

The Dawnt-Lalibela RR50 Project

The Dawnt - Lalibela Rural Road is part of the all weather road from Alem Ketema to Sekota. While Alem Ketema is a small town located in the Amhara Region, Southern Zone, 183km away from Addis Ababa, Sokota is another small town located in Tigray Region,

Southern Zone, 283km away from Adwa. The Alem Ketema - Sekota R.R50 Project covers a total of 675km.

Historically, this route was the main link between Axum and Shoa. History narrates that Minilik II went on mule back to Adwa through this route, Haile Selassie to Maichew and now again, EPDRF made it the passage to reach Addis Ababa. It is also said that during the reign of Empress Zewditu, there was a telephone line along this route stretching from Addis Ababa to Mekele.

To open this historic route and make it accessible, BERTA undertook the construction of 119km distance of the road from Dawnt to Lalibela. This turnkey project has involved BERTA in the work of surveying, designing and constructing of the road. The project is

totally financed by the Government of the Federal Democratic Republic of Ethiopia. The client of the

project is the Amhara National Regional Government under the supervision of Ethiopian Road Authority.

From July 1993 to July 1998, the Consulting Engineer of the Project were Roughton International in collaboration with Dana Consult. Most of the supervision work has been carried out by Roughton International. From November 1998 upto the completion date of the project United Consulting Engineers (UNICONE) took over supervision.

The completed 119km of all weather gravel surface road will open up another sector of a vitally important historic place of Ethiopia and links the northern part of the country to the central plains of Shoa through the towns of Lalibela - Gashena - Kon - Dawnt in the Wadla Delanta district of Wallo. The construction site starts at Lalibela and ends at a place called Shoga within the same route, with 7km spur to Dawnt.

Constructing a road in this rugged terrain has been a challenge costing lots of sacrifices to the contractor financially, in time, loss in the lives of some of its devoted workforce and has taken seven years to



LOCATION MAP

Dawnt - Lalibela RR50 Project

Legend

- Road
- - - - - River
- Village

complete. The nonstop of land sliding of earth and large boulders are the other difficult happenings during and after the construction task. A road that is claimed as complete would be covered the next moment by an avalanche of sliding earth and rock totally blocking the way and requiring reconstruction. To date, the land sliding is a problem due to the nature of the terrain. It's recommended that effective maintenance crew has to be placed after handing over of the project.

The phenomenal result to all these sacrifices is that, the construction of the road has opened the region for future development.

The Dawnt - Lalibela Road passes through a rugged plain slope of Wollo cutting off rock hewn spectral mountain terrain characterizing wonders to the Ethiopian highlands. The meandering view of the road is breath taking once reached to spectacular mountain top.

The Ethiopian Orthodox Church believers take Lalibela as Jerusalem and the River Tekezie as River Jordan where Christians get baptised. As a place of Christian sanctuary, Ethiopian Orthodox believers flock to Lalibela once in a lifetime to be baptised in Tekezie River and pray in Lalibela monastery during Christmas. You will meet thousands of

barefooted Ethiopians walking from Gondar an Gojjam to Lalibella as a pilgrimage during Ethiopian Christmas.

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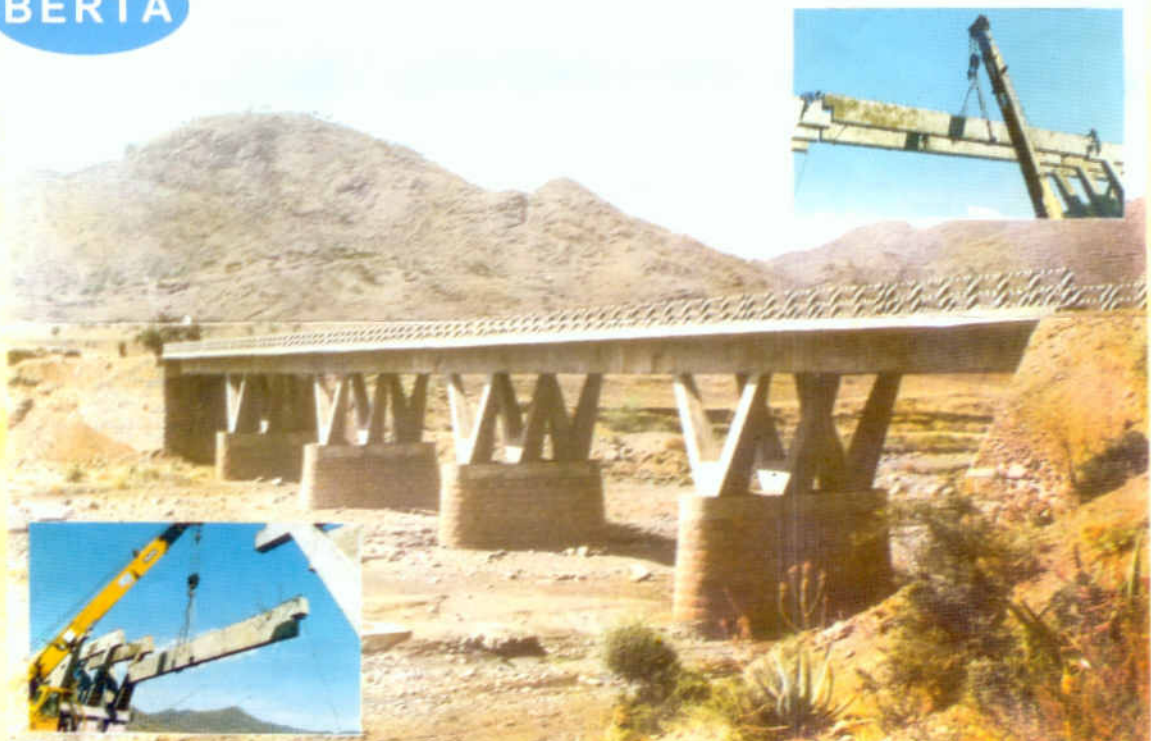


