

108/114/12/R4-3

UMKHOMAZI WATER PROJECT
MODULE 3 – POTABLE WATER MODULE

Detailed Feasibility Study
Pipeline Design Report - Volume 3
(BOQ Option B3)

Revision 1

October 2015



Planning Services
Engineering & Scientific Services
Umgeni Water

Prepared By:

Knight Piésold
CONSULTING

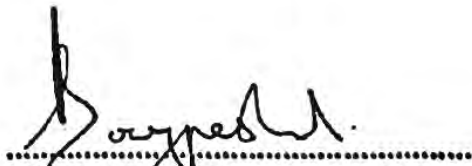
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uMkhomazi Water Project

**Detailed Feasibility Study – Pipeline Design Report –
Volume 3 (BOQ Option B3)**

Report No. 108/114/12/R4-3

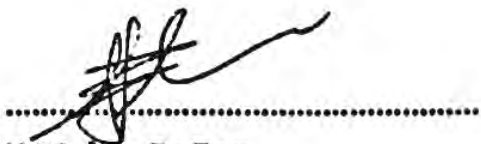
Prepared by Knight Piésold Consulting



A Doorgapershad, Pr Eng

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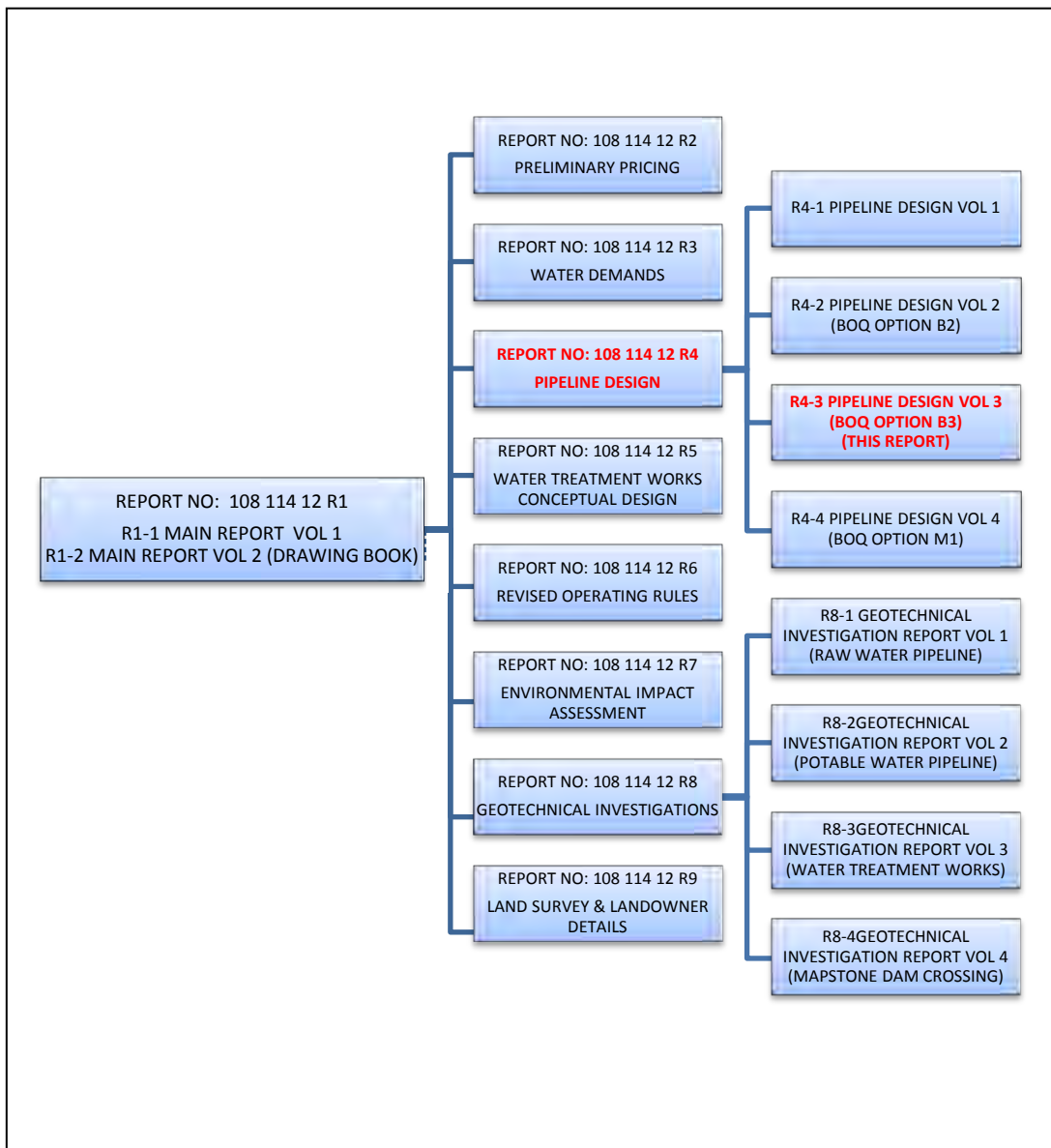
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UMKHOMAZI WATER PROJECT

MODULE 3 – POTABLE WATER MODULE

Structure of Suite of Reports



DOCUMENT CONTROL SHEET

CLIENT: Umgeni Water

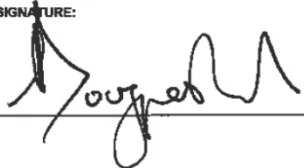
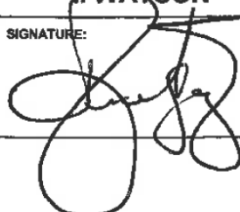

PROJECT: uMkhomazi Water Project, Potable Water Module

PROJECT ASSIGNMENT: uMkhomazi Water Project P/A No: 30300413/01

TITLE: Detailed Feasibility Study, Pipeline Design Report - Volume 3 (BOQ Option B3), Revision 1

REVISION HISTORY:

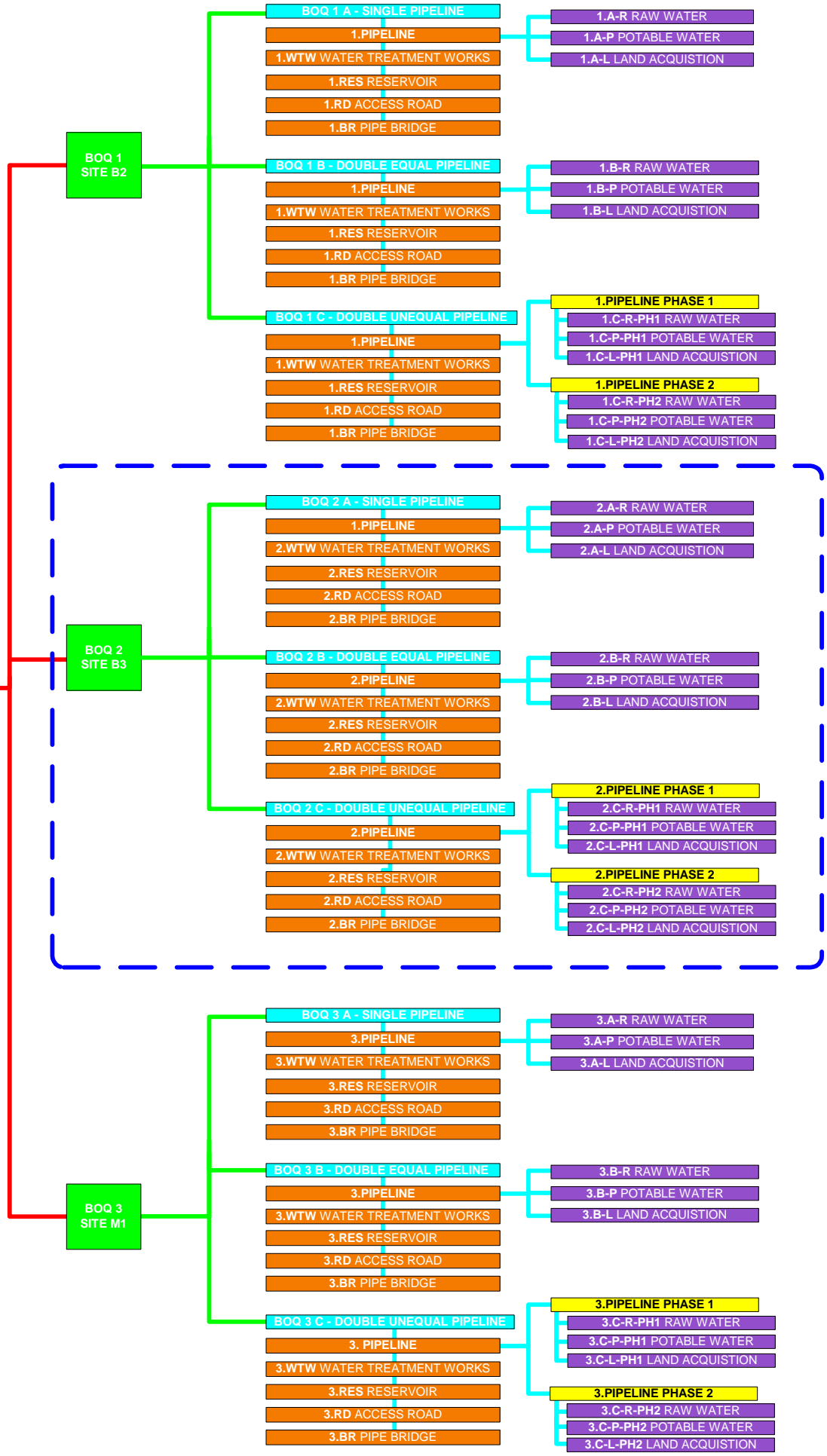
| DATE: | REV. NO.: | DESCRIPTION: | REVISED BY: |
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| 31 AUG 2014 | A | INTERNAL REVIEW | A. DOORGAPERSHAD |
| 31 OCT 2014 | B | CLIENT REVIEW | A. DOORGAPERSHAD |
| 31 OCT 2015 | 1 | CLIENT APPROVAL | A. DOORGAPERSHAD |

| DESCRIPTION: | PREPARED BY: | REVIEWED BY: | APPROVED BY: |
|-----------------|---|--|---|
| REVISION: 1 | NAME: A. DOORGAPERSHAD | NAME: J. WATSON | NAME: K. MEIER |
| CLIENT APPROVAL | SIGNATURE:  | SIGNATURE:  | SIGNATURE:  |

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UMKHOMAZI COST COMPONENTS



SUMMARY OF BILL OF QUANTITIES

| OPTION A - SINGLE PIPELINE | | | |
|--|-------------------------------|-------------------------------|-------------------------------|
| COSTS COMPONENTS | WTW OPTION 1 - SITE B2 | WTW OPTION 2 - SITE B3 | WTW OPTION 3 - SITE M1 |
| SINGLE PIPELINE - RAW WATER | R 277 358 359.80 | R 431 599 585.32 | R 877 323 974.06 |
| SINGLE PIPELINE - POTABLE WATER | R 953 743 967.97 | R 927 949 467.07 | R 645 876 139.68 |
| LAND ACQUISITION AND CROP COMPENSATION | R 40 501 107.39 | R 37 396 554.88 | R 37 993 347.64 |
| PIPE BRIDGE | R 44 228 054.00 | R 44 228 054.00 | R 44 228 054.00 |
| ACCESS ROAD | R 12 999 470.88 | R 7 729 519.56 | R 7 673 300.04 |
| WATER TREATMENT WORKS | R 1 551 215 453.02 | R 1 647 167 855.80 | R 1 562 054 964.77 |
| RESERVOIR | R 194 287 465.26 | R 194 287 465.26 | R 194 287 465.26 |
| TOTAL | R 3 074 333 878.33 | R 3 290 358 501.89 | R 3 369 437 245.47 |

| OPTION B - DOUBLE EQUAL PIPELINE | | | |
|---|-------------------------------|-------------------------------|-------------------------------|
| COSTS COMPONENTS | WTW OPTION 1 - SITE B2 | WTW OPTION 2 - SITE B3 | WTW OPTION 3 - SITE M1 |
| DOUBLE EQUAL PIPELINE - RAW WATER | R 337 984 306.16 | R 574 566 276.53 | R 1 174 701 879.72 |
| DOUBLE EQUAL PIPELINE - POTABLE WATER | R 1 260 210 982.21 | R 1 205 162 552.49 | R 775 046 998.60 |
| LAND ACQUISITION AND CROP COMPENSATION | R 45 957 241.69 | R 42 578 408.89 | R 43 157 317.96 |
| PIPE BRIDGE | R 44 228 054.00 | R 44 228 054.00 | R 44 228 054.00 |
| ACCESS ROAD | R 12 999 470.88 | R 7 729 519.56 | R 7 673 300.04 |
| WATER TREATMENT WORKS | R 1 551 215 453.02 | R 1 647 167 855.80 | R 1 562 054 964.77 |
| RESERVOIR | R 194 287 465.26 | R 194 287 465.26 | R 194 287 465.26 |
| TOTAL | R 3 446 882 973.23 | R 3 715 720 132.53 | R 3 801 149 980.36 |

| OPTION C - DOUBLE UNEQUAL PIPELINE - PHASE 1 | | | |
|---|-------------------------------|-------------------------------|-------------------------------|
| COSTS COMPONENTS | WTW OPTION 1 - SITE B2 | WTW OPTION 2 - SITE B3 | WTW OPTION 3 - SITE M1 |
| DOUBLE UNEQUAL PIPELINE - RAW WATER | R 218 617 038.06 | R 341 652 937.21 | R 678 688 674.69 |
| DOUBLE UNEQUAL PIPELINE - POTABLE WATER | R 744 589 044.01 | R 668 788 131.48 | R 487 290 269.67 |
| LAND ACQUISITION AND CROP COMPENSATION | R 41 935 124.28 | R 38 936 576.75 | R 39 407 078.51 |
| PIPE BRIDGE | R 44 228 054.00 | R 44 228 054.00 | R 44 228 054.00 |
| ACCESS ROAD | R 12 999 470.88 | R 7 729 519.56 | R 7 673 300.04 |
| WATER TREATMENT WORKS | R 1 551 215 453.02 | R 1 647 167 855.80 | R 1 562 054 964.77 |
| RESERVOIR | R 194 287 465.26 | R 194 287 465.26 | R 194 287 465.26 |
| TOTAL | R 2 807 871 649.50 | R 2 942 790 540.06 | R 3 013 629 806.95 |

| OPTION C - DOUBLE UNEQUAL PIPELINE - PHASE 2 | | | |
|---|-------------------------------|-------------------------------|-------------------------------|
| COSTS COMPONENTS | WTW OPTION 1 - SITE B2 | WTW OPTION 2 - SITE B3 | WTW OPTION 3 - SITE M1 |
| DOUBLE UNEQUAL PIPELINE - RAW WATER | R 152 162 552.55 | R 233 268 006.41 | R 481 919 415.23 |
| DOUBLE UNEQUAL PIPELINE - POTABLE WATER | R 492 774 860.29 | R 449 411 777.08 | R 361 885 686.88 |
| LAND ACQUISITION AND CROP COMPENSATION | R 33 966 442.08 | R 30 292 824.91 | R 31 354 501.86 |
| TOTAL | R 678 903 854.92 | R 712 972 608.40 | R 875 159 603.98 |

| OPTION C - DOUBLE UNEQUAL PIPELINE - COMBINED | | | |
|--|---------------------------|---------------------------|---------------------------|
| TOTAL | R 3 486 775 504.42 | R 3 655 763 148.47 | R 3 888 789 410.93 |

SUMMARY OF BILL OF QUANTITIES

| OPTION A - SINGLE PIPELINE | | | |
|--|-------------------------------|-------------------------------|-------------------------------|
| COSTS COMPONENTS | WTW OPTION 1 - SITE B2 | WTW OPTION 2 - SITE B3 | WTW OPTION 3 - SITE M1 |
| SINGLE PIPELINE - RAW WATER | 1.A-R | 2.A-R | 3.A-R |
| SINGLE PIPELINE - POTABLE WATER | 1.A-P | 2.A-P | 3.A-P |
| LAND ACQUISITION AND CROP COMPENSATION | 1.A-L | 2.A-L | 3.A-L |
| PIPE BRIDGE | 1.BR | 2.BR | 3.BR |
| ACCESS ROAD | 1.RD | 2.RD | 3.RD |
| WATER TREATMENT WORKS | 1.WTW | 2.WTW | 3.WTW |
| RESERVOIR | 1.RES | 2.RES | 3.RES |
| DETAILED SUMMARY | 1A | 2A | 3A |

| OPTION B - DOUBLE EQUAL PIPELINE | | | |
|---|-------------------------------|-------------------------------|-------------------------------|
| COSTS COMPONENTS | WTW OPTION 1 - SITE B2 | WTW OPTION 2 - SITE B3 | WTW OPTION 3 - SITE M1 |
| DOUBLE EQUAL PIPELINE - RAW WATER | 1.B-R | 2.B-R | 3.B-R |
| DOUBLE EQUAL PIPELINE - POTABLE WATER | 1.B-P | 2.B-P | 3.B-P |
| LAND ACQUISITION AND CROP COMPENSATION | 1.B-L | 2.B-L | 3.B-L |
| PIPE BRIDGE | 1.BR | 2.BR | 3.BR |
| ACCESS ROAD | 1.RD | 2.RD | 3.RD |
| WATER TREATMENT WORKS | 1.WTW | 2.WTW | 3.WTW |
| RESERVOIR | 1.RES | 2.RES | 3.RES |
| DETAILED SUMMARY | 1B | 2B | 3B |

| OPTION C - DOUBLE UNEQUAL PIPELINE - PHASE 1 | | | |
|---|-------------------------------|-------------------------------|-------------------------------|
| COSTS COMPONENTS | WTW OPTION 1 - SITE B2 | WTW OPTION 2 - SITE B3 | WTW OPTION 3 - SITE M1 |
| DOUBLE UNEQUAL PIPELINE - RAW WATER | 1.C-R-PH1 | 2.C-R-PH1 | 3.C-R-PH1 |
| DOUBLE UNEQUAL PIPELINE - POTABLE WATER | 1.C-P-PH1 | 2.C-P-PH1 | 3.C-P-PH1 |
| LAND ACQUISITION AND CROP COMPENSATION | 1.C-L-PH1 | 2.C-L-PH1 | 3.C-L-PH1 |
| PIPE BRIDGE | 1.BR | 2.BR | 3.BR |
| ACCESS ROAD | 1.RD | 2.RD | 3.RD |
| WATER TREATMENT WORKS | 1.WTW | 2.WTW | 3.WTW |
| RESERVOIR | 1.RES | 2.RES | 3.RES |
| DETAILED SUMMARY | 1C-PH1 | 2C-PH1 | 3C-PH1 |

| OPTION C - DOUBLE UNEQUAL PIPELINE - PHASE 2 | | | |
|---|-------------------------------|-------------------------------|-------------------------------|
| COSTS COMPONENTS | WTW OPTION 1 - SITE B2 | WTW OPTION 2 - SITE B3 | WTW OPTION 3 - SITE M1 |
| DOUBLE UNEQUAL PIPELINE - RAW WATER | 1.C-R-PH2 | 2.C-R-PH2 | 3.C-R-PH2 |
| DOUBLE UNEQUAL PIPELINE - POTABLE WATER | 1.C-P-PH2 | 2.C-P-PH2 | 3.C-P-PH2 |
| CROP COMPENSATION | 1.C-L-PH2 | 2.C-L-PH2 | 3.C-L-PH2 |
| DETAILED SUMMARY | 1C-PH2 | 2C-PH2 | 3C-PH2 |

| OPTION C - DOUBLE UNEQUAL PIPELINE - COMBINED | | | |
|--|-----------|-----------|-----------|
| DETAILED SUMMARY | 1C | 2C | 3C |

| DETAILED SUMMARY FOR COST COMPONENTS TO OPTION 2A | | |
|---|--|---------------------------|
| BOQ No. | DESCRIPTION | AMOUNT |
| 2.A-R | SINGLE PIPELINE - RAW WATER | R 431 599 585.32 |
| 2.A-P | SINGLE PIPELINE - POTABLE WATER | R 927 949 467.07 |
| 2.A-L | LAND ACQUISITION AND CROP COMPENSATION | R 37 396 554.88 |
| 2.BR | PIPE BRIDGE | R 44 228 054.00 |
| 2.RD | SITE B3 ACCESS ROAD | R 7 729 519.56 |
| 2.WTW | SITE B3 WATER TREATMENT WORKS | R 1 647 167 855.80 |
| 2.RES | SITE B3 RESERVOIR | R 194 287 465.26 |
| TOTAL CARRIED FORWARD TO SUMMARY OF BILL OF QUANTITIES | | R 3 290 358 501.89 |

SUMMARY

| SECTION | DESCRIPTION | TOTAL |
|--|---------------------------------------|-------------------------|
| SECTION 1 | PRELIMINARY AND GENERAL | R 99 599 904.31 |
| SECTION 2 | SITE CLEARANCE | R 1 972 488.95 |
| SECTION 3 | EARTHWORKS | R 269 003.63 |
| SECTION 4 | PIPE TRENCHES | R 38 896 566.10 |
| SECTION 5 | GABIONS AND PITCHING | R 872 752.53 |
| SECTION 6 | CONCRETE STRUCTURAL | R 2 391 540.13 |
| SECTION 7 | MEDIUM PRESSURE PIPELINES | R 257 567 664.37 |
| SECTION 8 | BEDDING (PIPES) | R 17 532 845.05 |
| SECTION 9 | PIPE JACKING | R 7 432 860.26 |
| SECTION 10 | CATHODIC PROTECTION AND AC MITIGATION | R 5 063 960.00 |
| TOTAL CARRIED TO BILL OF QUANTITIES 2 A | | R 431 599 585.32 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|--|----------------|----------|-------------|-----------------------|
| SANS 1200 C | SECTION 2 : SITE CLEARANCE | | | | |
| | CLEAR SITE | | | | |
| 8.2.1 | Clear and grub site over working corridor | ha | 33.43 | R 9 775.00 | R 326 778.25 |
| 8.2.2 | Remove and grub large trees and tree stumps regardless of girth | ha | 3.95 | R 39 716.00 | R 156 878.20 |
| 8.2.10 | Remove topsoil to nominal depth of 150mm and stockpile and maintain. | m ² | 334300 | R 3.22 | R 1 076 446.00 |
| PSC 8.2.11 | Remove existing road and driveways and spoil, for: | | | | |
| | a) Asphalt | m ² | 85 | R 58.65 | R 4 985.25 |
| | b) Gravel | m ² | 4185 | R 54.05 | R 226 199.25 |
| PSC 8.2.14 | Saw cutting of existing surface: | | | | |
| | a) Asphalt | m | 20 | R 27.60 | R 552.00 |
| 8.2.5 PS 9.2 PSC 8.2.17 | Dismantle existing fencing, move to storage and later reinstate as directed by the Engineer: | | | | |
| | i) All precast concrete fence. (Provisional Quantity) | m | 200 | R 126.00 | R 25 200.00 |
| | ii) All timber fence.(Provisional Quantity) | m | 200 | R 172.50 | R 34 500.00 |
| | iii) All galvanized weld mesh fence.(Provisional Quantity) | m | 200 | R 97.75 | R 19 550.00 |
| | iv) All galvanized diamond mesh fence.(Provisional Quantity) | m | 200 | R 207.00 | R 41 400.00 |
| | v) All electric fence (Provisional Quantity) | m | 200 | R 300.00 | R 60 000.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 1 972 488.95 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------------|----------|----------|---------------------|
| SANS 1200 D | SECTION 3 : EARTHWORKS | | | | |
| | EXCAVATION | | | | |
| 8.3.3(a) PSD 5.2.2.1 | Restricted excavation in all materials and use for backfill and compact to specified densities or dispose as ordered for: | | | | |
| | Isolating Valve Chambers (1 Off) | m ³ | 252 | R 132.02 | R 33 269.04 |
| | Meter Chamber (1 Off) | m ³ | 252 | R 132.02 | R 33 269.04 |
| | Scour Valve Chambers | | | | |
| | a) Type 1 (8 Off) | m ³ | 465 | R 132.02 | R 61 389.30 |
| 8.3.2.(b) | Extra-over item 8.3.3 for excavation in: | | | | |
| 8.3.3.(b).1 | Intermediate Material (Provisional Quantity) | m ³ | 245 | R 20.70 | R 5 071.50 |
| 8.3.3.(b).2 | Hard Rock (Provisional Quantity) | m ³ | 145 | R 295.55 | R 42 854.75 |
| | FINISHINGS | | | | |
| PSD 8.3.14 PSD 5.1.1.1 | Barricading | | | | |
| | i) Barrier Fence | m | 1000 | R 93.15 | R 93 150.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 269 003.63 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------------|----------|-------------|------------------------|
| SANS 1200 DB | SECTION 4 : PIPE TRENCHES | | | | |
| | EXCAVATION | | | | |
| 8.3.2(a) | Excavate in all materials for trenches for DN3030 pipe, backfill with graded material, compact hydraulically/mechanically to specified density and dispose of surplus/unsuitable material: | | | | |
| | 5 -6 m | m ³ | 168580 | R 171.47 | R 28 906 412.60 |
| 8.3.2(b) | Extra-over items 8.3.2(a) for : | | | | |
| 1) | Intermediate Material (Provisional Quantity) | m ³ | 50575 | R 20.70 | R 1 046 902.50 |
| 2) | Hard Rock (Provisional Quantity) | m ³ | 17995 | R 243.80 | R 4 387 181.00 |
| | Extra-over items 8.3.2(a) for : | | | | |
| PSDB3.7 | Removal of suitable backfill material off site, store at temporary site, load and haul back to site.(Provisional Quantity) | m ³ | 3375 | R 93.22 | R 314 617.50 |
| 8.3.2(c) PSDB5.5 | Excavate and dispose of unsuitable material from trench bottom (Provisional Quantity) | m ³ | 1690 | R 81.32 | R 137 430.80 |
| | SELECTED BACKFILL | | | | |
| 8.3.3.3 | Compaction in road reserves to 97% MOD AASHTO (Provisional Quantity) | m ³ | 100 | R 35.08 | R 3 508.00 |
| | EXISTING SERVICES | | | | |
| 8.3.5(a) PSDB 8.3.5 | Protect, maintain, repair all services that intersect a trench | Prov Sum | 1 | R 82 500.00 | R 82 500.00 |
| 8.3.5(b) PSDB8.3.5 | Protect, maintain, repair all services that adjoin a trench | Prov Sum | 1 | R 82 500.00 | R 82 500.00 |
| | FINISHINGS | | | | |
| | Topsoiling | m ² | 334300 | R 10.47 | R 3 500 121.00 |
| | Reinstate roads and driveways complete with all courses | | | | |
| | a) Gravel in driveways | m ² | 4185 | R 97.75 | R 409 083.75 |
| | b) Asphalt of 30 - 60mm thickness in roadway | m ² | 85 | R 162.15 | R 13 782.75 |
| PSDB 5.1.2.2 | Installation of permanent subsoil drainage systems in accordance with drawing no, inclusive of gabion, geofabric, pipe, stone and other materials for completion as directed by the Engineer (Provisional Quantity) | No. | 5 | R 2 505.24 | R 12 526.20 |
| CARRIED FORWARD TO SUMMARY | | | | | R 38 896 566.10 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------------|----------|------------|---------------------|
| SANS 1200 DK | SECTION 5: GABIONS AND PITCHING | | | | |
| | GABIONS | | | | |
| 8.2.2 PSDK 3.1.2 | Construct gabions using double twisted hexagonal mesh type 80 with 3.4mm OD frame wire and 2.7mm OD mesh wire to SANS 1580:2005: | | | | |
| 8.2.2 | a) Reno mattresses of depth 0,3 m with diaphragms providing 2 m x 1 m cells. (Provisional Quantity) | m ² | 561 | R 1 355.24 | R 760 289.64 |
| 8.2.4 PSDK 3.1.3 | Geotextile (Type AG 200) placed where ground water seepage occurs: | | | | |
| 8.2.4 | a) below reno mattresses (Provisional Quantity) | m ² | 561 | R 15.99 | R 8 970.39 |
| PSDK 3.2 | STONE PITCHING | | | | |
| | Supply all labour, plant and material and lay medium grouted pitching as indicated, including for all surface preparation and compaction (Provisional Quantity) | m ² | 250 | R 413.97 | R 103 492.50 |
| CARRIED FORWARD TO SUMMARY | | | | | R 872 752.53 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------|---|----------------|----------|------------|---------------------|
| SANS 1200 G | SECTION 6 : CONCRETE STRUCTURAL | | | | |
| 8.2 PSG 4.5, 7.2 | FORMWORK | | | | |
| | DN3000 IV Chambers (1 Off) | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 180 | R 272.90 | R 49 122.00 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 160 | R 406.79 | R 65 086.40 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide | | | | |
| | 200mm wide | m | 35 | R 143.73 | R 5 030.55 |
| 8.2.6 | Box out holes/form voids: | | | | |
| 8.2.6(a) | Small, circular, up to 0,35 m dia., depth 0 m to 0,5 metres | | | | |
| | DN200 pipe through chamber walls | No. | 1 | R 381.55 | R 381.55 |
| | DN300 pipe through chamber walls | No. | 2 | R 476.94 | R 953.88 |
| | Large, circular, diameter greater than 1,0m, depth 0m to 0,5m | | | | |
| | DN3000 pipe through chamber walls | No. | 2 | R 3 091.57 | R 6 183.14 |
| | DN2800 Meter Chamber (1 Off) | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 180 | R 272.90 | R 49 122.00 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 160 | R 406.79 | R 65 086.40 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide | | | | |
| | 200mm wide | m | 35 | R 143.73 | R 5 030.55 |
| 8.2.6 | Box out holes/form voids: | | | | |
| | Large, circular, diameter greater than 1,0m, depth 0m to 0,5m | | | | |
| | DN2800 pipe through chamber walls | No. | 2 | R 2 033.93 | R 4 067.86 |
| | DN200 Scour Chambers (8 Off) | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 495 | R 272.90 | R 135 085.50 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 375 | R 406.79 | R 152 546.25 |
| 8.2.2 | Smooth to underside of roof slab | m ² | 55 | R 435.54 | R 23 954.70 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide | | | | |
| | 200mm wide | m | 85 | R 143.73 | R 12 217.05 |
| 8.2.6 | Box out holes/form voids: | | | | |
| 8.2.6(a) | Small, circular, up to 0,35 m dia., depth 0 m to 0,5 metres | | | | |
| | DN200 pipe through chamber wall | No. | 16 | R 476.94 | R 7 631.04 |
| CARRIED FORWARD | | | | | R 581 498.87 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------|---|----------------|----------|-------------|-----------------------|
| BROUGHT FORWARD | | | | | R 581 498.87 |
| | DN200 air vents in roof slab Large, circular, diameter greater than 1,0m, depth 0m to 0,5m | No. | 16 | R 476.94 | R 7 631.04 |
| | DN550 manhole access in roof slab | No. | 8 | R 1 586.47 | R 12 691.76 |
| | DN200 Air Valve Chamber Type 2 (9 Off) | | | | |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide 150mm wide | m | 200 | R 143.73 | R 28 746.00 |
| | DN200 Air Valve Chamber Type 4 (9 Off) | | | | |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide 150mm wide | m | 200 | R 143.73 | R 28 746.00 |
| 8.3 | REINFORCEMENT | | | | |
| | DN3000 IV Chambers (1 Off) | | | | |
| 8.3.1 | Mild Steel | t | 1.88 | R 12 032.07 | R 22 620.29 |
| 8.3.1 | High Tensile Steel | t | 7.50 | R 12 032.07 | R 90 240.53 |
| | DN2800 Meter Chamber (1 Off) | | | | |
| 8.3.1 | Mild Steel | t | 1.88 | R 12 032.07 | R 22 620.29 |
| 8.3.1 | High Tensile Steel | t | 7.50 | R 12 032.07 | R 90 240.53 |
| | DN200 Scour Chambers (8 Off) | | | | |
| 8.3.1 | Mild Steel | t | 4.19 | R 12 032.07 | R 50 414.37 |
| 8.3.1 | High Tensile Steel | t | 16.75 | R 12 032.07 | R 201 537.17 |
| | DN200 Air Valve Chamber Type 2 (9 Off) | | | | |
| 8.3.1 | Mild Steel | t | 0.13 | R 12 032.07 | R 1 564.17 |
| 8.3.1 | High Tensile Steel | t | 0.50 | R 12 032.07 | R 6 016.04 |
| | DN200 Air Valve Chamber Type 4 (9 Off) | | | | |
| 8.3.1 | Mild Steel | t | 0.13 | R 12 032.07 | R 1 564.17 |
| 8.3.1 | High Tensile Steel | t | 0.50 | R 12 032.07 | R 6 016.04 |
| | Concrete encasement DN3000 pipe at river crossings (Provisional Quantity) | | | | |
| 8.3.1 | Mild Steel | t | 2.50 | R 12 032.07 | R 30 080.18 |
| 8.3.1 | High Tensile Steel | t | 10.00 | R 12 032.07 | R 120 320.70 |
| 8.4 | CONCRETE | | | | |
| | DN3000 IV Chambers (1 Off) | | | | |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 47 | R 125.27 | R 5 887.69 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: Base | m ³ | 22 | R 1 955.23 | R 42 037.45 |
| CARRIED FORWARD | | | | | R 1 350 473.27 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------|---|----------------|----------|------------|-----------------------|
| BROUGHT FORWARD | | | | | R 1 350 473.27 |
| | Walls | m ³ | 54 | R 1 955.23 | R 104 604.81 |
| | DN2800 Meter Chamber (1 Off) | | | | |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 47 | R 125.27 | R 5 887.69 |
| 8.4.3 | 15MPa concrete for platforms, steps, pipe supports etc. | | | | |
| | Pipe supports | m ³ | 7.5 | R 1 789.80 | R 13 423.50 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Base | m ³ | 22 | R 1 955.23 | R 43 015.06 |
| | Walls | m ³ | 54 | R 1 955.23 | R 104 604.81 |
| | DN200 Scour Chambers (8 Off) | | | | |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 145 | R 125.27 | R 18 164.15 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Base | m ³ | 65 | R 1 955.23 | R 127 089.95 |
| | Walls | m ³ | 92 | R 1 955.23 | R 179 881.16 |
| | Roof slab | m ³ | 11.0 | R 1 955.23 | R 21 507.53 |
| | DN200 Air Valve Chamber Type 2 (9 Off) | | | | |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Strip Foundation | m ³ | 5.0 | R 1 955.23 | R 9 776.15 |
| | DN200 Air Valve Chamber Type 4 (9 Off) | | | | |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Strip Foundation | m ³ | 5.0 | R 1 955.23 | R 9 776.15 |
| | Concrete encasement DN3000 pipe at river crossing (Provisional Quantity) | | | | |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Concrete encasement of pipe | m ³ | 100 | R 2 215.64 | R 221 564.00 |
| 8.4.4 | UNFORMED SURFACE FINISHES | | | | |
| | DN3000 IV Chambers (1 Off) | | | | |
| 8.4.4(a) | Wood-floated | | | | |
| | To floor slabs | m ² | 39 | R 21.55 | R 829.68 |
| | To top of walls | m ² | 10 | R 21.55 | R 204.73 |
| | DN2800 Meter Chamber (1 Off) | | | | |
| 8.4.4(a) | Wood-floated | | | | |
| | To floor slabs | m ² | 39 | R 21.55 | R 829.68 |
| | To top of pipe cradle | m ² | 6.5 | R 21.55 | R 140.08 |
| | To top of walls | m ² | 10 | R 21.55 | R 215.50 |
| CARRIED FORWARD | | | | | R 2 211 987.87 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|--|----------------|----------|------------|-----------------------|
| BROUGHT FORWARD | | | | | R 2 211 987.87 |
| | DN200 Scour Chambers (8 Off) | | | | |
| 8.4.4(a) | Wood-floated | | | | |
| | To floor slabs | m ² | 143 | R 21.55 | R 3 070.88 |
| | To roof slabs | m ² | 54 | R 21.55 | R 1 163.70 |
| | To top of walls | m ² | 37 | R 21.55 | R 786.58 |
| | MISCELLANEOUS | | | | |
| | Bitumen impregnated soft board | m | 40 | R 33.92 | R 1 356.80 |
| | Polyurethane joint sealant (10mm x 20mm) | m | 40 | R 44.41 | R 1 776.40 |
| | Neoprene inserts for pipes at pipe supports - For DN3000 | m ² | 20 | R 114.33 | R 2 286.60 |
| PSG 8.4.5 | Concrete complete with formwork, reinforcing, surface finishing, holes, vents if applicable and joints, for: | | | | |
| | Removable roof slabs in IV chamber | m ³ | 9.5 | R 2 215.64 | R 21 048.58 |
| | Removable roof slabs in Meter Chamber | m ³ | 9.5 | R 2 215.64 | R 21 048.58 |
| | Removable roof slabs in Air Valve-Type2 | m ³ | 10.5 | R 2 215.64 | R 23 264.22 |
| | Removable roof slabs in Air Valve Type 4 | m ³ | 10.5 | R 2 215.64 | R 23 264.22 |
| PSG 8.9 | Grouting of pipes/specials through walls or slabs inclusive of pipe wall joint sealing | | | | |
| | i) DN3000 in IV Chamber | No. | 2 | R 6 618.09 | R 13 236.18 |
| | ii) DN300 in IV Chamber | No. | 2 | R 2 873.22 | R 5 746.44 |
| | iii) DN200 in IV Chamber | No. | 1 | R 1 969.29 | R 1 969.29 |
| | iv) DN2800 in Meter Chamber | No. | 2 | R 5 165.34 | R 10 330.68 |
| | v) DN200 in Scour Chamber | No. | 8 | R 1 969.29 | R 15 754.32 |
| PSG 8.10 | Casting of pipes/specials through walls or slabs | | | | |
| | Air vents in roof slab in chambers | No. | 16 | R 750.50 | R 12 008.00 |
| | Securex manhole cover in roof slab in chambers | No. | 8 | R 2 680.10 | R 21 440.80 |
| CARRIED FORWARD TO SUMMARY | | | | | R 2 391 540.13 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------|---|------|----------|----------------|-------------------------|
| SANS 1200 L | SECTION 7 : MEDIUM PRESSURE PIPELINES | | | | |
| | Supply and transport of polyurethane coated, epoxy lined steel pipe | | | | |
| | DN3000 * 18mm thick * grade X42 pipe | m | 7823 | R 22 730.00 | R 177 805 425.00 |
| PSL 8.2.1 | Lay, bed and joint pipes, inclusive of internal epoxy lining repair, external coating repair and NDT testing | | | | |
| | DN3000 * 18mm thick * grade X42 pipe | m | 7823 | R 7 879.43 | R 61 636 841.18 |
| | Manufacturing of Simple and Compound Bends, inclusive of reinstatement of testing, external coating and internal lining reinstatement, transportation and handling: | | | | |
| | Bends for DN3000 * 18mm thick * grade X42 pipe: | | | | |
| 8.2.3 & PSL 3.4.4.1 | up to 15 deg | No. | 25 | R 30 943.90 | R 773 597.52 |
| 8.2.3 & PSL 3.4.4.1 | 16 to 30 deg | No. | 18 | R 52 071.94 | R 937 294.94 |
| 8.2.3 & PSL 3.4.4.1 | 31 to 45 deg | No. | 8 | R 68 471.61 | R 547 772.88 |
| 8.2.3 & PSL 3.4.4.1 | 46 to 60 deg | No. | 4 | R 68 471.61 | R 273 886.44 |
| 8.2.3 & PSL 3.4.4.1 | 61 to 75 deg | No. | 1 | R 87 504.80 | R 87 504.80 |
| 8.2.3 & PSL 3.4.4.1 | 76 to 90 deg | No. | 2 | R 100 313.30 | R 200 626.61 |
| | SPECIAL ASSEMBLIES | | | | |
| 8.2.3 | Supply, fabricate, handle and install the following assemblies: | | | | |
| PSL 5.1.7 | DN200 Air Valve Assembly - Type 2, PN 16, Inclusive of all Pipe Reinforcing | No. | 9 | R 84 748.30 | R 762 734.70 |
| | DN200 Air Valve Assembly - Type 4, PN 16, Inclusive of all Pipe Reinforcing | No. | 9 | R 140 890.51 | R 1 268 014.59 |
| PSL 5.1.8 | DN200 Scour Valve Assembly, Terminal End Type 1, PN16, Inclusive of Collar Plates. | No. | 8 | R 30 216.41 | R 241 731.28 |
| | DN3000 Isolating Valve Assembly Complete | No. | 1 | R 7 354 285.04 | R 7 354 285.04 |
| | DN2800 Meter Chamber Assembly Complete | No. | 1 | R 4 140 172.80 | R 4 140 172.80 |
| 8.2.13 | VALVE CHAMBER AND MANHOLES | | | | |
| | Note : The following rates are to include for the installation of all GRP access ladders, safety cages, step irons, sealing joints, air vents, handrails, access manholes & frames, GRP landings & plastic gratings. All in situ and pre cast concrete elements,shuttering, surface finishing, curing of concrete and ancillaries to be included and rate supplied to be for full functional unit | | | | |
| | Supply and install units COMPLETE with related items for the construction of chambers for: | | | | |
| | Scour Valve Chamber | | | | |
| CARRIED FORWARD | | | | | R 256 029 887.78 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|--|------|----------|-------------|-------------------------|
| BROUGHT FORWARD | | | | | R 256 029 887.78 |
| | a) Type 1 Air Valve Chambers | No. | 7 | R 28 475.27 | R 199 326.89 |
| | a) Type 2 | No. | 6 | R 61 874.57 | R 371 247.42 |
| | b) Type 4 | No. | 6 | R 61 875.57 | R 371 253.42 |
| PSL 5.1.5 | Supply and install Pipe Route Marker Posts. | No. | 85 | R 421.80 | R 35 853.00 |
| PSL 7.3 | HYDRAULIC TESTING | | | | |
| | Fabrication, Installation, Remove & Handover to the employer Bullnoses of : | | | | |
| | DN3000 * 18mm thick * grade X42 pipe | No. | 2 | R 57 458.69 | R 114 917.39 |
| PSL 7.3 & PSL 8.2.19 | End cap, filling and testing of pipeline within sections specified by the Engineer | m | 7822.5 | R 56.91 | R 445 178.48 |
| CARRIED FORWARD TO SUMMARY | | | | | R 257 567 664.37 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------------|----------|----------|------------------------|
| SANS 1200 LB | SECTION 8 : BEDDING (PIPES) | | | | |
| | Bedding material Supply of selected granular material for 300mm bedding cradle below pipe invert and for fill blanket from pipe invert to 300mm above pipe crown, i) from commercial sources | m ³ | 60965 | R 284.97 | R 17 373 196.05 |
| | Selected Backfill Selected fill material including for screening or other treatment, to achieve grading suitable to comply with the bedding material specification compacted to 97% MOD AASHTO: i) from commercial sources (Provisional Quantity) | m ³ | 100 | R 284.97 | R 28 497.00 |
| PSLB 3.3 | Cement stabilised selected fill bedding (Soilcrete Bedding - 4% CEMENT) | m ³ | 100 | R 425.07 | R 42 507.00 |
| PSLB 5.1.2.1 PSLB 8.2.6 | Stone Bedding for pipe, supplied, placed and compacted, from a commercial source.(Provisional Quantity) | m ³ | 100 | R 726.55 | R 72 655.00 |
| PSLB 5.1.2.1 | Supply and place into position, geotextile for sub soil drains | m ² | 1000 | R 15.99 | R 15 990.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 17 532 845.05 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------|----------|--------------|-----------------------|
| SANS 1200LG | SECTION 9 : PIPE JACKING | | | | |
| | DN4000 PIPE JACK BAYNESFIELD RAIL | | | | |
| 8.2.1 PSLG 8.2.1 | Jacking establishment: | | | | |
| 8.2.1(a) | Fixed Charges | Sum | 1 | R 402 500.00 | R 402 500.00 |
| 8.2.2(b) | Time Related: State time: Weeks | Sum | 1 | R 690 000.00 | R 690 000.00 |
| PS LG 5.2.3.2 | Initial survey of ground and structures at jacking fronts | Sum | 1 | R 1 725.00 | R 1 725.00 |
| PS LG 5.2.3.1, 8.2.19 | Conduct monitoring surveys | No. | 7 | R 402.50 | R 2 817.50 |
| PSLG 8.2.2 | Supply of Pipes to be Jacked: | | | | |
| 8.2.2 PSLG 3 | DN4000 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes to be delivered to the required location" | m | 25 | R 92 504.16 | R 2 312 604.00 |
| PSLG 8.2.3 | Jacking of Pipes: | | | | |
| 8.2.3 PSLG 5.4.3 | DN4000 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes | m | 25 | R 81 144.00 | R 2 028 600.00 |
| 8.2.4 PSLG 4.3, 5.1.4 | Excavation for Jacking in all materials | m3 | 550 | R 1 840.00 | R 1 012 000.00 |
| 8.2.5 | Extra-over item 8.2.4 for unforeseen rock or boulders | Prov Sum | 1 | R 20 000.00 | R 20 000.00 |
| 8.2.9 PSLG 8.2.9 | Stabilization of unstable areas or grouting of voids where ordered by the Engineer: | | | | |
| 8.2.9(a) | Provision and establishment of equipment on site, and removal on completion of operation (Provisional Quantity) | Sum | 1 | R 5 750.00 | R 5 750.00 |
| 8.2.9(b) | Operation of Equipment (Provisional Quantity) | Day | 10 | R 575.00 | R 5 750.00 |
| 8.2.9(c) | Materials Used (Provisional Quantity) | m3 | 20 | R 2 875.00 | R 57 500.00 |
| 8.2.10 | Standing time for pipe jacking gang and jacking equipment (Provisional Quantity) | hr | 45 | R 1 265.00 | R 56 925.00 |
| PSLG 5.7 | Grouting of sleeve | m3 | 100 | R 3 450.00 | R 345 000.00 |
| PSLG 8.2.11 | Hand excavation and backfilling of trench to expose services | m3 | 15 | R 287.50 | R 4 312.50 |
| PSLG 5.10 | Grouting in of steel pipe inside sleeve | m3 | 135 | R 3 450.00 | R 465 750.00 |
| PSLG 8.2.15, 5.11 | Close DN4000 sleeve end with brick wall | No. | 2 | R 9 088.13 | R 18 176.26 |
| PSLG 8.2.16, 5.12 | Supply and install marker posts | No. | 2 | R 1 725.00 | R 3 450.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 7 432 860.26 |

