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CORRIENTE RESOURCES INC.
CORRIENTE COPPER BELT MIRADOR DEPOSIT

REPORT ON INITIAL TAILINGS STORAGE SITE ALTERNATIVES STUDY (REF. NO. VA201-00078/1-1)

SECTION 1.0 - INTRODUCTION

Corriente Resources Inc. is a publicly traded Canadian company that is in the early stages of planning the development of a series of copper-gold porphyry deposits in the Corriente Copper Belt of southeastern Ecuador. The first deposit contemplated for development is the Mirador Prospect, which is located approximately 15 km southeast of the San Carlos and Panantza Deposits, and 35 km northeast of the village of El Pangui, in Zamora-Chinchipe Province. The deposit is at approximate elevation 1350 m asl and is located at coordinates 03°34′N latitude and 78°26′ W longitude.

The topography in the area comprises steep mountainous slopes and deep incised drainage valleys. The Contrafuerte De Wawaime plateau, which is oriented in a northeasterly to southwesterly direction, forms a regional high at about 2000 m asl, and the deposit is located below, and 3 km to the west of it. The deposit is on a north- facing slope that drains into a relatively wide, east to west valley that has its headwaters at the plateau and its discharge at the Rio Quimi river, some 4 km west of the deposit. The Rio Quimi is the ultimate receiver for surface water in the area and flows from northeast to southwest in a relatively wide valley before turning to the west at its confluence with the Rio Tundayme, just south of the project area. The Rio Quimi drains into the Rio Zamora further to the west, which flows to the north and then east into the Amazon River system.

Average precipitation at the Corriente site is high, in the order of 2000 to 2500 mm per year, and localized microclimates characterize the area. The implication of this is that the tailings storage facility will operate in a net water surplus condition and a sound water management plan together with seepage and drainage controls will be important to its environmental performance. The seismicity at the site is also high, with the potential for large magnitude (M7+) earthquakes including great subduction zones earthquakes (M8+) along the west coast. For earthquakes with a return period of 475 years (10% probability of exceedance in 50 years) the maximum bedrock acceleration at the site is likely to be approximately 0.3g. This size of earthquake will have a major influence on the design of the dam.

This report presents an initial desktop study of seven potential alternatives for tailings storage facilities for the project and is provided to support an "Order of Magnitude Study" being prepared by Merit Consultants International Inc. and Corriente Resources Inc. Each alternative has a storage capacity of 100 M cubic metres and is located within a 5 km radius of the Mirador Deposit. The storage capacity requirement was based on parameters provided by Corriente Resources Inc. The seven alternatives are shown on Figures 1 to 7 and a comparative table of certain environmental and engineering factors is provided on Table 1. In developing these seven concepts no surface or sub-surface geotechnical, hydrological or environmental information was available and only minimal information was available on the tailings characteristics and climatic conditions. Therefore, certain assumptions have been made that will require verification at a later stage. Section 2.0 of this report discusses some of these points while Section 3.0 presents the alternatives. A brief summary and recommendations section is provided in Section 4.0.

This report assumes that a more conventional flooded (for acid control) or drained (sub-aerial possibly after some thickening) approach would be followed for tailings storage. As such, it does not include a discussion on the possible use of dewatered tailings (paste or filtered). It is expected that the wet climate at the site would limit the success of, and benefits gained by, dewatered tailings, but consideration of this may be warranted at a later stage.

SECTION 2.0 – PRELIMINARY TAILINGS FACILITY DESIGN CONSIDERATIONS

2.1 STORAGE REQUIREMENTS

For this study, under the direction of Corriente Resources Inc. and Merit Consultants, each of the tailings facility alternatives have been located and configured to provide 100 M cubic metres of storage. This is based on the following:

- 20,000 dry tonnes per day tailings generation,
- 15 years of operations,
- dry density of storage 1.5 tonnes/cubic metre (assumed only),
- 33% contingency added to account for water storage above the tailings and/or density variations.

Starter dams have been configured to provide 2 years of storage for the valley impoundments and 4 years of storage for the sidehill impoundments.

2.2 GEOTECHNICAL AND HYDROGEOLOGICAL CONDITIONS

The equatorial location and wet climate likely give the site a heavily weathered soil profile. The higher elevations probably exhibit greater depths of weathering than the valley bottoms, which have been cut down by erosion. The depth to groundwater is also likely to be greater at the higher elevations.

The topographical maps of the site give some evidence of bedrock outcrops in the Rio Quimi valley. At two locations the river channel bends sharply through 90 degrees from an east/west to a north/south direction, likely following the alignments of major joint sets in the rock. However, the relatively flat slopes on either side of the river probably also indicate that significant deposits of alluvial and possibly colluvial materials exist, possibly in a series of complex and interwoven layers. Groundwater is likely near the surface in this area with its level controlled by the water level in the river.

The east to west trending valley below the Mirador deposit, which drains into the Rio Quimi, has a relatively wide but steep bottom and contains a number of drainage channels. The steeper slope probably indicates that the valley it is filled with coarse material transported off the slopes above. A second prominent east to west valley located further to the south contains the Rio Tundayme, which also flows into the Rio Quimi at the point where the Rio Quimi. The Rio Tundayme valley drains a smaller area than the valley further to the north and it has a flatter gradient. In a few areas the river has a braided pattern indicating that finer deposits of alluvium may be present in the valley.

2.3 TAILINGS CHARACTERISTICS

The characteristics of the tailings are undefined at this time but a key consideration will be their potential to generate acid. The deposit appears to contain a significant amount of sulphide bearing minerals and the current plans call for a cleaner flotation circuit, after bulk (rougher) flotation, to remove the sulphides from the concentrate. The majority of the tailings (90 to 95 % of the ore feed) will be produced from the bulk flotation circuit and depending on its efficiency to remove the sulphides these tailings may or may not be potentially acid generating. The remaining tailings (approximately 3% of the ore feed) will be produced from the cleaner flotation circuit and can be expected to have a high potential for generating acid.

If the bulk tailings are potentially acid generating then the entire tailings facility will most likely have to be developed for flooded storage, at least for closure. This will require that the dam is built as a water retaining structure and the basin is provided with complete hydraulic containment (liners or other seepage control measures). It will also most likely require that a long-term commitment is made to monitoring the performance and the security of the dam and the basin, as well as the water quality released from the facility (as surface flows or sub-surface drainage or seepage). Some treatment of these flows may also be necessary depending on their quality.

If the bulk tailings are not potentially acid generating then the facility may be developed for storage of a drained deposit. The sub-aerial method of deposition of the tailings may be used. In this type of facility, the tailings can be safely and securely stored for the long term behind a less onerous but fully engineered solids retention dam. A drained deposit also offers the advantages of a higher density (and therefore a higher efficiency) of storage, a significantly reduced potential for seepage, and significantly reduced potential for liquefaction in the event of a seismic occurrance.

The small volume of concentrated sulphide tailings from the cleaner circuit may be deposited in a separately dedicated, fully lined and flooded facility or placed in a controlled manner into designated cells in the bulk tailings facility. In the later case the bulk tailings, which would be fully or near fully saturated, would encapsulate the sulphide tailings and prevent their oxidation, thus preventing the development of acid.

Corriente Resources Inc. is considering cycloning the bulk tailings to extract the sand fraction for use in dam construction. This can be a very effective dam construction technique and has been used successfully in a number of major tailings facilities. However, before adopting it the particle size distribution of the tailings must be confirmed to be suitable. As a rule of thumb, tailings with 50 % or more material greater than the #200 sieve (.075 um) is desireable but tailings with 30 % greater than the #200 seive may be suitable. In addition, the cost and potential operating drawbacks of cycloning must be carefully weighed against the cost and the ease (or difficulty) of using a more conventional dam building approach. Since the site is in a wet and seismically active area, care must be taken to ensure that the structural zones of the dam remain well drained and stable at all times. If cycloned sand is used in these zones it will most likely require mechanical placement by dozers in controlled lifts after cycloning instead of direct hydraulic placement into the zone. This will enable any cyclone upsets from line pressure changes or flow variations to be adequately managed and will compact the coarse tailings to an adequate density to resist liquefaction.

2.4 WATER MANAGEMENT

As in most tailings storage facilities, water management will be a critical design and operating parameter. Water management will be more acute here however, owing to the high precipitation levels at the site. If the tailings storage facility is to be operated as a drained impoundment then runoff diversion channels will most likely be required on the natural slopes above the facility to minimize the amounts of water entering it. In steeper residual topography these may be difficult to construct and maintain, and a facility that has a smaller reporting catchment area, and a shorter length of contact with the slope, will be preferable. At closure, to minimize the need for long-term maintenance, the diversion channels would likely be discontinued and replaced by lined channels on the final tailings beach.

If the facility is to be operated as a flooded impoundment for controlling acid generation runoff diversion facilities may not be needed. However, this would require careful consideration of the water balance on the facility and the quality of the water that would be released from it. Removal of the diversion channels would also require the provision of a larger amount of storm water freeboard behind the dam and a larger spillway to ensure that the dam is never overtopped.

SECTION 3.0 – ALTERNATIVE TAILINGS STORAGE FACILITIES

3.1 GENERAL

Seven alternatives for storing 100 M cubic meters of tailings near the Mirador Deposit are presented in this section. These consist of two sidehill type impoundments, three valley impoundments and two combined sidehill and valley impoundments. A table comparing the key engineering and environmental aspects of each is provided on Table 1 and Figures 1 to 7 show the alternatives.

3.2 SITE A1

Site A1 is a sidehill impoundment located adjacent to the Rio Quimi, approximately 3 km west of the Mirador deposit. It is shown on Figure 1. At this location the ground conditions likely consist of interlayered river alluvial deposits with some colluvium. As described in Section 2.0, bedrock may also be present in places.

Tailings containment would be provided behind a 3-sided dam that would be approximately 85 m high and 2850 m long at full development. While voluminous, the amount of fill required could be reduced significantly by adopting a centerline or modified centerline design. The approximate volumes for either of these versus the approximate volume for a conventional downstream dam are provided on Table 1.

Development of Site A1 would be relatively straightforward for drained storage of non-acid generating tailings. A liner would likely be required in the area of the supernatant pond with perimeter seepage control and monitoring facilities provided elsewhere. Site A1 would be more difficult to develop for flooded storage of acidic tailings however, owing to the long length of dam that would have to be built for water retention. Flooded storage would also likely require the installation of a liner over the full basin area, which may be difficult if bedrock is exposed in places and wet alluvial deposits are predominant elsewhere.

The long length of the dam would make the use of cycloned sand difficult owing to the large volume of sand that would be required. An average effective cyclone split of 20 to 30 % over the life of the facility would be required to build the dam, with a much higher split in the early years. This would require a fairly coarse grained tailings to be successful.

The diversion of runoff from the slopes above Site A1 appears to be relatively simple. The catchment area reporting to the site is quite small and the length of the diversion channels would be quite short at about 2 km. Figure 1 shows possible alignments of north and south diversion channels.

3.3 SITE A2

Site A2 is shown on Figure 2. It is similar to Site A1 except that the tailings storage facility would extend across the current Rio Quimi channel. The river would be diverted in a newly constructed channel along the northwest side of the valley.

The principal benefit of Site A2 over A1 is that a larger tailings area could be developed, thereby reducing the ultimate height of the dam from 85 m to 75 m. The volume of fill would also be slightly less despite a longer length (4000 m instead of 3600 m). The principal drawback to Site A2 is that the river diversion may be a major component of the construction, and a major environmental permitting concern. Many of the remaining comments made for Site A1, including the difficulty of developing the site for flooded storage or the use of cycloned sand fill, apply equally for Site A2.

3.4 SITE B1

Site B1, which is shown on Figure 3, is an extension of Site A1 to the south, into the lower part of the Rio Tundayme valley. It is a combination of Sites A1 and C. The benefit of Site B1 over A1 is that the increased storage provided by the Rio Tundayne valley would reduce the height of the ultimate dam to 60 m and the length to 3000 m. Accordingly, significantly less fill would be required. The drawback is that the water management would be more difficult since the catchment area of the Rio Tundayme valley is large in comparison to the catchment areas for Sites A1 and A2. Figure 3 illustrates possible routes for north and south diversion channels that would intercept about 50 % of the catchment area. These diversions are quite extensive and would need to be extended significantly further, in more difficult terrain, to intercept more of the catchment.

The potential for using cycloned sand would be better for this site due to the improved storage/embankment volume ratio. The comments made for flooded storage for Site A1 can be considered equally applicable for Site B1.

3.5 SITE B2

Site B2 is shown on Figure 4. It is similar to Site B1 except that the dam would extend across the current channel of the Rio Quimi (like Site A2), which would require the river to be diverted in a constructed channel on the northwest side of the valley. The benefit of Site B2 over B1, and over Sites A2 and A1 as well, is that as a result of its larger area it would require the lowest height ultimate dam at 50 m. The volume of fill would also be the lowest of the four alternatives.

Similar to Site B1, the water management at Site B2 would be fairly difficult since the catchment area of the Rio Tundayme valley is large. The extensive diversion channels described for Site B2 would apply to this site as well. Also, the comments made for the previous three sites regarding the difficulty of developing the site for flooded storage would apply to Site B2. The potential for using cycloned sand in the dam would be similar to that for Site B2.

3.6 SITE C

Site C is an impoundment in the Rio Tundayme valley that would be developed behind a 110 m high cross-valley dam at outlet of the valley. It is shown on Figure 5. The advantage of this site over the previous ones is that the dam length would be much shorter, and although it would be significantly higher the volume of fill would be less. These volumes are given on Table 1.

The shorter length of dam would allow Site C to be considered for a flooded impoundment if necessary. It would also make the control of seepage easier. Most likely a full basin liner would not be required for the site, even for flooded storage, unless the tailings exhibited a potential for poor quality seepage. A liner in the lower basin area coupled with intercept drains below the dam may be sufficient. The shorter length of the dam and the favourable storage/embankment volume ratio would also make it conducive to the use of cycloned sand.

The main drawback to Site C would be water management, owing to the difficulty of diverting the runoff in the Rio Tundayme valley as described earlier. The large height of dam may also be a concern if the foundation is poor. However, overcoming the latter may be accomplished by widening the footprint of the dam so that the pressure and shear stresses on the foundation are reduced.

3.7 SITE D

Site D is located in the relatively wide valley below and to the north of the Mirador deposit. It would be developed behind a 110 m high dam across at outlet to this valley near the Rio Quimi. Site D is shown on Figure 6. Similar to Site C, this facility would be contained behind a cross-valley dam but the storage area would be wider and shorter. The dam would be longer, and higher.

The base of the valley at Site D is steeper than at Site C, making the storage efficiency less. This steeper slope also indicates that coarser material is likely present on the valley floor, which could make the preparation of the basin and the dam footprint more difficult. Site D also has a much greater catchment area reporting to it than does Site C, which will result in greater volumes of water requiring diversion or accommodation in the facility. However, Site D is much closer to the deposit than Site C, and is in the same catchment as the deposit, so that by developing it the environmental footprint of the project would be reduced. Also, the haulage distance would be much less if mine waste is used as dam fill. Cycloned sand would be a more difficult option for Site D due to the poor storage/embankment volume ratio.

Similar to Site C, most likely a full basin liner would not be required, even for flooded storage, unless the tailings exhibited a potential for leaching contaminants. A liner in the lower portion of the basin may be sufficient with intercept drains below the dam.

3.8 SITE E

Site E is located upstream of Site D in the same valley, and is immediately below the Mirador deposit. This site is shown on Figure 7. Similar to Site D, Site E would be contained behind a relatively high cross-valley dam, but this dam would be higher at 150 m.

Site E is the closest of any of the sites to the deposit and its development would keep the footprint of the project to a minimum. It would also enable mine waste to be used efficiently as dam fill. However, the storage efficiency of this site is less than the others and the same difficulties with water management and cycloned sand construction as discussed for Site D would apply here.

SECTION 4.0 – SUMMARY AND RECOMMENDATIONS

A total of 7 initial tailings storage facilities, identified as Sites A1, A2, B1, B2, C, D & E have been identified within a 5 km radius of the Mirador deposit. Preliminary layouts have been completed for each site that will provide storage for approximately 100 million cubic metres of tailings and water. Certain economic, environmental and engineering factors have been identified and compared on a preliminary basis to define the benefits and drawbacks of the alternatives. Further analysis, using site specific geotechnical and hydrological data, and project specific tailings and materials handling information, is recommended before a more detailed comparative assessment can be made to screen out the preferred site.

SECTION 5.0 - CERTIFICATION

This report was prepared and approved by the undersigned.

