TURNAGAIN NICKEL – COBALT – COPPER – PGM PROJECT

REPORT

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EXECUTIVE SUMMARY

Since 1996, Canadian Metals Exploration Limited of Vancouver ("CME") has carried out exploration programs on their Turnagain Nickel - Cobalt Project, located approximately 68 km. east of Dease Lake, or 1350 km north of Vancouver, British Columbia. This property was optioned by CME (formerly Bren-Mar Resources Limited) in 1996 and is now 100% owned. Exploration programs have consisted of a fixed wing aeromagnetic survey, drill hole pulse electro-magnetic geophysical survey in four diamond drill holes, an induced polarization survey covering approximately 50% of the property and diamond drilling totaling. Diamond drilling during the 1996, 1997,1998 and 2002 programs have resulted in 26 holes drilled totaling 5,598 metres (16,790 feet). These drill holes were designed to test widely separated areas for nickel, copper, cobalt and platinum – palladium mineralization.

Exploration programs dating as far back as the early 1960s had identified anomalous nickel values from prospecting and diamond drilling. This area was the focus of exploration by Falconbridge Nickel Mines from 1969 to 1973 resulting in 53 holes drilled totaling approximately 2886 metres (9,524 feet). Several mineralized areas were discovered and prospected by trenching and diamond drilling. Sulphide mineralization was encountered in most of the holes. The exploration model at that time was a massive nickel-cobalt-copper sulphide target.

Geologically, the Turnagain Property is an alpine ultramafic complex of late Triassic age approximately 8 km in length and up to 3 km in width. It intrudes and is in fault contact with upper Palaeozoic and Triassic meta-volcanic and meta-sedimentary rocks of the Cache Creek Group. Mineralization as defined at present is best associated with the olivine pyroxenite and pyroxenite rock phases of the complex. A recent (1997) study by Dr.G.T.Nixon from the British Columbia Geological Survey reports "the Turnagain ultramafic complex hosts one of the few magmatic nickel occurrences of economic potential in British Columbia".

The conceptual geological model for exploration of the Turnaagain ultramafic is a bulk tonnage, low grade nickel sulphide deposit. There are consistent nickel, cobalt, copper and PGM (platinum and palladium) grades over long intersections in most drill holes. Gold and silver values also occur throughout but are not consistent. Disseminated, net textured, semi-massive and massive sulphides have been intersected in drilling. Nickel grades up to 1.4% have been achieved from drilling and surface sampling over widely spaced areas. The results of drilling, particularly holes 96-2, 97-8, 97-9 and 02-7 confirm the geological model for a bulk tonnage deposit at Turnagain. Drill hole 96-2 provided the initial indication that a bulk tonnage grade nickel deposit might be present returning 142 metres averaging 0.28% Ni and 0.014% Co. This included 10.7 metres of 0.53% Ni and 8 metres of 0.38% Ni. Sulphides have been intersected in drilling up to 300 metres in depth, and together with several sulphide showings indicate the mineralization potential may occur over a strike length of 3.7 kilometers and width of 2 kilometres. Significant structures have not yet been recognized along which massive sulphide mineralization may be associated. The propensity to discover massive sulphides over significant widths is probable. There appears to be an overall high sulphide content in this ultramafic.

Geophysical surveys conducted over the property include airborne helicopter magnetic and electromagnetic and fixed wing magnetic. Ground surveys (induced polarization and magnetometer) and borehole pulse electromagnetic have been carried over approximately 65% of the property. Results to date indicate that potential sulphide mineralization extends over a large part of the property, most of which has not been drill tested.

Preliminary "exploration" metallurgical testing has been conducted at Process Research Associates (Vancouver) and Lakefield Research (Lakefield, Ontario. This test work included flotation and leaching studies. Preliminary flotation results from four separate composites indicate recoveries up to 83% nickel. Further work is ongoing to achieve better recoveries and investigate other mineral processing methods.

The potential for developing a major mine from the Turnagain Property is made even more attractive based upon an infrastructure already in place in close proximity to the project. The property itself is located in a non-mountainous terrain with access possible by either helicopter from Dease Lake or by 4WD truck via a dirt road stretching about 78 kilometres to Dease Lake. An abandoned airstrip is situated adjacent to the Turnagain River on the property and can be recommissioned at minimal expense. Dease Lake, located on a major highway, is a major northern community of approximately 600 residents with daily airplane service.

CME's conceptual geological model and exploration target for the Turnagain Project is the discovery and delineation of a bulk tonnage (in excess of 250 million tons) nickel-cobalt deposit. This would allow for low cost, open pit bulk mining techniques at a mining rate more analogous to the large copper operations than to Canada's traditional underground nickel resources. While there is a lower flotation recovery than most of the copper producers, the historical metal value is worth three to four times more for nickel over copper, thereby making Turnagain an attractive exploration target. New technologies are becoming available that would certainly enhance this project. The objective is to develop the project to become a low cost nickel producer, even in times of over supply and/or low metal prices. It should be noted that this conceptual nickel sulphide model has really no known comparisons in the world, except(?) for the Mt. Keith deposit in Australia. The Turnagain Project is still at the exploration stage and will require a lot more work in order to prove up a resource.

The Turnagain Nickel Property:

- is essentially under-explored,
- has good access,
- represents a new type of nickel sulphide discovery in an unknown district,
- occurs in sulphide enriched rocks with two possible mineralizing events,
- contains platinum and palladium throughout the system
- achieved excellent preliminary metallurgy test work
- has indications from drilling, geological mapping and geophysical surveys, that mineralization extends for a distance in excess of 3 kms in strike length and
- has the areal extent for a potential bulk tonnage deposit.

Further work is recommended that would include additional geophysical (induced polarization, magnetometer), geological mapping and additional diamond drilling and metallurgical test work. Recent developments have shown that the Turnagain Property warrants further exploration and a two phase program with Phase 1 work program of diamond drilling to establish mineralization extents and Phase II to complete the induced polarization survey, geological mapping and metallurgical work. Upon positive results obtained from Phases I and II, a third phase (Phase III) is recommended for a major diamond drill program to delineate a resource and provide enough information for a resource calculation. This program also would also include further metallurgical test work and environmental studies. A budget for Phases I and II would be approximately CDN$750,00. The extent of these phases will be dependent upon the ability of the company to raise sufficient funding.

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1.0 INTRODUCTION AND TERMS OF REFERENCE

In July, 2002, Dr. Stewart Jackson, President of Canadian Metals Exploration Limited, requested that the author arrange for an induced polarization survey and subsequent diamond drill program to be conducted on the Turnagain Property. Upon completion of the exploration program, the author was also requested to compile and write a report with appropriate recommendations if warranted.

The company (formerly (Bren-Mar Resources Limited) has been exploring the Turnagain Property since 1996 for a bulk tonnage low grade nickel-cobalt-copper-platinum-palladium-silver-gold metal sulphide deposit. Exploration programmes consisting of prospecting, aeromagetic, ground magnetometer, borehole pulse EM and induced polarization geophysical surveys and drilling have been carried out on the Cub claim group (Turnagain Project) in 1996, 1997, 1998 and 2002. The work was supervised in 1996 by Egil Livgard, P.Eng (Livgard Consultants) and in 1997 and 1998 by Bruce Downing, P.Geo. The work program in 2002 was supervised by Dr. Stewart Jackson with input from B. Downing. The geophysical work conducted in 1998 and 2002 were supervised by Dr. Dennis Woods, P.Eng, Woods Geophysical Consulting Inc, South Surrey, B.C. The drill hole section data was compiled and plotted by Mr. George Sookochoff, GeoComp Graphic Designs Inc, Vancouver.

Preliminary metallurgical test work was been conducted in 1997 and 1998 at Process Research Associates (Vancouver) Lakefield Research (Lakefield, Ontario) and Cominco Engineering Services Limited (CESL), Vancouver. This work was supervised by Frank Wright, PEng (North Vancouver, B.C.) consulting metallurgist to CME. The metallurgical study is under a separate report by Mr. Wright.

This review and recent developments have shown that the Turnagain Property warrants further exploration and a three phase program.

2.0 PROPERTY DESCRIPTION AND LOCATION

The Turnagain property occurs approximately 1350 km north of Vancouver. It is located in the Liard Mining Division, approximately 78 kilometres east of the town of Dease Lake, British Columbia, at latitude 58°20' north and longitude 128°58' west on map sheet 104I/7W, Figure 1. The Minfile numbers covering the property are 104I/014, 038, 051, 117, 118, 119 and 120. The property area is covered by airphoto BC5429 no. 098. The regional and property areas are shown in a satellite derived thematic mapper landsat 4, path 54 row 19, July 17, 1986) scene, Figure 3. The data has been rectified from 1:50,000 topographic map using NAD 83. The data has been corrected for atmospheric haze and an edge enhancement filter applied in order to sharpen the pixel edges for better definition. Data acquisition, enhancement and plotting were carried out by Dr. G.Tomlins, Pacifc Geomatics, Surrey.

The property consists of 23 contiguous claims totaling 119 units. The claims are 100% owned by CME, subject to an option agreement with J. Schussler (Surrey, BC) and E. Hatzl (Watson Lake, Yukon). The claims are listed in Table 1 and shown in Figure 2. Property data is shown on Map 1 (see map pocket).

There are no known environmental liabilities arising from previous exploration. During the 2002 programs, there was minimal disturbance to the immediate surroundings as access to drill holes was either by helicopter or existing roads. Reclamation work included drill site cleanup, filling the drill sumps and seeding over drill sites. All reclamation work to date has been accepted by the district manager in Smithers. No environmental base sampling was conducted. There were no encounters with wildlife during the drilling programs. There are no known shafts or adits on the property.

To date, exploration permits have been obtained and are in good standing.

3.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE and PHYSIOGRAPHY

Access to the property is obtained by either helicopter from Dease Lake (15 minute flight) or by 4WD truck via a dirt road stretching about 78 kilometres to Dease Lake. Dease Lake is accessible by road (highway 37) and regular scheduled air service from Vancouver. The "dirt" road is accessible under Special Use Permit #23740. An abandoned 2000 foot airstrip (built by Falconbridge Nickel Mines, 1967) is situated adjacent to the Turnagain River and could provide access to the south portion of the property with minor upgrading. This airstrip is located on a large glacial outwash situated approximately 500 metres north of and 100 metres above the Turnagain River. Logistics are available at Boulder City, a gold placer camp, approximately 15 km east of the property located on the Turnagain River and accessible by road. The travel time from Boulder to the property is approximately 1 ½ hours. A forest fire access road constructed in the 1970's passes through the southern part of the property, along the Turnagain River. Access on the lower parts of the property is by drill roads, while the upper sections and the southeast corner is accessed by helicopter due to absence of drill roads. Two proposed access routes (Northern route and Southern route) were mapped and outlined by Graeme & Murray Consultants Ltd, Victoria as part of the Kutcho Creek Access Road Study (1984). These access routes both begin from highway 37 near Dease Lake and pass to within one kilometer of the western claim boundary of the Turnagain Property.

The area is characterized by a relatively dry climate, with snow averaging one metre and moderate rain precipitation during the year. The topography is not rugged as the elevation ranges from 1,020 m to 1,759 m ASL. Approximately 30% of the property occurs above tree tine in alpine-type vegetation of grass and scrub brush. Outcrop in the project area is very limited and scattered, as approximately 80% of the area is covered by glacial material and soil. Most of the property occurs on a south facing slope.

There is no known apparent land use conflict with the property by parks, wilderness study area or other perceived land use designation by local, provincial or federal governments. The property is outside the western boundary of the Muskwa-Kechika wilderness park. The status of land claims by the First Nations is not known at the time of writing this report. According to the latest boundaries, the Turnagain Property area is within the land claim of the Kaska-Dena First Nations, Lower Post, British Columbia. This area may also be claimed by the Tahltan First Nations, Telegraph Creek, British Columbia, who have had previous positive experience in dealing with mining companies. Tahltan natives are currently employed by Wheaton River Minerals Ltd. at their Golden Bear gold mine near Telegraph Creek. Letters were sent in August, 1998, to Chief Louis Louie, (Iskut band office) and Chief Yvonne Tashoots (Telegraph Creek band office) introducing the company and the Turnagain Project. The present chief of the Tahltan is Mr. Gerry Asp, who lives in Dease Lake. The Tahltan have formed a resource committee who review mining projects within their territory. The Tahltan have also formed the Tahltan Nation Development Corporation which can supply contractors and equipment to interested parties. No such committees or development corporation have been formed by the Kaska-Dena. CME intends to use local personnel as often as practicable in the exploration and development programs.

4.0 HISTORY

Prospecting in the 1960's located sulphides on the Turnagain River (Discovery Showing). Claims were staked and work was carried out by Falconbridge Nickel Mines Ltd. which included a helicopter EM (HEM) and magnetic survey conducted by Scintrex for Falconbridge in 1969 (assessment report #2056), ground based magnetometer, VLF and horizontal loop geophysical surveys, soil geochemical sampling, geological mapping (assessment reports #3735 & 4097) and diamond drilling. Drill programmes were conducted in 1966 (ddh TG1 totaling 9.1 metres), 1967 (ddh 1 to 13 totaling 1306.7 metres) and 1970 (ddh 14 to 28 totaling 1456.9 metres & pack sack holes 1 to 11 totaling 122.4 metres). The diamond drilling was not filed as assessment work. According to the personnel who carried out this exploration, all drill holes encountered some sulphide mineralization. These holes were widely scattered over the property. Some of the remaining core is stored at the Boulder City campsite. Samples were analyzed at the Coast Eldridge Laboratories, Vancouver. The drill logs and reports were kindly sent to the author from the Falconbridge exploration office (Winnipeg, Manitoba) in November 1998.

Exploration was conducted in 1986 on behalf of Equinox Resources Ltd. assessing the platinum and palladium potential of the Turnagain complex (assessment report #15994) . No further work was done until 1996 when Bren-Mar conducted a drilling program and fixed wing magnetic survey carried out by Questor.

A geographical positioning survey (GPS) was conducted in May 1998 in order to locate and map drill holes, claim posts and other geographical positions using NAD 83. Several old drill holes (1967 and 1970) were also located. This survey was carried out by Mr. George Millen, Watson Lake, Yukon, using a Trimble Geoexplore 2 instrument. Data was collected at each station using a minimum of 180 points and corrected using the Trimble Pathfinder Office software incorporating the base station data obtained from the BC government station at Dease Lake.

5.0 GEOLOGICAL SETTING

5.1 Regional Setting

Geologically, the Turnagain Property is an ultramafic complex of late Triassic age approximately 8 km in length and up to 3 km in width. It intrudes and is in fault contact with upper Palaeozoic and Triassic meta-volcanic and meta-sedimentary rocks of the Cache Creek Group. These rocks are west-ward facing, folded and faulted. The eastern margin of the Turnagain complex is marked by a reverse fault with shear-bands in footwall slates indicating an eastward direction of motion (Nixon, 1998). The wallrocks of the Turnagain complex are black carbonaceous slates and grey graphitic phyllites. The Turnagain Complex has been termed an "alpine " intrusion in past literature which has essentially limited exploration since this interpretation implied very limited (sulphide) mineralization.

The Turnagain is situated between the Kutcho Creek massive sulphide copper-zinc deposit (17 mt @ 1.62% Cu, 2.32% Zn, 29.2 g/t Ag and 0.4 g/t Au) located approximately 55 kms to the southeast and the Eaglehead porphry copper deposit (inferred 30 mt @ 0.41% Cu, 2.71 g/t Ag, 0.20 g/t Au and 0.010% Mo) located approximately 10 kms to the northwest. Numerous other sulphide prospects occur in the region. The Letain Creek asbestos deposit occurs approximately 15 kms south of the Turnagain Property.

5.2 Property Geology

There was no regional or detailed property mapping carried out in the 1996, 1997, 1998 and 2002 exploration programs. Brief reconnaissance mapping and sampling were carried out by Dr. Graham Nixon, B.C. Geological Survey in 1997. A generalized property geology map is shown in Figure 4 and in the attached map.

This area was the focus of a PhD thesis carried out in 1975 by Tom Clark of Queens University, Kingston, Ontario. His thesis included detail mapping, petrographic studies and lithogeochemistry. The Turnagain intrusive is a differentiated complex including dunite, peridotite, olivine pyroxenite, pyroxenite, hornblendite and intruded in places by felsic dykes. A granite plug occupies the central part of the complex. One non-mineralized felsic dyke has been traced from DDH 02-03 to 06 and 07. Sulphide poor dunite occurs topographically at the top of the complex. Primary layering is evident in outcrop with moderate to steep dips. Lithologic layering is difficult to recognize in core, however, plots of magnesium values (ICP analyses) indicate possible micro and macro- accumulations indicative of layering. There is an apparent overall northwest - southeast trend and dipping to the southwest of the intrusive as indicated from airmagnetics and ground induced polarization surveys. No NW-SE structures have been mapped, however faulting is quite evident from the trend of the

Turnagain River. This is essentially northeast-southwest trending and accounts for the offset of the complex south of the river. Minor folding is evident from sulphide layers observed in core. The relative spatial distribution of rock types is not yet clear and layering with its implication for metal concentration/zoning needs further investigation.

6.0 DEPOSIT TYPE

Drilling, prospecting, geological mapping and airborne geophysics suggest the potential for sulphide mineralization extending for a distance in excess of seven (7) kilometers in strike length, up to three (3) km in width and to date in excess of 600 metres in depth. The conceptual geological model and exploration target for the Turnagain Project is the discovery and delineation of a bulk tonnage – low grade (in excess of 250 million tons – 0.30% nickel) nickel-cobalt-copper-PGM sulphide deposit. This would allow for low cost, open pit bulk mining techniques at a mining rate more analogous to the large copper operations than to Canada's traditional underground nickel resources.

An analogy (deposit model) to the Turnagain complex is the Mt. Keith nickel deposit approximately 400 kms NNW of Kalgoorlie, Western Australia. This is a low grade (270 Mt of 0.6% Ni), characteristically layered disseminated nickel sulphide deposit occurring in a olivine mesocumulate ultramafic complex (Dowling et al). To date no other low grade (less than 0.40% Ni) nickel sulphide deposit is being mined (to the author's knowledge) in the world.

7.0 MINERALIZATION

Numerous sulphide gossan showings have been identified, prospected and drilled by both Falconbridge and Bren-Mar. The showings identified and reported as such (by Falconbridge personel) are the Cliff, Discovery, Fishing Rock, Horsetrail, Northwest and Davis 1 and Davis 2 (see Figure 7 for locations). These showings range up to 30 x 30 metres in aerial extents and have not been traced for any distance due to overburden cover. They have not been channel sampled (to the author's knowledge). With subsequent drilling, these showings may prove to be part of one major sulphide zone.

A recent (1997) study by Dr.G.T.Nixon from the British Columbia Geological Survey reports "the Turnagain ultramafic complex hosts one of the few magmatic nickel occurrences of economic potential in British Columbia".

Mineralogical studies have identified pyrrhotite, pentlandite, chalcopyrite, bornite, chromite, ilmenite and magnetite as major sulphides and oxides. Minor sulphides include violarite, vallerite, machinawite, pyrite, marcasite and molybdenite. Troilite was identified by SEM at the Canmet Lab, Ottawa in three samples from hole 97-4 submitted by Dr.G.Nixon. (pers. comm., 1998). No platinum-palladium minerals have been identified, to date. The Turnagain ultramafic is highly anomalous in nickel as every drill hole intersected sulphide mineralization with nickel values. Mineralization as defined at present is best associated with the olivine pyroxenite and pyroxenite rock phases of the complex and appears to be of two types:

1. Primary disseminated sulphides as discrete grains, cumulates and net textured, and

2. Secondary remobilized and/or sulphide phase associated with some major structure(s). Sulphides (pn and po with scattered cpy) has been observed to occur on fracture and slip planes as a smeared texture. Semi-massive sulphides occur in this category as anastomizing texture, splashes to clots and wisps. Thin massive sulphide bands up to one centimeter in width appear to be layers as observed from their sharp contacts parallel to other cumulate bedding. Other massive sulphide forms are veins up to two centimeters across. Stringer style mineralization was intersected over 20 metres in hole 98-1 (Horsetrail Zone).

Other observations relating to mineralization are as follows:.

- Graphite is associated with sulphides in places, such as that intersected in holes 97-6 and 7. These graphite intersections can occur up to ten centimeters in length. Graphite also occurs in shears and on slip planes.

- The sulphide content (pyrrhotite and pyrite) in sediments is quite noticeable, ranging from trace to three percent. Several samples were analyzed for gold and returned values up to 0.1 gram/ton (DDH 97-1).

- Alteration of the ultramafic, consisting of silicification, epidote, K-feldspar and bleaching, is quite evident in drill holes 97-6,7,8 and 9. Most of the felsic dykes noted in drill core are weakly to strongly altered. In places, an apple green mineral (mariposite/fuchsite) and chalcopyrite as disseminated to coatings on fracture surfaces are evident in alteration rims to some of the dykes.

- Serpentinization varies widely from weak to strong, the latter associated with the pyroxenite and peridotite. Magnetite veins may occur as stockwork to scattered. Talc and serpentine coated fractures occur infrequently. In the strongly serpentinized rock, the matrix may be weak to strongly talcose. Fine grained sulphides may occur in the magnetite veins.

- An 18 inch molybenite section in a quartz vein has been reported from previous drilling by Falconbridge in the Northwest Zone (pers. communication. John Schussler). Scattered specks of molybenite are observed in narrow quartz veins in the sediments from ddh 97-1. The ICP analyses confirm the Mo values, as well as indicate anomalous values in other drill holes which do not contain quartz veins but are moderately to strongly hydrothermally altered.

- Alteration, serpentinization and quartz-moly veins indicate that hydrothermal activity took place and may be responsible for the redistribution and enrichment of copper and platinum group elements. This same activity may also be responsible for, or in conjunction with, a secondary sulphide phase that resulted in semi-massive to massive sulphide mineralization.

- Plots of chrome (ICP) values along drill holes indicate possible zonation/layering. No chromium-bearing mineral has been identified to date.

- Several gossanous sulphide showings have been prospected and sampled. Results from surface prospecting and sampling are shown in Table 2. Some of these showings have been subsequently drilled.

- No evidence of a laterite cap has been located and given the present climate conditions and past glacial history, probably does not occur.

- Significant structures have not yet been recognized along which secondary sulphide mineralization and hydrothermal activity are associated. The propensity to discover massive sulphides over significant widths is still very much a real possibility.

7.1 Nickel

Results from the drill programs indicate that that appear to be several mineralized "horizons or zones" ranging in width from a few meters to several tens of meters with nickel grades ranging from 0.20% up to 1.5%, with the majority of nickel grades ranging from 0.20 to 0.50%. Nickel vs depth plots of drill holes indicate zones of nickel mineralization may occur within a single drill hole. The exact orientation and structure of these zones are not known at present, however there appears to be an overall southwesterly dip to the mineralization.

Drill hole cross sections, Figure 8, of nickel and platinum+palladium histograms show the distribution of values (see Appendix F for the section plots).

7.2 Copper

Chalcopyrite occurs as occasional discrete grain in most places, however chalcopyrite enrichment has been intersected in DDH 02-07 and observed at the Discovery Zone (1.6% Cu). Copper values range from 90 to 3700 ppm in drill core. There also appears to be some chalcopyrite enrichment at and near the sediment contact and associated with the more hornblende rich rocks.

Specks of native copper were observed as grains and in fractures in DDH 02-01 over five metres. There is no apparent alteration zone associated with this native copper.

7.3 Cobalt

There appears to be no Ni – Co relationship, as indicated from Ni vs Co plots. Cobalt vs depth plots also shows some indication of zoning but not necessarily coinciding with the nickel-rich zones. No cobalt bearing minerals have been identified and it probably occurs in both pentlandite and pyrrhotite.

7.4 Platinum and Palladium

Platinum and palladium exploration was the focus of two previous programs, one by Equinox Resources, Vancouver, in 1986 and the other by Dr.G.Nixon, GSBC, in 1989. Both platinum and palladium values occur throughout the area, however both studies indicate that the higher values of Pt and Pd occur at the Cliff Zone (this is also indicated from the recent PGM analyses). These elements were not analyzed in past drill programs, however in the 2002 drill program they were analyzed. With very encouraging results, pulps were retrieved for the 1997 and 98 drill programs and analyzed for Au, Pt and Pd. Most of the 1996 pulps have not been found.

Platinum and palladium values (reported as parts per billion – ppb) occur throughout all the drill holes analyzed and that they are generally equal in value in most places though in some areas, Pd values are higher than Pt. There appears to be no Ni – Pt+Pd relationship as indicated from Ni vs Pt+Pd plots. Pt+Pd vs depth plots also show some indication of zoning but not necessarily coinciding with the nickel-rich zones. This implies that there are PGM enriched areas with low nickel values which may result from secondary enrichment of sulphides and/or influence of platinum minerals. The relationship of chrome and PGM is not clear at present, however from plots of values along drill holes there is no apparent correlation.

It is important to note that both platinum and palladium (as well as silver and gold) report to the sulphide concentrate in appreciable amounts (see metallurgical report by Frank Wright).

7.5 Silver

Silver content ranges from detection level (2 ppm) up to 4 grams. Silver appears to be associated with some hydrothermal activity and/or secondary sulphide mineralization phase and not the primary sulphides.

7.6 Gold

Gold values are generally very low with the occasional high value. There is no evidence yet to indicate that gold and silver values may increase with increasing copper content.

7.7 Trace Element Association

Selected samples (15) were analyzed for PGM associated trace elements (gallium, osmium, ruthenium and rhodium). The values are shown in Table 3. There is, however, some encouragement from these results but more analyses need to be done in order to ascertain the potential of these elements in the overall mineralization economics.

7.8 Petrography

Petrographic work constituted a large part of Clark's PhD thesis. Several samples were also collected and examined by Dr. Graham Nixon, BCGS. Samples of various lithologies were collected during the drill programs were sent to Vancouver Petrographics for thin section and polished section preparation. Sixteen core samples were collected and petrographic studies performed by Jeff Harris and Dr. C. Leitch. In addition to mineralogy, part of this study was to examine grain size, grain size distribution and grain boundaries. A modal summary and modal mineralogic plot of the petrographic studies are shown in Table A-1 and Figure A-1, respectively (see Appendix A). The petrographic study indicates that the degree of serpentinization imparts colour to the rock ranging from light grey to dark grey to grey-black to "coal" black. The higher the degree of serpentinization, the darker the rock. Mineralogical studies indicate that the primary sulphide minerals are pyrrhotite, pentlandite and chalcopyrite, with the gangue being olivine and pyroxenite. Pentlandite generally occurs as discrete grains with very little pentlandite-pyrrhotite intergrowths. Analytical studies indicate that pyrrhotite contains very little nickel. In places, pentlandite is surrounded by or associated with magnetite grains. This observation led to magnetic separation study of the concentrate which could have an impact on concentration cleaning and producing a magnetite concentrate (see metallurgical report).

8.0 GEOCHEMISTRY

8.1 Lithogeochemistry

A lithogeochemical study was initiated as part of the acid base accounting procedure in conjunction with the metallurgical program. This study had the following general objectives:

1) to determine the bulk chemistry of the ore and non-ore material and tailings which is a direct indication of mineralogy, including alteration,
2) to correlate chemistry with petrographic studies,
3) to determine weathering indexes,
4) to determine whether and to what extent an alternative method(s) could be developed for the conventional acid base accounting analytical procedures.

Data was also taken from Clark's thesis. For the purpose of this study, all data has been converted to molar values in order to relate directly to mineral formulae and to chemical reactions. Data is presented in several plots shown in Appendix B.

8.1.1 Lithologic Variation

The first step in this analysis is to determine whether the rocks used in the analysis are related or not as measured by conserved elements such asTiO_2 and Zr. However, since Zr was not analyzed by Clark and the samples that have been analyzed show background values, this approach was abandoned. Another method to differentiate lithological variation is by the plot of MgO vs Fe2O3, Figure B-1 . This plot indicates two lithological units. A plot of SiO2 vs MgO also shows two lithological units, Figure B-2 . A plot of MgO vs Fe2O3 with CaO as third variable indicates the impact of Ca on the rocks, Figure B-3. Plots of Mg (ICP analyses) show variation within a drill hole.

Samples taken for acid base accounting analysis were also analyzed for oxides and Zr. The 12 samples are plotted on an olivine fraction – crystal model plot, as shown in Figure B-4. This plot indicates that there are distinct units originating from the same parental source.

8.1.2 Weathering Potential Index

Grant (1969) examined the roles K, Na, Ca, and Mg cations and clay minerals play in the weathering of granitic rocks. He also demonstrated a direct relationship between Abrasion pH (Stevens and Carron, 1948) and the Weathering Potential Index (Reiche, 1943, 1950), and concluded that abrasion pH, being a function of a rock's modal mineralogy, could serve as a direct indicator of its weathering potential. The Weathering Potential Index (WPI) was calculated using oxide data (except for H_2O) as in Grant (1969). Weathering data is important in any assessment of the manner and rate of deterioration of the rock matrix in the field. Abrasion pH is determined by grinding a sample in water and measuring the pH of the paste with an electronic meter or indicator paper. Although it appears to be a very primitive technique, abrasion pH method is sensitive enough to distinguish calcite from dolomite from magnesite, all of which are ARD buffering minerals. The Initial pH test is part of the ABA procedure in the BCR method, while the paste pH determination is an estimate of initial reaction kinetics in a slurry. The initial pH test of a sample is a measurement of the initial reaction kinetics at room temperature (at ambient conditions) in solution and is, in effect, the weighted sum of the abrasion pH of each of the modal minerals which make up a sample. The weathering potential index (WPI) vs. initial pH scatterplot (Figure B-5) shows the weathering potential of the samples and their initial reaction with distilled water. This index does not take into account any rock quality measurements such as particle size, friability, porosity, or permeability.

The Weathering Potential Index (as modified from Reiche, 1943, 1950) is calculated as follows:

$$WPI = \frac{100*mols(CaO+Na_2O+K_2O+MgO)}{mols(SiO_2+Al_2O_3+Fe_2O_3+CaO+Na_2O+K_2O+MgO}$$

The weathering potential index for the Turnagain rocks are quite high, as observed from outcrops in the field. The WPI vs. Mg/Fe ratio indicates two major lithologic units with different WPI, Figure B-6.

8.2 Trace Element Geochemistry

The purposes of the 30 element analysis are:

- To provide a check on the nickel assays,
- To provide the cobalt, copper and silver values, and
- To map trace elements over the drill hole length and deposit as a whole.

The aqua regia digestion is essentially a partial leach for silicates, but sufficient to detect Ca (carbonate), Fe (sulphides) and available Mg (olivine). Plots of Ni, Co, Cu, Cr, Mo, Ca , Mg and Fe versus depth can be used to show the distribution of trace elements that occur both with varying lithologies, ore and non-ore grade material and spatially within a deposit. It should be noted that it is not sufficient to calculate an average or median value for each trace element due to the potential variability within a deposit as shown in plots along drill holes.

Trace element plots can be used to show accuracy of sample analysis. This type of plot should be used for quality assurance / quality control purposes since the sample is analyzed using two different methods (standard assay analysis vs nickel trace element analysis).

The incorporation of trace elements into minerals occurs at the time of formation but can be altered over geologic time with changes in temperature, pressure and alteration resulting from hydrothermal fluids (Raiswell & Plant, 1980 and Madeisky, 1995). A plot of Mo versus depth from a drill hole which intersected disseminated nickel-bearing sulphides in dunite shows the influence of hydrothermal activity as indicated by the elevated Mo values. Metal mineralization may occur as disseminations in host rock, in veins, as massive sulphides and fracture fillings. A deposit may contain one or several of these types of metal mineralization. Each type may either have different metals and trace elements or varying concentrations of the same. This variation will certainly have an impact upon waste material characterization and disposal.

In general, various geochemical plots can be used as follows:

Ni % vs Ni ppm

- Plot shows accuracy of sample analysis. This type of plot should be used for quality assurance / quality control purposes since the sample is analyzed using two different methods (standard nickel assay analysis vs trace element nickel analysis).

Mo vs Depth

- Plot shows distribution of molybdenum values. This plot indicates the section of different sulphide mineralization due to hydrothermal influence on the host rock.

Cr vs Depth

- Plot shows distribution of chromium values. This plot indicates the level of chromium in potential ore and waste rock. The background level for chromium would be in excess of 500 ppm, and thus would be apparent in water geochemistry.

Mn vs Depth

- Plot shows distribution of manganese values. This plot indicates the level of manganese in potential ore and waste rock. The background level for manganese would be in excess of 800 ppm, and thus would be apparent in water geochemistry.

Ca vs Depth

- Plot shows distribution of calcium values. This plot indicates the carbonate neutralization potential both in ore and waste rock. Note that the higher values are associated with the stringer mineralization (influence of hydrothermal activity).

Mg vs Depth

- Plot shows distribution of magnesium values. This plot also indicates the varying rock types, if one assumes that Mg is largely due to the presence of olivine. This plot indicates the magnesium neutralization potential both in ore and waste rock.

8.3 Acid Rock Drainage

There are scattered occurrences of natural acid rock generation and drainage. This is a result of disseminated sulphides in the rocks comprising outcrops and which generally occur near a water source. Due to the dry climate and negligible pyrite, there is very little gossan development though the rocks generally contain sulphides (pyrrhotite, pentlandite) at surface. The most noticeable natural ARD source is the Discovery Zone which form the banks as outcrop on either side of the Turnagain River. This exposure which is approximately 25 metres in length and 10 metres in height on the north side of the river does not show signs of penetrative weathering nor oxidation. This outcrop led to the discovery of the Turnagain nickel-cobalt property. No oxidation of core was noticed, even at depth due to lack of extensive penetrating fractures. Examination of core from the 1971 drilling program indicated minor oxidation. There was no disturbance of outcrop for drilling that would lead to acid rock generation. There are no known ARD liabilities arising from previous exploration.

8.3.1 Acid Base Accounting Results

Acid base accounting analysis of six samples was conducted at BC Research for the purpose of metallurgical test work. Composites of assay reject samples were made according to various nickel grades, the procedures of which are documented in Appendix D The results are tabulated in Appendix F. No sulphate bearing minerals have been observed to date. The results indicate that the rocks are potentially acid consuming. This is in agreement with the petrographic studies which show that the gangue is predominantly Mg bearing silicates such as olivine and pyroxenes. Carbonate is present as calcite though in minor amounts. Neutralization potential (NP) vs. Time plot indicates that acid is being consumed over several days which indicate that the acid consuming potential is very good. A plot of MgO versus NP, Figure C-1 indicates that the NP is due to magnesium (Mg). The major acid consuming Mg mineral is olivine with minor amounts of pyroxene (diopside). The acid consuming aspects is also borne out by metallurgical testing which indicates that the samples are acid consuming. These appear to be low sulphur-bearing rocks as shown by the sulphur analyses.

Not enough samples have been collected and analyzed in order to characterize into the acid generating, potential acid generating, non acid generating and potential acid consuming classifications.

9.0 GEOPHYSICAL SURVEYS

Airborne (helicopter and fixed wing), ground (VLF, magnetometer, HEM and induced polarization) and drill hole (pulse EM) geophysical surveys have been conducted on the Turnagain Property. The recent geophysical surveys are discussed in this report.

A separate report by Dr. Dennis Woods discusses the Falconbridge and drill hole geophysical surveys in more detail, but is presented in brevity for this report.

9.1 Airborne Survey

A regional magnetic composite map is shown in Figure 5. This map was downloaded from the BCGS website. The Turnagain intrusive is indicated on this map.

A high resolution aeromagnetic survey covering 400 linear kilometres was flown over the property in August, 1996. The objective of the survey was to identify geophysical response(s) which may be related to the nickel mineralization. The survey clearly outlined the extent of the ultramafic and generated several areas on increased magnetic susceptibility located within the ultramafic, Figure 6.

9.1.1 Results From Airborne Magnetics

Two different data sets were examined: a helicopter EM (HEM) and magnetic survey carried out by Scintrex for Falconbridge in July 1969 (680 line-kms), and a fixed wing "high resolution" magnetic survey carried out by Questor for Bren-Mar in August 1996. The HEM survey actually has higher resolution than the Questor survey because the terrain clearance is much less: 30 to 60 m versus more than 200 m. (The upper limit of the Questor terrain clearance is unknown since they flew "a mean 200 metres where possible and constant barometric elsewhere"; i.e. over valleys such as the Turnagain River).

Although the HEM survey used a proton magnetometer with greater noise levels and reading intervals than the Questor cesium magnetometer (i.e. $\pm$5 nT @ 1.1 sec versus $\pm$0.1 nT @ 0.1 sec) the data are actually quite comparable. The extremely high-amplitude magnetic anomalies are far above either noise level, and when the air-frame speed is factored in, the reading intervals are about the same: 20 to 40 m for the HEM system versus 24 m for the Questor system.

In fact, the only really "high resolution" aspect to the Questor survey was the tighter flight line spacing of 100 m versus 200 m for the HEM survey. Normally the flight line spacing should be set at one to two times the terrain clearance for optimal resolution of magnetic anomalies, but it depends on required resolution of lateral structure (e.g. one to one for diatremes; four times the terrain clearance for long, linear structures), the size of the targets, the area to be covered, and the available budget.

The third most significant difference between the HEM magnetics and the Questor survey is the tie line spacing: 3 to 5 kms for the HEM (i.e. two tie lines only, with one through the centre of the lines instead of at their northern end), versus 500 m for the Questor survey. This results in the Questor magnetics being much better leveled and error free, whereas the HEM magnetics have obvious herring-bone leveling error - particularly at the northern ends of the lines.

The net effect of all this is that the Questor magnetic data are extremely accurate but very smooth (i.e. low resolution), whereas the HEM magnetics are much higher resolution but somewhat erroneous due to the leveling problems. Hence, magnetic features can be seen in the HEM data that are not apparent in the Questor data - although some of them may be suspect. For the present analysis, I lean more towards utilizing the HEM magnetics to better define the location and extent of the ultramafics at surface. The Questor magnetics better reflect the general dimensions of the intrusive complex at depth.

It is possible to make considerable improvements to the aeromagnetic data. The Questor data can be downward continued to a pseudo-drape terrain clearance of 50 m, comparable to the HEM data (this can be done quite accurately given the 100 m line spacing). And the HEM data can be re-leveled utilizing the HEM data for control. The two data sets can then be merged, which would take advantage of the two different flight line orientations: northeast-southwest for the Questor survey versus north-south for the HEM survey. The net effect would be a considerable improvement in the resolution of the magnetics to the point where it could be used to extend ground survey coverage for structural interpretation purposes.

9.1.2 Results From Airborne Electromagnetics

The Scintrex/Falconbridge helicopter EM survey was carried out using an HEM system which was a precursor to the presently utilized systems employed by Aerodat (now High Sense Geophysics) and Dighem. The only significant difference is that this early system had only one set of coaxial coils (versus 5 pairs of coaxial and coplanar coils in present systems) and operated at only one frequency: 1600 Hz (versus the current standards of three frequencies of about 900 Hz, 5000-7000 Hz, and 40-50 kHz). The coaxial coils are not as well suited to accurately resolving flat-lying and gently dipping conductors, but the data are very workable and can greatly help in planning ground follow-up.

The interpreted results were copied onto the 1:20,000 scale geologic compilation map and reproduced in Figure 1 as a hand-coloured, 1:25,000 scale map. The interpreted conductor locations in three classifications based on in-phase to quadrature ratio: <2.0 - open circles, >2.0 & <3.0 - half-filled circles, and >3.0 - solid circles were also copied onto the map.. This classification reflects increasing conductance (i.e. quality or strength) of the conductors. The approximate limits of anomalous EM response, as defined by Scintrex as the half-widths of the response, are denoted which in a general way displays the limits of possible flat-lying conductors.

There appears to be line to line variation in the extent of anomalous EM response, inversely related to the leveling errors in the magnetic data. This could be caused by differences in terrain clearance with different flight directions (inexperienced drape-flight pilots tend to fly closer to the ground when going uphill). Regardless, a general pattern of anomalous response is observed; conductive formations surround the magnetic ultramafic intrusive complex and are mostly confined to sedimentary rocks. There are five notable exceptions: 1) the south central area of the intrusive, south and west of the Horsetrail zone, 2) the eastern end of the intrusive (east of the Turnagain River), particularly along the north and south margins and in a major belt between magnetic highs (possible zone of sedimentary rocks), 3) the northwest part of the intrusive in the general vicinity of the Davis 1 and 2 showings and extending to the west off the property, 4) a small conductive zone along the southwest margin of the intrusive and extending to the south (possibly within the sedimentary formations), and 5) a single isolated conductor in the central region of the intrusive complex.

9.2 Ground Magnetometer Survey

The ground magnetic survey was performed in order to map the complex and delineate the magnetic anomalies as generated from the airborne magnetic survey flown in 1996. The results indicate that the magnetic field over the intrusive is highly irregular with areas of anomalous magnetic intensity (peridotite) to other areas of non-anomalous, background magnetic intensity (granodiorite). The boundaries of the complex are very well defined by the ground magnetic survey results. The northern and north-eastern boundary is very abrupt, probably as a result of thrusting, and the southern and south-western boundaries appear more gradual caused by the sedimentary rocks (Harper Ranch Group) overlying the intrusive.

The areas of high magnetics do not necessarily coincide with sulphide-rich rocks as there appears to be little correlation between trends and known mineralized showings. Some prospects are on magnetic highs (i.e. Northwest Zone), some on magnetic lows (i.e. Discovery Zone) and others in areas of mixed magnetic response (i.e. Horsetrail and Fishing Rock Zones).

9.3 Borehole Pulse Electromagnetic Survey

A borehole pulse electromagnetic (EM) survey was conducted (May – June, 1998) by Dr. D.Woods, P.Eng., geophysical consultant from White Rock, BC. Four drill holes (97-9, 98-1,4 & 5) were surveyed, the deepest being 97-9 to a depth of 493 metres (1616 feet). The purpose of this survey was to locate and map electrical conductors associated with sulphide mineralization. The whole of the area surveyed (an area of approximately one km by one km by 200 metres in depth) indicated the presence of large conductive zones with some of the highest readings recorded in the experience of consultant Dr. D. Woods. Exceedingly strong in-hole anomalies were observed at various levels in the holes, as well as other multiple secondary in-hole and off-hole type responses. The preliminary interpretation of the data is that the major in-hole anomalies are due to two distinct, sheet-like, sub-horizontal (approximately 20 degrees to the south) conductive horizons. The upper horizon extends over a distance of more than 300 metres, from shallow intersections in drill holes 98-1 and 98-4 to near drill hole 98-5. This horizon has associated nickel values in 98-1 ranging from 0.25% up to 1.3%, averaging 0.30% nickel over 66.8 metres. Indications from the multiple transmitter loop surveys is that the centre of this zone has not yet been intersected. The second horizon apparently lies parallel to and about 150 metres below the upper horizon and can be traced from drill hole 97-9 to 98-4, over a distance of 150 metres. This horizon is also coincident with nickel value of 0.32% over 14.5 metres.

Although the pulse EM conductors are spacially coincident with high nickel, cobalt, copper and silver values, it is believed that they are due to a combination of talc/serpentinite and sulphides rather than sulphides alone. In addition, from geological logging and nickel assay results of these drill holes, there are other nickeliferous disseminated sulphide zones that do not form detectable pulse EM conductors.

9.4 Induced Polarization Survey

Like the magnetic results, the resistivity and chargeability results of the Turnagain complex are highly variable. Overall, the intrusive is dominantly and uniformly resistive, however anomalously low resistivities appear to correlate with peridotite or dunite. Zones of intense chargeability occur in all areas of the complex, sometimes near surface and sometimes at depth. There does not appear to be a definite correlation between high chargeabilities and mapped ultramafic rocks; the chargeability anomalies cross various lithologies. It should be noted that the various lithologies can contain various types and amounts of chargeable minerals such as sulphides, serpentine/talc-tremolite and graphite. The serpentine and talc-tremolite can be saturated to supersaturated in water associated with ultramafic rocks and groundwater interaction which can contribute to the high chargeabilities.

10.0 Drilling

Diamond drilling programs using BQ size core were carried out in 1996 (August-September), 1997 (August-September, and October), 1998 (May) and 2002 (October-November) to test geophysical and geological targets and mineralized showings. The drilling was contracted out to DJ Drilling, Surrey, B.C. Drill hole locations are shown in Figure 7. The rock is quite easy to drill as core recovery averages 95% and hole deviation is not significant. For example, hole 97-9 deviated 5 degrees over 494 metres, from an initial dip of –56 to final dip of –51 degrees. A problem that does occur with drilling is the expansion of serpentine and talc, as these minerals tend to expand during drilling and cause some problems in emptying the core barrel. Diamond drilling carried out by Falconbridge in 1966, 1967 (QXT core size) and 1970 (AQ core size) was contracted out to John Schussler, present owner/operator of DJ Drilling. The CME and some of the Falconbridge diamond drill locations are also shown in Figure 7.

Core was transported daily via helicopter from the drill site to the Wheaton Creek camp site where it was logged and sampled. All core is stored at the Wheaton Creek camp (Boulder City) in outside core racks. All drill holes were contiguously sampled over their whole length in one or two metre intervals based on visual mineralization, except where more detail sampling was warranted and the sampled interval was generally ½ metre. Holes 02-01 and 02-04 were not sampled.

Samples were analyzed for nickel, copper, cobalt, gold, platinum, palladium and trace elements. The significant intersections of the diamond drill programs are presented in Table 4. The analytical data for the Falconbridge drill holes are also shown in Table 4, however no records of analytical procedures and methods have been found to date.

11.0 Quality Assurance / Quality Control

The objectives of quality assurance/quality control (QA/QC) are to document the procedures and methods of sample collection, preparation and analysis and to provide some assurance as to reliability of analyses using cross-laboratory checks. No internal standards were submitted by the company and all replicate samples and internal standards reporting were carried out by the analytical laboratory. The sample and analytical procedures and methods are documented in Appendix A.

11.1 Sampling Method and Approach

Core and sample logging for the 1997 and 1998 drill programs were conducted and supervised by B.Downing. The core and sample logging for the 2002 drill program was carried out by Dr. S. Jackson and for the 1995 drill program it was conducted by Mr. E. Frey.

11.1.1 Field

The BQ size core was split using a manual core splitter with one half of the core put back into the box. The core splitter was cleaned after each sample.Most of the drill holes were sampled for their entire lengths with the average sample over two (2) metre lengths. More heavily mineralized sections were generally sampled at one metre intervals. These are convenient widths and do not necessarily represent true widths of mineralization. Samples were put in polyethylene bags, sealed with twist tie, and 5 to 7 were placed in larger rice-bags weighing up to 45 kg and shipped as a unit. They were flown by helicopter from Wheaton Creek to the helicopter base in Dease Lake and then transported by commercial truck to ACME Laboratories in Vancouver. The 2002 samples were transported by private truck to ACME.

In May, 1999, split core from specific sections of drill holes 98-1, 2 and 4 was taken, composited into specified grade intervals and shipped to Billiton Metallurgical Facilities in Johannesburg, South Africa, for metallurgical test work (see report by F.Wright, 2000).

11.1.2 Laboratory

The split core was prepared at Acme Laboratories, Vancouver. The sample was crushed using a jaw crusher, then split using a riffle splitter. One split was stored, while the other half was pulverized in a ring and puck pulverizer. The 1997, 1998 and 2002 assay pulp samples are stored at Acme Laboratories, Vancouver.

