

COMINCO LTD.

EXPLORATION

WESTERN DISTRICT

=====

GEOLOGICAL REPORT

CLAIR 3, 4 and 5

Fort Steele Mining Division

N.T.S. 82F/9

Latitude: 49° 35'N

Longitude: 116° 15'W

Kootenay Exploration
2450 Cranbrook Street
Cranbrook, B.C.

RECEIVED

OCT 23 1979

GOLD COMMISSIONER
FORT STEELE MINING DIVISION
CRANBROOK, B.C.

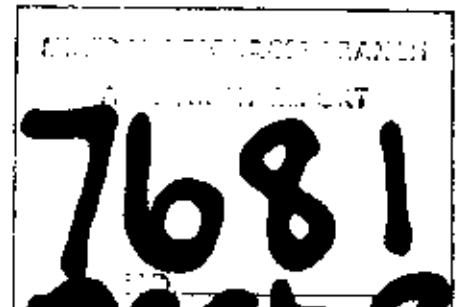
Reported by:

I.D. McCartney

Under the Supervision of:

Douglas Anderson

October 1979



7681
part 2
1 of 2

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COMINCO LTD.

EXPLORATION

WESTERN DISTRICT

GEOLOGICAL REPORT

CLAIR 3, 4 and 5

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1.00 GENERAL STATEMENT

This report details the results of geological mapping on the Clair 3, 4 and 5 mineral claims (45 units) during the period May 1, 1979 to September 24, 1979.

Expenditures incurred in carrying out the geological work amounted to \$6,655.00.

A geochemical program was conducted during the same time period and is the subject of a separate report. Total expenditures for this program were \$3,770.00.

Cominco requests a withdrawal of P.A.C. funds amounting to 30 per cent of the combined cost of the geological and geochemical programs (30% of \$10,425 = \$3,127.50). This raises the total expenditure of \$13,552.50.

It is requested that \$13,500.00 of this amount be applied as follows:

CLAIR 3 - 18 units @ \$100/year/unit for 3 years	\$ 5,400
CLAIR 4 - 18 units @ \$100/year/unit for 3 years	5,400
CLAIR 5 - 9 units @ \$100/year/unit for 3 years	<u>2,700</u>
	\$13,500

A Statement of Exploration and Development was submitted to the Gold Commissioner in Cranbrook, B.C., on September 25, 1979.

2.00 INTRODUCTION

2.10 General

Geological mapping was undertaken to evaluate the economic mineral potential of the Clair Claim group, and to locate

and determine the geological setting of lead-zinc mineralization in Helikian clastic sediments of the Aldridge Formation. The portion of this work conducted on Clair Claims 3, 4 and 5 is the subject of this report.

Field work was conducted by I.D. McCartney (Geologist), Peter Klewchuck (Geologist), Nancy Watson (Geologist, temporary) and K.P. Fennessy (Assistant) between May 1, 1979 and September 24, 1979. Work was supervised by Douglas Anderson (P. Eng., Geologist). Geological data was plotted on a 1:20,000 scale orthophoto base map with a 20 m contour interval prepared for Cominco by McElhanney Surveying and Engineering Ltd. of Vancouver, B.C. Field data was gathered on orthophoto blueprints, and was compiled and interpreted on topographic base maps. Geological interpretation is supplemented by mapping outside Clair 3, 4 and 5 and several faults are projected from outcrop patterns outside these claims.

2.20 Location and Access

Clair 3, 4 and 5 are situated approximately 25 km west of Kimberley; they straddle the St. Mary River valley. They are part of the thirteen claim Clair group which ties on to the southwest corner of the Sullivan Mine claim block.

Latitude: 49° 35'
Longitude: 116° 15'

N.T.S: 82F/9
M.D: Fort Steele

Access to the property is via good logging roads up the St. Mary River valley and Meachem Creek. A hiking trail extends up Alki Creek through Clair 5. No secondary 4-wheel drive roads exist and vehicle access is restricted to the valley floor.

2.30 Physiography

The flat St. Mary River valley runs east-west through the centre of the claims. It is 1 to 1.5 km wide, about 980 m elevation, and contains no rock outcrops. Gentle to moderately steep, heavily bush-covered slopes rise to 1300 m elevation on the south part of Clair 4. All significant outcrops have been located in this area. On the north side of the valley, moderately steep, rugged mountain slopes rise to 2200 m elevation at the northern border of Clair 3. Outcrop is abundant but much of the upper slopes are out of range for foot traverses from the valley floor.