SUMMARY

| SECTION | DESCRIPTION | TOTAL |
|--|---------------------------------------|-------------------------|
| SECTION 1 | PRELIMINARY AND GENERAL | R 214 142 184.71 |
| SECTION 2 | SITE CLEARANCE | R 4 047 127.05 |
| SECTION 3 | EARTHWORKS | R 490 794.24 |
| SECTION 4 | PIPE TRENCHES | R 97 650 817.55 |
| SECTION 5 | GABIONS AND PITCHING | R 1 454 154.05 |
| SECTION 6 | CONCRETE STRUCTURAL | R 5 216 241.57 |
| SECTION 7 | MEDIUM PRESSURE PIPELINES | R 525 136 974.49 |
| SECTION 8 | BEDDING (PIPES) | R 40 133 815.75 |
| SECTION 9 | PIPE JACKING | R 26 548 597.67 |
| SECTION 10 | CATHODIC PROTECTION AND AC MITIGATION | R 13 128 760.00 |
| TOTAL CARRIED TO BILL OF QUANTITIES 2 A | | R 927 949 467.07 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|--|----------------|----------|-------------|-----------------------|
| SANS 1200 C | SECTION 2 : SITE CLEARANCE | | | | |
| | CLEAR SITE | | | | |
| 8.2.1 | Clear and grub site over working corridor | ha | 86.36 | R 9 775.00 | R 844 169.00 |
| 8.2.2 | Remove and grub large trees and tree stumps regardless of girth | ha | 1.85 | R 39 716.00 | R 73 474.60 |
| 8.2.10 | Remove topsoil to nominal depth of 150mm and stockpile and maintain. | m ² | 863600 | R 3.22 | R 2 780 792.00 |
| PSC 8.2.11 | Remove existing road and driveways and spoil, for: | | | | |
| | a) Asphalt | m ² | 135 | R 58.65 | R 7 917.75 |
| | b) Gravel | m ² | 1594 | R 54.05 | R 86 155.70 |
| | c) Concrete | m ² | 1521 | R 41.40 | R 62 969.40 |
| PSC 8.2.14 | Saw cutting of existing surface: | | | | |
| | a) Asphalt | m | 36 | R 27.60 | R 993.60 |
| | b) Concrete | m | 300 | R 33.35 | R 10 005.00 |
| 8.2.5 PS 9.2 PSC 8.2.17 | Dismantle existing fencing, move to storage and later reinstate as directed by the Engineer: | | | | |
| | i) All precast concrete fence. | m | 200 | R 126.00 | R 25 200.00 |
| | ii) All timber fence. | m | 200 | R 172.50 | R 34 500.00 |
| | iii) All galvanized weld mesh fence. | m | 200 | R 97.75 | R 19 550.00 |
| | iv) All galvanized diamond mesh fence. | m | 200 | R 207.00 | R 41 400.00 |
| | v) All electric fence | m | 200 | R 300.00 | R 60 000.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 4 047 127.05 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------------|----------|----------|---------------------|
| SANS 1200 D | SECTION 3 : EARTHWORKS | | | | |
| | EXCAVATION | | | | |
| 8.3.3(a) PSD 5.2.2.1 | Restricted excavation in all materials and use for backfill and compact to specified densities or dispose as ordered for: | | | | |
| | DN2820 Isolating Valve Chambers (3 Off) | m ³ | 756 | R 132.02 | R 99 807.12 |
| | DN2540 Isolating Valve Chambers (1 Off) | m ³ | 252 | R 132.02 | R 33 269.04 |
| | Meter Chamber (1 Off) | m ³ | 252 | R 132.02 | R 33 269.04 |
| | Scour Valve Chambers | | | | |
| | a) Type 1 (16 Off) | m ³ | 927 | R 132.02 | R 122 382.54 |
| 8.3.2.(b) | Extra-over item 8.3.3 for excavation in: | | | | |
| 8.3.3.(b).1 | Intermediate Material (Provisional Quantity) | m ³ | 550 | R 20.70 | R 11 385.00 |
| 8.3.3.(b).2 | Hard Rock (Provisional Quantity) | m ³ | 330 | R 295.55 | R 97 531.50 |
| | FINISHINGS | | | | |
| PSD 8.3.14 PSD 5.1.1.1 | Barricading | | | | |
| | i) Barrier Fence | m | 1000 | R 93.15 | R 93 150.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 490 794.24 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-------------------------|--|----------------|----------|-------------|------------------------|
| SANS 1200 DB | SECTION 4 : PIPE TRENCHES | | | | |
| | EXCAVATION | | | | |
| 8.3.2(a) | Excavate in all materials for trenches for DN2820 pipe, backfill with graded material, compact hydraulically/mechanically to specified density and dispose of surplus/unsuitable material: | | | | |
| | 5 -6 m | m ³ | 303065 | R 171.47 | R 51 966 555.55 |
| 8.3.2(b) | Extra-over items 8.3.2(a) for : | | | | |
| 1) | Intermediate Material (Provisional Quantity) | m ³ | 90920 | R 20.70 | R 1 882 044.00 |
| 2) | Hard Rock (Provisional Quantity) | m ³ | 62300 | R 243.80 | R 15 188 740.00 |
| | Extra-over items 8.3.2(a) for : | | | | |
| PSDB3.7 | Removal of suitable backfill material off site, store at temporary site, load and haul back to site.(Provisional Quantity) | m ³ | 6065 | 93.22 | R 565 379.30 |
| 8.3.2(c) PSDB5.5 | Excavate and dispose of unsuitable material from trench bottom (Provisional Quantity) | m ³ | 3035 | R 81.32 | R 246 806.20 |
| 8.3.2(a) | Excavate in all materials for trenches for DN2540 pipe, backfill with graded material, compact hydraulically/mechanically to specified density and dispose of surplus/unsuitable material: | | | | |
| | 4 - 5 m | m ³ | 64565 | R 156.01 | R 10 072 785.65 |
| | 5 -6 m | m ³ | 17525 | R 171.47 | R 3 005 011.75 |
| 8.3.2(b) | Extra-over items 8.3.2(a) for : | | | | |
| 1) | Intermediate Material (Provisional Quantity) | m ³ | 24630 | R 20.70 | R 509 841.00 |
| 2) | Hard Rock (Provisional Quantity) | m ³ | 17295 | R 243.80 | R 4 216 521.00 |
| | Extra-over items 8.3.2(a) for : | | | | |
| PSDB3.7 | Removal of suitable backfill material off site, store at temporary site, load and haul back to site.(Provisional Quantity) | m ³ | 1645 | 93.22 | R 153 346.90 |
| 8.3.2(c) PSDB5.5 | Excavate and dispose of unsuitable material from trench bottom (Provisional Quantity) | m ³ | 825 | R 81.32 | R 67 089.00 |
| | SELECTED BACKFILL | | | | |
| 8.3.3.3 | Compaction in road reserves to 97% MOD AASHTO (Provisional Quantity) | m ³ | 100 | R 35.08 | R 3 508.00 |
| | EXISTING SERVICES | | | | |
| 8.3.5(a) PSDB 8.3.5 | Protect, maintain, repair all services that intersect a trench | Prov Sum | 1 | R 82 500.00 | R 82 500.00 |
| 8.3.5(b) PSDB8.3.5 | Protect, maintain, repair all services that adjoin a trench | Prov Sum | 1 | R 82 500.00 | R 82 500.00 |
| | FINISHINGS | | | | |
| | Topsailing | m ² | 863600 | R 10.47 | R 9 041 892.00 |
| CARRIED FORWARD | | | | | R 97 084 520.35 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------------|----------|------------|------------------------|
| BROUGHT FORWARD | | | | | R 97 084 520.35 |
| PSDB 5.1.2.2 | Reinstate roads and driveways complete with all courses | | | | |
| | a) Gravel in driveways | m ² | 1594 | R 97.75 | R 155 813.50 |
| | b) Asphalt of 30 - 60mm thickness in roadway | m ² | 135 | R 162.15 | R 21 890.25 |
| | c) Concrete | m ² | 1521 | R 247.25 | R 376 067.25 |
| | Installation of permanent subsoil drainage systems in accordance with drawing no, inclusive of gabion, geofabric, pipe, stone and other materials for completion as directed by the Engineer (Provisional Quantity) | No. | 5 | R 2 505.24 | R 12 526.20 |
| CARRIED FORWARD TO SUMMARY | | | | | R 97 650 817.55 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------------|----------|------------|-----------------------|
| SANS 1200 DK | SECTION 5: GABIONS AND PITCHING | | | | |
| | GABIONS | | | | |
| 8.2.2 PSDK 3.1.2 | Construct gabions using double twisted hexagonal mesh type 80 with 3.4mm OD frame wire and 2.7mm OD mesh wire to SANS 1580:2005: | | | | |
| 8.2.2 | a) Reno mattresses of depth 0,3 m with diaphragms providing 2 m x 1 m cells. (Provisional Quantity) | m ² | 985 | R 1 355.24 | R 1 334 911.40 |
| 8.2.4 PSDK 3.1.3 | Geotextile (Type AG 200) placed where ground water seepage occurs: | | | | |
| 8.2.4 | a) below reno mattresses (Provisional Quantity) | m ² | 985 | R 15.99 | R 15 750.15 |
| PSDK 3.2 | STONE PITCHING | | | | |
| | Supply all labour, plant and material and lay medium grouted pitching as indicated, including for all surface preparation and compaction (Provisional Quantity) | m ² | 250 | R 413.97 | R 103 492.50 |
| CARRIED FORWARD TO SUMMARY | | | | | R 1 454 154.05 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------|---|----------------|----------|------------|---------------------|
| SANS 1200 G | SECTION 6 : CONCRETE STRUCTURAL | | | | |
| 8.2 PSG 4.5, 7.2 | FORMWORK | | | | |
| | DN2820 IV Chambers (3 Off) | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 535 | R 272.90 | R 146 001.50 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 475 | R 406.79 | R 193 225.25 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide | | | | |
| | 200mm wide | m | 145 | R 143.73 | R 20 840.85 |
| 8.2.6 | Box out holes/form voids: | | | | |
| 8.2.6(a) | Small, circular, up to 0,35 m dia., depth 0 m to 0,5 metres | | | | |
| | DN200 pipe through chamber walls | No. | 3 | R 381.55 | R 1 144.65 |
| | DN300 pipe through chamber walls | No. | 6 | R 476.94 | R 2 861.64 |
| | Large, circular, diameter greater than 1,0m, depth 0m to 0,5m | | | | |
| | DN2820 pipe through chamber walls | No. | 6 | R 3 091.57 | R 18 549.42 |
| | DN2540 IV Chambers (1 Off) | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 180 | R 272.90 | R 49 122.00 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 160 | R 406.79 | R 65 086.40 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide | | | | |
| | 200mm wide | m | 35 | R 143.73 | R 5 030.55 |
| 8.2.6 | Box out holes/form voids: | | | | |
| 8.2.6(a) | Small, circular, up to 0,35 m dia., depth 0 m to 0,5 metres | | | | |
| | DN200 pipe through chamber walls | No. | 2 | R 381.55 | R 763.10 |
| | DN300 pipe through chamber walls | No. | 4 | R 476.94 | R 1 907.76 |
| | Large, circular, diameter greater than 1,0m, depth 0m to 0,5m | | | | |
| | DN2540 pipe through chamber walls | No. | 2 | R 3 091.57 | R 6 183.14 |
| | DN2540 Meter Chamber (1 Off) | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 180 | R 272.90 | R 49 122.00 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 160 | R 406.79 | R 65 086.40 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide | | | | |
| | 200mm wide | m | 35 | R 143.73 | R 5 030.55 |
| CARRIED FORWARD | | | | | R 629 955.21 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|--|---|----------------|----------|-------------|-----------------------|
| BROUGHT FORWARD | | | | | R 629 955.21 |
| 8.2.6 | Box out holes/form voids: Large, circular, diameter greater than 1,0m, depth 0m to 0,5m DN2540 pipe through chamber walls | No. | 2 | R 2 033.93 | R 4 067.86 |
| DN200 Scour Chambers (16 Off) | | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 995 | R 272.90 | R 271 535.50 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 755 | R 406.79 | R 307 126.45 |
| 8.2.2 | Smooth to underside of roof slab | m ² | 115 | R 435.54 | R 50 087.10 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide 200mm wide | m | 170 | R 143.73 | R 24 434.10 |
| 8.2.6 | Box out holes/form voids: | | | | |
| 8.2.6(a) | Small, circular, up to 0,35 m dia., depth 0 m to 0,5 metres DN200 pipe through chamber wall | No. | 32 | R 476.94 | R 15 262.08 |
| | DN200 air vents in roof slab | No. | 32 | R 476.94 | R 15 262.08 |
| | Large, circular, diameter greater than 1,0m, depth 0m to 0,5m DN550 manhole access in roof slab | No. | 16 | R 1 586.47 | R 25 383.52 |
| DN200 Air Valve Chamber Type 2 (18 Off) | | | | | |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide 150mm wide | m | 396 | R 143.73 | R 56 917.08 |
| DN200 Air Valve Chamber Type 4 (18 Off) | | | | | |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide 150mm wide | m | 396 | R 143.73 | R 56 917.08 |
| 8.3 | REINFORCEMENT | | | | |
| DN2820 IV Chambers (3 Off) | | | | | |
| 8.3.1 | Mild Steel | t | 5.59 | R 12 032.07 | R 67 259.27 |
| 8.3.1 | High Tensile Steel | t | 22.35 | R 12 032.07 | R 268 916.76 |
| DN2540 IV Chambers (1 Off) | | | | | |
| 8.3.1 | Mild Steel | t | 1.88 | R 12 032.07 | R 22 620.29 |
| 8.3.1 | High Tensile Steel | t | 7.50 | R 12 032.07 | R 90 240.53 |
| DN2540 Meter Chamber (1 Off) | | | | | |
| 8.3.1 | Mild Steel | t | 1.88 | R 12 032.07 | R 22 620.29 |
| 8.3.1 | High Tensile Steel | t | 7.50 | R 12 032.07 | R 90 240.53 |
| DN200 Scour Chambers (16 Off) | | | | | |
| CARRIED FORWARD | | | | | R 2 018 845.73 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|--|---|----------------|----------|-------------|-----------------------|
| BROUGHT FORWARD | | | | | R 2 018 845.73 |
| 8.3.1 | Mild Steel | t | 8.36 | R 12 032.07 | R 100 588.11 |
| 8.3.1 | High Tensile Steel | t | 33.45 | R 12 032.07 | R 402 472.74 |
| DN200 Air Valve Chamber Type 2 (18 Off) | | | | | |
| 8.3.1 | Mild Steel | t | 0.26 | R 12 032.07 | R 3 128.34 |
| 8.3.1 | High Tensile Steel | t | 1.05 | R 12 032.07 | R 12 633.67 |
| DN200 Air Valve Chamber Type 4 (18 Off) | | | | | |
| 8.3.1 | Mild Steel | t | 0.26 | R 12 032.07 | R 3 128.34 |
| 8.3.1 | High Tensile Steel | t | 1.05 | R 12 032.07 | R 12 633.67 |
| Concrete encasement DN2820 pipe at river crossings (Provisional Quantity) | | | | | |
| 8.3.1 | Mild Steel | t | 2.50 | R 12 032.07 | R 30 080.18 |
| 8.3.1 | High Tensile Steel | t | 10.00 | R 12 032.07 | R 120 320.70 |
| Concrete encasement DN2540 pipe at river crossings (Provisional Quantity) | | | | | |
| 8.3.1 | Mild Steel | t | 2.50 | R 12 032.07 | R 30 080.18 |
| 8.3.1 | High Tensile Steel | t | 10.00 | R 12 032.07 | R 120 320.70 |
| 8.4 | CONCRETE | | | | |
| DN2820 IV Chambers (3 Off) | | | | | |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 141 | R 125.27 | R 17 663.07 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Base | m ³ | 64 | R 1 955.23 | R 124 157.11 |
| | Walls | m ³ | 160 | R 1 955.23 | R 312 836.80 |
| DN2540 IV Chambers (1 Off) | | | | | |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 47 | R 125.27 | R 5 887.69 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Base | m ³ | 22 | R 1 955.23 | R 43 015.06 |
| | Walls | m ³ | 54 | R 1 955.23 | R 105 582.42 |
| DN2540 Meter Chamber (1 Off) | | | | | |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 47 | R 125.27 | R 5 887.69 |
| 8.4.3 | 15MPa concrete for platforms, steps, pipe supports etc. | | | | |
| | Pipe supports | m ³ | 7.5 | R 1 789.80 | R 13 423.50 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Base | m ³ | 22 | R 1 955.23 | R 43 015.06 |
| | Walls | m ³ | 54 | R 1 955.23 | R 104 604.81 |
| DN200 Scour Chambers (16 Off) | | | | | |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 286 | R 125.27 | R 35 827.22 |
| CARRIED FORWARD | | | | | R 3 666 132.77 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------|---|----------------|----------|------------|-----------------------|
| BROUGHT FORWARD | | | | | R 3 666 132.77 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Base | m ³ | 130 | R 1 955.23 | R 253 202.29 |
| | Walls | m ³ | 184 | R 1 955.23 | R 358 784.71 |
| | Roof slab | m ³ | 22.0 | R 1 955.23 | R 43 015.06 |
| | DN200 Air Valve Chamber Type 2 (18 Off) | | | | |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Strip Foundation | m ³ | 10.5 | R 1 955.23 | R 20 529.92 |
| | DN200 Air Valve Chamber Type 4 (18 Off) | | | | |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Strip Foundation | m ³ | 10.5 | R 1 955.23 | R 20 529.92 |
| | Concrete encasement DN2820 pipe at river crossing (Provisional Quantity) | | | | |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Concrete encasement of pipe | m ³ | 100 | R 2 215.64 | R 221 564.00 |
| | Concrete encasement DN2540 pipe at river crossing (Provisional Quantity) | | | | |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Concrete encasement of pipe | m ³ | 100 | R 2 215.64 | R 221 564.00 |
| 8.4.4 | UNFORMED SURFACE FINISHES | | | | |
| | DN2820 IV Chambers (3 Off) | | | | |
| 8.4.4(a) | Wood-floated | | | | |
| | To floor slabs | m ² | 115 | R 21.55 | R 2 486.87 |
| | To top of walls | m ² | 29 | R 21.55 | R 614.18 |
| | DN2540 IV Chambers (1 Off) | | | | |
| 8.4.4(a) | Wood-floated | | | | |
| | To floor slabs | m ² | 39 | R 21.55 | R 840.45 |
| | To top of walls | m ² | 10 | R 21.55 | R 215.50 |
| | DN2540 Meter Chamber (1 Off) | | | | |
| 8.4.4(a) | Wood-floated | | | | |
| | To floor slabs | m ² | 39 | R 21.55 | R 829.68 |
| | To top of pipe cradle | m ² | 6.5 | R 21.55 | R 140.08 |
| | To top of walls | m ² | 10 | R 21.55 | R 215.50 |
| | DN200 Scour Chambers (16 Off) | | | | |
| 8.4.4(a) | Wood-floated | | | | |
| | To floor slabs | m ² | 286 | R 21.55 | R 6 163.30 |
| CARRIED FORWARD | | | | | R 4 816 828.19 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|--|----------------|----------|------------|-----------------------|
| BROUGHT FORWARD | | | | | R 4 816 828.19 |
| | To roof slabs | m ² | 108 | R 21.55 | R 2 327.40 |
| | To top of walls | m ² | 73 | R 21.55 | R 1 573.15 |
| | MISCELLANEOUS | | | | |
| | Bitumen impregnated soft board | m | 40 | R 33.92 | R 1 356.80 |
| | Polyurethane joint sealant (10mm x 20mm) | m | 40 | R 44.41 | R 1 776.40 |
| | Neoprene inserts for pipes at pipe supports - For DN2820 | m ² | 20 | R 114.33 | R 2 286.60 |
| PSG 8.4.5 | Concrete complete with formwork, reinforcing, surface finishing, holes, vents if applicable and joints, for: | | | | |
| | Removable roof slabs in IV chambers | m ³ | 37.6 | R 2 215.64 | R 83 219.44 |
| | Removable roof slabs in Meter Chamber | m ³ | 9.5 | R 2 215.64 | R 21 048.58 |
| | Removable roof slabs in Air Valve-Type2 | m ³ | 21.1 | R 2 215.64 | R 46 639.22 |
| | Removable roof slabs in Air Valve Type 4 | m ³ | 21.1 | R 2 215.64 | R 46 639.22 |
| PSG 8.9 | Grouting of pipes/specials through walls or slabs inclusive of pipe wall joint sealing | | | | |
| | i) DN2820 in IV Chamber | No. | 6 | R 6 618.09 | R 39 708.54 |
| | ii) DN2540 in IV Chamber | No. | 2 | R 6 619.09 | R 13 238.18 |
| | ii) DN300 in IV Chamber | No. | 8 | R 2 873.22 | R 22 985.76 |
| | iii) DN200 in IV Chamber | No. | 4 | R 1 969.29 | R 7 877.16 |
| | iv) DN2540 in Meter Chamber | No. | 2 | R 5 165.34 | R 10 330.68 |
| | v) DN200 in Scour Chamber | No. | 16 | R 1 969.29 | R 31 508.64 |
| PSG 8.10 | Casting of pipes/specials through walls or slabs | | | | |
| | Air vents in roof slab in chambers | No. | 32 | R 750.50 | R 24 016.00 |
| | Securex manhole cover in roof slab in chambers | No. | 16 | R 2 680.10 | R 42 881.60 |
| CARRIED FORWARD TO SUMMARY | | | | | R 5 216 241.57 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------|---|------|----------|-------------|-------------------------|
| SANS 1200 L | SECTION 7 : MEDIUM PRESSURE PIPELINES | | | | |
| | Supply and transport of polyurethane coated, epoxy lined steel pipe | | | | |
| | DN2820 * 16mm thick * grade X42 pipe | m | 15488 | R 18 809.00 | R 291 304 387.50 |
| | DN2540 * 12mm thick * grade X42 pipe | m | 4788 | R 12 718.00 | R 60 893 784.00 |
| PSL 8.2.1 | Lay, bed and joint pipes, inclusive of internal epoxy lining repair, external coating repair and NDT testing | | | | |
| | DN2820 * 16mm thick * grade X42 pipe | m | 15488 | R 6 825.08 | R 105 703 426.50 |
| | DN2540 * 12mm thick * grade X42 pipe | m | 4788 | R 5 537.03 | R 26 511 299.64 |
| | Manufacturing of Simple and Compound Bends, inclusive of reinstatement of testing, external coating and internal lining reinstatement, transportation and handling: | | | | |
| | Bends for DN2820 * 16mm thick * grade X42 pipe: | | | | |
| 8.2.3 & PSL 3.4.4.1 | up to 15 deg | No. | 20 | R 26 803.28 | R 536 065.60 |
| 8.2.3 & PSL 3.4.4.1 | 16 to 30 deg | No. | 19 | R 45 104.17 | R 856 979.23 |
| 8.2.3 & PSL 3.4.4.1 | 31 to 45 deg | No. | 16 | R 59 309.40 | R 948 950.40 |
| 8.2.3 & PSL 3.4.4.1 | 46 to 60 deg | No. | 3 | R 59 309.40 | R 177 928.20 |
| 8.2.3 & PSL 3.4.4.1 | 61 to 75 deg | No. | 1 | R 75 795.75 | R 75 795.75 |
| 8.2.3 & PSL 3.4.4.1 | 76 to 90 deg | No. | 2 | R 86 890.34 | R 173 780.68 |
| | Bends for DN2540 * 12mm thick * grade X42 pipe: | | | | |
| 8.2.3 & PSL 3.4.4.1 | up to 15 deg | No. | 20 | R 21 744.89 | R 434 897.80 |
| 8.2.3 & PSL 3.4.4.1 | 16 to 30 deg | No. | 10 | R 36 591.98 | R 365 919.80 |
| 8.2.3 & PSL 3.4.4.1 | 31 to 45 deg | No. | 6 | R 48 116.35 | R 288 698.10 |
| 8.2.3 & PSL 3.4.4.1 | 46 to 60 deg | No. | 3 | R 48 116.35 | R 144 349.05 |
| 8.2.3 & PSL 3.4.4.1 | 61 to 75 deg | No. | 3 | R 61 491.36 | R 184 474.08 |
| 8.2.3 & PSL 3.4.4.1 | 76 to 90 deg | No. | 4 | R 70 492.14 | R 281 968.56 |
| | SPECIAL ASSEMBLIES | | | | |
| 8.2.3 | Supply, fabricate, handle and install the following assemblies: | | | | |
| PSL 5.1.7 | DN200 Air Valve Assembly - Type 2, PN 16, Inclusive of all Pipe Reinforcing | No. | 18 | R 84 748.30 | R 1 525 469.40 |
| CARRIED FORWARD | | | | | R 490 408 174.29 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|------|----------|----------------|-------------------------|
| BROUGHT FORWARD | | | | | R 490 408 174.29 |
| PSL 5.1.8 | DN200 Air Valve Assembly - Type 4, PN 16, Inclusive of all Pipe Reinforcing | No. | 18 | R 140 890.51 | R 2 536 029.18 |
| | DN200 Scour Valve Assembly, Terminal End Type 1, PN16, Inclusive of Collar Plates. | No. | 16 | R 30 216.41 | R 483 462.56 |
| | DN2820 Isolating Valve Assembly Complete | No. | 3 | R 6 443 761.69 | R 19 331 285.07 |
| | DN2540 Isolating Valve Assembly Complete | No. | 1 | R 4 533 829.62 | R 4 533 829.62 |
| | DN2540 Meter Chamber Assembly Complete | No. | 1 | R 3 790 354.64 | R 3 790 354.64 |
| 8.2.13 | VALVE CHAMBER AND MANHOLES | | | | |
| | Note : The following rates are to include for the installation of all GRP access ladders, safety cages, step irons, sealing joints, air vents, handrails, access manholes & frames, GRP landings & plastic gratings. All in situ and pre cast concrete elements,shuttering, surface finishing, curing of concrete and ancillaries to be included and rate supplied to be for full functional unit | | | | |
| | Supply and install units COMPLETE with related items for the construction of chambers for: | | | | |
| | Scour Valve Chamber | | | | |
| | a) Type 1 | No. | 16 | R 28 475.27 | R 455 604.32 |
| | Air Valve Chambers | | | | |
| | a) Type 2 | No. | 18 | R 61 874.57 | R 1 113 742.26 |
| | b) Type 4 | No. | 18 | R 61 875.57 | R 1 113 760.26 |
| PSL 5.1.5 | Supply and install Pipe Route Marker Posts. | No. | 100 | R 421.80 | R 42 180.00 |
| PSL 7.3 | HYDRAULIC TESTING | | | | |
| | DN2820 * 16mm thick * grade X42 pipe | No. | 2 | R 49 770.12 | R 99 540.24 |
| | DN2540 * 12mm thick * grade X42 pipe | No. | 2 | R 37 566.67 | R 75 133.34 |
| PSL 7.3 & PSL 8.2.19 | End cap, filling and testing of pipeline within sections specified by the Engineer | m | 20275.5 | R 56.91 | R 1 153 878.71 |
| CARRIED FORWARD TO SUMMARY | | | | | R 525 136 974.49 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|--|----------------|----------|----------|------------------------|
| SANS 1200 LB | SECTION 8 : BEDDING (PIPES) | | | | |
| | Bedding material | | | | |
| | Supply of selected granular material for 300mm bedding cradle below pipe invert and for fill blanket from pipe invert to 300mm above pipe crown, from commercial sources | | | | |
| | i) DN2820 | m ³ | 110195 | R 284.97 | R 31 402 269.15 |
| | i) DN2540 | m ³ | 30080 | R 284.97 | R 8 571 897.60 |
| | Selected Backfill | | | | |
| | Selected fill material including for screening or other treatment, to achieve grading suitable to comply with the bedding material specification compacted to 97% MOD AASHTO: | | | | |
| | i) from commercial sources (Provisional Quantity) | m ³ | 100 | R 284.97 | R 28 497.00 |
| PSLB 3.3 | Cement stabilised selected fill bedding (Soilcrete Bedding - 4% CEMENT) | m ³ | 100 | R 425.07 | R 42 507.00 |
| PSLB 5.1.2.1 PSLB 8.2.6 | Stone Bedding for pipe, supplied, placed and compacted, from a commercial source. (Provisional Quantity) | m ³ | 100 | R 726.55 | R 72 655.00 |
| PSLB 5.1.2.1 | Supply and place into position, geotextile for sub soil drains | m ² | 1000 | R 15.99 | R 15 990.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 40 133 815.75 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|--------------------------|---|----------|----------|--------------|-----------------------|
| SANS 1200LG | SECTION 9 : PIPE JACKING | | | | |
| | DN4000 PIPE JACK - R56 | | | | |
| 8.2.1 PSLG 8.2.1 | Jacking establishment: | | | | |
| 8.2.1(a) | Fixed Charges | Sum | 1 | R 402 500.00 | R 402 500.00 |
| 8.2.2(b) | Time Related: State time: Weeks | Sum | 1 | R 690 000.00 | R 690 000.00 |
| PS LG 5.2.3.2 | Initial survey of ground and structures at jacking fronts | Sum | 1 | R 1 725.00 | R 1 725.00 |
| PS LG 5.2.3.1, 8.2.19 | Conduct monitoring surveys | No. | 7 | R 402.50 | R 2 817.50 |
| PSLG 8.2.2 | Supply of Pipes to be Jacked: | | | | |
| 8.2.2 PSLG 3 | DN4000 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes to be delivered to the required location" | m | 20 | R 92 504.16 | R 1 850 083.20 |
| PSLG 8.2.3 | Jacking of Pipes: | | | | |
| 8.2.3 PSLG 5.4.3 | DN4000 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes | m | 20 | R 81 144.00 | R 1 622 880.00 |
| 8.2.4 PSLG 4.3, 5.1.4 | Excavation for Jacking in all materials | m3 | 440 | R 1 840.00 | R 809 600.00 |
| 8.2.5 | Extra-over item 8.2.4 for unforeseen rock or boulders | Prov Sum | 1 | R 20 000.00 | R 20 000.00 |
| 8.2.9 PSLG 8.2.9 | Stabilization of unstable areas or grouting of voids where ordered by the Engineer: | | | | |
| 8.2.9(a) | Provision and establishment of equipment on site, and removal on completion of operation (Provisional Quantity) | Sum | 1 | R 5 750.00 | R 5 750.00 |
| 8.2.9(b) | Operation of Equipment (Provisional Quantity) | Day | 10 | R 575.00 | R 5 750.00 |
| 8.2.9(c) | Materials Used (Provisional Quantity) | m3 | 20 | R 2 875.00 | R 57 500.00 |
| 8.2.10 | Standing time for pipe jacking gang and jacking equipment (Provisional Quantity) | hr | 45 | R 1 265.00 | R 56 925.00 |
| PSLG 5.7 | Grouting of sleeve | m3 | 80 | R 3 450.00 | R 276 000.00 |
| PSLG 8.2.11 | Hand excavation and backfilling of trench to expose services | m3 | 15 | R 287.50 | R 4 312.50 |
| PSLG 5.10 | Grouting in of steel pipe inside sleeve | m3 | 125 | R 3 450.00 | R 431 250.00 |
| PSLG 8.2.15, 5.11 | Close DN4000 sleeve end with brick wall | No. | 2 | R 9 088.13 | R 18 176.26 |
| PSLG 8.2.16, 5.12 | Supply and install marker posts | No. | 2 | R 1 725.00 | R 3 450.00 |
| | DN4000 PIPE JACK - R624 | | | | |
| 8.2.1 PSLG 8.2.1 | Jacking establishment: | | | | |
| 8.2.1(a) | Fixed Charges | Sum | 1 | R 402 500.00 | R 402 500.00 |
| 8.2.2(b) | Time Related: State time: Weeks | Sum | 1 | R 690 000.00 | R 690 000.00 |
| CARRIED FORWARD | | | | | R 7 351 219.46 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------|---|----------|----------|--------------|------------------------|
| BROUGHT FORWARD | | | | | R 7 351 219.46 |
| PS LG 5.2.3.2 | Initial survey of ground and structures at jacking fronts | Sum | 1 | R 1 725.00 | R 1 725.00 |
| PS LG 5.2.3.1, 8.2.19 | Conduct monitoring surveys | No. | 7 | R 402.50 | R 2 817.50 |
| PSLG 8.2.2 | Supply of Pipes to be Jacked: | | | | |
| 8.2.2 PSLG 3 | DN4000 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes to be delivered to the required location" | m | 20 | R 92 504.16 | R 1 850 083.20 |
| PSLG 8.2.3 | Jacking of Pipes: | | | | |
| 8.2.3 PSLG 5.4.3 | DN4000 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes | m | 20 | R 81 144.00 | R 1 622 880.00 |
| 8.2.4 PSLG 4.3, 5.1.4 | Excavation for Jacking in all materials | m3 | 440 | R 1 840.00 | R 809 600.00 |
| 8.2.5 | Extra-over item 8.2.4 for unforeseen rock or boulders | Prov Sum | 1 | R 20 000.00 | R 20 000.00 |
| 8.2.9 PSLG 8.2.9 | Stabilization of unstable areas or grouting of voids where ordered by the Engineer: | | | | |
| 8.2.9(a) | Provision and establishment of equipment on site, and removal on completion of operation (Provisional Quantity) | Sum | 1 | R 5 750.00 | R 5 750.00 |
| 8.2.9(b) | Operation of Equipment (Provisional Quantity) | Day | 10 | R 575.00 | R 5 750.00 |
| 8.2.9(c) | Materials Used (Provisional Quantity) | m3 | 20 | R 2 875.00 | R 57 500.00 |
| 8.2.10 | Standing time for pipe jacking gang and jacking equipment (Provisional Quantity) | hr | 45 | R 1 265.00 | R 56 925.00 |
| PSLG 5.7 | Grouting of sleeve | m3 | 80 | R 3 450.00 | R 276 000.00 |
| PSLG 8.2.11 | Hand excavation and backfilling of trench to expose services | m3 | 15 | R 287.50 | R 4 312.50 |
| PSLG 5.10 | Grouting in of steel pipe inside sleeve | m3 | 125 | R 3 450.00 | R 431 250.00 |
| PSLG 8.2.15, 5.11 | Close DN4000 sleeve end with brick wall | No. | 2 | R 9 088.13 | R 18 176.26 |
| PSLG 8.2.16, 5.12 | Supply and install marker posts | No. | 2 | R 1 725.00 | R 3 450.00 |
| | DN3750 PIPE JACK R603 | | | | |
| 8.2.1 PSLG 8.2.1 | Jacking establishment: | | | | |
| 8.2.1(a) | Fixed Charges | Sum | 1 | R 402 500.00 | R 402 500.00 |
| 8.2.2(b) | Time Related: State time: Weeks | Sum | 1 | R 690 000.00 | R 690 000.00 |
| PS LG 5.2.3.2 | Initial survey of ground and structures at jacking fronts | Sum | 1 | R 1 725.00 | R 1 725.00 |
| PS LG 5.2.3.1, 8.2.19 | Conduct monitoring surveys | No. | 7 | R 402.50 | R 2 817.50 |
| PSLG 8.2.2 | Supply of Pipes to be Jacked: | | | | |
| CARRIED FORWARD | | | | | R 13 614 481.42 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-------------------------------------|---|----------|----------|--------------|------------------------|
| BROUGHT FORWARD | | | | | R 13 614 481.42 |
| 8.2.2 PSLG 3 | DN3750 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes to be delivered to the required location" | m | 20 | R 73 743.75 | R 1 474 875.00 |
| PSLG 8.2.3 | Jacking of Pipes: | | | | |
| 8.2.3 PSLG 5.4.3 | DN3750 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes | m | 20 | R 64 687.50 | R 1 293 750.00 |
| 8.2.4 PSLG 4.3, 5.1.4 | Excavation for Jacking in all materials | m3 | 400 | R 1 840.00 | R 736 000.00 |
| 8.2.5 | Extra-over item 8.2.4 for unforeseen rock or boulders | Prov Sum | 1 | R 20 000.00 | R 20 000.00 |
| 8.2.9 PSLG 8.2.9 | Stabilization of unstable areas or grouting of voids where ordered by the Engineer: | | | | |
| 8.2.9(a) | Provision and establishment of equipment on site, and removal on completion of operation (Provisional Quantity) | Sum | 1 | R 5 750.00 | R 5 750.00 |
| 8.2.9(b) | Operation of Equipment (Provisional Quantity) | Day | 10 | R 575.00 | R 5 750.00 |
| 8.2.9(c) | Materials Used (Provisional Quantity) | m3 | 20 | R 2 875.00 | R 57 500.00 |
| 8.2.10 | Standing time for pipe jacking gang and jacking equipment (Provisional Quantity) | hr | 45 | R 1 265.00 | R 56 925.00 |
| PSLG 5.7 | Grouting of sleeve | m3 | 75 | R 3 450.00 | R 258 750.00 |
| PSLG 8.2.11 | Hand excavation and backfilling of trench to expose services | m3 | 15 | R 287.50 | R 4 312.50 |
| PSLG 5.10 | Grouting in of steel pipe inside sleeve | m3 | 120 | R 3 450.00 | R 414 000.00 |
| PSLG 8.2.15, 5.11 | Close DN3750 sleeve end with brick wall | No. | 2 | R 7 245.00 | R 14 490.00 |
| PSLG 8.2.16, 5.12 | Supply and install marker posts | No. | 2 | R 1 725.00 | R 3 450.00 |
| DN3750 PIPE JACK UMLAAS RAIL | | | | | |
| 8.2.1 PSLG 8.2.1 | Jacking establishment: | | | | |
| 8.2.1(a) | Fixed Charges | Sum | 1 | R 402 500.00 | R 402 500.00 |
| 8.2.2(b) | Time Related: State time: Weeks | Sum | 1 | R 690 000.00 | R 690 000.00 |
| PS LG 5.2.3.2 | Initial survey of ground and structures at jacking fronts | Sum | 1 | R 1 725.00 | R 1 725.00 |
| PS LG5.2.3.1, 8.2.19 | Conduct monitoring surveys | No. | 7 | R 402.50 | R 2 817.50 |
| PSLG 8.2.2 | Supply of Pipes to be Jacked: | | | | |
| 8.2.2 PSLG 3 | DN3750 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes to be delivered to the required location" | m | 35 | R 73 743.75 | R 2 581 031.25 |
| PSLG 8.2.3 | Jacking of Pipes: | | | | |
| 8.2.3 PSLG 5.4.3 | DN3750 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes | m | 35 | R 64 687.50 | R 2 264 062.50 |
| 8.2.4 PSLG 4.3, 5.1.4 | Excavation for Jacking in all materials | m3 | 700 | R 1 840.00 | R 1 288 000.00 |
| CARRIED FORWARD | | | | | R 25 190 170.17 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------|----------|-------------|------------------------|
| BROUGHT FORWARD | | | | | R 25 190 170.17 |
| 8.2.5 | Extra-over item 8.2.4 for unforeseen rock or boulders | Prov Sum | 1 | R 20 000.00 | R 20 000.00 |
| 8.2.9 PSLG 8.2.9 | Stabilization of unstable areas or grouting of voids where ordered by the Engineer: | | | | |
| 8.2.9(a) | Provision and establishment of equipment on site, and removal on completion of operation (Provisional Quantity) | Sum | 1 | R 5 750.00 | R 5 750.00 |
| 8.2.9(b) | Operation of Equipment (Provisional Quantity) | Day | 10 | R 575.00 | R 5 750.00 |
| 8.2.9(c) | Materials Used (Provisional Quantity) | m3 | 20 | R 2 875.00 | R 57 500.00 |
| 8.2.10 | Standing time for pipe jacking gang and jacking equipment (Provisional Quantity) | hr | 45 | R 1 265.00 | R 56 925.00 |
| PSLG 5.7 | Grouting of sleeve | m3 | 135 | R 3 450.00 | R 465 750.00 |
| PSLG 8.2.11 | Hand excavation and backfilling of trench to expose services | m3 | 15 | R 287.50 | R 4 312.50 |
| PSLG 5.10 | Grouting in of steel pipe inside sleeve | m3 | 210 | R 3 450.00 | R 724 500.00 |
| PSLG 8.2.15, 5.11 | Close DN3750 sleeve end with brick wall | No. | 2 | R 7 245.00 | R 14 490.00 |
| PSLG 8.2.16, 5.12 | Supply and install marker posts | No. | 2 | R 1 725.00 | R 3 450.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 26 548 597.67 |

