

## **FURTHER DRILLING AT SANTA CECILIA**

October 2013

Drilling results from Cerro Grande's diamond drill holes CDM 002 and 003 together with Quantec Geoscience's Orion Survey composed of detailed induced polarization, resistivity, magneto-telluric, magnetic data and the MMI geochemical survey have been used to site an additional six exploratory drill holes totaling approximately 3,800 meters to test three targets. (See Figures 8, 9, 10) If the results are successful, follow up drilling to delimit mineralized extensions and build reserves will follow. Using Cerro Grande's drill rig results in costs estimated for the next phase of exploration at near US\$600,000, which is considerably below contract drilling costs.

The geological conclusions which can be drawn from the two drill holes put down by Cerro Grande, together with results from the Orion Survey and MMI surveys are as follows:

The MMI gold and copper values show a close correlation with the copper and gold intercepts in Cerro Grande's holes CDM 002 and 003 confirming the method is valuable for siting exploratory drill holes at Santa Cecilia. While the MMI sampling indicates the presence of mineralization it does not establish grade. The geophysical data indicates greater amounts of sulphides, which taken with the MMI data provide a good base for siting exploratory drill holes.

The five groups of gold and copper MMI geochemical anomalies at Santa Cecilia are all related to IP, resistivity, MT, and magnetic anomalies. There are extensive geophysical anomalies or parts of anomalies which show no connection to MMI data. The present selection of drill sites has been based on the MMI geochemical and geophysical results in conjunction. No exploratory hole has been located on geophysical data alone.

Quantec's Orion Survey clarified the overall geological setting of Santa Cecilia as far as potential mineralized bodies. At the center of the property, close to the highest point at 4600 meters ASL, is a circular feature with a diameter of 1,800 meters which includes a dioritic intrusive. Based on the geophysical and geochemical results and the strong silicic and potassic alteration, the circular feature appears to correspond to a central source for the Santa Cecilia mineralization.

The geochemical and geophysical anomalies indicate potential ore bodies grouped in an inner ring within the central circular feature within a diameter of 1,000 meters and an outer ring within a diameter of 3,200 meters. Strong district wide fracturing at N70W has modified the outer ring to the south east so that two anomalous zones are located 2,500 meters to the south east of the central feature. (Figure 8) The deep magneto telluric (MT) data shows the mineralization of these two zones is connected at depth to the central zone.

The impression is that the center corresponds to a major conduit which has served to channel the rising mineralizing emanations. The MT data shows the deepest anomalies down to the 2,000 meter ASL elevation, or 2,600 meters below the surface, are related to the major conduit. At this lower elevation, there is no sign of an MT anomaly away from the conduit. The low resistivities within the conduit are related to late stage argillization and mineralization, while the outer ring of anomalies has higher resistivity values suggesting lesser argillization or greater silicification.

The MT data at the north eastern limit of the Santa Cecilia property shows anomalies leading at depth into the nearby Caspiche orebody of Exeter Resources, suggesting a separate mineralizing system distinct from that of Santa Cecilia.

## **LOS GEMELOS**

The geochemical and geophysical anomalies within the south eastern area known as Los Gemelos have been selected for preliminary exploratory drilling. Here the geophysical and geochemical indicated mineralization is extensive and starts at less than 300 meters below the surface, and at considerably less depth than in three out of the four other anomalous areas.

At Los Gemelos, the gold MMI anomaly strikes north south for 1,500 meters with a width varying between 750 and 400 meters. The higher gold MMI within the anomaly extends for 1,400 meters north south. It is 130 meters wide at its southern end splitting into two towards the north each split with a width near 80 meters. Barite shows an affinity for the gold anomalous area. The copper MMI anomaly overlaps the western boundary of the gold by up to 300 meters in the south and extends for over 1,500 meters north south with widths varying between 700 and 400 meters. The strongest copper MMI is in the south where it coincides with strong zinc and yttrium values. The entire area corresponding to the copper and gold MMI values is adjacent or well within strong to very strong IP results. In the south there is a strong MT anomaly coinciding with higher copper values which can be followed from 4,200 meters ASL down to 3,000 meters ASL.

The following is taken from a geological report on Santa Cecilia by Anglo American who worked on the property between 1987 and 1990.

The eastern most area (Los Gemelos) coincides with a ridge running NNW for 700 meters of Rio Nevado volcanics topped by an isolated exposure of Jotabeche andesite. A pre mineral intrusive of Dacite porphyry with quartz eyes has been affected together with the Rio Nevado volcanics by intermediate argillization. These rocks are cut by steep siliceous clay structures up to several meters wide, which are frequently cygmoidal and carry disseminated pyrite-chalcopryrite with oxidized haloes of wavellite, kroenkite, chalcantite, and alunite. Thin millimeter to centimeter veins of pyrite together with yellow and orange limonites, native sulphur, disseminated tourmaline and tourmaline breccia also occur. There

are vertical veins of tourmaline breccia and silica with chalcopyrite, pyrite, and jarosite. To the west, there is a post alteration propylitised monzodiorite. Rock outcrops are confined to the wide ridge. The slopes to either side are devoid of rocks in place. There is strong silicification. Large areas are capped by gypsum cemented argillized fines described as “gypcrete” which partially or totally covers the underlying altered rocks.

The above geological description of part of the Los Gemelos area, within geophysical and geochemical anomalies, is compatible with the surface expression of buried mineralization and lends creditability to the geophysical and geochemical anomalies at Los Gemelos.

The accompanying Section 6935800N, (Figure 1) shows the relationship of the gold and copper MMI values with MT, IP and resistivity. The IP is strong reaching to over 65 mrad. The higher gold and copper values are above the near vertical contact zone between the MT and IP values. Proposed Holes CDM 004 of 700 meters, 469115E-6935800N, azimuth 270, inclination 60 degrees and CDM 005 of 800 meters, 468520E-6935800N, azimuth 90 degrees inclination 60 degrees are designed to test this zone which corresponds closely with Quantec’s drill target IP 23.

Section 6936350N, (Figure 2) cuts across the anomalous zone 550 meters to the north of Figure 1. Here the gold and copper values are related to the western limit of the same strong IP shown in the previous section. The inter relationship between the IP and the MMI geochemistry is very similar to that seen in section 6935800N. The geochemical and IP anomalies here will be tested by holes CDM 006 of 500 meters, 469205E-6936350N, azimuth 270 degrees, inclination 60 degrees and CDM 007 of 600 meters, 468600E-6936350N, azimuth 90 degrees, inclination 60 degrees. The proposed holes will probe near Quantec’s drill targets IP 22 and IP 22b, but are displaced to take into account gold and copper MMI values.

