CORRIENTE
RESOURCES INC.

MIRADOR PROJECT

Bridge Review from Site to Puerto Bolivar, Ecuador

Merit Consultants International Inc.
1983 - 2003

OVER 20 YEARS OF SERVICE

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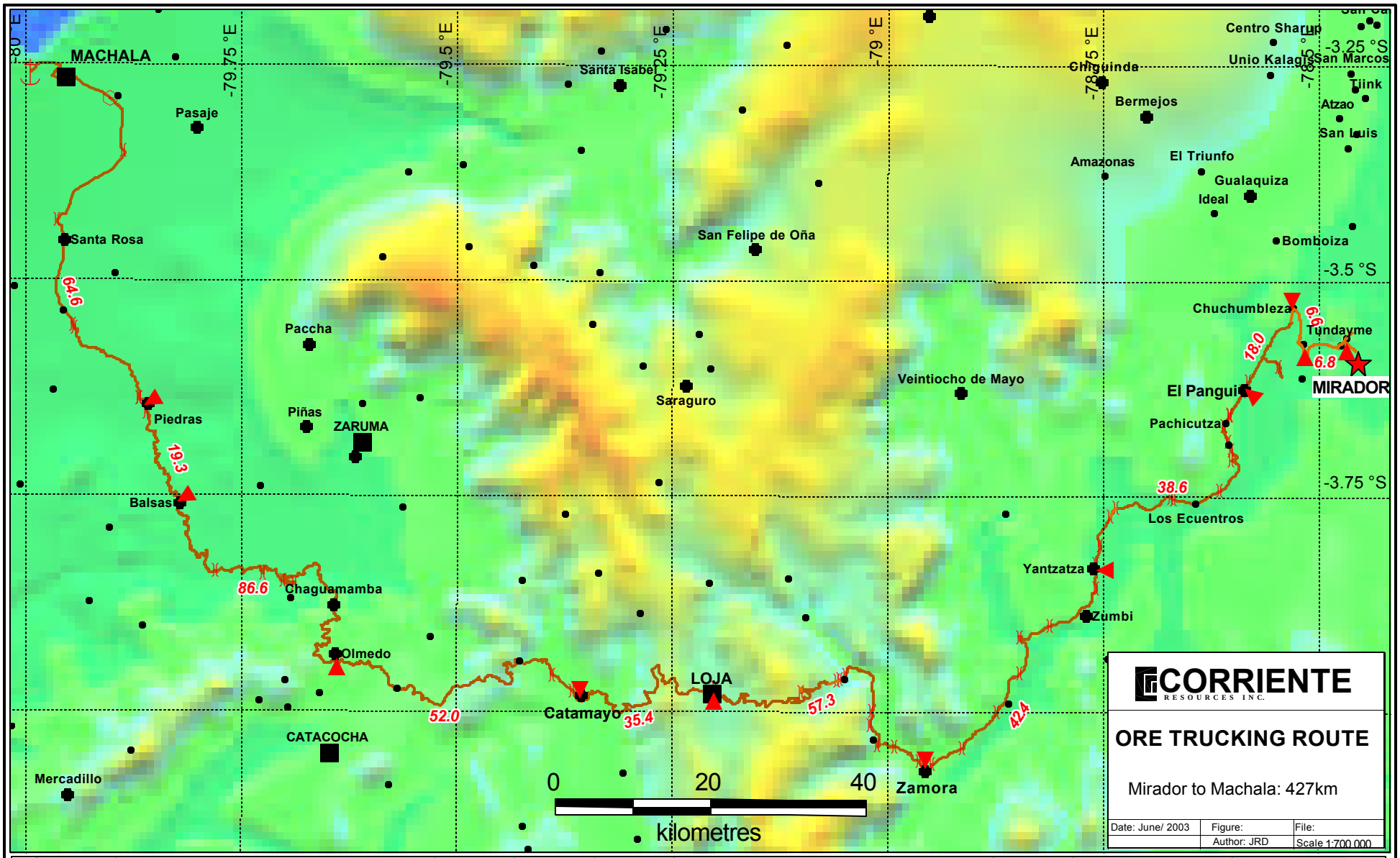
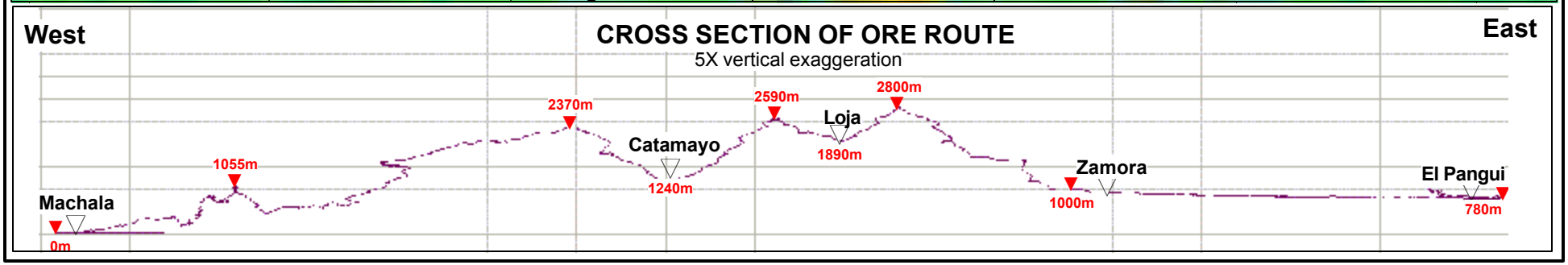


