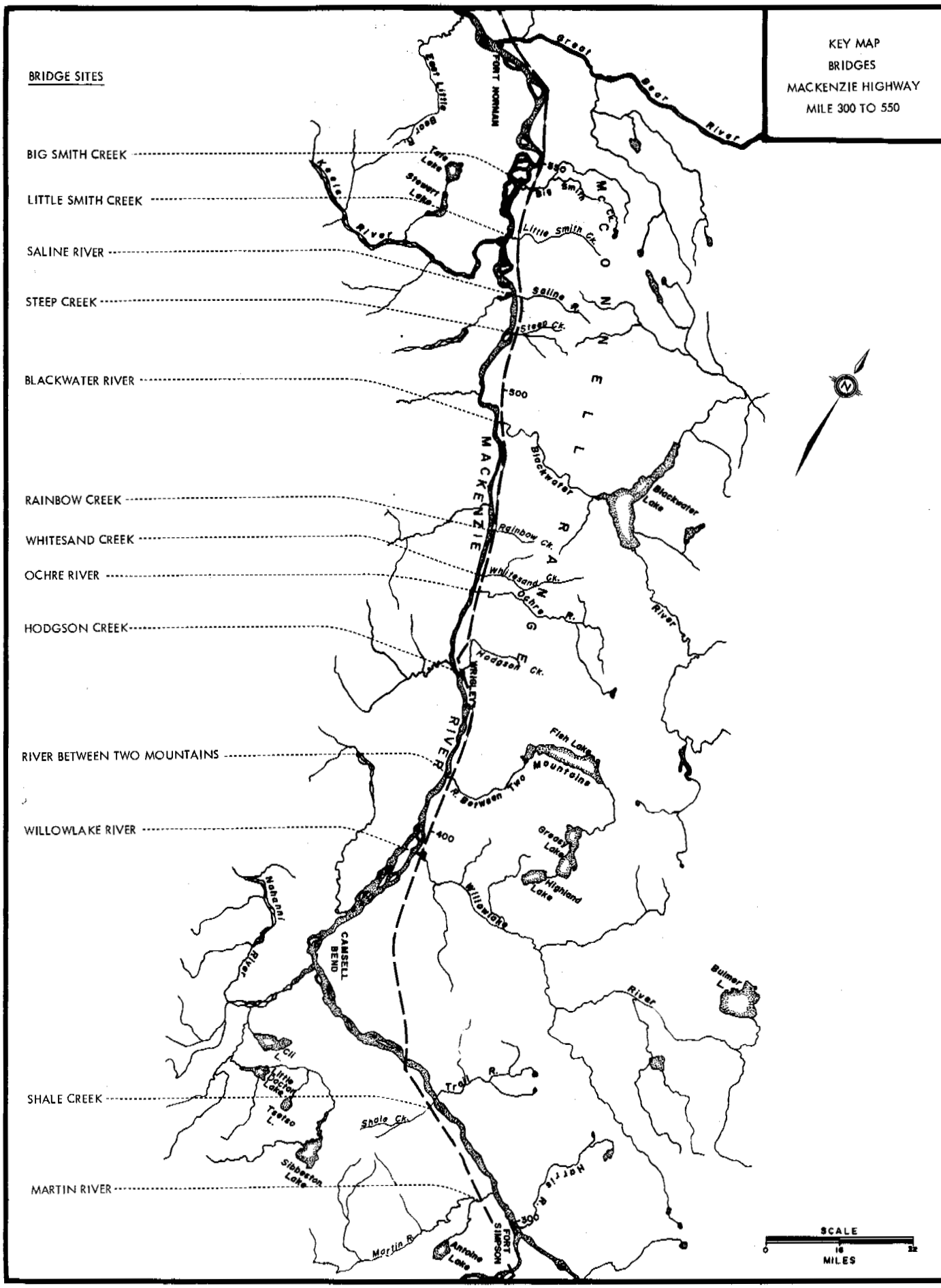
BASIC ENVIRONMENTAL DATA
WHITESAND CREEK BRIDGE
REFERENCE MILE 460

MACKENZIE HIGHWAY
NORTHWEST TERRITORIES

DEPARTMENT OF PUBLIC WORKS
EDMONTON, CANADA

JANUARY 1973

F.F. SLANEY & COMPANY LIMITED
VANCOUVER, CANADA


KEY MAP
BRIDGES
MACKENZIE HIGHWAY
MILE 300 TO 550
BRIDGE SITES
BIG SMITH CREEK
LITTLE SMITH CREEK
SALINE RIVER
STEEP CREEK
BLACKWATER RIVER
RAINBOW CREEK
WHITESAND CREEK
OCHRE RIVER
HODGSON CREEK
RIVER BETWEEN TWO MOUNTAINS
WILLOWLAKE RIVER
SHALE CREEK
MARTIN RIVER
Great Bear River
FORT NORMAN
East Little Bear R.
Keele River
Tate Lake
Stewart Lake
Big Smith Ck.
Little Smith Ck.
Saline R.
Steep Ck.
MACKENZIE HIGHWAY
Blackwater R.
Blackwater Lake
Rainbow Ck.
Whitesand Ck.
Ochre R.
Hodgson Ck.
MACKENZIE RIVER
Fish Lake
R. Between Two Mountains
Greasy Lake
Highland Lake
Willowlake
Nahanni River
CAMSELL BEND
Bulmer L.
River
Cli L.
Little Doctor Lake
Doctor Lake
Taotso L.
Shale Ck.
Trout R.
Sibbeston Lake
Martin R.
Antoine Lake
FORT SIMPSON
Horne R.
300
400
500
550
SCALE
0
16
32
MILES


MACKENZIE HIGHWAY
WHITESAND CREEK BRIDGE
REFERENCE MILE 460
MACKENZIE
RIVER

PART 1

BASIC ENVIRONMENTAL DATA

1.1 SURFICIAL GEOLOGY

The north side of the bridge site consists of glaciolacustrine material and may be susceptible to mass movement and thermal erosion. Adequate groundwater and surface drainage should be provided. The south side is an alluvial terrace. Channel is the striaght part of thalweg. Possible site of erosion is against northern bank at bridge site.

1.2 SOILS

Soils along bridge approaches may become unstable if disturbed. Organic top soils should be saved for spreading on fill slopes to assist revegetation.

1.3 VEGETATION

Past disturbance from winter road operations is so extensive that the anticipated disturbance from construction of the bridge would be insignificant. The existing roads should be utilized for temporary access and storage sites to prevent further disturbance.

Forest stands at the crossing contain white spruce and aspen to 40 feet in height.

1.4 WILDLIFE

Wildlife should be little affected since limited riparian habitat will be disturbed.

1.5 FISH

The bridge design presented for Whitesand Creek does not involve significant encroachment on the stream bed, but the profile indicates an excavation under the bridge. No reason for removing bottom materials is given. The probable effects of the approach fills on possible ice and debris movement and water velocities should be determined.

Particular attention should be directed to the control of siltation from surface runoff. Runoff from the south bank should be diverted to flat areas. Horizontal ditches along the north bank may be feasible.

No specific information is available on the fish or fishery of this stream. It appears to be suitable spawning and rearing habitat for several species at least during the spring and summer months.

1.6 ARCHAEOLOGY

The Whitesand Creek area has apparent low archaeological significance.

1.7 LANDSCAPE - RECREATION

Scars from previous construction operations are the major concern. Bridge construction should not increase the damage.

Light recreational demand will be satisfied by the proposed bridge structure.

1.8 AESTHETICS

This is the common bridge design advocated for four creeks and the same comments made for this bridge applies for this site.

1.9 SOCIO-ECONOMIC

No special significance identified.