11.1.3 Metallurgical

The analytical work for the metallurgical test work was carried out by the metallurgical laboratory and is described in the metallurgical report by Frank Wright.

11.2 Sample Preparation, Analyses and Security

Sample preparation and analyses were performed at Acme Analytical Labs, Vancouver. Acme is a certified ISO 9002 laboratory, having obtained registration in November 1996 (registration # 378/96).

All core samples were analyzed for nickel using standard assay method and for multi-elements using the 30 element ICP-MS method following an aqua regia digestion. The aqua regia acid digestion, which will dissolve sulphides, is partial for the silicates that may contain some nickel such as olivine and pyroxenes. The ICP-MS method was chosen for the following reasons:

- As a check on the nickel assay value,
- Determination of cobalt, silver and copper values, and
- Determination of other significant elements for possible elemental zoning.

The aqua regia digestion for the Turnagain samples may cause some gel to form which is caused by magnesium. The gel inhibits the leaching efficiency on the samples if not sufficiently stirred or shaken. Constant stirring by stirring rod must be used during the ICP analysis. This situation was observed during analyses in 1998, and was implemented, but no comparative study was conducted. It was not retroactive to the 1997 and 1996 analyses.

The standard nickel assay method produces a total nickel value and does not distinguish between sulphide bearing nickel and silicate bearing nickel. In order to distinguish sulphide nickel, another assay method was tried using samples ranging from 0.23 to 1.3% nickel. This method uses a different leach process from the standard method and will detect nickel in sulphide and oxide forms and essentially consists of an ammonium citrate and hydrochloric acid digestion. The analytical procedure is documented in Appendix D. Samples were selected with low to high nickel assay values.

In regards to security, both the shipping and sample bags were received intact upon arrival at ACME Laboratories (pers. communication). There was no evidence of spillage of sample material during shipping nor evidence of any opening of the bags. All samples that were shipped from the field have been analyzed and entered into a database. There were no missing samples.

11.3 Acid Base Accounting Method

The ABA method of preference is the BC Research (BCR) method, as initiated by BC Research Institute (BCRI), Vancouver. ABA analyses of all samples were conducted by BCRI in their laboratory in Vancouver. The acid base accounting test work includes analyses of initial pH, total sulphur, sulphate sulphur, acid potential (AP), neutralization potential (NP) and calculated net neutralization potential (NNP) and neutralization potential to acid potential ratios (NP/AP or NPR). In addition to the ABA analysis, whole rock (using the inductively coupled plasma emission spectroscopy (ICPES) - lithium metaborate fusion method), and TIC (total inorganic carbon) analyses were also done. All analyses were done by Acme Analytical Labs, Vancouver. The procedures and analytical methods are documented in Appendix D. The whole rock (major oxides) data provides bulk chemistry, CO_2 indicates carbonate content, and 30 element analyses provides trace element distribution. In addition to the analytical data, various ratios were calculated, all of which are shown in Appendix B.

11.4 Nickel Analysis

An examination of nickel analyses was conducted in order to determine the sulphide nickel and silicate nickel distribution. The contribution of silicate nickel to the nickel assay is important, especially when examining the low grade nickel distribution. This was examined in the following ways:

- Sulphide Nickel Analysis (see Appendix D for procedures): Plots of total nickel versus nickel sulphide/oxide are presented in Appendix E. Results show a very good correlation, which indicate that the nickel is mainly derived from sulphides.

- The depletion of Ni in olivine in the sulphide bearing phases from the Ni in olivine in dunite is important. Analytical work by Clark (1975) indicates that nickel is depleted in olivine in sulphide-rich dunite and olivine pyroxenites versus nickel enrichment in olivine in the non-sulphide bearing dunite.

- Plots of nickel assay values versus ICP nickel values show a very good correlation. The aqua regia acid digestion used in the ICP analysis will dissolve sulphides and is a partial digestion for the silicates. Though not all the olivine may be digested, the amount that is digested does not appear to affect the correlation and thus impact the nickel concentration.

- From field observations of core and plots of estimated sulphides (from drill logs) with depth indicate that where nickel grades are 0.20 to 0.30%, sulphides are present.

11.5 Data Verification

Nickel ICP versus Ni assay values were plotted for each drill hole in order to determine if any spurious values were apparent which may be due to laboratory analyses. The values did show a good correlation, as shown in the plots, see Appendix E. This also provided a check on the database in order to verify if there were any spurious values due to incorrect entries in the database.

Eighteen samples were assayed by INCO for copper, nickel and cobalt. These values show an excellent correlation with those values as reported by Acme, Appendix E. Twenty-five samples were analyzed for nickel by Chemex Labs, Vancouver. These results correlate very well with the Acme values and are presented in Appendix E.

Re-analysis by Acme Labs of 15 samples for platinum and palladium show excellent correlation (see Appendix E).

Drill hole plots of nickel and Pt+Pd were visually examined in order to determine if any spurious values occurred that may be due to data entry and/ot transcription.

12.0 Mineral Processing and Metallurgical Testing

Metallurgical test work was initiated at the very early stage in exploration in order to determine if this project was viable metallurgically, given the conceptual geological model of large tonnage with low grades averaging 0.3% to 0.5% nickel. Test work was initiated in October, 1997, under the direction of Mr. Frank Wright, P.Eng. Acid base accounting analyses were conducted in order to determine if the material would be amenable to leaching. Flotation batch studies have been conducted on four whole ore composite samples obtained from the 1996 and 1997 drill programs. Test work was conducted at Process Research Associates (Vancouver) and Lakefield Research (Lakefield, Ontario).

Initial recoveries of up to 83% nickel and 77 % cobalt were achieved with rougher flotation tests. With flotation cleaning, concentrate grades ranged from 2.8 to 13.6 % nickel and 0.16 to 0.28% cobalt. Concentrate recoveries range from 79 to 52% for nickel and 73 to 41% for cobalt. Magnetite separation was also shown to be beneficial and is anticipated to further increase metal recovery. A potential magnetite concentrate is considered as a viable product, specifically where it is used in the coal industry.

The mineralized (reject) samples which were used in the metallurgical studies were obtained from the 1998 diamond drill program. The composite test sample obtained from three drill holes: 98-1 (194m to 236m), 98-2 (6m to 112m) and 98-4 (6m to 41m / 98m to 108m), resulted in a composite sample feed grade of 0.43% Ni and 0.018% Co.

A 90 kg bulk flotation test was conducted by Process Research Associates (PRA) of Vancouver, B.C. The work was undertaken to provide a sufficient quantity of sulphide concentrate for pressure leach testing. Flotation feed was ground to particle size (K_{80}) of 70 microns. While overall flotation recoveries are dependent on future locked cycle testing, the recovery of nickel and cobalt was 77% and 71% respectively, to the rougher flotation concentrate. This was followed by two stages of cleaning to produce a final concentrate that analyzed as follows:

CONCENTRATE ANALYSES

Metal	%Ni	%Co	%Cu	Pt (g/mt)	Pd (g/mt)	Au (g/mt)	Ag (g/mt)	%Fe	%S-
Concentrate	6.65	0.243	0.29	0.52	0.61	0.27	9.3	32	21.3

The work resulted in an encouraging and improving recovery of nickel and cobalt to the sulfide concentrate. The analyses also indicates that appreciable amounts of platinum (Pt), palladium (Pd), as well as gold (Au) and silver (Ag) are present. Investigations into production of magnetite and magnesium by-products are also slated for future study.

Based on a conceptual geological model of 250,000,000 tonnes grading 0.30% nickel, the ongoing exploration and pre-feasibility analysis is to confirm a mineral reserve that would support an ore production rate of 68,000 tonne/day. This would allow for an economy of scale, which equals or exceeds the favorable operating costs of current base metal producers in B.C. This and the fact that the gross contained metal values at Turnagain are double or triple most of these same producers, makes the project a promising opportunity. It should be noted that this is a conceptual metallurgical model and does not take into account cut off grades nor precious metal content.

Based on the latest metallurgical results, using the achieved concentration ratio of 22:1, and assuming 90% plant availability, would result in the conceptual annual metal production to the sulphide concentrate as follows:

CONCEPTUAL METAL PRODUCTION

Conceptual	Ni(tonnes)	Co(tonnes)	Pt (g)	Pd (g)	Au (g)	Ag (g)
Annual Production	67,000	2,400	528,000	680,000	275,000	940,000

Preliminary pressure leaching studies on the concentrate using the CESL process were conducted by Cominco Engineering Services Ltd. of Vancouver, B.C. This or similar hydrometallurgy processes would allow for the on-site production of metallic nickel, thereby eliminating concentrate transport and contract smelting charges. The optimum CESL test results to date gave 98% Ni recovery and over 98% Co recovery to solution. Cathode metal would be produced from this solution by conventional solvent extraction and electrowinning technology. The metallurgical studies show that a technical flowsheet is available to apply to the Turnagain Project.

The results are considered very encouraging in that an acceptable concentrate could be produced for upgrading on site. Continuing optimization of the concentration procedure will be conducted both at Process Research Associates Ltd. and at Lakefield Research. Studies will be initiated on concentrate leaching, which will be followed by laboratory work on solvent extraction and electrowinning for recovering dissolved nickel and cobalt from solution. Producing a mid-grade nickel-cobalt concentrate should allow for the rejection of sufficient acid consuming gangue minerals so that a variety of newly available low cost recovery methods can be considered.

The conceptual metallurgical approach is to treat the flotation concentrate, (possibly combined with a magnetic concentrate) on site. Consequently, the traditional high cost approach of shipping the concentrate to a smelter refiner may not be required. Instead, the nickel and cobalt would be recovered by lower cost acid leaching techniques, such as pressure leaching, biological leaching or chemical leaching. This would be followed by solvent extraction and electrowinning (similar to that currently used in the copper industry) to produce a high grade metal cathode product to meet LME specifications.

The Turnagain samples reviewed to date (Frank Wright) indicate that the material would likely respond favourably to a number of newly developed nickel processes. These include Dominion Mining's "Activox Process", "CESL Process" and bioleach processes promoted by such companies as Gencor and others. The Turnagain sulphides are primarily pentlandite/pyrrhotite which are readily soluble under their stated process conditions. In addition, there do not appear to be any other metal by-products or deleterious substances present which would complicate such a treatment circuit. The Turnagain material responds to sulphide concentration by flotation, which is necessary for this type of flowsheet development. The metallurgical report by F. Wright contains more detailed information.

13.0 Interpretation and Conclusions

The Turnagain intrusive is a differentiated ultramafic complex including dunite, peridotite, olivine pyroxenite, pyroxenite and hornblendite. It is intruded in places by felsic dykes with a granitic plug occupying the central part of the complex. Layering is indicated in part from drill hole logging, magnesium drill hole plots and lithogeochemistry studies.

There are consistent nickel (0.20 to 0.40%) and cobalt (0.015 to 0.03%) grades over long intersections in most drill holes. Grades of up to 1.4% nickel over one metre intervals have been intersected in drilling, and grab samples from widely spaced areas have also returned greater than 1.0% nickel. Grab samples containing up to 2% nickel have been reported by people who have worked on this property for Falconbridge. Copper, platinum and palladium values occur with the nickel bearing sulphides. Grades up to 4% copper have been reported by people who have worked on this property for Falconbridge, specifically in the Discovery

Zone. The higher PGM values appear to occur in the Cliff Zone area. It should be noted that sulphide mineralization in all drill holes generally begins at the hole collar or top of casing

From drilling and field follow-up, results from the magnetometer survey indicate that the magnetic highs are generally consistent with those from the aeromagnetic survey. The highest magnetic readings are associated with serpentinized peridotites that have a stockwork of magnetite bands. Generally, these magnetite bands are sulphide poor. The sediments are coincident with the magnetic low. Some of the magnetic highs are adjacent to the sediments. It would appear that sulphides occur on the periphery of the magnetic highs, and that drilling the magnetic highs would not necessarily intersect sulphides. The pulse EM survey indicated that the area responds well but that a more discriminating survey such as induced polarization is needed in order to map and locate sulphide-rich lithologies. The pulse EM survey interpretation indicates that significant sulphide mineralization occurs as horizons dipping to the south over significant distances. Review of the Scintrex airborne survey flown in 1969 shows numerous conductors along the edges of the Turnagain complex and that the drilled areas todate also have coincidental conductors. The overall resistivity and chargeability results to date indicate a dominant west to north-westerly trend associated with mineralization where drilled. This extends over a distance of two kilometers. Most of the conductors have not been drill tested.

Significant structures have not yet been recognized along which the secondary mineralization is associated. Sulphides to date have been intersected in progressive drilling up to 300 metres in depth and over a conservative strike length of 800 metres. The interpreted potential strike length of mineralization for exploration based on the geophysical surveys, scattered sulphide showings and drilling is approximately 7 kilometres and width of 2 kilometres. The propensity to discover massive sulphides over significant widths is still very much a real possibility. There appears to be an overall high sulphide content in this ultramafic.

Some of the significant points worth noting regarding the Turnagain complex are:

- Giant ore deposits are associated with giant (largescale) magmatic systems. The Turnagain Ultramafic is large in size extending approximately 8 km in length, up to 3 km in width and at present in excess of 493 metres (1617 feet – DDH 97-9) in depth. The ultimate size is not known at present.

- The Turnagain Ultramafic is associated with a major transcurrent fault. The complex is thrust easterly against the sediments (footwall).

- The importance of graphitic and sulphide-rich sediments in contact with the Turnagain ultramafic is significant in that these sulphides may have provided a source of sulphur for nickel sulphides to form (e.g. as sulphur contamination and enrichment of the magma).

- The periphery of the ultramafic may not be as important as the keel. Massive sulphides have probably formed in embayments or structural dilational zones. The importance of magma conduits in focussing sulphide concentrations and upgrading are very important. This will be an interpretation on which drilling and geophysics will be focused. The "plumbing" system has not yet been recognized.

- There is a significant depletion of nickel in the hydrothermal zones. There is some indication of nickel and copper sulphide enrichment in other zones.

- A unique breccia pipe (?) containing fragments of "reaction rimmed" and foreign granitic rocks was intersected over 53 metres in hole 67-2. It would appear that this breccia is similar to that intersected in 97-9 over two metres. This breccia has not yet been observed in outcrop and its presence has not yet been fully interpreted. A mineralogical examination of one sample by R.Buchan in 1979 identified it as a hornblende-clinopyroxene porphyry and is likely a basic intrusive breccia but with no kimberlitic affinity.

The conceptual model for the Turnagain Project appears amenable to large scale, open pit mining techniques. This would significantly reduce the operating cost as compared to underground mining, which is typical of most nickel sulphide deposits. Metallurgical flowsheet development will be ongoing with the geological studies in determining the most feasible process approach.

The Turnagain Nickel Property:

- **is essentially under-explored,**
- **has good access,**
- **represents a new type of nickel sulphide discovery in an unknown district,**
- **occurs in sulphide enriched rocks with two possible mineralizing events,**
- **contains platinum and palladium throughout the system,**
- **achieved excellent preliminary metallurgy test work,**
- **has indications from drilling, geological mapping and geophysical surveys that mineralization extends for a distance in excess of 5 kms in strike length and**
- **has the areal extent for a potential bulk tonnage deposit.**

14.0 RECOMMENDATIONS

1) Initiate a detailed mineralogical study that would include microprobe analyses. Identify the platinum, palladium, silver and gold mineralogy. This study would be done in conjunction with the metallurgical work.

2) Survey all drill hole locations and claim posts.

3) Finish line-cutting for mapping and geophysical surveys. This would total approximately 60 kms.

4) Stake additional claims to cover ground to Hard Creek. As well, the claims should be expanded to cover the entire extent of the intrusive complex to the northwest and southeast of the present land holdings.

5) Conduct a detailed geological and prospecting grid survey. Enter data into database program.

6) The Questor airmagnetic data should be retrieved (along with positional and altimeter data), and processed by pseudo-drape downward continuation. The HEM magnetic data should be digitized at the contour/flight-line cross points and then re-leveled utilizing the Questor data as control. The two data sets can then be combined, and a new, higher resolution, magnetic image can be produced. Further processing should involve vertical derivative and signal strength analysis to produce images which better depict magnetic features at surface without the distortion effects of induced or remnant dipolar magnetization.

   A more precise method of obtaining the same type of final product is to perform a three-dimensional inversion of the magnetic data. This newly developed technique from UBC produces startlingly clear 3-D images of the magnetic susceptibility in the earth using standard surface or airborne magnetic data. Structural interpretation can be significantly improved with this procedure.

   Magnetic images produced by these reprocessing procedures should be digitally overlain on a topographic plot, for optimal interpretation power.

7) Conduct a bore hole IP geophysical survey to locate and map massive sulphides in conjunction with the surface IP survey. For even greater three-dimensional resolution of anomalous chargeability and resistivity in the Horsetrail zone, it is recommended that the drill holes previously surveyed by borehole Pulse EM be re-surveyed with borehole IP using a radial directional pole-dipole array. This technique can be used to determine the precise depth of any chargeability or resistivity anomalies, as well as indicate the spatial position of the zones with respect to the drill hole. When combined with inverted pole-dipole data from surface, a clear picture of

mineralization and structure will emerge - to form a more definitive model of any nickel/cobalt ore zones.

8) Complete the gradient IP/resistivity and magnetometer surveys that were initiated in 2002. This will aid in mapping/interpretation of the complex.

9) Conduct a major diamond drill program of 9,150 metres (30,000 feet) to delineate enough information for a resource calculation. This program would follow up on the present drilling program in order to extend the known limits of nickel mineralization. Rotary drilling should be considered to delineate the property on a detailed scale for infill drilling. Enter data into drill hole computer program. This drill program should use NQ core in order to get a larger sample for analysis that may have an impact on PGM analyses. This core will require sawing of the core as it will much harder to manually split. Density measurements of core should be taken for future resource calculations.

10) Initiate a preliminary baseline environmental survey that would include water sampling of creeks, bogs etc., continued acid base accounting analyses and a historical research of the area.

11) Continue with the QA/QC during the next drilling phases and include reference material (i.e. CanMet standards). Check assays should be conducted via another laboratory.

12) Use a magnetic susceptibility unit during core logging to identify magnetic profile along drill hole.

These recommendations would constitute two main phases:

- **Phase 1**: diamond drilling (approximately 5,000 metres) to establish some sulphide mineralization extents, and
- **Phase II**: to complete the induced polarization survey, geological mapping and metallurgical work.

These phases can be conducted at the same time or at different time periods depending upon spring breakup (i.e. Phase I – 2,500 metres in April-May, Phase II in May-August followed by additional drilling from Phase I). The metallurgical work can essentially begin after the early drilling in order to obtain material for the test work.

A budget for Phases I and II would be approximately CDN$750,00. The extent of these phases will be dependent upon the ability of the company to raise sufficient funding.

Upon positive results obtained from Phases I and II, a third phase (Phase III) is recommended for a major diamond drill program to delineate a resource and provide enough information for a resource calculation. This program also would also include further metallurgical test work and environmental studies.

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16.0 STATEMENT OF QUALIFICATIONS

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Telephone: (604) 940-3232
Email: downing@acncanada.net

CERTIFICATE OF AUTHOR

I, Bruce W. Downing, M.Sc., P.Geo. do hereby certify that:

1. I am currently employed as a consultant by:

   Canadian Metals Exploration Limited
   Suite 1060, 1090 West Georgia Street
   Vancouver, B.C. V6E 3V7 Canada

2. I graduated with an honours B.Sc. in geology and pedology from Queens' University in 1970. In addition, I obtained a M.Sc. in geology from the University of Toronto in 1974.

3. I am a member in good standing of the Association of Professional Engineers and Geoscientists of British Columbia, the Association of Exploration Geochemists, and the Canadian Institute of Mining. I am a fellow in good standing of the Geological Association of Canada.

4. I have worked as a geologist for a total of 30 years since my graduation from university.

5. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

6. I am responsible for the preparation of the technical report titled Turnagain Nickel-Cobalt-Copper-PGM Project Report and dated March 15, 2003 (the "Technical Report") relating to the Turnagain property. I visited the Turnagain property in 1997, 1998 and 1999 for a total of approximately 160 days.

7. I have had prior involvement with the property that is the subject of the Technical Report. The nature of my prior involvement is as consultant.

8. I am no aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report , the omission to disclose which makes the Technical Report misleading.

9. I am not independent of the issuer applying all of the tests in section 1.5 of National Instrument 43-101. I have been granted by CME the opportunity of receiving options of which I have not exercised to date.

10. I have read National Instrument 43-101 and Form 43-101F1 and the Technical Report has been prepared in compliance with that instrument and form.

11. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

DATED this 15 day of April, 2003.

Signature of Qualified Person
#20042.

Bruce W. Downing, M.Sc., P.Geo
Print name of Qualified Person

Plate 1 Turnagain Property (view looking north from southeast zone towards the dunite core at Turnagain Peak)

Plate 2: Turnagain Property (view looking west from Turnagain Peak)

Plate 3 Turnagain Property (view looking south from Turnagain Peak)

Plate 4: Turnagain Property (view looking east towards Turnagain Peak))

Plate 5 Turnagain Peak (dunite core; lakes follow mineralization zone)

Plate 6: Southeastern part of Turnagain Property (vicinity of drill hole 97-1)

Plate 7 View from Camp at Boulder City (looking north, Turnagain River, September, 1997)

Plate 8: Camp at Boulder City (drill shack and core storage area, Turnagain River, May, 1998)

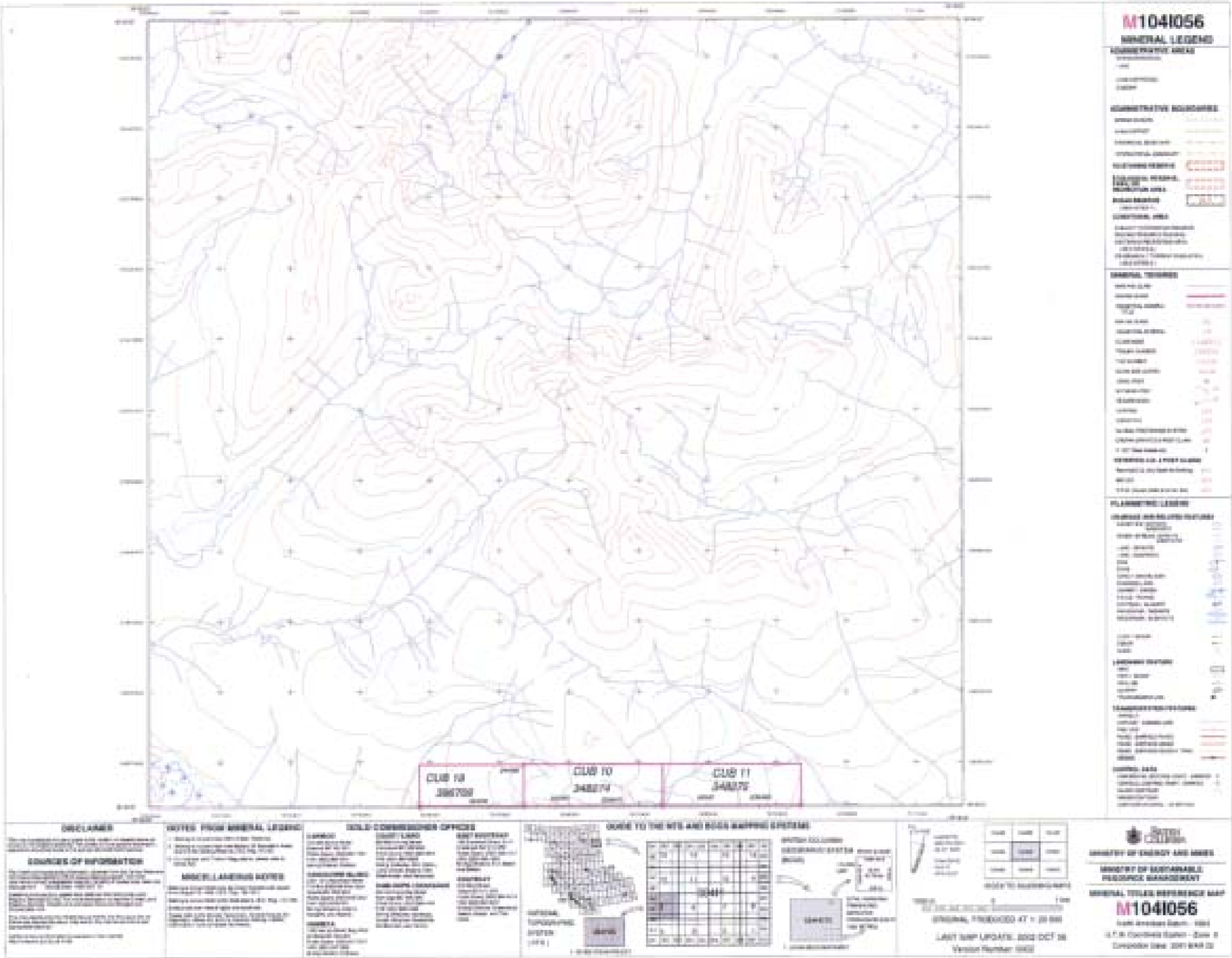
Plate 9: Helicopter view of property and Turnagain River (May, 1998)

Plate 10: Drill hole 99-7 (view showing equipment, May, 1998)

Plate 11: Northwest Zone (surface mineralization & vicinity of hole 97-4&5, August, 1997)

Plate 12: Horsetrail Zone (surface mineralization & vicinity of drill hole 98-1, May, 1998)

Figure 1: Location Map Turnagain Project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MINERAL LEGEND
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GUIDE TO THE NTS AND BCGS MAPPING SYSTEMS
SOURCES OF INFORMATION
MISCELLANEOUS NOTES
MINISTRY OF ENERGY AND MINES
MINISTRY OF SUSTAINABLE RESOURCE MANAGEMENT
MINERAL TITLES REFERENCE MAP
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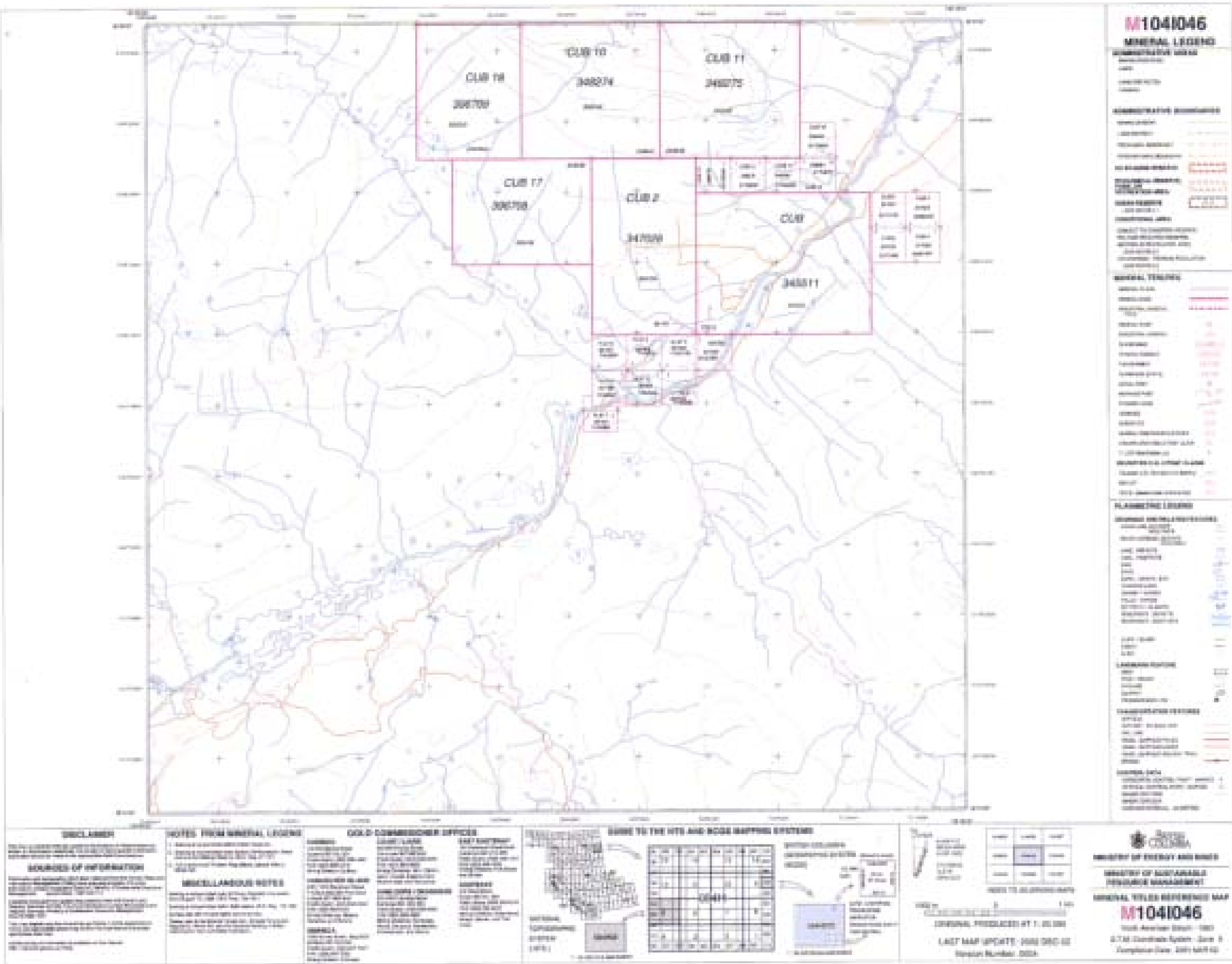
Figure 2.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MISCELLANEOUS NOTES
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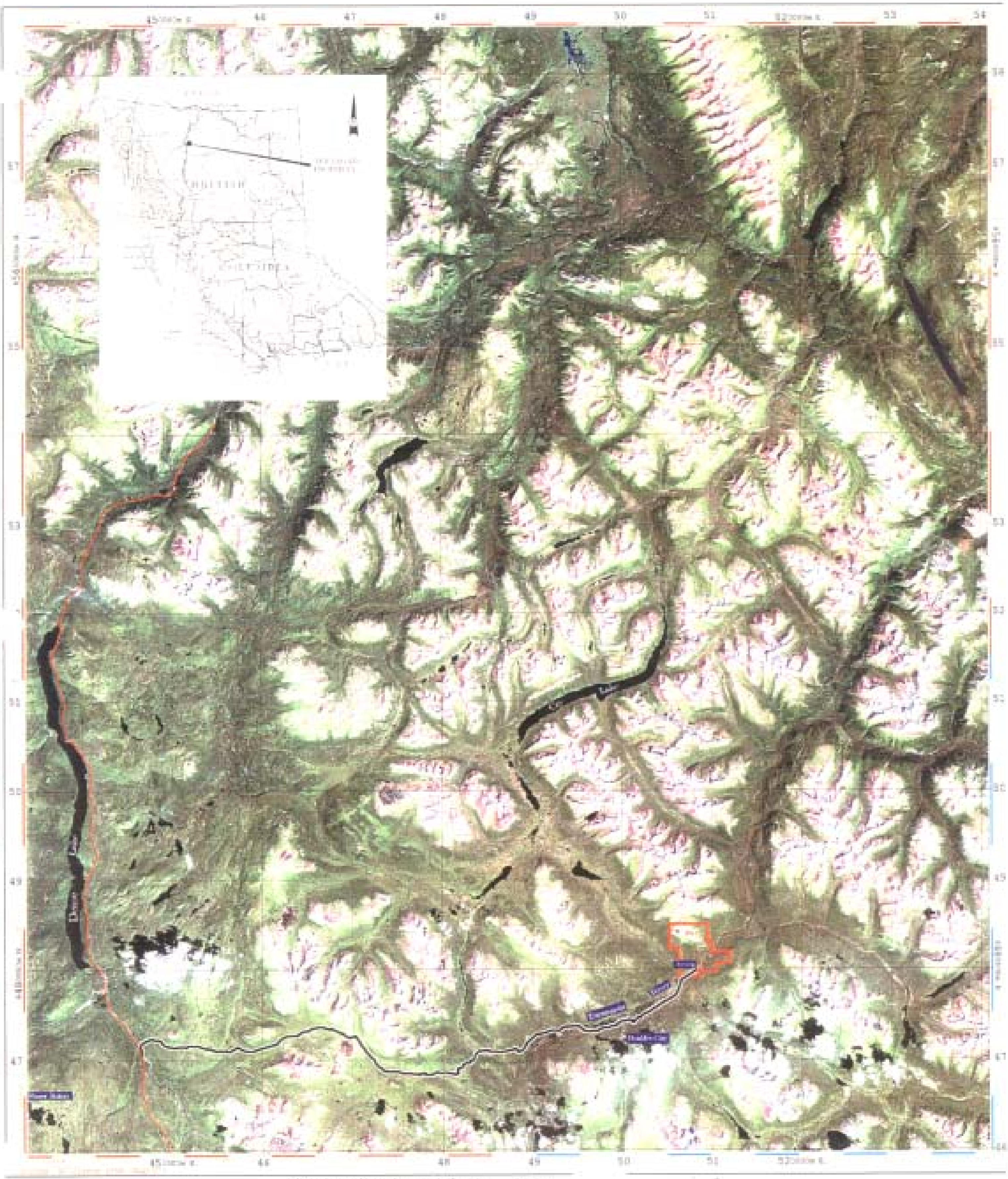
Figure 2.



The Turnagain project.

Figure 3

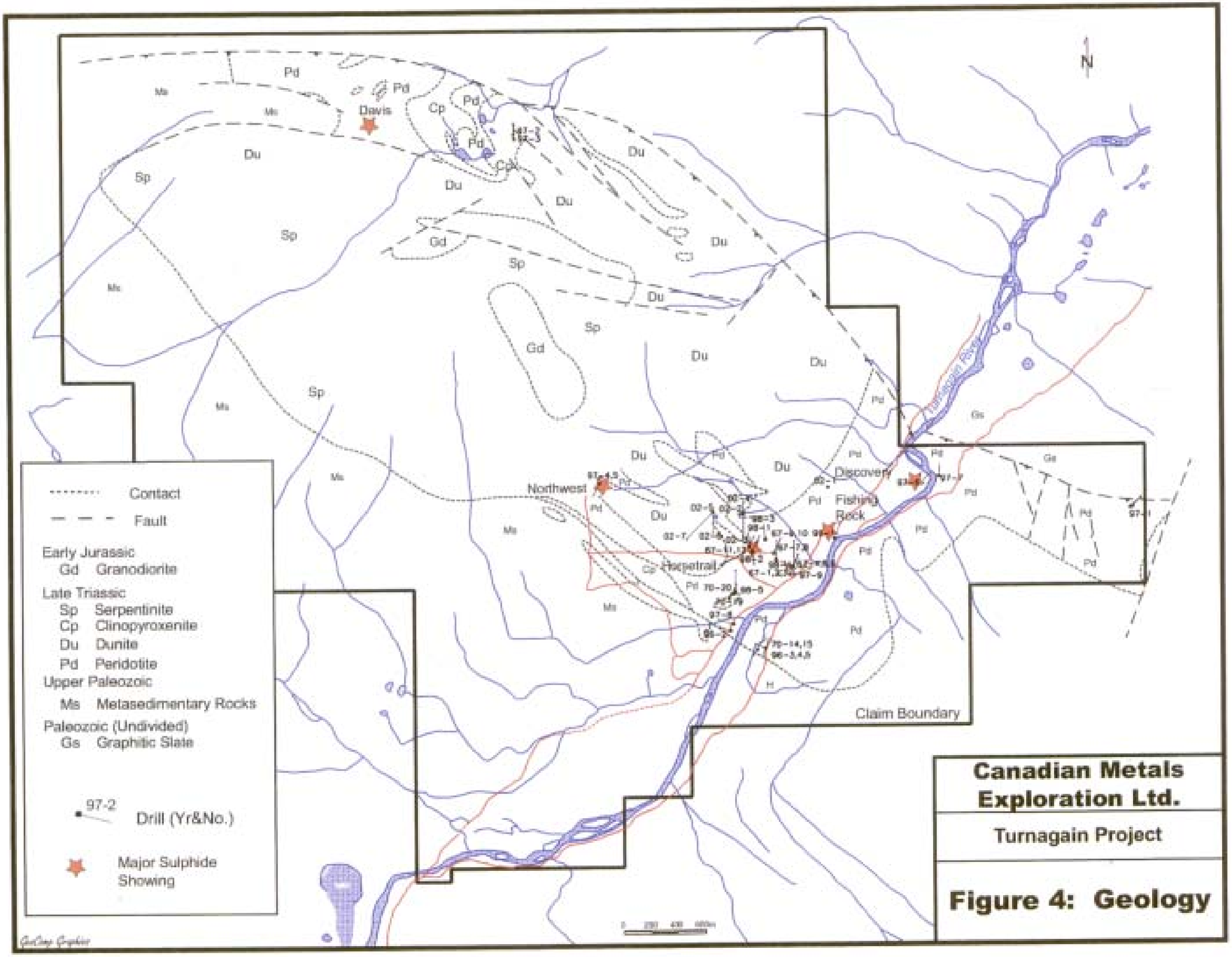
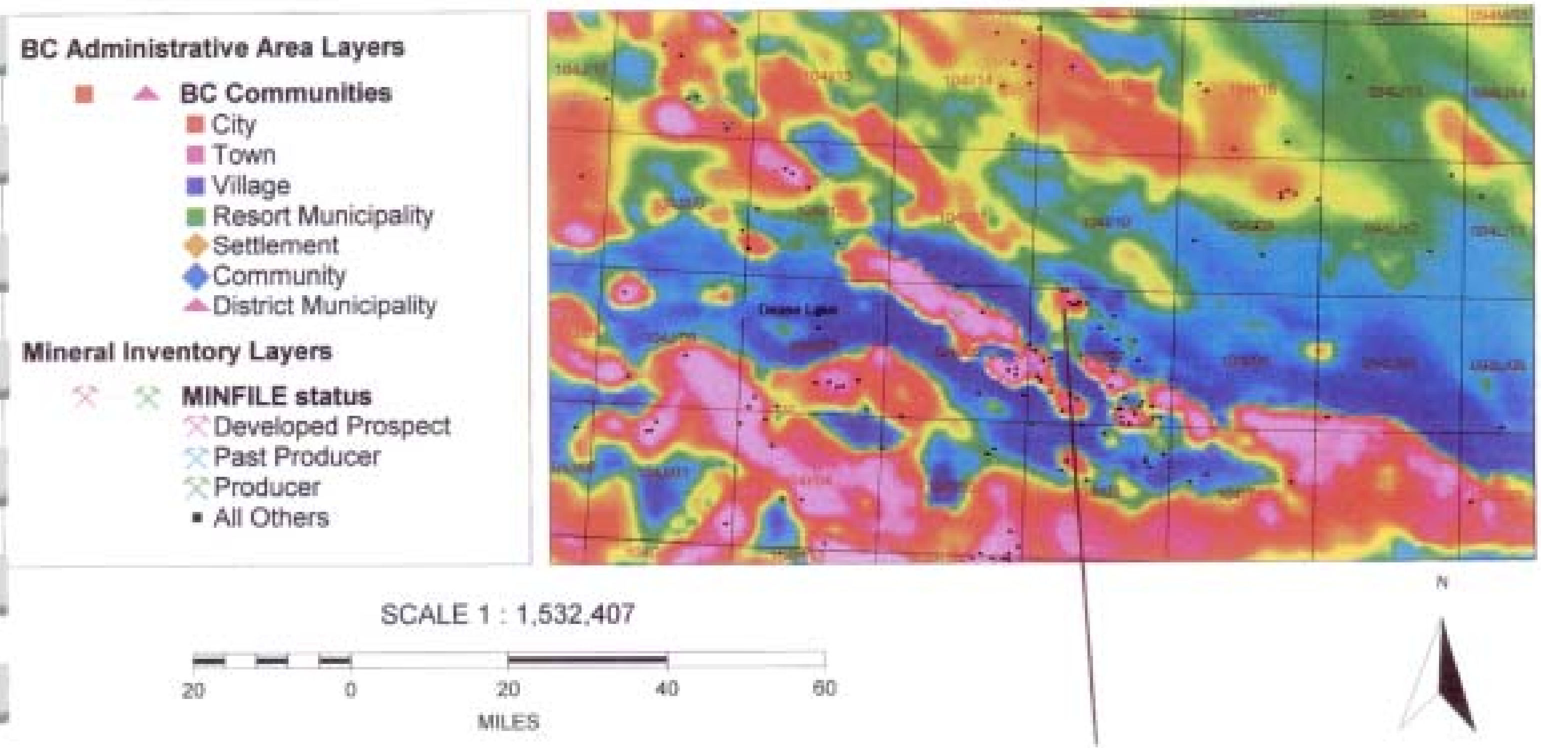


Figure 4: Geology

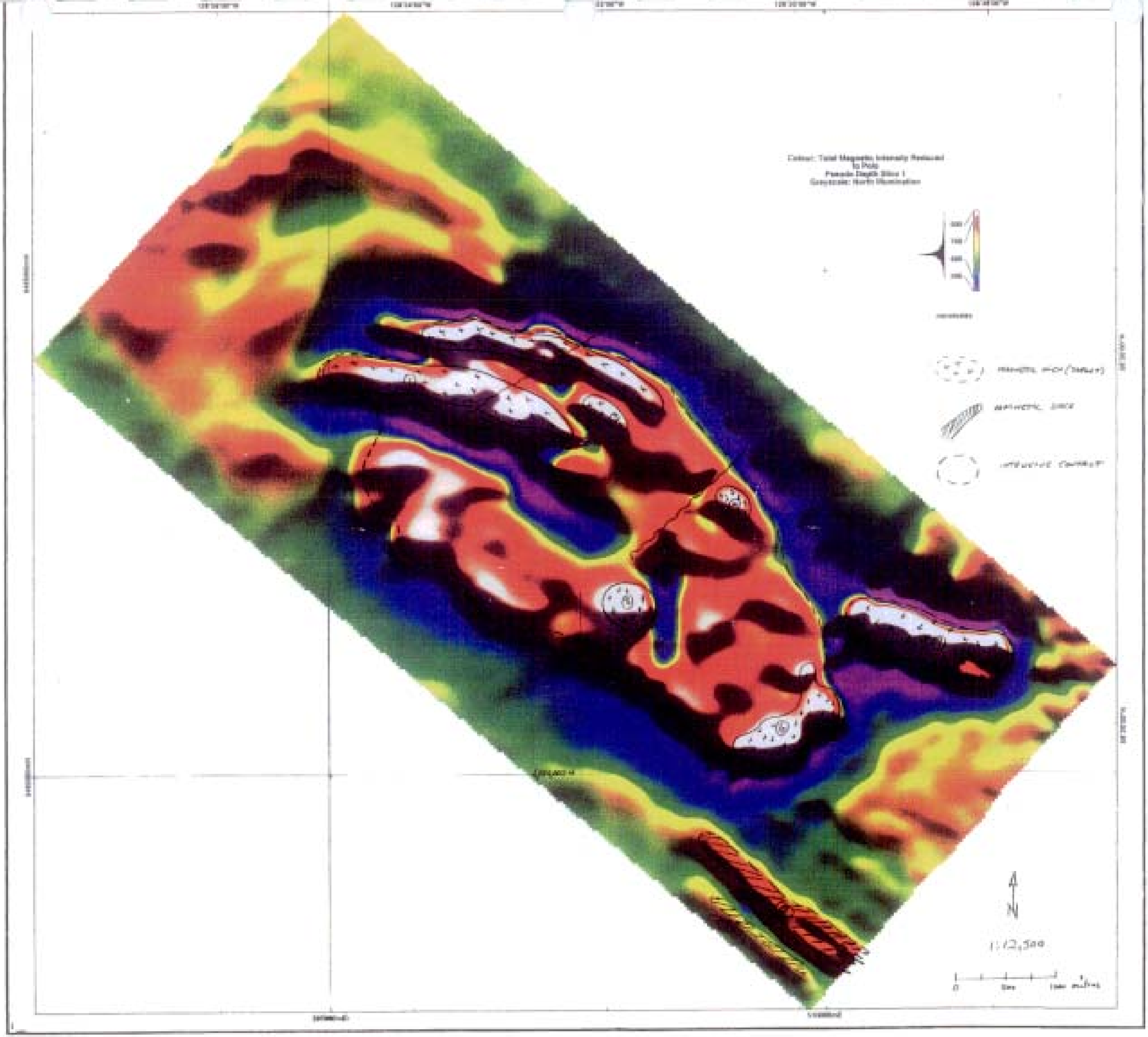
BCGS Geology



Turnagain Complex

Figure 5.

http://ebony.gov.bc.ca/mapplace/maps/minpot/minfmap.MWF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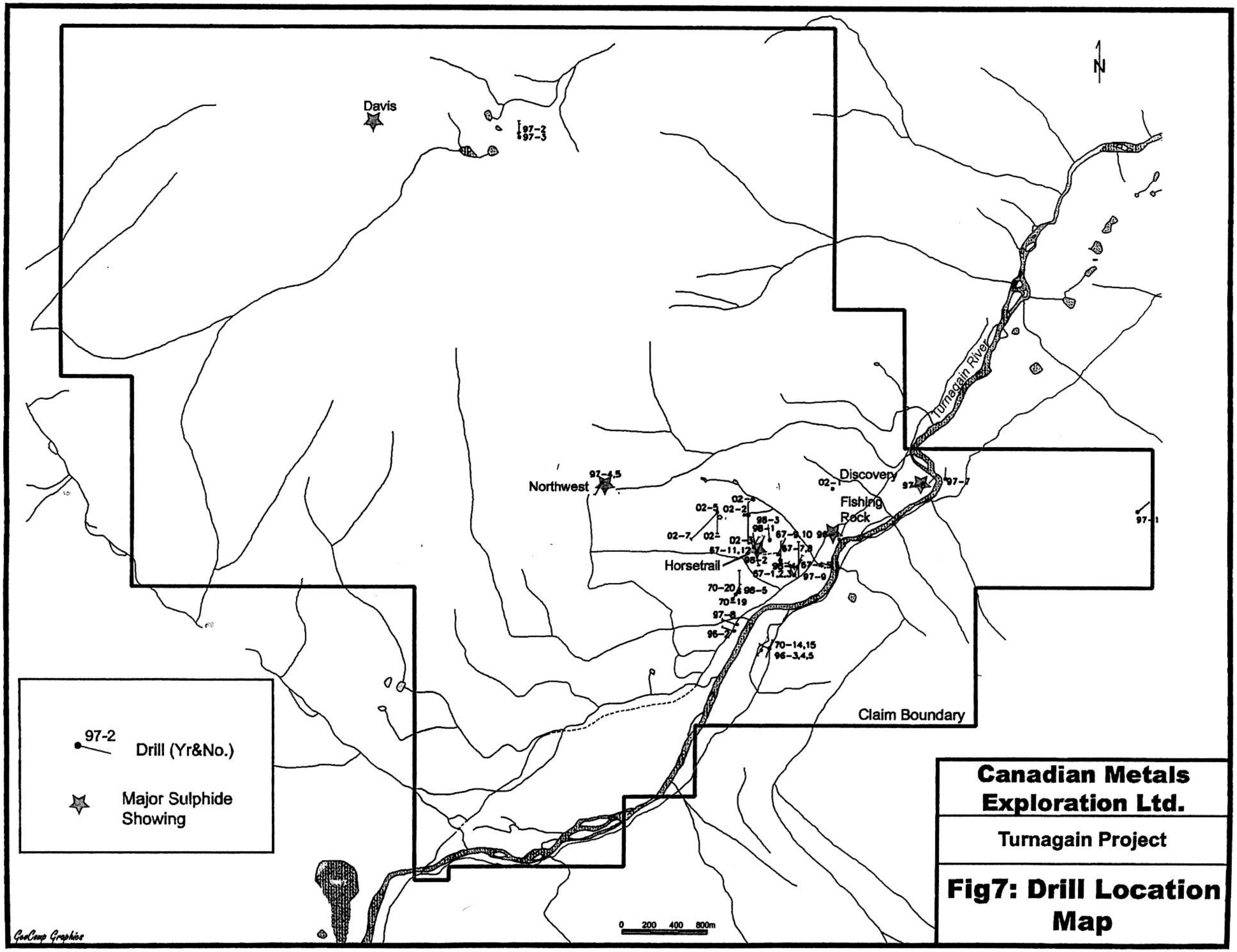