Prepared by:

Tom F. Kerr, P.Eng.
Vice-President

Approved by:

Bruce S. Brown, P.Eng.
Principal

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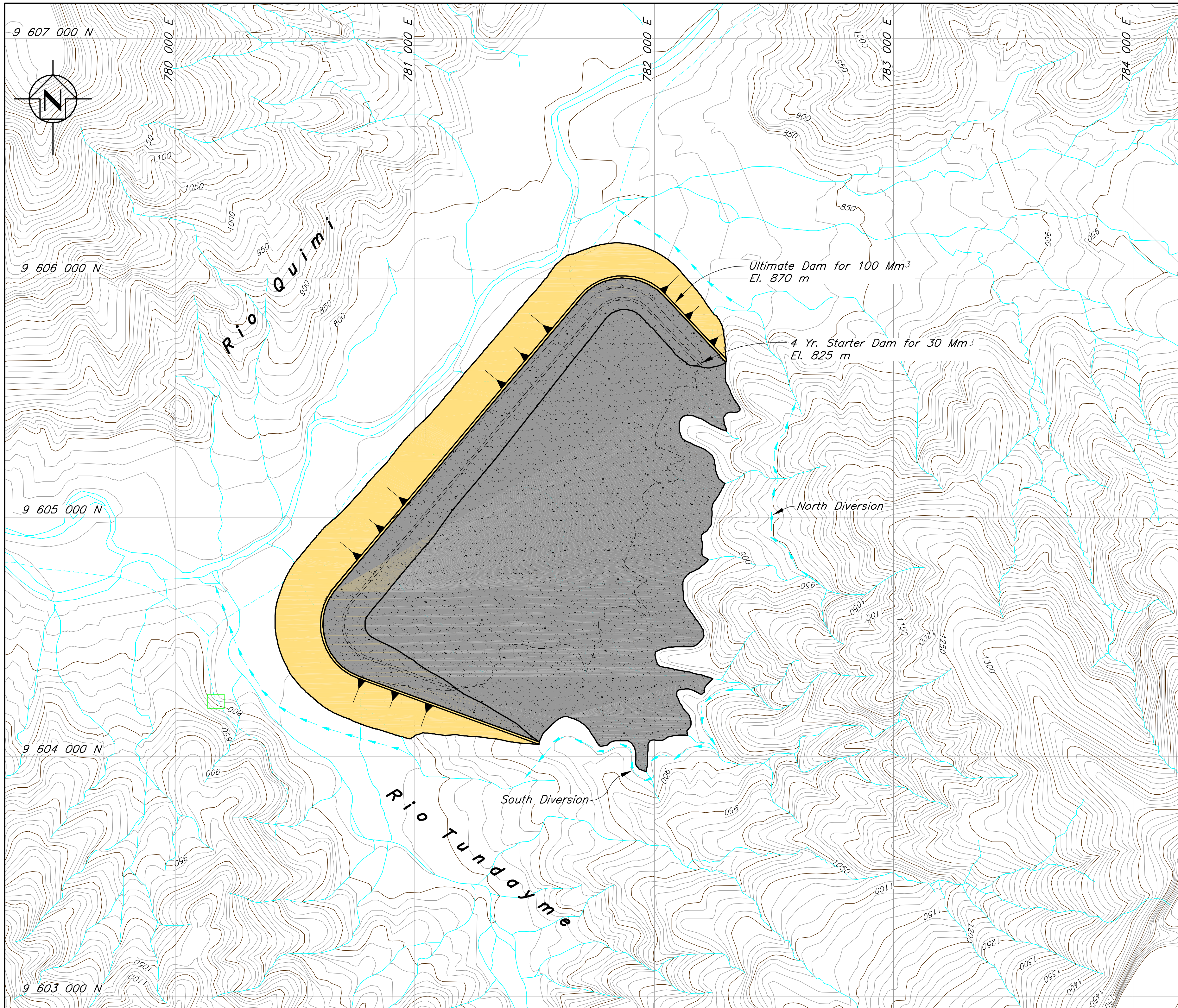

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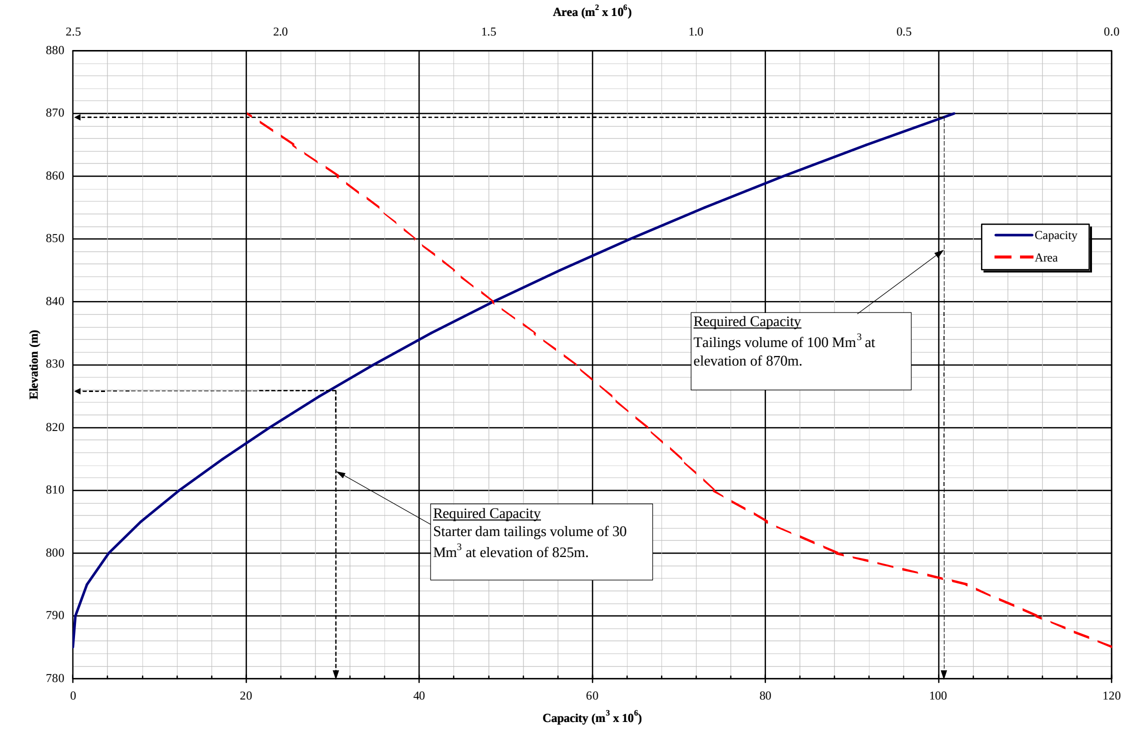

NOTES

1. Topography was generated from 10 and 40 m contours provided by Corriente Resources Inc. Some of the contours shown are inferred from the data.
2. Ultimate dam is shown as a conventional downstream structure. However, a centreline or modified centreline dam may be used.

Scale 200 0 200 400 600 800 1000 m

CORRIENTE RESOURCES INC.
MIRADOR COPPER BELT PROJECT
SITE A1

Knight Piésold CONSULTING	PROJECT/ASSIGNMENT NO. VA201-78/1	REF. NO. 1	REV. 0
	FIGURE 1		

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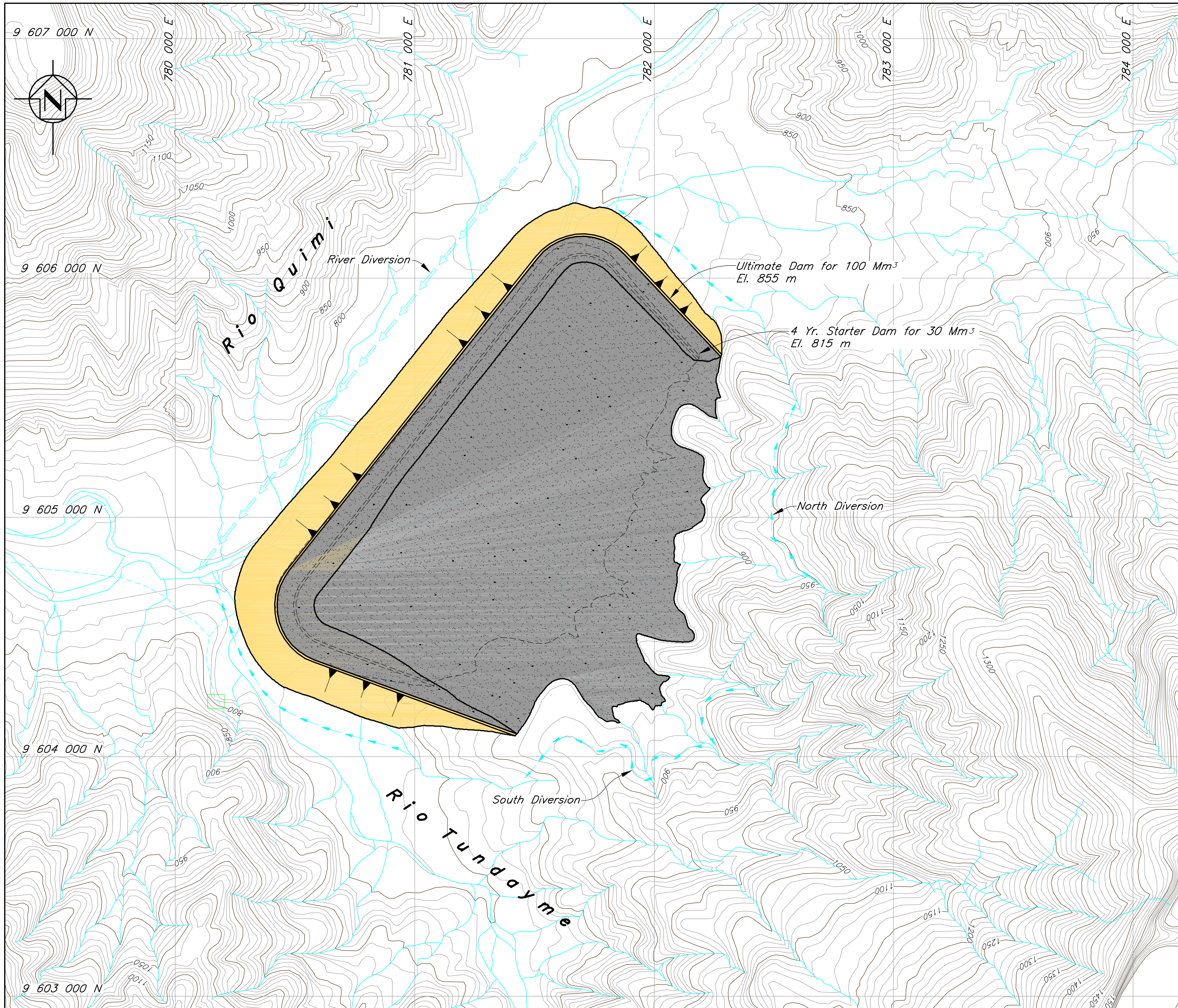

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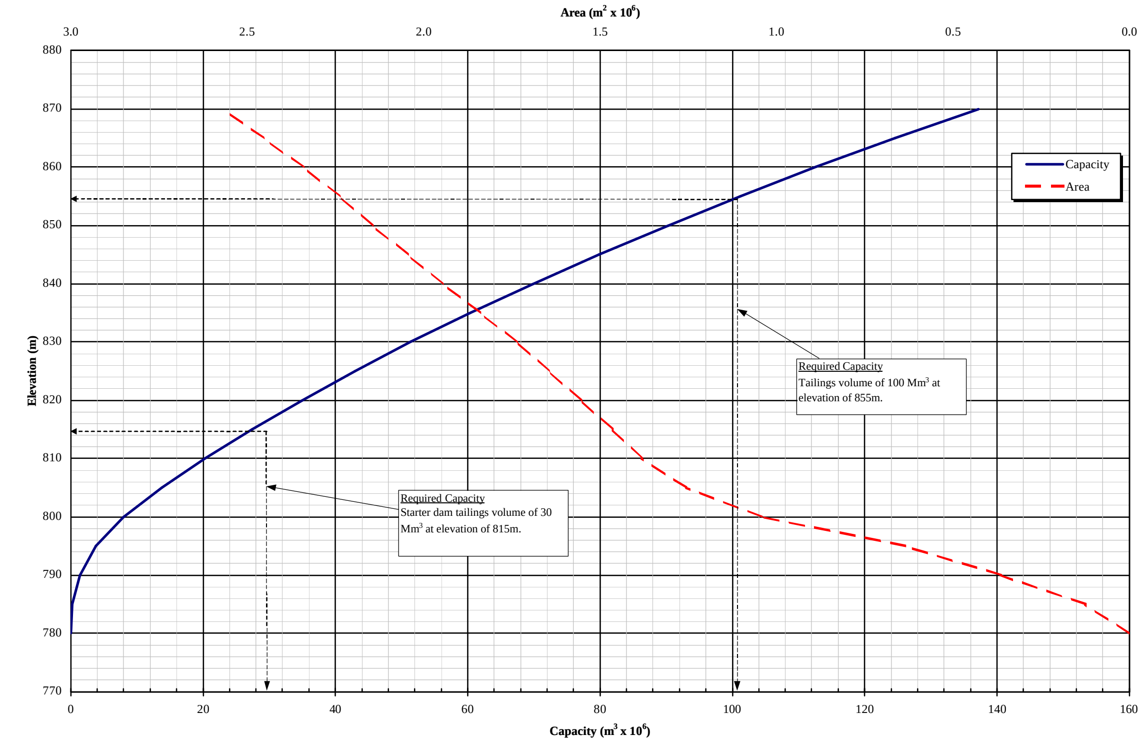

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Scale 200 0 200 400 600 800 1000 m

CORRIENTE RESOURCES INC.		
MIRADOR COPPER BELT PROJECT		
SITE A2		
PROJECT/ASSIGNMENT NO. VA201-78/1	REF. NO. 1	REV. 0
Knight Piésold CONSULTING	FIGURE 2	

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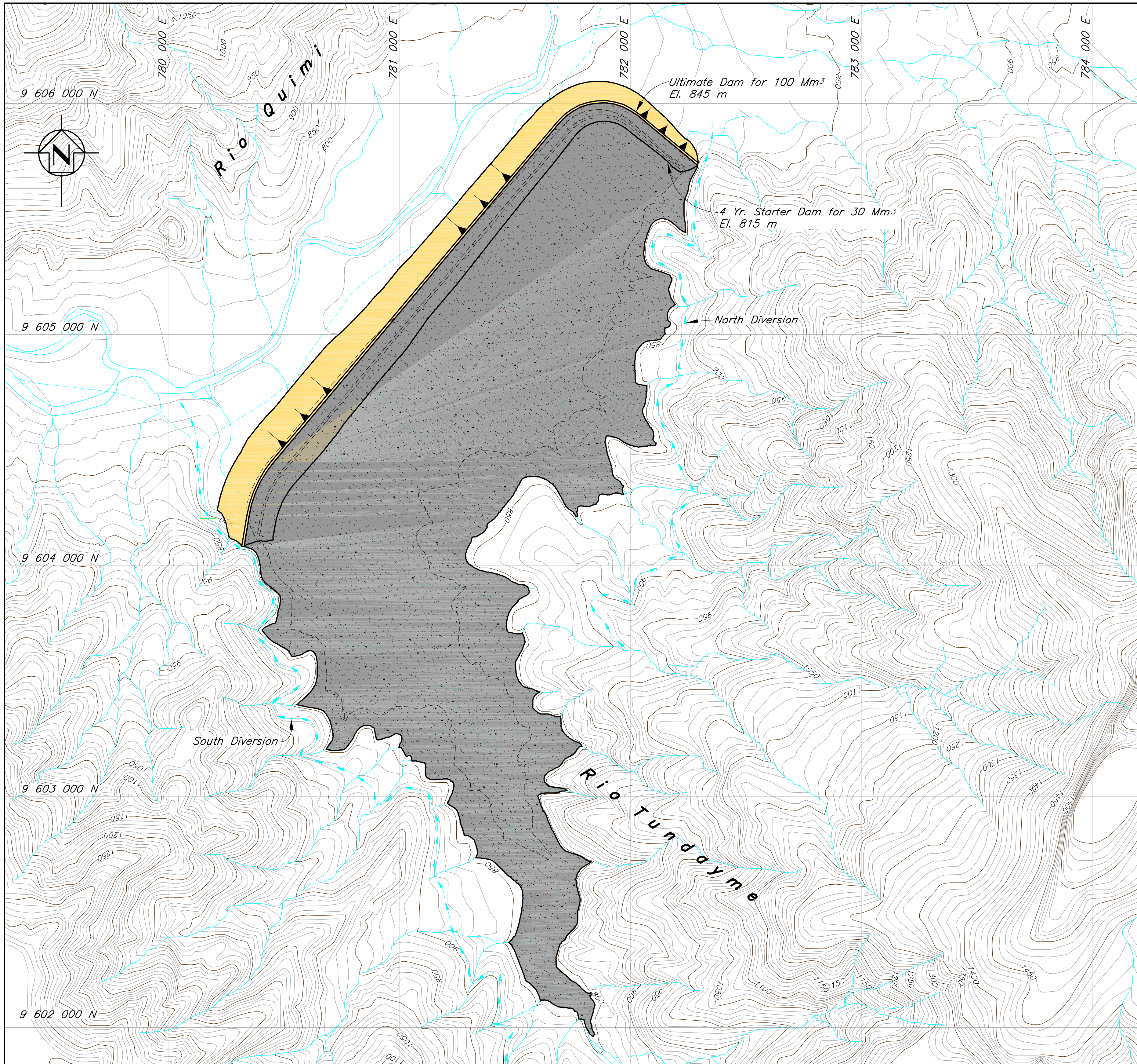

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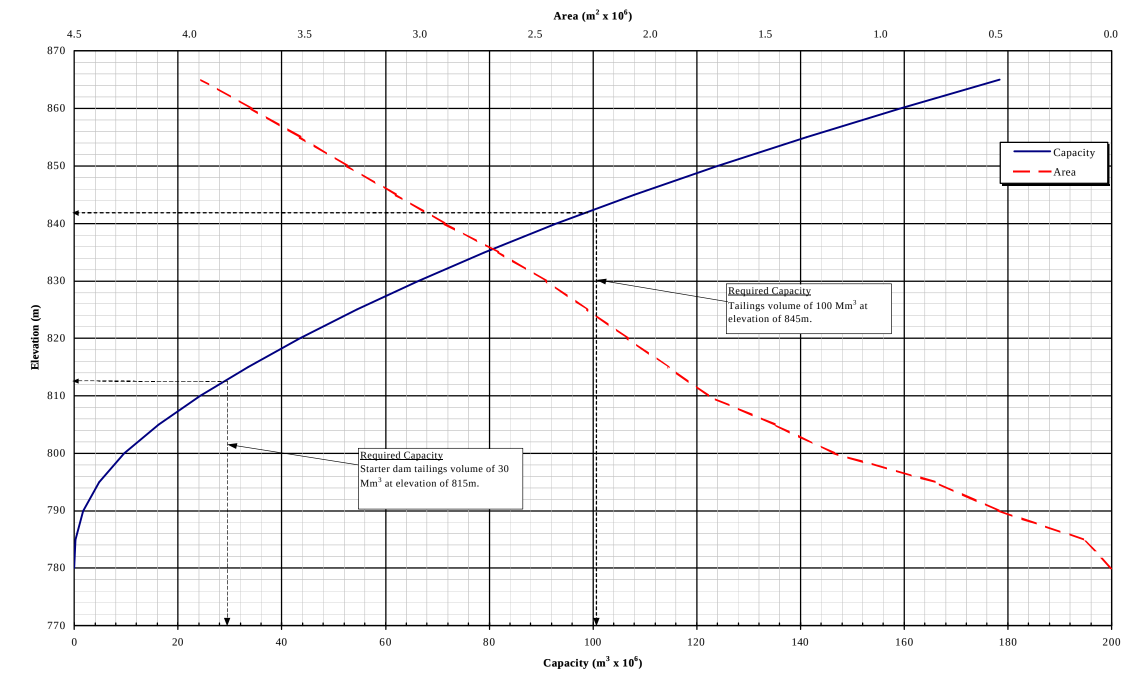

