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THE REEVES MACDONALD MINE

The Reeves MacDonald mine is situated in the southern portion of the Salmo mining areaof southeastern British Columbia. It is on the Pend d'Oreille River about 1 mile southeast of the mouth of the Salmo River. The lead-zinc orebodies at the Reeves MacDonald mine are sulphide replacement deposits in dolomite zones in the Reeves limestone member of the Laib formation. All production to date has come from the Reeves orebody and its faulted segments.

Stratigraphy

The Laib formation is Lower Cambrian in age and has been correlated with the Maitlen phyllite of the Metaline mining district. This formation has been divided into three members. The upper member is a black calcareous argillite called the Emerald argillite. The middle member is the Reeves limestone, a banded grey and white limestone with dolomitic lenses and in some areas almost completely dolomitized. The lower member is an interbanded schist and limestone section known as the Truman member.

Quartzites of the Reno and Quartzite Range formations underlie the Laib formation. To the south of the mine area a thrust fault of regional extent has brought the rocks of the active formation (Ordovician ?) into a position overlaying the Laib formation.

In the vicinity of the mine the rocks display a low degree of metamorphism. The limestone has been rechrystallized to a coarser grain size and chlorite and muscovite have been developed in the underlaying argillaceous and quartzitic rocks. The rocks do not show the intense thermal metamorphism which may be observed at the Jackpot, Aspen and other properties in close proximity to the granite. The nearest granite outcrop is a small granite stock three miles to the north of the mine.

The rocks are highly deformed and in places display intense crumpling and drag-folding. All the non-calcareous rocks, except the white quartzites, possess a well developed cleavage which parallels the bedding.

Structure

In the mine area the formations strike north 70-80 degrees east and dip 50-70 degrees south. The mostprominent structural feature in the area is the Salmo River anticline. This is a gently plunging isoclinal anticline whose axial plane strikes north 70-80 degrees east and dips 60 degrees south. Steeply plunging isoclinal folds have been superimposed on both limbs of the primary anticline.

REEVES MACDONALD MINE

The axes of these secondary folds plunge south 15-35 degrees west at 50-55 degrees. The Reeves orebody occupies a large synclinal trough developed as a secondary fold on the south limb of the Salmo River anticline.

Bedding faults on both limbs of the Salmo River anticline have complicated the structure of the area. These faults appear to be related to the steeply-plunging secondary folds. From an economic point of view the most important faulting is the series of north-south transverse faults which dip 25-40 degrees to the east. These are normal faults which have offset the formations and the orebodies. Figure 2 is a longitudinal section showing the position of these faults and the resulting ore segments in relation to the underground workings and the surface. To date three faults have been encountered to the east of the main Reeves zone, namely, from west to east; the B.L. fault, the O'Donnell fault and the #4 fault. Each of these faults has brought down a block of ore from the original Reeves zone. A reconstruction of the Reeves orebody before faulting gives a plunge length of at least 5000 feet.

Orebodies

Figure 3 shows a typical level plan for the Reeves orebody. The orebody is located entirely within a dolomitized zone of the Reeves limestone. The limestone is underlain to the north and overlain to the south by the interbanded schists and limestone of the Truman member. East from the Reeves orebody the Reeves Limestone tails out into the Truman member in a form suggesting a steeply-plunging, attenuated syncline. The synclinal form of the Reeves orebody appears to parallel this tight syncline in the Reeves limestone.

The main trough section is approximately 300 feet long. At its east end the mineralized zone tails out into the dolomite while at the west end it reaches widths of 75-80 feet before it splits into two branches, the hanging wall branch and the footwall branch. These branches extend to the west for another 300 feet at widths of 25-30 feet. The shape of the alteration halo of dolomite closely resembles the shape of the orebody. The area between the hanging-wall and the footwall branches is locally referred to as the "split". The split is a well-banded, blue-grey and white limestone. The hanging-wall of the orebody is marked by a well defined bedding fault.