2.40 Ownership and Status

The Clair Claim group is 100% Cominco-owned. The status of Clair 3, 4 and 5 is as follows:

	<u>No. of Units</u>	<u>Date of Record</u>	<u>Anniversary Date</u>
CLAIR 3	18	Sept. 25, 1978	Sept. 25, 1979
4	18	Sept. 25, 1978	Sept. 25, 1979
5	9	April 27, 1979	April 27, 1980

3.00 GEOLOGY

3.10 Regional Setting

Clair 3, 4 and 5 are entirely underlain by fine-grained siliciclastic rocks of the Helikian Aldridge Formation. The Aldridge Formation is the lowermost subdivision of the Purcell Supergroup. The claims are located on the west side of the Purcell Anticlinorium, a major anticlinal structure affecting Purcell Supergroup rocks. The anticline axis passes through the St. Mary Lake area, and is aligned parallel to the Purcell Mountains.

The St. Mary Fault, a major east-west structure occurs several kilometres south of the Clair claims and juxtaposes rocks of the Creston, Kitchener-Siyeh, Cranbrook and Eager Formations on the south against Aldridge Formation on the north. North of the St. Mary Fault the Aldridge Formation is dissected by numerous north-trending faults with both reverse and normal displacements.

3.20 Stratigraphy

Clair 3, 4 and 5 are entirely underlain by the Helikian age Aldridge Formation. It is estimated that 80 per cent of this formation is comprised of turbidite couplets whose average thickness is 25 cm and whose composition varies between quartzitic wacke and wacke. They are most often AE type turbidites of the Bouma turbidite model. The remainder of this formation consists of thin-bedded to laminated interturbidite wacke and subwacke. Thick-bedded quartz arenites occur locally, for example, on the southern part of Clair 4. They are interpreted as channel deposits.

Atypical lithologies have been recognized within the Aldridge Formation at 3 separate localities on Clair 4 and 5. They are tentatively correlated as an Aldridge subunit. On the southern part of Clair 3 the subunit comprises very rusty weathering Fe-sulphide rich, medium-bedded wacke at the base grading up to massive conglomeratic wacke near the top. The unit is about 75 m thick here. On the northern part of Clair 5 the subunit comprises very rusty weathering, laminated, Fe-sulphide rich quartzitic wacke to wacke and is about 15 m thick.

Gabbro sills and dykes of the Precambrian Moyie Intrusives occur on Clair 3, the northern part of Clair 4 and west of the Alki fault on Clair 5. They are usually fine- to medium-grained subophitic to equigranular metagabbro.

The Aldridge sediments have been metamorphosed to low greenschist facies throughout the area.

3.30 Structural Geology

Clair 3, 4 and 5 are on the west flank of the Purcell Anticlinorium and major folds of similar orientation to the anticlinorium are common. Such folds have north-south fold axes and shallow northerly or southerly plunges. The gabbro sill on the north border of Clair 4 is affected by folds of this type

Two major fault orientations have been recognized in the area. Northerly fault orientations are most common and many of these faults have reverse west side up displacements. The Alki Thrust Fault, in the centre of Clair 5, the fault on the east part of Clair 3 and on the extreme west side of Clair 3 all belong to this group. A fault of similar orientation but unknown displacement occurs in the extreme southeast corner of Clair 4.

The second common regional fault orientation is northwest-southeast, with steep dip. One such fault crosses the southern portion of Clair 4 and another truncates the Aldridge subunit on Clair 3.

3.40 Mineralization

No significant quantities of ore minerals have been located on Clair 3, 4 and 5. A few specks of disseminated galena were found in the Fe-sulphide rich wacke subunit on Clair 3.

Several adits and a shaft have been driven on mineralized quartz veins near the common boundary of Clair 3 and 4. The quartz veins appear to be related to the gabbro sill and contain minor amounts of chalcopyrite, pyrrhotite, galena and sphalerite. (Dominion Group - Crown Grants).

4.00 CONCLUSIONS

1. The north-south trending, steeply west dipping reverse faults that are so common in this area may actually be the steeply dipping upper portions of thrust faults.
2. Thick- to very thick-bedded quartz arenite units occurring in monotonous sequences of quartzitic wacke or wacke turbidites probably represent submarine channel deposits.
3. Outcrop mapping has failed to locate significant indicators of economic mineralization on Clair 3, 4 and 5. Geophysical surveys will be necessary if covered areas in the valley bottom are to be evaluated.