CORRIENTE RESOURCES INC.

ORE TRUCKING ROUTE

Mirador to Machala: 427km

Date: June/ 2003	Figure:	File:
	Author: JRD	Scale 1:700 000



Picture Title: BR01.jpg

Description:

The road from the site to the Zamora River, and then from the river to the junction with the Amazon Highway is approximately 6.5m in total. The road is relatively narrow and will need some upgrading to get to 6m wide, with a few minor slide areas to be managed. See the last photo in this report showing the road to the river from site.

The review of alternative river crossings has confirmed that a 155 m long span will be needed. It will be a 6m wide, timber and steel composite deck spanning the river to rest on piled concrete abutments on either side, although there is the suggestion that there is a rock outcrop on one side that will help reduce the span. Currently there is a ferry that crosses some 300m upstream from the proposed crossing but it will not be adequate for the construction period or the operating period when concentrate and supply trucks will need to cross the river.

The alternative crossing report is included in the appendices to the feasibility study.

Picture Title: BR03.jpg

Description:

This is the first bridge crossing on the Amazon Highway heading towards Loja and on to the coast.

Construction is typical of most of the small bridges on route. The style is a concrete box with wing walls on both up and down stream locations, a concrete kicker on each side of the travel width and about 6m wide, and 8m long. The bridge is in good condition for the traffic intended.

Picture Title: BR04.jpg

Description:

After the small town of El Pangui, the second bridge on the highway is the same as the previous, and in good condition for the traffic intended.

Picture Title: BR05.jpg

Description:

Same as previous, but with no kickers. Rails are typically concrete or concrete and steel rail.

Picture Title: BR06.jpg

Description:

Same as previous except with concrete kickers.

Picture Title: BR07.jpg

Description:

Concrete box section with wingwalls, but no handrails or kickers. This one is a narrower 5m wide running surface. There may be a need to install some concrete no post rails on either side for safety.

Picture Title: BR08.jpg

Description:

Typical bridge section the same as BR06.

Picture Title: BR09.jpg

Description:

Same as BR06. Some grading and ditching to do as the road rises away to the west - but very easy work and likely performed by government agency responsible.

Picture Title: BR10.jpg

Description:

Good construction similar to BR06.

Picture Title: BR11.jpg

Description:

Same as BR06.

Picture Title: BR12.jpg

Description:

Same as BR06

Picture Title: BR13.jpg

Description:

Same as BR06.

Picture Title: BR14.jpg

Description:

This bridge is being replaced by the local government authority. The new steel bridge sections had arrived and were sitting on the east side.