## **SOUTHERN ANOMALY**

Some 1,000 meters due south of the central area lies a copper MMI anomaly trending N70W for 4,000 meters with a width varying between 400 and 800 meters. There is a matching gold MMI anomaly stretching for 2,500 meters, the MMI values agrees closely with strong IP reaching up to over 50 mrad in a stretch of 700 meters along the strike of the anomaly which is at or near the surface. The resistivity of over 1,000 ohm m is interpreted as higher silicification related to mineralization. Dumortierite, carrying copper and boron, occurs in scree deposits within this anomaly, the only area at Santa Cecilia where it has been noted see Figures 3, and 4. The MT data here is poor as no geophysical recording stations were placed in the valley bottom coinciding with much of the anomaly. This was done to avoid friction with the local aboriginal community which has rights to the valley bottom.

Diamond drill hole CDM 008 will be drilled at 466160E-6936050N with an azimuth of 220 degrees inclined at 60 degrees and will be at least 600 meters long. It will test strong shallow IP, strong gold and copper MMI and moderate resistivity probably reflecting greater silicification or lesser argillization away from the central conduit. (Figures 3, 4)

### **CENTRAL ANOMALY**

The central anomaly coincides with the main central conduit. Gold and copper MMI values are very strong; the copper MMI extends for 1,500 meters at N70W with a maximum width of 700 meters. The gold is displaced to the north approximately 500 meters and has a much more irregular shape. Its greatest extension at N70W is 2,000 meters and its greatest width amounts to 1,300 meters.

The copper MMI values within this central area reach up to 51,810 ppb while gold has a maximum of 147.3 ppb. On account of this large difference in metal content, more weight has logically been given to copper MMI values rather than gold when siting drill holes at Santa Cecilia.

The IP and resistivity data is closely related to the copper MMI anomaly, starting strongly at 4,250 meters ASL and extending down to 3,600 meters ASL, the limit of the data. (Figure 5) The IP is strong to moderate starting at 4,100 meters ASL and reaching down to 3,500 meters ASL within the volcanic neck. The MT data shows a very strong anomaly of small extent with a diameter of 250 meters starting at 4,300 meters ASL, passing to 1,700 by 800 meters at 3,500 ASL and reaching down to 2,000 meters ASL with dimensions of 1,250 by 650 meters. The MT anomaly extends over a total vertical distance of 2,100 meters.

As can be seen in the Quantec Geophysical Report the copper and gold content of the drill holes CDM 002 and 003 show a close connection with the lower resistivity values as well as the IP results. Within hole CDM 003, the highest copper and gold values lie between 3200 and 3500 meters ASL, between these elevations the trace of the hole skirts the outer south west limit of the MT 1.4 ohm m contour. As the pervasive low grade mineralization encountered by CDM 003 is strongest where it's trace is close to the MT anomaly, it is probable the core of the MT anomaly marks higher grade mineralization. The attached plan shows the relation of drill hole CDM 003 to the core of the MT anomaly. (Figure 6)

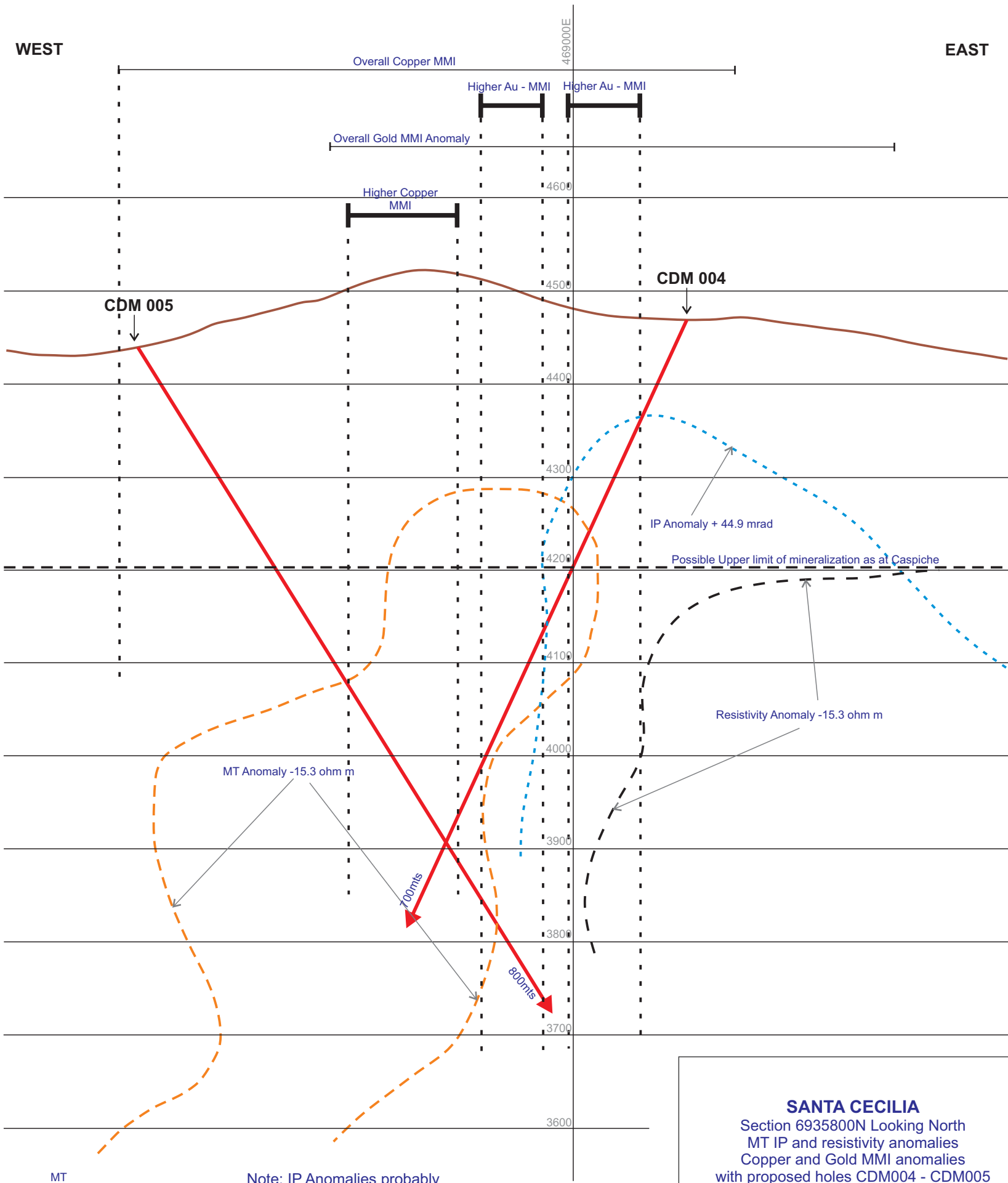
Proposed Hole CDM 009, of 600 meters, located at 467000E-6937000N, azimuth 270, inclination 75, is designed to test the core zone of the MT anomaly from 4,200 meters ASL down to near 3,750 meters ASL, a distance of 450 vertical meters. (Figure 5) Should this hole be successful, a decision while drilling proceeds could be taken to drill deeper. If good values are located within the MT anomaly, the values could go to great depth and the potential tonnage based on the size of the MT anomalies could amount to well over 2

billion tons. (Figure 7) With this large potential in mind, and despite of the approximately 300 to 400 meters of barren capping, an exploratory drill hole is warranted.