SUMMARY

| SECTION | DESCRIPTION | TOTAL |
|--|--------------------------------------|------------------------|
| SECTION 1 | LAND ACQUISITION | R 4 620 065.62 |
| SECTION 2 | CROP COMPENSATION - FORESTRY | R 0.00 |
| SECTION 3 | CROP COMPENSATION - SUGAR CANE | R 19 442 869.18 |
| SECTION 4 | CROP COMPENSATION - MAIZE | R 1 842 750.00 |
| SECTION 5 | CROP COMPENSATION - ORCHARDS | R 1 512 000.00 |
| SECTION 6 | CROP COMPENSATION - OTHER CROPS | R 2 391 275.30 |
| SECTION 7 | CROP COMPENSATION - GRAZING PASTURES | R 1 999 350.00 |
| SECTION 8 | LAND RENTAL | R 5 588 244.77 |
| TOTAL CARRIED TO BILL OF QUANTITIES 2 A | | R 37 396 554.88 |

| DETAILED SUMMARY FOR COST COMPONENTS TO OPTION 2B | | |
|---|--|---------------------------|
| BOQ No. | DESCRIPTION | AMOUNT |
| 2.B-R | DOUBLE EQUAL PIPELINE - RAW WATER | R 574 566 276.53 |
| 2.B-P | DOUBLE EQUAL PIPELINE - POTABLE WATER | R 1 205 162 552.49 |
| 2.B-L | LAND ACQUISITION AND CROP COMPENSATION | R 42 578 408.89 |
| 2.BR | PIPE BRIDGE | R 44 228 054.00 |
| 2.RD | SITE B3 ACCESS ROAD | R 7 729 519.56 |
| 2.WTW | SITE B3 WATER TREATMENT WORKS | R 1 647 167 855.80 |
| 2.RES | SITE B3 RESERVOIR | R 194 287 465.26 |
| TOTAL CARRIED FORWARD TO SUMMARY OF BILL OF QUANTITIES | | R 3 715 720 132.53 |