1.10 CONSTRUCTION

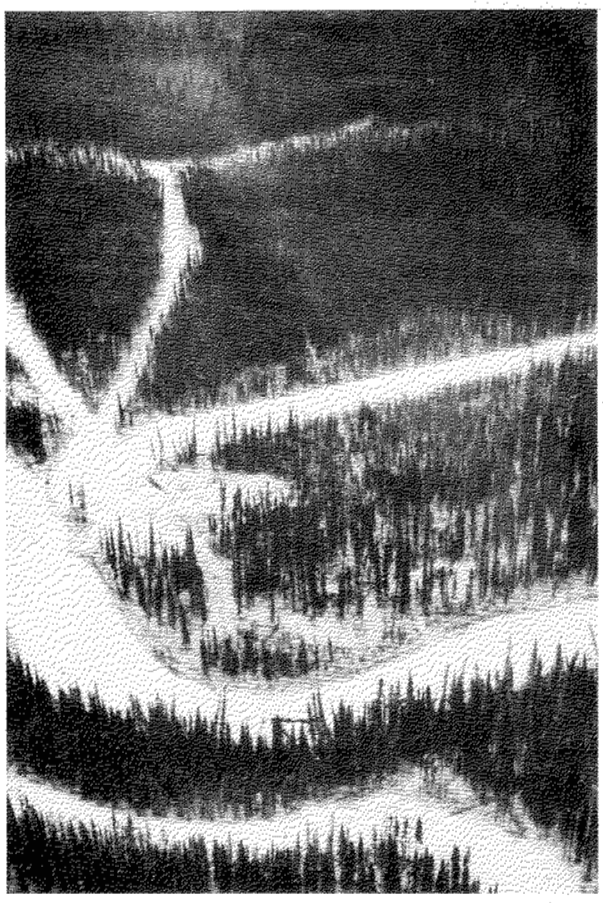
Construction should be possible throughout the summer, fall and winter. Construction crews could be accommodated at the Blackwater Camp. General site disturbance is not anticipated as existing disturbed areas could be utilized by contractors.

