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Received	- 7 NOV 1983			Registrar
Answered				E & IL
DEPT. OF MINES				
REF. No. 10,311/83				

RELINQUISHMENT REPORT

TO

TASMANIAN MINES DEPARTMENT

E.L. 1/63

OPEN FILE

R.O.
 VT
Provision file
Beobach
14/11/83

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OCTOBER, 1983

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INTRODUCTION

This report covers the area shown in Fig. 1, which is the area of EL 1/63 when relinquished by Cleveland Tin Limited on 11th February, 1983.

The licence originally covered a much larger area and was granted to the Aberfoyle Tin Development Partnership in August, 1963. The licence was held by subsidiaries of the Aberfoyle Group, with reductions in area, until relinquished.

LOCATION

EL 1/63 is located approximately 60km south west of Burnie in north west Tasmania at $41^{\circ} 28'S$, $145^{\circ} 24'E$

ACCESS, TOPOGRAPHY, CLIMATE

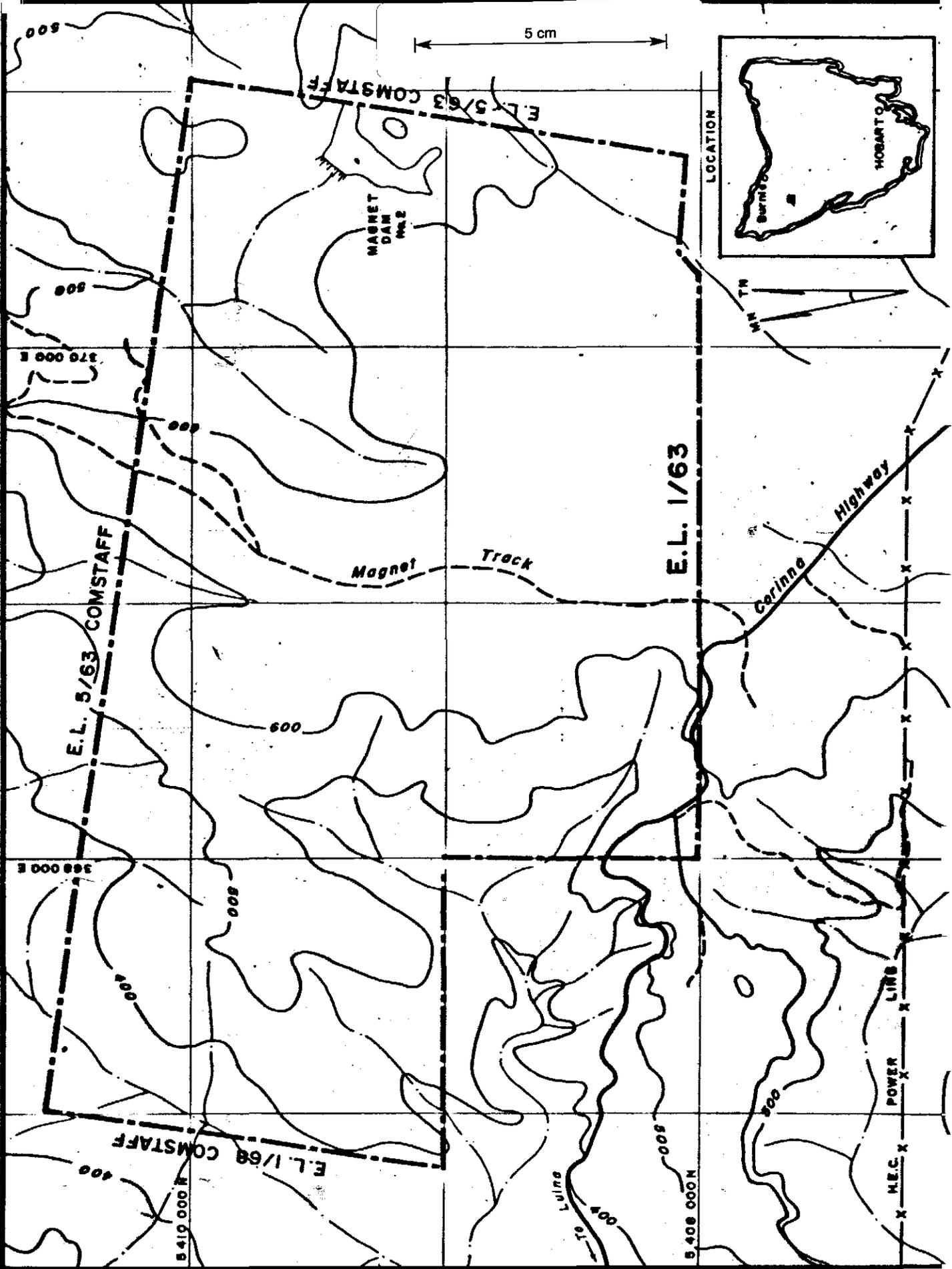
Access is via the Corinna Highway along the southern boundary of the area, and by a well formed gravel road which runs N.N.E. through the centre of the area to the Magnet Mine. Cut lines are the only means of access to the remainder of the area.

The Magnet Mine road runs along the crest of the southern spur of the Magnet Range, which divides the headwaters of the Whyte River, draining to the west, from the headwaters of Magnet Creek and the Arthur River to the east. Average elevation along the crest of the Magnet Range in this area is approximately 640m, falling to 360m in the Whyte River valley (Plate 1). The area is rugged with a dense cover of myrtle, sassafras and horizontal scrub. Average rainfall at the Magnet Mine is 88 inches (2235mm) and snow falls are frequent in the winter.

HISTORY OF INVESTIGATION

The exploration interest of the area is due to its location along the interpreted strike extension of the stratigraphic unit which is host to the tin mineralization at Cleveland Mine; and its proximity to the Ag/Pb/Zn mineralization of the Magnet Mine. The Magnet Mine is approximately 500m north of the northern boundary of the relinquished area.

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CLEVELAND TIN LTD.

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NORTH WEST TASMANIA

E.L. 1/63

LOCATION PLAN

Location code: K55/535

Date: September 1983

Scale: 1:20000

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Early reports on the geology of the area concentrate on the mineralization at Cleveland, Magnet and Mt. Bischoff. However discussions of the general geology are given by Nye (1923) and McIntosh-Reid (1923), who combined to produce a geologic map of the area at approximately 1:20000 scale.

No further record of work in the area is known until the investigations of Cox on Tenement EL 1/63, which commenced in April 1964, on behalf of the Aberfoyle Tin Development Partnership.

Exploration continued on behalf of Aberfoyle subsidiaries until relinquishment, and exploration reports, as required by the regulations governing the granting of exploration licences, have been provided regularly to the Mines Department since the granting of the Exploration Licence. For completeness, the original interpretation of the geology of the area by Cox (Cox, 1968) is included as Plates 3 and 4. The current interpretation is significantly different.

A note on conversion between State and Cleveland Mine Grids is included as Appendix 1.

GEOLOGY

Regional Geology

The Exploration Licence lies within the Dundas Trough, a north-south trending early Palaeozoic Eugeosynclinal feature located between areas of Proterozoic basement. Within the licence occurs an unfossiliferous volcano-sedimentary sequence probably equivalent to the Crimson Creek Formation. This sequence is intruded by fault bounded, partially serpentinized mafic and ultramafic units related to the Cambrian Heazelwood River Complex. The whole area underwent a period of major deformation in the Early-Middle Devonian followed by intrusion of late high level granitic plutons in the Late Devonian to Early Carboniferous. No outcrops of Devonian intrusives have been located in the area. Outliers of tertiary basalt occur in the north and east of the area.

Local Geology

The current interpretation of the licence geology is shown on Plate 4. The fact geology from which this was derived is presented as

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Plates 5 - 20. Plates 5 to 18 also show the location of petrology specimens. Descriptions of these are included as Appendix 2. Grid lines shown on Plate 4 were all cut and pegged during 1980 - 1981. However, geological mapping was only completed along the Magnet Road, grids baseline and crosslines as shown on Plates 5 to 18.

The geology of the area between Whyte Hill and the Magnet Mine consists of a sequence of Cambrian (Crimson Creek equivalent) spilitic basalts, mafic tuffs, chert, greywacke (mica sandstones) and argillites intruded by dolerite sills. See Appendix 2 for details of the petrology of these units.

Structure of the area is not well known and has been inferred from mapping of float and occasional outcrop on cut lines. Bedding foliation is best developed in cherts and is occasionally discernible in chocolate shales. Where observed a steep dip to the NW is indicated. Volcanics and greywackes show no bedding foliation at all. Collins (1981) On the basis of graded bedding and flame structures observed in exposures on the Corinna Highway, infers a west facing sequence correlation of rock types from line to line and the trend of magnetic anomalies over basic intrusives (see Plate) indicate a general NE stike in conformity with regional trends. The conformity of the basic intrusives with the NE trends indicates that they are sills.

In the north-east of the area a unit of lithic sandstone terminates abruptly against a unit of mafic tuffs, dolerite and ultrabasics. A NW trending fault has been interpreted to explain this termination, but photo trends indicate that a fold closure is a possibility.

In the western half of the area, the sequence shows gross similarities to that at the Cleveland Mine, where from west (footwall) to east occur (i) Crescent Spur micaceous greywacke, (ii) A Sub Formation (chert, limestone, shales, micaceous greywacke, basic volcanics) (iii) Deep Creek volcanics (spilitic volcanics and mafic tuffs).

The mineralogy of the basic rocks in the area indicate that it has undergone low grade regional metamorphosis to pumpellyite-actinolite or lower greenschist facies. However, no metamorphic foliation is evident.

GEOPHYSICS

Airborne Geophysics

During February, 1981 a Dighem - aeromagnetic survey was flown over the licence area. The results are presented at 1:10,000 scale on Plates 21 to 25. Two bedrock conductors (25xD-27G and 32xA) were located but not followed up. Excerpts from the Dighem Limited report relevant to the relinquished area are presented in Appendix 3.

Ground Geophysics

During 1980, four newly cut lines (N.L.10, N.L.14, N.L.18, N.L.20) were traversed at 25m spacings using a proton precession total field magnetometer. The tabulated data are presented as Appendix 4, and profiles plotted at 1:5000 scale are included as Plates 26 and 27. Ground magnetics has an obvious application for exploration for Cleveland style pyrrhotite/cassiterite mineralization and has also found wide use as an aid to mapping.

GEOCHEMISTRY

Stream Sediment Geochemistry

During 1974 a stream sediment sampling programme was completed within the licence. Sample density averaged 6 samples/km². Moving bed load samples were taken and wet sieved on site, the minus 80 mesh fraction being retained for analysis. Samples were analysed for As, Ag, Bi by emission spectrograph, with anomalous values taken as the limit of detection of the spectrographic technique (50ppm, 0.1ppm, 1ppm respectively). Flouride ion was measured in water samples by selective ion electrode. Anomalous flouride is taken as 26 ppb. Samples were re-assayed in 1979 by XRF for tin tungsten and rubidium. Results are presented at 1:25000 scale as Plates 28 to 34.

Soil Geochemistry

Four of the lines cut during the 1980 exploration programme in the Magnet Range area were soil sampled. Results are presented as Plates 35 and 36. The C Horizon of the soil profile was sampled at 25m intervals, and at 12.5m intervals over anomalous areas. Analyses were by XRF for Sn and W₂O₃, and AAS for Ni, Pb, Zn and Cu.

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Tasmania Department of Mines, Geological Survey Bulletin
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No. 33, 1923.

A P P E N D I X 1

NOTE ON GRID SYSTEMS USED IN THIS REPORT

Maps included in this report are based on the State Grids, Cleveland Mine Imperial Grid, or Cleveland Mine Metric Grid.

Both Cleveland Mine Grids bear magnetic north, as it was in 1864 i.e. declination $11^{\circ} 30'$ east of true north. To convert from imperial grid to the current metric grids, add 15,000 to the imperial northing and multiply by 0.3048; add 10,000 to the imperial easting and multiply by 0.3048.

Conversion between Cleveland Mine Grids and the State Grid can be made using bearing and distance methods knowing the following:

Mt. Cleveland Trig Point

State Grid Co-ordinates: 5409837.57N, 364391.70E.

Mine Metric Grid Co-ordinates: 18321.68N, 9521.71E.

Angle between State Grid North and Mine Grid North, $11^{\circ} 49' 06''$

For example:

Calculate State Grid Co-ordinates of S.W. corner of EL 1/63

- 1) S.W. Corner - 17262.08N, 13429.86E Mine Grid
Mt. Cleveland - 18321.68N, 9521.71E Mine Grid
- 2) Bearing and distance, Mt. Cleveland to S.W. corner relative to Mine Grid - $105^{\circ} 10' 1''$, 4049.25N
- 3) Add $11^{\circ} 49' 06''$ to bearing to make it relative to State Grid
 \therefore Bearing = $116^{\circ} 59' 17''$
- 4) Use State Co-ordinates of Mt. Cleveland and simple trigonometry to calculate State Co-ordinates of S.W. corner
i.e. 5,408,00N, 368,000E.

A P P E N D I X 2

BRIEF DESCRIPTION OF ROCK SAMPLES

- 013
- 249437 BASALT: Deformed with qtz. & epidote alteration - very similar to 249436 except with deformation.
- 249438 BASALT: Fine grained many grey & black minerals - generally greenish grey, hard, crystalline.
- 249439 CHOCOLATE SHALE: Dark red brown colored - very fine grained - featureless.
- 249440 BASALT & TUFF(SILICIFIED): Basalt hard, fine, dark grey green. Tuff- fine silicified grey green.
- 249441 QUARTZ VEINS: Crypto-crystalline white qtz. - some large crystals - some stained areas (orange) - possibly host rock silicified - some epidote.
- 249442 CHOCOLATE SHALES: Dark red brown - thin bands of qtz. rich fine siltstone - spotted appearance due to weathering.
- 249443 TUFFACEOUS SILTSTONE/SANDSTONE: Fine grained, massive, light orange brown - semiconchoidal fracture
- 249444 CHERT: Light grey, fine grained, massive - fractured - possibly originally tuffaceous, hard.
- 249445 MIXED FLOAT: Banded fine grained tuff; fine grained basalt - silicified tuff; chert; silicified brown shale.
- 249446 BASALT: Fine grained - dark greenish grey, hard, massive, many dark minerals.
- 249447 TUFF: Very fine grained, hard, silicified in parts - dark greenish, massive.
- 249448 BASALT: Dark greenish grey, very fine grained, massive hard many dark minerals.
- 249449 BASALT: Very fine grained, partially weathered to a light to mid greenish grey, massive.
- 249450 SILICIFIED TUFF: Very fine grained, light to mid greenish, veins of qtz. & epidote.
- 249451 BASALT: Fine grained, dark greenish grey, hard, massive, many dark minerals.
- 249452 ULTRABASIC: Hard unweathered - grey green - many interlocking needle crystals.
- 249453 ULTRABASIC?: Very weathered - medium to coarse grained - brownish yellow colored.
- 249454 ULTRAMATIC?: Very weathered - yellow brown colored - similar to 249453 except more weathered.
- 249455 RUBBLE HEAP: Chocolate shales, cherts, ultramatics - similar to other rock from area.
- 249456 ULTRAMATIC: Fine grained, fairly weather, brownish yellow - mainly white to light minerals.
- 249457 SILICIFIED CHERT: Dark grey chert - minor fractured? then silicified? weakly in an unusual pattern.
- 249458 TUFF/ULTRABASIC: Very fine grained, hard unweathered, grey green - several tension veins - 2nd. piece has coarse white grains.
- 249459 TUFF/ULTRABASIC: Very weathered & clayey - yellow orange color - fine to medium grained.
- 249460 TUFF/ULTRAMATIC: Very weathered - dark yellow brown colored - very clayey - fine to medium grained.
- 249461 TUFF/ULTRAMATIC: Weathered to an orange brown color - clayey - medium grained.
- 249462 ULTRAMATIC?: Very weathered - yellow brown - fine to medium grained - many white minerals.
- 249463 ULTRAMATIC?: Very weathered - yellow brown - similar to 249462 - finer grained.
- 249464 GOSSANOUS CONGLOMERATE BRECCIA: Angular fragments of chocolate shale, chert, ultramatics, shale & basalt - fault breccia - bonded by an iron rich gossanous matrix.
- 249465 SILICIFIED FRACTURED CHERT: Light grey chert - fractured & then infilled with qtz. veins.
- 249466 TUFF/ULTRABASIC: Orange brown weathered - many white grains - medium grained.
- 249467 CONGLOMERATE BRECCIA: Similar to 249464 - angular fragments of chocolate shale, chert, ultramatic shale, basalt & sandstone - iron rich matrix - fault breccia.
- 249468 SILICIFIED CHOCOLATE SHALE: Red brown colored shale - silicified with much free silica - prior to silicification parts were brecciated.
- 249469 CHOCOLATE SHALE: Very fine grained, dark red brown - no visible banding.

- 249470 ULTRAMATIC: Very weathered & clayey - fine to medium grained - yellowish brown color.
- 249471 SILICEOUS ULTRAMATIC: Very fine grained - mid grey with dark grey spots - altered around veins.
- 249472 ULTRAMATIC: weathered to a yellow brown - rich in light colored minerals - medium to coarse grained.
- 249473 CHOCOLATE SHALE: Light brown shale - very fine- massive - no bedding - generally featureless.
- 249474 CHOCOLATE SHALE: Dark red brown shale - very fine grained - massive - generally featureless.
- 249475 ULTRAMATIC: Hard, fine - light grey with dark spots - very siliceous.
- 249476 ULTRAMATIC: weathered & altered - brown/yellow colored - gossanous nature in parts - fine to medium grained.
- 249477 CHOCOLATE SHALE: Light khaki to brown shale - very fine grained - generally featureless.
- 249478 VOLCANIC TUFF: Fine grained - light grey - gradation grain boundaries - minor pyrrhotite - maybe sandstone?
- 249479 ULTRABASIC: Very similar to the Washington Hay rocks - silicified, hard fine to medium grained, light grey - minor qtz. veins.
- 249480 ULTRABASIC: Medium grained, gradational grain boundaries - weathered - a preferred orientation (distortion)
- 249481 VERY WEATHERED: Qtz. rich with some mica - possibly a sandstone - maybe ultrabasic.
- 249482 ULTRABASIC: Partially weathered - medium grained - indistinct boundaries mid grey.
- 249483 CHERT/SILICIFIED ULTRABASICS: One piece mid grey chert - another piece has chert beside very weathered ultrabasic? - free qtz. & mica.
- 249484 IGNEOUS ROCK (DOLERITE): Two pieces fine grained with some large feldspars (dolerite) - one piece very fine light grey with black spots - sheared with angular dolerite at bottom.
- 249485 ULTRABASICS: Dolerite - fine grained - larger pieces of feldspar - one piece very weathered.
- 249486 ULTRABASIC & SILICIFIED SHALE: One piece fine grained ultrabasic - one piece very fine silicified shale with mineral banding (could be igneous), many micro faults- 3rd. piece is brecciated silicified shale.
- 249487 IGNEOUS ROCK: Outcrop - probably a tuff with small (1mm) diameter pieces of ultramatic rock in a fine matrix - one piece is sheared.
- 249488 ULTRABASIC & CHOCOLATE SHALE: Red brown shale appears to be serpentized in parts - other piece similar to 249487 with euhedral crystal grains.
- 249489 CHOCOLATE SHALE: Recrystallized & altered - contains fragments of dolerite, ultramatic black serpentized in parts - hard.
- 249490 CHOCOLATE SHALE: Two pieces - similar to 249489 except one piece has been altered much more.
- 249491 ULTRABASIC: Many fine needles - parts almost doleritic others more serpentized - one piece weathered.
- 249492 ULTRABASIC: Very similar to 249491 except has many more dark minerals - fine grained many needles.
- 249493 ULTRABASIC/TUFF: Very fine grained & weathered, some inclusions of rounded rock fragments - tuff like in appearance.
- 249494 ULTRABASIC/SILICIFIED ULTRABASIC/SILICIFIED BRECCIA ULTRABASIC?: 1st. piece fine grained with much pyrite - next is coarse but silicified - 3rd. almost chert with fine grains of feldspars - most fibrous.

- 249495 ULTRABASIC: Very coarse grains - graphic intergrowths of feldspars & dark minerals - parts very weathered.
- 249496 ULTRABASIC: Very coarse - altered - similar to Washington Hay except very much coarser - intergrowths of crystals.
- 249497 ULTRABASIC: One piece very fine grained & hard - 2nd. piece coarse altered - 3rd. piece sheared & flow banded with fragments of fine & coarse altered ultrabasics.
- 249498 ULTRABASIC/SILICIFIED ULTRABASIC BRECCIA: Very fine grained doleritic ultrabasic - breccia contains fine pieces of brown shale - much ultrabasic - altered by silicification.
- 249499 ULTRABASIC: (Doleritic) - very coarse grained - doleritic/gabbroic ultramafic - many dark mineral.
- 249500 ULTRABASIC: Similar to 249499 but with alteration around some of the light colored crystals - gabbroic.
- 249501 ULTRABASIC: Similar to 249500 - a gabbroic type - coarse grained - crystallization about points.
- 249502 CHOCOLATE SHALE/SANDSTONE: One piece has sandstone overlying shale (irregular) - other piece is silty shale.
- 249503 BASALT?: Many fine dark needles - minor zones similar to ultrabasics - fairly weathered general basaltic texture - medium grained.
- 249504 TUFF: Fine to medium grained - contains fragments of sandstone, shale, basalt - weathered to bro
- 249505 QUARTZ VEIN with ULTRABASIC FRAGMENTS: Generally coarse qtz. crystals in vein - one piece of altered ultrabasic included.
- 249506 ULTRABASIC: Very weathered & clayey - fine to medium grained - tuffaceous in parts.
- 249507 SANDSTONE: Fine grained - greywacke type with many rock fragments - preferred orientation - tuffaceous in parts.
- 249508 SHALE/SANDSTONE: Mainly massive shale - weathered - much sandstone in one half - sandstone fills holes in shale surface - sandstone is greywacke type.
- 249509 SANDSTONE: Gery brown - fine to medium - dirty greywacke - one piece red stained - very fine (maybe basalt or tuff) - preferred orientation.
- 249510 TUFF: Fine grained with some larger pieces - greeny brown - partially weathered - angular fragments of shale.
- 249511 SANDSTONE/SHALE: One piece greywacke sandstone (fine) - one piece brown shale with sandstone bands - one piece sandstone/tuff stained - one piece massive brown shale - one piece of siltstone altered - one piece of tuff (red stain).
- 249512 SHALE/SANDSTONE: One piece of massive brown shale - two pieces of fine greywacke type sandstone.
- 249513 BROWN SHALE: Finely laminated silty brown shale - virtually featureless - almost massive.
- 249514 SANDSTONE: Mainly fine to medium - dirty sandstone (greywacke) - one piece of fine siltstone & one piece of banded (sediment) shale.
- 249515 SANDSTONE: Fine to medium grained - dirty sandstone (greywacke) - some larger fragments.
- 249516 SANDSTONE: Fine to medium grained - dirty sandstone (greywacke) - one piece is stained red - this piece has irregular contact of sandstone & finer siltstone.
- 249517 SANDSTONE/SHALE: One piece is fine to medium grained dirty sandstone with qtz. vein - one piece is sandstone with irregular contact with brown shale - one piece brown shale with coarse fragments.
- 249518 SHALE: Brown shale with many fragments (larger) similar to fragments in the dirty sandstones.
- 249519 SANDSTONE: Fine grained dirty sandstone - preferred orientation - some bands of coarse material.

- 249520 SILTY SHALE: Banded silty brown shale - very fine grained - some bands of shale without silt.
- 249521 SANDSTONE: One p/ce fine sandstone with thin fine grained dolerite dyke cutting through - one p/ce of sandstone with brecciated zone - one p/ce of brown shale with tension zone with possibly mineralized vein.
- 249522 SILTSTONE: Dominantly brown shale components with fine silt sized rock fragments similar to the sandstone.
- 249523 SANDSTONE/SILTSTONE: Very fine grained dirty sandstone - almost fine enough to be a siltstone - massive.
- 249524 SANDSTONE/SILTSTONE: One p/ce of fine grained dirty sandstone - othe p/ce fine siltstone - both massive.
- 249525 SHEARED ZONE: P/ces of chert, ultramafic in a contorted altered zone - angular & twisted p/ces with brown matrix.
- 249526 TUFF: Very coarse & angular fragments - contorted - some basalt, chert, shale & tuff fragments.
- 249527 TUFF: Very coarse & angular fragments - almost identical to 249526.
- 249528 TUFF?: Very coarse - very weathered - possibly similar to 249526 but tends to have an ultrabasic appearance in texture.
- 249529 SHALE: Massive, fine grained, silicified, light brown khaki, many qtz. veins throughout.
- 249530 SILICIFIED SHALE: Very fine, massive light khaki shale - silicified & hard - fractured in places
- 249531 SILICIFIED SHALE: Very fine grained - massive - light khaki to brown - shale silicified - qtz. veins throughout - similar to 249532.
- 249532 SILICIFIED SHALE: Very fine grained - massive - shale - silicified throughout - light brownish pin fractured throughout - some qtz. veins.
- 249533 ULTRABASIC: Gabbroic - two p/ce very coarse with pyrite - two p/ces very fine - all ultrabasic
- 249534 ULTRABASIC: Gabbroic - very coarse grained - greenish grey - many needles - minor pyrite.
- 249535 CHOCOLATE SHALE: Red brown, fine grained massive shale - very hard - silicified some qtz. veins featureless.
- 249536 CHOCOLATE SHALE: Similar to 249535 except more brown than red - massive featureless - less hard.
- 249537 ULTRABASIC, GREY SILICIFIED SHALE, RED JASPER/CHERT: Creek pebbles of coarse ultrabasic, grey silicified shale, red jasper/chert - ultrabasic similar to 249533 grey shale - hard massive - red chert - essentially brown shale - very hard & brittle.
- 249538 DARK GREY SILICIFIED SHALE: Very fine grained - massive although one p/ce banded in parts - silicified to form hard chert.
- 249539 SILICIFIED SHALE: One red brown, one light brown, one black & one grey - generally all massive & featureless - grey piece has cross beds & graded beds - all silicified.
- 249540 SILICIFIED SHALES: Both grey (one stained brown by weathering on joints & veins) - banded - cross bedded - hard, silicified.
- 249541 SILICIFIED SHALES All originally grey shales - but weathering & veins changed color to reds & browns & whites - massive - silicified - qtz. veins.
- 249542 ULTRABASIC BASALT?: Light greenish grey - fine to medium grained - crystalline - small dark fine grained spots occasionally included - angular fragments.
- 249543 ULTRABASIC: Very fine grained - dark green to black - contorted & weathered - fragments of chert included - angular fragments.