The span is about 15m long and of steel construction with concrete abutments and wing walls in good condition.

Picture Title: BR15.jpg

Description:

Same as BR06.

Picture Title: BR16.jpg

Description:

Same as BR06 except that the handrails have been removed and should be replaced.

Picture Title: BR17.jpg

Description:

This concrete bridge is in the town of Yantzanza. It has a running width of about 10m and has concrete side walls and is in good condition.

Picture Title: BR18.jpg

Description:

Same as BR06 but some handrailing needs to be replaced.

Picture Title: BR19.jpg

Description:

Same as BR06 but with hand railing to be replaced.

Picture Title: BR20.jpg

Description:

This b ridge is to be replaced by the federal government out of Quito. It has a capacity of 40T and the local quartz trucks have to be broken down to cross. The bridge comprises pre-cast concrete beams, and a concrete deck with side rails and a running width of about 10m.

Picture Title: BR21.jpg

Description:

All concrete with a 40ft long travel width of about 10m and in good shape.

Picture Title: BR22.jpg

Description:

Similar to BR21 with a travel width of nearly 10m.

Picture Title: BR23.jpg

Description:

Similar to BR22.

Picture Title: BR24.jpg

Description:

The gravel road ends here at Zamora and travels trough a relatively residential area to the next bridge. This one is in good shape, made of concrete, has a 10m wide travel width complete with railings and sidewalks.

Picture Title: BR25.jpg

Description:

Same as BR06 except this is an asphalt road.

Picture Title: BR26.jpg

Description:

Same as BR25.

Picture Title: BR27.jpg

Description:

This is a steel girder bridge, with a 10m wide travel width and in good condition.

Picture Title: BR28.jpg

Description:

Good condition bridge similar to BR21 except with a concrete wall side rail.

Picture Title: BR29.jpg

Description:

Same as BR21 except with a waterfall on the upstream end.

Picture Title: BR30.jpg

Description:

The road leading to this bridge is in the valley with some side slopes needing stabilization. The bridge is similar to BR21.

Picture Title: BR32.jpg

Description:

Similar to BR21

Picture Title: BR33.jpg

Description:

Similar to BR21.

Picture Title: BR34.jpg

Description:

While this bridge is in Loja and while in good shape it is unlikely to be used rather than BR35.

Picture Title: BR35.jpg

Description:

Good construction concrete bridge in Loja, full width and well used.

Picture Title: BR36.jpg

Description:

Bridge on the route through Catamayo - similar to BR21 with some remediation work to be done on the guard rail. The road that would be used would be around the town starting at this point.

Picture Title: BR37.jpg

Description:

Good quality arch bridge, full width.

Picture Title: BR38.jpg

Description:

Some 40kms further to the west of the previous bridge. Similar to BR21 with full travel width.

Picture Title: BR39.jpg

Description:

About 10 m long and similar to BR21.

Picture Title: BR40.jpg

Description:

Similar to BR21.

Picture Title: BR41.jpg

Description:

While the approaches are tight in both directions, we saw two heavily loaded transport trucks easily negotiate the road. Some additional structural review will need to be made of the centre support, but generally this 60m long bridge appears to be adequate.

Picture Title: BR42.jpg

Description:

Similar to BR21.

Picture Title: BR43.jpg

Description:

Good construction concrete arch bridge with full travel width.

Picture Title: BR44.jpg

Description:

Very close to previous bridge, and similar to BR21 but about 20m long.

Picture Title: BR45.jpg

Description:

Similar to BR21.

Picture Title: BR46.jpg

Description:

Similar to BR21.

There will be a need to find a better route around the town of Pledras before reaching this bridge. The town is well populated and the main access through is strewn with overhead electrical wires and people crossing with markets on both sides.

Picture Title: BR47.jpg

Description:

Bailey style bridge in good condition on the west side of Santa Rosa.

Picture Title: BR48.jpg

Description:

Last bridge on the route before meeting at Machala. Similar to BR21.

Picture Title: Road_to_ZomoraNarrows.jpg

Description:

Shows the gravel road from the site to the Zamora River that needs widening.