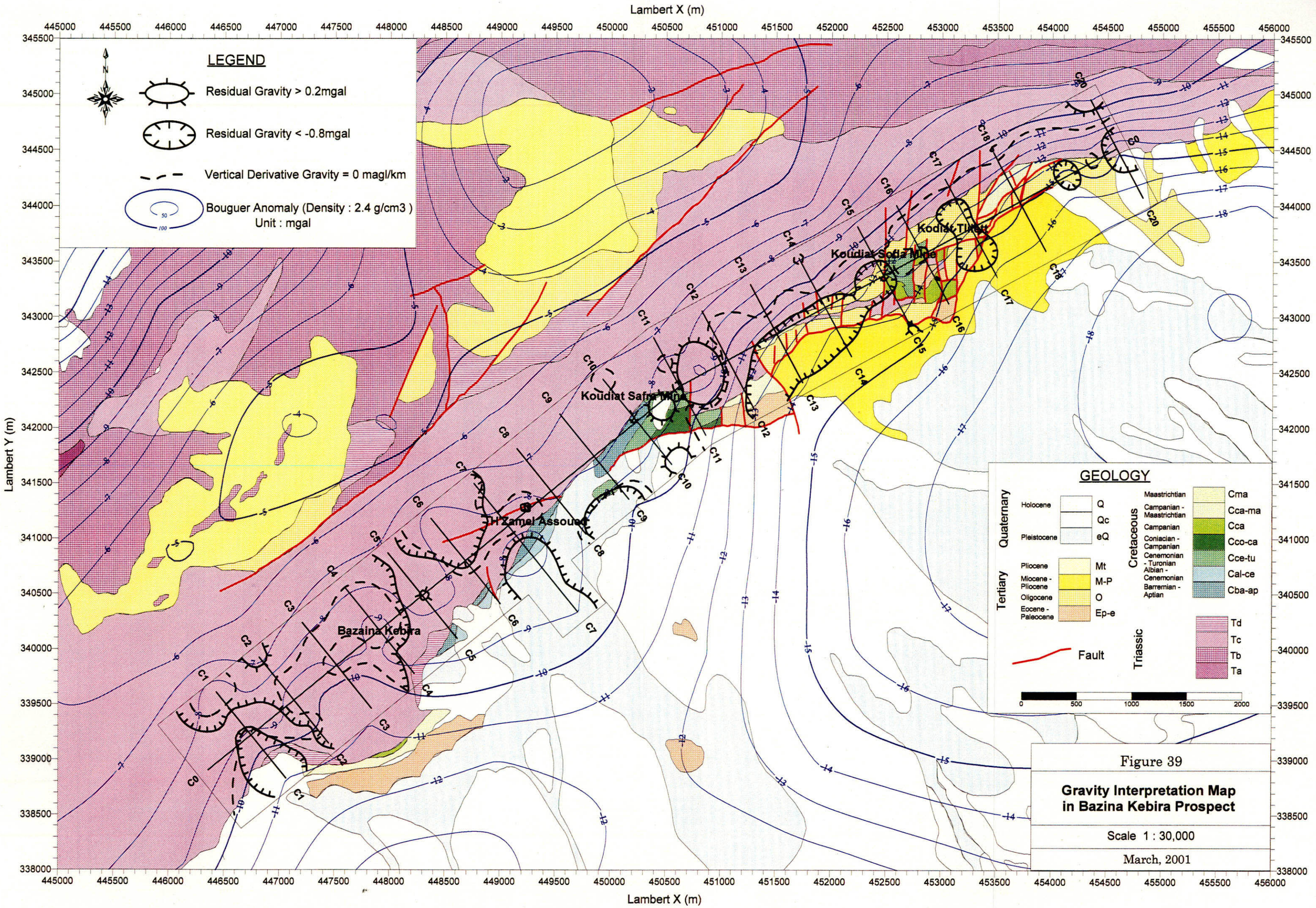


Figure 39

Gravity Interpretation Map in Bazina Kebira Prospect

Scale 1 : 30,000

March, 2001

The H'Zamel Assoued mineral occurrence is located within the relative gravity high stretching towards a saddle of the narrow gravity high dividing the extended gravity low in the El Arrousa plain and it is also located in the marginal zone of the residual gravity high. These characteristics are the same as those in the vicinity of the Bou K'hil working investigated in the last year.

(3) IP survey

The results of the IP survey carried out in the Bazina Kebira prospect are described below.

① Apparent Resistivity and Observed Chargeability

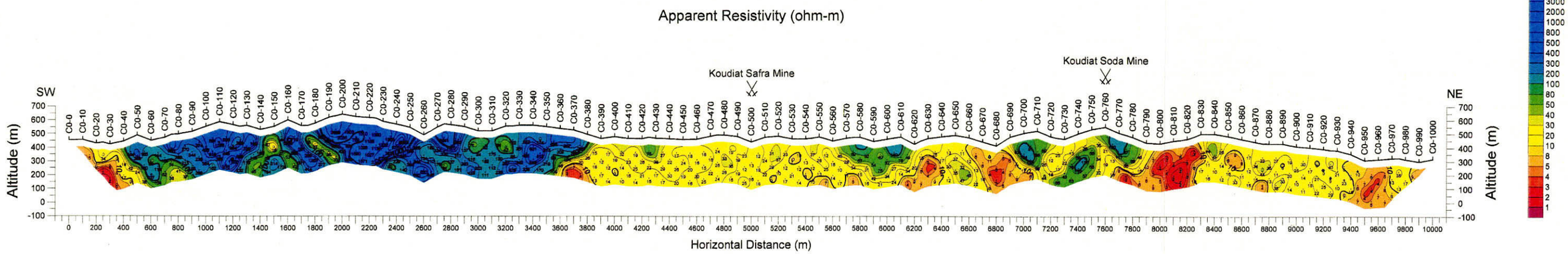
Apparent resistivity measured in the prospect ranges from 1 to 5,770 Ωm, averaging at approximately 167 Ωm. The northwestern Djebel Ech Chied hills area indicates relatively high apparent resistivity beyond 100 Ωm, that tends to be low towards the southeastern El Aroussa plain. In the southwestern part of the prospect high apparent resistivity extends the southeastward, while that in the northeastern part is distributed in the northwest area. Apparent resistivity generally tends to decrease as electrode separation index increases from 1 to 4. The high apparent resistivity in the northeastern part disappears in the plan maps of the 3 and 4 of the electrode separation indices.

Observed chargeability is also low as a whole, with the maximum of 7.8 mV/V. It has impossible to measure valid chargeability partly where apparent resistivity is extremely low. The H'Zamel Assoued in the vicinity of the line C7 in the central part of the prospect, the Koudiat Safra working, Koudiat Soda working and The Koudiat Tlilette in the vicinity of the line C17 in the northeastern part indicates higher observed chargeability than that around them. There is no valid feature of the observed chargeability around the Bazina Kebira mineral occurrence in the vicinity of the line C4 in the southwestern part.

Apparent resistivity and observed chargeability features are described below, for each of cross sections and level plans from n=1 through n= 4 of the electrode separation indices.

・C0 Cross Section (Figure 40)

This is a longitudinal section crosscutting the prospect along the base line from the southwest to the northeast. Extended apparent resistivity high beyond 100Ωm is observed between the station C0-40 and 380 in the northwestern part of the section. A lot of apparent resistivity low less than 50Ωm are measured from the central part through the northeastern part and in the southwest end of the prospect, low apparent resistivity anomalies less than 10Ωm appear within those parts. There is no valid feature of apparent resistivity in the vicinity of the Koudiat Safra working in the central part. The Koudiat Soda working is located in the high apparent resistivity anomalies exceeding 100 Ωm, which is put in two low



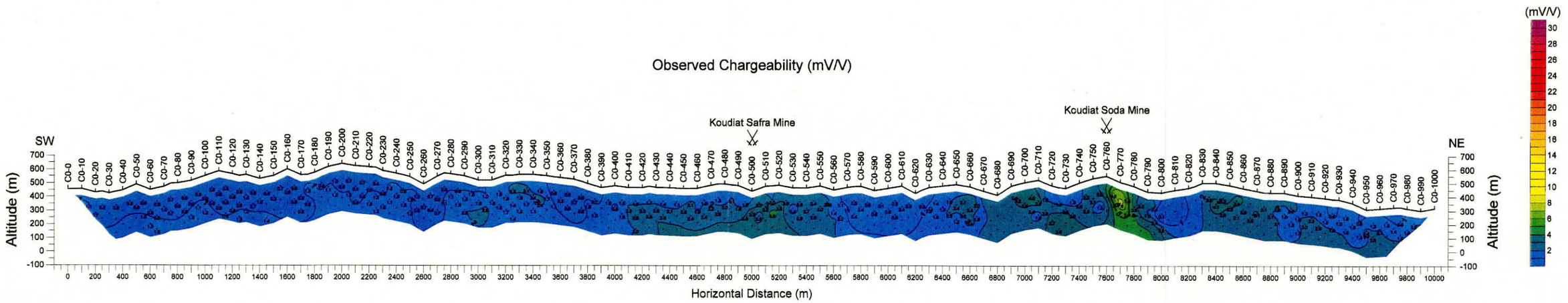


Figure 40 Observed IP pseudo-section (Line C0)

anomalies less than 10Ωm. The weak high anomaly of apparent resistivity is observed in the shallow part between the station C0-830 and 850 neighboring the Koudiat Tlilette mineral occurrence.

Observed chargeability indicates low in general except for the weak anomaly exceeding 5 mV/V in the vicinity of the Koudiat Soda working. Higher Chargeability beyond 3 mV/V over the Koudiat Safra ore deposit in the central part of the section and between the station C0-830 and 850 neighboring the Koudiat Tlilette mineral occurrence is observed than that around area.

・C4 Cross Section (Figure 41)

This section crosscuts the southwestern part of the prospect from the northwest to the southeast. High apparent resistivity exceeding 100 Ωm extends whole the section.

There is no valid feature of observed chargeability.

・C6 Cross Section (Figure 42)

This section runs in the northeast of 1 km apart from the section C4 parallel. Apparent resistivity from the northwestern to the central part of the section indicate high exceeding 100Ωm, low apparent resistivity anomaly is distributed in the southeastern part.

The weak anomaly of observed chargeability beyond 3 mV/V in the central part of the section is not recognized as a valid anomaly.

・C7 Cross Section (Figure 43)

This section runs in the northeast of 500 m apart from the section C6 parallel. Such as the section C6 high apparent resistivity exceeding 100 Ωm is observed in the northwestern part of the section, low apparent resistivity less than 20 Ωm extends from the central through the southeastern part. The extended low anomaly of apparent resistivity below 10 Ωm at the depth of C7-50 through 100 is valid.

The weak anomaly of observed chargeability around 5 mV/V is recognized between the station C7-80 and 100 in the vicinity of the H'Zamel Assoued mineral occurrence.

