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Three High Priority Targets Identified Through Modeling of Electromagnetic Data From 2011 SkyTEM Survey

Vancouver, B.C. – January 31, 2012, North American Nickel Inc. (TSXV: "NAN"; OTCbb: "WSCRF"; CUSIP: 65704T 108). North American Nickel ("NAN") is pleased to announce that the three-dimensional modelling of SkyTEM helicopter time domain electromagnetic (EM) data collected last fall over parts of its Maniitsoq project in southwest Greenland is complete and has identified three high priority targets for follow-up this summer. Details on each are discussed in the sections below.

Highlights:

- **Target B1-L** – modeled as a 330 x 100 m flat-lying conductor located 160 m below surface within a norite intrusion. The conductor is untested but past shallow drilling 100 to 150 m above the conductor intersected weakly disseminated, nickeliferous sulphides grading up to 0.52% Ni and 0.26% Cu over 12.94 m, demonstrating that mineralizing processes were at work in the intrusion.
- **Target B1-B** – 700 m long, untested, near surface conductive zone. The characteristics and orientation of the conductor vary considerably along strike suggesting it is not formational. Magnetic data suggests that it is hosted in a large (2.5 x 1.0 km) norite body.
- **Target B1-J** - 170 m long by 16 m wide conductor that comes to surface and is directly coincident with the Imiak Hill showing, the most significant nickel occurrence discovered to date in our Maniitsoq licence area. The model shows that the Imiak Hill mineralization strikes parallel to most of the historical drilling and therefore has not been properly tested. The model has very limited dip extent (21 m), but the best intersection on the showing (9.85 m averaging 2.67% Ni and 0.60% Cu) occurs 130 m below surface indicating that strong mineralization at surface is masking mineralization at depth.

North American Nickel CEO Rick Mark states: "The Maniitsoq project is progressing remarkably well. Our primary objective in 2011 was to employ today's airborne EM survey technology in this highly prospective nickel belt. Fifteen years ago Falconbridge and Cominco used fixed wing aircraft and the technology of the day searching for conductive bodies to indicate drill targets. It simply didn't work. After flying only 8% of our Maniitsoq license, we have proven that modern helicopter EM is much more effective than previous techniques used in this 75 km long belt of nickeliferous norites. Today's release describes, in detail, the first three targets we have identified in this potential nickel camp."

Background

As described in NAN news releases dated December 6 and 8, 2011, SkyTEM helicopter EM and magnetic surveys flown over two flight blocks covering approximately 8% of the 4,841 km^2 Maniitsoq project, detected twenty five anomalous target zones. The location of the project and the flight blocks are shown in figures 1 and 2.

The purpose of the EM modeling discussed in this news release was to determine the characteristics of the anomalies in three dimensions in preparation for follow-up prospecting and drilling. All three high priority targets are located within flight block 1 (Figure 3).

Target B1-L

The target corresponds to the Spotty Hill showing, which consists of weak (<1 to 2%) disseminated sulphide mineralization in a lenticular exposure of norite roughly 400 m long and 150 m wide. It was discovered in the early 1960's by Kyrolitselskabet Øresund A/S who tested it with five very shallow (<60 m long) holes. All five intersected norite with weak, disseminated, nickeliferous sulphide mineralization. The best intersection was 12.94 m averaging 0.52% Ni and 0.26% Cu in norite containing about 5% sulphide.

The SkyTEM survey detected a moderate strength EM anomaly directly over the showing. Modeling indicates that the anomaly is produced by a flat-lying conductor, approximately 330 m long by 100 m wide, located at a depth of 160 m below surface, which is over 100 m below the deepest hole on the showing (figures 4 and 5).

Target B1-B

This target was modeled as a series of six conductive plates ranging in thickness from 9 to 43 m that occur over a distance of about 700 m. In Figure 6 it can be seen that the strike and dip of the plates vary considerably along the length of the target suggesting that it is not a simple stratigraphic conductor. It should be noted that the plates in Figure 6 have been truncated along their strike length in order to show their orientations more clearly. In most cases the plates actually overlap along strike; although the large gap in the middle of the target does appear to be real.

The target is situated within a 2.5km by 1.0 km magnetic feature interpreted to be a norite intrusion. Some of the model plates come very close to surface and it may be possible to determine the source of the anomaly through surface prospecting which will be carried out this season.

Target B1-J

This target corresponds to the Imiak Hill showing and models as a 172 m long by 16 m thick plate that comes to surface and has a depth extent of just 21 m (figures 7 and 8). Clearly, the mineralization continues well below 21 m as evidenced by hole Im-9, which intersected 9.85 m of massive to semi-massive sulphide averaging 2.67% Ni and 0.60% Cu at a depth of 130 m vertically below surface. It therefore appears that highly conductive material at surface is masking responses from deeper mineralization, which is to be expected. The modeling results are significant, however, in that they show that most of previous drilling at Imiak was oriented parallel to strike and that, despite the numerous shallow drill holes, many of which intersected significant mineralization (see table in Figure 8), the zone has not been properly tested. Two or three holes oriented perpendicular to strike followed by down-hole 3-component EM surveying is required to get a better interpretation of the potential of this zone.