SUMMARY

| SECTION | DESCRIPTION | TOTAL |
|--|---------------------------------------|-------------------------|
| SECTION 1 | PRELIMINARY AND GENERAL | R 132 592 217.66 |
| SECTION 2 | SITE CLEARANCE | R 2 299 018.44 |
| SECTION 3 | EARTHWORKS | R 444 857.26 |
| SECTION 4 | PIPE TRENCHES | R 47 694 541.15 |
| SECTION 5 | GABIONS AND PITCHING | R 1 470 608.81 |
| SECTION 6 | CONCRETE STRUCTURAL | R 4 387 730.06 |
| SECTION 7 | MEDIUM PRESSURE PIPELINES | R 342 591 605.57 |
| SECTION 8 | BEDDING (PIPES) | R 25 979 355.85 |
| SECTION 9 | PIPE JACKING | R 12 042 381.73 |
| SECTION 10 | CATHODIC PROTECTION AND AC MITIGATION | R 5 063 960.00 |
| TOTAL CARRIED TO BILL OF QUANTITIES 2 B | | R 574 566 276.53 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|--|----------------|----------|-------------|-----------------------|
| SANS 1200 C | SECTION 2 : SITE CLEARANCE | | | | |
| | CLEAR SITE | | | | |
| 8.2.1 | Clear and grub site over working corridor | ha | 37.14 | R 9 775.00 | R 363 043.50 |
| 8.2.2 | Remove and grub large trees and tree stumps regardless of girth | ha | 4.39 | R 39 716.00 | R 174 353.24 |
| 8.2.10 | Remove topsoil to nominal depth of 150mm and stockpile and maintain. | m ² | 371400 | R 3.22 | R 1 195 908.00 |
| PSC 8.2.11 | Remove existing road and driveways and spoil, for: | | | | |
| | a) Asphalt | m ² | 141 | R 58.65 | R 8 269.65 |
| | b) Gravel | m ² | 6961 | R 54.05 | R 376 242.05 |
| PSC 8.2.14 | Saw cutting of existing surface: | | | | |
| | a) Asphalt | m | 20 | R 27.60 | R 552.00 |
| 8.2.5 PS 9.2 PSC 8.2.17 | Dismantle existing fencing, move to storage and later reinstate as directed by the Engineer: | | | | |
| | i) All precast concrete fence. | m | 200 | R 126.00 | R 25 200.00 |
| | ii) All timber fence. | m | 200 | R 172.50 | R 34 500.00 |
| | iii) All galvanized weld mesh fence. | m | 200 | R 97.75 | R 19 550.00 |
| | iv) All galvanized diamond mesh fence. | m | 200 | R 207.00 | R 41 400.00 |
| | v) All electric fence | m | 200 | R 300.00 | R 60 000.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 2 299 018.44 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------------|----------|----------|---------------------|
| SANS 1200 D | SECTION 3 : EARTHWORKS | | | | |
| | EXCAVATION | | | | |
| 8.3.3(a) PSD 5.2.2.1 | Restricted excavation in all materials and use for backfill and compact to specified densities or dispose as ordered for: | | | | |
| | Isolating Valve Chambers (2 Off) | m ³ | 504 | R 132.02 | R 66 538.08 |
| | Meter Chamber (2 Off) | m ³ | 504 | R 132.02 | R 66 538.08 |
| | Scour Valve Chambers | | | | |
| | a) Type 1 (16 Off) | m ³ | 930 | R 132.02 | R 122 778.60 |
| 8.3.2.(b) | Extra-over item 8.3.3 for excavation in: | | | | |
| 8.3.3.(b).1 | Intermediate Material (Provisional Quantity) | m ³ | 490 | R 20.70 | R 10 143.00 |
| 8.3.3.(b).2 | Hard Rock (Provisional Quantity) | m ³ | 290 | R 295.55 | R 85 709.50 |
| | FINISHINGS | | | | |
| PSD 8.3.14 PSD 5.1.1.1 | Barricading | | | | |
| | i) Barrier Fence | m | 1000 | R 93.15 | R 93 150.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 444 857.26 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------------|----------|-------------|------------------------|
| SANS 1200 DB | SECTION 4 : PIPE TRENCHES | | | | |
| | EXCAVATION | | | | |
| 8.3.2(a) | Excavate in all materials for trenches for DN2300 pipe, backfill with graded material, compact hydraulically/mechanically to specified density and dispose of surplus/unsuitable material: | | | | |
| | 4-5m | m ³ | 216925 | R 156.01 | R 33 842 469.25 |
| | 5-6m | m ³ | 26800 | R 171.47 | R 4 595 396.00 |
| 8.3.2(b) | Extra-over items 8.3.2(a) for : | | | | |
| 1) | Intermediate Material (Provisional Quantity) | m ³ | 25715 | R 20.70 | R 532 300.50 |
| 2) | Hard Rock (Provisional Quantity) | m ³ | 13530 | R 243.80 | R 3 298 614.00 |
| | Extra-over items 8.3.2(a) for : | | | | |
| PSDB3.7 | Removal of suitable backfill material off site, store at temporary site, load and haul back to site.(Provisional Quantity) | m ³ | 4875 | R 93.22 | R 454 447.50 |
| 8.3.2(c) PSDB5.5 | Excavate and dispose of unsuitable material from trench bottom (Provisional Quantity) | m ³ | 2440 | R 81.32 | R 198 420.80 |
| | SELECTED BACKFILL | | | | |
| 8.3.3.3 | Compaction in road reserves to 97% MOD AASHTO (Provisional Quantity) | m ³ | 100 | R 35.08 | R 3 508.00 |
| | EXISTING SERVICES | | | | |
| 8.3.5(a) PSDB 8.3.5 | Protect, maintain, repair all services that intersect a trench | Prov Sum | 1 | R 82 500.00 | R 82 500.00 |
| 8.3.5(b) PSDB8.3.5 | Protect, maintain, repair all services that adjoin a trench | Prov Sum | 1 | R 82 500.00 | R 82 500.00 |
| | FINISHINGS | | | | |
| | Topsoiling | m ² | 371400 | R 10.47 | R 3 888 558.00 |
| | Reinstate roads and driveways complete with all courses | | | | |
| | a) Gravel in driveways | m ² | 6961 | R 97.75 | R 680 437.75 |
| | b) Asphalt of 30 - 60mm thickness in roadway | m ² | 141 | R 162.15 | R 22 863.15 |
| PSDB 5.1.2.2 | Installation of permanent subsoil drainage systems in accordance with drawing no, inclusive of gabion, geofabric, pipe, stone and other materials for completion as directed by the Engineer (Provisional Quantity) | No. | 5 | R 2 505.24 | R 12 526.20 |
| CARRIED FORWARD TO SUMMARY | | | | | R 47 694 541.15 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------------|----------|------------|-----------------------|
| SANS 1200 DK | SECTION 5: GABIONS AND PITCHING | | | | |
| | GABIONS | | | | |
| 8.2.2 PSDK 3.1.2 | Construct gabions using double twisted hexagonal mesh type 80 with 3.4mm OD frame wire and 2.7mm OD mesh wire to SANS 1580:2005: | | | | |
| 8.2.2 | a) Reno mattresses of depth 0,3 m with diaphragms providing 2 m x 1 m cells. (Provisional Quantity) | m ² | 997 | R 1 355.24 | R 1 351 174.28 |
| 8.2.4 PSDK 3.1.3 | Geotextile (Type AG 200) placed where ground water seepage occurs: | | | | |
| 8.2.4 | a) below reno mattresses (Provisional Quantity) | m ² | 997 | R 15.99 | R 15 942.03 |
| PSDK 3.2 | STONE PITCHING | | | | |
| | Supply all labour, plant and material and lay medium grouted pitching as indicated, including for all surface preparation and compaction (Provisional Quantity) | m ² | 250 | R 413.97 | R 103 492.50 |
| CARRIED FORWARD TO SUMMARY | | | | | R 1 470 608.81 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------|---|----------------|----------|------------|-----------------------|
| SANS 1200 G | SECTION 6 : CONCRETE STRUCTURAL | | | | |
| 8.2 PSG 4.5, 7.2 | FORMWORK | | | | |
| | DN2300 IV Chambers (2 Off) | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 360 | R 272.90 | R 98 244.00 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 320 | R 406.79 | R 130 172.80 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide | | | | |
| | 200mm wide | m | 70 | R 143.73 | R 10 061.10 |
| 8.2.6 | Box out holes/form voids: | | | | |
| 8.2.6(a) | Small, circular, up to 0,35 m dia., depth 0 m to 0,5 metres | | | | |
| | DN200 pipe through chamber walls | No. | 2 | R 381.55 | R 763.10 |
| | DN300 pipe through chamber walls | No. | 4 | R 476.94 | R 1 907.76 |
| | Large, circular, diameter greater than 1,0m, depth 0m to 0,5m | | | | |
| | DN2300 pipe through chamber walls | No. | 4 | R 3 091.57 | R 12 366.28 |
| | DN2100 Meter Chamber (2 Off) | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 360 | R 272.90 | R 98 244.00 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 320 | R 406.79 | R 130 172.80 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide | | | | |
| | 200mm wide | m | 70 | R 143.73 | R 10 061.10 |
| 8.2.6 | Box out holes/form voids: | | | | |
| | Large, circular, diameter greater than 1,0m, depth 0m to 0,5m | | | | |
| | DN2100 pipe through chamber walls | No. | 4 | R 2 033.93 | R 8 135.72 |
| | DN200 Scour Chambers (16 Off) | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 990 | R 272.90 | R 270 171.00 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 750 | R 406.79 | R 305 092.50 |
| 8.2.2 | Smooth to underside of roof slab | m ² | 110 | R 435.54 | R 47 909.40 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide | | | | |
| | 200mm wide | m | 170 | R 143.73 | R 24 434.10 |
| 8.2.6 | Box out holes/form voids: | | | | |
| 8.2.6(a) | Small, circular, up to 0,35 m dia., depth 0 m to 0,5 metres | | | | |
| | DN200 pipe through chamber wall | No. | 32 | R 476.94 | R 15 262.08 |
| CARRIED FORWARD | | | | | R 1 162 997.74 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------|--|----------------|----------|-------------|-----------------------|
| BROUGHT FORWARD | | | | | R 1 162 997.74 |
| | DN200 air vents in roof slab | No. | 32 | R 476.94 | R 15 262.08 |
| | Large, circular, diameter greater than 1,0m, depth 0m to 0,5m | | | | |
| | DN550 manhole access in roof slab | No. | 16 | R 1 586.47 | R 25 383.52 |
| | DN200 Air Valve Chamber Type 2 (18 Off) | | | | |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide | | | | |
| | 150mm wide | m | 400 | R 143.73 | R 57 492.00 |
| | DN200 Air Valve Chamber Type 4 (18 Off) | | | | |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide | | | | |
| | 150mm wide | m | 400 | R 143.73 | R 57 492.00 |
| 8.3 | REINFORCEMENT | | | | |
| | DN2300 IV Chambers (2 Off) | | | | |
| 8.3.1 | Mild Steel | t | 3.76 | R 12 032.07 | R 45 240.58 |
| 8.3.1 | High Tensile Steel | t | 15.00 | R 12 032.07 | R 180 481.05 |
| | DN2100 Meter Chamber (2 Off) | | | | |
| 8.3.1 | Mild Steel | t | 3.76 | R 12 032.07 | R 45 240.58 |
| 8.3.1 | High Tensile Steel | t | 15.00 | R 12 032.07 | R 180 481.05 |
| | DN200 Scour Chambers (16 Off) | | | | |
| 8.3.1 | Mild Steel | t | 8.38 | R 12 032.07 | R 100 828.75 |
| 8.3.1 | High Tensile Steel | t | 33.50 | R 12 032.07 | R 403 074.35 |
| | DN200 Air Valve Chamber Type 2 (18 Off) | | | | |
| 8.3.1 | Mild Steel | t | 0.26 | R 12 032.07 | R 3 128.34 |
| 8.3.1 | High Tensile Steel | t | 1.00 | R 12 032.07 | R 12 032.07 |
| | DN200 Air Valve Chamber Type 4 (18 Off) | | | | |
| 8.3.1 | Mild Steel | t | 0.26 | R 12 032.07 | R 3 128.34 |
| 8.3.1 | High Tensile Steel | t | 1.00 | R 12 032.07 | R 12 032.07 |
| | Concrete encasement DN2300 pipe at river crossings (Provisional Quantity) | | | | |
| 8.3.1 | Mild Steel | t | 0.25 | R 12 032.07 | R 3 008.02 |
| 8.3.1 | High Tensile Steel | t | 10.00 | R 12 032.07 | R 120 320.70 |
| 8.4 | CONCRETE | | | | |
| | DN2300 IV Chambers (2 Off) | | | | |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 94 | R 125.27 | R 11 775.38 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Base | m ³ | 44 | R 1 955.23 | R 86 030.12 |
| | Walls | m ³ | 108 | R 1 955.23 | R 211 164.84 |
| CARRIED FORWARD | | | | | R 2 736 593.57 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------|---|----------------|----------|------------|-----------------------|
| BROUGHT FORWARD | | | | | R 2 736 593.57 |
| | DN2100 Meter Chamber (2 Off) | | | | |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 94 | R 125.27 | R 11 775.38 |
| 8.4.3 | 15MPa concrete for platforms, steps, pipe supports etc. | | | | |
| | Pipe supports | m ³ | 15.0 | R 1 789.80 | R 26 847.00 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Base | m ³ | 44 | R 1 955.23 | R 86 030.12 |
| | Walls | m ³ | 108 | R 1 955.23 | R 211 164.84 |
| | DN200 Scour Chambers (16 Off) | | | | |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 290 | R 125.27 | R 36 328.30 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Base | m ³ | 130 | R 1 955.23 | R 254 179.90 |
| | Walls | m ³ | 184 | R 1 955.23 | R 359 762.32 |
| | Roof slab | m ³ | 22.0 | R 1 955.23 | R 43 015.06 |
| | DN200 Air Valve Chamber Type 2 (18 Off) | | | | |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Strip Foundation | m ³ | 10.0 | R 1 955.23 | R 19 552.30 |
| | DN200 Air Valve Chamber Type 4 (18 Off) | | | | |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Strip Foundation | m ³ | 10.0 | R 1 955.23 | R 19 552.30 |
| | Concrete encasement DN2300 pipe at river crossing (Provisional Quantity) | | | | |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Concrete encasement of pipe | m ³ | 100 | R 2 215.64 | R 221 564.00 |
| 8.4.4 | UNFORMED SURFACE FINISHES | | | | |
| | DN2300 IV Chambers (2 Off) | | | | |
| 8.4.4(a) | Wood-floated | | | | |
| | To floor slabs | m ² | 78 | R 21.55 | R 1 680.90 |
| | To top of walls | m ² | 20 | R 21.55 | R 431.00 |
| | DN2100 Meter Chamber (2 Off) | | | | |
| 8.4.4(a) | Wood-floated | | | | |
| | To floor slabs | m ² | 78 | R 21.55 | R 1 680.90 |
| | To top of pipe cradle | m ² | 13.0 | R 21.55 | R 280.15 |
| | To top of walls | m ² | 20 | R 21.55 | R 431.00 |
| | DN200 Scour Chambers (16 Off) | | | | |
| 8.4.4(a) | Wood-floated | | | | |
| CARRIED FORWARD | | | | | R 4 030 869.04 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|--|----------------|----------|------------|-----------------------|
| BROUGHT FORWARD | | | | | R 4 030 869.04 |
| | To floor slabs | m ² | 286 | R 21.55 | R 6 163.30 |
| | To roof slabs | m ² | 108 | R 21.55 | R 2 327.40 |
| | To top of walls | m ² | 74 | R 21.55 | R 1 594.70 |
| | MISCELLANEOUS | | | | |
| | Bitumen impregnated soft board | m | 80 | R 33.92 | R 2 713.60 |
| | Polyurethane joint sealant (10mm x 20mm) | m | 80 | R 44.41 | R 3 552.80 |
| | Neoprene inserts for pipes at pipe supports - For DN2300 | m ² | 20 | R 114.33 | R 2 286.60 |
| PSG 8.4.5 | Concrete complete with formwork, reinforcing, surface finishing, holes, vents if applicable and joints, for: | | | | |
| | Removable roof slabs in IV chamber | m ³ | 19.0 | R 2 215.64 | R 42 097.16 |
| | Removable roof slabs in Meter Chamber | m ³ | 19.0 | R 2 215.64 | R 42 097.16 |
| | Removable roof slabs in Air Valve-Type2 | m ³ | 21.0 | R 2 215.64 | R 46 528.44 |
| | Removable roof slabs in Air Valve Type 4 | m ³ | 21.0 | R 2 215.64 | R 46 528.44 |
| PSG 8.9 | Grouting of pipes/specials through walls or slabs inclusive of pipe wall joint sealing | | | | |
| | i) DN2300 in IV Chamber | No. | 4 | R 6 618.09 | R 26 472.36 |
| | ii) DN300 in IV Chamber | No. | 4 | R 2 873.22 | R 11 492.88 |
| | iii) DN200 in IV Chamber | No. | 2 | R 1 969.29 | R 3 938.58 |
| | iv) DN2100 in Meter Chamber | No. | 4 | R 5 165.34 | R 20 661.36 |
| | v) DN200 in Scour Chamber | No. | 16 | R 1 969.29 | R 31 508.64 |
| PSG 8.10 | Casting of pipes/specials through walls or slabs | | | | |
| | Air vents in roof slab in chambers | No. | 32 | R 750.50 | R 24 016.00 |
| | Securex manhole cover in roof slab in chambers | No. | 16 | R 2 680.10 | R 42 881.60 |
| CARRIED FORWARD TO SUMMARY | | | | | R 4 387 730.06 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------|---|------|----------|----------------|-------------------------|
| SANS 1200 L | SECTION 7 : MEDIUM PRESSURE PIPELINES | | | | |
| | Supply and transport of polyurethane coated, epoxy lined steel pipe | | | | |
| | DN2300 * 16mm thick * grade X42 pipe | m | 15645 | R 15 569.00 | R 243 577 005.00 |
| PSL 8.2.1 | Lay, bed and joint pipes, inclusive of internal epoxy lining repair, external coating repair and NDT testing | | | | |
| | DN2300 * 16mm thick * grade X42 pipe | m | 15645 | R 4 687.35 | R 73 333 590.75 |
| | Manufacturing of Simple and Compound Bends, inclusive of reinstatement of testing, external coating and internal lining reinstatement, transportation and handling: | | | | |
| | Bends for DN2300 * 16mm thick * grade X42 pipe: | | | | |
| 8.2.3 & PSL 3.4.4.1 | up to 15 deg | No. | 50 | R 18 408.03 | R 920 401.32 |
| 8.2.3 & PSL 3.4.4.1 | 16 to 30 deg | No. | 36 | R 30 976.76 | R 1 115 163.22 |
| 8.2.3 & PSL 3.4.4.1 | 31 to 45 deg | No. | 16 | R 40 732.65 | R 651 722.46 |
| 8.2.3 & PSL 3.4.4.1 | 46 to 60 deg | No. | 8 | R 40 732.65 | R 325 861.23 |
| 8.2.3 & PSL 3.4.4.1 | 61 to 75 deg | No. | 2 | R 52 055.19 | R 104 110.39 |
| 8.2.3 & PSL 3.4.4.1 | 76 to 90 deg | No. | 4 | R 59 674.76 | R 238 699.05 |
| | SPECIAL ASSEMBLIES | | | | |
| 8.2.3 | Supply, fabricate, handle and install the following assemblies: | | | | |
| PSL 5.1.7 | DN200 Air Valve Assembly - Type 2, PN 16, Inclusive of all Pipe Reinforcing | No. | 18 | R 84 748.30 | R 1 525 469.40 |
| | DN200 Air Valve Assembly - Type 4, PN 16, Inclusive of all Pipe Reinforcing | No. | 18 | R 140 890.51 | R 2 536 029.18 |
| PSL 5.1.8 | DN200 Scour Valve Assembly, Terminal End Type 1, PN16, Inclusive of Collar Plates. | No. | 16 | R 30 216.41 | R 483 462.56 |
| | DN2300 Isolating Valve Assembly Complete | No. | 2 | R 3 977 068.47 | R 7 954 136.94 |
| | DN2100 Meter Chamber Assembly Complete | No. | 2 | R 3 395 025.04 | R 6 790 050.08 |
| 8.2.13 | VALVE CHAMBER AND MANHOLES | | | | |
| | Note : The following rates are to include for the installation of all GRP access ladders, safety cages, step irons, sealing joints, air vents, handrails, access manholes & frames, GRP landings & plastic gratings. All in situ and pre cast concrete elements,shuttering, surface finishing, curing of concrete and ancillaries to be included and rate supplied to be for full functional unit | | | | |
| | Supply and install units COMPLETE with related items for the construction of chambers for: | | | | |
| | Scour Valve Chamber | | | | |
| CARRIED FORWARD | | | | | R 339 555 701.58 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|--|------|----------|-------------|-------------------------|
| BROUGHT FORWARD | | | | | R 339 555 701.58 |
| | a) Type 1 Air Valve Chambers | No. | 14 | R 28 475.27 | R 398 653.78 |
| | a) Type 2 | No. | 12 | R 61 874.57 | R 742 494.84 |
| | b) Type 4 | No. | 12 | R 61 875.57 | R 742 506.84 |
| PSL 5.1.5 | Supply and install Pipe Route Marker Posts. | No. | 76 | R 421.80 | R 32 056.80 |
| PSL 7.3 | HYDRAULIC TESTING | | | | |
| | Fabrication, Installation, Remove & Handover to the employer Bullnoses of : | | | | |
| | DN2300 * 16mm thick * grade X42 pipe | No. | 4 | R 57 458.69 | R 229 834.78 |
| PSL 7.3 & PSL 8.2.19 | End cap, filling and testing of pipeline within sections specified by the Engineer | m | 15645 | R 56.91 | R 890 356.95 |
| CARRIED FORWARD TO SUMMARY | | | | | R 342 591 605.57 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|--|----------------|----------|----------|------------------------|
| SANS 1200 LB | SECTION 8 : BEDDING (PIPES) | | | | |
| | Bedding material | | | | |
| | Supply of selected granular material for 300mm bedding cradle below pipe invert and for fill blanket from pipe invert to 300mm above pipe crown, | | | | |
| | i) from commercial sources | m ³ | 90605 | R 284.97 | R 25 819 706.85 |
| | Selected Backfill | | | | |
| | Selected fill material including for screening or other treatment, to achieve grading suitable to comply with the bedding material specification compacted to 97% MOD AASHTO: | | | | |
| | i) from commercial sources (Provisional Quantity) | m ³ | 100 | R 284.97 | R 28 497.00 |
| PSLB 3.3 | Cement stabilised selected fill bedding (Soilcrete Bedding - 4% CEMENT) Refer to 5379/500/G01 | m ³ | 100 | R 425.07 | R 42 507.00 |
| PSLB 5.1.2.1 PSLB 8.2.6 | Stone Bedding for pipe, supplied, placed and compacted, from a commercial source. (Provisional Quantity) | m ³ | 100 | R 726.55 | R 72 655.00 |
| PSLB 5.1.2.1 | Supply and place into position, geotextile for sub soil drains | m ² | 1000 | R 15.99 | R 15 990.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 25 979 355.85 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|--------------------------|---|----------|----------|--------------|-----------------------|
| SANS 1200LG | SECTION 9 : PIPE JACKING | | | | |
| | DN3500 PIPE JACK 1 - BAYNESFIELD RAIL | | | | |
| 8.2.1 PSLG 8.2.1 | Jacking establishment: | | | | |
| 8.2.1(a) | Fixed Charges | Sum | 1 | R 402 500.00 | R 402 500.00 |
| 8.2.2(b) | Time Related: State time: Weeks | Sum | 1 | R 690 000.00 | R 690 000.00 |
| PS LG 5.2.3.2 | Initial survey of ground and structures at jacking fronts | Sum | 1 | R 1 725.00 | R 1 725.00 |
| PS LG 5.2.3.1, 8.2.19 | Conduct monitoring surveys | No. | 7 | R 402.50 | R 2 817.50 |
| PSLG 8.2.2 | Supply of Pipes to be Jacked: | | | | |
| 8.2.2 PSLG 3 | DN3500 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes to be delivered to the required location" | m | 25 | R 66 087.51 | R 1 652 187.75 |
| PSLG 8.2.3 | Jacking of Pipes: | | | | |
| 8.2.3 PSLG 5.4.3 | DN3500 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes | m | 25 | R 57 971.50 | R 1 449 287.50 |
| 8.2.4 PSLG 4.3, 5.1.4 | Excavation for Jacking in all materials | m3 | 450 | R 1 840.00 | R 828 000.00 |
| 8.2.5 | Extra-over item 8.2.4 for unforeseen rock or boulders | Prov Sum | 1 | R 20 000.00 | R 20 000.00 |
| 8.2.9 PSLG 8.2.9 | Stabilization of unstable areas or grouting of voids where ordered by the Engineer: | | | | |
| 8.2.9(a) | Provision and establishment of equipment on site, and removal on completion of operation (Provisional Quantity) | Sum | 1 | R 5 750.00 | R 5 750.00 |
| 8.2.9(b) | Operation of Equipment (Provisional Quantity) | Day | 10 | R 575.00 | R 5 750.00 |
| 8.2.9(c) | Materials Used (Provisional Quantity) | m3 | 20 | R 2 875.00 | R 57 500.00 |
| 8.2.10 | Standing time for pipe jacking gang and jacking equipment (Provisional Quantity) | hr | 45 | R 1 265.00 | R 56 925.00 |
| PSLG 5.7 | Grouting of sleeve | m3 | 105 | R 3 450.00 | R 362 250.00 |
| PSLG 8.2.11 | Hand excavation and backfilling of trench to expose services | m3 | 15 | R 287.50 | R 4 312.50 |
| PSLG 5.10 | Grouting in of steel pipe inside sleeve | m3 | 135 | R 3 450.00 | R 465 750.00 |
| PSLG 8.2.15, 5.11 | Close DN3500 sleeve end with brick wall | No. | 2 | R 6 492.81 | R 12 985.62 |
| PSLG 8.2.16, 5.12 | Supply and install marker posts | No. | 2 | R 1 725.00 | R 3 450.00 |
| | DN3500 PIPE JACK 2 - BAYNESFIELD RAIL | | | | |
| 8.2.1 PSLG 8.2.1 | Jacking establishment: | | | | |
| 8.2.1(a) | Fixed Charges | Sum | 1 | R 402 500.00 | R 402 500.00 |
| 8.2.2(b) | Time Related: State time: Weeks | Sum | 1 | R 690 000.00 | R 690 000.00 |
| CARRIED FORWARD | | | | | R 7 113 690.87 |

| | | | | | BROUGHT FORWARD | R 7 113 690.87 |
|-----------------------------------|---|----------|-----|-------------|------------------------|-----------------------|
| PS LG 5.2.3.2 | Initial survey of ground and structures at jacking fronts | Sum | 1 | R 1 725.00 | R 1 725.00 | |
| PS LG 5.2.3.1, 8.2.19 | Conduct monitoring surveys | No. | 7 | R 402.50 | R 2 817.50 | |
| PSLG 8.2.2 | Supply of Pipes to be Jacked: | | | | | |
| 8.2.2 PSLG 3 | DN3500 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes to be delivered to the required location" | m | 25 | R 66 087.51 | R 1 652 187.75 | |
| PSLG 8.2.3 | Jacking of Pipes: | | | | | |
| 8.2.3 PSLG 5.4.3 | DN3500 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes | m | 25 | R 57 971.50 | R 1 449 287.50 | |
| 8.2.4 PSLG 4.3, 5.1.4 | Excavation for Jacking in all materials | m3 | 450 | R 1 840.00 | R 828 000.00 | |
| 8.2.5 | Extra-over item 8.2.4 for unforeseen rock or boulders | Prov Sum | 1 | R 20 000.00 | R 20 000.00 | |
| 8.2.9 PSLG 8.2.9 | Stabilization of unstable areas or grouting of voids where ordered by the Engineer: | | | | | |
| 8.2.9(a) | Provision and establishment of equipment on site, and removal on completion of operation (Provisional Quantity) | Sum | 1 | R 5 750.00 | R 5 750.00 | |
| 8.2.9(b) | Operation of Equipment (Provisional Quantity) | Day | 10 | R 575.00 | R 5 750.00 | |
| 8.2.9(c) | Materials Used (Provisional Quantity) | m3 | 20 | R 2 875.00 | R 57 500.00 | |
| 8.2.10 | Standing time for pipe jacking gang and jacking equipment (Provisional Quantity) | hr | 45 | R 1 265.00 | R 56 925.00 | |
| PSLG 5.7 | Grouting of sleeve | m3 | 105 | R 3 450.00 | R 362 250.00 | |
| PSLG 8.2.11 | Hand excavation and backfilling of trench to expose services | m3 | 15 | R 287.50 | R 4 312.50 | |
| PSLG 5.10 | Grouting in of steel pipe inside sleeve | m3 | 135 | R 3 450.00 | R 465 750.00 | |
| PSLG 8.2.15, 5.11 | Close DN3500 sleeve end with brick wall | No. | 2 | R 6 492.81 | R 12 985.62 | |
| PSLG 8.2.16, 5.12 | Supply and install marker posts | No. | 2 | R 1 725.00 | R 3 450.00 | |
| CARRIED FORWARD TO SUMMARY | | | | | R 12 042 381.73 | |