Fig7: Drill Location Map

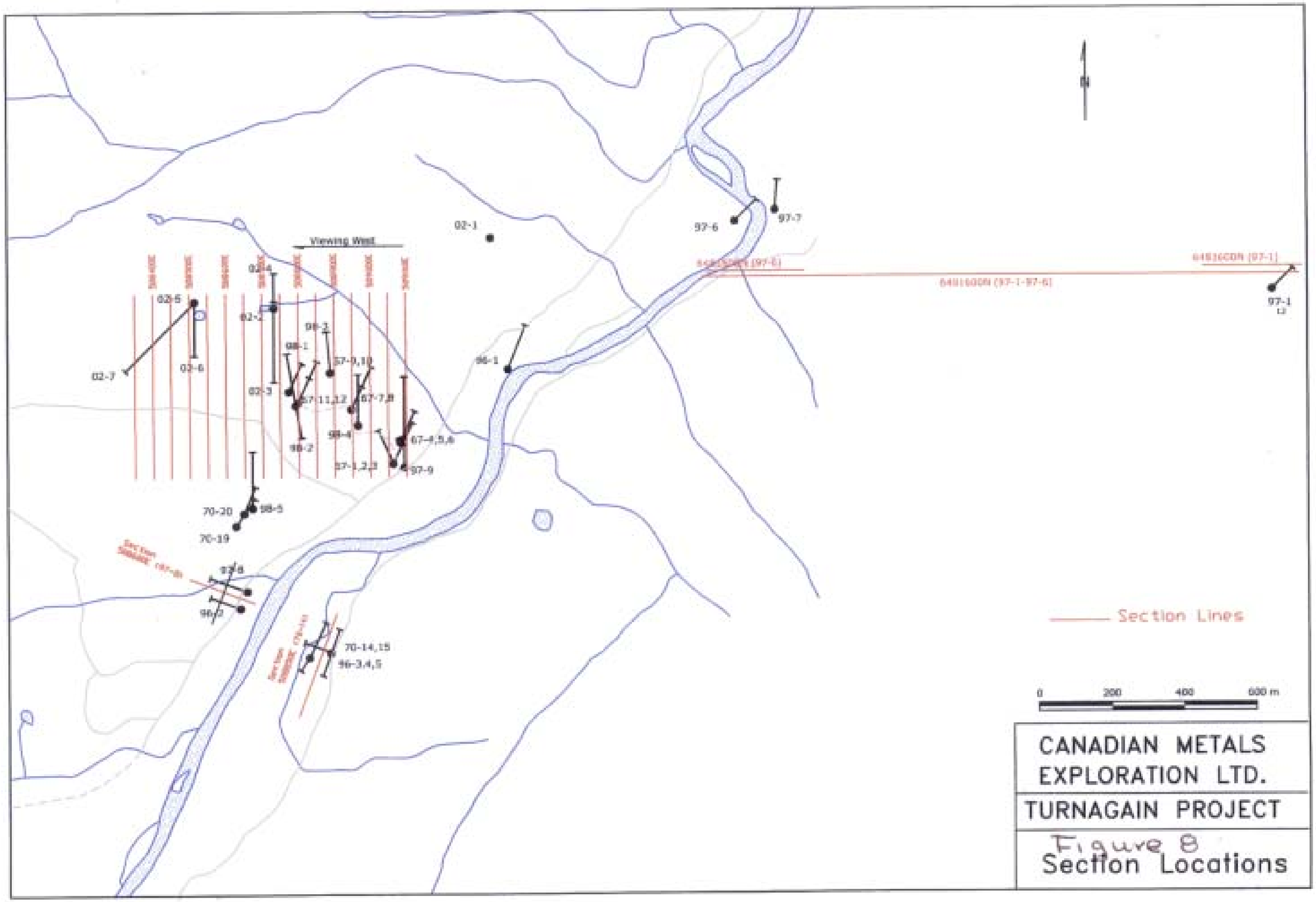


Figure 8
Section Locations

TABLE 1: Claims

Tenure Number	Claim Name	Owner Number	Ownership %	Map Number	Work Recorded To	Status yr/mo/day	Units	Tag Number
345511	CUB	CME	100	104I046	2003.05.05	Good Standing 2003.05.05	20	77610
347028	CUB 2	CME	100	104I046	2003.06.20	Good Standing 2003.06.20	15	36149
347029	CUB 3	CME	100	104I046	2003.06.19	Good Standing 2003.06.19	1	605605M
347030	CUB 4	CME	100	104I046	2003.06.19	Good Standing 2003.06.19	1	605613M
347031	CUB 5	CME	100	104I046	2003.06.19	Good Standing 2003.06.19	1	617117M
347032	CUB 6	CME	100	104I046	2003.06.19	Good Standing 2003.06.19	1	617118M
347530	MOOSE	CME	100	104I046	2003.07.03	Good Standing 2003.07.03	1	617278M
348274	CUB 10	CME	100	104I046	2003.12.01	Good Standing 2003.12.01	20	234047
348275	CUB 11	CME	100	104I046	2003.12.01	Good Standing 2003.12.01	20	234046
348278	CUB 12	CME	100	104I046	2003.12.01	Good Standing 2003.12.01	1	617281M
348279	CUB 13	CME	100	104I046	2003.12.01	Good Standing 2003.12.01	1	617282M
348280	CUB 14	CME	100	104I046	2003.12.01	Good Standing 2003.12.01	1	617283M
348281	CUB 15	CME	100	104I046	2003.12.01	Good Standing 2003.12.01	1	617284M
348282	CUB 16	CME	100	104I046	2003.12.01	Good Standing 2003.12.01	1	617285M
396708	CUB 17	CME	100	104I046	2003.09.17	Good Standing 2003.09.17	12	244539
396709	CUB 18	CME	100	104I056	2003.09.17	Good Standing 2003.09.17	15	244540

TABLE 1: Claims

Tenure Number	Claim Name	Owner Number	Ownership %	Map Number	Work Recorded To	Status yr/mo/day	Units	Tag Number
397401	PLAT 7	HATZL	100	104I046	2003.10.22	Good Standing 2003.10.22	1	714528M
397402	PLAT 1	HATZL	100	104I046	2003.10.22	Good Standing 2003.10.22	1	714530M
397403	PLAT 2	HATZL	100	104I046	2003.10.22	Good Standing 2003.10.22	1	714531M
397404	PLAT 3	HATZL	100	104I046	2003.10.22	Good Standing 2003.10.22	1	714532M
397405	PLAT 4	HATZL	100	104I046	2003.10.22	Good Standing 2003.10.22	1	714533M
397406	PLAT 5	HATZL	100	104I046	2003.10.22	Good Standing 2003.10.22	1	714534M
397407	PLAT 6	HATZL	100	104I046	2003.10.22	Good Standing 2003.10.22	1	714535M

Table 2. Summary of Surface Samples, 1997-98.							
	Cu	Ag	Co	Ni	Au**	Pt**	Pd**
Location	ppm	ppm	ppm	%	ppb	ppb	ppb
DDH 98-3	219	0.3	93	0.045	3	6	< 2
DDH 98-3	1635	0.4	313	0.375	6	243	58
DDH 98-3	1045	< .3	262	0.234	5	11	28
DDH 98-3	1432	0.4	265	0.291	9	164	246
ddh71-17,18	732	1.4	444	0.272	6	< 2	7
dunite, top mt	8	< .3	113	0.203	< 2	2	5
BWD-Traverses	520	< .3	166	0.077	< 2	23	17
BWD-Traverses	367	< .3	24	0.006	< 2	32	18
BWD-Traverses	289	< .3	143	0.039	< 2	17	16
BWD-Traverses	194	< .3	73	0.02	< 2	7	7
BWD-Traverses	1054	0.5	227	0.401	5	19	25
BWD-Traverses	553	< .3	245	0.258	< 2	27	30
BWD-Traverses	73	< .3	79	0.121	2	14	17
BWD-Traverses	1700	< .3	434	0.382	< 2	123	43
BWD-Traverses	378	< .3	105	0.081	2	23	20
BWD-Traverses	181	< .3	86	0.085	< 2	< 2	< 2
BWD-Traverses	583	1	433	0.143	4	5	3
BWD-Traverses	356	< .3	119	0.096	< 2	16	13
BWD-Traverses	737	< .3	147	0.046	< 2	3	8
BWD-Traverses	76	0.3	12	0.007	< 2	< 2	4
BWD-Traverses	224	0.3	68	0.01	< 2	< 2	< 2
BWD-Traverses	64	< .3	16	0.003	< 2	< 2	< 2
BWD-Traverses	39	0.4	4	0.001	< 2	6	5
Hatzl Zone	436	< .3	185	0.202	2	10	13
Hatzl Zone	337	0.8	89	0.051	17	3	5
Hatzl Zone	398	< .3	176	0.225	3	15	13
Hatzl Zone	622	0.4	258	0.285	2	9	15
Hatzl Zone	1129	< .3	337	0.346	2	16	25
Cliff Zone	1987	0.5	336	0.304	5	152	269
Cliff Zone	2043	0.6	346	0.297	3	193	178
Cliff Zone	3358	0.9	875	1.092	34	1129	293
Davis 1 Showing	1426	< .3	181	0.05	2	10	4
Davis 2 Showing	556	1.1	196	0.058	25	15	13
Davis area	301	0.5	91	0.023	2	2	5
Davis area	1591	< .3	283	0.113	2	22	24
Davis area	984	0.4	177	0.201	6	25	21
Northwest Showing	1842	< .3	586	0.748	2	48	44
Horsetrail Showing	3964	0.5	679	0.783	23	66	218
Horsetrail Showing	2643	0.3	714	1.084	7	318	114
Discovery Showing	2230	1.2	706	1.121	14	7	49
Discovery Showing	16290	2.6	845	1.194	27	81	88

Table 3 : Trace element associations of selected samples.

ELEMENT	Cu	Ag	Ni	Co	Cr	Mg	B	S	Hg	Se	Ga	Os	Pd	Pt	Rh	Ru
SAMPLES	ppm	ppb	ppm	ppm	ppm	%	ppm	%	ppb	ppm	ppm	ppb	ppb	ppb	ppb	ppb
A 83401	1845.45	559	3477	170.5	871	16.61	73	1.12	18	10.5	0.7	11	198	69	6	11
A 83406	405.28	222	1467.4	135.6	504.6	17.32	105	0.44	10	3.4	0.6	2	259	60	< 5	10
A 83411	2278.17	627	2568.5	160.4	987.5	16.84	86	1.01	12	8.9	0.7	5	378	93	< 5	16
A 83415	1315.24	539	4833.3	198.6	826.2	16.93	88	1.33	7	11.1	1.1	31	353	72	5	18
A 83423	1021.79	549	2621.7	151.3	851.4	15.64	73	0.62	12	5.6	1.1	18	217	57	< 5	15
A 184625	2472.26	3311	5794.5	241.6	727.2	21.75	12	0.76	9	11.3	0.4	9	131	99	< 5	16
A 184637	1109.83	481	3633.3	241.5	156	21.61	7	1.35	< 5	9.3	0.2	3	55	21	< 5	11
A 184664	221.56	248	1025.2	64	368.5	8.28	7	0.08	6	1.1	4.6	8	82	55	< 5	6
A 184680	178.96	82	2684.6	146.7	132.1	14.62	17	0.26	5	1.7	0.1	83	61	93	< 5	7
A 184705	332.61	290	2656.5	125.2	164.2	17.09	2	0.3	11	1.6	0.7	34	75	64	< 5	10
A 184743	157.78	77	2662.9	143.9	81	25.1	1	0.07	< 5	0.8	0.1	51	100	64	5	11
A 184786	468.82	317	3326.6	184.1	107.5	26.36	< 1	0.28	6	2.7	0.1	22	61	34	< 5	19
A 184902	772.51	612	6181.4	181.9	177	25.77	4	0.6	23	4.8	0.1	28	95	57	5	33
DISCOVERY 1	1910.31	715	8802.9	586.3	1307.2	11.72	26	6.71	16	43.2	0.5	7	43	< 2	< 5	26
DISCOVERY 2	13744.01	1978	9384.6	604.3	964.9	8.03	12	8.2	19	61	0.2	22	72	6	< 5	53

Table 4: Significant results received from 2002 drill program.

Hole #	Location	Azimuth Dip	Hole metres	Interval Length	Length (metres)	Nickel metres	Cobalt (%)	Copper (%)	Pt+Pd (ppb)
02-01		/-90	203.3	not sampled					
02-02	Horsetrail Zone	000/-85	213.06	3.9-122	118	0.20	0.025	0.02	82
02-03	Horsetrail Zone	180/-50	318.22		312	0.23	0.013	0.03	22
02-04	Horsetrail Zone	000/-50	148.75	not sampled					
02-05	Horsetrail Zone	-90	152.41	3-120	119	0.26	0.013	0.02	78
02-06	Horsetrail Zone	180/-50	232.57		225.4	0.23	0.014	0.03	51
02-07	Horsetrail Zone	225/-50	416.37		414	0.26	0.00	0.03	39
			(includes	34-46	12	0.55	0.028	0.24	260
				60-78	18	0.35	0022	0.09	112.
				326-378	52	0.35	0.016	0.02	101
				398-418	20	0.44	0.016	0.02	200

Table 4: Significant results received from 1998 drill program.

Hole #	Location	Azimuth Dip	Hole Length metres	Interval (metres)	Length metres	Nickel (%)	Cobalt (ppm)	Pt+Pd (ppb)
98-1	Horsetrail	350/-60	288	6.7 – 288	281.3	0.27	145	
				6.7 – 73.5	66.8	0.30	182	
				(includes 6.7-8	1.3	0.45	140	
				18-19	1	0.55	382	
				32.3-33.6	1.3	0.41	352	
				55-58	3	0.85	471	
				[56-57	1	1.32	693]	
				54-73.5	19.5	0.49	281	
				73.5 - 148	74.5	0.18	119	
				148-236	88	0.35	161	
				(includes 202-206	4	0.93	315	
				218-236	18	0.67	289	
				[234-236	2	1.23	741]	
				236 – 288	52	0.22	107	
98-2	Horsetrail	180/-60	184.7	6.1-184.7	184.7	0.25	131	
				(includes 6.1-50	43.9	0.30	146	
				125.3-144	18.7	0.30	129	
				170-175	5.0	0.45	207	
98-3		360/-60	203	4-203	199	0.22	118	
				(includes 120-132	12	0.30	128	
				148-164	16	0.31	137	
98-4		360/-60	296.2	6.1 – 142	135.9	0.28	154	
				(includes 6.1-23	15.9	0.38	206	
				28-34	6	0.31	228	
				84-90	6	0.47	223	
				98-128	30	0.42	184)	
				276-282	6	0.22	114	
98-5		355/-60	295.7	46.6-54	7.4	0.55	242	
				(includes 49-50	1	1.09	398)	
				220-248 28		0.22	95	
				264-272 8		0.25	121	
				284-288 4		0.22	106	

Table 4.1: Significant results received from 1997 drill program.

Hole #	Location	Azimuth	Dip	Hole Length metres	Interval (metres)	Length metres	Nickel (%)	Cobalt (ppm)
97-1	Cliff	045	-60	160.0	3 –52	49	0.24	133
97-2	Davis 1	000	-60	190.5	no significant results			
97-3	Davis 1	000	-50	133.2	46 – 92	46	0.074	107
97-4	Northwest	210	-50	163.7	3 – 163.7	160.7	0.28	139
				(includes	94 – 104	10	0.44)	
97-5	Northwest	210	-60	130.1	17 – 29	12	0.23	135
					29 – 53	24	0.11	145
					53 – 110	57	0.26	150
97-6	Discovery north side	045	-65	197.2	15.8 –46.0	30.2	0.38	169
				(includes	26 – 30	4	0.70)	
					80 - 112	32	0.25	140
97-7	Discovery south side	005	-60	166.7	3 – 132	129	0.085	116
97-8	50 m east of ddh 96-2	290	-60	220.7	83 – 93	10	0.36	184
				(includes	85-86	1	1.39	651)
					127 – 129	89	0.31	155
				(includes	128-129	1	1.39	515
					148-159	11	0.55	184)
97-9	500 m east of ddh 96-2	290	-60	493	60-404	344	0.23	172
				(includes	82-94	12	0.38	146
					174.5-189	14.5	0.32	159
					230-231	1	1.13	708
					256.5-258	1.5	0.45	591
					277.4-284	6.6	0.31	180
					318.7-328	9.3	0.32	146
					340-342	2	0.41	156
					404-493	89	0.11	116)

Table 4.2: Significant results received from 1996 drill program.

Hole #	Location	Azimuth	Dip	Hole Length (metres)	Interval (metres)	Length (metres)	Nickel (%)	Cobalt (ppm)
96-1		022	-45	184.4	136 – 150	14	0.28	124
				(includes		1	0.68	170)
96-2		290	-60	178.1	37 – 178.6	141.6	0.28	130
				(includes	81.5-92.2	10.7	0.53	120)
				(includes	112.5-120.5	8	0.38	183)
96-3		020	-60	137.5	74.9 – 76.9	2	0.33	140
96-4		200	-60	137.5	9.1 – 60	50.9	0.26	124
				(includes	9.1-27.1	18	0.31	130
					53.1-54.6	1.5	0.57	186)
96-5		290	-60	157.5	11.5 - 154.6	143.1	0.24	129
				(includes	31.3-44.4	13.1	0.29	132
					63.7-93.9	30.2	0.30	147
					[63.7-64.7	1	0.64	190
					107-116	9	0.31	154
					142-144	2	0.35	175)

Table 4.4: Significant results received from Falconbridge's drilling in 1967 and 1966.

Hole #	Location	Azimuth	Dip	Hole Length (metres)	Interval (metres)	Length (metres)	Nickel (%)	Cupper (%)
67-1		025	-35	152.4	4 – 152.4	148.4	0.17	0.035
				(includes	76.2-91.4	15.2	0.23	)
67-2		025	-60	121.9	2.4 – 121.9	119.5	0.17	0.042
				(includes	9.1-12.2	3.1	0.27	)
67-3		335	-35	123.4	5.6 – 123.4	117.8	0.22	0.036
				(includes	39.6-45.7	6.1	0.35	
					67.1-73.2	6.1	0.38	)
67-7		025	-35	157.0	1.8 – 46.9	45.1	0.20	
				(includes	38.4-42.7	4.3	0.54	
					93.9 – 98.4	4.5	0.29	)
67-8		025	-60	136.7	128.6 – 132.	3.4	0.56	0.07
67-9		025	-35	154.5	2.4 – 16.8	14.4	0.34	0.06
					67.0 – 73.2	6.2	0.38	
67-10	Horse Trail Zone	025	-60	152.4	5.5 – 91.4	85.9	0.31	0.08
				(includes	61.0-70.0	9.0	0.60	0.11)
67-12	Horse Trail Zone	025	-35	38.1	3.0 – 6.1.	3.1	0.27	
66-TG-1	Discovery Zone	025	-52	9.1	0 – 9.1	9.1	0.78	0.10
				(includes	0-5.0	5.0	1.10	0.16)

Table 4.3: Significant results received from Falconbridge's drilling in 1970.

Hole #	Location	Azimuth	Dip	Hole Length (metres)	Interval (metres)	Length (metres)	Nickel (%)	Cupper (%)
70-19		034	-40	118.9	96– 104.4	8.4	0.61	0.10
70-20		022	-41	106.1	22.9 – 25.9	3.0	0.30	0.13
70-21		025	-40	201.5	98.1– 98.5	0.4	0.45	0.07
70-23		025	-40	122.8	78.3 – 83.8	5.5	0.36	
					86.0 – 92.7	6.7	0.30	
70-24		025	-34	60.6	18.3 – 21.3	3.0	0.27	
70-26		025	-38	77.1	3.0 – 7.6	4.6	0.32	
70-27		025	-38	61.9	29.0 – 34.4	5.4	0.26	
					57.9 – 61.0	3.1	0.22	
70-28		025	-38	93.3	15.2 – 16.8	1.4	0.25	
					68.9 – 69.0	0.1	1.12	
					79.2 – 82.3	3.1	0.26	

APPENDIX A

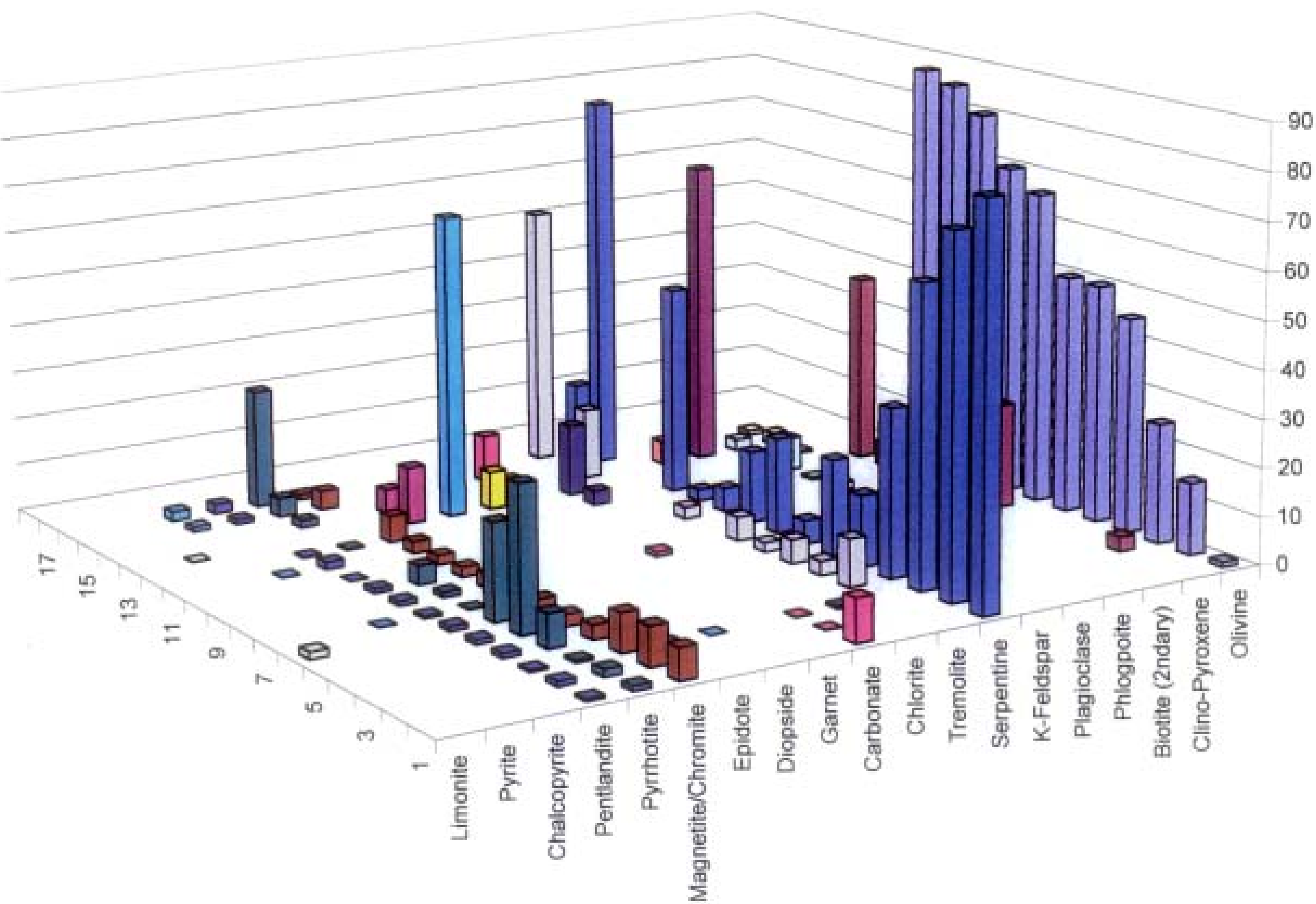
PETROGRAPHIC PLOTS & TABLES

Table : Modal Analyses

MINERAL	96-2-91.5	96-2-104.0	96-2-61.0	97-9-68.4	97-9-64.3	97-9-240.3	96-1-140.3	97-9-78.6	97-9-309.0	96-1-146.5	96-1-143.0	96-2-135.0	96-2-90.0
Olivine	1	15	25	45	50	50	66	70	80	85	87		
Clino-Pyroxene			3				22			4	5	40	
Biotite (2ndary)													0.5
Phlogpoite							1			1.5	0.5	7	
Plagioclase													
K-Feldspar													
Serpentine	82	74	62	35	15	20	5	20	15	5	2.5	44	
Tremolite				10	3	5	2	5		2.5			
Chlorite			0.5									3	15
Carbonate	9	0.1	0.1					1					
Garnet													8
Diopside													64
Epidote													12
Magnetite/Chrom	6.5	8	8	3	2.5	3	3	3	2	2	2.5	5.5	
Pyrrhotite	1	1.5	0.5	7	30	20	0.1	1	4			0.25	
Pentlandite	0.5	1	0.5	1	1	1	0.5	1	1	0.1	1.5	0.25	
Chalcopyrite							0.1				0.1		
Pyrite													0.1
Limonite						1.5							
Total	100	99.6	99.6	101	101.5	100.5	99.7	101	102	100.1	99.1	100	99.6
Ni %	0.477	0.211	0.457	0.158	0.452	0.301	0.294	0.283	0.249	0.203	0.677	0.57	0.319
												Skarn	

Table : Mod					
MINERAL	97-8-60.0	97-8-216.1	97-9-178.3		
Olivine					
Clino-Pyroxene					
Biotite (2ndary)	2.5	1			
Phlogpoite	2.5				
Plagioclase	65				
K-Feldspar	5				
Serpentine		80	15		
Tremolite	15		55		
Chlorite					
Carbonate	2.5	10			
Garnet					
Diopside					
Epidote	5				
Magnetite/Chrom		4	1		
Pyrrhotite	1.5	4	25		
Pentlandite		1	2		
Chalcopyrite		1	2		
Pyrite					
Limonite					
Total	99	101	100	0	0
Ni %	0.04	0.133	0.374		
	orph Diorite				

Modal Analyses



APPENDIX B

LITHOGEOCHEMICAL PLOTS

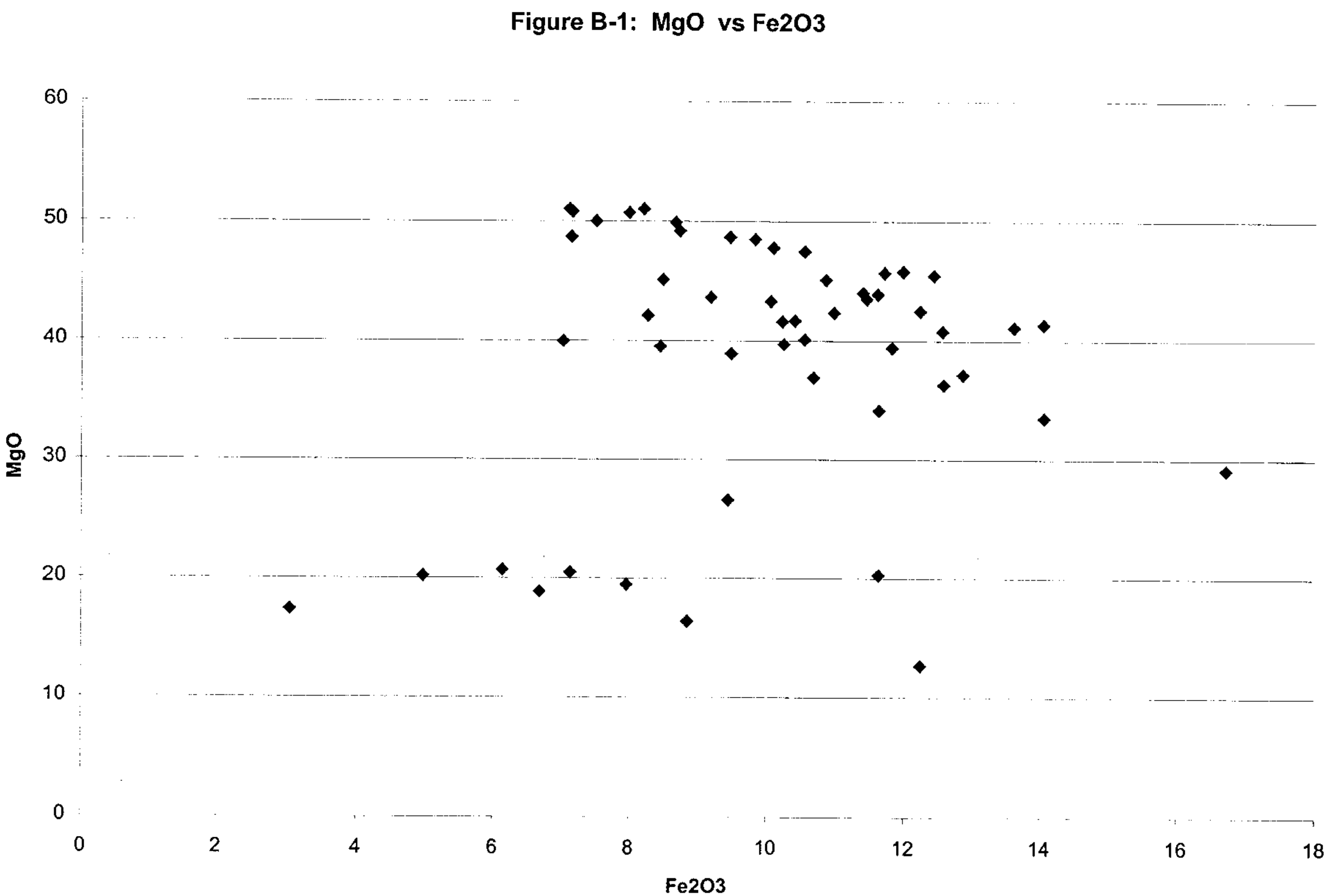


Figure B-1: MgO vs Fe2O3
MgO
0
10
20
30
40
50
60
0
2
4
6
8
10
12
14
16
18
Fe2O3

Figure B-3: MgO vs Fe2O3 with CaO as third variable

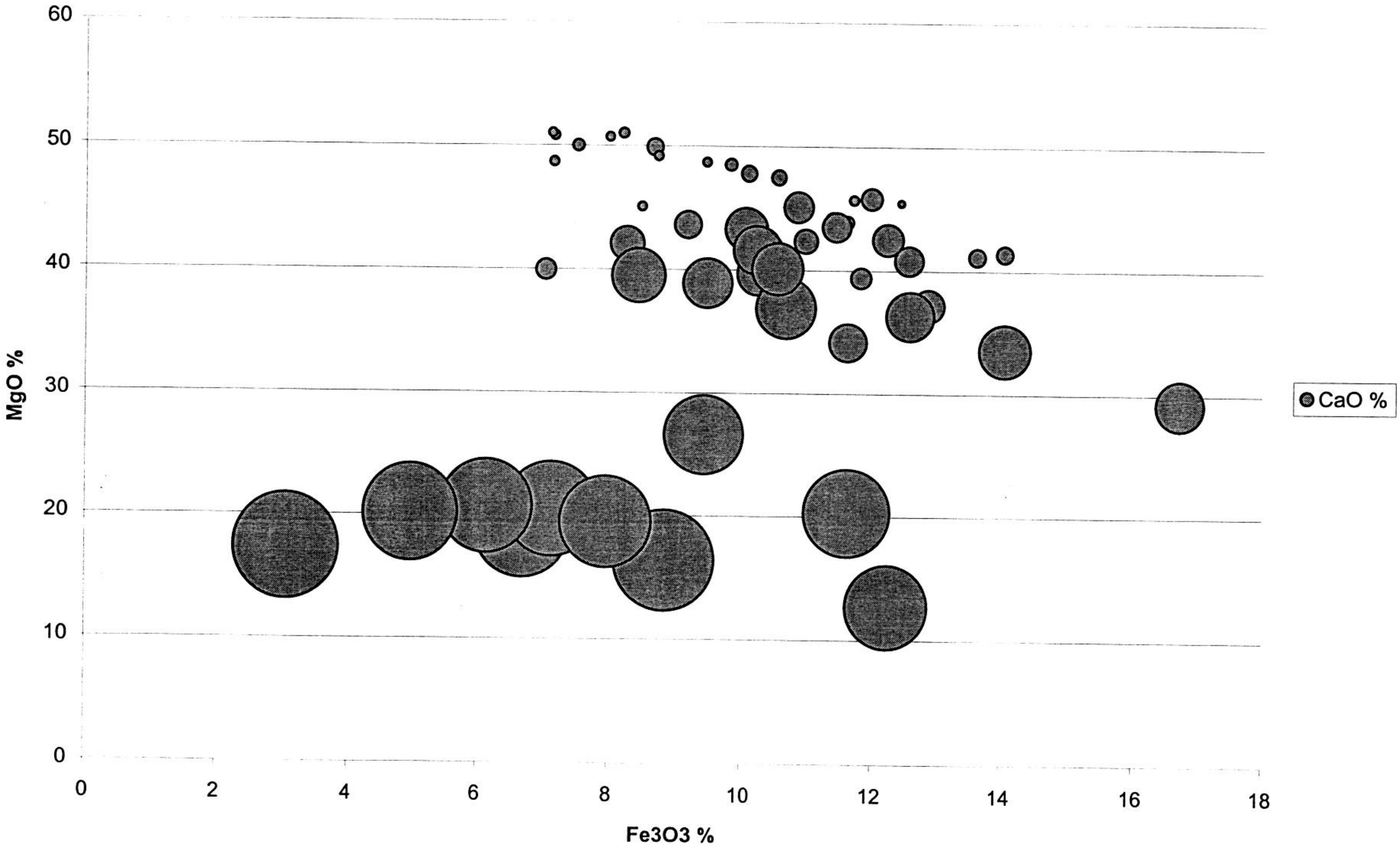


Figure B- 4: Olivine Fractionation - Crystal Model
Olivine - $(Fe,Mg)_2SiO_4$

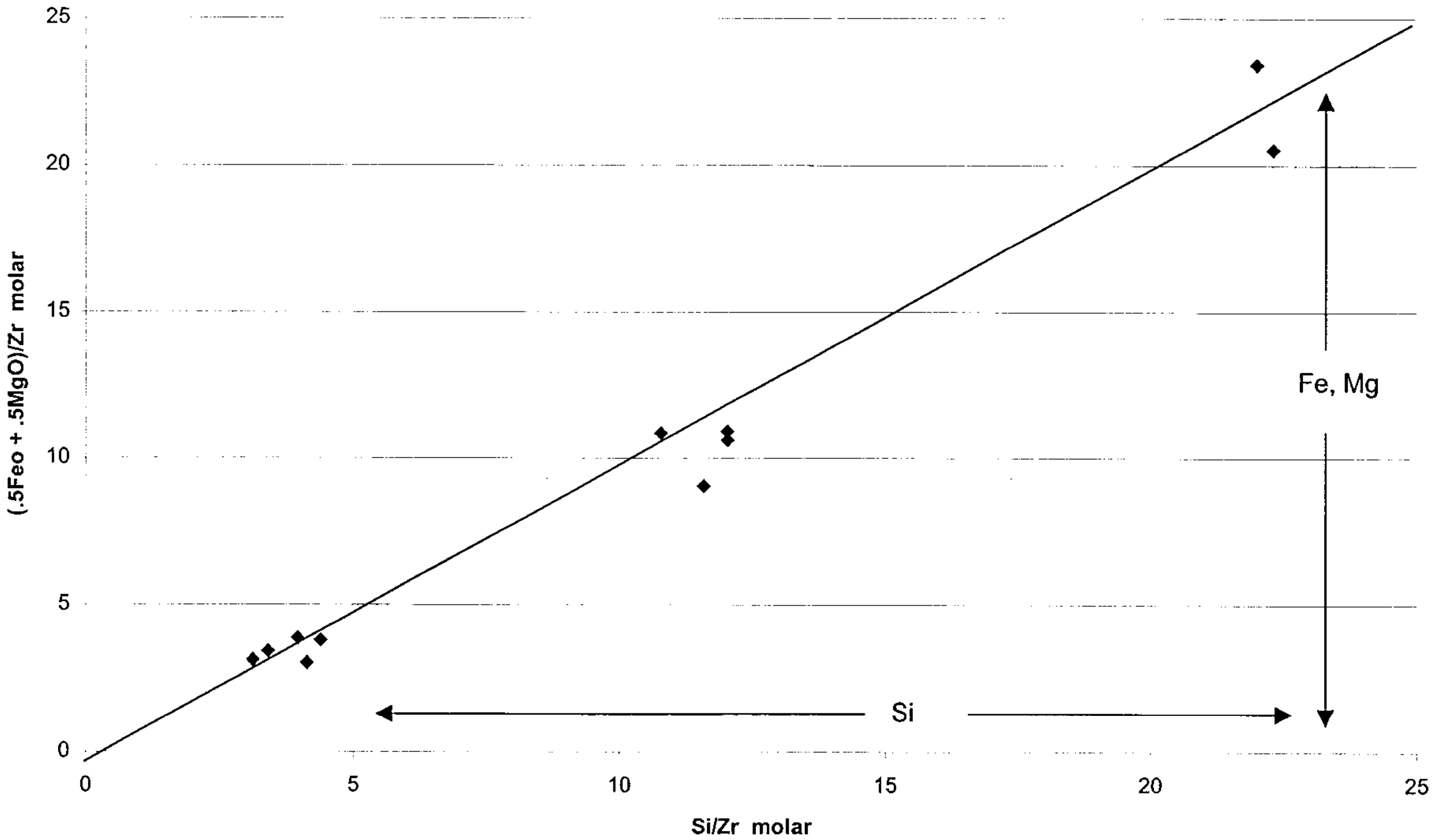


Figure B-4A: Pearce Element Ratio plot

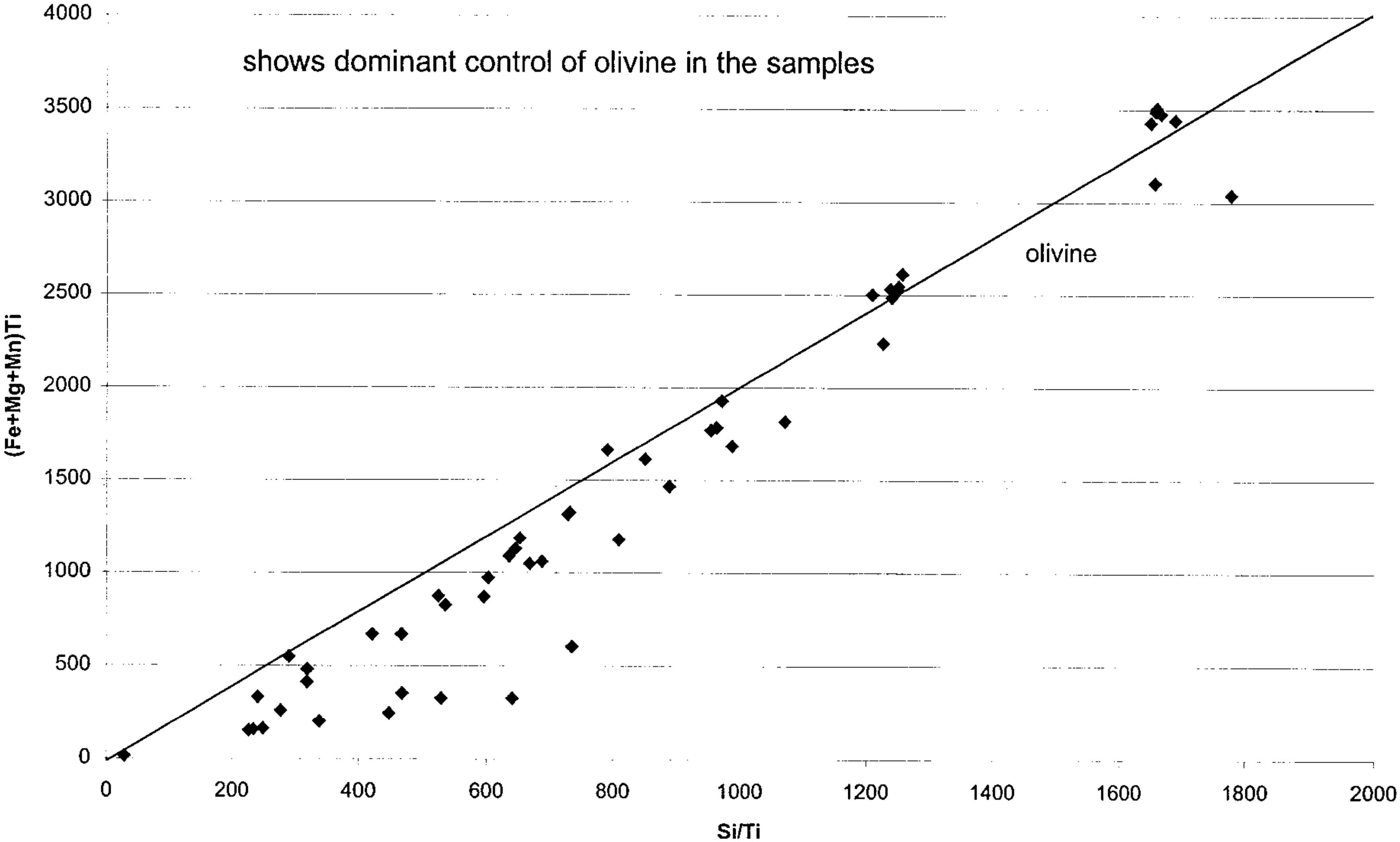


Figure B-5: Weathering Potential Index (WPI) vs pH

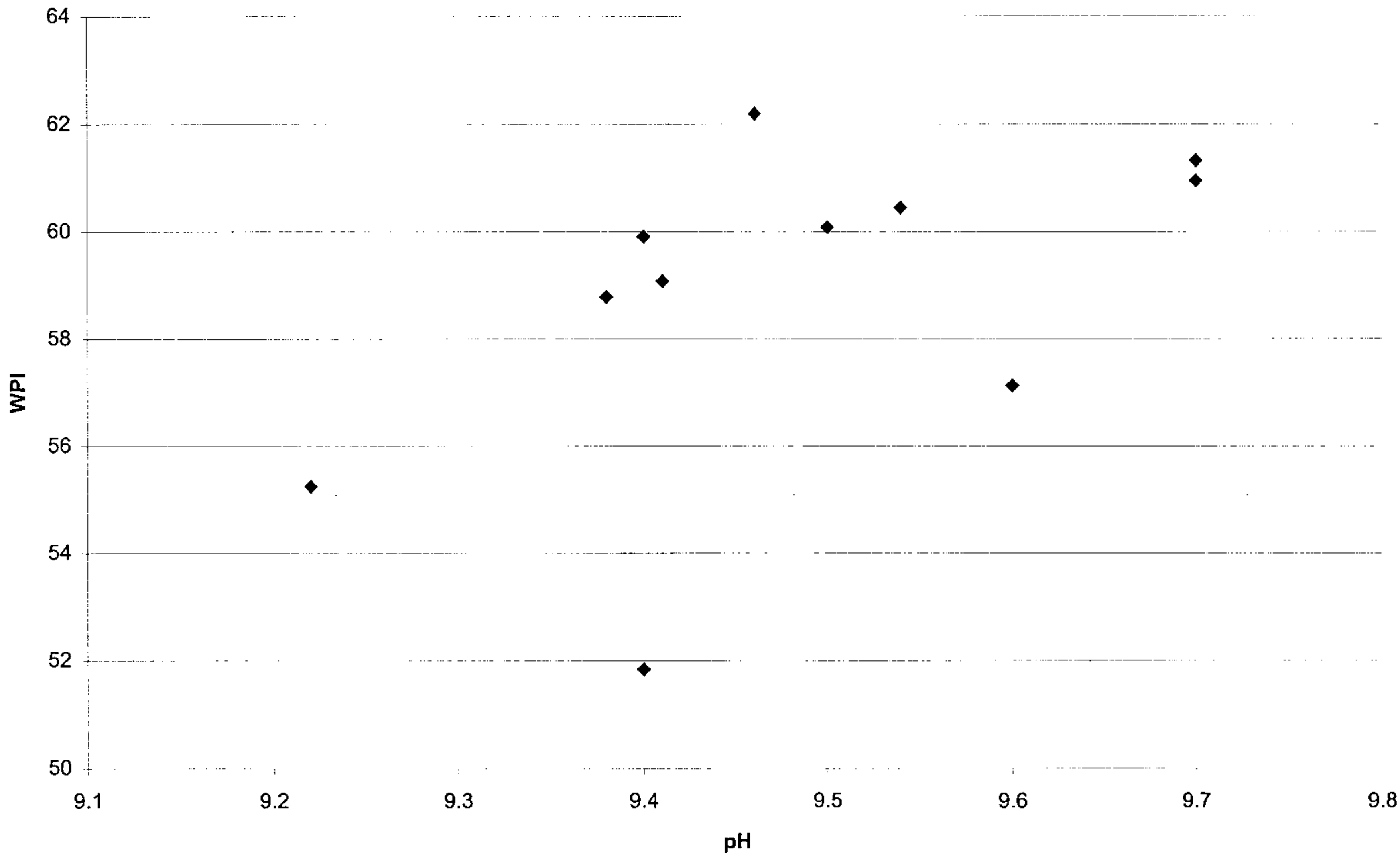
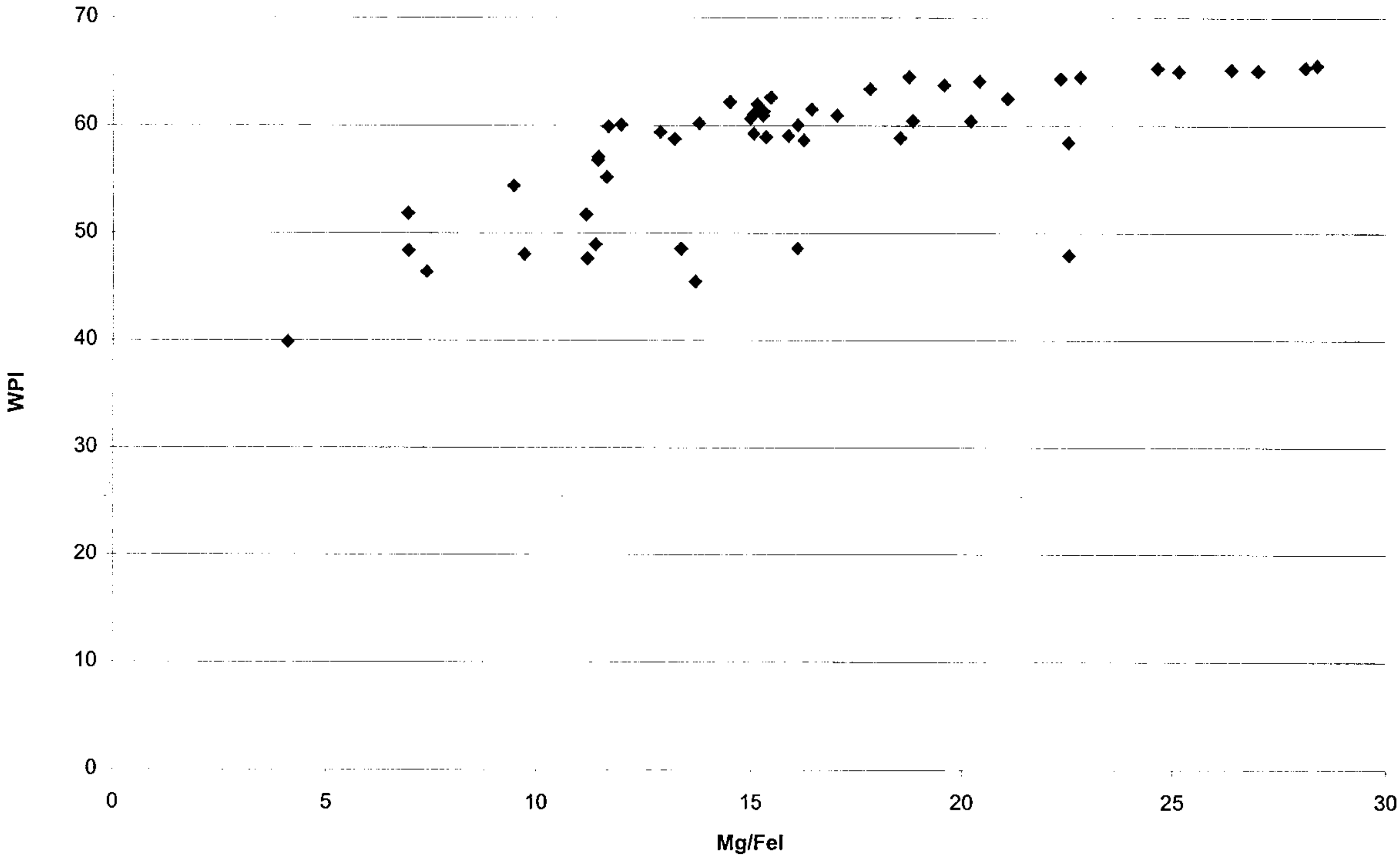