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- 249544 ULTRABASIC/BASALT?: Similar to 249542 but much darker - very fine to medium grained - dark green to black with some lighter areas.
- 249545 SHEARED ULTRABASIC: Light greenish grey - sub rounded fragments of ultramafic with some chert & shale fragments.
- 249546 SHEARED ULTRAMAFIC/BASALT: Light green brown - due to weathering - fine grained - sheared & contorted - brecciated.
- 249547 SCREE MIX: Chocolate shale - bleached chocolate shale - brecciated shale - all been silicified - & one piece of brecciated ultramafic.
- 249548 CHOCOLATE SHALE: Red brown - very soft & weathered - not silicified although some qtz. veins.
- 249549 CHOCOLATE SHALE: Fine grained - some silty particles - red brown - massive - no bedding - featureless.
- 249550 SILICIFIED SHALE: Generally light grey but stained by iron or alteration - one piece sheared & brecciated - most are fractured.
- 249551 CHOCOLATE SHALE: Mainly red brown fine massive featureless shale - some bands of silty nature.
- 249552 CHOCOLATE SHALE BRECCIA: Dominantly a chocolate shale matrix with weathered angular ultrabasic fragments.
- 249553 CHOCOLATE SHALE BRECCIA: Similar to 249552 - more weathered - also sheared & contorted.
- 249554 SILICIFIED GREY SHALE: Very fine grained, light grey to white silicified shale/chert - fractured with qtz. veins.
- 249555 SEMI-SILICIFIED SHALE: Mainly chocolate shale but one piece of white to light grey - massive, featureless - fine grained bleached along fractures.
- 249556 SILICIFIED SHALE: Fine grained, massive, hard, featureless - one piece orange almost jasper brown other red brown - many qtz. veins.
- 249557 DISTORTED CHOCOLATE SHALE?: Very weathered - soft red brown shale - brecciated with many veins one piece almost all veins.
- 249558 BASALT: Finely crystalline - many needles - includes some contorted chocolate shales.
- 249559 BASALT/TUFF: Basically chocolate shale colored with a tuffaceous component - distorted - much fine silica.
- 249560 BASALT/TUFF: Very fine light grey brown - massive - some breaks infilled with material similar to 249559.
- 249561 ULTRABASIC/BASALT?: Medium grained - greenish grey - weathered to brownish - crystal growth similar to ultrabasic - few needles - flow banded in parts.
- 249562 ULTRABASIC/BASALT: Very weathered - medium grained - brownish grey - similar in texture to 249561 but more weathered.
- 249563 ULTRABASIC/BASALT?: Very weathered - fine to medium grained - distorted - orange brown - similar texture to 249561
- 249564 CHOCOLATE SHALE: Dominantly red brown to dark brown chocolate shale but with sand sized piece of chert & silica - similar to 249559.
- 249565 CHOCOLATE SHALE: Red brown - very fine grain - some coarse grains of granular black material.
- 249566 ULTRABASIC/BASALT?: Coarse crystalline - many large feldspar needles - probably doleritic - green grey colored.
- 249567 CHOCOLATE SHALE: Orientated specimen - red brown, fine grained shale - massive - no bedding.

499018

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- 249568 SILICIFIED SHALE/TUFF?: Very fine grained - silty - greenish grey - hard - silicified - massive many qtz. veins.
- 249569 SILICIFIED SHALE/TUFF?: Similar to 249568 - very fine grained, hard, massive - more weathered - more veins - silicified.
- 249570 SILICIFIED CHOCOLATE SHALE: Very fine grained red brown shale - completely silicified - orientated many qtz. veins - some bedding.
- 249571 SILICIFIED SHALES: Mainly grey - one red brown - all massive - completely silicified - many qtz. veins - mainly weathered to brown.
- 249572 CONTORTED CHOCOLATE SHALE: Fine grained red brown shale - orientated specimen - but contorted & twisted - some qtz. veins.
- 249573 BASALT/TUFF: Basically a chocolate shale matrix with coarse fragments of an igneous source - similar to 249559.
- 249574 ULTRABASIC/BASALT: Very weathered - fine to medium grained - orange brown - many needles crystals
- 249575 CHOCOLATE SHALE: Red brown - fine grained - some banding - several qtz. veins - partially silicified.
- 249576 ULTRABASIC/BASALT?: Fine to medium grained - khaki brown weathered - many fine needle crystals.
- 249577 ULTRABASIC/BASALT?: Very fine grained needle crystals - inlocking - khaki brown weathered - many weathered iron rich nodules.
- 249578 SHALE/ULTRABASIC BRECCIA: Weathered to orange brown - many piece of silicified chert fragments in an apparently ultrabasic matrix.
- 249579 ULTRABASIC/BASALT: Very weathered - generally orange brown with dark green to black nodules - similar to those in 249577.
- 249580 ULTRABASIC: Coarse grained interlocking needle crystals - hard - partially weathered - altered crystals.
- 249581 ULTRABASIC/BASALT?: Partially weathered, hard, orange brown - iron rich nodules throughout - medium grained.
- 249582 ULTRABASIC/BASALT?: Similar to 249581 only more weathered - khaki brown - interlocking needles crystals.
- 249583 SILICIFIED ULTRABASIC BRECCIA: Similar to 249578 - angular fragments of shale & ultrabasic in silicified matrix.
- 249584 CHOCOLATE SHALE: Red brown, fine grained shale - massive - silicified in parts - minor qtz. veining.
- 249585 ULTRABASIC/BASALT?: Very fine grained - dark brown - weathered - massive - almost featureless some interlocking crystals.
- 249586 ULTRABASIC/BASALT?: Very fine grained - igneous texture - needle crystals - full of small spheric ball of silica - (like agate).
- 249587 ULTRABASIC?: Very weathered - bluey green with orange brown - fine needles like crystals - coarse to medium grained.
- 249588 BASALT: Dominantly fine grained weathered igneous fragments in a brown shale type of matrix.
- 249589 ULTRABASIC/BASALT?: Dark greeny brown - weathered - fine grained with large iron rich nodules - interlocking crystals - almost tuffaceous in parts.
- 249590 ULTRABASIC/BASALT: Very fine grained - some short needle crystals - small pieces of silica as balls - apparently some chocolate shale included.
- 249591 ULTRABASIC/BASALT: Fine grained - hard - one band apparently containing some chocolate shale

499019

- 249592 BASALT/ULTRABASIC: Hard, fine, dark grey with brown & white bands - some vesicules some with green mineral.
- 249593 BASALT/ULTRABASIC: Very fine grained - dark brown - some vesicules - very weathered - some small crystals.
- 249594 ULTRABASIC: Very weathered - crystal outlines discernable - course grained - doleritic - light orange brown.
- 249595 ULTRABASIC/BASALT?: Very weathered - orange brown - to dark orange brown - fine grained - some darker areas.
- 249596 ULTRABASIC/BASALT: Very weathered & soft - many needles - includes some chocolate shale in bands - medium grained.
- 249597 TUFF/BASALT?: Light green piece - many glass fragments - pieces of chert etc. many round iron rich areas - brown piece - much chocolate shale but many black needles in white veins - both flow banded.
- 249598 VERY WEATHERED ULTRABASIC/CHOCOLATE SHALE BRECCIA: Very soft - soft light to mid brown - many ultrabasic textured areas with brown fine shale matrix.
- 249599 BASALT: Very fine grey basalt - one piece with qtz. & epidote veins - one piece of red chert - veins for thin section.
- 249600 BASALT: Very hard fine mid to dark grey - few dark coarse pieces - similar to basalt in 249599.
- 249601 BASALT: Brown fine grained shale like material with ultramafic textured coarse fraction - many green minerals (translucent).
- 249602 BASALT: Fine grained brown shale with many white needles growing in it - similar to 249601 - some coarser minerals.
- 249603 GREY SHALE: Very fine grained, dark grey, featureless, silicified - one piece brecciated & cemented with silica.
- 249604 BASALT: Similar to 249602 & 249601 - mid brown fine grained with basaltic like crystal (needle) growths.
- 249605 BASALT: Similar to 249604 except partially silicified - also many dark minerals.
- 249606 BASALT: Very fine grained grey basalt - one piece has minor chocolate shale other piece has more chocolate shale - similar to 249605.
- 249607 BASALT: Very fine grained grey basalt - one piece has minor chocolate shale other piece has more chocolate shale - similar to 249605.
- 249608 BASALT: Dominantly basalt as in 249607 - one piece of red chert with grey shale inclusions - one piece of grey shale (silicified) - one piece of basalt with brown shale but altered - as in 249609.
- 249609 ULTRABASIC?: Possibly ultramafic/basalt - similar in some respects to basalt but altered & broken - flow banded.
- 249610 ULTRABASIC: Similar to 249609 but much larger crystals - becoming doleritic - still appears to contain chocolate shale.
- 249611 ULTRABASIC: Bluey grey in color, coarse crystalline, gabbroic to doleritic - some very coarse fragments.
- 249612 VESICULAR BASALT: Fine grained red grey basalt - similar to 249606 but with iron rich clay filled vesicules - some hard green mineral.

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499020

- 249613 SHEARED BASALT/ULTRABASIC: Fine grained red grey basalt similar to 249606 - sheared & distorted with ultrabasic type zone.
- 249614 STREAM BOULDERS: Mainly basalt - as in 249606 - one piece includes red shales & grey shales - two pieces of brown shale & two pieces of grey shale.
- 249615 VESICULAR BASALT: Very fine grained grey basalt - similar to 249612 - many vesicules - some with iron rich others with agates?
- 249616 BASALT: Fine grained grey basalt - mostly weathered but some unweathered parts - fairly massive & featureless.
- 249617 CHOCOLATE SHALE: Fine grained brown shale, silicified to chert, featureless massive.
- 249618 CHERT/SILICIFIED SHALE: Silica rich hard fine grained chert/grey shale many qtz. veins.
- 249619 MICACEOUS SANDSTONE: Fine to medium grained - very weathered - qtz. & mica grains visible - some feldspars.
- 249620 MICACEOUS SANDSTONE/GREY SHALE: Many pieces of micaceous sandstone like 249619 - one piece of silicified fine grained grey shale.
- 249621 SILICIFIED GREY SHALE/SILTSTONE: Very fine grained, grey, banded - very hard - silty well silicified.
- 249622 SILICIFIED SHALE: Very fine grained grey shale - similar to 249621 - except more silicious & finer - not banded.
- 249623 CHOCOLATE SHALE: Very fine grained soft red brown shale - some banding is present, featureless, massive.
- 249624 SANDSTONE/CONGLOMERATE: One piece of fine grained khaki colored silty sandstone - two piece of fine conglomerate - mica, rocks fragments (chert, brown shale, sandstone up to 2mm diametre.
- 249625 SANDSTONE: Medium grained - micaceous - some coarser pieces - dirty with rock fragments - similar to 249624.
- 249626 SANDSTONE: Medium grained - micaceous - similar to 249625 - many rock fragments.
- 249627 SANDSTONE: Very weathered - medium grained micaceous sandstone - now orange brown & soft.
- 249628 MICACEOUS SANDSTONE/CHOCOLATE SHALE SANDSTONE: Both are micaceous - the sandstone is like 249627 - the chocolate shale/sandstone is finer with a brown color many dark minerals some needles.
- 249629 ULTRABASIC?: Fine grained, hard bluey grey - minor veining some with pyrite - almost doleritic.
- 249630 ULTRABASIC/CHOCOLATE SHALE -CHERT: One piece of coarse weathered orange brown ultrabasic - one piece of red brown silicified shale/chert - fine grained slightly silty.
- 249631 ULTRABASIC: Medium to coarse grain - bluey grey - mineralized with pyrite & pyrohtite - many light minerals.
- 249632 ULTRABASIC: Very similar to 249631 - medium to coarse grained - gabbroic - not as much mineralized.
- 249633 ULTRABASIC: Coarse - mainly light minerals - similar to 249632 - but altered by weathering.
- 249634 ULTRABASIC: Very coarse light minerals - fine darker minerals - similar to 249633 - these in series.
- 249635 ULTRABASIC: Very coarse light minerals - fine darker minerals - some mineralization similar to 249634 - but coarser.

1021

- 249636 SILICIFIED GREY SHALE /SILTSTONE: Very hard - fine grained silt in parts - massive featureless many silica veins.
- 249637 SILICIFIED SHALES: Mainly red but some grey - all have been fractured & resilicified, hard, fine, massive.
- 249638 SILICIFIED SHALES WITH MINOR ULTRABASIC: Mainly red cherts - some grey - massive, silicified, hard, fine - one piece of ultrabasic - fine, dark.
- 249639 ULTRABASIC: Medium to coarse - bluey grey - lighter minerals not coarse - even grained - some mineralization.
- 249640 ULTRABASIC: Very fine to medium grained - similar to 249639 - bluey grey - many dark minerals.
- 249641 SILICIFIED GREY SHALE: Fine grained, massive light grey - jointed & fractured - stained red along joints.
- 249642 ULTRABASIC: Very fine grained, greenish grey - some larger grains - some radiating crystals possibly basalt - one piece has qtz. veins with mineralization.
- 249643 ULTRABASIC: Overall greenish grey - many crystal intergrowths - many feldspars coarse grained.
- 249644 ULTRABASIC: Similar to 249643 - but much coarser - green grey color - light minerals coarse - darker minerals fine.
- 249645 ULTRABASIC: Medium to coarse grained - mainly feldspars - finer dark minerals - more even grained.
- 249646 ULTRABASIC: Very similar to 249645 - many crystal intergrowths bluey grey color some qtz. veins.
- 249647 BASALT?: Brownish grey - very fine grained - some chocolate shale content - some coarser grains - needle crystals.
- 249648 BASALT: Very weathered - mainly fine grained brown with some coarse dark grains.
- 249649 BASALT: Very fine grained - some brown pieces mainly grey & white - similar to 249647.
- 249650 BASALT: Similar to 249649 - very fine grained grey with red brown staining & patches - basalt.
- 249651 BASALT: Similar to 249650 - very fine grained but with white minerals in small vesicles - feldspars - basalt?.
- 249652 BASALT: Similar to 249650 - but more weathered - fine grained - massive featureless - much feldspar.
- 249653 BASALT: Very coarse, weathered - distorted & brecciated - silicified in parts flow banded - some fine pieces like 249652.
- 249654 BASALT/SHALE: Mainly fine grained ultrabasic similar to 249650 - one piece of red brown silicified shale, one piece of grey silicified shale.
- 249655 SHALES: Initially all grey featureless shale - massive - one piece silicified - fractured weathered to light yellow khaki.
- 249656 SILICIFIED GREY SHALES: Massive dark grey, fine although parts silty, weathered to yellow khaki - qtz. veining.
- 249657 ULTRABASIC: Grey medium to coarse - doleritic to gabbroic - minor mineralization one piece very weathered.
- 249658 ULTRABASIC: Similar to 249657 - but coarser - many large feldspar crystals fine dark matrix.
- 249659 ULTRABASIC: Very fine grained - doleritic - greenish grey - minerals hard to identify - massive, hard.
- 249660 ULTRABASIC: Medium to coarse - similar to 249657 - many coarse feldspars with fine dark minerals, hard, massive.
- 249661 MIX: Two pieces of ultrabasic similar to 249660 & 249659 - one piece of distorted ultrabasic with inclusions of silicified shale - one piece of brecciated grey silicified shale - one

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- 249662 SILICIFIED SHALES: One piece of fractured grey shale - one piece of brownish grey shale - fine massive silicified.
- 249663 SILICIFIED CHOCOLATE SHALE. Red brown, hard, massive, featureless, fine grained - silicified partially.
- 249664 SILICIFIED SHALES: Mainly grey or brown grey, hard, massive, fine grained many qtz. veins.
- 249665 SILICIFIED SHALE: Hard, grey silicified shale - fractured, fine grained many qtz. veins.
- 249666 SILICIFIED SHALES: Hard, grey or brown, silicified - grey shales fractured with much qtz. - brown is less brittle.
- 249667 CHERT/SILICIFIED SHALES: Hard grey - silica rich - some grey chert with many qtz. veins.
- 249668 SILICIFIED SHALES: Mostly brown silicified shales - one piece of grey - one piece of brown shale has coarse brecciated zone.
- 249669 SILICIFIED SHALES: Grey shale - fine hard brittle - one piece has dark grey sandstone in one portion.
- 249670 SILICIFIED SHALES/ULTRABASIC: Mainly silicified shales - grey & brown - one piece of fine grained doleritic ultrabasic - greenish.
- 249671 ULTRABASIC: One piece fine - other coarse - blue grey - doleritic - minor sulphides included - coarse light minerals - fine dark minerals.
- 249672 SANDSTONE: Very fine grained - micaceous - light brownish grey - some darker concentrations of secondary minerals.
- 249673 SANDSTONE: Qtz. muscovite rich - many rock fragments as well - weathered to light orange brown.
- 249674 ULTRABASIC/SILICIFIED SHALE/SANDSTONE: Mainly coarse ultrabasic - similar to 249671 - one piece of sandstone similar to 249672 & one piece of grey silicified shale.
- 249675 SANDSTONE/SILTSTONE: Fine grained micaceous sandstone & fine grained micaceous siltstone - light brown grey - weathered.
- 249676 SILICIFIED SHALE: Grey hard brittle - infilled veins of black - silica rich - fractured.
- 249677 SANDSTONE: (Minor silicified shale) - sandstone is grey - slightly weathered - not hard - fine with many lithic fragments - minor mica - silicified shale is like 249676.
- 249678 SANDSTONE/SILTSTONE: Very fine grained - not hard - similar to 249677 - minor mica - some brecciated zone.
- 249679 SHALE/SILICIFIED SHALE: One piece hard - other piece weathered - originally grey shale/siltstone fine grained - silicified in parts.
- 249680 SILICIFIED SHALE/SILTSTONE: Fine grained, grey hard siltstone/shale - silicified massive.
- 249681 SANDSTONE: Yellow brown partially weathered fine grained micaceous sandstone, massive.
- 249682 SILICIFIED SHALE/CHERT: Hard fine grained grey shale - brittle, fractured silica rich.
- 249683 SILICIFIED SHALE: Similar to 249682 - hard, fine grained grey, fractured qtz. veins.
- 249684 ULTRABASIC/SANDSTONE: Sandstone - weathered similar to 249681 - ultrabasic unweathered - coarse, bluey green hard many light minerals gabbroic.
- 249685 SERPENTINE ULTRABASIC: Black ground mass - soft with fine white to green white veins & nodules.
- 249686 ULTRABASIC?: Very fine grained bluey grey - partially weathered - possibly very fine siltstone.
- 249687 ULTRABASIC/SILICIFIED SHALE: Silicified brown shale - hard, massive, fine - ultrabasic is coarse hard bluey green.
- 249688 ULTRABASIC/SILICIFIED SHALE: Ultrabasic is medium grained dolerite hard - shale is hard, fine greeny blue - possibly fine ultrabasic.

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- 249689 ULTRABASIC: Coarse, hard green blue grey - light grains coarse - fine dark grains doleritic.
- 249690 ULTRABASIC: Very fine grained greeny grey doleritic - many dark minerals - fine banding - possibly siltstone? - some pyrite.
- 249691 ULTRABASIC: Very fine grained - flow banded - bluey green - partially weathered maybe fine siltstone? - some pyrite.
- 249692 ULTRABASIC: Fine grained - possibly combination of black serpentine & doleritic - soft - black in parts rest blue green like doleritic.
- 249693 ULTRABASIC: Coarse - weathered to red brown (dark minerals) - light minerals coarse.
- 249694 ULTRABASIC: Medium grained blue greeny grey - hard - doleritic minor pyrite.

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APPENDIX 3

EXCERPTS FROM DIGHEM REPORT

DIGHEM^{II} SURVEY

OF

CLEVELAND AREA, TASMANIA

FOR

ABERFOYLE EXPLORATION PTY. LTD.

BY

DIGHEM LIMITED

Z. DVORAK
GEOPHYSICIST

S. VERGOS
GEOPHYSICIST

TORONTO, CANADA
APRIL 30, 1981

appears to be depth limited and, 17A is associated with a magnetic dipolar anomaly.

Anomaly 18G

This single-line grade 2 anomaly appears to reflect a non-magnetic bedrock conductor.

Anomaly 23B

This grade 1 anomaly reflects a non-magnetic bedrock conductor which is associated with a relatively poorly defined low resistivity zone of a northeasterly trend.

Anomalies 23P, 25xD-27G

These grade 1 and 2 anomalies reflect non-magnetic bedrock conductors. The resistivity map suggests that they may be related to a common source.

Anomalies 27A-28A
32xA-35A

These grade 1 anomalies reflect non-magnetic bedrock conductors. Conductor 32xA-35A may extend to

027

31A and further north beyond the
survey boundary.

Respectfully submitted,
DIGHEM LIMITED



Z. Dvorak
Geophysicist



S. Vergos
Geophysicist

Four map sheets accompany this report.

Electromagnetics	1 map sheet
Resistivity	1 map sheet
Magnetics	1 map sheet
Enhanced magnetics	1 map sheet

Job No. 328
D SV-9

APPENDIX BEM ANOMALY LIST

[The computer has selected those anomalies indicated by the symbol " + " on the following list as the most likely ones to be caused by bedrock conductors. In areas where the resistivity of the environment is less than 100 ohm-m and where EM anomalies are numerous, attention should be primarily directed to those anomalies indicated by this symbol. In areas of higher resistivity, most anomalies (regardless of the lack of the symbol " + ") will indicate bedrock conductors with the exception of those which are flagged on the EM map by the letters L, L?, S, S?; see EM map legend.]

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328 ABERFOYLE CLEVELAND MARCH/91

LINE & ANOMALY	COAXIAL COIL		COPLANAR COIL		VERTICAL DIKE		HORIZONTAL SHEET		CONDUCTIVE EARTH	
	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	COND MHOS	DEPTH* FEET	COND MHOS	DEPTH FEET	RESIS OHM-M	DEPTH FEET
20A	8	5	2	3	11	32	1	249	390	43
20B	0	11	1	0	1	0	1	447	806	2
20C	10	10	2	1	9	0	1	476	1035	0
20D	6	4	0	0	11	0	1	498	1035	0
20E	4	2	0	5	7	0	1	291	1035	0
20F	0	2	3	6	1	0	1	375	152	167
20H	2	2	6	8	7	6	1	612	1035	0
20J	1	3	8	2	7	0	3	318	26	202
20N	4	7	2	6	3	0	1	89	146	0
20P	10	4	0	0	8	23	1	93	585	0
21F	0	5	3	3	2	80	1	442	210	233
21G	11	0	2	0	2340	0	2	163	44	47
21H	9	3	4	13	9	41	1	165	82	38
21I	3	7	0	10	1	0	1	196	145	51
21M	15	16	6	24	6	0	1	119	82	9
21N	0	11	0	0	3	19	1	211	123	73
21C	6	6	2	3	6	85	1	160	166	26
22C	1	6	9	5	4	23	2	259	35	155
22D	4	1	3	0	61	165	1	220	142	63
22E	5	9	5	6	4	0	1	159	103	24
22F	3	9	0	0	7	46	1	205	126	56
22J	5	3	2	9	5	60	1	163	126	27
23B	6	14	6	19	3	16	1	151	70	46
23E	12	11	2	8	8	45	1	137	159	9
23F	3	0	2	0	32	178	1	650	1035	0
23H	0	6	1	0	1	0	1	675	1035	0
23I	5	12	0	2	2	22	1	451	1035	0
23J	7	3	4	7	10	105	1	395	132	215
23N	8	7	3	0	7	0	1	323	190	123
23O	9	21	0	1	4	0	1	205	344	20
23P	5	8	5	13	3	31	1	186	92	60
23Q	1	9	1	15	1	0	1	132	187	7

* PROBABLE BEDROCK CONDUCTOR (SEE TITLE PAGE OF APPENDIX B)

* ESTIMATED DEPTH MAY BE UNRELIABLE BECAUSE THE STRONGER PART OF THE CONDUCTOR MAY BE DEEPER OR TO ONE SIDE OF THE FLIGHT LINE, OR BECAUSE OF A SHALLOW DIP OR OVERBURDEN EFFECTS.

