52C10NE0498 16 BAD VERMILION LAKE

010

Diamond Drilling

Area of BAD VERMILLION LAKE

Report Nº 16

Work performed by: The Hanna Mining Co. Limited

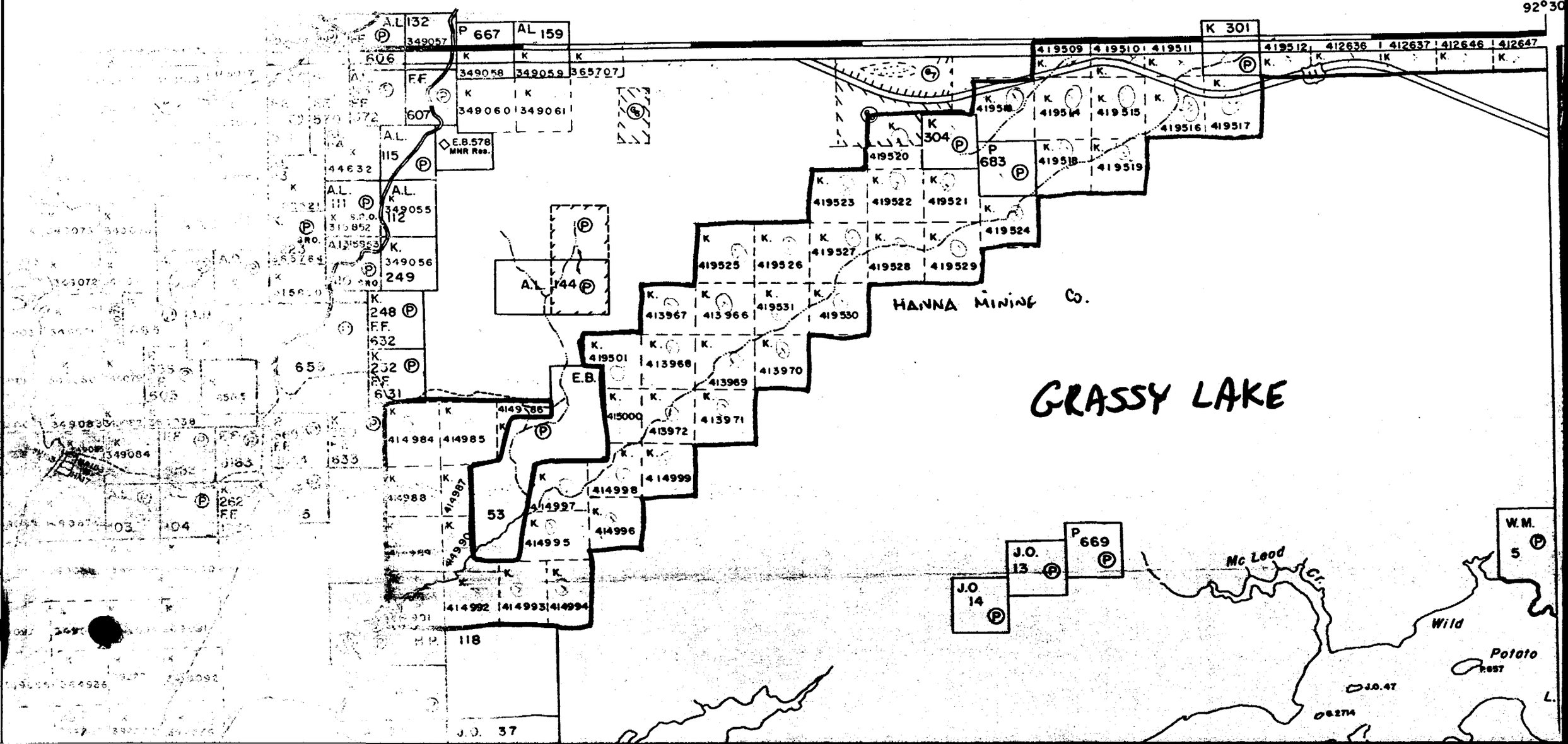
Claim Nº	Hole Nº	Footage	Date	Note
K 419524	MC76-1	802'	Jan/76	(1) (2)

Notes:

(1) FOR MORE INFORMATION SEE FILE #63.3367 MEAP CONTRACT A-6 AND LITTLE TURTLE LAKE DIAMOND DRILLING #13

(2) #16-77

M.2433


92°30
GRASSY LAKE
HANNA MINING Co.
E.B.578 MNR Res.
A.L. 132
349057
P 667
AL 159
K 301
K 304
P 683
A.L. 115
A.L. 111
A.L. 112
349055
349056
249
248
632
252
631
A.L. 144
E.B.
53
118
J.O. 37
J.O. 13
J.O. 14
P 669
W.M. 5
Mc Leod
Wild
Potato
L.
J.O. 47
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Property: Mine Centre

THE HANNA MINING COMPANY

Sheet 1 of 11

Logged by:- John Muhic | Location: Claim #K-419524 | Bearing: N35°W | Depth: 802' | Drill Hole No.:- MC76-1

Date:- January 14, 1976 | N.- 12+50S | Inclination: Collar -50° 130' -47° 250'-41° 400'-20°30' 500'-6° 600'-4° | Started: January 8, 1976

Drilled by:- Norwescon Development Ltd. | E.- Line 100+00E | Equipment: AQ Wire line - 1-1/32" diam. | Completed:- January 15, 1976

PURPOSE: To test C.E.M. anomaly and downward extension of sulphide mineralization on surface.

Footage From	Footage To	Description	Angle of Bedding or Foliation to Core: Footage	Angle	Samples No.	From	To	Core Length	Assays
0	109	Overburden - Clay and Sand							
109	116.5	Casing - 1¼" dia. core Intermediate volcanic - see description below.							
116.5	286.5	Intermediate volcanic - fine grained, generally massive, chloritized weakly sheared, occasional carbonate stringers up to ¼" thick.							
		131-131.6 - 5% fine grained pyrite in stringers and random							
		lenticular blebs.							
		149-150.6 - qtz. carbonate and grey feldspathic banding at							
		45° to core. 3" at 150.5 has 5% fine grained pyrite in	150	45°					
		irregular stringers and blebs.							
		150.6 -162 - Sharp change to medium grained volcanic.							
		162-163 - Curved core of breccia and banding nearly parallel							
		to core - grey feldspathic and qtz. carbonate fragments							
		with 5% pyrite in irregular stringers and blebs.							
		172.5-175.5 - Felsic Volcanic - band of light grey, harder							
		felsic material with carbonate veining - at 172.5 contact	172.5	15°					
		cuts core at 15° - contact at 175.5 cuts core at 50°.	175.5	50°					
		175.5-188 - Intermediate volcanic with weak shearing at 65°							
		to core - some quartz carbonate structures that look							
		like amygdules.	180	65°					

Property: Mine Centre

THE HANNA MINING COMPANY

Sheet 2 of 11

Logged by:- John Muhic | Location | Bearing:- | Depth | Drill Hole No.:- MC-76-1

Date:- Jan.14, 1976 | N.- | Inclination:- | Started: Jan. 8, 1976

Drilled by:- Norwescon Development Ltd. | E.- | Elevation:- | Completed:- Jan.15, 1976

Footage From	Footage To	Description	Angle of Bedding or Foliation to Core: Footage	Angle of Bedding or Foliation to Core: Angle	Samples No.	Samples From	Samples To	Samples Core Length	Assays Au oz/ton	Assays Ag oz/ton	Assays Zn %
		191.5 - 195.5 - Band of felsic tuff with disseminated pyrite									
		< 1%	195	60°							
		195.5 - 257.2 - Intermediate volcanic with scattered qtz.									
		carbonate amygdules - more carbonatized from 206.3 - 217									
		widely scattered pyrite crystals < ½%.									
		- some scattered qtz. carbonate veining.									
		257.2 - 267 - Intermediate sheared volcanic with less than ½%	258	50°							
		pyrite stringers parallel to shearing.									
		267 - 286.5 - Fine grained Intermediate Volcanic as above									
		- scattered pyrite cubes up to 3/8".									
286.5	351.0	Felsic Volcanic - grey, fine grained, feldspathic, weak									
		foliation, some qtz. carbonate stringers, sericitized									
		287- 288.4 - fine grained disseminated pyrite in stringers 10-15%			2339	286.5	288.4	1.9	Nil	.04	.19
		288-288.4 - little granular sphalerite < 1%									
		288.4 - 295.5 - Felsic volcanic - grey fine grained, with qtz	295.5	65°							
		carbonate stringers and sericitic alteration.									
		- sharp contact with underlying tuff									
		295.5 - 300.0- Grey bedded felsic tuff - bedding at 65° to core.	297	65°							
		- 3 seams of pyrite ¼" thick with minor disseminated pyrite.									