SUMMARY

| SECTION | DESCRIPTION | TOTAL |
|--|---------------------------------------|---------------------------|
| SECTION 1 | PRELIMINARY AND GENERAL | R 278 114 435.19 |
| SECTION 2 | SITE CLEARANCE | R 4 437 049.65 |
| SECTION 3 | EARTHWORKS | R 886 854.24 |
| SECTION 4 | PIPE TRENCHES | R 110 914 995.50 |
| SECTION 5 | GABIONS AND PITCHING | R 2 529 198.37 |
| SECTION 6 | CONCRETE STRUCTURAL | R 9 335 716.15 |
| SECTION 7 | MEDIUM PRESSURE PIPELINES | R 685 531 805.14 |
| SECTION 8 | BEDDING (PIPES) | R 60 960 848.20 |
| SECTION 9 | PIPE JACKING | R 39 322 890.05 |
| SECTION 10 | CATHODIC PROTECTION AND AC MITIGATION | R 13 128 760.00 |
| TOTAL CARRIED TO BILL OF QUANTITIES 2 B | | R 1 205 162 552.49 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|--|----------------|----------|-------------|-----------------------|
| SANS 1200 C | SECTION 2 : SITE CLEARANCE | | | | |
| | CLEAR SITE | | | | |
| 8.2.1 | Clear and grub site over working corridor | ha | 95.97 | R 9 775.00 | R 938 106.75 |
| 8.2.2 | Remove and grub large trees and tree stumps regardless of girth | ha | 2.05 | R 39 716.00 | R 81 417.80 |
| 8.2.10 | Remove topsoil to nominal depth of 150mm and stockpile and maintain. | m ² | 959700 | R 3.22 | R 3 090 234.00 |
| PSC 8.2.11 | Remove existing road and driveways and spoil, for: | | | | |
| | a) Asphalt | m ² | 110 | R 58.65 | R 6 451.50 |
| | b) Gravel | m ² | 1360 | R 54.05 | R 73 508.00 |
| | c) Concrete | m ² | 1345 | R 41.40 | R 55 683.00 |
| PSC 8.2.14 | Saw cutting of existing surface: | | | | |
| | a) Asphalt | m | 36 | R 27.60 | R 993.60 |
| | b) Concrete | m | 300 | R 33.35 | R 10 005.00 |
| 8.2.5 PS 9.2 PSC 8.2.17 | Dismantle existing fencing, move to storage and later reinstate as directed by the Engineer: | | | | |
| | i) All precast concrete fence | m | 200 | R 126.00 | R 25 200.00 |
| | ii) All timber fence. | m | 200 | R 172.50 | R 34 500.00 |
| | iii) All galvanized weld mesh fence | m | 200 | R 97.75 | R 19 550.00 |
| | iv) All galvanized diamond mesh fence | m | 200 | R 207.00 | R 41 400.00 |
| | v) All electric fence | m | 200 | R 300.00 | R 60 000.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 4 437 049.65 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------------|----------|----------|---------------------|
| SANS 1200 D | SECTION 3 : EARTHWORKS | | | | |
| | EXCAVATION | | | | |
| 8.3.3(a) PSD 5.2.2.1 | Restricted excavation in all materials and use for backfill and compact to specified densities or dispose as ordered for: | | | | |
| | DN2234 Isolating Valve Chambers (6 Off) | m ³ | 1505 | R 132.02 | R 198 690.10 |
| | DN1829 Isolating Valve Chambers (2 Off) | m ³ | 504 | R 132.02 | R 66 538.08 |
| | Meter Chamber (2 Off) | m ³ | 504 | R 132.02 | R 66 538.08 |
| | Scour Valve Chambers | | | | |
| | a) Type 1 (32 Off) | m ³ | 1849 | R 132.02 | R 244 104.98 |
| 8.3.2.(b) | Extra-over item 8.3.3 for excavation in: | | | | |
| 8.3.3.(b).1 | Intermediate Material (Provisional Quantity) | m ³ | 1100 | R 20.70 | R 22 770.00 |
| 8.3.3.(b).2 | Hard Rock (Provisional Quantity) | m ³ | 660 | R 295.55 | R 195 063.00 |
| | FINISHINGS | | | | |
| PSD 8.3.14 PSD 5.1.1.1 | Barricading | | | | |
| | i) Barrier Fence | m | 1000 | R 93.15 | R 93 150.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 886 854.24 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-------------------------|--|----------------|----------|-------------|-------------------------|
| SANS 1200 DB | SECTION 4 : PIPE TRENCHES | | | | |
| | EXCAVATION | | | | |
| 8.3.2(a) | Excavate in all materials for trenches for DN2234 pipe, backfill with graded material, compact hydraulically/mechanically to specified density and dispose of surplus/unsuitable material: | | | | |
| | 4-5m | m ³ | 407075 | R 156.01 | R 63 507 770.75 |
| | 5-6m | m ³ | 51445 | R 171.47 | R 8 821 274.15 |
| 8.3.2(b) | Extra-over items 8.3.2(a) for : | | | | |
| 1) | Intermediate Material (Provisional Quantity) | m ³ | 48425 | R 20.70 | R 1 002 397.50 |
| 2) | Hard Rock (Provisional Quantity) | m ³ | 25500 | R 243.80 | R 6 216 900.00 |
| | Extra-over items 8.3.2(a) for : | | | | |
| PSDB3.7 | Removal of suitable backfill material off site, store at temporary site, load and haul back to site.(Provisional Quantity) | m ³ | 9175 | 93.22 | R 855 293.50 |
| 8.3.2(c) PSDB5.5 | Excavate and dispose of unsuitable material from trench bottom (Provisional Quantity) | m ³ | 4590 | R 81.32 | R 373 258.80 |
| 8.3.2(a) | Excavate in all materials for trenches for DN1829 pipe, backfill with graded material, compact hydraulically/mechanically to specified density and dispose of surplus/unsuitable material: | | | | |
| | 4-5 m | m ³ | 109095 | R 156.01 | R 17 019 910.95 |
| | 5 -6 m | m ³ | 2760 | R 171.47 | R 473 257.20 |
| 8.3.2(b) | Extra-over items 8.3.2(a) for : | | | | |
| 1) | Intermediate Material (Provisional Quantity) | m ³ | 11325 | R 20.70 | R 234 427.50 |
| 2) | Hard Rock (Provisional Quantity) | m ³ | 5735 | R 243.80 | R 1 398 193.00 |
| | Extra-over items 8.3.2(a) for : | | | | |
| PSDB3.7 | Removal of suitable backfill material off site, store at temporary site, load and haul back to site.(Provisional Quantity) | m ³ | 2240 | 93.22 | R 208 812.80 |
| 8.3.2(c) PSDB5.5 | Excavate and dispose of unsuitable material from trench bottom (Provisional Quantity) | m ³ | 1120 | R 81.32 | R 91 078.40 |
| | SELECTED BACKFILL | | | | |
| 8.3.3.3 | Compaction in road reserves to 97% MOD AASHTO (Provisional Quantity) | m ³ | 100 | R 35.08 | R 3 508.00 |
| | EXISTING SERVICES | | | | |
| 8.3.5(a) PSDB 8.3.5 | Protect, maintain, repair all services that intersect a trench | Prov Sum | 1 | R 82 500.00 | R 82 500.00 |
| 8.3.5(b) PSDB8.3.5 | Protect, maintain, repair all services that adjoin a trench | Prov Sum | 1 | R 82 500.00 | R 82 500.00 |
| CARRIED FORWARD | | | | | R 100 371 082.55 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------------|----------|------------|-------------------------|
| BROUGHT FORWARD | | | | | R 100 371 082.55 |
| | FINISHINGS | | | | |
| | Topsoiling | m ² | 959700 | R 10.47 | R 10 048 059.00 |
| | Reinstate roads and driveways complete with all courses | | | | |
| | a) Gravel in driveways | m ² | 1360 | R 97.75 | R 132 940.00 |
| | b) Asphalt of 30 - 60mm thickness in roadway | m ² | 110 | R 162.15 | R 17 836.50 |
| | c) Concrete | m ² | 1345 | R 247.25 | R 332 551.25 |
| PSDB 5.1.2.2 | Installation of permanent subsoil drainage systems in accordance with drawing no, inclusive of gabion, geofabric, pipe, stone and other materials for completion as directed by the Engineer (Provisional Quantity) | No. | 5 | R 2 505.24 | R 12 526.20 |
| CARRIED FORWARD TO SUMMARY | | | | | R 110 914 995.50 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------------|----------|------------|-----------------------|
| SANS 1200 DK | SECTION 5: GABIONS AND PITCHING | | | | |
| | GABIONS | | | | |
| 8.2.2 PSDK 3.1.2 | Construct gabions using double twisted hexagonal mesh type 80 with 3.4mm OD frame wire and 2.7mm OD mesh wire to SANS 1580:2005: | | | | |
| 8.2.2 | a) Reno mattresses of depth 0,3 m with diaphragms providing 2 m x 1 m cells. (Provisional Quantity) | m ² | 1769 | R 1 355.24 | R 2 397 419.56 |
| 8.2.4 PSDK 3.1.3 | Geotextile (Type AG 200) placed where ground water seepage occurs: | | | | |
| 8.2.4 | a) below reno mattresses (Provisional Quantity) | m ² | 1769 | R 15.99 | R 28 286.31 |
| PSDK 3.2 | STONE PITCHING | | | | |
| | Supply all labour, plant and material and lay medium grouted pitching as indicated, including for all surface preparation and compaction (Provisional Quantity) | m ² | 250 | R 413.97 | R 103 492.50 |
| CARRIED FORWARD TO SUMMARY | | | | | R 2 529 198.37 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------|---|----------------|----------|------------|-----------------------|
| SANS 1200 G | SECTION 6 : CONCRETE STRUCTURAL | | | | |
| 8.2 PSG 4.5, 7.2 | FORMWORK | | | | |
| | DN2234 IV Chambers (6 Off) | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 1065 | R 272.90 | R 290 638.50 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 960 | R 406.79 | R 390 518.40 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide | | | | |
| | 200mm wide | m | 210 | R 143.73 | R 30 183.30 |
| 8.2.6 | Box out holes/form voids: | | | | |
| 8.2.6(a) | Small, circular, up to 0,35 m dia., depth 0 m to 0,5 metres | | | | |
| | DN200 pipe through chamber walls | No. | 6 | R 381.55 | R 2 289.30 |
| | DN300 pipe through chamber walls | No. | 12 | R 476.94 | R 5 723.28 |
| | Large, circular, diameter greater than 1,0m, depth 0m to 0,5m | | | | |
| | DN2234 pipe through chamber walls | No. | 12 | R 3 091.57 | R 37 098.84 |
| | DN1829 IV Chambers (2 Off) | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 360 | R 272.90 | R 98 244.00 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 320 | R 406.79 | R 130 172.80 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide | | | | |
| | 200mm wide | m | 70 | R 143.73 | R 10 061.10 |
| 8.2.6 | Box out holes/form voids: | | | | |
| 8.2.6(a) | Small, circular, up to 0,35 m dia., depth 0 m to 0,5 metres | | | | |
| | DN200 pipe through chamber walls | No. | 2 | R 381.55 | R 763.10 |
| | DN300 pipe through chamber walls | No. | 4 | R 476.94 | R 1 907.76 |
| | Large, circular, diameter greater than 1,0m, depth 0m to 0,5m | | | | |
| | DN1829 pipe through chamber walls | No. | 4 | R 3 091.57 | R 12 366.28 |
| | DN2032 Meter Chamber (2 Off) | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 360 | R 272.90 | R 98 244.00 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 320 | R 406.79 | R 130 172.80 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide | | | | |
| | 200mm wide | m | 70 | R 143.73 | R 10 061.10 |
| CARRIED FORWARD | | | | | R 1 248 444.56 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|--|---|----------------|----------|-------------|-----------------------|
| BROUGHT FORWARD | | | | | R 1 248 444.56 |
| 8.2.6 | Box out holes/form voids: Large, circular, diameter greater than 1,0m, depth 0m to 0,5m DN2032 pipe through chamber walls | No. | 4 | R 2 033.93 | R 8 135.72 |
| DN200 Scour Chambers (32 Off) | | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 1989 | R 272.90 | R 542 681.14 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 1509 | R 406.79 | R 613 671.77 |
| 8.2.2 | Smooth to underside of roof slab | m ² | 217 | R 435.54 | R 94 574.40 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide 200mm wide | m | 343 | R 143.73 | R 49 278.86 |
| 8.2.6 | Box out holes/form voids: | | | | |
| 8.2.6(a) | Small, circular, up to 0,35 m dia., depth 0 m to 0,5 metres DN200 pipe through chamber wall | No. | 64 | R 476.94 | R 30 524.16 |
| | DN200 air vents in roof slab | No. | 64 | R 476.94 | R 30 524.16 |
| | Large, circular, diameter greater than 1,0m, depth 0m to 0,5m DN550 manhole access in roof slab | No. | 32 | R 1 586.47 | R 50 767.04 |
| DN200 Air Valve Chamber Type 2 (36 Off) | | | | | |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide 150mm wide | m | 395 | R 143.73 | R 56 718.07 |
| DN200 Air Valve Chamber Type 4 (36 Off) | | | | | |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide 150mm wide | m | 395 | R 143.73 | R 56 718.07 |
| 8.3 | REINFORCEMENT | | | | |
| DN2234 IV Chambers (6 Off) | | | | | |
| 8.3.1 | Mild Steel | t | 11.18 | R 12 032.07 | R 134 518.54 |
| 8.3.1 | High Tensile Steel | t | 44.85 | R 12 032.07 | R 539 638.34 |
| DN1829 IV Chambers (2 Off) | | | | | |
| 8.3.1 | Mild Steel | t | 3.76 | R 12 032.07 | R 45 240.58 |
| 8.3.1 | High Tensile Steel | t | 15.00 | R 12 032.07 | R 180 481.05 |
| DN2032 Meter Chamber (2 Off) | | | | | |
| 8.3.1 | Mild Steel | t | 3.76 | R 12 032.07 | R 45 240.58 |
| 8.3.1 | High Tensile Steel | t | 15.00 | R 12 032.07 | R 180 481.05 |
| DN200 Scour Chambers (32 Off) | | | | | |
| CARRIED FORWARD | | | | | R 3 907 638.10 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|--|---|----------------|----------|-------------|-----------------------|
| BROUGHT FORWARD | | | | | R 3 907 638.10 |
| 8.3.1 | Mild Steel | t | 16.69 | R 12 032.07 | R 200 763.68 |
| 8.3.1 | High Tensile Steel | t | 66.74 | R 12 032.07 | R 803 054.73 |
| DN200 Air Valve Chamber Type 2 (36 Off) | | | | | |
| 8.3.1 | Mild Steel | t | 0.26 | R 12 032.07 | R 3 165.36 |
| 8.3.1 | High Tensile Steel | t | 1.04 | R 12 032.07 | R 12 494.84 |
| DN200 Air Valve Chamber Type 4 (36 Off) | | | | | |
| 8.3.1 | Mild Steel | t | 0.26 | R 12 032.07 | R 3 165.36 |
| 8.3.1 | High Tensile Steel | t | 1.04 | R 12 032.07 | R 12 494.84 |
| Concrete encasement DN2234 pipe at river crossings (Provisional Quantity) | | | | | |
| 8.3.1 | Mild Steel | t | 0.25 | R 12 032.07 | R 3 008.02 |
| 8.3.1 | High Tensile Steel | t | 10.00 | R 12 032.07 | R 120 320.70 |
| Concrete encasement DN1829 pipe at river crossings (Provisional Quantity) | | | | | |
| 8.3.1 | Mild Steel | t | 2.50 | R 12 032.07 | R 30 080.18 |
| 8.3.1 | High Tensile Steel | t | 10.00 | R 12 032.07 | R 120 320.70 |
| 8.4 | CONCRETE | | | | |
| DN2234 IV Chambers (6 Off) | | | | | |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 285 | R 125.27 | R 35 701.95 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Base | m ³ | 128 | R 1 955.23 | R 249 291.83 |
| | Walls | m ³ | 321 | R 1 955.23 | R 627 628.83 |
| DN1829 IV Chambers (2 Off) | | | | | |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 94 | R 125.27 | R 11 775.38 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Base | m ³ | 44 | R 1 955.23 | R 86 030.12 |
| | Walls | m ³ | 108 | R 1 955.23 | R 211 164.84 |
| DN2032 Meter Chamber (2 Off) | | | | | |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 94 | R 125.27 | R 11 775.38 |
| 8.4.3 | 15MPa concrete for platforms, steps, pipe supports etc. | | | | |
| | Pipe supports | m ³ | 15.0 | R 1 789.80 | R 26 847.00 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Base | m ³ | 22 | R 1 955.23 | R 43 015.06 |
| | Walls | m ³ | 44 | R 1 955.23 | R 209 209.61 |
| DN200 Scour Chambers (32 Off) | | | | | |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 571 | R 125.27 | R 71 582.86 |
| CARRIED FORWARD | | | | | R 6 800 529.36 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------|---|----------------|----------|------------|-----------------------|
| BROUGHT FORWARD | | | | | R 6 800 529.36 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Base | m ³ | 263 | R 1 955.23 | R 513 946.17 |
| | Walls | m ³ | 366 | R 1 955.23 | R 715 055.54 |
| | Roof slab | m ³ | 45.7 | R 1 955.23 | R 89 381.94 |
| | DN200 Air Valve Chamber Type 2 (36 Off) | | | | |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Strip Foundation | m ³ | 10.4 | R 1 955.23 | R 20 304.31 |
| | DN200 Air Valve Chamber Type 4 (36 Off) | | | | |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Strip Foundation | m ³ | 10.4 | R 1 955.23 | R 20 304.31 |
| | Concrete encasement DN2234 pipe at river crossing (Provisional Quantity) | | | | |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Concrete encasement of pipe | m ³ | 100 | R 2 215.64 | R 221 564.00 |
| | Concrete encasement DN1829 pipe at river crossing (Provisional Quantity) | | | | |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Concrete encasement of pipe | m ³ | 100 | R 2 215.64 | R 221 564.00 |
| 8.4.4 | UNFORMED SURFACE FINISHES | | | | |
| | DN2234 IV Chambers (6 Off) | | | | |
| 8.4.4(a) | Wood-floated | | | | |
| | To floor slabs | m ² | 231 | R 21.55 | R 4 978.05 |
| | To top of walls | m ² | 60 | R 21.55 | R 1 293.00 |
| | DN1829 IV Chambers (2 Off) | | | | |
| 8.4.4(a) | Wood-floated | | | | |
| | To floor slabs | m ² | 78 | R 21.55 | R 1 680.90 |
| | To top of walls | m ² | 20 | R 21.55 | R 431.00 |
| | DN2032 Meter Chamber (2 Off) | | | | |
| 8.4.4(a) | Wood-floated | | | | |
| | To floor slabs | m ² | 78 | R 21.55 | R 1 680.90 |
| | To top of pipe cradle | m ² | 13.0 | R 21.55 | R 280.15 |
| | To top of walls | m ² | 20 | R 21.55 | R 431.00 |
| | DN200 Scour Chambers (32 Off) | | | | |
| 8.4.4(a) | Wood-floated | | | | |
| | To floor slabs | m ² | 571 | R 21.55 | R 12 314.29 |
| CARRIED FORWARD | | | | | R 8 625 738.92 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|--|----------------|----------|------------|-----------------------|
| BROUGHT FORWARD | | | | | R 8 625 738.92 |
| | To roof slabs | m ² | 217 | R 21.55 | R 4 679.43 |
| | To top of walls | m ² | 149 | R 21.55 | R 3 201.71 |
| | MISCELLANEOUS | | | | |
| | Bitumen impregnated soft board | m | 120 | R 33.92 | R 4 070.40 |
| | Polyurethane joint sealant (10mm x 20mm) | m | 120 | R 44.41 | R 5 329.20 |
| | Neoprene inserts for pipes at pipe supports - For DN2234 | m ² | 40 | R 114.33 | R 4 573.20 |
| | Neoprene inserts for pipes at pipe supports - For DN1829 | m ² | 20 | R 114.33 | R 2 286.60 |
| PSG 8.4.5 | Concrete complete with formwork, reinforcing, surface finishing, holes, vents if applicable and joints, for: | | | | |
| | Removable roof slabs in IV chambers | m ³ | 75.2 | R 2 215.64 | R 166 616.13 |
| | Removable roof slabs in Meter Chamber | m ³ | 19.0 | R 2 215.64 | R 42 097.16 |
| | Removable roof slabs in Air Valve-Type2 | m ³ | 20.8 | R 2 215.64 | R 46 017.14 |
| | Removable roof slabs in Air Valve Type 4 | m ³ | 20.8 | R 2 215.64 | R 46 017.14 |
| PSG 8.9 | Grouting of pipes/specials through walls or slabs inclusive of pipe wall joint sealing | | | | |
| | i) DN2234 in IV Chamber | No. | 12 | R 6 618.09 | R 79 417.08 |
| | ii) DN1829 in IV Chamber | No. | 4 | R 6 618.09 | R 26 472.36 |
| | iii) DN300 in IV Chamber | No. | 16 | R 2 873.22 | R 45 971.52 |
| | iv) DN200 in IV Chamber | No. | 8 | R 1 969.29 | R 15 754.32 |
| | v) DN2032 in Meter Chamber | No. | 4 | R 5 165.34 | R 20 661.36 |
| | vi) DN200 in Scour Chamber | No. | 32 | R 1 969.29 | R 63 017.28 |
| PSG 8.10 | Casting of pipes/specials through walls or slabs | | | | |
| | Air vents in roof slab in chambers | No. | 64 | R 750.50 | R 48 032.00 |
| | Securex manhole cover in roof slab in chambers | No. | 32 | R 2 680.10 | R 85 763.20 |
| CARRIED FORWARD TO SUMMARY | | | | | R 9 335 716.15 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------|---|------|----------|-------------|-------------------------|
| SANS 1200 L | SECTION 7 : MEDIUM PRESSURE PIPELINES | | | | |
| | Supply and transport of polyurethane coated, epoxy lined steel pipe | | | | |
| | DN2234 * 14mm thick * grade X42 pipe | m | 30717 | R 13 030.00 | R 400 238 601.00 |
| | DN1829 * 10mm thick * grade X42 pipe | m | 9576 | R 7 626.00 | R 73 026 576.00 |
| | DN2820 * 16mm thick * grade X42 pipe | m | 200 | R 18 809.00 | R 3 761 800.00 |
| PSL 8.2.1 | Lay, bed and joint pipes, inclusive of internal epoxy lining repair, external coating repair and NDT testing | | | | |
| | DN2234 * 14mm thick * grade X42 pipe | m | 30717 | R 4 283.27 | R 131 567 919.61 |
| | DN1829 * 10mm thick * grade X42 pipe | m | 9576 | R 2 871.02 | R 27 492 887.52 |
| | DN2820 * 16mm thick * grade X42 pipe | m | 200 | R 6 825.08 | R 1 365 016.00 |
| | Manufacturing of Simple and Compound Bends, inclusive of reinstatement of testing, external coating and internal lining reinstatement, transportation and handling: | | | | |
| | Bends for DN2234 * 14mm thick * grade X42 pipe: | | | | |
| 8.2.3 & PSL 3.4.4.1 | up to 15 deg | No. | 40 | R 16 821.17 | R 672 846.80 |
| 8.2.3 & PSL 3.4.4.1 | 16 to 30 deg | No. | 38 | R 28 306.41 | R 1 075 643.58 |
| 8.2.3 & PSL 3.4.4.1 | 31 to 45 deg | No. | 32 | R 37 221.31 | R 1 191 081.92 |
| 8.2.3 & PSL 3.4.4.1 | 46 to 60 deg | No. | 6 | R 37 221.31 | R 223 327.86 |
| 8.2.3 & PSL 3.4.4.1 | 61 to 75 deg | No. | 2 | R 47 567.79 | R 95 135.58 |
| 8.2.3 & PSL 3.4.4.1 | 76 to 90 deg | No. | 4 | R 54 530.52 | R 218 122.08 |
| | Bends for DN1829 * 10mm thick * grade X42 pipe: | | | | |
| 8.2.3 & PSL 3.4.4.1 | up to 15 deg | No. | 40 | R 11 275.02 | R 451 000.69 |
| 8.2.3 & PSL 3.4.4.1 | 16 to 30 deg | No. | 20 | R 18 973.43 | R 379 468.66 |
| 8.2.3 & PSL 3.4.4.1 | 31 to 45 deg | No. | 12 | R 24 948.97 | R 299 387.69 |
| 8.2.3 & PSL 3.4.4.1 | 46 to 60 deg | No. | 6 | R 24 948.97 | R 149 693.85 |
| 8.2.3 & PSL 3.4.4.1 | 61 to 75 deg | No. | 6 | R 31 884.09 | R 191 304.55 |
| 8.2.3 & PSL 3.4.4.1 | 76 to 90 deg | No. | 8 | R 36 551.12 | R 292 408.96 |
| | SPECIAL ASSEMBLIES | | | | |
| 8.2.3 | Supply, fabricate, handle and install the following assemblies: | | | | |
| CARRIED FORWARD | | | | | R 642 692 222.34 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|------|----------|----------------|-------------------------|
| BROUGHT FORWARD | | | | | R 642 692 222.34 |
| PSL 5.1.7 | DN200 Air Valve Assembly - Type 2, PN 16, Inclusive of all Pipe Reinforcing | No. | 36 | R 84 748.30 | R 3 050 938.80 |
| | DN200 Air Valve Assembly - Type 4, PN 16, Inclusive of all Pipe Reinforcing | No. | 36 | R 140 890.51 | R 5 072 058.36 |
| PSL 5.1.8 | DN200 Scour Valve Assembly, Terminal End Type 1, PN16, Inclusive of Collar Plates. | No. | 32 | R 30 216.41 | R 966 925.12 |
| | DN2234 Isolating Valve Assembly Complete | No. | 6 | R 2 485 438.22 | R 14 912 629.30 |
| | DN1829 Isolating Valve Assembly Complete | No. | 2 | R 2 083 001.89 | R 4 166 003.78 |
| | DN2032 Meter Chamber Assembly Complete | No. | 2 | R 3 309 911.55 | R 6 619 823.10 |
| | DN2820 Y-Piece with DN2234 branches. | No. | 1 | R 86 890.34 | R 86 890.34 |
| 8.2.13 | VALVE CHAMBER AND MANHOLES | | | | |
| | Note : The following rates are to include for the installation of all GRP access ladders, safety cages, step irons, sealing joints, air vents, handrails, access manholes & frames, GRP landings & plastic gratings. All in situ and pre cast concrete elements,shuttering, surface finishing, curing of concrete and ancillaries to be included and rate supplied to be for full functional unit | | | | |
| | Supply and install units COMPLETE with related items for the construction of chambers for: | | | | |
| | Scour Valve Chamber | | | | |
| | a) Type 1 | No. | 32 | R 28 475.27 | R 911 208.64 |
| | Air Valve Chambers | | | | |
| | a) Type 2 | No. | 36 | R 61 874.57 | R 2 227 484.52 |
| | b) Type 4 | No. | 36 | R 61 875.57 | R 2 227 520.52 |
| PSL 5.1.5 | Supply and install Pipe Route Marker Posts. | No. | 201 | R 421.80 | R 84 977.30 |
| PSL 7.3 | HYDRAULIC TESTING | | | | |
| | Fabrication, Installation, Remove & Handover to the employer Bullnoses of : | | | | |
| | DN2234 * 14mm thick * grade X42 pipe | No. | 4 | R 31 234.66 | R 124 938.64 |
| | DN1829 * 10mm thick * grade X42 pipe | No. | 4 | R 20 936.20 | R 83 744.81 |
| PSL 7.3 & PSL 8.2.19 | End cap, filling and testing of pipeline within sections specified by the Engineer | m | 40493 | R 56.91 | R 2 304 439.56 |
| CARRIED FORWARD TO SUMMARY | | | | | R 685 531 805.14 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|--|----------------|----------|----------|------------------------|
| SANS 1200 LB | SECTION 8 : BEDDING (PIPES) | | | | |
| | Bedding material | | | | |
| | Supply of selected granular material for 300mm bedding cradle below pipe invert and for fill blanket from pipe invert to 300mm above pipe crown, from commercial sources | | | | |
| | i) DN2234 pipe | m ³ | 170735 | R 284.97 | R 48 654 352.95 |
| | i) DN1829 pipe | m ³ | 42625 | R 284.97 | R 12 146 846.25 |
| PSLB 3.3 | Selected Backfill | | | | |
| | Selected fill material including for screening or other treatment, to achieve grading suitable to comply with the bedding material specification compacted to 97% MOD AASHTO: | | | | |
| | i) from commercial sources (Provisional Quantity) | m ³ | 100 | R 284.97 | R 28 497.00 |
| PSLB 5.1.2.1 PSLB 8.2.6 | Cement stabilised selected fill bedding (Soilcrete Bedding - 4% CEMENT) | m ³ | 100 | R 425.07 | R 42 507.00 |
| PSLB 5.1.2.1 PSLB 8.2.6 | Stone Bedding for pipe, supplied, placed and compacted, from a commercial source. (Provisional Quantity) | m ³ | 100 | R 726.55 | R 72 655.00 |
| PSLB 5.1.2.1 | Supply and place into position, geotextile for sub soil drains | m ² | 1000 | R 15.99 | R 15 990.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 60 960 848.20 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|--------------------------|---|----------|----------|--------------|-----------------------|
| SANS 1200LG | SECTION 9 : PIPE JACKING | | | | |
| | DN3250 PIPE JACK 1 - R56 | | | | |
| 8.2.1 PSLG 8.2.1 | Jacking establishment: | | | | |
| 8.2.1(a) | Fixed Charges | Sum | 1 | R 402 500.00 | R 402 500.00 |
| 8.2.2(b) | Time Related: State time: Weeks | Sum | 1 | R 690 000.00 | R 690 000.00 |
| PS LG 5.2.3.2 | Initial survey of ground and structures at jacking fronts | Sum | 1 | R 1 725.00 | R 1 725.00 |
| PS LG 5.2.3.1, 8.2.19 | Conduct monitoring surveys | No. | 7 | R 402.50 | R 2 817.50 |
| PSLG 8.2.2 | Supply of Pipes to be Jacked: | | | | |
| 8.2.2 PSLG 3 | DN3250 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes to be delivered to the required location" | m | 20 | R 55 389.75 | R 1 107 795.00 |
| PSLG 8.2.3 | Jacking of Pipes: | | | | |
| 8.2.3 PSLG 5.4.3 | DN3250 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes | m | 20 | R 48 587.50 | R 971 750.00 |
| 8.2.4 PSLG 4.3, 5.1.4 | Excavation for Jacking in all materials | m3 | 290 | R 1 840.00 | R 533 600.00 |
| 8.2.5 | Extra-over item 8.2.4 for unforeseen rock or boulders | Prov Sum | 1 | R 20 000.00 | R 20 000.00 |
| 8.2.9 PSLG 8.2.9 | Stabilization of unstable areas or grouting of voids where ordered by the Engineer: | | | | |
| 8.2.9(a) | Provision and establishment of equipment on site, and removal on completion of operation (Provisional Quantity) | Sum | 1 | R 5 750.00 | R 5 750.00 |
| 8.2.9(b) | Operation of Equipment (Provisional Quantity) | Day | 10 | R 575.00 | R 5 750.00 |
| 8.2.9(c) | Materials Used (Provisional Quantity) | m3 | 20 | R 2 875.00 | R 57 500.00 |
| 8.2.10 | Standing time for pipe jacking gang and jacking equipment (Provisional Quantity) | hr | 45 | R 1 265.00 | R 56 925.00 |
| PSLG 5.7 | Grouting of sleeve | m3 | 65 | R 3 450.00 | R 224 250.00 |
| PSLG 8.2.11 | Hand excavation and backfilling of trench to expose services | m3 | 15 | R 287.50 | R 4 312.50 |
| PSLG 5.10 | Grouting in of steel pipe inside sleeve | m3 | 90 | R 3 450.00 | R 310 500.00 |
| PSLG 8.2.15, 5.11 | Close DN3250 sleeve end with brick wall | No. | 2 | R 5 441.80 | R 10 883.60 |
| PSLG 8.2.16, 5.12 | Supply and install marker posts | No. | 2 | R 1 725.00 | R 3 450.00 |
| | DN3250 PIPE JACK 2 - R56 | | | | |
| 8.2.1 PSLG 8.2.1 | Jacking establishment: | | | | |
| 8.2.1(a) | Fixed Charges | Sum | 1 | R 402 500.00 | R 402 500.00 |
| 8.2.2(b) | Time Related: State time: Weeks | Sum | 1 | R 690 000.00 | R 690 000.00 |
| CARRIED FORWARD | | | | | R 5 502 008.60 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------|---|----------|----------|--------------|-----------------------|
| BROUGHT FORWARD | | | | | R 5 502 008.60 |
| PS LG 5.2.3.2 | Initial survey of ground and structures at jacking fronts | Sum | 1 | R 1 725.00 | R 1 725.00 |
| PS LG 5.2.3.1, 8.2.19 | Conduct monitoring surveys | No. | 7 | R 402.50 | R 2 817.50 |
| PSLG 8.2.2 | Supply of Pipes to be Jacked: | | | | |
| 8.2.2 PSLG 3 | DN3250 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes to be delivered to the required location" | m | 20 | R 55 389.75 | R 1 107 795.00 |
| PSLG 8.2.3 | Jacking of Pipes: | | | | |
| 8.2.3 PSLG 5.4.3 | DN3250 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes | m | 20 | R 48 587.50 | R 971 750.00 |
| 8.2.4 PSLG 4.3, 5.1.4 | Excavation for Jacking in all materials | m3 | 290 | R 1 840.00 | R 533 600.00 |
| 8.2.5 | Extra-over item 8.2.4 for unforeseen rock or boulders | Prov Sum | 1 | R 20 000.00 | R 20 000.00 |
| 8.2.9 PSLG 8.2.9 | Stabilization of unstable areas or grouting of voids where ordered by the Engineer: | | | | |
| 8.2.9(a) | Provision and establishment of equipment on site, and removal on completion of operation (Provisional Quantity) | Sum | 1 | R 5 750.00 | R 5 750.00 |
| 8.2.9(b) | Operation of Equipment (Provisional Quantity) | Day | 10 | R 575.00 | R 5 750.00 |
| 8.2.9(c) | Materials Used (Provisional Quantity) | m3 | 20 | R 2 875.00 | R 57 500.00 |
| 8.2.10 | Standing time for pipe jacking gang and jacking equipment (Provisional Quantity) | hr | 45 | R 1 265.00 | R 56 925.00 |
| PSLG 5.7 | Grouting of sleeve | m3 | 65 | R 3 450.00 | R 224 250.00 |
| PSLG 8.2.11 | Hand excavation and backfilling of trench to expose services | m3 | 15 | R 287.50 | R 4 312.50 |
| PSLG 5.10 | Grouting in of steel pipe inside sleeve | m3 | 90 | R 3 450.00 | R 310 500.00 |
| PSLG 8.2.15, 5.11 | Close DN3250 sleeve end with brick wall | No. | 2 | R 5 441.80 | R 10 883.60 |
| PSLG 8.2.16, 5.12 | Supply and install marker posts | No. | 2 | R 1 725.00 | R 3 450.00 |
| | DN3250 PIPE JACK 1 - R624 | | | | |
| 8.2.1 PSLG 8.2.1 | Jacking establishment: | | | | |
| 8.2.1(a) | Fixed Charges | Sum | 1 | R 402 500.00 | R 402 500.00 |
| 8.2.2(b) | Time Related: State time: Weeks | Sum | 1 | R 690 000.00 | R 690 000.00 |
| PS LG 5.2.3.2 | Initial survey of ground and structures at jacking fronts | Sum | 1 | R 1 725.00 | R 1 725.00 |
| PS LG 5.2.3.1, 8.2.19 | Conduct monitoring surveys | No. | 7 | R 402.50 | R 2 817.50 |
| PSLG 8.2.2 | Supply of Pipes to be Jacked: | | | | |
| CARRIED FORWARD | | | | | R 9 916 059.70 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|----------------------------------|---|----------|----------|--------------|------------------------|
| BROUGHT FORWARD | | | | | R 9 916 059.70 |
| 8.2.2 PSLG 3 | DN3250 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes to be delivered to the required location" | m | 20 | R 55 389.75 | R 1 107 795.00 |
| PSLG 8.2.3 | Jacking of Pipes: | | | | |
| 8.2.3 PSLG 5.4.3 | DN3250 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes | m | 20 | R 48 587.50 | R 971 750.00 |
| 8.2.4 PSLG 4.3, 5.1.4 | Excavation for Jacking in all materials | m3 | 290 | R 1 840.00 | R 533 600.00 |
| 8.2.5 | Extra-over item 8.2.4 for unforeseen rock or boulders | Prov Sum | 1 | R 20 000.00 | R 20 000.00 |
| 8.2.9 PSLG 8.2.9 | Stabilization of unstable areas or grouting of voids where ordered by the Engineer: | | | | |
| 8.2.9(a) | Provision and establishment of equipment on site, and removal on completion of operation (Provisional Quantity) | Sum | 1 | R 5 750.00 | R 5 750.00 |
| 8.2.9(b) | Operation of Equipment (Provisional Quantity) | Day | 10 | R 575.00 | R 5 750.00 |
| 8.2.9(c) | Materials Used (Provisional Quantity) | m3 | 20 | R 2 875.00 | R 57 500.00 |
| 8.2.10 | Standing time for pipe jacking gang and jacking equipment (Provisional Quantity) | hr | 45 | R 1 265.00 | R 56 925.00 |
| PSLG 5.7 | Grouting of sleeve | m3 | 65 | R 3 450.00 | R 224 250.00 |
| PSLG 8.2.11 | Hand excavation and backfilling of trench to expose services | m3 | 15 | R 287.50 | R 4 312.50 |
| PSLG 5.10 | Grouting in of steel pipe inside sleeve | m3 | 90 | R 3 450.00 | R 310 500.00 |
| PSLG 8.2.15, 5.11 | Close DN3250 sleeve end with brick wall | No. | 2 | R 5 441.80 | R 10 883.60 |
| PSLG 8.2.16, 5.12 | Supply and install marker posts | No. | 2 | R 1 725.00 | R 3 450.00 |
| DN3250 PIPE JACK 2 - R624 | | | | | |
| 8.2.1 PSLG 8.2.1 | Jacking establishment: | | | | |
| 8.2.1(a) | Fixed Charges | Sum | 1 | R 402 500.00 | R 402 500.00 |
| 8.2.2(b) | Time Related: State time: Weeks | Sum | 1 | R 690 000.00 | R 690 000.00 |
| PS LG 5.2.3.2 | Initial survey of ground and structures at jacking fronts | Sum | 1 | R 1 725.00 | R 1 725.00 |
| PS LG 5.2.3.1, 8.2.19 | Conduct monitoring surveys | No. | 7 | R 402.50 | R 2 817.50 |
| PSLG 8.2.2 | Supply of Pipes to be Jacked: | | | | |
| 8.2.2 PSLG 3 | DN3250 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes to be delivered to the required location" | m | 20 | R 55 389.75 | R 1 107 795.00 |
| PSLG 8.2.3 | Jacking of Pipes: | | | | |
| 8.2.3 PSLG 5.4.3 | DN3250 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes | m | 20 | R 48 587.50 | R 971 750.00 |
| CARRIED FORWARD | | | | | R 16 405 113.30 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|--------------------------|---|----------|----------|--------------|------------------------|
| BROUGHT FORWARD | | | | | R 16 405 113.30 |
| 8.2.5 | Extra-over item 8.2.4 for unforeseen rock or boulders | Prov Sum | 1 | R 20 000.00 | R 20 000.00 |
| 8.2.9 PSLG 8.2.9 | Stabilization of unstable areas or grouting of voids where ordered by the Engineer: | | | | |
| 8.2.9(a) | Provision and establishment of equipment on site, and removal on completion of operation (Provisional Quantity) | Sum | 1 | R 5 750.00 | R 5 750.00 |
| 8.2.9(b) | Operation of Equipment (Provisional Quantity) | Day | 10 | R 575.00 | R 5 750.00 |
| 8.2.9(c) | Materials Used (Provisional Quantity) | m3 | 20 | R 2 875.00 | R 57 500.00 |
| 8.2.10 | Standing time for pipe jacking gang and jacking equipment (Provisional Quantity) | hr | 45 | R 1 265.00 | R 56 925.00 |
| PSLG 5.7 | Grouting of sleeve | m3 | 65 | R 3 450.00 | R 224 250.00 |
| PSLG 8.2.11 | Hand excavation and backfilling of trench to expose services | m3 | 15 | R 287.50 | R 4 312.50 |
| PSLG 5.10 | Grouting in of steel pipe inside sleeve | m3 | 90 | R 3 450.00 | R 310 500.00 |
| PSLG 8.2.15, 5.11 | Close DN3250 sleeve end with brick wall | No. | 2 | R 5 441.80 | R 10 883.60 |
| PSLG 8.2.16, 5.12 | Supply and install marker posts | No. | 2 | R 1 725.00 | R 3 450.00 |
| | DN3000 PIPE JACK 1 - R603 | | | | |
| 8.2.1 PSLG 8.2.1 | Jacking establishment: | | | | |
| 8.2.1(a) | Fixed Charges | Sum | 1 | R 402 500.00 | R 402 500.00 |
| 8.2.2(b) | Time Related: State time: Weeks | Sum | 1 | R 690 000.00 | R 690 000.00 |
| PS LG 5.2.3.2 | Initial survey of ground and structures at jacking fronts | Sum | 1 | R 1 725.00 | R 1 725.00 |
| PS LG 5.2.3.1, 8.2.19 | Conduct monitoring surveys | No. | 7 | R 402.50 | R 2 817.50 |
| PSLG 8.2.2 | Supply of Pipes to be Jacked: | | | | |
| 8.2.2 PSLG 3 | DN3000 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes to be delivered to the required location" | m | 20 | R 47 196.00 | R 1 843 593.75 |
| PSLG 8.2.3 | Jacking of Pipes: | | | | |
| 8.2.3 PSLG 5.4.3 | DN3000 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes | m | 20 | R 41 400.00 | R 828 000.00 |
| 8.2.4 PSLG 4.3, 5.1.4 | Excavation for Jacking in all materials | m3 | 260 | R 1 840.00 | R 478 400.00 |
| 8.2.5 | Extra-over item 8.2.4 for unforeseen rock or boulders | Prov Sum | 1 | R 20 000.00 | R 20 000.00 |
| 8.2.9 PSLG 8.2.9 | Stabilization of unstable areas or grouting of voids where ordered by the Engineer: | | | | |
| 8.2.9(a) | Provision and establishment of equipment on site, and removal on completion of operation (Provisional Quantity) | Sum | 1 | R 5 750.00 | R 5 750.00 |
| CARRIED FORWARD | | | | | R 21 377 220.65 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|----------------------------------|---|----------|----------|--------------|------------------------|
| BROUGHT FORWARD | | | | | R 21 377 220.65 |
| 8.2.9(b) | Operation of Equipment (Provisional Quantity) | Day | 10 | R 575.00 | R 5 750.00 |
| 8.2.9(c) | Materials Used (Provisional Quantity) | m3 | 20 | R 2 875.00 | R 57 500.00 |
| 8.2.10 | Standing time for pipe jacking gang and jacking equipment (Provisional Quantity) | hr | 45 | R 1 265.00 | R 56 925.00 |
| PSLG 5.7 | Grouting of sleeve | m3 | 60 | R 3 450.00 | R 207 000.00 |
| PSLG 8.2.11 | Hand excavation and backfilling of trench to expose services | m3 | 15 | R 287.50 | R 4 312.50 |
| PSLG 5.10 | Grouting in of steel pipe inside sleeve | m3 | 90 | R 3 450.00 | R 310 500.00 |
| PSLG 8.2.15, 5.11 | Close DN3000 sleeve end with brick wall | No. | 2 | R 4 636.80 | R 9 273.60 |
| PSLG 8.2.16, 5.12 | Supply and install marker posts | No. | 2 | R 1 725.00 | R 3 450.00 |
| DN3000 PIPE JACK 2 - R603 | | | | | |
| 8.2.1 PSLG 8.2.1 | Jacking establishment: | | | | |
| 8.2.1(a) | Fixed Charges | Sum | 1 | R 402 500.00 | R 402 500.00 |
| 8.2.2(b) | Time Related: State time: Weeks | Sum | 1 | R 690 000.00 | R 690 000.00 |
| PS LG 5.2.3.2 | Initial survey of ground and structures at jacking fronts | Sum | 1 | R 1 725.00 | R 1 725.00 |
| PS LG 5.2.3.1, 8.2.19 | Conduct monitoring surveys | No. | 7 | R 402.50 | R 2 817.50 |
| PSLG 8.2.2 | Supply of Pipes to be Jacked: | | | | |
| 8.2.2 PSLG 3 | DN3000 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes to be delivered to the required location" | m | 20 | R 47 196.00 | R 1 843 593.75 |
| PSLG 8.2.3 | Jacking of Pipes: | | | | |
| 8.2.3 PSLG 5.4.3 | DN3000 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes | m | 20 | R 41 400.00 | R 828 000.00 |
| 8.2.4 PSLG 4.3, 5.1.4 | Excavation for Jacking in all materials | m3 | 260 | R 1 840.00 | R 478 400.00 |
| 8.2.5 | Extra-over item 8.2.4 for unforeseen rock or boulders | Prov Sum | 1 | R 20 000.00 | R 20 000.00 |
| 8.2.9 PSLG 8.2.9 | Stabilization of unstable areas or grouting of voids where ordered by the Engineer: | | | | |
| 8.2.9(a) | Provision and establishment of equipment on site, and removal on completion of operation (Provisional Quantity) | Sum | 1 | R 5 750.00 | R 5 750.00 |
| 8.2.9(b) | Operation of Equipment (Provisional Quantity) | Day | 10 | R 575.00 | R 5 750.00 |
| 8.2.9(c) | Materials Used (Provisional Quantity) | m3 | 20 | R 2 875.00 | R 57 500.00 |
| 8.2.10 | Standing time for pipe jacking gang and jacking equipment (Provisional Quantity) | hr | 45 | R 1 265.00 | R 56 925.00 |
| PSLG 5.7 | Grouting of sleeve | m3 | 60 | R 3 450.00 | R 207 000.00 |
| CARRIED FORWARD | | | | | R 26 631 893.00 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|--|---|----------|----------|--------------|------------------------|
| BROUGHT FORWARD | | | | | R 26 631 893.00 |
| PSLG 8.2.11 | Hand excavation and backfilling of trench to expose services | m3 | 15 | R 287.50 | R 4 312.50 |
| PSLG 5.10 | Grouting in of steel pipe inside sleeve | m3 | 90 | R 3 450.00 | R 310 500.00 |
| PSLG 8.2.15, 5.11 | Close DN3000 sleeve end with brick wall | No. | 2 | R 4 636.80 | R 9 273.60 |
| PSLG 8.2.16, 5.12 | Supply and install marker posts | No. | 2 | R 1 725.00 | R 3 450.00 |
| DN3000 PIPE JACK 1 - UMLAAS ROAD RAIL | | | | | |
| 8.2.1 PSLG 8.2.1 | Jacking establishment: | | | | |
| 8.2.1(a) | Fixed Charges | Sum | 1 | R 402 500.00 | R 402 500.00 |
| 8.2.2(b) | Time Related: State time: Weeks | Sum | 1 | R 690 000.00 | R 690 000.00 |
| PS LG 5.2.3.2 | Initial survey of ground and structures at jacking fronts | Sum | 1 | R 1 725.00 | R 1 725.00 |
| PS LG 5.2.3.1, 8.2.19 | Conduct monitoring surveys | No. | 7 | R 402.50 | R 2 817.50 |
| PSLG 8.2.2 | Supply of Pipes to be Jacked: | | | | |
| 8.2.2 PSLG 3 | DN3000 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes to be delivered to the required location" | m | 35 | R 47 196.00 | R 1 843 593.75 |
| PSLG 8.2.3 | Jacking of Pipes: | | | | |
| 8.2.3 PSLG 5.4.3 | DN3000 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes | m | 35 | R 41 400.00 | R 1 449 000.00 |
| 8.2.4 PSLG 4.3, 5.1.4 | Excavation for Jacking in all materials | m3 | 450 | R 1 840.00 | R 828 000.00 |
| 8.2.5 | Extra-over item 8.2.4 for unforeseen rock or boulders | Prov Sum | 1 | R 20 000.00 | R 20 000.00 |
| 8.2.9 PSLG 8.2.9 | Stabilization of unstable areas or grouting of voids where ordered by the Engineer: | | | | |
| 8.2.9(a) | Provision and establishment of equipment on site, and removal on completion of operation (Provisional Quantity) | Sum | 1 | R 5 750.00 | R 5 750.00 |
| 8.2.9(b) | Operation of Equipment (Provisional Quantity) | Day | 10 | R 575.00 | R 5 750.00 |
| 8.2.9(c) | Materials Used (Provisional Quantity) | m3 | 20 | R 2 875.00 | R 57 500.00 |
| 8.2.10 | Standing time for pipe jacking gang and jacking equipment (Provisional Quantity) | hr | 45 | R 1 265.00 | R 56 925.00 |
| PSLG 5.7 | Grouting of sleeve | m3 | 105 | R 3 450.00 | R 362 250.00 |
| PSLG 8.2.11 | Hand excavation and backfilling of trench to expose services | m3 | 15 | R 287.50 | R 4 312.50 |
| PSLG 5.10 | Grouting in of steel pipe inside sleeve | m3 | 155 | R 3 450.00 | R 534 750.00 |
| PSLG 8.2.15, 5.11 | Close DN3000 sleeve end with brick wall | No. | 2 | R 4 636.80 | R 9 273.60 |
| PSLG 8.2.16, 5.12 | Supply and install marker posts | No. | 2 | R 1 725.00 | R 3 450.00 |
| CARRIED FORWARD | | | | | R 33 237 026.45 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------|----------|--------------|------------------------|
| BROUGHT FORWARD | | | | | R 33 237 026.45 |
| | DN3000 PIPE JACK 2 - UMLAAS ROAD RAIL | | | | |
| 8.2.1 PSLG 8.2.1 | Jacking establishment: | | | | |
| 8.2.1(a) | Fixed Charges | Sum | 1 | R 402 500.00 | R 402 500.00 |
| 8.2.2(b) | Time Related: State time: Weeks | Sum | 1 | R 690 000.00 | R 690 000.00 |
| PS LG 5.2.3.2 | Initial survey of ground and structures at jacking fronts | Sum | 1 | R 1 725.00 | R 1 725.00 |
| PS LG 5.2.3.1, 8.2.19 | Conduct monitoring surveys | No. | 7 | R 402.50 | R 2 817.50 |
| PSLG 8.2.2 | Supply of Pipes to be Jacked: | | | | |
| 8.2.2 PSLG 3 | DN3000 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes to be delivered to the required location" | m | 35 | R 47 196.00 | R 1 651 860.00 |
| PSLG 8.2.3 | Jacking of Pipes: | | | | |
| 8.2.3 PSLG 5.4.3 | DN3000 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes | m | 35 | R 41 400.00 | R 1 449 000.00 |
| 8.2.4 PSLG 4.3, 5.1.4 | Excavation for Jacking in all materials | m3 | 450 | R 1 840.00 | R 828 000.00 |
| 8.2.5 | Extra-over item 8.2.4 for unforeseen rock or boulders | Prov Sum | 1 | R 20 000.00 | R 20 000.00 |
| 8.2.9 PSLG 8.2.9 | Stabilization of unstable areas or grouting of voids where ordered by the Engineer: | | | | |
| 8.2.9(a) | Provision and establishment of equipment on site, and removal on completion of operation (Provisional Quantity) | Sum | 1 | R 5 750.00 | R 5 750.00 |
| 8.2.9(b) | Operation of Equipment (Provisional Quantity) | Day | 10 | R 575.00 | R 5 750.00 |
| 8.2.9(c) | Materials Used (Provisional Quantity) | m3 | 20 | R 2 875.00 | R 57 500.00 |
| 8.2.10 | Standing time for pipe jacking gang and jacking equipment (Provisional Quantity) | hr | 45 | R 1 265.00 | R 56 925.00 |
| PSLG 5.7 | Grouting of sleeve | m3 | 105 | R 3 450.00 | R 362 250.00 |
| PSLG 8.2.11 | Hand excavation and backfilling of trench to expose services | m3 | 15 | R 287.50 | R 4 312.50 |
| PSLG 5.10 | Grouting in of steel pipe inside sleeve | m3 | 155 | R 3 450.00 | R 534 750.00 |
| PSLG 8.2.15, 5.11 | Close DN3000 sleeve end with brick wall | No. | 2 | R 4 636.80 | R 9 273.60 |
| PSLG 8.2.16, 5.12 | Supply and install marker posts | No. | 2 | R 1 725.00 | R 3 450.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 39 322 890.05 |