Considerable dragfolding occurs along the footwall branch of the orebody. The plunge of the dragfolds is the same as the plunge of the main trough section and of the limestone "split" which plunges south 35 degrees west at 50 degrees. The general shape of the orebody may be projected with remarkable accuracy for several hundred feet parallel to the plunge of the orebody.

The principle sulphides are pyrite, honey-coloured sphalerite and galena. These occur as replacement sulphides in a medium grey to dark grey, banded dolomite. The bulk of

the ore has a banded appearance and may be partially brecciated. A band of breccia ore extends along the footwall section of the main trough section and along the footwall branch. This breccia ore has a matrix of massive sulphides (mainly pyrite) with angular fragments of both limestone and dolomite scattered throughout. It is not uncommon to find lenses of unmineralized light-grey dolomite 2-5 feet wide and 10-20 feet long, within the limits of the ore zone.

The B.L., O'Donnell and #4 ore zones have essentially the same shape, size, grade and plunge as the Reeves zone. The main points of difference noted include the absence of the extreme dragfolding on the footwall limb, an increasein the number of small, north-south, easterly-dipping, normal faults cutting through these ore zones and the increased depth of oxidation over the O'Donnell and #4 zones. The oxidation over the B.L. and Reeves zones is negligible.

Other Ore Occurrences

1. River tunnel - MacDonald Tunnel Oxide Zone - An oxidized ore zone was encountered in the main haulage tunnel (1900) level, at a point approximately 2000' west of the Reeves zone. This ore occurs in relatively narrow bands or lenses 5-15' wide. They lie within a dolomite zone and are completely oxidized. The lenses are exposed for 300-35-' 300-350' in the tunnel. The exact shape and attitude of the lenses is not known but it is probable that these can be connected with a similar oxidized zone which is exposed in the MacDonald tunnel 150 feet below.

2. Point Ore Zone - A small sulphide orebody occurrs in a dolomite zone on the north bank of the Pend d'Oreille River approximately 1500' feet west of the MacDonald-River tunnel oxide zone. The ore has the same physical characteristics as the Reeves ore and has a similar attitude, A few small dragfolds observed, had a plunge to the southwest at 45-50 degrees.