・C9 Cross Section (Figure 44)

This section crosscuts the central part of the prospect from the northwest to the southeast. High apparent resistivity exceeding 100 Ωm is observed in the northwestern part of the section, low apparent resistivity less than 20 Ωm extends from the central through the southeastern part. The apparent resistivity high in the northwestern part is smaller than that of the section C7, the large apparent resistivity low below 10 Ωm extends the southeastward.

No valid anomaly of observed chargeability is recognized in this section.

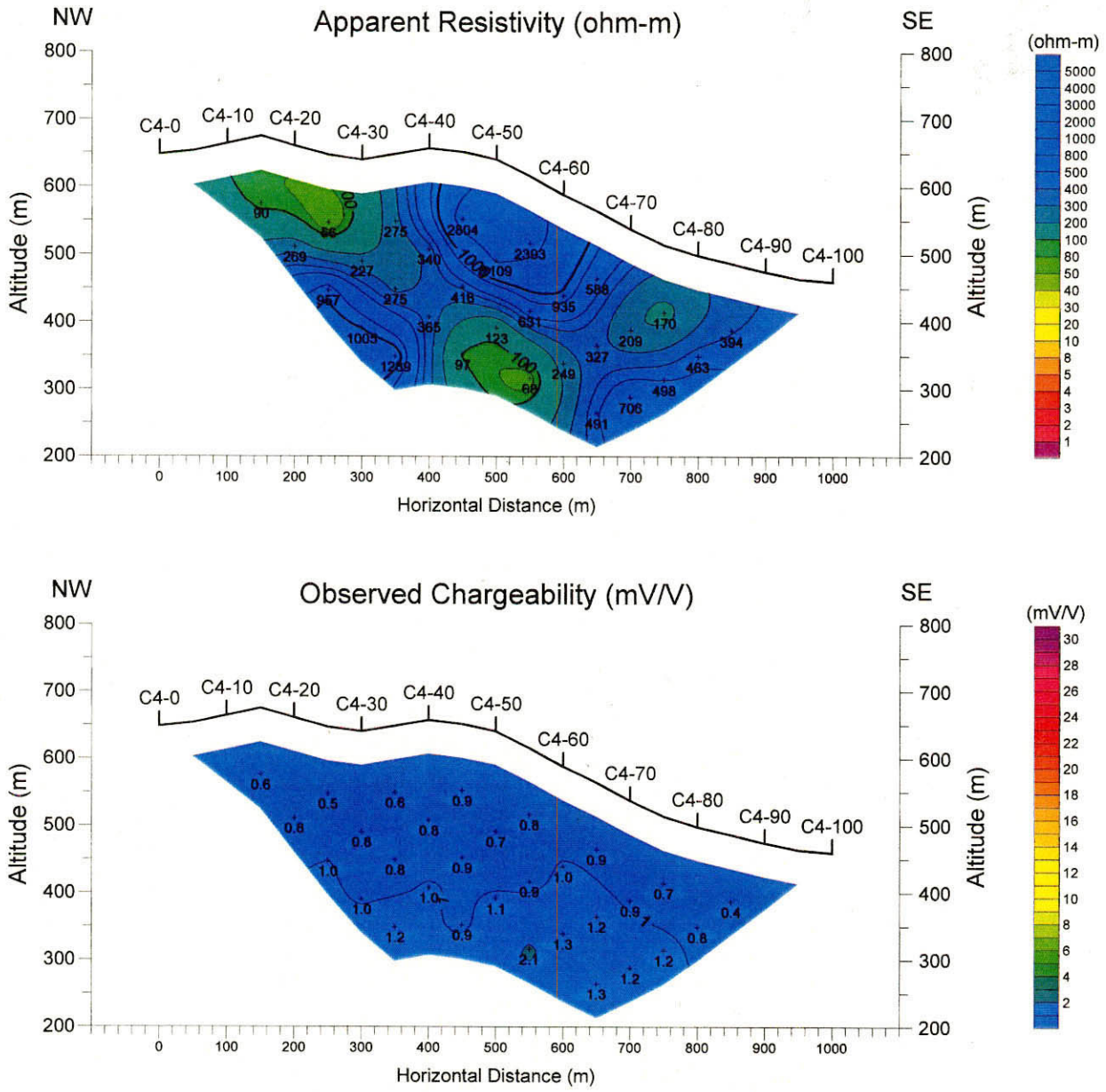


Figure 41 Observed IP pseudo-section (Line C4)

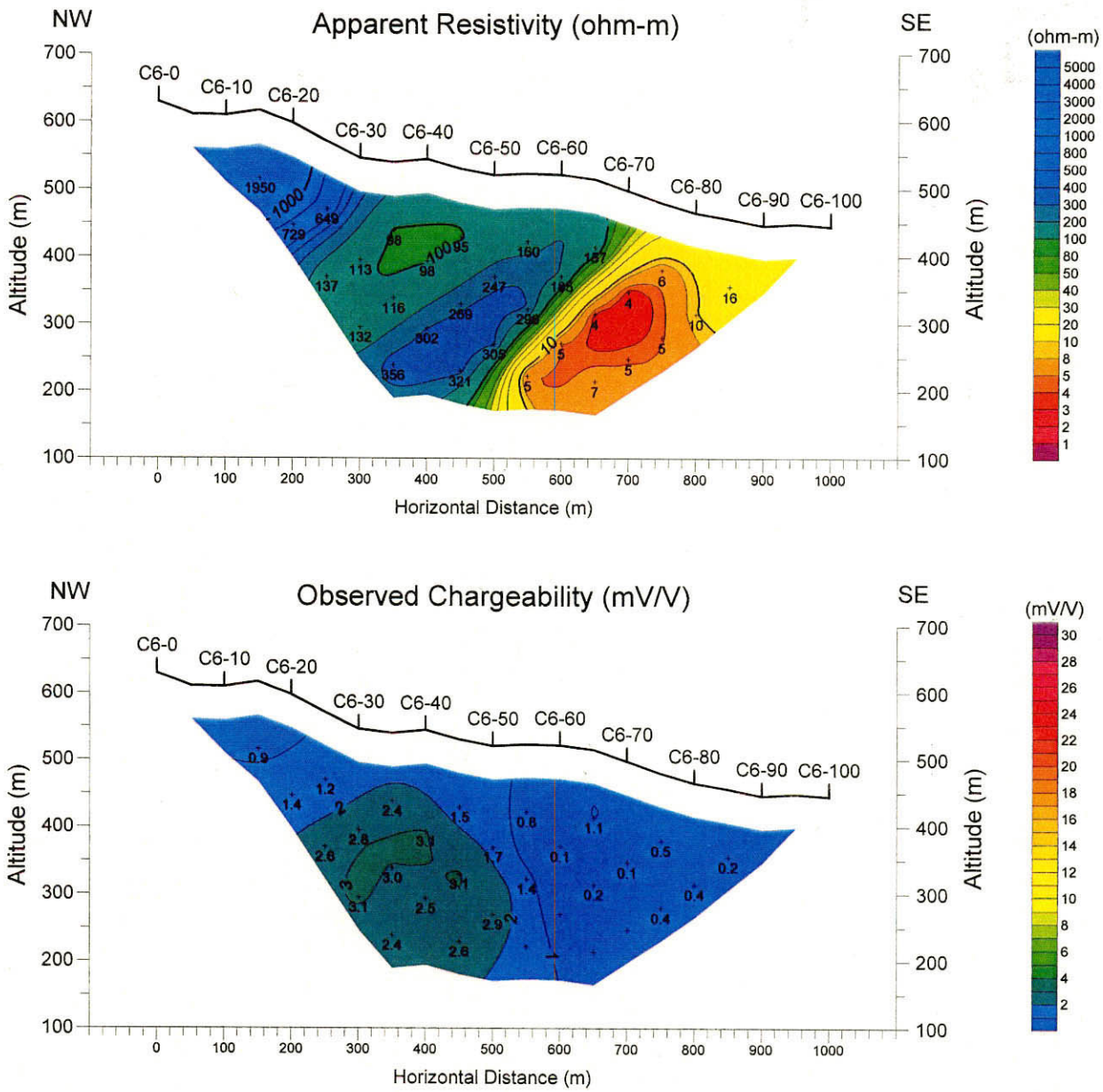


Figure 42 Observed IP pseudo-section (Line C6)

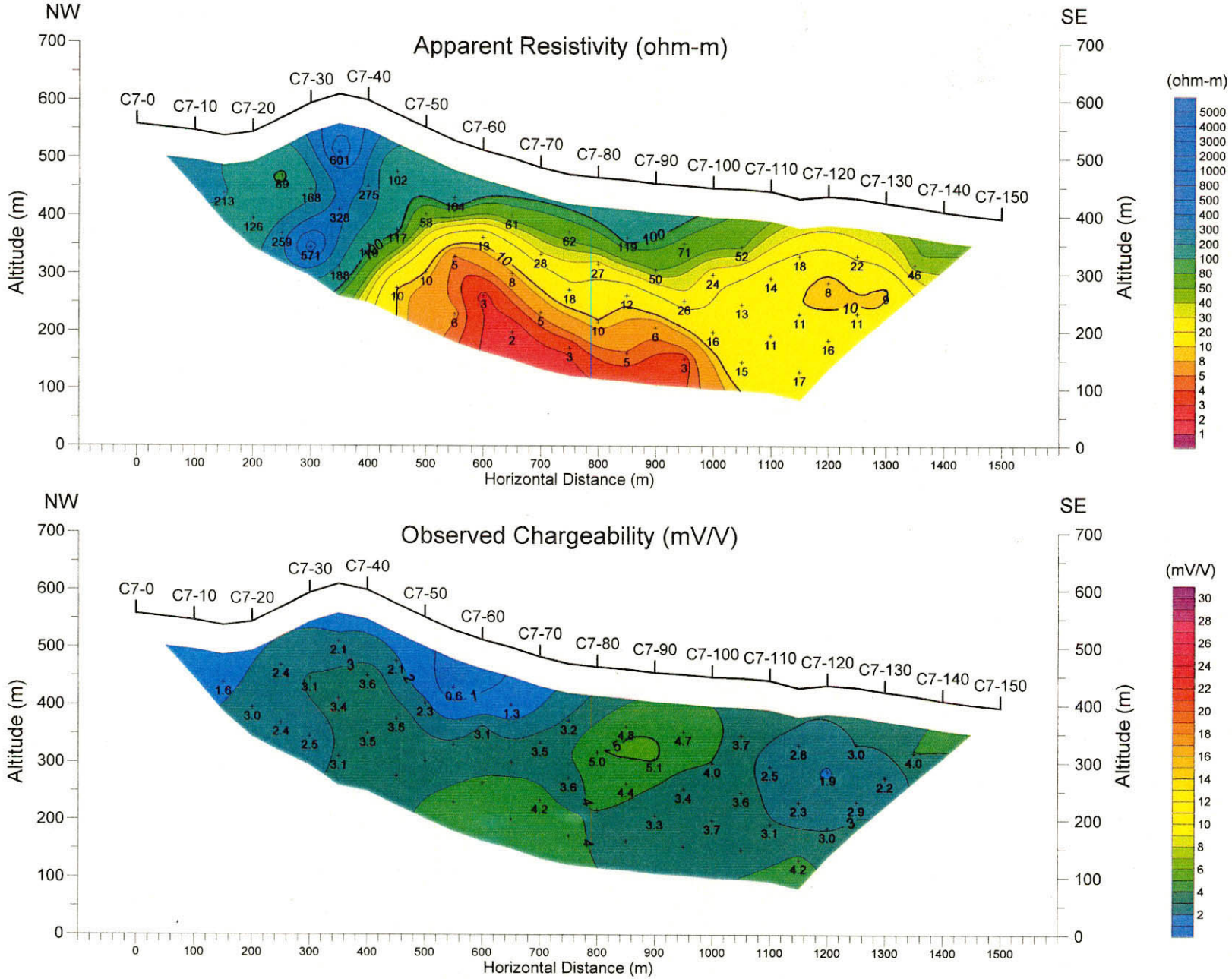


Figure 43 Observed IP pseudo-section (Line C7)

