MINNESOTA GEOLOGICAL SURVEY
SAINT PAUL, MINNESOTA

ADAPTED FROM MOREY & COOPER (1976)

PREPARED IN COOPERATION WITH THE
MINNESOTA DEPARTMENT OF NATURAL RESOURCES

PLATE I

MINNESOTA DEPARTMENT OF
NATURAL RESOURCES
Division of Minerals

PROJECT 255
LCMR Core Repository

HOYT LAKES - KAWISHIWI AREA, ST. LOUIS AND LAKE COUNTIES, NORTHEASTERN MINNESOTA

Bedrock Geology

EXPLANATION

- Diabasic rocks (d)
- Anorthosite (ta)
- Anorthositic gabbro with clusters of pyroxene, olivine and/or oxides (ago) ; gabbroic anorthosite (aga)
- Anorthositic gabbro (agu)
- Mixed troctolitic and anorthositic rocks (mta)
- Partridge River Troctolite (tpt)
- Troctolite South Kawishiwi Intrusion (tt)
- Troctolite South Kawishiwi Intrusion (tap)
- ~~Troctolitic rocks (Bald Eagle Intrusion) (tbt)~~
- Troctolitic and/or gabbroic rocks (tu)
- Gabbroic rocks (tbg)
- Troctolite to gabbro pegmatite (tp)
- Hornfels inclusions (h)
- Virginia Formation (v)
- Biwabik Iron Formation (bif)
- Granites and greenstones (gap + gmh + kg)

(For remaining codes see Morey and Cooper, 1976)

SCALE 1 : 125,000

0 2 4 6 8 Miles

Base from U.S. Geological Survey 1:24000 - Allen, 1969; Aurora, 1969; Babbitt, 1969; Babbitt NE, 1969; Babbitt SE, 1969; Babbitt SW, 1969; Bear Island, 1965; Ely, 1965; Embarrass, 1969; Isaac Lake, 1969; Keeley Bay, 1965; Snowbank Lake, 1965 1:62500 - Brimson, 1957; Isabella Lake, 1957; Shoepack Lake, 1954; Markham, 1957

Geology modified by G.B. Morey and R.W. Cooper from published and unpublished geologic maps indicated in index to mapping

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PLATE 2

MINNESOTA DEPARTMENT OF
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HOYT LAKES - KAWISHIWI AREA, ST. LOUIS AND LAKE COUNTIES, NORTHEASTERN MINNESOTA

Lineament Map

EXPLANATION

Pronounced Lineament
(easily identified on 1:24,000 aerial photographs)

Less Pronounced Lineament
(less easily identified on aerial photographs)

Vague Lineament
(subtle or interpreted lineament)

Lineaments derived from shaded relief maps of second derivative magnetic data and gravity data (Chandler, 1986)

Fault separating Partridge River Troctolite and South Kawishiwi intrusions (Morey & Cooper, 1976)

Alternative(?) separation of South Kawishiwi and Partridge River intrusions

Outline(?) Partridge River Troctolite based on lineaments

Contact Duluth Complex

L1 L2 L3 L4

T. 63 N. T. 62 N. T. 61 N. T. 60 N. T. 59 N. T. 58 N. T. 57 N. T. 56 N.

R. 14 W. R. 13 W. R. 12 W. R. 11 W. R. 10 W.

Compiled by R.W. Cooper, 1976

SCALE 1 : 125,000

0 2 4 6 8 Miles

Base from U.S. Geological Survey 1:24000: Allen, 1969; Aurora, 1969; Babbitt, 1969; Babbitt NE, 1969; Babbitt SE, 1969; Babbitt SW, 1969; Bear Island, 1965; Ely, 1965; Embarrass, 1969; Isaac Lake, 1969; Kangas Bay, 1965; Shagawa Lake, 1965. 1:62500: Brimson, 1957; Gabbro Lake, 1957; Greenwood Lake, 1954; Markham, 1957.