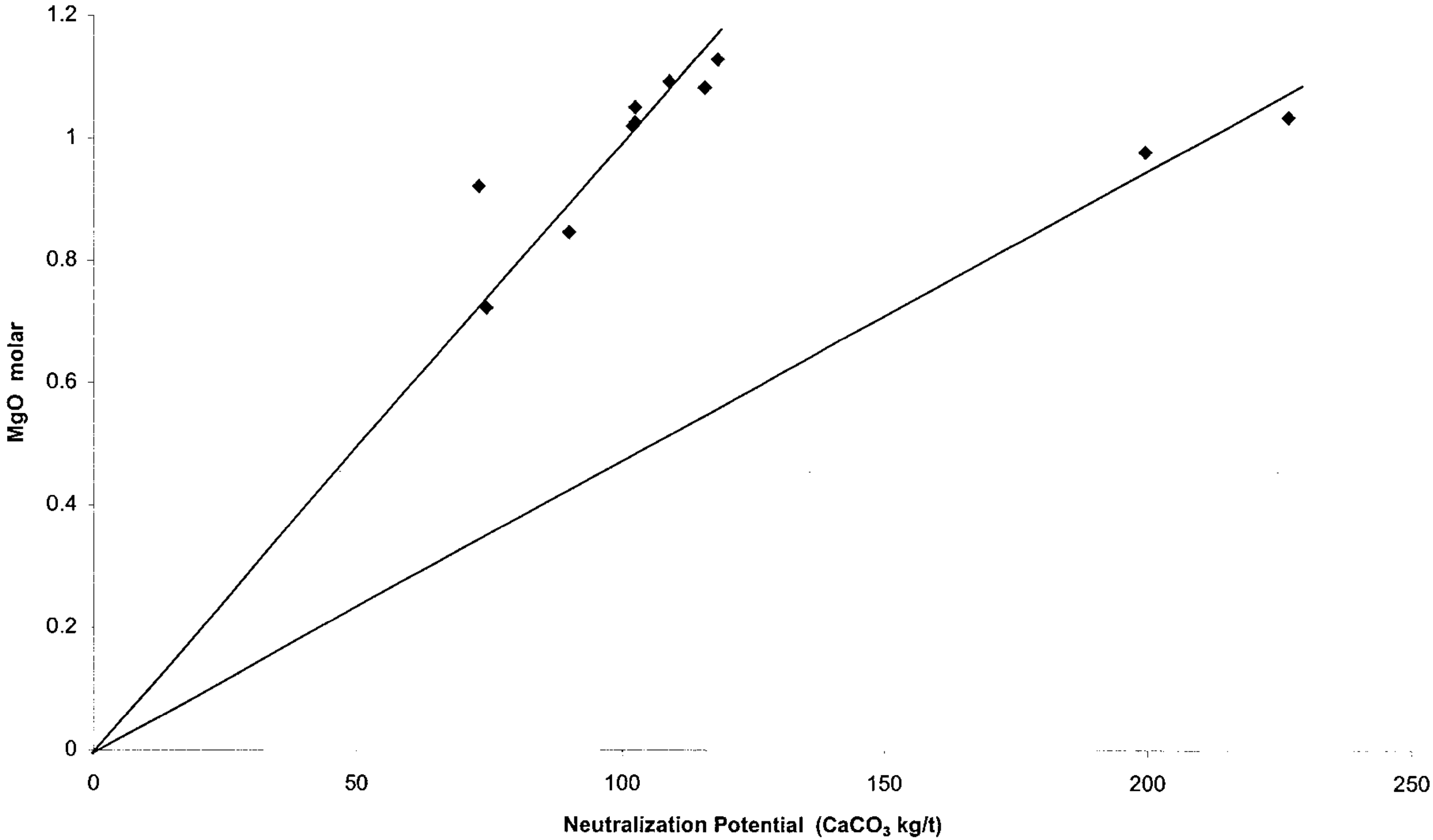
Figure B-6: Weathering Potential Index (WPI) vs Mg/Fe



APPENDIX C

ACID BASE ACCOUNTING ANALYSES

Figure C-1 : MgO vs. Neutralization Potential



NICKEL SULPHIDE ANALYTICAL METHOD

1. Add 1 gm into 250 ml bottle
2. Add 40 mls 10% Ammonium citrate and 20 mls 30-35% H_2O_2
3. Cap, swirl 3x for 10 seconds within one hour
4. Set solution overnight
5. Filter using #40 paper into 200 ml beaker
6. Wash 3x with water
7. Add 5 ml HCl, heat until boiling and cool
8. Transfer to 100 ml volumetric flask, volume to mark
9. Analyze solution by ICP

NICKEL OXIDE ANALYTICAL METHOD

1. Add 1 gm into 250 ml bottle
2. Add 40 mls 10% Ammonium citrate. (NO H_2O_2 IS ADDED)
3. Cap, swirl 3x for 10 seconds within one hour
4. Set solution overnight
5. Filter using #40 paper into 200 ml beaker
6. Wash 3x with water
7. Add 5 ml HCl, heat until boiling and cool
8. Transfer to 100 ml volumetric flask, volume to mark
9. Analyze solution by ICP

TEST PROCEDURES TO EVALUATE THE ACID PRODUCTION POTENTIAL OF ORE AND WASTE ROCK (B.C. RESEARCH METHOD)

BCRI
Department of Extractive Metallurgy
3650 Wesbrook Mall
Vancouver, B.C.
V6S 2L2

Project No: 0-05-644

August 1995

TEST PROCEDURES FOR EVALUATING ACID PRODUCTION POTENTIAL OF ORE AND WASTE ROCK

INITIAL TEST (CHEMICAL)

Sample

The sample must be taken in such a manner that it is representative of the type of mineralization being examined. A composite consisting of split drill core or randomly selected grab samples should be satisfactory. The number of samples to be examined will depend on the variability of the mineralization and must be left to the discretion of the geologist.

The bulk sample is cone crushed to minus 10 mesh. A representative 25Og portion is split out, dried and pulverized to around 60: minus 400 mesh for assay, the titration test and if necessary, the confirmation test.

Assay

The pulverized sample is assayed in duplicate for total sulfur in a Leco furnace or by wet chemical methods. The acid production potential of the sample, expressed as kg of sulfuric acid per tonne of sample, is calculated on the basis of the total sulfur assay.

Titration Test

Duplicate 10g portions of the pulverized sample are suspended in 100 ml of distilled water and stirred for approximately 15 minutes. The natural pH of the sample is recorded. The sample is then titrated to pH 3.5 with 1.0 N sulfuric acid using an automatic titrator. The test is continued until less than 0.1 ml of acid is added over a 4 hour period. The total volume of acid added is recorded and converted to kg per tonne of sample.

For a l0g sample, the acid consumption is given by:

$$\text{ml } 1.0 \text{ N } H_2SO_4 \times 4.9 \text{ kg/tonne}$$

Results

The results are reported are:

- initial pH
- total sulphur
- sulphate sulphur
- maximum potential acidity (AP)

S(total) - S(sulphate) = S(sulphide) This excludes non-acid producing compounds such as gypsum ($CaSO4.2H2O$) from the acid potential estimate.

AP = S(sulphide) * 31.25

Stochiometrically the acidity produced by 1 mole of sulphur is neutralized by 1 mole of $CaCO_3$. One gram of sulphur in 100g of material (1%S) is equivalent to 0.03125 moles of sulphur which would be neutralized by 0.03125 moles or 3.125% $CaCO_3$. This concentration is conventionally expressed as 31.25kg $CaCO_3$/tonne of material. Thus, the conversion factor is theoretical and is based on geochemical assumptions depending on the acid-generating conditions. Realistically, the conversion factor could be significantly greater than or less than 31. 25.

NP (neutralization potential) as ml 1.0 N H_2SO_4 x 4.9 kg/tonne

NNP (net neutralization potential) calculated as NP - AP

analytical error for low values (ie. NP=5 to 10) is approximately +- 20% because very little acid is added and one drop of acid equals 0.05 ml H2SO4 or 0.25NP.

Interpretation

If the acid consumption value (in kg of acid per tonne of sample) exceeds the acid-producing potential (kg per tonne), the sample will not be a source of acid mine drainage and no additional work is necessary. If the acid consumption is less than the acid production potential or the difference is marginal, the possibility of acid mine water production exists and the confirmation test is conducted. A pH of 3.5 is chosen for titration, as above this value, the acid-generating bacterium *Thiobacillus ferrooxidans* *is* not active.

LEACHATE ANALYSIS

Leachate was analyzed for two samples using both the Sobek and BCR ABA methods of analysis. This was done in order to determine the concentrations of elements in solution that would occur during acid rock generation that could be predicted using two methods of acid base accounting. These results represent the 'end' product at pH levels of 2.0 and 3.5. The original results have been converted to mg/kg leached for direct comparison between the two methods. For comparison, the calculation Sobek - BCR was used. For all samples, there is a substantial increase in the amount of Al, K, Ca, Fe, Ba, Mg, Mn and Si dissolved by the Sobek method.. The BCR leachates were prepared from standard NP test (10g titrated to pH 3.5 until the amount of acid added over a four hour period was no more than 0.1 ml of 1N sulphur acid). The samples were made up to either 200 or 500 ml volumes for analysis. For the Sobek leachates, 6g of sample were leached with 120 ml of 0.1N hydrochloric acid using the standard Sobek procedure. Normally, 2g and 40 ml would be used but it was desired to generate sufficient residue for possible future analysis (note that the ratio of sample to HCL was maintained). The leachates were made up to 1000 ml for analysis. The analyses were performed at ASL Laboratories. The results are Appended.

Sulphate Sulphur Analysis - Turbidimetric Method, BC Research Inc.

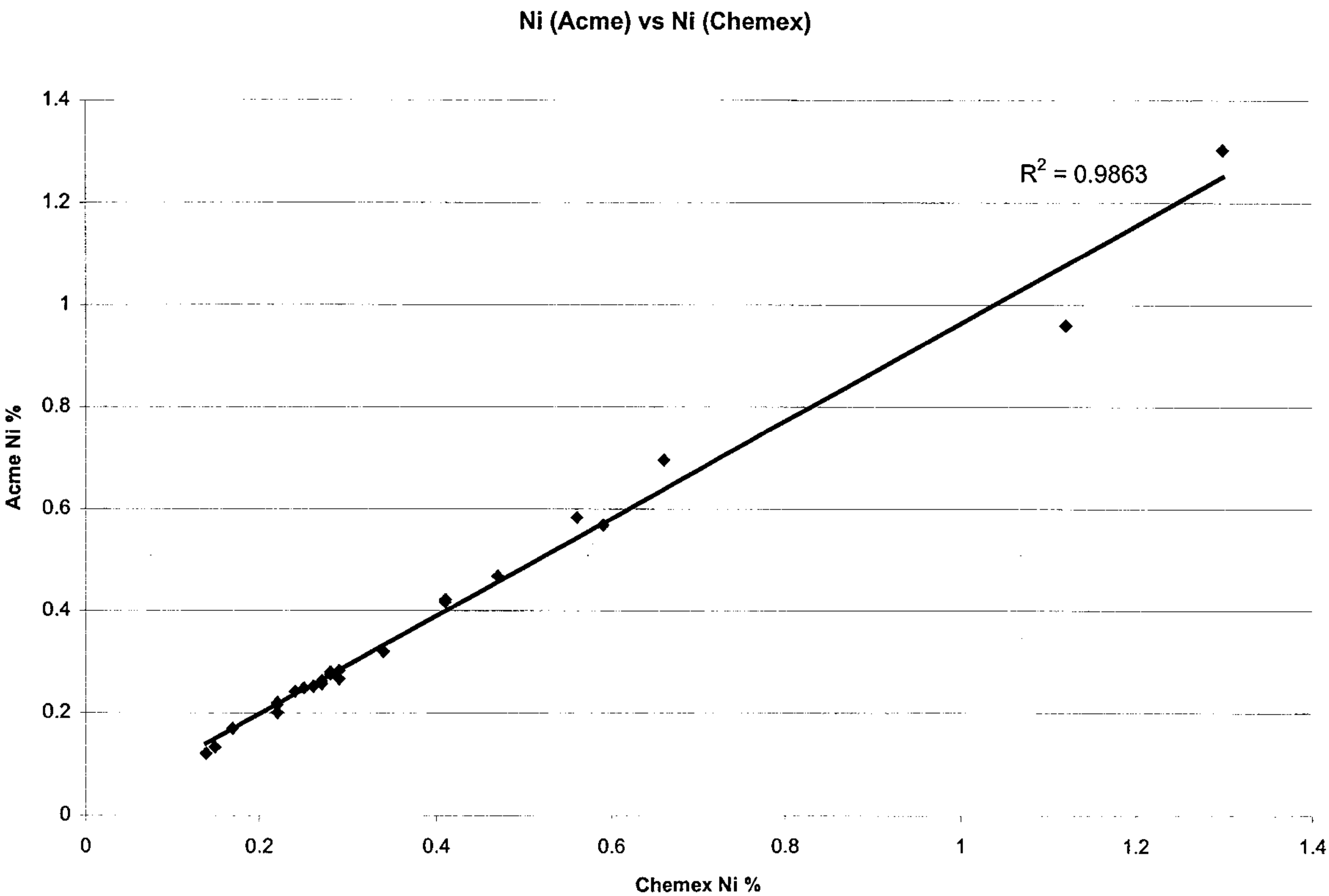
The following is the procedure used for determining the sulphate -sulphur content in the samples:

5.00g of sample is reacted with 25ml of 25% HCI and brought to a boil. This is then made up to a volume of 100ml and then centrifuged at 14,000 rpm. Hydroxylamine hydrochloride is added to the sample, which is then digested at 80 degrees C until the sample is colourless. The turbidimetric method is then used, by means of a Cobas Fara sulphate analyzer, to determine the sulphate-sulphur concentration. Sulphate-sulphur content is then back calculated.

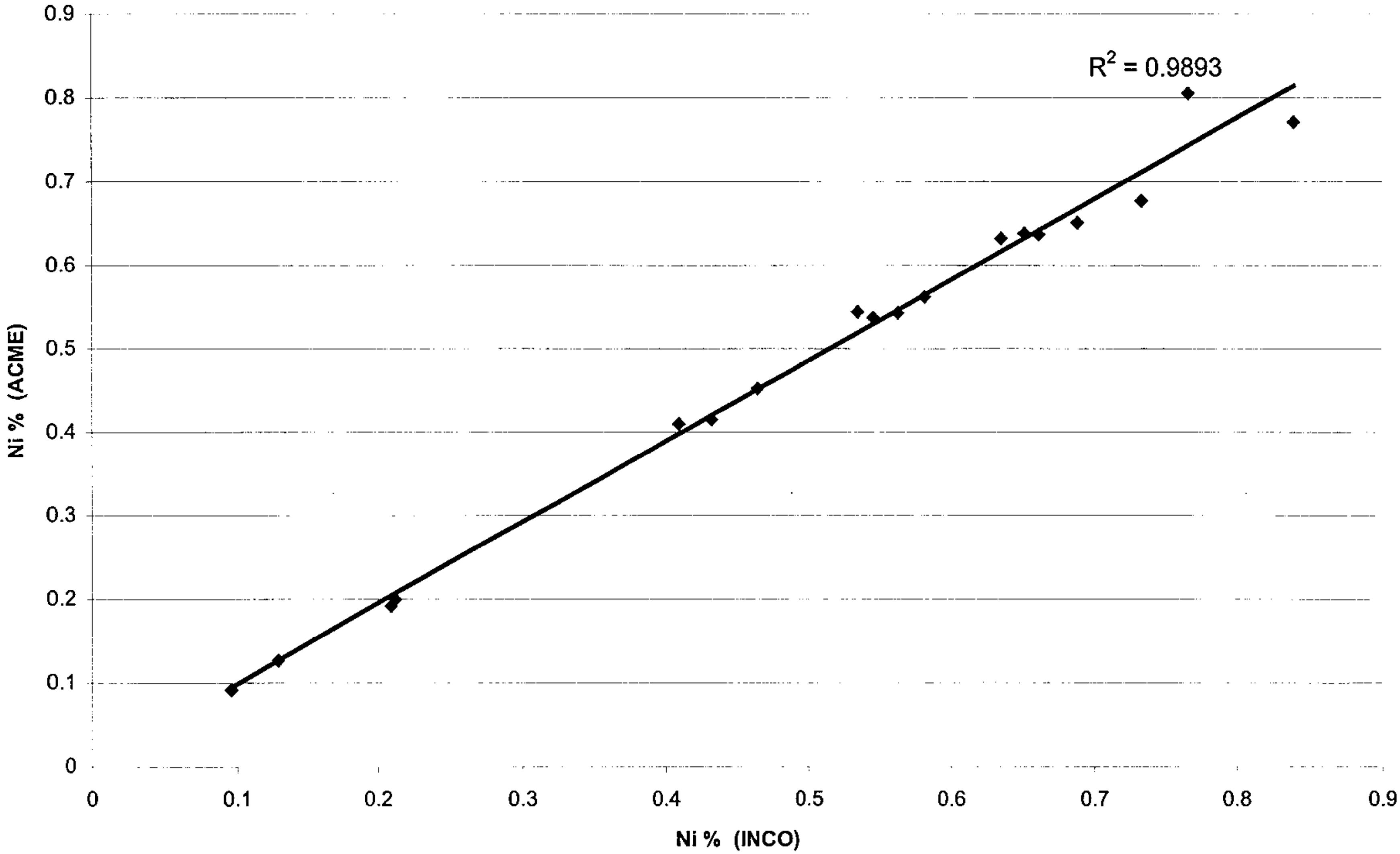
Machine duplicates are automatically run with each batch. Also, samples are spiked with a sulphate solution to determine spike recovery.

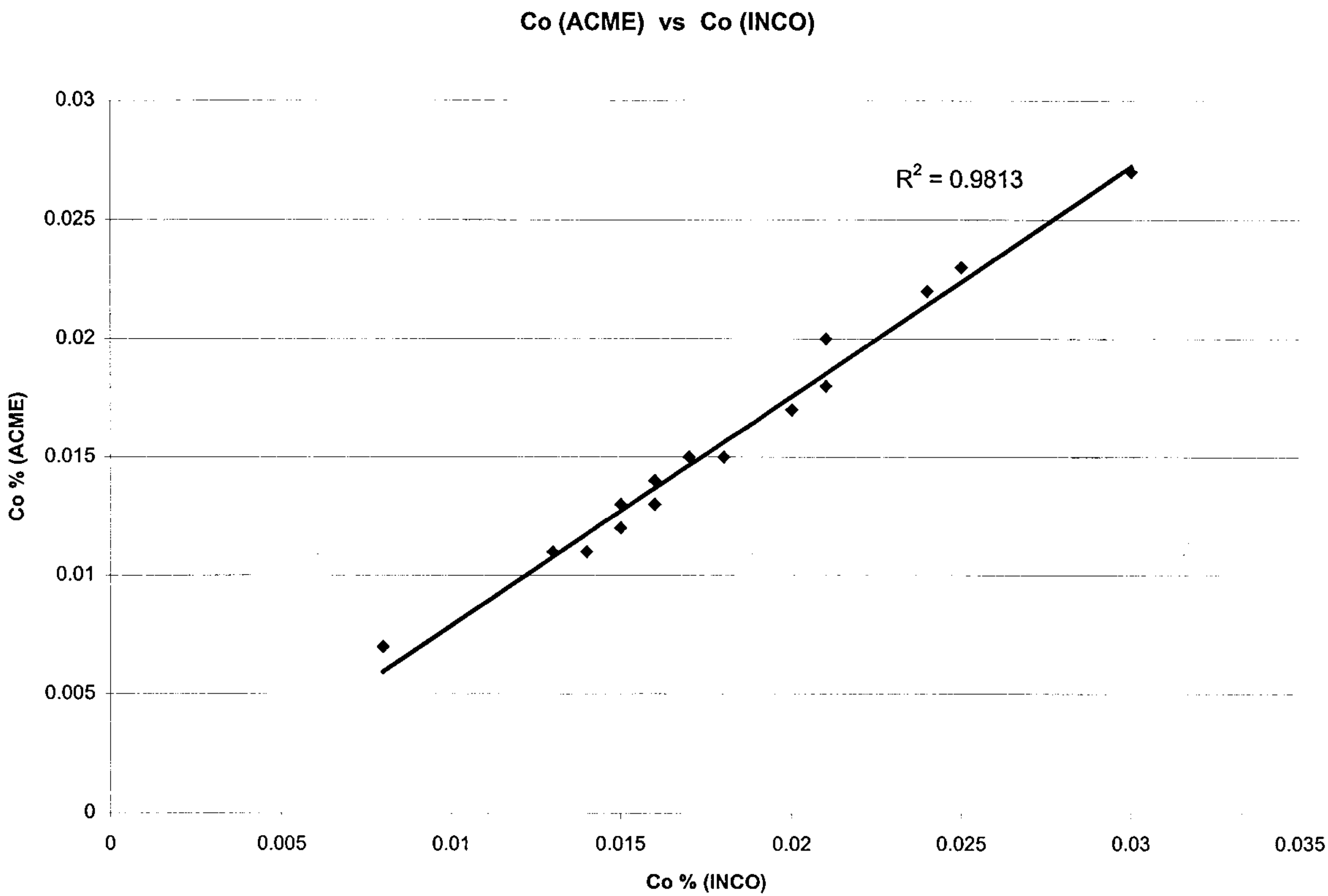
APPENDIX E

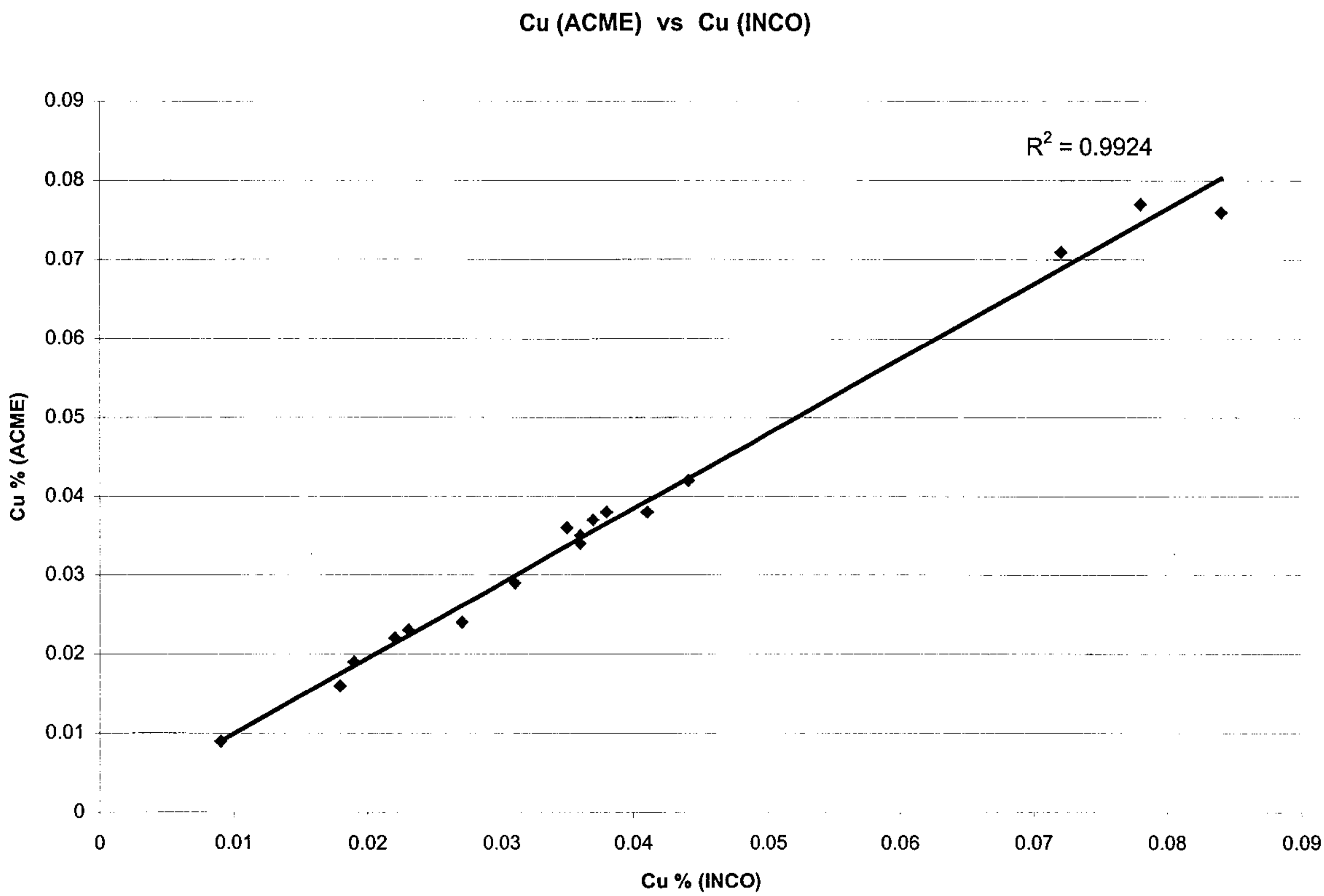
QUALITY ASSURANCE / QUALITY CONTROL


Ni (Acme) vs Ni (Chemex)
R^2 = 0.9863
Acme Ni %
Chemex Ni %
0
0.2
0.4
0.6
0.8
1
1.2
1.4

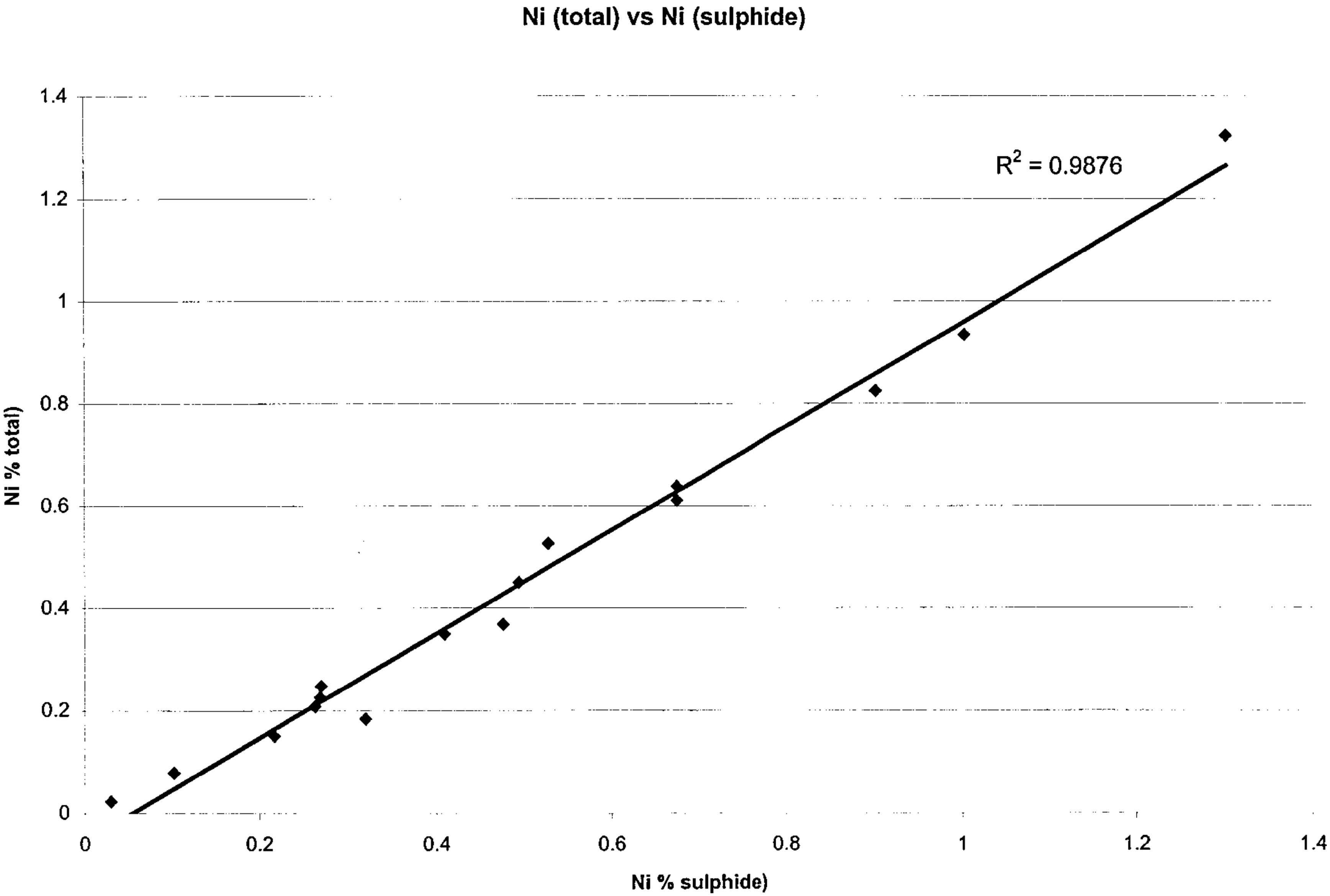
Ni (ACME) vs Ni (INCO)



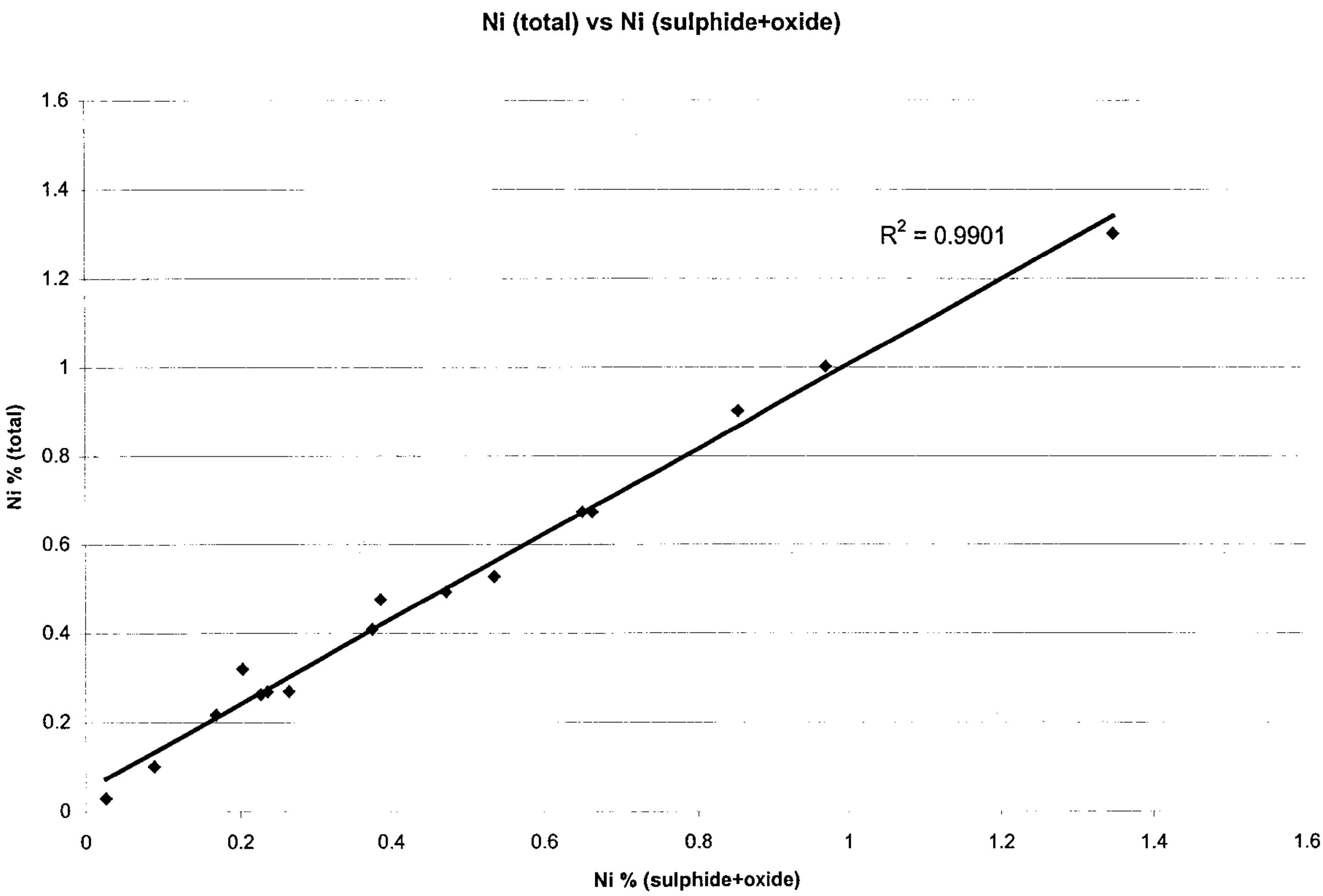

Co (ACME) vs Co (INCO)
R^2 = 0.9813
Co % (ACME)
Co % (INCO)
0.03
0.025
0.02
0.015
0.01
0.005
0
0
0.005
0.01
0.015
0.02
0.025
0.03
0.035



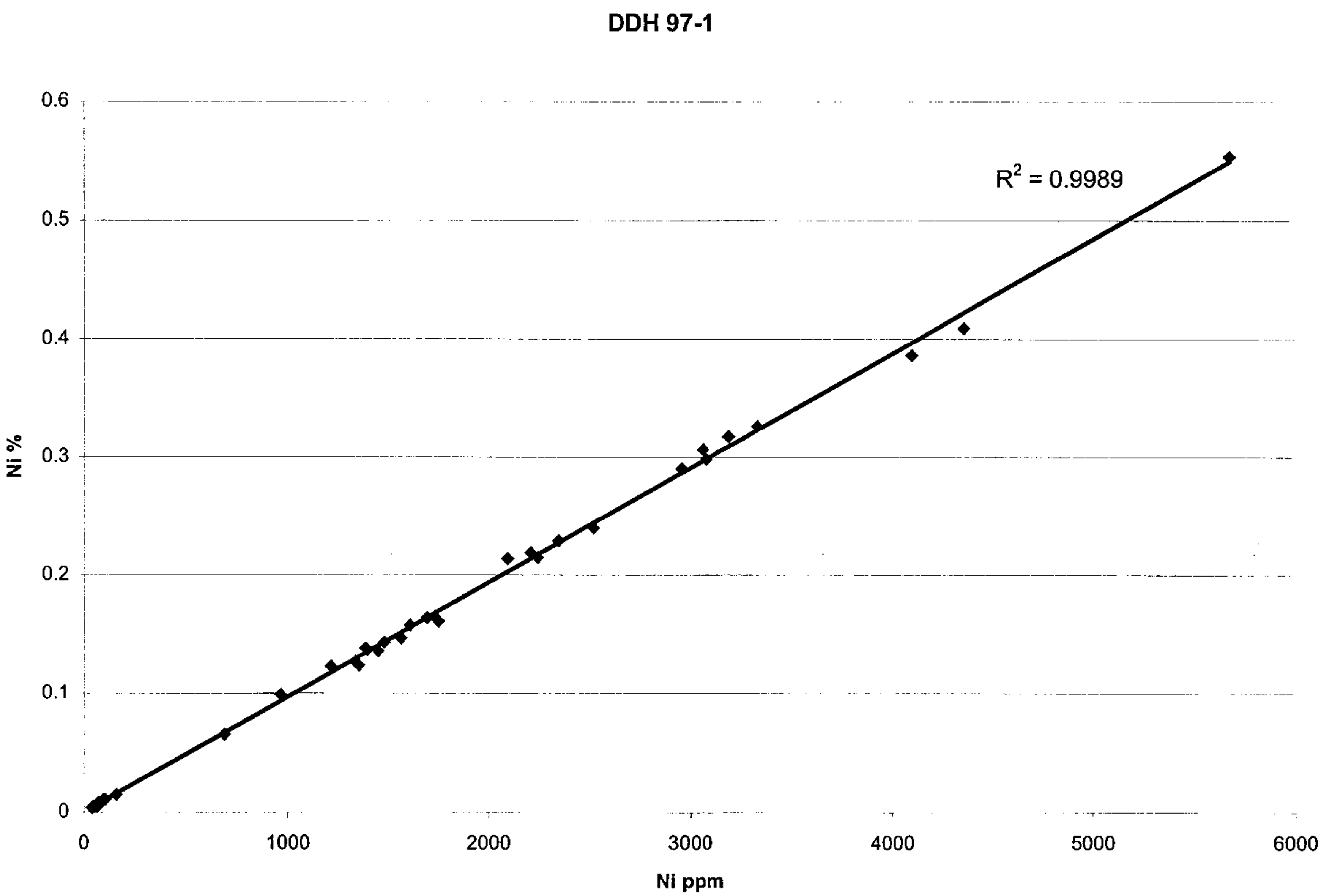
Cu (ACME) vs Cu (INCO)
R^2 = 0.9924
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Cu % (ACME)
0
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0.08
0.09
Cu % (INCO)



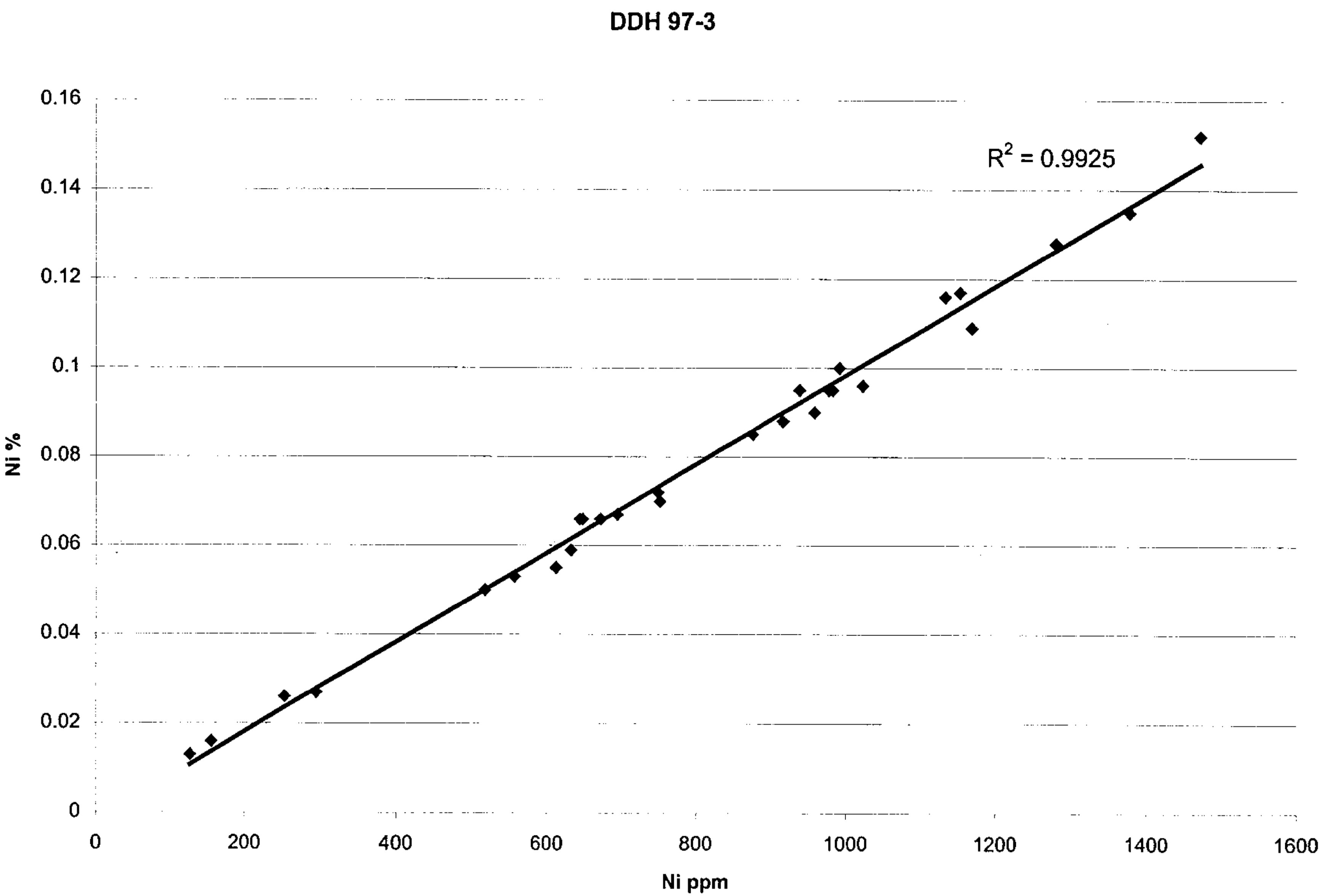
Ni (total) vs Ni (sulphide)
$R^2 = 0.9876$
Ni % total)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0
0.2
0.4
0.6
0.8
1
1.2
1.4
Ni % sulphide)

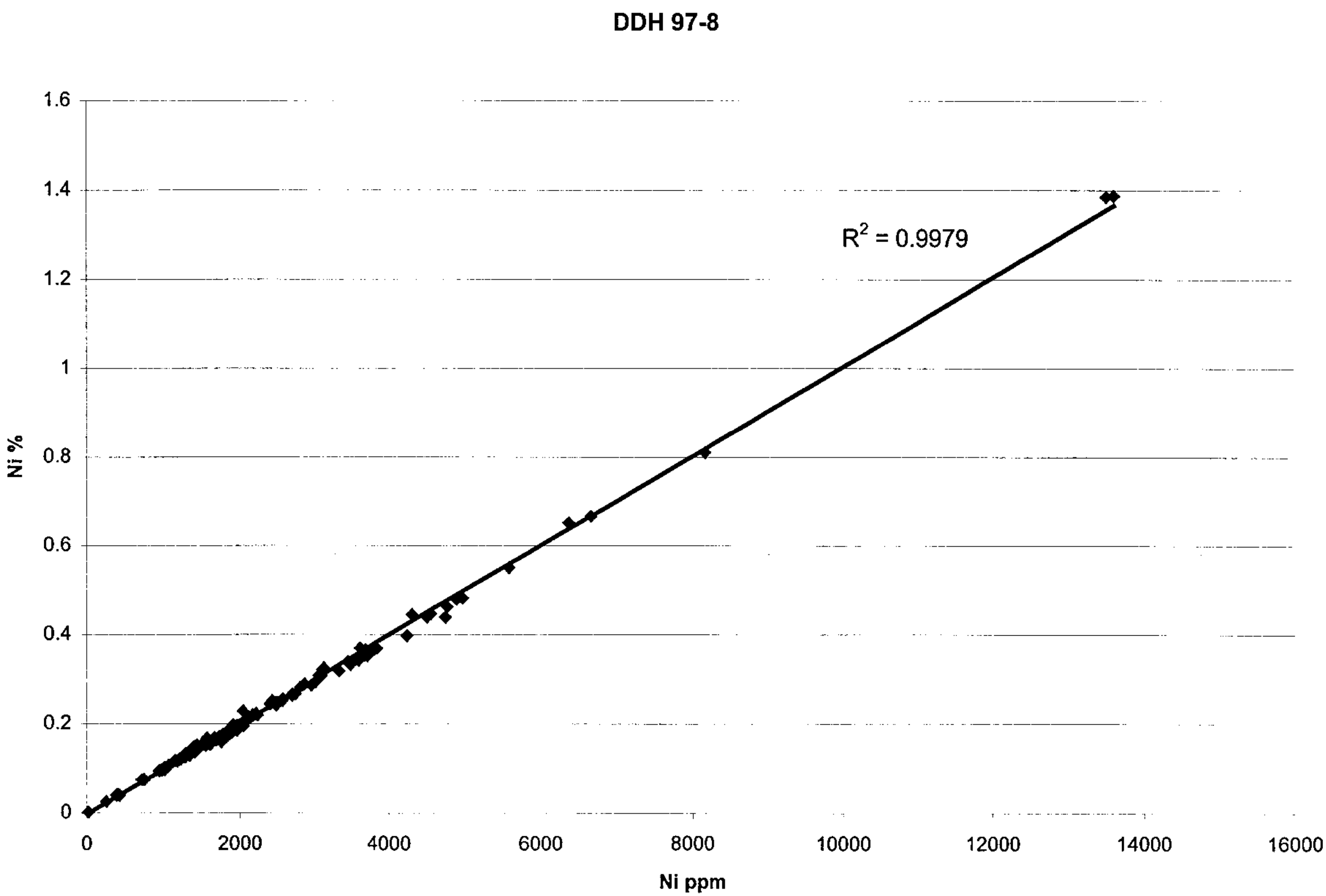


Ni (total) vs Ni (sulphide+oxide)
R2 = 0.9901
Ni % (total)
Ni % (sulphide+oxide)
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6