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CORRIENTE RESOURCES INC.		
MIRADOR COPPER BELT PROJECT		
SITE B1		
PROJECT/ASSIGNMENT NO. VA201-78/1	REF. NO. 1	REV. 0
Knight Piésold CONSULTING	FIGURE 3	

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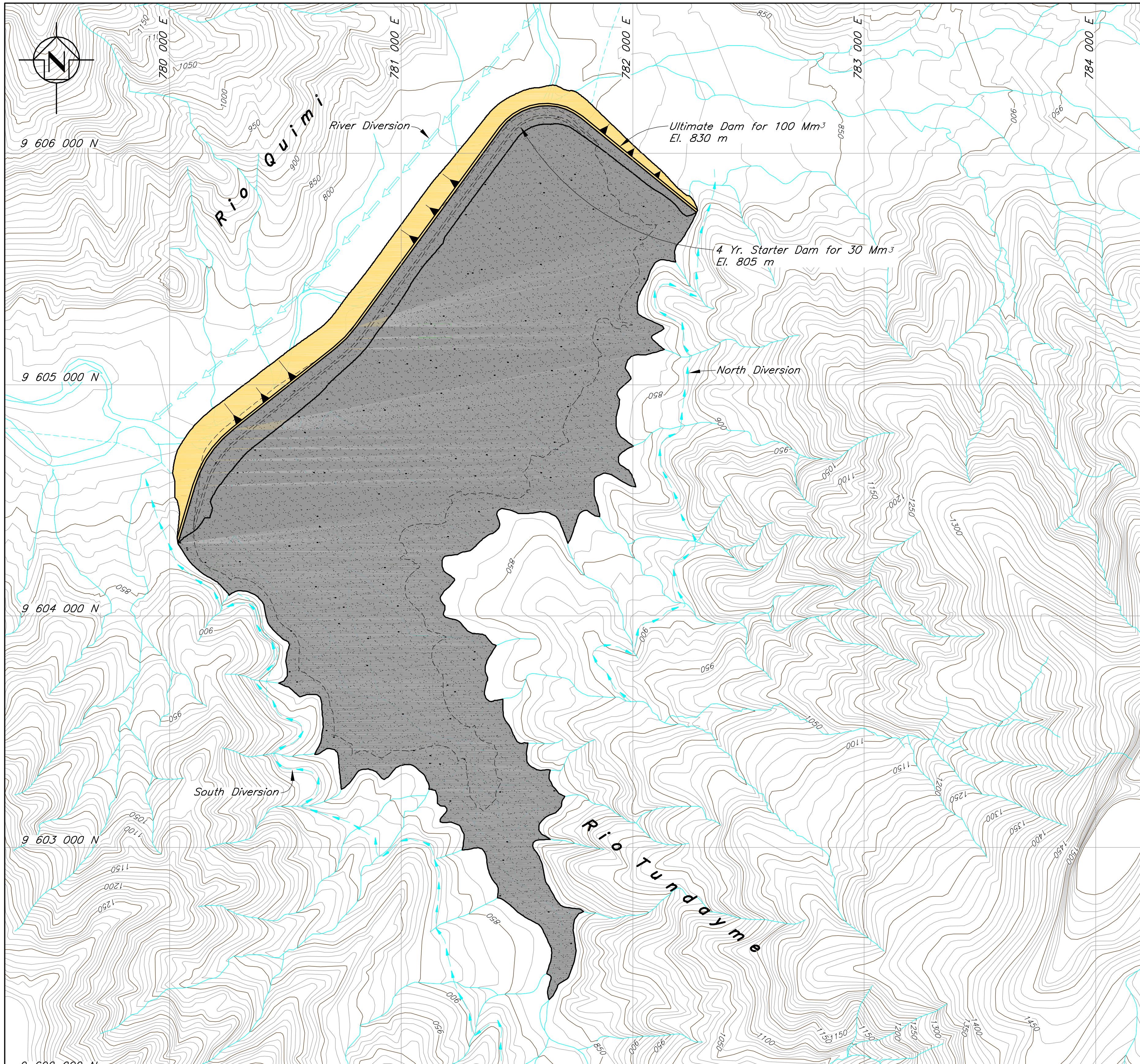

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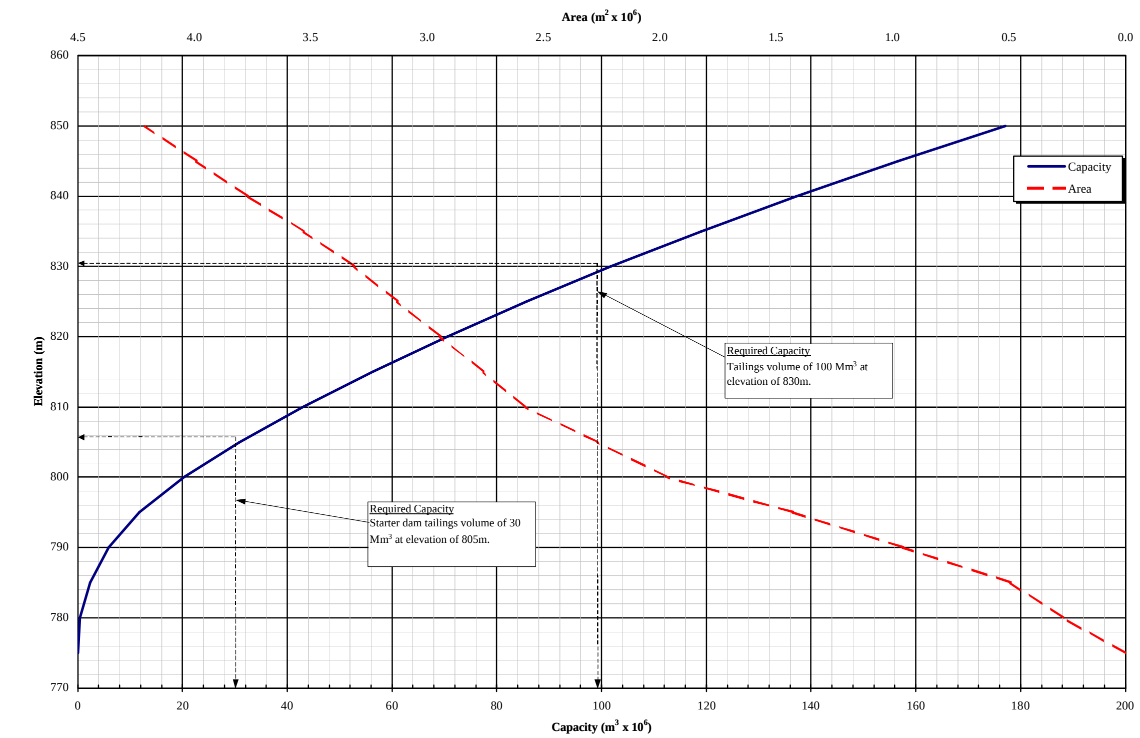

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Scale 200 0 200 400 600 800 1000 m

CORRIENTE RESOURCES INC.		
MIRADOR COPPER BELT PROJECT		
SITE B2		
PROJECT/ASSIGNMENT NO. VA201-78/1	REF. NO. 1	REV. 0
Knight Piésold CONSULTING	FIGURE 4	

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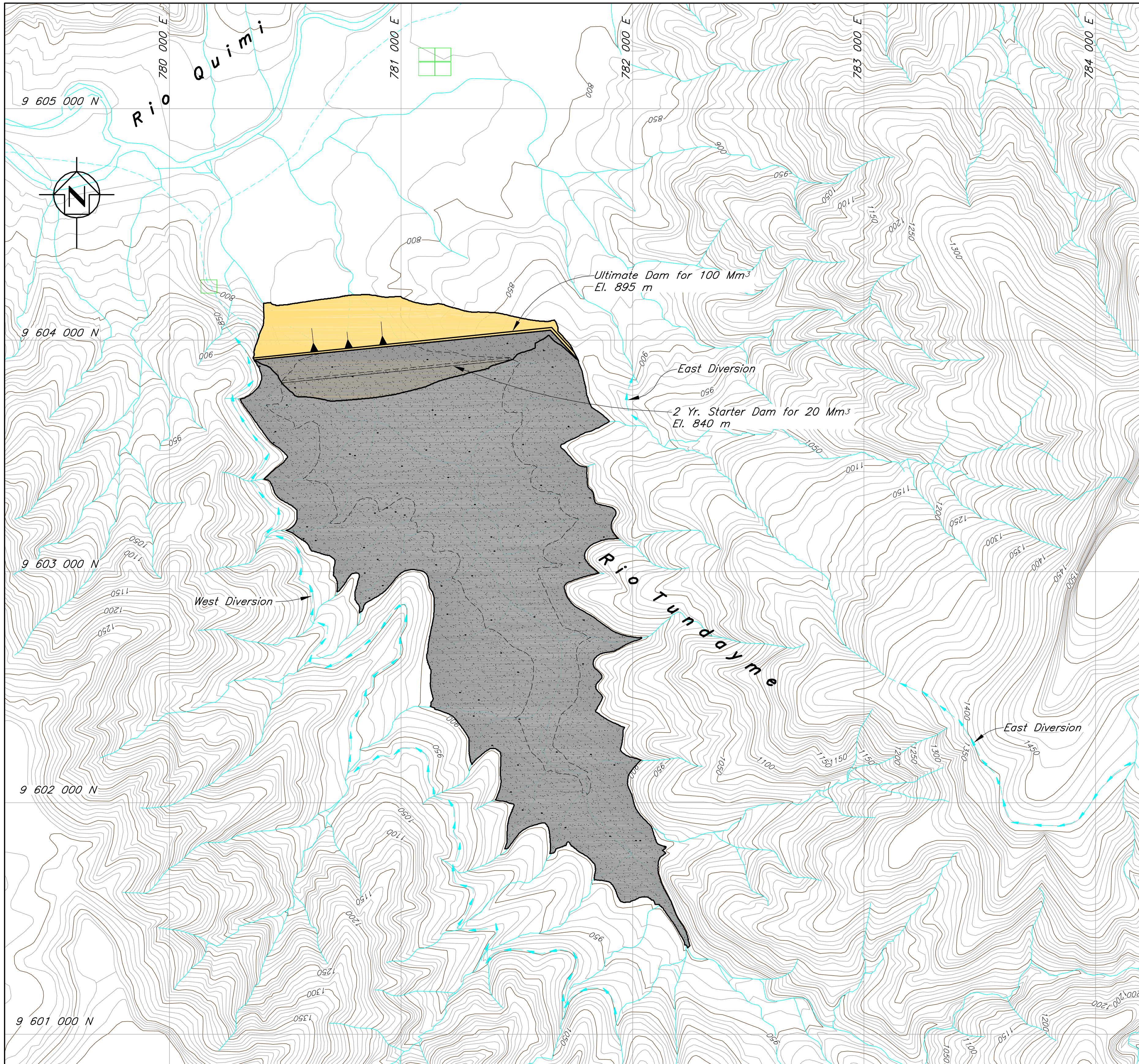

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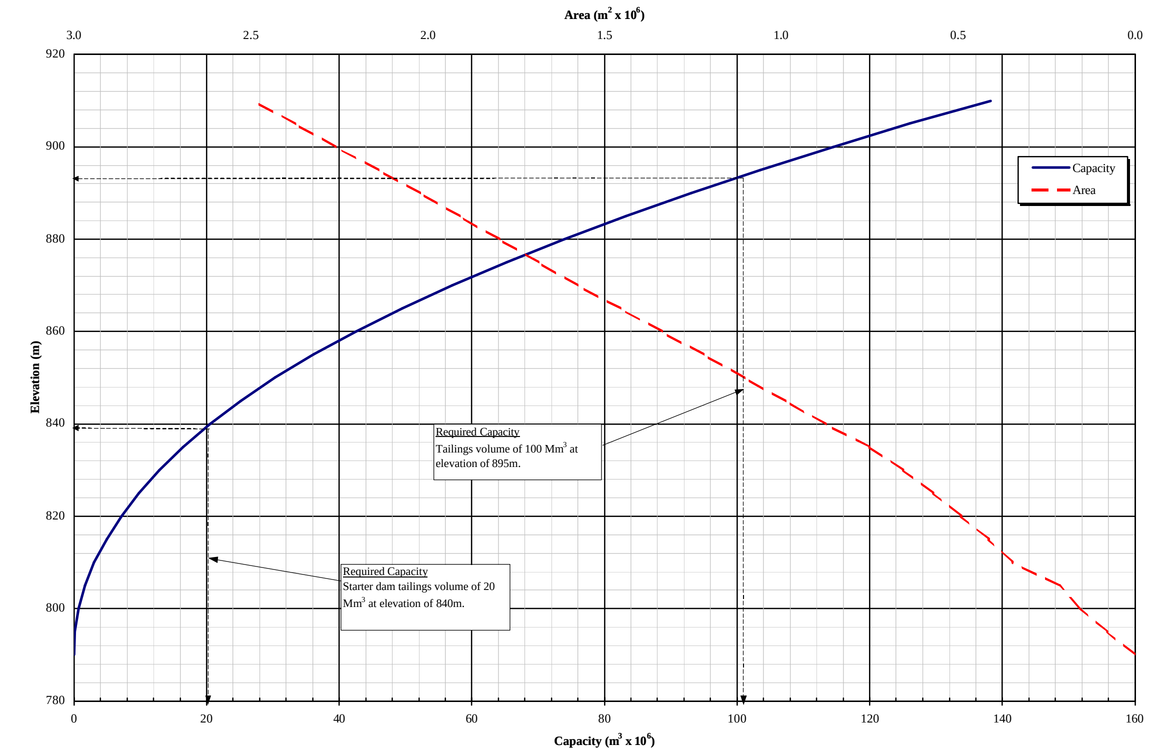

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Scale 200 0 200 400 600 800 1000 m

CORRIENTE RESOURCES INC.

MIRADOR COPPER BELT PROJECT

SITE C

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VA201-78/1	1	0

FIGURE 5

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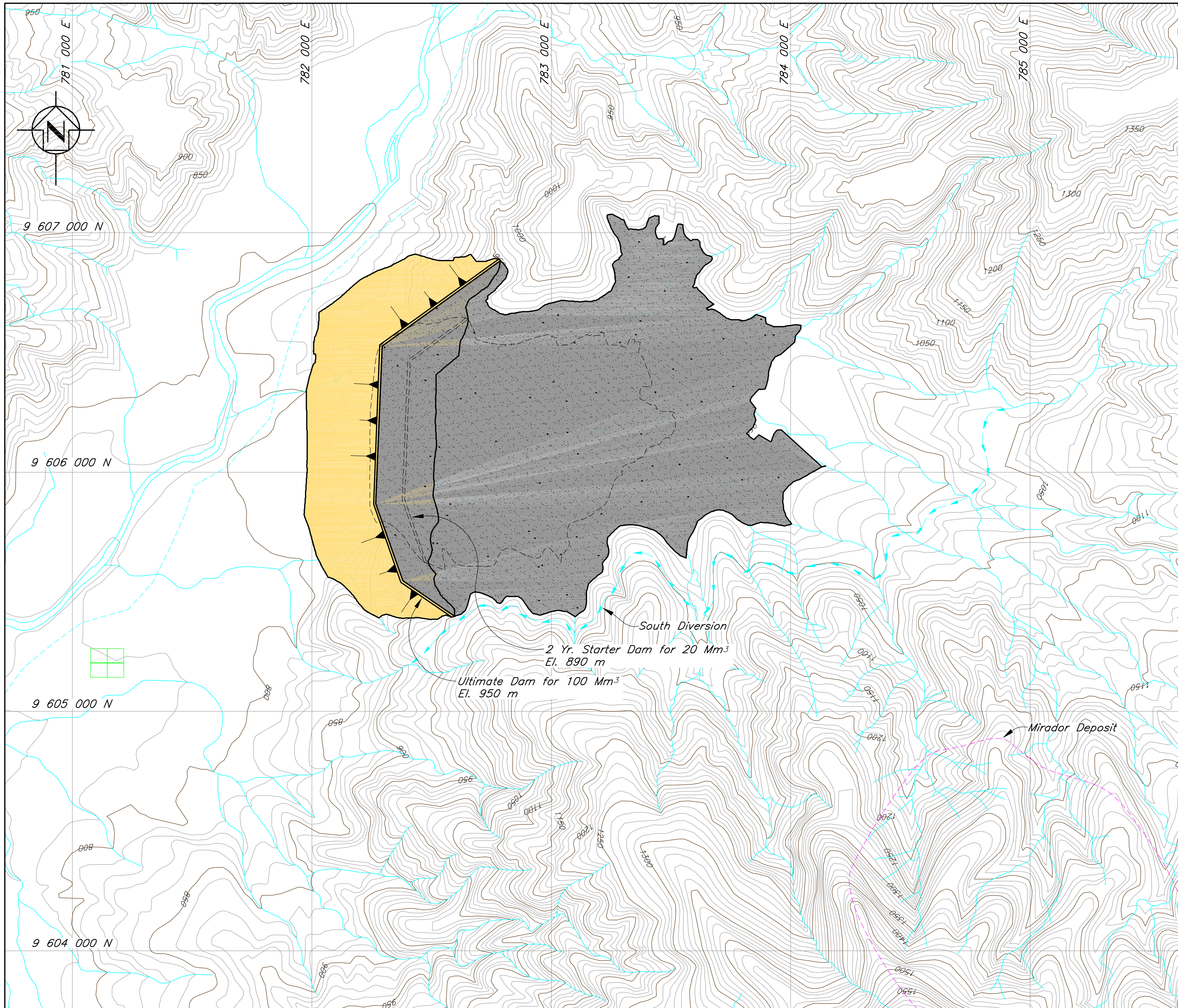