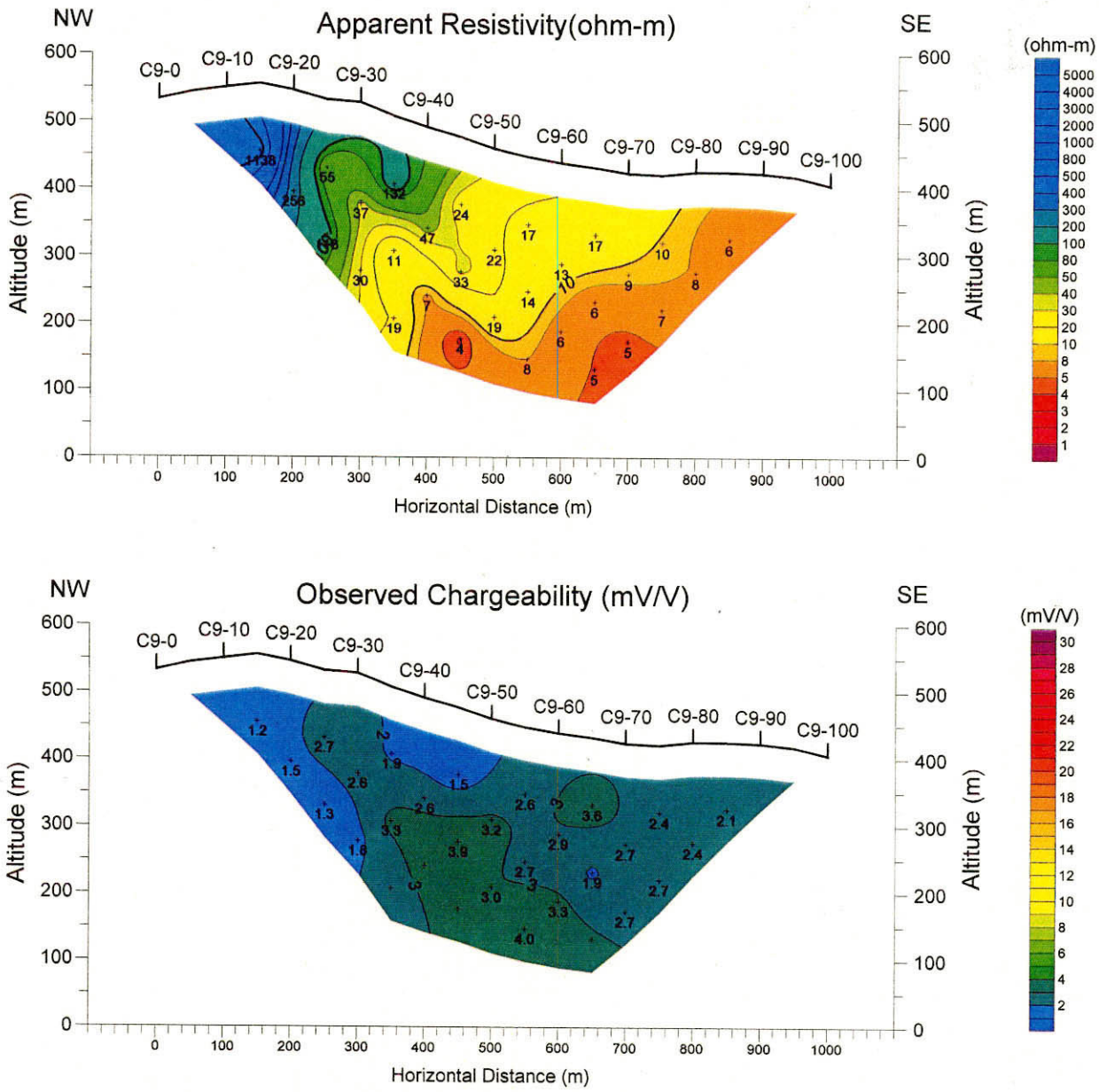


Figure 44 Observed IP pseudo-section (Line C9)

・C10 Cross Section (Figure 45)

This section runs from the northwest to the southeast through the Koudiat Safra working located around the center of the prospect. Such as the section C9 the northwestern end of the section high apparent resistivity beyond 100 Ωm is observed, the low apparent resistivity less than 20 Ωm in the central part decreases the southeastward. Apparent resistivity in the vicinity of the Koudiat Safra working is ranging between 10 and 20 Ωm.

The weak anomaly of observed chargeability around 4mV/V is recognized in the vicinity of the Koudiat Safra working in the central part.

・C11 Cross Section (Figure 46)

This section runs in the northeast of 500 m apart from the section C10 parallel. Apparent resistivity in the northwestern end of the section indicate high exceeding 100 Ωm, low apparent resistivity anomaly less than 20 Ωm in the central part decreases the southeastward.

There is no valid anomaly of observed chargeability.

・C14 Cross Section (Figure 47)

This section crosscuts the northeastern part of the prospect from the northwest to the southeast. Apparent resistivity in this section indicates below 100 Ωm in general except for the northwestern shallow part. The low anomaly of apparent resistivity less than 10 Ωm extends at the deep area between the station C14-50 and 80 in the central part corresponded to the southeastern hillside.

The weak anomaly of observed chargeability exceeding 5mV/V is recognized around the station C14-60 in the central part.

・C15 Cross Section (Figure 48)

This section runs the northeast of 500m apart from the section C14 parallel through the Koudiat Soda working. Apparent resistivity in the northwestern part of the section indicate high beyond 100 Ωm, a high anomaly of apparent resistivity exceeding 50 Ωm is recognized the central shallow part. A low anomaly of apparent resistivity less than 20 Ωm extends from the central deep part southwestward.

The weak anomaly of observed chargeability exceeding 5mV/V is recognized in the vicinity of the Koudiat Soda working in the central part.

・C16 Cross Section (Figure 49)

This section runs the northeast of 500m apart from the section C15 parallel. Apparent resistivity in the northwestern part of the section indicate high beyond 100 Ωm, a low anomaly of apparent resistivity less than 10 Ωm extends from the central deep part

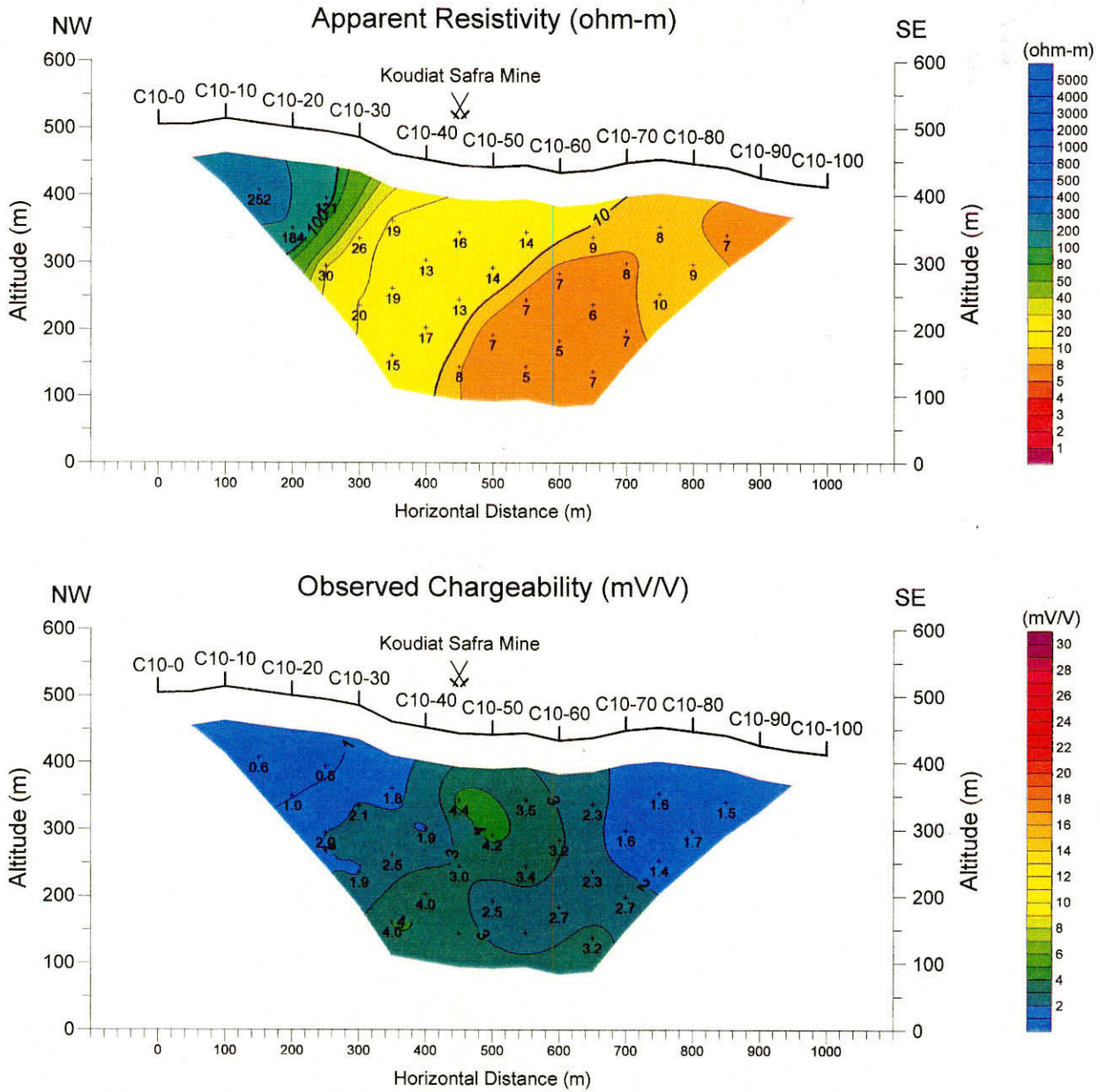


Figure 45 Observed IP pseudo-section (Line C10)