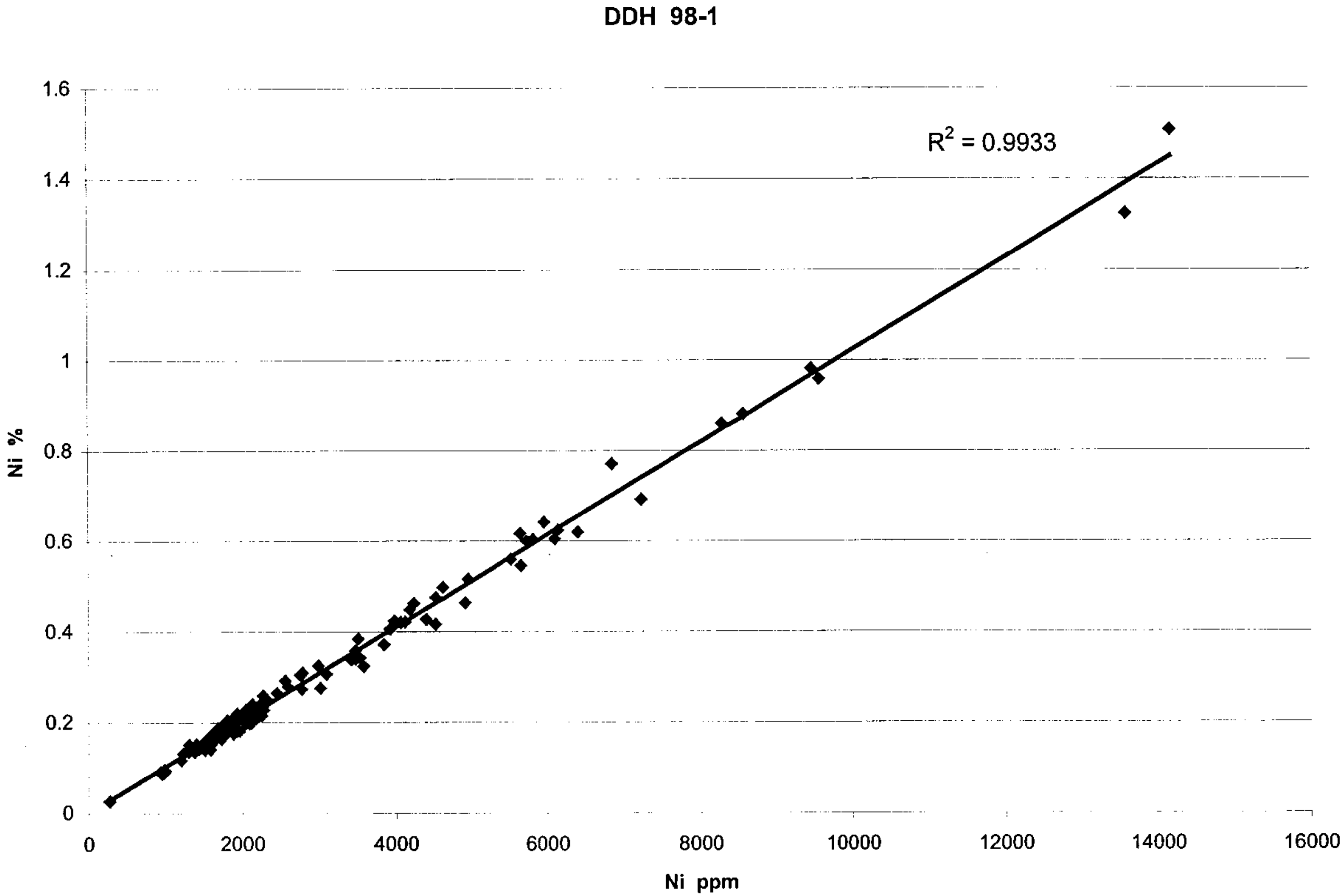


DDH 97-1
R^2 = 0.9989
Ni %
0.6
0.5
0.4
0.3
0.2
0.1
0
1000
2000
3000
4000
5000
6000
Ni ppm

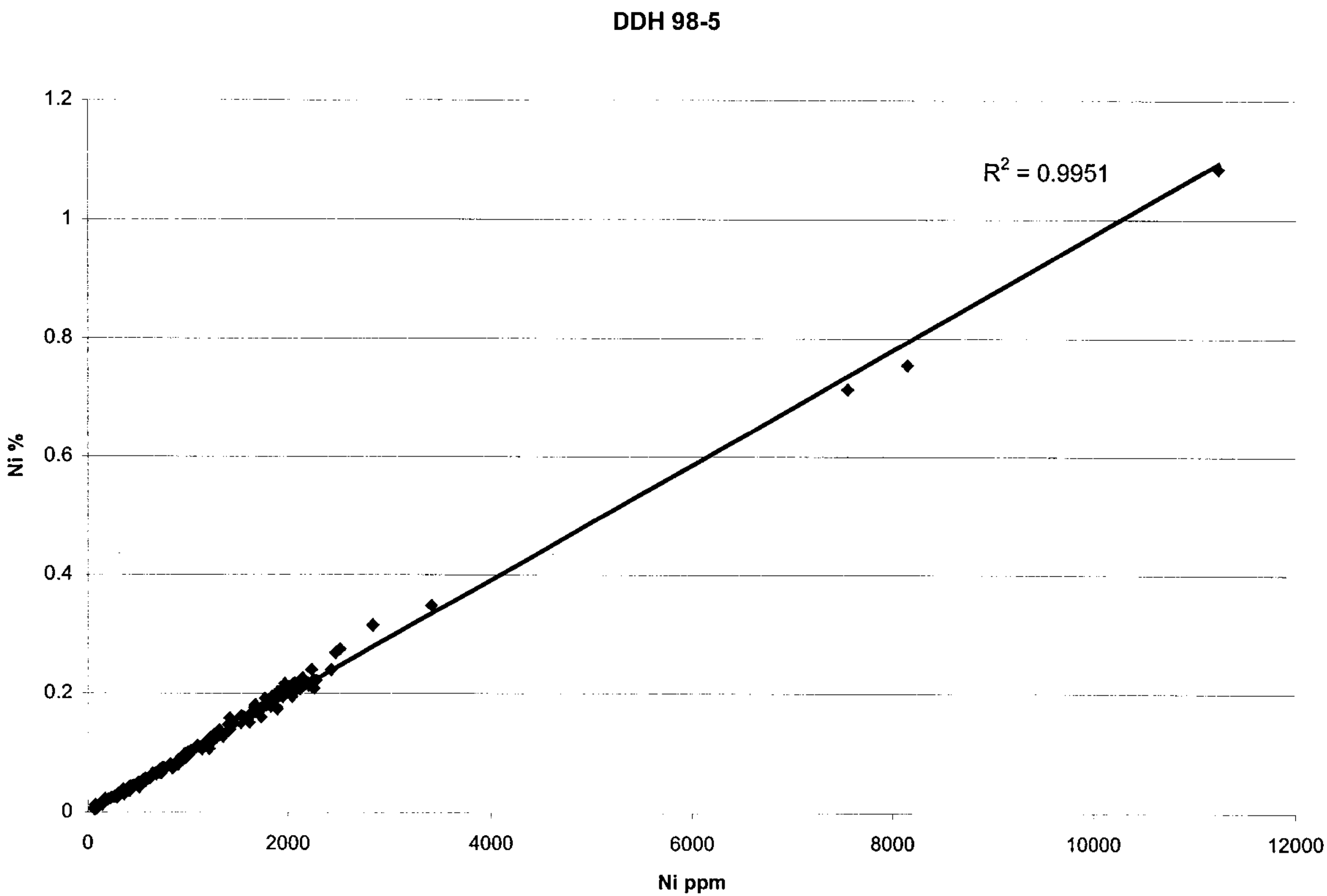

DDH 97-3
R2 = 0.9925
Ni %
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0
200
400
600
800
1000
1200
1400
1600
Ni ppm

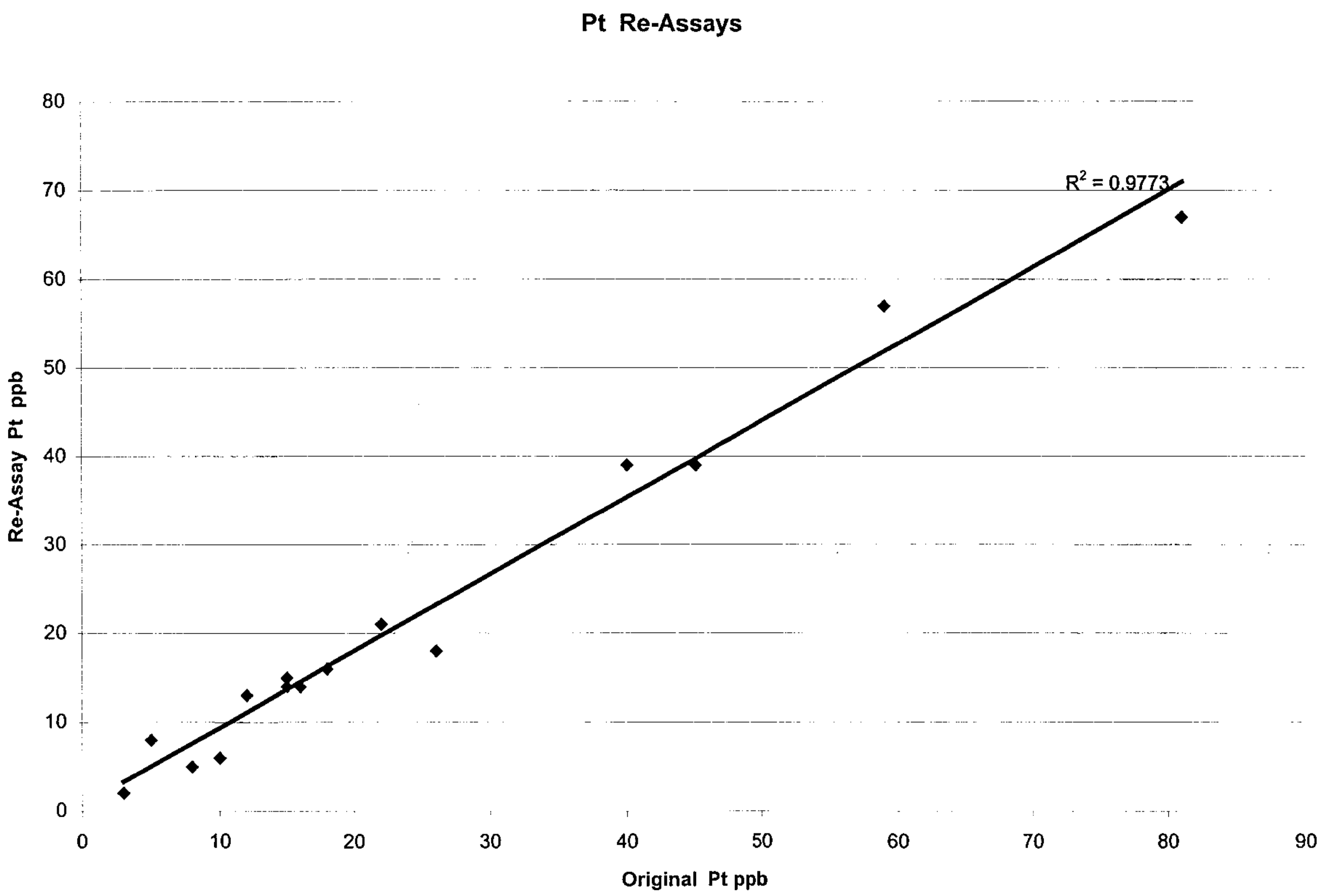


DDH 97-8
R^2 = 0.9979
Ni %
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0
2000
4000
6000
8000
10000
12000
14000
16000
Ni ppm



DDH 98-1
R^2 = 0.9933
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Ni %
0
2000
4000
6000
8000
10000
12000
14000
16000
Ni ppm


DDH 98-5
R^2 = 0.9951
Ni %
Ni ppm
1.2
1
0.8
0.6
0.4
0.2
0
0
2000
4000
6000
8000
10000
12000

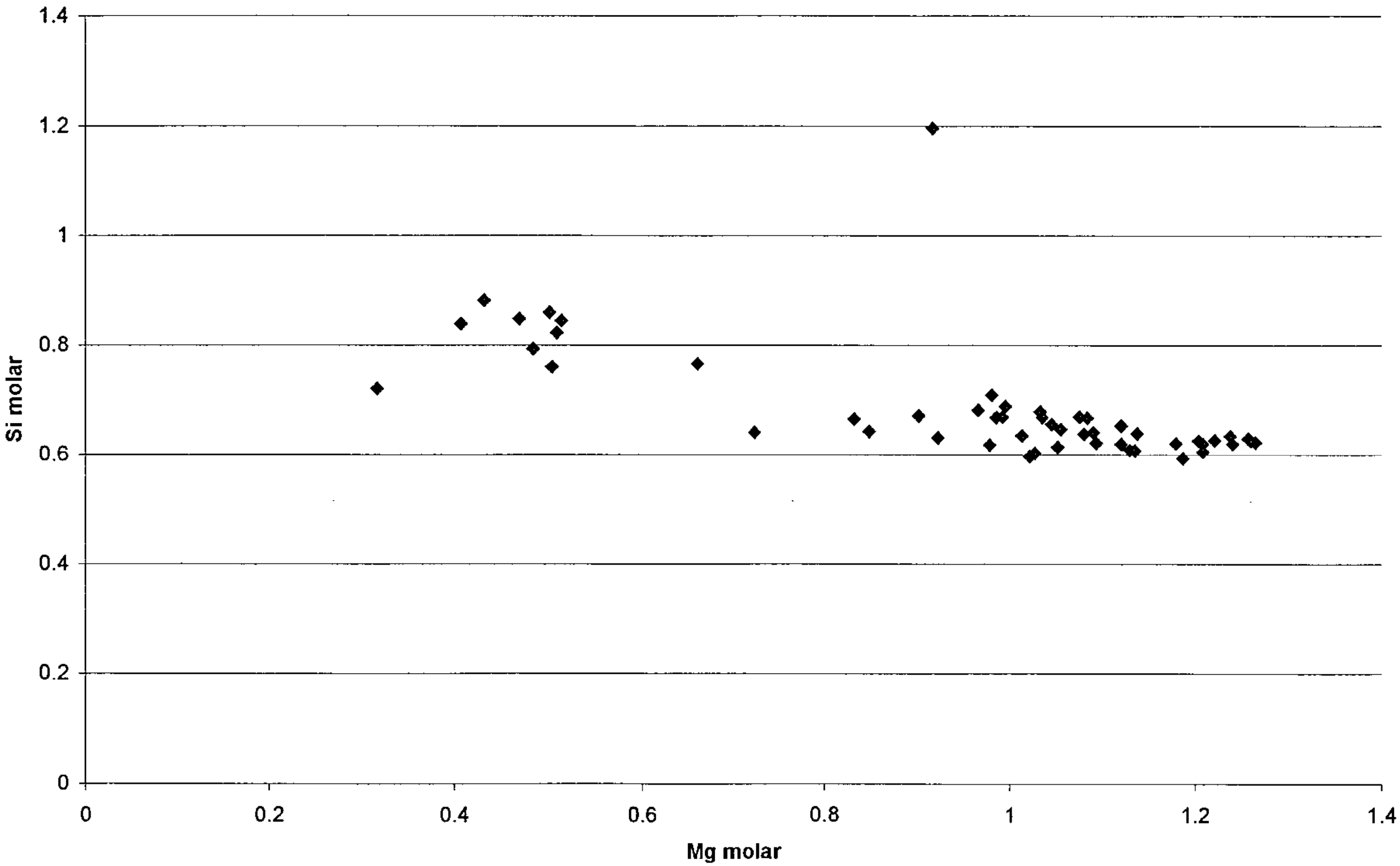


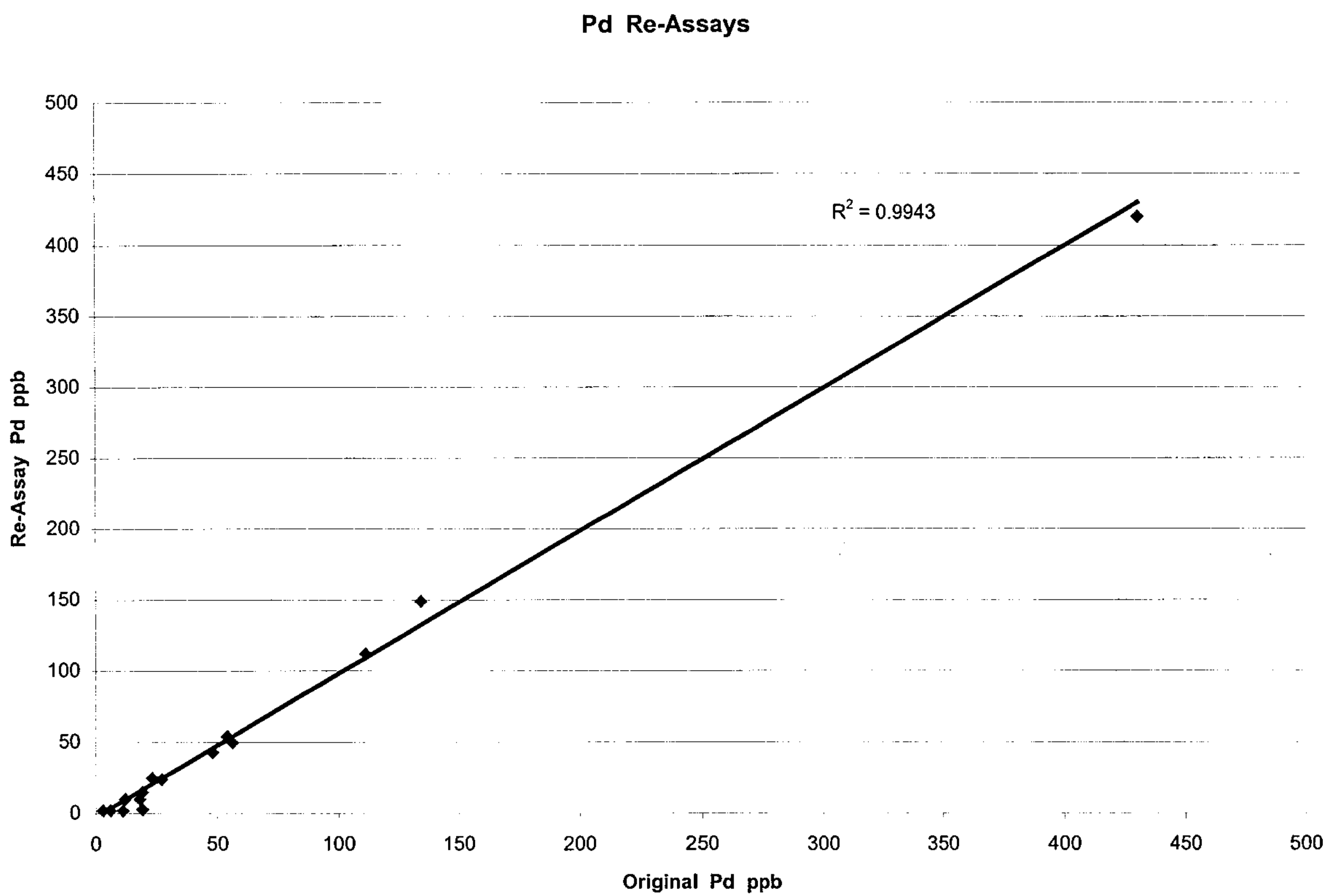
Pt Re-Assays
$R^2 = 0.9773$
Re-Assay Pt ppb
Original Pt ppb
0
10
20
30
40
50
60
70
80
90

APPENDIX F

DRILL HOLE DATA PLOTS

Figure B-2: Si vs Mg





Pd Re-Assays
R² = 0.9943
Re-Assay Pd ppb
Original Pd ppb
0
50
100
150
200
250
300
350
400
450
500

APPENDIX D

SAMPLE AND ANALYTICAL PROCEDURES AND METHODS

August, 1998

SAMPLE COMPOSITE PROCEDURES, ACME ANALYTICAL LAB

REJECTS

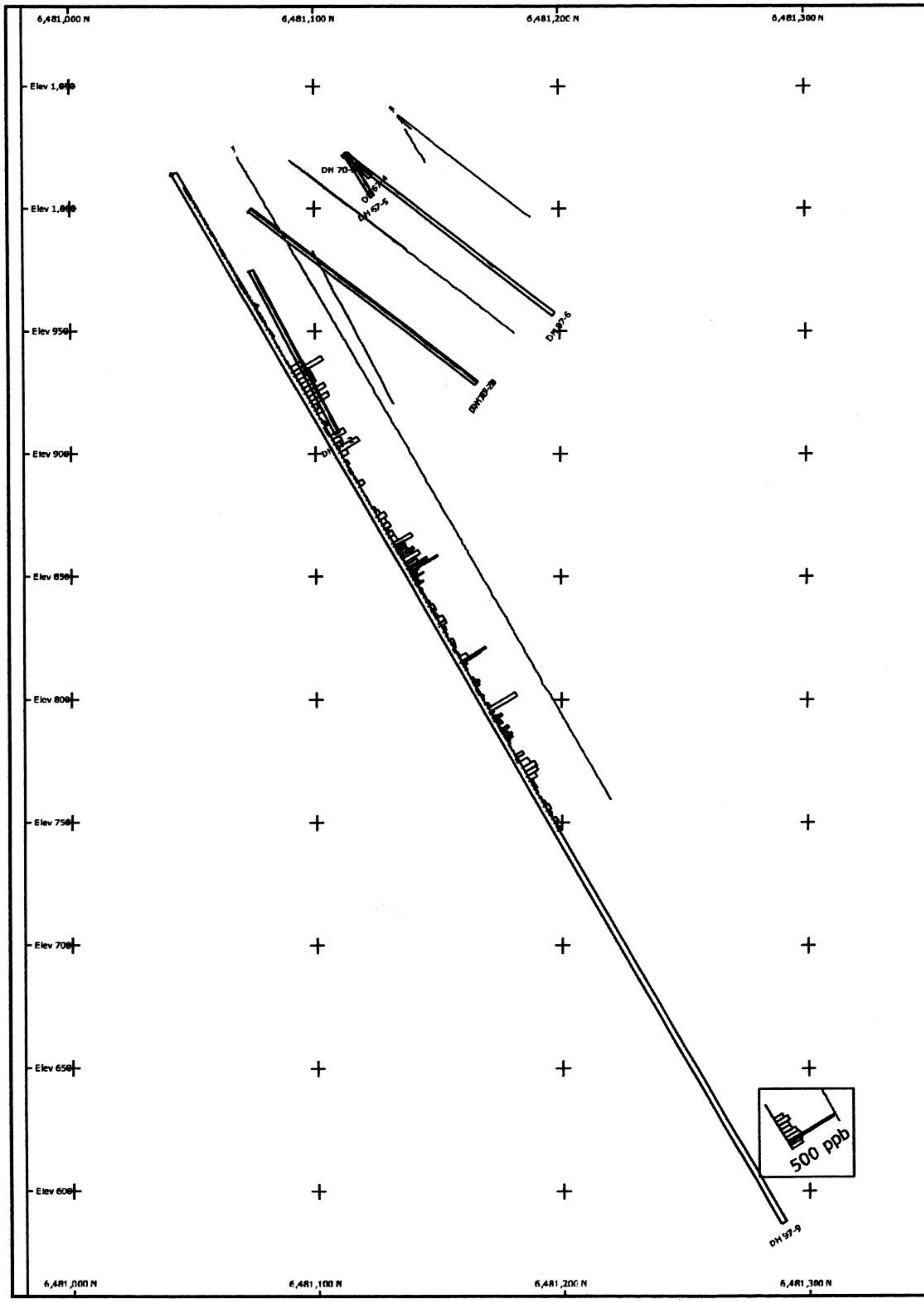
Assay reject samples for metallurgical testwork were composited at Acme Analytical Laboratories, Vancouver. Composites for samples (Comp 1, 2, 3, 4 & 5) were prepared in October for testwork at PRA Associates, vancouver, and Lakefield Research , Lakefield, Ontario.

Six samples were composited in June, 1998, varied in mass from a few kilograms to over 100 kg. Different methods of compositing were thus required.

- Samples 1A and 1B each weighed only a few kilograms. Tumbling in a closed pail mixed the samples. Subsequent splitting the sample through a riffle splitter collected a 250 gm split. The 250 gm split was pulverized to 95% -100 mesh. A 100 gm split of the pulp was sent to BC Research, Vancouver. Reject coarse fractions are stored in a closed pail.

- Sample 3A weighed several tens of kilograms. It was spread out onto a plastic sheet and rolled 50 times. A composite 250 gm split was collected by randomly sampling the material from the sheet. The 250 gm split was pulverized to 95% -100 mesh with a 100 gm split of the pulp sent to BC Research. Rejects are stored in a closed pail.

- Samples 1C, 2A and 2B are very large (sample 1C weighs over 100 kg). Material was spread onto a plastic sheet and turned over using a shovel as a preliminary mix. Subsequently rolling in the sheet 50 times mixed the samples. Random scoops were collected from the rolled material until approximately 10 kg were collected. This was then split to 250 gm using a riffle splitter. The 250 gm splits were pulverized to 95% -100 mesh. with a 100 gm split of the pulp sent to BC Research. Rejects are stored in a closed pail.



Canadian Metals Exploration

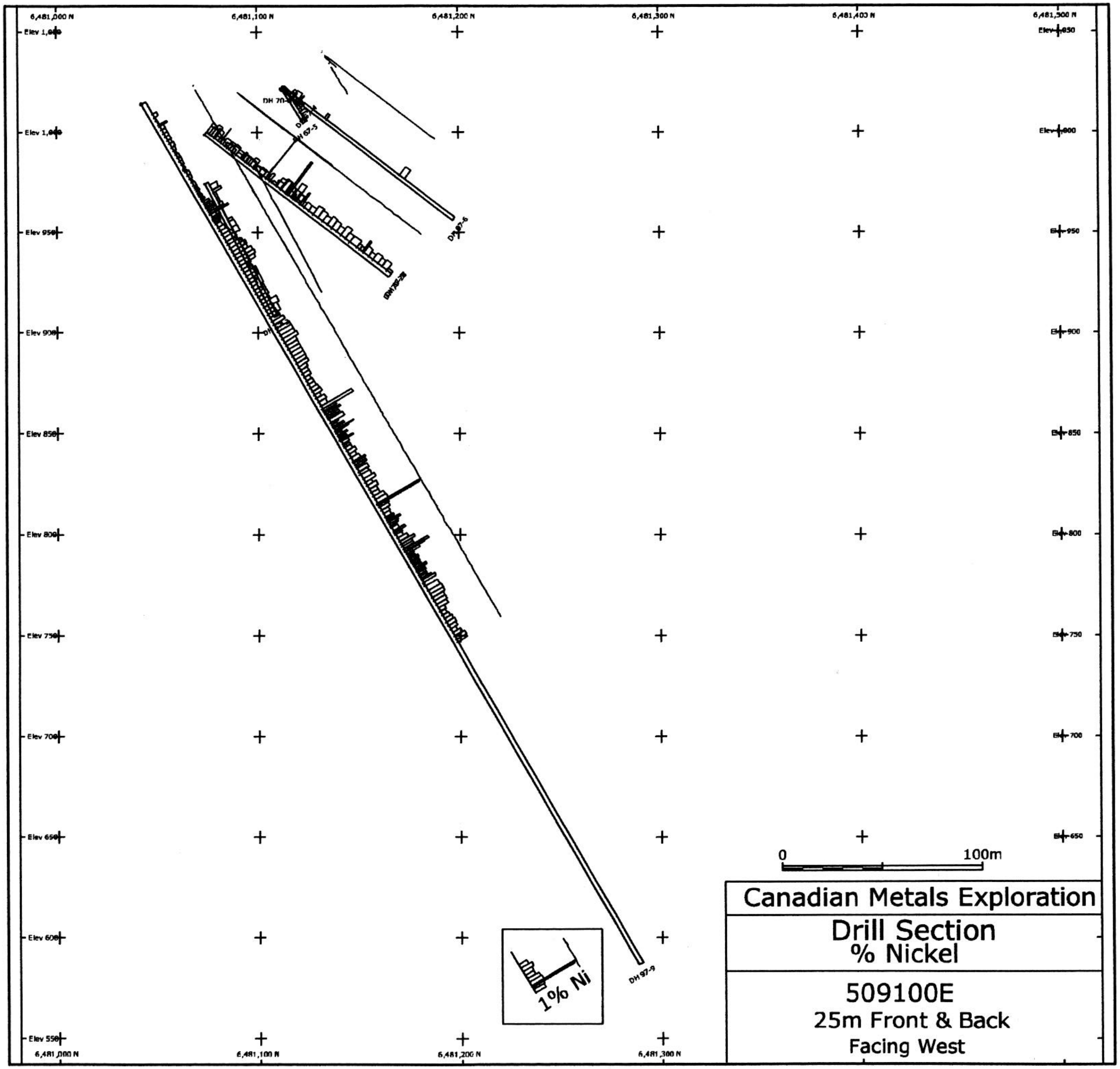
Drill Section

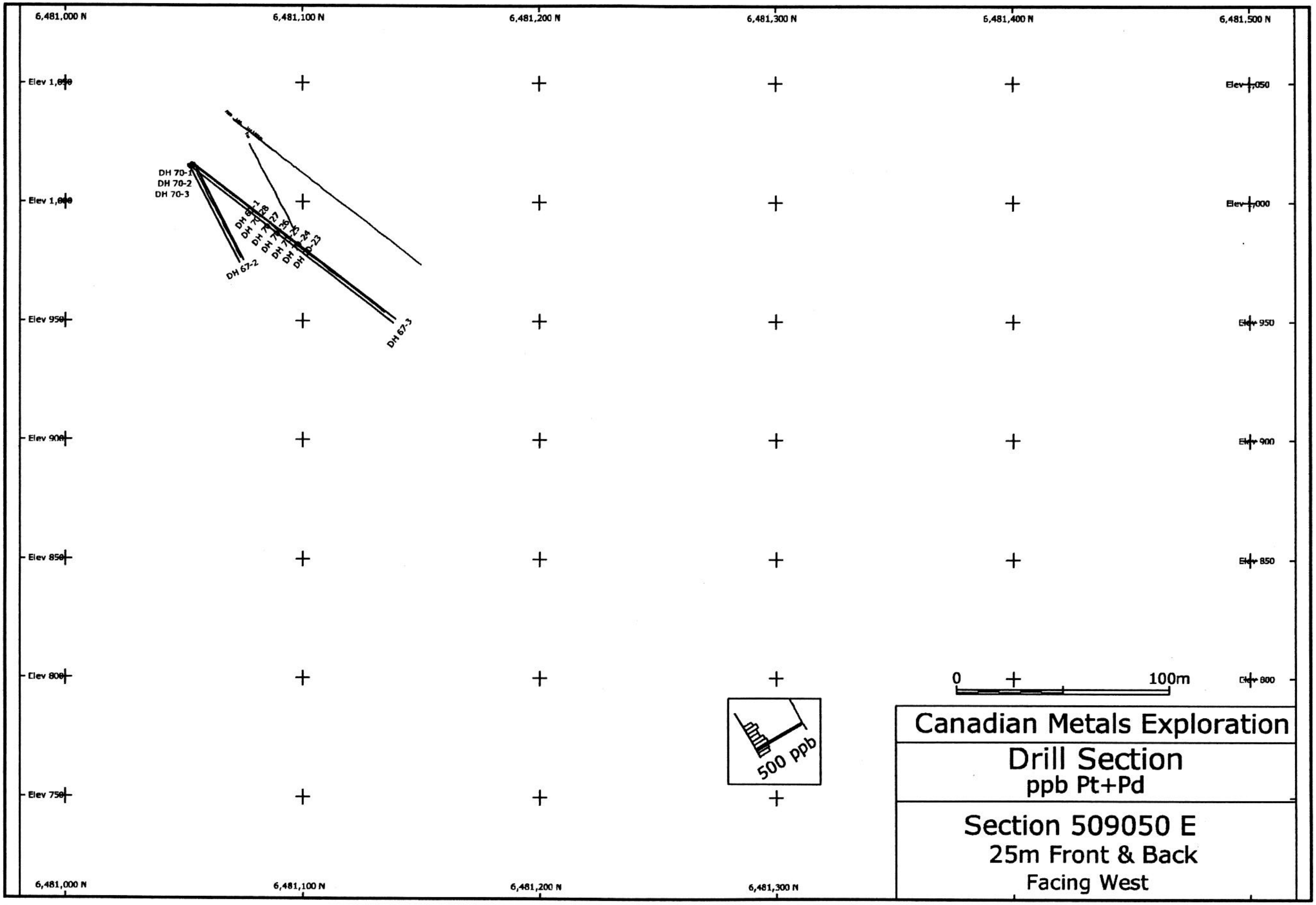
ppb Pt+Pd

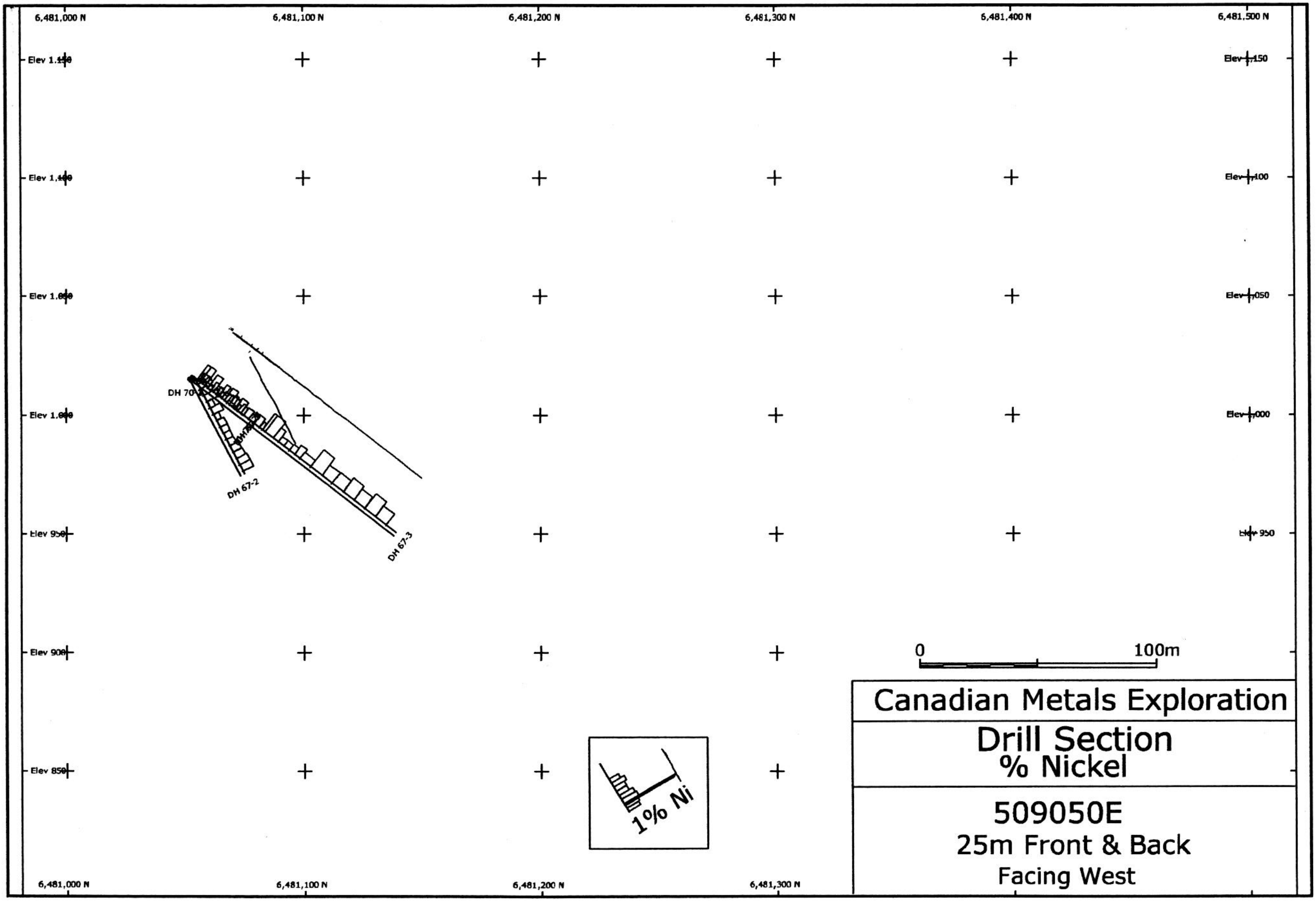
Section 509100 E

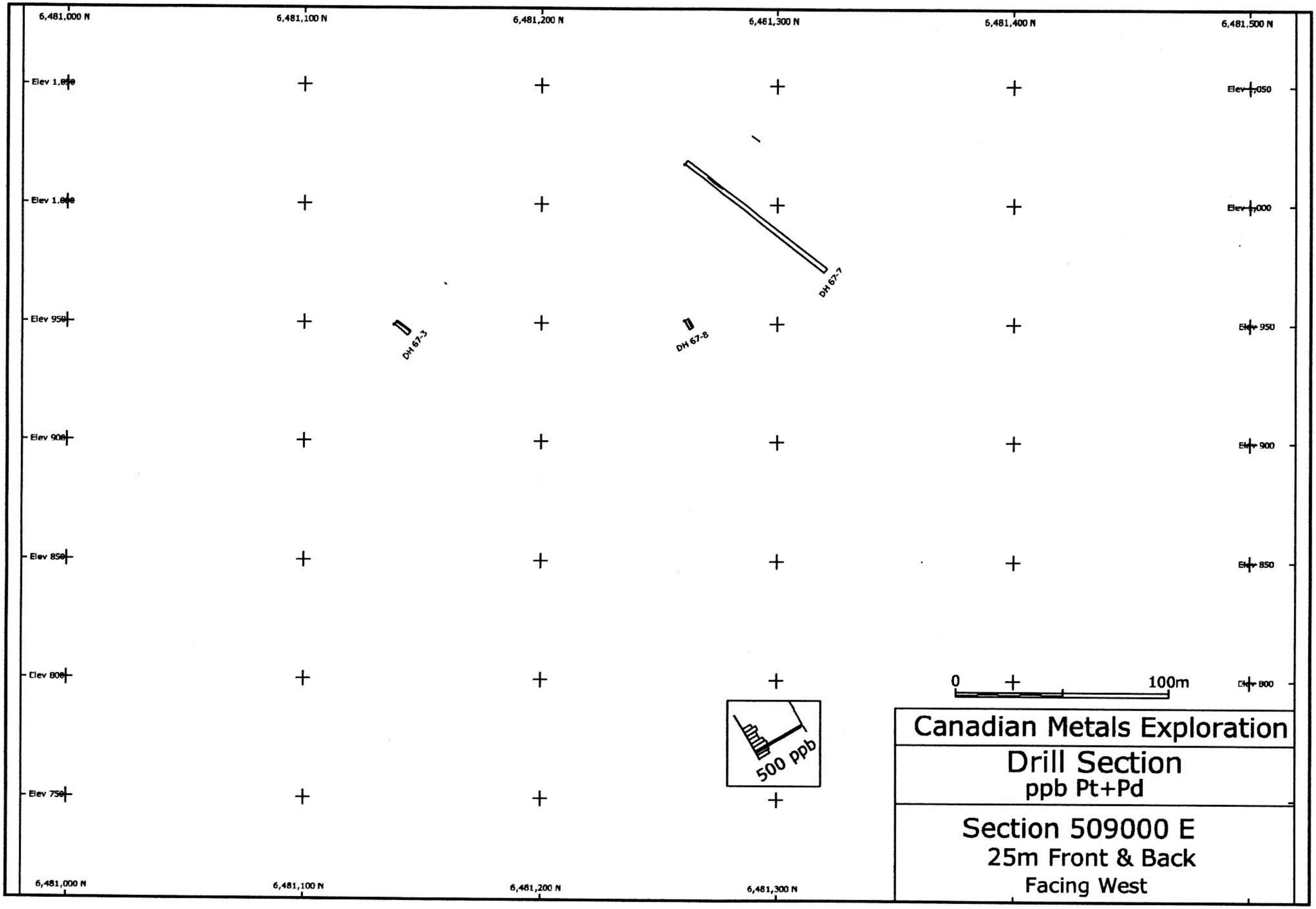
25m Front & Back

Facing West


6,481,000 N
6,481,100 N
6,481,200 N
6,481,300 N
6,481,400 N
6,481,500 N
Elev 950
Elev 900
Elev 850
Elev 800
Elev 750
Elev 700
Elev 650
Elev 600
Elev 550
DH 67-5
DH 97-9
1% Ni
0
100m
Canadian Metals Exploration
Drill Section
% Nickel
509100E
25m Front & Back
Facing West


6,481,000 N
6,481,100 N
6,481,200 N
6,481,300 N
6,481,400 N
6,481,500 N
Elev 1,050
Elev 1,000
Elev 950
Elev 900
Elev 850
Elev 800
Elev 750
DH 70-1
DH 70-2
DH 70-3
DH 67-2
DH 67-3
500 ppb
0
100m
Canadian Metals Exploration
Drill Section
ppb Pt+Pd
Section 509050 E
25m Front & Back
Facing West

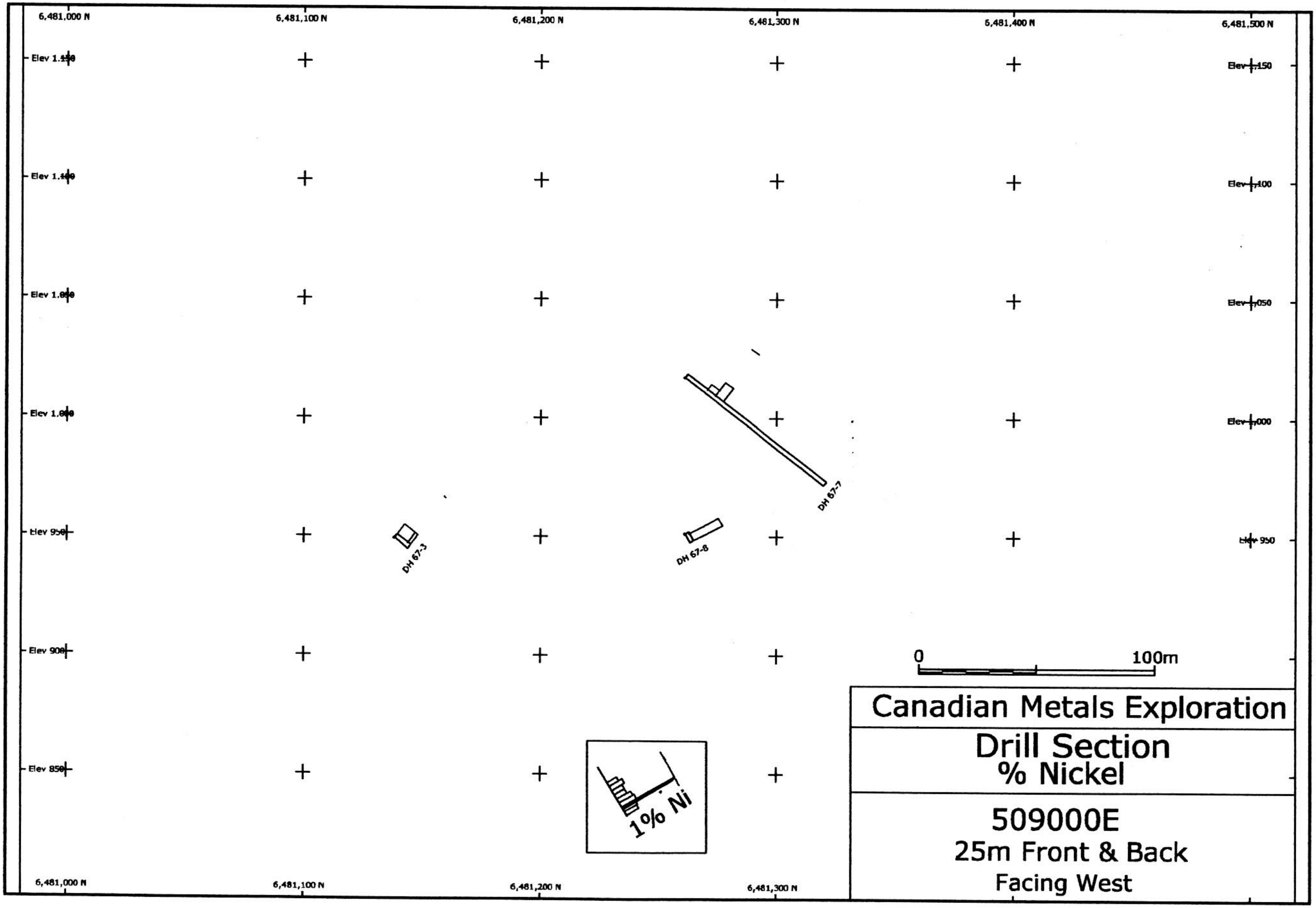

6,481,000 N
6,481,100 N
6,481,200 N
6,481,300 N
6,481,400 N
6,481,500 N
Elev 1,150
Elev 1,100
Elev 1,050
Elev 1,000
Elev 950
Elev 900
Elev 850
DH 70
DH 67-2
DH 67-3
1% Ni
0
100m
Canadian Metals Exploration
Drill Section
% Nickel
509050E
25m Front & Back
Facing West



Canadian Metals Exploration

Drill Section
ppb Pt+Pd

Section 509000 E
25m Front & Back
Facing West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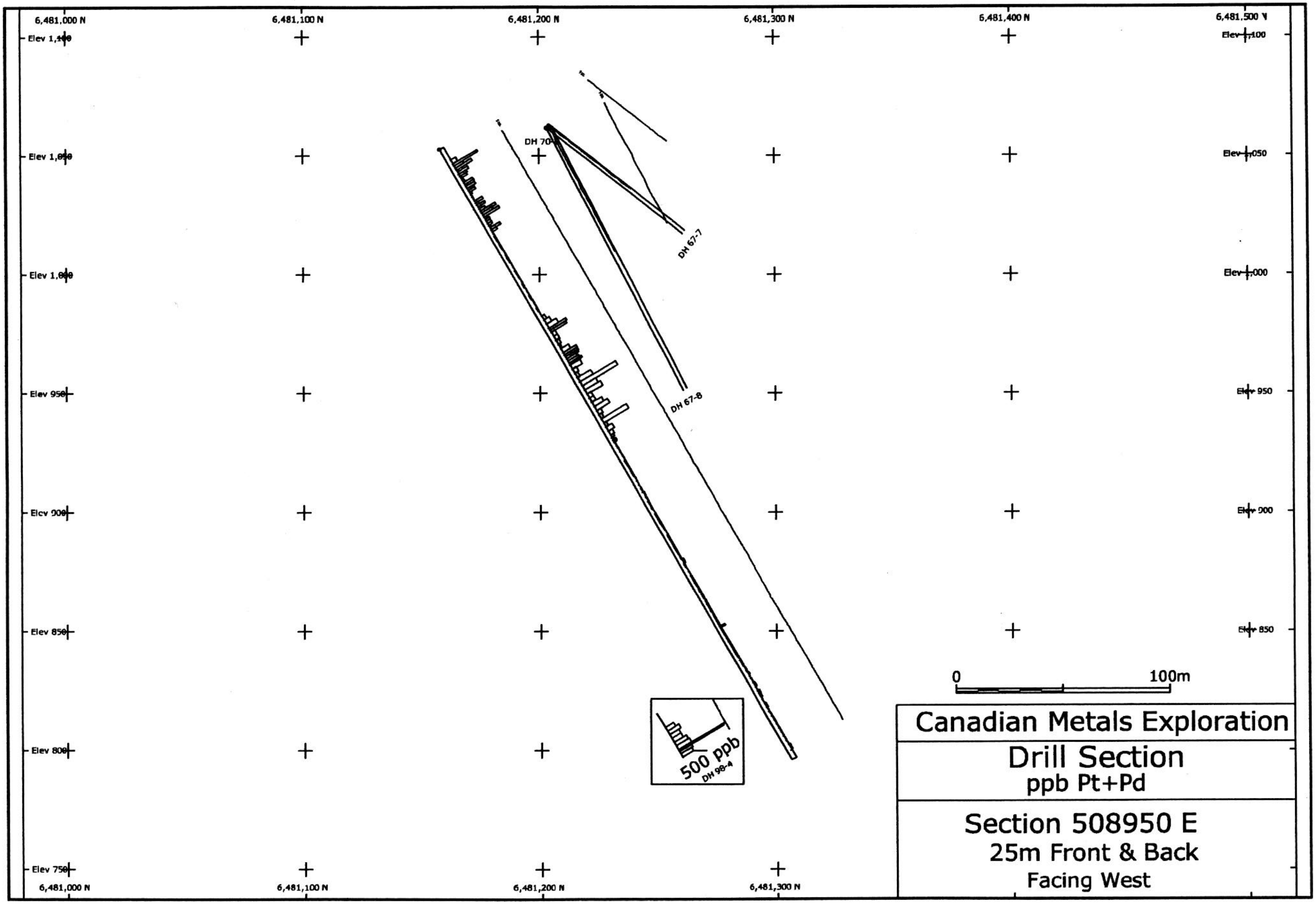
6,481,100 N
6,481,200 N
6,481,300 N
6,481,400 N
6,481,500 N
Elev 1,150
Elev 1,100
Elev 1,050
Elev 1,000
Elev 950
Elev 900
Elev 850
DH 67-7
DH 67-3
DH 67-8
0
100m
1% Ni
Canadian Metals Exploration
Drill Section
% Nickel
509000E
25m Front & Back
Facing West