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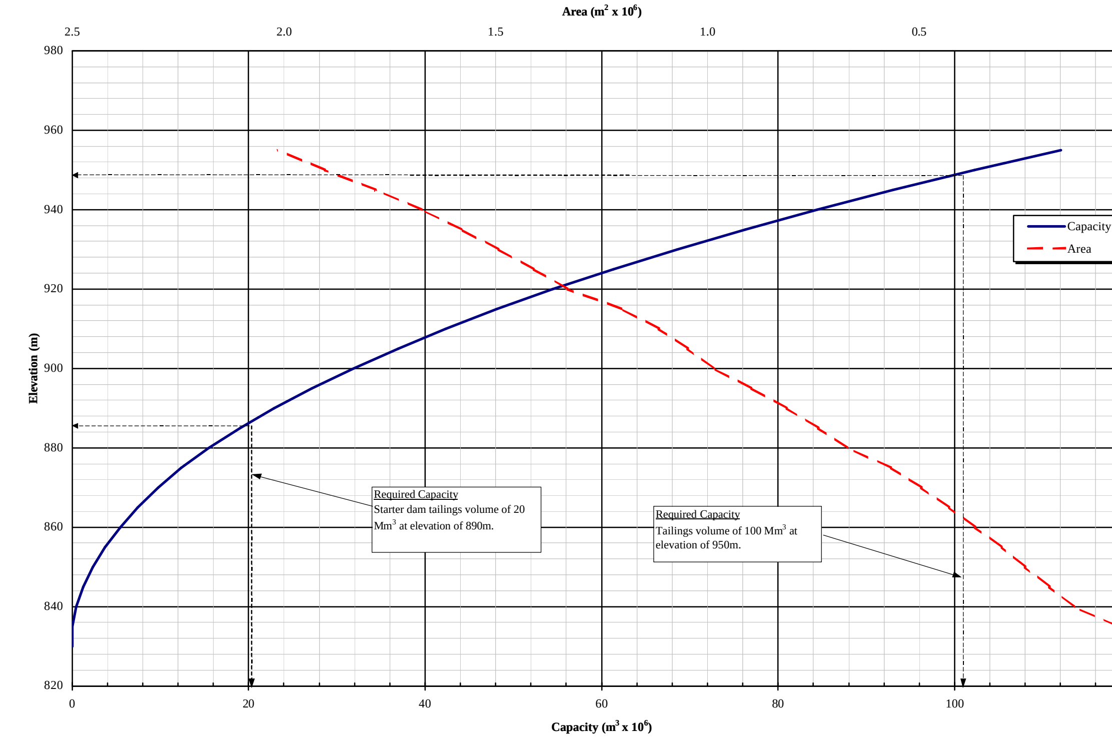

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Scale 200 0 200 400 600 800 1000 m

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CORRIENTE RESOURCES INC.

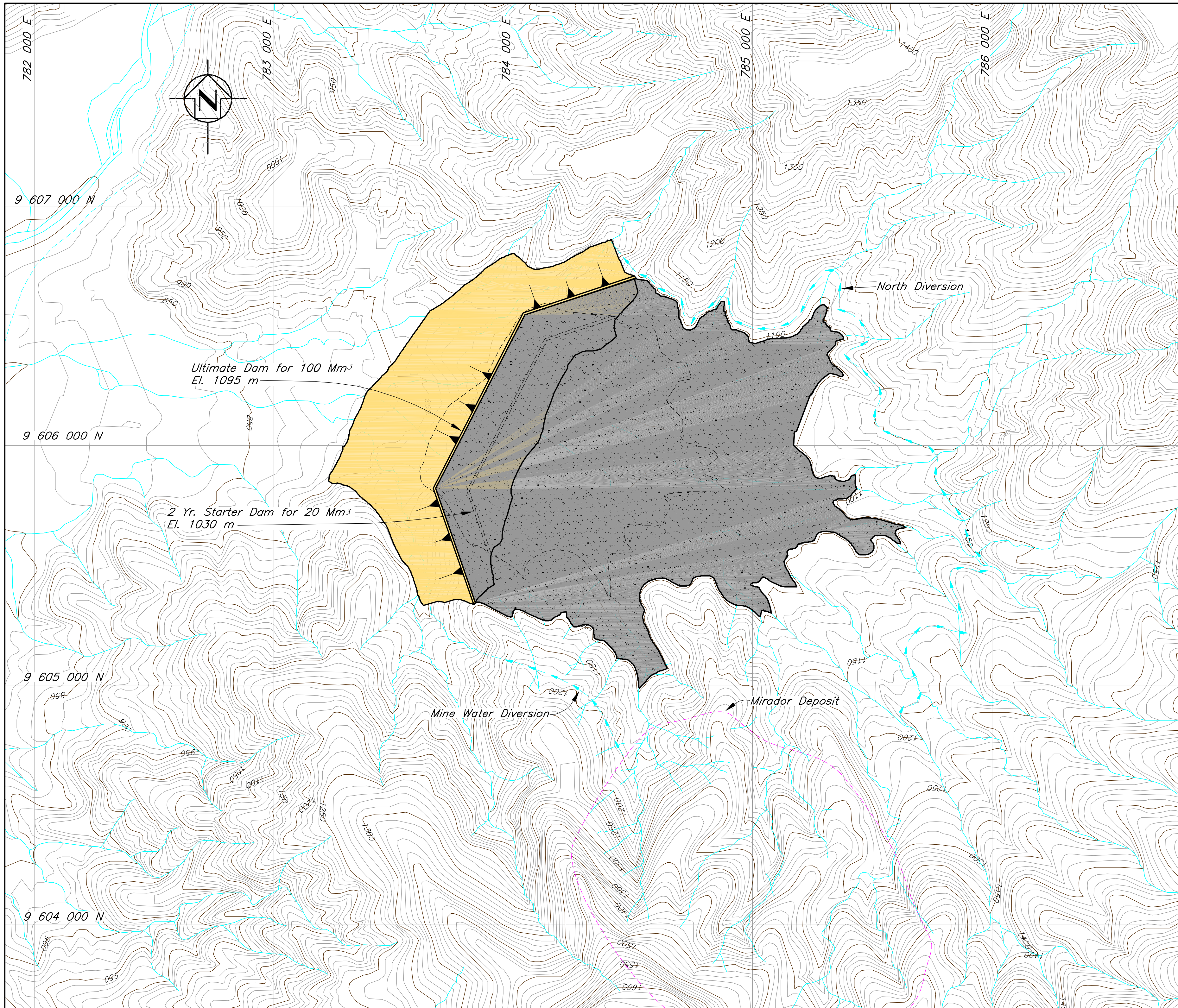
MIRADOR COPPER BELT PROJECT

SITE D

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO.	REF. NO.	REV.
VA201-78/1	1	0

FIGURE 6



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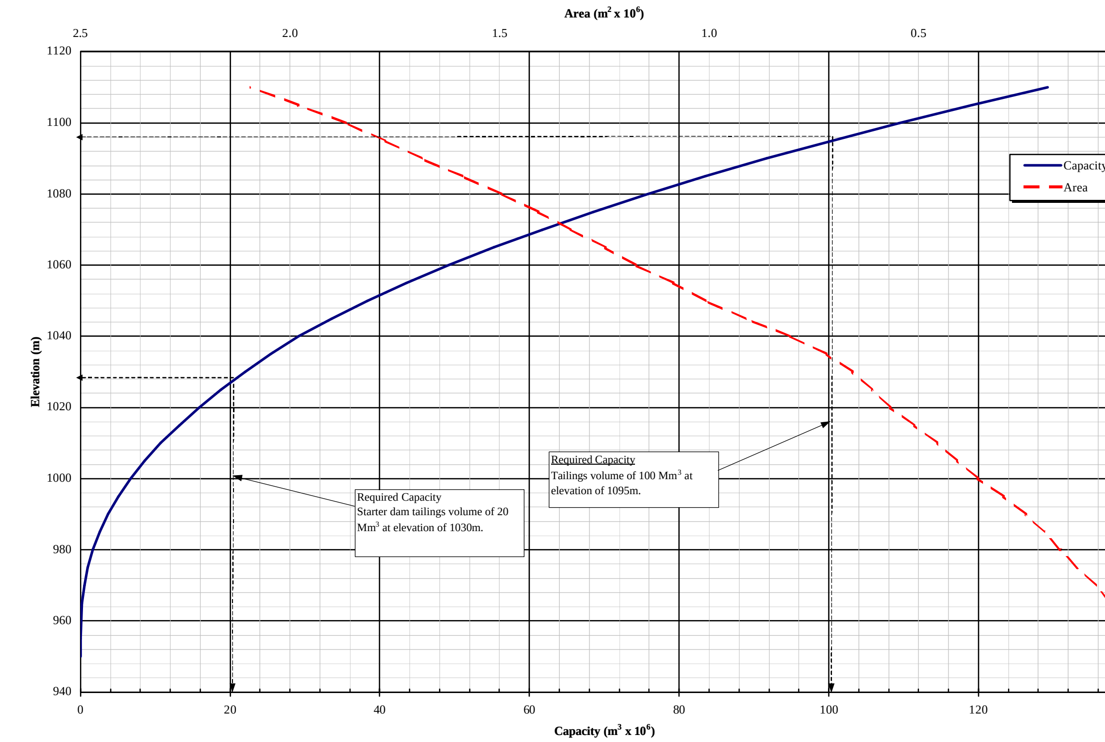

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Scale 200 0 200 400 600 800 1000 m

CORRIENTE RESOURCES INC.

MIRADOR COPPER BELT PROJECT

SITE E

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FIGURE 7

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CORRIENTE RESOURCE INC.
MIRADOR MINE
PANGUI TAILINGS MANAGEMENT FACILITY

FEASIBILITY STUDY FOR 25,000 t/day TMF
(REF. NO. VA201-78/4-1)

Rev. No.	Revision	Date	Approved
0	Issued in Final for Feasibility Report	March 18, 2005	KJB
1	Cost Estimates Updated	May 9, 2005	

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Knight Piésold
CONSULTING

CORRIENTE RESOURCES LTD.
MIRADOR MINE
PANGUI TAILINGS MANAGEMENT FACILITY

FEASIBILITY STUDY FOR 25,000 t/day TMF
(REF. NO. VA201-78/4-1)

EXECUTIVE SUMMARY

Knight Piésold Ltd. (KP) has been retained by Corriente Resources Inc. (Corriente) to complete a feasibility study for a proposed Tailings Management Facility (TMF). The 110 Million tonne facility will be located in southwestern Ecuador in the state of Morona-Santiago, about 90 km east of the town of Zamora. This study is based on a 12-year mine life and a 25,000 tonne per day production rate.

The primary objectives of this report are:

- To confirm the technical feasibility of the proposed facility considering the given design constraints;
- To provide preliminary material quantities and cost estimates, as well as assess the financial viability of the project;
- To provide a framework of the proposed site investigation program.

The focusing question to be answered by this report is:
Is the Pangui site a viable location for a 110 Million tonne Tailings Management Facility operating under "zero-discharge" conditions?

Our answer to this question is **"Yes"**, given the information currently available. Certain refinements to the proposed design may become apparent following the completion of a site investigation program. The fundamental findings of the feasibility study are summarized below; the numerical sequence corresponds to the sections included in this report.

1. The scope of this report includes the following:
    - Site characterization;
    - Description of planned geotechnical and hydrogeological investigations;
    - Evaluation of alternatives;
    - Tailings Management Facility (TMF) feasibility design;
    - Conceptual Closure Plan;
    - Quantities and Cost Estimates;
    - Conclusions and Recommendations.

2. Hydrometeorological characteristics of the site have been approximated using historical regional records and estimates made in previous studies. A more refined estimate will be made once adequate site-specific data have been collected. Regional geography will be more accurately described following the site investigation program. An assessment of the

seismic risk at the Pangui site concludes that the facility be assigned a HIGH hazard classification due to the potential for loss of life and environmental damage. More detailed probabilistic and/or deterministic seismic hazard analyses should be completed for future design work.

3. Tailings characteristics are based on information available from previously completed test work. More complete testing is currently being conducted on the tailings to determine their relevant physical characteristics.

4. A preliminary desktop study, completed in December 2005, along with a site visit in February 2005, led to the selection of the currently proposed TMF location.

5. A comprehensive site investigation program, including test pitting and drilling has been planned to more clearly define the geotechnical characteristics of the Pangui TMF site. Hydrogeological investigations and installation of monitoring equipment will help characterize the groundwater conditions at the site. Laboratory testing of rock and soil samples, as well as tailings samples, will also be completed.

6. Preliminary design exercises indicate that the facility will be capable of managing the requisite 110 Million tonnes of tailings solids while operating under “zero-discharge” conditions. A filling curve has been developed based on the known site topography and mine production schedule. A monthly water balance model was developed to track the quantities of water and tailings solids being deposited into the facility, as well as provide an estimate of the required embankment construction schedule.

   Preliminary design of the tailings distribution and supernatant water reclaim systems has also been completed. The tailings distribution system will consist of two separate pipelines for rougher and cleaner tailings respectively.

7. A conceptual closure plan has been developed for the Pangui TMF. The design for closure will be such that the tailings surface is rapidly made trafficable, and the potential for wind and water erosion is minimal. Closure and reclamation activities will be carried out with the objective of providing for long-term stability and an appropriate end use that requires minimal maintenance.

8. Preliminary capital and operating cost estimates have been provided. The capital costs include construction of a starter embankment capable of storing two years production of tailings, as well as all necessary appurtenances for subsequent years of production. Costs associated with raising the main embankment are included in the operating cost estimate.

9. This report presents the technically feasible design for the 110 Mt Pangui Tailings Management Facility (TMF) at the Mirador Copper Project. Based on information currently available, the proposed Pangui TMF site is suitable to store the required volume of tailings while operating in a favourable water deficit condition. Ongoing site investigations will help to better define or dismiss the risks associated with the TMF.

CORRIENTE RESOURCES INC.
MIRADOR MINE
PANGUI TAILINGS MANAGEMENT FACILITY

FEASIBILITY STUDY FOR 25,000 t/day TMF
(REF. NO. VA201-78/4-1)

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FEASIBILITY STUDY FOR 25,000 t/day TMF
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SECTION 1.0 - INTRODUCTION

1.1 GENERAL

Knight Piésold (KP) has undertaken this study of the proposed Pangui Tailings Management Facility (TMF) for Corriente Resources Inc., Mirador Copper project. The project site is located in southwestern Equador in the state of Morona-Santiago, about 90 km east of the town of Zamora.

The Pangui TMF will ultimately be required to store 110 million tonnes of tailings from the Mirador Copper Mine. The Mirador Mines will generate 25,000 tonnes of tailings per day. The Pangui area was selected for further investigation as a potentially viable TMF site because it appeared to have suitable characteristics, including:

- Topography suitable for a 110 Mt TMF, with the potential to expand to a 350 Mt TMF if a decision is made to expand the Mirador Mine;
- Potential as a zero discharge facility;
- Located within about 10 km of the Pit, with a potentially viable conveyer belt route.

A number of potential layouts for the Pangui TMF were considered and these were assessed based on the available topographical, geotechnical, and meteorological information. A site visit was also carried in order to determine there were no “fatal flaws” and none were found. The sections below describe the studies completed to date and the details of the proposed Pangui TMF.

1.2 SCOPE OF WORK

The scope of work for the Pangui Tailings Management Facility (TMF), can be summarized as follows:

1.2.1 Site Characterization

Prior to embarking on the detailed design work, a review of regional hydrology has been completed in order to determine the hydrometeorological data specific to this site and relevant to the design of the various facilities. AMEC has already completed assessment of the regional seismic risks and design criteria for earthquake loading. These assessments have been reviewed and enhanced in order to determine the relevant design loadings for the proposed Pangui TMF.

1.2.2 Geotechnical and Hydrogeological Investigations

A detailed site investigation program has been developed and is currently underway to investigate geotechnical and hydrogeological features that will have a potential impact on the design of the tailings facility. Samples will be obtained where necessary and sent for a laboratory testing program at a suitable lab.

1.2.3 Tailings Facility Feasibility Design

The detailed design of the Tailings Management Facility includes the following tasks:

- A laboratory testing program to determine the physical and geochemical characteristics of the tailings.
- Refinement of the depth-area-capacity relationship for the facility, which, together with the densities derived from the laboratory testing on the tailings, form the basis of filling curves for the facility. These filling rates define initial and on-going embankment construction requirements.
- Design of the tailings facility embankment, seepage and stability analyses, surface drainage and diversion requirements, supernatant storage requirements, and all geotechnical and hydrogeological monitoring requirements.
- Refinement of the monthly tailings facility water balance, which incorporates tailings throughput and the tailings material characteristics to provide a monthly running total of the inputs and outputs from the tailings facility and water availability for recycle.
- Design of the Tailings Distribution Pipework.

1.2.4 Capital and Operating Costs

The feasibility level design described above is then used to estimate Capital and Operating Costs for the facility. Capital expenditure is based on basic quantities of work and appropriate unit rates, with expenditure broken out into pre-production and on-going years of operation. Operating Costs reflect the level of staffing required for routine operation and monitoring of the facility, and the costs associated with the reclaim pump station.

1.2.5 Environmental Services

An initial review of the project environmental setting and the potential issues that are related to the facilities design have been addressed. On the basis of our overview assessment of the key issues affecting the site, recommendations for appropriate environmental considerations that are included in the design criteria for the facility are also reported on in the sections that follow.

An overall conceptual Closure Plan for the mine site has been developed and a capital cost estimate for the Closure Plan is also included.

1.2.6 Feasibility Design Report

This Feasibility Report is an integral part of the overall Bankable Feasibility Study for the entire Mirador Mine Development.

