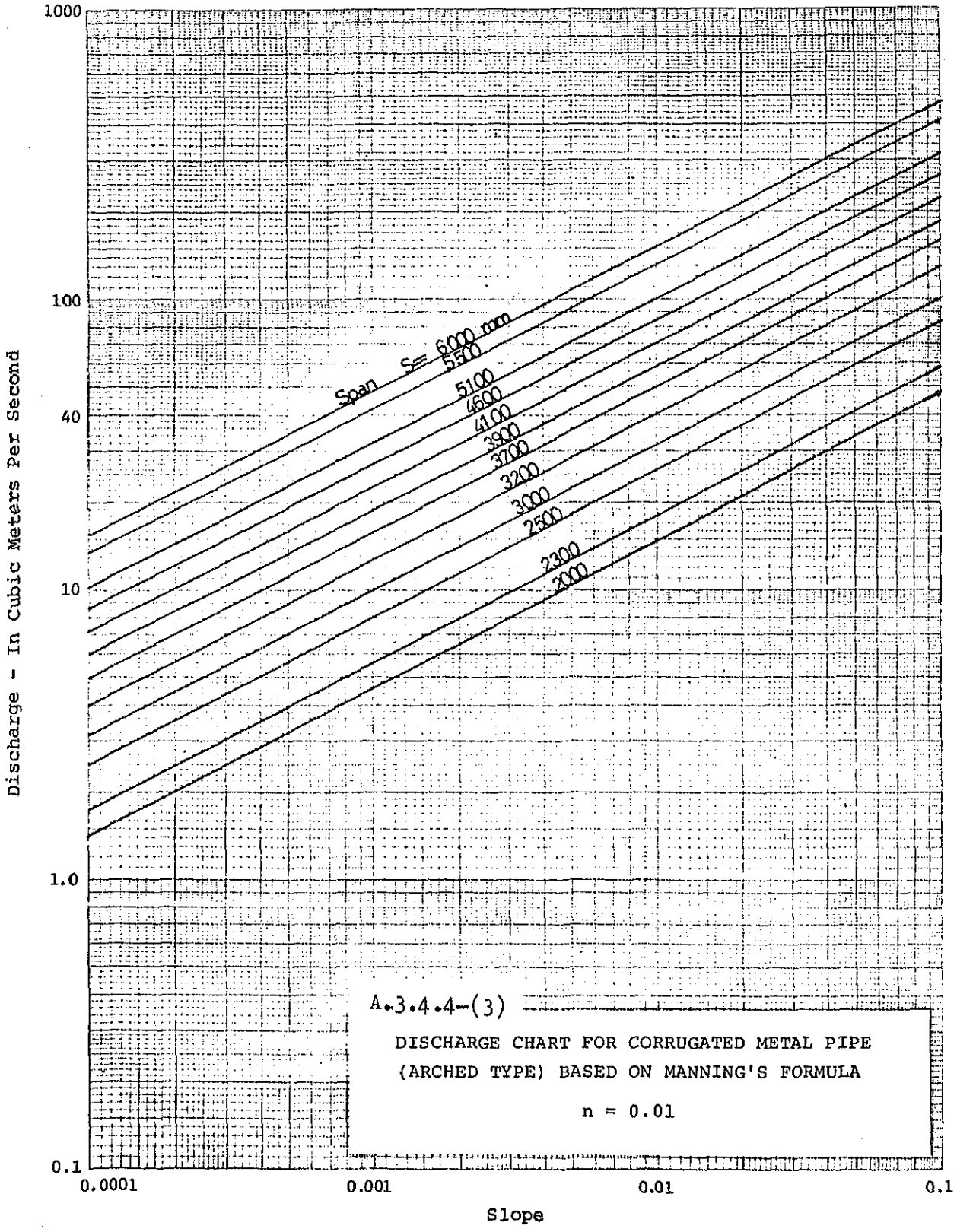



A.3.4.4-(3)

DISCHARGE CHART FOR CORRUGATED METAL PIPE
(ARCHED TYPE) BASED ON MANNING'S FORMULA

n = 0.01

A.3.4.4-(4)

## Run-off Calculation and Size of Culverts for Existing Streams

## Calcul de ruissellement et Grosseur des ponceaux pour tube de courant existant

$Q = \frac{1}{3.6} \times C \times \gamma \times A \ (m^3/sec)$

C : Run off coefficient 0.1
Coefficient de ruissellement 0.1

$\gamma$ : Average rainfall intensity (mm/h)
Intensité de la pluie moyenne

A : Basin area ($KM^2$)
Bassin versant

$t = \frac{L}{V}$ : Duration of rainfall (min)
Durée de précipitation pluviale

L : Run off distance (m)
Longueur en thalweg principal

V : Average run off velocity (m/sec)
Vélocité du courant moyenne

ø : Diameter of pipe (m)
Diamètre de tuyau

Pcor : Corrugated metal pipe
Tuyau ondulé en fer

PC : Concrete pipe
Tuyau en béton

C-Bx : Reinforced concrete box culvert
Dalot en béton armé

S : Corrugated metal pipe (arched type)
Tuyau onduleé en métal

A.3.4.4-(4)

| Station Position | River Rivière | L (KM) | t (min) | $\gamma$ (mm/h) | A ($KM^2$) | Q ($m^3$/sec) | Size of Culverts Grosseur de ponceaux: Alternative (a) | Alternative (b) | Remarks Remarque |
|---|---|---|---|---|---|---|---|---|---|
| 50 + 200 | | 12.0 | 1,492.0 | 4.9 | 55.0 | 7.4 | Pcor ø2.5 | Pcor ø2.9 | |
| + 500 | | 13.5 | 1,680.0 | 4.4 | 26.0 | 3.1 | 4-ø1.2 | 4-ø1.2 | |
| + 900 | | 29.0 | 3,610.0 | 1.9 | 92.0 | 4.9 | ø2.5 | 2-ø2.7 | |
| 54 + 600 | | 25.0 | 3,112.0 | 2.2 | 44.0 | 2.7 | 4-ø1.2 | 4-ø1.2 | |
| 55 + 200 | | 15.0 | 1,867.2 | 3.8 | 16.0 | 1.7 | ø1.8 | 2-ø2.0 | |
| 61 + 450 | Angwande | 4.0 | 497.9 | 15.0 | 10.9 | 4.2 | 6-ø1.2 | 3-ø1.2 | |
| 63 + 250 | Azame | 8.0 | 995.0 | 7.1 | 12.6 | 2.5 | ø2.0 | C-Box 2-(0.8x1.3) | |
| 64 + 600 | Abolo | 10.0 | 1,244.8 | 5.6 | 14.6 | 2.3 | ø1.8 | 8-ø0.6 | |
| 66 + 500 | Takao | 21.0 | 2,614.1 | 1.6 | 58.2 | 2.6 | ø2.0 | S-ø4.5 | |

| Station Position | River Rivière | L (KM) | t (min) | γ (mm/h) | A ($KM^2$) | Q ($m^3$/sec) | Size of Culverts Grosseur de ponceaux Alternative (a) | Alternative (b) | Remarks Remarque |
|---|---|---|---|---|---|---|---|---|---|
| 70 + 600 | | 1.5 | 186.7 | 25.0 | 1.6 | 1.1 | Pcor ø1.5 | PC ø0.6 | |
| 79 + 100 | | 2.3 | 286.3 | 19.0 | 2.0 | 1.0 | " ø1.5 | | |
| 80 + 400 | | 1.3 | 161.8 | 38.0 | 0.6 | 0.6 | PC ø0.8 | PC ø0.6 | |
| 80 + 550 | | 6.5 | 809.1 | 8.9 | 12.7 | 3.1 | Pcor 5-ø1.2 | Pcor 5-ø0.9 | |
| 92 + 450 | Tongbala | 6.0 | 746.8 | 9.4 | 12.3 | 3.2 | " 2-ø1.5 | " 2-ø1.0 | |
| + 800 | | 2.0 | 249.0 | 1.5 | 27.0 | 1.1 | " ø1.5 | | |
| 93 + 450 | | 1.5 | 186.7 | 34.0 | 1.0 | 0.9 | " ø1.5 | Pcor ø1.2 | |
| 98 + 650 | Bode | 12.0 | 1,493.8 | 4.9 | 58.0 | 7.9 | " 2-S3.0 | " 2-S3.6 | |
| 99 + 800 | | 5.5 | 684.6 | 12.0 | 12.1 | 4.0 | " 2-ø1.8 | " ø1.5 | |
| 101 + 400 | | 2.0 | 248.9 | 28.0 | 1.3 | 1.0 | " ø1.5 | PC ø0.6 | |
| 102 + 600 | | 2.5 | 311.2 | 22.0 | 1.8 | 1.1 | " ø1.5 | Pcor ø0.9 | |
| 105 + 750 | Mobe | 14.5 | 1,804.9 | 4.0 | 43.4 | 4.8 | " ø2.5 | " ø3.0 | |
| 106 + 800 | | 0.7 | 87.1 | 61.0 | 0.3 | 0.5 | " ø1.2 | PC ø0.6 | |
| 111 + 180 | Ambisode | 11.5 | 1,431.5 | 5.0 | 28.5 | 4.0 | " 2-S1.8 | Pcor 3-S1.8 | |
| 113 + 0 | Anbutuge | 18.5 | 2,302.9 | 3.0 | 36.4 | 3.0 | " 2-S1.5 | " 2-S1.5 | |
| + 500 | Atemae | 8.5 | 1,058.0 | 6.9 | 9.9 | 1.9 | " 2-ø1.5 | " 2-ø1.2 | |
| 114 + 900 | | 2.0 | 249.0 | 27.0 | 1.2 | 0.9 | " ø1.5 | PC ø0.6 | |
| 116 + 150 | | 7.0 | 871.4 | 8.2 | 9.9 | 2.2 | " ø1.8 | Pcor ø1.2 | |
| 117 + 300 | | 1.0 | 124.5 | 47.0 | 0.7 | 0.9 | " 2-ø1.0 | PC ø0.8 | |
| 118 + 650 | Andakode | 5.0 | 622.4 | 11.0 | 8.5 | 2.6 | " 2-ø1.5 | Pcor ø1.2 | |

| Station Position | River Rivière | L (KM) | t (min) | ℓ (mm/h) | A ($KM^2$) | Q ($m^3/sec$) | Size of Culverts Grosseur de ponceaux Alternative (a) | Alternative (b) | Remarks Remarque |
|---|---|---|---|---|---|---|---|---|---|
| 124 + 900 | Akolia | 12.0 | 1,493.8 | 4.9 | 32.3 | 4.4 | Pcor S-3.0 | Pcor S-1.8 | |
| 135 + 50 | Menueke | 2.0 | 249.0 | 27.0 | 1.7 | 1.2 | " 2-ø1.2 | | |
| 143 + 400 | | 20.0 | 2,489.6 | 1.8 | 55.2 | 2.7 | " S-2.3 | " S-4.8 | |
| 144 + 800 | | 4.0 | 497.9 | 15.0 | 7.8 | 3.2 | " S-3.2 | | |
| 148 + 400 | | 15.0 | 1,867.2 | 3.7 | 39.9 | 4.1 | " S-3.0 | " 2-S3.6 | |
| 173 + 100 | Sangara | 3.0 | 373.4 | 19.0 | 3.2 | 1.7 | " ø1.8 | " ø1.2<br>" 2-ø1.0 | |
| 174 + 900 | | 1.3 | 161.8 | 39.0 | 0.7 | 0.8 | " ø1.2 | " ø1.0 | |
| 175 + 800 | Mombulubulu | 5.0 | 622.4 | 12.0 | 7.4 | 2.5 | " ø2.0 | " ø1.0 | |
| 178 + 700 | Saela | 6.0 | 746.9 | 9.4 | 13.7 | 3.6 | " 2-ø1.8 | " 2-ø1.8 | |
| 181 + 800 | Malembazabene | 6.0 | 746.9 | 9.4 | 10.6 | 2.8 | " 2-ø1.5 | " 2-ø1.0 | |
| 185 + 900 | Lengelewa | 3.0 | 373.4 | 19.0 | 3.9 | 2.0 | " 2-ø1.5 | " ø1.0 | |
| 188 + 200 | | 8.5 | 1,058.1 | 6.9 | 29.2 | 5.6 | " 2-ø2.0 | " ø2.0 | |
| 194 + 500 | | 20.0 | 2,489.6 | 2.8 | 120.0 | 9.3 | " S-4.1 | " S-4.3 | |
| 198 + 500 | | 2.0 | 249.0 | 27.0 | 2.4 | 1.8 | " ø1.8 | " ø1.0 | |
| 201 + 100 | | 1.0 | 124.5 | 47.0 | 1.0 | 1.3 | " ø1.5 | | |
| 202 + 100 | Bengolobo | 3.5 | 435.7 | 17.0 | 4.2 | 2.0 | " 2-ø1.5 | PC 2-ø0.8 | |
| 203 + 900 | Kole | 15.5 | | | 39.5 | | | | |
| 231 + 600 | Banzua | 12.0 | 1,493.8 | 4.8 | 23.9 | 3.2 | " S-2.5 | Pcor 2-S2.4 | |
| 232 + 600 | | 9.0 | 1,120.0 | 6.5 | 70.0 | 12.6 | " 2-ø2.26 | " 2-ø2.6 | |
| 236 + 800 | Mopondo | 19.5 | 2,427.4 | 2.9 | 102.3 | 8.2 | " 2-ø2.5 | " 2-ø3.8 | |

| Station Position | River Rivière | L (KM) | t (min) | γ (mm/h) | A ($KM^2$) | Q ($m^3$/sec) | Size of Sulverts Grosseur de ponceaux Alternative (a) | Alternative (b) | Remarks Remarques |
|---|---|---|---|---|---|---|---|---|---|
| 237 + 800 | Lembumbu | 9.5 | 1,182.6 | 6.0 | 18.4 | 3.1 | Pcor 2-ø1.5 | PC 2-ø0.8 | |
| 242 + 700 | | 2.5 | 311.2 | 22.0 | 11.1 | 6.8 | " 2-ø2.0 | Pcor 2-ø1.2 | |
| 243 + 800 | | 3.5 | 435.7 | 17.0 | 4.9 | 2.3 | " 2-ø1.5 | " 2-ø1.2 | |
| 245 + 500 | | 6.0 | 746.9 | 9.5 | 11.7 | 3.1 | " 2-ø1.5 | " 2-ø1.2 | |
| 249 + 600 | Mbe | 11.0 | 1,369.3 | 5.3 | 64.1 | 9.4 | " S-4.0 | | |
| 251 + 700 | | 3.0 | 373.4 | 19.0 | 2.5 | 1.3 | " 3-ø1.0 | " 3-ø1.0 | |
| 261 + 900 | Ejongo | 10.0 | 1,244.8 | 5.3 | 27.5 | 4.0 | " 3-ø1.5 | " 3-ø1.8 | |
| 262 + 800 | Bnogamaga | 6.5 | 809.1 | 8.9 | 12.7 | 3.1 | " 3-ø1.5 | " 3-ø0.9 | |
| 266 + 100 | Bondo | 5.5 | 684.6 | 11.0 | 6.4 | 1.9 | " 3-ø1.2 | " 3-ø1.0 | |
| 268 + 0 | Bondua | 5.0 | 622.4 | 11.0 | 8.0 | 2.9 | " ø1.8 | " ø1.8 | |
| 270 + 0 | | 1.5 | 186.7 | 34.0 | 1.0 | 0.9 | " 2-ø1.0 | " 2-ø1.0 | |
| 271 + 500 | | 1.0 | 124.5 | 47.0 | 1.5 | 1.9 | " 2-ø1.5 | " 2-ø1.0 | |
| 277 + 0 | Bode | 6.0 | 746.9 | 9.5 | 11.4 | 3.0 | " S-2.5 | " S-4.0 | |
| + 200 | Bode-Manene | 5.5 | 684.6 | 12.0 | 5.7 | 1.9 | " S-ø1.2 | " S-ø1.0 | |
| 288 + 200 | Yagi | 4.5 | 560.1 | 13.0 | 5.7 | 2.0 | " S-2.0 | " S-4.0 | |
| 292 + 700 | | 4.5 | 560.1 | 13.0 | 12.9 | 4.7 | " S-3.0 | " S-4.0 | |
| 294 + 900 | | 20.0 | 2,489.6 | 1.8 | 99.0 | 5.0 | " S-3.2 | " 2S-5.0 | |
| 299 + 300 | | 6.0 | 746.9 | 9.5 | 9.7 | 2.6 | " ø2.0 | " ø3.0 | |
| 302 + 550 | | 7.5 | 933.6 | 7.8 | 12.6 | 3.2 | " 2-ø1.5 | " 2-ø1.0 | |
| 310 + 600 | Mabagamu | 4.0 | 497.9 | 15.0 | 7.7 | 3.2 | " ø2.5 | " ø3.0 | |
| 315 + 800 | | 5.5 | 684.6 | 12.0 | 12.0 | 4.0 | " 3-ø1.5 | " ø1.0 | |

| Station Position | River Rivière | L (KM) | t (min) | γ (mm/h) | A ($KM^2$) | Q ($m^3/sec$) | Size of Culverts Grosseur de ponceaux Alternative (a) | Alternative (b) | Remarks Remarques |
|---|---|---|---|---|---|---|---|---|---|
| 317 + 400 | | | | | | | | | |
| From de Buta | | | | | | | | | |
| 2 + 600 | | 1.8 | 252.3 | 27.0 | 1.0 | 0.8 | Pcor ø1.2 | | |
| 13 + 50 | Nguru | 4.0 | 827.6 | 8.8 | 3.0 | 0.7 | " ø1.5 | Pcor ø1.9 | |
| 14 + 0 | Malikuta | 8.0 | 1,655.2 | 4.4 | 18.7 | 2.3 | " ø2.5 | " ø3.0 | |
| 19 + 500 | Lingiba | 5.5 | 1,137.9 | 6.5 | 12.4 | 2.2 | " ø2.5 | " ø3.0 | |
| 22 + 100 | Kon | 3.0 | 620.7 | 11.0 | 2.0 | 0.6 | " ø1.5 | " ø1.2 | |
| 41 + 300 | Gombo | 7.5 | 1,551.7 | 4.6 | 27.4 | 3.5 | " S-3.2 | " S-3.0 | |
| 54 + 700 | Maze | 100.0 | 13,953.5 | 0.3 | 350.0 | 2.9 | " ø2.0 | " 2-ø3.5 | |
| 58 + 150 | Mafari | 11.5 | 1,604.7 | 4.8 | 27.2 | 3.6 | " ø2.5 | " ø3.0 | |
| 66 + 50 | Bilo | 40.0 | 5,581.4 | 1.0 | 510.0 | 14.1 | " 3-ø3.0 | " 3-ø4.0 | |
| 69 + 250 | | 2.0 | 279.1 | 24.0 | 2.3 | 1.7 | ø1.8 | " ø1.2 | |
| From de Dulia | | | | | | | | | |
| 2 + 300 | Mogengia | 4.0 | 558.1 | 14.0 | 4.5 | 1.8 | Pcor 2-ø1.8 | Pcor 2-ø1.0 | |
| 11 + 800 | Masipiri | 1.0 | 139.5 | 43.0 | 0.6 | 0.7 | " 2-ø1.0 | " 2-ø1.0 | |
| 13 + 900 | Maburuka | 18.5 | 2,581.4 | 2.7 | 77.0 | 5.7 | " S-3.0 | " S-3.2 | |
| 16 + 900 | Nabuma | 15.0 | 2,093.0 | 3.5 | 44.5 | 4.3 | " S-3.0 | " S-3.0 | |
| 21 + 0 | Makusi | 3.0 | 418.6 | 18.0 | 3.0 | 1.5 | " ø1.5 | " ø1.0 | |
| 26 + 800 | Nagobero | 15.0 | 2,093.0 | 3.5 | 45.5 | 4.4 | " S-3.0 | " S-3.0 | |

| Station Position | River Rivière | L (KM) | t (min) | γ (mm/h) | A ($KM^2$) | Q ($m^3/sec$) | Size of Sulverts Grosseur de ponceaux Alternative (a) | Alternative (b) | Remarks Remarques |
|---|---|---|---|---|---|---|---|---|---|
| 29 + 500 | | 1.0 | 139.5 | 43.0 | 0.8 | 0.9 | Pcor 2-ø1.0 | Pcor 2-ø1.0 | |
| 30 + 550 | Nangende | 1.0 | 139.5 | 43.0 | 0.6 | 0.7 | " 2-ø1.0 | " 2-ø1.0 | |
| 33 + 450 | | 8.5 | 1,186.0 | 6.0 | 22.3 | 3.7 | " ø2.5 | " ø1.5 | |
| 37 + 250 | | 1.0 | 139.5 | 43.0 | 0.4 | 0.5 | " ø1.2 | | |
| 38 + 750 | | 0.7 | 97.7 | 55.0 | 0.2 | 0.3 | " ø1.0 | " ø1.0 | |
| 39 + 200 | Mango | 20.0 | 2,790.7 | 2.6 | 65.0 | 4.7 | " S-3.0 | " S-3.0 | |
| 43 + 400 | Namenimbala | 21.0 | 2,930.0 | 2.3 | 56.0 | 3.6 | " ø2.5 | " ø1.8 | |
| 47 + 300 | Kpoyo | 11.0 | 1,534.9 | 4.8 | 39.7 | 5.3 | " ø2.5 | " ø2.5 | |
| 48 + 700 | | 4.0 | 558.1 | 14.0 | 5.8 | 2.2 | " 2-ø1.5 | " 2-ø1.0 | |
| + 900 | | 5.0 | 697.7 | 10.0 | 3.9 | 1.1 | " ø1.5 | " 2-ø1.0 | |
| 51 + 600 | | 2.0 | 279.1 | 25.0 | 3.0 | 2.1 | " ø1.8 | " ø1.5 | |
| 52 + 900 | | 4.5 | 627.9 | 11.5 | 11.0 | 3.5 | " ø2.5 | " ø1.0 | |
| 55 + 600 | | 4.5 | 627.9 | 11.5 | 9.0 | 2.9 | " ø2.0 | " ø1.0 | |
| 66 + 500 | | 3.0 | 418.6 | 18.0 | 4.8 | 2.4 | " ø1.8 | " ø1.0 | |
| 69 + 300 | | 4.0 | 558.1 | 14.0 | 11.3 | 4.4 | " ø2.5 | " ø1.0 | |
| 70 + 300 | Malikambe | 7.5 | 1,046.5 | 6.9 | 12.3 | 2.4 | " ø1.8 | " 2-ø1.0 | |
| 75 + 100 | Bolongo | 5.0 | 697.7 | 10.0 | 10.0 | 2.8 | " ø2.0 | " 2-ø1.0 | |
| 82 + 200 | Maniuna | 8.0 | 1,116.2 | 6.5 | 4.7 | 0.8 | " ø1.5 | " ø1.5 | |
| 83 + 600 | | 23.5 | 3,279.0 | 2.1 | 78.0 | 4.6 | " ø2.5 | " ø2.5 | |
| 88 + 80 | | 1.0 | 139.5 | 43.0 | 0.3 | 0.4 | " ø1.0 | " ø1.0 | |
| 90 + 400 | | 4.0 | 558.1 | 13.0 | 3.0 | 0.4 | " ø1.0 | " ø1.0 | |

| Station Position | River Rivière | L (KM) | t (min) | γ (mm/h) | A ($KM^2$) | Q ($m^3/sec$) | Size of Culverts Grosseur de ponceaux | | Remarks Remarques |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Alternative (a) | Alternative (b) | |
| 91 + 500 | | 8.0 | 1,116.2 | 6.2 | 10.5 | 1.8 | Pcor 2-ø1.2 | Pcor 2-ø1.0 | |
| 98 + 700 | Kulumonene | 5.5 | 767.4 | 9.4 | 8.8 | 2.3 | " 2-ø1.2 | " 2-ø1.0 | |
| 106 + 300 | | 2.0 | 279.1 | 25.0 | 2.0 | 1.4 | " ø1.5 | | |
| 108 + 400 | | 2.3 | 320.9 | 21.5 | 2.5 | 1.5 | " ø1.5 | " ø1.0 | |
| 110 + 0 | | 3.5 | 488.3 | 15.0 | 5.1 | 2.1 | " ø1.8 | " ø1.0 | |
| 111 + 0 | | 2.0 | 279.1 | 25.0 | 1.4 | 1.0 | " ø1.5 | " ø1.0 | |
| 113 + 0 | | 8.0 | 1,116.2 | 6.5 | 18.7 | 3.4 | " 2-ø1.8 | " ø1.0 | |
| 118 + 400 | Keda | 4.5 | 627.9 | 11.5 | 10.8 | 3.4 | " 2-ø1.8 | | |
| 120 + 550 | Mizaka | 5.5 | 767.4 | 9.4 | 6.3 | 1.6 | " 2-ø1.2 | " 2-ø1.0 | |
| 124 + 80 | Masingi | 2.0 | 279.0 | 25.0 | 1.6 | 1.1 | " 2-ø1.0 | " 2-ø1.0 | |
| 131 + 500 | Kule | 12.0 | 1,674.4 | 4.3 | 39.1 | 4.6 | " ø2.5 | " ø1.5 | |
| 135 + 400 | Bangoloma | 3.5 | 488.3 | 15.0 | 3.6 | 1.5 | " 2-ø1.2 | " ø1.0 | |
| 137 + 100 | Gindi | 6.0 | 837.2 | 8.7 | 6.8 | 1.6 | " 2-ø1.5 | " 2-ø1.0 | |
| 141 + 300 | Kingile | 20.0 | 2,790.7 | 2.6 | 139.4 | 10.0 | " S-4.6 | " ø1.0 | |
| 143 + 900 | | 1.0 | 139.5 | 43.0 | 0.2 | 0.2 | " ø1.0 | " 2-ø1.0 | |
| 146 + 500 | Mangalo | 11.0 | 1,534.9 | 4.8 | 27.3 | 3.0 | " 2-ø1.5 | " 2-ø1.0 | |
| 147 + 700 | Dibgo | 5.0 | 697.7 | 10.0 | 10.1 | 2.8 | " 2-ø1.5 | " ø1.5 | |
| 151 + 0 | Mabali | 1.0 | 139.5 | 43.0 | 0.8 | 1.0 | " ø1.5 | " ø1.0 | |
| 152 + 900 | Maluga | 17.0 | 2,372.1 | 3.3 | 54.9 | 5.0 | " ø2.5 | " ø3.5 | |
| 160 + 600 | Bagu | 1.0 | 139.5 | 43.0 | 0.9 | 1.1 | " ø1.5 | " ø1.0 | |
| 162 + 200 | | 2.2 | 307.0 | 22.0 | 2.6 | 1.6 | " ø1.5 | " ø1.0 | |