Property: Mine Centre

THE HANNA MINING COMPANY

Sheet 3 of 11

Logged by:- John Muhic | Location | Bearing:- | Depth | Drill Hole No.:- MC-76-1

Date:- Jan.14, 1976 | N.- | Inclination:- | Started: Jan.8, 1976

Drilled by:- Norwescon Development Ltd. | E.- | Elevation:- | Completed:- Jan.15, 1976

Footage From	Footage To	Description	Angle of Bedding or Foliation to Core: Footage	Angle of Bedding or Foliation to Core: Angle	Samples No.	Samples From	Samples To	Samples Core Length	Assays Au oz/ton	Assays Ag oz/ton	Assays Zn %	Assays Cu %
		300.0 - 302.0 - Ash bed? - speckled white and dk. grey with angular and rounded white fragments up to 1/8"										
		302.0 - 302.6 - Broken up fractured zone approximately 50% carbonate - some pyrite seams ≈ 10%.										
		302.6 - 305.0 - Grey bedded tuff with compositional banding at 75° to core <5% pyrite in seams up to 1/8" parallel to bedding.	304	75°								
		305.0 - 306.5 - Grey tuff - no sulphides										
		306.5 - 309.0 - Grey tuff with seams of pyrite parallel to bedding with pyrite, sphalerite, chalcopyrite in thread - like stringers crosscutting bedding and disseminated grains - 5% sulphides - ½% sp - trace ccp			2340	306.5	309.0	2.5	Nil	.02	.83	.06
		309.0 - 315.0 - Grey tuff with < ½% chalcopyrite in tiny disseminated grains. - irregular bands of white feldspathic fragments probably spherulites.										
		315.0 - 321.0 - Grey felsic bedded tuff < ½% sulphide including small disseminated grains of sphalerite and chalcopyrite.	317	70°								

Property: Mine Centre

THE HANNA MINING COMPANY

Sheet 4 of 11

Logged by:- John Muhic | Location | Bearing:- | Depth | Drill Hole No.:- MC-76-1

Date:- Jan.14, 1976 | N.- | Inclination:- | Started: Jan.8, 1976

Drilled by:- Norwescon Development Ltd. | E.- | Elevation:- | Completed:- Jan.15, 1976

Footage From	Footage To	Description	Angle of Bedding or Foliation to Core: Footage	Angle	Samples No.	From	To	Core Length	Assays Au oz/ton	Ag oz/ton	Zn %	Ti %
		321.0 - 326.0 - Grey felsic tuff with gray feldspathic bands up										
		to 1/8" thick - minor disseminated sphalerite grains										
		326.0 - 351.0 - Grey felsic volcanic - with 10% leucoxene			2335	326.0	334.0	8.0	.002	Tr	.09	.75
		crystals - 10% pyrite in brassy cubes and bronze dis-			2336	334.0	343.5	9.5	Nil	.01	.15	.72
		seminated grains in seams,			2337	343.5	351.0	7.5	.002	Nil	.08	.73
		< 1% sphalerite										
		irregular qtz carbonate veins - up to 1" wide.										
351.0	458.0	Rhyolite - light grey, very hard, with blue quartz eyes	351	55°								
		- sericitized, occasional quartz amygdules										
		351.0-352.5 - Rhyolite as above										
		10% sulphides <1% sphalerite										
		pyrite in seams and disseminated										
		352.5 - 354.0 - Felsic volcanic - dk. grey with leucoxene										
		About 1% sulphide							Au	Ag	Zn	
		354 - 361.0 - Rhyolite as above			2338	351.0	361.0	10.0	.01	.025	.19	
		with 10% sulphides about 1% sphalerite										

Property: Mine Centre

THE HANNA MINING COMPANY

Sheet 5 of 11

Logged by:- John Muhic | Location | Bearing:- | Depth | Drill Hole No.:- MC-76-1

Date:- Jan.14, 1976 | N.- | Inclination:- | Started: Jan.8, 1976

Drilled by:- Norwescon Development Ltd. | E.- | Elevation:- | Completed:- Jan.15, 1976