Canadian Metals Exploration

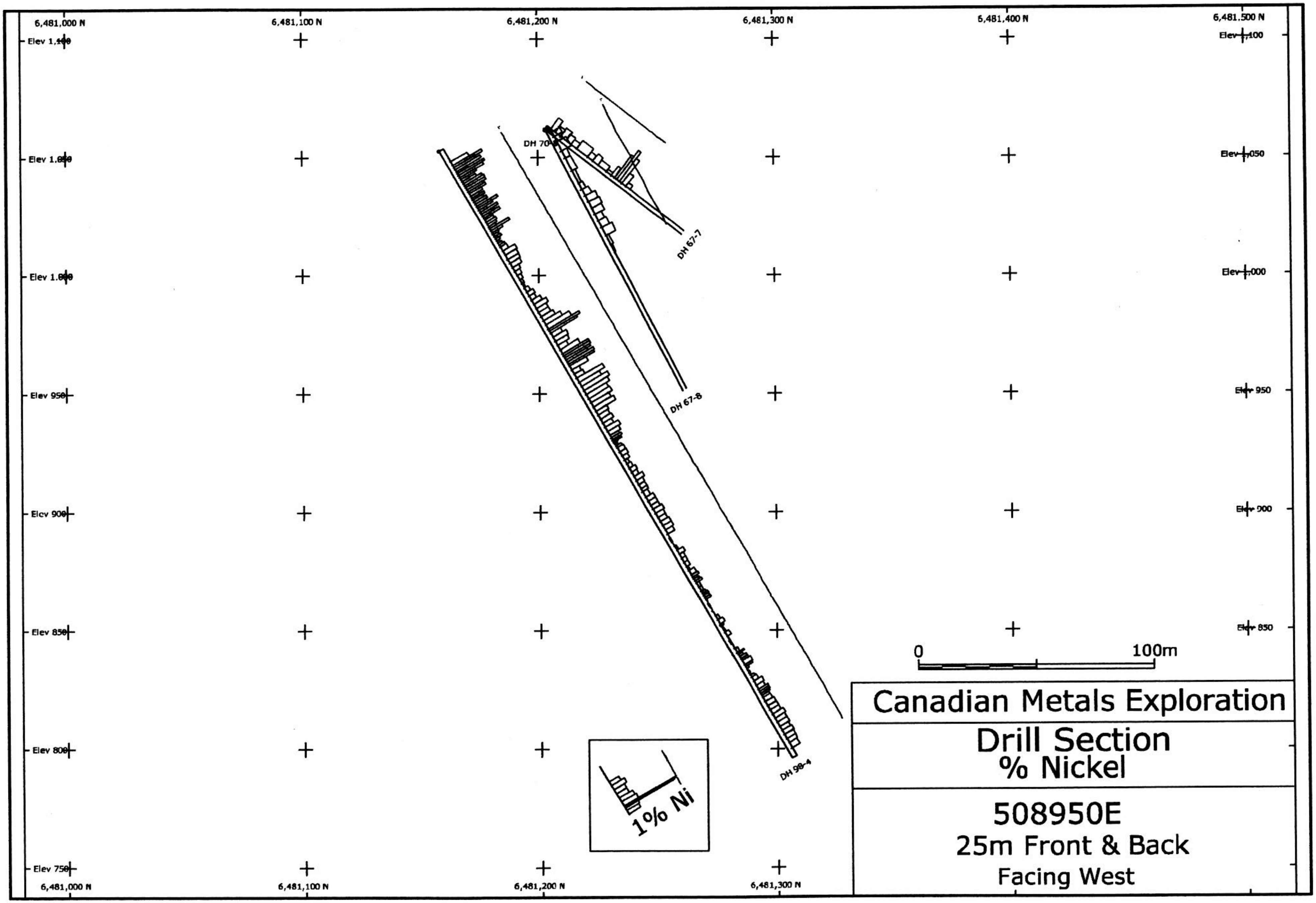
Drill Section

ppb Pt+Pd

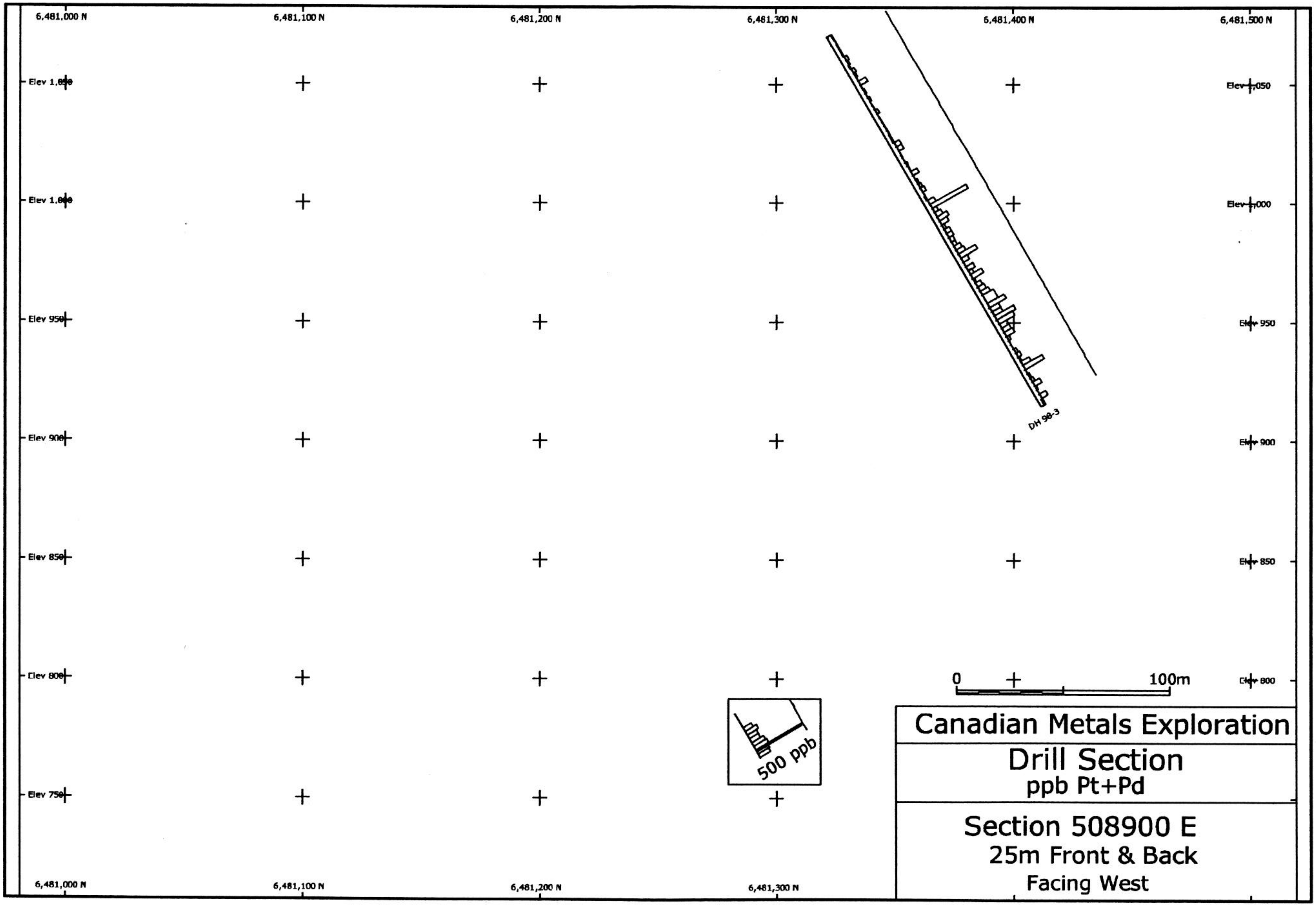
Section 508950 E

25m Front & Back

Facing West



6,481,000 N
6,481,100 N
6,481,200 N
6,481,300 N
6,481,400 N
6,481,500 N
Elev 1,100
Elev 1,050
Elev 1,000
Elev 950
Elev 900
Elev 850
Elev 800
Elev 750
DH 70
DH 67-7
DH 67-8
DH 98-4
1% Ni
0
100m
Canadian Metals Exploration
Drill Section
% Nickel
508950E
25m Front & Back
Facing West



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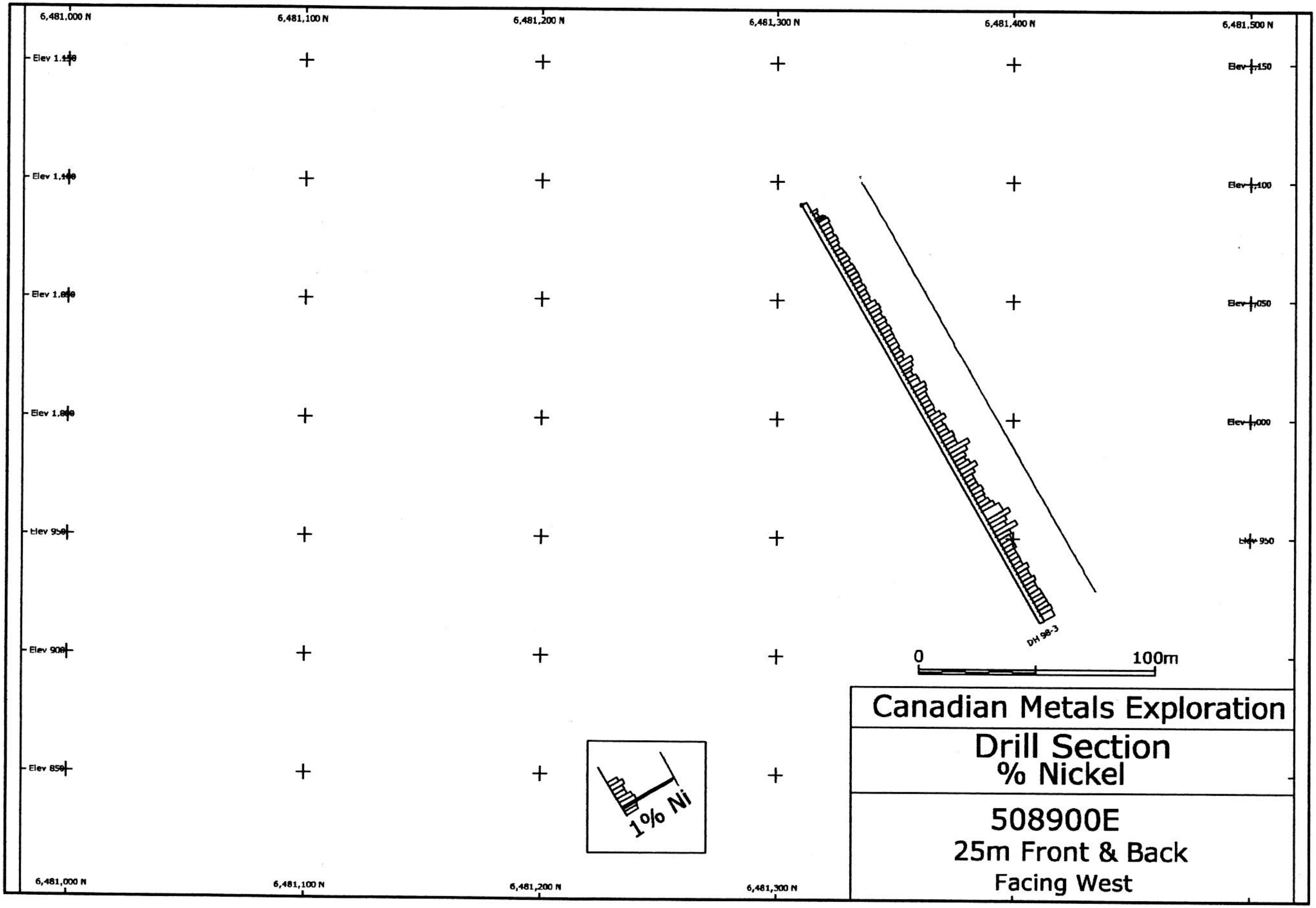
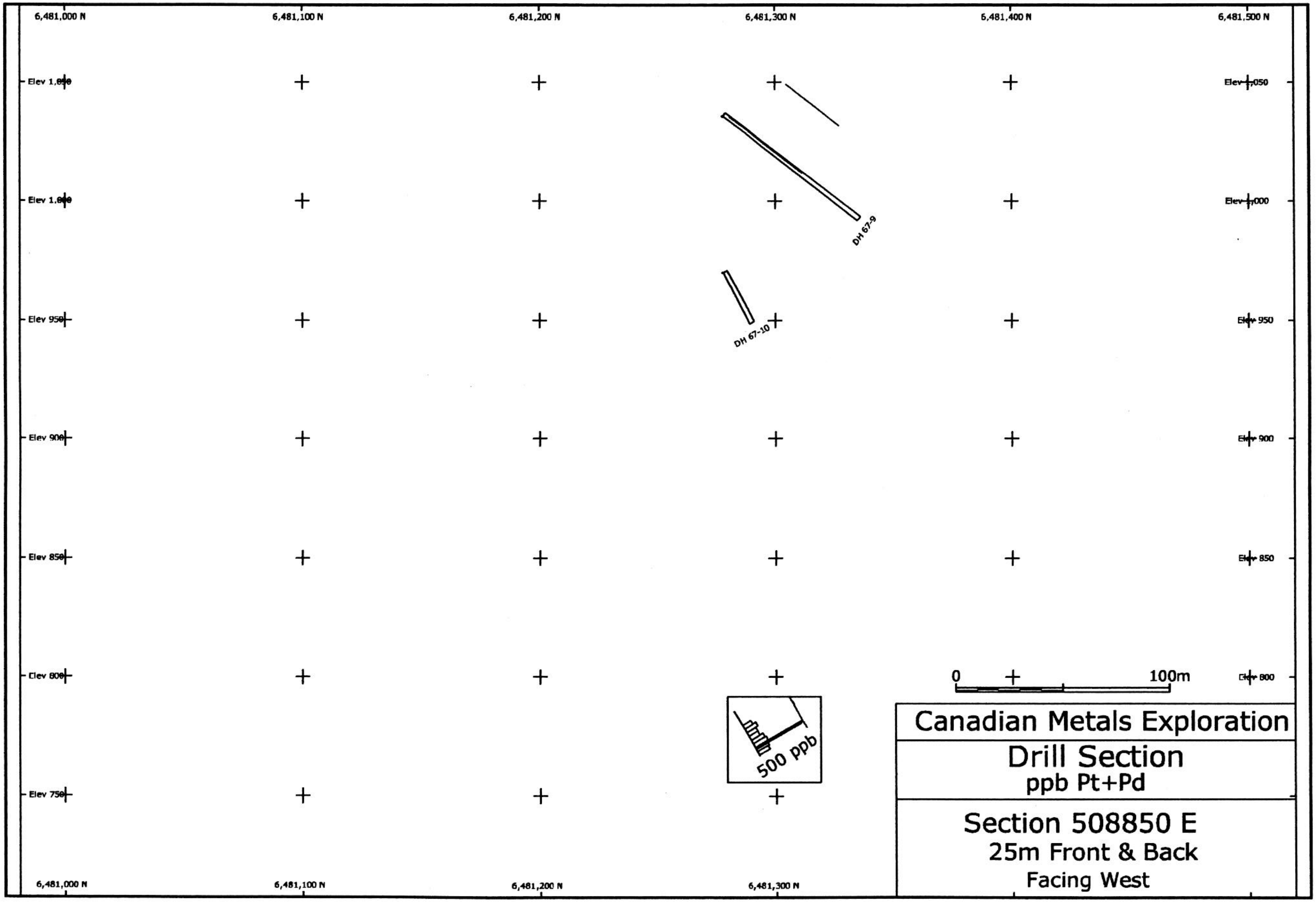
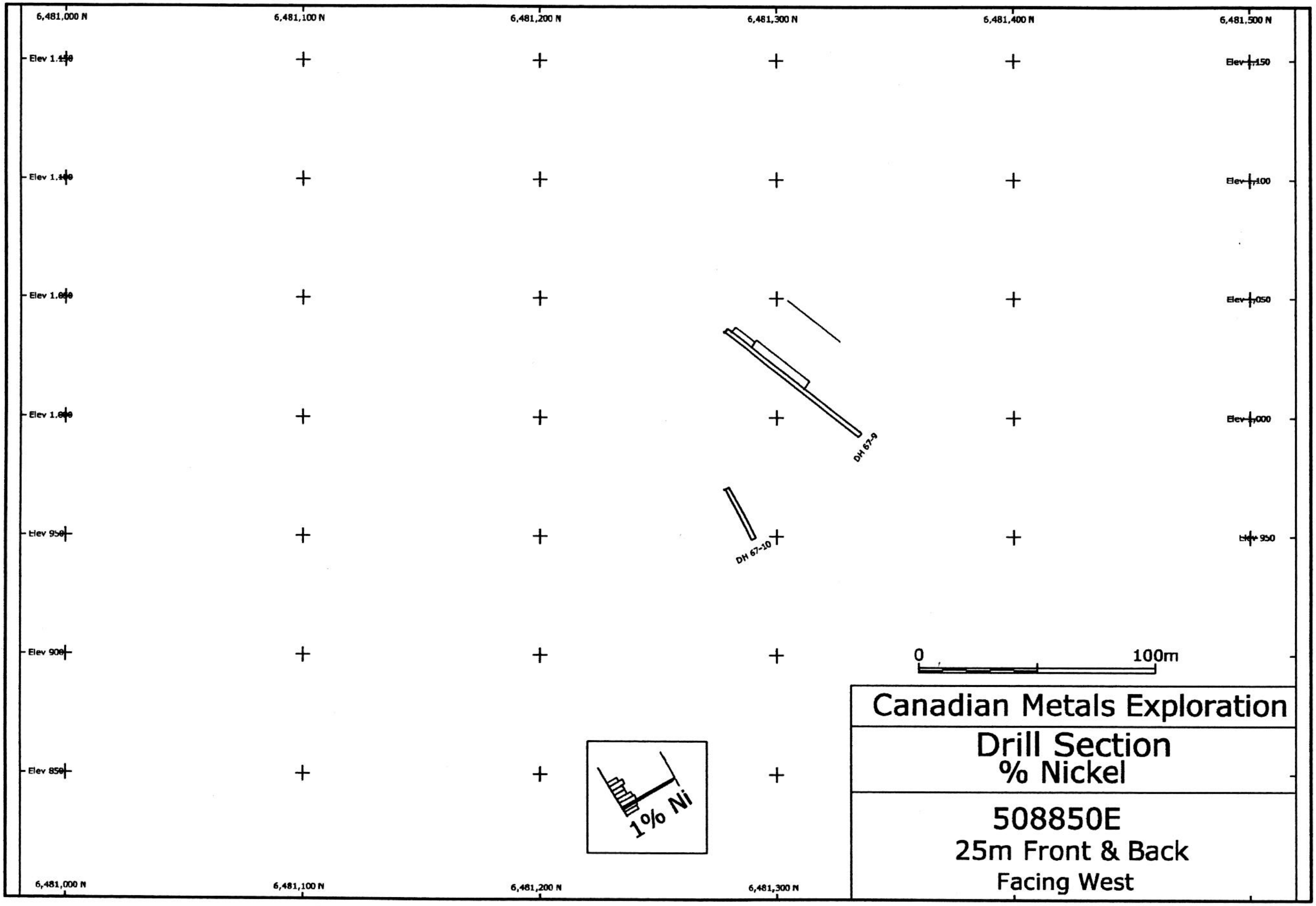
6,481,100 N
6,481,200 N
6,481,300 N
6,481,400 N
6,481,500 N
Elev 1,050
Elev 1,000
Elev 950
Elev 900
Elev 850
Elev 800
Elev 750
DH 98-3
500 ppb
0
100m
Canadian Metals Exploration
Drill Section
ppb Pt+Pd
Section 508900 E
25m Front & Back
Facing West

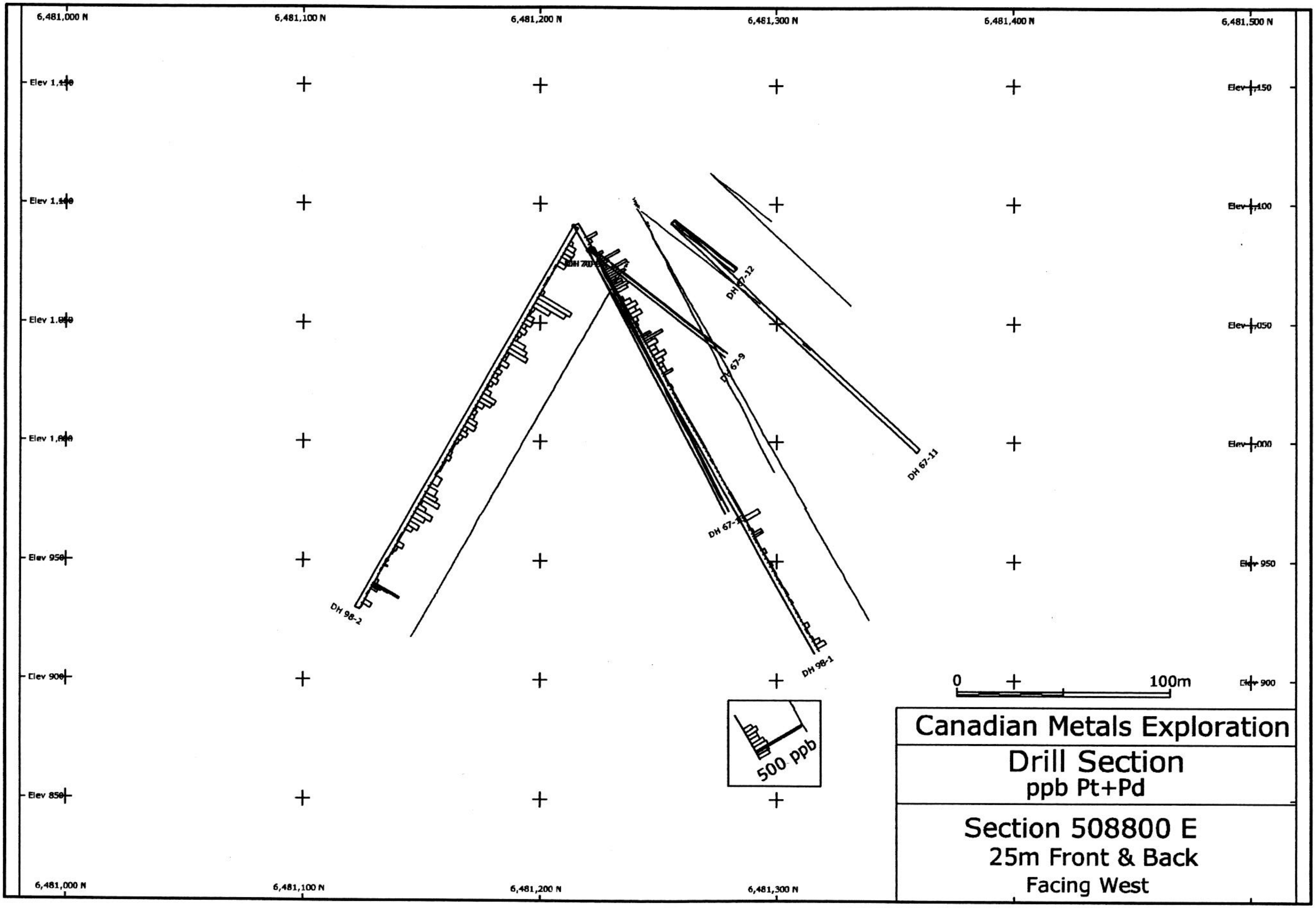


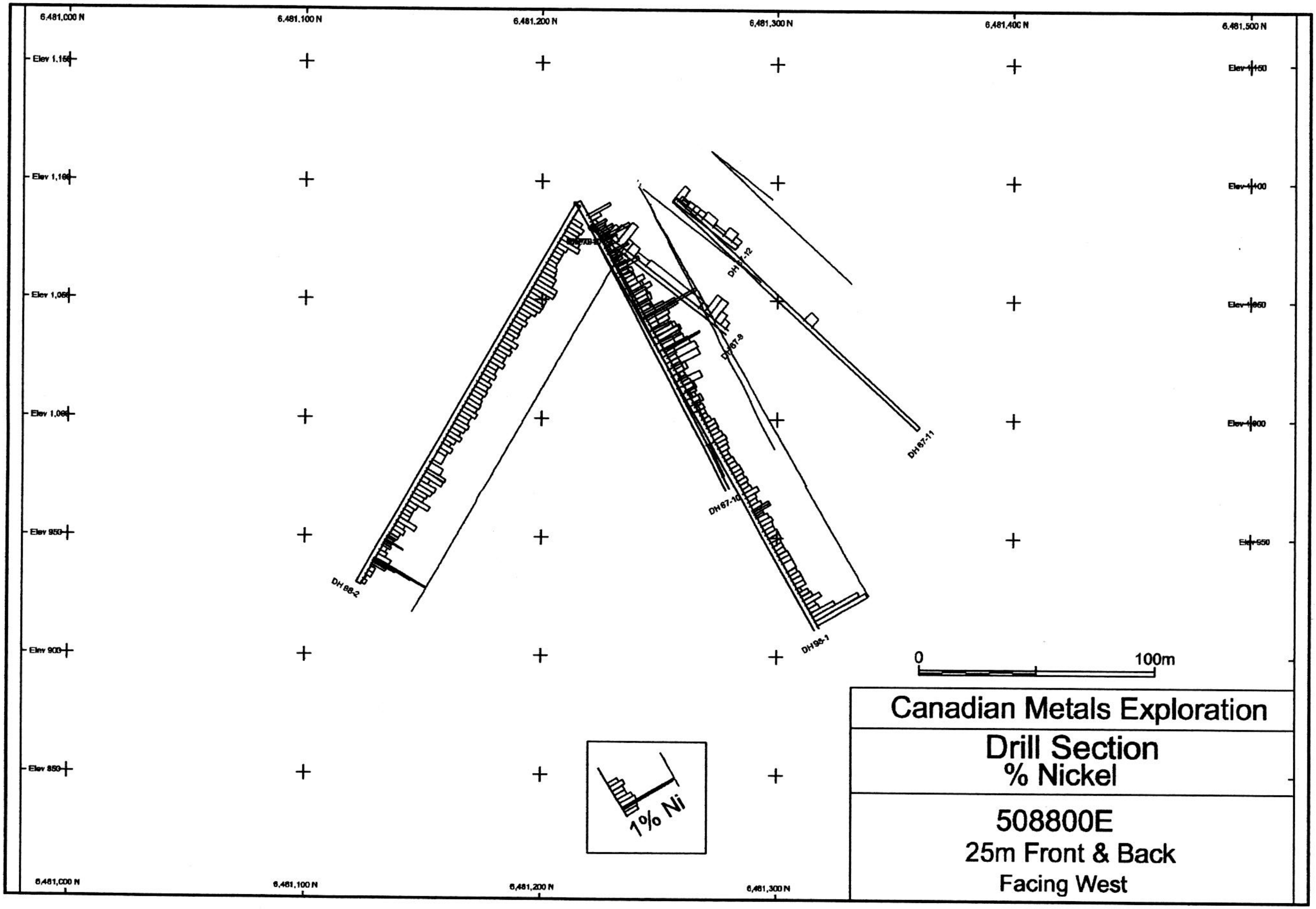
6,481,000 N
6,481,100 N
6,481,200 N
6,481,300 N
6,481,400 N
6,481,500 N
Elev 1,150
Elev 1,100
Elev 1,050
Elev 1,000
Elev 950
Elev 900
Elev 850
DH 98-3
0
100m
1% Ni
Canadian Metals Exploration
Drill Section
% Nickel
508900E
25m Front & Back
Facing West


6,481,000 N
6,481,100 N
6,481,200 N
6,481,300 N
6,481,400 N
6,481,500 N
Elev 950
Elev 900
Elev 850
Elev 800
Elev 750
DH 67-9
DH 67-10
500 ppb
0
100m
Canadian Metals Exploration
Drill Section
ppb Pt+Pd
Section 508850 E
25m Front & Back
Facing West



6,481,000 N
6,481,100 N
6,481,200 N
6,481,300 N
6,481,400 N
6,481,500 N
Elev 1,150
Elev 1,100
Elev 1,050
Elev 1,000
Elev 950
Elev 900
Elev 850
DH 67-9
DH 67-10
1% Ni
0
100m
Canadian Metals Exploration
Drill Section
% Nickel
508850E
25m Front & Back
Facing West


6,481,000 N
6,481,100 N
6,481,200 N
6,481,300 N
6,481,400 N
6,481,500 N
Elev 1,150
Elev 1,100
Elev 1,050
Elev 1,000
Elev 950
Elev 900
Elev 850
DH 98-2
DH 98-1
DH 67-9
DH 67-11
DH 67-12
500 ppb
0
100m
Canadian Metals Exploration
Drill Section
ppb Pt+Pd
Section 508800 E
25m Front & Back
Facing West



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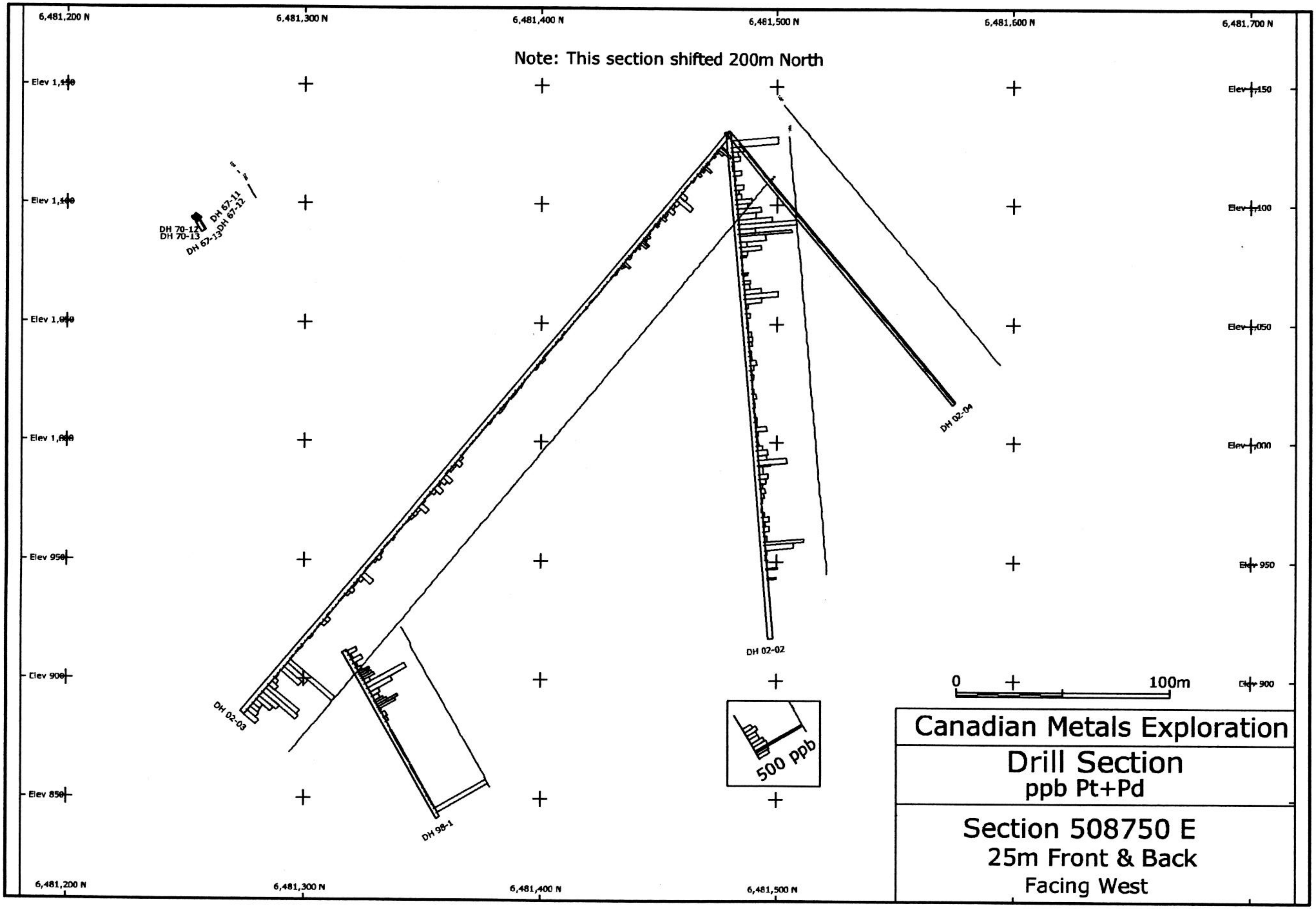
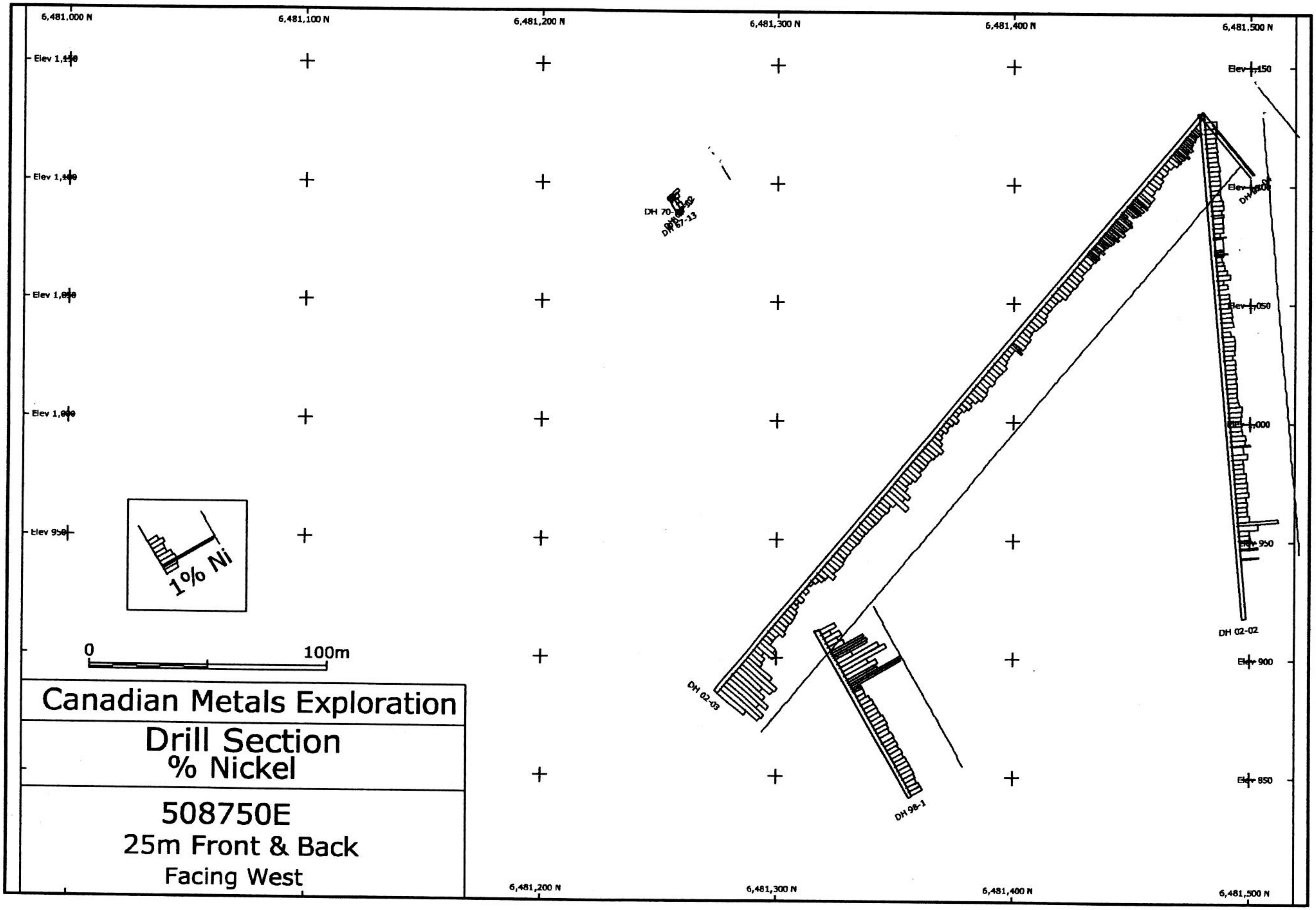
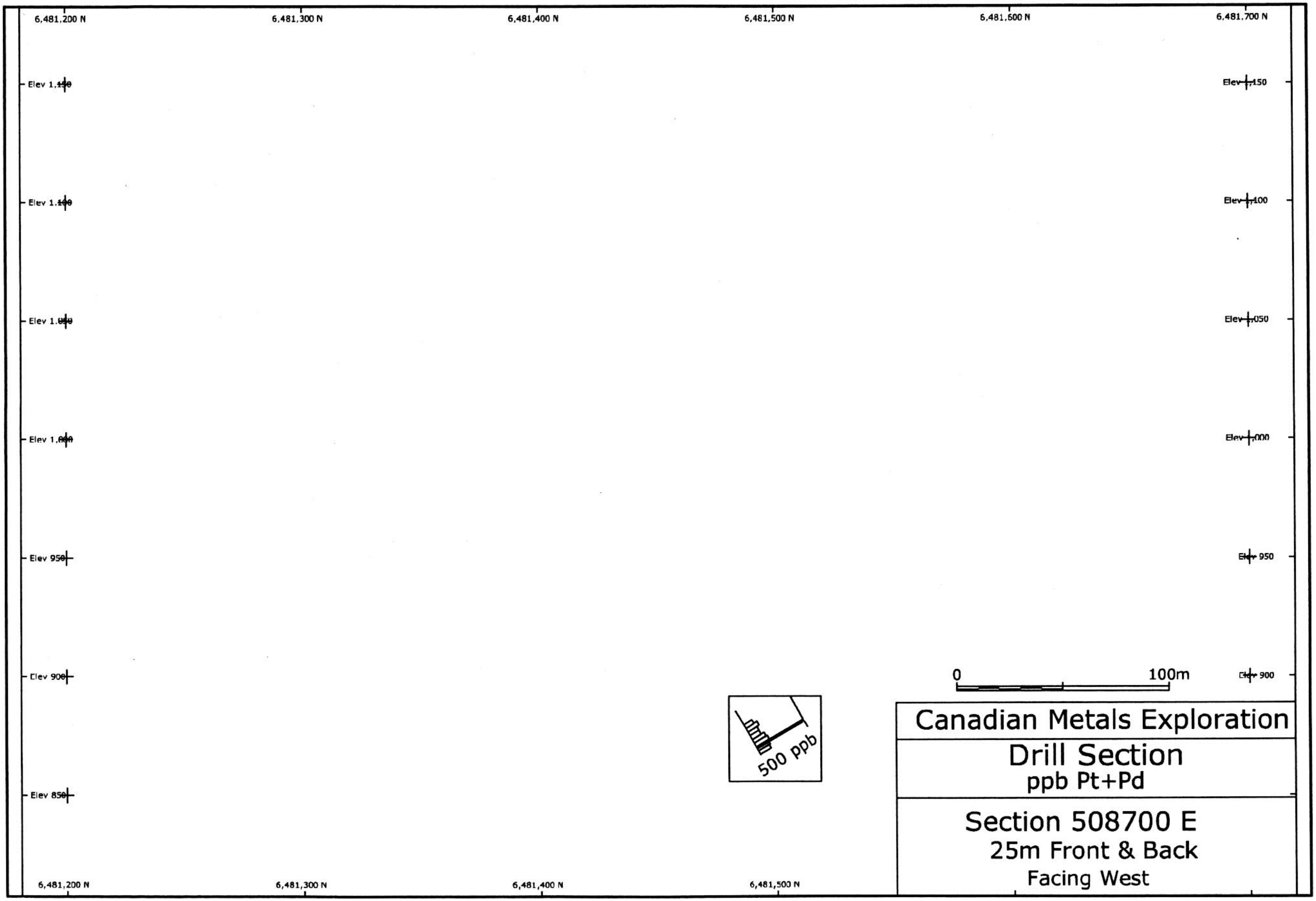
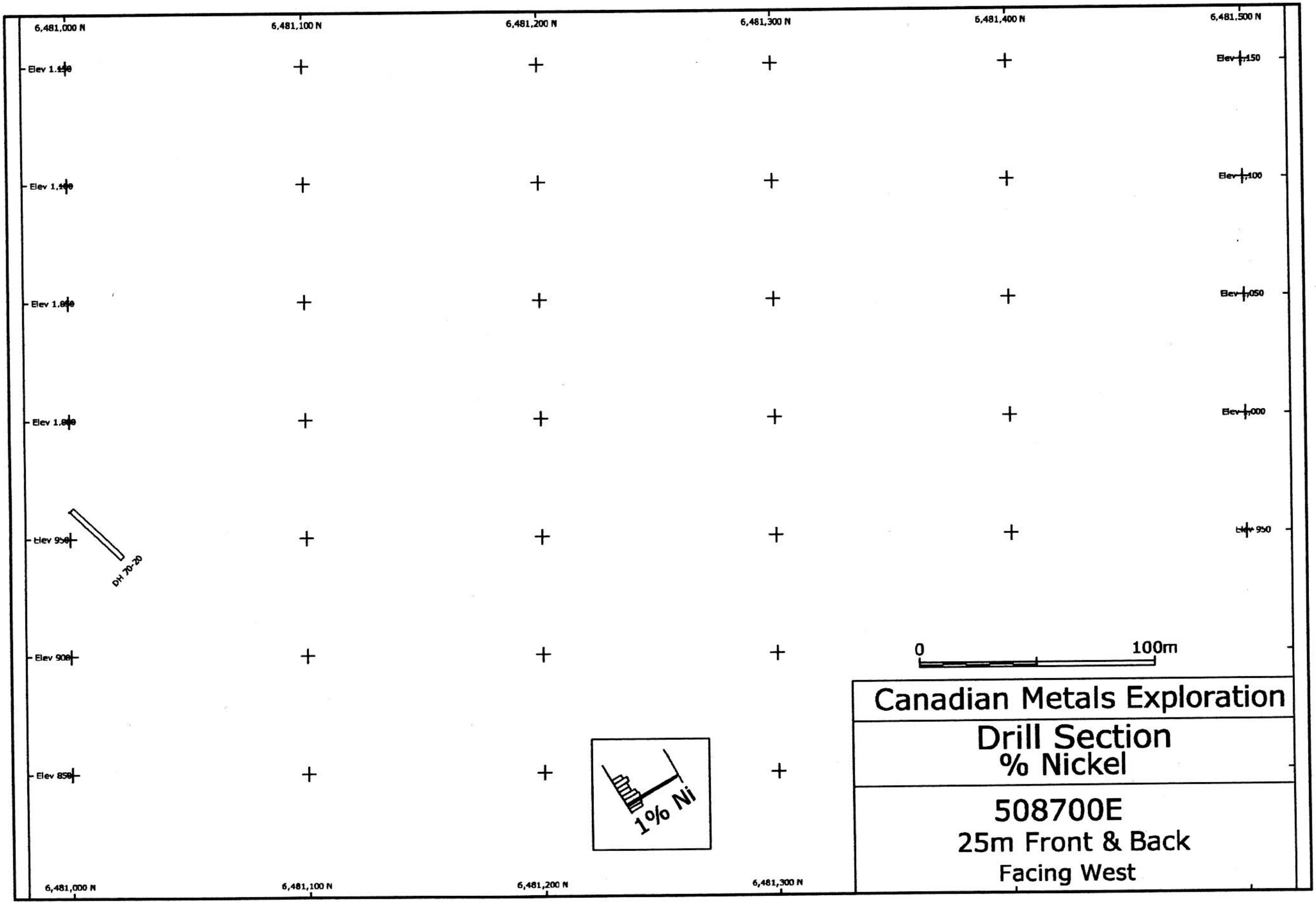
6,481,100 N
6,481,200 N
6,481,300 N
6,481,400 N
6,481,500 N
Elev 850
Elev 900
Elev 950
DH 88-2
DH67-10
DH67-9
DH67-11
DH95-1
0
100m
1% Ni
Canadian Metals Exploration
Drill Section
% Nickel
508800E
25m Front & Back
Facing West


6,481,200 N
6,481,300 N
6,481,400 N
6,481,500 N
6,481,600 N
6,481,700 N
Note: This section shifted 200m North
Elev 1,150
Elev 1,100
Elev 1,050
Elev 1,000
Elev 950
Elev 900
Elev 850
DH 70-12
DH 70-13
DH 67-13
DH 67-11
DH 67-12
DH 02-03
DH 98-1
DH 02-02
DH 02-04
500 ppb
0
100m
Canadian Metals Exploration
Drill Section
ppb Pt+Pd
Section 508750 E
25m Front & Back
Facing West