SECTION 2.0 - SITE CHARACTERISTICS

2.1 HYDROMETEROLOGY

The meteorological conditions at the proposed Pangui TMF Site were estimated using the information found in the Caminosca report "Información Meteorológica e Hidrológica."

The average annual rainfall at the Pangui TMF Site is assumed to be **2000 mm**. Monthly precipitation distributions and standard deviations are based on data from the El Pangui and Gualaquiza monitoring stations; these may be found in Table 2.1.

Average annual evaporation depth for the proposed Pangui TMF site is determined from the data available at the Yanzatza and Gualaquiza stations and is estimated to be **1380 mm**. The monthly distribution of evaporation, as a percentage of the annual total, is based on information available at these two regional stations and is presented in Table 2.1.

Caminosca has also estimated a runoff coefficient of **0.80** for the proposed Pangui TMF location. This is based on a unit runoff of 60 litres/second/km^2, as inferred from an analysis of several regional hydrometric stations.

2.2 BASIC GEOLOGY

Photos 1 through 4 show the typical terrain in the area of the proposed Pangui TMF. The surficial geology of the proposed Pangui TMF basin consists almost entirely of residual soils (sandstone). The depth to competent bedrock is estimated at between 10 to 20 m, but may be significantly more than this in the centre of the valley. Detailed site investigations are currently underway, including 42 testpits and 19 drill holes throughout the proposed Pangui TMF.

2.3 SEISMICITY

A seismicity review for the Mirador project was recently conducted by Amec Earth and Environmental (AMEC) and presented in the report "Mirador Feasibility Study – Tailings Management Facility Preliminary Design Report," November 23, 2004. This study has been reviewed and appropriate seismic design earthquakes selected for the Tailings Management Facility (TMF) for Feasibility design.

Consistent with the current design philosophy for geotechnical structures such as dams, two levels of design earthquake have been considered: the Operating Basis Earthquake (OBE) for normal operations; and the Maximum Design Earthquake (MDE) for extreme conditions (ICOLD, 1995). Values of maximum ground acceleration and design earthquake magnitude have been determined for both the OBE and MDE.

The OBE is typically determined using the probabilistic seismic hazard analysis to select an acceptable hazard level, based on the probability of exceedance over the design life of the facility. This is often chosen as the earthquake that has a 10 percent probability of exceedance in 50 years, corresponding to a return period of 475 years. Assuming a design operating life of

12 years for the TMF, the probability of exceedance is 2.5%. The maximum acceleration for the 1-in-475 year earthquake is 0.20g. A design earthquake magnitude of 7.0 has been selected for the 1-in-475 year event, based on the findings of the AMEC seismicity study. The TMF would be expected to function in a normal manner after the OBE.

An appropriate Maximum Design Earthquake (MDE) for the TMF has been determined based on a hazard classification of the facility, with consideration of the consequences of failure. The hazard classification has been carried out using appropriate guidelines. For this study, criteria given by the Canadian Dam Association's "Dam Safety Guidelines" (1999) have been adopted. These criteria are presented in Table 2.2. Classification of the TMF is carried out by considering the potential incremental consequences of failure. That is, the consequences of failure are incremental to the impacts, which would occur from the earthquake event but without failure of the facility. The consequences of failure include life safety, economic, social and environmental impacts.

The project site and the area around the TMF is consists of residual (sandstone) soils and relatively flat topography. The area around the TMF is used by local farmers for general subsistence crops and timber harvesting**.** Therefore, there is some potential for loss of life following a potential dam failure. If failure of the TMF resulted in the release of tailings and/or process water, it would likely have some environmental impact. The economic and socio-economic impacts would also likely be high. Accordingly, a HIGH consequence category (hazard classification) has been assigned to the TMF.

An appropriate MDE for the facility is selected, based on the consequence category and the criteria for design earthquakes presented in Table 2.3. For a HIGH consequence category, a Maximum Design Earthquake is taken as a probabilistic event with a return period in the range of 1000 years to 10000 years. Alternatively, the Maximum Credible Earthquake may be selected based on the findings of a deterministic seismic hazard analysis. The November 2004 AMEC report states "a *reasonably conservative peak horizontal acceleration value of 0.34g is recommended for design of critical facilities at the Mirador site.*" This represents a magnitude 6.9 earthquake at a distance of about 18 km from the site. For this study it is recommended that a magnitude 7.0 earthquake be assigned to the MDE with a maximum bedrock acceleration of 0.34g. This is representative of a near-field maximum 7.0 earthquake within 20 km of the project site. Limited deformation of the tailings embankment is acceptable under seismic loading from the MDE, provided that the overall stability and integrity of the TMF is maintained and that there is no release of stored tailings or water (ICOLD 1995).

The maximum accelerations of 0.20g and 0.34g for the OBE and MDE events respectively are for ground motions in bedrock or firm ground through which ground amplification effects are negligible. Maximum accelerations within the dam will likely be higher due to amplification of ground motion through the foundation soils and overlying tailings.

It is recommended that a more detailed seismicity study be conducted for future TMF design work, to confirm the magnitude and associated maximum acceleration for the Maximum Design

Earthquake. This would require more detailed probabilistic and/or deterministic seismic hazard analyses than have been completed to date.

SECTION 3.0 - TAILINGS CHARACTERISTICS

3.1 GENERAL

Ore produced at the Mirador Mine will be processed at a rate of 25,000 tonnes per day in a copper concentrator plant located on the northeast bank of the TMF. Concentrate removal has been estimated at two percent of the total ore throughput, requiring approximately 24,475 tonnes per day of tailings solids to be impounded in the TMF.

3.2 PHYSICAL CHARACTERISTICS

It has been assumed that the final slurry will have a solids content of 31.5% and be comprised of 89% rougher tailings and 11% cleaner tailings by weight. The solids will have a specific gravity of 2.65 and a dry density of approximately 1.26 tonnes per cubic metre.

3.3 CHEMICAL CHARACTERISTICS

The geochemical characteristics of the Tailings have been tested by SGS Lakefield Research Laboratories and the results of these tests are presented in SGS Lakefield Research Report LR10703-002 (February 2005). Based on the results presented in this report the rougher tailings would be the most suitable for cycloned sands embankment construction, as they are non acid generating. The high sulphide cleaner tailings are the only tailings that showed the potential of being acid generating if allowed to oxidize.

The composition of the tailings when averaging from the Super-Composites for the rougher tailings and high sulphide cleaner tailings is as follows:

- 87% of the total feed reports to the rougher tailings (21,950 t/day).
- 10.3% of the total feed reports to the high sulphide cleaner tailings (2,575 t/day).

In order to prevent the high sulphide cleaner tailings from oxidizing the plan is to separate the cleaner finer tailings component in a separate tailings line directed into the TMF pond so that it would be perpetually saturated and therefore will not oxidize. With the mill in close proximity to the pond this is practical.

SECTION 4.0 - EVALUATION OF ALTERNATIVES

4.1 PRELIMINARY DESKTOP ASSESSMENT

In December 2004, Knight Piésold (KP) completed an assessment of five alternative configurations for a TMF in the Pangui Area (Letter Report Ref # V4-1219, December 17, 2004). The purpose of this desktop study is to determine if a “zero discharge “ condition can be achieved given the physical characteristics of the proposed site.

It was determined that the site was suitable for a zero discharge facility, if the geotechnical conditions of the site were adequate for the construction of a large earth embankment. Corriente then commissioned a more detailed satellite survey of the area and KP conducted a site visit in order to confirm there were no “fatal flaws” with the concept.

4.2 SITE VISIT AND DETERMINATION OF PREFERRED ALTERNATIVE

4.2.1 Site Visit

Mr. Jeremy Haile and Mr. Sam Mottram visited the Mirador site and proposed Pangui TMF sites during early February 2005. They were accompanied by an engineer and geologist from Caminosca, an Ecuadorian consulting engineering firm. Caminosca had recently completed test pitting, drill holes and surficial geotechnical investigations along the proposed Sabanilla to Mirador 138 kV transmission line route, which also ran along the ridge between the north and south Pangui TMF sites. Caminosca’s previous studies and knowledge of the area were valuable in helping us to assess the two sites. In general, the geology of the two sites can be summarised as follows:

North Site
The surficial geology of the north site consists almost entirely of residual soils (sandstone). The depth to competent bedrock is estimated at between 10 to 20 m, but may be significantly more than this in the centre of the valley.

South Site
Similarly, the surficial geology of the south site consists mostly of residual sandstone soils, except that below approximately elevation 750 m the residual soils are overlain with varying thickness of alluvial deposits.

No fatal flaws were identified during the visit of the proposed Pangui TMF sites, although the presence of the municipal palm forest reserve on the south site was confirmed. The location of culverts and drainage ditches under the roads that surrounded the two sites were noted.

4.2.2 Determination of Preferred Alternative

The north site was determined to be the preferred site for the development based on the following:

- Based on the available geotechnical information, the north site has better characteristics for the construction of the Tailings Management Facility (TMF).
- The north site would not impact the municipal palm forest.
- The north site is closer to the proposed Plant Site and therefore would be more economical.
- The north site has suitable topography for the construction on an economically viable 110 Mt TMF.
- The north site could also be expanded to accommodate a 350 Mt TMF, if the Mirador Mine was to expand.

Further details of the assessment of alternatives are included in KP's letter report, dated March 2, 2005 (Ref # V5-0209).

SECTION 5.0 - GEOTECHNICAL SITE INVESTIGATIONS AND TESTING

5.1 INTRODUCTION

The site investigation for the Pangui TMF will consist of the drillholes, testpits and geotechnical mapping of the TMF area. At the time of writing this the geotechnical investigations were underway, but no detailed results were available and are therefore not discussed. However, the details of the site investigation and testing program that is currently underway is discussed in the sections below.

5.2 SITE INVESTIGATIONS

The geotechnical site investigation will require the testing of the in-situ ground conditions, laboratory testing of soils and installation of groundwater monitoring wells. The in-situ testing of ground conditions will be accomplished by Standard Penetration Testing (SPT), permeability testing (Packer testing). The laboratory samples will be supplied by the collection of undisturbed soil samples from selected depths in drillholes (Shelby tubes) and testpits (bulk sampling).

A selected number of drillholes (8), will be equipped to operate as long-term water monitoring wells, and the remainder of the drillholes will be equipped with standpipe piezometers for investigating the groundwater conditions. As much as practical, the testpits shall be excavated by a suitable track driven machine to determine the ground conditions in the TMF basin, the availability of local borrow material for embankment construction, and the foundation conditions in the embankment footprint. Additional aims of the test pitting program will be the location of natural material, suitable for use as concrete aggregate and as drainage material for dam construction. Where practical, geotechnical surface mapping of the TMF footprint, basin and the slopes above basin will be conducted to identify surficial ground conditions and any potential areas of instability.

The following sub-sections describe in more detail the equipment requirements and supplies for the geotechnical site investigation.

5.2.1 Drilling

The drill rigs required for the program should either be skid, track or truck mounted multi-purpose high torque rigs capable of triple tube oriented core wire diamond drilling to HQ(3) diameter. The machines will require the equipment necessary to complete Standard Penetrometer Tests (SPT) to ASTM standard D1586 and collect Shelby tubes to ASTM standard D1587. The drill rigs should be self-sufficient including any and all necessary water tanks, pumps and hoses. Provision shall be made at each drill site for sediment control from the re-circulating water. A support vehicle for delivering water and supplies will also be required for completion of the work. The drilling contractor may also be required to supply any machinery and manpower that is required to move the drill between holes.

The overburden drilling and sampling shall be completed with HQ(3) equipment and sample recovery efforts will be maximized by reducing the amount of circulation water to the minimum required for safe drilling. The recovery of core in the overburden may also require the use of a sand trap device in the core lifter.

The drilling techniques should allow for advancement through potentially difficult overburden conditions and into the basement bedrock. This may require casing the drillholes, the casing used should be suitable for the HQ(3) drill rods previously specified. The casing shall be supplied and added in increments so that the hole is open and supported at all times as it is advanced. A sufficient number of drill rods and casing should be provided on each drill rig by the drilling contractor to allow up to 100 m of coring to be completed at any one drillhole location. Depending on the specific type of equipment and the ground conditions a casing advancer may be required to ensure stability of the drillhole. No drilling muds or lubricants are to be used without the approval of Knight Piésold Ltd (KP).

5.2.1.1 Sampling

Overburden sampling techniques shall consist of core retrieval methods with triple tube diamond drilling, Standard Penetration Tests (SPT, ASTM D1586), and Shelby tubes (ASTM D1587). For the purposes of this program, a 50 mm diameter split spoon shall be used for the SPT sampling. Soil samples collected from the SPT process will be bagged, sealed and labelled for transport to the soils lab by KP. The Shelby tubes shall be stainless steel, 75 mm diameter and 900 mm long. The tubes will be sealed at both ends using either wax or an expanding type rubber ring lined end cap and labelled. Soil samples from the recovered overburden may also be collected from the core runs.

Rock core will be placed in wooden core boxes, which will be suitably labelled. Blocks indicating the depth of each drill run will be placed in the core boxes. All drill core will be photographed prior to any sample removal or core destruction.

5.2.1.2 Permeability Testing

Permeability tests (Packer or Lugeon tests) are generally carried in rock foundations to provide information on the permeability and groutability of the foundation formations. The test involves measuring the steady state leakage from a specific test section of the borehole at a series of hydraulic pressures. When performing permeability tests during a drilling program, the drilling must be completed using water only (no muds or polymers) as these will affect the test results.

The packer testing will be required in the bedrock, and will generally be completed at 10 m intervals, or as deemed necessary in the field by KP.

5.2.1.3 Drillhole Groundwater Monitoring Instrumentation

Drillhole instrumentation, consisting of 1" dia PVC standpipe piezometers and 2" dia PVC groundwater monitoring wells will be installed during the site investigation program. The installations may be completed through the drill string or casing and assistance from the drilling contractor will be required. The drilling contractor should provide all necessary materials and installation supplies for standpipe piezometers and groundwater wells. Materials typically required for the construction of groundwater wells and standpipe piezometers include decontaminated slotted PVC pipe to form well screens, decontaminated unslotted PVC pipe, end caps, silica sand, low permeability cement grout, coated bentonite pellets, cement and protective casing for the standpipe piezometers and well heads.

5.2.1.4 Testpits

The testpits will be hand excavated to refusal or as determined by KP. Topsoil will be separately stockpiled for replacement onto the surface of the backfilled testpits. During excavation soil samples may be taken for laboratory testing. All testpits will be backfilled upon completion of logging and topsoil that has been separately stockpiled during excavation will be placed as an uppermost layer. KP will photograph the testpit sites prior to excavation, as the testpits are logged and following backfilling. The testpit sites will be restored to their original conditions as much as practical following testpit excavation and backfilling.

Soil samples will be collected and bagged from selected locations and depths in the testpits by KP. A limited selection of these samples will undergo laboratory analysis to determine the materials suitability as construction material. Various types of construction material are required including zones in the waste management facility embankments, road construction fill or sheeting and concrete construction aggregate. Laboratory testing will be performed to the appropriate ASTM standard.

5.3 GEOTECHNICAL LABORATORY TESTING

Soil samples from both the test pitting and the geotechnical drill holes will be tested. The soil samples will undergo the following analyses only where appropriate:

- Moisture content;
- Grain size distribution, which will include wet sieving and appropriate hydrometer tests where a minimum of 20% of the total sample passes through #200 sieve (ASTM);
- Atterberg Limits (Liquid Limit and Plastic Limits);
- Triaxial tests, which will include both unconsolidated and consolidated undrained single stage tests with pore pressures on both in situ and remoulded shelby samples;
- Consolidation;
- Compaction (ASTM Standard Proctor);
- California Bearing Ratio (CBR);

- Organic;
- Sulphate;
- Sulphide;
- Chloride;
- Alkali-Reactivity, and
- Abrasion.

Sulphate, sulphide, chloride, alkali-reactivity, and abrasion tests are specified for potential concrete aggregate borrow source material only.

SECTION 6.0 - DESIGN OF TAILINGS MANAGEMENT FACILITY

6.1 DESIGN CRITERIA

The final embankment, as shown in Figure 6.5, has been designed to accommodate the 106 Million tonnes of solids produced over the 12-year life of the project. The principal design consideration is ensuring that the proposed facility meets the "zero-discharge" criteria, meaning that no water will be released from the facility throughout the life of the project.

The basic criteria used for design of the proposed Pangui TMF are presented in Table 6.1.

6.2 SITE LAYOUT AND FILLING CURVE

The Pangui TMF Site was designed using them most recent topographical mapping available, received from Corriente on February 23rd, 2005. The general arrangement shown on Figure 6.5 is the result of an optimization exercise that focuses on maximizing the TMF storage volume while keeping the embankment volume and catchment area as small as possible. A depth-area-capacity curve is shown on Figure 6.1.

A starter embankment will be built to an elevation of 748 metres prior to the beginning of operations; this will provide about two years of storage at the proposed 25,000 tonnes per day production rate. This elevation has been selected to provide ample time for commissioning of a cyclone system for coarse sand production and the procedures for placing and compacting the sand fraction. The main embankment will be raised to its ultimate elevation of 776 m using cyclone sand raises. An annual filling schedule is provided in Table 6.2, with Figure 6.2 showing the average tailings surface and required embankment elevation. In addition to the starter embankment, a small dam will be built at the southeast corner of the facility to an elevation of 760 m to provide a pond in which the cleaner tailings may be stored under a constant water cover. This small dam will eventually be submerged as the pond surface rises to its ultimate elevation.

The close proximity of the TMF to the Mill reduces the length of the tailings distribution pipework, resulting in decreased capital expenditures as well as reduced power requirements. Rougher tailings will be pumped north, along the eastern bank of the impoundment, where the coarse fraction will be used as embankment material with the cyclone overflow material being deposited into the TMF. Cleaner tailings (high sulphide cleaner tailings) will flow south through a separate pipe and be deposited sub-aqueously, thus preventing oxidation.