PART 2

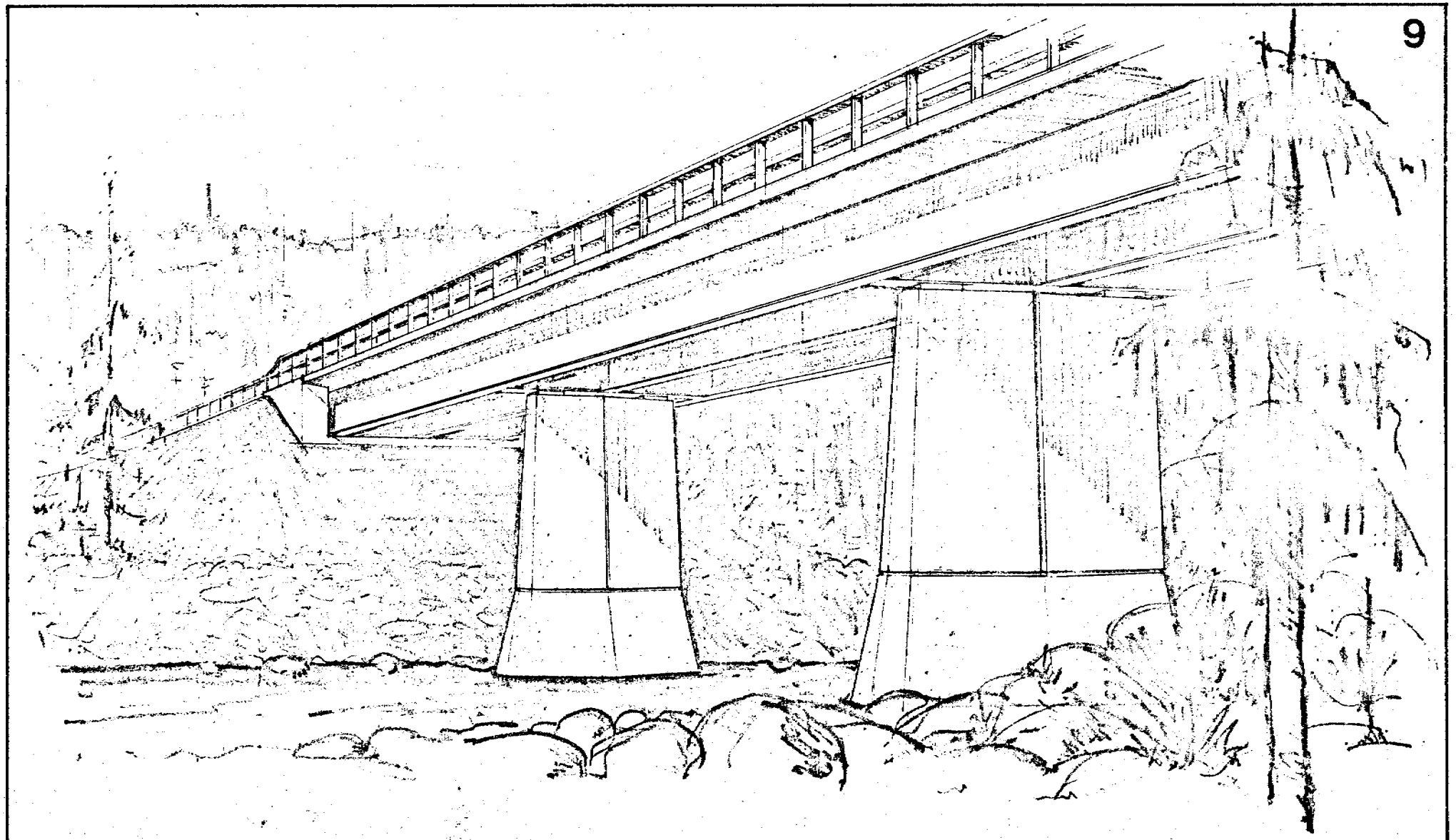
ASSESSMENT

The proposed Whitesand Bridge appears satisfactory from an environmental standpoint. The fish population and site stability should not be adversely affected providing the contractor exercises normal care in construction.