| Station Position | River Rivière | L (KM) | t (min) | γ (mm/h) | $A_2$ ($KM^2$) | Q ($m^3$/sec) | Size of Culverts Grosseur de ponceaux Alternative (a) | Alternative (b) | Remarks Remarque |
|---|---|---|---|---|---|---|---|---|---|
| 162 + 750 | Mangoli | 4.5 | 627.9 | 11.5 | 7.6 | 2.4 | Pcor ø2.0 | Pcor ø1.0 | |
| 163 + 100 | Bavula | 2.0 | 279.1 | 25.0 | 1.4 | 1.0 | " ø1.5 | " ø1.0 | |
| + 900 | " | 4.5 | 627.9 | 11.5 | 6.1 | 1.9 | " 2-ø1.5 | " 2-ø1.0 | |
| 165 + 700 | Namangava | 2.5 | 348.8 | 20.0 | 2.5 | 1.4 | " ø1.5 | " ø1.0 | |
| 167 + 900 | Mambia | 12.5 | 1,744.2 | 4.1 | 12.4 | 1.4 | " ø1.5 | " ø1.5 | |
| 176 + 0 | | 0.7 | 97.7 | 56.0 | 0.2 | 0.3 | " ø1.0 | " ø1.0 | |
| + 500 | | 0.7 | 97.7 | 56.0 | 0.2 | 0.3 | " ø1.0 | " ø1.0 | |
| 181 + 400 | Lobi | 3.0 | 418.6 | 18.0 | 3.3 | 1.6 | " ø1.8 | | |
| 184 + 800 | " | 0.5 | 69.7 | 71.0 | 0.2 | 0.4 | " ø1.0 | " ø1.0 | |
| 186 + 950 | Duo (Nduo) | 8.0 | 1,116.2 | 6.5 | 16.7 | 3.0 | " ø2.5 | " ø1.0 | |
| 188 + 500 | Yangola | 11.0 | 1,534.9 | 4.8 | 29.2 | 3.9 | " ø2.5 | " ø1.5 | |
| 192 + 600 | Monbulu | 7.0 | 976.7 | 7.2 | 13.6 | 2.7 | " 2-ø1.5 | " 2-ø1.0 | |
| 193 + 100 | Mabulu | 2.0 | 279.1 | 25.0 | 1.6 | 1.1 | " ø1.5 | " ø1.0 | |
| 194 + 200 | " | 2.5 | 348.8 | 20.0 | 1.7 | 0.9 | " ø1.5 | " ø1.0 | |
| 195 + 900 | | 1.0 | 139.5 | 43.0 | 0.3 | 0.4 | " ø1.0 | " ø1.0 | |
| 197 + 100 | Digbala | 8.0 | 1,116.2 | 6.5 | 10.5 | 1.8 | " 2-ø1.5 | " ø1.0 | |
| 198 + 150 | | 1.8 | 251.1 | 27.0 | 1.1 | 0.8 | " ø1.5 | " ø1.0 | |
| 199 + 900 | Digbala | 8.0 | 1,116.2 | 6.5 | 1.4 | 0.3 | " ø1.0 | " 2-ø1.0 | |
| 204 + 600 | | 2.0 | 279.1 | 25.0 | 2.5 | 1.7 | " 2-ø1.5 | " ø1.0 | |
| 212 + 100 | Lobi | 50.0 | 6,976.7 | 0.8 | 450.0 | 10.0 | " S-3.7 | " S-3.7 | |
| 216 + 300 | | 1.5 | 209.3 | 32.0 | 0.5 | 0.4 | " ø1.0 | " ø1.0 | |

| Station Position | River Rivière | L (KM) | t (min) | γ (mm/h) | A ($KM^2$) | Q ($m^3$/sec) | Size of Culverts Grosseur de ponceaux Alternative (a) | Alternative (b) | Remarks Remarque |
|---|---|---|---|---|---|---|---|---|---|
| 222 + 600 | | 1.0 | 139.5 | 43.0 | 0.3 | 0.4 | Pcor ø1.0 | Pcor ø1.0 | |
| 230 + 900 | Pangabiso | 3.5 | 488.3 | 15.0 | 3.1 | 1.3 | " ø1.5 | " ø1.0 | |
| 236 + 600 | | 2.5 | 348.8 | 20.0 | 3.1 | 1.7 | " ø1.8 | " ø1.0 | |
| 237 + 900 | Duku | 8.0 | 1,116.2 | 6.5 | 21.0 | 3.8 | " 2-ø1.8 | " ø1.8 | |
| 240 + 300 | Makuru | 1.5 | 209.3 | 32.0 | 0.8 | 0.7 | " ø1.2 | " ø1.0 | |
| 243 + 100 | Bafumbu | 4.5 | 627.9 | 11.5 | 5.9 | 1.9 | " ø1.8 | " 2-ø1.0 | |
| 245 + 500 | Ingumbio | 8.5 | 1,186.0 | 6.0 | 15.6 | 2.6 | " 2-ø1.5 | " ø1.0 | |
| 248 + 400 | | 8.0 | 1,116.2 | 6.5 | 13.4 | 2.4 | " 2-ø1.5 | " S-3.7 | |
| 250 + 400 | Dindo (II) | 5.0 | 697.7 | 10.0 | 6.0 | 1.7 | " ø1.8 | " S-3.0 | |
| 252 + 700 | " (III) | 4.0 | 558.1 | 13.0 | 6.3 | 2.3 | " 2-ø1.5 | " ø1.0 | |
| 265 + 100 | Logbo | 11.0 | 1,534.9 | 4.8 | 56.5 | 7.5 | " S-3.9 | " ø1.5 | |
| 276 + 100 | Luba | 11.0 | 1,534.9 | 4.8 | 43.4 | 5.8 | " S-3.2 | " S-3.2 | |
| 292 + 800 | Balinga (Boloko) | 32.0 | 4,465.1 | 1.4 | 189.0 | 7.4 | " S-3.9 | " S-3.2 | |
| 295 + 0 | Bainga | 6.0 | 837.2 | 8.7 | 10.6 | 2.6 | " ø2.0 | " ø1.5 | |
| 300 + 500 | Popwo | 5.0 | 697.7 | 10.0 | 13.3 | 3.7 | " ø2.5 | " ø1.8 | |
| 303 + 500 | | 21.0 | 2,930.2 | 2.3 | 122.6 | 7.8 | " S-3.9 | " S-3.0 | |
| 316 + 600 | Yabongo | 6.5 | 907.0 | 7.2 | 17.7 | 3.5 | " S-2.5 | " S-3.0 | |

Total 167 locations

In this project road improvement additional pipes of ø1.0m are constructed at 406 locations where are considered to be necessary through the field survey and are all shown in Plates B.1.1 - B.1.19.

Dans la route ameliorée de projet additionnelle les tuyaux de ø1.0m ont construit à locations 406 où ils ont considéré nécessaire à cause de additionnelle les tuyaux de ø1.0m ont construit à locations qui ont indiqué toutes les Planches B.1.1 ~ B.1.19.

A.3.4.5

## Distribution of Soils along Project Road and Appropriate Pavement Types

## Distribution des sols le long de la Route de projet et types du revêtement approprié

| Section / Tronçon | Station / Point d'étude | Length along Existing Road / Longueur du long de route existante | Soils Classification / Classification des Sols — AASHO | | | | | | | | Pavement Types / Types du revêtement | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | A-2-4 | A-2-6 | A-2-7 | A-4 | A-6 | A-7-5 | A-7-6 | Casagrande | I | II | III | IV | V |
| (Kisangani) | PK PK | km | | | | | | | | | Alternative I / Alternative II | | | | |
| | 3.6 - 28.5 | 24.9 | | | | | o | | | SC | | | o | | II |
| 10 | 28.5 - 35.0 | 6.5 | | o | | | | | | SC | o | | | | |
| | 35.0 - 50.0 | 15.0 | o | | | | | | | SC | o | | | | |
| | Total | 46.4 | | | | | | | | | | | | | |
| (Bengamisa) | | | | | | | | | | | | | | | |
| | 50.0 - 54.0 | 4.0 | o | | | | | | | SC | o | | | | |
| | 54.0 - 68.0 | 14.0 | | | | | o | | | SC | | | o | | |
| | 68.0 - 89.3 | 21.3 | | | | | o | | | CL | | | o | | |
| 9 | 89.3 - 102.8 | 13.5 | | | | o | | | | SC | | o | | | |
| | 102.8 - 104.75 | 1.95 | | o | | | | | | SC | o | | | | |
| | 104.75 -123.9 | 19.15 | | | | | o | | | SC | | | o | | |
| | 123.9 - 129.0 | 5.1 | o | | | | | | | SC | o | | | | |
| | Total | 79.0 | | | | | | | | | | | | | |
| (Banalia) | | | | | | | | | | | Alternative I | | | | Alternative II |
| 8 | 129.0 - 148.0 | 19.0 | | | o | | | | | SC | | o | | | o |
| | 148.0 - 154.0 | 6.0 | | | | | | | o | SC | | | o | | o |

A.3.4.5

| Section / Tronçon | Station / Point d'étude | Length along Existing Road / Longueur du long de route existante | Soils Classification / Classification des Sols — AASHO | | | | | | | | Pavement Types / Types du revêtement | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | A-2-4 | A-2-6 | A-2-7 | A-4 | A-6 | A-7-5 | A-7-6 | Casagrande | I | II | III | IV | V |
| | PK PK | km | | | | | | | | | Alternative I | | | | Alternative II |
| | 154.0 - 158.0 | 4.0 | | | o | | | | | SC | | o | | | o |
| | 158.0 - 159.0 | 1.0 | | | | | | | o | SC | | | o | | o |
| | 159.0 - 160.7 | 1.7 | | | o | | | | | SC | | o | | | o |
| | 160.7 - 161.75 | 1.05 | | | | | o | | | SC | | | o | | o |
| | 161.75 -162.8 | 1.05 | | | o | | | | | SC | | o | | | o |
| 8 | 162.8 - 165.1 | 2.3 | | | | | o | | | SC | | | o | | o |
| | 165.1 - 168.1 | 3.0 | | | o | | | | | SC | | o | | | o |
| | 168.1 - 180.4 | 12.3 | | | | | | | o | SC | | | o | | o |
| | 180.4 - 188.3 | 7.9 | | o | | | | | | SC | o | | | | o |
| | 188.3 - 191.5 | 3.2 | | | | | o | | | SC | | | o | | o |
| | 191.5 - 206.0 | 14.5 | | o | | | | | | SC | o | | | | o |
| | Total | 77.0 | | | | | | | | | | | | | |
| (Kole) | | | | | | | | | | | | | | | |
| 7 | 206.0 - 230.0 | 24.0 | | o | | | | | | SC | o | | | | o |
| | 230.0 - 235.8 | 5.8 | | | | | o | | | SC | | | o | | o |
| | Total | 29.8 | | | | | | | | | | | | | |
| (Tele) | | | | | | | | | | | | | | | |
| | 235.8 - 237.0 | 1.2 | | | | | o | | | SC | | | o | | o |
| 6 | 237.0 - 238.5 | 1.5 | | o | | | | | | SC | o | | | | o |
| | 238.5 - 240.5 | 2.0 | | | | | o | | | SC | | | o | | o |
| | 240.5 - 246.9 | 6.4 | | o | | | | | | SC | o | | | | o |

| Section / Tronçon | Station / Point d'étude PK | PK | Length along Existing Road / Longueur du long de route existante km | Soils Classification / Classification des sols — AASHO A-2-4 | A-2-6 | A-2-7 | A-4 | A-6 | A-7-5 | A-7-6 | Casagrande | Pavement Types / Types du revêtement — I | II | III | IV | V Alternative II |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Alternative I | | | | |
| | 246.9 | 251.4 | 4.5 | | | | | o | | | SC | | | o | | o |
| | 251.4 | 280.0 | 28.6 | | | o | | | | | GC | | o | | | o |
| | 280.0 | 299.0 | 19.0 | | | o | | | | | SC | | o | | | o |
| 6 | 299.0 | 302.0 | 3.0 | | | | | | | o | SC | | | o | | o |
| | 302.0 | 309.5 | 7.5 | | o | | | | | | SC | o | | | | o |
| | 309.5 | 310.85 | 1.35 | | | | | o | | | SC | | | o | | o |
| | 310.85 | 314.4 | 3.55 | | o | | | | | | SC | o | | | | o |
| | 314.4 | 317.4 | 3.0 | | | | | o | | | SC | | | o | | o |
| | 317.4 | 324.3 | 6.9 | | | o | | | | | SC | | o | | | o |
| | Total | | 88.5 | | | | | | | | | | | | | |
| (Buta) | | | | | | | | | | | | I | II | III | IV | VI |
| | 0 | 7.0 | 7.0 | | | o | | | | | SC | | o | | | o |
| | 7.0 | 33.0 | 26.0 | | o | | | | | | SC | o | | | | o |
| 5 | 33.0 | 36.0 | 3.0 | | | | | o | | | SC | | | o | | o |
| | 36.0 | 74.0 | 38.0 | | o | | | | | | SC | o | | | | o |
| | 74.0 | 75.5 | 1.5 | | o | | | | | | SM | o | | | | o |
| | Total | | 75.5 | | | | | | | | | | | | | |
| (Dulia) | | | | | | | | | | | | | | | | |
| | 0 | 5.95 | 5.95 | | o | | | | | | SM | o | | | | o |
| 4 | 5.95 | 12.2 | 6.25 | | o | | | | | | SC | o | | | | o |
| | 12.2 | 18.6 | 6.4 | | | | | o | | | SC | | | o | | o |
| | 18.6 | 20.2 | 1.6 | | o | | | | | | SC | o | | | | o |

| Section / Tronçon | Station / Point d'étude | Length along Existing Road / Longueur de long de route existante | Soils Classification / Classification des sols — AASHO | | | | | | | | Pavement Types / Types du revêtement | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | A-2-4 | A-2-6 | A-2-7 | A-4 | A-6 | A-7-5 | A-7-6 | Casagrande | I | II | III | IV | VI |
| | PK – PK | km | | | | | | | | | Alternative I | | | | Alternative II |
| | 20.2 - 21.95 | 1.75 | | | | | o | | | SC | | | o | | o |
| | 21.95- 26.85 | 4.9 | | o | | | | | | SC | o | | | | o |
| | 26.85- 34.5 | 7.65 | | | | | o | | | SC | | | o | | o |
| | 34.5 - 35.15 | 0.65 | | o | | | | | | SC | o | | | | o |
| 4 | 35.15- 44.0 | 8.85 | | | | | o | | | SC | | | o | | o |
| | 44.0 - 46.0 | 2.0 | | o | | | | | | SC | o | | | | o |
| | 46.0 - 49.5 | 3.5 | | | | | o | | | SC | | | o | | o |
| | 49.5 - 53.5 | 4.0 | | o | | | | | | SC | o | | | | o |
| | 53.5 - 58.8 | 5.3 | | | | | o | | | SC | | | o | | o |
| | 58.8 - 61.3 | 2.5 | | o | | | | | | SC | o | | | | o |
| | 61.3 - 65.5 | 4.2 | | | | | o | | | SC | | | o | | o |
| | Total | 65.5 | | | | | | | | | | | | | |
| (Likati) | | | | | | | | | | | | | | | |
| | 65.5 - 69.5 | 4.0 | | | o | | | | | SC | | o | | | o |
| | 69.5 - 77.6 | 8.1 | | | | | o | | | SC | | | o | | o |
| | 77.6 - 78.6 | 1.0 | | o | | | | | | SC | o | | | | o |
| 3 | 78.6 - 80.55 | 1.95 | | | | | o | | | SC | | | o | | o |
| | 80.55- 83.2 | 2.65 | | o | | | | | | SC | o | | | | o |
| | 83.2 - 86.95 | 3.75 | | | | | o | | | SC | | | o | | o |
| | 86.95- 95.85 | 8.9 | | o | | | | | | SW | o | | | | o |
| | 95.85- 117.9 | 22.05 | | | o | | | | | SC | | o | | | o |

| Section<br>Tronçon | Station<br>Point d'étude<br>PK PK | Length along Existing Road<br>Longueur du long de route existante<br>km | Soils Classification<br>Classification des Sols<br>AASHO<br>A-2-4 | A-2-6 | A-2-7 | A-4 | A-6 | A-7-5 | A-7-6 | Casagrande | Pavement Types<br>Types du revêtement<br>I | II | III | IV | VI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Alternative I | | | | Alternative II |
| 3 | 117.9 - 125.0 | 7.1 | | | | | | | o | CL | | | o | | o |
| | Total | 59.5 | | | | | | | | | | | | | |
| (Bondo) | | | | | | | | | | | | | | | |
| | 125.0 - 129.0 | 4.0 | | | | | | | o | CL | | | o | | o |
| | 129.0 - 131.7 | 2.7 | | o | | | | | | SC | o | | | | o |
| | 131.7 - 139.3 | 7.6 | | | | | | | o | SC | | | o | | o |
| | 139.3 - 163.25 | 23.95 | | o | | | | | | SC | o | | | | o |
| | 163.25- 166.0 | 2.75 | | o | | | | | | GC | o | | | | o |
| | 166.0 - 169.2 | 3.2 | | | | | o | | | SC | | | o | | o |
| | 169.2 - 169.95 | 0.75 | o | | | | | | | SC | o | | | | o |
| 2 | 169.95- 175.2 | 5.25 | | | | | o | | | SC | | | o | | o |
| | 175.2 - 179.2 | 4.0 | | o | | | | | | SC | o | | | | o |
| | 179.2 - 180.15 | 0.95 | | | | | | | o | SC | | | o | | o |
| | 180.15- 194.7 | 14.55 | | o | | | | | | SC | o | | | | o |
| | 194.7 - 197.55 | 2.85 | | | | | o | | | SC | | | o | | o |
| | 197.55- 200.0 | 2.45 | | o | | | | | | SC | o | | | | o |
| | 200.0 - 201.0 | 1.0 | | | | | o | | | SC | | | o | | o |
| | 201.0 - 209.5 | 8.5 | | o | | | | | | SC | o | | | | o |
| | 209.5 - 210.75 | 1.25 | | | | | | | o | SC | | | o | | o |
| | 210.75- 231.25 | 20.5 | | o | | | | | | SC | o | | | | o |
| | 231.25- 234.0 | 2.75 | | | | | o | | | SC | | | o | | o |
| | 234.0 - 240.2 | 6.2 | | o | | | | | | SC | o | | | | o |

| Section / Tronçon | Station / Point d'étude | Length along Existing Road / Longueur du long de route existante | Soils Classification / Classification des sols — AASHO | | | | | | | | Pavement Types / Types du revêtement | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | A-2-4 | A-2-6 | A-2-7 | A-4 | A-6 | A-7-5 | A-7-6 | Casagrande | I | II | III | IV | VI |
| | PK – PK | km | | | | | | | | | Alternative I | | | | Alternative II |
| | 240.2 - 240.95 | 0.75 | | | | | o | | | SC | | | o | | o |
| 2 | 240.95- 247.25 | 6.3 | | o | | | | | | SC | o | | | | o |
| | 247.25- 250.0 | 2.75 | | | | | | | o | SC | | | o | | o |
| | Total | 125.0 | | | | | | | | | | | | | |
| (Monga) | | | | | | | | | | | | | | | |
| | 250.0 - 254.0 | 4.0 | | | | | | | o | SC | | | o | | o |
| | 254.0 - 284.8 | 30.8 | | o | | | | | | GW | | | | o | o |
| | 284.8 - 285.1 | 0.3 | | | | | | | o | CL | | | o | | o |
| | 285.1 - 292.6 | 7.5 | | o | | | | | | GW | | | | o | o |
| | 292.6 - 292.9 | 0.3 | | | | | o | | | SC | | | o | | o |
| | 292.9 - 294.6 | 1.7 | | o | | | | | | SC | o | | | | o |
| | 294.6 - 295.25 | 0.65 | | | | | o | | | SC | | | o | | o |
| 1 | 295.25- 300.0 | 4.75 | | o | | | | | | SC | o | | | | o |
| | 300.0 - 301.7 | 1.7 | | | | | | o | | CH | | | o | | o |
| | 301.7 - 303.4 | 1.7 | | o | | | | | | SC | o | | | | o |
| | 303.4 - 303.7 | 0.3 | | | | | o | | | SC | | | o | | o |
| | 303.7 - 313.25 | 9.55 | | o | | | | | | SC | o | | | | o |
| | 313.25- 314.45 | 1.2 | | | | | o | | | SC | | | o | | o |
| | 314.45- 316.4 | 1.95 | | o | | | | | | SC | o | | | | o |
| | 316.4 - 317.6 | 1.2 | | | | | o | | | SC | | | o | | o |
| | 317.6 - 319.0 | 1.4 | | | | | | | o | SC | | | o | | o |

| Section Tronçon (Ndu) | Station Point d'étude PK | PK | Length along Existing Road Longueur du long de route existante km | Soils Classification Classification des sols AASHO A-2-4 | A-2-6 | A-2-7 | A-4 | A-6 | A-7-5 | A-7-6 | Casagrande | Pavement Types Types du revêtement I | II | III | IV | VI Alternative I | Alternative II |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 319.0 - 322.4 | | 3.4 | | o | | | | | | SC | o | | | | | o |
| | Total | | 72.4 | | | | | | | | | | | | | | |

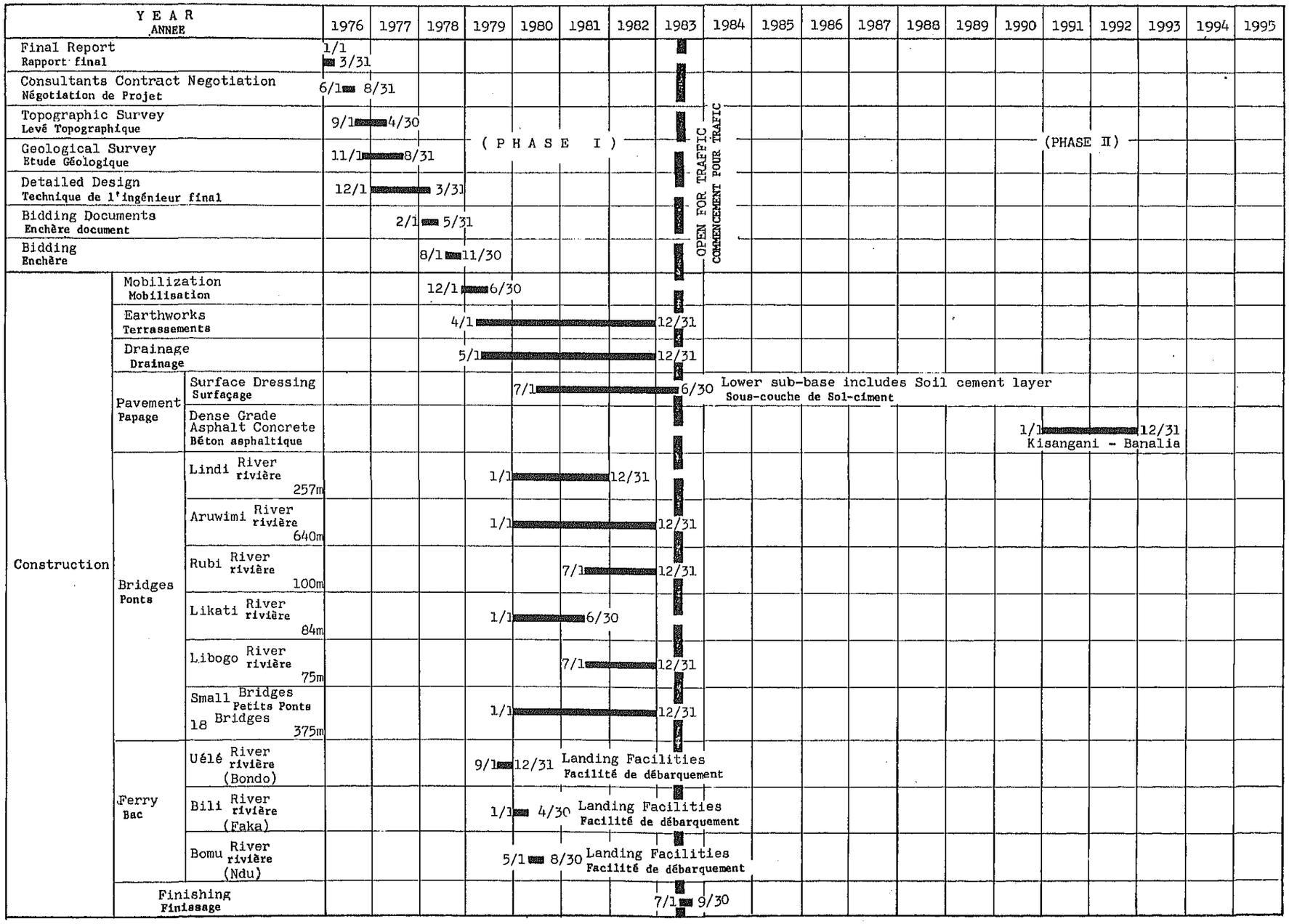
Note: 1. Pavement Types I, II, III and IV shown in the Table are in the case of Alternative I.

Types du revêtement I, II, III et IV ont indiqué dans le Tableau sont dans le cas d'Alternative I.

2. In the case of Alternative II, pavement types of sections of #10 and #9 in Alternative I are adopted. The rest sections are not paved in Phase I, and sections #8, #7 and #6 are paved with Type V in Phase III.

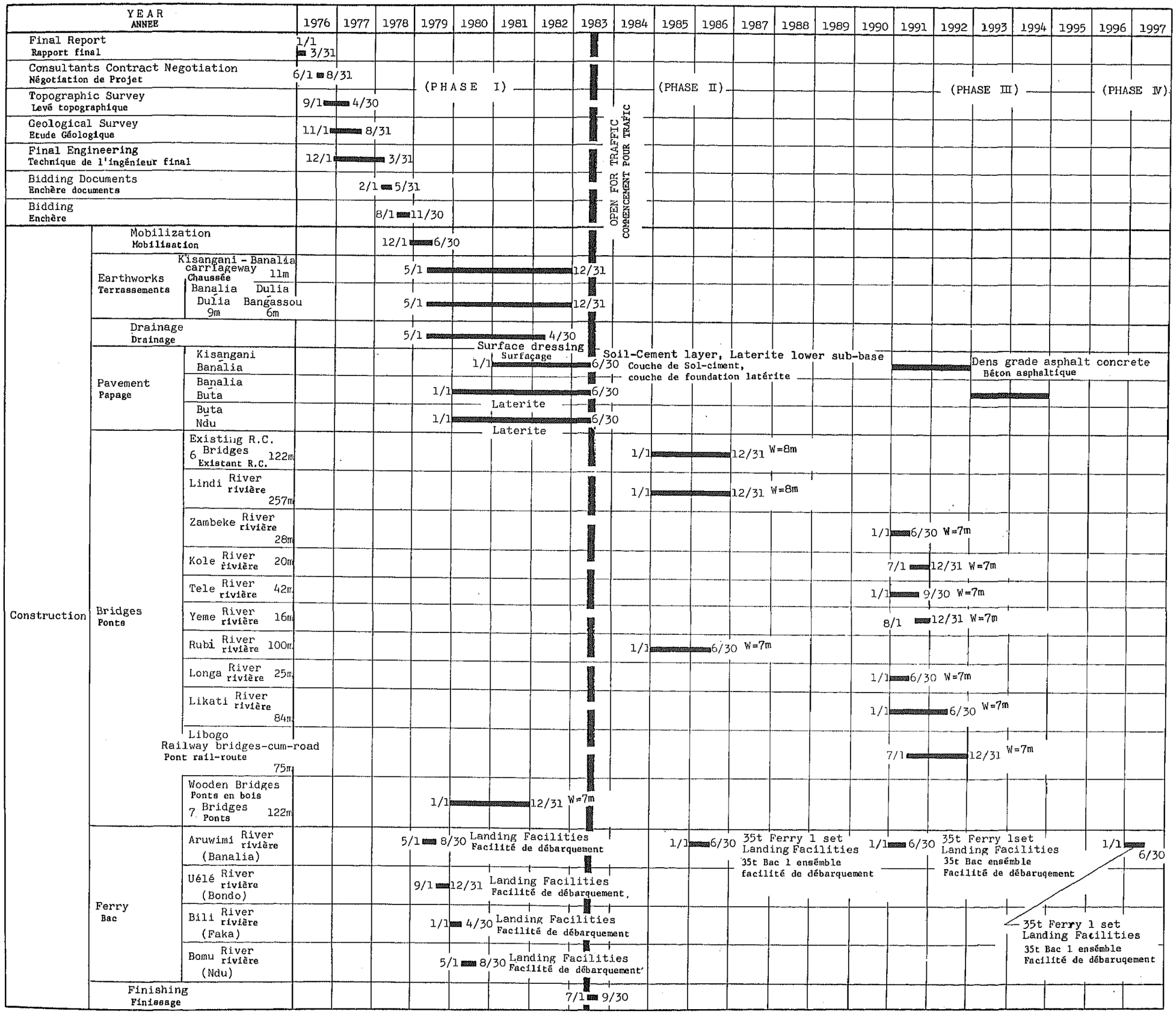
Dans le cas d'Alternative II, types du revêtement de tronçons 10 et 9 dans le Alternative I ont adopté. Le reste des tronçons n'a pas pavé dans Phase I, et tronçons 8, 7 et 6 n'ont pas pavés avec Type V dans Phase III.