328 ABERFOYLE CLEVELAND MARCH/31

LINE & ANOMALY	COAXIAL COIL		COPLANAR COIL		VERTICAL DIKE		HORIZONTAL SHEET		CONDUCTIVE EARTH	
	REAL PPM	QUAD PPM	REAL PPM	QUAD PPM	COND MHOS	DEPTH* FEET	COND MHOS	DEPTH FEET	RESIS OHM-M	DEPTH FEET
24C	1	6	0	0	2	18	1	297	170	112
24D	10	1	1	0	102	0	1	436	112	249
24E	2	0	2	1	12	187	1	593	130	393
25A	2	4	2	4	3	3	1	199	255	20
25D	3	1	0	1	12	237	1	692	1035	0
26B	3	11	9	20	3	6	1	155	84	43
26D	6	6	7	13	5	51	1	174	103	49
27A	3	10	7	15	3	23	1	160	127	41
27C	2	4	0	2	3	86	1	299	1035	0
27G	5	9	11	21	4	15	1	153	79	39
27H	3	10	5	14	2	3	1	168	167	34
28A +	4	3	7	13	3	10	1	176	137	44
30A	3	4	3	9	3	34	1	138	118	10
31A	2	2	6	3	10	135	1	160	64	43
31E	3	13	2	21	1	0	1	114	132	0
32A	1	0	4	0	36	272	3	676	22	556
35A	4	8	6	14	3	0	2	156	55	43

+ PROBABLE BEDROCK CONDUCTOR (SEE TITLE PAGE OF APPENDIX B)

* ESTIMATED DEPTH MAY BE UNRELIABLE BECAUSE THE STRONGER PART OF THE CONDUCTOR MAY BE DEEPER OR TO ONE SIDE OF THE FLIGHT LINE, OR BECAUSE OF A SHALLOW DIP OR OVERBURDEN EFFECTS.

APPENDIX 4

MAGNETOMETER TRAVERSE RESULTS

CLEVELAND TIN LTD.

MAGNETOMETER TRAVERSE

INSTRUMENT: G 816 OPERATORS: M.E. & N.H. DATE: _____LINE N°: NL 10E

STATION IDENTITY	TIME	AVERAGE READING	TIME CORRECTED	ADJUSTED READING
0	9:24	62395	62392	62410
25	9:26	62393	62390	62408
50	9:27	62474	62471	62489
75	9:28	62327	62324	62342
100	9:29	62282	62279	62297
125	9:31	62353	62350	62368
150	9:32	62324	62321	62339
175	9:33	62342	62339	62357
200	9:34	62416	62413	62431
225	9:36	62384	62381	62399
250	9:37	62412	62410	62428
275	9:38	62435	62433	62451
300	9:39	62451	62449	62467
325	9:41	62479	62477	62495
350	9:42	62578	62576	62594
375	9:43	62980	62978	62996
400	9:45	62645	62643	62661
425	9:46	62404	62402	62420
450	9:48	62622	62620	62638
475	9:50	62712	62710	62728
500	9:51	62676	62674	62692
525	9:52	62650	62648	62666
550	9:54	62780	62778	62796
575	9:55	62869	62867	62885
600	9:57	62755	62753	62771
625	9:58	62564	62562	62580
650	9:59	62760	62758	62776
675	10:01	62819	62817	62835
700	10:02	62964	62962	62980
725	10:04	62444	62443	62461
750	10:05	62698	62697	62715

CLEVELAND TIN LTD.

MAGNETOMETER TRAVERSE

INSTRUMENT: G 816

OPERATORS: M.E. & N.H.

DATE: _____

LINE N^o: NL 10E cont.

STATION IDENTITY	TIME	AVERAGE READING	TIME CORRECTED	ADJUSTED READING
775	10:07	62713	62712	62730
800	10:08	62523	62522	62540
825	10:12	62973	62972	62990
850	10:13	62920	62919	62937
875	10:15	62499	62498	62516
900	10:16	62494	62493	62511
925	10:17	62562	62562	62580
950	10:19	62663	62662	62680
975	10:20	62922	62921	62939
1000	10:21	62686	62685	62703
1025	10:22	62714	62713	62731
1050	10:23	62699	62798	62816
1075	10:25	62712	62711	62729
1100	10:26	62686	62685	62703
1125	10:28	62790	62789	62807
1150	10:29	62750	62749	62767
1175	10:30	63038	63038	63056
1200	10:32	62886	62886	62904
1225	10:33	62946	62946	62964
1250	10:34	62859	62859	62877
1275	10:36	63176	63176	63194
1300	10:37	62854	62854	62872
1325	10:39	62928	62928	62946
1350	10:40	62934	62934	62952
1375	10:41	63245	63245	63263
1400	10:43	63143	63143	63161
1425	10:44	63135	63135	63153
1450	10:46	63064	63064	63082
1475	10:47	63055	63055	63073
1500	10:49	62762	62762	62780
1525	10:51	62999	62999	63017

499035

CLEVELAND TIN LTD.

MAGNETOMETER TRAVERSE

INSTRUMENT: G 816OPERATORS: M.E. & N.H.

DATE: _____

LINE N^o: NL 10E cont.

STATION IDENTITY	TIME	AVERAGE READING	TIME CORRECTED	ADJUSTED READING
1550	10:52	62872	62872	62890
1575	10:53	62896	62896	62914
1600	10:55	62556	62556	62574
1625	10:58	62372	62373	62391
1650	11:00	62212	62213	62231
1675	11:01	62168	62169	62187
1700	11:03	62164	62165	62183
1725	11:04	62197	62198	62216
1750	11:05	62209	62210	62228
1775	11:07	62324	62325	62343
1800	11:08	62277	62278	62996
1825	11:09	62322	62321	62339
1850	11:10	62254	62255	62273
1875	11:12	62238	62239	62257
1900	11:13	62240	62241	62259
1925	11:15	62232	62233	62251
1950	11:18	62260	62261	62279
1975	11:19	62283	62284	62202
2000	11:20	62290	62291	62309
2014	11:21	62301	62302	62320
BL 0	12:03	623 89	62392	62410

CLEVELAND TIN LTD.

MAGNETOMETER TRAVERSE

INSTRUMENT: G 816

OPERATORS: M.E. & N.H.

DATE: _____

LINE No. NL 14E

STATION IDENTITY	TIME	AVERAGE READING	TIME CORRECTED	ADJUSTED READING
0	1:47	62158	62169	62193
25	1:48	62183	62194	62218
50	1:49	62199	62210	62234
75	1:51	62229	62240	62264
100	1:53	62259	62269	62293
125	1:56	62290	62300	62324
150	1:57	62323	62333	62357
175	1:58	62366	62376	62400
200	1:59	62396	62406	62430
225	2:00	62434	62443	62467
250	2:01	62558	62567	62591
275	2:03	62362	62371	62395
300	2:04	62347	62356	62380
325	2:05	62343	62352	62376
350	2:07	62030	62039	62063
375	2:08	62117	62125	62149
400	2:12	62210	62218	62242
425	2:13	62366	62374	62398
450	2:14	62034	62042	62066
475	2:16	61944	61951	61975
500	2:17	62074	62081	62105
525	2:18	62066	62073	62097
550	2:20	62046	62053	62077
575	2:21	62079	62086	62110
600	2:23	62163	62170	62194
625	2:24	62323	62329	62353
650	2:25	62240	62446	62270
675	2:26	62335	62341	62365
700	2:28	62133	62139	62163
725	2:29	62069	62075	62099
750	2:30	62020	62026	62050

CLEVELAND TIN LTD.

MAGNETOMETER TRAVERSE

INSTRUMENT: G 816OPERATORS: M.E. & N.H.

DATE: _____

LINE N°: NL 14E cont.

STATION IDENTITY	TIME	AVERAGE READING	TIME CORRECTED	ADJUSTED READING
775	2:32	62068	62073	62097
800	2:33	62086	62091	62115
825	2:42	62126	62130	62154
850	2:43	62324	62328	62352
875	2:45	62149	62153	62177
900	2:46	62123	62127	62151
925	2:47	62151	62155	62179
950	2:48	62274	62277	62301
975	2:49	62220	62223	62247
1000	2:50	62223	62226	62250
1025	2:52	62176	62179	62203
1050	2:53	62414	62416	62440
1075	2:54	62591	62593	62617
1100	2:55	62103	62105	62129
1125	2:56	62038	62040	62064
1150	2:58	62006	62007	62031
1175	2:59	62198	62199	62223
1200	3:00	62010	62011	62035
1225	3:01	62033	62034	62058
1250	3:03	62052	62052	62076
1275	3:04	62060	62060	62084
1300	3:05	62068	62068	62092
1325	3:07	62074	62074	62098
1350	3:08	62087	62087	62111
1375	3:09	62102	62102	62126
1400	3:11	62100	62099	62123
1425	3:12	62102	62101	62125
1450	3:13	62106	62105	62129
1475	3:14	62112	62111	62135
1500	3:15	62122	62121	62145
1525	3:17	62124	62123	62147

499038

CLEVELAND TIN LTD.

MAGNETOMETER TRAVERSE

INSTRUMENT: G 816 OPERATORS: M.E. & N.H. DATE: _____LINE No. NL 14E cont.

STATION IDENTITY	TIME	AVERAGE READING	TIME CORRECTED	ADJUSTED READING
1550	3:18	62130	62128	62152
1575	3:19	62136	62134	62158
1600	3:20	62142	62140	62164
1625	3:21	62133	62131	62155
1650	3:22	62135	62133	62157
1675	3:23	62158	62156	62180
1700	3:24	62133	62131	62155
1725	3:26	62085	62082	62106
1750	3:28	62124	62121	62145
1775	3:29	62109	62106	62130
1800	3:30	62098	62095	62119
1825	3:31	62104	62101	62125
1850	3:32	62115	62112	62136
1875	3:34	62152	62148	62172
1900	3:35	62247	62243	62267
1925	3:36	62154	62150	62174
1950	3:37	62158	62154	62178
1975	3:38	62203	62199	62223
2000	3:39	62217	62213	62237
2010	3:40	62239	62235	62259
BL 0	4:26	62179	62169	62193

CLEVELAND TIN LTD.

MAGNETOMETER TRAVERSE

INSTRUMENT: G 816 OPERATORS: M.E. & N.H. DATE: _____LINE N^o: NL 14^W

STATION IDENTITY	TIME	AVERAGE READING	TIME CORRECTED	ADJUSTED READING
0	2:37	62155	62161	62193
25	2:39	62143	62149	62181
50	2:41	62119	62124	62156
75	2:43	62114	62119	62151
100	2:45	62099	62103	62135
125	2:46	62174	62178	62210
150	2:48	62151	62155	62187
175	2:50	62096	62099	62131
200	2:52	62237	62240	62272
225	2:54	62106	62108	62140
250	2:56	62098	62100	62132
275	2:58	62123	62125	62157
300	2:59	62088	62089	62121
325	3:00	62071	62072	62104
350	3:02	62034	62035	62067
375	3:03	62021	62022	62054
400	3:04	62028	62028	62060
425	3:06	61979	61979	62011
450	3:07	61958	61957	61989
475	3:08	62079	62078	62110
500	3:10	62205	62204	62236
525	3:12	62368	62366	62398
533	3:14	62412	62410	62442
BL	3:33	62167	62161	62193

499040

CLEVELAND TIN LTD.

MAGNETOMETER TRAVERSE

INSTRUMENT: G 816OPERATORS: M.E. & N.H.

DATE: _____

LINE N^o. NL 18E

STATION IDENTITY	TIME	AVERAGE READING	TIME CORRECTED	ADJUSTED READING
0	1:54	62090	62095	62102
25	1:56	62113	62118	62125
50	1:57	62168	62173	62180
75	1:58	62271	62276	62283
100	1:59	62478	62483	62490
125	2:00	62541	62546	62553
150	2:01	62280	62285	62292
175	2:03	62211	62216	62223
200	2:04	62034	62039	62046
225	2:05	62100	62104	62111
250	2:06	62119	62123	62130
275	2:09	62126	62130	62137
300	2:11	62163	62167	62174
325	2:12	62193	62197	62204
350	2:14	62286	62290	62297
375	2:15	62234	62238	62245
400	2:16	62269	62273	62280
425	2:17	62225	62229	62236
450	2:18	62322	62326	62333
475	2:19	62359	62363	62370
500	2:20	62447	62451	62458
525	2:22	62720	62724	62731
550	2:22	62647	62651	62658
575	2:23	62483	62487	62494
600	2:25	62549	62552	62559
625	2:26	62516	62519	62526
650	2:27	62375	62378	62385
675	2:28	62222	62225	62232
700	2:29	62072	62075	62082
725	2:30	61981	61984	61991
750	2:31	62269	62272	62279

CLEVELAND TIN LTD.

MAGNETOMETER TRAVERSE

INSTRUMENT: G 816 OPERATORS: M.E. & N.H. DATE: _____LINE N^o. NL 18E cont.

STATION IDENTITY	TIME	AVERAGE READING	TIME CORRECTED	ADJUSTED READING
775	2:32	62192	62195	62202
800	2:33	61954	61957	61964
825	2:35	62098	62101	62108
850	2:36	62051	62054	62061
875	2:38	61938	61941	61948
900	2:39	61954	61957	61964
925	2:40	61973	61976	61983
950	2:42	61940	61943	61950
975	2:43	61905	61908	61915
1000	2:44	61946	61948	61955
1025	2:45	61915	61917	61924
1050	2:46	61923	61925	16932
1075	2:47	62030	62032	62039
1100	2:49	61938	61940	61947
1125	2:50	61952	61954	61961
1150	2:51	61951	61953	61960
1175	2:52	61965	61967	61974
1200	2:54	61982	61984	61991
1225	2:55	61957	61959	61966
1250	2:56	61963	61965	61972
1275	2:57	61930	61932	61939
1300	2:58	61932	61934	61941
1325	3:08	61936	61937	61944
1350	3:10	61940	61941	61948
1375	3:11	61952	61953	61960
1400	3:12	61965	61966	61973
1425	3:13	61965	61966	61973
1450	3:15	61960	61961	61968
1475	3:17	61970	61971	61978
1500	3:18	61964	61965	61972
1525	3:20	61994	61995	62002

CLEVELAND TIN LTD.

MAGNETOMETER TRAVERSE

INSTRUMENT: G 816 OPERATORS: M.E. & N.H. DATE: _____LINE N^o: NL 18E cont.

STATION IDENTITY	TIME	AVERAGE READING	TIME CORRECTED	ADJUSTED READING
1550	3:21	62164	62165	62172
1575	3:23	62074	62074	62081
1600	3:24	62205	62205	62212
1625	3:25	62145	62145	62152
1650	3:26	62022	62022	62029
1675	3:29	61940	61940	61947
1700	3:30	61884	61884	61891
1725	3:31	62026	62026	62033
1750	3:32	61976	61976	61983
1775	3:33	62437	62437	62444
1800	3:34	61890	61890	61897
1825	3:35	61905	61905	61912
1850	3:36	61919	61919	61926
1875	3:37	61923	61923	61930
1900	3:38	61949	61949	61956
1925	3:39	62000	62000	62007
1950	3:40	61898	61898	61905
1975	3:42	61928	61927	61934
2000	3:46	61936	61935	61942
2010	3:46	61936	61935	61942
0	4:48	62099	62095	62102

499043

CLEVELAND TIN LTD.

MAGNETOMETER TRAVERSE

INSTRUMENT: G 816 OPERATORS: M.E. & N.H. DATE: _____LINE N°: NL 18W

STATION IDENTITY	TIME	AVERAGE READING	TIME CORRECTED	ADJUSTED READING
0	9:30	62097	62093	62102
25	9:32	62034	62030	62039
50	9:34	61991	61987	61996
75	9:36	61955	61951	61960
100	9:38	61895	61891	61900
125	9:39	62043	62039	62048
150	9:40	62376	62372	62381
175	9:41	61909	61905	61914
200	9:42	63608	63604	63613
225	9:44	62575	62571	62580
250	9:45	62839	62835	62844
275	9:46	63933	63929	62938
300	9:48	62064	62060	62069
325	9:49	62175	62171	62180
350	9:50	61885	61882	61891
375	9:51	61915	61912	61921
400	9:52	62389	62386	62395
425	9:54	62015	62012	62021
450	9:55	61971	61968	61977
475	9:56	61957	61954	61963
500	9:57	61906	61903	61912
525	9:58	61921	61918	61927
550	9:59	61915	61912	61921
575	10:01	61916	61913	61922
600	10:05	61971	61968	61977
625	10:07	61973	61970	61979
650	10:08	61954	61951	61960
675	10:09	61956	61953	61962
700	10:10	61962	61959	61968
725	10:12	61964	61961	61970
750	10:13	61966	61963	61972

043

499044

CLEVELAND TIN LTD.

MAGNETOMETER TRAVERSE

INSTRUMENT: G 816 OPERATORS: M.E. & N.H. DATE: _____LINE N^o. NL 18W cont.

STATION IDENTITY	TIME	AVERAGE READING	TIME CORRECTED	ADJUSTED READING
775	10:14	62008	62005	62014
800	10:15	62012	62009	62018
825	10:16	62032	62029	62038
850	10:17	62034	62031	62040
875	10:19	62394	62391	62400
900	10:20	62174	62171	62180
925	10:21	62164	62161	62170
950	10:22	62192	62189	62198
975	10:23	62135	62132	62141
1000	10:26	62155	62152	62161
1025				
1030				
0	1:54	62090	62093	62102

CLEVELAND TIN LTD.

MAGNETOMETER TRAVERSE

INSTRUMENT: G 816 OPERATORS: M.E. & N.H. DATE: _____LINE No. NL 22E

STATION IDENTITY	TIME	AVERAGE READING	TIME CORRECTED	ADJUSTED READING
0	11:06	62027	62032	62037
25	11:05	62022	62027	62032
50	11:03	62030	62035	62040
75	11:01	62025	62030	62035
100	10:59	62027	62031	62036
125	10:57	62030	62034	62039
150	10:55	62032	62036	62041
175	10:54	62036	62040	62045
200	10:52	62080	62083	62088
225	10:50	62112	62115	62120
250	10:48	62212	62215	62220
275	10:46	62117	62120	62125
300	10:45	62109	62111	62116
325	10:43	62395	62397	62402
350	10:40	62202	62204	62209
375	10:38	62744	62745	62750
400	10:36	62220	62221	62226
425	10:34	62207	62208	62213
450	10:32	62107	62108	62113
475	10:31	62077	62077	62082
500	10:29	62030	62030	62035
525	10:28	62033	62033	62038
550	10:26	62047	62047	62052
575	10:24	62054	62053	62058
600	10:21	62087	62086	62091
625	10:19	62249	62248	62253
650	10:18	62285	62284	62289
675	10:16	62578	62576	62581
700	10:15	62652	62650	62655
725	10:14	62304	62302	62307
750	10:07	61787	61784	61789

045
499046

CLEVELAND TIN LTD.

MAGNETOMETER TRAVERSE

INSTRUMENT: G 816 OPERATORS: M.E. & N.H. DATE: _____LINE No: NL 22E cont.

STATION IDENTITY	TIME	AVERAGE READING	TIME CORRECTED	ADJUSTED READING
775	10:05	61909	61906	61911
800	10:02	61830	61826	61831
825	10:00	61907	61903	61908
850	9:59	62126	62122	62127
875	9:57	62267	62263	62268
900	9:55	62364	62359	62364
925	9:53	62494	62489	62494
950	9:52	62659	62654	62659
975	9:51	62761	62756	62761
1000	9:49	62248	62242	62247
1025	9:48	61826	61820	61825
1050	9:46	61823	61817	61822
1075	9:45	61857	61851	61856
1100	9:43	61885	61879	61884
1125	9:42	61899	61892	61897
1150	9:40	61921	61914	61919
1175	9:39	61930	61923	61928
1200	9:37	61929	61922	61927
1225	9:35	61932	61925	61930
1250	9:34	61947	61939	61944
1275	9:32	61954	61946	61951
1300	9:31	61951	61943	61948
1325	9:29	61933	61925	61930
1350	9:28	61930	61922	61927
1375	9:26	61943	61934	61939
1400	9:25	61942	61933	61938
1425	9:22	61944	61935	61940
1450	9:21	61947	61938	61943
1475	9:19	61949	61939	61944
1500	9:17	61960	61950	61955

CLEVELAND TIN LTD.

MAGNETOMETER TRAVERSE

INSTRUMENT: G 816 OPERATORS: M.E. & N.H. DATE: _____LINE N^o: NL 22E cont.

STATION IDENTITY	TIME	AVERAGE READING	TIME CORRECTED	ADJUSTED READING
1512	9:16	61959	61949	61954
1512	11:58	61938	61949	61954

CLEVELAND TIN LTD.

MAGNETOMETER TRAVERSE

INSTRUMENT: G 816OPERATORS: M.E. & N.H.

DATE: _____

LINE N^o: NL 22W

STATION IDENTITY	TIME	AVERAGE READING	TIME CORRECTED	ADJUSTED READING
0	9:59	62034	62033	62037
25	10:01	62040	62039	62043
50	10:03	62034	62033	62037
75	10:05	62036	62035	62039
100	10:06	62033	62032	62036
125	10:08	62035	62034	62038
150	10:10	62053	62052	62056
175	10:11	62101	62100	62104
200	10:12	62120	62119	62123
225	10:14	62111	62110	62114
250	10:15	62043	62042	62046
275	10:18	61874	61873	61877
300	10:19	61976	61975	61979
325	10:21	62117	62116	62120
350	10:22	61979	61978	61982
375	10:24	61973	61972	61976
400	10:25	61973	61972	61976
425	10:26	61973	61972	61976
450	10:27	61919	61918	61922
475	10:31	61948	61947	61951
500	10:34	61958	61958	61962
525	10:35	61959	61959	61963
550	10:36	61971	61971	61975
575	10:37	61968	61968	61972
600	10:39	61992	61992	61996
625	10:40	62001	62001	62005
650	10:42	62010	62010	62014
675	10:44	62019	62019	62023
700	10:46	62022	62022	62026
725	10:47	62009	62009	62013
750	10:48	62050	62050	62054

CLEVELAND TIN LTD.

MAGNETOMETER TRAVERSE

INSTRUMENT: G 816 OPERATORS: M.E. & N.H. DATE: _____LINE N^o. NL 22W cont.

STATION IDENTITY	TIME	AVERAGE READING	TIME CORRECTED	ADJUSTED READING
775	10:50	62041	62041	62045
800	10:53	62026	62026	62030
825	10:55	62001	62001	62005
850	10:58	61992	61992	61996
875	11:00	61958	61958	61962
900	11:02	61920	61920	61924
925	11:04	61895	61895	61899
950	11:06	61870	61870	61874
975	11:07	62160	62160	62164
1000	11:09	62144	62144	62148
1025	11:11	61822	61822	61826
1050	11:13	61948	61948	61952
1075	11:15	62048	62048	62052
1100	11:16	62135	62135	62139
1125	11:19	62205	62205	62209
1150	11:21	62272	62272	62276
1175	11:23	62296	62296	62300
1200	11:25	62406	62405	62410
1225	11:27	62440	62440	62444
1250	11:28	62470	62470	62474
1275	11:30	62765	62765	62769
1300	11:34	62308	62308	62312
1325	11:36	62114	62114	62118
1350	11:38	62024	62025	62029
1375	11:41	62010	62011	62015
1400	11:43	62018	62019	62023
1425	11:45	62001	62002	62006
1450	11:46	61983	61984	61988
1475				
1487	11:48	62005	62006	62010
0	1.15	62031	62033	62037

TCR 83-2055

499050

Sample No	SN	BI	(ppb) F	W	As	Rb
524	1/5	1/5	-	1/5	1/5	1/5
525	1/5	1/5	-	1/5	1/5	1/5
526	1/5	1/5	-	1/5	1/5	1/5
527	1/5	1/5	-	1/5	1/5	1/5
528	1/5	1/5	-	1/5	1/5	1/5
529	1/5	1/5	-	1/5	1/5	1/5
531	4	-4	-	10	10	55
532	6	4	-	15	-10	110
543	14	-4	-	15	-10	26
544	120	-4	-	-10	10	14
545	75	-4	-	20	15	20
546	16	-4	-	-10	-10	19
573	22	-4	-	10	-10	17
573	28	-4	-	-10	30	48
574	85	-4	-	-10	-10	5
575	48	-4	-	-10	15	11
576	85	-4	-	20	20	9
577	380	-4	-	2 -10	10	20
586	100	-4	-	-10	-10	16
587	270	-4	-	-10	-10	19
588	100	-4	-	20	-10	18
590	28	-4	-	15	-10	16
591	-4	-4	-	-10	-10	36
592	-4	-4	-	-10	-10	40
593	-4	-4	-	-10	-10	36
594	4	-4	-	25	-10	34
595	-4	-4	-	15	-10	55
630	24	-4	-	-10	-10	10
631	22	4	-	20	-10	24
632	42	4	-	-10	10	6
633	22	-4	-	-10	-10	22

TCR 83-2055

(ppb)

499051

	SN	B1	F	W	AS	Rb
634	-4	-4	-	10	-10	22
635	38	-4	-	-10	-10	15
636	8	-4	-	15	-10	10
670	15	1/5	10	1/5	1/5	1/5
671	1/5	1/5	11	1/5	1/5	1/5
672	1/5	1/5	13	1/5	1/5	1/5
673	8	-4	8	15	-10	70
674	-4	-4	9	-10	-10	40
675	1/5	1/5	6	1/5	1/5	1/5
676	-4	-4	8	-10	10	48
677	-4	-4	6	-10	-10	60
678	-4	-4	8	20	-10	48
698	-4	-4	4	45	-10	50
700	-4	-4	4	-10	-10	60
701	6	-4	3	-10	-10	80
702	4	-4	3	-10	-10	36
703	1/5	-4	2	1/5	-10	1/5
706	-4	-4	2	-10	-10	55
708	-4	4	2	-10	-10	48
709	-4	-4	-	-10	10	29
710	-4	-4	7	-10	-10	38
711	-4	-4	12	-10	-10	40
712	-4	-4	9	-10	-10	42
713	-4	-4	6	45	-10	50
714	-4	-4	7	10	-10	40
715	-4	-4	5	-10	-10	24
716	4	-4	7	-10	-10	48
717	-4	6	7	-10	-10	44
718	-4	-4	10	15	-10	42