Footage From	Footage To	Description	Angle of Bedding or Foliation to Core: Footage	Angle of Bedding or Foliation to Core: Angle	Samples No.	Samples From	Samples To	Samples Core Length	Assays
		361.0 - 401.0 - Rhyolite as above -							
		About 5% sulphides							
		< ½% sphalerite- at 373 -about 6" wide -2-3% Zn							
		pyrite granular disseminated							
		-abundant blue qtz. eyes and occassional quartz-carbonate							
		amygdules up to 1/2" in diameter.							
		401.0 - 428.0 - Rhyolite as above.							
		- about 1/2% sulphides 1:1 ratio pyrite : sphalerite							
		428.0 - 440.0 - Rhyolite - lighter coloured, more siliceous							
		- abundant blue qtz. eyes, massive							
		- 1/2% sulphides - pyrite/sphalerite = 1/1							
		440.0 - 458.0 - Rhyolite - as above							
		- abundant blue qtz eyes							
		- occassional quartz carbonate veins up to 2" wide							
		< 1/2% sulphides - pyrite, sphalerite							
		- disseminated							
458.0	802.0	Felsic Volcanic - darker than rhyolite due to increase in							
		chloritized ferromagnesian content							
		< 1½% disseminated sulphide - py, sp.							

Property: Mine Centre

THE HANNA MINING COMPANY

Sheet 6 of 11

Logged by:- John Muhic | Location | Bearing:- | Depth | Drill Hole No.:- Mc-76-1

Date:- January 14, 1976 | N.- | Inclination:- | Started: January 8, 1976

Drilled by:- Norwescon Drilling Ltd. | E.- | Elevation:- | Completed:- January 15, 1976

Footage From	Footage To	Description	Angle of Bedding or Foliation to Core: Footage	Angle of Bedding or Foliation to Core: Angle	Samples No.	Samples From	Samples To	Samples Core Length	Assays Au oz/ton	Assays Ag oz/ton	Assays Zn %
		- Carbonatized									
		- occasional qtz-carbonate stringers up to 2"									
		- Abundant blue quartz eyes									
		- occasional qtz -carbonate amygdules									
		- Occasional sericitic bands									
		487.5 - 491.5 - Felsic Volcanic - lighter than above	490	60°							
		- silicified, carbonatized									
		< 1% sulphides - disseminated py, sp									
		- abundant blue qtz eyes									
		- sericitic bands up to 1/4" at 60° to core.									
		491.5 - 494.0 - Felsic Volcanic - as from 458.0 to 487.5									
		494.0 - 495.0 - Quartz-carbonate vein 8" wide underlain	494.6	40°	2341	494.0	495.0	1.0	Nil	Nil	.19
		by 4" zone of disseminated sulphides - 15% - 20%									
		- Vein cut core at 40° angle.									
		- Sphalerite about 2%									
		- Galena < 1/4%									
		495.0 - 502.5 - Felsic volcanic - dark grey									
		- some quartz eyes - less than above									
		< 1% total sulphides - disseminated py, sphal.									

Property: Mine Centre

THE HANNA MINING COMPANY

Sheet 7 of 11

Logged by:- John Muhic | Location | Bearing:- | Depth | Drill Hole No.:- MC-76-1

Date:- Jan.14, 1976 | N.- | Inclination:- | Started: Jan.8, 1976

Drilled by:- Norwescon Drilling Ltd. | E.- | Elevation:- | Completed:- Jan.15, 1976

Footage From	Footage To	Description	Angle of Bedding or Foliation to Core: Footage	Angle of Bedding or Foliation to Core: Angle	Samples No.	Samples From	Samples To	Samples Core Length	Assays Au oz/ton	Assays Ag oz/ton	Assays Zn %	Assays Cu %
		- some quartz carbonate amygdules										
		- seams of sericite and qtz-carbonate										
		502.5 - 503.3 - Felsic volcanic as above										
		- 15% total sulphides in stringers up to 1/4" wide and disseminated.										
		- pyrite fine grained, brassy										
		- sphalerite about 1%, galena <1/4%										
		503.2 -504.0 - Felsic volcanic - light coloured										
		- more siliceous than above										
		- sericitized, carbonatized										
		- sericitic bands up to 1/8" wide										
		504.0 - 514.5 - Felsic volcanic - darker due to Ferromagnesian										
		<1/2% sulphides - disseminated.										
		- carbonatized										
		514.5 - 518.0 - Felsic volcanic - lighter more siliceous			2342	514.5	518.0	3.5	.002	.19	.70	.04
		- 15% sulphides in veins and blebs										
		- 2-3% sphalerite - in veins up to ¼" and disseminated crystals.										
		- trace of chalcopyrite, galena										