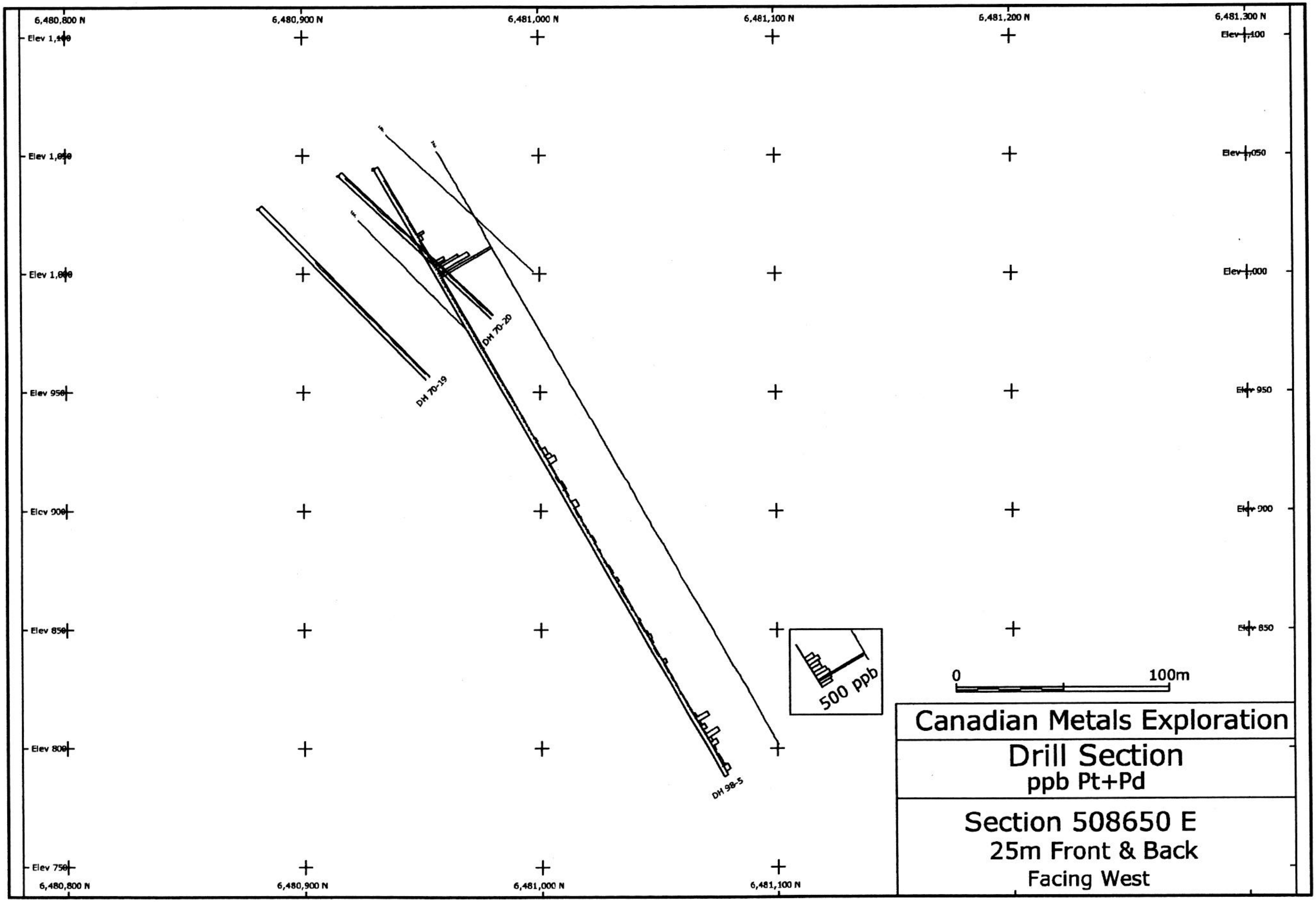


6,481,000 N
6,481,100 N
6,481,200 N
6,481,300 N
6,481,400 N
6,481,500 N
Elev 1,150
Elev 1,100
Elev 1,050
Elev 1,000
Elev 950
Elev 900
Elev 850
DH 70-
DH 67-13
DH 02-02
DH 02-03
DH 98-1
1% Ni
0
100m
Canadian Metals Exploration
Drill Section
% Nickel
508750E
25m Front & Back
Facing West


6,481,200 N
6,481,300 N
6,481,400 N
6,481,500 N
6,481,600 N
6,481,700 N
Elev 1,150
Elev 1,100
Elev 1,050
Elev 1,000
Elev 950
Elev 900
Elev 850
0
100m
500 ppb
Canadian Metals Exploration
Drill Section
ppb Pt+Pd
Section 508700 E
25m Front & Back
Facing West



6,481,000 N
6,481,100 N
6,481,200 N
6,481,300 N
6,481,400 N
6,481,500 N
Elev 1,150
Elev 1,100
Elev 1,050
Elev 1,000
Elev 950
Elev 900
Elev 850
DH 70-20
0
100m
1% Ni
Canadian Metals Exploration
Drill Section
% Nickel
508700E
25m Front & Back
Facing West


6,480,800 N
6,480,900 N
6,481,000 N
6,481,100 N
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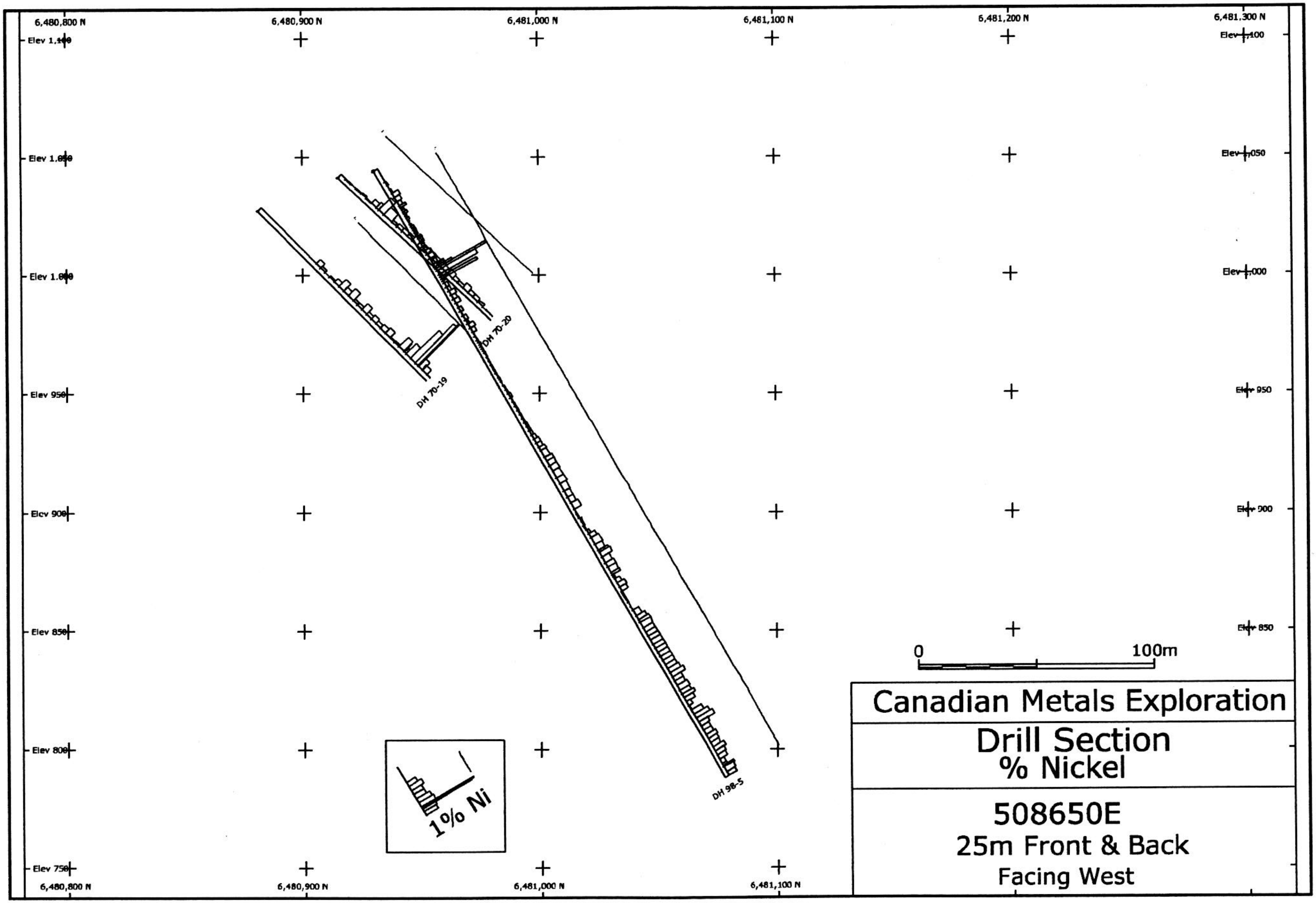
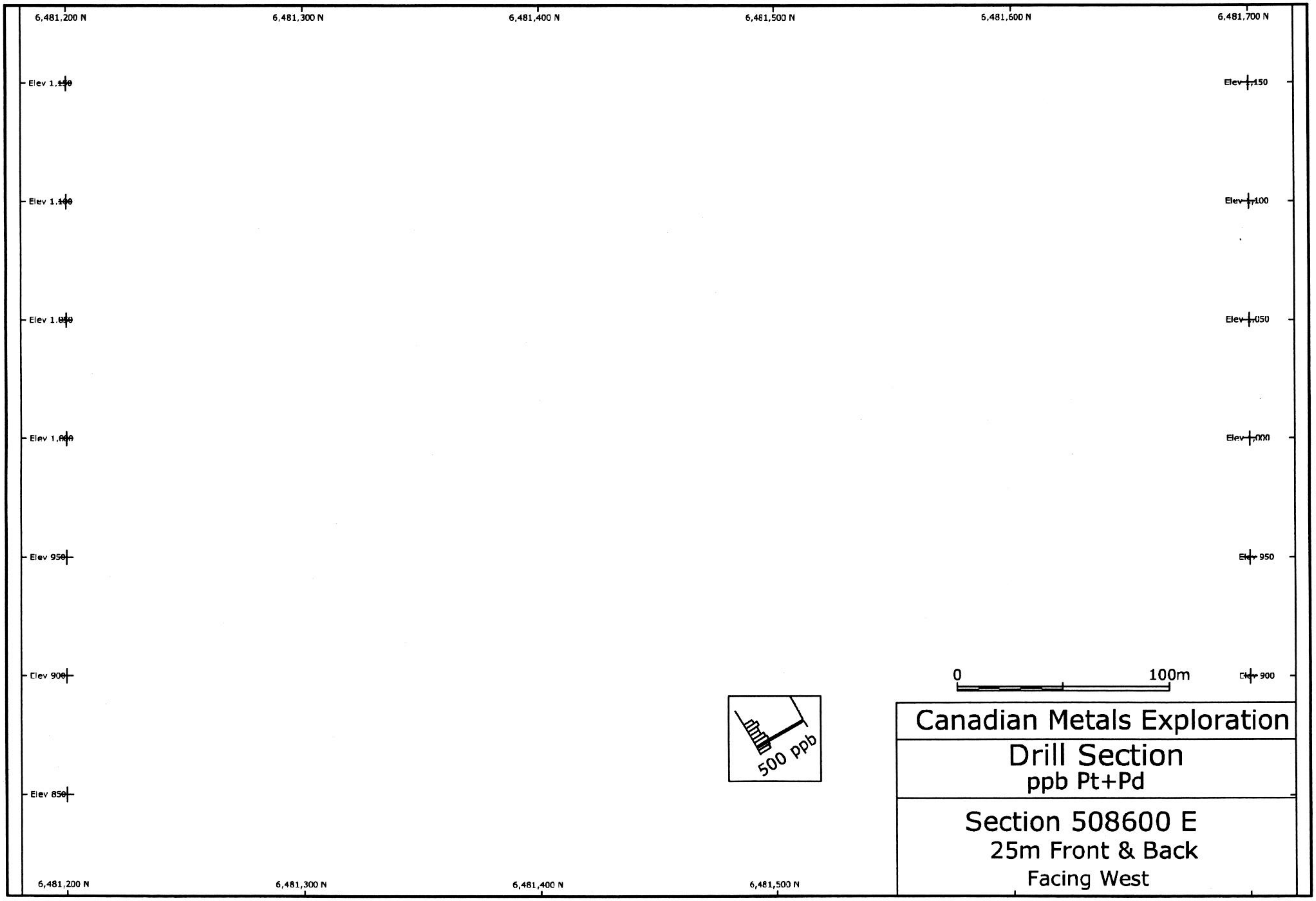
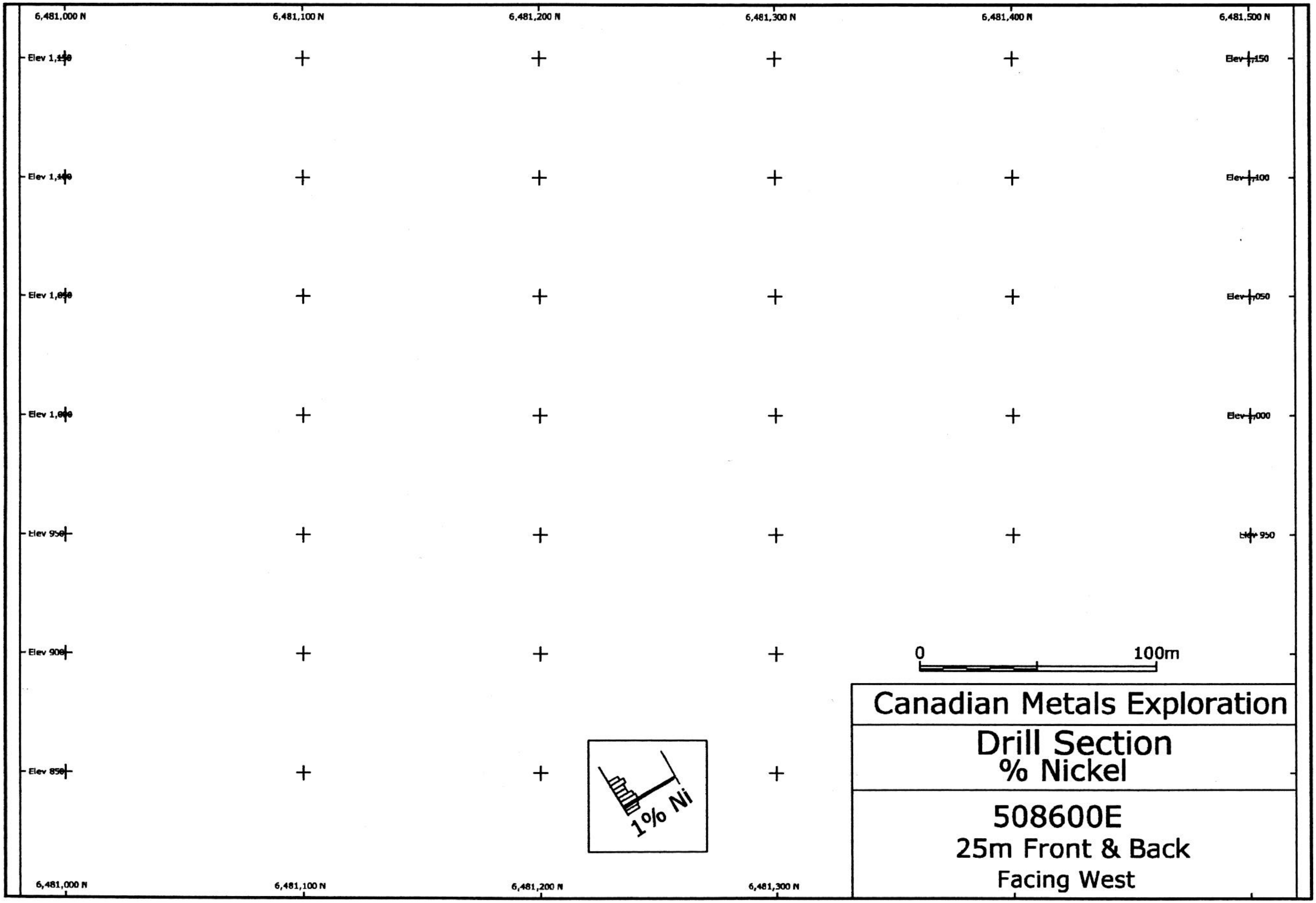
6,481,300 N
Elev 1,100
Elev 1,050
Elev 1,000
Elev 950
Elev 900
Elev 850
Elev 800
Elev 750
DH 70-19
DH 70-20
DH 98-5
500 ppb
0
100m
Canadian Metals Exploration
Drill Section
ppb Pt+Pd
Section 508650 E
25m Front & Back
Facing West



6,480,800 N
6,480,900 N
6,481,000 N
6,481,100 N
6,481,200 N
6,481,300 N
Elev 1,100
Elev 1,050
Elev 1,000
Elev 950
Elev 900
Elev 850
Elev 800
Elev 750
DH 70-19
DH 70-20
DH 98-5
1% Ni
0
100m
Canadian Metals Exploration
Drill Section
% Nickel
508650E
25m Front & Back
Facing West


6,481,200 N
6,481,300 N
6,481,400 N
6,481,500 N
6,481,600 N
6,481,700 N
Elev 1,150
Elev 1,100
Elev 1,050
Elev 1,000
Elev 950
Elev 900
Elev 850
500 ppb
0
100m
Canadian Metals Exploration
Drill Section
ppb Pt+Pd
Section 508600 E
25m Front & Back
Facing West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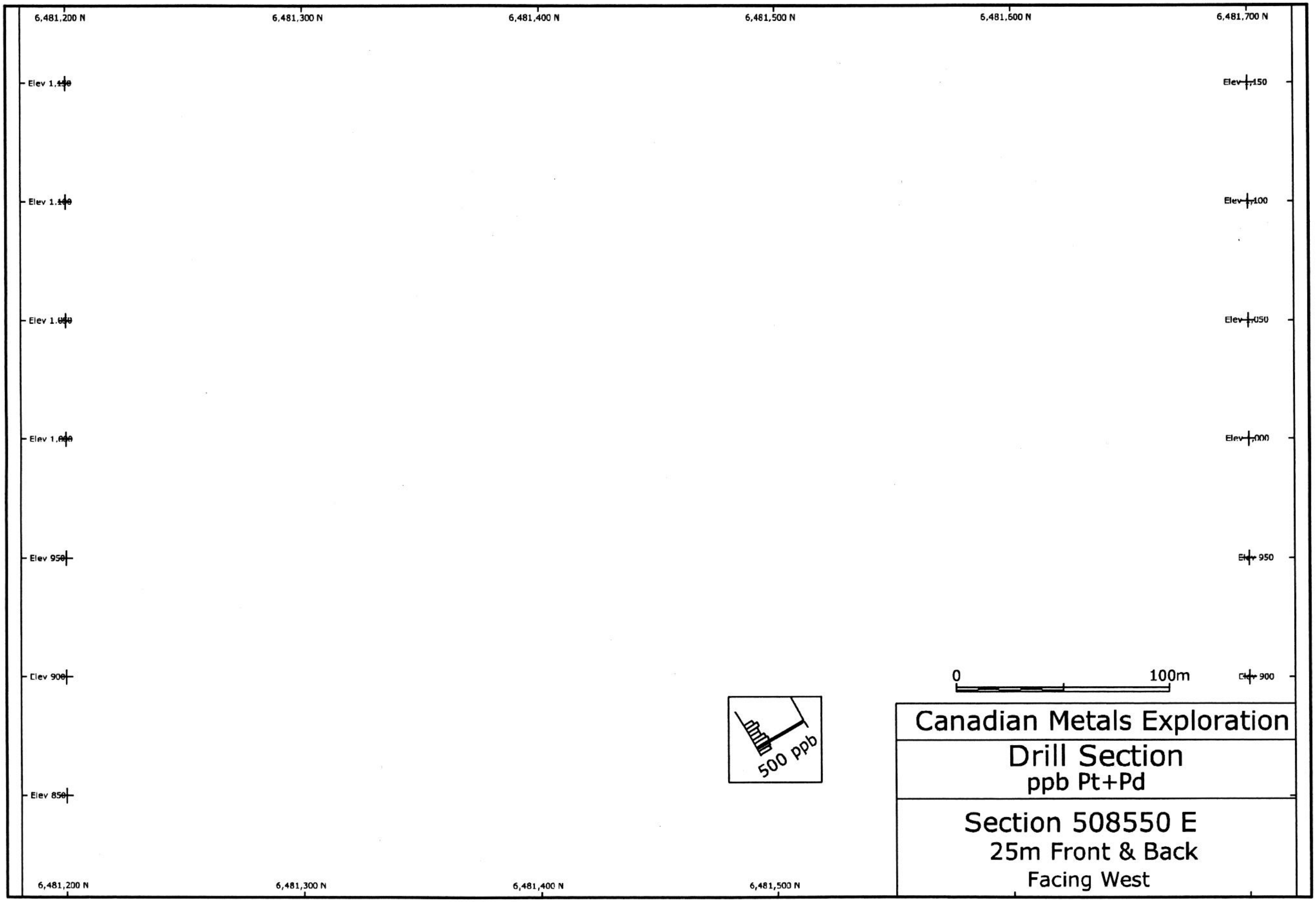
6,481,100 N
6,481,200 N
6,481,300 N
6,481,400 N
6,481,500 N
Elev 1,150
Elev 1,100
Elev 1,050
Elev 1,000
Elev 950
Elev 900
Elev 850
0
100m
1% Ni
Canadian Metals Exploration
Drill Section
% Nickel
508600E
25m Front & Back
Facing West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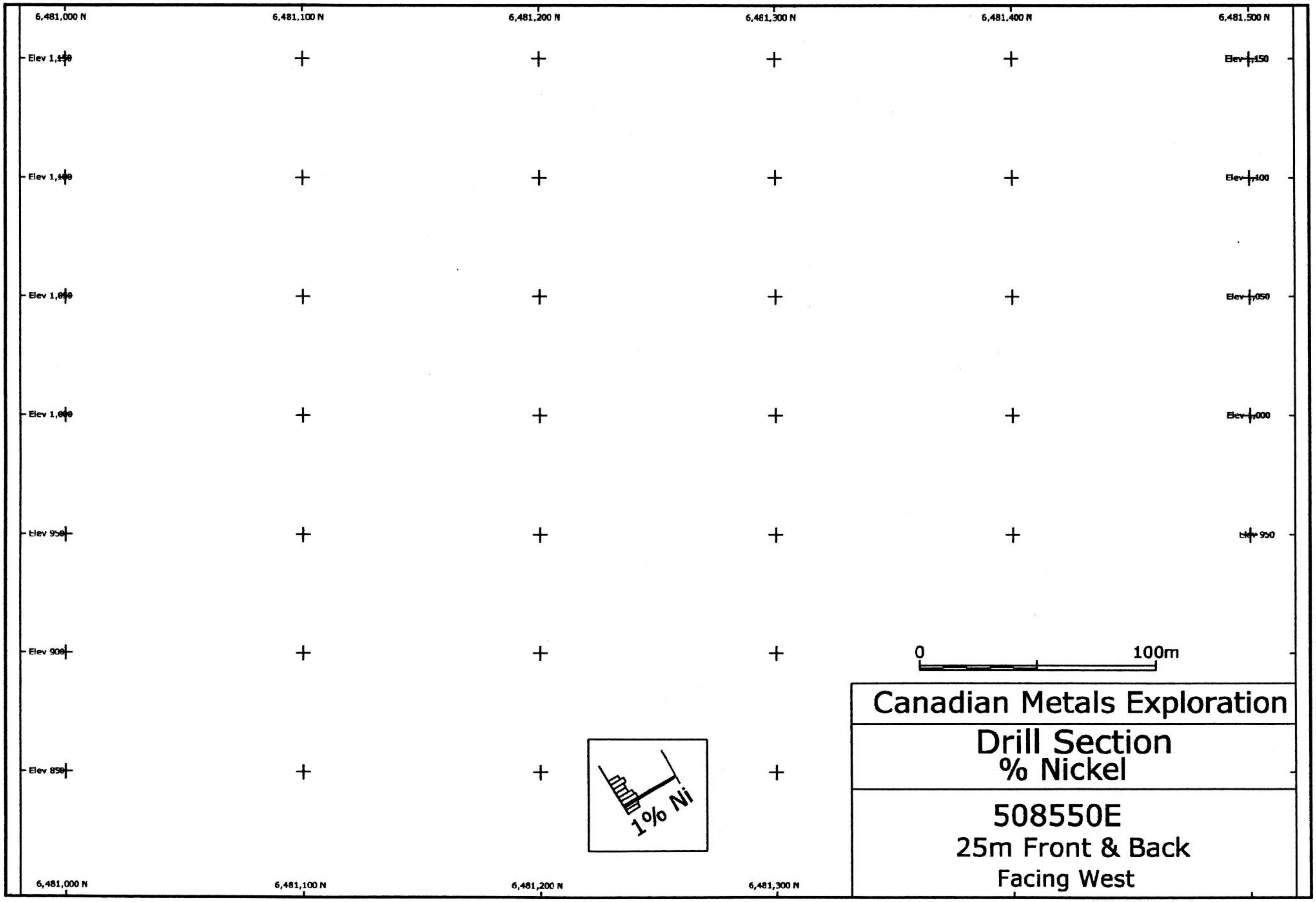
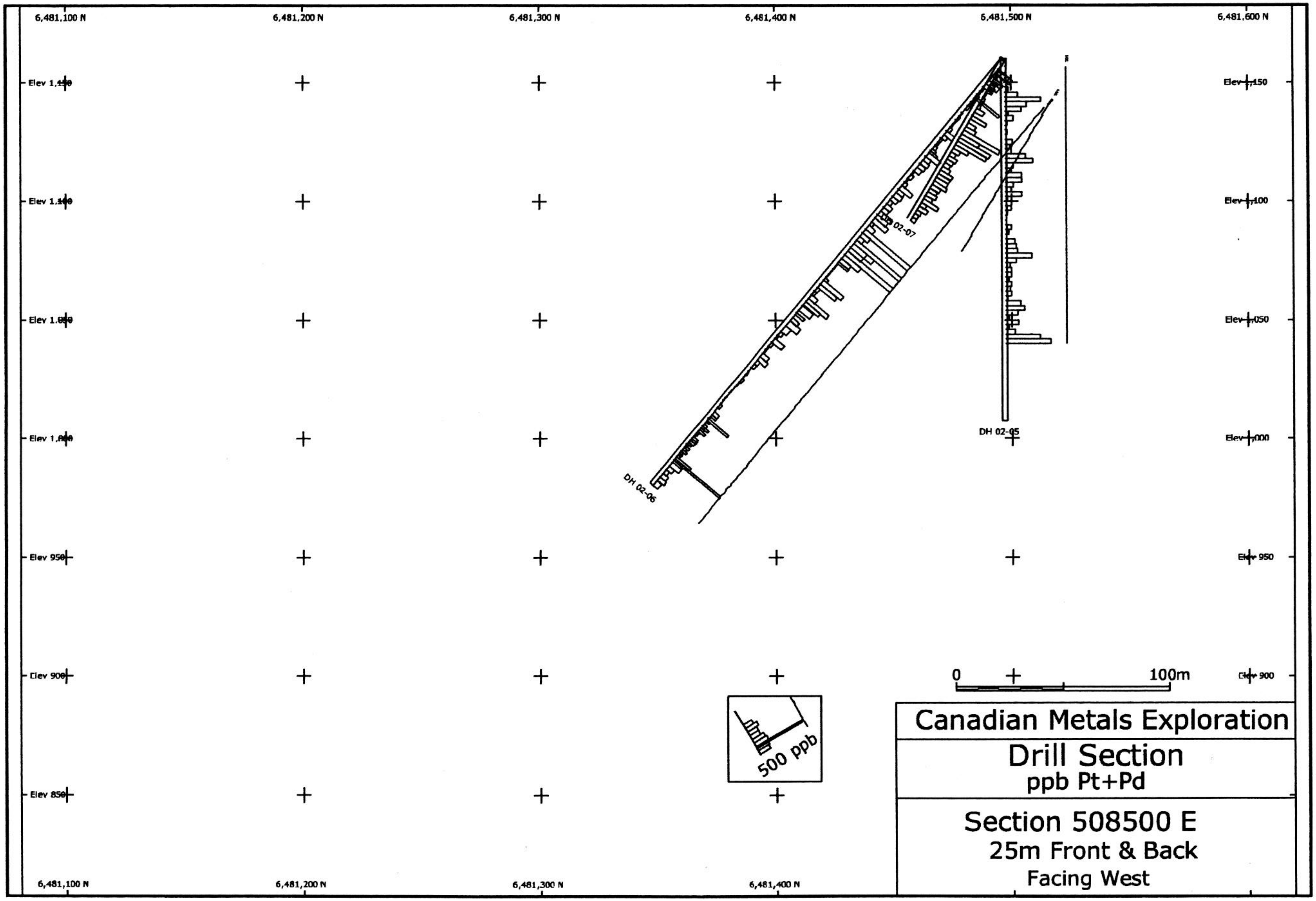
6,481,300 N
6,481,400 N
6,481,500 N
6,481,600 N
6,481,700 N
Elev 1,150
Elev 1,100
Elev 1,050
Elev 1,000
Elev 950
Elev 900
Elev 850
0
100m
500 ppb
Canadian Metals Exploration
Drill Section
ppb Pt+Pd
Section 508550 E
25m Front & Back
Facing West

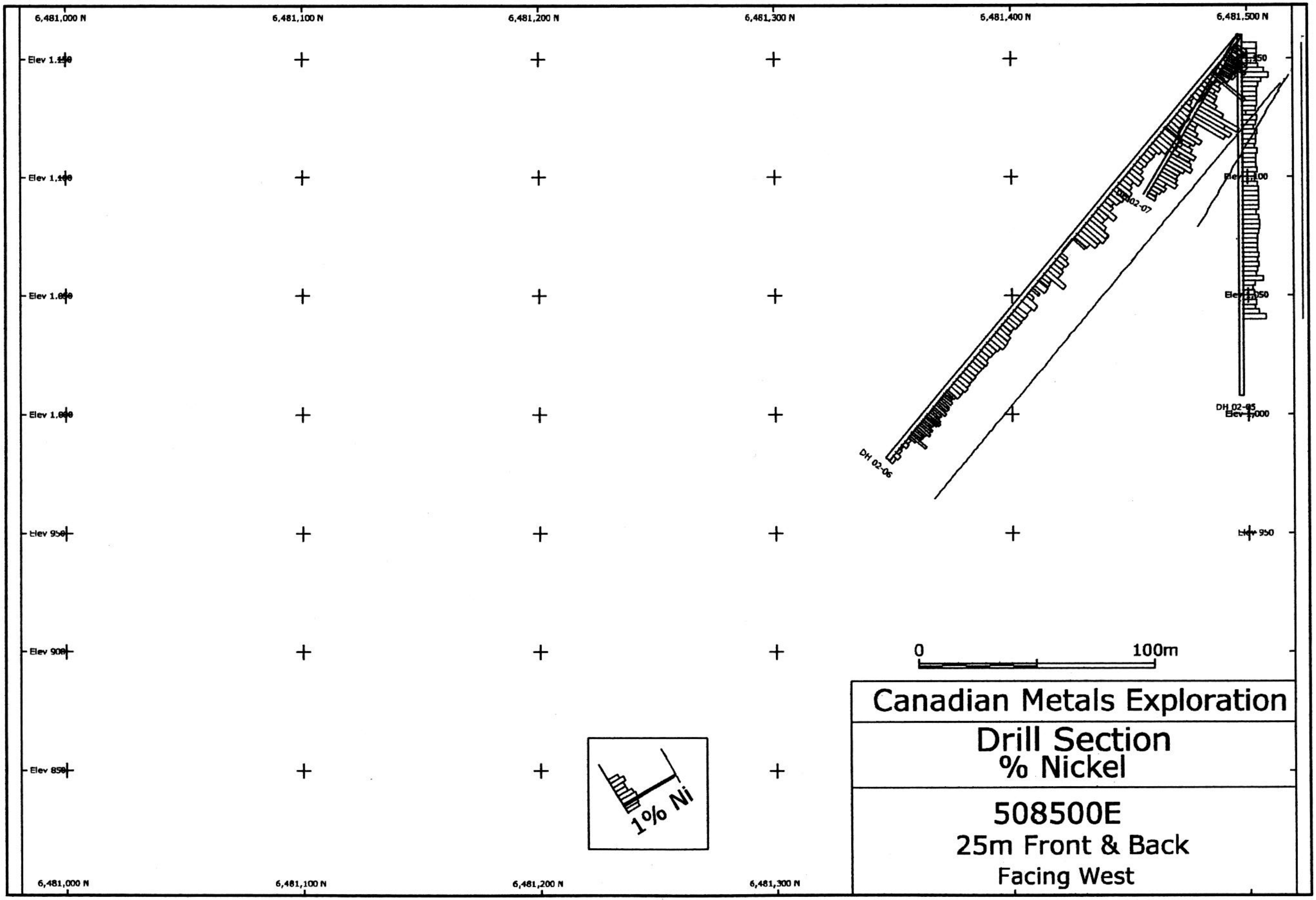

6,481,000 N
6,481,100 N
6,481,200 N
6,481,300 N
6,481,400 N
6,481,500 N
Elev 1,150
Elev 1,100
Elev 1,050
Elev 1,000
Elev 950
Elev 900
Elev 850
0
100m
1% Ni
Canadian Metals Exploration
Drill Section
% Nickel
508550E
25m Front & Back
Facing West

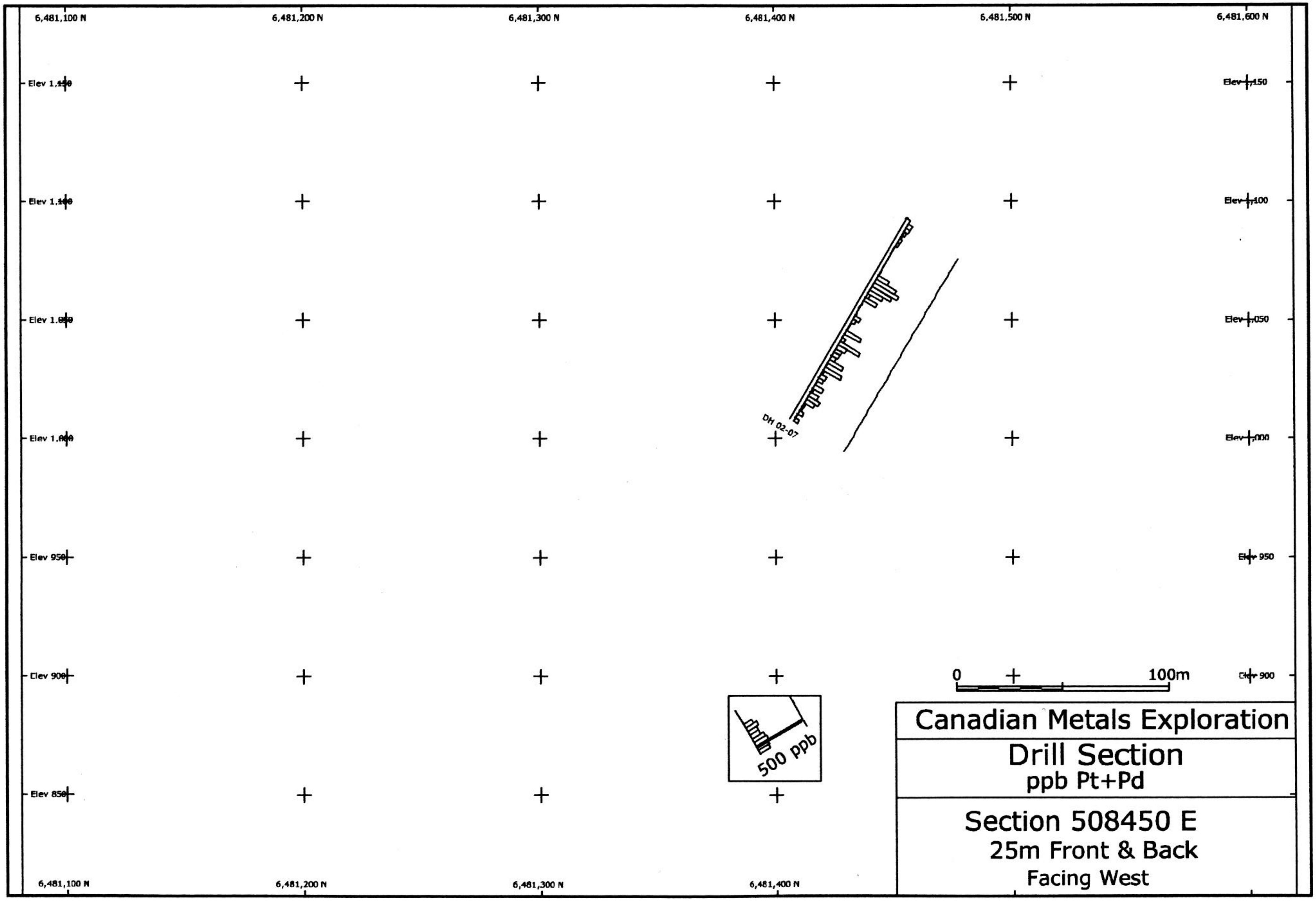


Canadian Metals Exploration

Drill Section
ppb Pt+Pd

Section 508500 E
25m Front & Back
Facing West

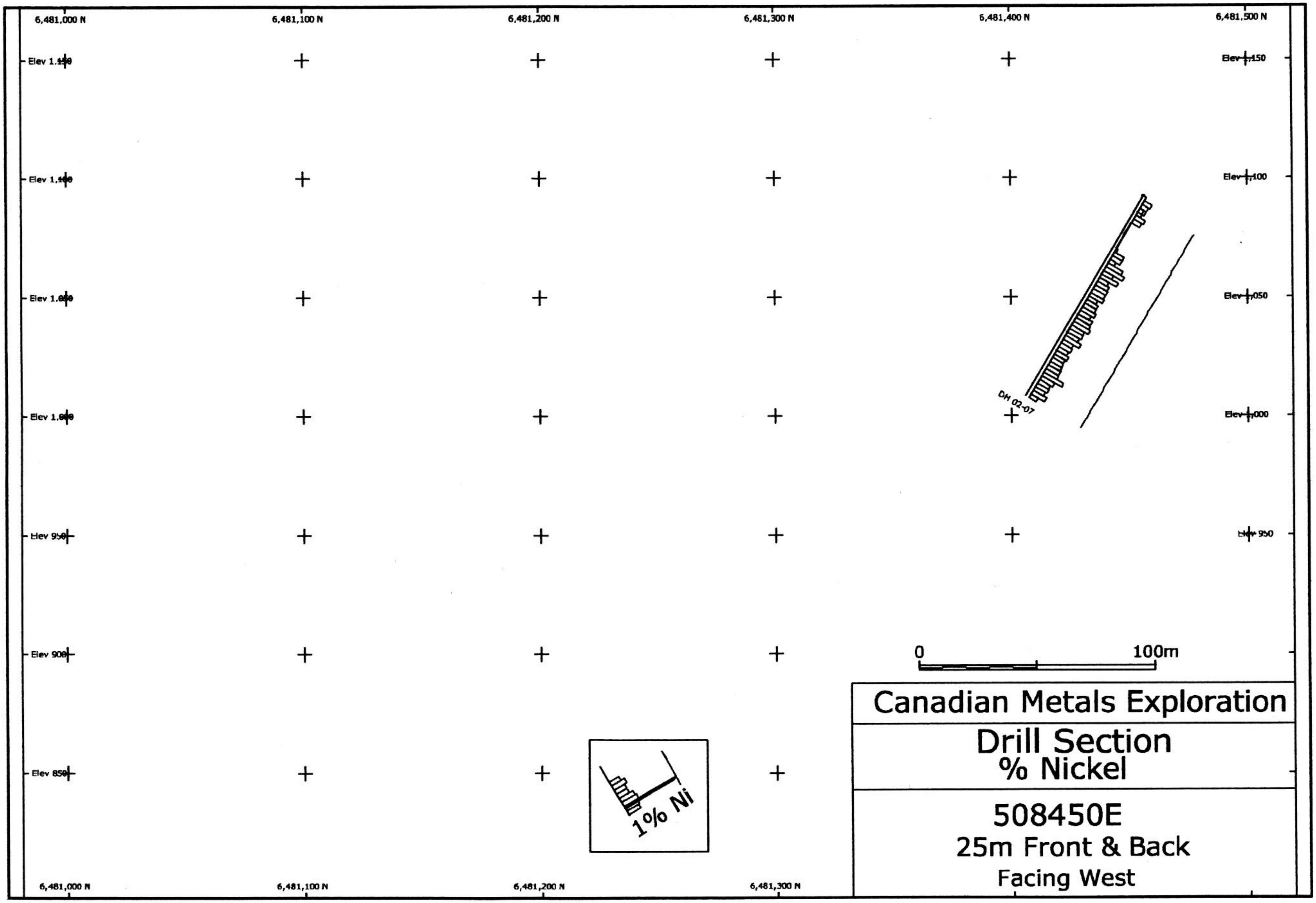

6,481,000 N
6,481,100 N
6,481,200 N
6,481,300 N
6,481,400 N
6,481,500 N
Elev 1,150
Elev 1,100
Elev 1,050
Elev 1,000
Elev 950
Elev 900
Elev 850
DH 02-06
DH 02-05
0
100m
1% Ni
Canadian Metals Exploration
Drill Section
% Nickel
508500E
25m Front & Back
Facing West

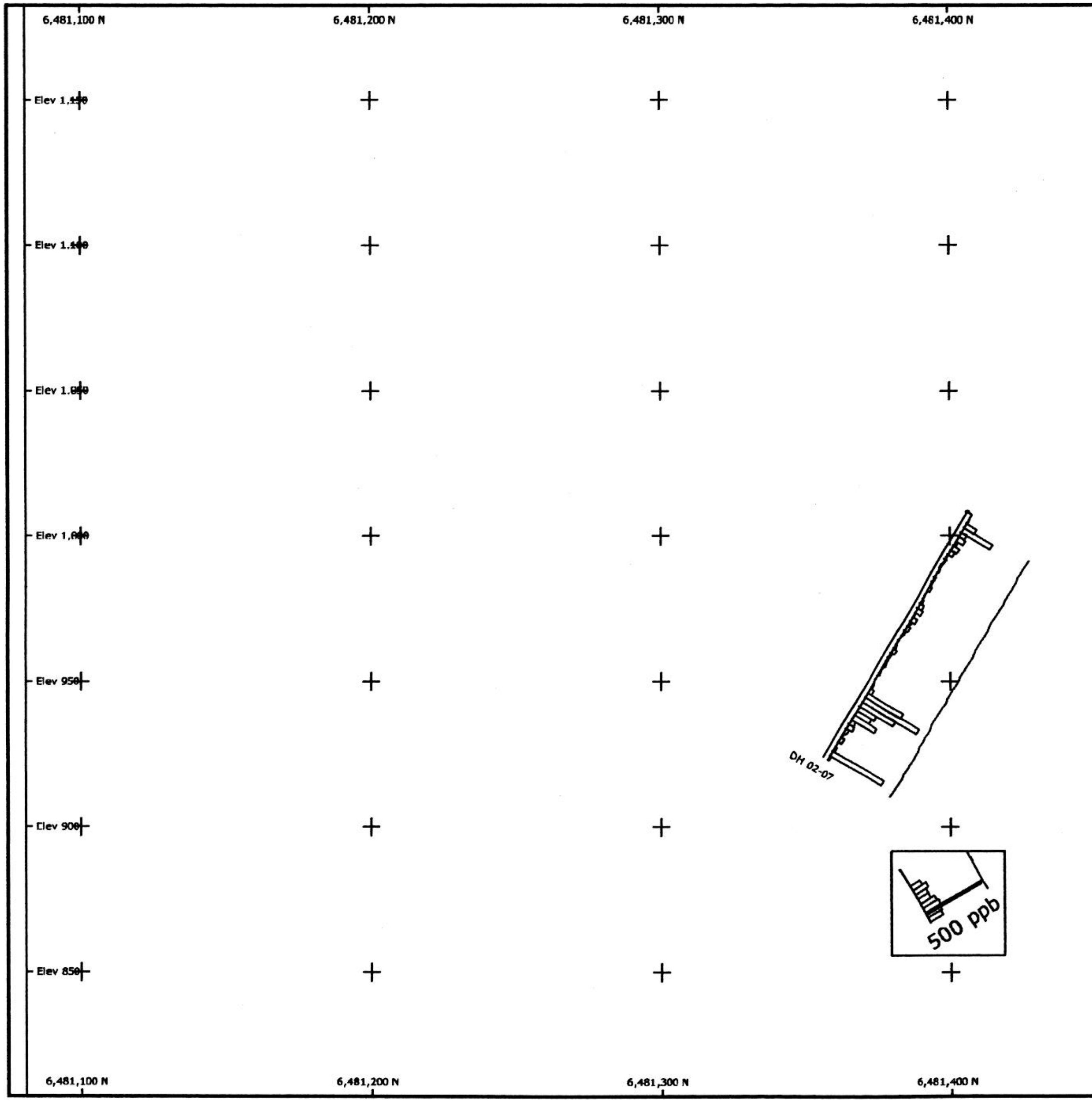


Canadian Metals Exploration

Drill Section
ppb Pt+Pd

Section 508450 E
25m Front & Back
Facing West

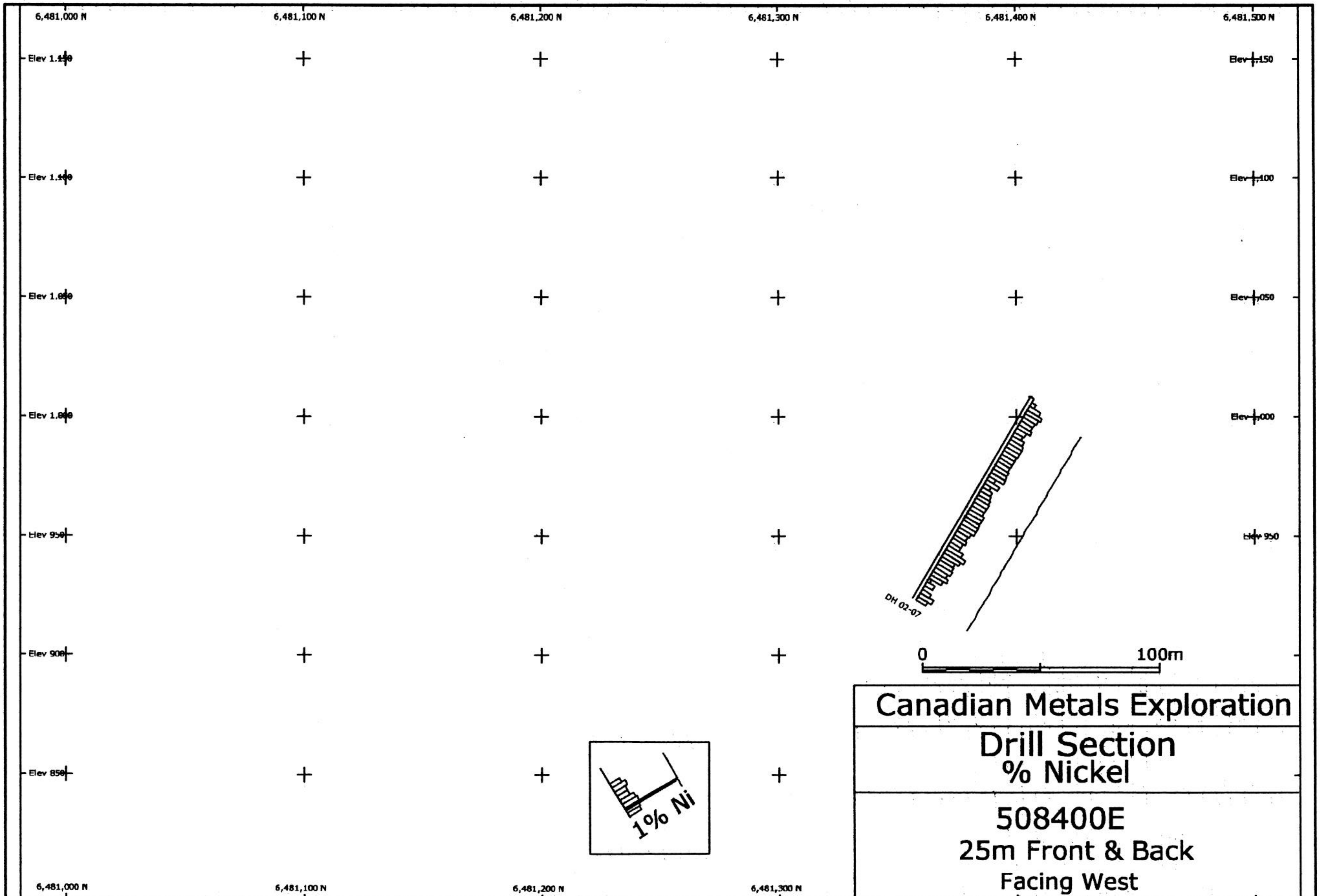

6,481,000 N
6,481,100 N
6,481,200 N
6,481,300 N
6,481,400 N
6,481,500 N
Elev 1,150
Elev 1,100
Elev 1,050
Elev 1,000
Elev 950
Elev 900
Elev 850
DH 02-07
1% Ni
0
100m
Canadian Metals Exploration
Drill Section
% Nickel
508450E
25m Front & Back
Facing West