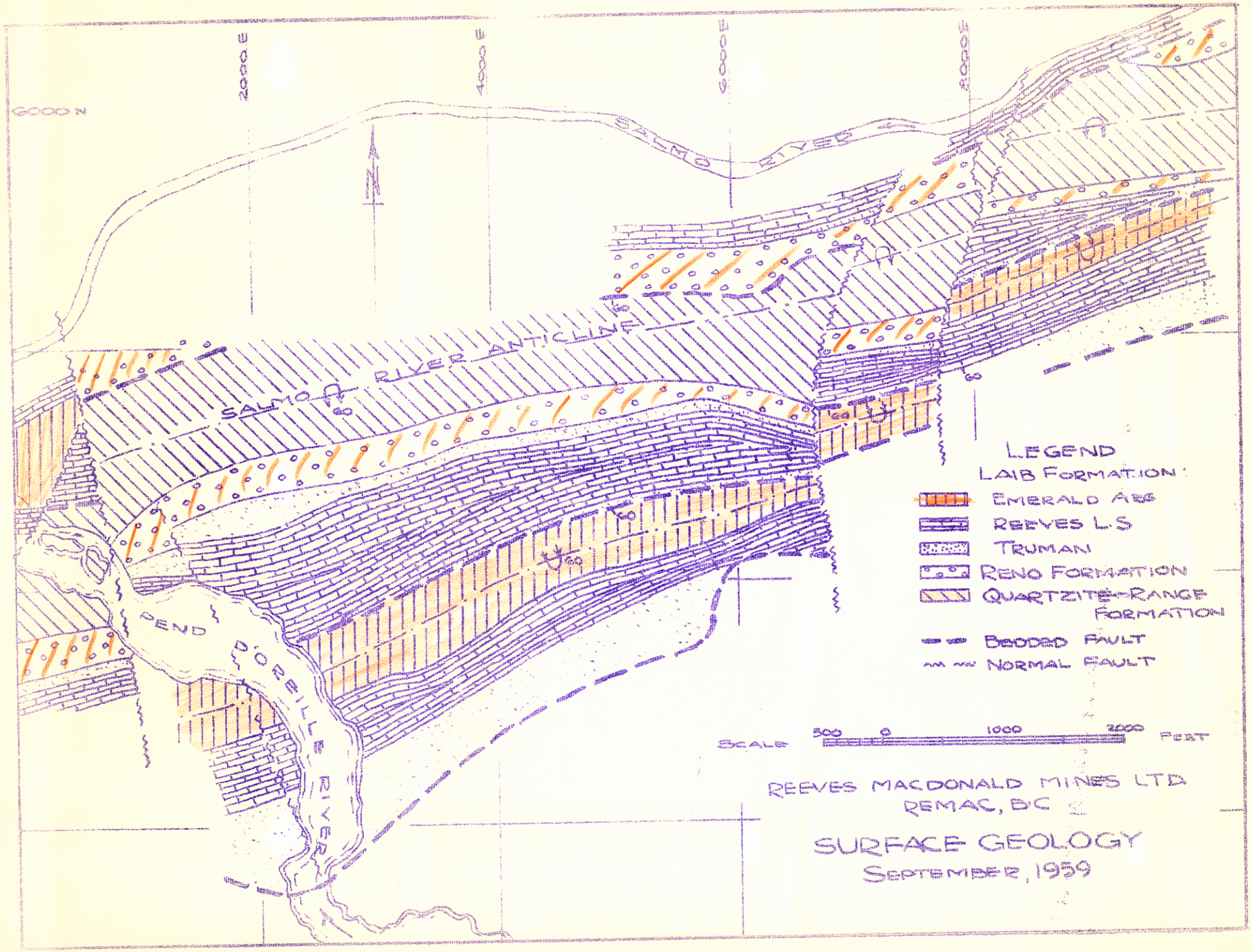
Norcross Oxide zone - The Norcross oxide zone has been exposed on the surface at a point just east of the trace of the O'Donnel fault. If the zone has an attitude similar to the adjacent sulphide orebodies it would be plunging into the O'Donnel fault and therefore would be relatively shallow. The Norcross zone has not been traced to the east toward the O'Donnel and information regarding its length attitude and structural relationships. is lacking.