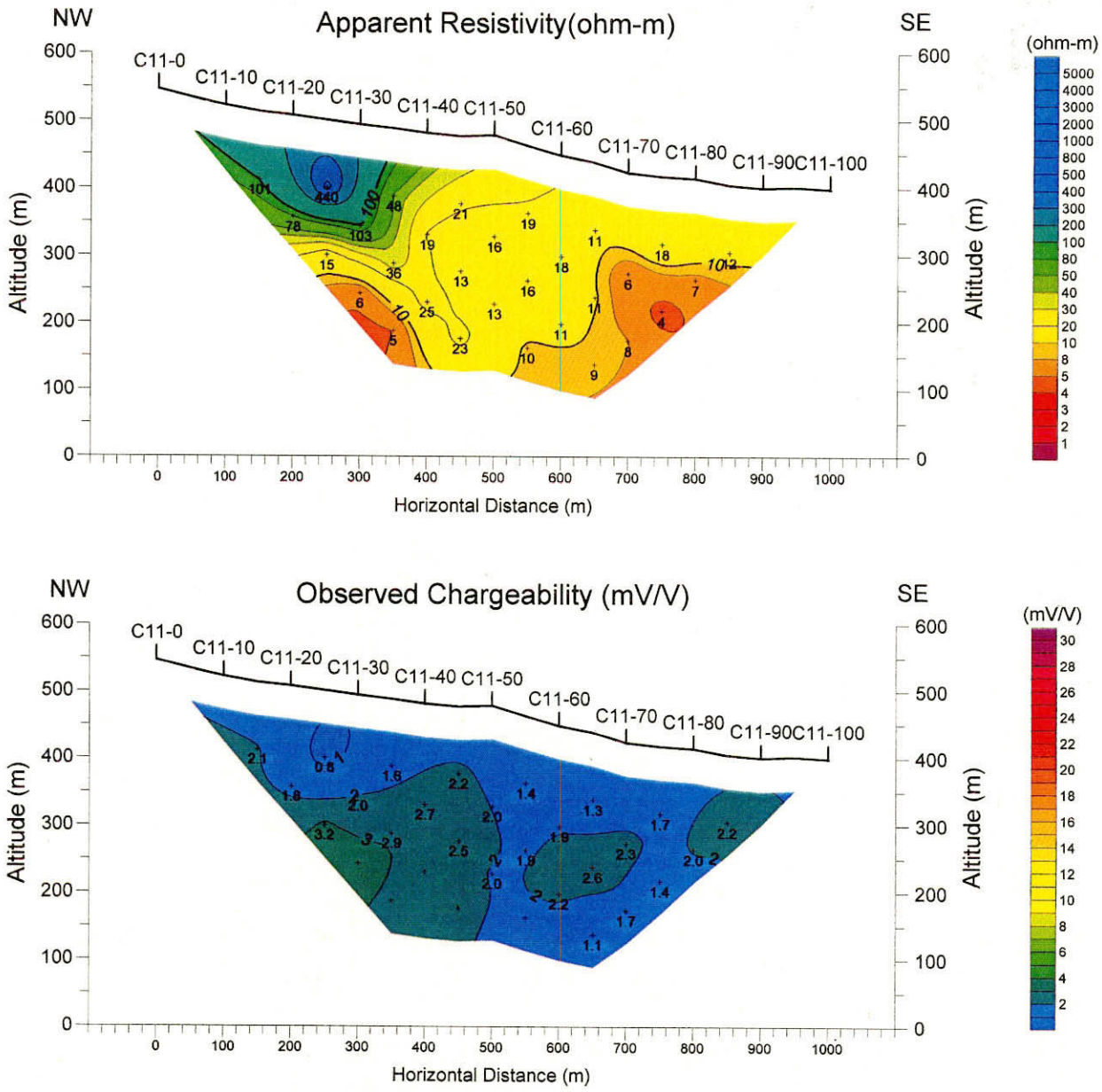


Figure 46 Observed IP pseudo-section (Line C11)

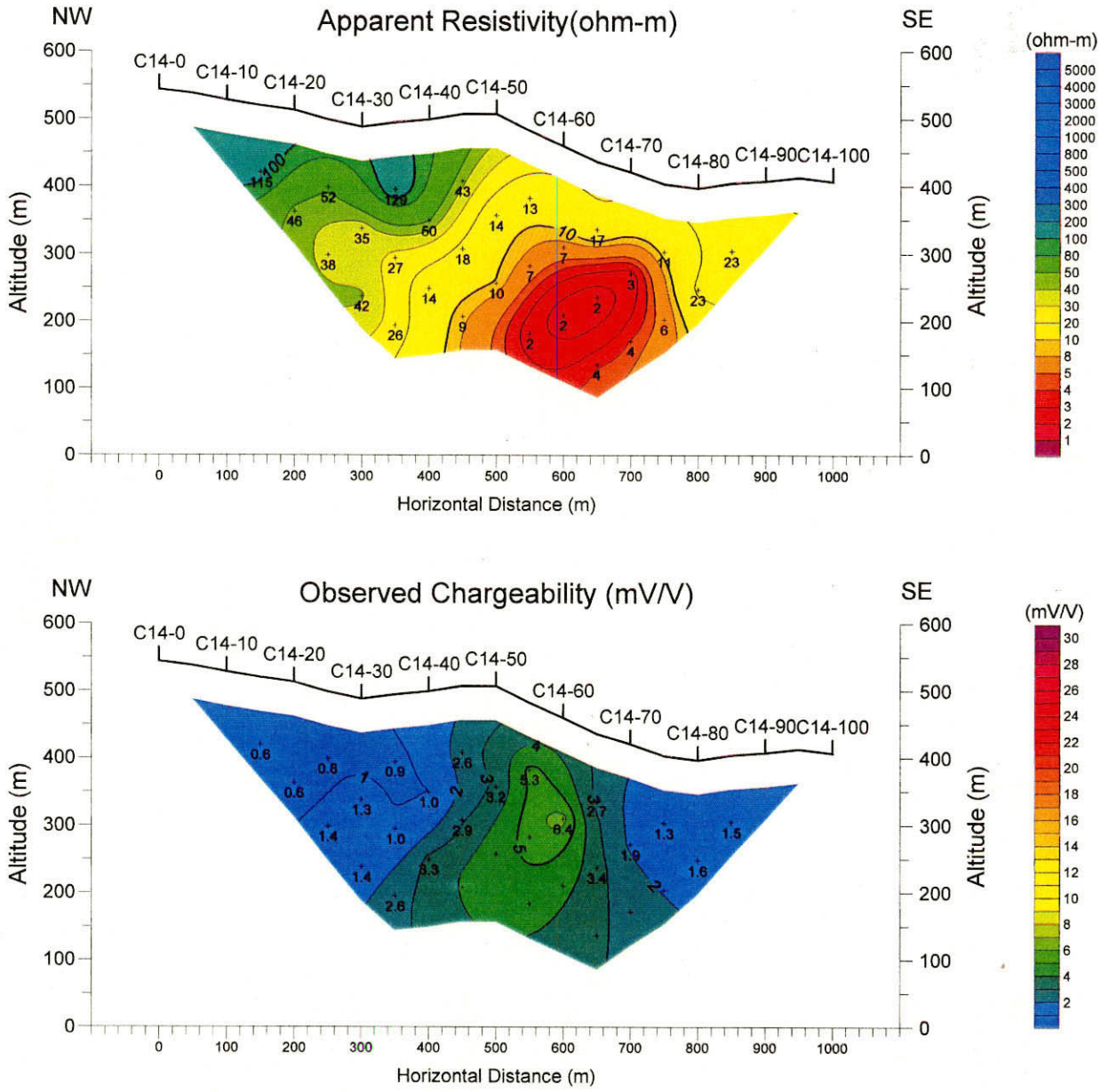


Figure 47 Observed IP pseudo-section (Line C14)

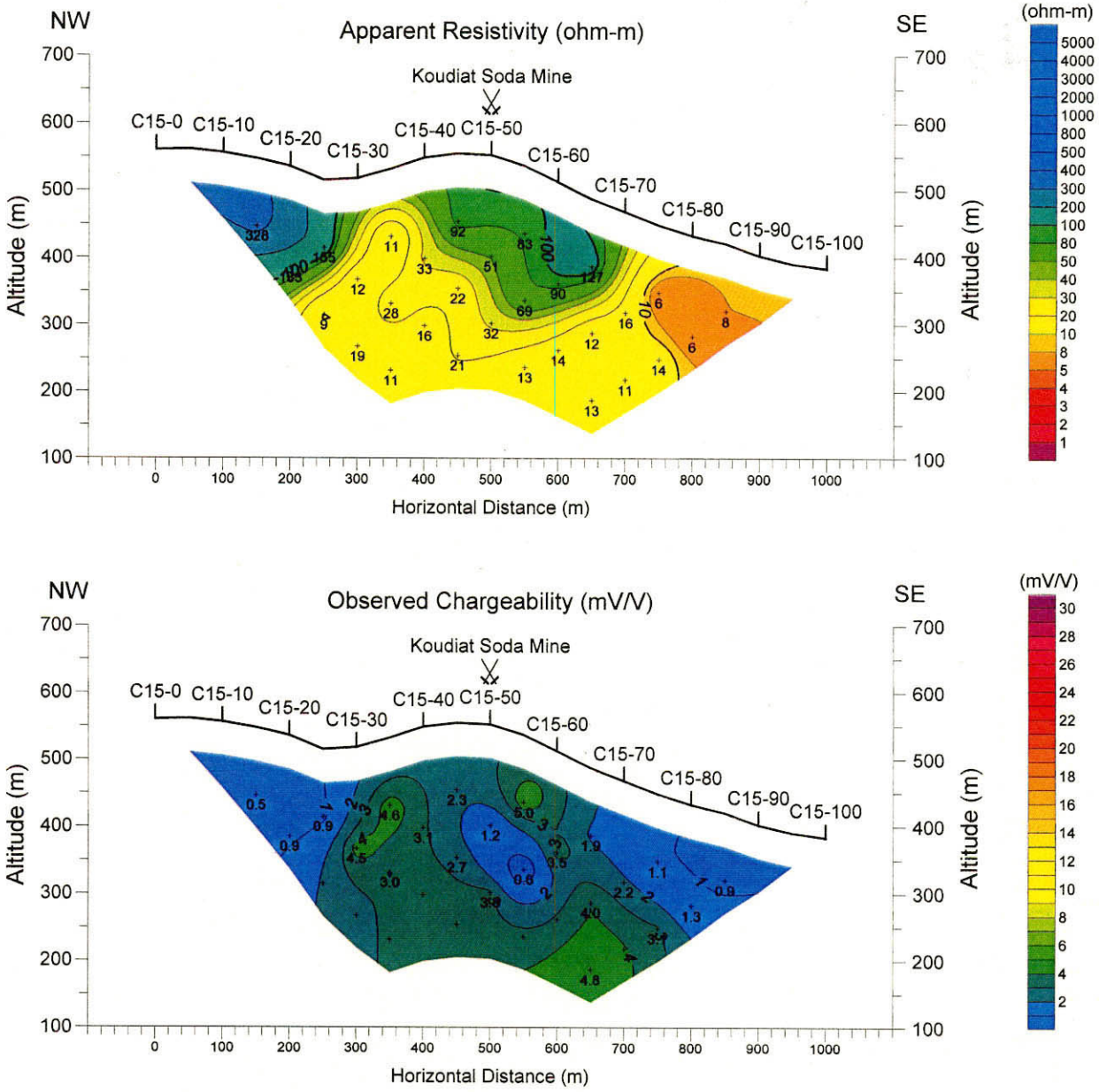


Figure 48 Observed IP pseudo-section (Line C15)