Canadian Metals Exploration

Drill Section
ppb Pt+Pd

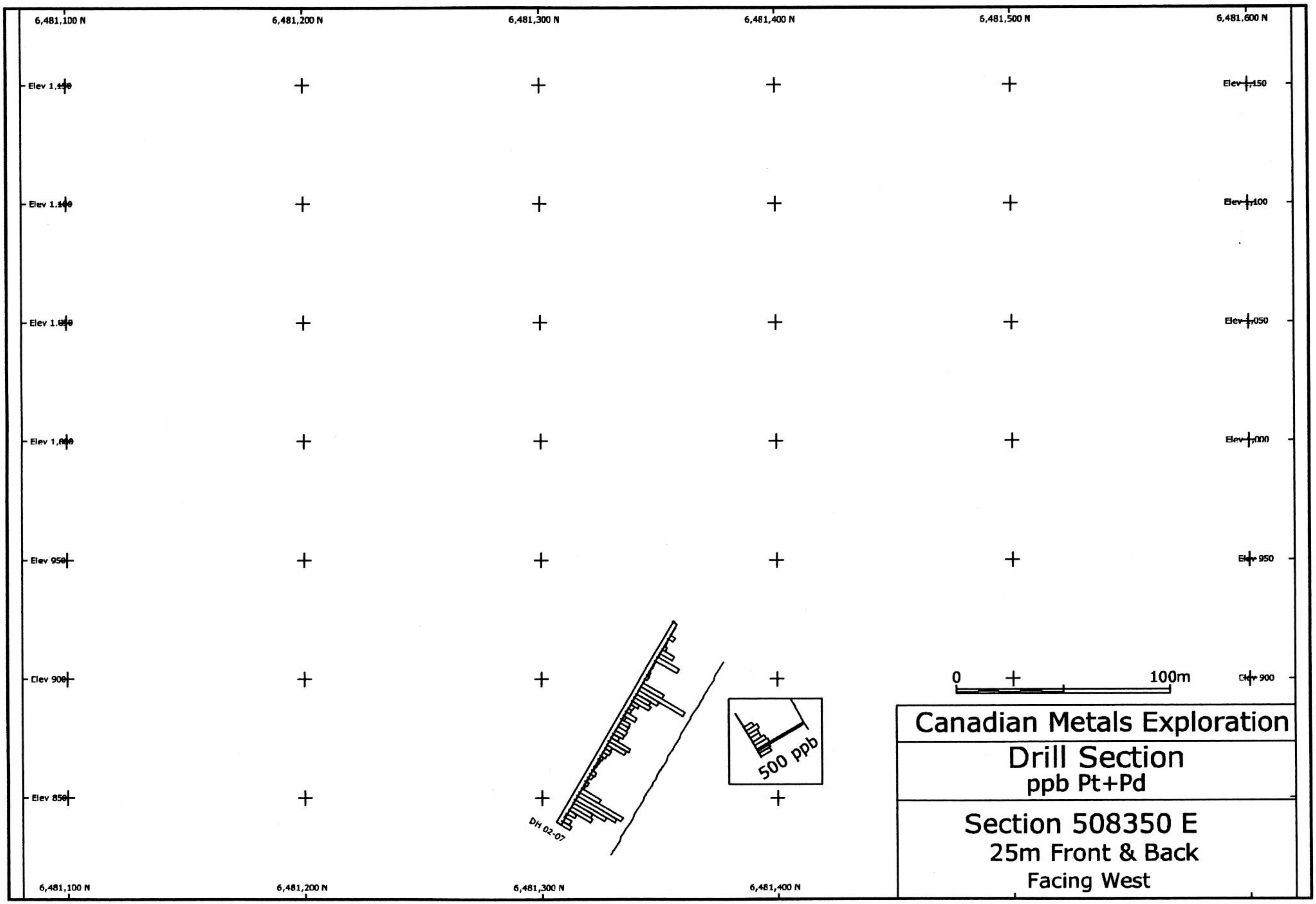
Section 508400 E
25m Front & Back
Facing West

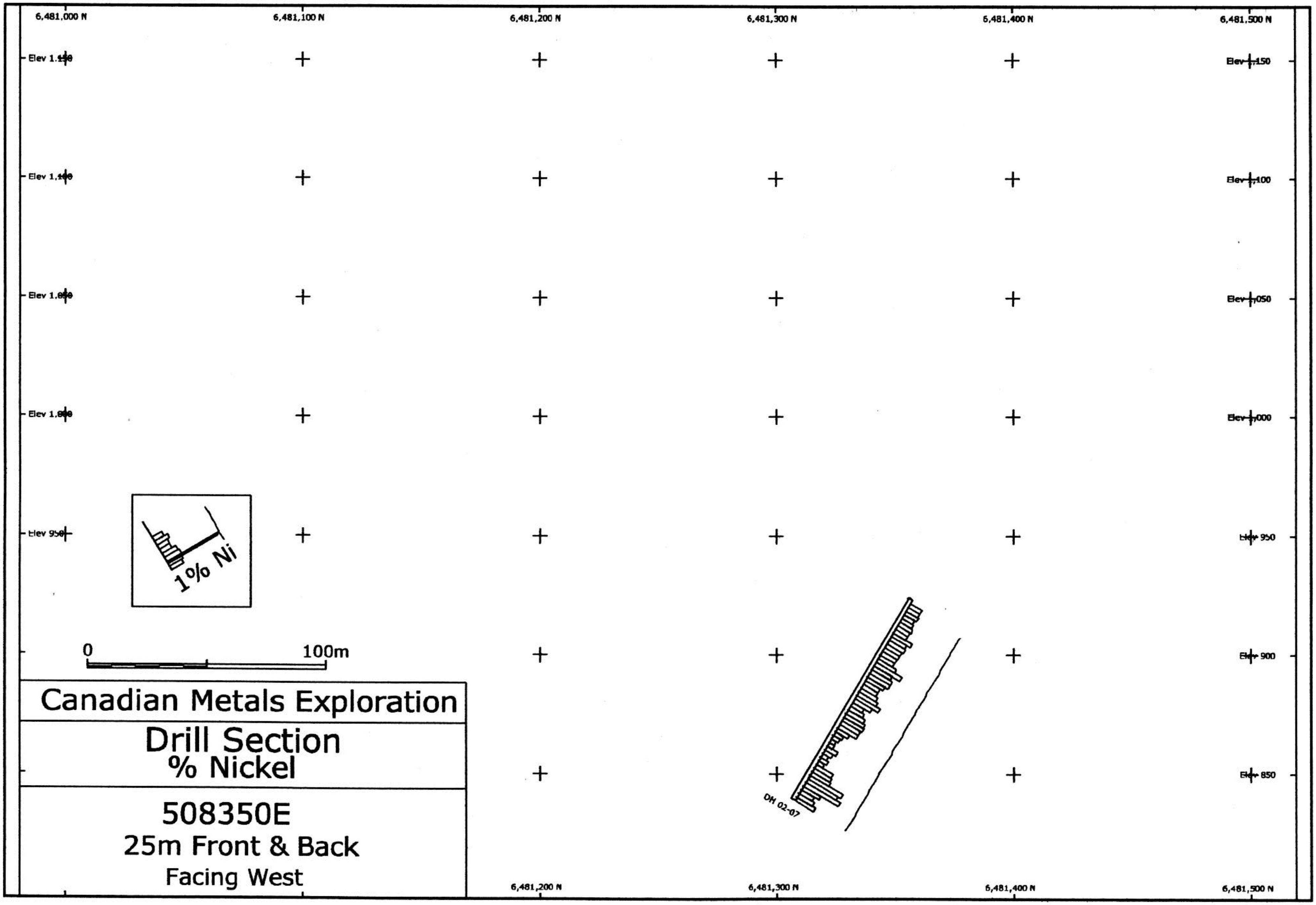


Canadian Metals Exploration

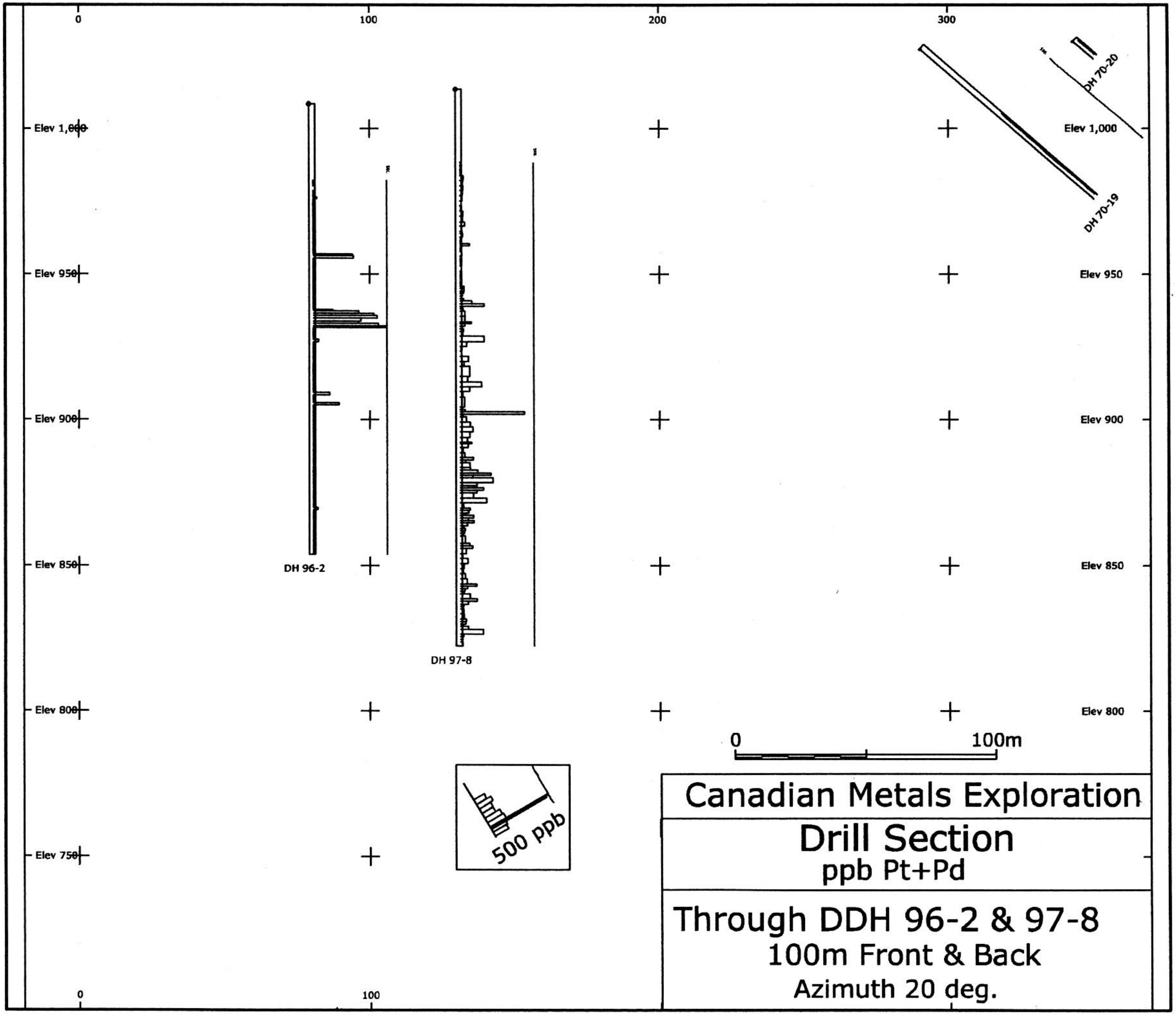
Drill Section
% Nickel

508400E
25m Front & Back
Facing West


6,481,100 N
6,481,200 N
6,481,300 N
6,481,400 N
6,481,500 N
6,481,600 N
Elev 1,150
Elev 1,100
Elev 1,050
Elev 1,000
Elev 950
Elev 900
Elev 850
DH 02-07
500 ppb
0
100m
Canadian Metals Exploration
Drill Section
ppb Pt+Pd
Section 508350 E
25m Front & Back
Facing West



6,481,000 N
6,481,100 N
6,481,200 N
6,481,300 N
6,481,400 N
6,481,500 N
Elev 1,150
Elev 1,100
Elev 1,050
Elev 1,000
Elev 950
1% Ni
0
100m
DH 02-07
Canadian Metals Exploration
Drill Section
% Nickel
508350E
25m Front & Back
Facing West



Canadian Metals Exploration

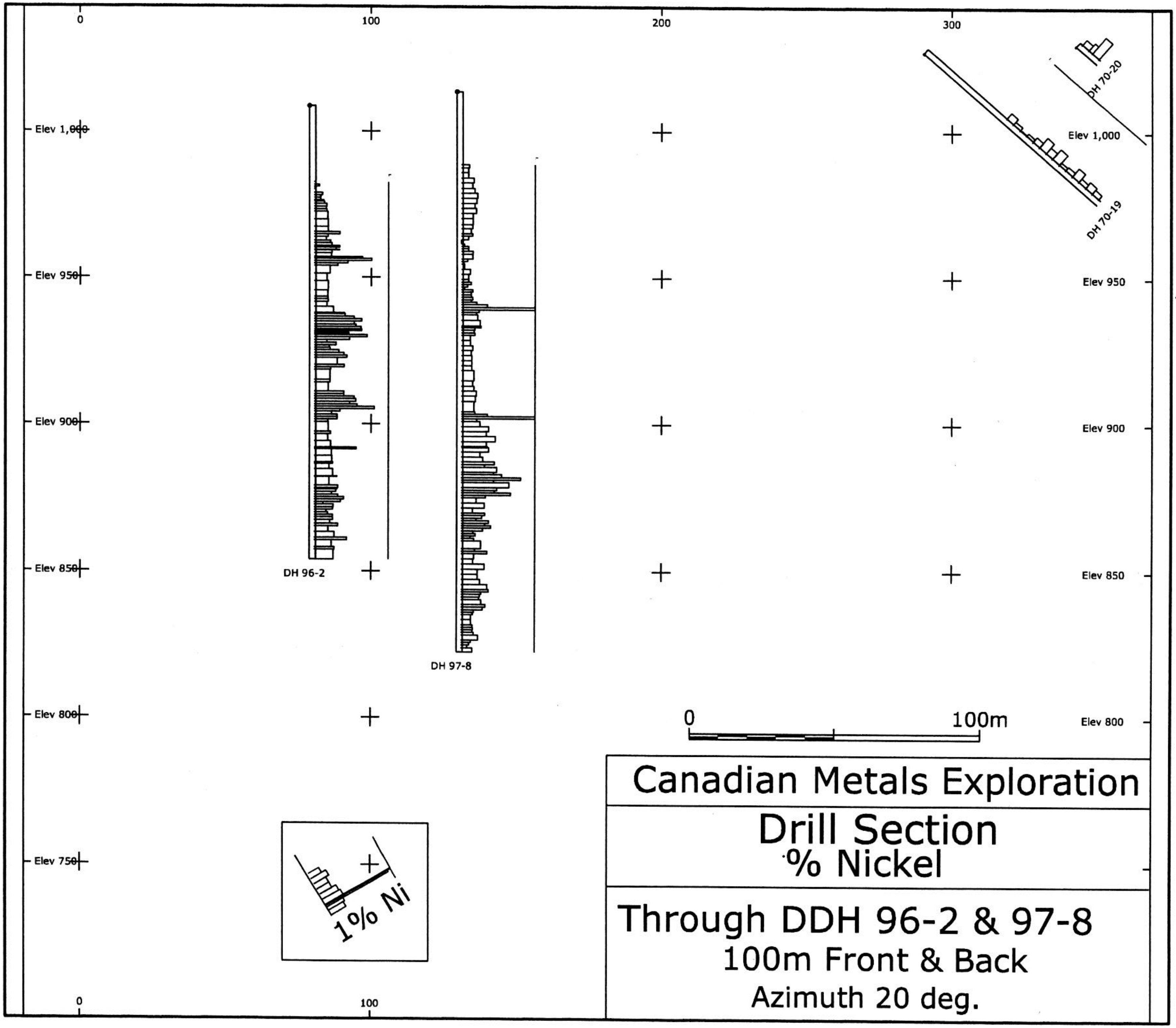
Drill Section

ppb Pt+Pd

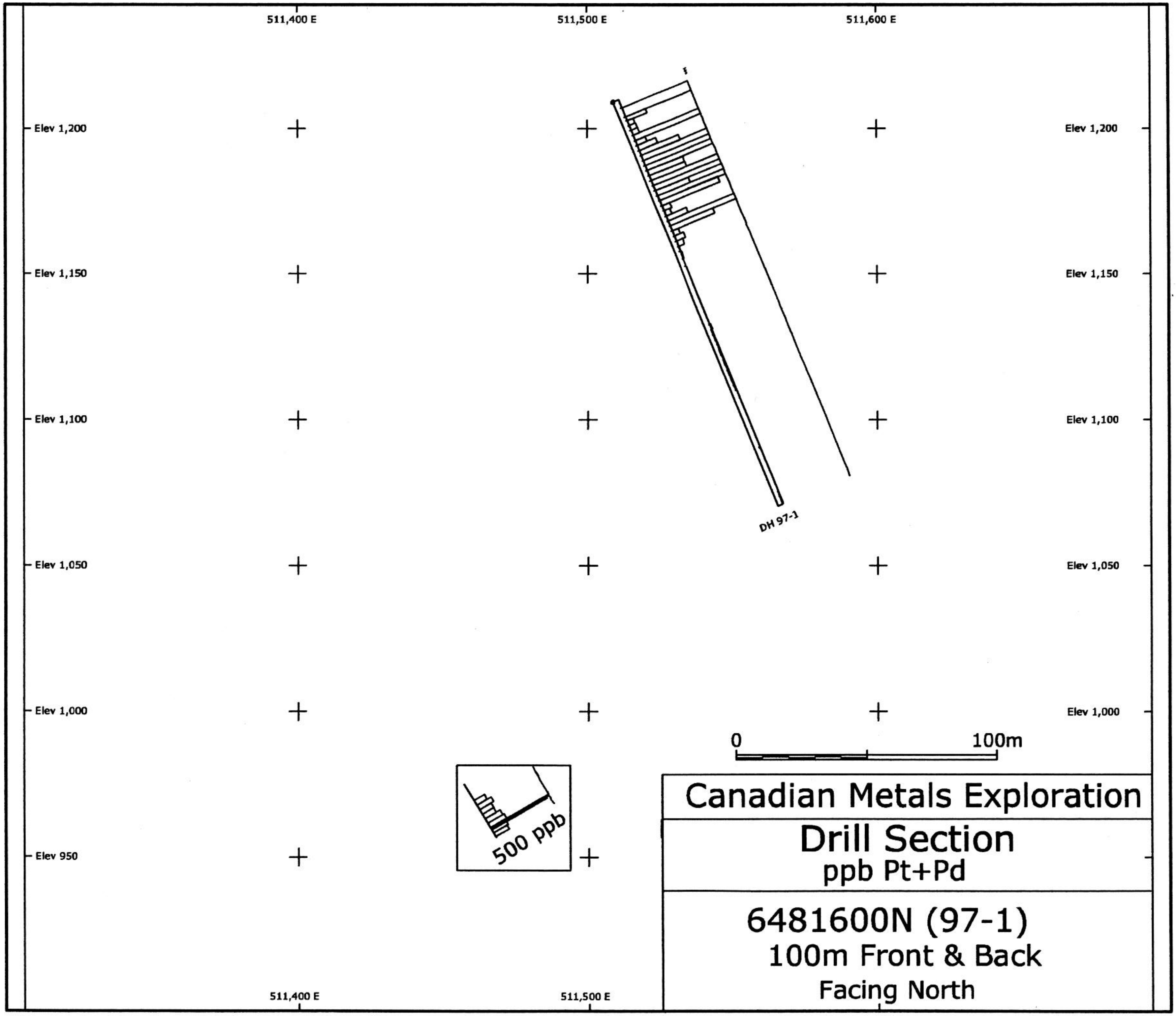
Through DDH 96-2 & 97-8

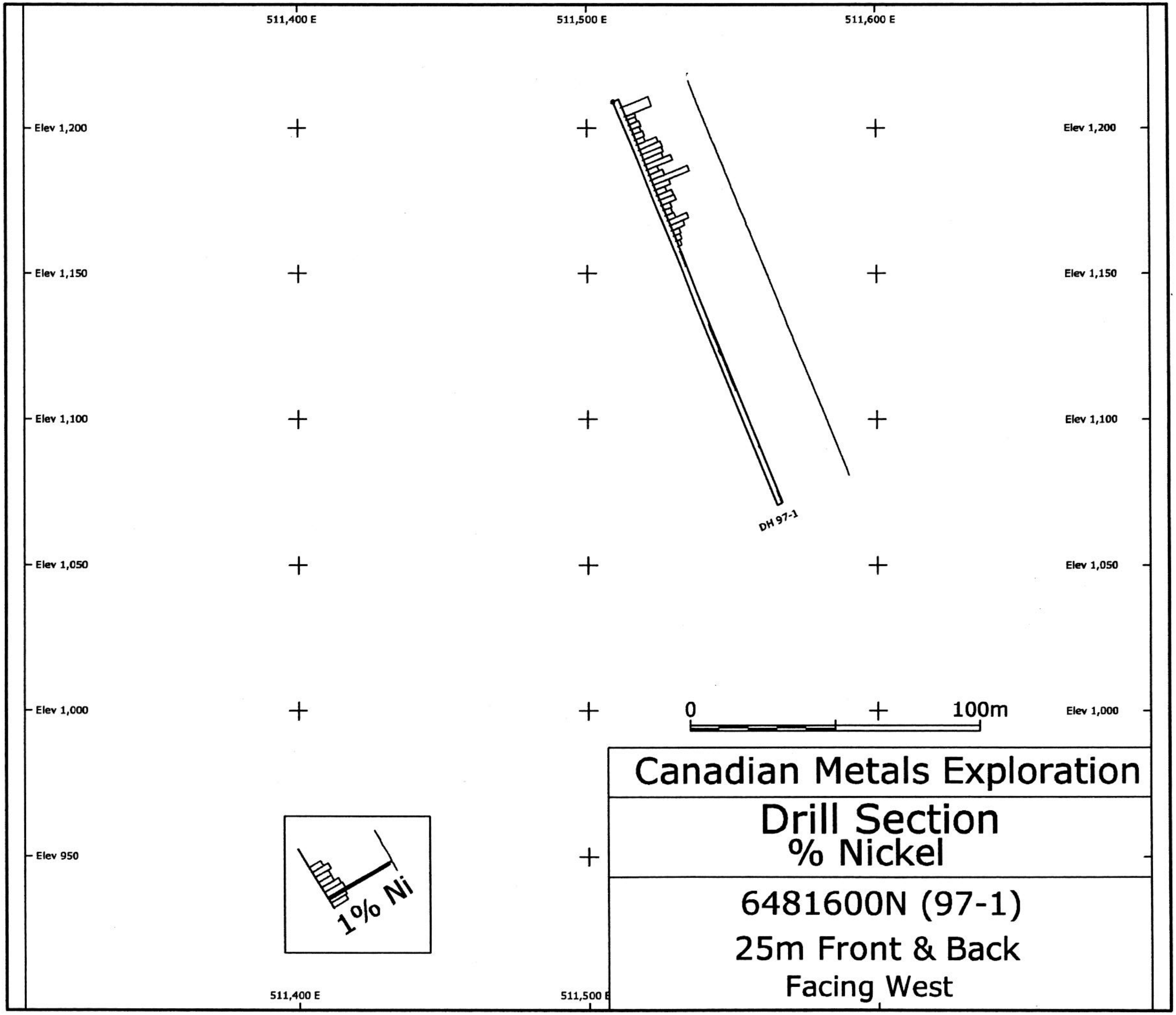
100m Front & Back

Azimuth 20 deg.

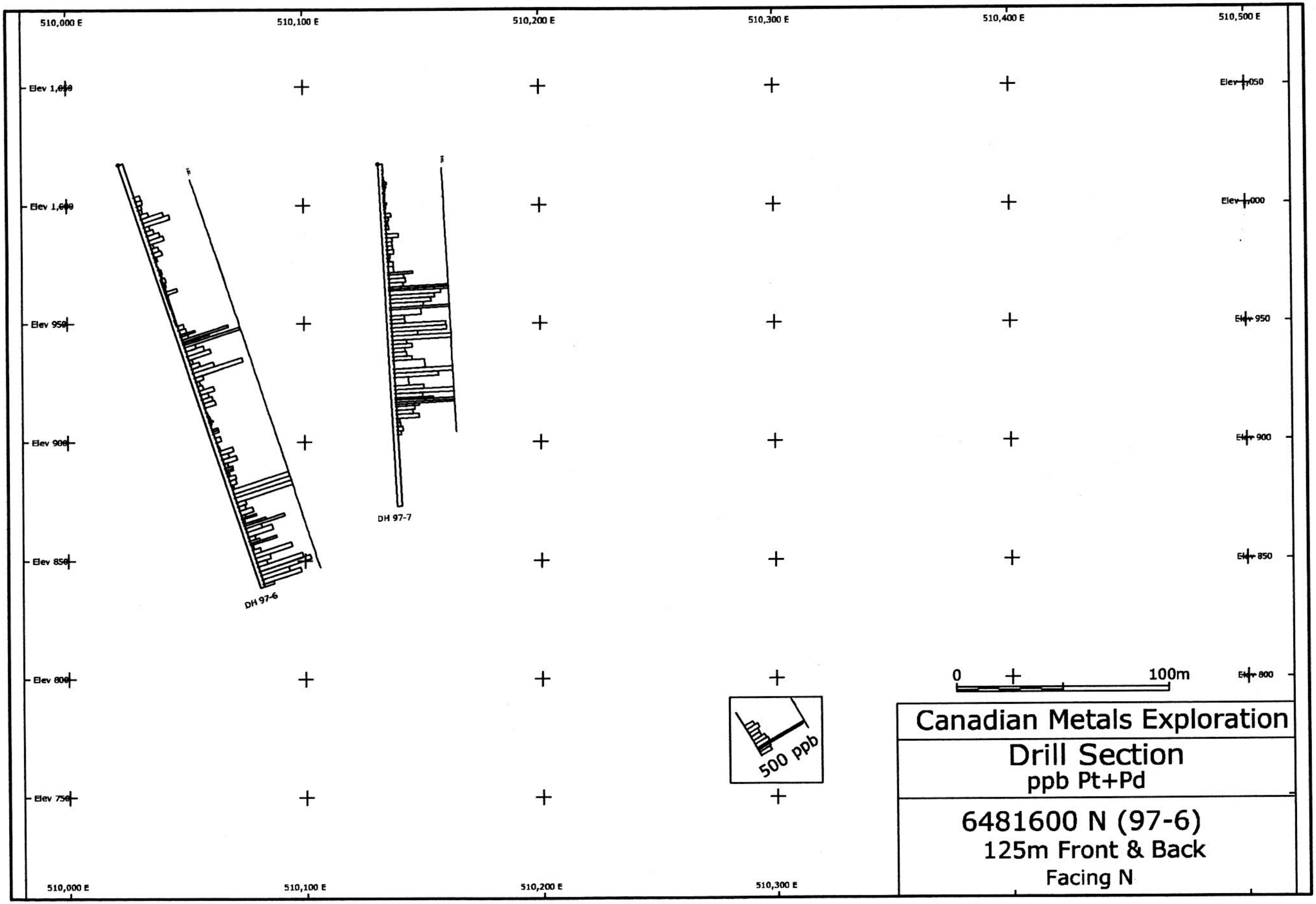


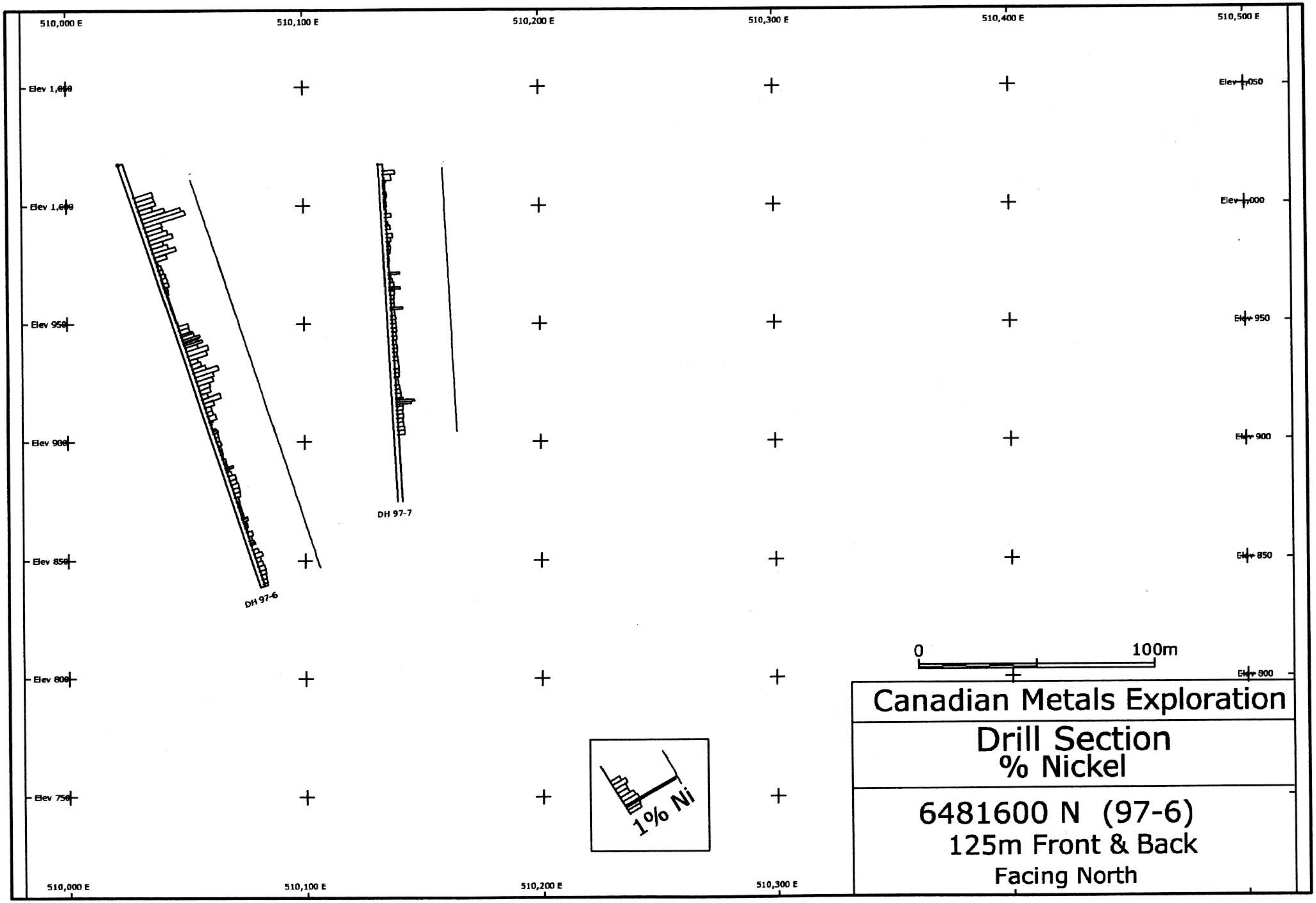
0
100
200
300
Elev 1,000
Elev 950
Elev 900
Elev 850
Elev 800
Elev 750
DH 70-20
DH 70-19
DH 96-2
DH 97-8
0
100m
1% Ni
Canadian Metals Exploration
Drill Section
% Nickel
Through DDH 96-2 & 97-8
100m Front & Back
Azimuth 20 deg.


511,400 E
511,500 E
511,600 E
Elev 1,200
Elev 1,150
Elev 1,100
Elev 1,050
Elev 1,000
Elev 950
DH 97-1
500 ppb
0
100m
Canadian Metals Exploration
Drill Section
ppb Pt+Pd
6481600N (97-1)
100m Front & Back
Facing North

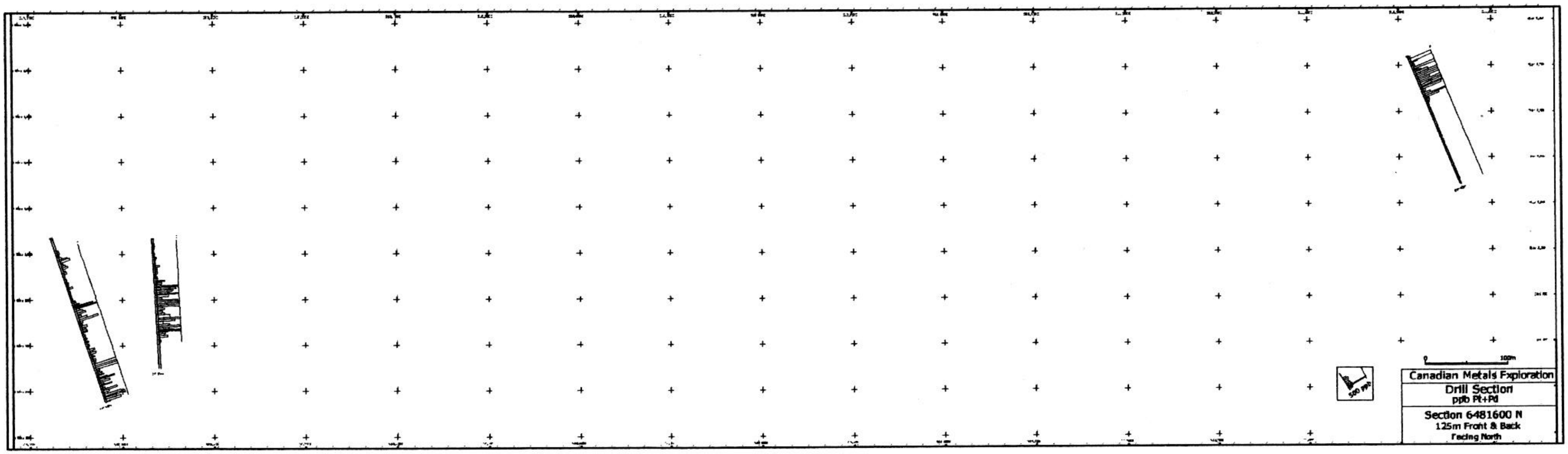


511,400 E
511,500 E
511,600 E
Elev 1,200
Elev 1,150
Elev 1,100
Elev 1,050
Elev 1,000
Elev 950
DH 97-1
0
100m
1% Ni
511,400 E
511,500 E
Canadian Metals Exploration
Drill Section
% Nickel
6481600N (97-1)
25m Front & Back
Facing West

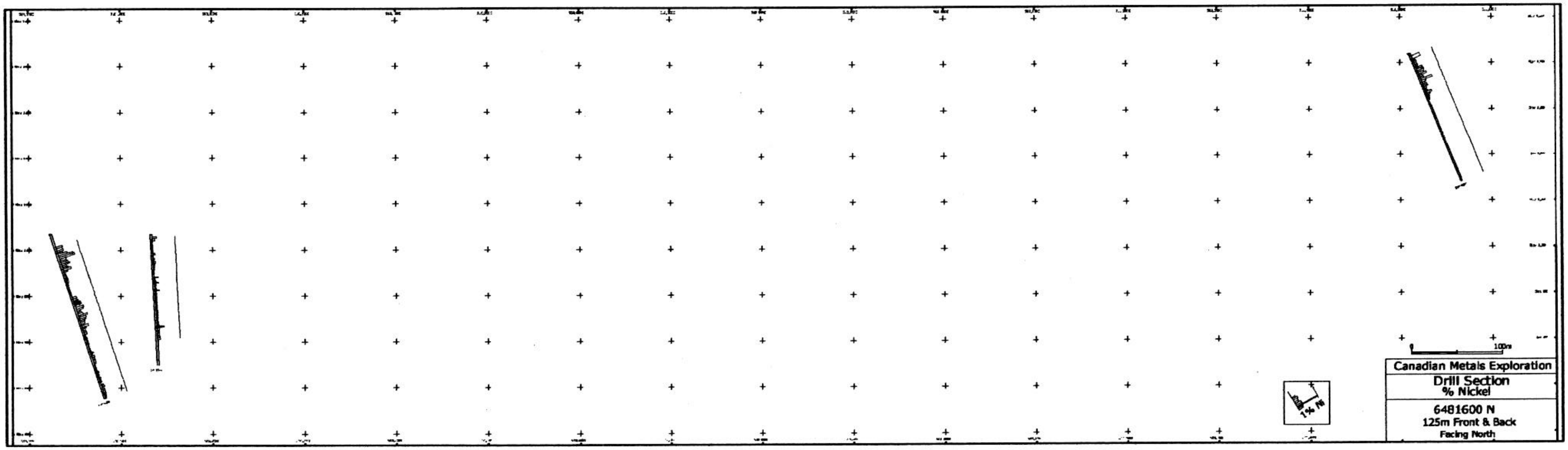

510,000 E
510,100 E
510,200 E
510,300 E
510,400 E
510,500 E
Elev 1,050
Elev 1,000
Elev 950
Elev 900
Elev 850
Elev 800
Elev 750
DH 97-6
DH 97-7
500 ppb
0
100m
Canadian Metals Exploration
Drill Section
ppb Pt+Pd
6481600 N (97-6)
125m Front & Back
Facing N

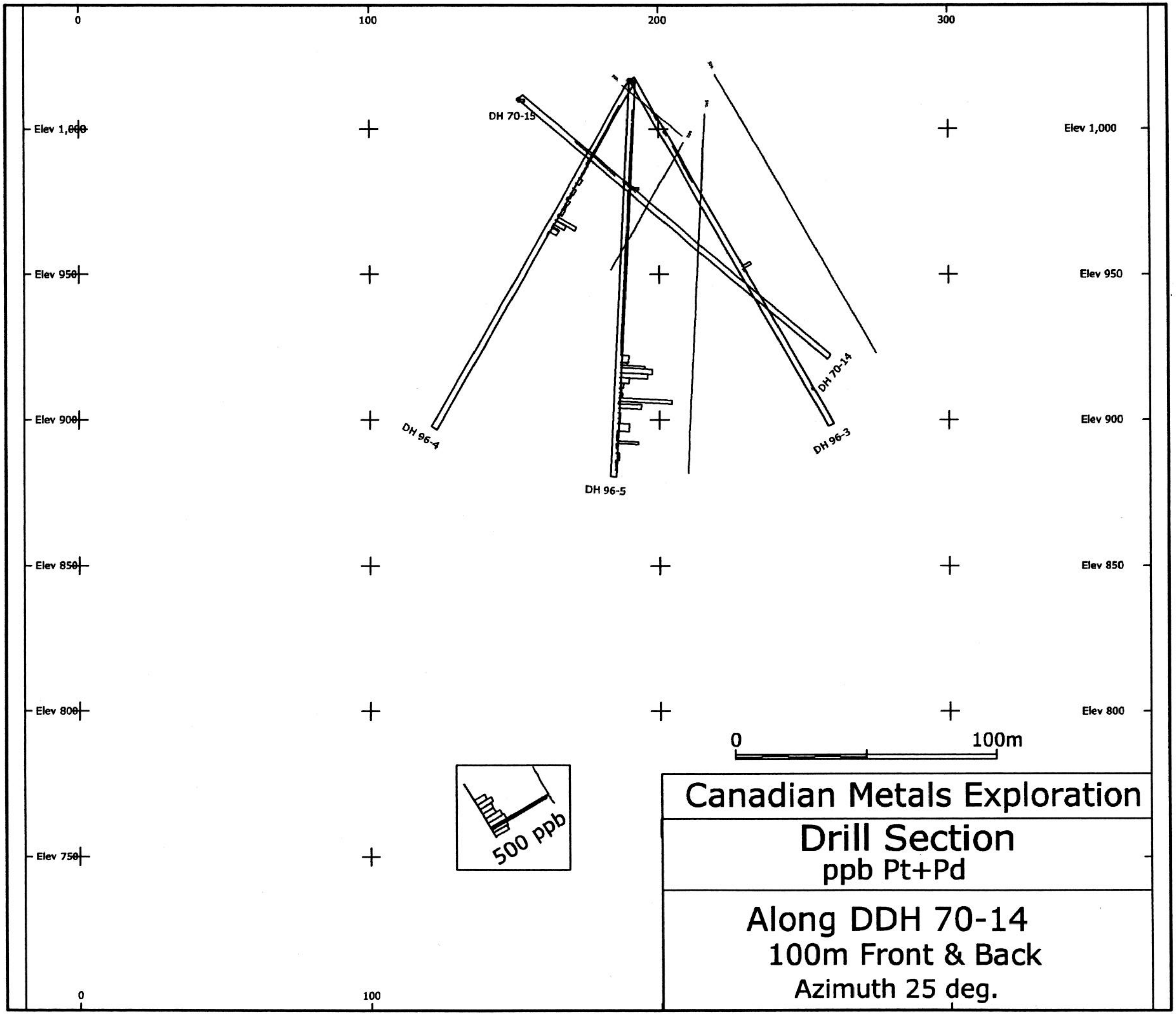


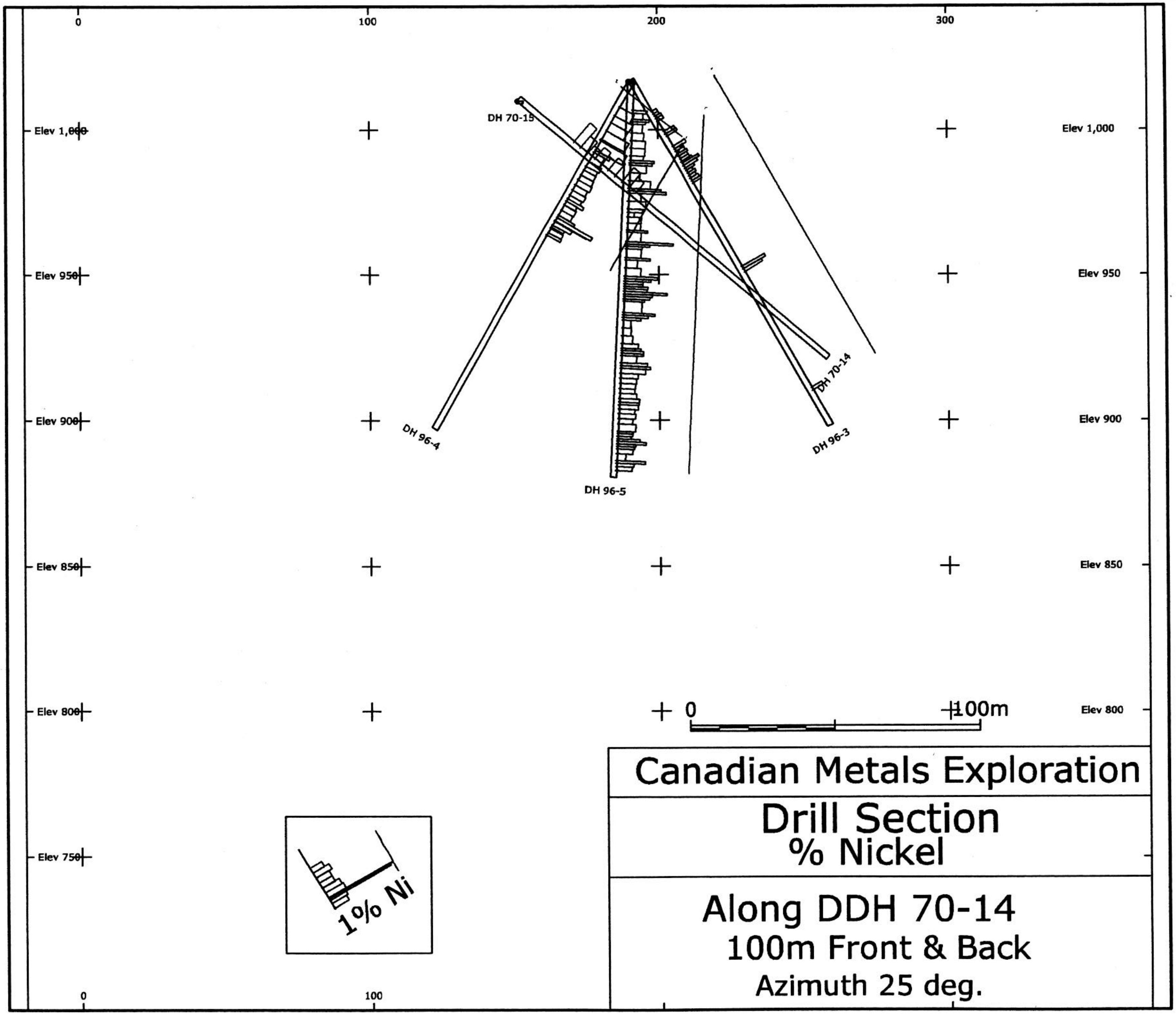
510,000 E
510,100 E
510,200 E
510,300 E
510,400 E
510,500 E
Elev 1,050
Elev 1,000
Elev 950
Elev 900
Elev 850
Elev 800
Elev 750
DH 97-6
DH 97-7
0
100m
1% Ni
Canadian Metals Exploration
Drill Section
% Nickel
6481600 N (97-6)
125m Front & Back
Facing North



0
100m
500 ppb
Canadian Metals Exploration
Drill Section
ppb Pt+Pd
Section 6481600 N
125m Front & Back
Facing North


100m
1% Ni
Canadian Metals Exploration
Drill Section
% Nickel
6481600 N
125m Front & Back
Facing North


0
100
200
300
Elev 1,000
Elev 950
Elev 900
Elev 850
Elev 800
Elev 750
DH 70-15
DH 70-14
DH 96-4
DH 96-5
DH 96-3
0
100m
500 ppb
0
100
Canadian Metals Exploration
Drill Section
ppb Pt+Pd
Along DDH 70-14
100m Front & Back
Azimuth 25 deg.



0
100
200
300
Elev 1,000
Elev 950
Elev 900
Elev 850
Elev 800
Elev 750
DH 70-15
DH 70-14
DH 96-4
DH 96-5
DH 96-3
0
100m
1% Ni
Canadian Metals Exploration
Drill Section
% Nickel
Along DDH 70-14
100m Front & Back
Azimuth 25 deg.