SUMMARY

| SECTION | DESCRIPTION | TOTAL |
|--|--------------------------------------|------------------------|
| SECTION 1 | LAND ACQUISITION | R 6 160 087.50 |
| SECTION 2 | CROP COMPENSATION - FORESTRY | R 0.00 |
| SECTION 3 | CROP COMPENSATION - SUGAR CANE | R 21 603 187.98 |
| SECTION 4 | CROP COMPENSATION - MAIZE | R 2 047 500.00 |
| SECTION 5 | CROP COMPENSATION - ORCHARDS | R 1 680 000.00 |
| SECTION 6 | CROP COMPENSATION - OTHER CROPS | R 2 656 972.56 |
| SECTION 7 | CROP COMPENSATION - GRAZING PASTURES | R 2 221 500.00 |
| SECTION 8 | LAND RENTAL | R 6 209 160.85 |
| TOTAL CARRIED TO BILL OF QUANTITIES 2 B | | R 42 578 408.89 |

2C-PH1

| DETAILED SUMMARY FOR COST COMPONENTS TO OPTION 2C - PHASE 1 | | |
|--|---|---------------------------|
| BOQ No. | DESCRIPTION | AMOUNT |
| 2.C-R-PH1 | DOUBLE UNEQUAL PIPELINE - RAW WATER | R 341 652 937.21 |
| 2.C-P-PH1 | DOUBLE UNEQUAL PIPELINE - POTABLE WATER | R 668 788 131.48 |
| 2.C-L-PH1 | LAND ACQUISITION AND CROP COMPENSATION | R 38 936 576.75 |
| 2.BR | PIPE BRIDGE | R 44 228 054.00 |
| 2.RD | SITE B3 ACCESS ROAD | R 7 729 519.56 |
| 2.WTW | SITE B3 WATER TREATMENT WORKS | R 1 647 167 855.80 |
| 2.RES | SITE B3 RESERVOIR | R 194 287 465.26 |
| TOTAL CARRIED FORWARD TO SUMMARY OF BILL OF QUANTITIES | | R 2 942 790 540.06 |

SUMMARY

| SECTION | DESCRIPTION | TOTAL |
|--|---------------------------------------|-------------------------|
| SECTION 1 | PRELIMINARY AND GENERAL | R 78 842 985.51 |
| SECTION 2 | SITE CLEARANCE | R 2 293 500.74 |
| SECTION 3 | EARTHWORKS | R 222 032.57 |
| SECTION 4 | PIPE TRENCHES | R 33 083 378.07 |
| SECTION 5 | GABIONS AND PITCHING | R 729 133.87 |
| SECTION 6 | CONCRETE STRUCTURAL | R 2 435 661.11 |
| SECTION 7 | MEDIUM PRESSURE PIPELINES | R 198 199 922.44 |
| SECTION 8 | BEDDING (PIPES) | R 14 212 911.65 |
| SECTION 9 | PIPE JACKING | R 6 569 451.25 |
| SECTION 10 | CATHODIC PROTECTION AND AC MITIGATION | R 5 063 960.00 |
| TOTAL CARRIED TO BILL OF QUANTITIES 2 C - PHASE 1 | | R 341 652 937.21 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|--|----------------|----------|-------------|-----------------------|
| SANS 1200 C | SECTION 2 : SITE CLEARANCE | | | | |
| | CLEAR SITE | | | | |
| 8.2.1 | Clear and grub site over working corridor | ha | 37.14 | R 9 775.00 | R 363 043.50 |
| 8.2.2 | Remove and grub large trees and tree stumps regardless of girth | ha | 4.39 | R 39 716.00 | R 174 353.24 |
| 8.2.10 | Remove topsoil to nominal depth of 150mm and stockpile and maintain. | m ² | 371400 | R 3.22 | R 1 195 908.00 |
| PSC 8.2.11 | Remove existing road and driveways and spoil, for: | | | | |
| | a) Asphalt | m ² | 140 | R 58.65 | R 8 211.00 |
| | b) Gravel | m ² | 6860 | R 54.05 | R 370 783.00 |
| PSC 8.2.14 | Saw cutting of existing surface: | | | | |
| | a) Asphalt | m | 20 | R 27.60 | R 552.00 |
| 8.2.5 PS 9.2 PSC 8.2.17 | Dismantle existing fencing, move to storage and later reinstate as directed by the Engineer: | | | | |
| | i) All precast concrete fence. | m | 200 | R 126.00 | R 25 200.00 |
| | ii) All timber fence. | m | 200 | R 172.50 | R 34 500.00 |
| | iii) All galvanized weld mesh fence. | m | 200 | R 97.75 | R 19 550.00 |
| | iv) All galvanized diamond mesh fence. | m | 200 | R 207.00 | R 41 400.00 |
| | v) All electric fence | m | 200 | R 300.00 | R 60 000.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 2 293 500.74 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------------|----------|----------|---------------------|
| SANS 1200 D | SECTION 3 : EARTHWORKS | | | | |
| | EXCAVATION | | | | |
| 8.3.3(a) PSD 5.2.2.1 | Restricted excavation in all materials and use for backfill and compact to specified densities or dispose as ordered for: | | | | |
| | DN2540 Isolating Valve Chamber (1 Off) | m ³ | 252 | R 132.02 | R 33 269.04 |
| | DN2337 Meter Chamber (1 Off) | m ³ | 252 | R 132.02 | R 33 269.04 |
| | Scour Valve Chambers | | | | |
| | a) Type 1 (8 Off) | m ³ | 462 | R 132.02 | R 60 993.24 |
| 8.3.2.(b) | Extra-over item 8.3.3 for excavation in: | | | | |
| 8.3.3.(b).1 | Intermediate Material (Provisional Quantity) | m ³ | 245 | R 20.70 | R 5 071.50 |
| 8.3.3.(b).2 | Hard Rock (Provisional Quantity) | m ³ | 145 | R 295.55 | R 42 854.75 |
| | FINISHINGS | | | | |
| PSD 8.3.14 PSD 5.1.1.1 | Barricading | | | | |
| | i) Barrier Fence | m | 500 | R 93.15 | R 46 575.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 222 032.57 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------------|----------|-------------|------------------------|
| SANS 1200 DB | SECTION 4 : PIPE TRENCHES | | | | |
| | EXCAVATION | | | | |
| 8.3.2(a) | Excavate in all materials for trenches, backfill with graded material, compact hydraulically/ mechanically to specified density and dispose of surplus/unsuitable material: for DN2540 pipe | | | | |
| | 4-5 m | m ³ | 93150 | R 156.01 | R 14 532 331.50 |
| | 5-6 m | m ³ | 42505 | R 171.47 | R 7 288 332.35 |
| 8.3.2(b) | Extra-over items 8.3.2(a) for : | | | | |
| 1) | Intermediate Material (Provisional Quantity) | m ³ | 36040 | R 20.70 | R 746 028.00 |
| 2) | Hard Rock (Provisional Quantity) | m ³ | 22475 | R 243.80 | R 5 479 405.00 |
| | Extra-over items 8.3.2(a) for : | | | | |
| PSDB3.7 | Removal of suitable backfill material off site, store at temporary site, load and haul back to site.(Provisional Quantity) | m ³ | 2715 | R 93.22 | R 253 092.30 |
| 8.3.2(c) PSDB5.5 | Excavate and dispose of unsuitable material from trench bottom (Provisional Quantity) | m ³ | 1360 | R 81.32 | R 110 595.20 |
| | SELECTED BACKFILL | | | | |
| 8.3.3.3 | Compaction in road reserves to 97% MOD AASHTO (Provisional Quantity) | m ³ | 100 | R 17.54 | R 1 754.00 |
| | EXISTING SERVICES | | | | |
| 8.3.5(a) PSDB 8.3.5 | Protect, maintain, repair all services that intersect a trench | Prov Sum | 1 | R 41 250.00 | R 41 250.00 |
| 8.3.5(b) PSDB8.3.5 | Protect, maintain, repair all services that adjoin a trench | Prov Sum | 1 | R 41 250.00 | R 41 250.00 |
| | FINISHINGS | | | | |
| | Topsolling | m ² | 371400 | R 10.47 | R 3 888 558.00 |
| | Reinstate roads and driveways complete with all courses | | | | |
| | a) Gravel in driveways | m ² | 6860 | R 97.75 | R 670 565.00 |
| | b) Asphalt of 30 - 60mm thickness in roadway | m ² | 140 | R 162.15 | R 22 701.00 |
| PSDB 5.1.2.2 | Installation of permanent subsoil drainage systems in accordance with drawing no, inclusive of gabion, geofabric, pipe, stone and other materials for completion as directed by the Engineer (Provisional Quantity) | No. | 3 | R 2 505.24 | R 7 515.72 |
| CARRIED FORWARD TO SUMMARY | | | | | R 33 083 378.07 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------------|----------|------------|---------------------|
| SANS 1200 DK | SECTION 5: GABIONS AND PITCHING | | | | |
| | GABIONS | | | | |
| 8.2.2 PSDK 3.1.2 | Construct gabions using double twisted hexagonal mesh type 80 with 3.4mm OD frame wire and 2.7mm OD mesh wire to SANS 1580:2005: | | | | |
| 8.2.2 | a) Reno mattresses of depth 0,3 m with diaphragms providing 2 m x 1 m cells. (Provisional Quantity) | m ² | 494 | R 1 355.24 | R 669 488.56 |
| 8.2.4 PSDK 3.1.3 | Geotextile (Type AG 200) placed where ground water seepage occurs: | | | | |
| 8.2.4 | a) below reno mattresses (Provisional Quantity) | m ² | 494 | R 15.99 | R 7 899.06 |
| PSDK 3.2 | STONE PITCHING | | | | |
| | Supply all labour, plant and material and lay medium grouted pitching as indicated, including for all surface preparation and compaction (Provisional Quantity) | m ² | 125 | R 413.97 | R 51 746.25 |
| CARRIED FORWARD TO SUMMARY | | | | | R 729 133.87 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------|---|----------------|----------|------------|---------------------|
| SANS 1200 G | SECTION 6 : CONCRETE STRUCTURAL | | | | |
| 8.2 PSG 4.5, 7.2 | FORMWORK | | | | |
| | DN2540 IV Chambers (1 Off) | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 180 | R 272.90 | R 49 122.00 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 160 | R 406.79 | R 65 086.40 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide | | | | |
| | 200mm wide | m | 35 | R 143.73 | R 5 030.55 |
| 8.2.6 | Box out holes/form voids: | | | | |
| 8.2.6(a) | Small, circular, up to 0,35 m dia., depth 0 m to 0,5 metres | | | | |
| | DN200 pipe through chamber walls | No. | 1 | R 381.55 | R 381.55 |
| | DN300 pipe through chamber walls | No. | 2 | R 476.94 | R 953.88 |
| | Large, circular, diameter greater than 1,0m, depth 0m to 0,5m | | | | |
| | DN2540 pipe through chamber walls | No. | 2 | R 3 091.57 | R 6 183.14 |
| | DN2337 Meter Chamber (1 Off) | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 180 | R 272.90 | R 49 122.00 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 160 | R 406.79 | R 65 086.40 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide | | | | |
| | 200mm wide | m | 35 | R 143.73 | R 5 030.55 |
| 8.2.6 | Box out holes/form voids: | | | | |
| | Large, circular, diameter greater than 1,0m, depth 0m to 0,5m | | | | |
| | DN2337 pipe through chamber walls | No. | 2 | R 2 033.93 | R 4 067.86 |
| | DN200 Scour Chambers (8 Off) | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 495 | R 272.90 | R 135 085.50 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 375 | R 406.79 | R 152 546.25 |
| 8.2.2 | Smooth to underside of roof slab | m ² | 55 | R 435.54 | R 23 954.70 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide | | | | |
| | 200mm wide | m | 85 | R 143.73 | R 12 217.05 |
| 8.2.6 | Box out holes/form voids: | | | | |
| CARRIED FORWARD | | | | | R 573 867.83 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------|--|------|----------|-------------|-----------------------|
| BROUGHT FORWARD | | | | | R 573 867.83 |
| 8.2.6(a) | Small, circular, up to 0,35 m dia., depth 0 m to 0,5 metres | | | | |
| | DN200 pipe through chamber wall | No. | 16 | R 476.94 | R 7 631.04 |
| | DN200 air vents in roof slab | No. | 16 | R 476.94 | R 7 631.04 |
| | Large, circular, diameter greater than 1,0m, depth 0m to 0,5m | | | | |
| | DN550 manhole access in roof slab | No. | 8 | R 1 586.47 | R 12 691.76 |
| | DN200 Air Valve Chamber Type 2 (9 Off) | | | | |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide | | | | |
| | 150mm wide | m | 198 | R 143.73 | R 28 458.54 |
| | DN200 Air Valve Chamber Type 4 (9 Off) | | | | |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide | | | | |
| | 150mm wide | m | 198 | R 143.73 | R 28 458.54 |
| 8.3 | REINFORCEMENT | | | | |
| | DN2540 IV Chambers (1 Off) | | | | |
| 8.3.1 | Mild Steel | t | 1.88 | R 12 032.07 | R 22 620.29 |
| 8.3.1 | High Tensile Steel | t | 7.50 | R 12 032.07 | R 90 240.53 |
| | DN2337 Meter Chamber (1 Off) | | | | |
| 8.3.1 | Mild Steel | t | 1.88 | R 12 032.07 | R 22 620.29 |
| 8.3.1 | High Tensile Steel | t | 7.50 | R 12 032.07 | R 90 240.53 |
| | DN200 Scour Chambers (8 Off) | | | | |
| 8.3.1 | Mild Steel | t | 4.19 | R 12 032.07 | R 50 414.37 |
| 8.3.1 | High Tensile Steel | t | 16.75 | R 12 032.07 | R 201 537.17 |
| | DN200 Air Valve Chamber Type 2 (9 Off) | | | | |
| 8.3.1 | Mild Steel | t | 0.13 | R 12 032.07 | R 1 564.17 |
| 8.3.1 | High Tensile Steel | t | 0.50 | R 12 032.07 | R 6 016.04 |
| | DN200 Air Valve Chamber Type 4 (9 Off) | | | | |
| 8.3.1 | Mild Steel | t | 0.13 | R 12 032.07 | R 1 564.17 |
| 8.3.1 | High Tensile Steel | t | 0.50 | R 12 032.07 | R 6 016.04 |
| | Concrete encasement DN2540 pipe at river crossings (Provisional Quantity) | | | | |
| 8.3.1 | Mild Steel | t | 2.50 | R 12 032.07 | R 30 080.18 |
| 8.3.1 | High Tensile Steel | t | 10.00 | R 12 032.07 | R 120 320.70 |
| 8.4 | CONCRETE | | | | |
| CARRIED FORWARD | | | | | R 1 301 973.21 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------|---|----------------|----------|------------|-----------------------|
| BROUGHT FORWARD | | | | | R 1 301 973.21 |
| | DN2540 IV Chambers (1 Off) | | | | |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 47 | R 125.27 | R 5 887.69 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Base | m ³ | 22 | R 1 955.23 | R 43 015.06 |
| | Walls | m ³ | 54 | R 1 955.23 | R 105 582.42 |
| | DN2337 Meter Chamber (1 Off) | | | | |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 47 | R 125.27 | R 5 887.69 |
| 8.4.3 | 15MPa concrete for platforms, steps, pipe supports etc. | | | | |
| | Pipe supports | m ³ | 7.5 | R 1 789.80 | R 13 423.50 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Base | m ³ | 44 | R 1 955.23 | R 86 030.12 |
| | Walls | m ³ | 54 | R 1 955.23 | R 105 582.42 |
| | DN200 Scour Chambers (8 Off) | | | | |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 143 | R 125.27 | R 17 850.98 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Base | m ³ | 65 | R 1 955.23 | R 126 112.34 |
| | Walls | m ³ | 92 | R 1 955.23 | R 179 881.16 |
| | Roof slab | m ³ | 11.0 | R 1 955.23 | R 21 507.53 |
| | DN200 Air Valve Chamber Type 2 (9 Off) | | | | |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Strip Foundation | m ³ | 5.0 | R 1 955.23 | R 9 776.15 |
| | DN200 Air Valve Chamber Type 4 (9 Off) | | | | |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Strip Foundation | m ³ | 5.0 | R 1 955.23 | R 9 776.15 |
| | Concrete encasement DN2540 pipe at river crossing (Provisional Quantity) | | | | |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Concrete encasement of pipe | m ³ | 100 | R 2 215.64 | R 221 564.00 |
| 8.4.4 | UNFORMED SURFACE FINISHES | | | | |
| | DN2540 IV Chambers (1 Off) | | | | |
| 8.4.4(a) | Wood-floated | | | | |
| | To floor slabs | m ² | 39 | R 21.55 | R 840.45 |
| | To top of walls | m ² | 10 | R 21.55 | R 215.50 |
| CARRIED FORWARD | | | | | R 2 254 906.36 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|--|----------------|----------|------------|-----------------------|
| BROUGHT FORWARD | | | | | R 2 254 906.36 |
| | DN2337 Meter Chamber (1 Off) | | | | |
| 8.4.4(a) | Wood-floated | | | | |
| | To floor slabs | m ² | 39 | R 21.55 | R 840.45 |
| | To top of pipe cradle | m ² | 6.5 | R 21.55 | R 140.08 |
| | To top of walls | m ² | 10 | R 21.55 | R 215.50 |
| | DN200 Scour Chambers (16 Off) | | | | |
| 8.4.4(a) | Wood-floated | | | | |
| | To floor slabs | m ² | 143 | R 21.55 | R 3 070.88 |
| | To roof slabs | m ² | 54 | R 21.55 | R 1 165.86 |
| | To top of walls | m ² | 37 | R 21.55 | R 790.89 |
| | MISCELLANEOUS | | | | |
| | Bitumen impregnated soft board | m | 40 | R 33.92 | R 1 356.80 |
| | Polyurethane joint sealant (10mm x 20mm) | m | 40 | R 44.41 | R 1 776.40 |
| | Neoprene inserts for pipes at pipe supports - For DN2540 | m ² | 20 | R 114.33 | R 2 286.60 |
| PSG 8.4.5 | Concrete complete with formwork, reinforcing, surface finishing, holes, vents if applicable and joints, for: | | | | |
| | Removable roof slabs in IV chambers | m ³ | 9.5 | R 2 215.64 | R 21 048.58 |
| | Removable roof slabs in Meter Chambers | m ³ | 9.5 | R 2 215.64 | R 21 048.58 |
| | Removable roof slabs in Air Valve-Type2 | m ³ | 10.5 | R 2 215.64 | R 23 264.22 |
| | Removable roof slabs in Air Valve Type 4 | m ³ | 10.5 | R 2 215.64 | R 23 264.22 |
| PSG 8.9 | Grouting of pipes/specials through walls or slabs inclusive of pipe wall joint sealing | | | | |
| | i) DN2540 in DN2540 IV Chamber | No. | 2 | R 6 618.09 | R 13 236.18 |
| | ii) DN300 in DN2540 IV Chamber | No. | 2 | R 2 873.22 | R 5 746.44 |
| | iii) DN200 in DN2540 IV Chamber | No. | 1 | R 1 969.29 | R 1 969.29 |
| | vii) DN2337 in Meter Chamber | No. | 2 | R 5 165.34 | R 10 330.68 |
| | ix) DN200 in Scour Chamber | No. | 8 | R 1 969.29 | R 15 754.32 |
| PSG 8.10 | Casting of pipes/specials through walls or slabs | | | | |
| | Air vents in roof slab in chambers | No. | 16 | R 750.50 | R 12 008.00 |
| | Securex manhole cover in roof slab in chambers | No. | 8 | R 2 680.10 | R 21 440.80 |
| CARRIED FORWARD TO SUMMARY | | | | | R 2 435 661.11 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------|---|------|----------|----------------|-------------------------|
| SANS 1200 L | SECTION 7 : MEDIUM PRESSURE PIPELINES | | | | |
| | Supply and transport of polyurethane coated, epoxy lined steel pipe | | | | |
| | DN2540 * 16mm thick * grade X42 pipe | m | 7823 | R 16 931.00 | R 132 442 747.50 |
| PSL 8.2.1 | Lay, bed and joint pipes, inclusive of internal epoxy lining repair, external coating repair and NDT testing | | | | |
| | DN2540 * 16mm thick * grade X42 pipe | m | 7823 | R 5 537.03 | R 43 313 417.18 |
| | Manufacturing of Simple and Compound Bends, inclusive of reinstatement of testing, external coating and internal lining reinstatement, transportation and handling: | | | | |
| | Bends for DN2540 * 16mm thick * grade X42 pipe: | | | | |
| 8.2.3 & PSL 3.4.4.1 | up to 15 deg | No. | 25 | R 21 744.89 | R 543 622.28 |
| 8.2.3 & PSL 3.4.4.1 | 16 to 30 deg | No. | 18 | R 36 591.98 | R 658 655.69 |
| 8.2.3 & PSL 3.4.4.1 | 31 to 45 deg | No. | 8 | R 48 116.35 | R 384 930.84 |
| 8.2.3 & PSL 3.4.4.1 | 46 to 60 deg | No. | 4 | R 48 116.35 | R 192 465.42 |
| 8.2.3 & PSL 3.4.4.1 | 61 to 75 deg | No. | 1 | R 61 491.36 | R 61 491.36 |
| 8.2.3 & PSL 3.4.4.1 | 76 to 90 deg | No. | 2 | R 70 492.14 | R 140 984.28 |
| | SPECIAL ASSEMBLIES | | | | |
| 8.2.3 | Supply, fabricate, handle and install the following assemblies: | | | | |
| PSL 5.1.7 | DN200 Air Valve Assembly - Type 2, PN 16, Inclusive of all Pipe Reinforcing | No. | 9 | R 84 748.30 | R 762 734.70 |
| | DN200 Air Valve Assembly - Type 4, PN 16, Inclusive of all Pipe Reinforcing | No. | 9 | R 140 890.51 | R 1 268 014.59 |
| PSL 5.1.8 | DN200 Scour Valve Assembly, Terminal End Type 1, PN16, Inclusive of Collar Plates. | No. | 8 | R 30 216.41 | R 241 731.28 |
| | DN2540 Isolating Valve Assembly Complete | No. | 2 | R 4 573 427.86 | R 9 146 855.72 |
| | DN2337 Meter Chamber Assembly Complete | No. | 2 | R 3 579 143.67 | R 7 158 287.34 |
| 8.2.13 | VALVE CHAMBER AND MANHOLES | | | | |
| | Note : The following rates are to include for the installation of all GRP access ladders, safety cages, step irons, sealing joints, air vents, handrails, access manholes & frames, GRP landings & plastic gratings. All in situ and pre cast concrete elements,shuttering, surface finishing, curing of concrete and ancillaries to be included and rate supplied to be for full functional unit | | | | |
| | Supply and install units COMPLETE with related items for the construction of chambers for: | | | | |
| CARRIED FORWARD | | | | | R 196 315 938.17 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|--|------|----------|-------------|-------------------------|
| BROUGHT FORWARD | | | | | R 196 315 938.17 |
| | Scour Valve Chamber | | | | |
| | a) Type 1 | No. | 8 | R 28 475.27 | R 227 802.16 |
| | Air Valve Chambers | | | | |
| | a) Type 2 | No. | 9 | R 61 874.57 | R 556 871.13 |
| | b) Type 4 | No. | 9 | R 61 875.57 | R 556 880.13 |
| PSL 5.1.5 | Supply and install Pipe Route Marker Posts. | No. | 39 | R 421.80 | R 16 497.65 |
| PSL 7.3 | HYDRAULIC TESTING | | | | |
| | Fabrication, Installation, Remove & Handover to the employer Bullnoses of : | | | | |
| | DN2540 * 16mm thick * grade X42 pipe | No. | 2 | R 40 377.36 | R 80 754.72 |
| PSL 7.3 & PSL 8.2.19 | End cap, filling and testing of pipeline within sections specified by the Engineer | m | 7822.5 | R 56.91 | R 445 178.48 |
| CARRIED FORWARD TO SUMMARY | | | | | R 198 199 922.44 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------------|----------|----------|------------------------|
| SANS 1200 LB | SECTION 8 : BEDDING (PIPES) | | | | |
| | Bedding material Supply of selected granular material for 300mm bedding cradle below pipe invert and for fill blanket from pipe invert to 300mm above pipe crown, from commercial sources i) for DN2540 pipe | m ³ | 49595 | R 284.97 | R 14 133 087.15 |
| | Selected Backfill Selected fill material including for screening or other treatment, to achieve grading suitable to comply with the bedding material specification compacted to 97% MOD AASHTO: i) from commercial sources (Provisional Quantity) | m ³ | 50 | R 284.97 | R 14 248.50 |
| PSLB 3.3 | Cement stabilised selected fill bedding (Soilcrete Bedding - 4% CEMENT) Refer to 5379/500/G01 | m ³ | 50 | R 425.07 | R 21 253.50 |
| PSLB 5.1.2.1 PSLB 8.2.6 | Stone Bedding for pipe, supplied, placed and compacted, from a commercial source. (Provisional Quantity) | m ³ | 50 | R 726.55 | R 36 327.50 |
| PSLB 5.1.2.1 | Supply and place into position, geotextile for sub soil drains | m ² | 500 | R 15.99 | R 7 995.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 14 212 911.65 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------|----------|--------------|-----------------------|
| SANS 1200LG | SECTION 9 : PIPE JACKING | | | | |
| | DN3750 PIPE JACK 1 - BAYNESFIELD RAIL | | | | |
| 8.2.1 PSLG 8.2.1 | Jacking establishment: | | | | |
| 8.2.1(a) | Fixed Charges | Sum | 1 | R 402 500.00 | R 402 500.00 |
| 8.2.2(b) | Time Related: State time: Weeks | Sum | 1 | R 690 000.00 | R 690 000.00 |
| PS LG 5.2.3.2 | Initial survey of ground and structures at jacking fronts | Sum | 1 | R 1 725.00 | R 1 725.00 |
| PS LG 5.2.3.1, 8.2.19 | Conduct monitoring surveys | No. | 7 | R 402.50 | R 2 817.50 |
| PSLG 8.2.2 | Supply of Pipes to be Jacked: | | | | |
| 8.2.2 PSLG 3 | DN3750 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes to be delivered to the required location" | m | 25 | R 73 743.75 | R 1 843 593.75 |
| PSLG 8.2.3 | Jacking of Pipes: | | | | |
| 8.2.3 PSLG 5.4.3 | DN3750 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes | m | 25 | R 64 687.50 | R 1 617 187.50 |
| 8.2.4 PSLG 4.3, 5.1.4 | Excavation for Jacking in all materials | m3 | 505 | R 1 840.00 | R 929 200.00 |
| 8.2.5 | Extra-over item 8.2.4 for unforeseen rock or boulders | Prov Sum | 1 | R 20 000.00 | R 20 000.00 |
| 8.2.9 PSLG 8.2.9 | Stabilization of unstable areas or grouting of voids where ordered by the Engineer: | | | | |
| 8.2.9(a) | Provision and establishment of equipment on site, and removal on completion of operation (Provisional Quantity) | Sum | 1 | R 5 750.00 | R 5 750.00 |
| 8.2.9(b) | Operation of Equipment (Provisional Quantity) | Day | 10 | R 575.00 | R 5 750.00 |
| 8.2.9(c) | Materials Used (Provisional Quantity) | m3 | 20 | R 2 875.00 | R 57 500.00 |
| 8.2.10 | Standing time for pipe jacking gang and jacking equipment (Provisional Quantity) | hr | 45 | R 1 265.00 | R 56 925.00 |
| PSLG 5.7 | Grouting of sleeve | m3 | 115 | R 3 450.00 | R 396 750.00 |
| PSLG 8.2.11 | Hand excavation and backfilling of trench to expose services | m3 | 15 | R 287.50 | R 4 312.50 |
| PSLG 5.10 | Grouting in of steel pipe inside sleeve | m3 | 150 | R 3 450.00 | R 517 500.00 |
| PSLG 8.2.15, 5.11 | Close DN3750 sleeve end with brick wall | No. | 2 | R 7 245.00 | R 14 490.00 |
| PSLG 8.2.16, 5.12 | Supply and install marker posts | No. | 2 | R 1 725.00 | R 3 450.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 6 569 451.25 |

