

EAST LONDON - UMTATA RAILWAY PROJECT

TASK 1

REFURBISHMENT OF THE EXISTING LINE



INTRODUCTION

BACKGROUND AND APPROACH

"To provide a safe condition and adequate standard (B Standard) for a 10 year period, and a maximum annual traffic volume of 2.5 million tons"

GEOGRAPHICAL AREAS

- ↗ Amabele - Kei River (Depot : Sihota)
- ↗ Kei River - Idutywa (Depot : Butterworth)
- ↗ Idutywa - Umtata (Depot : Umtata)

PHASED APPROACH

- ↗ Phase 1 - Replace 1:3 timber sleepers & make track safe
- ↗ Phase 2 - Replace remaining timber sleepers
 - Adjust fishplate gaps
 - (Beyond current scope of work)



SPOORNET RESPONSIBILITY

WEEDSPRAYING

- ↘ Existing Contract (Sprayed during December 2002)
- ↘ Followup in EIA report

PROCUREMENT & DELIVERY OF STEEL SLEEPERS

- ↘ 62 100 E3085 sleepers for Phase 1 (incl. Fastenings)
- ↘ Includes 2100 sleepers for the timber siding near Umtata
- ↘ 7 900 E3085 sleepers for Maintenance replacement



MAINTENANCE DURING REFURBISHMENT

ASSUMING TRAINS ARE RUNNING

- ↘ Contractor to complete 2 tasks
 - ⇒ Refurbishment
 - ⇒ Maintenance

ASSUMING NO TRAINS OPERATION

- ↘ ?

BEYOND THE CONTRACT

- ↘ ?



SUPERSTRUCTURE REFURBISHMENT

SLEEPER REPLACEMENT

- ↪ Obtain sleepers from Spoornet
- ↪ Distribute sleepers from Depots
- ↪ Remove & Replace timber sleepers with steel sleepers (1 in 3) for all track on timber bearers
- ↪ Retain check rail
- ↪ Pack sleepers with existing ballast
- ↪ Collect discarded timber, remove from site and stockpile

ALIGNMENT CORRECTION

[Refurbish to B standard according to Track Maintenance Manual 2000]

- ↪ Vertical
 - ⇒ add 70m³ / km
- ↪ Horizontal
 - ⇒ Jimcrowing rails as necessary



SUPERSTRUCTURE REFURBISHMENT

MAINTAIN TURNOUTS

- ↪ Servicing
- ↪ Screen all mainline turnouts to 5m beyond the turnout
- ↪ Replacement of components and welding repairs
- ↪ Recovery of abandoned materials
- ↪ Clearing of ballast
- ↪ Paint clearance markers and tumblers



SPREADING OF BALLAST

- ↪ Contractor to supply



SUPERSTRUCTURE REFURBISHMENT

FISHPLATE SERVICING

- ↪ Replacement of defective materials
- ↪ Replacement of ALL spring washers
- ↪ Remove, clean, grease and replace fishplates

RAIL REPAIRS AND MINOR REPLACEMENT

- ↪ Welding of battered ends and skidmarks
- ↪ Limited rail replacement



SUBSTRUCTURE REFURBISHMENT

CLEANING THE FORMATION

- ↪ Clear dead material and debris
- ↪ Shape formation
- ↪ Round Cuttings
- ↪ Tunnel clearances

SATURATED AREAS (3 - 5km)

- ↪ Reconstruction of the Track

MOIST AREAS

- ↪ Reinstate drainage
- ↪ Reassess the formation once it has dried out

DRY AREAS

- ↪ Suitable for 18.5 ton axle loads



OTHER INFRASTRUCTURE

FENCING

- ↳ Small stock fence
- ↳ Alternatives - bonnox
- ↳ On existing boundary

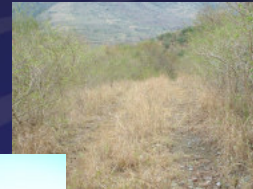
LEVEL CROSSINGS

- ↳ Legal Crossings
- ↳ Spoornet Specifications

SERVICE ROADS

BUSHCLEARING

- ↳ At Level Crossings for sight
- ↳ Structure gauge



STATION BUILDINGS

ASSESSMENT

- ↳ Restore existing buildings
- ↳ Approximate cost of R 2.6 million
- ↳ Operations requirements : 1 building at Umtata
- ↳ Potential uses ?



BRIDGES

CONCRETE BRIDGES

- ↳ Generally in satisfactory condition
- ↳ One bridge deck to be replaced



STEEL LATTICE GIRDER BRIDGES

- ↳ Constructed of Circa 1904 British steel members
- ↳ Bad corrosion in some areas
- ↳ Sand blasting necessary
- ↳ Sand blasting EMP



BRIDGES



STEEL PLATE GIRDER BRIDGES

- ↳ Better condition than lattice girder
- ↳ Corrosion is evident
- ↳ Wire brushing and painting required

STONE MASONRY

- ↳ 2 Bridges
- ↳ Both in satisfactory condition



SETTLEMENTS WITHIN THE RAIL RESERVE

SAFETY

DETERMINATION OF AFFECTED DWELLINGS

CONSULTATION PROCESS

RELOCATION OF AFFECTED HOUSEHOLDS



CONCLUSIONS

- ▶ 1:3 SLEEPER REPLACEMENT
- ▶ PHASED APPROACH - PHASE 1 NOW
- ▶ 18.5 TON AXLE LOADS
- ▶ LABOUR INTENSIVE METHODOLOGY THROUGHOUT



PROGRAMME