Electromagnetic Modeling Program

Nineteen of the twenty five conductive target zones identified in 2011 were modeled by Condor Consulting of Lakewood, Colorado using Maxwell, a program developed by EMIT of Perth, Australia for analysis of EM geophysical data. Maxwell produces simplified, three-dimensional conductive plate models that mimic the observed response from the EM anomaly being analyzed. This type of modeling is a powerful exploration tool but it is important to bear in mind the limitations of the method, which include the following:

- The model is limited to plates and therefore complex geometries can only be very roughly approximated.
- In most cases there is not a single unique model that fits the observed data, so the operator must make some assumptions about the conductor.
- In airborne datasets, such as the one being interpreted here, a strong EM response near surface will drown out responses from deeper sources and the top of a conductor will be much better defined than the bottom.

Qualified Person

All technical information in this release has been reviewed by Dr. Mark Fedikow, P.Geo, who is the Qualified Person for the Company and President and Chief Operating Officer, North American Nickel Inc.

About North American Nickel

North American Nickel is a mineral exploration company with 100% owned properties in Maniitsoq, Greenland, Sudbury, Ontario, and the Thompson, Manitoba nickel belt. VMS Ventures Inc. (TSXV:VMS) owns ~45% of NAN.

The Maniitsoq property in Greenland is district scale project. It is a, 4,841 square km mineral exploration licence covering numerous high-grade nickel-copper sulphide occurences associated with norite and other mafic-ultramafic intrusions. The 70km plus long belt is situated along, and near, the southwest coast of Greenland, which is ice free year round.

The Post Creek/Halycon property in Sudbury is strategically located adjacent to the producing Podolsky copper-nickel-platinum group metal deposit of Quadra FNX Mining. The property lies along the extension of the Whistle Offset dyke structure. Such geological structures host major Ni-Cu-PGM deposits and producing mines within the Sudbury Camp.

The Bell Lake property in Sudbury is a 256-acre property that covers approximately one kilometre of the Mystery Offset dyke or MOD. The MOD is interpreted to be an extension of the Worthington Offset dyke which hosts the new Totten Mine of Vale and the exciting Victoria Deep deposit of Quadra FNX.

The Company has 100% ownership in the high-grade Ni-Cu-PGE South Bay property near Thompson, Manitoba and the large grassroots Thompson North and Cedar Lake properties, which are part of the world-class Thompson Nickel Belt in Manitoba.

Statements about the Company's future expectations and all other statements in this press release other than historical facts are "forward looking statements" within the meaning of Section 27A of the *Securities Act of 1933*, Section 21E of the *Securities Exchange Act of 1934* and as that term defined in the *Private Litigation Reform Act of 1995*. The Company intends that such forward-looking statements be subject to the safe harbours created thereby. Since these statements involve risks and uncertainties and are subject to change at any time, the Company's actual results may differ materially from the expected results.

For more information contact:

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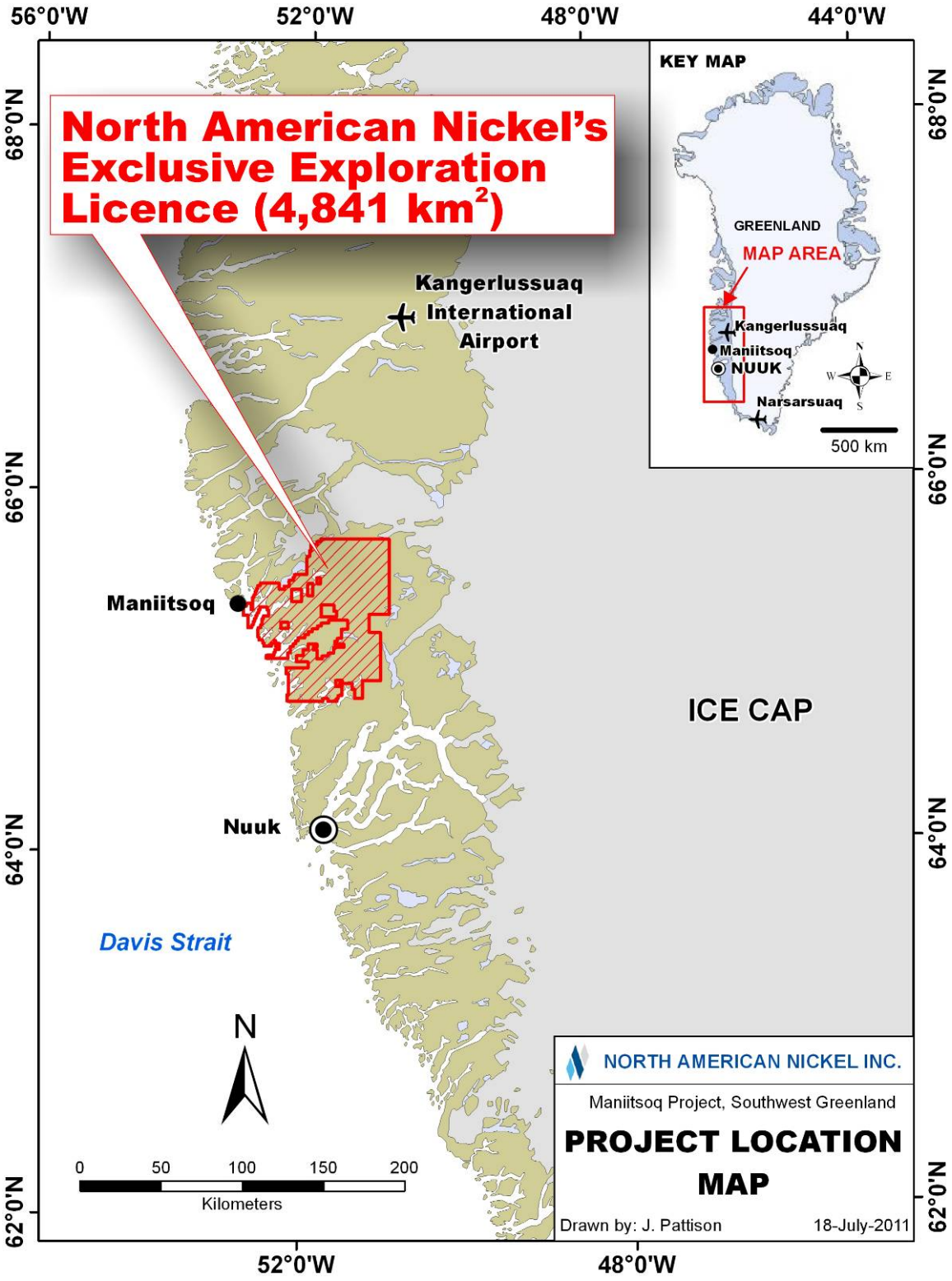

Figure 1: The Maniitsoq project is located along the southwest coast of Greenland approximately 160 km north of the capital city of Nuuk. Ports along this part of the Greenland coast are ice-free and open year-round.