5.00 ATTACHMENTS

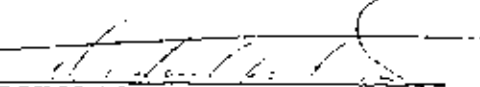
- Plate 1. Location and Claim Map.
Plate 2. Geology Map. Clair 3, 4 and 5.

SUBMITTED BY:



I.D. McCARTNEY, P. Eng.
Geologist I



ENDORSED BY:


DOUGLAS ANDERSON, P. Eng.
Geologist III

APPROVED FOR
RELEASE BY:


J.M. HAMILTON, P. Eng.
Chief Geologist,
Kimberley

October 21, 1979

STATEMENT OF EXPENDITURES

CLAIR 3, 4 and 5

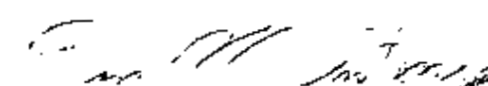
Clair 3 and 4 (36 units)

I.D. McCartney (Geologist) 11 days @ \$100/day	\$ 1,100
K.P. Fennessy (Assistant) 10 days @ \$50/day	500
D. Anderson (Supervisor) 1 day @ \$150/day	150
<u>Transportation 4 x 4 truck 11 days @ \$25/day</u>	275
<u>Orthophoto Base Map - McElhanney Surveying</u> <u>and Engineering (80% of cost by area)</u>	3,264
I.D. McCartney (Geologist) Report Preparation 1 day @ \$100	100
	<u>\$ 5,389.00</u>

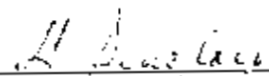
Clair 5 (9 units)

P. Klewchuck (Geologist) 2 days @ \$125/day	250
N. Watson (Assistant) 2 days @ \$75/day	150
<u>Transportation 4 x 4 truck 2 days @ \$25/day</u>	50
<u>Orthophoto Basemap - McElhanney Surveying</u> <u>and Engineering (20% of cost by area)</u>	816
	<u>\$ 1,266.00</u>

TOTAL COST OF GEOLOGICAL PROGRAM	<u>\$ 6,655.00</u>
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SIGNED: I.D. McCartney, P. Eng.
Geologist

This is Exhibit "A" to the Statutory Declaration of I.D. McCartney declared before me this 23 day of October, 1979.


A Commissioner for taking Affidavits in the Province of British Columbia.

L. SINCLAIR
A Commissioner for taking Affidavits for British Columbia

B.C. MINERAL ACT

AND

IN THE MATTER OF A GEOLOGICAL PROGRAMME
CARRIED OUT ON THE CLAIR 3, 4 and 5 MINERAL CLAIMS

in the Fort Steele Mining Division of the
Province of British Columbia

More Particularly N.T.S. 82F/9

A F F I D A V I T

I, I.D. McCARTNEY, of the City of Cranbrook in the
Province of British Columbia, make Oath and say:

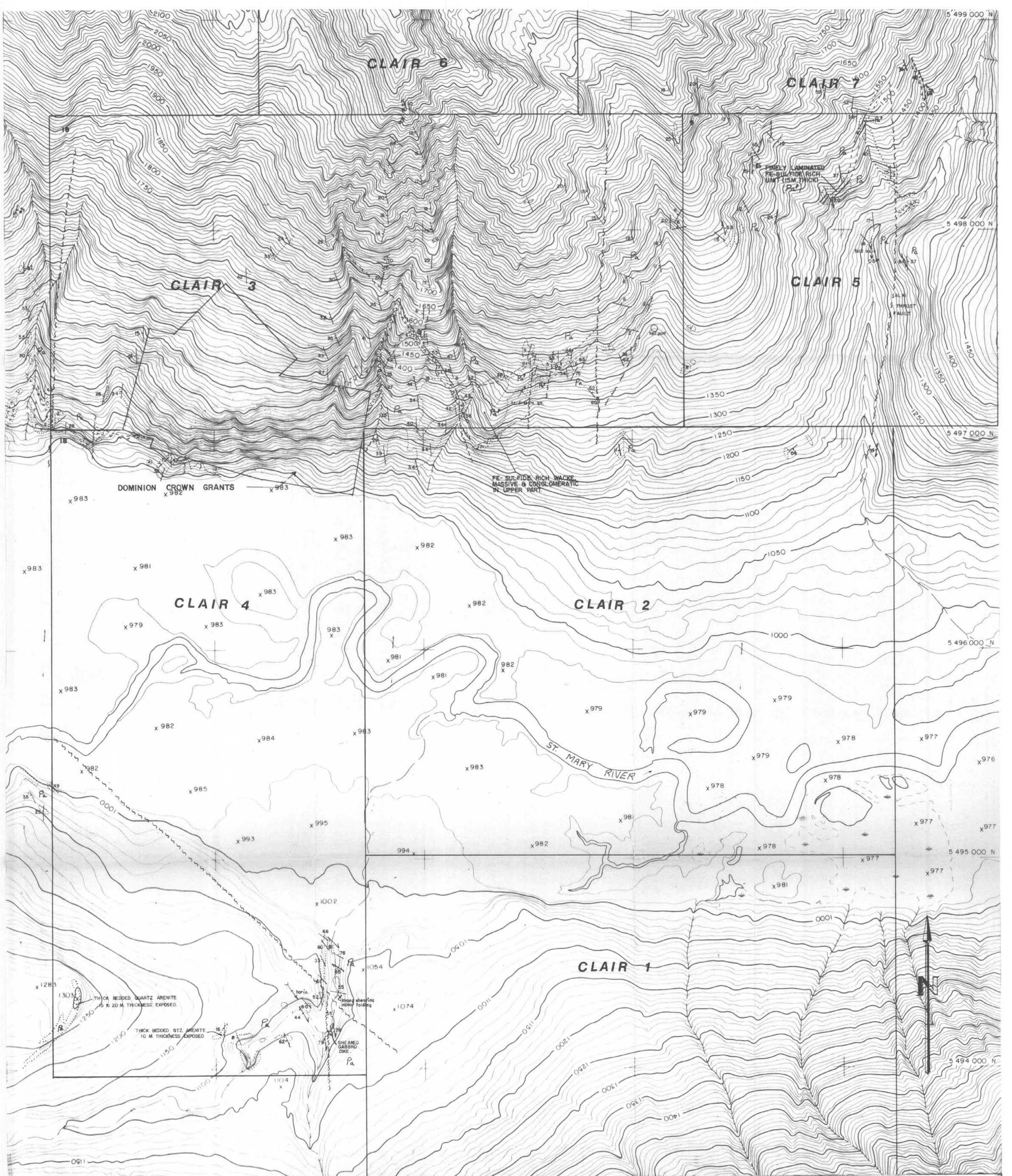
1. That I am employed as a Geologist by Cominco Ltd. and as such, have a personal knowledge of the facts to which I hereinafter depose:
2. That annexed hereto and marked as Exhibit "A" to this my Affidavit is a true copy of expenditures incurred on a geological mapping program, on the Clair 3, 4 and 5 Mineral Claims.
3. That the said expenditures were incurred between the 1st day of May, 1979 and the 24th day of September, 1979, for the purpose of mineral exploration on the above noted claims.

Sworn before me at Cranbrook)
 in the Province of British Columbia, this)
23 day of October, 1979)

I.D. McCartney
 I.D. McCartney

L. Sinclair)
 A Commissioner for taking Affidavits in)
 the Province of British Columbia.)

L. SINCLAIR
 A Commissioner for taking
 Affidavits for British Columbia



LEGEND

- Pa ALDRIDGE FORMATION
- Pa' ALDRIDGE FORMATION SUBUNIT
- Pa'' MOYIE INTRUSIVES; GABBRO DIKES AND SILLS
- Pa''' FAULT
- Pa'''' BEDDING ATTITUDES
- Pa''''' FOLIATION, FRACTURE CLEAVAGE
- Pa'''''' FOLD AXIS, SHOWING PLUNGE
- Pa''''''' ADIT
- Pa'''''''' PIT, SHAFT
- Pa''''''''' OUTCROP LIMITS

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
7681
NO. **PART 2 of 2**

GEOLOGY MAP - ST. MARY LAKE		NTS 82F/9	
Drawn by: IDM/C	Traced by: Z.K.	CLAIM : CLAIR 3, 4, 5,	
Revised by: Date	Revised by: Date		
Scale:		Date: SEPT 1979	Plate: 2.