David Thomson

WEST

EAST

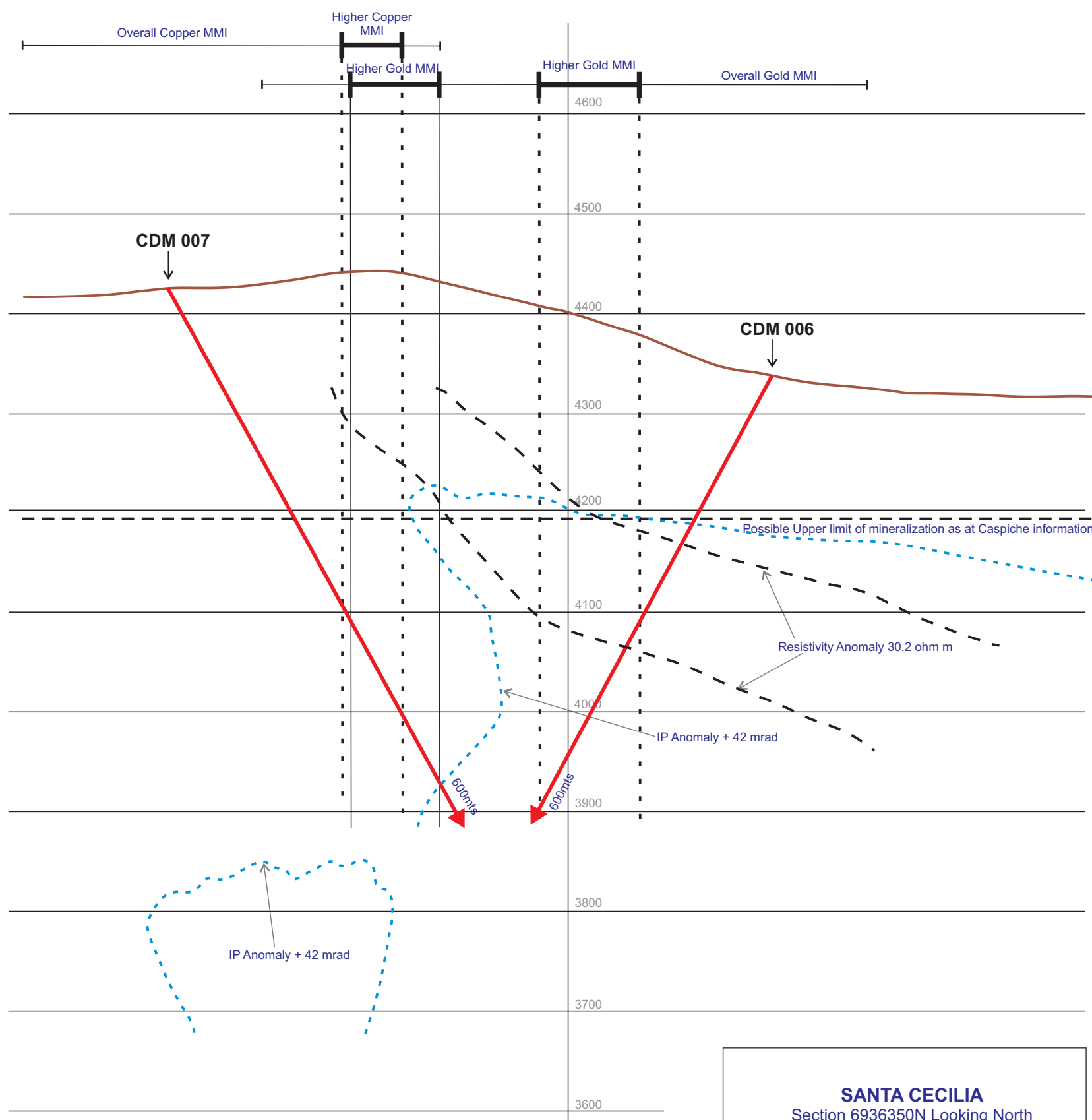


Note: IP Anomalies probably indicate mineralization extending in depth as the depth penetration of the IP equipment is limited.

**SANTA CECILIA**  
Section 6935800N Looking North  
MT IP and resistivity anomalies  
Copper and Gold MMI anomalies  
with proposed holes CDM004 - CDM005  
Scale 1:5000  
Figure 1