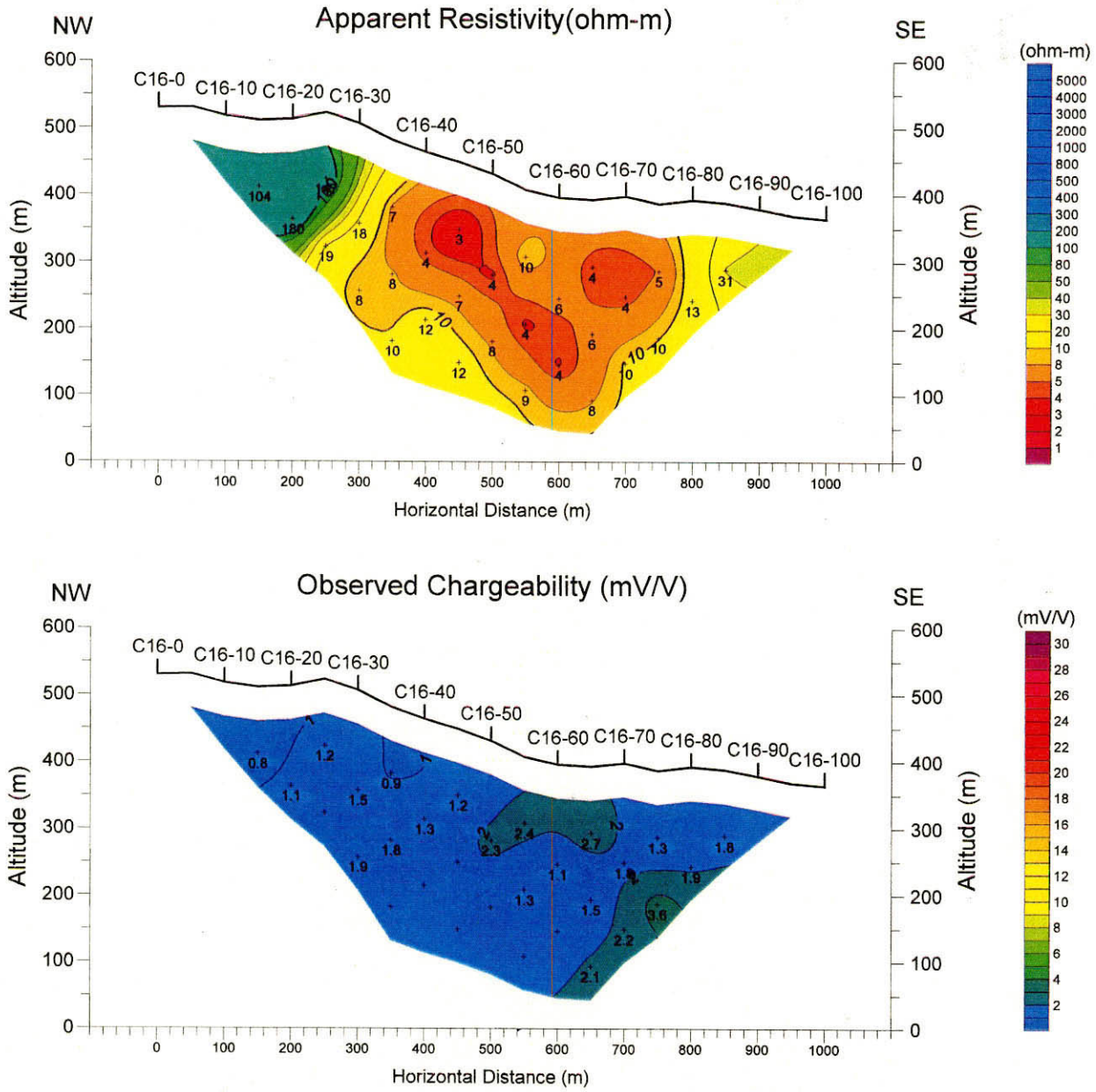


Figure 49 Observed IP pseudo-section (Line C16)

southwestward.

There is no valid anomaly of observed chargeability in this section.

・C17 Cross Section (Figure 50)

This section runs the northeast of 500m apart from the section C16 parallel through the Koudiat Tlilette mineral occurrence. High anomalies of apparent resistivity exceeding 50 Ωm are recognized in the northwestern end, the central part and the southeastern end of the section, low anomalies of apparent resistivity less than 10 Ωm is distributed between these high anomalies.

The weak anomaly of observed chargeability exceeding 4mV/V isn't important so much.

・Plan map of apparent resistivity n=1 (Figure 51)

Apparent resistivity high exceeding 100 Ωm is distributed along the Djebel Ech Chied hills in the northwest side of the prospect, and this extends southeastward in the southwestern part. Apparent resistivity becomes low in the northeastern El Aroussa plain side, and low anomalies below 10 Ωm are distributed. Apparent resistivity in the southwest and northeast ends of the prospect indicates low less than 10 Ωm. The Bazina Kebira mineral occurrence around the line C4 in the southwestern part, the H'Zamel Assoued mineral occurrence in the vicinity of the station C7-80 and the Koudiat Soda working is located in the extended parts of the northwestern high apparent resistivity. The Koudiat Safra working in the central part is located in the boundary area between high and low apparent resistivity. The low anomaly of apparent resistivity below 10 Ωm between the Koudiat Soda working and the line C17 in the vicinity of the Koudiat Tlilette in the northeastern suggest complicated geological structures.

・Plan map of apparent resistivity n=2 (Figure 52)

The apparent resistivity distribution in this map has same features as the map of n=1. The lower apparent resistivity is than electrode separation index n=1 in general, the smaller apparent resistivity high exceeding 100 Ωm in the northwestern hill side become in the northeastern part of the prospect.

・Plan map of apparent resistivity n=3 (Figure 53)

The apparent resistivity becomes still lower in general. In the northeastern part of the prospect high apparent resistivity beyond 100 Ωm is distributed partly in the vicinity of the Koudiat Soda working, while low apparent resistivity extends to the vicinity of the base line C0.

・Plan map of apparent resistivity n=4 (Figure 54)

The features of apparent resistivity in this map is almost same as the map of electrode separation index n=3. The apparent resistivity still decreases in general.

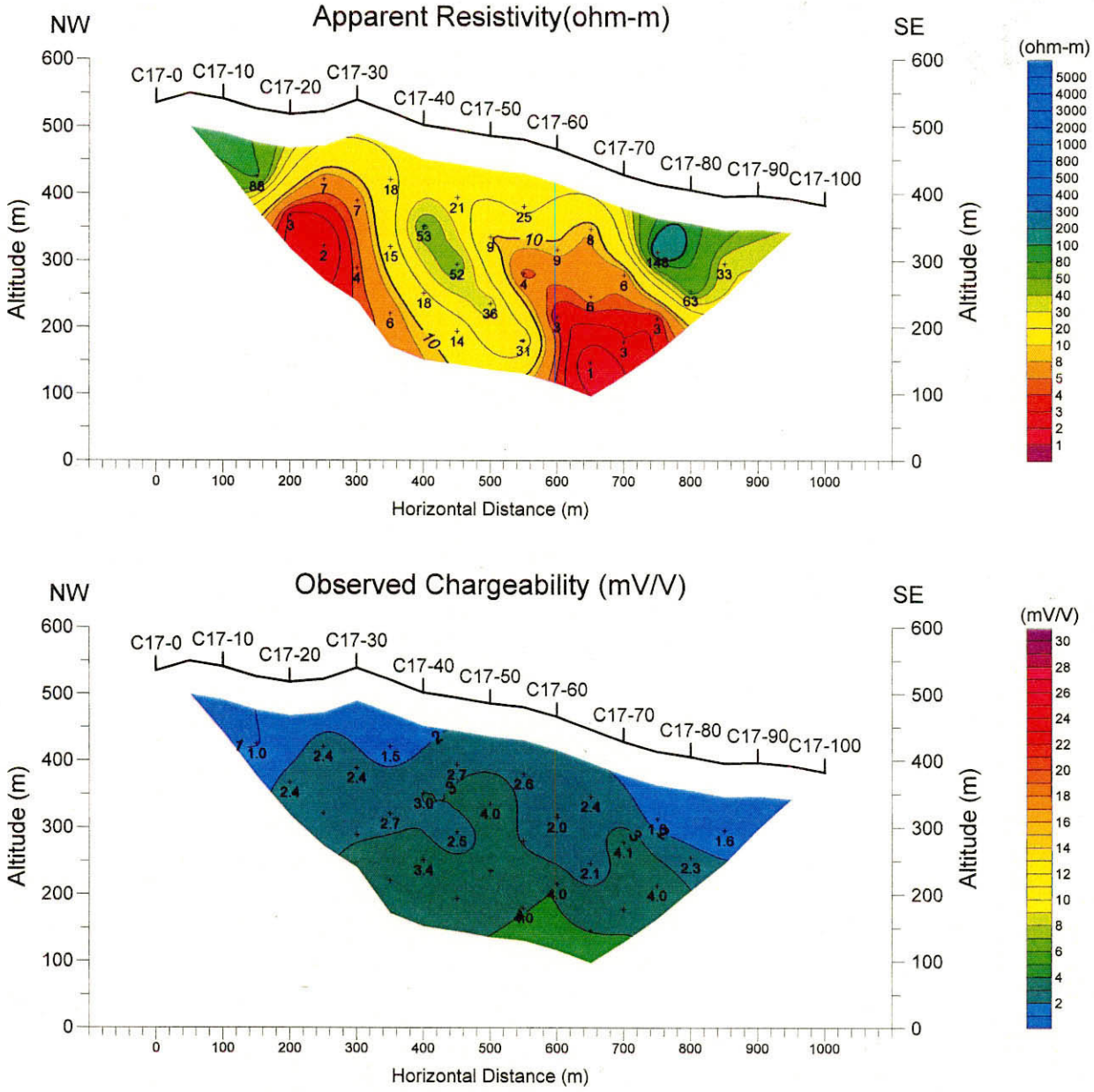


Figure 50 Observed IP pseudo-section (Line C17)