TCR 83-2055

499052

	SN	B1	F (ppb)	W	As	Rib
724	10	6	-	-10	-10	17
725	-4	-4	-	-10	-10	13
726	10	-4	-1	-10	-10	10
727	-4	-4	-1	-10	10	13
728	10	-4	-1	30	-10	12
729	4	-4	-1	25	-10	10
730	1/5	1/5	-	1/5	1/5	1/5
731	-4	-4	-	-10	-10	-2
732	4	-4	7	10	-10	44
733	1/5	1/5	6	1/5	1/5	1/5
734	14	-4	4	-10	-10	40
735	8	4	5	-10	-10	55
736	-4	-4	1	60	-10	55
737	-4	-4	3	50	-10	55
738	10	4	-1	-10	-10	26
739	6	-4	-	-10	-10	14
740	8	-4	-	55	10	50
741	-4	-4	-	-10	-10	60
742	-4	-4	-1	-10	-10	18
743	-4	-4	-1	25	-10	40
744	-4	-4	-1	35	-10	38
745	-4	-4	-1	10	-10	38
746	6	-4	-1	-10	-10	60
747	4	-4	-1	20	-10	38
748	-4	-4	-1	10	10	60
749	-4	-4	-1	-10	-10	70
750	1/5	1/5	-1	1/5	1/5	1/5
751	4	-4	-	10	-10	5
752	-4	-4	-	55	-10	8
753	-4	-4	-	25	-10	10
754	8	-4	-1	30	-10	16
755	12	-4	-1	-10	10	50
756	-4	-4	-	-10	-10	36

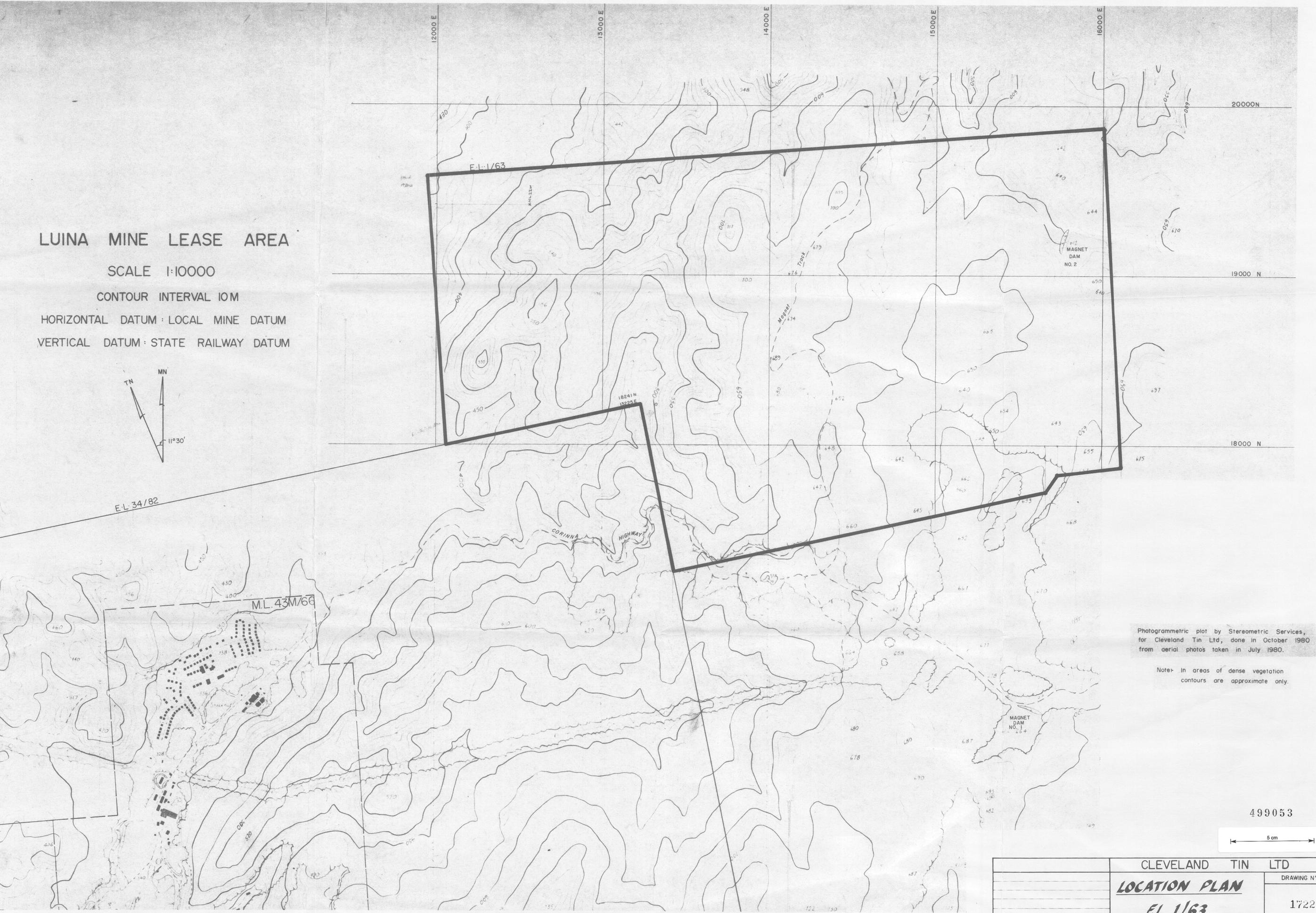
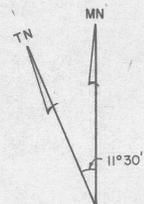
LUINA MINE LEASE AREA

SCALE 1:10000

CONTOUR INTERVAL 10M

HORIZONTAL DATUM: LOCAL MINE DATUM

VERTICAL DATUM: STATE RAILWAY DATUM



Photogrammetric plot by Stereometric Services, for Cleveland Tin Ltd, done in October 1980 from aerial photos taken in July 1980.

Note: In areas of dense vegetation contours are approximate only.

499053



CLEVELAND TIN LTD	
LOCATION PLAN	DRAWING N°
EL 1/63	1722
83-2055	Plate 1.
DRAWN	TRACED
SCALE 1:10,000	SHEET



LEGEND

Overlying basic volcanics	
White Hill basic volcanics formation	
Deep Creek basic volcanics formation	
Halls formation	
Crescent Spur mica sandstone	
Magnet Creek lithic sandstone formation	
Serpentine - altered dolerite dykes	
Quartz porphyry dyke	
Regional schist	
Regional schist	
Fault	

499054



500 0 500 1000
SCALE OF FEET

TNGS

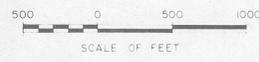
CLEVELAND - MAGNET AREA, TASMANIA
SURFACE GEOLOGY INTERPRETATION PLAN
SHEET I. SOUTHERN

NOTE: THIS MAP IS ON CLEVELAND MINE IMPERIAL G.D. TO CONVERT TO CURRENT METRIC GRID, ADD 15,000 TO NORTHING AND MULTIPLY BY .3048, ADD 10,000 TO EASTING AND MULTIPLY BY .3048

SURVEYED by ...
 DRAWN by ...
 TRACED by ...

83-2055 1723

Plate 2.



TN GN
11° 30'

**CLEVELAND - MAGNET AREA, TASMANIA
SURFACE GEOLOGY INTERPRETATION PLAN
SHEET 2. NORTHERN**

NOTE: THIS MAP IS ON CLEVELAND MINE IMPERIAL GRID
TO CONVERT TO CURRENT METRIC GRID, ADD
15,000 TO NORTHING AND MULTIPLY BY .3048,
ADD 10,000 TO EASTING AND MULTIPLY BY .3048.

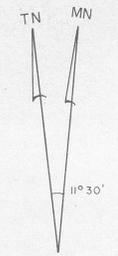
SURVEY Compass - R Cox and G Keygan
GEOLOGY R Cox 1964-68
DRAWN R Cox 30-9-68
TRACED Geodrafting Services Pty Ltd. Nov 1968

LEGEND

Overlying basic volcanics	V
White Hill basic volcanics formation	•••••
Deep Creek basic volcanics formation	•••••
Halls formation	▨
Crescent Spur mica sandstone formation	▨
Magnet Creek lithic sandstone formation	▨
Serpentine-albite-dolerite intrusives	▨
Quartz porphyry dyke	▨
Regional anticline	↔
Regional syncline	↔
Fault	▬

499055



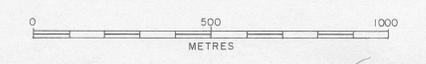


LEGEND

- Tb Basalt
- Sch Chert
- Sls Limestone
- Sss Sandstone
- Sco Conglomerate
- Dg Meredith Granite
- Cvpp Purple Basalt
- Evb Basalt
- Evt Tuff
- Eshb Chocolate Shales/Cherts
- Ech Chert
- Echb Black Chert
- Esh Grey Shale
- Elss Lithic Sandstone
- Ess Mica Sandstone
- Eba Black Argillite
- Eub Undifferentiated Ultrabasics
- Esp Serpentinites
- Edg Dolerite/Gabbro
- Emt Mafic Tuff
- Euvb Undifferentiated Basalt

- TERTIARY
- SILURIAN
- DEVONIAN
- CAMBRIAN

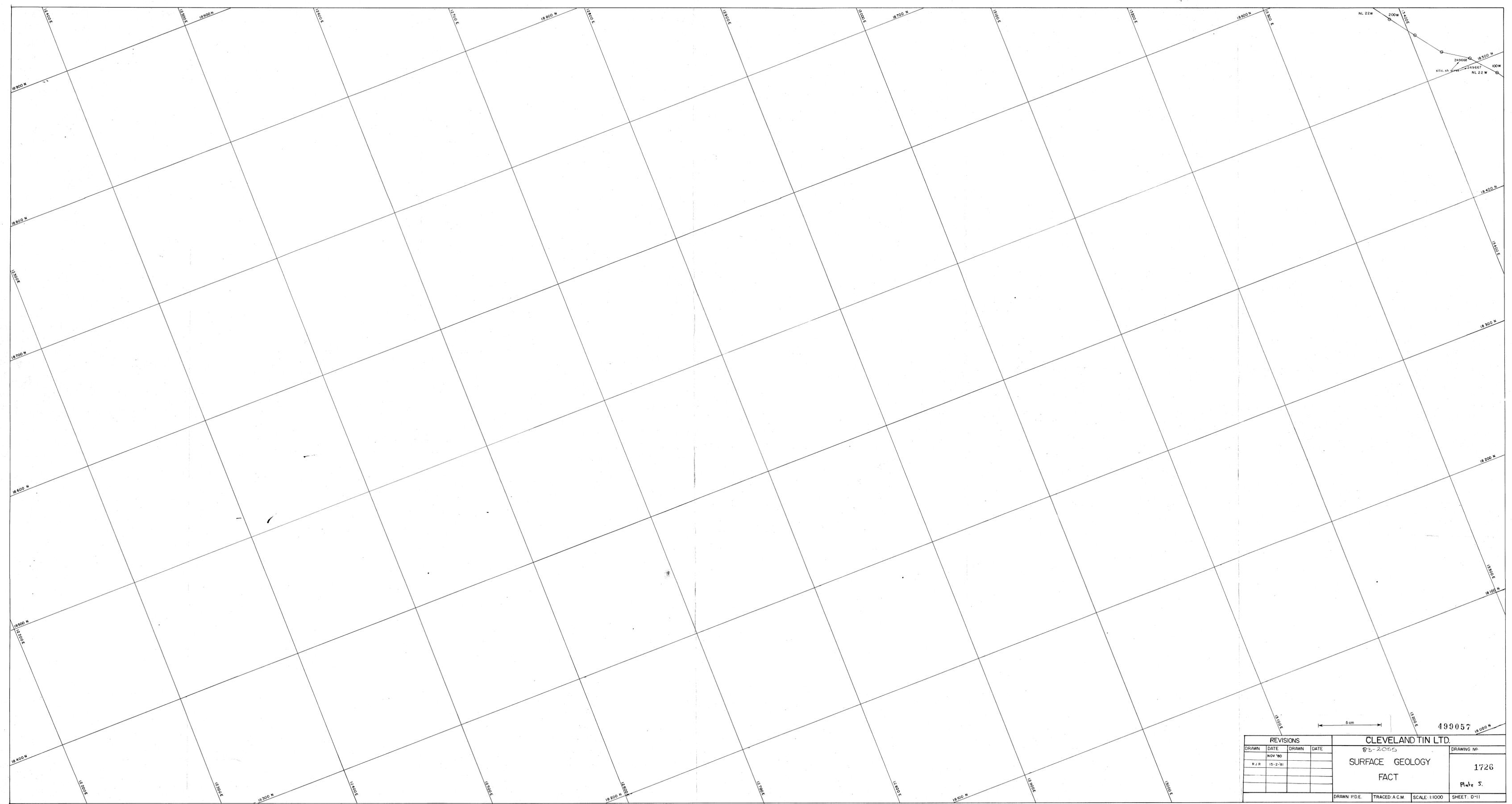
- M L BOUNDARY
- E L BOUNDARY
- ROAD
- TRACK
- GRID LINES (1500N)
- LITHOLOGICAL BOUNDARIES
- FAULTS



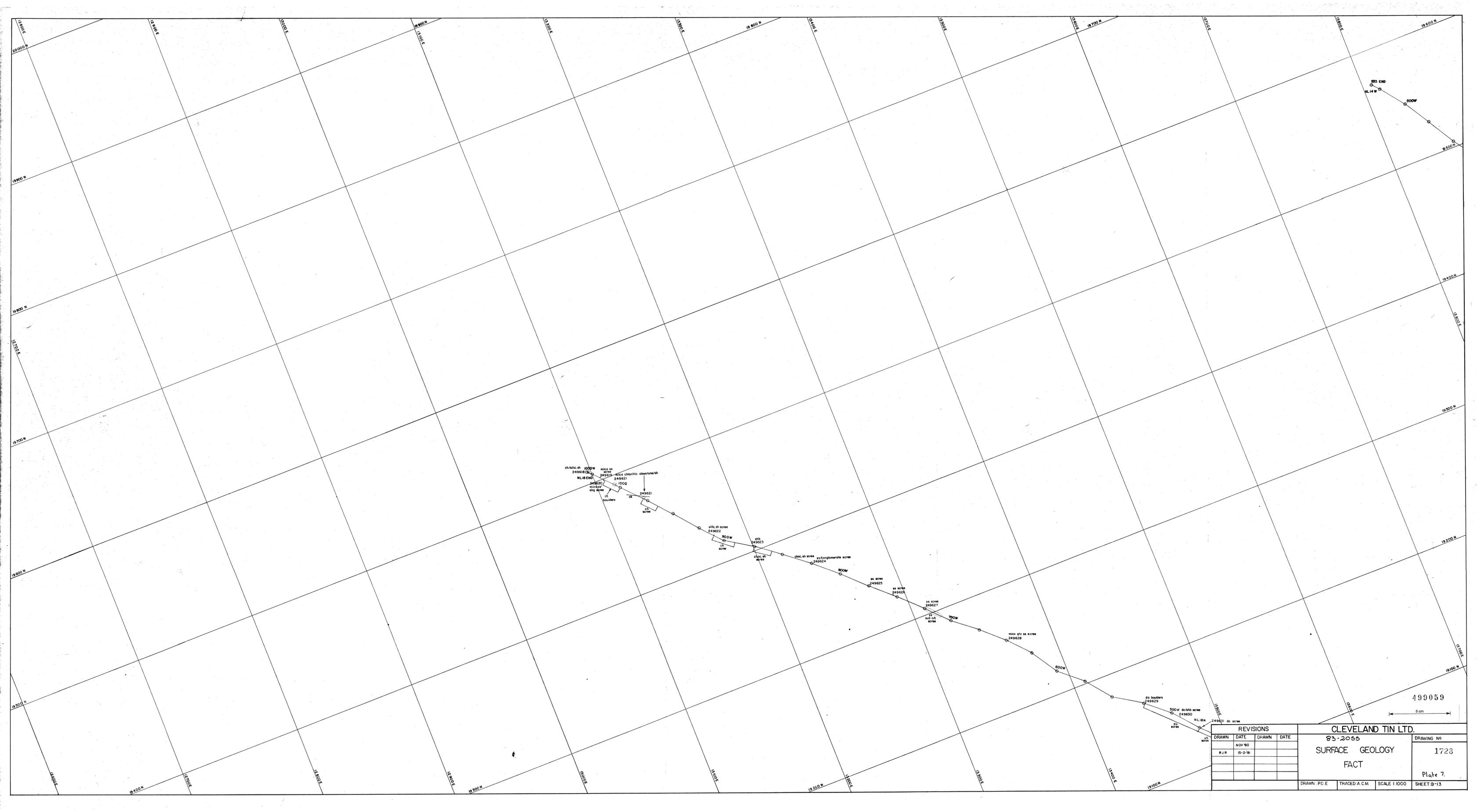
499056



CLEVELAND TIN LTD.		
Geology: P.D.Ellis	2-2055	TASMANIA
Drawn: P.D.Ellis		EL 1/63
Traced:		INTERPRETED SURFACE GEOLOGY
Checked:		
Revised by:	Date:	
Location code: K 55-5/35	Date: April 1981	Scale: 1:10,000
Plate No: SG-IN-001		



REVISIONS				CLEVELAND TIN LTD.	
DRAWN	DATE	DRAWN	DATE	8-2085	
R J R	15-2-'81			DRAWING NO. 1726	
				Plate 5.	
				DRAWN/P.D.E.	TRACED/A.C.M. SCALE: 1:1000 SHEET: D-11



499059

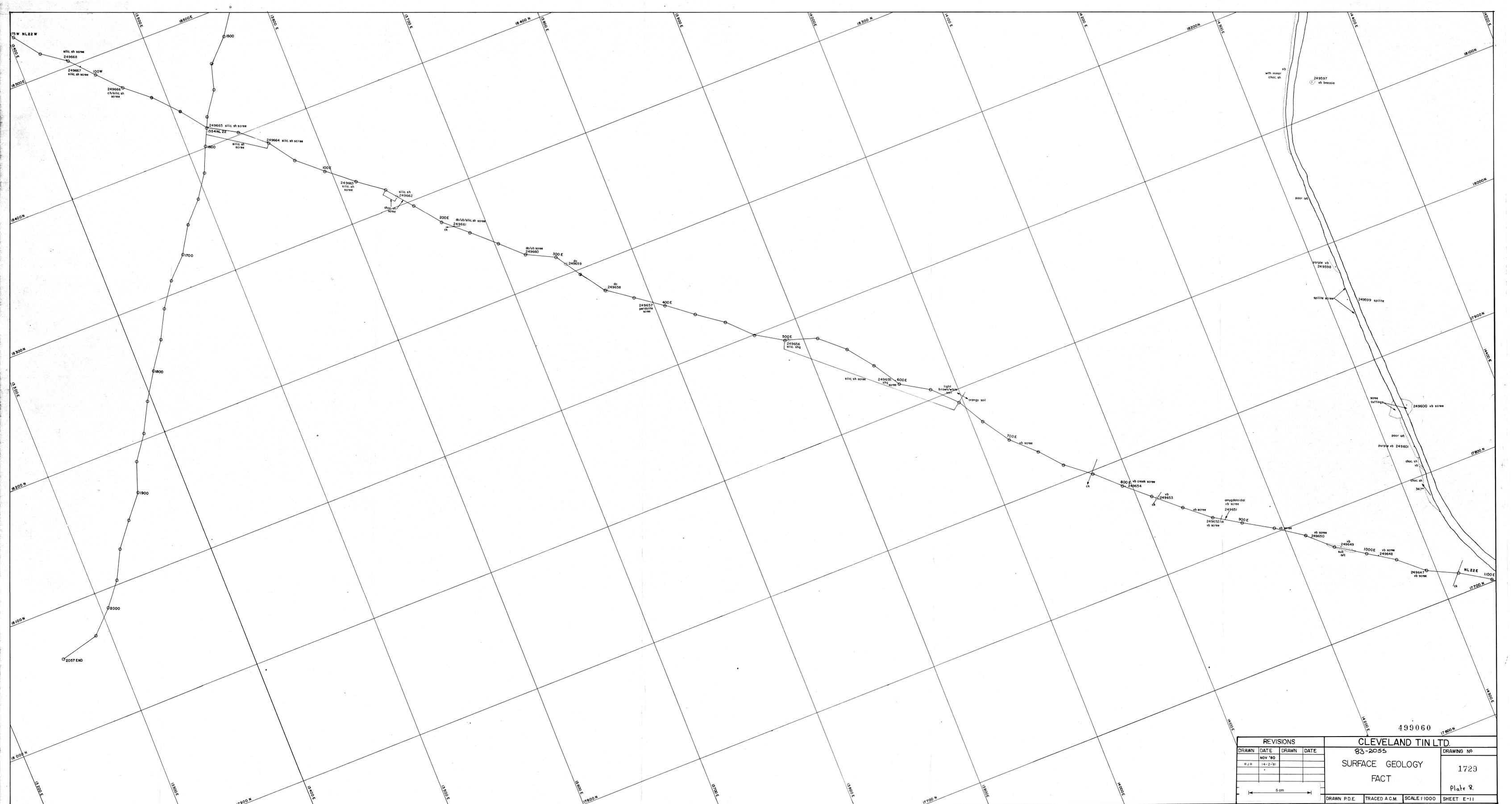
5 cm

REVISIONS			
DRAWN	DATE	DRAWN	DATE
RJR	NOV '80		
	15-2-'81		

CLEVELAND TIN LTD.
 83-2055
 SURFACE GEOLOGY
 FACT

DRAWING NO.
 1723
 Plate 7

DRAWN: P.D.E. TRACED: A.C.M. SCALE: 1:1000 SHEET: D-13

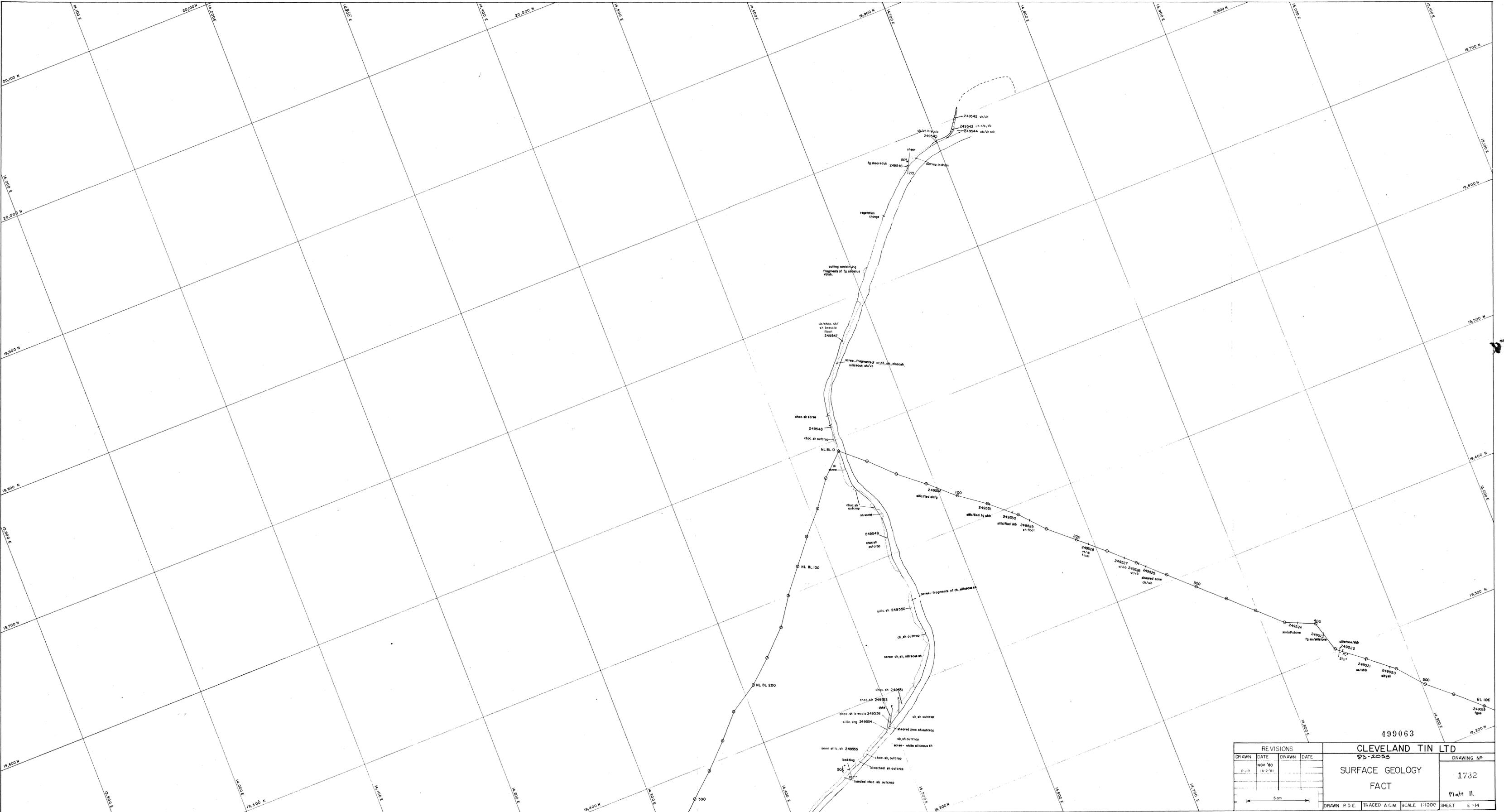


REVISIONS				DRAWING NO.	
DRAWN	DATE	DRAWN	DATE	1729	
RJR	NOV '80			1729	
	14-2-'81			Plate 8	
SCALE 1:1000 SHEET E-11				DRAWN P.D.E. TRACED A.C.M.	