**WEST**

**EAST**

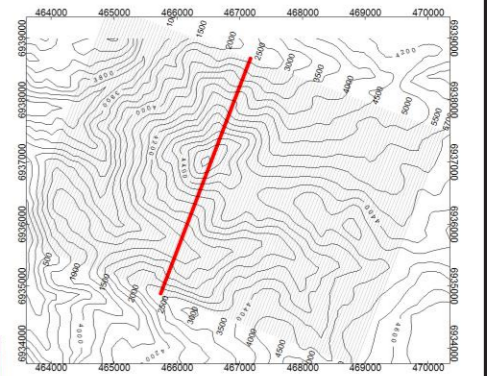
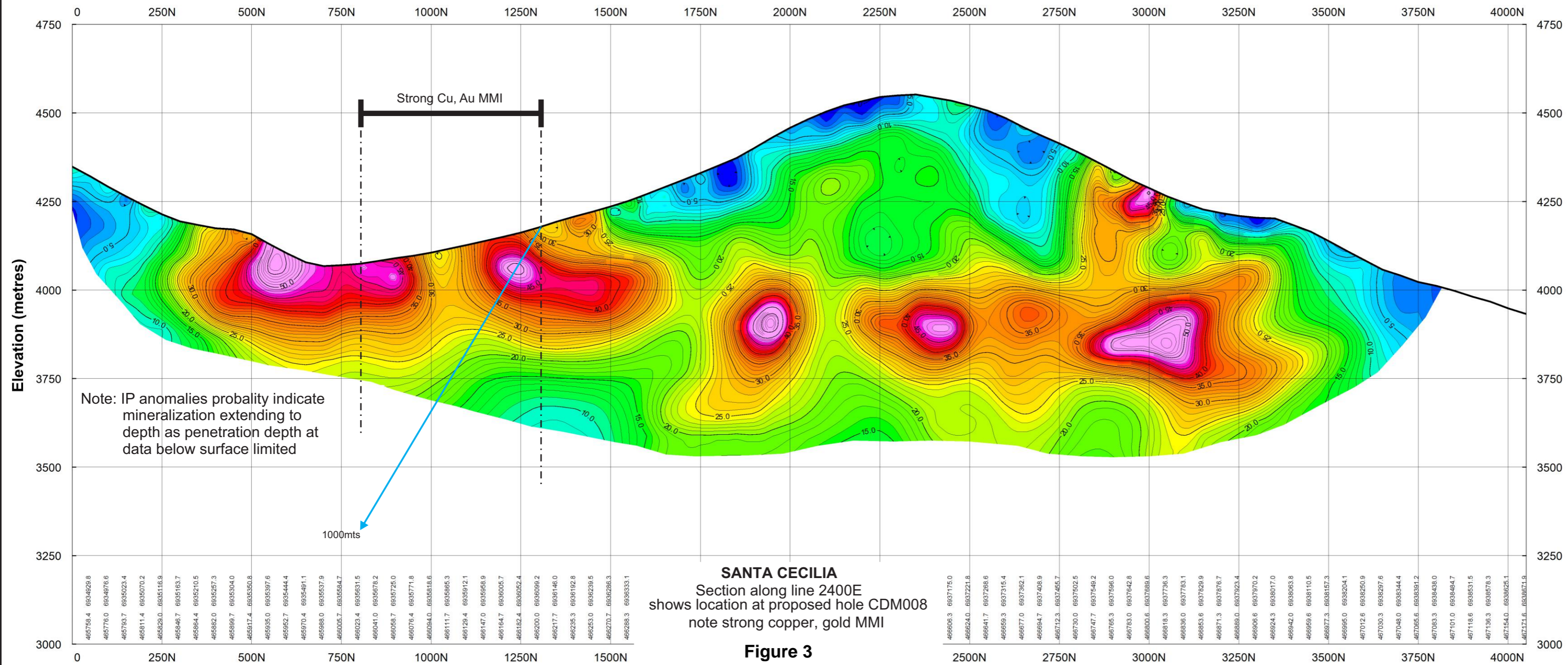


Note: Mineralization assumed to lie within silicified zone.

**SANTA CECILIA**

Section 6936350N Looking North  
Induced polarization, resistivity anomalies  
Copper and Gold MMI anomalies  
with proposed holes CDM006 - CDM007  
Scale 1:5000  
Figure 2

## IP Chargeability Section

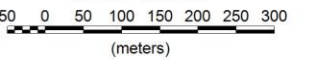


**SURVEY SPECIFICATIONS:**  
Survey Type: Orion3D DC/IP Survey  
Station Interval: 150 m  
Dipole size: 150 m  
IP Array: Pole-Dipole

**INVERSION HISTORY:**  
Quantec Proprietary Software  
Inversion: 3D IP Inversion  
UBC 3D IP Inversion  
UBC Model misfit, max N

**PLOTTING PARAMETERS:**  
Software: Geosoft  
Gridding Algorithm: Minimum Curvature  
Grid Cell Size: 12.5 metres  
Blanking Distance: 50 metres  
Contours: Linear 1, 5 levels  
Colour Zoning: Linear (Colour.tbl)  
Coordinate System: Station Coordinate

Scale 1:10000



0.0  
**Chargeability**  
mrads

## Cerro Grande Mining

**Santa Cecilia**  
Chile  
**LINE 2400E**  
Chargeability Section  
Orion3D DC/IP Survey

**Quantec Geoscience Ltd.**  
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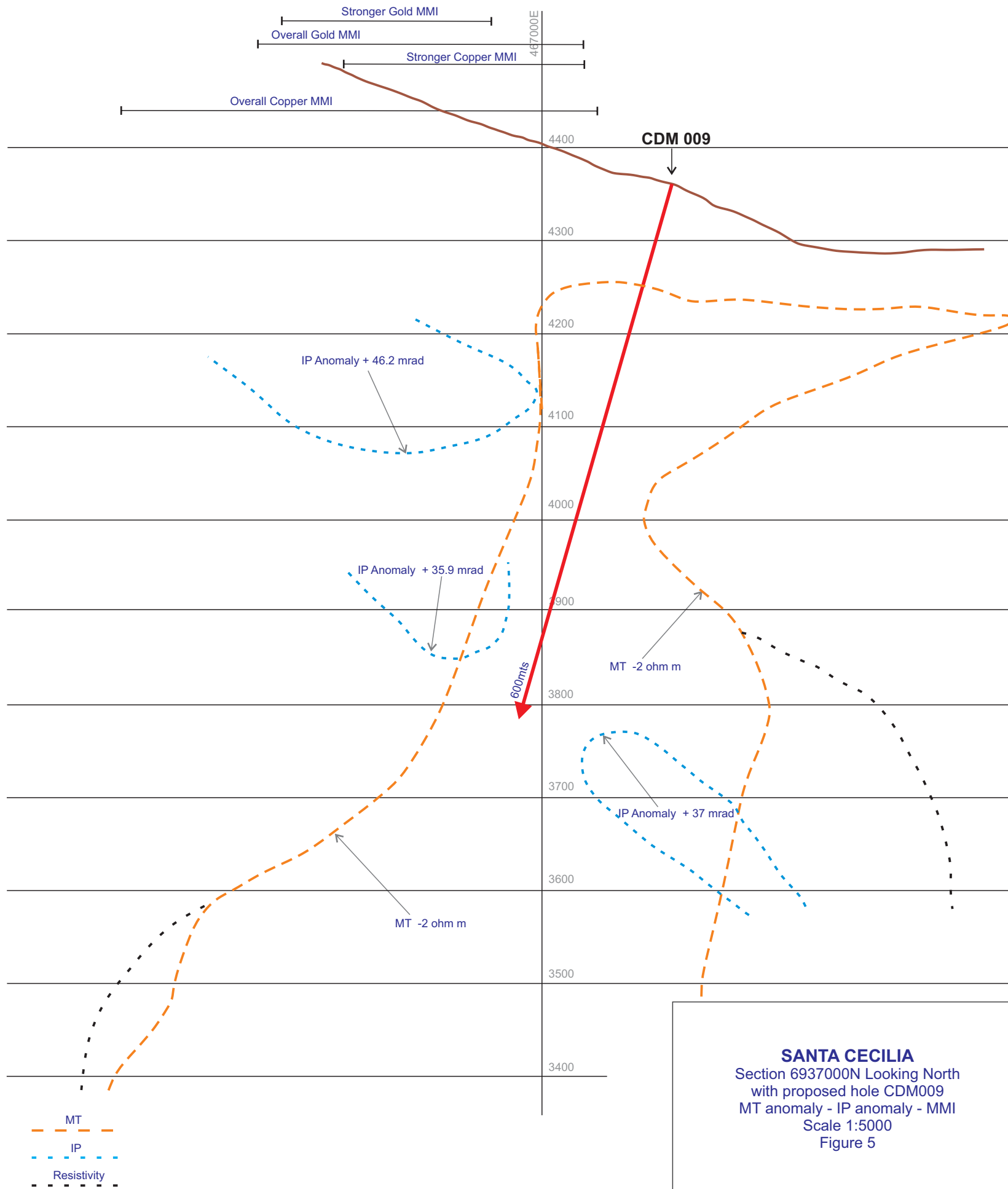