A.3.4.6 (ALTERNATIVE-I) CONSTRUCTION SCHEDULE
PLAN DE CONSTRUCTION



# A.3.4.7 (ALTERNATIVE-II) CONSTRUCTION SCHEDULE
PLAN DE CONSTRUCTION

A.3.4.7



A.3.4.8 Number of Curves on Existing and Improved Road by Radius

Nombre de places de courbure sur route existante et améliorée par rayon

| Section / Tronçon | | R<230m | 230m≦R<380m | 380m≦R<500m | 500m≦R<1,000m | 1,000m≦R<3,000m | 3,000m<R | Total |
|---|---|---|---|---|---|---|---|---|
| 10 | Existing Road/Route existante | 53 | 5 | | | 9 | | 67 |
| | Improved Road/Route améliorée | 1 | 1 | 7 | 2 | 11 | 2 | 24 |
| 9 | Existing Road/Route existante | 108 | 16 | | | 69 | | 193 |
| | Improved Road/Route améliorée | 1 | 7 | 5 | 17 | 22 | 9 | 61 |
| 8 | Existing Road/Route existante | 99 | 17 | | | 53 | | 169 |
| | Improved Road/Route améliorée | 1 | 1 | 2 | 4 | 17 | 8 | 33 |
| 7 | Existing Road/Route existante | 74 | 3 | | | 12 | | 89 |
| | Improved Road/Route améliorée | 0 | 0 | 0 | 2 | 6 | 3 | 11 |
| 6 | Existing Road/Route existante | 155 | 7 | | | 30 | | 192 |
| | Improved Road/Route améliorée | 0 | 3 | 2 | 10 | 33 | 6 | 54 |
| 5 | Existing Road/Route existante | 77 | 2 | | | 36 | | 115 |
| | Improved Road/Route améliorée | 0 | 6 | 11 | 7 | 26 | 4 | 54 |
| 4 | Existing Road/Route existante | 49 | 7 | | | 19 | | 75 |
| | Improved Road/Route améliorée | 0 | 7 | 31 | 9 | 5 | 2 | 54 |
| 3 | Existing Road/Route existante | 98 | 9 | | | 40 | | 147 |
| | Improved Road/Route améliorée | 0 | 3 | 17 | 22 | 21 | 3 | 66 |
| 2 | Existing Road/Route existante | 176 | 11 | | | 43 | | 230 |
| | Improved Road/Route améliorée | 4 | 20 | 8 | 27 | 37 | 4 | 100 |
| 1 | Existing Road/Route existante | 133 | 7 | | | 33 | | 173 |
| | Improved Road/Route améliorée | 0 | 14 | 15 | 21 | 19 | 3 | 72 |
| Total | Existing Road/Route existante | 1,022 | 84 | | | 344 | | 1,450 |
| | Improved Road/Route améliorée | 7 | 62 | 98 | 121 | 197 | 44 | 529 |

A.3.5.1 ACCUMULATED LENGTH BY TERRAIN OF EXISTING AND IMPROVED ROADS
LONGUE ACCUMULEE PAR DE ROUTE EXISTANTE ET AMELIOREE

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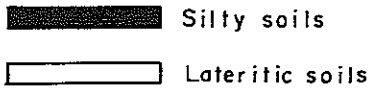
Unité

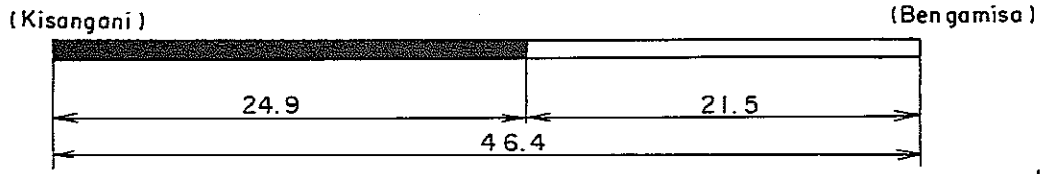
| SECTION TRONÇON | EXISTING ROAD ROUTE EXISTANTE | TYPE | IMPROVED ROADS / ROUTE PROPOSEE | | | | ROAD LENGTH IN FOREST LONGUEUR DE ROUTE AUX FORÊT | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | VILLAGE | FOREST FORÊT | BRIDGE PONT | TOTAL | SPARCE CLAIRSEMEE | MEDIUM MOYENNE | DENSE FORTE |
| 10 | Kisangani 46,400 | EXISTING ROUTE / ROUTE EXISTANTE | 3,038 | 27,106 | 276 | 30,420 | 12,471 | 11,375 | 3,260 |
| | | IMPROVED ROUTE / ROUTE AMELIOREE | 939 | 13,561 | 0 | 14,500 | 4,450 | 6,780 | 2,331 |
| | | Total | 3,977 | 40,667 | 276 | 44,920 | 16,921 | 18,155 | 5,591 |
| 9 | 79,000 | EXISTING ROUTE / ROUTE EXISTANTE | 3,274 | 57,880 | 36 | 61,190 | 24,514 | 24,080 | 9,286 |
| | | IMPROVED ROUTE / ROUTE AMELIOREE | 2,768 | 13,705 | 27 | 16,500 | 7,776 | 4,251 | 1,678 |
| | | Total | 6,042 | 71,585 | 63 | 77,690 | 32,290 | 28,331 | 10,964 |
| 8 | Banalia 77,000 | EXISTING ROUTE / ROUTE EXISTANTE | 3,641 | 28,506 | 48 | 32,195 | 12,794 | 9,421 | 6,291 |
| | | IMPROVED ROUTE / ROUTE AMELIOREE | 5,055 | 35,995 | (640) 0 | 41,050 | 7,259 | 10,889 | 17,847 |
| | | Total | 8,696 | 64,501 | (640) 48 | 73,245 | 20,053 | 20,310 | 24,138 |
| 7 | 29,800 | EXISTING ROUTE / ROUTE EXISTANTE | 692 | 12,056 | 42 | 12,790 | 4,632 | 5,087 | 2,337 |
| | | IMPROVED ROUTE / ROUTE AMELIOREE | 2,593 | 12,807 | 0 | 15,400 | 3,346 | 6,000 | 3,461 |
| | | Total | 3,285 | 24,863 | 42 | 28,190 | 7,978 | 11,087 | 5,798 |
| 6 | 88,500 | EXISTING ROUTE / ROUTE EXISTANTE | 1,962 | 60,897 | 116 | 62,975 | 20,773 | 26,764 | 13,360 |
| | | IMPROVED ROUTE / ROUTE AMELIOREE | 3,587 | 19,813 | 0 | 23,400 | 5,387 | 9,180 | 5,246 |
| | | Total | 5,549 | 80,710 | 116 | 86,375 | 26,160 | 35,944 | 18,606 |
| 5 | Buta 75,500 | EXISTING ROUTE / ROUTE EXISTANTE | 3,645 | 68,369 | 106 | 72,120 | 30,322 | 30,463 | 7,584 |
| | | IMPROVED ROUTE / ROUTE AMELIOREE | 1,768 | 732 | 0 | 2,500 | 110 | 73 | 549 |
| | | Total | 5,413 | 69,101 | 106 | 74,620 | 30,432 | 30,536 | 8,133 |
| 4 | 65,500 | EXISTING ROUTE / ROUTE EXISTANTE | 2,523 | 57,006 | 101 | 59,630 | 20,347 | 24,264 | 12,395 |
| | | IMPROVED ROUTE / ROUTE AMELIOREE | 902 | 4,298 | 0 | 5,200 | 337 | 2,528 | 1,433 |
| | | Total | 3,425 | 61,304 | 101 | 64,830 | 20,684 | 26,792 | 13,828 |
| 3 | 59,500 | EXISTING ROUTE / ROUTE EXISTANTE | 3,445 | 51,245 | 75 | 54,765 | 19,614 | 20,202 | 11,429 |
| | | IMPROVED ROUTE / ROUTE AMELIOREE | 1,209 | 2,491 | 0 | 3,700 | 1,150 | 862 | 479 |
| | | Total | 4,654 | 53,736 | 75 | 58,465 | 20,764 | 21,064 | 11,908 |
| 2 | Bondo 125,000 | EXISTING ROUTE / ROUTE EXISTANTE | 3,700 | 94,361 | 24 | 98,085 | 35,218 | 37,970 | 21,173 |
| | | IMPROVED ROUTE / ROUTE AMELIOREE | 7,734 | 16,516 | 0 | 24,250 | 4,204 | 8,308 | 4,004 |
| | | Total | 11,434 | 110,877 | 24 | 122,335 | 39,422 | 46,278 | 25,177 |
| 1 | 72,400 N'du | EXISTING ROUTE / ROUTE EXISTANTE | 1,948 | 51,737 | 0 | 53,685 | 24,400 | 15,298 | 12,039 |
| | | IMPROVED ROUTE / ROUTE AMELIOREE | 1,078 | 13,522 | 0 | 14,600 | 8,874 | 3,381 | 1,267 |
| | | Total | 3,026 | 65,259 | 0 | 68,285 | 33,274 | 18,679 | 13,306 |
| TOTAL | 718,600 | EXISTING ROUTE / ROUTE EXISTANTE | 27,868 | 509,163 | 824 | 537,855 | 205,085 | 204,924 | 99,154 |
| | | IMPROVED ROUTE / ROUTE AMELIOREE | 27,633 | 133,440 | (640) 27 | 161,100 | 42,893 | 52,252 | 38,295 |
| | | Total | 55,501 | 642,603 | (640) 851 | 698,955 | 247,978 | 257,176 | 137,449 |

## A.3.5.1-(2) Weighted Average Distance of Long-Haul Earth Moving

(See Vol 3. Table A.3.4.5)

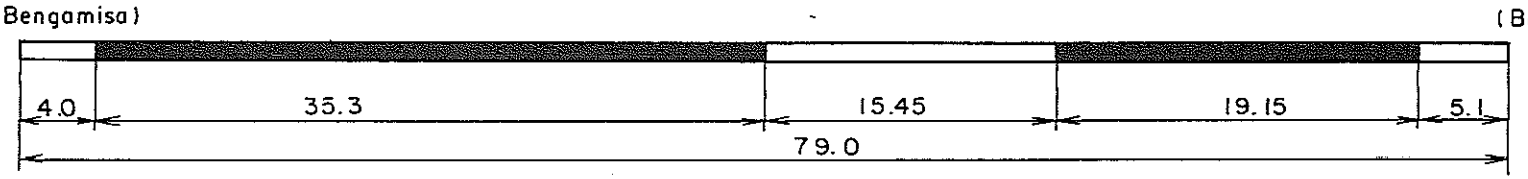



### Section # 10



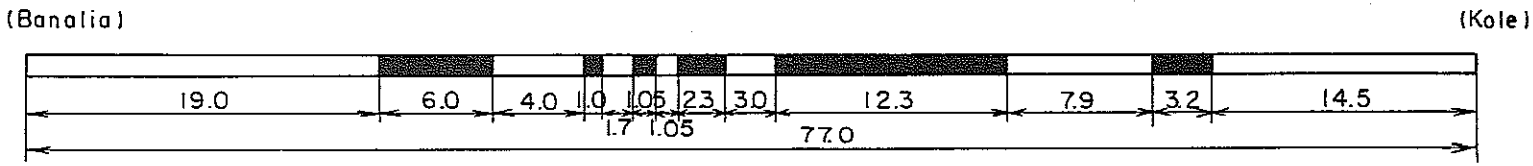

$$L_{10} = \frac{24.9}{2} = 12.45\,km$$

### Section # 9



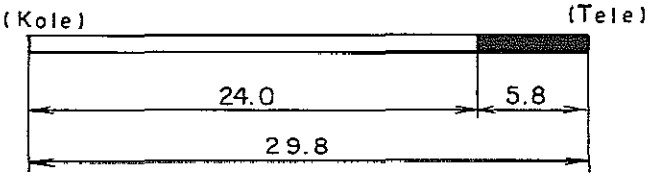

$$L_9 = \frac{35.3 \times \frac{35.3}{4} + 19.15 \times \frac{19.15}{4}}{35.3 + 19.15} = 7.4\ km$$

### Section # 8



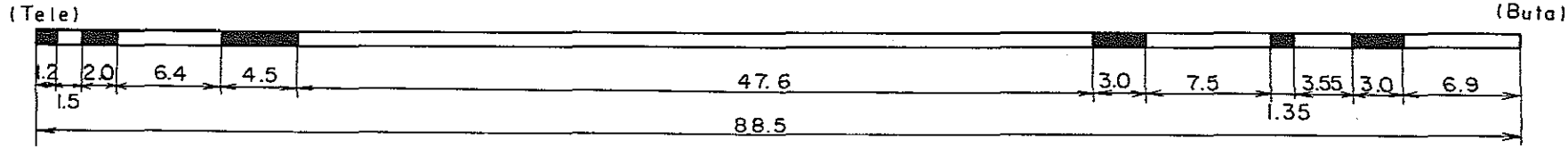

$$L_8 = \frac{6.0 \times \frac{6.0}{4} + 1.0 \times \frac{1.0}{4} + 1.05 \times \frac{1.05}{4} + 2.3 \times \frac{2.3}{4} + 12.3 \times \frac{12.3}{4} \times 3.2 \times \frac{3.2}{4}}{6.0 + 1.0 + 1.05 + 2.3 + 12.3 + 3.2} = 2.0\ km$$

Section # 7



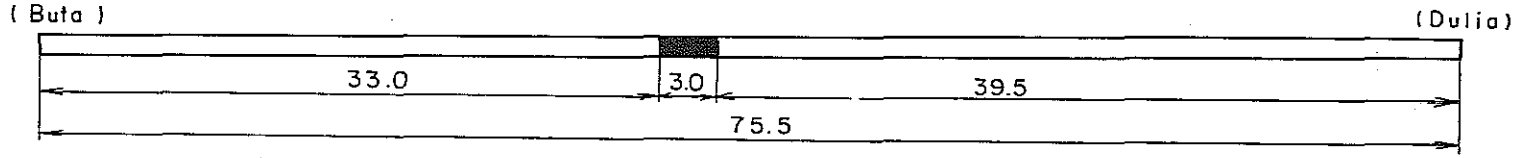

$$L_7 = \frac{5.8}{2} = 2.9 \text{ km}$$

Section # 6



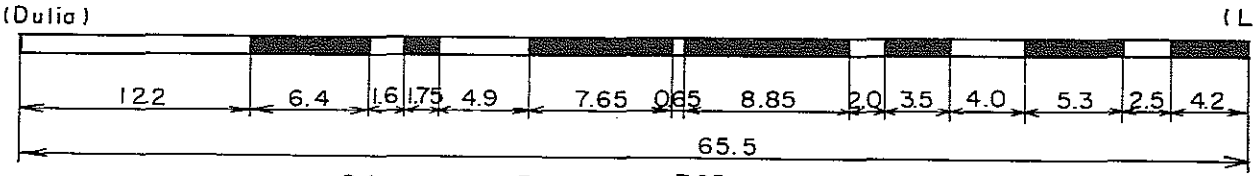

$$L_6 = \frac{1.2\times\frac{1.2}{2} + 2.0\times\frac{2.0}{4} + 4.5\times\frac{4.5}{4} + 3.0\times\frac{3.0}{4} + 1.35\times\frac{1.35}{4} + 3.0\times\frac{3.0}{4}}{1.2 + 2.0 + 4.5 + 3.0 + 1.35 + 3.0} = 0.8 \text{ km}$$

Section # 5



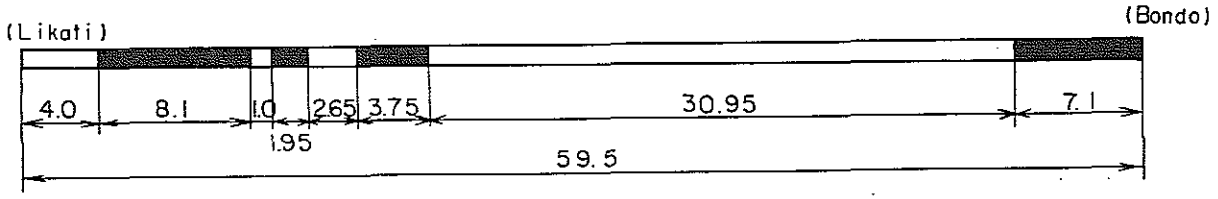

$$L_5 = \frac{3.0}{4} \fallingdotseq 0.8 \text{ km}$$

Section # 4



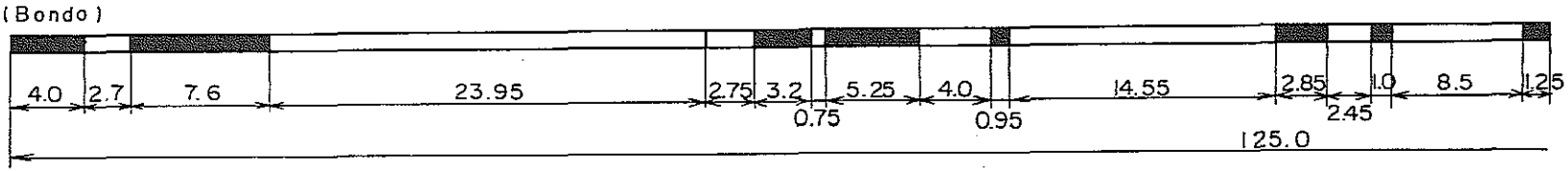

$$L_4 = \frac{6.4\times\frac{6.4}{4} + 1.75\times\frac{1.75}{4} + 7.65\times\frac{7.65}{4} + 8.85\times\frac{8.85}{4} + 3.5\times\frac{3.5}{4} + 5.3\times\frac{5.3}{4} + 4.2\times\frac{4.2}{2}}{6.4 + 1.75 + 7.65 + 8.85 + 3.5 + 5.3 + 4.2} = 1.7 \text{ km}$$

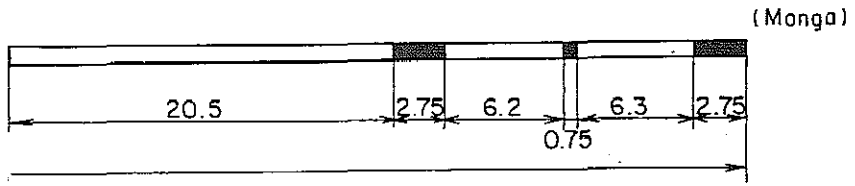
Section # 3




$$L_3 = \frac{\frac{8.1^2}{4} + \frac{1.95^2}{4} + \frac{3.75}{4} + \frac{7.1^2}{4}}{8.1 + 1.95 + 3.75 + 7.1} = 2.2 \text{ km}$$

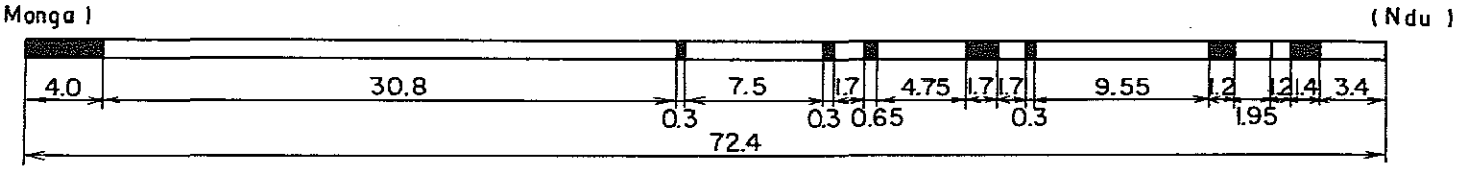
Section # 2




$$L_2 = \frac{\frac{4.0^2}{2} + \frac{7.6^2}{4} + \frac{3.2^2}{4} + \frac{5.25^2}{4} + \frac{0.75^2}{4} + \frac{2.85^2}{4} + \frac{1.0^2}{4} + \frac{1.25^2}{4} + \frac{2.75^2}{4} + \frac{0.75^2}{4} + \frac{2.75^2}{2}}{4.0 + 7.6 + 3.2 + 5.25 + 0.95 + 2.85 + 1.0 + 1.25 + 2.75 + 0.75 + 2.75} = 1.3 \text{ km}$$

Section # 1




$$L_1 = \frac{\frac{4.0^2}{2}+\frac{0.3^2}{4}+\frac{0.3^2}{4}+\frac{0.65^2}{4}+\frac{1.7^2}{4}+\frac{0.3^2}{4}+\frac{1.2^2}{4}+\frac{2.6^2}{4}}{4.0+0.3+0.3+0.65+1.7+0.3+1.2+2.6} = 1.0 \text{ km}$$

| Section | Length of Improved Road | Accumulated Length | | Average Long-Haul Distance of Laterite |
|---|---|---|---|---|
| | | Lateritic Sections | Silty Sections | |
| # 10 | 44.92 km | 20.81 km | 24.11 km | 12.45 km |
| # 9 | 77.69 | 24.14 | 53.55 | 7.4 |
| # 8 | 73.245 | 48.655 | 24.59 | 2.0 |
| # 7 | 28.19 | 5.49 | 22.7 | 2.9 |
| # 6 | 86.375 | 71.685 | 14.69 | 0.8 |
| # 5 | 74.62 | 71.66 | 2.96 | 0.8 |
| # 4 | 64.83 | 27.57 | 37.26 | 1.7 |
| # 3 | 58.465 | 37.93 | 20.535 | 2.2 |
| # 2 | 122.335 | 90.675 | 31.66 | 1.3 |
| # 1 | 68.285 | 57.865 | 10.42 | 1.0 |
| Total | 698.955 | 456.48 | 242.475 | |

A.3.5.2 (ALTERNATIVE I) PHASE I NET COSTS OF IMPROVEMENT / COÛTS NETS D'AMELIORATION From de Kisangani To à Bangassou (698.955 km) Unit Unité: Zaire

| ITEM ARTICLE | DESCRIPTION | UNIT UNITE | DIVISION - IV | | DIVISION - III | | DIVISION - II | | DIVISION - I | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | QUANTITY QUANTITE | COST COÛT | QUANTITY QUANTITE | COST COÛT | QUANTITY QUANTITE | COST COÛT | QUANTITY QUANTITE | COST COÛT | QUANTITY QUANTITE | COST COÛT |
| **CLEARING DEBOISEMENT** | | | | 210,670 | | 396,850 | | 350,010 | | 363,450 | | 1,320,980 |
| Clearing Deboisement | **Medium Vegetation Végétation moyenne** | $m^2$ | 1,123,000 | 56,150 | 1,701,000 | 85,050 | 1,841,000 | 92,050 | 1,761,000 | 88,050 | 6,426,000 | 321,300 |
| Clearing & Grubbing Déboisement & l'essouchment | Sparse Forest **Végétation clairsemée** | $m^2$ | 996,000 | 39,840 | 1,168,000 | 46,720 | 1,383,000 | 55,320 | 1,584,000 | 63,360 | 5,131,000 | 205,240 |
| " | Medium Forest **Végétation moyenne** | $m^2$ | 934,000 | 74,720 | 1,524,000 | 121,920 | 1,528,000 | 122,240 | 1,416,000 | 113,280 | 5,402,000 | 432,160 |
| | Dense Forest **Végétation forte** | $m^2$ | 333,000 | 39,960 | 1,193,000 | 143,160 | 670,000 | 80,400 | 823,000 | 98,760 | 3,019,000 | 362,280 |
| **EARTHWORKS TERRASSEMENTS** | | | | 5,221,490 | | 2,707,355 | | 1,861,980 | | 2,366,455 | | 12,157,280 |
| Embankment Remblai | Short Haul Transport court | $m^3$ | 502,000 | 602,400 | 981,000 | 1,177,200 | 734,000 | 880,800 | 1,404,000 | 1,684,800 | 3,621,000 | 4,345,200 |
| " | **Long Haul Transport long** | $m^3$ | 934,000 | 4,613,000 | 444,000 | 1,528,300 | 332,000 | 726,000 | 332,000 | 639,550 | 2,042,000 | 7,506,850 |
| Cut Déblai | | $m^3$ | 17,400 | 6,090 | 5,300 | 1,855 | 14,800 | 5,180 | 120,300 | 42,105 | 157,800 | 55,230 |
| Subgrade Replacement Hérrison de replacement | | $m^3$ | - | - | - | - | 19,500 | 250,000 | - | - | 19,500 | 250,000 |
| **SIDE SLOPES TALUS** | | | | 157,900 | | 245,100 | | 281,000 | | 272,300 | | 956,800 |
| Slope Shaping Façonnage d'un talus | **Manual Labor Travail de manoeuvre** | $m^2$ | 1,042,000 | 104,200 | 1,625,000 | 162,500 | 1,945,000 | 194,508 | 1,885,000 | 188,500 | 6,497,000 | 649,700 |
| Grassing Gazonnement | | $m^2$ | 537,000 | 53,700 | 826,000 | 82,600 | 870,000 | 87,000 | 838,000 | 83,800 | 3,071,000 | 307,100 |
| **DRAINAGE DRAINAGE** | | | | 1,295,900 | | 1,657,842 | | 1,447,674 | | 1,646,230 | | 6,047,646 |
| Side-ditch Excavation Contre-fossé | **Laterite Latérite** | lm | 40,900 | 61,350 | 114,300 | 171,450 | 127,600 | 191,400 | 137,500 | 206,250 | 420,300 | 630,450 |
| " | **Silt Limon** | lm | 71,400 | 185,640 | 55,700 | 144,820 | 56,500 | 146,900 | 38,600 | 100,360 | 222,200 | 577,720 |
| Side-ditch in Village Area Contre-fossé au village | | lm | 10,000 | 256,000 | 17,500 | 523,900 | 13,500 | 353,000 | 14,400 | 369,000 | 55,400 | 1,501,900 |
| Stone-pitched Ditch Fossé maçonne en pierre | | lm | 6,700 | 249,600 | 900 | 63,600 | 3,800 | 144,100 | 7,600 | 300,200 | 19,000 | 757,500 |

Note: In unit in ditches is indicated in linear meter of road, consequently the real length of ditches is two times of the figure in the table.
Unité en dans les fossés a indiqué dans mètre linéaire de la longueur de route, par conséquent bobine de longueur de fossé est deux temps de ces figures dans le tableau.