499060
CLEVELAND TIN LTD.

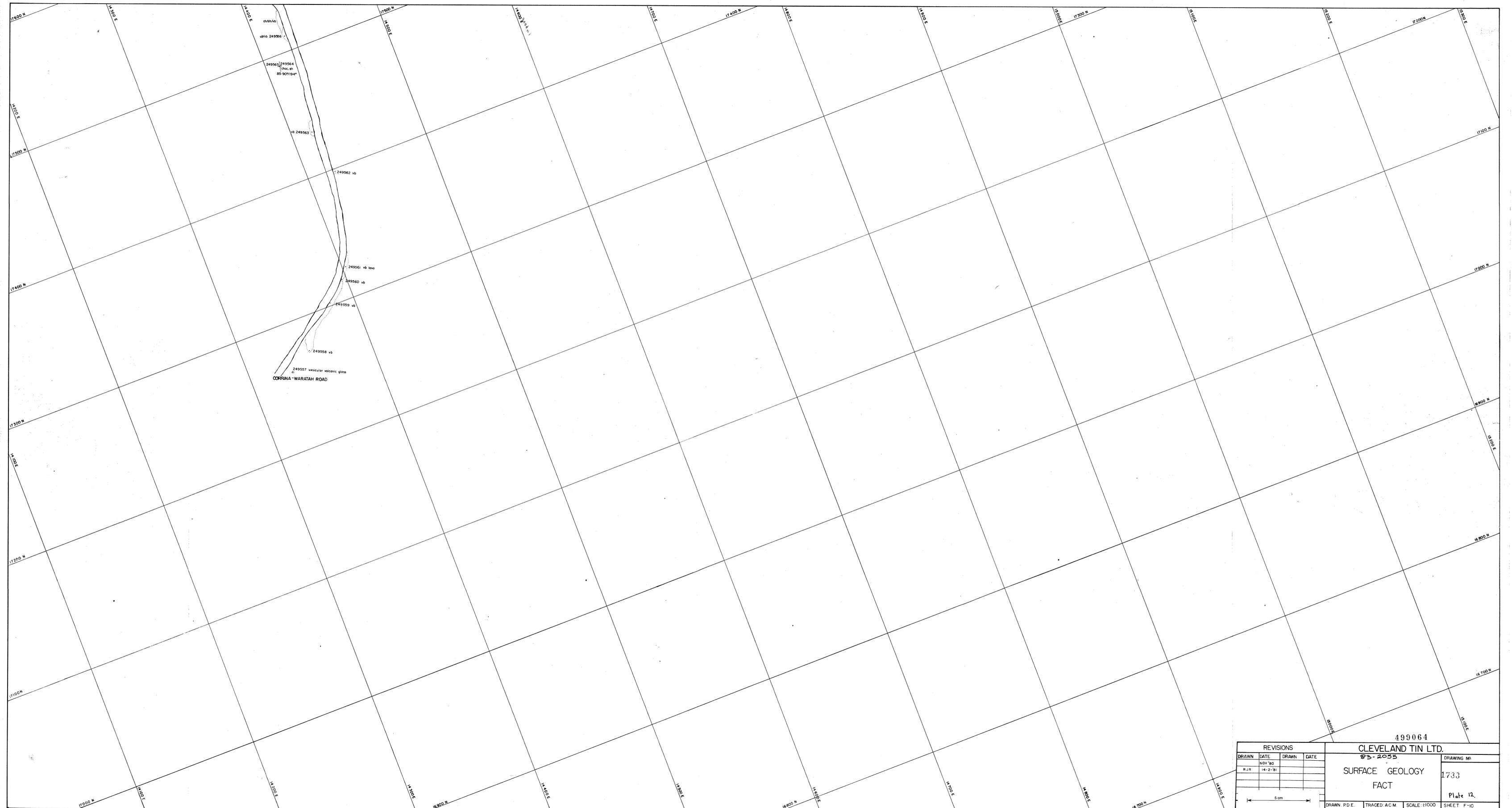
83-2055
SURFACE GEOLOGY
FACT

5 cm



REVISIONS				CLEVELAND TIN LTD	
DRAWN	DATE	DRAWN	DATE	82-2055	
RJR	NOV '80			DRAWING NO.	
				1732	
				SURFACE GEOLOGY	
				FACT	
				Plate II.	
				DRAWN P.D.E. TRACED A.C.M. SCALE 1:1000 SHEET E-14	

499063

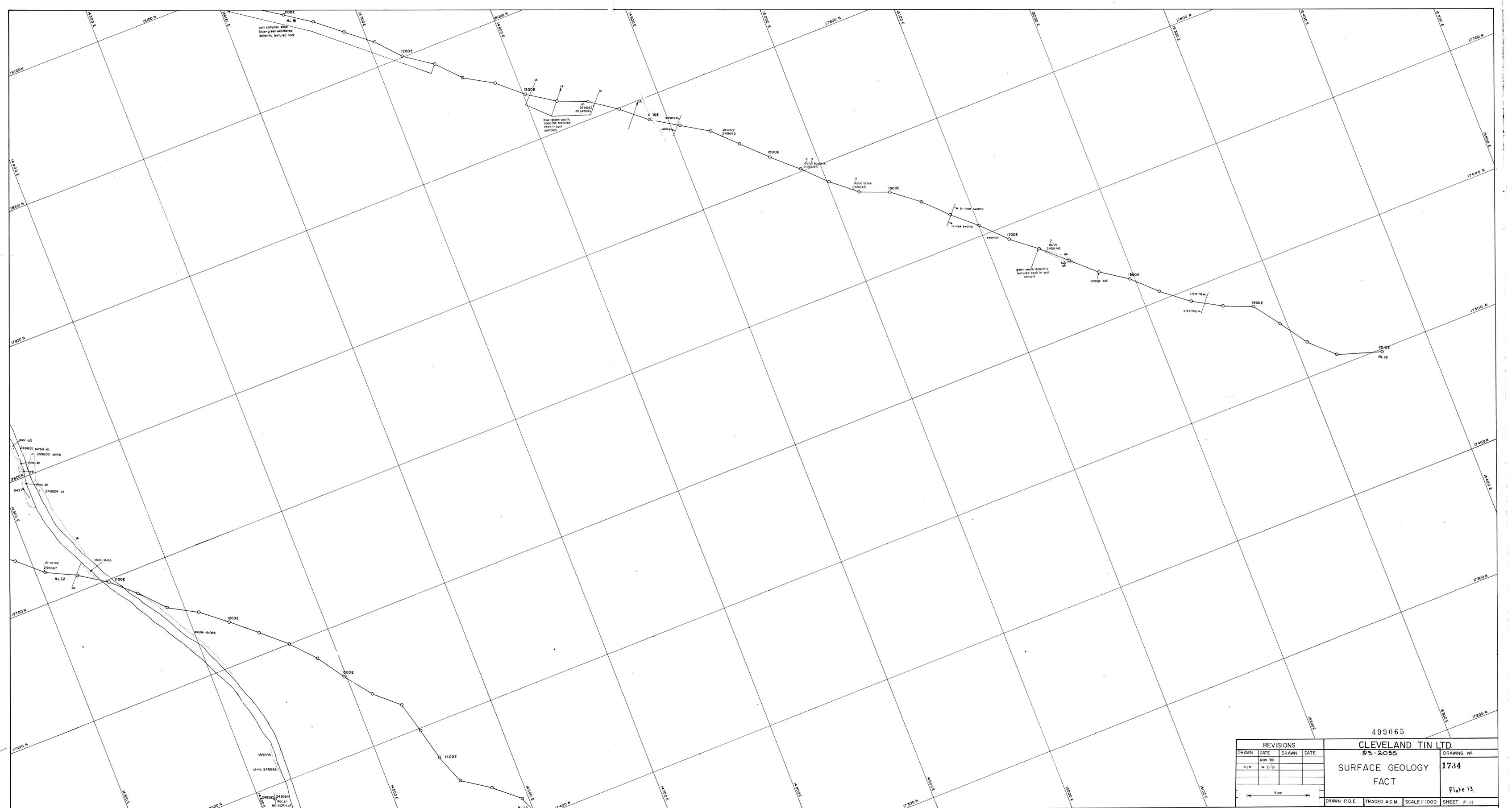


REVISIONS			
DRAWN	DATE	DRAWN	DATE
RJR	NOV '80		
	14-2-81		

499064

CLEVELAND TIN LTD.		DRAWING NO.
S2-2053		1733
SURFACE GEOLOGY		Plate 12.
FACT		
DRAWN: P.D.E.	TRACED: A.C.M.	SCALE: 1:1000
		SHEET F-10

5 cm



REVISIONS			
DRAWN	DATE	DRAWN	DATE
RJR	NOV '80		
	14-2-'81		

499065

CLEVELAND TIN LTD
95-2055

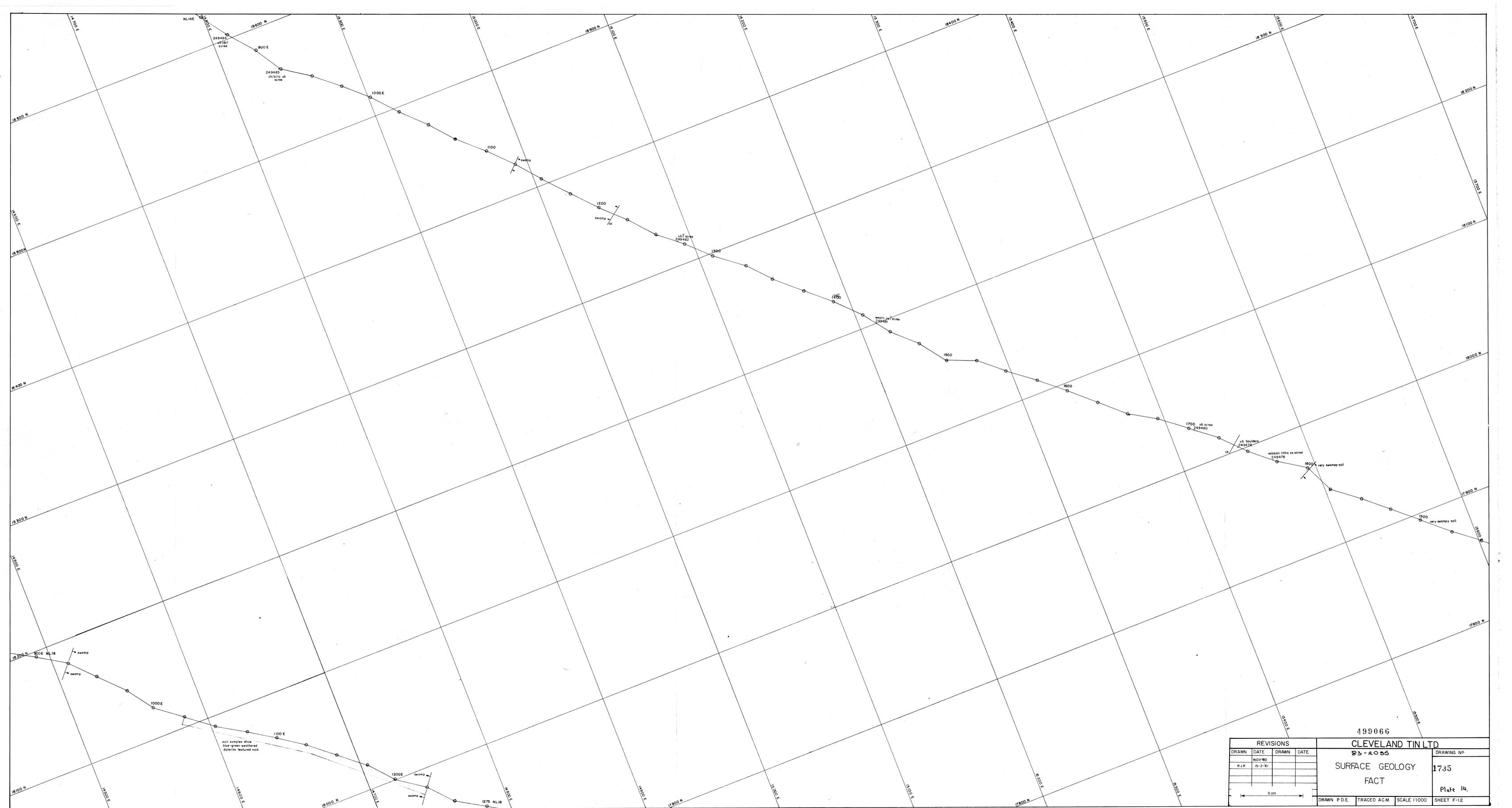
SURFACE GEOLOGY
FACT

DRAWING NO
1734

Plate 13.

DRAWN P.D.E. TRACED A.C.M. SCALE 1:1000 SHEET F-11

5 cm



499066

CLEVELAND TIN LTD

S3-2055

REVISIONS			
DRAWN	DATE	DRAWN	DATE
RJR	15-2-81		

SURFACE GEOLOGY
FACT

DRAWING No
1735
Plate 14
SHEET F-12

5 cm

DRAWN P.D.E. TRACED ACM SCALE 1:1000

soil samples show
blue green weathered
dolerite textured rock

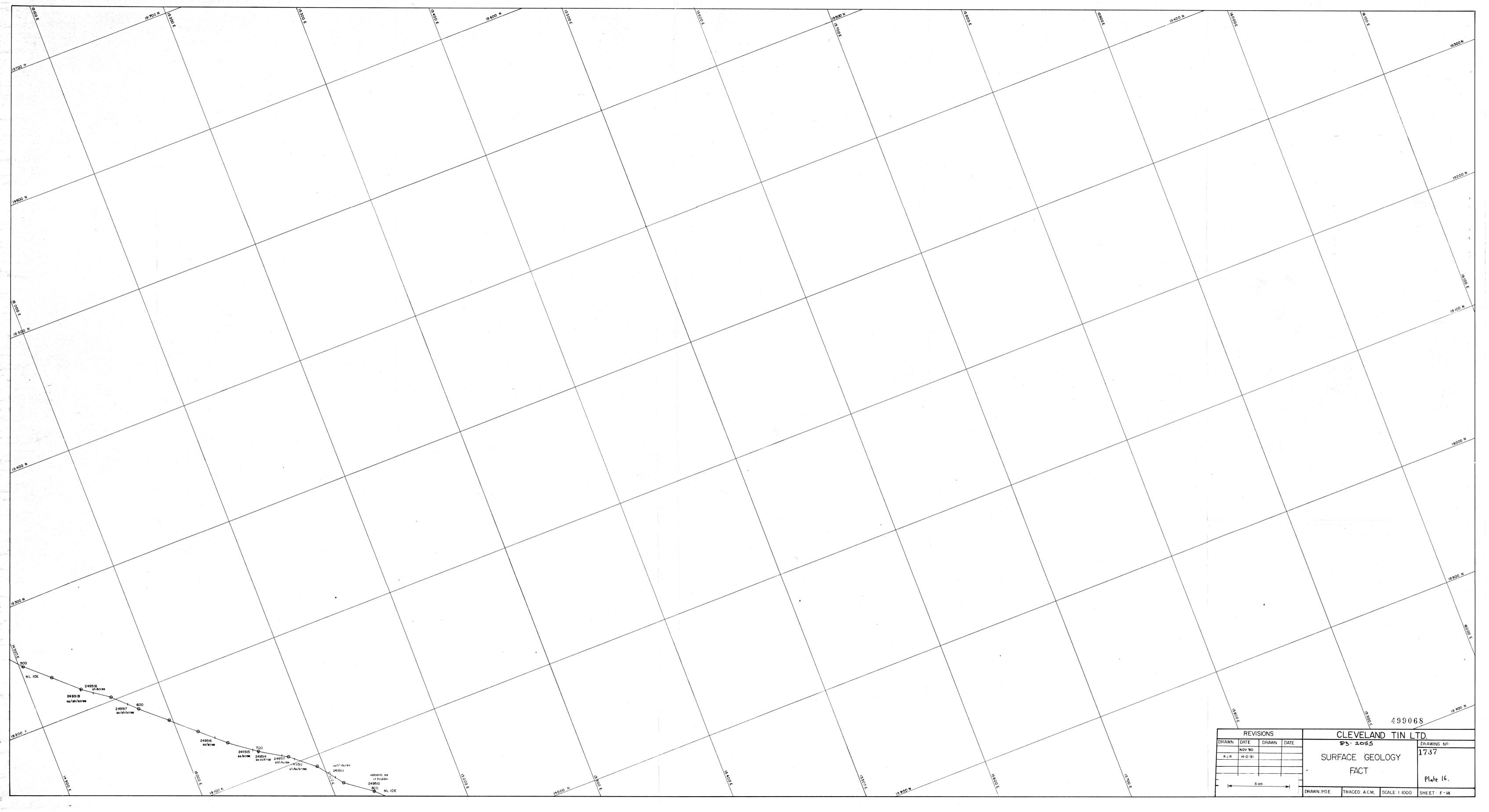
volcanic tuff ss scree
249478

ab boulders
249479

volcanic tuff scree
249481

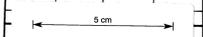
volcanic tuff scree
249482

249485
volcanic tuff scree

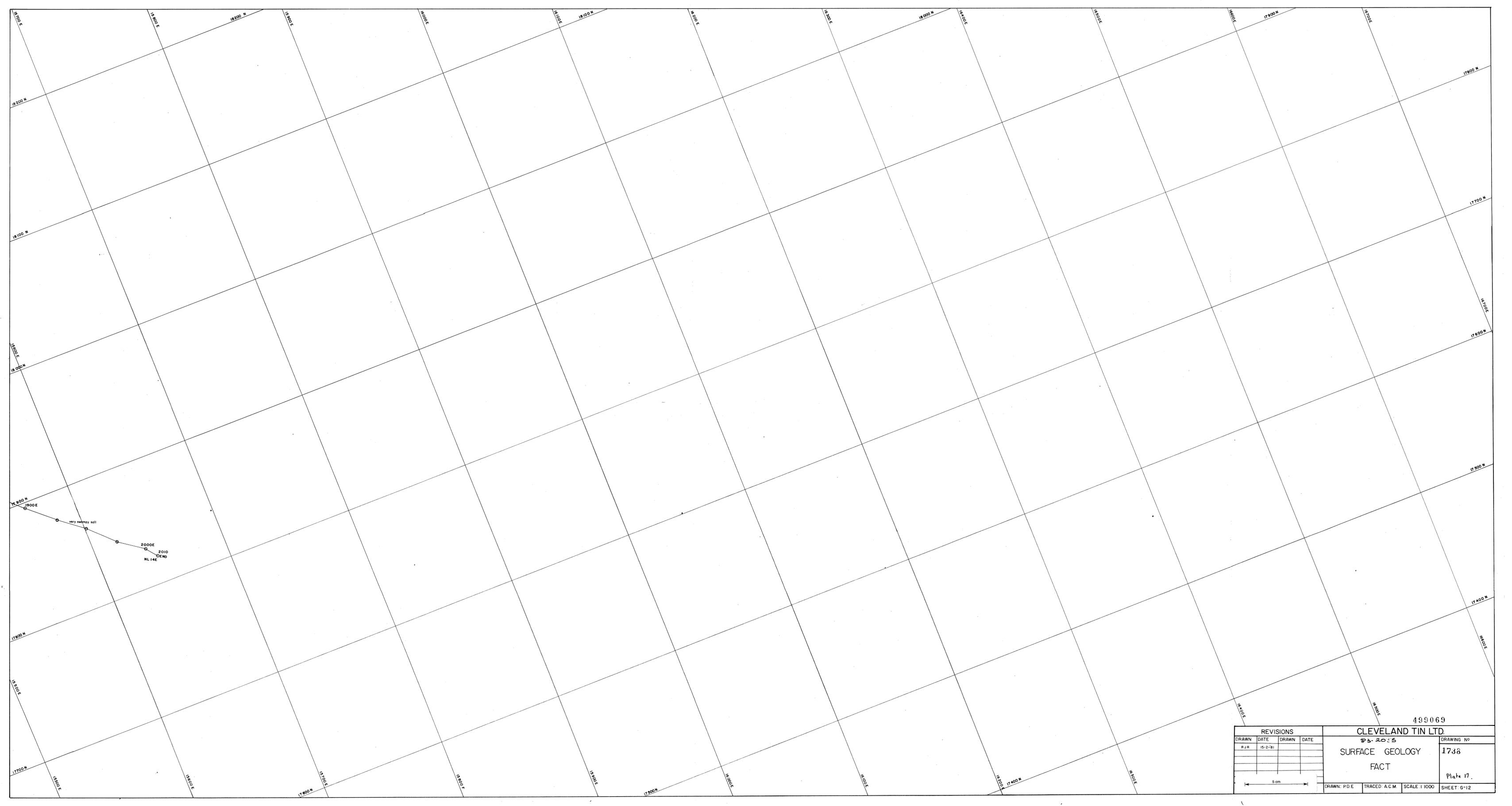


499068

REVISIONS				CLEVELAND TIN LTD.	
DRAWN	DATE	DRAWN	DATE	23-2055	
RJR	14-2-81			DRAWING NO. 1737	
				SURFACE GEOLOGY	
				FACT	
				Plate 16.	
DRAWN: PDE		TRACED: ACM		SCALE: 1:1000	
				SHEET: F-14	



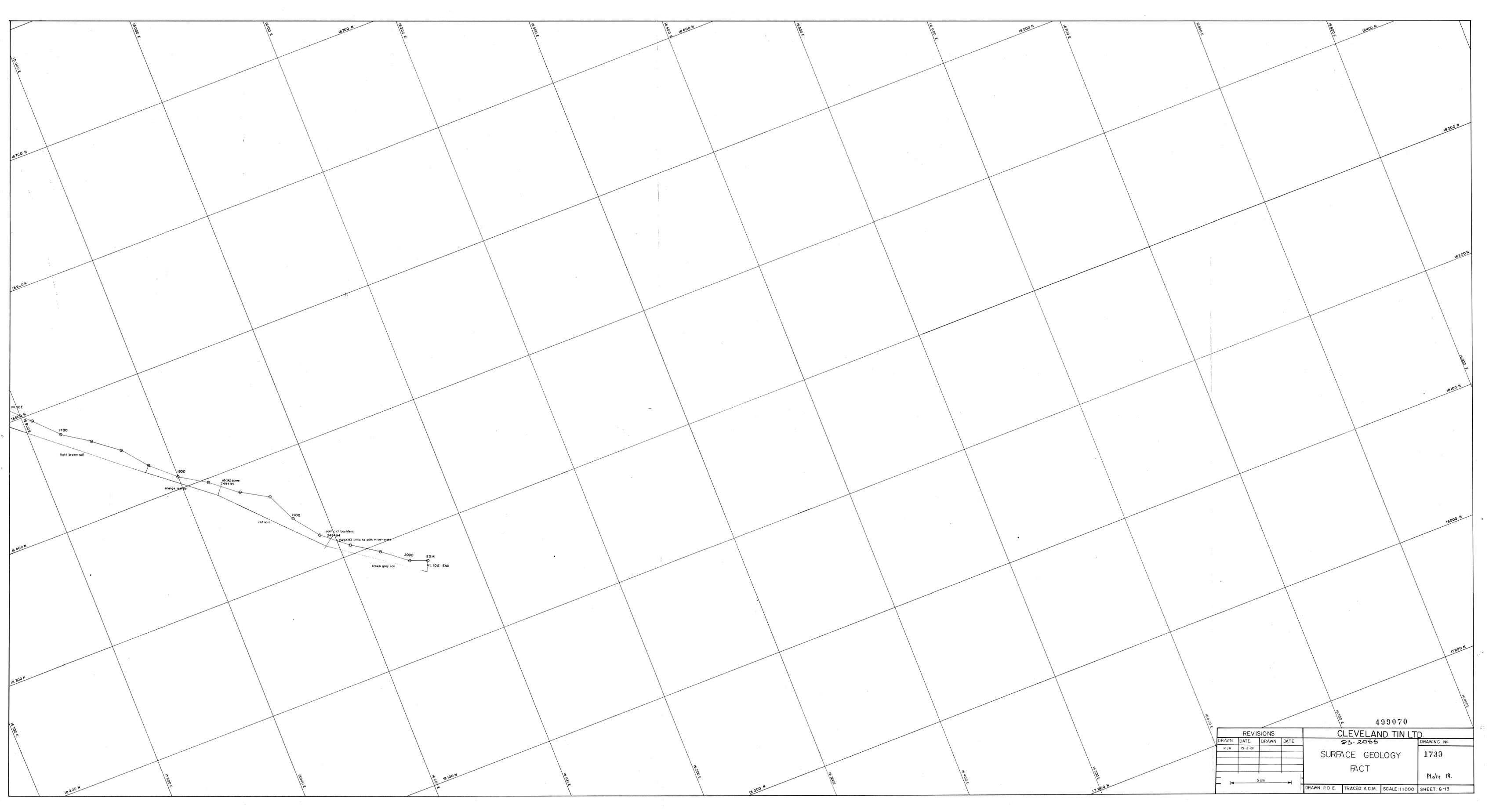
NL 10E
 249519 ss/sh/acre
 249518 sh/acre
 249517 ss/sh/acre
 249516 ss/acre
 249515 ss/acre
 249514 ss/sh/acre
 249513 sh/acre
 249512 sh/acre
 249511
 volcanic ss of Boulder
 249510
 NL 10E