Property: Mine Centre

THE HANNA MINING COMPANY

Sheet 8 of 11

Logged by:- John Muhic | Location | Bearing:- | Depth | Drill Hole No.:- MC-76-1

Date:- Jan.14, 1976 | N.- | Inclination:- | Started: Jan.8, 1976

Drilled by:- Norwescon Drilling Ltd. | E.- | Elevation:- | Completed:- Jan.15, 1976

Footage From	Footage To	Description	Angle of Bedding or Foliation to Core: Footage	Angle of Bedding or Foliation to Core: Angle	Samples No.	Samples From	Samples To	Samples Core Length	Assays Au oz/ton	Assays Ag oz/ton	Assays Zn %	Assays Cu %
		518.0 - 554.5 - Felsic volcanic - darker	539	65°								
		- abundant blue qtz eyes										
		- ∠ 1/4% sulphides										
		- disseminated py, sp										
		- carbonatized										
		- sericitized with some chloritic alteration										
		- occassional qtz-carbonate amygdules and veins up to ½" wide.										
		554.5 -566.5 - Felsic volcanic -lighter coloured			2343	554.5	560.4	5.9	Nil	Nil	.41	.03
		- silicified and sericitized, blue qtz. eyes.			2344	560.4	566.5	6.1	.005	.01	.46	.03
		- 10% sulphides in stringers and seams										
		- 2-3% sphalerite, ∠ ½% chalcopyrite										
		566.5 -614.0 - Felsic volcanic - same as from 518.0 to 554.5	596	80°								
		∠ 1% disseminated sulphides - py, sp										
		- abundant blue qtz eyes, sericitized										
		- occassional qtz carbonate veins up to 1/2" wide										
		- foliation 80° to core length										

Property Mine Centre

THE HANNA MINING COMPANY

Sheet 9 of 11

Logged by:- John Muhic | Location | Bearing:- | Depth | Drill Hole No.:- NC-76-1

Date:- Jan.14, 1976 | N.- | Inclination:- | Started: Jan.8, 1976

Drilled by:- Norwescon Drilling Ltd. | E.- | Elevation:- | Completed:- Jan.15, 1976

Footage From	Footage To	Description	Angle of Bedding or Foliation to Core: Footage	Angle of Bedding or Foliation to Core: Angle	Samples No.	Samples From	Samples To	Samples Core Length	Assays
		614.0 - 615.5 - Felsic volcanic - light coloured, massive							
		- sericitized, silicified							
		- stretched pods of chlorite up to 1/8"							
		- possibly amygdules							
		- stretched blue quartz eyes							
		- occassional quartz healed fractures							
		< ½% disseminated pyrite							
		615.5 -637.7 - darker felsic volcanic same as 566.5-614.0							
		637.7 - 646.5 - light coloured felsic volcanic	639	70°					
		- same as 614.0 - 615.5							
		- foliation 70° to core axis.							
		646.5 - 668.0 - Felsic volcanic - dark grey, fine grained							
		- sericitized, carbonatized							
		< 1% very fine grained disseminated sulphides, py, sp							
		- abundant blue quartz eyes							
		668.0 - 671.3 - Felsic volcanic - same as 614.0-615.5							
		- qtz healed fractures up to 1/8"							
		- pods of sulphide in stretched amygdules < 1% - py							

Property: Mine Centre

THE HANNA MINING COMPANY

Sheet 10 of 11

Logged by:- John Muhic | Location | Bearing:- | Depth | Drill Hole No.:- MC-76-1

Date:- January 14, 1976 | N.- | Inclination:- | Started: January 8, 1976

Drilled by:- Norwescon Drilling Ltd. | E.- | Elevation:- | Completed: January 15, 1976