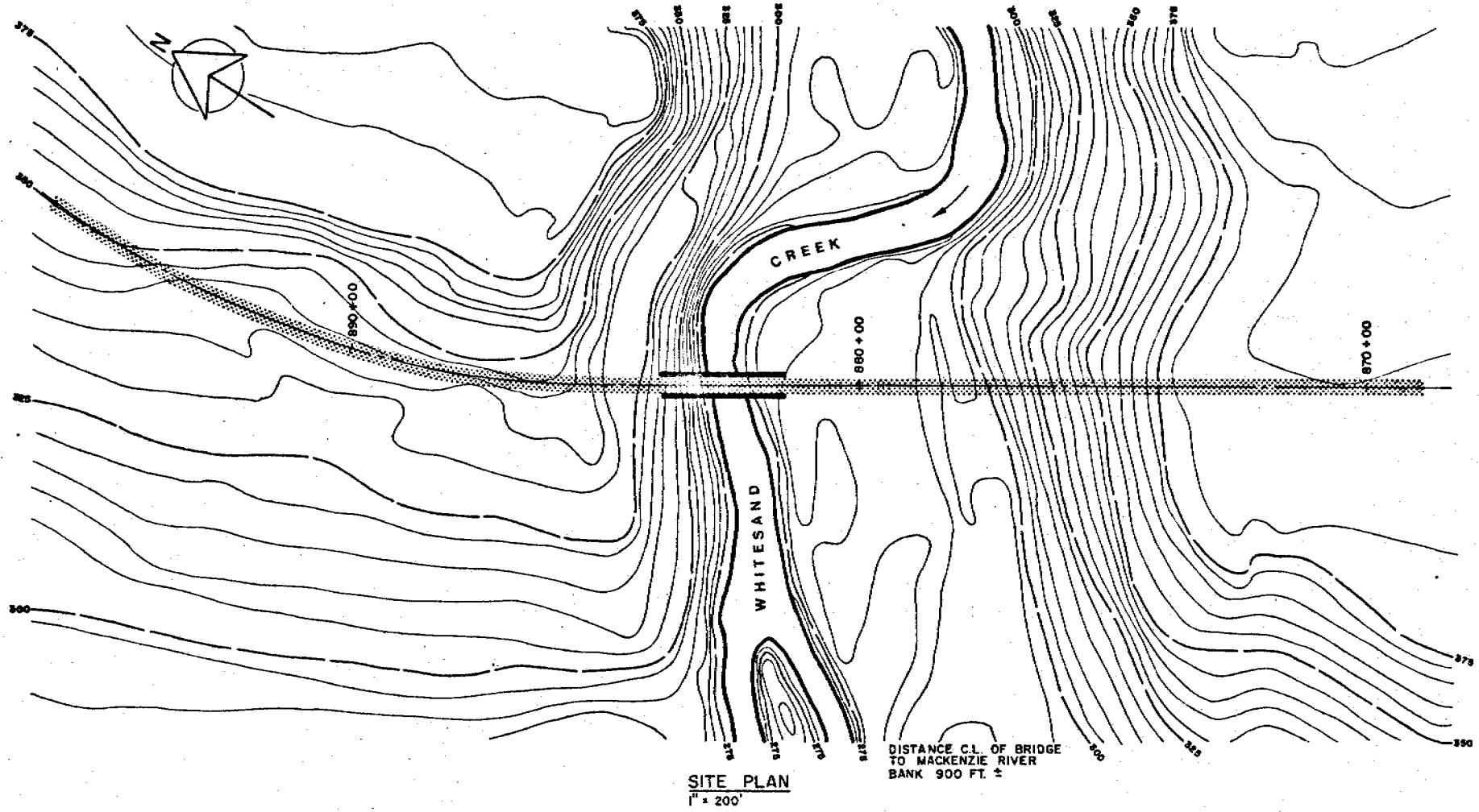
26.10.72. Whitesand Creek. The combined effect of telegraph line and winter road crossings have disturbed the banks of most creeks in this locality. North bank is composed of glaciolacustrine silt and clay up to 46 feet thick; south bank appears to be an alluvial terrace.