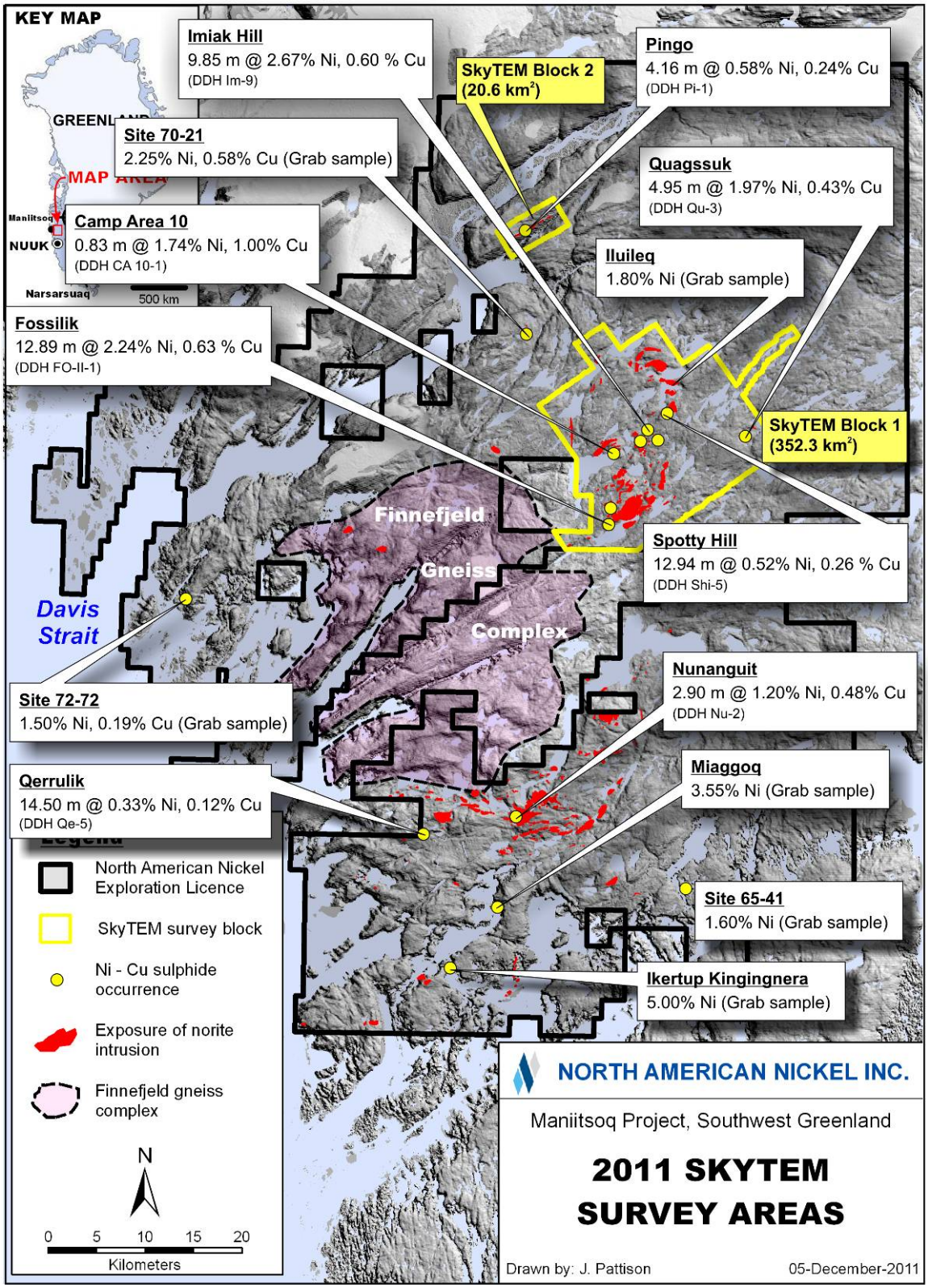

Figure 2: Map of North American Nickel's Maniitsoq project showing the location significant nickel occurrences, norite host rocks and SkyTEM flight blocks.

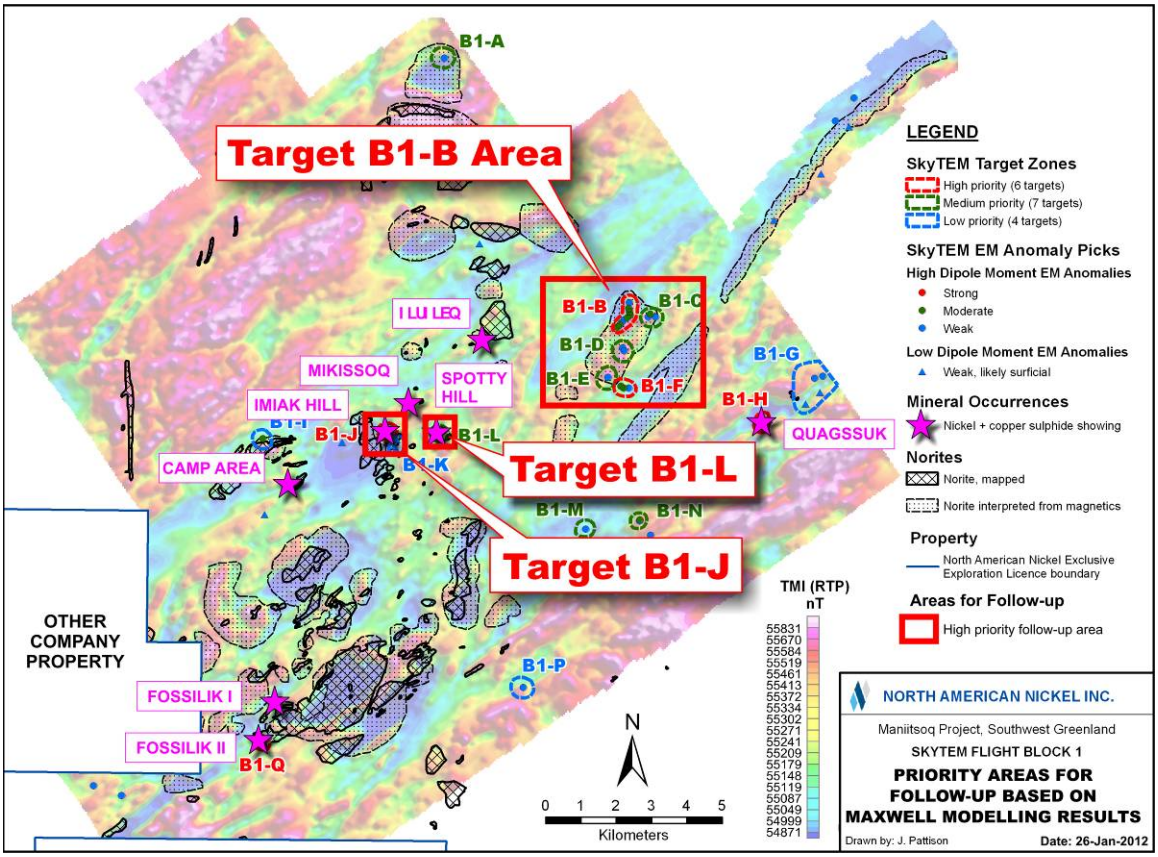

Figure 3: Flight block 1 with high priority targets outlined in red.