Footage From	Footage To	Description	Angle of Bedding or Foliation to Core: Footage	Angle of Bedding or Foliation to Core: Angle	Samples No.	Samples From	Samples To	Samples Core Length	Assays Au	Assays Ag	Assays Zn	Assays Cu
		671.3 - 738.0 - Felsic volcanic - darker, fine grained	708	76°								
		- abundant small (< ½ mm) quartz eyes										
		- disseminated < ½% pyrite - very fine grained with										
		occasional cubes up to 1/16".										
		- occasional bands of sericitic alteration										
		- occasional qtz-carbonate veins up to ½" wide.										
		738.0 - 742.0 - Lost core										
		742.0 - 748.0 - Felsic volcanic - same as above										
		748.0 - 758.0 - Felsic volcanic - as above	785	85°	2345	748.0	758.0	10.0	Nil	Nil	.39	.01
		- 5-10% sulphide in seams and disseminated grains with			2346	758.0	767.0	9.0	Nil	Nil	.08	Nil
		<½% sphalerite			2347	767.0	777.0	10.0	Nil	Nil	.08	Nil
		- occasional qtz-carbonate amygdules up to ¼" dia.			2348	777.0	787.0	10.0	Nil	.01	.19	Nil
		758.0-798.5 - Felsic volcanic -lighter coloured			2349	787.0	798.5	11.5	Nil	Nil	.16	.01
		- silicified, sericitized										
		- abundant blue qtz. eyes										
		- sericitic banding										
		- 10-15% sulphides in stringers and amygdules as well as										
		disseminated grains and in quartz healed fractures										

THE HANNA MINING COMPANY

Property: Mine Centre

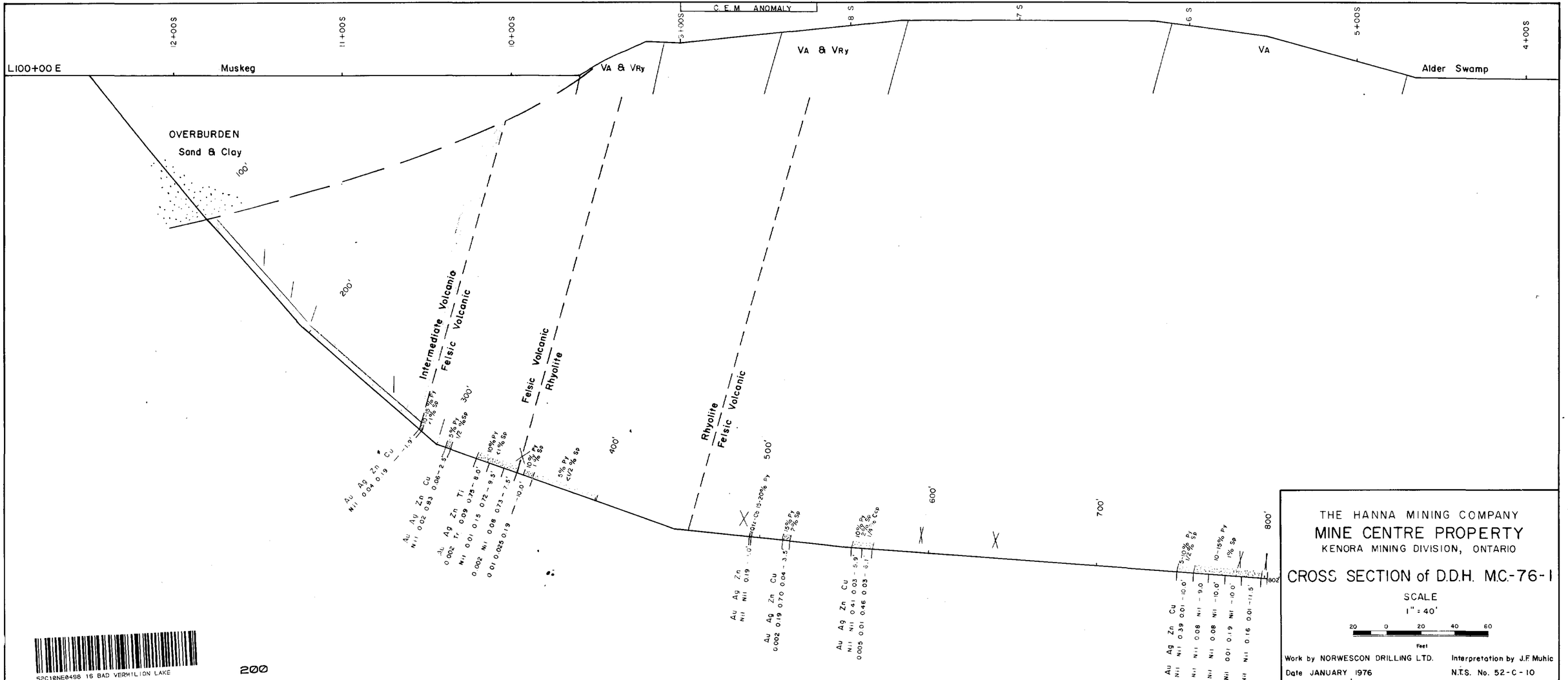
Sheet 11 of 11

Logged by:- John Muhic | Location | Bearing:- | Depth | Drill Hole No.:- MC-76-1

Date:- Jan.14, 1976 | N.- | Inclination:- | Started: Jan. 8, 1976

Drilled by:- Norwescon Drilling Ltd. | E.- | Elevation:- | Completed:- Jan.15, 1976