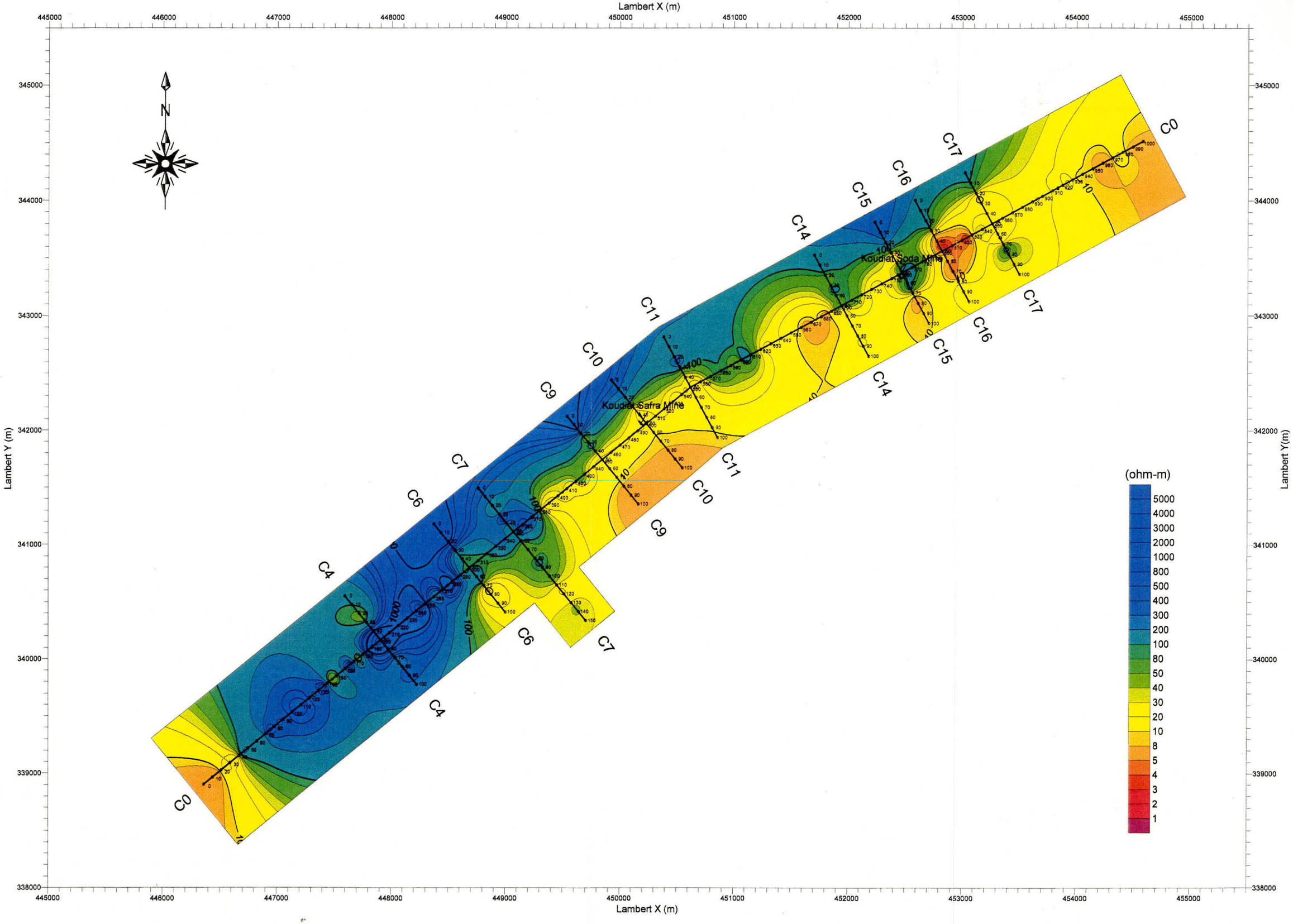


Figure 51 Plan map of apparent resistivity in Bazina Kebira prospect (n=1)

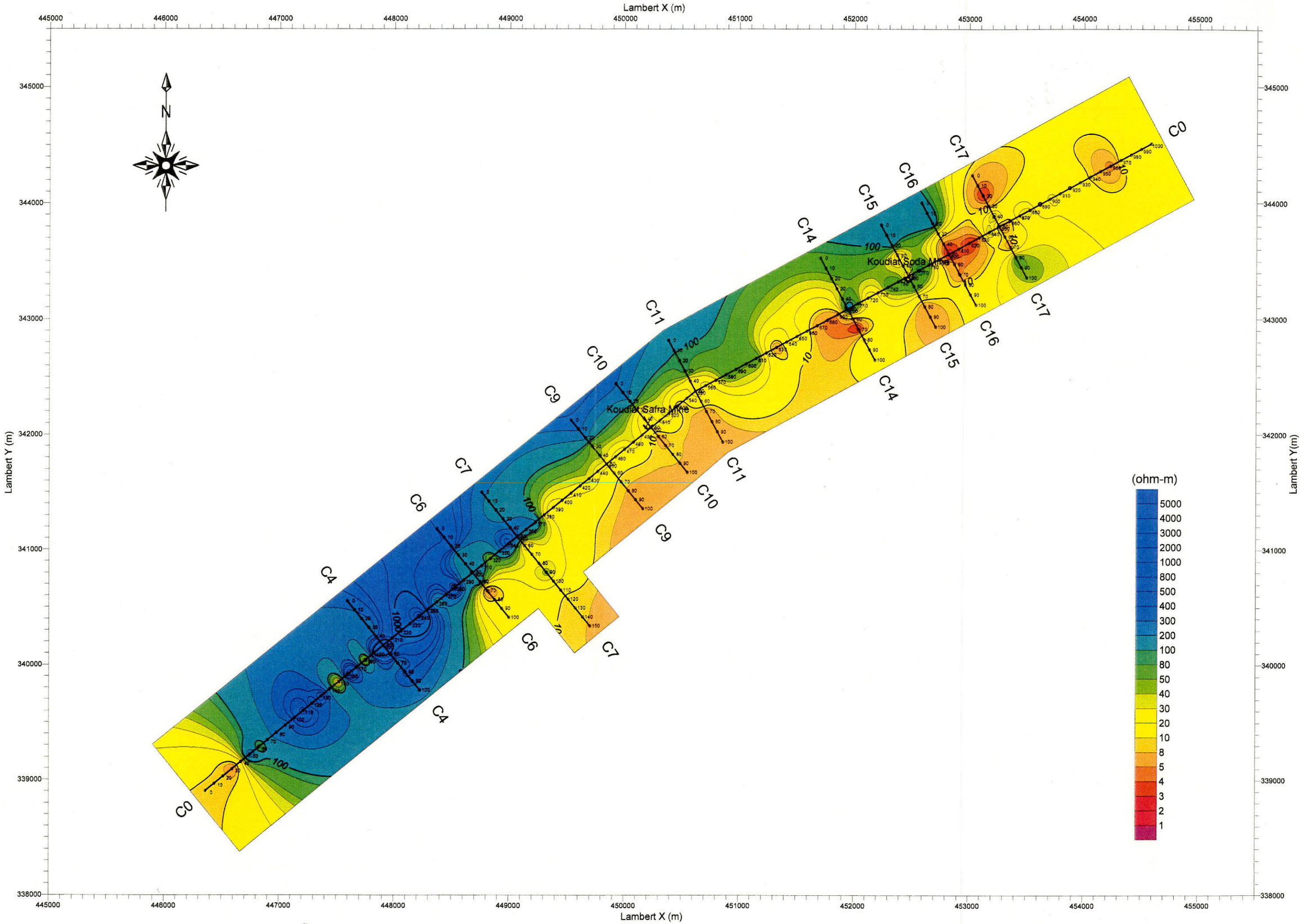


Figure 52 Plan map of apparent resistivity in Bazina Kebira prospect (n=2)

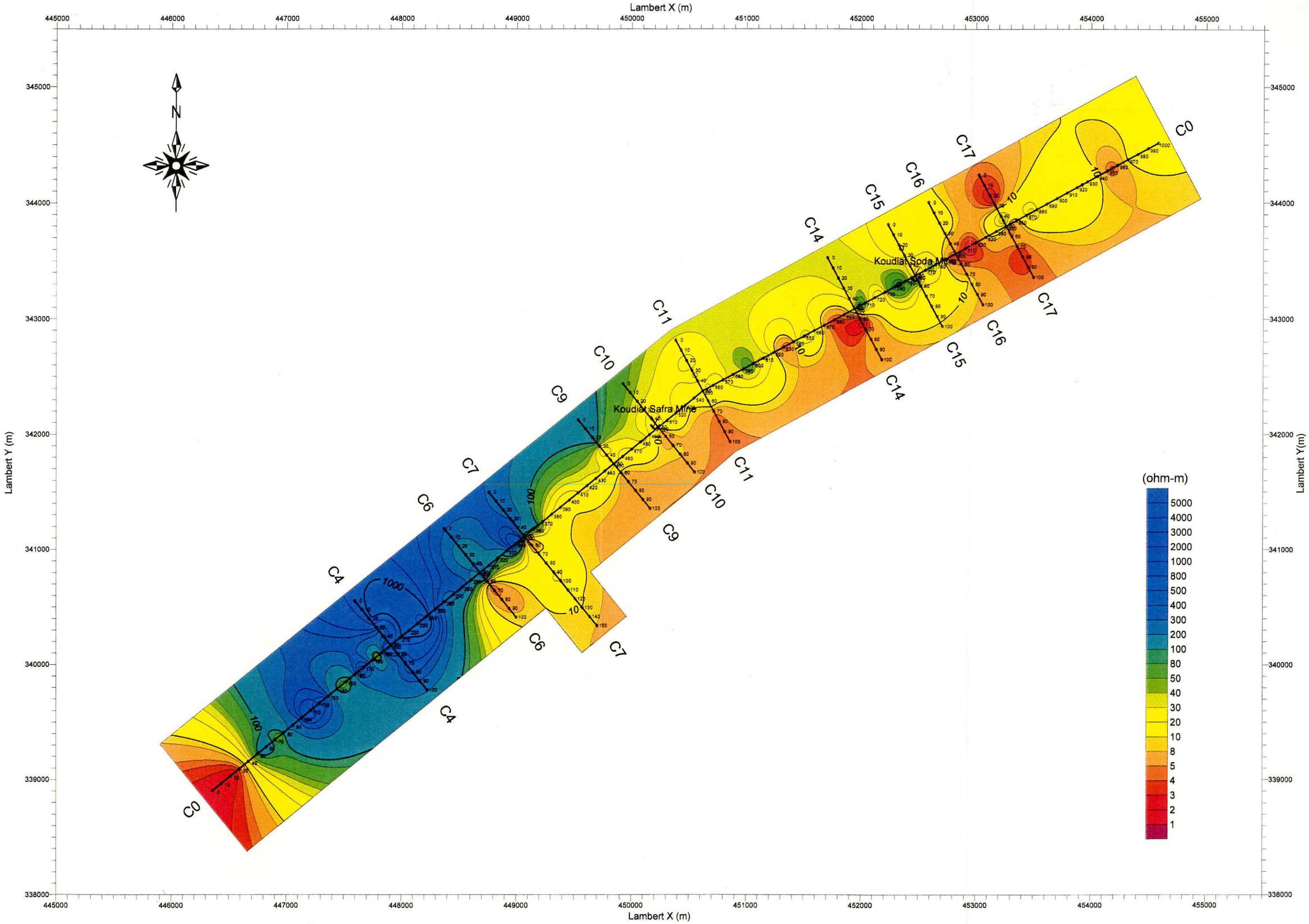


Figure 53 Plan map of apparent resistivity in Bazina Kebira prospect (n=3)