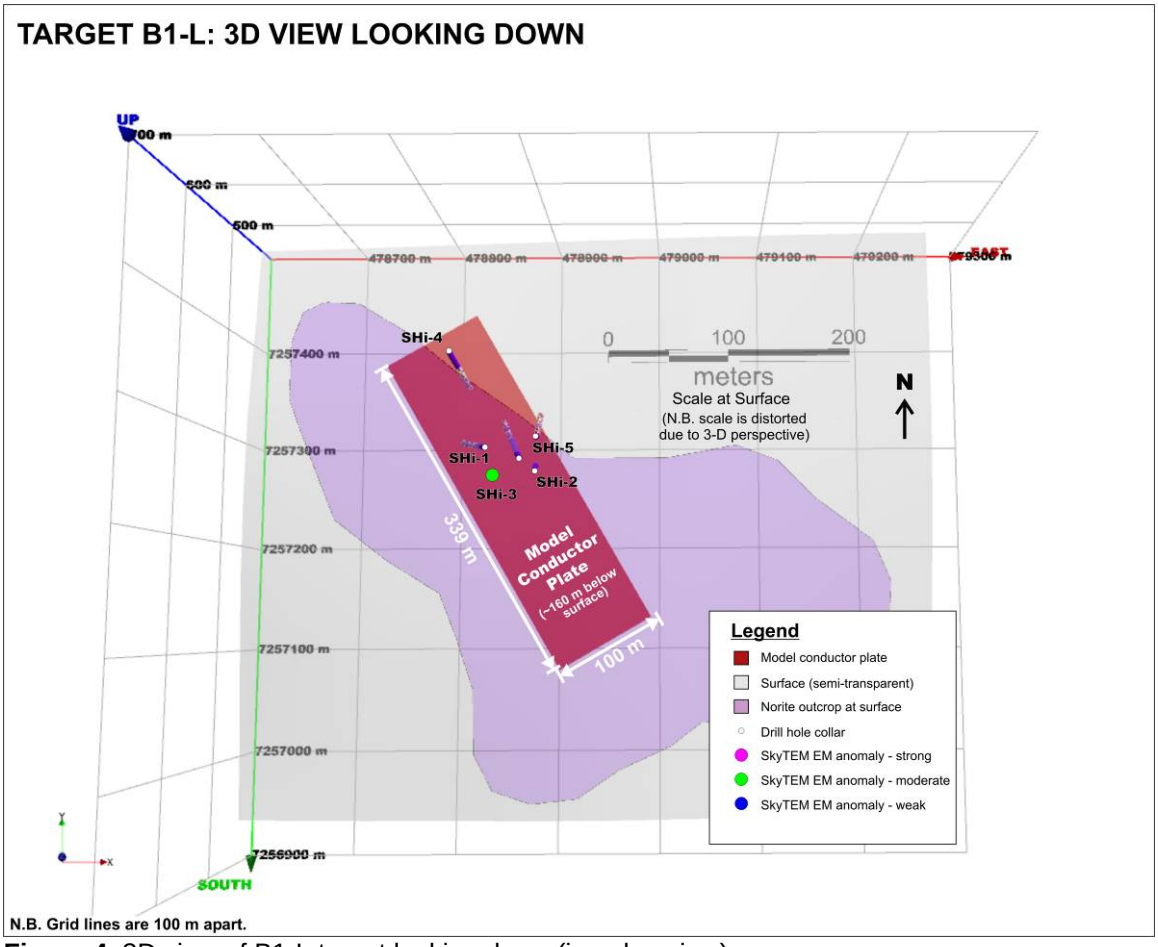

Figure 4: 3D view of B1-L target looking down (i.e. plan view).