Footage From	Footage To	Description	Angle of Bedding or Foliation to Core: Footage	Angle of Bedding or Foliation to Core: Angle	Samples No.	Samples From	Samples To	Samples Core Length	Assays
		1-2% sphalerite							
		-Occasional grains of chalcopyrite, galena							
		-Quartz amygdules and healed fractures.							
		798.5 - 802.0 - Felsic volcanic - same as from 748.0 to 758.0	800	88°					
		802.0 - End of hole.							
		Core Recovery = 98.64%							



THE HANNA MINING COMPANY

MINE CENTRE PROPERTY

KENORA MINING DIVISION, ONTARIO

CROSS SECTION of D.D.H. MC-76-1

SCALE

1" = 40'

20 0 20 40 60

Feet

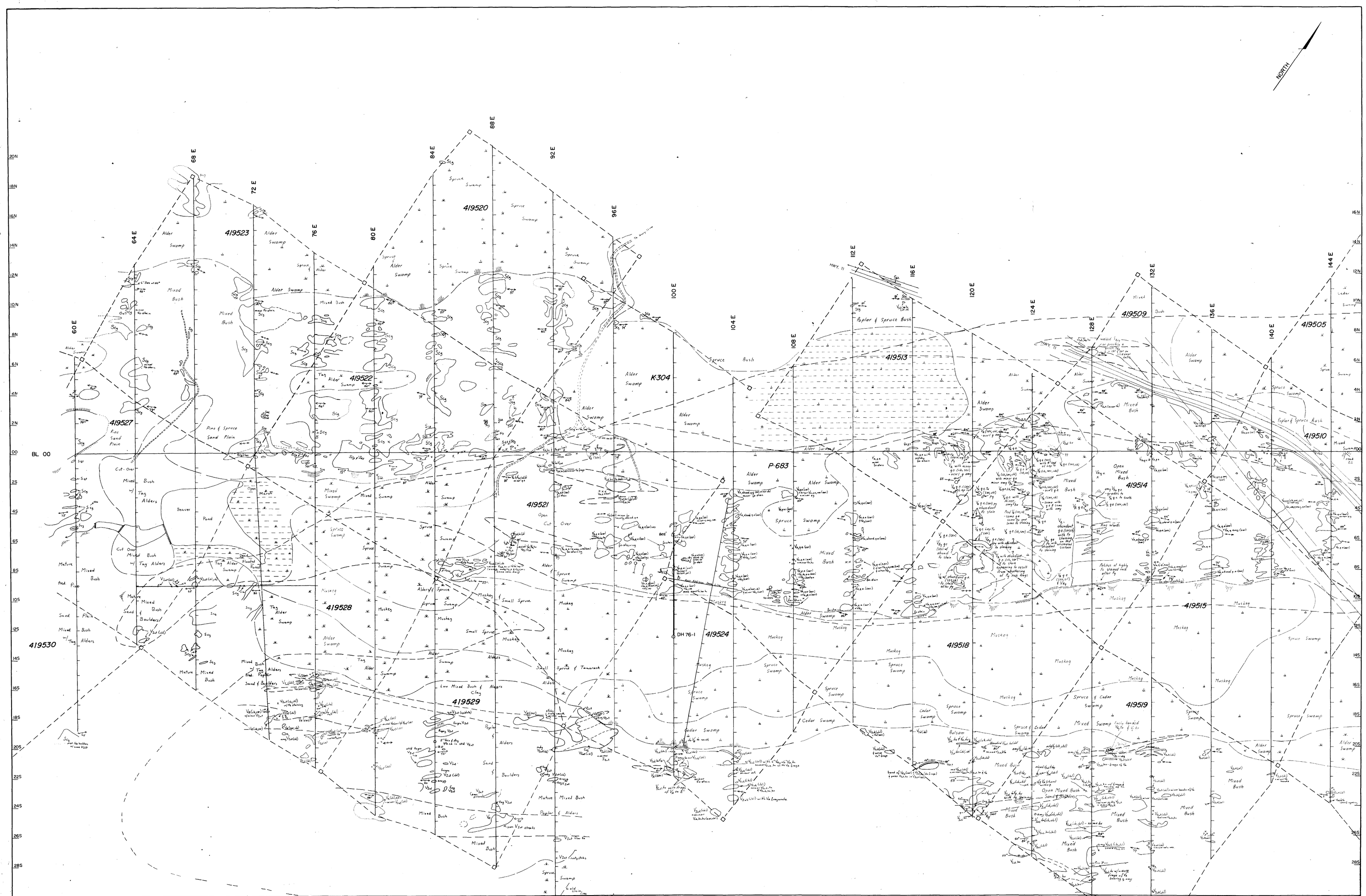
Work by NORWESCON DRILLING LTD.