(continued)
(continuée)

| ITEM<br>ARTICLE | DESCRIPTION | UNIT<br>UNITE | DIVISION - IV | | DIVISION - III | | DIVISION - II | | DIVISION - I | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | QUANTITY<br>QUANTITE | COST<br>COÛT | QUANTITY<br>QUANTITE | COST<br>COÛT | QUANTITY<br>QUANTITE | COST<br>COÛT | QUANTITY<br>QUANTITE | COST<br>COÛT | QUANTITY<br>QUANTITE | COST<br>COÛT |
| **Pipe-Culvert**<br>**Pipe-ondulée** | **ø0.6m** | lm | 72 | 1,728 | 13 | 312 | - | - | - | - | 85 | 2,040 |
| | **ø0.8** | lm | - | - | 13 | 494 | - | - | - | - | 13 | 494 |
| | **ø1.0** | lm | 2,006 | 174,522 | 2,058 | 179,046 | 2,352 | 204,624 | 2,310 | 200,970 | 8,726 | 759,162 |
| | **ø1.2** | lm | 559 | 55,900 | 252 | 25,200 | 147 | 14,700 | 63 | 6,300 | 1,021 | 102,100 |
| | **ø1.5** | lm | 441 | 83,790 | 504 | 95,760 | 231 | 43,890 | 651 | 123,690 | 1,827 | 347,130 |
| | **ø1.8** | lm | 124 | 27,280 | 147 | 32,340 | 189 | 41,580 | 105 | 23,100 | 565 | 124,300 |
| | **ø2.0** | lm | 63 | 15,750 | 210 | 52,500 | 42 | 10,500 | 42 | 10,500 | 357 | 89,250 |
| | **ø2.5** | lm | - | - | 105 | 36,750 | 168 | 58,800 | 84 | 29,400 | 357 | 124,950 |
| | **ø3.0** | lm | 105 | 59,850 | 42 | 23,940 | 126 | 71,820 | 63 | 35,910 | 336 | 191,520 |
| | **ø4.0** | lm | 42 | 39,060 | 147 | 136,710 | 105 | 97,650 | 147 | 136,710 | 441 | 410,130 |
| | **ø5.0** | lm | 21 | 29,400 | 42 | 58,800 | - | - | 21 | 29,400 | 84 | 117,600 |
| **Inlet & Outlet**<br>**Entrée & sortie** | **ø0.6** | piece | 10 | 360 | 2 | 120 | - | - | - | - | 12 | 480 |
| | **ø0.8** | piece | - | - | 2 | 150 | - | - | - | - | 2 | 150 |
| | **ø1.0** | piece | 202 | 13,440 | 192 | 21,640 | 224 | 16,860 | 220 | 16,840 | 838 | 68,780 |
| | **ø1.2** | piece | 60 | 6,230 | 24 | 4,170 | 14 | 1,560 | 6 | 600 | 104 | 12,560 |
| | **ø1.5** | piece | 42 | 10,420 | 48 | 17,200 | 22 | 5,660 | 62 | 15,700 | 174 | 48,980 |
| | **ø1.8** | piece | 14 | 4,480 | 14 | 6,320 | 18 | 6,030 | 10 | 3,200 | 56 | 20,030 |
| | **ø2.0** | piece | 6 | 2,700 | 20 | 12,440 | 4 | 1,960 | 4 | 2,060 | 34 | 19,160 |
| | **ø2.5** | piece | - | - | 10 | 8,260 | 16 | 10,720 | 8 | 5,440 | 34 | 24,420 |
| | **ø3.0** | piece | 10 | 8,800 | 4 | 4,920 | 12 | 10,920 | 6 | 6,000 | 32 | 30,640 |
| | **ø4.0** | piece | 4 | 5,600 | 14 | 27,800 | 10 | 15,000 | 14 | 20,800 | 42 | 69,200 |
| | **ø5.0** | piece | 2 | 4,000 | 4 | 9,200 | - | - | 2 | 3,800 | 8 | 17,000 |
| **PAVEMENT**<br>PAVAGE | | | | 6,359,700 | | 8,603,100 | | 7,767,700 | | 6,571,750 | | 29,302,250 |
| **Type - I** | **Short Haul**<br>**Transport court** | $m^2$ | 221,000 | 1,106,300 | 442,000 | 2,503,950 | 754,000 | 3,824,700 | 814,000 | 3,850,350 | 2,231,000 | 11,285,300 |
| **Type - II** | **Short Haul**<br>**Transport court** | $m^2$ | 96,000 | 504,000 | 583,000 | 3,449,650 | 234,000 | 1,205,900 | - | - | 913,000 | 5,159,550 |
| **Type - III** | **Long Haul**<br>**Transport long** | $m^2$ | 562,000 | 4,749,400 | 325,000 | 2,649,500 | 436,000 | 2,737,100 | 306,000 | 1,889,800 | 1,629,000 | 12,025,800 |
| **Type - IV** | **Short Haul**<br>**Transport court** | $m^2$ | - | - | - | - | - | - | 252,000 | 831,600 | 252,000 | 831,600 |
| **BRIDGES**<br>**PONTS** | | | | 2,009,250 | | 5,229,000 | | 1,458,500 | | 108,000 | | 8,804,750 |
| **Angokpa** | **R.C. 1 span**<br>**R.C. 1 travée** | lm | 7.5 | 30,000 | - | - | - | - | - | - | 7.5 | 30,000 |
| **Aqudi** | **R.C. 1 span**<br>**R.C. 1 travée** | lm | 10.5 | 42,000 | - | - | - | - | - | - | 10.5 | 42,000 |
| **Lindi** | **Plate G. 6 spans**<br>**Poutre entôles 6 travées** | lm | 257.5 | 1,673,750 | - | - | - | - | - | - | 257.5 | 1,673,750 |
| **Gula** | **P.C. 1 span**<br>**P.C. 1 travée** | lm | 27 | 121,500 | - | - | - | - | - | - | 27 | 121,500 |
| **Badjoge** | **R.C. 1 span**<br>**R.C. 1 travée** | lm | 10 | 40,000 | - | - | - | - | - | - | 10 | 40,000 |

(continued)
(continuée)

| ITEM<br>ARTICLE | DESCRIPTION | UNIT<br>UNITE | DIVISION - IV | | DIVISION - III | | DIVISION - II | | DIVISION - I | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | QUANTITY<br>QUANTITE | COST<br>COÛT | QUANTITY<br>QUANTITE | COST<br>COÛT | QUANTITY<br>QUANTITE | COST<br>COÛT | QUANTITY<br>QUANTITE | COST<br>COÛT | QUANTITY<br>QUANTITE | COST<br>COÛT |
| Longala | R.C. 1 span<br>R.C. 1 travée | lm | 13 | 52,000 | - | - | - | - | - | - | 13 | 52,000 |
| Bokokua | R.C. 1 span<br>R.C. 1 travée | lm | 12.5 | 50,000 | - | - | - | - | - | - | 12.5 | 50,000 |
| Aruwimi | Plate G. 16 spans<br>Poutre entoles 16 travées | lm | - | - | 640 | 4,160,000 | - | - | - | - | 640 | 4,160,000 |
| Zambeke | P.C. 2 spans<br>P.C. 2 travées | lm | - | - | 28 | 126,000 | - | - | - | - | 28 | 126,000 |
| Kole | R.C. 1 span<br>R.C. 1 travée | lm | - | - | 20 | 90,000 | - | - | - | - | 20 | 90,000 |
| Tele | P.C. 4 spans<br>P.C. 4 travées | lm | - | - | 42 | 189,000 | - | - | - | - | 42 | 189,000 |
| Yeme | R.C. 1 span<br>R.C. 1 travée | lm | - | - | 16 | 64,000 | - | - | - | - | 16 | 64,000 |
| Rubi | P.C. 4 spans<br>P.C. 4 travées | lm | - | - | 100 | 600,000 | - | - | - | - | 100 | 600,000 |
| Makala | R.C. 1 span<br>R.C. 1 travée | lm | - | - | - | - | 16 | 64,000 | - | - | 16 | 64,000 |
| Longa | P.C. 1 span<br>P.C. 1 travée | lm | - | - | - | - | 25 | 112,500 | - | - | 25 | 112,500 |
| Kotelī | R.C. 1 span<br>R.C. 1 travée | lm | - | - | - | - | 18 | 72,000 | - | - | 18 | 72,000 |
| Maze II | R.C. 1 span<br>R.C. 1 travée | lm | - | - | - | - | 18 | 72,000 | - | - | 18 | 72,000 |
| Bilo II | R.C. 1 span<br>R.C. 1 travée | lm | - | - | - | - | 17 | 68,000 | - | - | 17 | 68,000 |
| Bilo III | R.C. 1 span<br>R.C. 1 travée | lm | - | - | - | - | 12 | 48,000 | - | - | 12 | 48,000 |
| Mborge | R.C. 1 span<br>R.C. 1 travée | lm | - | - | - | - | 17 | 68,000 | - | - | 17 | 68,000 |
| Likati | P.C. 3 spans<br>P.C. 3 travées | lm | - | - | - | - | 84 | 504,000 | - | - | 84 | 504,000 |
| Libogo | P.C. 3 spans<br>P.C. 3 travées | lm | - | - | - | - | 75 | 450,000 | - | - | 75 | 450,000 |
| Zakili | P.C. 1 span<br>P.C. 1 travée | lm | - | - | - | - | - | - | 24 | 108,000 | 24 | 108,000 |
| FERRY<br>BAC | | | | | | | | 18,000 | | 23,000 | | 41,000 |
| Uele (Bondo) | Landing Facilities<br>Facilité du débarquement | lm | - | - | - | - | 120 | 18,000 | - | - | 120 | 18,000 |
| Bili (Faka) | Landing Facilities<br>Facilité du débarquement | lm | - | - | - | - | - | - | 50 | 7,000 | 50 | 7,000 |
| Bomu (Ndu) | Landing Facilities<br>Facilité du débarquement | lm | - | - | - | - | - | - | 100 | 16,000 | 100 | 16,000 |
| TOTAL | | | | 15,254,910 | | 18,839,247 | | 13,185,364 | | 11,351,185 | | 58,630,706 |

Note: Net cost of improvement do not include contingencies, and costs of final engineering and supervision of construction.
Coûts nets d'amélioration non compris faux frais divers et surveillance de construction.

A.3.5.3-(1) (ALTERNATIVE I PHASE I) DIVISION IV NET COSTS OF IMPROVEMENT BY DIVISION / COÛTS NETS D'AMELIORATION PAR DIVISION From / de Kisangani To / à Banalia (122.610 km) Unit / Unité : Zaire

| ITEM / ARTICLE | DESCRIPTION | UNIT / UNITE | SECTION / TRONÇON - 10 QUANTITY / QUANTITE | UNIT COST / PRIX UNIT. | COST / COÛT | SECTION / TRONÇON - 9 QUANTITY / QUANTITE | UNIT COST / PRIX UNIT. | COST / COÛT | | | | TOTAL QUANTITY / QUANTITE | TOTAL COST / COÛT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CLEARING DEBOISEMENT** | | | | | 80,950 | | | 129,720 | | | | | 210,670 |
| Clearing Deboisement | Medium Vegetation Végétation moyenne | $m^2$ | 409,000 | 0.05 | 20,350 | 716,000 | 0.05 | 35,800 | | | | 1,123,000 | 56,150 |
| Clearing & Grubbing Deboisement & l'essouchment | Sparse Forest Végétation clairsemée | $m^2$ | 346,000 | 0.04 | 13,840 | 650,000 | 0.04 | 26,000 | | | | 996,000 | 39,840 |
| " | Medium Forest Végétation moyenne | $m^2$ | 397,000 | 0.08 | 31,760 | 537,000 | 0.08 | 42,960 | | | | 934,000 | 74,720 |
| | Dense Forest Végétation forte | $m^2$ | 125,000 | 0.12 | 15,000 | 208,000 | 0.12 | 24,960 | | | | 333,000 | 39,960 |
| **EARTHWORKS TERRASSEMENTS** | | | | | 1,546,760 | | | 3,674,730 | | | | | 5,221,490 |
| Embankment Remblai | Short Haul Transport court | $m^3$ | 174,000 | 1.20 | 208,800 | 328,000 | 1.20 | 393,600 | | | | 502,000 | 602,400 |
| " | Long Haul Transport long | $m^3$ | 205,000 | 6.50 | 1,332,500 | 729,000 | 4.50 | 3,280,500 | | | | 934,000 | 4,613,000 |
| Cut Déblai | | $m^3$ | 15,600 | 0.35 | 5,460 | 1,800 | 0.35 | 630 | | | | 17,400 | 6,090 |
| Subgrade replacement Herisson de replacement | | lm | - | - | - | - | - | - | | | | - | - |
| **SIDE SLOPES TALUS** | | | | | 58,600 | | | 99,300 | | | | | 157,900 |
| Slope Shaping Façonnage d'un talus | Manual Labor Travail de manoeuvre | $m^2$ | 390,000 | 0.10 | 39,000 | 652,000 | 0.10 | 65,200 | | | | 1,042,000 | 104,200 |
| Grassing Gazonnement | | $m^2$ | 196,000 | 0.10 | 19,600 | 341,000 | 0.10 | 34,100 | | | | 537,000 | 53,700 |
| **DRAINAGE DRAINAGE** | | | | | 313,766 | | | 982,134 | | | | | 1,295,900 |
| Side-ditch Excavation Contre-fossé | Laterite Latérite | lm | 18,700 | 1.50 | 28,050 | 22,200 | 1.50 | 33,300 | | | | 40,900 | 61,350 |
| " | Silt Limon | lm | 22,000 | 2.60 | 57,200 | 49,400 | 2.60 | 128,440 | | | | 71,400 | 185,640 |
| Side-ditch in Village Area Contre-fossé au village | | lm | 4,000 | 25.- | 100,000 | 6,000 | 26.- | 156,000 | | | | 10,000 | 256,000 |
| Stone-pitched Ditch Fossé maçonne en pierre | | lm | 1,300 | 30.- | 39,000 | 5,400 | 39.- | 210,600 | | | | 6,700 | 249,600 |

(continued / continuée)

| ITEM<br>ARTICLE | DESCRIPTION | UNIT<br>UNITE | SECTION TRONÇON - 10<br>QUANTITY<br>QUANTITE | <br>UNIT COST<br>PRIX UNIT. | <br>COST<br>COÛT | SECTION TRONÇON - 9<br>QUANTITY<br>QUANTITE | <br>UNIT COST<br>PRIX UNIT. | <br>COST<br>COÛT | | | | TOTAL<br>QUANTITY<br>QUANTITE | <br>COST<br>COÛT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Pipe-Culvert**<br>**Pipe-ondulée** | ø0.6m | lm | 59 | 24.- | 1,416 | 13 | 24.- | 312 | | | | 72 | 1,728 |
| | ø0.8 | lm | - | - | - | - | - | - | | | | - | - |
| | ø1.0 | lm | 620 | 87.- | 53,940 | 1,386 | 87.- | 120,582 | | | | 2,006 | 174,522 |
| | ø1.2 | lm | 104 | 100.- | 10,400 | 455 | 100.- | 45,500 | | | | 559 | 55,900 |
| | ø1.5 | lm | 84 | 190.- | 15,960 | 357 | 190.- | 67,830 | | | | 441 | 83,790 |
| | ø1.8 | lm | - | - | - | 124 | 220.- | 27,280 | | | | 124 | 27,280 |
| | ø2.0 | lm | - | - | - | 63 | 250.- | 15,750 | | | | 63 | 15,750 |
| | ø2.5 | lm | - | - | - | - | - | - | | | | - | - |
| | ø3.0 | lm | - | - | - | 105 | 570.- | 59,850 | | | | 105 | 59,850 |
| | ø4.0 | lm | - | - | - | 42 | 930.- | 39,060 | | | | 42 | 39,060 |
| | ø5.0 | lm | - | - | - | 21 | 1,400.- | 29,400 | | | | 21 | 29,400 |
| **Inlet & Outlet**<br>**Entree & sortie** | ø0.6 | piece | 8 | 35.- | 280 | 2 | 40.- | 80 | | | | 10 | 360 |
| | ø0.8 | piece | - | - | - | - | - | - | | | | - | - |
| | ø1.0 | piece | 70 | 60.- | 4,200 | 132 | 70.- | 9,240 | | | | 202 | 13,440 |
| | ø1.2 | piece | 14 | 100.- | 1,400 | 46 | 105.- | 4,830 | | | | 60 | 6,230 |
| | ø1.5 | piece | 8 | 240.- | 1,920 | 34 | 250.- | 8,500 | | | | 42 | 10,420 |
| | ø1.8 | piece | - | - | - | 14 | 320.- | 4,480 | | | | 14 | 4,480 |
| | ø2.0 | piece | - | - | - | 6 | 450.- | 2,700 | | | | 6 | 2,700 |
| | ø2.5 | piece | - | - | - | - | - | - | | | | - | - |
| | ø3.0 | piece | - | - | - | 10 | 880.- | 8,800 | | | | 10 | 8,800 |
| | ø4.0 | piece | - | - | - | 4 | 1,400.- | 5,600 | | | | 4 | 5,600 |
| | ø5.0 | piece | - | - | - | 2 | 2,000.- | 4,000 | | | | 2 | 4,000 |
| **PAVEMENT**<br>PAVAGE | | | | | 2,320,500 | | | 4,039,200 | | | | | 6,359,700 |
| **Type - I** | **Short Haul**<br>**Transport court** | $m^2$ | 143,000 | 4.90 | 700,700 | 78,000 | 5.20 | 405,600 | | | | 221,000 | 1,106,300 |
| **Type - II** | **Short Haul**<br>**Transport court** | $m^2$ | - | - | - | 96,000 | 5.25 | 504,000 | | | | 96,000 | 504,000 |
| **Type - III** | **Long Haul**<br>**Transport long** | $m^2$ | 178,000 | 9.10 | 1,619,800 | 384,000 | 8.15 | 3,129,600 | | | | 562,000 | 4,749,400 |
| **Type - IV** | **Short Haul**<br>**Transport court** | $m^2$ | - | - | - | - | - | - | | | | - | - |
| **BRIDGES**<br>**PONTS** | | | | | 1,745,750 | | | 263,500 | | | | | 2,009,250 |
| Angokpa | R.C. 1 span<br>R.C. 1 travée | lm | 7.5 | 4,000.- | 30,000 | - | - | - | | | | 7.5 | 30,000 |
| Aqudi | R.C. 1 span<br>R.C. 1 travée | lm | 10.5 | 4,000 | 42,000 | - | - | - | | | | 10.5 | 42,000 |
| Lindi | Plate G. 6 spans<br>Poutre entôles 6 travées | lm | 257.5 | 6,500.- | 1,673,750 | - | - | - | | | | 257.5 | 1,673,750 |
| Gula | P.C. 1 span<br>P.C. 1 travée | lm | - | - | - | 27 | 4,500.- | 121,500 | | | | 27 | 121,500 |
| Badjoge | R.C. 1 span<br>R.C. 1 travée | lm | - | - | - | 10 | 4,000.- | 40,000 | | | | 10 | 40,000 |

(continued / continuée)

| ITEM<br>ARTICLE | DESCRIPTION | UNIT<br>UNITE | SECTION - 10<br>TRONÇON | | | SECTION - 9<br>TRONÇON | | | | | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | QUANTITY<br>QUANTITE | UNIT COST<br>PRIX UNIT. | COST<br>COUT | QUANTITY<br>QUANTITE | UNIT COST<br>PRIX UNIT. | COST<br>COUT | | | | QUANTITY<br>QUANTITE | COST<br>COUT |
| Longala | R.C. 1 span<br>R.C. 1 travée | lm | - | - | - | 13 | 4,000.- | 52,000 | | | | 13 | 52,000 |
| Bokokua | R.C. 1 span<br>R.C. 1 travée | lm | - | - | - | 12.5 | 4,000.- | 50,000 | | | | 12.5 | 50,000 |
| Aruwimi | Plate G. 16 spans<br>Poutre entoles 16 travées | lm | | | | | | | | | | | |
| Zambeke | P.C. 2 spans<br>P.C. 2 travées | lm | | | | | | | | | | | |
| Kole | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Tele | P.C. 4 spans<br>P.C. 4 travées | lm | | | | | | | | | | | |
| Yeme | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Rubi | P.C. 4 spans<br>P.C. 4 travées | lm | | | | | | | | | | | |
| Makala | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Longa | P.C. 1 span<br>P.C. 1 travée | lm | | | | | | | | | | | |
| Kotelí | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Maze II | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Bilo II | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Bilo III | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Mborge | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Likati | P.C. 3 spans<br>P.C. 3 travées | lm | | | | | | | | | | | |
| Libogo | P.C. 3 spans<br>P.C. 3 travées | lm | | | | | | | | | | | |
| Zakili | P.C. 1 span<br>P.C. 1 travée | lm | | | | | | | | | | | |
| FERRY<br>BAC | | | | | | | | | | | | | |
| Uele (Bondo) | Landing Facilities<br>Facilité du débarquement | lm | | | | | | | | | | | |
| Bili (Faka) | Landing Facilities<br>Facilité du débarquement | lm | | | | | | | | | | | |
| Bomu (Ndu) | Landing Facilities<br>Facilité du débarquement | lm | | | | | | | | | | | |
| TOTAL | | | | | 6,066,326 | | | 9,188,584 | | | | | 15,254,910 |

A.3.5.3-(2) (ALTERNATIVE I PHASE I) DIVISION III NET COSTS OF IMPROVEMENT BY DIVISION
COÛTS NETS D'AMELIORATION PAR DIVISION

From de Banalia To à Buta (187.810 km) Unit Unité: Zaire

| ITEM ARTICLE | DESCRIPTION | UNIT UNITE | SECTION TRONÇON - 8 | | | SECTION TRONÇON - 7 | | | SECTION TRONCON - 6 | | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | QUANTITY QUANTITE | UNIT COST PRIX UNIT. | COST COÛT | QUANTITY QUANTITE | UNIT COST PRIX UNIT. | COST COÛT | QUANTITY QUANTITE | UNIT COST PRIX UNIT. | COST COÛT | QUANTITY QUANTITE | COST COÛT |
| **CLEARING DEBOISEMENT** | | | | | 167,730 | | | 59,010 | | | 170,110 | | 396,850 |
| Clearing Deboisement | **Medium Vegetation Végétation moyenne** | $m^2$ | 645,000 | 0.05 | 32,250 | 249,000 | 0.05 | 12,450 | 807,000 | 0.05 | 40,350 | 1,701,000 | 85,050 |
| Clearing & Grubbing Deboisement & l'essouchment | Sparse Forest Végétation clairsemée | $m^2$ | 448,000 | 0.04 | 17,920 | 184,000 | 0.04 | 7,360 | 536,000 | 0.04 | 21,440 | 1,168,000 | 46,720 |
| " | Medium Forest Végétation moyenne | $m^2$ | 496,000 | 0.08 | 39,680 | 271,000 | 0.08 | 21,680 | 757,000 | 0.08 | 60,560 | 1,524,000 | 121,920 |
| | Dense Forest Végétation forte | $m^2$ | 649,000 | 0.12 | 77,880 | 146,000 | 0.12 | 17,520 | 398,000 | 0.12 | 47,760 | 1,193,000 | 143,160 |
| **EARTHWORKS TERRASSEMENTS** | | | | | 1,536,860 | | | 340,750 | | | 829,745 | | 2,707,355 |
| Embankment Remblai | Short Haul Transport court | $m^3$ | 421,000 | 1.20 | 505,200 | 28,000 | 1.20 | 33,600 | 532,000 | 1.20 | 638,400 | 981,000 | 1,177,200 |
| " | Long Haul Transport long | $m^3$ | 217,000 | 4.75 | 1,030,750 | 118,000 | 2.60 | 306,800 | 109,000 | 1.75 | 190,750 | 444,000 | 1,528,300 |
| Cut Déblai | | $m^3$ | 2,600 | 0.35 | 910 | 1,000 | 0.35 | 350 | 1,700 | 0.35 | 595 | 5,300 | 1,855 |
| Subgrade Replacement Harrison de replacement | | lm | - | - | - | - | - | - | - | - | - | - | - |
| **SIDE SLOPES TALUS** | | | | | 98,300 | | | 37,500 | | | 109,300 | | 245,100 |
| Slope Shaping Façonnage d'un talus | Manual Labor Travail de manoeuvre | $m^2$ | 661,000 | 0.10 | 66,100 | 251,000 | 0.10 | 25,100 | 713,000 | 0.10 | 71,300 | 1,625,000 | 162,500 |
| Grassing Gazonnement | | $m^2$ | 322,000 | 0.10 | 32,200 | 124,000 | 0.10 | 12,400 | 380,000 | 0.10 | 38,000 | 826,000 | 82,600 |
| **DRAINAGE DRAINAGE** | | | | | 609,258 | | | 240,433 | | | 808,151 | | 1,657,842 |
| Side-ditch Excavation Contre-fossé | **Laterite Latérite** | lm | 42,600 | 1.50 | 63,900 | 4,700 | 1.50 | 7,050 | 67,000 | 1.50 | 100,500 | 114,300 | 171,450 |
| " | **Silt Limon** | lm | 21,900 | 2.60 | 56,940 | 20,100 | 2.60 | 52,260 | 13,700 | 2.60 | 35,620 | 55,700 | 144,820 |
| Side-ditch in Village Area Contre-fossé au village | | lm | 8,700 | 30.- | 261,000 | 3,300 | 28.- | 92,400 | 5,500 | 31.- | 170,500 | 17,500 | 523,900 |
| Stone-pitched Ditch Fossé maçonne en pierre | | lm | 600 | 70.- | 42,000 | - | - | - | 300 | 72.- | 21,600 | 900 | 63,600 |

(continued / continuée)

| ITEM ARTICLE | DESCRIPTION | UNIT UNITE | SECTION TRONÇON - 8 QUANTITY QUANTITE | SECTION TRONÇON - 8 UNIT COST PRIX UNIT. | SECTION TRONÇON - 8 COST COÛT | SECTION TRONÇON - 7 QUANTITY QUANTITE | SECTION TRONÇON - 7 UNIT COST PRIX UNIT. | SECTION TRONÇON - 7 COST COÛT | SECTION TRONÇON - 6 QUANTITY QUANTITE | SECTION TRONÇON - 6 UNIT COST PRIX UNIT. | SECTION TRONÇON - 6 COST COÛT | TOTAL QUANTITY QUANTITE | TOTAL COST COUT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Pipe-Culvert Pipe-ondulée** | **ø0.6m** | lm | 13 | 24.- | 312 | - | - | - | - | - | - | 13 | 312 |
| | **ø0.8** | lm | - | - | - | 13 | 38.- | 494 | - | - | - | 13 | 494 |
| | **ø1.0** | lm | 798 | 87.- | 69,426 | 357 | 87.- | 31,059 | 903 | 87.- | 78,561 | 2,058 | 179,046 |
| | **ø1.2** | lm | 21 | 100.- | 2,100 | 42 | 100.- | 4,200 | 189 | 100.- | 18,900 | 252 | 25,200 |
| | **ø1.5** | lm | 84 | 190.- | 15,960 | - | - | - | 420 | 190.- | 79,800 | 504 | 95,760 |
| | **ø1.8** | lm | 63 | 220.- | 13,860 | - | - | - | 84 | 220.- | 18,480 | 147 | 32,340 |
| | **ø2.0** | lm | 105 | 250.- | 26,250 | 42 | 250.- | 10,500 | 63 | 250.- | 15,750 | 210 | 52,500 |
| | **ø2.5** | lm | - | - | - | 84 | 350.- | 29,400 | 21 | 350.- | 7,350 | 105 | 36,750 |
| | **ø3.0** | lm | 21 | 570.- | 11,970 | - | - | - | 21 | 570.- | 11,970 | 42 | 23,940 |
| | **ø4.0** | lm | 21 | 930.- | 19,530 | - | - | - | 126 | 930.- | 117,180 | 147 | 136,710 |
| | **ø5.0** | lm | - | - | - | - | - | - | 42 | 1,400.- | 58,800 | 42 | 58,800 |
| **Inlet & Outlet Entree & sortie** | **ø0.6** | piece | 2 | 60.- | 120 | - | - | - | - | - | - | 2 | 120 |
| | **ø0.8** | piece | - | - | - | 2 | 75.- | 150 | - | - | - | 2 | 150 |
| | **ø1.0** | piece | 72 | 110.- | 7,920 | 34 | 100.- | 3,400 | 86 | 120.- | 10,320 | 192 | 21,640 |
| | **ø1.2** | piece | 2 | 165.- | 330 | 4 | 150.- | 600 | 18 | 180.- | 3,240 | 24 | 4,170 |
| | **ø1.5** | piece | 8 | 350.- | 2,800 | - | - | - | 40 | 360.- | 14,400 | 48 | 17,200 |
| | **ø1.8** | piece | 6 | 440.- | 2,640 | - | - | - | 8 | 460.- | 3,680 | 14 | 6,320 |
| | **ø2.0** | piece | 10 | 600.- | 6,000 | 4 | 590.- | 2,360 | 6 | 680.- | 4,080 | 20 | 12,440 |
| | **ø2.5** | piece | - | - | - | 8 | 820.- | 6,560 | 2 | 850.- | 1,700 | 10 | 8,260 |
| | **ø3.0** | piece | 2 | 1,200.- | 2,400 | - | - | - | 2 | 1,260.- | 2,520 | 4 | 4,920 |
| | **ø4.0** | piece | 2 | 1,900.- | 3,800 | - | - | - | 12 | 2,000.- | 24,000 | 14 | 27,800 |
| | **ø5.0** | piece | - | - | - | - | - | - | 4 | 2,300.- | 9,200 | 4 | 9,200 |
| **PAVEMENT** PAVAGE | | | | | 3,671,350 | | | 1,149,700 | | | 3,782,050 | | 8,603,100 |
| **Type - I** | **Short Haul Transport court** | $m^2$ | 147,000 | 5.90 | 867,300 | 162,000 | 5.30 | 858,600 | 133,000 | 5.85 | 778,050 | 442,000 | 2,503,950 |
| **Type - II** | **Short Haul Transport court** | $m^2$ | 199,000 | 5.95 | 1,184,050 | - | - | - | 384,000 | 5.90 | 2,265,600 | 583,000 | 3,449,650 |
| **Type - III** | **Long Haul Transport long** | $m^2$ | 180,000 | 9.- | 1,620,000 | 41,000 | 7.10 | 291,000 | 104,000 | 7.10 | 738,400 | 325,000 | 2,649,500 |
| **Type - IV** | **Short Haul Transport court** | $m^2$ | - | - | - | - | - | - | - | - | - | - | - |
| **BRIDGES** PONTS | | | | | 4,736,000 | | | 189,000 | | | 664,000 | | 5,229,000 |
| **Angokpa** | **R.C. 1 span R.C. 1 travée** | lm | | | | | | | | | | | |
| **Aqudi** | **R.C. 1 span R.C. 1 travée** | lm | | | | | | | | | | | |
| **Lindi** | **Plate G. 6 spans Poutre entôles 6 travées** | lm | | | | | | | | | | | |
| **Gula** | **P.C. 1 span P.C. 1 travée** | lm | | | | | | | | | | | |
| **Badjoge** | **R.C. 1 span R.C. 1 travée** | lm | | | | | | | | | | | |