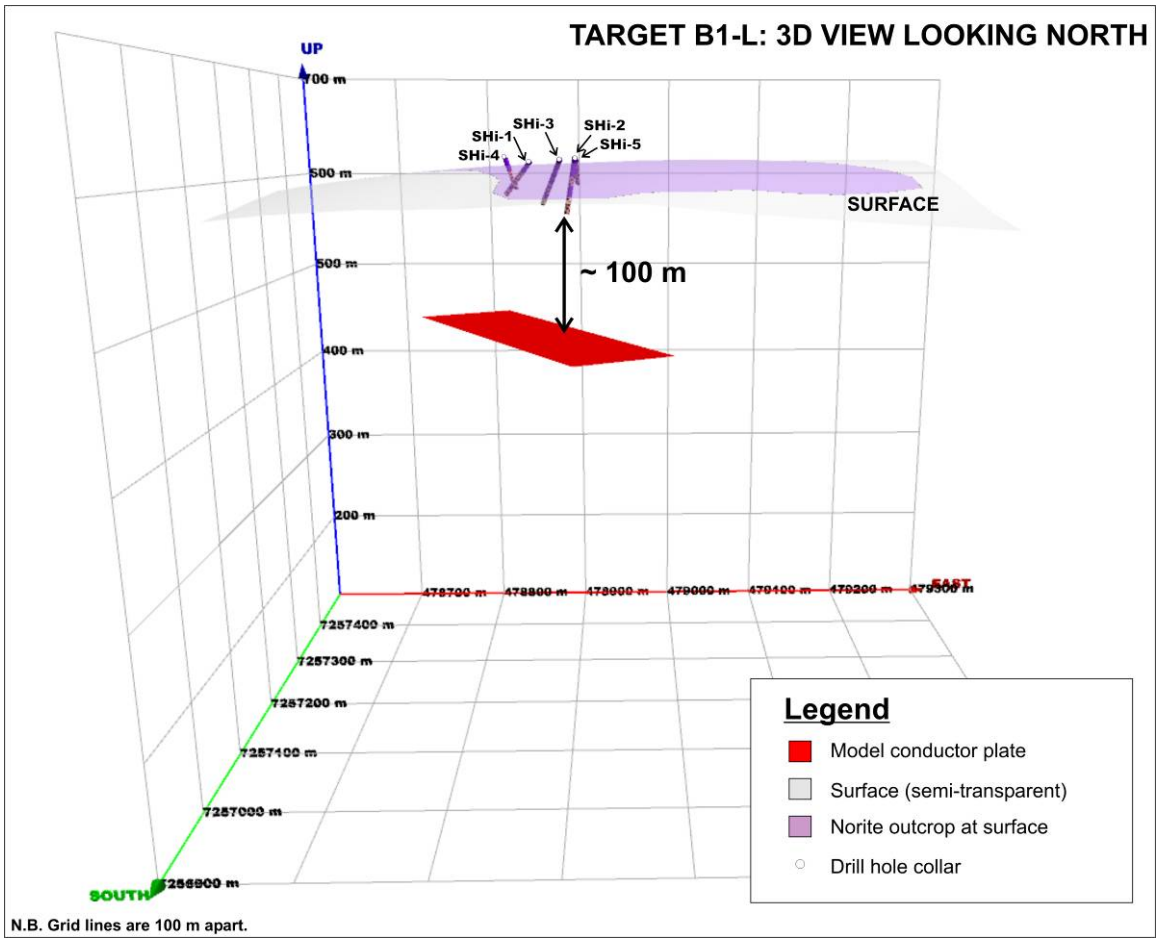

Figure 5: 3D view of target B1-L looking north. Note conductor is 100 m below previous drilling.

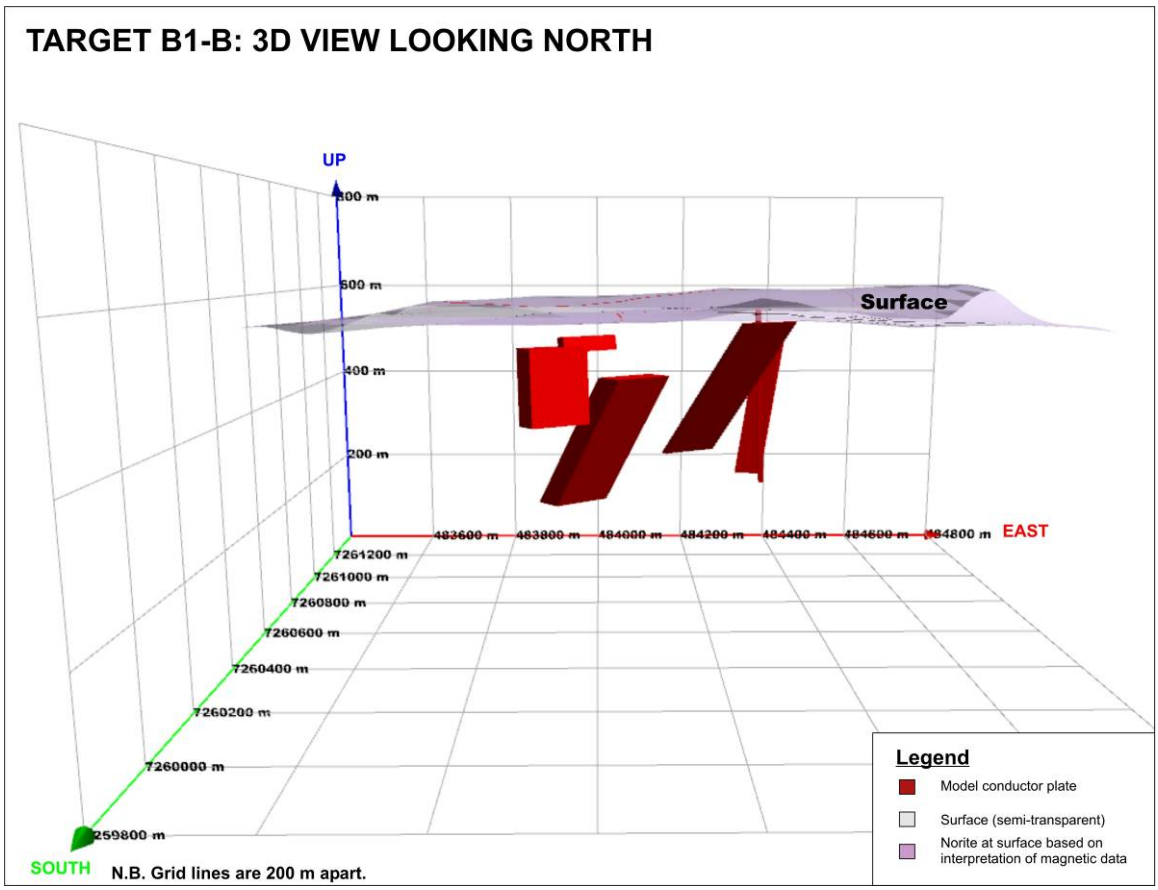

Figure 6: 3D view of B1-B target looking north.