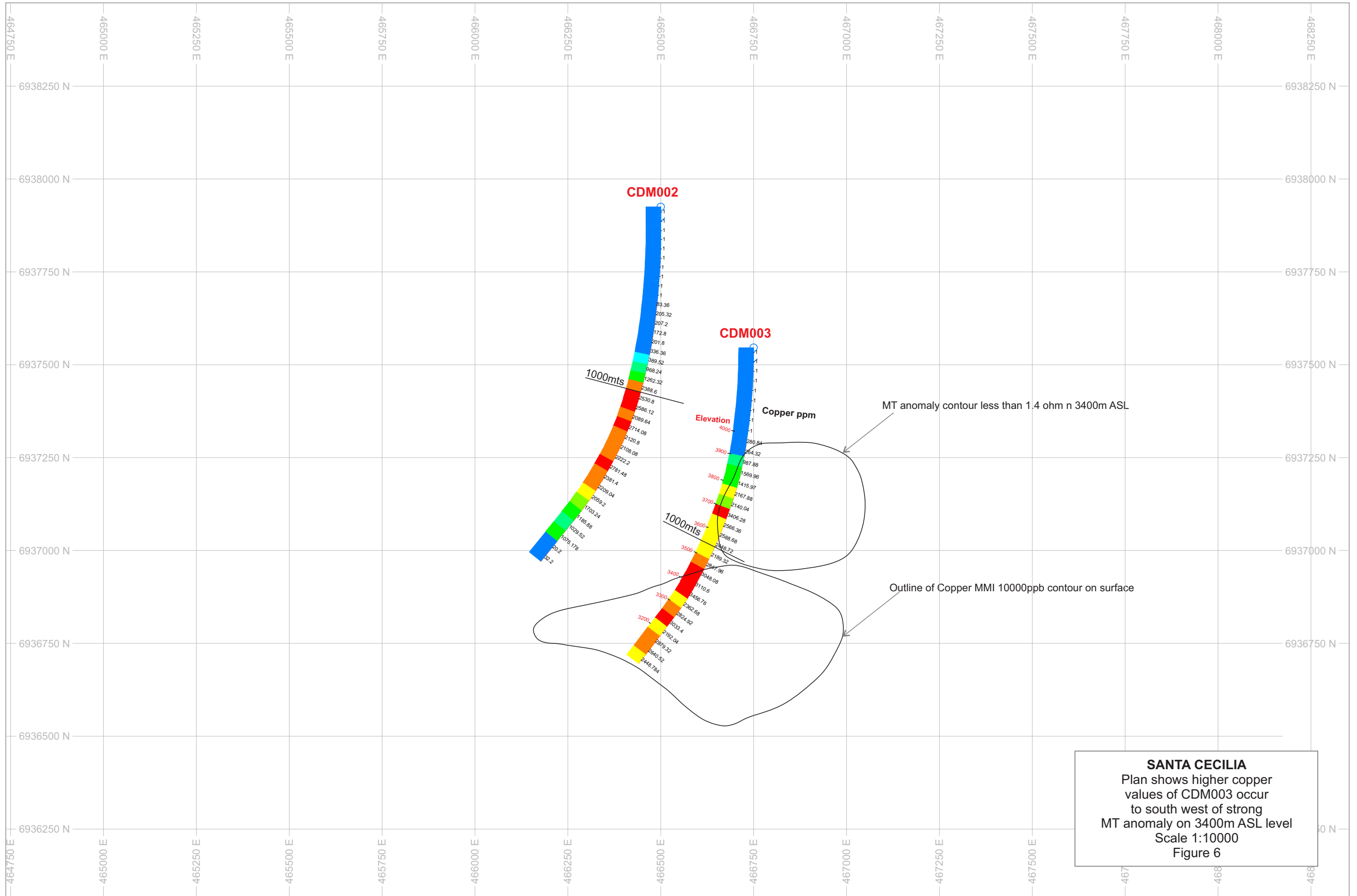
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