(continued / continuée)

| ITEM<br>ARTICLE | DESCRIPTION | UNIT<br>UNITE | SECTION - 8<br>TRONÇON | | | SECTION - 7<br>TRONÇON | | | SECTION - 6<br>TRONÇON | | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | QUANTITY<br>QUANTITE | UNIT COST<br>PRIX UNIT. | COST<br>COÛT | QUANTITY<br>QUANTITE | UNIT COST<br>PRIX UNIT. | COST<br>COÛT | QUANTITY<br>QUANTITE | UNIT COST<br>PRIX UNIT. | COST<br>COÛT | QUANTITY<br>QUANTITE | COST<br>COÛT |
| Longala | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Bokokua | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Aruwimi | Plate G. 16 spans<br>Poutre entoles 16 travées | lm | 640 | 6,500.- | 4,160.000 | - | - | - | - | - | - | 640 | 4,160,000 |
| Zambeke | P.C. 2 spans<br>P.C. 2 travées | lm | 28 | 4,500.- | 126,000 | - | - | - | - | - | - | 28 | 126,000 |
| Kole | R.C. 1 span<br>R.C. 1 travée | lm | 20 | 4,500.- | 90,000 | - | - | - | - | - | - | 20 | 90,000 |
| Tele | P.C. 4 spans<br>P.C. 4 travée | lm | - | - | - | 42 | 4,500.- | 189,000 | - | - | - | 42 | 189,000 |
| Yeme | R.C. 1 span<br>R.C. 1 travée | lm | - | - | - | - | - | - | 16 | 4,000.- | 64,000 | 16 | 64,000 |
| Rubi | P.C. 4 spans<br>P.C. 4 travées | lm | - | - | - | - | - | - | 100 | 6,000.- | 600,000 | 100 | 600,000 |
| Makala | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Longa | P.C. 1 span<br>P.C. 1 travée | lm | | | | | | | | | | | |
| Kotelí | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Maze II | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Bilo II | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Bilo III | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Mborge | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Likati | P.C. 3 spans<br>P.C. 3 travées | lm | | | | | | | | | | | |
| Libogo | P.C. 3 spans<br>P.C. 3 travées | lm | | | | | | | | | | | |
| Zakili | P.C. 1 span<br>P.C. 1 travée | lm | | | | | | | | | | | |
| FERRY<br>BAC | | | | | | | | | | | | | |
| Uele (Bondo) | Landing Facilities<br>Facilité du débarquement | lm | | | | | | | | | | | |
| Bili (Faka) | Landing Facilities<br>Facilité du débarquement | lm | | | | | | | | | | | |
| Bomu (Ndu) | Landing Facilities<br>Facilité du débarquement | lm | | | | | | | | | | | |
| TOTAL | | | | | 10,459,498 | | | 2,016,393 | | | 6,363,356 | | 18,839,247 |

A.3.5.3-(3) (ALTERNATIVE I PHASE I) DIVISION II NET COSTS OF IMPROVEMENT BY DIVISION
COÛTS NETS D'AMELIORATION PAR DIVISION

From de Buta To à Bondo (197.915 km) Unit Unité: Zaire

| ITEM ARTICLE | DESCRIPTION | UNIT UNITE | SECTION TRONÇON - 5 | | | SECTION TRONÇON - 4 | | | SECTION TRONÇON - 3 | | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | QUANTITY QUANTITE | UNIT COST PRIX UNIT. | COST COÛT | QUANTITY QUANTITE | UNIT COST PRIX UNIT. | COST COÛT | QUANTITY QUANTITE | UNIT COST PRIX UNIT. | COST COÛT | QUANTITY QUANTITE | COST COÛT |
| **CLEARING DEBOISEMENT** | | | | | 123,510 | | | 122,850 | | | 103,650 | | 350,010 |
| Clearing Deboisement | **Medium Vegetation Végétation moyenne** | $m^2$ | 691,000 | 0.05 | 34,550 | 613,000 | 0.05 | 30,650 | 537,000 | 0.05 | 26,850 | 1,841,000 | 92,050 |
| Clearing & Grubbing Deboisement & l'essouchment | Sprase Forest Végétation clairsemée | $m^2$ | 579,000 | 0.04 | 23,160 | 397,000 | 0.04 | 15,880 | 407,000 | 0.04 | 16,280 | 1,383,000 | 55,320 |
| " | Medium Forest Végétation moyenne | $m^2$ | 581,000 | 0.08 | 46,480 | 537,000 | 0.08 | 42,960 | 410,000 | 0.08 | 32,800 | 1,528,000 | 122,240 |
| | Dense Forest Végétation forte | $m^2$ | 161,000 | 0.12 | 19,320 | 278,000 | 0.12 | 33,360 | 231,000 | 0.12 | 27,720 | 670,000 | 80,400 |
| **EARTHWORKS TERRASSEMENTS** | | | | | 437,960 | | | 750,580 | | | 673,440 | | 1,861,980 |
| Embankment Remblai | **Short Haul Transport court** | $m^3$ | 347,000 | 1.20 | 416,400 | 142,000 | 1.20 | 170,400 | 245,000 | 1.20 | 294,000 | 734,000 | 880,800 |
| " | **Long Haul Transport long** | $m^3$ | 12,000 | 1.75 | 21,000 | 188,000 | 2.10 | 394,800 | 132,000 | 2.35 | 310,200 | 332,000 | 726,000 |
| Cut Déblai | | $m^3$ | 1,600 | 0.35 | 560 | 11,800 | 0.35 | 4,130 | 1,400 | 0.35 | 490 | 14,800 | 5,180 |
| Subgrade replacement Hérisson de replacement | | lm | - | - | - | 14,500 | 12.50 | 181,250 | 5,000 | 13.75 | 68,750 | 19,500 | 250,000 |
| **SIDE SLOPES TALUS** | | | | | 105,900 | | | 92,600 | | | 83,000 | | 281,500 |
| Slope Shaping Façonnage d'un talus | **Manual Labor Travail de manoeuvre** | $m^2$ | 731,000 | 0.10 | 73,100 | 641,000 | 0.10 | 64,100 | 573,000 | 0.10 | 57,300 | 1,945,000 | 194,500 |
| Grassing Gazonnement | | $m^2$ | 328,000 | 0.10 | 32,800 | 285,000 | 0.10 | 28,500 | 257,000 | 0.10 | 25,700 | 870,000 | 87,000 |
| **DRAINAGE DRAINAGE** | | | | | 596,081 | | | 459,969 | | | 391,624 | | 1,447,674 |
| Side-ditch Excavation Contre-fossé | **Laterite Latérite** | lm | 66,300 | 1.50 | 99,450 | 26,400 | 1.50 | 39,600 | 34,900 | 1.50 | 52,350 | 127,600 | 191,400 |
| " | **Silt Limon** | lm | 2,800 | 2.60 | 7,280 | 34,900 | 2.60 | 90,740 | 18,800 | 2.60 | 48,880 | 56,500 | 146,900 |
| Side-ditch in Village Area Contre-fossé au village | | lm | 5,400 | 27.- | 145,800 | 3,400 | 25.- | 85,000 | 4,700 | 26.- | 122,200 | 13,500 | 353,000 |
| Stone-pitched Ditch Fossé maçonne en pierre | | lm | 1,900 | 44.- | 83,600 | 1,300 | 29.- | 37,700 | 600 | 38.- | 22,800 | 3,800 | 144,100 |

(continued
(continuée)

| ITEM<br>ARTICLE | DESCRIPTION | UNIT<br>UNITE | SECTION - 5<br>TRONÇON | | | SECTION - 4<br>TRONÇON | | | SECTION - 3<br>TRONÇON | | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | QUANTITY<br>QUANTITE | UNIT COST<br>PRIX UNIT. | COST<br>COÛT | QUANTITY<br>QUANTITE | UNIT COST<br>PRIX UNIT. | COST<br>COÛT | QUANTITY<br>QUANTITE | UNIT COST<br>PRIX UNIT. | COST<br>COÛT | QUANTITY<br>QUANTITE | COST<br>COÛT |
| **Pipe-Culvert**<br>**Pipe-ondulée** | **ø0.6m** | lm | - | - | - | - | - | - | - | - | - | - | - |
| | **ø0.8** | lm | - | - | - | - | - | - | - | - | - | - | - |
| | **ø1.0** | lm | 903 | 87.- | 78,561 | 777 | 87.- | 67,599 | 672 | 87.- | 58,464 | 2,352 | 204,624 |
| | **ø1.2** | lm | 21 | 100.- | 2,100 | - | - | - | 126 | 100.- | 12,600 | 147 | 14,700 |
| | **ø1.5** | lm | 42 | 190.- | 7,980 | 105 | 190.- | 19,950 | 84 | 190.- | 15,960 | 231 | 43,890 |
| | **ø1.8** | lm | 21 | 220.- | 4,620 | 63 | 220.- | 13,860 | 105 | 220.- | 23,100 | 189 | 41,580 |
| | **ø2.0** | lm | - | - | - | 21 | 250.- | 5,250 | 21 | 250.- | 5,250 | 42 | 10,500 |
| | **ø2.5** | lm | 42 | 350.- | 14,700 | 84 | 350.- | 29,400 | 42 | 350.- | 14,700 | 168 | 58,800 |
| | **ø3.0** | lm | 42 | 570.- | 23,940 | 84 | 570.- | 47,880 | - | - | - | 126 | 71,820 |
| | **ø4.0** | lm | 105 | 930.- | 97,650 | - | - | - | - | - | - | 105 | 97,650 |
| | **ø5.0** | lm | - | - | - | - | - | - | - | - | - | - | - |
| **Inlet & Outlet**<br>**Entree & sortie** | **ø0.6** | piece | - | - | - | - | - | - | - | - | - | - | - |
| | **ø0.8** | piece | - | - | - | - | - | - | - | - | - | - | - |
| | **ø1.0** | piece | 86 | 80.- | 6,880 | 74 | 70.- | 5,180 | 64 | 75.- | 4,800 | 224 | 16,860 |
| | **ø1.2** | piece | 2 | 120.- | 240 | - | - | - | 12 | 110.- | 1,320 | 14 | 1,560 |
| | **ø1.5** | piece | 4 | 270.- | 1,080 | 10 | 250.- | 2,500 | 8 | 260.- | 2,080 | 22 | 5,660 |
| | **ø1.8** | piece | 2 | 340.- | 680 | 6 | 325.- | 1,950 | 10 | 340.- | 3,400 | 18 | 6,030 |
| | **ø2.0** | piece | - | - | - | 2 | 480.- | 960 | 2 | 500.- | 1,000 | 4 | 1,960 |
| | **ø2.5** | piece | 4 | 700.- | 2,800 | 8 | 650.- | 5,200 | 4 | 680.- | 2,720 | 16 | 10,720 |
| | **ø3.0** | piece | 4 | 930.- | 3,720 | 8 | 900.- | 7,200 | - | - | - | 12 | 10,920 |
| | **ø4.0** | piece | 10 | 1,500.- | 15,000 | - | - | - | - | - | - | 10 | 15,000 |
| | **ø5.0** | piece | - | - | - | - | - | - | - | - | - | - | - |
| **PAVEMENT**<br>PAVAGE | | | | | 2,874,850 | | | 2,520,800 | | | 2,372,050 | | 7,767,700 |
| Type - I | **Short Haul**<br>**Transport court** | $m^2$ | 466,000 | 5.30 | 2,469,800 | 199,000 | 4.55 | 905,450 | 89,000 | 5.05 | 449,450 | 754,000 | 3,824,700 |
| Type - II | **Short Haul**<br>**Transport court** | $m^2$ | 50,000 | 5.35 | 267,500 | - | - | - | 184,000 | 5.10 | 938,400 | 234,000 | 1,205,900 |
| Type - III | **Long Haul**<br>**Transport long** | $m^2$ | 21,000 | 6.55 | 137,550 | 267,000 | 6.05 | 1,615,350 | 148,000 | 6.65 | 984,200 | 436,000 | 2,737,100 |
| Type - IV | **Short Haul**<br>**Transport court** | $m^2$ | - | - | - | - | - | - | - | - | - | - | - |
| **BRIDGES**<br>**PONTS** | | | | | 436,500 | | | 572,000 | | | 450,000 | | 1,458,500 |
| Angokpa | **R.C. 1 span**<br>**R.C. 1 travée** | lm | | | | | | | | | | | |
| Aqudi | **R.C. 1 span**<br>**R.C. 1 travée** | lm | | | | | | | | | | | |
| Lindi | **Plate G. 6 spans**<br>**Poutre entôles 6 travées** | lm | | | | | | | | | | | |
| Gula | **P.C. 1 span**<br>**P.C. 1 travée** | lm | | | | | | | | | | | |
| Badjoge | **R.C. 1 span**<br>**R.C. 1 travée** | lm | | | | | | | | | | | |

(continuée / continued)

| ITEM ARTICLE | DESCRIPTION | UNIT UNITÉ | SECTION TRONÇON - 5 QUANTITY QUANTITÉ | SECTION TRONÇON - 5 UNIT COST PRIX UNIT. | SECTION TRONÇON - 5 COST COÛT | SECTION TRONÇON - 4 QUANTITY QUANTITÉ | SECTION TRONÇON - 4 UNIT COST PRIX UNIT. | SECTION TRONÇON - 4 COST COÛT | SECTION TRONÇON - 3 QUANTITY QUANTITÉ | SECTION TRONÇON - 3 UNIT COST PRIX UNIT | SECTION TRONÇON - 3 COST COÛT | TOTAL QUANTITY QUANTITÉ | TOTAL COST COÛT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Longala | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Bokokua | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Aruwimi | Plate G. 16 spans<br>Poutre entoles 16 travées | lm | | | | | | | | | | | |
| Zambeke | P.C. 2 spans<br>P.C. 2 travées | lm | | | | | | | | | | | |
| Kole | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Tele | P.C. 4 spans<br>P.C. 4 travées | lm | | | | | | | | | | | |
| Yeme | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Rubi | P.C. 4 spans<br>P.C. 4 travées | lm | | | | | | | | | | | |
| Makala | R.C. 1 span<br>R.C. 1 travée | lm | 16 | 4,000 - | 64,000 | - | - | - | - | - | - | 16 | 64,000 |
| Longa | P.C. 1 span<br>P.C. 1 travée | lm | 25 | 4,500 - | 112,500 | - | - | - | - | - | - | 25 | 112,500 |
| Kotelī | R.C. 1 span<br>R.C. 1 travée | lm | 18 | 4,000 - | 72,000 | - | - | - | - | - | - | 18 | 72,000 |
| Maze II | R.C. 1 span<br>R.C. 1 travée | lm | 18 | 4,000 - | 72,000 | - | - | - | - | - | - | 18 | 72,000 |
| Bilo II | R.C. 1 span<br>R.C. 1 travée | lm | 17 | 4,000 - | 68,000 | - | - | - | - | - | - | 17 | 68,000 |
| Bilo III | R.C. 1 span<br>R.C. 1 travée | lm | 12 | 4,000 - | 48,000 | - | - | - | - | - | - | 12 | 48,000 |
| Mborge | R.C. 1 span<br>R.C. 1 travée | lm | - | - | - | 17 | 4,000 - | 68,000 | - | - | - | 17 | 68,000 |
| Likati | P.C. 3 spans<br>P.C. 3 travées | lm | - | - | - | 84 | 6,000 - | 504,000 | - | - | - | 84 | 504,000 |
| Libogo | P.C. 3 spans<br>P.C. 3 travées | lm | - | - | - | - | - | - | 75 | 6,000 - | 450,000 | 75 | 450,000 |
| Zakili | P.C. 1 span<br>P.C. 1 travée | lm | | | | | | | | | | | |
| FERRY BAC | | | | | | | | | | | 18,000 | | 18,000 |
| Uele (Bondo) | Landing Facilities<br>Facilité du débarquement | lm | - | - | - | - | - | - | 120 | 150 - | 18,000 | 120 | 18,000 |
| Bili (Faka) | Landing Facilities<br>Facilité du débarquement | lm | | | | | | | | | | | |
| Bomu (Ndu) | Landing Facilities<br>Facilité du débarquement | lm | | | | | | | | | | | |
| TOTAL | | | | | 4,574,801 | | | 4,518,799 | | | 4,091,764 | | 13,185,364 |

A.3.5.3-(4) (ALTERNATIVE I PHASE I) DIVISION I NET COSTS OF IMPROVEMENT BY DIVISION / COÛTS NETS D'AMELIORATION PAR DIVISION From de Bondo To à Bangassou (190.620 km) Unit Unité: Zaire

| ITEM / ARTICLE | DESCRIPTION | UNIT / UNITE | SECTION TRONÇON - 2 QUANTITY / QUANTITE | UNIT COST / PRIX UNIT. | SECTION TRONÇON - 2 COST / COÛT | SECTION TRONÇON - 1 QUANTITY / QUANTITE | UNIT COST / PRIX UNIT. | SECTION TRONÇON - 1 COST / COÛT | | | | TOTAL QUANTITY / QUANTITE | TOTAL COST / COÛT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CLEARING<br>DEBOISEMENT | | | | | 234,650 | | | 128,800 | | | | | 363,450 |
| Clearing<br>Deboisement | Medium Vegetation<br>Végétation moyenne | $m^2$ | 1,109,000 | 0.05 | 55,450 | 652,000 | 0.05 | 32,600 | | | | 1,761,000 | 88,050 |
| Clearing &<br>Grubbing<br>Deboisement &<br>l'essouchment | Sparse Forest<br>Végétation clairsemée | $m^2$ | 830,000 | 0.04 | 33,200 | 754,000 | 0.04 | 30,160 | | | | 1,584,000 | 63,360 |
| | Medium Forest<br>Végétation moyenne | $m^2$ | 1,009,000 | 0.08 | 80,720 | 407,000 | 0.08 | 32,560 | | | | 1,416,000 | 113,280 |
| " | Dense Forest<br>Végétation forte | $m^2$ | 544,000 | 0.12 | 65,280 | 279,000 | 0.12 | 33,480 | | | | 823,000 | 98,760 |
| EARTHWORKS<br>TERRASSEMENTS | | | | | 965,390 | | | 1,401,065 | | | | | 2,366,455 |
| Embankment<br>Remblai | Short Haul<br>Transport court | $m^3$ | 488,000 | 1.20 | 585,600 | 916,000 | 1.20 | 1,099,200 | | | | 1,404,000 | 1,684,800 |
| " | Long Haul<br>Transport long | $m^3$ | 169,000 | 2.- | 338,000 | 163,000 | 1.85 | 301,550 | | | | 332,000 | 639,550 |
| Cut<br>Déblai | | $m^3$ | 119,400 | 0.35 | 41,790 | 900 | 0.35 | 315 | | | | 120,300 | 42,105 |
| Subgrade<br>Replacement<br>Hérisson de<br>replacement | | lm | - | - | - | - | - | - | | | | - | - |
| SIDE SLOPES<br>TALUS | | | | | 174,000 | | | 98,300 | | | | | 272,300 |
| Slope Shaping<br>Façonnage d'un<br>talus | Manual Labor<br>Travail de<br>manoeuvre | $m^2$ | 1,202,000 | 0.10 | 120,200 | 683,000 | 0.10 | 68,300 | | | | 1,885,000 | 188,500 |
| Grassing<br>Gazonnement | | $m^2$ | 538,000 | 0.10 | 53,800 | 300,000 | 0.10 | 30,000 | | | | 838,000 | 83,800 |
| DRAINAGE<br>DRAINAGE | | | | | 1,045,108 | | | 601,122 | | | | | 1,646,230 |
| Side-ditch<br>Excavation<br>Contre-fossé | Laterite<br>Latérite | lm | 82,000 | 1.50 | 123,000 | 55,500 | 1.50 | 83,250 | | | | 137,500 | 206,250 |
| " | Silt<br>Limon | lm | 28,800 | 2.60 | 74,880 | 9,800 | 2.60 | 25,480 | | | | 38,600 | 100,360 |
| Side-ditch in<br>Village Area<br>Contre-fossé au<br>village | | lm | 11,400 | 25.- | 285,000 | 3,000 | 28.- | 84,000 | | | | 14,400 | 369,000 |
| Stone-pitched<br>Ditch<br>Fossé maçonne en<br>pierre | | lm | 3,400 | 29.- | 98,600 | 4,200 | 48.- | 201,600 | | | | 7,600 | 300,200 |

(continued / continuée)

| ITEM<br>ARTICLE | DESCRIPTION | UNIT<br>UNITE | SECTION - 2 TRONÇON<br>QUANTITY<br>QUANTITE | <br>UNIT COST<br>PRIX UNIT. | <br>COST<br>COÛT | SECTION - 1 TRONÇON<br>QUANTITY<br>QUANTITE | <br>UNIT COST<br>PRIX UNIT. | <br>COST<br>COÛT | | | | TOTAL<br>QUANTITY<br>QUANTITE | <br>COST<br>COÛT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Pipe-Culvert**<br>**Pipe-ondulée** | **ø0.6m** | lm | - | - | - | - | - | - | | | | - | - |
| | **ø0.8** | lm | - | - | - | - | - | - | | | | - | - |
| | **ø1.0** | lm | 1,554 | 87.- | 135,198 | 756 | 87.- | 65,772 | | | | 2,310 | 200,970 |
| | **ø1.2** | lm | 63 | 100.- | 6,300 | - | - | - | | | | 63 | 6,300 |
| | **ø1.5** | lm | 609 | 190.- | 115,710 | 42 | 190.- | 7,980 | | | | 651 | 123,690 |
| | **ø1.8** | lm | 105 | 220.- | 23,100 | - | - | - | | | | 105 | 23,100 |
| | **ø2.0** | lm | 21 | 250.- | 5,250 | 21 | 250.- | 5,250 | | | | 42 | 10,500 |
| | **ø2.5** | lm | 63 | 350.- | 22,050 | 21 | 350.- | 7,350 | | | | 84 | 29,400 |
| | **ø3.0** | lm | - | - | - | 63 | 570.- | 35,910 | | | | 63 | 35,910 |
| | **ø4.0** | lm | 84 | 930.- | 78,120 | 63 | 930.- | 58,590 | | | | 147 | 136,710 |
| | **ø5.0** | lm | 21 | 1,400.- | 29,400 | - | - | - | | | | 21 | 29,400 |
| **Inlet & Outlet**<br>**Entree & sortie** | **ø0.6** | piece | - | - | - | - | - | - | | | | - | - |
| | **ø0.8** | piece | - | - | - | - | - | - | | | | - | - |
| | **ø1.0** | piece | 148 | 70.- | 10,360 | 72 | 90.- | 6,480 | | | | 220 | 16,840 |
| | **ø1.2** | piece | 6 | 100.- | 600 | - | - | - | | | | 6 | 600 |
| | **ø1.5** | piece | 58 | 250.- | 14,500 | 4 | 300.- | 1,200 | | | | 62 | 15,700 |
| | **ø1.8** | piece | 10 | 320.- | 3,200 | - | - | - | | | | 10 | 3,200 |
| | **ø2.0** | piece | 2 | 470.- | 940 | 2 | 560.- | 1,120 | | | | 4 | 2,060 |
| | **ø2.5** | piece | 6 | 650.- | 3,900 | 2 | 770.- | 1,540 | | | | 8 | 5,440 |
| | **ø3.0** | piece | - | - | - | 6 | 1,000.- | 6,000 | | | | 6 | 6,000 |
| | **ø4.0** | piece | 8 | 1,400.- | 11,200 | 6 | 1,600.- | 9,600 | | | | 14 | 20,800 |
| | **ø5.0** | piece | 2 | 1,900.- | 3,800 | - | - | - | | | | 2 | 3,800 |
| **PAVEMENT**<br>PAVAGE | | | | | 4,380,050 | | | 2,191,700 | | | | | 6,571,750 |
| **Type - I** | **Short Haul**<br>**Transport court** | $m^2$ | 651,000 | 4.60 | 2,994,600 | 163,000 | 5.25 | 855,750 | | | | 814,000 | 3,850,350 |
| **Type - II** | **Short Haul**<br>**Transport court** | $m^2$ | - | - | - | - | - | - | | | | - | - |
| **Type - III** | **Long Haul**<br>**Transport long** | $m^2$ | 229,000 | 6.05 | 1,385,450 | 77,000 | 6.55 | 504,350 | | | | 306,000 | 1,889,800 |
| **Type - IV** | **Short Haul**<br>**Transport court** | $m^2$ | - | - | - | 252,000 | 3.30 | 831,660 | | | | 252,000 | 831,600 |
| **BRIDGES**<br>**PONTS** | | | | | 108,000 | | | - | | | | | 108,000 |
| Angokpa | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Aqudi | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Lindi | Plate G. 6 spans<br>Poutre entôles 6 travées | lm | | | | | | | | | | | |
| Gula | P.C. 1 span<br>P.C. 1 travée | lm | | | | | | | | | | | |
| Badjoge | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |

(continued / continuée)

| ITEM ARTICLE | DESCRIPTION | UNIT UNITE | SECTION - 2 TRONÇON QUANTITY QUANTITE | UNIT COST PRIX UNIT. | COST COÛT | SECTION - 1 TRONÇON QUANTITY QUANTITE | UNIT COST PRIX UNIT. | COST COÛT | | | | TOTAL QUANTITY QUANTITE | TOTAL COST COÛT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Longala | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Bokokua | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Aruwimi | Plate G. 16 spans<br>Poutre entoles 16 travées | lm | | | | | | | | | | | |
| Zambeke | P.C. 2 spans<br>P.C. 2 travées | lm | | | | | | | | | | | |
| Kole | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Tele | P.C. 4 spans<br>P.C. 4 travées | lm | | | | | | | | | | | |
| Yeme | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Rubi | P.C. 4 spans<br>P.C. 4 travées | lm | | | | | | | | | | | |
| Makala | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Longa | P.C. 1 span<br>P.C. 1 travée | lm | | | | | | | | | | | |
| Koteli | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Maze II | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Bilo II | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Bilo III | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Mborge | R.C. 1 span<br>R.C. 1 travée | lm | | | | | | | | | | | |
| Likati | P.C. 3 spans<br>P.C. 3 travées | lm | | | | | | | | | | | |
| Libogo | P.C. 3 spans<br>P.C. 3 travées | lm | | | | | | | | | | | |
| Zakili | P.C. 1 span<br>P.C. 1 travée | lm | 24 | 4,500.- | 108,000 | - | - | - | | | | 24 | 108,000 |
| FERRY BAC | | | | | 7,000 | | | 16,000 | | | | | 23,000 |
| Uele (Bondo) | Landing Facilities<br>Facilité du débarquement | lm | | | | | | | | | | | |
| Bili (Faka) | Landing Facilities<br>Facilité du débarquement | lm | 50 | 140.- | 7,000 | - | - | - | | | | 50 | 7,000 |
| Bomu (Ndu) | Landing Facilities<br>Facilité du débarquement | lm | - | - | - | 100 | 160.- | 16,000 | | | | 100 | 16,000 |
| TOTAL | | | | | 6,914,198 | | | 4,436,987 | | | | | 11,351,185 |