499069

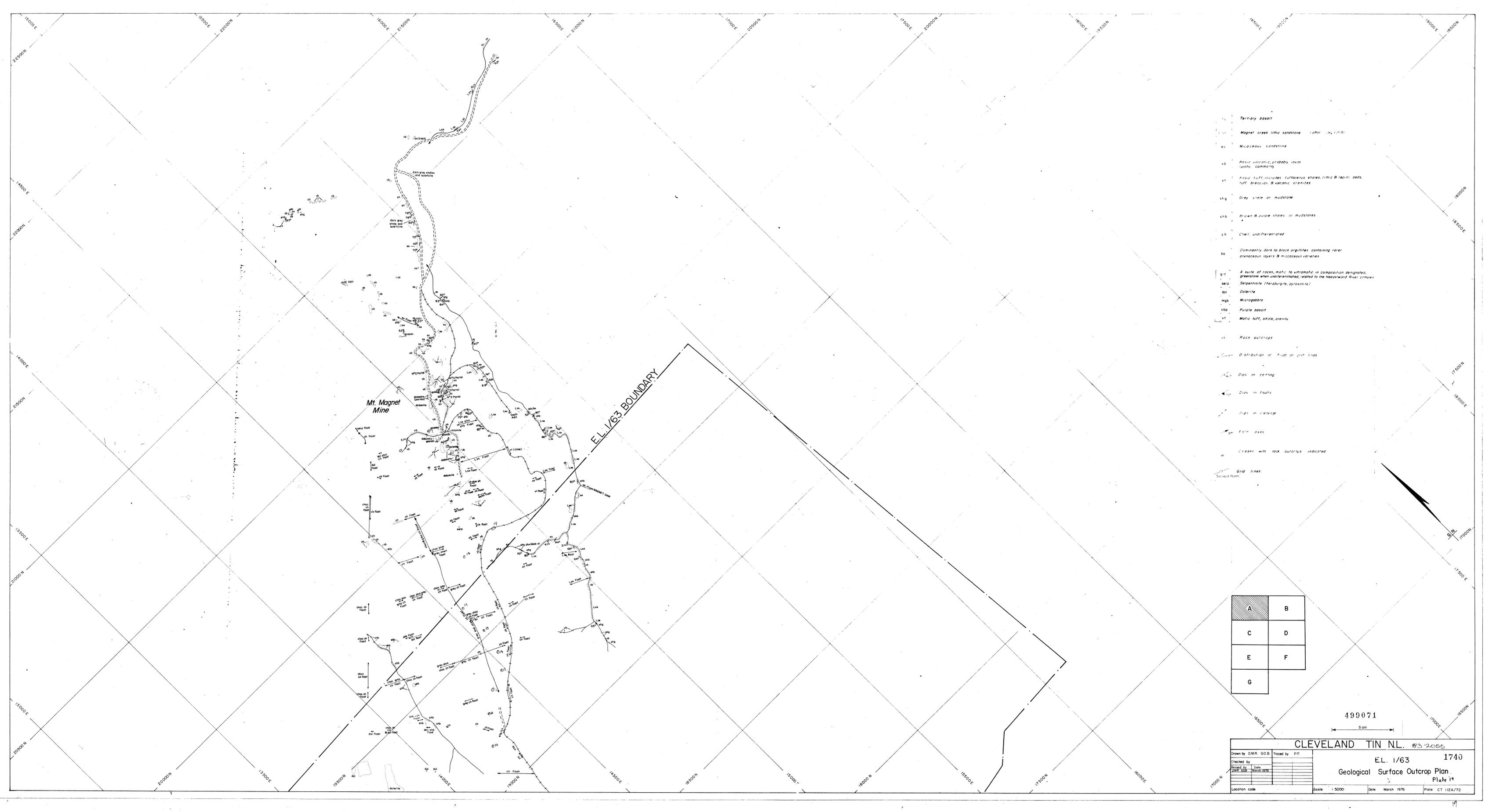
REVISIONS				CLEVELAND TIN LTD.	
DRAWN	DATE	DRAWN	DATE	SP-2015	
RJR	15-2-81			DRAWING NO	
				1738	
				SURFACE GEOLOGY	
				FACT	
				Plate 17	
DRAWN: PDE		TRACED: A.C.M.		SCALE: 1:1000	SHEET: G-12

5 cm



499070

REVISIONS				CLEVELAND TIN LTD	
DRAWN	DATE	DRAWN	DATE	23-2055	
RJR	15-2-81			SURFACE GEOLOGY	DRAWING No 1739
				FACT	Plate 19.
				DRAWN: P.D.E.	SCALE: 1:1000
				TRACED: A.C.M.	SHEET: 6-13

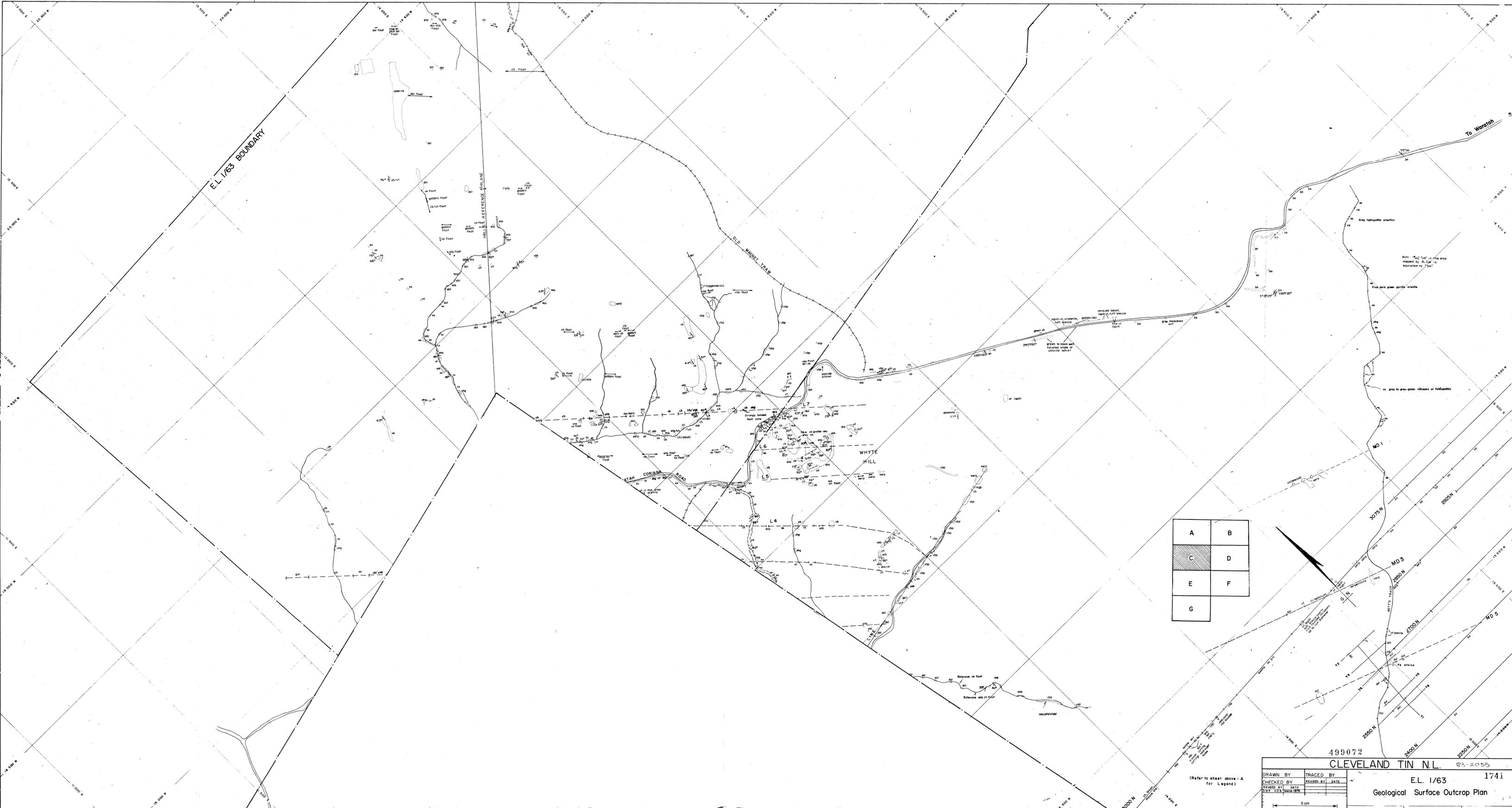


- tb Tertiary basalt
- ms Magnet creek lithic sandstone (after J.H.B.)
- sk Micaceous sandstone
- vb Basic volcanic, probably lavas
spatic concretion
- vt Basic tuff, includes tuffaceous shales, lithic & lapilli beds,
tuff breccias & volcanic arenites
- shg Grey shale or mudstone
- shb Brown & purple shales or mudstones
- ch Chert, undifferentiated
- ba Dominantly dark to black argillites containing rarer
arenaceous layers & micaceous varieties
- g-t A suite of rocks, mafic to ultramafic in composition designated,
greenstone when unaltered, related to the Heazlewood River complex
- serp Serpentine (horzburgite, pyroxenite)
- dol Dolerite
- mgp Microgabro
- vpb Purple basalt
- vt Mafic tuff, shale, arenite
- ra Rock outcrop
- Distribution of flood on 20m lines
- Dips on zoning
- Dips on faults
- Dips in cleavage
- Fault axes
- Creeks with rock outcrops indicated
- Grid lines
- Survey Points

A	B
C	D
E	F
G	

499071
5 cm

CLEVELAND TIN NL. 83-2055	
Drawn by DMR G.O.B. Traced by P.F.	E.L. 1/63 1740
Checked by _____	Geological Surface Outcrop Plan
Revised by _____ Date _____	Plate 19
Location code _____	Scale 1:5000 Date March 1976 Plate CT 112A/72



A	B
C	D
E	F
G	

499072

CLEVELAND TIN N.L. 93-2055

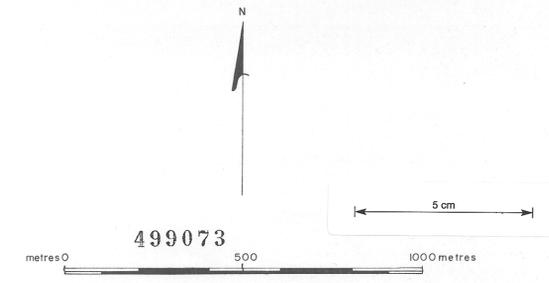
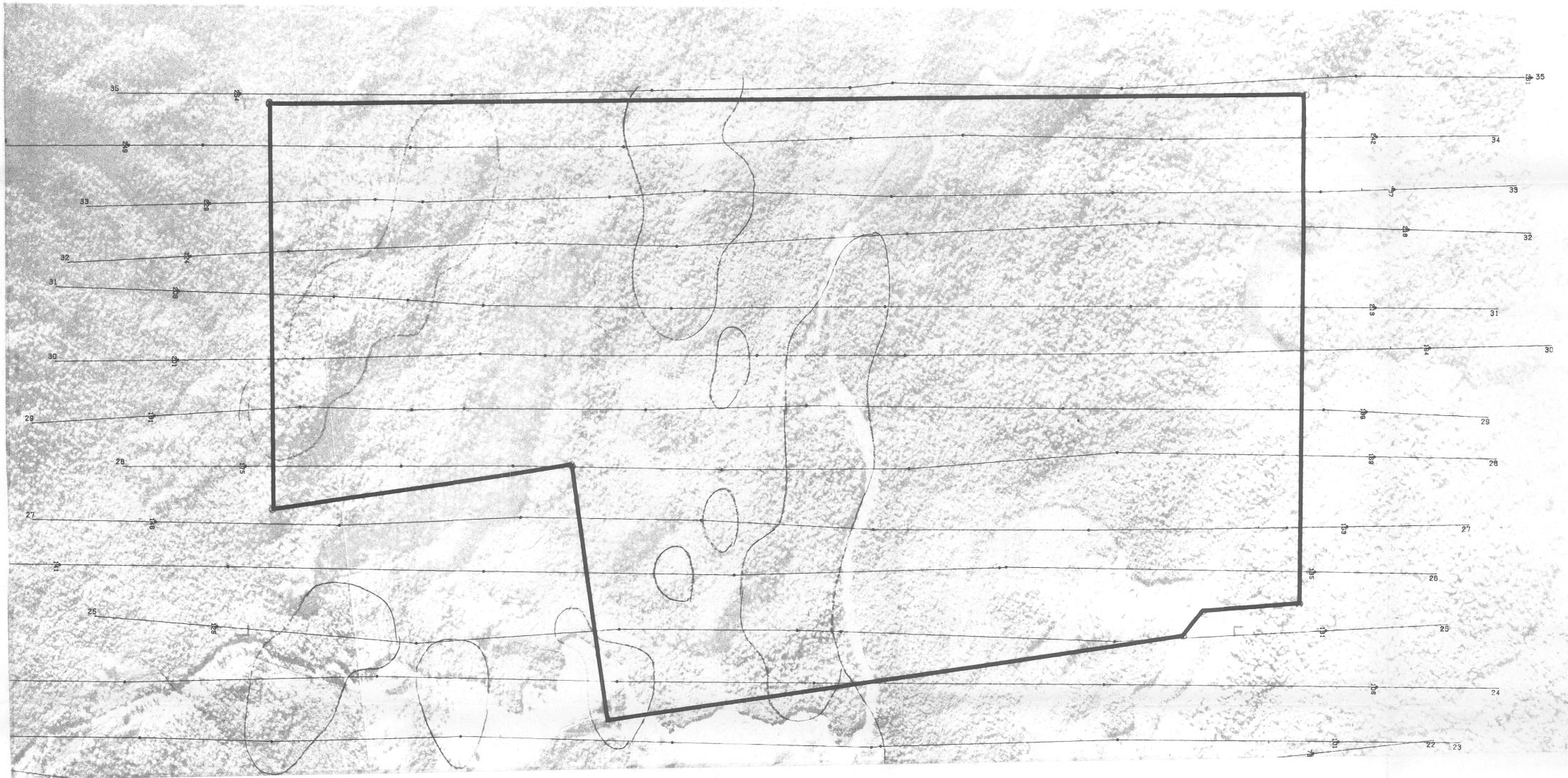
E.L. 1/63 1741

Geological Surface Outcrop Plan

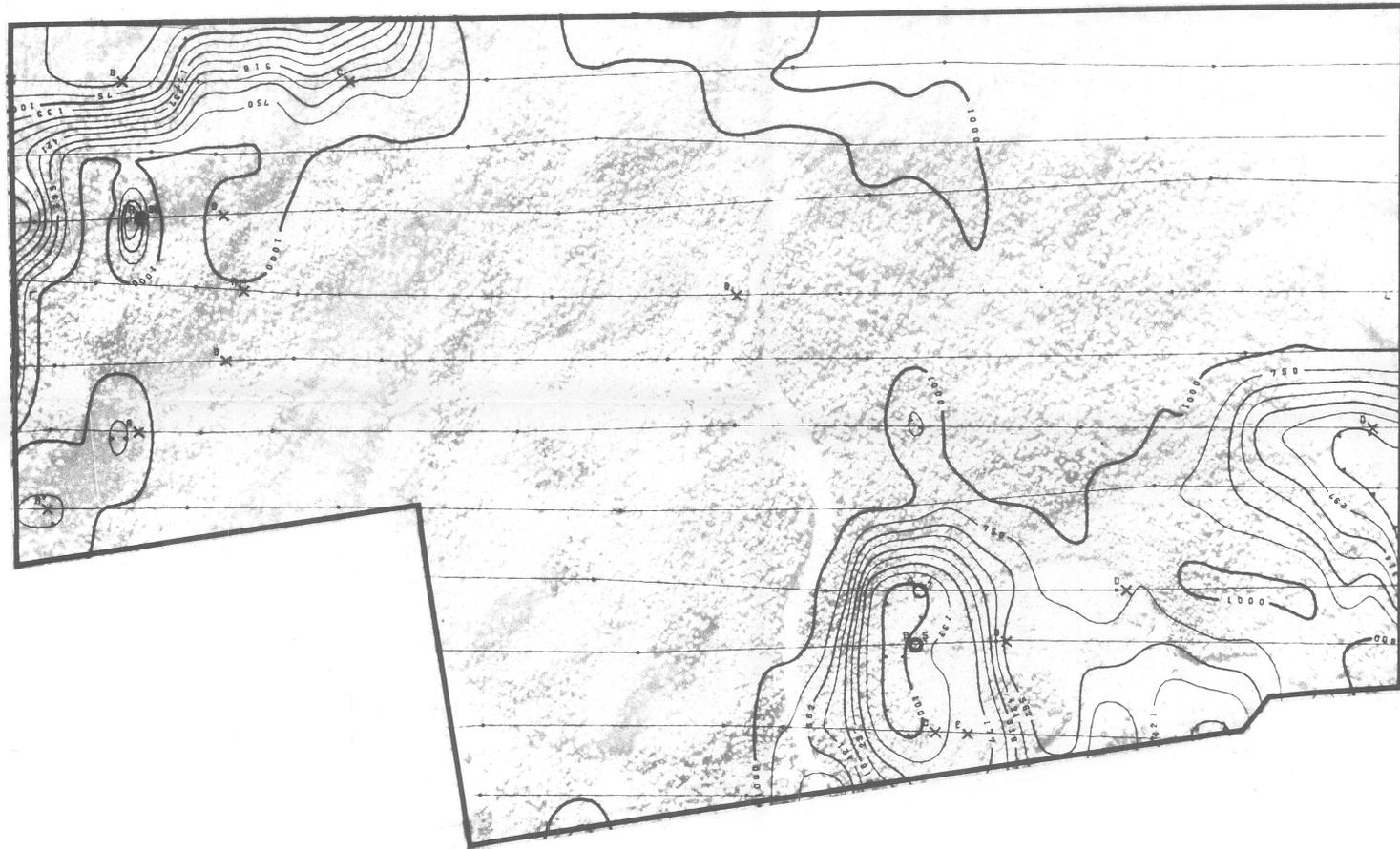
DRAWN BY	TRACED BY
CHECKED BY	REVISED BY
REVISED BY	DATE
DATE	DATE

Scale: 1:5000 Date: OCTOBER 1972 Plate: CT 112C/72

5 cm

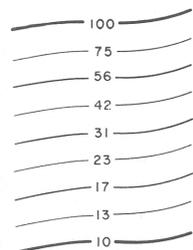


A Aberfoyle Exploration Pty Ltd	
Geology:	NORTH WEST TASMANIA
Drawn:	83-2055 1742
Traced:	CLEVELAND E.L. 1/63
Checked:	DIGHEM SURVEY
Revised by:	FLIGHT LINES
Date:	
Location code:	K55/5/35
Date:	April, 1981
Scale:	1:10,000
Plate No:	21



LEGEND

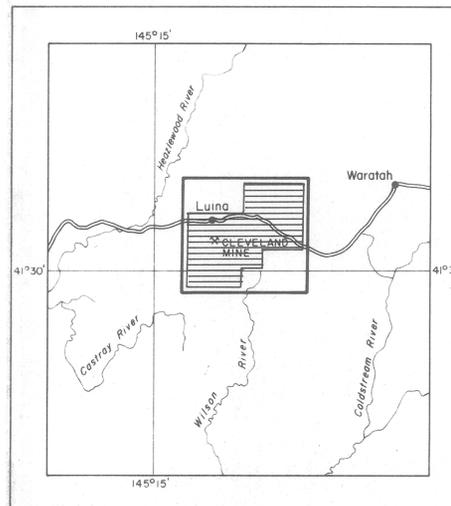
Contours in ohm-m
at eight intervals per decade



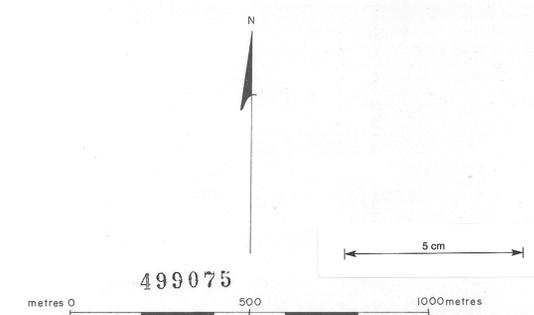
Note

The numbers face in the
direction of increasing value.

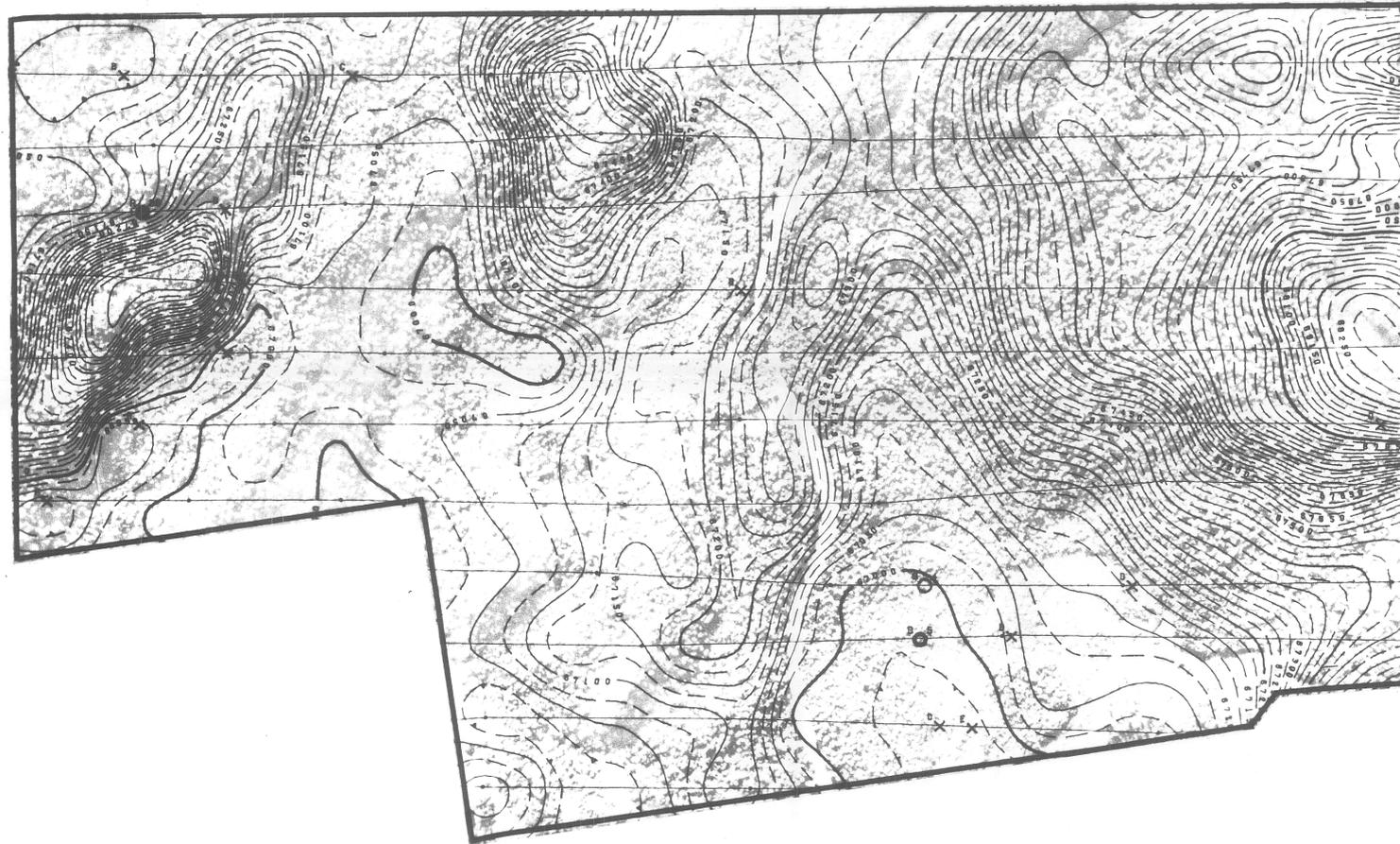
LOCATION MAP



Scale: 1:250,000



		NORTH WEST TASMANIA		Location code: K55/5/35
		CLEVELAND E.L. 1/63		Date: April, 1981
83-2065		1744		Scale: 1:10,000
Checked:		RESISTIVITY		Plate No: 23
Revised by:	Date:			



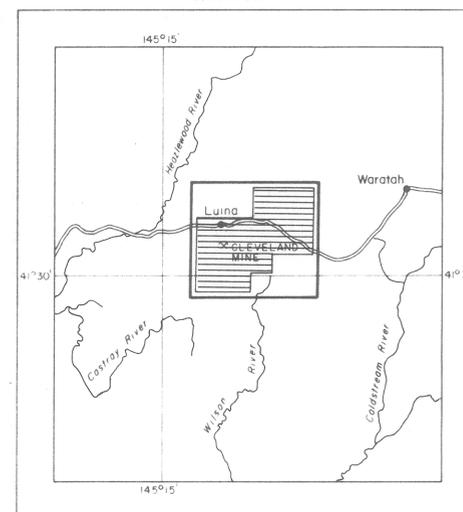
ISOMAGNETIC LINES

(total field)

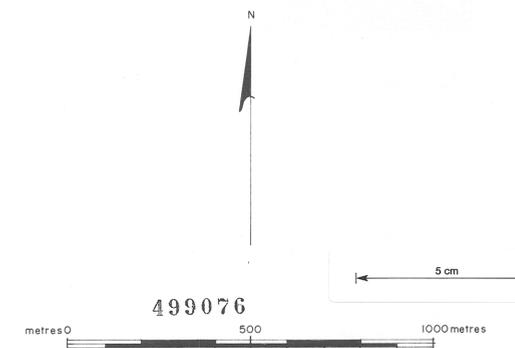
- 1000 1000 gammas
- 800 800 gammas
- 600 600 gammas
- 400 400 gammas
- 200 200 gammas
- 50 50 gammas
- 25 25 gammas
- magnetic depression