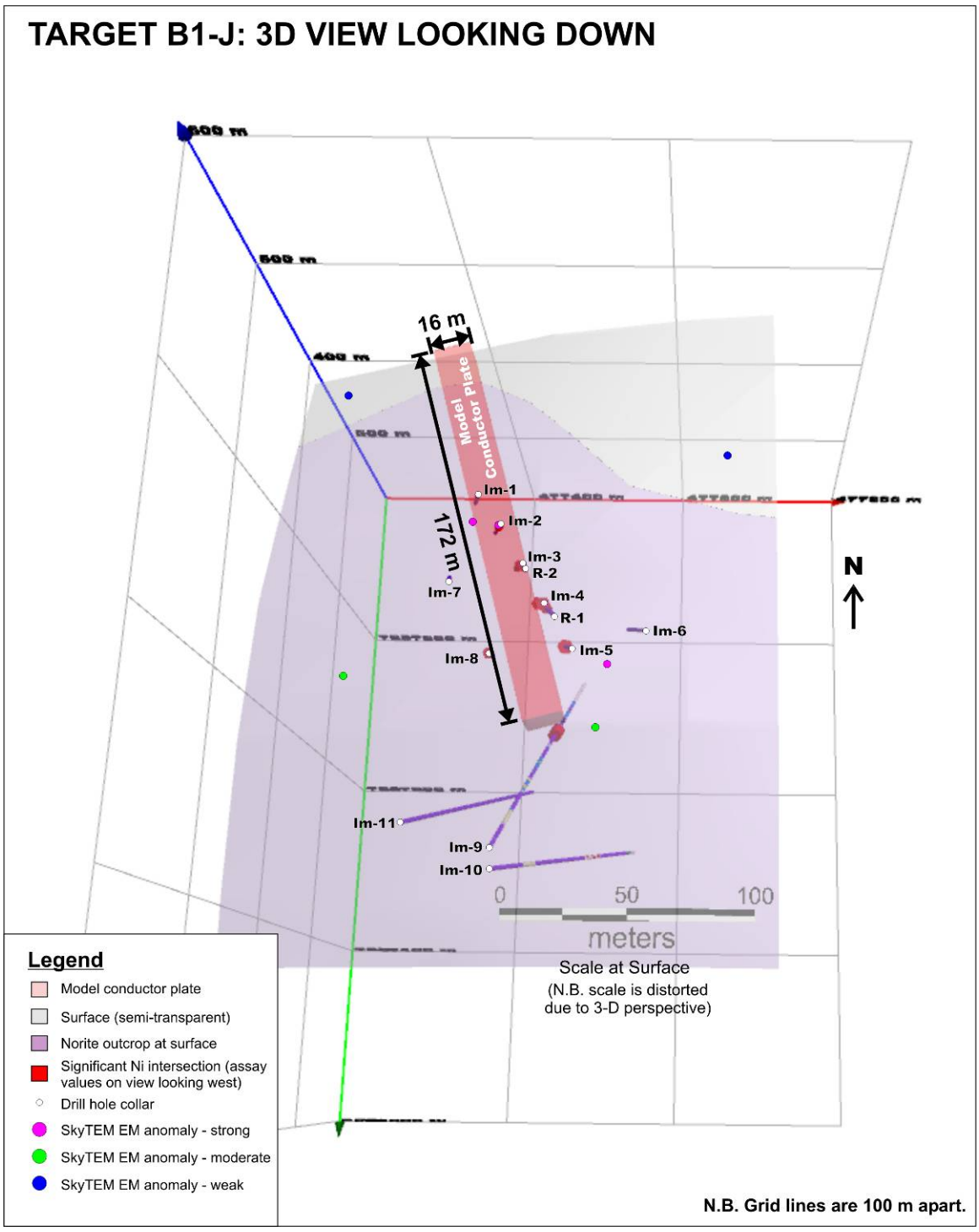

Figure 7: 3D view of B1-J target looking down (i.e. plan view).