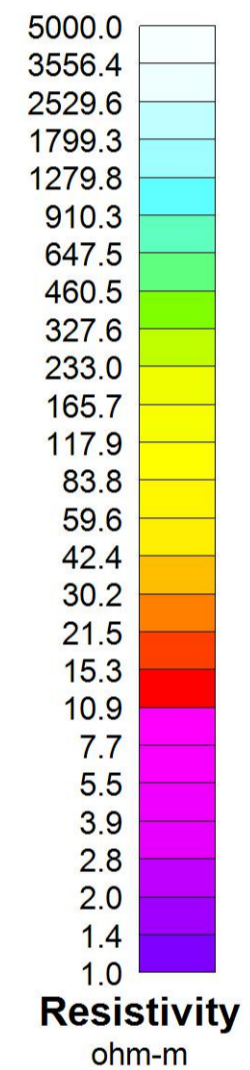
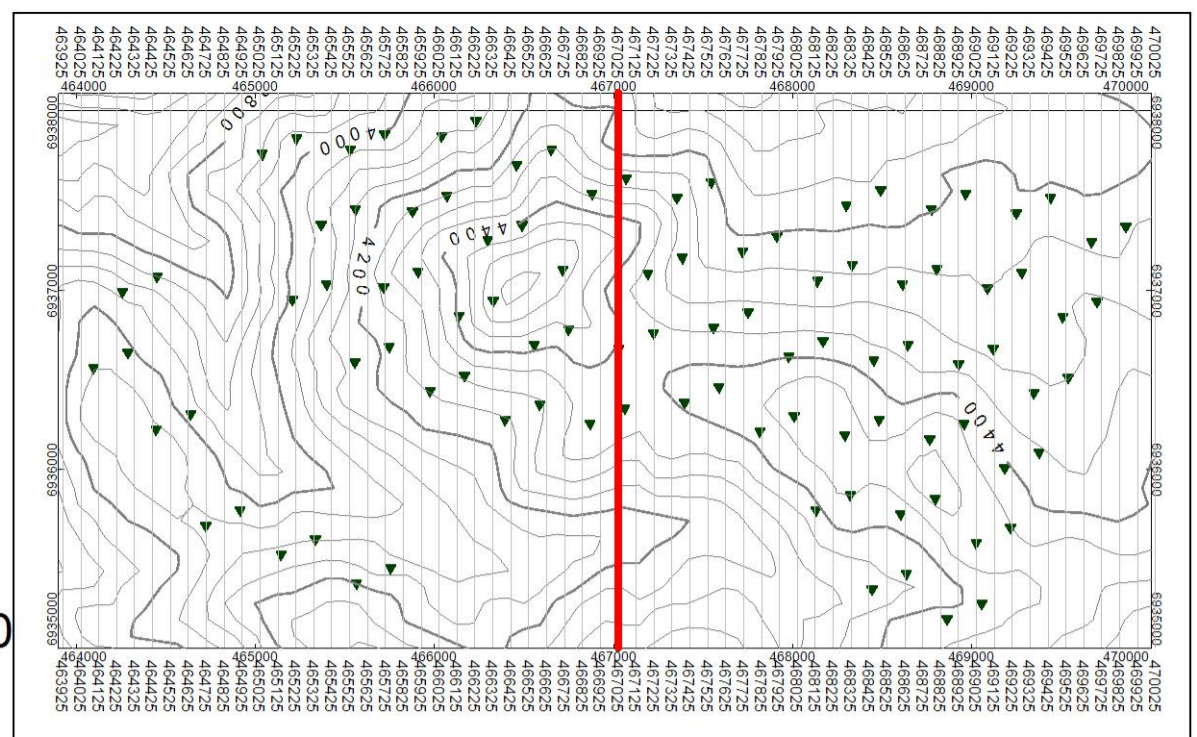
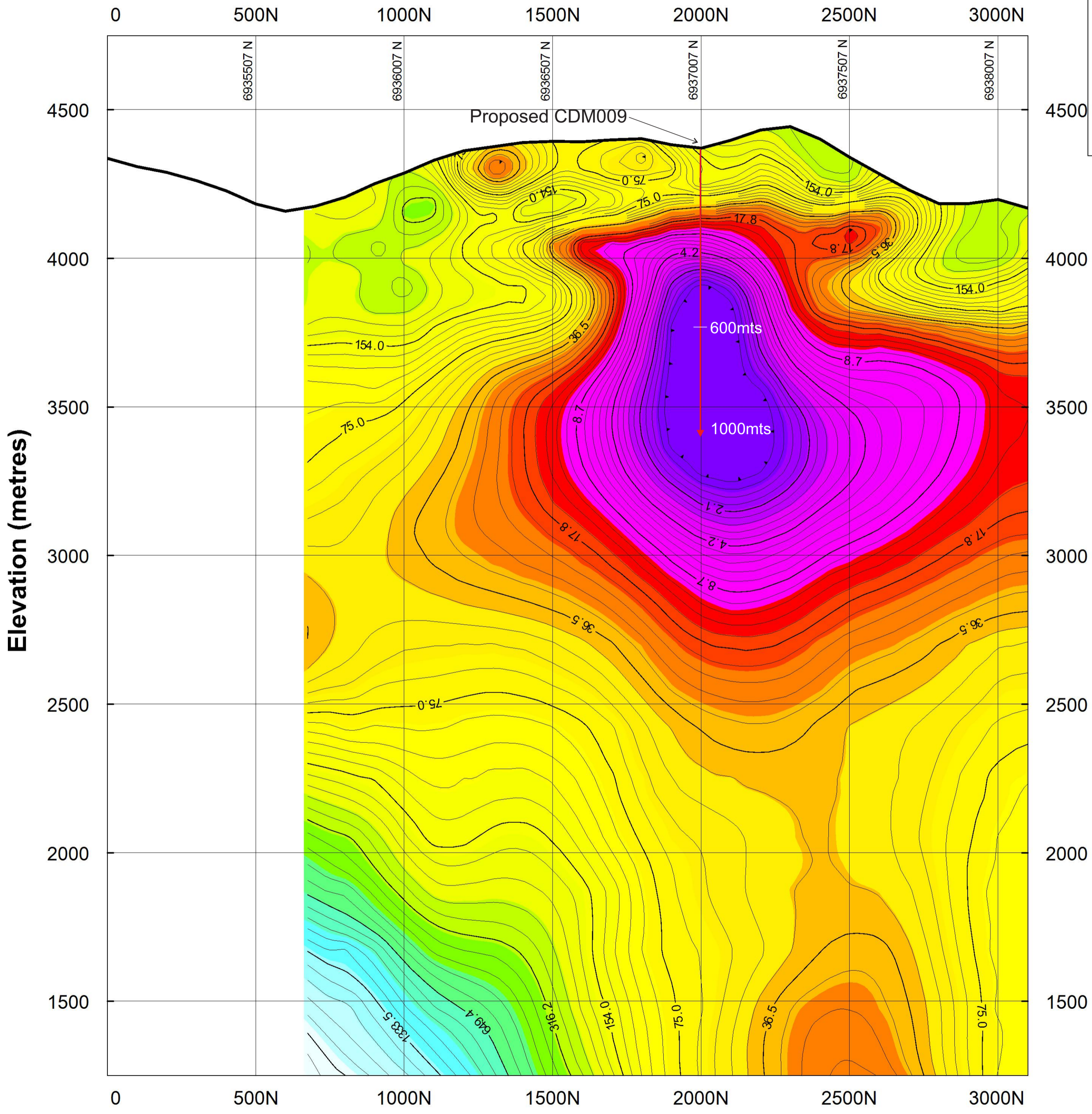
WEST