6.3 WATER BALANCE

A water balance model was developed for the purpose of accurately tracking the volume of solids, entrained pore water, and supernatant water in the TMF. Inputs such as precipitation, evaporation, and production rates, are used to produce a monthly estimate of stored volume, average pond/tailings depth, and required embankment height. The design criteria used for the water balance modeling may be seen in Table 6.1. A schematic of the system elements, including inflows and outflows to and from the TMF are shown on Figure 6.3.

Precipitation and evaporation follow the monthly distribution pattern described in Section 2.1 and a runoff coefficient of 0.8 is for the undisturbed portion of the catchment. In addition to the tailings characteristics provided in Section 3.0, a constant consolidation rate of 0.5 percent per annum is used as a simple estimate of how the solids will settle in the TMF.

The proposed Pangui TMF is modelled as a zero discharge facility, with no water leaving the system except through evaporation and as process water reclaim. Geotechnical investigations are currently underway to determine the permeability of the proposed impoundment area to see if and how much seepage can be expected. The facility benefits from a relatively small catchment area, which allows it to operate in a favourable water deficit condition with only minor diversion ditching required. The model indicates that about 30% of the upper catchment runoff will have to be directed away from the TMF.

6.4 EMBANKMENT DESIGN

The embankment will be raised using the centreline construction method, with a starter earth embankment and ongoing raises using compacted cycloned tailings. The starter embankment will be constructed to a crest elevation of 748 m, which provides an adequate storage volume for the first two years of mining operations.

Typical embankment cross-sections for both the main embankment and the starter dam are shown on Figure 6.6. Table 6.2 shows the required embankment elevations for each year of operation, as well as the average rate of rise (metres per year). The required split between fines and coarse tailings material varies from 18% in Year 1 down to 5% in Years 8 to 12; this appears to be within the anticipated range expected from the mill process.

Embankment foundation and toe drains will be installed as shown in Figure 6.6 and will consist of a drain pipe, drain material, sand and filter fabric. The sand will have a filter relationship with the tailings that will prevent tailings from entering the drain. The seepage collected in the drains will be delivered to the seepage collection sump, shown in Figure 6.4, and pumped back into the TMF.

6.5 TAILINGS DISTRIBUTION PIPEWORK

The tailings discharge system is designed to handle the tailings solids and process water from the plant based on a daily throughput of 25,000 tonnes. As discussed in Section 3.3 of this report, the rougher tailings would be the most suitable for cycloned sand embankment construction, as they have been shown to be non acid generating. The high sulphide cleaner tailings are the only tailings that showed the potential of being acid generating if allowed to oxidize. The approximate daily split of the two tailings streams is:

- Rougher tailings = 21,950 t/day;
- High sulphide cleaner tailings = 2,575 t/day.

In order to prevent the high sulphide cleaner tailings from oxidizing they will be separated from the rougher tailings and directed into the TMF pond through a separate tailings line as shown in Figure 6.5. In order to ensure that the high sulphide cleaner tailings will be perpetually saturated from start-up, a small Cleaner Tailings Retention Berm will be constructed, as shown in Figure 6.4. With the mill in close proximity to the pond this is practical.

The rougher tailings distribution pipeline will deliver the tailings from the plant site to the main embankment where the tailings will be cycloned, as shown in Figure 6.5. The coarse fraction will be used for embankment construction and the finer tailings will be delivered into the TMF.

6.6 TAILINGS RECLAIM SYSTEM

At start-up, a decant channel will be excavated as shown in Figure 6.4. The reclaim barge will be placed in this channel, which is in close proximity to the plant site. Water will be continuously reclaimed from this supernatant pond, brought back to the plant site, and re-introduced into the process.

Freshwater wells will also be installed to provide both potable water to the plant site and camp as well as to provide make-up water for the milling process.

6.7 INSTRUMENTATION AND MONITORING

As part of the overall monitoring program, 8 groundwater monitoring wells will be installed as part of the initial site investigation program. These wells are located downstream of the final TMF embankment toe and will continue to be monitored both during and post construction. These wells will be sampled to evaluate seepage water quality and may be converted to recover seepage if required.

Geotechnical instrumentation will be installed in the tailings embankment and foundation during construction and over the life of the project. The instrumentation will be monitored during construction and operation of the TMF to assess embankment performance. The instrumentation installed will include:

- Piezometers;
- Movement monuments;
- Slope inclinometers, and
- Groundwater monitoring wells.

SECTION 7.0 - CONCEPTUAL CLOSURE PLAN

7.1 GENERAL

Upon completion of the mining operations the TMF will be designed for closure such that the tailings surface is rapidly made trafficable, and the potential for wind and water erosion is minimal. Closure and reclamation activities will be carried out with the objective of providing for long-term stability and an appropriate end use that requires minimal maintenance.

7.2 TAILINGS FACILITY CLOSURE SEQUENCING

During the final years of operation, the extent of the supernatant pond will be minimized and will be removed during the first year following closure. Water will be removed from the surface pond, treated to an acceptable quality if required, and released to surface waters. The other main components of the closure and reclaim area as follows:

- Revegetation of the downstream embankment face.
- Diversion ditches will be constructed around the TMF perimeter.
- Construction of a closure spillway.
- All roads not required for servicing of the TMF will be decommissioned and revegetated.
- Drainage collection pipework and sumps will remain in operation where required.

As required, ongoing maintenance of the above systems will continue.

7.3 TAILINGS COVER CONSTRUCTION AND REVEGETATION

The tailings cover will be constructed in stages, with the initial cover constructed on the sandy beaches around the perimeter of the impoundment. This will minimize the potential for dust generation from the tailings surface. Subsequent stages will extend the cover further over the fine tailings in the centre of the facility. The tailings cover will be approximately 500mm thick and revegetated directly after placement.

SECTION 8.0 - QUANTITIES AND COST ESTIMATES

8.1 CAPITAL COST ESTIMATES

▲Rev 1

A preliminary cost estimate for the Stage I construction requirements is shown in Table 8.1 and indicates a total capital cost of about $10,000,000, excluding contingencies. This cost includes construction of the starter embankment to an elevation of 748 m, as well as the appropriate drainage systems and site preparation work required for the final embankment. A majority of the required appurtenances have been include in the initial cost estimate, as they are necessary before production can commence. All remaining costs, primarily those associated with construction of the final cyclone sand embankment, are reflected in the annual operating costs.

8.2 ESTIMATED ANNUAL OPERATING COSTS

▲Rev 1

Operating costs have been estimated using an average unit cost for construction of the cycloned sand embankment, and power requirements associated with pumping reclaim water back to the mill. A schedule of the annual operating costs may be seen in Table 8.2.

SECTION 9.0 - CONCLUSIONS AND RECOMENDATIONS

9.1 CONCLUSIONS

This report has presented the technically feasible design for the 110 Mt Pangui Tailings Management Facility (TMF) at the Mirador Copper Project. The main conclusions from the design are:

- The embankment section adopted in this design uses a centreline technique for staged construction using compacted cycloned tailings.
- The foundation conditions for the embankment are currently being investigated, but based on surficial investigations to date, appear adequate. These assumptions will be confirmed over the next two months.
- The estimated total capital costs are summarized as follows:
  - Stage I – Construction Costs $ 8,536,000
  - Stage I – Contingency at 20% $ 1,707,000
  - Stage I – EPCM $ 1,280,000.
- The total estimated operating costs for the life of the operation (excluding contingencies) are estimated at:
  - Total Operating Costs (12 Years) $ 6,011,000.

9.2 POTENTIAL RISKS

There are several potential risks that may arise during the detailed design and construction, including:

- The geotechnical investigations that are currently underway may determine that the assumptions regarding seepage (low permeability residual soils) in this report have underestimated the rate of seepage.
- Similarly, the geotechnical investigations may determine the foundation conditions for the embankment are different that assumed.

9.3 RECOMENDATIONS

The main recommendation is the completion of the site investigation program for the Pangui TMF that is currently underway. These investigations will help to better characterize the site and design parameters and thus define or dismiss the issues raised as potential risks.

The hydrological and climate data gathering should be continued to provide ongoing site specific data. This will allow for further refinement of the water management measures during the detailed design.

SECTION 10.0 - REFERENCES

AMEC Report "Mirador Feasibility Study – Tailings Management Facility Preliminary Design Report," November 23, 2004.

Canadian Dam Association, "Dam Safety Guidelines". 1999.

Knight Piésold Letter Report – Assessment of Proposed Pangui Tailings Dam Options", December 17, 2004.

Knight Piésold Letter Report - "Pangui Tailings Storage Facility - Scoping Study", March 2, 2005.

Knight Piésold Letter Report – "Pangui Tailings Storage Facility – Site Investigation Program Description", March 3, 2005.

SECTION 11.0 - CERTIFICATION

This report was prepared and approved by the undersigned.

Prepared by:

Sam Mottram, P.Eng.
Project Manager

Graham Greenaway, P.Eng.
Specialist Engineer

Approved by:

Jeremy P. Haile, P.Eng.
President

TABLE 2.1

CORRIENTE RESOURCES INC.
MIRADOR COPPER PROJECT

PANGUI TAILINGS MANAGEMENT FACILITY
PRECIPITATION AND EVAPORATION

Print: 3/18/05 14:52

M:\2\01\00078\04\A\Report\[Tables and Figures.xls]Table 8.3_r0 Rev'd Mar/16/05

Parameter		Unit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Precipitation	mean	(mm)	125	148	193	232	210	204	169	140	158	155	144	123	2,000
		(%)	6.2	7.4	9.6	11.6	10.5	10.2	8.5	7.0	7.9	7.7	7.2	6.1	100%
	stdev	(mm)	41.8	68.0	60.8	72.0	49.2	61.2	44.0	67.2	43.5	56.4	62.5	39.3	55.5
	c_v		0.34	0.46	0.32	0.31	0.24	0.30	0.26	0.48	0.28	0.37	0.44	0.32	0.34
Evaporation		(mm)	126	101	105	99	117	88	97	110	117	139	131	149	1380
		(%)	9.1	7.3	7.6	7.2	8.5	6.4	7.0	8.0	8.5	10.1	9.5	10.8	100%

Notes:
1. Monthly precipitation distribution at El Pagui TMF Site is based on El Pagui and Gualaquiza Stations.
2. Coefficients of variation at El Pagui TMF Site are based on the average of those calculated at El Pagui and Gualaquiza Stations.
3. Standard deviation is calculated as c_v x Mean.

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TABLE 2.2

CORRIENTE RESOURCES INC.
MIRADOR COPPER PROJECT

PANGUI TAILINGS MANAGEMENT FACILITY
CANADIAN DAM ASSOCIATION'S "DAM SAFETY GUIDELINES" (1999)

Print :3/18/05 14:52

M:\2\01\00078\04\A\Report\[Tables and Figures.xls]Table 8.3_r0 Rev'd Mar/17/05

Consequence Category	Potential Incremental Consequences of Failure [a]	
	Life Safety [b]	Socioeconomic Financial & Environmental [b] [c]
Very High	Large number of fatalities	Extreme damages
High	Some fatalities	Large damages
Low	No fatalities anticipated	Moderate damages
Very Low	No fatalities	Minor damages beyond owner's property

Based on Canadian Dam Association (CDA) "Dam Safety Guidelines" (1999).

Notes:

[a] Incremental to the impacts which would occur under the same natural conditions (flood, earthquake or other event) but without failure of the dam. The consequence (i.e. loss of life or economic losses) with the higher rating determines which category is assigned to the structure. In the case of tailings dams, consequence categories should be assigned for each stage in the life cycle of the dam.

[b] The criteria which define the Consequence Categories should be established between the Owner and regulatory authorities, consistent with societal expectations. Where regulatory authorities do not exist, or do not provide guidance, the criteria should be set by the Owner to be consistent with societal expectations. The criteria may be based on levels of risk which are acceptable or tolerable to society.

[c] The Owner may wish to establish separate corporate financial criteria which reflect their ability to absorb or otherwise manage the direct financial loss to their business and their liability for damage to others.

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TABLE 2.3

CORRIENTE RESOURCES INC.
MIRADOR COPPER PROJECT

PANGUI TAILINGS MANAGEMENT FACILITY
CONSEQUENCE CATEGORY AND THE CRITERIA FOR DESIGN EARTHQUAKES

Print Mar/18/05 14:52

M:\2\01\00078\04\A\Report\[Tables and Figures.xls]Table 8.3_r0 Rev'd Mar/17/05

Consequence Category	Maximum Design Earthquake (MDE)	
	Deterministically Derived	Probabilistically Derived (Annual Exceedance Probability)
Very High	MCE[a]	1/10,000
High	50% to 100% MCE[b][c]	1/1000 to 1/10,000[c]
Low	-[d]	1/100 to 1/1000[d]

Based on Canadian Dam Association (CDA) “Dam Safety Guidelines” (1999).

Notes:

[a] For a recognized fault or geographically defined tectonic province, the Maximum Credible Earthquake (MCE) is the largest reasonably conceivable earthquake that appears possible. For a dam site, MCE ground motions are the most severe ground motions capable of being produced at the site under the presently known or interpreted tectonic framework.

[b] MDE firm ground accelerations and velocities can be taken as 50% to 100% of MCE values. For design purposes the magnitude should remain the same as the MCE.

[c] In the High Consequence category, the MDE is based on the consequences of failure. For example, if one increment fatality would result from failure, an Annual Exceedance Probability (AEP) of 1/1000 may be acceptable, but for consequences approaching those of a Very High Consequence dam, design earthquakes approaching the MCE would be required.

[d] If a Low Consequence structure cannot withstand the minimum criteria, the level of upgrading may be determined by economic risk analysis, with consideration of environmental and social impacts.

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TABLE 5.1

CORRIENTE RESOURCES INC.
MIRADOR COPPER PROJECT

PANGUI TAILINGS MANAGEMENT FACILITY
TAILINGS PHYSICAL CHARACTERIZATION
LABORATORY TESTING SCHEDULE

Print: 3/18/05 14:52

M:\2\01\00078\04\A\Report\[Tables and Figures.xls]Table 8.3_r0 Rev'd Mar/16/05

		Bulk	Coarse	Fine	COMMENTS
G1	Particle size distribution	x	x	x	
G2	Atterberg Limits				
G3	Shrinkage Limit				
G4	Specific gravity	x	x	x	
G5	Undrained Settling tests	x	x	x	
G6	Drained Settling Tests	x	x	x	
G7	Slurry Consolidation (SC) Tests	x	x	x	MDH Engineering Solutions lab, Saskatoon
G8	Air-drying tests	x	x	x	
G9	Freeze-Thaw Tests				
G10	Dispersion Tests				
G11	Soil-Water Characteristic curve				
G12	Unsaturated Permeability				
G13	Drop Cone test				
G14	Triaxial Shear Strength		x		MDH Engineering Solutions lab, Saskatoon
G15	Cyclic Direct Simple Shear				
G16	Flow Cone Viscosity	x	x	x	
G17	Slump Cone (Paste Consistency)				

Notes:

1. Bulk tailings means entire tailings sample as received form SGS Lakefield
2. Coarse sample means a sample roughly equivalent to the coarse fraction produced by a hydrocyclone.
3. For laboratory simulation, allow bulk sample to settle and take bottom 30% as coarse fraction.
4. Fine sample means cyclone overflow. Take top 70% from sample prep in Note 2 above.
5. Sample G14 prepared at a specified density

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TABLE 6.1

CORRIENTE RESOURCES INC.
MIRADOR COPPER PROJECT

PANGUI TAILINGS MANAGEMENT FACILITY
DESIGN CRITERIA

Print: 3/18/05 14:52

M:\2\01\00078\04\A\Report\[Tables and Figures.xls]Table 8.3_r0 Rev'd Mar/16/05

Water Management Design Criteria		
Total TSF Catchment Area	6.49	km^2
Undisturbed Catchment Area	3.12	km^2
Discharge Criteria	No Discharge	
Diversions	30 % of Undisturbed Area	
Seepage	None	
Water Discharge to TMF with Tailings	53,223	m^3/d
Maximum Reclaim to Mill[1] (% of Process Water Input)	96%	%
Tailings Management Design Criteria		
Tailings Discharge Rate to TMF[2] (365 days/year)	24,475	tpd
Mine Life	12.0	years
Percent of Solids in Tailings (by weight)	31.5	%
Specific Gravity of Tailings Solids	2.7	
Initial Dry Density of Tailings	1.3	t/m^3
Average Tailings Consolidation Rate	0.5%	per year

Note:
1. Assumes 2% water with ore and 2% fresh water make-up requirement.
2. Assumes 3% to concentrate.

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TABLE 6.2

CORRIENTE RESOURCES INC.
MIRADOR COPPER PROJECT

PANGUI TAILINGS MANAGEMENT FACILITY
PRODUCTION, FILLING, AND EMBANKMENT CONSTRUCTION SCHEDULE

Print: 3/18/05 14:52

M:\2\01\00078\04\A\Report\[Tables and Figures.xls]Table 8.3_r0 Rev'd Mar/16/05

	Daily Mining Rate (tpd)	Tailings Tonnage Stored in TMF[1] (t)	Embankment Elevation[2] (m)	Rate of Rise (m/y)	Required Split (%)
Year 1	25,000	7,573,649	748	Starter Dam	18%
Year 2	25,000	15,840,285	748		8%
Year 3	25,000	24,186,773	751	3	7%
Year 4	25,000	32,578,173	754	3	7%
Year 5	25,000	41,000,088	757	3	6%
Year 6	25,000	49,444,756	759	3	6%
Year 7	25,000	57,907,372	762	2	6%
Year 8	25,000	66,384,691	764	2	5%
Year 9	25,000	74,874,392	767	2	5%
Year 10	25,000	83,374,735	769	2	5%
Year 11	25,000	91,884,379	771	2	5%
Year 12	25,000	100,402,254	773	2	5%

Notes:
1. Tonnage into TMF accounts for 3% removal as concentrate, as well as the required volume for embankment construction.
2. Embankment elevation is calculated as average surface elevation in TMF with an additional 4 m freeboard.