SUMMARY

| SECTION | DESCRIPTION | TOTAL |
|--|---------------------------------------|-------------------------|
| SECTION 1 | PRELIMINARY AND GENERAL | R 111 464 688.58 |
| SECTION 2 | SITE CLEARANCE | R 4 542 849.65 |
| SECTION 3 | EARTHWORKS | R 534 624.88 |
| SECTION 4 | PIPE TRENCHES | R 76 908 869.00 |
| SECTION 5 | GABIONS AND PITCHING | R 1 254 314.96 |
| SECTION 6 | CONCRETE STRUCTURAL | R 5 702 685.60 |
| SECTION 7 | MEDIUM PRESSURE PIPELINES | R 400 243 413.61 |
| SECTION 8 | BEDDING (PIPES) | R 33 781 834.45 |
| SECTION 9 | PIPE JACKING | R 21 226 090.75 |
| SECTION 10 | CATHODIC PROTECTION AND AC MITIGATION | R 13 128 760.00 |
| TOTAL CARRIED TO BILL OF QUANTITIES 2 C - PHASE 1 | | R 668 788 131.48 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|--|----------------|----------|-------------|-----------------------|
| SANS 1200 C | SECTION 2 : SITE CLEARANCE | | | | |
| | CLEAR SITE | | | | |
| 8.2.1 | Clear and grub site over working corridor | ha | 95.97 | R 9 775.00 | R 938 106.75 |
| 8.2.2 | Remove and grub large trees and tree stumps regardless of girth | ha | 2.05 | R 39 716.00 | R 81 417.80 |
| 8.2.10 | Remove topsoil to nominal depth of 150mm and stockpile and maintain. | m ² | 959700 | R 3.22 | R 3 090 234.00 |
| PSC 8.2.11 | Remove existing road and driveways and spoil, for: | | | | |
| | a) Asphalt | m ² | 215 | R 58.65 | R 12 609.75 |
| | b) Gravel | m ² | 2675 | R 54.05 | R 144 583.75 |
| | c) Concrete | m ² | 2035 | R 41.40 | R 84 249.00 |
| PSC 8.2.14 | Saw cutting of existing surface: | | | | |
| | a) Asphalt | m | 36 | R 27.60 | R 993.60 |
| | b) Concrete | m | 300 | R 33.35 | R 10 005.00 |
| 8.2.5 PS 9.2 PSC 8.2.17 | Dismantle existing fencing, move to storage and later reinstate as directed by the Engineer: | | | | |
| | i) All precast concrete fence. | m | 200 | R 126.00 | R 25 200.00 |
| | ii) All timber fence. | m | 200 | R 172.50 | R 34 500.00 |
| | iii) All galvanized weld mesh fence. | m | 200 | R 97.75 | R 19 550.00 |
| | iv) All galvanized diamond mesh fence. | m | 200 | R 207.00 | R 41 400.00 |
| | v) All electric fence | m | 200 | R 300.00 | R 60 000.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 4 542 849.65 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------------|----------|----------|---------------------|
| SANS 1200 D | SECTION 3 : EARTHWORKS | | | | |
| | EXCAVATION | | | | |
| 8.3.3(a) PSD 5.2.2.1 | Restricted excavation in all materials and use for backfill and compact to specified densities or dispose as ordered for: | | | | |
| | DN2450 Isolating Valve Chamber (3 Off) | m ³ | 752 | R 132.02 | R 99 279.04 |
| | DN2032 Isolating Valve Chamber (1 Off) | m ³ | 252 | R 132.02 | R 33 269.04 |
| | DN1930 Isolating Valve Chamber (1 Off) | m ³ | 252 | R 132.02 | R 33 269.04 |
| | DN2234 Meter Chamber (1 Off) | m ³ | 252 | R 132.02 | R 33 269.04 |
| | Scour Valve Chambers | | | | |
| | a) Type 1 (16 Off) | m ³ | 924 | R 132.02 | R 121 986.48 |
| 8.3.2.(b) | Extra-over item 8.3.3 for excavation in: | | | | |
| 8.3.3.(b).1 | Intermediate Material (Provisional Quantity) | m ³ | 608 | R 20.70 | R 12 585.60 |
| 8.3.3.(b).2 | Hard Rock (Provisional Quantity) | m ³ | 365 | R 295.55 | R 107 816.64 |
| | FINISHINGS | | | | |
| PSD 8.3.14 PSD 5.1.1.1 | Barricading | | | | |
| | i) Barrier Fence | m | 1000 | R 93.15 | R 93 150.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 534 624.88 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-------------------------|---|----------------|----------|-------------|------------------------|
| SANS 1200 DB | SECTION 4 : PIPE TRENCHES | | | | |
| | EXCAVATION | | | | |
| 8.3.2(a) | Excavate in all materials for trenches, backfill with graded material, compact hydraulically/ mechanically to specified density and dispose of surplus/unsuitable material: | | | | |
| | for DN2450 pipe | | | | |
| | 4-5 m | m ³ | 201565 | R 156.01 | R 31 446 155.65 |
| | 5-6 m | m ³ | 54680 | R 171.47 | R 9 375 979.60 |
| 8.3.2(b) | Extra-over items 8.3.2(a) for : | | | | |
| 1) | Intermediate Material (Provisional Quantity) | m ³ | 66800 | R 20.70 | R 1 382 760.00 |
| 2) | Hard Rock (Provisional Quantity) | m ³ | 41175 | R 243.80 | R 10 038 465.00 |
| | Extra-over items 8.3.2(a) for : | | | | |
| PSDB3.7 | Removal of suitable backfill material off site, store at temporary site, load and haul back to site.(Provisional Quantity) | m ³ | 5125 | 93.22 | R 477 752.50 |
| 8.3.2(c) PSDB5.5 | Excavate and dispose of unsuitable material from trench bottom (Provisional Quantity) | m ³ | 2565 | R 81.32 | R 208 585.80 |
| | DN2032 pipe | | | | |
| | 4-5 m | m ³ | 56115 | R 156.01 | R 8 754 501.15 |
| | 5 -6 m | m ³ | 7430 | R 171.47 | R 1 274 022.10 |
| 8.3.2(b) | Extra-over items 8.3.2(a) for : | | | | |
| 1) | Intermediate Material (Provisional Quantity) | m ³ | 16260 | R 20.70 | R 336 582.00 |
| 2) | Hard Rock (Provisional Quantity) | m ³ | 9905 | R 243.80 | R 2 414 839.00 |
| | Extra-over items 8.3.2(a) for : | | | | |
| PSDB3.7 | Removal of suitable backfill material off site, store at temporary site, load and haul back to site.(Provisional Quantity) | m ³ | 1275 | 93.22 | R 118 855.50 |
| 8.3.2(c) PSDB5.5 | Excavate and dispose of unsuitable material from trench bottom (Provisional Quantity) | m ³ | 640 | R 81.32 | R 52 044.80 |
| | SELECTED BACKFILL | | | | |
| 8.3.3.3 | Compaction in road reserves to 97% MOD AASHTO (Provisional Quantity) | m ³ | 100 | R 35.08 | R 3 508.00 |
| | EXISTING SERVICES | | | | |
| 8.3.5(a) PSDB 8.3.5 | Protect, maintain, repair all services that intersect a trench | Prov Sum | 1 | R 82 500.00 | R 82 500.00 |
| 8.3.5(b) PSDB8.3.5 | Protect, maintain, repair all services that adjoin a trench | Prov Sum | 1 | R 82 500.00 | R 82 500.00 |
| CARRIED FORWARD | | | | | R 66 049 051.10 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------------|----------|------------|------------------------|
| BROUGHT FORWARD | | | | | R 66 049 051.10 |
| | FINISHINGS | | | | |
| | Topsolling | m ² | 959700 | R 10.47 | R 10 048 059.00 |
| | Reinstate roads and driveways complete with all courses | | | | |
| | a) Gravel in driveways | m ² | 2675 | R 97.75 | R 261 481.25 |
| | b) Asphalt of 30 - 60mm thickness in roadway | m ² | 215 | R 162.15 | R 34 862.25 |
| | c) Concrete | m ³ | 2035 | R 247.12 | R 502 889.20 |
| PSDB 5.1.2.2 | Installation of permanent subsoil drainage systems in accordance with drawing no, inclusive of gabion, geofabric, pipe, stone and other materials for completion as directed by the Engineer (Provisional Quantity) | No. | 5 | R 2 505.24 | R 12 526.20 |
| CARRIED FORWARD TO SUMMARY | | | | | R 76 908 869.00 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------------|----------|------------|-----------------------|
| SANS 1200 DK | SECTION 5: GABIONS AND PITCHING | | | | |
| | GABIONS | | | | |
| 8.2.2 PSDK 3.1.2 | Construct gabions using double twisted hexagonal mesh type 80 with 3.4mm OD frame wire and 2.7mm OD mesh wire to SANS 1580:2005: | | | | |
| 8.2.2 | a) Reno mattresses of depth 0,3 m with diaphragms providing 2 m x 1 m cells. (Provisional Quantity) | m ² | 877 | R 1 355.24 | R 1 188 545.48 |
| 8.2.4 PSDK 3.1.3 | Geotextile (Type AG 200) placed where ground water seepage occurs: | | | | |
| 8.2.4 | a) below reno mattresses (Provisional Quantity) | m ² | 877 | R 15.99 | R 14 023.23 |
| PSDK 3.2 | STONE PITCHING | | | | |
| | Supply all labour, plant and material and lay medium grouted pitching as indicated, including for all surface preparation and compaction (Provisional Quantity) | m ² | 125 | R 413.97 | R 51 746.25 |
| CARRIED FORWARD TO SUMMARY | | | | | R 1 254 314.96 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------|---|----------------|----------|------------|---------------------|
| SANS 1200 G | SECTION 6 : CONCRETE STRUCTURAL | | | | |
| 8.2 PSG 4.5, 7.2 | FORMWORK | | | | |
| | DN2450 IV Chambers (3 Off) | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 540 | R 272.90 | R 147 366.00 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 480 | R 406.79 | R 195 259.20 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide | | | | |
| | 200mm wide | m | 105 | R 143.73 | R 15 091.65 |
| 8.2.6 | Box out holes/form voids: | | | | |
| 8.2.6(a) | Small, circular, up to 0,35 m dia., depth 0 m to 0,5 metres | | | | |
| | DN200 pipe through chamber walls | No. | 3 | R 381.55 | R 1 144.65 |
| | DN300 pipe through chamber walls | No. | 6 | R 476.94 | R 2 861.64 |
| | Large, circular, diameter greater than 1,0m, depth 0m to 0,5m | | | | |
| | DN2450 pipe through chamber walls | No. | 6 | R 3 091.57 | R 18 549.42 |
| | DN2032 IV Chambers (1 Off) | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 180 | R 272.90 | R 49 122.00 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 160 | R 406.79 | R 65 086.40 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide | | | | |
| | 200mm wide | m | 35 | R 143.73 | R 5 030.55 |
| 8.2.6 | Box out holes/form voids: | | | | |
| 8.2.6(a) | Small, circular, up to 0,35 m dia., depth 0 m to 0,5 metres | | | | |
| | DN200 pipe through chamber walls | No. | 1 | R 381.55 | R 381.55 |
| | DN300 pipe through chamber walls | No. | 2 | R 476.94 | R 953.88 |
| | Large, circular, diameter greater than 1,0m, depth 0m to 0,5m | | | | |
| | DN2032 pipe through chamber walls | No. | 2 | R 3 091.57 | R 6 183.14 |
| | DN2286 Meter Chamber (1 Off) | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 180 | R 272.90 | R 49 122.00 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 160 | R 406.79 | R 65 086.40 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide | | | | |
| | 200mm wide | m | 35 | R 143.73 | R 5 030.55 |
| CARRIED FORWARD | | | | | R 626 269.03 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|--|---|----------------|----------|------------|-----------------------|
| BROUGHT FORWARD | | | | | R 626 269.03 |
| 8.2.6 | Box out holes/form voids: Large, circular, diameter greater than 1,0m, depth 0m to 0,5m DN2286 pipe through chamber walls | No. | 2 | R 2 033.93 | R 4 067.86 |
| DN1930 IV Chambers (1 Off) | | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 180 | R 272.90 | R 49 122.00 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 160 | R 406.79 | R 65 086.40 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide 200mm wide | m | 35 | R 143.73 | R 5 030.55 |
| 8.2.6 | Box out holes/form voids: | | | | |
| 8.2.6(a) | Small, circular, up to 0,35 m dia., depth 0 m to 0,5 metres DN200 pipe through chamber walls | No. | 2 | R 381.55 | R 763.10 |
| | DN300 pipe through chamber walls | No. | 4 | R 476.94 | R 1 907.76 |
| | Large, circular, diameter greater than 1,0m, depth 0m to 0,5m DN1930 pipe through chamber walls | No. | 4 | R 3 091.57 | R 12 366.28 |
| DN200 Scour Chambers (16 Off) | | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 995 | R 272.90 | R 271 535.50 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 755 | R 406.79 | R 307 126.45 |
| 8.2.2 | Smooth to underside of roof slab | m ² | 115 | R 435.54 | R 50 087.10 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide 200mm wide | m | 170 | R 143.73 | R 24 434.10 |
| 8.2.6 | Box out holes/form voids: | | | | |
| 8.2.6(a) | Small, circular, up to 0,35 m dia., depth 0 m to 0,5 metres DN200 pipe through chamber wall | No. | 32 | R 476.94 | R 15 262.08 |
| | DN200 air vents in roof slab | No. | 32 | R 476.94 | R 15 262.08 |
| | Large, circular, diameter greater than 1,0m, depth 0m to 0,5m DN550 manhole access in roof slab | No. | 20 | R 1 586.47 | R 31 729.40 |
| DN200 Air Valve Chamber Type 2 (18 Off) | | | | | |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide 150mm wide | m | 400 | R 143.73 | R 57 492.00 |
| DN200 Air Valve Chamber Type 4 (18 Off) | | | | | |
| CARRIED FORWARD | | | | | R 1 537 541.69 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------|--|------|----------|-------------|-----------------------|
| BROUGHT FORWARD | | | | | R 1 537 541.69 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide 150mm wide | m | 400 | R 143.73 | R 57 492.00 |
| 8.3 | REINFORCEMENT | | | | |
| | DN2540 IV Chambers (3 Off) | | | | |
| 8.3.1 | Mild Steel | t | 5.64 | R 12 032.07 | R 67 860.87 |
| 8.3.1 | High Tensile Steel | t | 22.50 | R 12 032.07 | R 270 721.58 |
| | DN2032 IV Chambers (1 Off) | | | | |
| 8.3.1 | Mild Steel | t | 1.88 | R 12 032.07 | R 22 620.29 |
| 8.3.1 | High Tensile Steel | t | 7.50 | R 12 032.07 | R 90 240.53 |
| | DN2286 Meter Chamber (1 Off) | | | | |
| 8.3.1 | Mild Steel | t | 1.88 | R 12 032.07 | R 22 620.29 |
| | DN1930 IV Chambers (1 Off) | | | | |
| 8.3.1 | Mild Steel | t | 1.88 | R 12 032.07 | R 22 620.29 |
| 8.3.1 | High Tensile Steel | t | 7.50 | R 12 032.07 | R 90 240.53 |
| | DN200 Scour Chambers (16 Off) | | | | |
| 8.3.1 | High Tensile Steel | t | 7.50 | R 12 032.07 | R 90 240.53 |
| 8.3.1 | Mild Steel | t | 8.39 | R 12 032.07 | R 100 949.07 |
| 8.3.1 | High Tensile Steel | t | 33.55 | R 12 032.07 | R 403 675.95 |
| | DN200 Air Valve Chamber Type 2 (18 Off) | | | | |
| 8.3.1 | Mild Steel | t | 0.26 | R 12 032.07 | R 3 128.34 |
| 8.3.1 | High Tensile Steel | t | 1.05 | R 12 032.07 | R 12 633.67 |
| | DN200 Air Valve Chamber Type 4 (18 Off) | | | | |
| 8.3.1 | Mild Steel | t | 0.26 | R 12 032.07 | R 3 128.34 |
| 8.3.1 | High Tensile Steel | t | 1.05 | R 12 032.07 | R 12 633.67 |
| | Concrete encasement DN2450 pipe at river crossings (Provisional Quantity) | | | | |
| 8.3.1 | Mild Steel | t | 2.50 | R 12 032.07 | R 30 080.18 |
| 8.3.1 | High Tensile Steel | t | 10.00 | R 12 032.07 | R 120 320.70 |
| | Concrete encasement DN2032 pipe at river crossings (Provisional Quantity) | | | | |
| 8.3.1 | Mild Steel | t | 2.50 | R 12 032.07 | R 30 080.18 |
| 8.3.1 | High Tensile Steel | t | 10.00 | R 12 032.07 | R 120 320.70 |
| 8.4 | CONCRETE | | | | |
| | DN2450 IV Chambers (3 Off) | | | | |
| CARRIED FORWARD | | | | | R 3 109 149.38 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------|---|----------------|----------|------------|-----------------------|
| BROUGHT FORWARD | | | | | R 3 109 149.38 |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 141 | R 125.27 | R 17 663.07 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Base | m ³ | 66 | R 1 955.23 | R 129 045.18 |
| | Walls | m ³ | 162 | R 1 955.23 | R 316 747.26 |
| | DN2032 IV Chambers (1 Off) | | | | |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 47 | R 125.27 | R 5 887.69 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Base | m ³ | 22 | R 1 955.23 | R 43 015.06 |
| | Walls | m ³ | 54 | R 1 955.23 | R 105 582.42 |
| | DN2286 Meter Chamber (1 Off) | | | | |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 47 | R 125.27 | R 5 887.69 |
| 8.4.3 | 15MPa concrete for platforms, steps, pipe supports etc. | | | | |
| | Pipe supports | m ³ | 7.5 | R 1 789.80 | R 13 423.50 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Base | m ³ | 44 | R 1 955.23 | R 86 030.12 |
| | DN1930 IV Chambers (1 Off) | | | | |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 47 | R 125.27 | R 5 887.69 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Base | m ³ | 22 | R 1 955.23 | R 43 015.06 |
| | Walls | m ³ | 54 | R 1 955.23 | R 105 582.42 |
| | Walls | m ³ | 54 | R 1 955.23 | R 105 582.42 |
| | DN200 Scour Chambers (16 Off) | | | | |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 285 | R 125.27 | R 35 696.94 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Base | m ³ | 130 | R 1 955.23 | R 254 179.90 |
| | Walls | m ³ | 184 | R 1 955.23 | R 358 784.71 |
| | Roof slab | m ³ | 22.0 | R 1 955.23 | R 43 015.06 |
| | DN200 Air Valve Chamber Type 2 (36 Off) | | | | |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Strip Foundation | m ³ | 10.5 | R 1 955.23 | R 20 529.92 |
| | DN200 Air Valve Chamber Type 4 (36 Off) | | | | |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| CARRIED FORWARD | | | | | R 4 804 705.48 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------|---|----------------|----------|------------|-----------------------|
| BROUGHT FORWARD | | | | | R 4 804 705.48 |
| | Strip Foundation | m ³ | 10.5 | R 1 955.23 | R 20 529.92 |
| | Concrete encasement DN2450 pipe at river crossing (Provisional Quantity) | | | | |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Concrete encasement of pipe | m ³ | 100 | R 2 215.64 | R 221 564.00 |
| | Concrete encasement DN2032 pipe at river crossing (Provisional Quantity) | | | | |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Concrete encasement of pipe | m ³ | 100 | R 2 215.64 | R 221 564.00 |
| 8.4.4 | UNFORMED SURFACE FINISHES | | | | |
| | DN2450 IV Chambers (3 Off) | | | | |
| 8.4.4(a) | Wood-floated | | | | |
| | To floor slabs | m ² | 117 | R 21.55 | R 2 521.35 |
| | To top of walls | m ² | 30 | R 21.55 | R 646.50 |
| | DN2032 IV Chambers (1 Off) | | | | |
| 8.4.4(a) | Wood-floated | | | | |
| | To floor slabs | m ² | 39 | R 21.55 | R 840.45 |
| | To top of walls | m ² | 10 | R 21.55 | R 215.50 |
| | DN2286 Meter Chamber (1 Off) | | | | |
| 8.4.4(a) | Wood-floated | | | | |
| | To floor slabs | m ² | 39 | R 21.55 | R 840.45 |
| | To top of pipe cradle | m ² | 6.5 | R 21.55 | R 140.08 |
| | To top of walls | m ² | 10 | R 21.55 | R 215.50 |
| | DN1930 IV Chambers (1 Off) | | | | |
| 8.4.4(a) | Wood-floated | | | | |
| | To floor slabs | m ² | 39 | R 21.55 | R 840.45 |
| | To top of walls | m ² | 10 | R 21.55 | R 215.50 |
| | DN200 Scour Chambers (16 Off) | | | | |
| 8.4.4(a) | Wood-floated | | | | |
| | To floor slabs | m ² | 285 | R 21.55 | R 6 139.60 |
| | To roof slabs | m ² | 108 | R 21.55 | R 2 329.56 |
| | To top of walls | m ² | 74 | R 21.55 | R 1 583.93 |
| | MISCELLANEOUS | | | | |
| CARRIED FORWARD | | | | | R 5 284 892.24 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|--|----------------|----------|------------|-----------------------|
| BROUGHT FORWARD | | | | | R 5 284 892.24 |
| PSG 8.4.5 | Bitumen impregnated soft board | m | 80 | R 33.92 | R 2 713.60 |
| | Polyurethane joint sealant (10mm x 20mm) | m | 80 | R 44.41 | R 3 552.80 |
| | Neoprene inserts for pipes at pipe supports - For DN2450 | m ² | 20 | R 114.33 | R 2 286.60 |
| | Neoprene inserts for pipes at pipe supports - For DN2032 | m ² | 20 | R 114.33 | R 2 286.60 |
| | Concrete complete with formwork, reinforcing, surface finishing, holes, vents if applicable and joints, for: | | | | |
| | Removable roof slabs in IV chambers | m ³ | 37.5 | R 2 215.64 | R 83 192.85 |
| | Removable roof slabs in Meter Chambers | m ³ | 9.4 | R 2 215.64 | R 20 798.21 |
| | Removable roof slabs in Air Valve-Type2 | m ³ | 21.1 | R 2 215.64 | R 46 661.38 |
| PSG 8.9 | Removable roof slabs in Air Valve Type 4 | m ³ | 21.1 | R 2 215.64 | R 46 661.38 |
| | Grouting of pipes/specials through walls or slabs inclusive of pipe wall joint sealing | | | | |
| | i) DN2540 in IV Chamber | No. | 6 | R 6 618.09 | R 39 708.54 |
| | iii) DN2286 in Meter Chamber | No. | 2 | R 5 165.34 | R 10 330.68 |
| | iv) DN2032 in IV Chamber | No. | 2 | R 6 618.09 | R 13 236.18 |
| | iv) DN1930 in IV Chamber | No. | 2 | R 6 618.09 | R 13 236.18 |
| | vi) DN300 in IV Chamber | No. | 8 | R 2 873.22 | R 22 985.76 |
| | vii) DN200 in IV Chamber | No. | 4 | R 1 969.29 | R 7 877.16 |
| PSG 8.10 | ix) DN200 in Scour Chamber | No. | 16 | R 1 969.29 | R 31 508.64 |
| | Casting of pipes/specials through walls or slabs | | | | |
| | Air vents in roof slab in chambers | No. | 30 | R 750.50 | R 22 515.00 |
| | Securex manhole cover in roof slab in chambers | No. | 18 | R 2 680.10 | R 48 241.80 |
| CARRIED FORWARD TO SUMMARY | | | | | R 5 702 685.60 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------|---|------|----------|-------------|-------------------------|
| SANS 1200 L | SECTION 7 : MEDIUM PRESSURE PIPELINES | | | | |
| | Supply and transport of polyurethane coated, epoxy lined steel pipe | | | | |
| | DN2450 * 14mm thick * grade X42 pipe | m | 15278 | R 14 298.00 | R 218 437 695.00 |
| | DN2032 * 12mm thick * grade X42 pipe | m | 4788 | R 10 163.00 | R 48 660 444.00 |
| | DN2820 * 16mm thick * grade X42 pipe | m | 200 | R 18 809.00 | R 3 761 800.00 |
| PSL 8.2.1 | Lay, bed and joint pipes, inclusive of internal epoxy lining repair, external coating repair and NDT testing | | | | |
| | DN2450 * 14mm thick * grade X42 pipe | m | 15278 | R 5 151.60 | R 78 703 569.00 |
| | DN2032 * 12mm thick * grade X42 pipe | m | 4788 | R 3 543.70 | R 16 967 235.60 |
| | DN2820 * 16mm thick * grade X42 pipe | m | 200 | R 6 825.08 | R 1 365 016.00 |
| | Manufacturing of Simple and Compound Bends, inclusive of reinstatement of testing, external coating and internal lining reinstatement, transportation and handling: | | | | |
| | Bends for DN2450 * 14mm thick * grade X42 pipe: | | | | |
| 8.2.3 & PSL 3.4.4.1 | up to 15 deg | No. | 20 | R 20 231.22 | R 404 624.31 |
| 8.2.3 & PSL 3.4.4.1 | 16 to 30 deg | No. | 19 | R 34 044.79 | R 646 851.04 |
| 8.2.3 & PSL 3.4.4.1 | 31 to 45 deg | No. | 16 | R 44 766.94 | R 716 271.11 |
| 8.2.3 & PSL 3.4.4.1 | 46 to 60 deg | No. | 3 | R 44 766.94 | R 134 300.83 |
| 8.2.3 & PSL 3.4.4.1 | 61 to 75 deg | No. | 1 | R 57 210.90 | R 57 210.90 |
| 8.2.3 & PSL 3.4.4.1 | 76 to 90 deg | No. | 2 | R 65 585.14 | R 131 170.28 |
| | Bends for DN2032 * 12mm thick * grade X42 pipe: | | | | |
| 8.2.3 & PSL 3.4.4.1 | up to 15 deg | No. | 20 | R 13 916.73 | R 278 334.61 |
| 8.2.3 & PSL 3.4.4.1 | 16 to 30 deg | No. | 10 | R 23 418.87 | R 234 188.69 |
| 8.2.3 & PSL 3.4.4.1 | 31 to 45 deg | No. | 6 | R 30 794.47 | R 184 766.80 |
| 8.2.3 & PSL 3.4.4.1 | 46 to 60 deg | No. | 3 | R 30 794.47 | R 92 383.40 |
| 8.2.3 & PSL 3.4.4.1 | 61 to 75 deg | No. | 3 | R 39 354.47 | R 118 063.40 |
| 8.2.3 & PSL 3.4.4.1 | 76 to 90 deg | No. | 4 | R 45 114.97 | R 180 459.88 |
| | SPECIAL ASSEMBLIES | | | | |
| 8.2.3 | Supply, fabricate, handle and install the following assemblies: | | | | |
| CARRIED FORWARD | | | | | R 371 074 384.86 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|------|----------|----------------|-------------------------|
| BROUGHT FORWARD | | | | | R 371 074 384.86 |
| PSL 5.1.7 | DN200 Air Valve Assembly - Type 2, PN 16, Inclusive of all Pipe Reinforcing | No. | 18 | R 84 748.30 | R 1 525 469.40 |
| | DN200 Air Valve Assembly - Type 4, PN 16, Inclusive of all Pipe Reinforcing | No. | 18 | R 140 890.51 | R 2 536 029.18 |
| PSL 5.1.8 | DN200 Scour Valve Assembly, Terminal End Type 1, PN16, Inclusive of Collar Plates. | No. | 16 | R 30 216.41 | R 483 462.56 |
| | DN2450 Isolating Valve Assembly Complete | No. | 3 | R 4 283 963.52 | R 12 851 890.56 |
| | DN2032 Isolating Valve Assembly Complete | No. | 1 | R 2 434 823.98 | R 2 434 823.98 |
| | DN2286 Meter Chamber Assembly Complete | No. | 1 | R 3 480 138.53 | R 3 480 138.53 |
| | DN1930 Isolating Valve Assembly Complete | No. | 1 | R 1 793 045.60 | R 1 793 045.60 |
| | DN2820 * DN2450 Reducer | No. | 1 | R 70 000.00 | R 70 000.00 |
| 8.2.13 | VALVE CHAMBER AND MANHOLES | | | | |
| | Note : The following rates are to include for the installation of all GRP access ladders, safety cages, step irons, sealing joints, air vents, handrails, access manholes & frames, GRP landings & plastic gratings. All in situ and pre cast concrete elements,shuttering, surface finishing, curing of concrete and ancillaries to be included and rate supplied to be for full functional unit | | | | |
| | Supply and install units COMPLETE with related items for the construction of chambers for: | | | | |
| | Scour Valve Chamber | | | | |
| | a) Type 1 | No. | 16 | R 28 475.27 | R 455 604.32 |
| | Air Valve Chambers | | | | |
| | a) Type 2 | No. | 18 | R 61 874.57 | R 1 113 742.26 |
| | b) Type 4 | No. | 18 | R 61 875.57 | R 1 113 760.26 |
| PSL 5.1.5 | Supply and install Pipe Route Marker Posts. | No. | 100 | R 421.80 | R 42 318.14 |
| PSL 7.3 | HYDRAULIC TESTING | | | | |
| | Fabrication, Installation, Remove & Handover to the employer Bullnoses of : | | | | |
| | DN2450 * 14mm thick * grade X42 pipe | No. | 2 | R 37 566.67 | R 75 133.33 |
| | DN2032 * 12mm thick * grade X42 pipe | No. | 2 | R 25 841.51 | R 51 683.02 |
| PSL 7.3 & PSL 8.2.19 | End cap, filling and testing of pipeline within sections specified by the Engineer | m | 20066 | R 56.91 | R 1 141 927.61 |
| CARRIED FORWARD TO SUMMARY | | | | | R 400 243 413.61 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|--|----------------|----------|----------|------------------------|
| SANS 1200 LB | SECTION 8 : BEDDING (PIPES) | | | | |
| | Bedding material | | | | |
| | Supply of selected granular material for 300mm bedding cradle below pipe invert and for fill blanket from pipe invert to 300mm above pipe crown, from commercial sources | | | | |
| | i) DN2450 pipe | m ³ | 94270 | R 284.97 | R 26 864 121.90 |
| | ii) DN2032 pipe | m ³ | 23715 | R 284.97 | R 6 758 063.55 |
| | Selected Backfill | | | | |
| | Selected fill material including for screening or other treatment, to achieve grading suitable to comply with the bedding material specification compacted to 97% MOD AASHTO: | | | | |
| | i) from commercial sources (Provisional Quantity) | m ³ | 100 | R 284.97 | R 28 497.00 |
| PSLB 3.3 | Cement stabilised selected fill bedding (Soilcrete Bedding - 4% CEMENT) | m ³ | 100 | R 425.07 | R 42 507.00 |
| PSLB 5.1.2.1 PSLB 8.2.6 | Stone Bedding for pipe, supplied, placed and compacted, from a commercial source. (Provisional Quantity) | m ³ | 100 | R 726.55 | R 72 655.00 |
| PSLB 5.1.2.1 | Supply and place into position, geotextile for sub soil drains | m ² | 1000 | R 15.99 | R 15 990.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 33 781 834.45 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|--------------------------|---|----------|----------|--------------|-----------------------|
| SANS 1200LG | SECTION 9 : PIPE JACKING | | | | |
| | DN3500 PIPE JACK 1 - R56 | | | | |
| 8.2.1 PSLG 8.2.1 | Jacking establishment: | | | | |
| 8.2.1(a) | Fixed Charges | Sum | 1 | R 402 500.00 | R 402 500.00 |
| 8.2.2(b) | Time Related: State time: Weeks | Sum | 1 | R 690 000.00 | R 690 000.00 |
| PS LG 5.2.3.2 | Initial survey of ground and structures at jacking fronts | Sum | 1 | R 1 725.00 | R 1 725.00 |
| PS LG5.2.3.1, 8.2.19 | Conduct monitoring surveys | No. | 7 | R 402.50 | R 2 817.50 |
| PSLG 8.2.2 | Supply of Pipes to be Jacked: | | | | |
| 8.2.2 PSLG 3 | DN3500 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes to be delivered to the required location" | m | 20 | R 64 239.00 | R 1 284 780.00 |
| PSLG 8.2.3 | Jacking of Pipes: | | | | |
| 8.2.3 PSLG 5.4.3 | DN3500 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes | m | 20 | R 56 350.00 | R 1 127 000.00 |
| 8.2.4 PSLG 4.3, 5.1.4 | Excavation for Jacking in all materials | m3 | 350 | R 1 840.00 | R 644 000.00 |
| 8.2.5 | Extra-over item 8.2.4 for unforeseen rock or boulders | Prov Sum | 1 | R 20 000.00 | R 20 000.00 |
| 8.2.9 PSLG 8.2.9 | Stabilization of unstable areas or grouting of voids where ordered by the Engineer: | | | | |
| 8.2.9(a) | Provision and establishment of equipment on site, and removal on completion of operation (Provisional Quantity) | Sum | 1 | R 5 750.00 | R 5 750.00 |
| 8.2.9(b) | Operation of Equipment (Provisional Quantity) | Day | 10 | R 575.00 | R 5 750.00 |
| 8.2.9(c) | Materials Used (Provisional Quantity) | m3 | 20 | R 2 875.00 | R 57 500.00 |
| 8.2.10 | Standing time for pipe jacking gang and jacking equipment (Provisional Quantity) | hr | 45 | R 1 265.00 | R 56 925.00 |
| PSLG 5.7 | Grouting of sleeve | m3 | 70 | R 3 450.00 | R 241 500.00 |
| PSLG 8.2.11 | Hand excavation and backfilling of trench to expose services | m3 | 15 | R 287.50 | R 4 312.50 |
| PSLG 5.10 | Grouting in of steel pipe inside sleeve | m3 | 100 | R 3 450.00 | R 345 000.00 |
| PSLG 8.2.15, 5.11 | Close DN3500 sleeve end with brick wall | No. | 2 | R 6 311.20 | R 12 622.40 |
| PSLG 8.2.16, 5.12 | Supply and install marker posts | No. | 2 | R 1 725.00 | R 3 450.00 |
| | DN3500 PIPE JACK 1 - R624 | | | | |
| 8.2.1 PSLG 8.2.1 | Jacking establishment: | | | | |
| 8.2.1(a) | Fixed Charges | Sum | 1 | R 402 500.00 | R 402 500.00 |
| 8.2.2(b) | Time Related: State time: Weeks | Sum | 1 | R 690 000.00 | R 690 000.00 |
| PS LG 5.2.3.2 | Initial survey of ground and structures at jacking fronts | Sum | 1 | R 1 725.00 | R 1 725.00 |
| CARRIED FORWARD | | | | | R 5 999 857.40 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|--------------------------|---|----------|----------|--------------|------------------------|
| BROUGHT FORWARD | | | | | R 5 999 857.40 |
| PS LG 5.2.3.1, 8.2.19 | Conduct monitoring surveys | No. | 7 | R 402.50 | R 2 817.50 |
| PSLG 8.2.2 | Supply of Pipes to be Jacked: | | | | |
| 8.2.2 PSLG 3 | DN3500 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes to be delivered to the required location" | m | 20 | R 64 239.00 | R 1 284 780.00 |
| PSLG 8.2.3 | Jacking of Pipes: | | | | |
| 8.2.3 PSLG 5.4.3 | DN3500 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes | m | 20 | R 56 350.00 | R 1 127 000.00 |
| 8.2.4 PSLG 4.3, 5.1.4 | Excavation for Jacking in all materials | m3 | 350 | R 1 840.00 | R 644 000.00 |
| 8.2.5 | Extra-over item 8.2.4 for unforeseen rock or boulders | Prov Sum | 1 | R 20 000.00 | R 20 000.00 |
| 8.2.9 PSLG 8.2.9 | Stabilization of unstable areas or grouting of voids where ordered by the Engineer: | | | | |
| 8.2.9(a) | Provision and establishment of equipment on site, and removal on completion of operation (Provisional Quantity) | Sum | 1 | R 5 750.00 | R 5 750.00 |
| 8.2.9(b) | Operation of Equipment (Provisional Quantity) | Day | 10 | R 575.00 | R 5 750.00 |
| 8.2.9(c) | Materials Used (Provisional Quantity) | m3 | 20 | R 2 875.00 | R 57 500.00 |
| 8.2.10 | Standing time for pipe jacking gang and jacking equipment (Provisional Quantity) | hr | 45 | R 1 265.00 | R 56 925.00 |
| PSLG 5.7 | Grouting of sleeve | m3 | 70 | R 3 450.00 | R 241 500.00 |
| PSLG 8.2.11 | Hand excavation and backfilling of trench to expose services | m3 | 15 | R 287.50 | R 4 312.50 |
| PSLG 5.10 | Grouting in of steel pipe inside sleeve | m3 | 100 | R 3 450.00 | R 345 000.00 |
| PSLG 8.2.15, 5.11 | Close DN3500 sleeve end with brick wall | No. | 2 | R 6 311.20 | R 12 622.40 |
| PSLG 8.2.16, 5.12 | Supply and install marker posts | No. | 2 | R 1 725.00 | R 3 450.00 |
| | DN3250 PIPE JACK 1 - R603 | | | | |
| 8.2.1 PSLG 8.2.1 | Jacking establishment: | | | | |
| 8.2.1(a) | Fixed Charges | Sum | 1 | R 402 500.00 | R 402 500.00 |
| 8.2.2(b) | Time Related: State time: Weeks | Sum | 1 | R 690 000.00 | R 690 000.00 |
| PS LG 5.2.3.2 | Initial survey of ground and structures at jacking fronts | Sum | 1 | R 1 725.00 | R 1 725.00 |
| PS LG 5.2.3.1, 8.2.19 | Conduct monitoring surveys | No. | 7 | R 402.50 | R 2 817.50 |
| PSLG 8.2.2 | Supply of Pipes to be Jacked: | | | | |
| 8.2.2 PSLG 3 | DN3250 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes to be delivered to the required location" | m | 20 | R 55 389.75 | R 1 107 795.00 |
| CARRIED FORWARD | | | | | R 12 016 102.30 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|--|---|----------|----------|--------------|------------------------|
| BROUGHT FORWARD | | | | | R 12 016 102.30 |
| PSLG 8.2.3 | Jacking of Pipes: | | | | |
| 8.2.3 PSLG 5.4.3 | DN3250 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes | m | 20 | R 48 587.50 | R 971 750.00 |
| 8.2.4 PSLG 4.3, 5.1.4 | Excavation for Jacking in all materials | m3 | 315 | R 1 840.00 | R 579 600.00 |
| 8.2.5 | Extra-over item 8.2.4 for unforeseen rock or boulders | Prov Sum | 1 | R 20 000.00 | R 20 000.00 |
| 8.2.9 PSLG 8.2.9 | Stabilization of unstable areas or grouting of voids where ordered by the Engineer: | | | | |
| 8.2.9(a) | Provision and establishment of equipment on site, and removal on completion of operation (Provisional Quantity) | Sum | 1 | R 5 750.00 | R 5 750.00 |
| 8.2.9(b) | Operation of Equipment (Provisional Quantity) | Day | 10 | R 575.00 | R 5 750.00 |
| 8.2.9(c) | Materials Used (Provisional Quantity) | m3 | 20 | R 2 875.00 | R 57 500.00 |
| 8.2.10 | Standing time for pipe jacking gang and jacking equipment (Provisional Quantity) | hr | 45 | R 1 265.00 | R 56 925.00 |
| PSLG 5.7 | Grouting of sleeve | m3 | 66 | R 3 450.00 | R 227 700.00 |
| PSLG 8.2.11 | Hand excavation and backfilling of trench to expose services | m3 | 15 | R 287.50 | R 4 312.50 |
| PSLG 5.10 | Grouting in of steel pipe inside sleeve | m3 | 105 | R 3 450.00 | R 362 250.00 |
| PSLG 8.2.15, 5.11 | Close DN3250 sleeve end with brick wall | No. | 2 | R 5 441.80 | R 10 883.60 |
| PSLG 8.2.16, 5.12 | Supply and install marker posts | No. | 2 | R 1 725.00 | R 3 450.00 |
| DN3250 PIPE JACK 1 - UMLAAS ROAD RAIL | | | | | |
| 8.2.1 PSLG 8.2.1 | Jacking establishment: | | | | |
| 8.2.1(a) | Fixed Charges | Sum | 1 | R 402 500.00 | R 402 500.00 |
| 8.2.2(b) | Time Related: State time: Weeks | Sum | 1 | R 690 000.00 | R 690 000.00 |
| PS LG 5.2.3.2 | Initial survey of ground and structures at jacking fronts | Sum | 1 | R 1 725.00 | R 1 725.00 |
| PS LG 5.2.3.1, 8.2.19 | Conduct monitoring surveys | No. | 7 | R 402.50 | R 2 817.50 |
| PSLG 8.2.2 | Supply of Pipes to be Jacked: | | | | |
| 8.2.2 PSLG 3 | DN3250 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes to be delivered to the required location" | m | 35 | R 55 389.75 | R 1 938 641.25 |
| PSLG 8.2.3 | Jacking of Pipes: | | | | |
| 8.2.3 PSLG 5.4.3 | DN3250 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes | m | 35 | R 48 587.50 | R 1 700 562.50 |
| 8.2.4 PSLG 4.3, 5.1.4 | Excavation for Jacking in all materials | m3 | 545 | R 1 840.00 | R 1 002 800.00 |
| 8.2.5 | Extra-over item 8.2.4 for unforeseen rock or boulders | Prov Sum | 1 | R 20 000.00 | R 20 000.00 |
| CARRIED FORWARD | | | | | R 20 081 019.65 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|------|----------|------------|------------------------|
| BROUGHT FORWARD | | | | | R 20 081 019.65 |
| 8.2.9 PSLG 8.2.9 | Stabilization of unstable areas or grouting of voids where ordered by the Engineer: | | | | |
| 8.2.9(a) | Provision and establishment of equipment on site, and removal on completion of operation (Provisional Quantity) | Sum | 1 | R 5 750.00 | R 5 750.00 |
| 8.2.9(b) | Operation of Equipment (Provisional Quantity) | Day | 10 | R 575.00 | R 5 750.00 |
| 8.2.9(c) | Materials Used (Provisional Quantity) | m3 | 20 | R 2 875.00 | R 57 500.00 |
| 8.2.10 | Standing time for pipe jacking gang and jacking equipment (Provisional Quantity) | hr | 45 | R 1 265.00 | R 56 925.00 |
| PSLG 5.7 | Grouting of sleeve | m3 | 115 | R 3 450.00 | R 396 750.00 |
| PSLG 8.2.11 | Hand excavation and backfilling of trench to expose services | m3 | 15 | R 287.50 | R 4 312.50 |
| PSLG 5.10 | Grouting in of steel pipe inside sleeve | m3 | 175 | R 3 450.00 | R 603 750.00 |
| PSLG 8.2.15, 5.11 | Close DN3250 sleeve end with brick wall | No. | 2 | R 5 441.80 | R 10 883.60 |
| PSLG 8.2.16, 5.12 | Supply and install marker posts | No. | 2 | R 1 725.00 | R 3 450.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 21 226 090.75 |