26.10.72. Looking south. Vegetation is black spruce, white spruce and larch. Channel is straight with erosion and deposition about equal on each side; normal rip-rap required at base of fill and footings.



RIVER BETWEEN TWO MOUNTAINS
HODGSON CREEK
OCHRE RIVER
WHITESAND CREEK



SITE PLAN
1" = 200'

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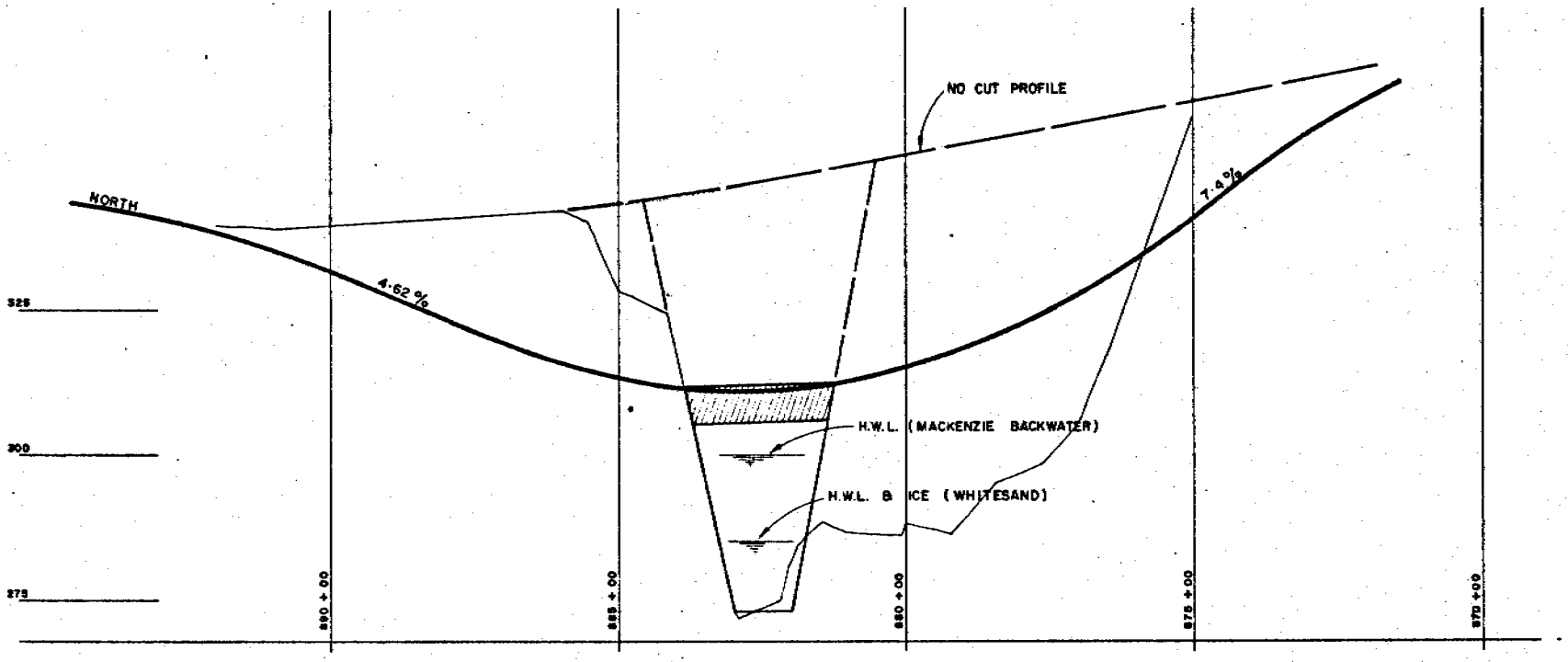
MACKENZIE HIGHWAY