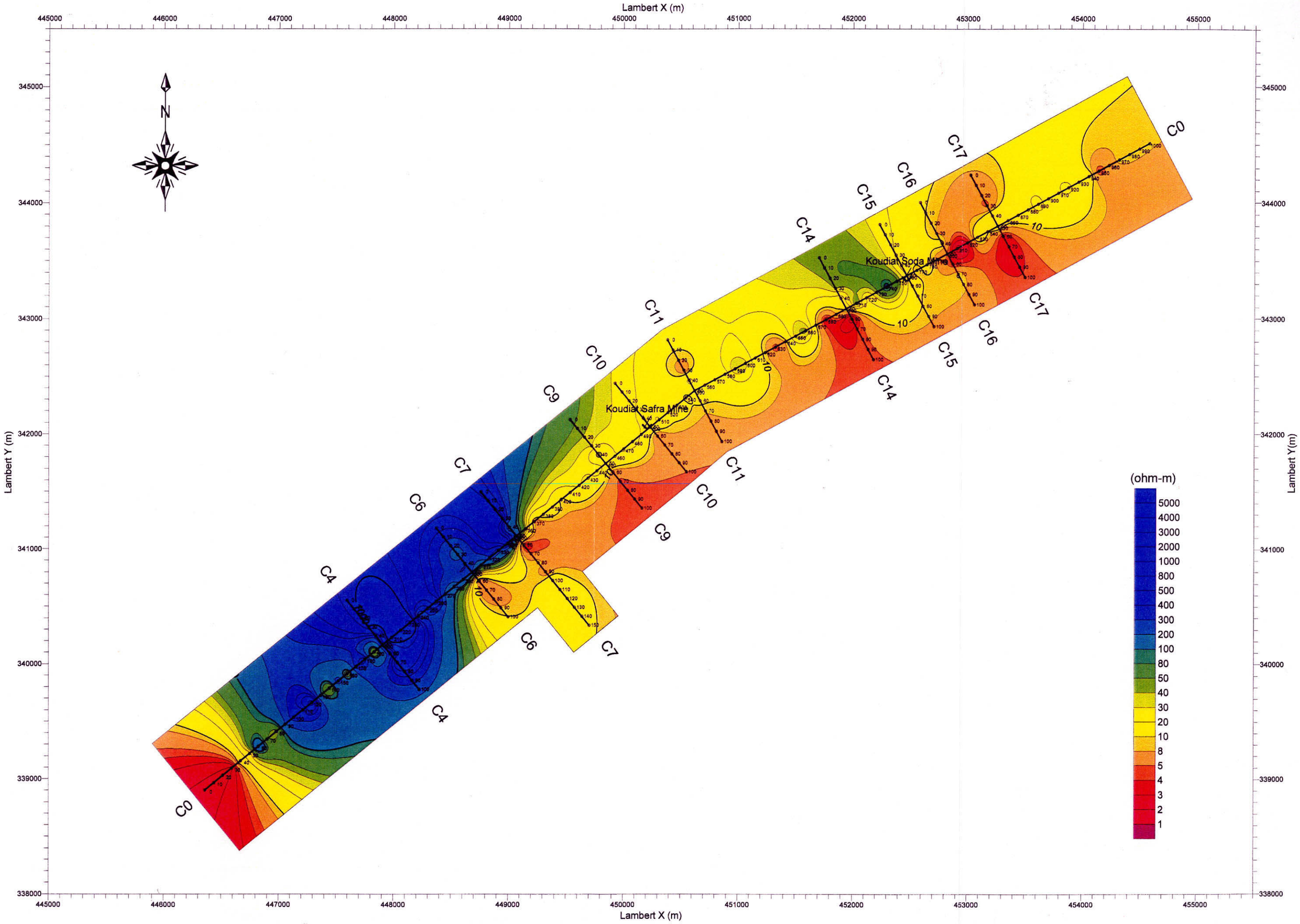


Figure 54 Plan map of apparent resistivity in Bazina Kebira prospect (n=4)

・Plan map of observed chargeability n=1 (Figure 55)

The weak anomaly of the observed chargeability exceeding 5 mV/V is located around the Koudiat Soda working, and The weaker anomalies between 4 and 5 mV/V are recognized around the station C7-90 in the vicinity of the H'Zamel Assoued mineral occurrence and adjacent the C14-60 in the northeastern part of the prospect. Observed chargeability in the vicinity of the Koudiat Soda working in the central part of the prospect and nearby the Koudiat Tlilette mineral occurrence is higher than that of surrounding area. No observed chargeability anomaly is recognized around the line C4 neighboring the Bazina Kebira mineral occurrence.

・Plan map of observed chargeability n=2 (Figure 56)

The observed chargeability in this map is distributed almost same as electrode separation index n=1.

・Plan map of observed chargeability n=3 (Figure 57)

The features of observed chargeability distribution in this map is almost same as electrode separation index n=2. The weak anomaly in the vicinity of the station C14-60 disappears.

・Plan map of observed chargeability n=4 (Figure 58)

Observed changeability in and around the mineral occurrences except for the Bazina Kebira mineral occurrence tends to be higher than surrounding areas. Recognized anomaly, however, is only one around the station C7-90 in the vicinity of the H'Zamel Assoued mineral occurrence.

② Modeled Resistivity and Chargeability

Modeled resistivity in this prospect indicates ranges between 0.1 and 1,127 Ωm, averaging at approximately 80 Ωm.

Resistivity distribution in the prospect is divided 3 areas; the southwest area except for the southwestern end, the central area and the northeast area except for the northeastern end. In the southwest area high resistivity exceeding 100 Ωm is distributed from shallow to deep, extending southeastward as the southwest. High resistivity is corresponded to the Triassic dolomite. In the central area low resistivity extends in the deep part, high resistivity stretches from the southwest area in the shallow part. The low resistivity is corresponded to sandstones and conglomerates of the Cretaceous, the Tertiary and the Quaternary systems. In the northeast area high and low resistivity is distributed complicatedly.

The small resistive anomalies in the tops of stretching high resistivity eastward in the northwest side is located around the station C7-90 in the vicinity of the H'Zamel Assoued mineral occurrence in the southwest area, around the Koudiat Safra working in the central

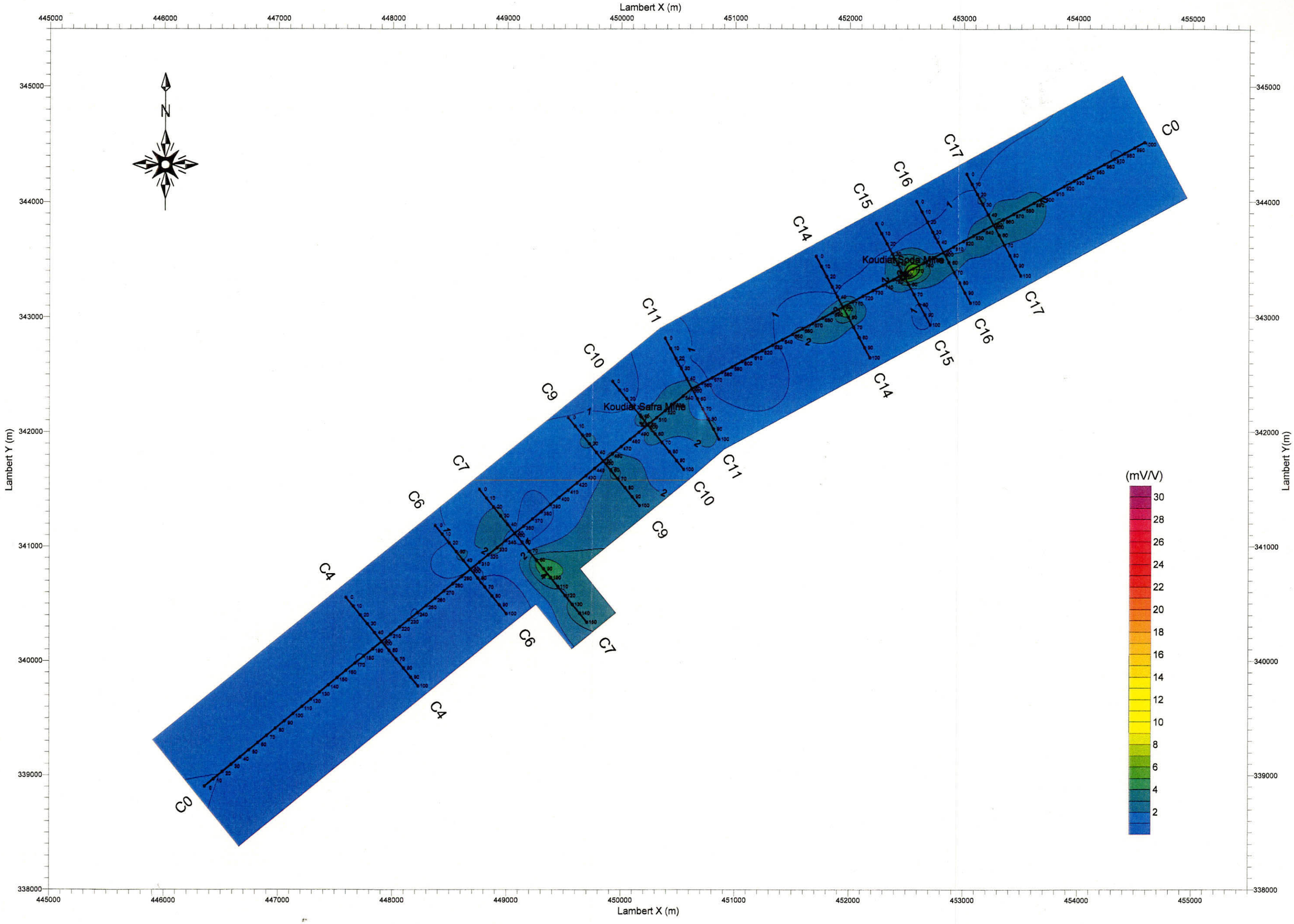


Figure 55 Plan map of observed chargeability in Bazina Kebira prospect (n=1)