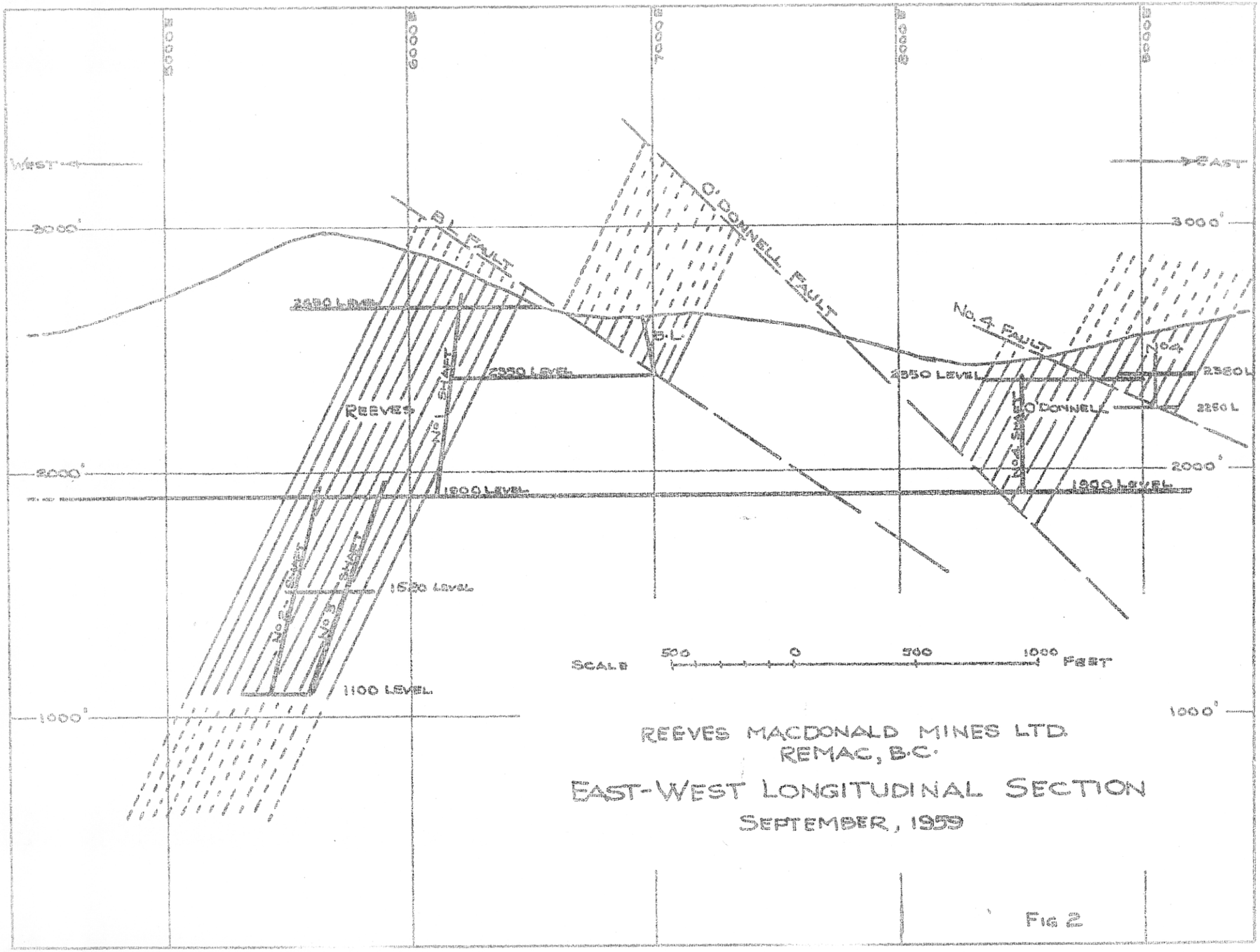
Prospect Area - A combination of bedding faults and folding has placed another band of the Reeves Limestone in a position to the south of and parallel to the band containing the Reeves orebody. The Reeves here is more dolomitic and inclined to be more massive. Several small mineralized zones have been located in this limestone

band which extends from the Pend d'Oreille River to the east for at least 9000'. These require considerably more prospecting and exploration work before any of the known mineralized occurrences can be evaluated.

Conclusion

1. The parallelism between the orebody and the syncline makes it apparent that structure has played an important part in the localization of the ore.
2. Mineralization in the Reeves orebody is confined almost entirely to the medium to dark grey banded dolomite and the Breccia zones.
3. The most oustanding feature of the Reeves orebody is the manner in which its general form is maintained throughout its length. It has been possible to project the ore outline and many of the minor structures for several hundred feet within the same ore zone and from one zone to another.


6000 N
2000 E
4000 E
6000 E
8000 E
SALMO RIVER
SALMO RIVER ANTICLINE
PEND D'OREILLE RIVER
LEGEND
LAIB FORMATION:
EMERALD A&B
REEVES L.S
TRUMAN
RENO FORMATION
QUARTZITE RANGE FORMATION
BEDDED FAULT
NORMAL FAULT
SCALE 500 0 1000 2000 FEET
REEVES MACDONALD MINES LTD
REMAC, B.C.
SURFACE GEOLOGY
SEPTEMBER, 1959