A.3.5.4 ( ALTERNATIVE-I / PHASE-II ) NET COSTS OF IMPROVEMENT / COÛTS NETS D'AMERIORATION

(Unit / unité: Zaire)

| ITEM | | DESCRIP-TION | UNIT UNITE | DIVISION IV | | | | | | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | SECTION 10 | | | SECTION 9 | | | |
| | | | | QUANTITY QUANTITE | UNIT PRICE PRIX UNITAIRE | COST COÛT | QUANTITY QUANTITE | UNIT PRICE PRIX UNITAIRE | COST COÛT | |
| PAVEMENT PAPAGE | Densegrade asphalt-concrete Béton asphaltique | t=5cm | m2 | 321,000 | 3.03 | 972,630 | 558,000 | 3.62 | 2,019,960 | 2,992,590 |

A.3.5.5 Alternative I

## Gross Costs of Improvement
## Coûts brut d'amélioration

(unit / unité : Zaire)

| | | Division IV | Division III | Division II | Division I | Total |
|---|---|---|---|---|---|---|
| Net Improvement Cost / Coûts nets d'amélioration | Phase I | 15,254,910 | 18,839,247 | 13,185,364 | 11,351,185 | 58,630,706 |
| | Phase II | 2,992,590 | - | - | - | 2,992,590 |
| | Sub-Total / Sous-Total | 18,247,500 | 18,839,247 | 13,185,364 | 11,351,185 | 61,623,296 |
| Contingency / Faux frais divers | | 2,737,130 | 2,825,890 | 1,977,837 | 1,702,670 | 9,243,527 |
| Total | | 20,984,630 | 21,665,137 | 15,163,201 | 13,053,855 | 70,866,823 |
| Final Engineering / Technique de l'ingénieur finale | | 1,094,850 | 1,130,350 | 791,122 | 681,071 | 3,697,393 |
| Supervision / Surveillance | | 912,360 | 941,913 | 659,287 | 567,534 | 3,081,094 |
| Total | | 2,007,210 | 2,072,263 | 1,450,409 | 1,248,605 | 6,778,487 |
| Grand Total / Coût total | | 22,991,840 | 23,737,400 | 16,613,610 | 14,302,460 | 77,645,310 |

A.3.5.6

ALTERNATIVE II PHASE I NET COSTS OF IMPROVEMENT / COÛTS NETS D'AMELIORATION From / de Kisangani To / à Bangassou (698.955 km) Unit / Unité: Zaire

| ITEM / ARTICLE | DESCRIPTION | UNIT / UNITE | DIVISION-IV | | DIVISION-III | | DIVISION-II | | DIVISION-I | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | QUANTITY / QUANTITE | COST / COÛT | QUANTITY / QUANTITE | COST / COÛT | QUANTITY / QUANTITE | COST / COÛT | QUANTITY / QUANTITE | COST / COÛT | QUANTITY / QUANTITE | COST / COÛT |
| CLEARING / DEBOISEMENT | | | | 168,630 | | 279,570 | | 237,330 | | 227,890 | | 913,420 |
| Clearing / Deboisement | Medium Vegetation / Végétation moyenne | $m^2$ | 1,123,000 | 56,150 | 1,701,000 | 85,050 | 1,841,000 | 92,050 | 1,761,000 | 88,050 | 6,426,000 | 321,300 |
| Clearing & Grubbing | Light Vegetation / Végétation clairsemée | $m^2$ | 725,000 | 29,000 | 725,000 | 29,000 | 790,000 | 31,600 | 805,000 | 32,200 | 3,045,000 | 121,800 |
| Deboisement & l'essouchment | Medium Vegetation / Végétation moyenne | $m^2$ | 679,000 | 54,320 | 950,000 | 76,000 | 866,000 | 69,280 | 720,000 | 57,600 | 3,215,000 | 257,200 |
| " | Heavy Vegetation / Végétation forte | $m^2$ | 243,000 | 29,160 | 746,000 | 89,520 | 370,000 | 44,400 | 417,000 | 50,040 | 1,776,000 | 213,120 |
| EARTHWORKS / TERRASSEMENTS | | | | 4,071,590 | | 1,342,355 | | 1,037,230 | | 1,665,705 | | 8,116,980 |
| Embankment / Remblai | Short Haul / Transport court | $m^3$ | 395,000 | 474,000 | 466,000 | 559,200 | 431,000 | 517,200 | 993,000 | 1,191,600 | 2,285,000 | 2,742,000 |
| " | Long Haul / Transport long | $m^3$ | 719,000 | 3,591,500 | 232,000 | 781,300 | 127,000 | 264,950 | 216,000 | 432,000 | 1,294,000 | 5,069,750 |
| Cut / Déblai | | $m^3$ | 17,400 | 6,090 | 5,300 | 1,855 | 14,800 | 5,180 | 120,300 | 42,105 | 157,800 | 55,230 |
| Subgrade Replacement / Hérisson de replacement | | $m^3$ | - | - | - | - | 19,500 | 250,000 | - | - | 19,500 | 250,000 |
| SIDE SLOPES / TALUS | | | | 116,300 | | 151,800 | | 129,700 | | 103,300 | | 501,100 |
| Slope Shaping / Façonnage d'un talus | Manual Labor / Travail de manoeuvre | $m^2$ | 625,000 | 62,500 | 955,000 | 95,500 | 1,073,000 | 107,300 | 1,033,000 | 103,300 | 3,686,000 | 368,600 |
| Grassing / Gazonnement | | $m^2$ | 538,000 | 53,800 | 563,000 | 56,300 | 224,000 | 22,400 | - | - | 1,325,000 | 132,500 |
| DRAINAGE / DRAINAGE | | | | 1,178,071 | | 1,547,239 | | 1,225,500 | | 1,365,721 | | 5,316,531 |
| Side-ditches Excavation / Contre-fossés | Laterite / Latérite | lm | 40,900 | 61,350 | 114,300 | 171,450 | 127,600 | 191,400 | 137,500 | 206,250 | 420,300 | 630,450 |
| " | Silt / Limon | lm | 71,400 | 185,640 | 55,700 | 144,820 | 56,500 | 146,900 | 38,600 | 100,360 | 222,200 | 577,720 |
| Side-ditches in Village Area / Contre-fossés au village | | lm | 10,000 | 256,000 | 17,500 | 523,900 | 13,500 | 353,000 | 14,400 | 369,000 | 55,400 | 1,501,900 |
| Stone-pitched Ditches / Fossés maçonne en pierre | | lm | 6,700 | 249,600 | 900 | 63,600 | 3,800 | 144,100 | 7,600 | 300,200 | 19,000 | 757,500 |
| Pipe-Culverts / Fûts | ø0.6m | lm | 47 | 1,128 | 7 | 168 | - | - | - | - | 54 | 1,296 |
| | ø0.8 | lm | - | - | 7 | 266 | - | - | - | - | 7 | 266 |
| | ø1.0 | lm | 1,554 | 135,198 | 1,540 | 133,980 | 1,400 | 121,800 | 1,243 | 108,141 | 5,737 | 499,119 |
| | ø1.2 | lm | 442 | 44,220 | 182 | 18,200 | 66 | 6,600 | 33 | 3,300 | 723 | 72,300 |
| | ø1.5 | lm | 341 | 64,790 | 308 | 58,520 | 116 | 22,040 | 341 | 64,790 | 1,106 | 210,140 |
| | ø1.8 | lm | 116 | 25,520 | 98 | 21,560 | 116 | 25,520 | 55 | 12,100 | 385 | 84,700 |
| | ø2.0 | lm | 48 | 12,000 | 140 | 35,000 | 22 | 5,500 | 22 | 5,500 | 232 | 58,000 |
| | ø2.5 | lm | - | - | 84 | 29,400 | 94 | 32,900 | 44 | 15,400 | 222 | 77,700 |
| | ø3.0 | lm | 82 | 46,740 | 42 | 23,940 | 72 | 41,040 | 33 | 18,810 | 229 | 130,530 |
| | ø4.0 | lm | 34 | 31,620 | 140 | 130,200 | 70 | 65,100 | 77 | 71,610 | 321 | 298,530 |
| | ø5.0 | lm | 9 | 12,600 | 42 | 58,800 | - | - | 11 | 15,400 | 62 | 86,800 |

(continued / continuée)

| ITEM ARTICLE | DESCRIPTION | UNIT UNITE | DIVISION-IV | | DIVISION-III | | DIVISION-II | | DIVISION-I | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | QUANTITY QUANTITE | COST COÛT | QUANTITY QUANTITE | COST COÛT | QUANTITY QUANTITE | COST COÛT | QUANTITY QUANTITE | COST COÛT | QUANTITY QUANTITE | COST COÛT |
| Inlets & Outlets Entreés & sorties | ø0.6 | piece | 6 | 215 | 1 | 60 | - | - | - | - | 7 | 275 |
| | ø0.8 | piece | - | - | 1 | 75 | - | - | - | - | 1 | 75 |
| | ø1.0 | piece | 191 | 12,760 | 220 | 24,700 | 230 | 17,330 | 226 | 17,260 | 867 | 72,050 |
| | ø1.2 | piece | 55 | 5,710 | 26 | 4,400 | 16 | 1,800 | 6 | 600 | 103 | 12,550 |
| | ø1.5 | piece | 38 | 9,420 | 44 | 15,760 | 20 | 5,160 | 62 | 15,700 | 164 | 46,040 |
| | ø1.8 | piece | 14 | 4,480 | 14 | 6,320 | 20 | 6,710 | 10 | 3,200 | 58 | 20,710 |
| | ø2.0 | piece | 6 | 2,700 | 20 | 12,440 | 4 | 1,960 | 4 | 2,060 | 34 | 19,160 |
| | ø2.5 | piece | - | - | 12 | 9,920 | 16 | 10,720 | 8 | 5,440 | 36 | 26,080 |
| | ø3.0 | piece | 10 | 8,800 | 6 | 7,320 | 12 | 10,920 | 6 | 6,000 | 34 | 33,040 |
| | ø4.0 | piece | 4 | 5,600 | 20 | 38,800 | 10 | 15,000 | 14 | 20,800 | 48 | 80,200 |
| | ø5.0 | piece | 1 | 2,000 | 6 | 13,600 | - | - | 2 | 3,800 | 9 | 19,400 |
| PAVEMENTS PAVAGES | | | | 6,359,700 | | 1,371,450 | | 1,838,100 | | 1,790,900 | | 11,360,150 |
| Type - I | Short Haul Transport court | $m^2$ | 221,000 | 1,106,300 | - | - | - | - | - | - | 221,000 | 1,106,300 |
| Type - II | Short Haul Transport court | $m^2$ | 96,000 | 504,000 | - | - | - | - | - | - | 96,000 | 504,000 |
| Type - III | Long Haul Transport long | $m^2$ | 562,000 | 4,749,400 | - | - | - | - | - | - | 562,000 | 4,749,400 |
| Laterite lower Subbase | t=40cm short haul " transport court | $m^2$ | - | - | 752,000 | 752,000 | - | - | - | - | 752,000 | 752,000 |
| Latérite sous-couche | t=40cm long haul " transport long | $m^2$ | - | - | 374,000 | 619,450 | - | - | - | - | 374,000 | 619,450 |
| TYPE VI | t=50cm short haul " transport court | $m^2$ | - | - | - | - | 890,000 | 1,157,000 | ,040,000 | 1,352,000 | 1,930,000 | 2,509,000 |
| | t=50cm long haul " transport long | $m^2$ | - | - | - | - | 419,000 | 681,000 | 295,000 | 438,000 | 714,000 | 1,120,000 |
| BRIDGES PONTS | | | | - | | - | | 343,000 | | 96,000 | | 439,000 |
| Makala | R.C. 1 span R.C. 1 travée | lm | - | - | - | - | 16 | 56,000 | - | - | 16 | 56,000 |
| Kotelí | R.C. 1 span R.C. 1 travée | lm | - | - | - | - | 18 | 63,000 | - | - | 18 | 63,000 |
| Maze II | R.C. 1 span R.C. 1 travée | lm | - | - | - | - | 18 | 63,000 | - | - | 18 | 63,000 |
| Bilo II | R.C. 1 span R.C. 1 travée | lm | - | - | - | - | 17 | 59,500 | - | - | 17 | 59,500 |
| Bilo III | R.C. 1 span R.C. 1 travée | lm | - | - | - | - | 12 | 42,000 | - | - | 12 | 42,000 |
| Mborge | R.C. 1 span R.C. 1 travée | lm | - | - | - | - | 17 | 59,500 | - | - | 17 | 59,500 |
| Zakili | P.C. 1 span P.C. 1 travée | lm | - | - | - | - | - | - | 24 | 96,000 | 24 | 96,000 |
| FERRIES BACS | | | | - | | 16,800 | | 18,000 | | 23,000 | | 57,800 |
| Aruwimi (Banalia) | Landing Facilities Facilité du débarquement | lm | - | - | 120 | 16,800 | - | - | - | - | 120 | 16,800 |
| Uele (Bondo) | Landing Facilities Facilité du débarquement | lm | - | - | - | - | 120 | 18,000 | - | - | 120 | 18,000 |
| Bili (Faka) | Landing Facilities Facilité du débarquement | lm | - | - | - | - | - | - | 50 | 7,000 | 50 | 7,000 |
| Bomu (Ndu) | Landing Facilities Facilité du débaruqement | lm | - | - | - | - | - | - | 100 | 16,000 | 100 | 16,000 |
| TOTAL | | | — | 11,894,291 | — | 4,709,214 | — | 4,828,960 | — | 5,272,516 | — | 26,704,981 |

A.3.5.7-(1)

ALTERNATIVE II PHASE I

NET COSTS OF IMPROVEMENT
COÛTS NETS D''AMELIORATION

DIVISION IV

From de Kisangani To à Banalia (122.610 km) Unit Unité : Zaire

| ITEM ARTICLE | DESCRIPTION | UNIT UNITE | SECTION TRONÇON - 10 QUANTITY QUANTITE | UNIT COST PRIX UNIT. | COST COÛT | SECTION TRONÇON - 9 QUANTITY QUANTITE | UNIT COST PRIX UNIT. | COST COÛT | | | | TOTAL QUANTITY QUANTITE | TOTAL COST COÛT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CLEARING DEBOISEMENT | | | | | 64,950 | | | 103,680 | | | | | 103,680 |
| Clearing Deboisement | Medium Vegetation Végétation moyenne | $m^2$ | 407,000 | 0.05 | 20,350 | 716,000 | 0.05 | 35,800 | | | | 1,123,000 | 56,150 |
| Clearing & Grubbing | Light Vegetation Végétation clairsemée | $m^2$ | 252,000 | 0.04 | 10,080 | 473,000 | 0.04 | 18,920 | | | | 725,000 | 29,000 |
| Deboisement & l'essouchment | Medium Vegetation Végétation moyenne | $m^2$ | 292,000 | 0.08 | 23,360 | 387,000 | 0.08 | 30,960 | | | | 679,000 | 54,320 |
| " | Heavy Vegetation Végétation forte | $m^2$ | 93,000 | 0.12 | 11,160 | 150,000 | 0.12 | 18,000 | | | | 243,000 | 29,160 |
| EARTHWORKS TERRASSEMENTS | | | | | 1,344,860 | | | 2,726,730 | | | | | 4,071,590 |
| Embankment Remblai | Short Haul Transport court | $m^3$ | 152,000 | 1.20 | 182,400 | 243,000 | 1.20 | 291,600 | | | | 395,000 | 474,000 |
| " | Long Haul Transport long | $m^3$ | 178,000 | 6.50 | 1,157,000 | 541,000 | 4.50 | 2,434,500 | | | | 719,000 | 3,591,500 |
| Cut Déblai | | $m^3$ | 15,600 | 0.35 | 5,460 | 1,800 | 0.35 | 630 | | | | 17,400 | 6,090 |
| Subgrade Replacement Hérisson de replacement | | lm | - | - | - | - | - | - | | | | - | - |
| SIDE SLOPES TALUS | | | | | 43,100 | | | 73,200 | | | | | 116,300 |
| Slope Shaping Façonnage d'un talus | Manual Labor Travail de manoeuvre | $m^2$ | 235,000 | 0.10 | 23,500 | 390,000 | 0.10 | 39,000 | | | | 625,000 | 62,500 |
| Grassing Gazonnement | | $m^2$ | 196,000 | 0.10 | 19,600 | 342,000 | 0.10 | 34,200 | | | | 538,000 | 53,800 |
| DRAINAGE DRAINAGE | | | | | 298,499 | | | 879,572 | | | | | 1,178,071 |
| Side-ditches Excavation Contre-fossés | Laterite Latérite | lm | 18,700 | 1.50 | 28,050 | 22,200 | 1.50 | 33,300 | | | | 40,900 | 61,350 |
| " | Silt Limon | lm | 22,000 | 2.60 | 57,200 | 49,400 | 2.60 | 128,440 | | | | 71,400 | 185,640 |
| Side-ditches In Village Area Contre-fossés au village | | lm | 4,000 | 25.- | 100,000 | 6,000 | 26.- | 156,000 | | | | 10,000 | 256,000 |
| Stone-pitched Ditches Fossés maçonne en pierre | | lm | 1,300 | 30.- | 39,000 | 5,400 | 39.- | 210,600 | | | | 6,700 | 249,600 |
| Pipe-Culverts Fûts | ø0.6m | lm | 38 | 24.- | 912 | 9 | 24.- | 216 | | | | 47 | 1,128 |
| | ø0.8 | lm | - | - | - | - | - | - | | | | - | - |
| | ø1.0 | lm | 496 | 87.- | 43,152 | 1,058 | 87.- | 92,046 | | | | 1,554 | 135,198 |
| | ø1.2 | lm | 104 | 100.- | 10,400 | 338 | 100.- | 33,800 | | | | 442 | 44,200 |
| | ø1.5 | lm | 67 | 190.- | 12,730 | 274 | 190.- | 52,060 | | | | 341 | 64,790 |
| | ø1.8 | lm | - | - | - | 116 | 220.- | 25,520 | | | | 116 | 25,520 |
| | ø2.0 | lm | - | - | - | 48 | 250.- | 12,000 | | | | 48 | 12,000 |
| | ø2.5 | lm | - | - | - | - | - | - | | | | - | - |
| | ø3.0 | lm | - | - | - | 82 | 570.- | 46,740 | | | | 82 | 46,740 |
| | ø4.0 | lm | - | - | - | 34 | 930.- | 31,620 | | | | 34 | 31,620 |
| | ø5.0 | lm | - | - | - | 9 | 1,400.- | 12,600 | | | | 9 | 12,600 |

(continued / continuée)

| ITEM ARTICLE | DESCRIPTION | UNIT UNITE | SECTION TRONÇON - 10 QUANTITY QUANTITE | UNIT COST PRIX UNIT. | COST COÛT | SECTION TRONÇON - 9 QUANTITY QUANTITE | UNIT COST PRIX UNIT. | COST COÛT | | | | TOTAL QUANTITY QUANTITE | TOTAL COST COÛT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Inlets & Outlets Entreés & sorties | ø0.6 | piece | 5 | 35.- | 175 | 1 | 40.- | 40 | | | | 6 | 215 |
| | ø0.8 | piece | - | - | - | - | - | - | | | | - | - |
| | ø1.0 | piece | 61 | 60.- | 3,660 | 130 | 70.- | 9,100 | | | | 191 | 12,760 |
| | ø1.2 | piece | 13 | 100.- | 1,300 | 42 | 105.- | 4,410 | | | | 55 | 5,710 |
| | ø1.5 | piece | 8 | 240.- | 1,920 | 30 | 250.- | 7,500 | | | | 38 | 9,420 |
| | ø1.8 | piece | - | - | - | 14 | 320.- | 4,480 | | | | 14 | 4,480 |
| | ø2.0 | piece | - | - | - | 6 | 450.- | 2,700 | | | | 6 | 2,700 |
| | ø2.5 | piece | - | - | - | - | - | - | | | | - | - |
| | ø3.0 | piece | - | - | - | 10 | 880.- | 8,800 | | | | 10 | 8,800 |
| | ø4.0 | piece | - | - | - | 4 | 1,400.- | 5,600 | | | | 4 | 5,600 |
| | ø5.0 | piece | - | - | - | 1 | 2,000.- | 2,000 | | | | 1 | 2,000 |
| PAVEMENTS PAVAGES | | | | | 2,320,500 | | | 4,039,200 | | | | | 6,359,700 |
| Type - I | Short Haul Transport court | $m^2$ | 143,000 | 4.90 | 700,700 | 78,000 | 5.20 | 405,600 | | | | 221,000 | 1,106,300 |
| Type - II | Short Haul Transport court | $m^2$ | - | - | - | 96,000 | 5.25 | 504,000 | | | | 96,000 | 504,000 |
| Type - III | Long Haul Transport long | $m^2$ | 178,000 | 9.10 | 1,619,800 | 384,000 | 8.15 | 3,129,600 | | | | 562,000 | 4,749,400 |
| Laterite lower Subbase | t=40cm short haul " transport court | $m^2$ | - | - | - | - | - | - | | | | - | - |
| Latérite sous-couche | t=40cm long haul " transport long | $m^2$ | - | - | - | - | - | - | | | | - | - |
| TYPE VI | t=50cm short haul " transport court | $m^2$ | - | - | - | - | - | - | | | | - | - |
| | t=50cm long haul " transport long | $m^2$ | - | - | - | - | - | - | | | | - | - |
| BRIDGES PONTS | | | | | | | | | | | | | |
| Makala | R.C. 1 span R.C. 1 travée | lm | | | | | | | | | | | |
| Kotelî | R.C. 1 span R.C. 1 travée | lm | | | | | | | | | | | |
| Maze II | R.C. 1 span R.C. 1 travée | lm | | | | | | | | | | | |
| Bilo II | R.C. 1 span R.C. 1 travée | lm | | | | | | | | | | | |
| Bilo III | R.C. 1 span R.C. 1 travée | lm | | | | | | | | | | | |
| Mborge | R.C. 1 span R.C. 1 travée | lm | | | | | | | | | | | |
| Zakîîî | P.C. 1 span P.C. 1 travée | lm | | | | | | | | | | | |
| FERRIES BACS | | | | | | | | | | | | | |
| Aruwimi (Banalia) | Landing Facilities Facilité du débarquement | lm | | | | | | | | | | | |
| Uele (Bondo) | Landing Facilities Facilité du débarquement | lm | | | | | | | | | | | |
| Bîîî (Faka) | Landing Facilities Facilité du débarquement | lm | | | | | | | | | | | |
| Bomu (Ndu) | Landing Facilities Facilité du débaruqement | lm | | | | | | | | | | | |
| TOTAL | | | — | — | 4,071,909 | — | — | 7,822,382 | — | — | — | — | 11,894,291 |

Note: Net costs of improvement do not include contingency and costs of final engineering and supervision of construction.
Coûts nets d'amélioration non inclu faux frais divers et surveillance de construction.