Magnetic Inclination within the survey area 72°

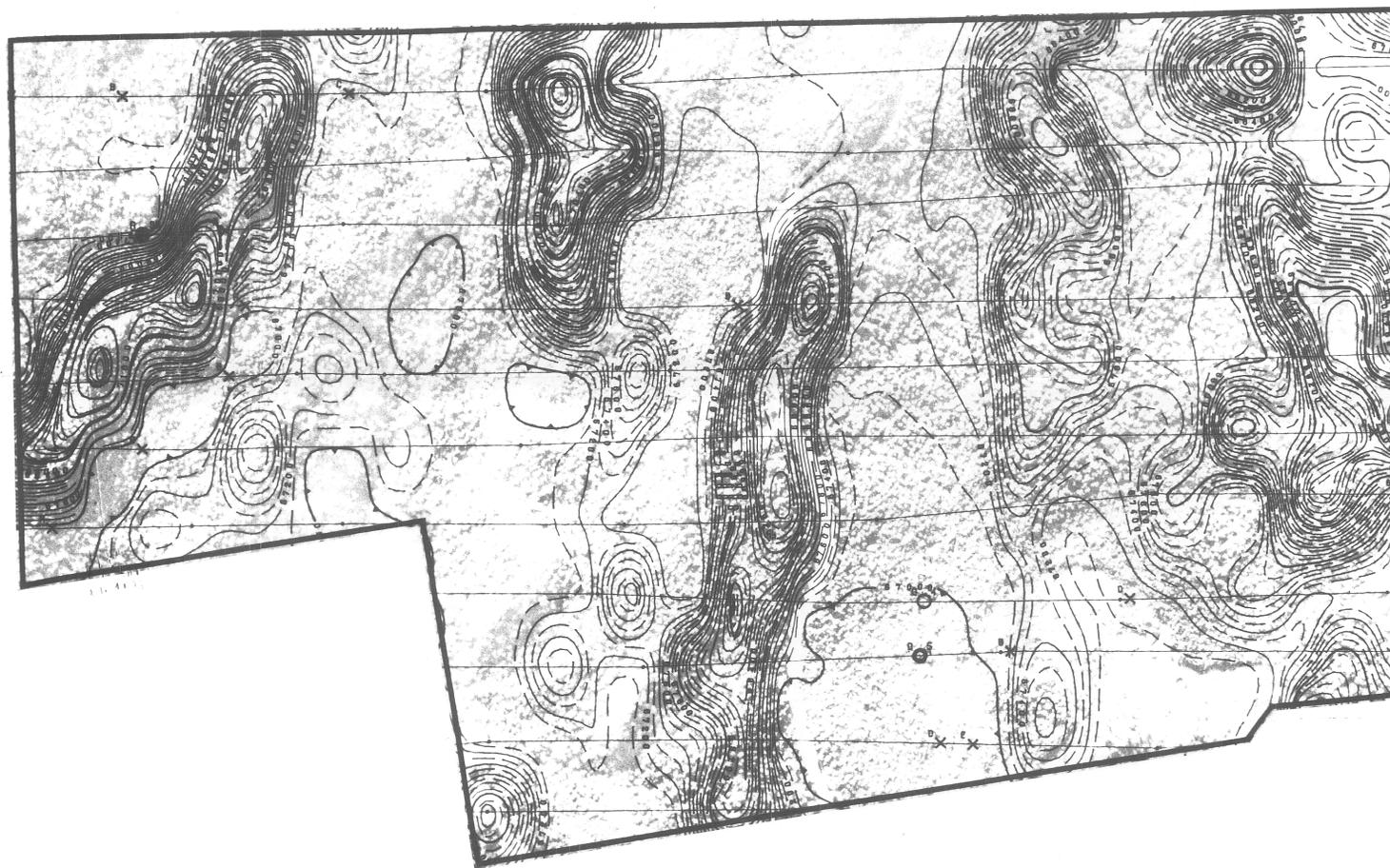
LOCATION MAP



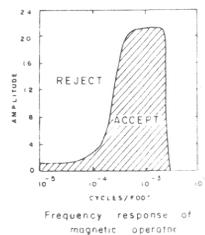
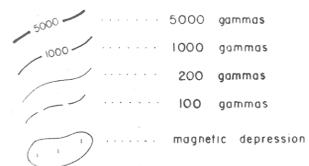
Scale 1:250,000



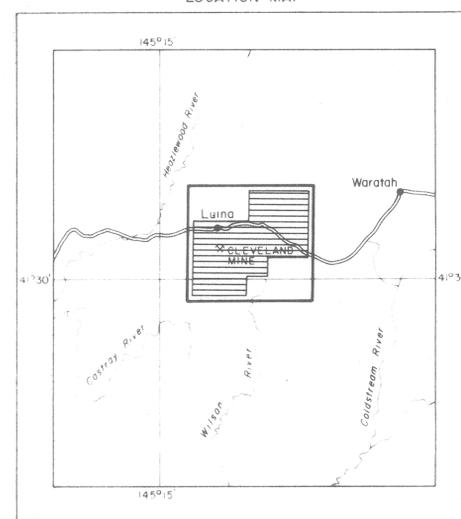
Aberfoyle Exploration Pty Ltd				
Geology:	823-2055	NORTH WEST TASMANIA	1745	Location code: K55/5/35
Drawn:		CLEVELAND E.L. 1/63		Date: APRIL, 1981
Traced:		DIGHEM SURVEY		Scale: 1:10,000
Checked:		MAGNETICS		Plate No
Revised by: Date:				24



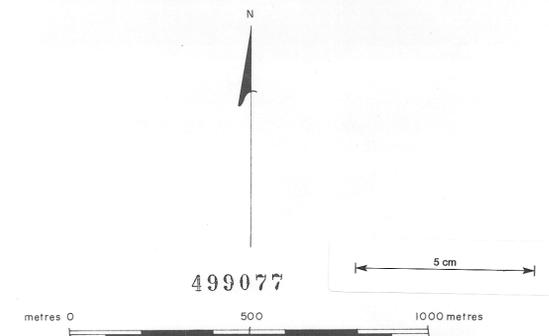
ISOMAGNETIC LINES
(enhanced field)



LOCATION MAP

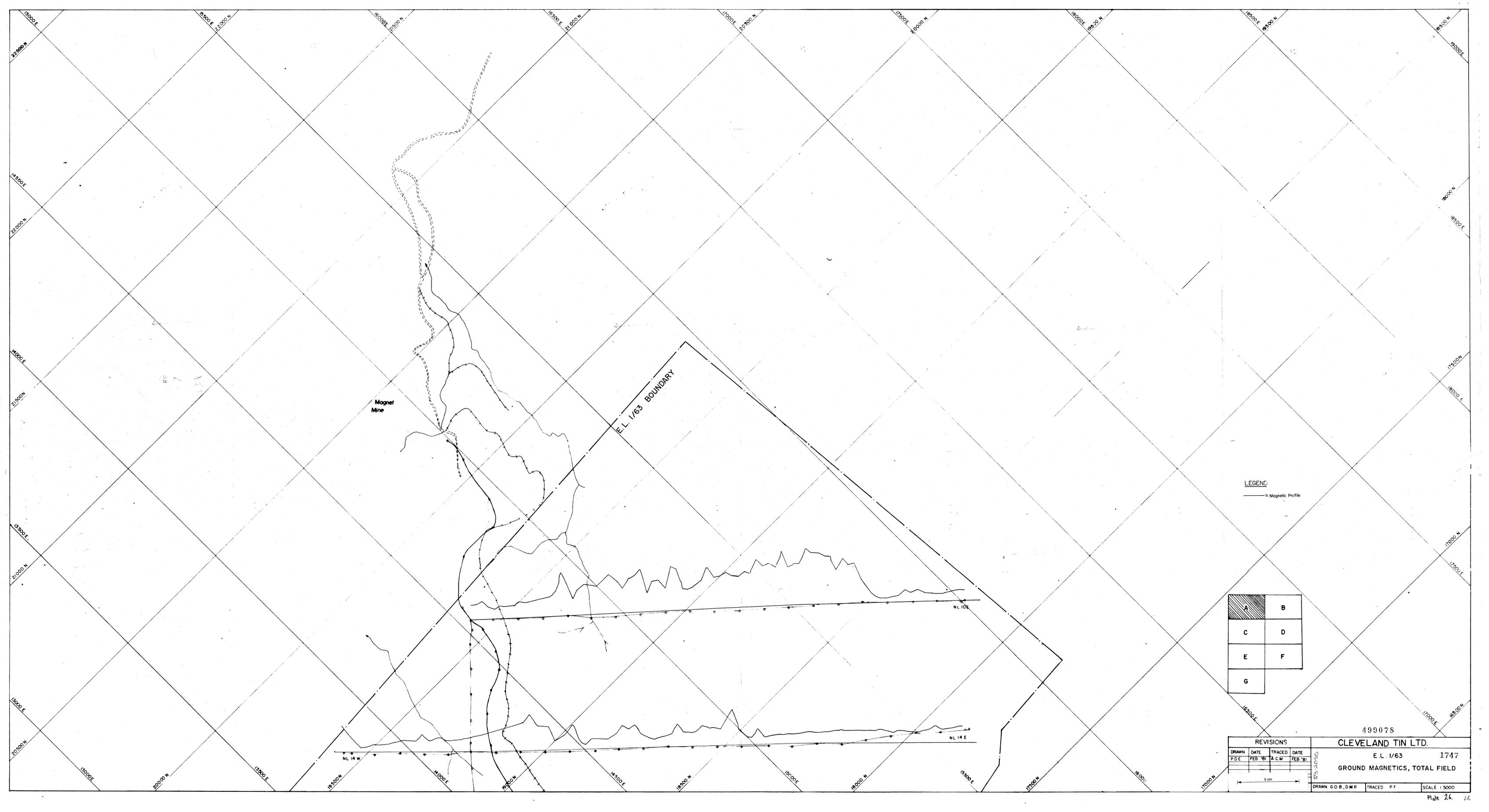


Scale 1:250,000



Aberfoyle Exploration Pty Ltd

Geology:	NORTH WEST TASMANIA 1746	Location code: K55/5/35
Drawn:	CLEVELAND E.L.1/63	Date: April, 1981
Traced:	DIGHEM SURVEY	Scale: 1:10,000
Checked:	ENHANCED MAGNETICS	Plate No: 25
Revised by:	Date:	

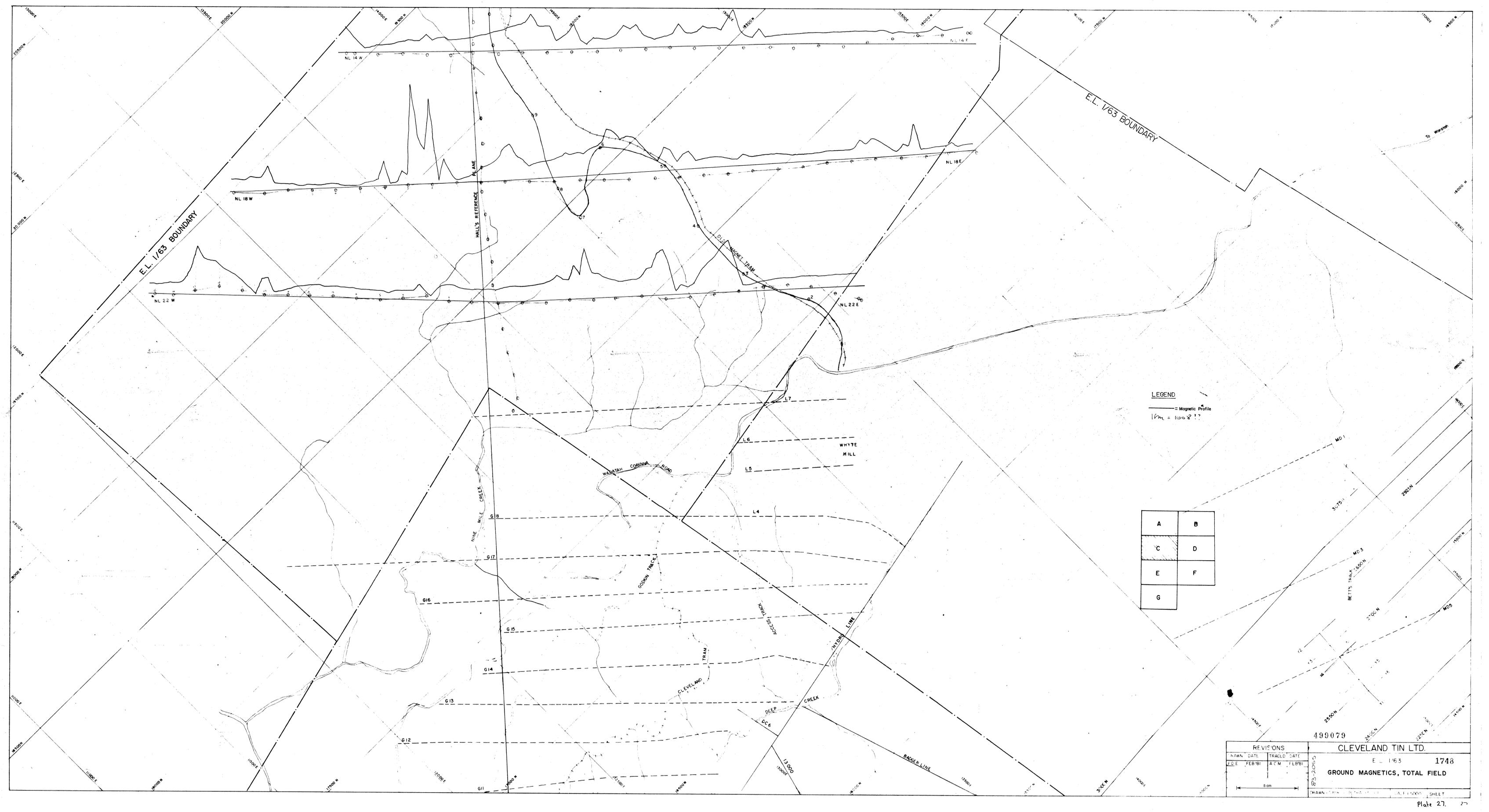


LEGEND
 — Magnetic Profile

A	B
C	D
E	F
G	

REVISIONS			
DRAWN	DATE	TRACED	DATE
P D E	FEB '81	A C M	FEB '81

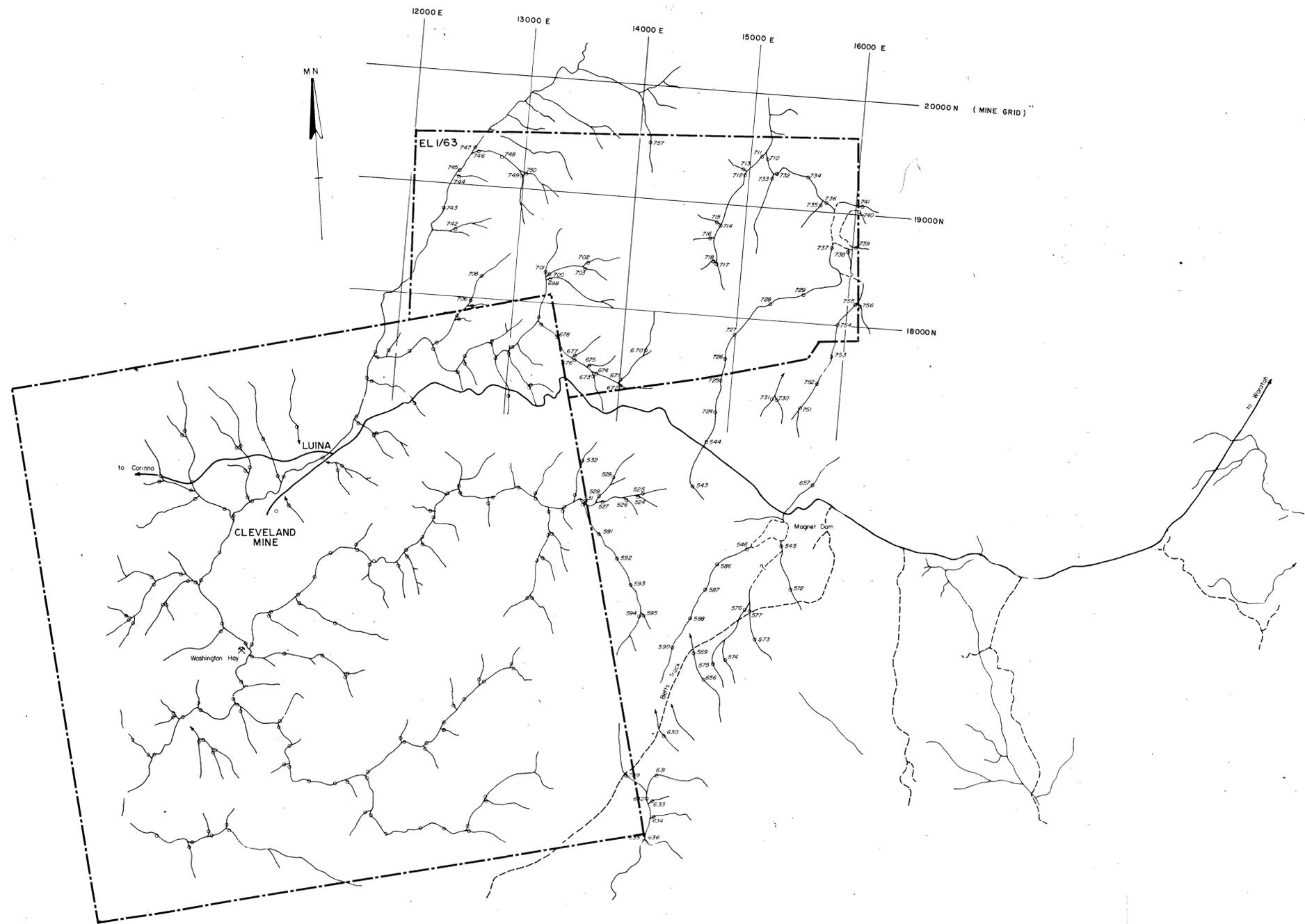
499078
CLEVELAND TIN LTD.
 E.L. 1/63 1747
 GROUND MAGNETICS, TOTAL FIELD
 DRAWN G O B, D M R TRACED P F SCALE 1:5000



LEGEND
 — Magnetic Profile
 1 cm = 1000 ft

A	B
C	D
E	F
G	

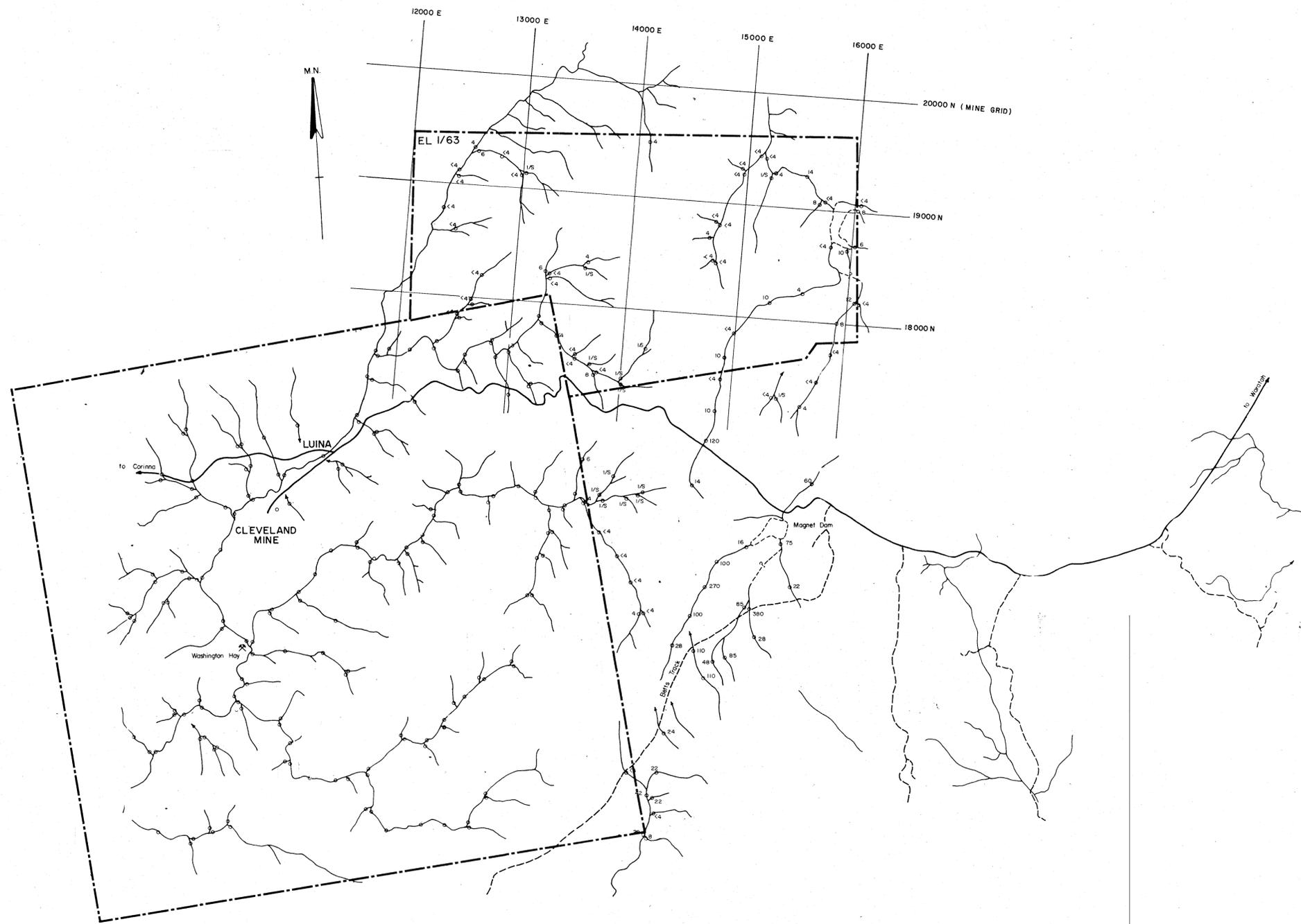
REVISIONS		499079	
DRAWN DATE	TRACED DATE	CLEVELAND TIN LTD.	
E.E. FEB'81	A.C.M. FEB'81	E.L. 1763	1748
		GROUND MAGNETICS, TOTAL FIELD	
5 cm		SHEET	



499080



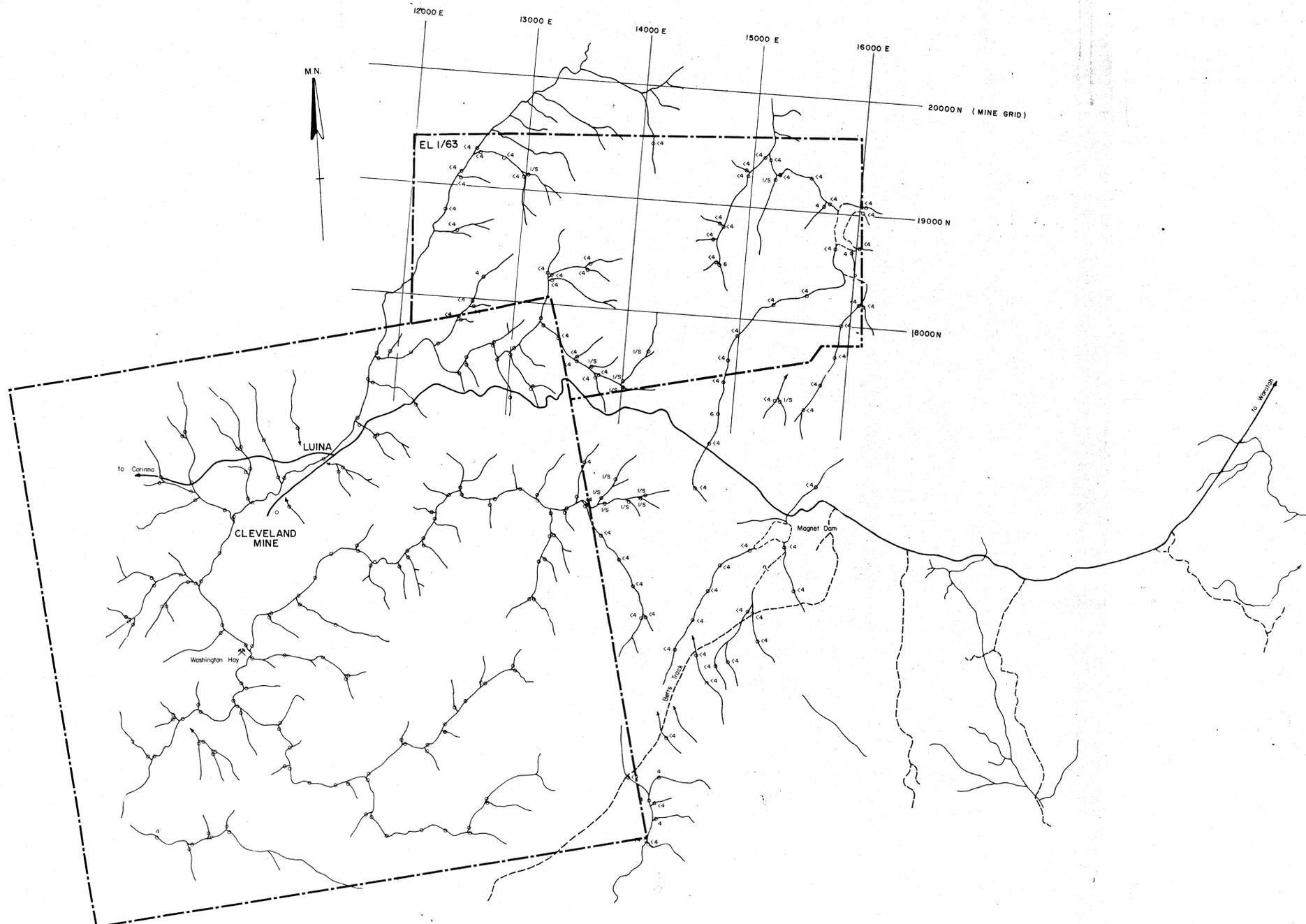
CLEVELAND TIN LTD. 83-2055		
Geology	E.L. 1/63 CLEVELAND MINE AREA 1749	Location code K55/5/35
Drawn		Date March 1979
Traced: JJB		Scale 1:25,000
Checked:	Stream Sediment Sample Location and Numbers	Plate No. CT 183
Revised by: Date		