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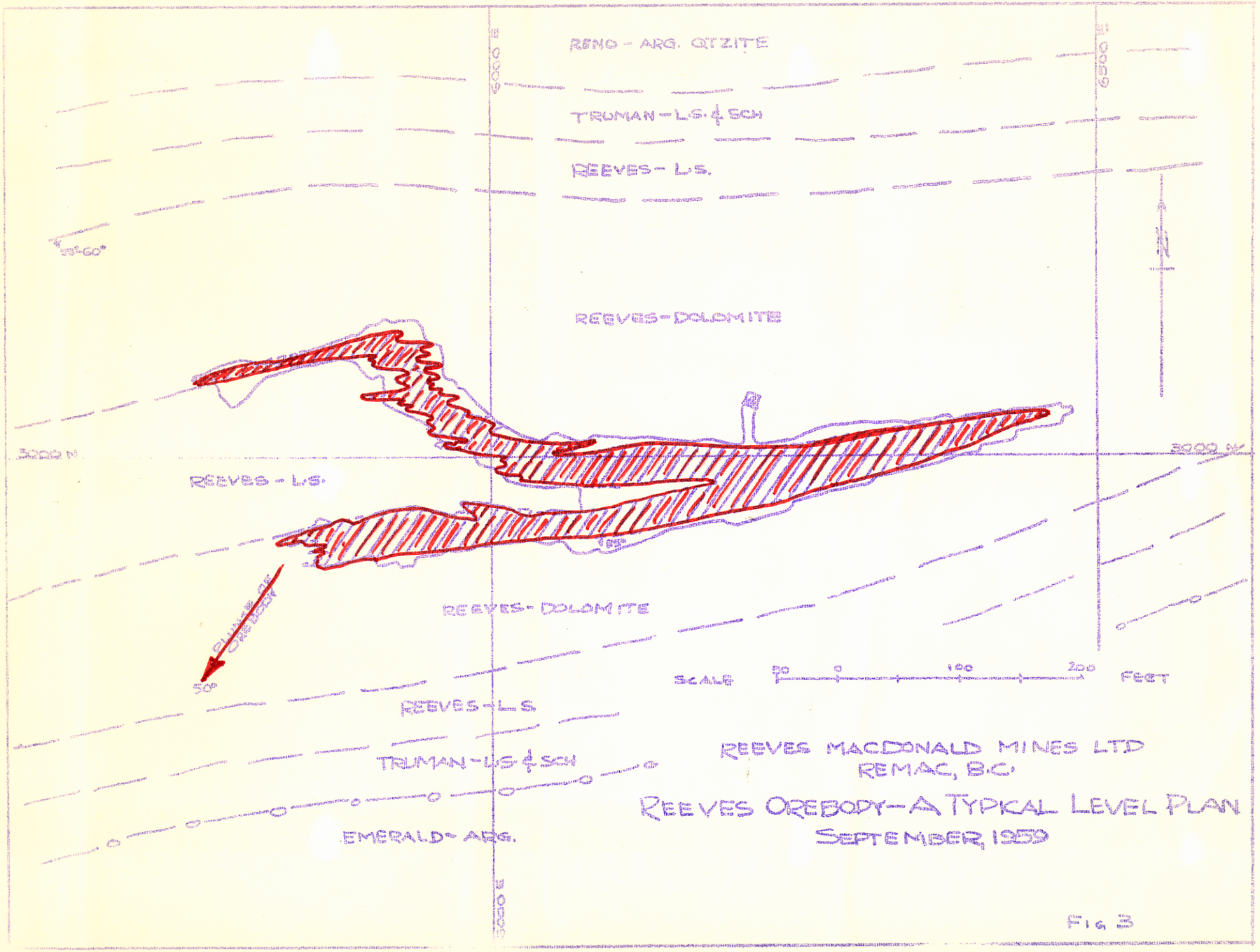