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TABLE 8.1

CORRIENTE RESOURCES INC.
MIRADOR COPPER PROJECT

PANGUI TAILINGS MANAGEMENT FACILITY
STAGE I CONSTRUCTION - CAPITAL COSTS

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M:\2\01\00078\04\A\Data\[Pangui TMF Costs_Rev 2.xls]Table 8.2_r1

Rev'd Mar/24/05

Starter Embankment @ 748 m			CENTRELINE EMBANKMENT CONSTRUCTION	
	Units	Unit Cost	Estimated Quantities	Estimated Cost (USD)
Preliminary and General				
Mobilization and Demobilization	%	10%		$ 322,000
Access Roads and Diversion Ditches	km	$40,000	7.1	$ 284,000
Earthworks				
Clearing and Stripping	m^2	$0.45	280,000	$ 126,000
Topsoil Excavation to Stockpile	m^3	$0.95	140,000	$ 133,000
Foundation Preparation	m^2	$0.50	280,000	$ 140,000
Borrow, Haul, Condition and Compact Random Fill	m^3	$3.00	290,000	$ 870,000
Borrow, Haul, Condition and Compact Core Material	m^3	$6.00	110,000	$ 660,000
Toe Berm	m	$12.00	3,600	$ 43,000
Drainage System				
Filter and Drain Zones	m^3	$7.50	20,000	$ 150,000
Seepage Collection (2 x 300 mm perforated CPT)	m	$100	3,600	$ 360,000
Underdrain Pipeworks (300 mm solid HDPE @ 100m)	m	$125	3,600	$ 451,440
Tailings Distribution Pipeworks				
Tailing Header Pipe (750 mm HDPE)	m	$600	4,000	$ 2,400,000
Cleaner Tailings Pipe (250mm HDPE)	m	$200	705	$ 141,000
Valves and Offtakes	LS	$400,000	1	$ 400,000
Hydrocyclones	LS	$500,000	1	$ 500,000
Overflow Pipeworks	LS	$200,000	1	$ 200,000
Reclaim Barge and Pipeworks				
Reclaim Barge	LS	$250,000	1	$ 250,000
Reclaim Pipeworks (750 mm HDPE)		$600	455	$ 273,000
Reclaim Pumps (200 HP)	ea	$55,000	4	$ 220,000
Other				
Geotechnical Monitoring Equipment	LS	$50,000	1	$ 50,000
Seepage Recycle System	LS	$500,000	1	$ 500,000
Revegetation	m^2	$0.25	250,000	$ 63,000
Subtotal				**$ 8,536,440**
Contingency (20% of Cost)				$ 1,707,000
EPCM (15% of Cost)				$ 1,280,000
Total				**$ 11,523,440**

Notes:
1. Qualities by Knight Piesold, Rates provided by Merit Consultants.

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TABLE 8.2

CORRIENTE RESOURCES INC.
MIRADOR COPPER PROJECT

PANGUI TAILINGS MANAGEMENT FACILITY
STAGE II CONSTRUCTION - ANNUAL OPERATING COSTS

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M:\2\01\00078\04\A\Data\[Pangui TMF Costs_Rev 2.xls]Table 8.2_r1

Rev'd Mar/22/05

	Daily Mining Rate (t)	Embankment Elevation[1] (m)	Unit Cost[2] ($/$m^3$)	Embankment Volume (m^3)	Embankment Construction Cost ($)	Power Cost[3] ($)	Total Annual Operating Cost[4] ($)
Year 1	25,000	748	0.60	1,277,601	766,560	250,808	1,017,368
Year 2	25,000	748	0.60	584,615	350,769	250,808	601,576
Year 3	25,000	751	0.60	504,762	302,857	240,580	543,437
Year 4	25,000	754	0.60	459,850	275,910	230,853	506,763
Year 5	25,000	757	0.60	429,335	257,601	221,763	479,364
Year 6	25,000	759	0.60	406,582	243,949	213,149	457,098
Year 7	25,000	762	0.60	388,634	233,181	204,912	438,093
Year 8	25,000	764	0.60	373,931	224,358	196,984	421,343
Year 9	25,000	767	0.60	361,550	216,930	189,317	406,247
Year 10	25,000	769	0.60	350,906	210,544	181,874	392,418
Year 11	25,000	771	0.60	341,607	204,964	174,628	379,592
Year 12	25,000	773	0.60	333,375	200,025	167,555	367,580
Totals	300,000				$3,487,648	$2,523,230	$6,010,878

Notes:
1. Embankment elevation is calculated as average surface elevation in TMF with an additional 4 m freeboard.
2. Includes cost of labour and equipment required for construction of cycloned sand embankment.
3. Assumes electricity cost of $54.86 per MWh, 70% pumping efficiency, and average annual TMF elevation.
4. Does not include contingencies or ongoing engineering and closure costs.

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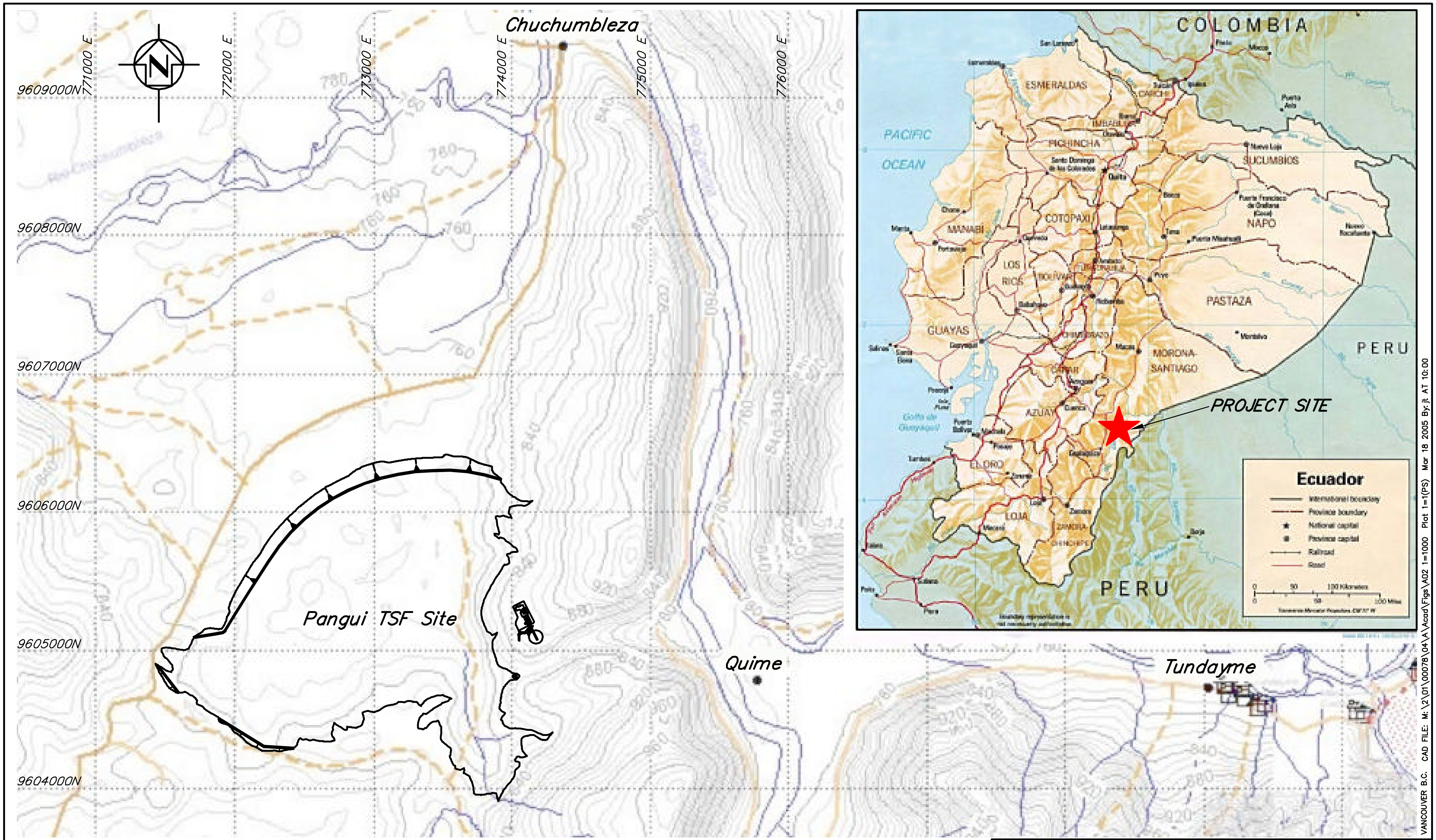


CORRIENTE RESOURCES INC.

MIRADOR COPPER PROJECT

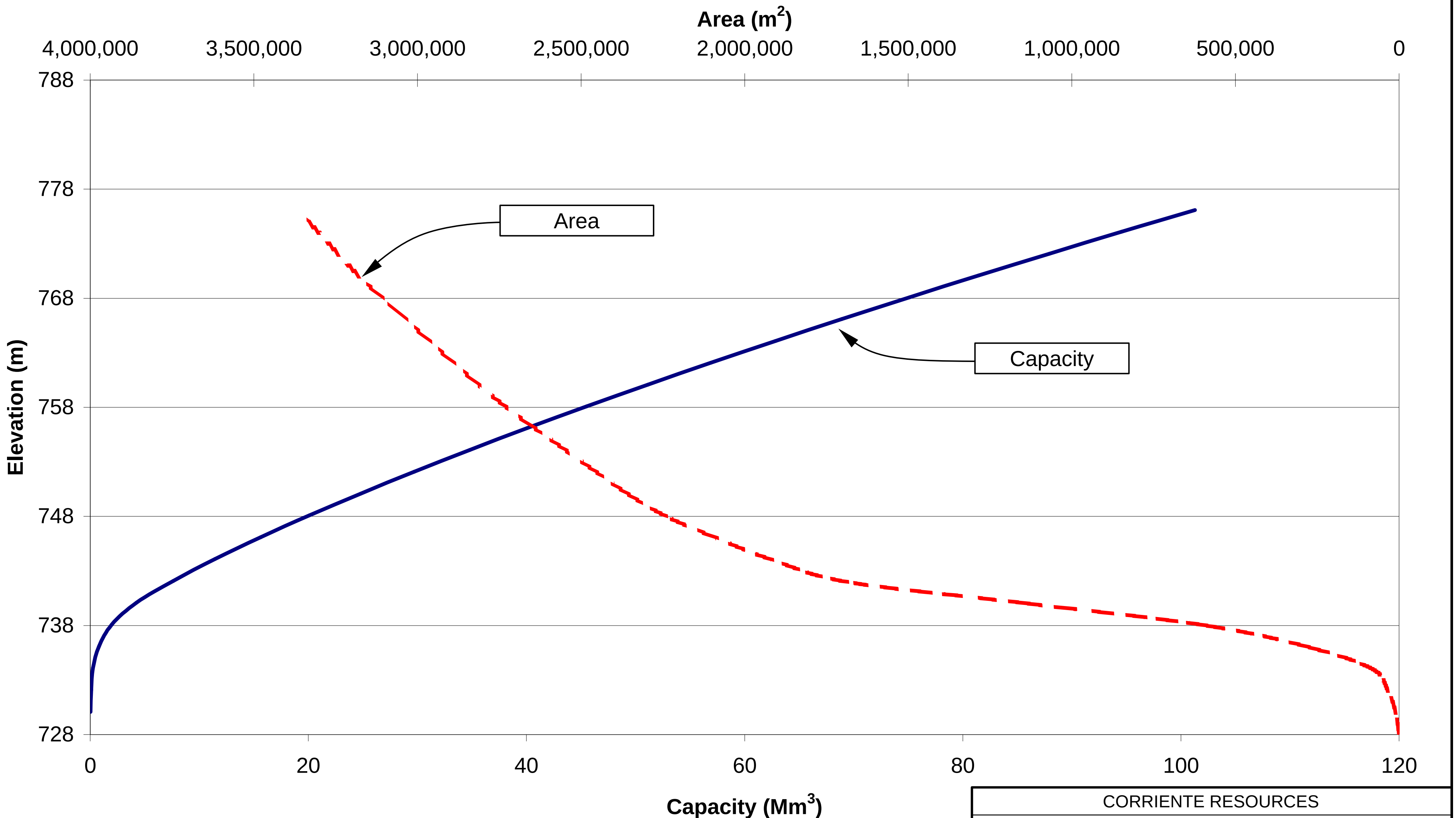
PANGUI TAILINGS MANAGEMENT FACILITY
PROJECT LOCATION PLAN

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO.	REF. NO.	REV.
VA201-00078/04	1	0

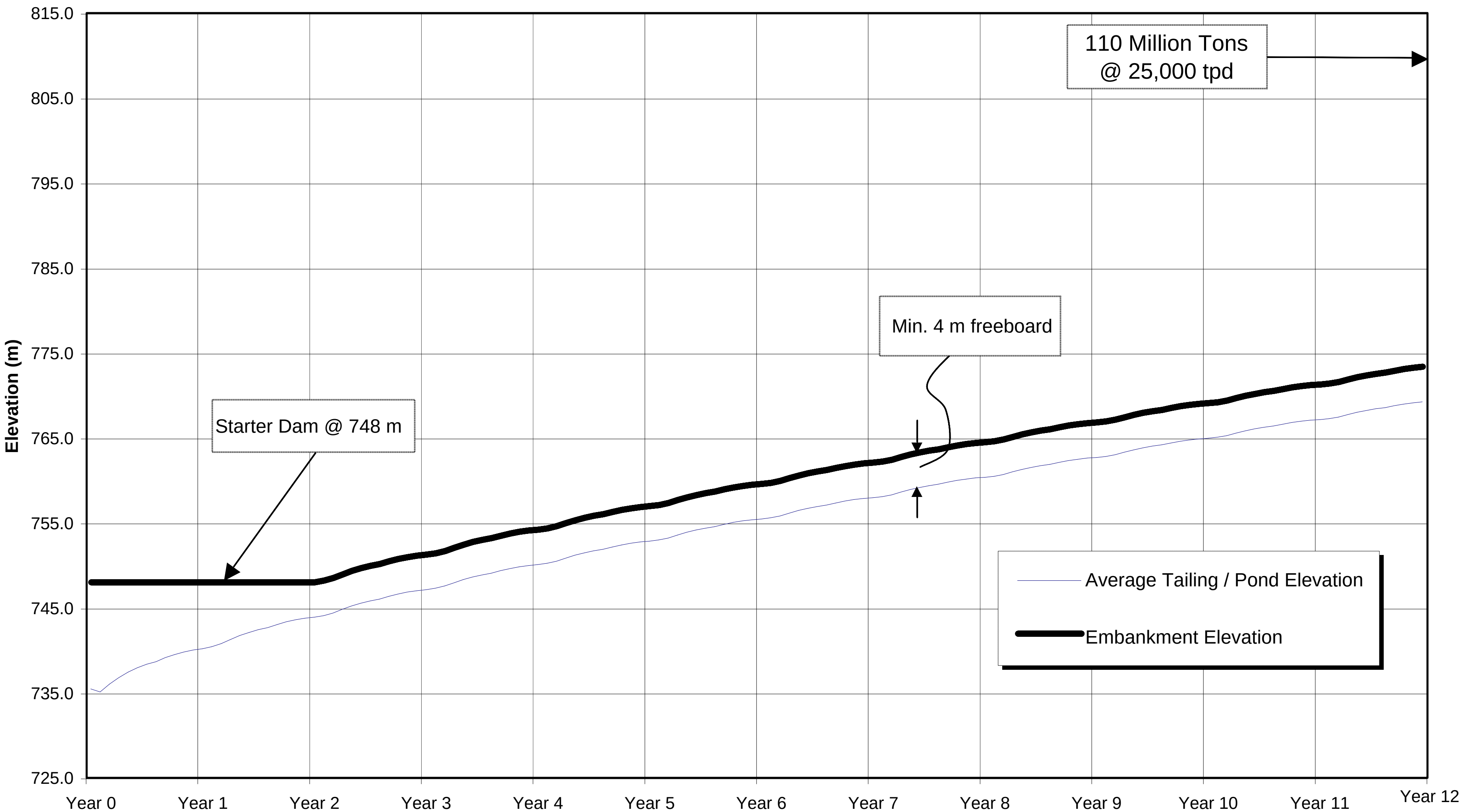
FIGURE 1.1

REV. 1	18MAR'05	ISSUED FOR REPORT



CORRIENTE RESOURCES			
MIRADOR COPPER PROJECT			
PANGUI TAILINGS MANAGEMENT FACILITY DEPTH-AREA-CAPACITY CURVE			
Knight Piésold CONSULTING	PROJECT / ASSIGNMENT NO. VA201-00078/04	REF NO. 1	REV . 0
	FIGURE 6.1		

Rev 0 - Issued for Report



Notes:
1. Simplified Filling Curve using horizontal surfaces only (elevations computed from total volume of solids + supernatant water).
2. Assumes 96% Process Water Reclaim.

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CORRIENTE RESOURCES INC.