EAST





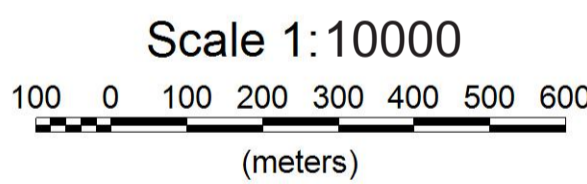
LINE 467025  
MT Resistivity Section



**SURVEY SPECIFICATIONS:**  
Survey Type: Orion3D DC/IP & MT Survey  
Station Interval: 450 m  
Dipole size: 100 m  
MT Array: Tensor MT

**INVERSION HISTORY:**  
Quantec Proprietary Software  
Inversion: 3D MT Inversion  
MT 3D from 1D model  
Model RMS misfit, 5-10 pct

**PLOTTING PARAMETERS:**  
Software: Geosoft  
Gridding Algorithm: Minimum Curvature  
Grid Cell Size: 25 metres  
Blanking Distance: 250 metres  
Contours: Log Linear 16 levels/log decade  
Colour Zoning: Log Linear (Resis.tbl)  
Coordinate System: Station Coordinate



**Cerro Grande Mining**

**Santa Cecilia**  
Chile

**LINE 467025**  
MT Resistivity Section  
Orion3D DC/IP & MT Survey

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**Quantec Geoscience**

Project: Ba00064d

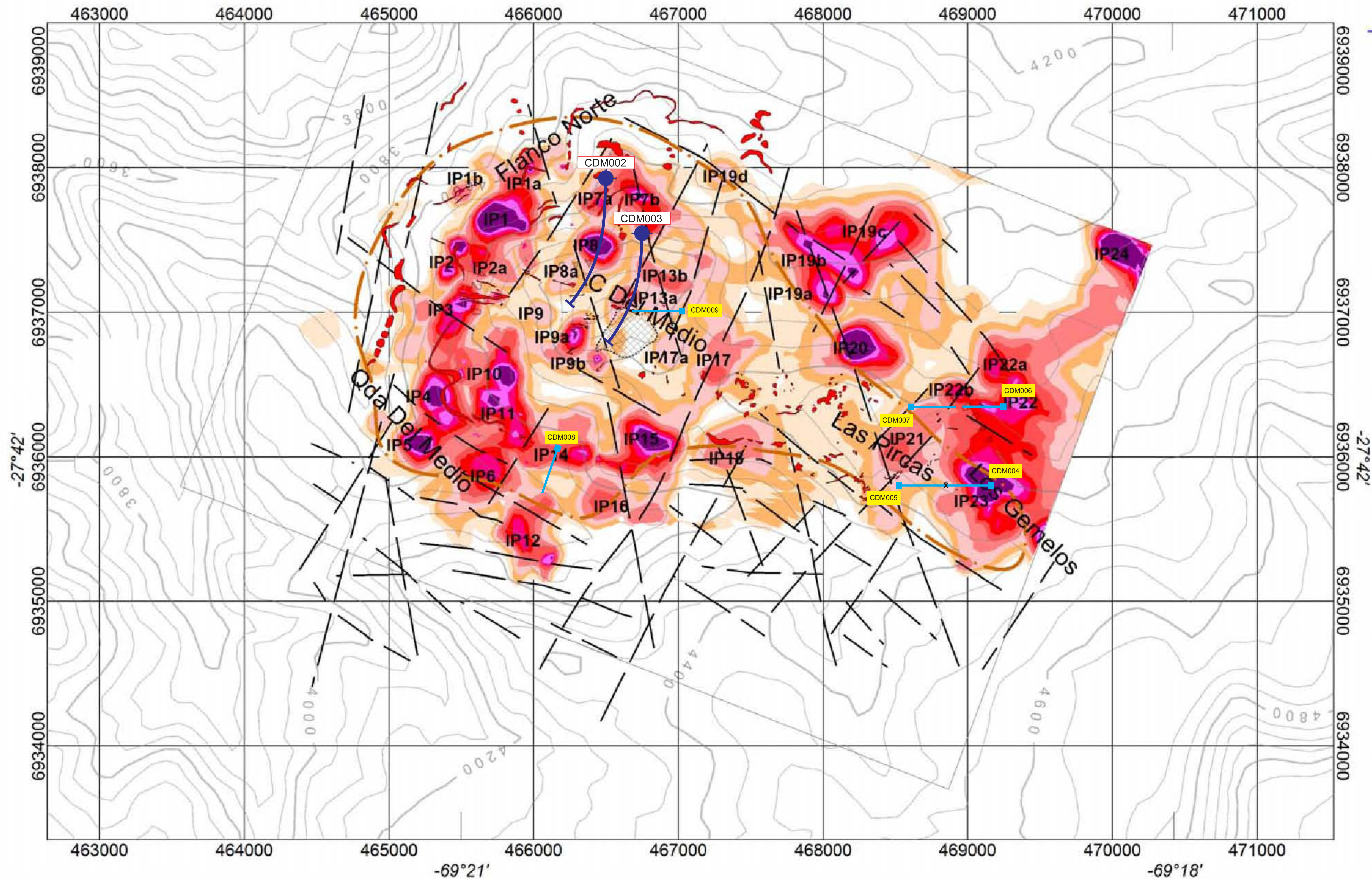
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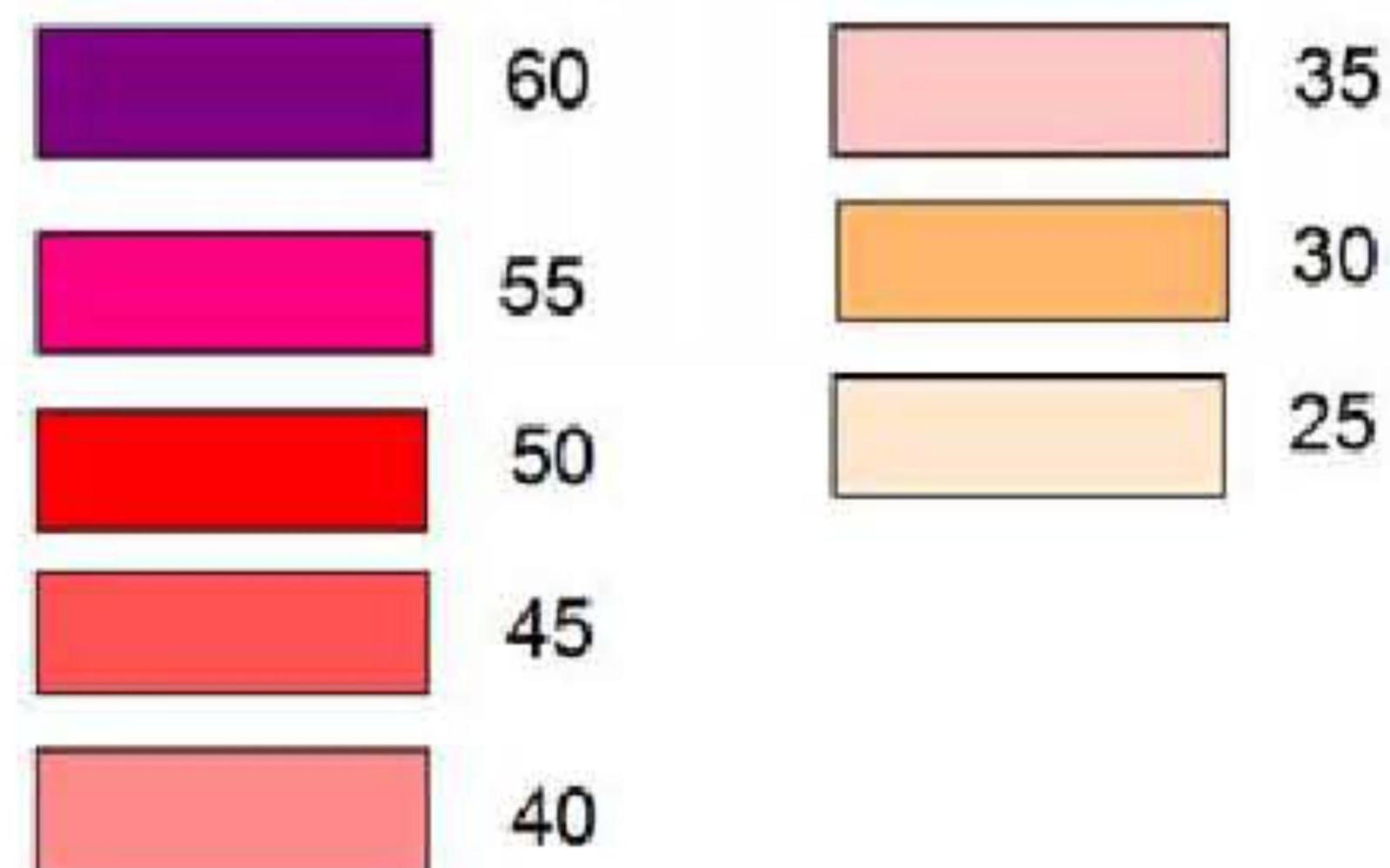