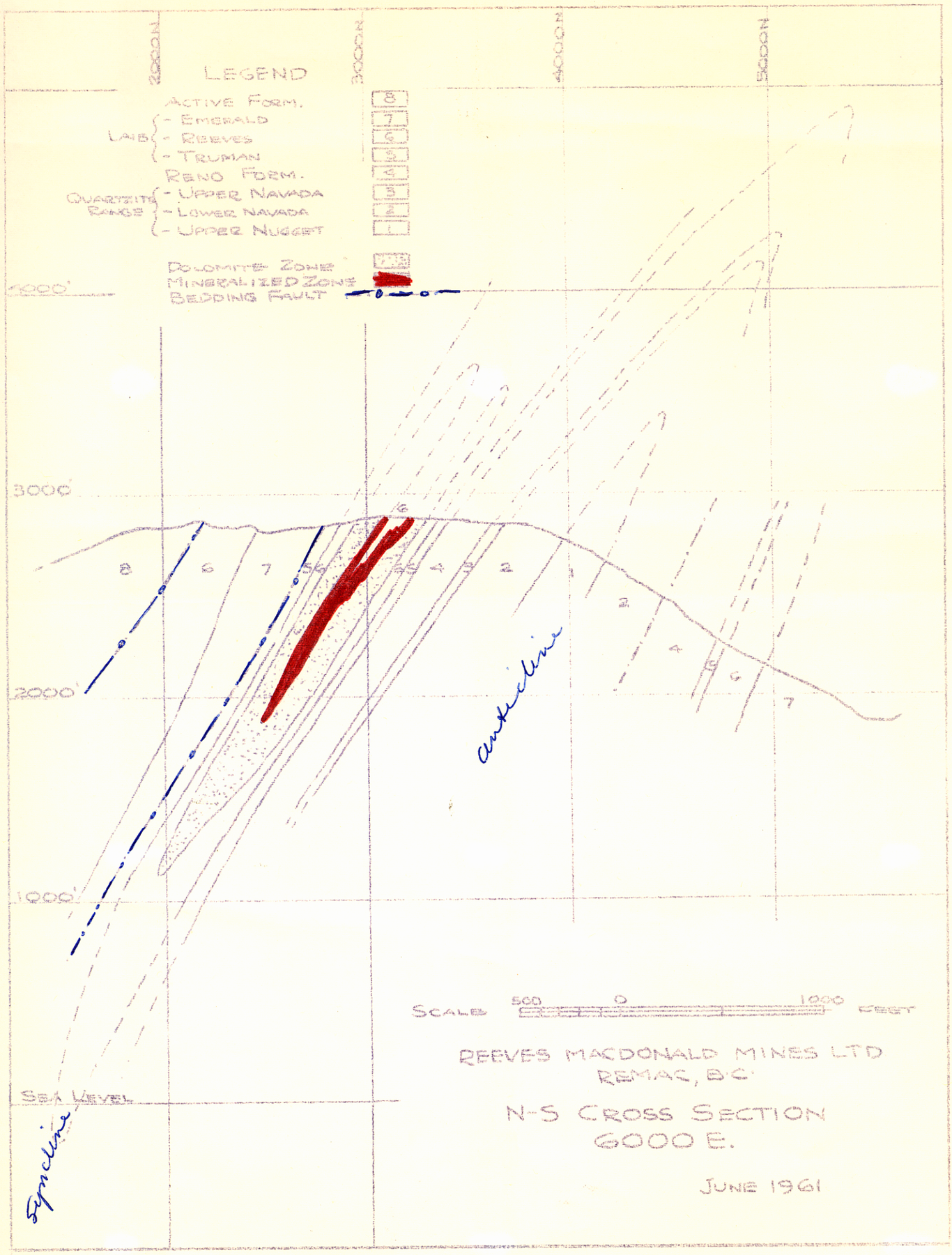
REMAC, B.C.