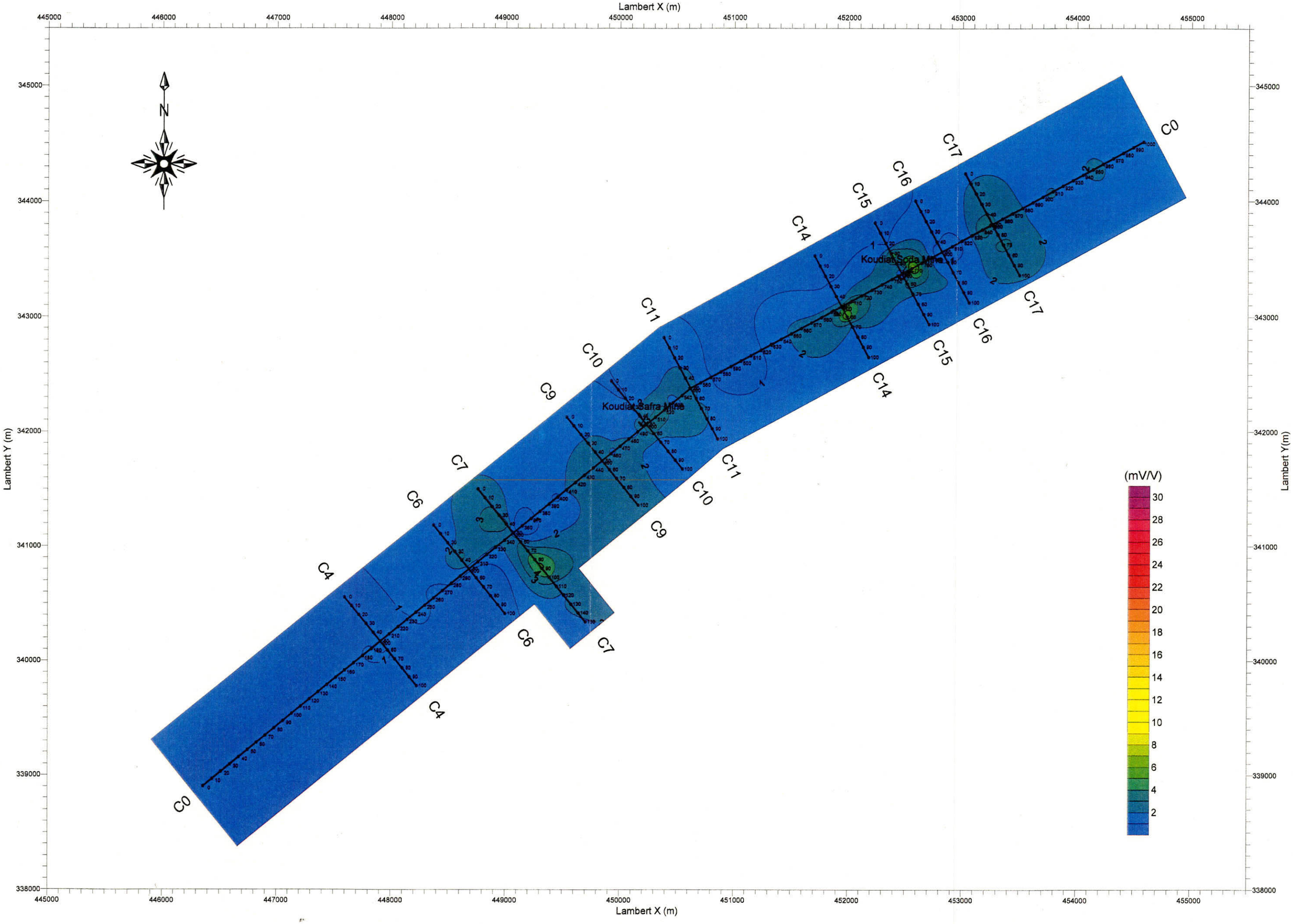


Figure 56 Plan map of observed chargeability in Bazina Kebira prospect (n=2)

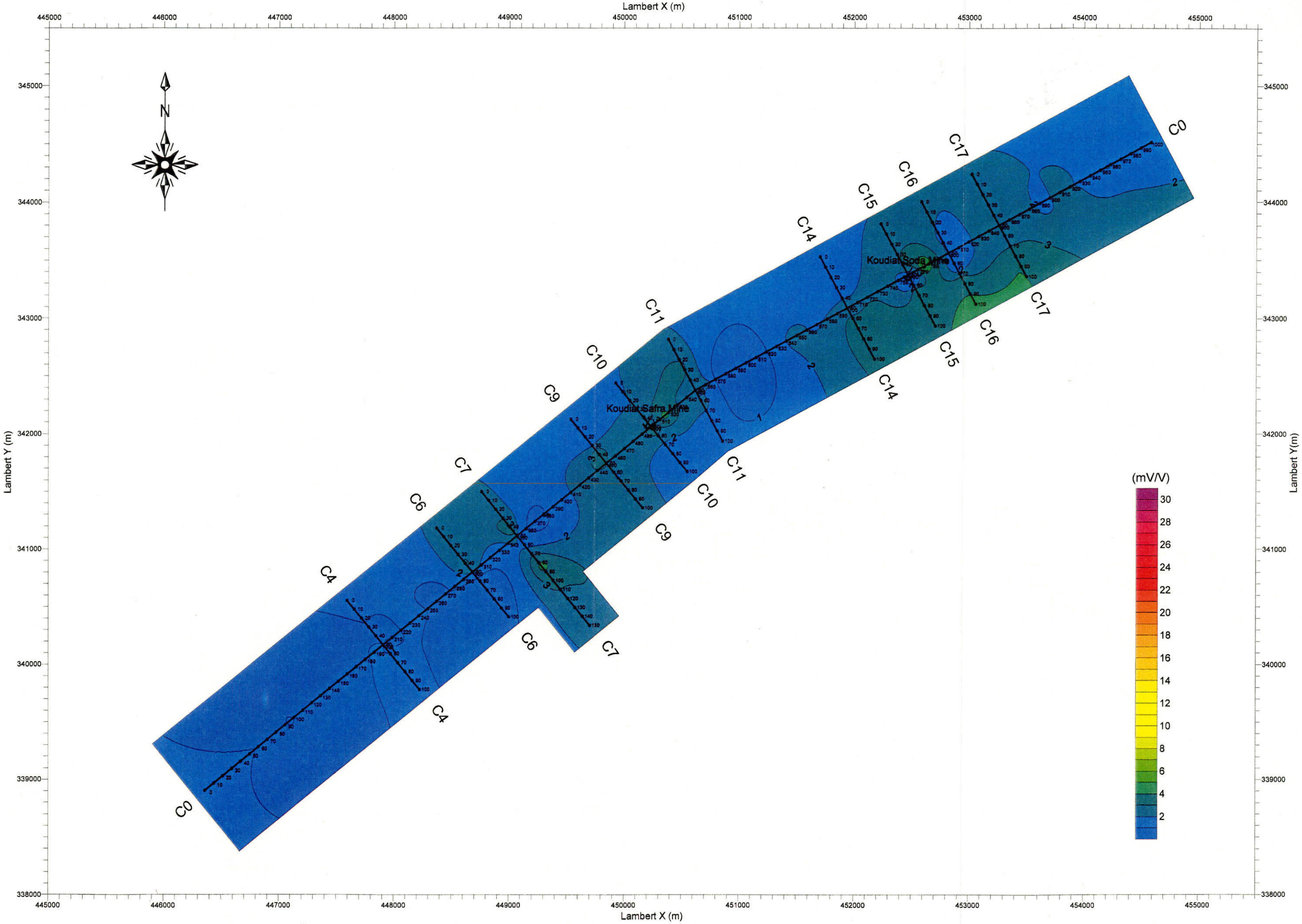


Figure 57 Plan map of observed chargeability in Bazina Kebira prospect (n=3)

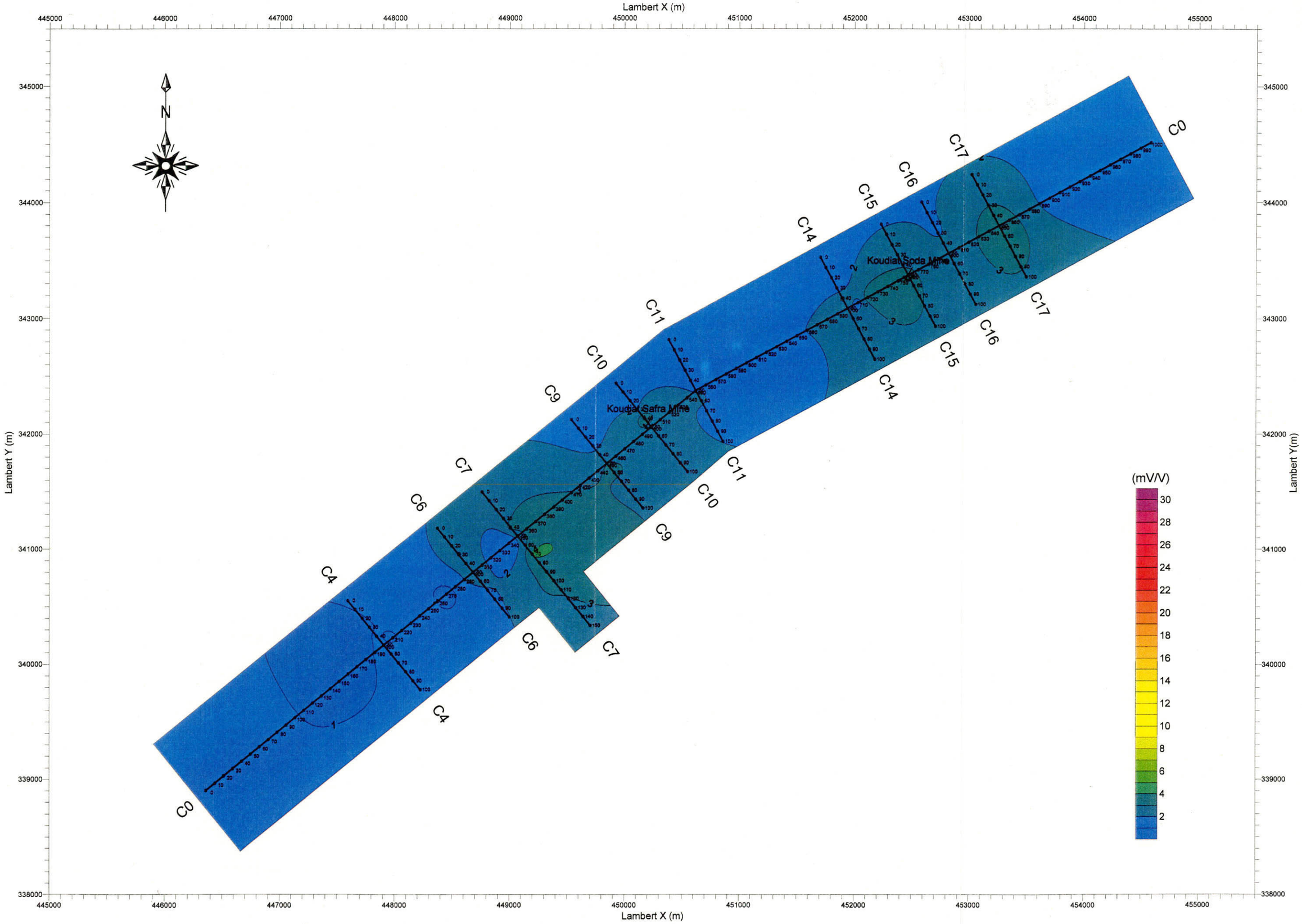


Figure 58 Plan map of observed chargeability in Bazina Kebira prospect (n=4)