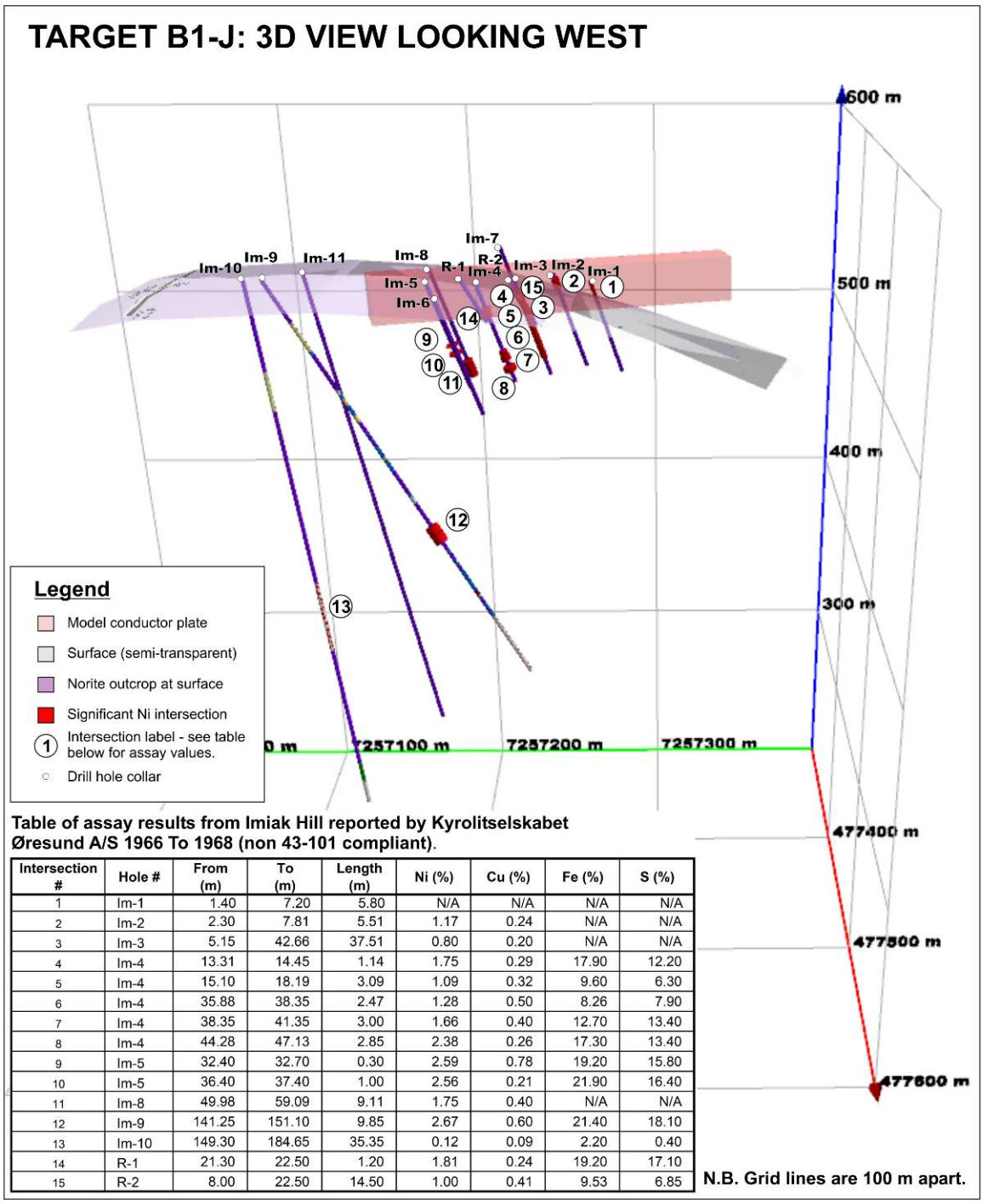

Table of assay results from Imiak Hill reported by Kyrolitselskabet Øresund A/S 1966 To 1968 (non 43-101 compliant).

Intersection #	Hole #	From (m)	To (m)	Length (m)	Ni (%)	Cu (%)	Fe (%)	S (%)
1	Im-1	1.40	7.20	5.80	N/A	N/A	N/A	N/A
2	Im-2	2.30	7.81	5.51	1.17	0.24	N/A	N/A
3	Im-3	5.15	42.66	37.51	0.80	0.20	N/A	N/A
4	Im-4	13.31	14.45	1.14	1.75	0.29	17.90	12.20
5	Im-4	15.10	18.19	3.09	1.09	0.32	9.60	6.30
6	Im-4	35.88	38.35	2.47	1.28	0.50	8.26	7.90
7	Im-4	38.35	41.35	3.00	1.66	0.40	12.70	13.40
8	Im-4	44.28	47.13	2.85	2.38	0.26	17.30	13.40
9	Im-5	32.40	32.70	0.30	2.59	0.78	19.20	15.80
10	Im-5	36.40	37.40	1.00	2.56	0.21	21.90	16.40
11	Im-8	49.98	59.09	9.11	1.75	0.40	N/A	N/A
12	Im-9	141.25	151.10	9.85	2.67	0.60	21.40	18.10
13	Im-10	149.30	184.65	35.35	0.12	0.09	2.20	0.40
14	R-1	21.30	22.50	1.20	1.81	0.24	19.20	17.10
15	R-2	8.00	22.50	14.50	1.00	0.41	9.53	6.85

Figure 8: 3D view of B1-J target looking north. Note the numerous shallow holes drilled parallel to the strike of the model plate. Significant intersections are shown in red.