ALTERNATIVE II PHASE I

NET COSTS OF IMPROVEMENT
COÛTS NETS D'AMELIORATION

DIVISION III

From de Banalia To à Buta (187.810 km) Unit Unité : Zaire

A.3.5.7-(2)

| ITEM ARTICLE | DESCRIPTION | UNIT UNITE | SECTION TRONÇON - 8 QUANTITY QUANTITE | UNIT COST PRIX UNIT. | COST COÛT | SECTION TRONÇON - 7 QUANTITY QUANTITE | UNIT COST PRIX UNIT. | COST COÛT | SECTION TRONÇON - 6 QUANTITY QUANTITE | UNIT COST PRIX UNIT. | COST COÛT | TOTAL QUANTITY QUANTITE | TOTAL COST COÛT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CLEARING DEBOISEMENT | | | | | 117,250 | | | 41,570 | | | 120,750 | | 279,570 |
| Clearing Deboisement | Medium Vegetation Végétation moyenne | $m^2$ | 645,000 | 0.05 | 32,250 | 249,000 | 0.05 | 12,450 | 807,000 | 0.05 | 40,350 | 1,701,000 | 85,050 |
| Clearing & Grubbing | Light Vegetation Végétation clairsemée | $m^2$ | 279,000 | 0.04 | 11,160 | 115,000 | 0.04 | 4,600 | 331,000 | 0.04 | 13,240 | 725,000 | 29,000 |
| Deboisement & l'essouchment | Medium Vegetation Végétation moyenne | $m^2$ | 311,000 | 0.08 | 24,880 | 170,000 | 0.08 | 13,600 | 469,000 | 0.08 | 37,520 | 950,000 | 76,000 |
| " | Heavy Vegetation Végétation forte | $m^2$ | 408,000 | 0.12 | 48,960 | 91,000 | 0.12 | 10,920 | 247,000 | 0.12 | 29,640 | 746,000 | 89,520 |
| EARTHWORKS TERRASSEMENTS | | | | | 730,160 | | | 224,750 | | | 387,445 | | 1,342,355 |
| Embankment Remblai | Short Haul Transport court | $m^3$ | 200,000 | 1.20 | 240,000 | 18,000 | 1.20 | 21,600 | 248,000 | 1.20 | 297,600 | 466,000 | 559,200 |
| " | Long Haul Transport long | $m^3$ | 103,000 | 4.75 | 489,250 | 78,000 | 2.60 | 202,800 | 51,000 | 1.75 | 89,250 | 232,000 | 781,300 |
| Cut Déblai | | $m^3$ | 2,600 | 0.35 | 910 | 1,000 | 0.35 | 350 | 1,700 | 0.35 | 595 | 5,300 | 1,855 |
| Subgrade Replacement Hérisson de replacement | | lm | - | - | - | - | - | - | - | - | - | - | - |
| SIDE SLOPES TALUS | | | | | 60,100 | | | 23,000 | | | 68,700 | | 151,800 |
| Slope Shaping Façonnage d'un talus | Manual Labor Travail de manoeuvre | $m^2$ | 381,000 | 0.10 | 38,100 | 146,000 | 0.10 | 14,600 | 428,000 | 0.10 | 42,800 | 955,000 | 95,500 |
| Grassing Gazonnement | | $m^2$ | 220,000 | 0.10 | 22,000 | 84,000 | 0.10 | 8,400 | 259,000 | 0.10 | 25,900 | 563,000 | 56,300 |
| DRAINAGE DRAINAGE | | | | | 705,386 | | | 215,077 | | | 626,776 | | 1,547,239 |
| Side-ditches Excavation Contre-fossés | Laterite Latérite | lm | 42,600 | 1.50 | 63,900 | 4,700 | 1.50 | 7,500 | 67,000 | 1.50 | 100,500 | 114,300 | 171,450 |
| " | Silt Limon | lm | 21,900 | 2.60 | 56,940 | 20,100 | 2.60 | 52,260 | 13,700 | 2.60 | 35,620 | 55,700 | 144,820 |
| Side-ditches in Village Area Contre-fossés au village | | lm | 8,700 | 30.- | 261,000 | 3,300 | 28.- | 92,400 | 5,500 | 31.- | 170,500 | 17,500 | 523,900 |
| Stone-pitched Ditches Fossés maçonne en pierre | | lm | 600 | 70.- | 42,000 | - | - | - | 300 | 72.- | 21,600 | 900 | 63,600 |
| Pipe-Culverts Fûts | ø0.6m | lm | 7 | 24.- | 168 | - | - | - | - | - | - | 7 | 168 |
| | ø0.8 | lm | - | - | - | 7 | 38.- | 266 | - | - | - | 7 | 266 |
| | ø1.0 | lm | 714 | 87.- | 62,118 | 238 | 87.- | 20,706 | 588 | 87.- | 51,156 | 1,540 | 133,980 |
| | ø1.2 | lm | 56 | 100.- | 5,600 | 28 | 100.- | 2,800 | 98 | 100.- | 9,800 | 182 | 18,200 |
| | ø1.5 | lm | 56 | 190.- | 10,640 | - | - | - | 252 | 190.- | 47,880 | 308 | 58,520 |
| | ø1.8 | lm | 42 | 220.- | 9,240 | - | - | - | 56 | 220.- | 12,320 | 98 | 21,560 |
| | ø2.0 | lm | 70 | 250.- | 17,500 | 28 | 250.- | 7,000 | 42 | 250.- | 10,500 | 140 | 35,000 |
| | ø2.5 | lm | 14 | 350.- | 4,900 | 56 | 350.- | 19,600 | 14 | 350.- | 4,900 | 84 | 29,400 |
| | ø3.0 | lm | 28 | 570.- | 15,960 | - | - | - | 14 | 570.- | 7,980 | 42 | 23,940 |
| | ø4.0 | lm | 84 | 930.- | 78,120 | - | - | - | 56 | 930.- | 52,080 | 40 | 130,200 |
| | ø5.0 | lm | 14 | 1,400.- | 19,600 | - | - | - | 28 | 1,400.- | 39,200 | 42 | 58,800 |

(continued / continuée)

| ITEM ARTICLE | DESCRIPTION | UNIT UNITE | SECTION TRONÇON - 8 QUANTITY QUANTITE | UNIT COST PRIX UNIT | COST COÛT | SECTION TRONÇON - 7 QUANTITY QUANTITE | UNIT COST PRIX UNIT | COST COÛT | SECTION TRONÇON - 6 QUANTITY QUANTITE | UNIT COST PRIX UNIT | COST COÛT | TOTAL QUANTITY QUANTITE | TOTAL COST COÛT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Inlets & Outlets Entreés & sorties | ø0.6 | piece | 1 | 60.- | 60 | - | - | - | - | - | - | 1 | 60 |
| | ø0.8 | piece | - | - | - | 1 | 75.- | - | - | - | - | 1 | 75 |
| | ø1.0 | piece | 102 | 110.- | 11,220 | 34 | 100.- | 3,400 | 84 | 120.- | 10,080 | 220 | 24,700 |
| | ø1.2 | piece | 8 | 165.- | 1,320 | 4 | 150.- | 600 | 14 | 180.- | 2,520 | 26 | 4,440 |
| | ø1.5 | piece | 8 | 350.- | 2,800 | - | - | - | 36 | 360.- | 12,960 | 44 | 15,760 |
| | ø1.8 | piece | 6 | 440.- | 2,640 | - | - | - | 8 | 460.- | 3,680 | 14 | 6,320 |
| | ø2.0 | piece | 10 | 600.- | 6,000 | 4 | 590.- | 2,360 | 6 | 680.- | 4,080 | 20 | 12,440 |
| | ø2.5 | piece | 2 | 830.- | 1,660 | 8 | 820.- | 6,560 | 2 | 850.- | 1,700 | 12 | 9,920 |
| | ø3.0 | piece | 4 | 1,200.- | 4,800 | - | - | - | 2 | 1,260.- | 2,520 | 6 | 7,320 |
| | ø4.0 | piece | 12 | 1,900.- | 22,800 | - | - | - | 8 | 2,000.- | 16,000 | 20 | 38,800 |
| | ø5.0 | piece | 2 | 2,200.- | 4,400 | - | - | - | 4 | 2,300.- | 9,200 | 6 | 13,600 |
| PAVEMENTS PAVAGES | | . | | | 625,250 | | | 223,800 | | | 522,400 | | 1,371,450 |
| Type - I | Short Haul Transport court | $m^2$ | - | - | - | - | - | - | - | - | - | - | - |
| Type - II | Short Haul Transport court | $m^2$ | - | - | - | - | - | - | - | - | - | - | - |
| Type - III | Long Haul Transport long | $m^2$ | - | - | - | - | - | - | - | - | - | - | - |
| Laterite lower Subbase | t=40cm short haul transport court | $m^2$ | 290,000 | 1.- | 290,000 | 32,000 | 1.- | 32,000 | 430,000 | 1.- | 430,000 | 752,000 | 752,000 |
| Latérite sous-couche | t=40cm long haul transport long | $m^2$ | 149,000 | 2.25 | 335,250 | 137,000 | 1.40 | 191,800 | 88,000 | 1.05 | 92,400 | 374,000 | 619,450 |
| TYPE VI | t=50cm short haul transport court | $m^2$ | - | - | - | - | - | - | - | - | - | - | - |
| | t=50cm long haul transport long | $m^2$ | - | - | - | - | - | - | - | - | - | - | - |
| BRIDGES PONTS | | | | | | | | | | | | | |
| Makala | R.C. 1 span R.C. 1 travée | lm | | | | | | | | | | | |
| Kotelí | R.C. 1 span R.C. 1 travée | lm | | | | | | | | | | | |
| Maze II | R.C. 1 span R.C. 1 travée | lm | | | | | | | | | | | |
| Bilo II | R.C. 1 span R.C. 1 travée | lm | | | | | | | | | | | |
| Bilo III | R.C. 1 span R.C. 1 travée | lm | | | | | | | | | | | |
| Mborge | R.C. 1 span R.C. 1 travée | lm | | | | | | | | | | | |
| Zakili | P.C. 1 span P.C. 1 travée | lm | | | | | | | | | | | |
| FERRIES BACS | | | | | 16,800 | | | - | | | - | | 16,800 |
| Aruwimi (Banalia) | Landing Facilities Facilité du débarquement | lm | 120 | 140.- | 16,800 | - | - | - | - | - | - | 120 | 16,800 |
| Uele (Bondo) | Landing Facilities Facilité du débarquement | lm | | | | | | | | | | | |
| Bili (Faka) | Landing Facilities Facilité du débarquement | lm | | | | | | | | | | | |
| Bomu (Ndu) | Landing Facilities Facilité du débaruqement | lm | | | | | | | | | | | |
| TOTAL | | | — | — | 2,254,946 | — | — | 728,197 | — | — | 1,726,071 | — | 4,709,214 |

ALTERNATIVE II PHASE I

NET COSTS OF IMPROVEMENT
COÛTS NETS D'AMELIORATION

DIVISION II

From de Buta To à Bondo (197.915 km) Unit Unité : Zaire

A.3.5.7-(3)

| ITEM ARTICLE | DESCRIPTION | UNIT UNITÉ | SECTION TRONÇON - 5 QUANTITY QUANTITE | UNIT COST PRIX UNIT. | COST COÛT | SECTION TRONÇON - 4 QUANTITY QUANTITE | UNIT COST PRIX UNIT. | COST COÛT | SECTION TRONÇON - 3 QUANTITY QUANTITE | UNIT COST PRIX UNIT. | COST COÛT | TOTAL QUANTITY QUANTITE | TOTAL COST COÛT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CLEARING DEBOISEMENT | | | | | 90,670 | | | 79,290 | | | 67,370 | | 237,330 |
| Clearing Deboisement | Medium Vegetation Végétation moyenne | $m^2$ | 691,000 | 0.05 | 34,550 | 613,000 | 0.05 | 30,650 | 537,000 | 0.05 | 26,850 | ,841,000 | 92,050 |
| Clearing & Grubbing | Light Vegetation Végétation clairsemée | $m^2$ | 366,000 | 0.04 | 14,640 | 209,000 | 0.04 | 8,360 | 215,000 | 0.04 | 8,600 | 790,000 | 31,600 |
| Deboisement & l'essouchment | Medium Vegetation Végétation moyenne | $m^2$ | 367,000 | 0.08 | 29,360 | 283,000 | 0.08 | 22,640 | 216,000 | 0.08 | 17,280 | 866,000 | 69,280 |
| " | Heavy Vegetation Végétation forte | $m^2$ | 101,000 | 0.12 | 12,120 | 147,000 | 0.12 | 17,640 | 122,000 | 0.12 | 14,640 | 370,000 | 44,400 |
| EARTHWORKS TERRASSEMENTS | | | | | 426,760 | | | 443,980 | | | 166,590 | | 1,037,330 |
| Embankment Remblai | Short Haul Transport court | $m^3$ | 326,000 | 1.20 | 391,200 | 65,000 | 1.20 | 78,000 | 40,000 | 1.20 | 48,000 | 431,000 | 517,200 |
| " | Long Haul Transport long | $m^3$ | 20,000 | 1.75 | 35,000 | 86,000 | 2.10 | 180,600 | 21,000 | 2.35 | 49,350 | 127,000 | 264,950 |
| Cut Déblai | | $m^3$ | 1,600 | 0.35 | 560 | 11,800 | 0.35 | 4,130 | 1,400 | 0.35 | 490 | 14,800 | 5,180 |
| Subgrade Replacement Hérisson de replacement | | lm | - | - | - | 14,500 | 12.50 | 181,250 | 5,000 | 13.75 | 68,750 | 19,500 | 250,000 |
| SIDE SLOPES TALUS | | | | | 63,000 | | | 34,900 | | | 31,800 | | 129,700 |
| Slope Shaping Façonnage d'un talus | Manual Labor Travail de manoeuvre | $m^2$ | 406,000 | 0.10 | 40,600 | 349,000 | 0.10 | 34,900 | 318,000 | 0.10 | 31,800 | ,073,000 | 107,300 |
| Grassing Gazonnement | | $m^2$ | 224,000 | 0.10 | 22,400 | - | - | - | - | - | - | 224,000 | 22,400 |
| DRAINAGE DRAINAGE | | | | | 524,920 | | | 369,789 | | | 330,791 | | 1,225,500 |
| Side-ditches Excavation Contre-fossés | Laterite Latérite | lm | 66,300 | 1.50 | 99,450 | 26,400 | 1.50 | 39,600 | 34,900 | 1.50 | 52,350 | 127,600 | 191,400 |
| " | Silt Limon | lm | 2,800 | 2.60 | 7,280 | 34,900 | 2.60 | 90,740 | 18,800 | 2.60 | 48,880 | 56,500 | 146,900 |
| Side-dithces in Village Area Contre-fossés au village | | lm | 5,400 | 27.- | 145,800 | 3,400 | 25.- | 85,000 | 4,700 | 26.- | 122,200 | 13,500 | 353,000 |
| Stone-pitched Ditches Fossés maçonne en pierre | | lm | 1,900 | 44.- | 83,600 | 1,300 | 29.- | 37,700 | 600 | 38.- | 22,800 | 3,800 | 144,100 |
| Pipe-Culverts Fûts | ø0.6m | lm | - | - | - | - | - | - | - | - | - | - | - |
| | ø0.8 | lm | - | - | - | - | - | - | - | - | - | - | - |
| | ø1.0 | lm | 630 | 87.- | 54,810 | 407 | 87.- | 35,409 | 363 | 87.- | 31,581 | 1,400 | 121,800 |
| | ø1.2 | lm | - | - | - | - | - | - | 66 | 100.- | 6,600 | 66 | 6,600 |
| | ø1.5 | lm | 28 | 190.- | 5,320 | 44 | 190.- | 8,360 | 44 | 190.- | 8,360 | 116 | 22,040 |
| | ø1.8 | lm | 28 | 220.- | 6,160 | 33 | 220.- | 7,260 | 55 | 220.- | 12,100 | 116 | 25,520 |
| | ø2.0 | lm | - | - | - | 11 | 250.- | 2,750 | 11 | 250.- | 2,750 | 22 | 5,500 |
| | ø2.5 | lm | 28 | 350.- | 9,800 | 44 | 350.- | 15,400 | 22 | 350.- | 7,700 | 94 | 32,900 |
| | ø3.0 | lm | 28 | 570.- | 15,960 | 44 | 570.- | 25,080 | - | - | - | 72 | 41,040 |
| | ø4.0 | lm | 70 | 930.- | 65,100 | - | - | - | - | - | - | 70 | 65,100 |
| | ø5.0 | lm | - | - | - | - | - | - | - | - | - | - | - |

(continued / continuée)

| ITEM ARTICLE | DESCRIPTION | UNIT UNITE | SECTION TRONÇON - 5 QUANTITY QUANTITE | UNIT COST PRIX UNIT. | COUT | SECTION TRONÇON - 4 QUANTITY QUANTITE | UNIT COST PRIX UNIT. | COST COÛT | SECTION TRONÇON - 3 QUANTITY QUANTITE | UNIT COST PRIX UNIT. | COST COÛT | TOTAL QUANTITY QUANTITE | TOTAL COST COÛT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Inlets & Outlets Entreés & sorties | ø0.6 | piece | - | - | - | - | - | - | - | - | - | - | - |
| | ø0.8 | piece | - | - | - | - | - | - | - | - | - | - | - |
| | ø1.0 | piece | 90 | 80.- | 7,200 | 74 | 70.- | 5,180 | 66 | 75.- | 4,950 | 230 | 17,330 |
| | ø1.2 | piece | 4 | 120.- | 480 | - | - | - | 12 | 110.- | 1,320 | 16 | 1,800 |
| | ø1.5 | piece | 4 | 270.- | 1,080 | 8 | 250.- | 2,000 | 8 | 260.- | 2,080 | 20 | 5,160 |
| | ø1.8 | piece | 4 | 340.- | 1,360 | 6 | 325.- | 1,950 | 10 | 340.- | 3,400 | 20 | 6,710 |
| | ø2.0 | piece | - | - | - | 2 | 480.- | 960 | 2 | 500.- | 1,000 | 4 | 1,960 |
| | ø2.5 | piece | 4 | 700.- | 2,800 | 8 | 650.- | 5,200 | 4 | 680.- | 2,720 | 16 | 10,720 |
| | ø3.0 | piece | 4 | 930.- | 3,720 | 8 | 900.- | 7,200 | - | - | - | 12 | 10,920 |
| | ø4.0 | piece | 10 | ,500.- | 15,000 | - | - | - | - | - | - | 10 | 15,000 |
| | ø5.0 | piece | - | - | - | - | - | - | - | - | - | - | - |
| PAVEMENTS PAVAGES | | | | | 582,900 | | | 666,300 | | | 588,900 | | ,838,100 |
| Type - I | Short Haul Transport court | $m^2$ | - | - | - | - | - | - | - | - | - | - | - |
| Type - II | Short Haul Transport court | $m^2$ | - | - | - | - | - | - | - | - | - | - | - |
| Type - III | Long Haul Transport long | $m^2$ | - | - | - | - | - | - | - | - | - | - | - |
| Laterite lower Subbase | t=40cm short haul " transport court | $m^2$ | - | - | - | - | - | - | - | - | - | - | - |
| Latérite sous-couche | t=40cm long haul " transport long | $m^2$ | - | - | - | - | - | - | - | - | - | - | - |
| TYPE VI | t=50cm short haul " transport court | $m^2$ | 429,000 | 1.30 | 557,700 | 195,000 | 1.30 | 253,500 | 266,000 | 1.30 | 345,800 | 890,000 | 1,157,000 |
| | t=50cm long haul " transport long | $m^2$ | 18,000 | 1.40 | 25,200 | 258,000 | 1.60 | 412,800 | 143,000 | 1.70 | 243,100 | 419,000 | 681,000 |
| BRIDGES PONTS | | | | | 283,500 | | | 59,500 | | | - | | 343,000 |
| Makala | R.C. 1 span R.C. 1 travée | lm | 16 | 3,500.- | 56,000 | - | - | - | - | - | - | 16 | 56,000 |
| Kotell | R.C. 1 span R.C. 1 travée | lm | 18 | 3,500.- | 63,000 | - | - | - | - | - | - | 18 | 63,000 |
| Maze II | R.C. 1 span R.C. 1 travée | lm | 18 | 3,500.- | 63,000 | - | - | - | - | - | - | 18 | 63,000 |
| Bilo II | R.C. 1 span R.C. 1 travée | lm | 17 | 3,500.- | 59,500 | - | - | - | - | - | - | 17 | 59,500 |
| Bilo III | R.C. 1 span R.C. 1 travée | lm | 12 | 3,500.- | 42,000 | - | - | - | - | - | - | 12 | 42,000 |
| Mborge | R.C. 1 span R.C. 1 travée | lm | - | - | - | 17 | 3,500.- | 59,500 | - | - | - | 17 | 59,500 |
| Zakili | P.C. 1 span P.C. 1 travée | lm | | | | | | | | | | | |
| FERRIES Bacs | | | | | - | | | - | | | 18,000 | | 18,000 |
| Aruwimi (Banalia) | Landing Facilities Facilité du débarquement | lm | | | | | | | | | | | |
| Uélé (Bondo) | Landing Facilities Facilité du débarquement | lm | - | - | - | - | - | - | 120 | 150.- | 18,000 | 120 | 18,000 |
| Bili (Faka) | Landing Facilities Facilité du débarquement | lm | | | | | | | | | | | |
| Bomu (Ndu) | Landing Facilities Facilité du débaruqement | lm | | | | | | | | | | | |
| TOTAL | | | — | — | 1,971,750 | — | — | 1,653,759 | — | — | 1,203,451 | — | 4,828,960 |

ALTERNATIVE II PHASE I

NET COSTS OF IMPROVEMENT
COÛTS NETS D'AMELIORATION

DIVISION I

From de Bondo To à Bangassou (190.620 km) Unit Unité : Zaire

A.3.5.7-(4)

| ITEM ARTICLE | DESCRIPTION | UNIT UNITE | SECTION TRONÇON - 2 QUANTITY QUANTITE | SECTION TRONÇON - 2 UNIT COST PRIX UNIT. | SECTION TRONÇON - 2 COST COUT | SECTION TRONÇON - 1 QUANTITY QUANTITE | SECTION TRONÇON - 1 UNIT COST PRIX UNIT. | SECTION TRONÇON - 1 COST COÛT | TOTAL QUANTITY QUANTITE | TOTAL COST COÛT |
|---|---|---|---|---|---|---|---|---|---|---|
| CLEARING DEBOISEMENT | | | | | 146,370 | | | 81,520 | | 227,890 |
| Clearing Deboisement | Medium Vegetation Végétation moyenne | $m^2$ | 1,109,000 | 0.05 | 55,450 | 652,000 | 0.05 | 32,600 | 1,761,000 | 88,050 |
| Clearing & Grubbing | Light Vegetation Végétation clairsemée | $m^2$ | 419,000 | 0.04 | 16,760 | 386,000 | 0.04 | 15,440 | 805,000 | 32,200 |
| Deboisement & l'essouchment | Medium Vegetation Végétation moyenne | $m^2$ | 513,000 | 0.08 | 41,040 | 207,000 | 0.08 | 16,560 | 720,000 | 57,600 |
| " | Heavy Vegetation Végétation forte | $m^2$ | 276,000 | 0.12 | 33,120 | 141,000 | 0.12 | 16,920 | 417,000 | 50,040 |
| EARTHWORKS TERRASSEMENTS | | | | | 486,590 | | | 1,179,115 | | 1,665,705 |
| Embankment Remblai | Short Haul Transport court | $m^3$ | 234,000 | 1.20 | 280,800 | 759,000 | 1.20 | 910,800 | 993,000 | 1,191,600 |
| " | Long Haul Transport long | $m^3$ | 82,000 | 2.- | 164,000 | 134,000 | 2.- | 268,000 | 216,000 | 432,000 |
| Cut Déblai | | $m^3$ | 119,400 | 0.35 | 41,790 | 900 | 0.35 | 315 | 120,300 | 42,105 |
| Subgrade Replacement Hérisson de replacement | | lm | - | - | - | - | - | - | - | - |
| SIDE SLOPES TALUS | | | | | 66,800 | | | 36,500 | | 103,300 |
| Slope Shaping Façonnage d'un talus | Manual Labor Travail de manoeuvre | $m^2$ | 668,000 | 0.10 | 66,800 | 365,000 | 0.10 | 36,500 | 1,033,000 | 103,300 |
| Grassing Gazonnement | | $m^2$ | - | - | - | - | - | - | - | - |
| DRAINAGE DRAINAGE | | | | | 850,719 | | | 515,002 | | 1,365,721 |
| Side-ditches Excavation Contre-fossés | Laterite Latérite | lm | 82,000 | 1.50 | 123,000 | 55,500 | 1.50 | 83,250 | 137,500 | 206,250 |
| " | Silt Limon | lm | 28,000 | 2.60 | 74,880 | 9,800 | 2.60 | 25,480 | 38,600 | 100,360 |
| Side-ditches in Village Area Contre-fossés au village | | lm | 11,400 | 25.- | 285,000 | 3,000 | 28.- | 84,000 | 14,400 | 369,000 |
| Stone-pitched Ditches Fossés maçonne en pierre | | lm | 3,400 | 29.- | 98,600 | 4,200 | 48.- | 201,600 | 7,600 | 302,200 |
| Pipe-Culverts Fûts | ø0.6m | lm | - | - | - | - | - | - | - | - |
| | ø0.8 | lm | - | - | - | - | - | - | - | - |
| | ø1.0 | lm | 847 | 87.- | 73,689 | 396 | 87.- | 34,452 | 1,243 | 108,141 |
| | ø1.2 | lm | 33 | 100.- | 3,300 | - | - | - | 33 | 3,300 |
| | ø1.5 | lm | 319 | 190.- | 60,610 | 22 | 190.- | 4,180 | 341 | 64,790 |
| | ø1.8 | lm | 55 | 220.- | 12,100 | - | - | - | 55 | 12,100 |
| | ø2.0 | lm | 11 | 250.- | 2,750 | 11 | 250.- | 2,750 | 22 | 5,500 |
| | ø2.5 | lm | 33 | 350.- | 11,550 | 11 | 350.- | 3,850 | 44 | 15,400 |
| | ø3.0 | lm | - | - | - | 33 | 570.- | 18,810 | 33 | 18,810 |
| | ø4.0 | lm | 44 | 930.- | 40,920 | 33 | 930.- | 30,690 | 77 | 71,610 |
| | ø5.0 | lm | 11 | 1,400.- | 15,400 | - | - | - | 11 | 15,400 |

(continued / continuée)

| ITEM ARTICLE | DESCRIPTION | UNIT UNITE | SECTION TRONÇON - 2 QUANTITY QUANTITE | UNIT COST PRIX UNIT. | COST COUT | SECTION TRONÇON - 1 QUANTITY QUANTITE | UNIT COST PRIX UNIT. | COST COÛT | | | | TOTAL QUANTITY QUANTITE | TOTAL COST COÛT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Inlets & Outlets Entreés & sorties | ø0.6 | piece | - | - | - | - | - | - | | | | - | - |
| | ø0.8 | piece | - | - | - | - | - | - | | | | - | - |
| | ø1.0 | piece | 154 | 70.- | 10,780 | 72 | 90.- | 6,480 | | | | 226 | 17,260 |
| | ø1.2 | piece | 6 | 100.- | 600 | - | - | - | | | | 6 | 600 |
| | ø1.5 | piece | 58 | 250.- | 14,500 | 4 | 300.- | 1,200 | | | | 62 | 15,700 |
| | ø1.8 | piece | 10 | 320.- | 3,200 | - | - | - | | | | 10 | 3,200 |
| | ø2.0 | piece | 2 | 470.- | 940 | 2 | 560.- | 1,120 | | | | 4 | 2,060 |
| | ø2.5 | piece | 6 | 650.- | 3,900 | 2 | 770.- | 1,540 | | | | 8 | 5,440 |
| | ø3.0 | piece | - | - | - | 6 | 1,000.- | 6,000 | | | | 6 | 6,000 |
| | ø4.0 | piece | 8 | 1,400 | 11,200 | 6 | 1,600.- | 9,600 | | | | 14 | 20,800 |
| | ø5.0 | piece | 2 | 1,900.- | 3,800 | - | - | - | | | | 2 | 3,800 |
| PAVEMENTS PAVAGES | | | | | 1,158,700 | | | 632,200 | | | | | 1,790,900 |
| Type - I | Short Haul Transport court | m2 | - | - | - | - | - | - | | | | - | - |
| Type - II | Short Haul Transport court | m2 | - | - | - | - | - | - | | | | - | - |
| Type - III | Long Haul Transport long | m2 | - | - | - | - | - | - | | | | - | - |
| Laterite lower Subbase | t=40cm short haul " transport court | m2 | - | - | - | - | - | - | | | | - | - |
| Latérite sous-couche | t=40cm long haul " transport long | m2 | - | - | - | - | - | - | | | | - | - |
| TYPE VI | t=50cm short haul " transport court | m2 | 634,000 | 1.30 | 824,200 | 406,000 | 1.30 | 527,800 | | | | ,040,000 | 1,352,000 |
| | t=50cm long haul " transport long | m2 | 223,000 | 1.50 | 334,500 | 72,000 | 1.45 | 104,400 | | | | 295,000 | 428,900 |
| BRIDGES PONTS | | | | | 96,000 | | | - | | | | | 96,000 |
| Makala | R.C. 1 span R.C. 1 travée | lm | | | | | | | | | | | |
| Kotelí | R.C. 1 span R.C. 1 travée | lm | | | | | | | | | | | |
| Maze II | R.C. 1 span R.C. 1 travée | lm | | | | | | | | | | | |
| Bilo II | R.C. 1 span R.C. 1 travée | lm | | | | | | | | | | | |
| Bilo III | R.C. 1 span R.C. 1 travée | lm | | | | | | | | | | | |
| Mborge | R.C. 1 span R.C. 1 travée | lm | | | | | | | | | | | |
| Zakili | P.C. 1 span P.C. 1 travée | lm | 24 | 4,000.- | 96,000 | - | - | - | | | | 24 | 96,000 |
| FERRIES BACS | | | | | 7,000 | | | 16,000 | | | | | 23,000 |
| Aruwimi (Banalia) | Landing Facilities Facilité du débarquement | lm | | | | | | | | | | | |
| Uélé (Bondo) | Landing Facilities Facilité du débarquement | lm | | | | | | | | | | | |
| Bili (Faka) | Landing Facilities Facilité du débarquement | lm | 50 | 140.- | 7,000 | - | - | - | | | | 50 | 7,000 |
| Bomu (Ndu) | Landing Facilities Facilité du débaruqement | lm | - | - | - | 100 | 160 | - 16,000 | | | | 100 | 16,000 |
| TOTAL | | | — | — | 2,812,179 | — | — | 2,460,337 | — | — | — | — | 5,272,516 |