WHITESAND CREEK



PROFILE
VERT. 1" = 20'
HORIZ. 1" = 200'

NOTE:
ELEVATIONS ARE TO GEODETIC DATUM.
CHAINAGES REFER TO FIELD SURVEY.

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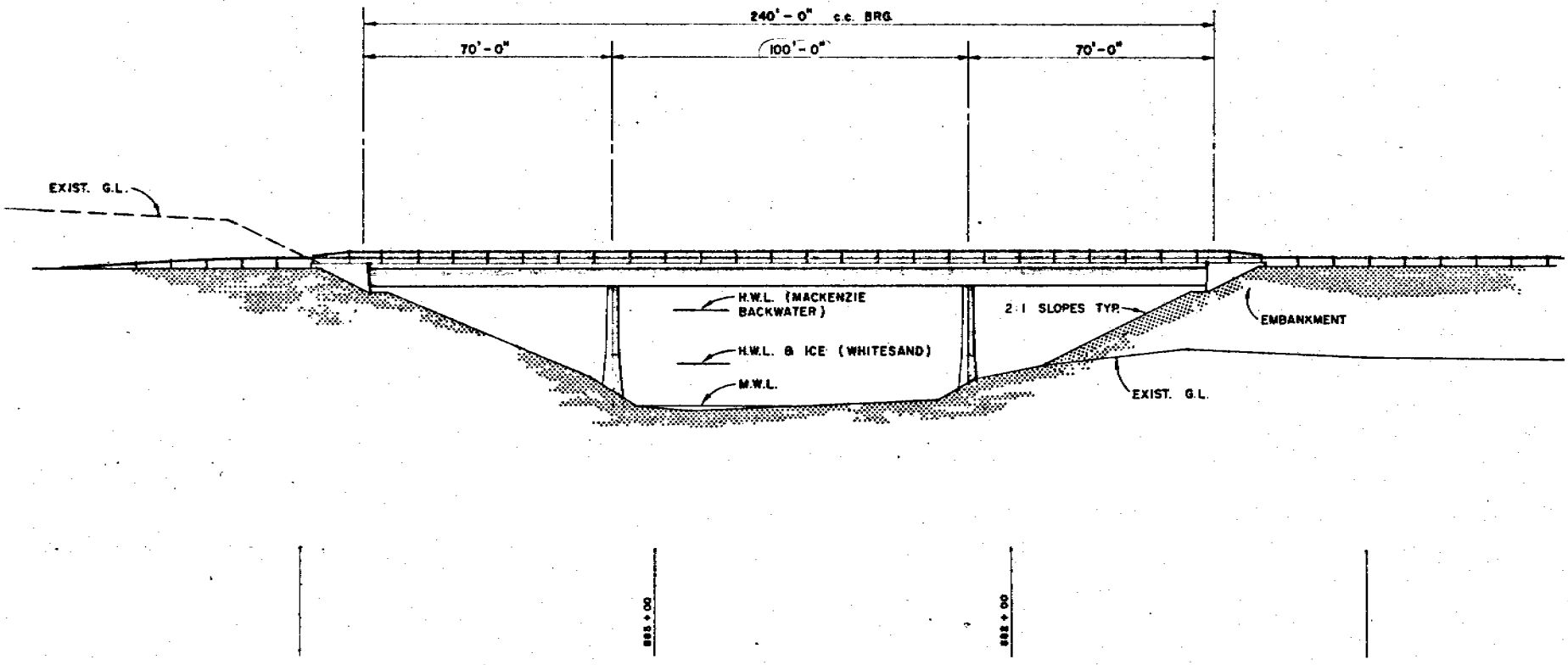