499081



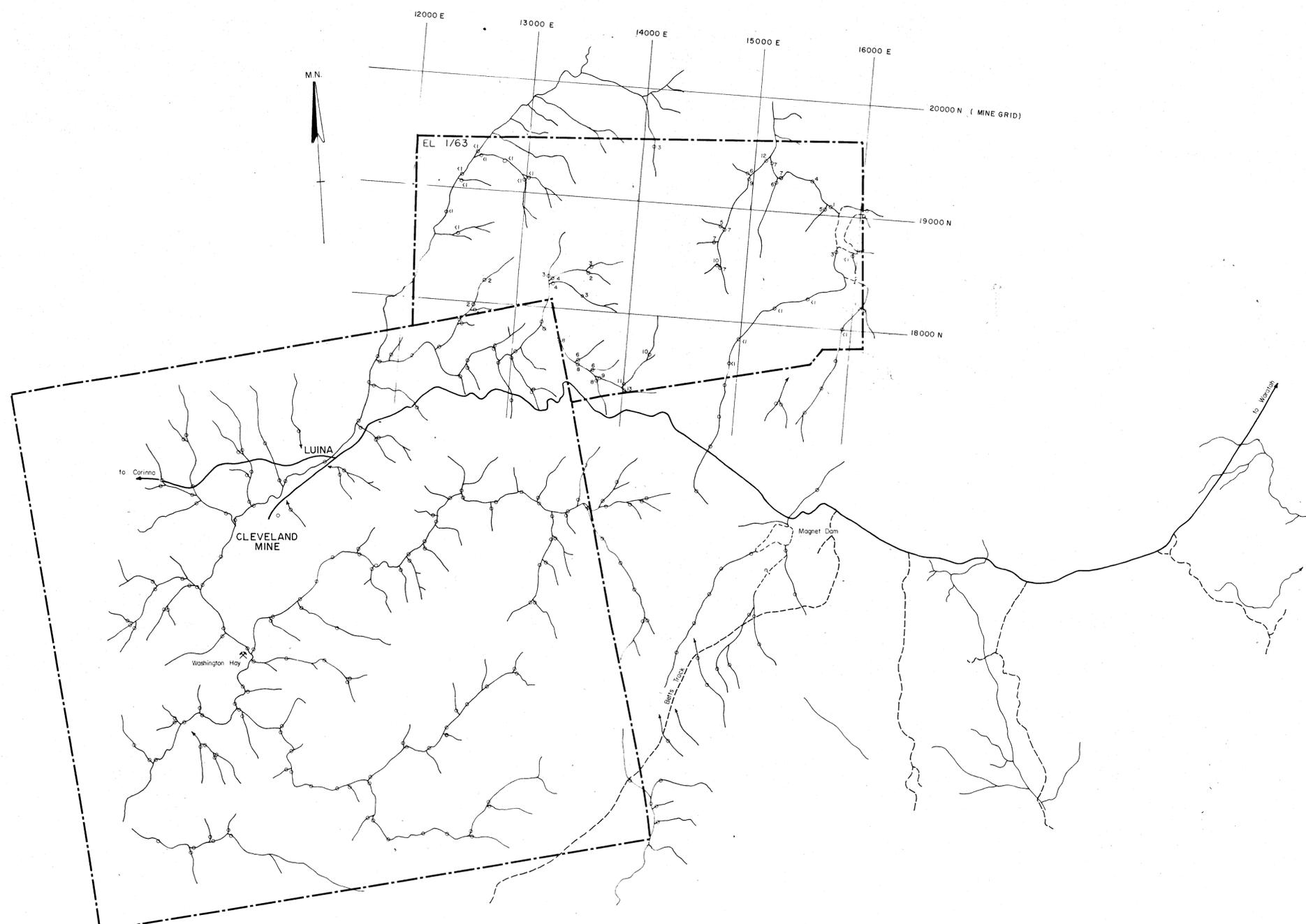
CLEVELAND TIN LTD.		83-2055
Geology	E.L. 1/63 CLEVELAND MINE AREA	1750
Drawn	STREAM SEDIMENT GEOCHEMISTRY	
Traced: JJB	TIN (ppm)	
Checked:	Location code: K55/5/35	Date: March 1979
Revised by: Date:	Scale: 1:25,000	Plate No: CT 184(Sn)



499082

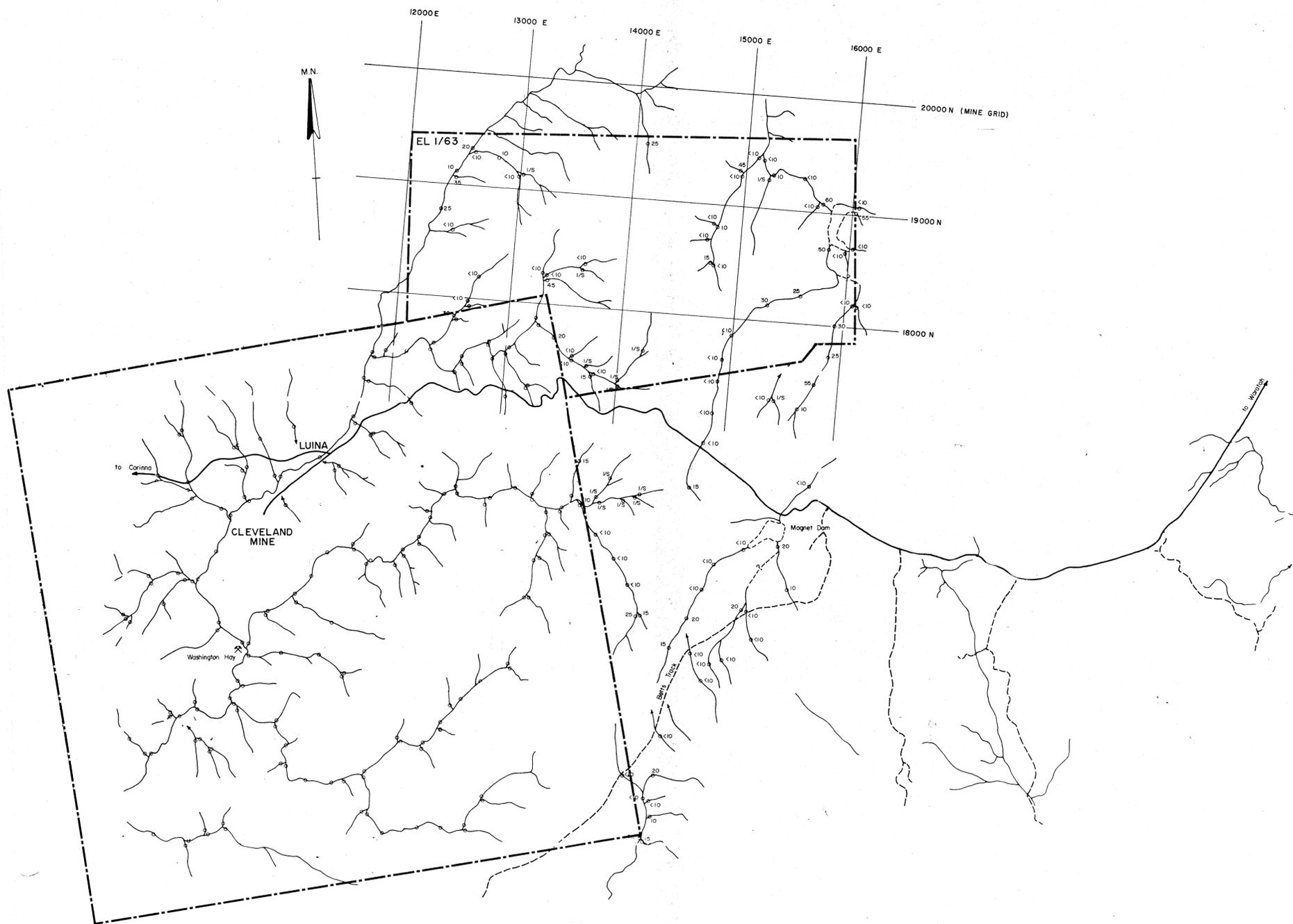


CLEVELAND TIN LTD.		83-2055
Geology:	E.L. 1/63 CLEVELAND MINE AREA	Location code: K55/5/35
Drawn:	1751	Date: March 1979
Traced: JJB	STREAM SEDIMENT GEOCHEMISTRY	Scale: 1:25,000
Checked:	BISMUTH - ppm	Plate No: CT 184(B1)
Revised by: Date:		



499083 5 cm

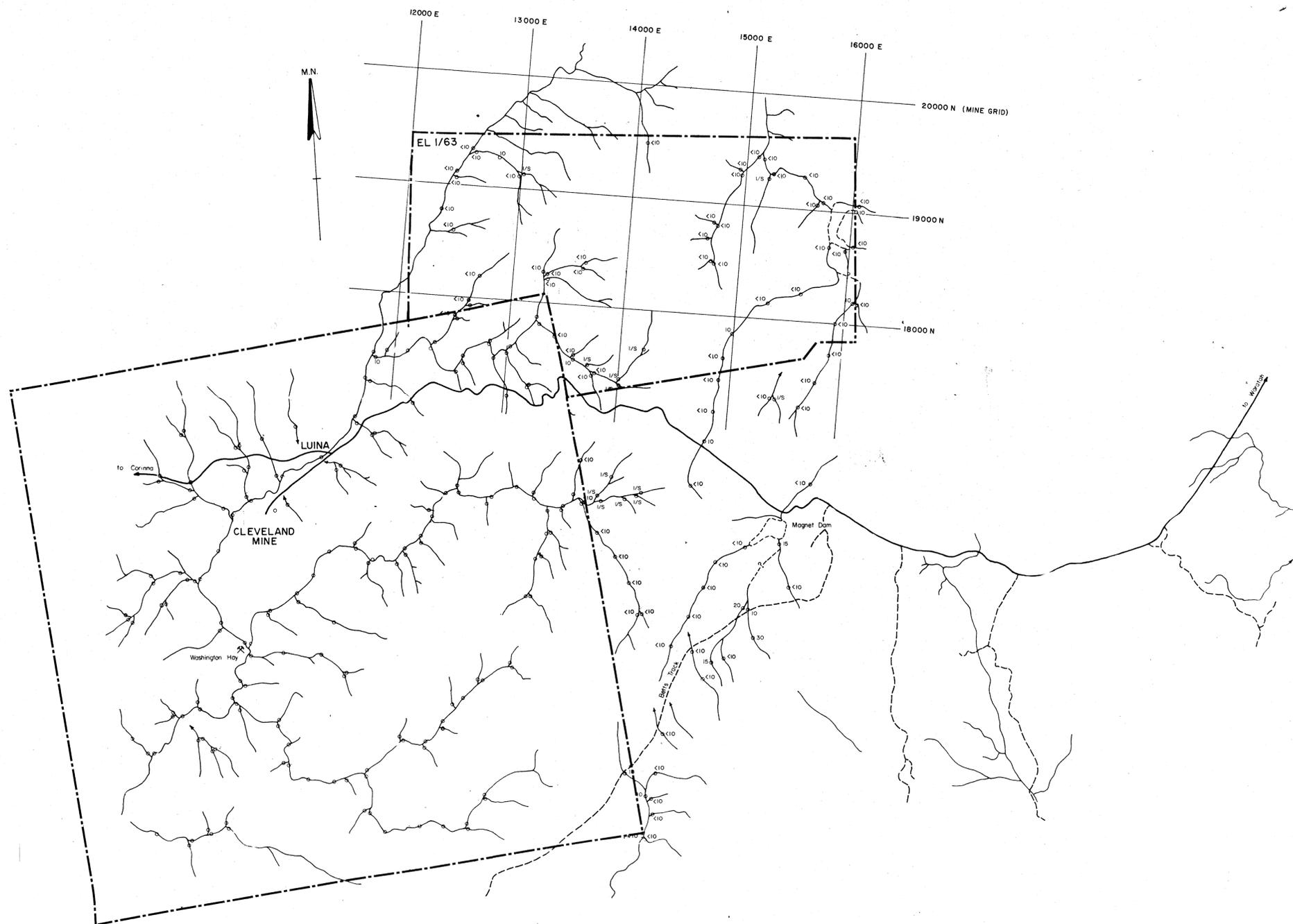
CLEVELAND TIN LTD.		83-2055
Geology	E.L. 1/63 CLEVELAND MINE AREA	Location code: K55/5/35
Drawn	1752	Date: March 1979
Traced	JJB	Scale: 1:25,000
Checked	FLOURIDE (ppb)	Plate No 31
Revised by	Date	



499084



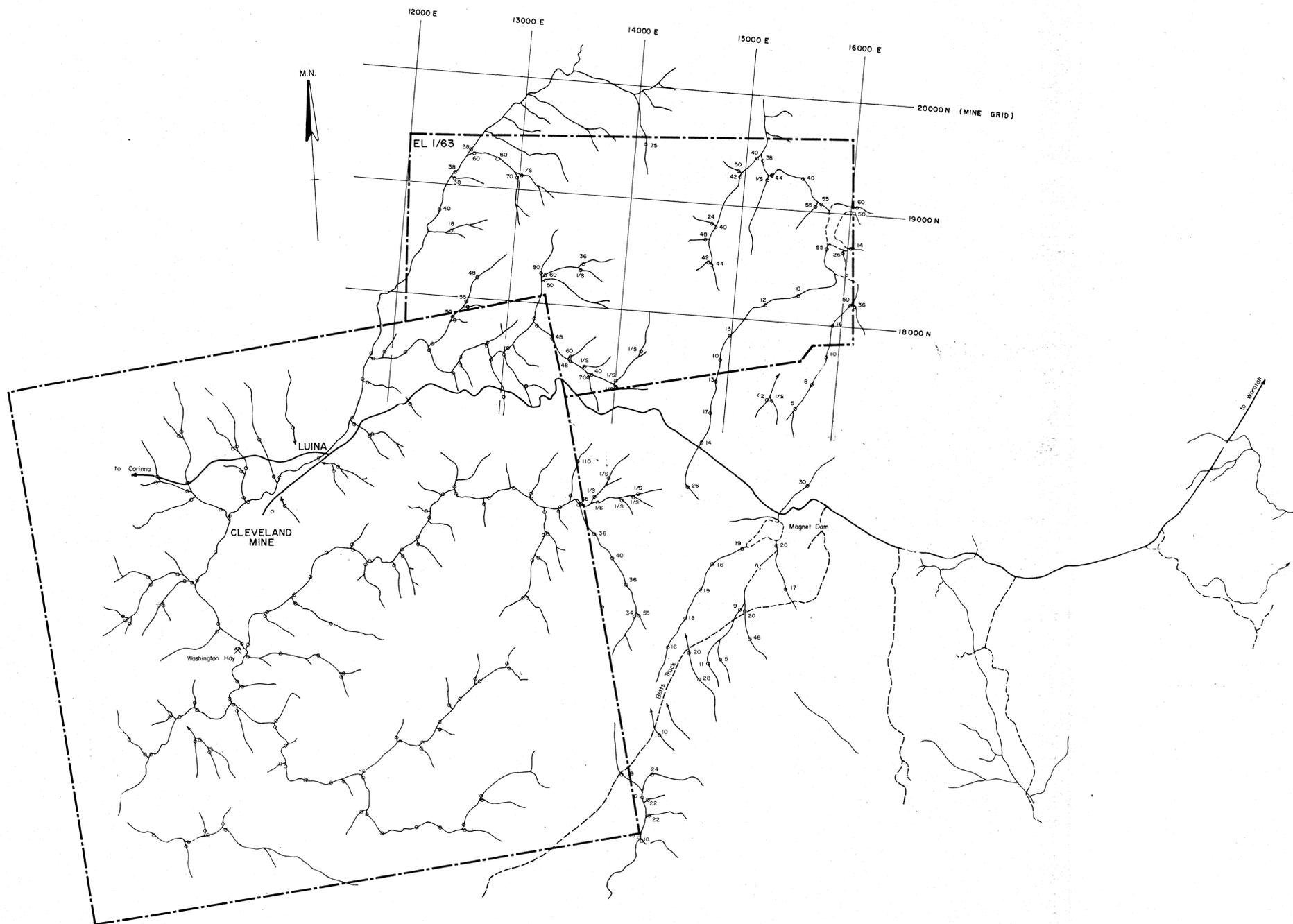
CLEVELAND TIN LTD. 83-2055		
Geology	E.L. 1/63 CLEVELAND MINE AREA	Location code K55/5/35
Drawn	1753	Date March 1979
Traced JJB	STREAM SEDIMENT GEOCHEMISTRY	Scale 1:25,000
Checked	TUNGSTEN ppm	Plate No. CT 184 (W)
Revised by	Date	



499085



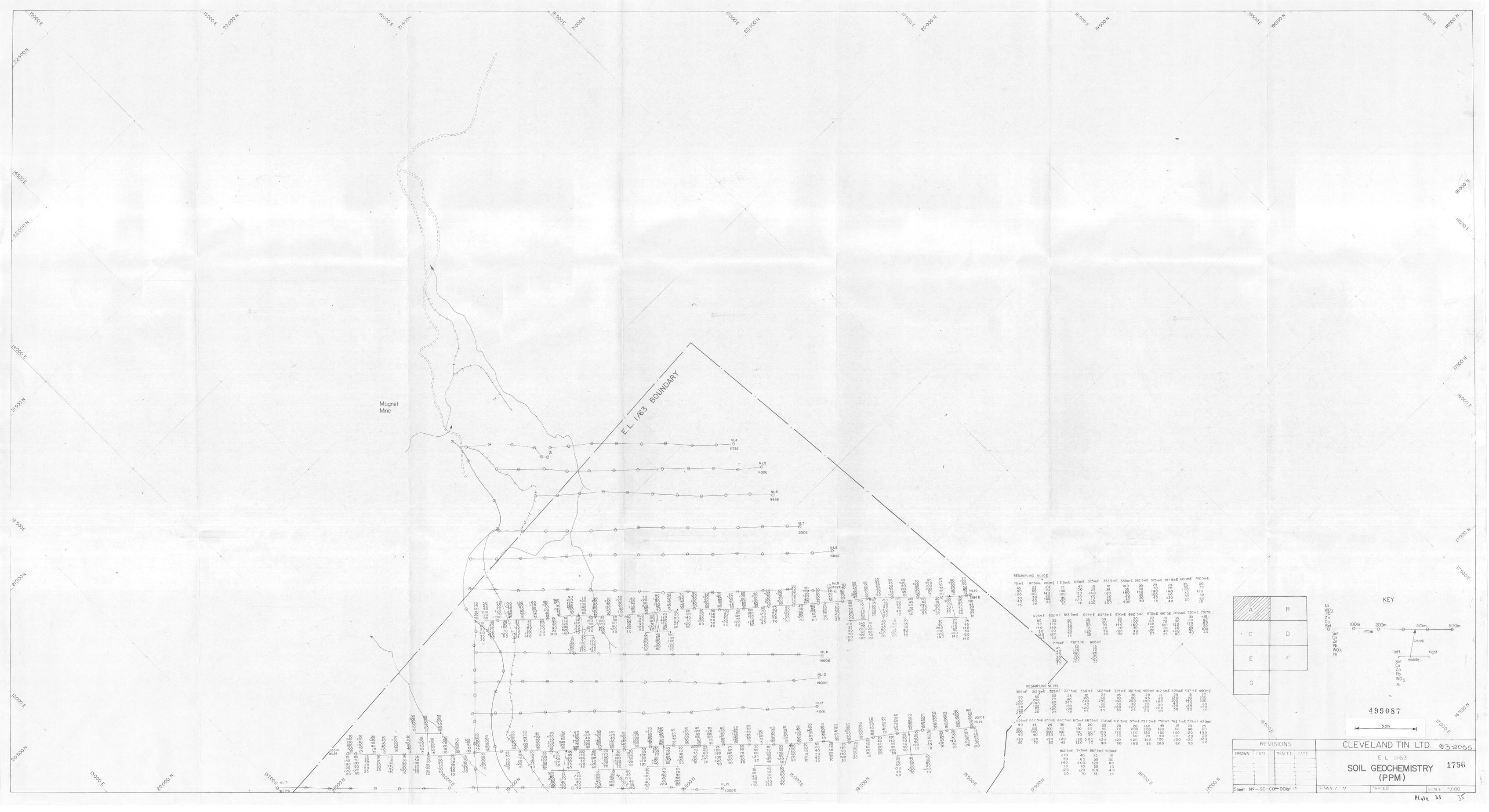
CLEVELAND TIN LTD.		93-2055
Geology	E.L. 1/63 CLEVELAND MINE AREA 1754	
Drawn	STREAM SEDIMENT GEOCHEMISTRY	
Traced	ARSENIC ppm	
Checked	Location code: K55/S/35	
Revised by:	Date:	Date: March 1979
		Scale: 1:25,000
		Plate No: CT 184(As)



499086



CLEVELAND TIN LTD.		83-2055
Geology	E.L. 1/63 CLEVELAND MINE AREA	Location code: K55/5/35
Drawn	1755	Date: March 1979
Traced: JJB	STREAM SEDIMENT GEOCHEMISTRY	Scale: 1:25,000
Checked:	RUBIDIUM - ppm.	Plate No
Revised by: Date:		CT 184 (RB)



RESAMPLING NL10E

75mE	87.5mE	100mE	112.5mE	125mE	137.5mE	150mE	162.5mE	175mE	187.5mE	200mE	412.5mE
45	35	30	15	45	15	10	10	10	30	25	45
80	80	70	100	100	25	25	35	40	10	10	20
100	100	140	180	120	140	160	180	140	180	140	120
30	30	30	40	20	20	20	20	20	20	20	30
15	20	20	70	70	200	200	400	20	15	40	50

RESAMPLING NL11E

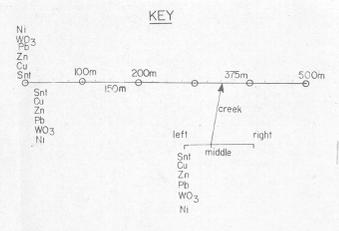
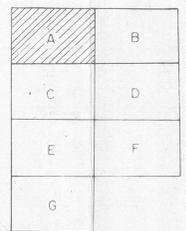
425mE	600mE	612.5mE	625mE	637.5mE	650mE	662.5mE	675mE	687.5mE	700mE	750mE	782.5mE
60	35	20	35	30	20	20	20	20	10	35	80
120	120	80	80	80	80	140	160	160	70	90	20
140	180	140	140	240	240	10	30	30	20	20	20
200	200	100	40	40	30	30	30	20	20	20	100
20	20	20	20	20	20	20	20	20	20	20	20
15	20	15	15	15	15	15	15	15	15	15	15

RESAMPLING NL14E

300mE	312.5mE	325mE	337.5mE	350mE	362.5mE	375mE	387.5mE	400mE	412.5mE	425mE	437.5mE	450mE
20	60	30	25	30	25	45	30	20	15	20	15	25
70	160	160	100	80	100	180	200	180	180	180	180	200
200	180	180	240	240	240	30	30	30	30	30	30	20
20	20	20	20	20	20	20	20	20	20	20	20	20
15	20	20	20	20	20	20	20	20	20	20	20	20

RESAMPLING NL15E

425mE	612.5mE	625mE	637.5mE	650mE	662.5mE	675mE	687.5mE	700mE	712.5mE	725mE	737.5mE	750mE	762.5mE	775mE	800mE
90	15	25	30	10	20	35	25	20	160	45	15	20	25	25	25
200	300	300	100	120	120	120	120	120	200	180	180	180	180	180	200
20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
15	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20



499087



REVISIONS				CLEVELAND TIN LTD. 83-2065	
DRAWN	DATE	TRACED	DATE		

E.L. 1763
SOIL GEOCHEMISTRY (PPM) 1756

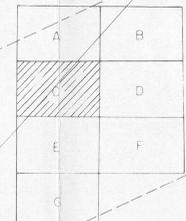
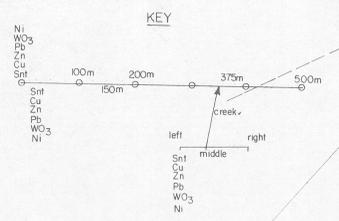
Sheet No. SC-CO-0098 DRAWN AT M TRACED SCALE 1:5,000

Plate 35 35



RESAMPLING NL22W
100mW 975mW 125mW

15	40	30
30	180	60
60	120	120
90	60	180
120	30	240
150	15	300
180	5	360
210	0	420



5 cm

499088

REVISIONS		CLEVELAND TIN LTD	
DRAWN	DATE	TRACED	DATE
E.L. 1763		83-2005	
SOIL GEOCHEMISTRY (PPM)		1757	
Sheet No. SC-CO-002a	DRAWN BY	TRACED	DATE