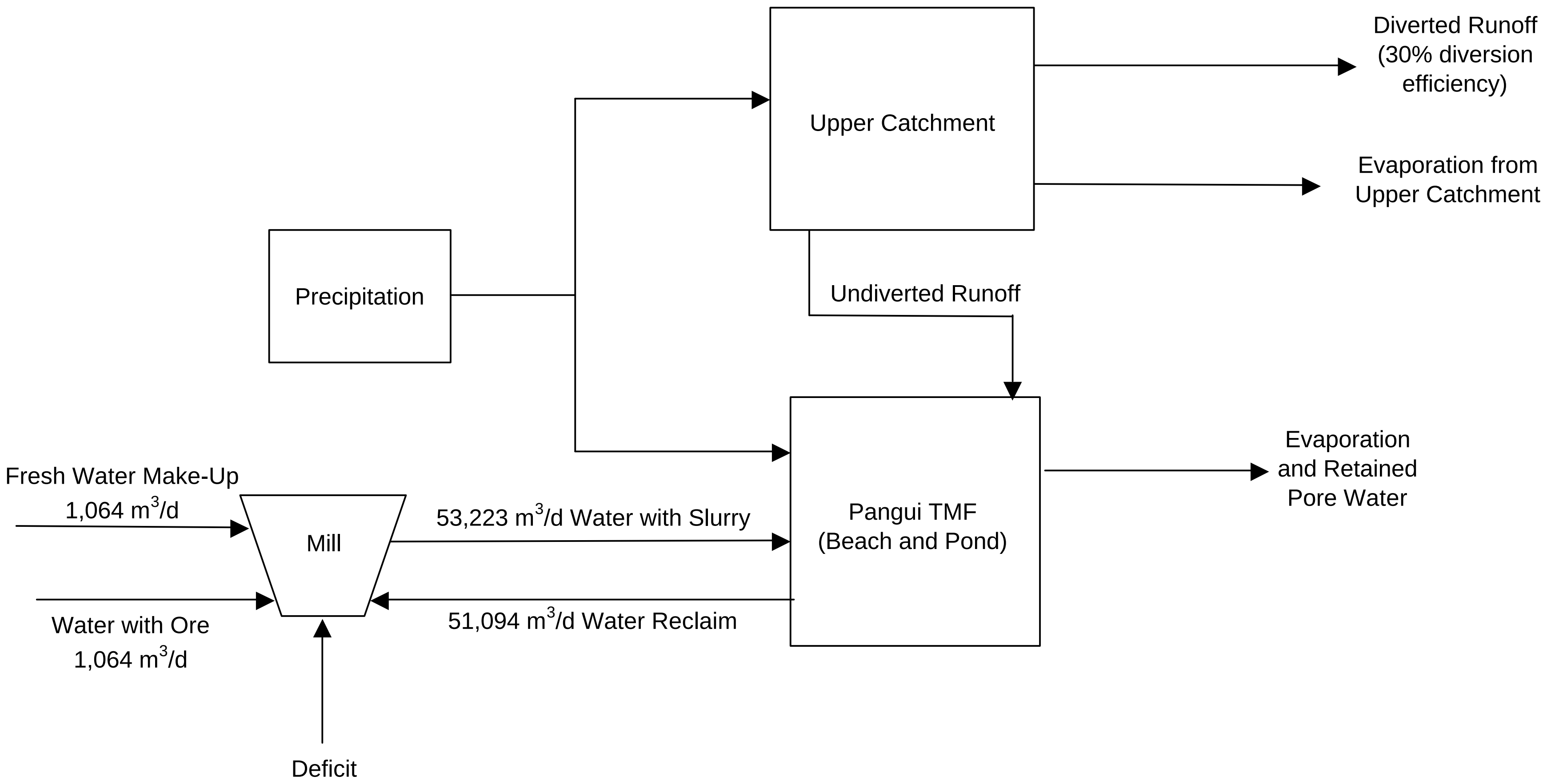
MIRADOR COPPER PROJECT

PANGUI TAILINGS MANAGEMENT FACILITY
FILLING CURVE

Knight Piésold
CONSULTING

PROJECT / ASSIGNMENT NO.	REF NO.	REV.
VA201-00078/4	1	0

FIGURE 6.2



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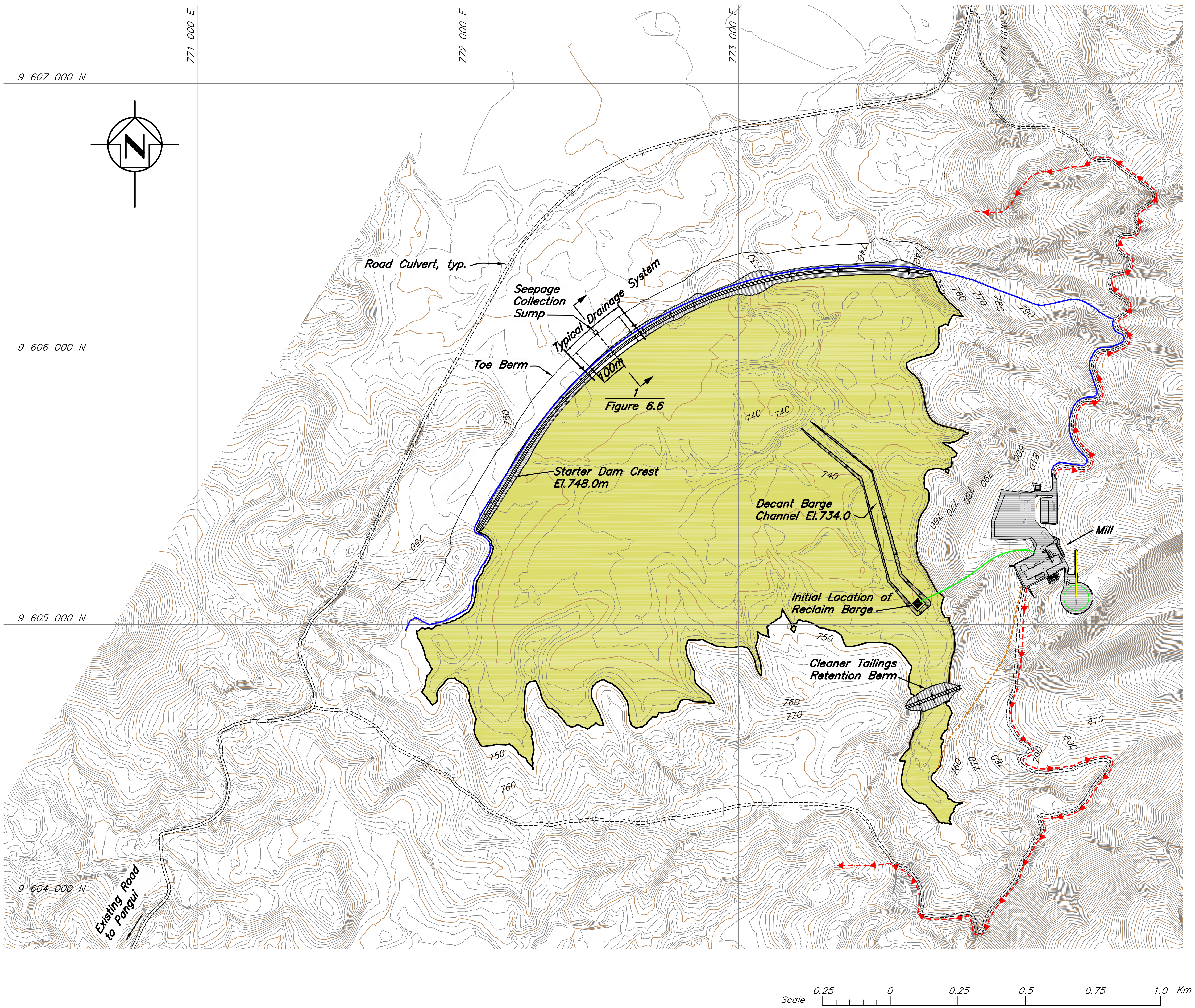
CORRIENTE RESOURCES INC.			
MIRADOR COPPER PROJECT			
PANGUI TAILINGS MANAGEMENT FACILITY WATER AND MASS BALANCE SCHEMATIC			
Knight Piésold CONSULTING	PROJECT / ASSIGNMENT NO. VA201-00078/4	REF NO. 1	REV. 0
	FIGURE 6.3		



LEGENDS:

- Access Roads
- Diversion Ditch
- Reclaim Pipe
- Rougher Tailings Pipe
- Cleaner Tailings Pipe

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REV. 1	09MAY'05	ISSUED FOR REPORT

CORRIENTE RESOURCES INC.

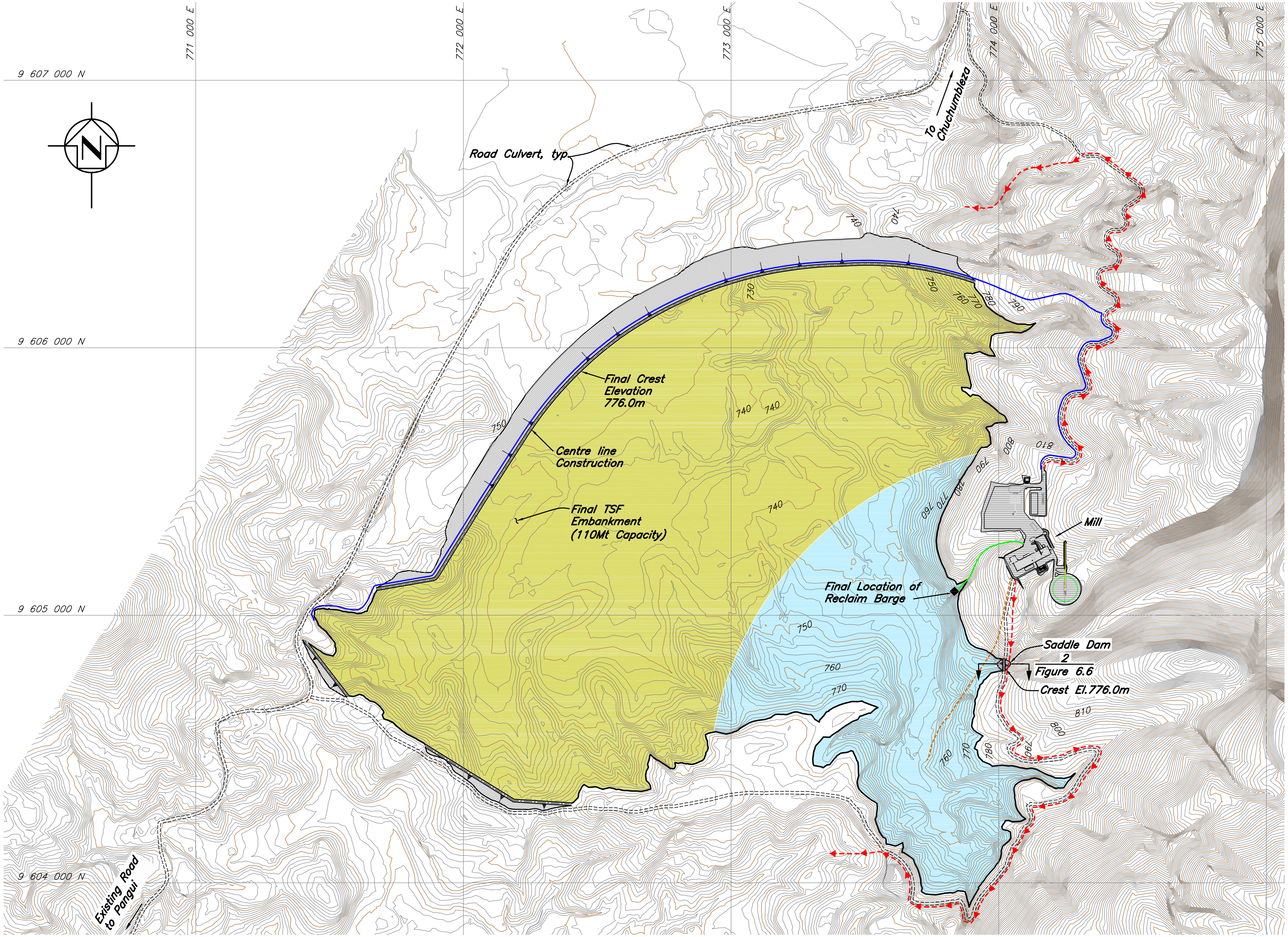
MIRADOR COPPER PROJECT

PANGUI TAILING MANAGEMENT FACILITY
YEAR 1 STARTER EMBANKMENT – PLAN

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO.	REF. NO.	REV.
VA201-78/4	1	1

FIGURE 6.4



LEGENDS:

- Access Roads
- Diversion Ditch
- Reclaim Pipe
- Rougher Tailings Pipe
- Cleaner Tailings Pipe

Scale 0.25 0 0.25 0.5 0.75 1.0 Km

XREF FILE : 2m Contour

REV. 1	09MAY'05	ISSUED FOR REPORT

CORRIENTE RESOURCES INC.

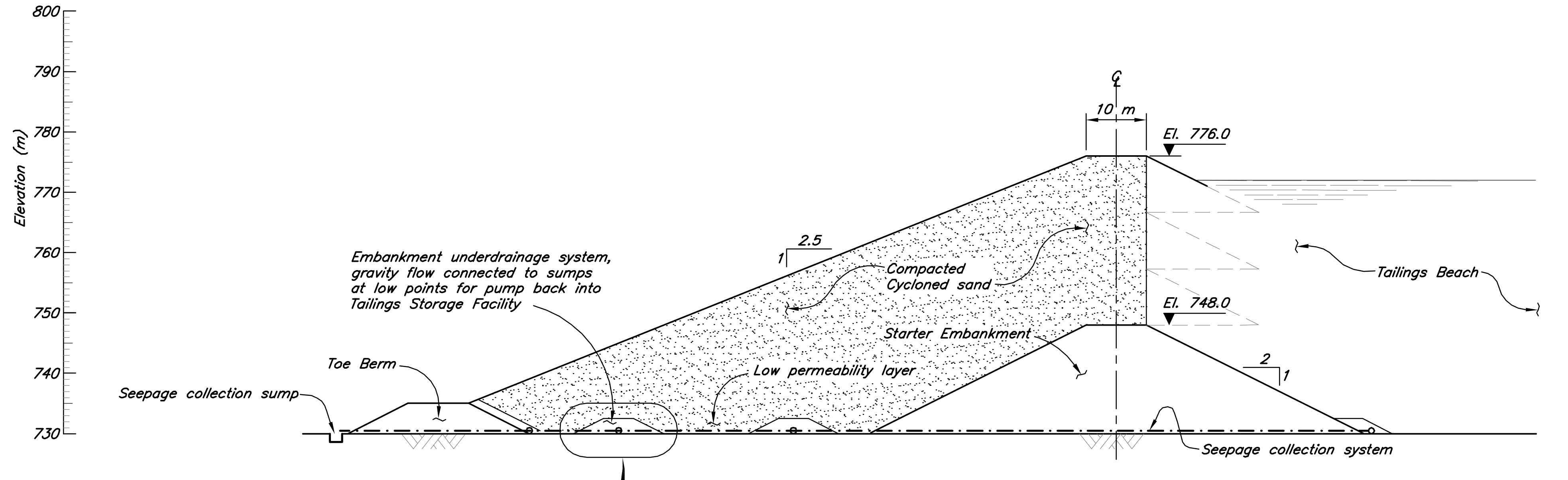
MIRADOR COPPER PROJECT

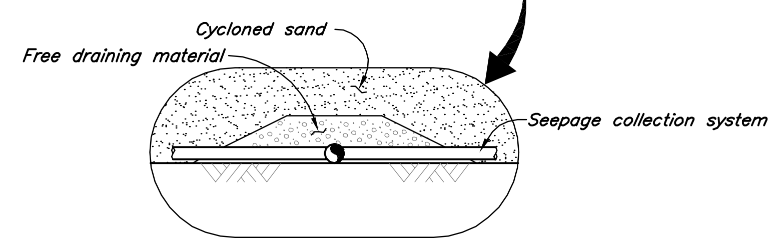
PANGUI TAILINGS MANAGEMENT FACILITY
FINAL ARRANGEMENT – PLAN

Knight Piésold CONSULTING

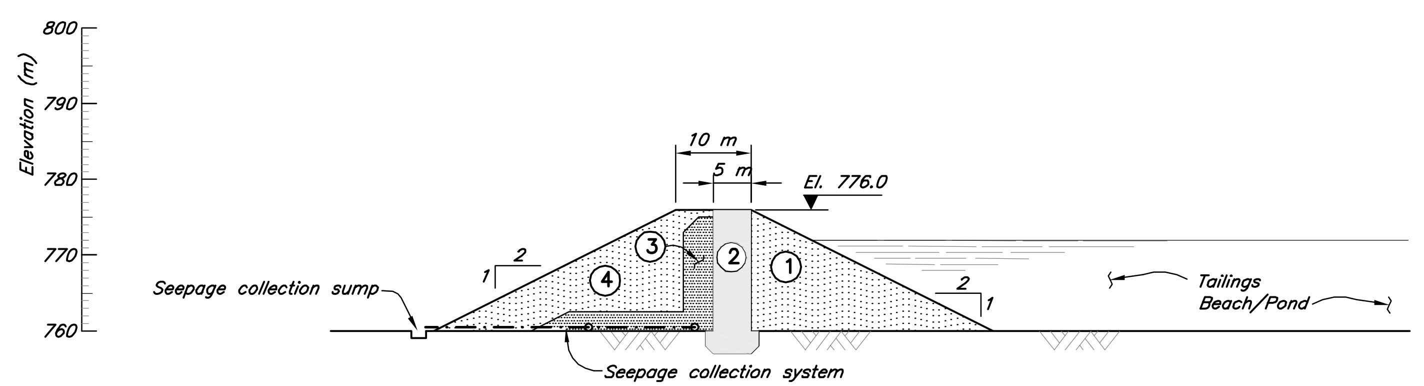
PROJECT/ASSIGNMENT NO.	REF. NO.	REV.
VA201-78/4	1	1

FIGURE 6.5





SECTION 1/FIGURE 2
MAIN EMBANKMENT



SECTION 2/FIGURE 2
SADDLE DAM

LEGEND

1. Upstream shell
2. Low permeability core
3. Filter Zone
4. Downstream shell

Scale 10 0 10 20 30 40 50 m

CORRIENTE RESOURCES INC.

MIRADOR COPPER PROJECT

PANGUI TAILINGS MANAGEMENT FACILITY
TYPICAL EMBANKMENT CROSS SECTIONS

Knight Piésold CONSULTING

PROJECT/ASSIGNMENT NO.	REF. NO.	REV.
VA201-78/4	1	0

FIGURE 6.6

REV. 1	18MAR'05	ISSUED FOR REPORT

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PHOTO 1 – Zamora River Ferry Crossing to gain access to the Mirador Mine Site.

PHOTO 2 – Southern Ridge of proposed Pangui TMF.

CORRIENTE RESOURCES INC.
PANGUI TAILINGS MANAGEMENT FACILITY (TMF)

PHOTO 3 – South East corner of proposed Pangui TMF.

PHOTO 4 – Western edge of Pangui TMF.