ELEVATION
1" = 30'

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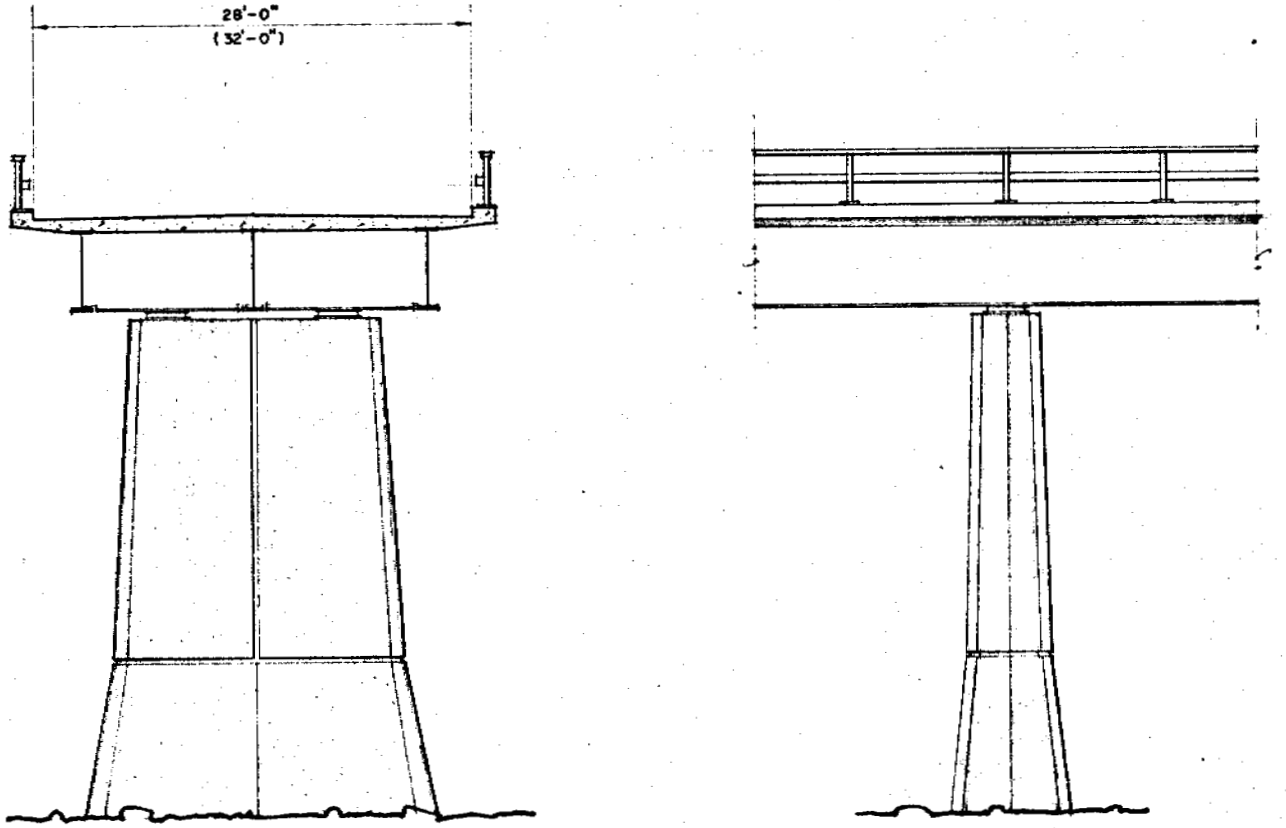
WHITESAND CREEK



SCALE: 1/8" = 1'

MACKENZIE HIGHWAY

TYPICAL SECTION
&
PIER

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