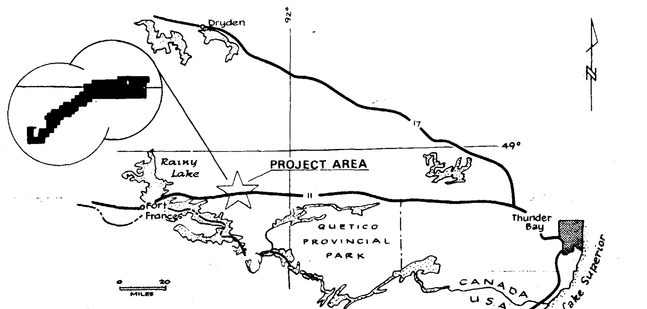
Interpretation by J.F Muhic

Date JANUARY 1976

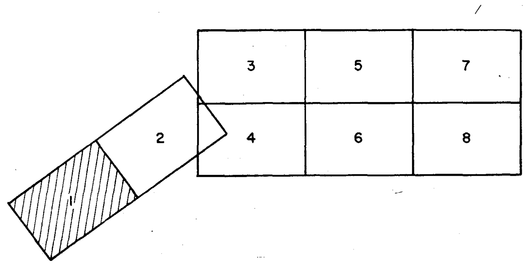
N.T.S. No. 52-C-10

52C10NE0498 16 BAD VERMILION LAKE





ROPERTY LOCATION MAP



SHEET INDEX

LEGEND

- IGb Gabbro intrusive
- I Int Intermediate intrusive - undifferentiated
- Scg Conglomerate
- Sgt Grit
- Sgw Greywacke
- Va Acid volcanics - undifferentiated
- Vay Rhyolite
- Vint Intermediate volcanics - undifferentiated
- Vda Dacite
- Vb Basic volcanics

ABBREVIATIONS

amy	amygdaloidal
bx	brecciated
vfg	very fine grained
fng	fine grained
mdg	medium grained
cog	coarse grained
mv	massive
pi	pillowed
cb	carbonate
ccp	chalcopyrite
chl	chlorite
fe	iron
mag	magnetite
py	pyrite
qe, bqe	quartz eyes, blue quartz eyes
qv	quartz vein
ser	sericite
sphal	sphalerite
Tu	tuff
Agg	agglomerate

SYMBOLS

- Boundary of high ground
- Bench Mark
- Flooded ground or Bog
- Muskeg or Swamp
- Boundary of Muskeg, Swamp, etc.
- River, creek, stream - flow direction
- Bridge
- Beaver dam
- Railway
- Power transmission line
- Barbed wire fence
- Motor road or Highway
- Trail or Bush road
- Claimpost - Claim line
- Building, cabin
- Shaft
- Trench
- Drill hole; vertical, inclined
- MA Magnetic attraction
- Rock sample
- Rock outcrop - small, large
- Geological boundary - defined, approximate
- Strike and dip of bedding - vertical, inclined
- Strike and dip of foliation or schistosity - vertical, inclined
- Drag folds - direction of plunge

THE HANNA MINING COMPANY

MINE CENTER PROPERTY

KENORA MINING DIVISION

ONTARIO

GEOLOGIC MAP

SCALE 1" = 200'

200 0 200 400 600

Feet

Work by	Interpretation by	Revised
Date	Date	Revised
		N.T.S. No 52-C-10

KENORA 4/6 GRASSY LK.

210