A.3.5.8 ALTERNATIVE-II
PHASE-II, III, IV

NET COSTS OF IMPROVEMENT
COÛTS NETS D'AMELIORATION

Unit
Unité: Zaire

| PHASE | DIVISION | SECTION TRONÇON | | ITEM ARTICLE | | DESCRIPTION | UNIT UNITE | QUANTITY QUANTITE | UNIT PRICE PRIX.UNIT. | COST COÛT |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 10 | Bridges Ponts | Angokpa river rivière | R.C. | 1 span, 2 lanes 1 travée, 2 voies | lm | 7.5 | 4,000.- | 30,000.- |
| | | | | Aquidi river rivière | | - ditto - | lm | 10.5 | 4,000.- | 42,000.- |
| | | | | Lindi river rivière | P.G. | 16 spans, 2 lanes 16 travées, 2 voies | lm | 257.5 | 6,500.- | 1,673,730.- |
| | | Sub Sous - total | | | | | | | | 1,745,750.- |
| | IV | | | Gula river rivière | P.C. | 1 span, 2 lanes 1 travée, 2 voies | lm | 27.- | 4,500.- | 121,500.- |
| | | 9 | Bridges Ponts | Badjoge river rivière | R.C. | 1 span, 2 lanes 1 travée, 2 voies | lm | 10.- | 4,000.- | 40,000.- |
| | | | | Longola river rivière | | - ditto - | lm | 13.- | 4,000.- | 52,000.- |
| | | | | Bolokuwa river rivière | | - ditto - | lm | 12.5 | 4,000.- | 50,000.- |
| II | | Sub Sous - total | | | | | | | | 263,500.- |
| | Total | | | | | | | | | 2,009,250.- |
| | | 8 | Ferry Bac | Aruwimi river rivière | | 35t ferry boat with engine 35t Bac avec machine | set jeu | 1.- | 103,000.- | 103,000.- |
| | | | | Aruwimi river rivière | | Landing facilities Facilité de débarquement | lm | 120.- | 140.- | 16,800.- |
| | III | Sub Sous - total | | | | | | | | 119,800.- |
| | | 6 | Bridge Pont | Rubi river rivière | P.C. | 4 spans, 1 lane 4 travées, 1 voie | lm | 100.- | 5,500.- | 550,000.- |
| | | Sub Sous - Total | | | | | | | | 550,000.- |
| | Total | | | | | | | | | 669,800.- |
| Grand Total | | | | | | | | | | 2,679,050.- |

(continued / continuée)

| PHASE | DIVISION | SECTION TRONÇON | ITEM ARTICLE | | DESCRIPTION | UNIT UNITE | QUANTITY QUANTITE | UNIT PRICE PRIX UNIT. | COST COÛT |
|---|---|---|---|---|---|---|---|---|---|
| | | 10 | Pavement Pavage | Dense grade asphalt concrete Béton asphaltique | t = 5cm | $m^2$ | 321,000.- | 3.03 | 972,630.- |
| | IV | Sub - total Sous | | | | | | | 972,630.- |
| | | 9 | Pavement Pavage | Dense grade asphalt concrete Béton asphaltique | t = 5cm | $m^2$ | 558,000.- | 3.62 | 2,019,960.- |
| | | Sub - total Sous | | | | | | | 2,019,960.- |
| III | Total | | | | | | | | 2,992,590.- |
| | | | Pavement Pavage | Pavement type-5 Pavage type-5 | Water bound macadam, surface dressing Macadam à l'eau, enduit superficiel | $m^2$ | 527,000.- | 6.40 | 3,372,800.- |
| | | | Bridge Pont | Zambeke river rivière | P.C. 1 span, 1 lane 1 travée, 1 voie | lm | 28.- | 4,000.- | 112,000.- |
| | | | | Kole river rivière | - ditto - | lm | 20.- | 4,000.- | 80,000.- |
| | III | 8 | Total | | | | | | 192,000.- |
| | | | Ferry Bac | Aruwimi river rivière | 35t ferry boat with engine 35t bac avec machine | set jeu | 1.- | 103,000.- | 103,000.- |
| | | | | Aruwimi river rivière | Landing facilities Facilité de débarquement | lm | 120.- | 4,000.- | 80,000.- |
| | | | Total | | | | | | 119,800.- |
| | | Sub - total Sous | | | | | | | 3,684,600.- |

(continued / continuée)

| PHASE | DIVISION | SECTION TRONÇON | ITEM ARTICLE | | DESCRIPTION | UNIT UNITE | QUANTITY QUANTITE | UNIT PRICE PRIX UNIT. | COST COÛT |
|---|---|---|---|---|---|---|---|---|---|
| | | 7 | Pavement Pavage | Pavement type-5 Pavage type-5 | Water bound macadam, surface dressing Macadam à l'eau, enduit superficiel | $m^2$ | 203,000.- | 4.65 | 943,950.- |
| | | | Bridge Pont | Tele river rivière | P.C. 2 spans, 1 lane 2 travées, 1 voie | lm | 42.- | 4,000.- | 168,000.- |
| | III | Sub - total Sous - total | | | | | | | 1,111,950.- |
| | | 6 | Pavement Pavage | Pavement type-5 Pavage type-5 | Water bound macadam surface dressing Macadam à l'eau, enduit superficiel | m | 621,000.- | 6.20 | 3,850,200.- |
| | | | Bridge Pont | Yeme river rivière | R.C. 1 span, 1 lane 1 travée, 1 voie | lm | 16.- | 3,500.- | 56,000.- |
| | | Sub - total Sous - total | | | | | | | 3,906,200.- |
| | Total | | | | | | | | 8,702,750.- |
| III | | 5 | Bridge Pont | Longa river rivière | P.C. 1 span, 1 lane 1 travée, 1 voie | lm | 25.- | 4,000.- | 100,000.- |
| | | Sub - total Sous - total | | | | | | | 100,000.- |
| | II | 4 | Bridge Pont | Likati river rivière | P.C. 3 spans, 1 lane 3 travées, 1 voie | lm | 84.- | 5,000.- | 462,000.- |
| | | Sub - total Sous - total | | | | | | | 462,000.- |
| | | 3 | Bridge Pont | Libogo river rivière | P.C. 3 spans, 1 lane 3 travées, 1 voie | lm | 75.- | 5,000.- | 412,500.- |
| | | Sub - total Sous - total | | | | | | | 412,500.- |
| | Total | | | | | | | | 974,500.- |
| | Grand Total | | | | | | | | 12,669,840.- |

(continued / continuée)

| PHASE | DIVISION | SECTION TRONÇON | | ITEM ARTICLE | | DESCRIPTION | UNIT UNITE | QUANTITY QUONTITE | UNIT PRICE PRIX UNIT. | COST COÛT |
|---|---|---|---|---|---|---|---|---|---|---|
| IV | III | 8 | Ferry Bac | Aruwimi | rivier rivière | 35t ferry boat with engine<br>35t bac avec engine | set jeu | 1.- | 103,000.- | 103,000.- |
| | | | | Aruwimi | rivier rivière | Landing facilities<br>Facilité de débarquement | 1m | 120.- | 140.- | 16,800.- |
| | Grand Total | | | | | | | | | 119,800.- |

A.3.5.9 Alternative II

## Gross Costs of Improvement
## Coûts burt d'amélioration

(unit / unité : Zaire)

| | | Division IV | Division III | Division II | Division I | Total |
|---|---|---|---|---|---|---|
| Net Improvement Cost / Coûts nets d'amélioration | Phase I | 11,894,291 | 4,709,214 | 4,828,960 | 5,272,516 | 26,704,981 |
| | Phase II | 2,009,250 | 669,800 | - | - | 2,679,050 |
| | Phase III | 2,992,590 | 8,702,750 | 974,500 | - | 12,669,840 |
| | Phase IV | - | 119,800 | - | - | 119,800 |
| | Sub-Total / Sous-Total | 16,896,131 | 14,201,564 | 5,803,460 | 5,272,516 | 42,173,671 |
| Contingency / Faux frais divers | | 2,534,450 | 2,130,230 | 870,511 | 790,861 | 6,326,052 |
| Total | | 19,430,581 | 16,331,794 | 6,673,971 | 6,063,377 | 48,499,723 |
| Final Engineering / Technique de l'ingénieur finale | | 1,013,769 | 852,096 | 348,209 | 316,353 | 2,530,427 |
| Supervision / Surveillance | | 844,830 | 720,120 | 290,170 | 263,620 | 2,118,740 |
| Total | | 1,858,599 | 1,572,216 | 638,379 | 579,973 | 4,649,167 |
| Grand Total / Coût total | | 21,289,180 | 17,904,010 | 7,312,350 | 6,643,350 | 53,148,890 |

A.3.5.10

## Annual Maintenance Costs of Existing Road (Earth Road)

## Coûts d'entretien annuels de la Route Transafricaine existante (Route en terre)

A maintenance party of the following organization is assumed to be necessary per 500 km of the existing earth road (Contract System).

Une équipe d'entretien par suite d'organisation a été décidé nécessaire par 500 km de la route en terre existante (Système du Contrat)

| Items / Articles | Costs / Coûts | | | | | | | | | Foreign Exchange / Change (extérieur) | Taxes / Taxes | Local Currency / Monnaie locale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Vehicle / Vehicule | | Z/hour / heure | | hour / heure | | day / jour | | Z | Z | Z | Z |
| Grader Niveleuse (118PS) | 1 | x | 14.09 | x | 4 | x | 240 | = | 13,526 | 7,757 | 1,796 | 3,973 |
| Back hoe Pelle (93PS) | 1 | x | 13.50 | x | 4 | x | 240 | = | 11,620 | 6,580 | 1,450 | 3,590 |
| Dump Trucks (8 ton) Camion basculant | 2 | x | 13.50 | x | 4 | x | 240 | = | 29,453 | 12,098 | 4,894 | 12,461 |
| Bulldozer (8 tonne) Bulldozer (175PS) | 1 | x | 18.50 | x | 4 | x | 240 | = | 20,930 | 13,010 | 2,820 | 5,100 |
| Land-rover Land-rover | 1 | x | Z/day / jour 30.00 | x | day / jour 0.6 | x | 240 | = | 3,600 | 2,253 | 518 | 829 |
| Supervisor Surveillant | person / personne 1 | x | Z/month / mois 1,500 | x | month / mois 12 | | | = | 18,000 | 17,280 | 720 | 0 |
| Sub-supervisor Sous-surveillant | 1 | x | 150 | x | 12 | | | = | 1,800 | 0 | 72 | 1,728 |

A.3.5.10

| Items<br>Articles | Costs<br>Coûts | | | | | | | Foreign Exchange<br>Change (extérieur) | Taxes<br>Taxes | Local Currency<br>Monnaie locale |
|---|---|---|---|---|---|---|---|---|---|---|
| | person<br>personne | | Z/month<br>mois | | month<br>mois | | Z | Z | Z | Z |
| Foremen<br>Assistant | 3 | x | 37.5 | x | 12 | = | 1,350 | 0 | 54 | 1,296 |
| Laborers<br>Ouvriers | 500 | x | 31.25 | x | 12 | = | 187,500 | 0 | 7,500 | 180,000 |
| Mechanic<br>Mécanicien<br>(Mécanicien garagiste) | 1 | x | 50.0 | x | 12 | = | 600 | 0 | 24 | 576 |
| Sub-Total<br>Sous | | | | | | | 288,379 | 58,978 | 19,848 | 209,553 |
| Overhead<br>Frais généraux | 40% | | | | | | 115,351 | 62,290 | 31,145 | 21,916 |
| Total | | | | | | | 403,730<br>/500 km | 121,268 | 50,993 | 231,469 |
| | | | | | | | 800 Z/km | 30% | 13% | 57% |

Note: Unit prices of equipment include costs of not only depreciation and maintenance of equipment but also operator, fuel and oil.

Prix unitaires d'équipement compris coûts non seulement dépréciation et l'entretien d'équipement mais aussi l'opérateur, carbunant et pétro.

A.3.5.11 Annual Maintenance Costs of Shoulders, Side-Slopes, Side Ditchs and Cleared Zones on Improved Project Road (per 1,000 km) (Contract System)

Coûts d'entretien annuels d'accotement, du talus, de contre-fossé et zone du déboisement sur la Route de Projet (par 1.000 km) (Système du contrat)

| Items<br>Article | Costs<br>Coûts | | | | | | | Foreign Exchange<br>Change (extérieur) | Taxes<br>Taxes | Local Currency<br>Monnaie locale |
|---|---|---|---|---|---|---|---|---|---|---|
| | person<br>personne | | Z | | month<br>mois | | Z | Z | Z | Z |
| Laborers<br>Ouvriers | 1,000 | x | 31.25 | x | 12 | = | 300,000 | 0 | 12,000 | 288,000 |
| Supervisors<br>Surveillants | 5 | x | 84.0 | x | 12 | = | 5,040 | 0 | 202 | 4,838 |
| Sub-supervisors<br>Sous-surveillants | 5 | x | 42.5 | x | 12 | = | 2,550 | 0 | 102 | 2,448 |
| Tools<br>Outil | | | | | | | 40,000 | 4,000 | 4,000 | 32,000 |
| Sub<br>Sous - Total | | | | | | | 307,590 | 0 | 12,304 | 295,286 |
| Overhead<br>Frais généraux | 40% | | | | | | 123,036 | 66,439 | 33,220 | 23,377 |
| Total | | | | | | | 470,626/1,000km | 70,439 | 49,524 | 350,663 |
| | | | | | | | 471 Z/km | 15% | 11% | 73% |

A.3.5.11

Note: The costs of equipment of this portion of the road are included in the maintenance cost for carriage way.

Les coûts d'équipement pour cette portion de la route qui ont inclu les coûts d'entretien pour chaussée.

A.3.5.12 Annual Maintenance Costs of Laterite Carriagw Way on Improved Project Road (Contract System)

Coûts d'entretien annuels de chaussée en latérite sur la Route de Projet (Système du contrat)

( per 1,000 km and 100 vehicles of ADT
par 1,000 km et 100 véhicules d'ADT )

| Items Articles | Costs Coûts | | | | | | | | | Foreign Exchange Change (extérieur) | Taxes Taxes | Local Currency Monnaie locale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | vehicle véhicule | | Z/hour heure | | hour heure | | day jour | | Z | Z | Z | Z |
| Grader (118PS) Niveleuse | 3 | x | 14.09 | x | 4 | x | 240 | = | 40,580 | 23,270 | 5,390 | 11,920 |
| Bulldozer (175PS) Bulldozer | 1 | x | 21.80 | x | 4 | x | 240 | = | 20,930 | 13,010 | 2,820 | 5,100 |
| Back hoe (93PS) Pelle | 1 | x | 12.10 | x | 4 | x | 240 | = | 11,620 | 6,580 | 1,450 | 3,590 |
| Tire roller (55PS) Rouleau compresseur-pneus | 1 | x | 8.43 | x | 4 | x | 240 | = | 8,090 | 4,310 | 1,190 | 2,590 |
| Dump trucks (8 ton) Camion basculants (8 tonne) | 7 | x | 15.34 | x | 4 | x | 240 | = | 103,080 | 42,340 | 17,130 | 43,610 |
| Water-tank lorry (135PS) Arroseur auto-automobile | 1 | x | 23.00 | x | 4 | x | 240 | = | 22,080 | 7,834 | 4,038 | 10,208 |
| | | | Z/day jour | | day jour | | | | | | | |
| Land rover Land rover | 1 | x | 30.00 | x | 0.5 | x | 240 | = | 3,600 | 2,253 | 518 | 829 |
| | person personne | | Z | | month mois | | | | | | | |
| Supervisor Surveillant | 1 | x | 1,500 | x | 12 | | | = | 18,000 | 17,280 | 720 | 0 |
| Sub-supervisor Sous-surveillant | 2 | x | 150 | x | 12 | | | = | 3,600 | 0 | 144 | 3,456 |

| Items<br>Articles | Costs<br>Coûts | | | | | | | Foreign Exchange<br>Change (extérieur) | Taxes<br>Taxes | Local Currency<br>Monnaie locale |
|---|---|---|---|---|---|---|---|---|---|---|
| | person<br>personne | | Z | | month<br>mois | | Z | Z | Z | Z |
| Foremen<br>Assistant | 20 | x | 37.5 | x | 12 | = | 9,000 | 0 | 360 | 8,640 |
| Mechanics<br>Ouvriers | 4 | x | 50 | x | 12 | = | 2,400 | 0 | 96 | 2,304 |
| Sub - Total<br>Sous | | | | | | | 242,980 | 116,877 | 33,856 | 92,247 |
| Overhead<br>Frais généraux | | 40% | | | | | 97,192 | 50,147 | 27,035 | 20,010 |
| Total | | | | | | | 340,172<br>/1,000km | 167,024 | 60,891 | 112,257 |
| | | | per 100 vehicles of ADT<br>par 100 véhicules d'ADT | | | - | 340 Z/km | 49% | 18% | 33% |

Note: Unit prices of equipment include costs of not only depreciation and maintenance of equipment but also operator, fuel and oil.

Prix unitaires d'équipement compris coûts non seulement dépréciation et l'entretien d'équipement mais aussi l'opérateur, carbunant et pétro.

A.3.5.13

## Annual Maintenance Costs of Paved Carriage Way (Contract System)

## Coûts d'entretien annuels de chaussée pavée (Système du contrat)

(per 200 km and 1,500 vehicles of ADT / par 200 km et 1,500 véhicules d'ADT)

| Items / Articles | Costs / Coûts | | | | | | | | | Foreign Exchange / Change (extérieur) | Taxes / Taxes | Local Currency / Monnaie locale |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Vehicle / Véhicule | | Z/hour / heure | | hour / heure | | day / jour | | Z | Z | Z | Z |
| Dump trucks / Camion basculants | 2 | x | 10.0 | x | 4 | x | 240 | = | 19,200 | 7,885 | 3,192 | 8,123 |
| Rollers / Rouleaux compresseurs | 2 | x | 5.0 | x | 4 | x | 240 | = | 9,600 | 6,485 | 520 | 2,595 |
| Asphalte kettle / Chaudière pour gourdon et bitume | 1 | x | 3.7 | x | 4 | x | 240 | = | 3,550 | 2,651 | 284 | 615 |
| | | | Z/day / Z/jour | | day | | | | | | | |
| Sprayers / Vaporisateurs | 2 | x | 11.86 | x | 0.5 | x | 240 | = | 2,850 | 894 | 209 | 1,747 |
| Land-rover / Land-rover | 1 | x | 30.0 | x | 0.5 | x | 240 | = | 3,600 | 2,253 | 518 | 829 |
| | ton / tonne | | Z/ton / tonne | | | | | | | | | |
| Asphalt / Asphalte | 25 | x | 190 | | | | | = | 4,750 | 3,134 | 760 | 856 |
| Aggregates / Agrégats | 400 | x | 15 | | | | | = | 6,000 | 4,200 | 720 | 1,080 |

A.3.5.13

| Items<br>Articles | Costs<br>Coûts | | | | | | | Foreign Exchange<br>Change (extérieur) | Taxes<br>Taxes | Local Currency<br>Monnaie locale |
|---|---|---|---|---|---|---|---|---|---|---|
| | person<br>personne | | Z | | month<br>mois | | Z | Z | Z | Z |
| Laborers<br>Ouvriers | 70 | x | 31.25 | x | 12 | = | 26,250 | 0 | 1,050 | 25,200 |
| Supervisor<br>Surveillant | 1 | x | 84.0 | x | 12 | = | 1,008 | 0 | 40 | 968 |
| Foremen<br>Assistants | 15 | x | 42.5 | x | 12 | = | 7,650 | 0 | 306 | 7,344 |
| Mechanics<br>Mécaniciens | 2 | | 50.0 | | 12 | | 1,200 | 0 | 48 | 1,152 |
| Sub<br>Sous-Total | | | | | | | 85,658 | 27,502 | 7,647 | 50,509 |
| Overhead<br>Frais généraux | | 40% | | | | | 34,263 | 19,267 | 9,142 | 5,854 |
| Total | | | | | | | 119,921<br>/200 km | 46,769 | 16,789 | 56,363 |
| | per 1,500 vehicles of ADT<br>par 1,500 véhicules d'ADT | | | | | - | 600 Z/km | 39% | 14% | 47% |

Note: Same as Table A.3.5.12
Même aussi Tableau A.3.5.12

A.3.5.14

Annual Operation & Maintenance Costs of a Ferry on Aruwimi River (35 ton-type with engine)

Coûts d'opération & d'entretien annuels d'un bac à Aruwimi Rivière (35 tonne-type avec machine)

(Unit / Unité : Zaire/Ferry / Bac)

| | | Costs<br>Coûts | Foreign Exchange Change<br>(extérieur) | Taxes<br>Taxes | Local Currency<br>Monnaie locale |
|---|---|---|---|---|---|
| | | Z | Z | Z | Z |
| 1 | Purchase Price of a Ferry<br>Prix d'achat d'un Bac | 80,000 | 48,000 | 13,600 | 18,400 |
| 2 | Costs of Transportation and Fabrication<br>Coûts de transportation et fabrication du bac | 23,000 | 3,450 | 2,300 | 17,250 |
| 3 | Construction Cost of Landing Facility<br>Coûts de construction d'installation du débarquement | 18,000 | 10,440 | 2,520 | 5,040 |
| 4 | Total ( 1 + 2 + 3 ) | 121,000 | 61,890 | 18,420 | 40,690 |
| 5 | Depreciation Cost<br>Charge d'amortissement $(4 \times \frac{1}{10})$ | 12,100 | 6,189 | 1,842 | 4,069 |
| 6 | Labor Cost<br>Frais du personnel | 3,500 | 770 | 140 | 2,590 |
| 7 | Fuel Cost<br>Frais du combustible | 5,500 | 3,300 | 1,100 | 1,100 |
| 8 | Repair Cost<br>Frais du dépannage | 7,500 | 3,750 | 1,125 | 2,625 |
| | Total Costs of Operation and Maintenance ( 5 + 6 + 7 + 8 )<br>Coûts d'opération et entretien au total | 28,600 | 14,009<br>(49%) | 4,207<br>(15%) | 10,384<br>(36%) |

A.3.5.15

Annual Operation & Maintenance Costs of a Ferry on Uele River (30 ton-type with engine)

Coûts d'opération & d'entretien annuels d'un bac à Uélé Rivière (30 tonne-type avec machine)

(Unit / Unité : Zaire/Ferry / Bac)

| | | Costs / Coûts | Foreign Exchange Change (extérieur) | Taxes / Taxes | Local Currency Monnaie locale |
|---|---|---|---|---|---|
| | | Z | Z | Z | Z |
| 1 | Purchase Price of a Ferry<br>Prix d'achat d'un Bac | 60,000 | 36,000 | 10,200 | 13,800 |
| 2 | Costs of Transportation and Fabrication<br>Coûts de transportation et fabrication du bac | 23,000 | 3,450 | 2,300 | 17,250 |
| 3 | Construction Cost of Landing Facility<br>Coûts de construction d'installation du débarquement | 18,000 | 10,440 | 2,520 | 5,040 |
| 4 | Total ( 1 + 2 + 3 ) | 101,000 | 49,890 | 15,020 | 36,090 |
| 5 | Depreciation Cost<br>Charge d'amortissement $(4 \times \frac{1}{10})$ | 10,100 | 4,989 | 1,502 | 3,609 |
| 6 | Labor Cost<br>Frais du personnel | 3,500 | 770 | 140 | 2,590 |
| 7 | Fuel Cost<br>Frais du combustible | 5,000 | 3,000 | 1,000 | 1,000 |
| 8 | Repair Cost<br>Frais du dépannage | 6,200 | 3,100 | 930 | 2,170 |
| | Total Costs of Operation and Maintenance ( 5 + 6 + 7 + 8 )<br>Coûts d'opération et d'entretien au total | 24,800 | 11,859<br>(48%) | 3,572<br>(14%) | 9,369<br>(38%) |

Annual Operation & Maintenance Costs of a Ferry on Bili River (8 ton rowing type guide with cable) (1)

A.3.5.16 Coûts d'opération & d'entretien annuels d'un bac à Bili Rivière (8 tonne bac à main avec câble) (1)

(Unit / Unité : Zaire/Ferry / Bac)

| | | Costs / Coûts | Foreign Exchange Change (extérieur) | Taxes / Taxes | Local Currency Monnaie locale |
|---|---|---|---|---|---|
| | | Z | Z | Z | Z |
| 1 | Purchase Price of a Ferry<br>Prix d'achat d'un Bac | 15,000 | 9,000 | 2,550 | 3,450 |
| 2 | Costs of Transportation and Fabrication<br>Coûts de transportation et fabrication du bac | 7,000 | 1,050 | 700 | 5,250 |
| 3 | Construction Cost of Landing Facility<br>Coûts de construction d'installation du débarquement | 7,000 | 4,060 | 980 | 1,960 |
| 4 | Total ( 1 + 2 + 3 ) | 29,000 | 14,110 | 4,230 | 10,660 |
| 5 | Depreciation Cost<br>Charge d'amortissement $(4 \times \frac{1}{10})$ | 2,900 | 1,411 | 423 | 1,066 |
| 6 | Labor Cost<br>Frais du personnel | 2,100 | 462 | 84 | 1,554 |
| 7 | Fuel Cost<br>Frais du combustible | - | - | - | - |
| 8 | Repair Cost<br>Frais du dépannage | 1,200 | 600 | 180 | 420 |
| | Total Costs of Operation and Maintenance ( 5 + 6 + 7 + 8 ) | 6,200 | 2,473 | 687 | 3,040 |
| | Coûts d'opération et d'entretien au total | | (40%) | (11%) | (49%) |

A.3.5.17

Annual Operation & Maintenance Costs of a Ferry on Bomu River (12 ton-type with engine)

Coûts d'opération & d'entretien annuels d'un bac à Bomu Rivière (12 tonne-type avec machine)

(Unit / Unité : Zaire/Ferry / Bac)

| | | Costs<br>Coûts | Foreign Exchange Change (extérieur) | Taxes<br>Taxes | Local Currency Monnaie locale |
|---|---|---|---|---|---|
| | | Z | Z | Z | Z |
| 1 | Purchase Price of a Ferry<br>Prix d'achat d'un Bac | 30,000 | 18,000 | 5,100 | 6,900 |
| 2 | Costs of Transportation and Fabrication<br>Coûts de transportation et fabrication du bac | 14,000 | 2,100 | 1,400 | 10,500 |
| 3 | Construction Cost of Landing Facility<br>Coûts de construction d'installation du débarquement | 16,000 | 9,280 | 2,240 | 4,480 |
| 4 | Total ( 1 + 2 + 3 ) | 60,000 | 29,380 | 8,740 | 21,880 |
| 5 | Depreciation Cost<br>Charge d'amortissement $(4 \times \frac{1}{10})$ | 6,000 | 2,938 | 874 | 2,188 |
| 6 | Labor Cost<br>Frais du personnel | 2,700 | 594 | 108 | 1,998 |
| 7 | Fuel Cost<br>Frais du combustible | 3,500 | 2,100 | 700 | 700 |
| 8 | Repair Cost<br>Frais du dépannage | 2,300 | 1,150 | 345 | 805 |
| | Total Costs of Operation and Maintenance ( 5 + 6 + 7 + 8 )<br>Coûts d'opération et d'entretien au total | 14,500 | 6,782<br>(47%) | 2,027<br>(14%) | 5,691<br>(39%) |

A.3.5.18

Annual Operation & Maintenance Costs of a Ferry by Type without Project Road

Coûts d'opération & d'entretien annuels d'un bac par type sans projet de la Route de Projet

(Unit / Unité : Zaire/Ferry / Bac)

| River / Rivière | | Costs of Operation & Maintenance / Coûts d'opération et entretien | Foreign Exchange / Change (extérieur) | Taxes / Taxes | Local Currency / Monnaie locale |
|---|---|---|---|---|---|
| | | Z/year / année | Z | Z | Z |
| Aruwimi | (35 ton-type with engine) (35 ton-type avec machine) | 26,800 | 12,965 (48%) | 3,955 (15%) | 9,880 (37%) |
| Uele | (30 ton-type with engine) (30 ton-type avec machine) | 23,000 | 10,815 (47%) | 3,320 (14%) | 8,865 (39%) |
| Bili | (8 ton-rowing type guide with cable) (8 ton bac à main avec câble) | 5,500 | 2,067 (38%) | 589 (11%) | 2,844 (51%) |
| Bomu | (12 ton-type with engine) (12 ton-type avec machine) | 12,900 | 5,854 (45%) | 1,803 (14%) | 5,243 (41%) |

Note: These costs in the Table are calculated by deduct 3-"Cost of Landing Facility" in Table A.3.5.14 ~ A.3.5.17.

Ces coûts dans le Tableau sont calculés par déduire 3-"Coût d'installation du débarquement" dans le Tableau A.3.5.14 ~ A.3.5.17.