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PLATE 3

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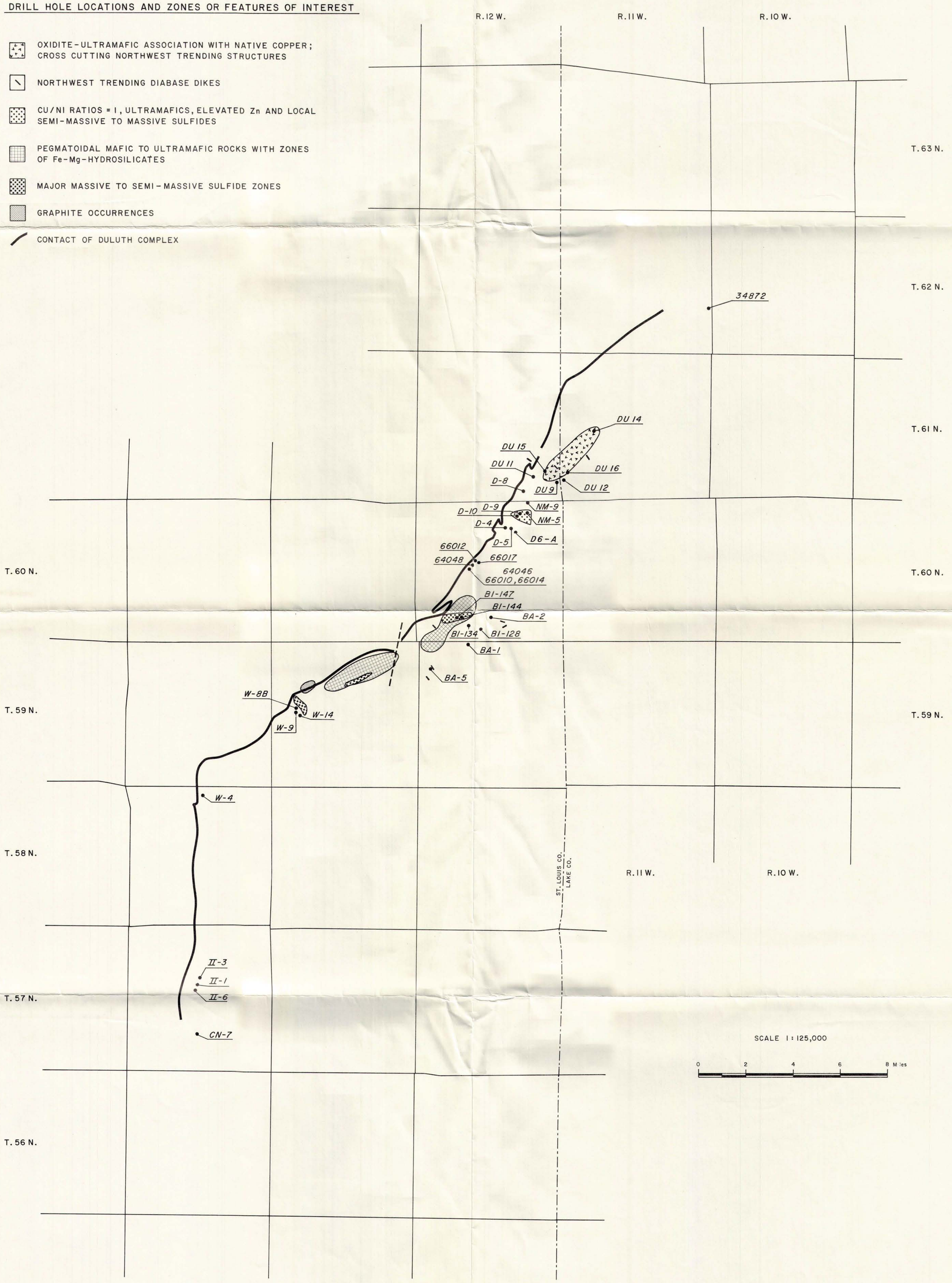
DRILL HOLE LOCATION MAP

DRILL HOLE LOCATIONS AND ZONES OR FEATURES OF INTEREST

- OXIDITE-ULTRAMAFIC ASSOCIATION WITH NATIVE COPPER; CROSS CUTTING NORTHWEST TRENDING STRUCTURES
- NORTHWEST TRENDING DIABASE DIKES
- CU/NI RATIOS = 1, ULTRAMAFICS, ELEVATED Zn AND LOCAL SEMI-MASSIVE TO MASSIVE SULFIDES
- PEGMATOIDAL MAFIC TO ULTRAMAFIC ROCKS WITH ZONES OF Fe-Mg-HYDROSILICATES
- MAJOR MASSIVE TO SEMI-MASSIVE SULFIDE ZONES
- GRAPHITE OCCURRENCES
- CONTACT OF DULUTH COMPLEX



SCALE 1 : 125,000

0 2 4 6 8 Miles