Bridge over Tekezie River - 43 mt long



The Holy place of Lalibela

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A Bridge over Kitchan Akaba River - 114mt long

The road stretching from Lalibela to Kon, approximately 80km, has been handed over and opened to traffic in April 1998. BERTA has taken extra effort to introduce new methods of bridge design and construction with the assistance of Roughton International. Precast concrete bridge at Ketechen Ababa 114mt long, container box 4 spans girder bridge total length of 178mt at Jitta river has posed an engineering challenge away from the traditional bridge design and construction method in practice in Ethiopia during the last 50 years.

These constructions with the latest state of the art concrete design are one of its only kinds in the country. The other bridges on Tekezie River, 43 meters

and Koga River, 28.3 meters, are major bridge construction works along the route.

Out of all the rivers along the route, Jitta is one of biggest tributaries of the Blue Nile. Prior to the construction of the bridge, the people on both sides of the country stayed apart during the rainy seasons.

MAJOR BRIDGES

Name of Major Bridges	No. of Span	Length of Span (m)	Total Length (m)
Jitta	4	43.88	175.52
Ketechen Abeba	5	2(20.5)+3(24.5)	114
Tekeze	1	43	43
Enchike	3	12	36
Koga	1	28.3	28.3
Fedengua	2	12	24

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Jitta River Bridge - 175.52 mt long

MAJOR WORKS EXECUTED AT DAWNT - LALIBELA RURAL ROAD PROJECT

Description	Unit	Original Estimate Work	Actual Work	% Increase
Common excavation	m3	1,010,200	2,110,000	109%
Rock excavation	m3	101,020	300,000	197%
Sub base	m3	129,600	107,100	(17%)
Bridge	No.	4	22	450%
Slab Culvert	No.	10	33	230%
Pipe Culvert	No.	160	238	49%

**COMPARISON OF ACTUAL QUANTITY OF COMMON EXCAVATION
VERSUS ESTIMATE IN TECHNICAL PROPOSAL**

Type of Terrain	Length (km)	Estimated		Actual Excavated		Difference in volume (m ³)
		Quantity Per km	Total Quantity (m ³)	Quantity Per km	Total Quantity (m ³)	
1	2	3	4=2 x 3	5	6	7= 6 - 4
Mountainous	62	11000m ³	682,000	24808.7	1,467,286.20	856,133.40
Hilly	23	7,700m ³	177,100	12858.7	269,456.70	118.638.70
Rolling	34	4,400m ³	149,600	8027.7	234,083.42	12,335.12
Flat	1.5	1,000m ³	1,500	2128	1,479.30	(-)1734.7
Total			1,010,200		2,110,000	1,099,800

A historic sight of an early Ethiopian route of Emperor Tewodros during the battle of Mekdella is named "Tewodros Gedel", where the Emperor and his thousand of bare footed soldiers from Gondar passed through the high terrain pulling up and down their only one canon "sebaztepol" and ammunitions.

challenging, very difficult and unreachable work and has succeeded to finish the project, with perseverance and determination.

The Company has given employment opportunities for over 2500 unskilled workers for the people of the Woreda. BERTA has also given wide range of

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Splitted Rock - 40 meters high

On the way, Emperor Tewodros left his golden cross at Shoga Medehanealem Monastery to collect it when he returns back. This is a reflection of an extra ordinary past that has left an indelible mark on the land, the people and Tewodros's monumental name.

This same terrain was once never conquered by the Italian invaders during their road construction days. Nevertheless, BERTA, in its motto to open the country for economic development, has undertaken this

opportunities and exposure for a good number of Civil Engineers working for the project who got first hand experiences in route surveying, road, bridge design and construction.

BERTA Construction company feels proud of overcoming such highly challenging task although much sacrifices has been paid. Currently, BERTA is carrying out the Dawnt - Wegeltena R.R. Project, 34.8km, an extension of Lalibela - Dawnt RR50