EAST-WEST LONGITUDINAL SECTION

SEPTEMBER, 1959

FIG 2


RENO - ARG. QTZITE
TRUMAN - L.S. & SCH
REEVES - L.S.
REEVES - DOLOMITE
REEVES - L.S.
REEVES - DOLOMITE
REEVES - L.S.
TRUMAN - L.S. & SCH
EMERALD - ARG.
SCALE
FEET
REEVES MACDONALD MINES LTD
REMAC, B.C.
REEVES OREBODY - A TYPICAL LEVEL PLAN
SEPTEMBER, 1959
FIG 3



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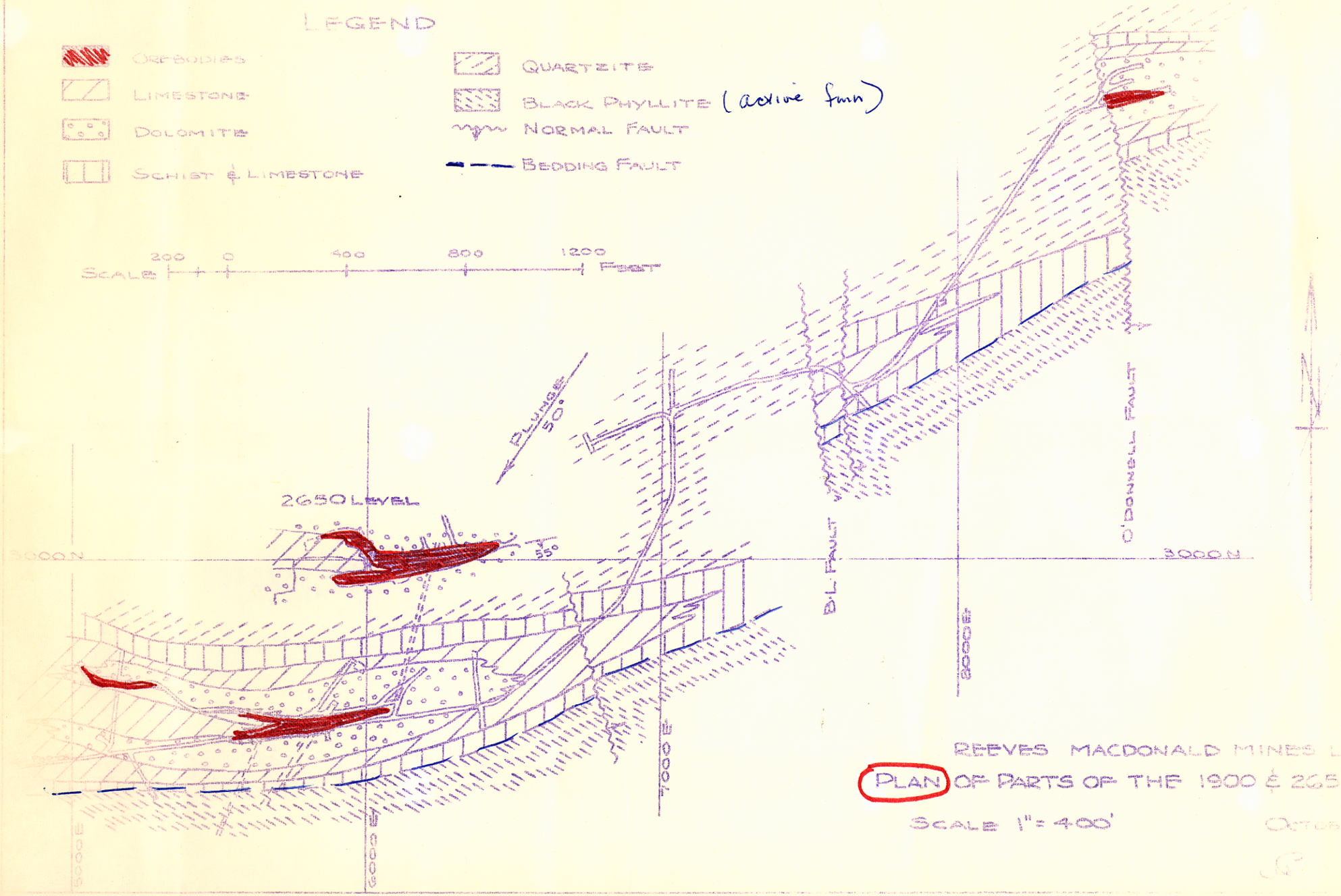
N-S CROSS SECTION
6000 E.

JUNE 1961

LEGEND

- Orebodies
- Limestone
- Dolomite
- Schist & Limestone
- Quartzite
- Black Phyllite (active fmn)
- Normal Fault
- Bedding Fault

Scale 200 0 400 800 1200 Feet



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PLAN OF PARTS OF THE 1900 & 2650 LEVELS

SCALE 1" = 400'

OCTOBER 1958

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