Station Offset (metres)  
PROPOSED HOLE CDM009  
Figure 7

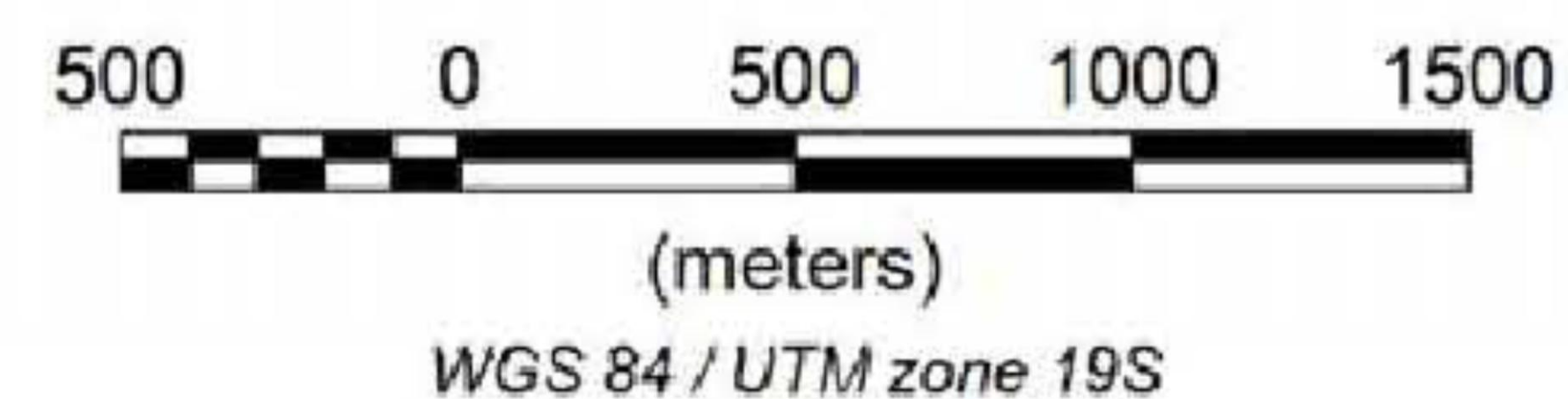
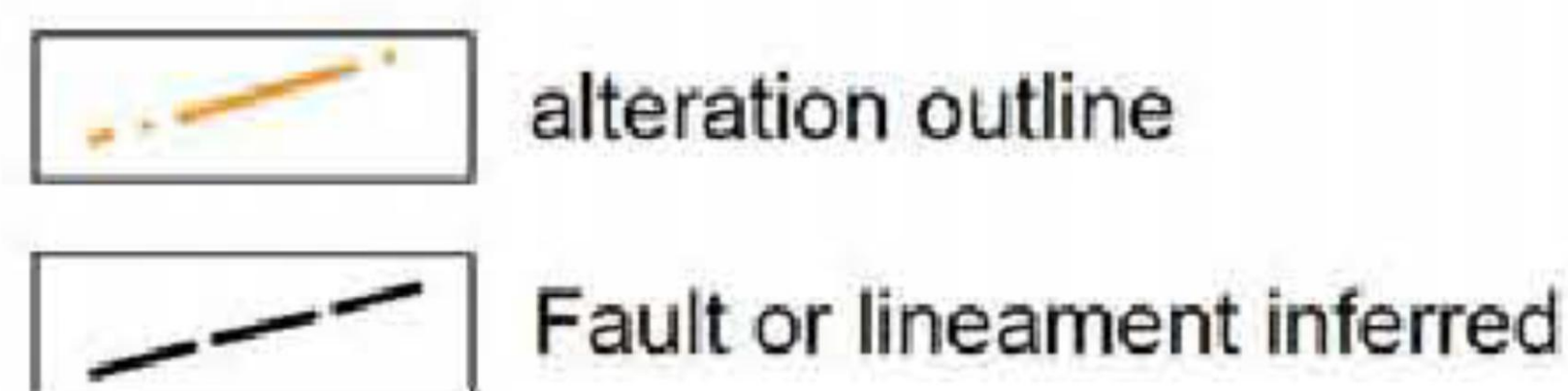
SANTA CECILIA  
INDUCED POLARIZATION ANOMALIES  
PROPOSED DIAMOND DRILL HOLES CDM004 - CDM009  
LOCATION HOLES CDM002 - CDM003  
NOTE QUANTEC IP DRILL TARGETS



Chargeability, mrad



LEGEND



# IP anomalous zones Map

Figure 8