SUMMARY

| SECTION | DESCRIPTION | TOTAL |
|--|--------------------------------------|------------------------|
| SECTION 1 | LAND ACQUISITION | R 6 160 087.50 |
| SECTION 2 | CROP COMPENSATION - FORESTRY | R 0.00 |
| SECTION 3 | CROP COMPENSATION - SUGAR CANE | R 19 442 869.18 |
| SECTION 4 | CROP COMPENSATION - MAIZE | R 1 842 750.00 |
| SECTION 5 | CROP COMPENSATION - ORCHARDS | R 1 512 000.00 |
| SECTION 6 | CROP COMPENSATION - OTHER CROPS | R 2 391 275.30 |
| SECTION 7 | CROP COMPENSATION - GRAZING PASTURES | R 1 999 350.00 |
| SECTION 8 | LAND RENTAL | R 5 588 244.77 |
| TOTAL CARRIED TO BILL OF QUANTITIES 2 C - PHASE 1 | | R 38 936 576.75 |

2C-PH2

| DETAILED SUMMARY FOR COST COMPONENTS TO OPTION 2C - PHASE 2 | | |
|--|---|-------------------------|
| BOQ No. | DESCRIPTION | AMOUNT |
| 2.C-R-PH2 | DOUBLE UNEQUAL PIPELINE - RAW WATER | R 233 268 006.41 |
| 2.C-P-PH2 | DOUBLE UNEQUAL PIPELINE - POTABLE WATER | R 449 411 777.08 |
| 2.C-L-PH2 | LAND ACQUISITION AND CROP COMPENSATION | R 30 292 824.91 |
| TOTAL CARRIED FORWARD TO SUMMARY OF BILL OF QUANTITIES | | R 712 972 608.40 |

SUMMARY

| SECTION | DESCRIPTION | TOTAL |
|--|---------------------------------------|-------------------------|
| SECTION 1 | PRELIMINARY AND GENERAL | R 53 831 078.40 |
| SECTION 2 | SITE CLEARANCE | R 2 293 500.74 |
| SECTION 3 | EARTHWORKS | R 268 607.57 |
| SECTION 4 | PIPE TRENCHES | R 25 708 449.97 |
| SECTION 5 | GABIONS AND PITCHING | R 729 133.87 |
| SECTION 6 | CONCRETE STRUCTURAL | R 2 440 320.39 |
| SECTION 7 | MEDIUM PRESSURE PIPELINES | R 131 364 394.26 |
| SECTION 8 | BEDDING (PIPES) | R 11 223 576.35 |
| SECTION 9 | PIPE JACKING | R 5 408 944.85 |
| SECTION 10 | CATHODIC PROTECTION AND AC MITIGATION | R 0.00 |
| TOTAL CARRIED TO BILL OF QUANTITIES 1 C - PHASE 2 | | R 233 268 006.41 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|--|----------------|----------|-------------|-----------------------|
| SANS 1200 C | SECTION 2 : SITE CLEARANCE | | | | |
| | CLEAR SITE | | | | |
| 8.2.1 | Clear and grub site over working corridor | ha | 37.14 | R 9 775.00 | R 363 043.50 |
| 8.2.2 | Remove and grub large trees and tree stumps regardless of girth | ha | 4.39 | R 39 716.00 | R 174 353.24 |
| 8.2.10 | Remove topsoil to nominal depth of 150mm and stockpile and maintain. | m ² | 371400 | R 3.22 | R 1 195 908.00 |
| PSC 8.2.11 | Remove existing road and driveways and spoil, for: | | | | |
| | a) Asphalt | m ² | 140 | R 58.65 | R 8 211.00 |
| | b) Gravel | m ² | 6860 | R 54.05 | R 370 783.00 |
| PSC 8.2.14 | Saw cutting of existing surface: | | | | |
| | a) Asphalt | m | 20 | R 27.60 | R 552.00 |
| 8.2.5 PS 9.2 PSC 8.2.17 | Dismantle existing fencing, move to storage and later reinstate as directed by the Engineer: | | | | |
| | i) All precast concrete fence. | m | 200 | R 126.00 | R 25 200.00 |
| | ii) All timber fence. | m | 200 | R 172.50 | R 34 500.00 |
| | iii) All galvanized weld mesh fence. | m | 200 | R 97.75 | R 19 550.00 |
| | iv) All galvanized diamond mesh fence. | m | 200 | R 207.00 | R 41 400.00 |
| | v) All electric fence | m | 200 | R 300.00 | R 60 000.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 2 293 500.74 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------------|----------|----------|---------------------|
| SANS 1200 D | SECTION 3 : EARTHWORKS | | | | |
| | EXCAVATION | | | | |
| 8.3.3(a) PSD 5.2.2.1 | Restricted excavation in all materials and use for backfill and compact to specified densities or dispose as ordered for: | | | | |
| | DN2032 Isolating Valve Chambers (1 Off) | m ³ | 252 | R 132.02 | R 33 269.04 |
| | DN1829 Meter Chamber (1 Off) | m ³ | 252 | R 132.02 | R 33 269.04 |
| | Scour Valve Chambers | | | | |
| | a) Type 1 (8 Off) | m ³ | 462 | R 132.02 | R 60 993.24 |
| 8.3.2.(b) | Extra-over item 8.3.3 for excavation in: | | | | |
| 8.3.3.(b).1 | Intermediate Material (Provisional Quantity) | m ³ | 245 | R 20.70 | R 5 071.50 |
| 8.3.3.(b).2 | Hard Rock (Provisional Quantity) | m ³ | 145 | R 295.55 | R 42 854.75 |
| | FINISHINGS | | | | |
| PSD 8.3.14 PSD 5.1.1.1 | Barricading | | | | |
| | i) Barrier Fence | m | 1000 | R 93.15 | R 93 150.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 268 607.57 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------------|----------|-------------|------------------------|
| SANS 1200 DB | SECTION 4 : PIPE TRENCHES | | | | |
| | EXCAVATION | | | | |
| 8.3.2(a) | Excavate in all materials for trenches, backfill with graded material, compact hydraulically/ mechanically to specified density and dispose of surplus/unsuitable material: for DN2032 pipe | | | | |
| | 4-5 m | m ³ | 97660 | R 156.01 | R 15 235 936.60 |
| | 5-6 m | m ³ | 6005 | R 171.47 | R 1 029 677.35 |
| 8.3.2(b) | Extra-over items 8.3.2(a) for : | | | | |
| 1) | Intermediate Material (Provisional Quantity) | m ³ | 26220 | R 20.70 | R 542 754.00 |
| 2) | Hard Rock (Provisional Quantity) | m ³ | 15850 | R 243.80 | R 3 864 230.00 |
| | Extra-over items 8.3.2(a) for : | | | | |
| PSDB3.7 | Removal of suitable backfill material off site, store at temporary site, load and haul back to site.(Provisional Quantity) | m ³ | 2075 | R 93.22 | R 193 431.50 |
| 8.3.2(c) PSDB5.5 | Excavate and dispose of unsuitable material from trench bottom (Provisional Quantity) | m ³ | 1040 | R 81.32 | R 84 572.80 |
| | SELECTED BACKFILL | | | | |
| 8.3.3.3 | Compaction in road reserves to 97% MOD AASHTO (Provisional Quantity) | m ³ | 100 | R 35.08 | R 3 508.00 |
| | EXISTING SERVICES | | | | |
| 8.3.5(a) PSDB 8.3.5 | Protect, maintain, repair all services that intersect a trench | Prov Sum | 1 | R 82 500.00 | R 82 500.00 |
| 8.3.5(b) PSDB8.3.5 | Protect, maintain, repair all services that adjoin a trench | Prov Sum | 1 | R 82 500.00 | R 82 500.00 |
| | FINISHINGS | | | | |
| | Topsoiling | m ² | 371400 | R 10.47 | R 3 888 558.00 |
| | Reinstate roads and driveways complete with all courses | | | | |
| | a) Gravel in driveways | m ² | 6860 | R 97.75 | R 670 565.00 |
| | b) Asphalt of 30 - 60mm thickness in roadway | m ² | 140 | R 162.15 | R 22 701.00 |
| PSDB 5.1.2.2 | Installation of permanent subsoil drainage systems in accordance with drawing no, inclusive of gabion, geofabric, pipe, stone and other materials for completion as directed by the Engineer (Provisional Quantity) | No. | 3 | R 2 505.24 | R 7 515.72 |
| CARRIED FORWARD TO SUMMARY | | | | | R 25 708 449.97 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------------|----------|------------|---------------------|
| SANS 1200 DK | SECTION 5: GABIONS AND PITCHING | | | | |
| | GABIONS | | | | |
| 8.2.2 PSDK 3.1.2 | Construct gabions using double twisted hexagonal mesh type 80 with 3.4mm OD frame wire and 2.7mm OD mesh wire to SANS 1580:2005: | | | | |
| 8.2.2 | a) Reno mattresses of depth 0,3 m with diaphragms providing 2 m x 1 m cells. (Provisional Quantity) | m ² | 494 | R 1 355.24 | R 669 488.56 |
| 8.2.4 PSDK 3.1.3 | Geotextile (Type AG 200) placed where ground water seepage occurs: | | | | |
| 8.2.4 | a) below reno mattresses (Provisional Quantity) | m ² | 494 | R 15.99 | R 7 899.06 |
| PSDK 3.2 | STONE PITCHING | | | | |
| | Supply all labour, plant and material and lay medium grouted pitching as indicated, including for all surface preparation and compaction (Provisional Quantity) | m ² | 125 | R 413.97 | R 51 746.25 |
| CARRIED FORWARD TO SUMMARY | | | | | R 729 133.87 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------|---|----------------|----------|------------|---------------------|
| SANS 1200 G | SECTION 6 : CONCRETE STRUCTURAL | | | | |
| 8.2 PSG 4.5, 7.2 | FORMWORK | | | | |
| | DN2032 IV Chambers (1 Off) | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 180 | R 272.90 | R 49 122.00 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 160 | R 406.79 | R 65 086.40 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide | | | | |
| | 200mm wide | m | 35 | R 143.73 | R 5 030.55 |
| 8.2.6 | Box out holes/form voids: | | | | |
| 8.2.6(a) | Small, circular, up to 0,35 m dia., depth 0 m to 0,5 metres | | | | |
| | DN200 pipe through chamber walls | No. | 1 | R 381.55 | R 381.55 |
| | DN300 pipe through chamber walls | No. | 2 | R 476.94 | R 953.88 |
| | Large, circular, diameter greater than 1,0m, depth 0m to 0,5m | | | | |
| | DN2032 pipe through chamber walls | No. | 2 | R 3 091.57 | R 6 183.14 |
| | DN1829 Meter Chamber (1 Off) | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 180 | R 272.90 | R 49 122.00 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 160 | R 406.79 | R 65 086.40 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide | | | | |
| | 200mm wide | m | 35 | R 143.73 | R 5 030.55 |
| 8.2.6 | Box out holes/form voids: | | | | |
| | Large, circular, diameter greater than 1,0m, depth 0m to 0,5m | | | | |
| | DN2337 pipe through chamber walls | No. | 2 | R 2 033.93 | R 4 067.86 |
| | DN200 Scour Chambers (8 Off) | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 495 | R 272.90 | R 135 085.50 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 375 | R 406.79 | R 152 546.25 |
| 8.2.2 | Smooth to underside of roof slab | m ² | 55 | R 435.54 | R 23 954.70 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide | | | | |
| | 200mm wide | m | 85 | R 143.73 | R 12 217.05 |
| 8.2.6 | Box out holes/form voids: | | | | |
| 8.2.6(a) | Small, circular, up to 0,35 m dia., depth 0 m to 0,5 metres | | | | |
| | DN200 pipe through chamber wall | No. | 16 | R 476.94 | R 7 631.04 |
| CARRIED FORWARD | | | | | R 581 498.87 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------|---|----------------|----------|-------------|-----------------------|
| BROUGHT FORWARD | | | | | R 581 498.87 |
| | DN200 air vents in roof slab Large, circular, diameter greater than 1,0m, depth 0m to 0,5m | No. | 16 | R 476.94 | R 7 631.04 |
| | DN550 manhole access in roof slab | No. | 8 | R 1 586.47 | R 12 691.76 |
| | DN200 Air Valve Chamber Type 2 (9 Off) | | | | |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide 150mm wide | m | 396 | R 143.73 | R 56 917.08 |
| | DN200 Air Valve Chamber Type 4 (9 Off) | | | | |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide 150mm wide | m | 396 | R 143.73 | R 56 917.08 |
| 8.3 | REINFORCEMENT | | | | |
| | DN2032 IV Chambers (1 Off) | | | | |
| 8.3.1 | Mild Steel | t | 1.88 | R 12 032.07 | R 22 620.29 |
| 8.3.1 | High Tensile Steel | t | 7.50 | R 12 032.07 | R 90 240.53 |
| | DN1829 Meter Chamber (1 Off) | | | | |
| 8.3.1 | Mild Steel | t | 1.88 | R 12 032.07 | R 22 620.29 |
| 8.3.1 | High Tensile Steel | t | 7.50 | R 12 032.07 | R 90 240.53 |
| | DN200 Scour Chambers (8 Off) | | | | |
| 8.3.1 | Mild Steel | t | 4.19 | R 12 032.07 | R 50 414.37 |
| 8.3.1 | High Tensile Steel | t | 16.75 | R 12 032.07 | R 201 537.17 |
| | DN200 Air Valve Chamber Type 2 (9 Off) | | | | |
| 8.3.1 | Mild Steel | t | 0.13 | R 12 032.07 | R 1 564.17 |
| 8.3.1 | High Tensile Steel | t | 0.50 | R 12 032.07 | R 6 016.04 |
| | DN200 Air Valve Chamber Type 4 (9 Off) | | | | |
| 8.3.1 | Mild Steel | t | 0.13 | R 12 032.07 | R 1 564.17 |
| 8.3.1 | High Tensile Steel | t | 0.50 | R 12 032.07 | R 6 016.04 |
| | Concrete encasement DN2032 pipe at river crossings (Provisional Quantity) | | | | |
| 8.3.1 | Mild Steel | t | 2.50 | R 12 032.07 | R 30 080.18 |
| 8.3.1 | High Tensile Steel | t | 10.00 | R 12 032.07 | R 120 320.70 |
| 8.4 | CONCRETE | | | | |
| | DN2032 IV Chambers (1 Off) | | | | |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 47 | R 125.27 | R 5 887.69 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: Base | m ³ | 22 | R 1 955.23 | R 43 015.06 |
| CARRIED FORWARD | | | | | R 1 407 793.04 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------|---|----------------|----------|------------|-----------------------|
| BROUGHT FORWARD | | | | | R 1 407 793.04 |
| | Walls | m ³ | 54 | R 1 955.23 | R 105 582.42 |
| | DN1829 Meter Chamber (1 Off) | | | | |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 47 | R 125.27 | R 5 887.69 |
| 8.4.3 | 15MPa concrete for platforms, steps, pipe supports etc. | | | | |
| | Pipe supports | m ³ | 7.5 | R 1 789.80 | R 13 423.50 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Base | m ³ | 44 | R 1 955.23 | R 86 030.12 |
| | Walls | m ³ | 54 | R 1 955.23 | R 105 582.42 |
| | DN200 Scour Chambers (8 Off) | | | | |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 143 | R 125.27 | R 17 850.98 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Base | m ³ | 65 | R 1 955.23 | R 126 112.34 |
| | Walls | m ³ | 92 | R 1 955.23 | R 179 881.16 |
| | Roof slab | m ³ | 11.0 | R 1 955.23 | R 21 507.53 |
| | DN200 Air Valve Chamber Type 2 (9 Off) | | | | |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Strip Foundation | m ³ | 5.0 | R 1 955.23 | R 9 776.15 |
| | DN200 Air Valve Chamber Type 4 (9 Off) | | | | |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Strip Foundation | m ³ | 5.0 | R 1 955.23 | R 9 776.15 |
| | Concrete encasement DN2032 pipe at river crossing (Provisional Quantity) | | | | |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Concrete encasement of pipe | m ³ | 75 | R 2 215.64 | R 166 173.00 |
| 8.4.4 | UNFORMED SURFACE FINISHES | | | | |
| | DN2032 IV Chambers (1 Off) | | | | |
| 8.4.4(a) | Wood-floated | | | | |
| | To floor slabs | m ² | 39 | R 21.55 | R 840.45 |
| | To top of walls | m ² | 10 | R 21.55 | R 215.50 |
| | DN1829 Meter Chamber (1 Off) | | | | |
| 8.4.4(a) | Wood-floated | | | | |
| | To floor slabs | m ² | 39 | R 21.55 | R 840.45 |
| | To top of pipe cradle | m ² | 6.5 | R 21.55 | R 140.08 |
| | To top of walls | m ² | 10 | R 21.55 | R 215.50 |
| | DN200 Scour Chambers (8 Off) | | | | |
| CARRIED FORWARD | | | | | R 2 257 628.47 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|--|----------------|----------|------------|-----------------------|
| BROUGHT FORWARD | | | | | R 2 257 628.47 |
| 8.4.4(a) | Wood-floated | | | | |
| | To floor slabs | m ² | 143 | R 21.55 | R 3 070.88 |
| | To roof slabs | m ² | 54 | R 21.55 | R 1 165.86 |
| | To top of walls | m ² | 37 | R 21.55 | R 790.89 |
| | MISCELLANEOUS | | | | |
| | Bitumen impregnated soft board | m | 80 | R 33.92 | R 2 713.60 |
| | Polyurethane joint sealant (10mm x 20mm) | m | 80 | R 44.41 | R 3 552.80 |
| | Neoprene inserts for pipes at pipe supports - For DN2032 | m ² | 20 | R 114.33 | R 2 286.60 |
| PSG 8.4.5 | Concrete complete with formwork, reinforcing, surface finishing, holes, vents if applicable and joints, for: | | | | |
| | Removable roof slabs in IV chambers | m ³ | 9.5 | R 2 215.64 | R 21 048.58 |
| | Removable roof slabs in Meter Chambers | m ³ | 9.5 | R 2 215.64 | R 21 048.58 |
| | Removable roof slabs in Air Valve-Type2 | m ³ | 10.5 | R 2 215.64 | R 23 264.22 |
| | Removable roof slabs in Air Valve Type 4 | m ³ | 10.5 | R 2 215.64 | R 23 264.22 |
| PSG 8.9 | Grouting of pipes/specials through walls or slabs inclusive of pipe wall joint sealing | | | | |
| | iv) DN2032 in DN2032 IV Chamber | No. | 2 | R 6 618.09 | R 13 236.18 |
| | v) DN300 in DN2032 IV Chamber | No. | 2 | R 2 873.22 | R 5 746.44 |
| | vi) DN200 in DN2032 IV Chamber | No. | 1 | R 1 969.29 | R 1 969.29 |
| | viii) DN1829 in Meter Chamber | No. | 2 | R 5 165.34 | R 10 330.68 |
| | ix) DN200 in Scour Chamber | No. | 8 | R 1 969.29 | R 15 754.32 |
| PSG 8.10 | Casting of pipes/specials through walls or slabs | | | | |
| | Air vents in roof slab in chambers | No. | 16 | R 750.50 | R 12 008.00 |
| | Securex manhole cover in roof slab in chambers | No. | 8 | R 2 680.10 | R 21 440.80 |
| CARRIED FORWARD TO SUMMARY | | | | | R 2 440 320.39 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------|---|------|----------|----------------|-------------------------|
| SANS 1200 L | SECTION 7 : MEDIUM PRESSURE PIPELINES | | | | |
| | Supply and transport of polyurethane coated, epoxy lined steel pipe | | | | |
| | DN2032 * 14mm thick * grade X42 pipe | m | 7823 | R 11 845.00 | R 92 657 512.50 |
| PSL 8.2.1 | Lay, bed and joint pipes, inclusive of internal epoxy lining repair, external coating repair and NDT testing | | | | |
| | DN2032 * 14mm thick * grade X42 pipe | m | 7823 | R 3 543.70 | R 27 720 593.25 |
| | Manufacturing of Simple and Compound Bends, inclusive of reinstatement of testing, external coating and internal lining reinstatement, transportation and handling: | | | | |
| | Bends for DN2032 * 14mm thick * grade X42 pipe: | | | | |
| 8.2.3 & PSL 3.4.4.1 | up to 15 deg | No. | 25 | R 13 916.73 | R 347 918.26 |
| 8.2.3 & PSL 3.4.4.1 | 16 to 30 deg | No. | 18 | R 23 418.87 | R 421 539.64 |
| 8.2.3 & PSL 3.4.4.1 | 31 to 45 deg | No. | 8 | R 30 794.47 | R 246 355.74 |
| 8.2.3 & PSL 3.4.4.1 | 46 to 60 deg | No. | 4 | R 30 794.47 | R 123 177.87 |
| 8.2.3 & PSL 3.4.4.1 | 61 to 75 deg | No. | 1 | R 39 354.47 | R 39 354.47 |
| 8.2.3 & PSL 3.4.4.1 | 76 to 90 deg | No. | 2 | R 45 114.97 | R 90 229.94 |
| | SPECIAL ASSEMBLIES | | | | |
| 8.2.3 | Supply, fabricate, handle and install the following assemblies: | | | | |
| PSL 5.1.7 | DN200 Air Valve Assembly - Type 2, PN 16, Inclusive of all Pipe Reinforcing | No. | 9 | R 84 748.30 | R 762 734.70 |
| | DN200 Air Valve Assembly - Type 4, PN 16, Inclusive of all Pipe Reinforcing | No. | 9 | R 140 890.51 | R 1 268 014.59 |
| PSL 5.1.8 | DN200 Scour Valve Assembly, Terminal End Type 1, PN16, Inclusive of Collar Plates. | No. | 8 | R 30 216.41 | R 241 731.28 |
| | DN2032 Isolating Valve Assembly Complete | No. | 1 | R 2 450 634.90 | R 2 450 634.90 |
| | DN1829 Meter Chamber Assembly Complete | No. | 1 | R 3 139 684.56 | R 3 139 684.56 |
| 8.2.13 | VALVE CHAMBER AND MANHOLES | | | | |
| | Note : The following rates are to include for the installation of all GRP access ladders, safety cages, step irons, sealing joints, air vents, handrails, access manholes & frames, GRP landings & plastic gratings. All in situ and pre cast concrete elements,shuttering, surface finishing, curing of concrete and ancillaries to be included and rate supplied to be for full functional unit | | | | |
| | Supply and install units COMPLETE with related items for the construction of chambers for: | | | | |
| CARRIED FORWARD | | | | | R 129 509 481.69 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|--|------|----------|-------------|-------------------------|
| BROUGHT FORWARD | | | | | R 129 509 481.69 |
| | Scour Valve Chamber | | | | |
| | a) Type 1 | No. | 8 | R 28 475.27 | R 227 802.16 |
| | Air Valve Chambers | | | | |
| | a) Type 2 | No. | 9 | R 61 874.57 | R 556 871.13 |
| | b) Type 4 | No. | 9 | R 61 875.57 | R 556 880.13 |
| PSL 5.1.5 | Supply and install Pipe Route Marker Posts. | No. | 39 | R 421.80 | R 16 497.65 |
| PSL 7.3 | HYDRAULIC TESTING | | | | |
| | Fabrication, Installation, Remove & Handover to the employer Bullnoses of : | | | | |
| | DN2032 * 14mm thick * grade X42 pipe | No. | 2 | R 25 841.51 | R 51 683.02 |
| PSL 7.3 & PSL 8.2.19 | End cap, filling and testing of pipeline within sections specified by the Engineer | m | 7823 | R 56.91 | R 445 178.48 |
| CARRIED FORWARD TO SUMMARY | | | | | R 131 364 394.26 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------------|----------|----------|------------------------|
| SANS 1200 LB | SECTION 8 : BEDDING (PIPES) | | | | |
| | Bedding material Supply of selected granular material for 300mm bedding cradle below pipe invert and for fill blanket from pipe invert to 300mm above pipe crown, from commercial sources i) for DN2032 pipe | m ³ | 39105 | R 284.97 | R 11 143 751.85 |
| | Selected Backfill Selected fill material including for screening or other treatment, to achieve grading suitable to comply with the bedding material specification compacted to 97% MOD AASHTO: i) from commercial sources (Provisional Quantity) | m ³ | 50 | R 284.97 | R 14 248.50 |
| PSLB 3.3 | Cement stabilised selected fill bedding (Soilcrete Bedding - 4% CEMENT) | m ³ | 50 | R 425.07 | R 21 253.50 |
| PSLB 5.1.2.1 PSLB 8.2.6 | Stone Bedding for pipe, supplied, placed and compacted, from a commercial source.(Provisional Quantity) | m ³ | 50 | R 726.55 | R 36 327.50 |
| PSLB 5.1.2.1 | Supply and place into position, geotextile for sub soil drains | m ² | 500 | R 15.99 | R 7 995.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 11 223 576.35 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------|----------|--------------|-----------------------|
| SANS 1200LG | SECTION 9 : PIPE JACKING | | | | |
| | DN3250 PIPE JACK 2 - BAYNESFIELD RAIL | | | | |
| 8.2.1 PSLG 8.2.1 | Jacking establishment: | | | | |
| 8.2.1(a) | Fixed Charges | Sum | 1 | R 402 500.00 | R 402 500.00 |
| 8.2.2(b) | Time Related: State time: Weeks | Sum | 1 | R 690 000.00 | R 690 000.00 |
| PS LG 5.2.3.2 | Initial survey of ground and structures at jacking fronts | Sum | 1 | R 1 725.00 | R 1 725.00 |
| PS LG 5.2.3.1, 8.2.19 | Conduct monitoring surveys | No. | 7 | R 402.50 | R 2 817.50 |
| PSLG 8.2.2 | Supply of Pipes to be Jacked: | | | | |
| 8.2.2 PSLG 3 | DN3250 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes to be delivered to the required location" | m | 25 | R 55 389.75 | R 1 384 743.75 |
| PSLG 8.2.3 | Jacking of Pipes: | | | | |
| 8.2.3 PSLG 5.4.3 | DN3250 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes | m | 25 | R 48 587.50 | R 1 214 687.50 |
| 8.2.4 PSLG 4.3, 5.1.4 | Excavation for Jacking in all materials | m3 | 410 | R 1 840.00 | R 754 400.00 |
| 8.2.5 | Extra-over item 8.2.4 for unforeseen rock or boulders | Prov Sum | 1 | R 20 000.00 | R 20 000.00 |
| 8.2.9 PSLG 8.2.9 | Stabilization of unstable areas or grouting of voids where ordered by the Engineer: | | | | |
| 8.2.9(a) | Provision and establishment of equipment on site, and removal on completion of operation (Provisional Quantity) | Sum | 1 | R 5 750.00 | R 5 750.00 |
| 8.2.9(b) | Operation of Equipment (Provisional Quantity) | Day | 10 | R 575.00 | R 5 750.00 |
| 8.2.9(c) | Materials Used (Provisional Quantity) | m3 | 20 | R 2 875.00 | R 57 500.00 |
| 8.2.10 | Standing time for pipe jacking gang and jacking equipment (Provisional Quantity) | hr | 45 | R 1 265.00 | R 56 925.00 |
| PSLG 5.7 | Grouting of sleeve | m3 | 105 | R 3 450.00 | R 362 250.00 |
| PSLG 8.2.11 | Hand excavation and backfilling of trench to expose services | m3 | 15 | R 287.50 | R 4 312.50 |
| PSLG 5.10 | Grouting in of steel pipe inside sleeve | m3 | 125 | R 3 450.00 | R 431 250.00 |
| PSLG 8.2.15, 5.11 | Close DN3250 sleeve end with brick wall | No. | 2 | R 5 441.80 | R 10 883.60 |
| PSLG 8.2.16, 5.12 | Supply and install marker posts | No. | 2 | R 1 725.00 | R 3 450.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 5 408 944.85 |

SUMMARY

| SECTION | DESCRIPTION | TOTAL |
|--|---------------------------------------|-------------------------|
| SECTION 1 | PRELIMINARY AND GENERAL | R 74 901 962.85 |
| SECTION 2 | SITE CLEARANCE | R 4 542 849.65 |
| SECTION 3 | EARTHWORKS | R 489 870.10 |
| SECTION 4 | PIPE TRENCHES | R 59 053 194.30 |
| SECTION 5 | GABIONS AND PITCHING | R 1 254 314.96 |
| SECTION 6 | CONCRETE STRUCTURAL | R 5 585 083.61 |
| SECTION 7 | MEDIUM PRESSURE PIPELINES | R 260 324 657.87 |
| SECTION 8 | BEDDING (PIPES) | R 26 148 913.00 |
| SECTION 9 | PIPE JACKING | R 17 110 930.75 |
| SECTION 10 | CATHODIC PROTECTION AND AC MITIGATION | R 0.00 |
| TOTAL CARRIED TO BILL OF QUANTITIES 2 C - PHASE 2 | | R 449 411 777.08 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|--|----------------|----------|-------------|-----------------------|
| SANS 1200 C | SECTION 2 : SITE CLEARANCE | | | | |
| | CLEAR SITE | | | | |
| 8.2.1 | Clear and grub site over working corridor | ha | 95.97 | R 9 775.00 | R 938 106.75 |
| 8.2.2 | Remove and grub large trees and tree stumps regardless of girth | ha | 2.05 | R 39 716.00 | R 81 417.80 |
| 8.2.10 | Remove topsoil to nominal depth of 150mm and stockpile and maintain. | m ² | 959700 | R 3.22 | R 3 090 234.00 |
| PSC 8.2.11 | Remove existing road and driveways and spoil, for: | | | | |
| | a) Asphalt | m ² | 215 | R 58.65 | R 12 609.75 |
| | b) Gravel | m ² | 2675 | R 54.05 | R 144 583.75 |
| | c) Concrete | m ² | 2035 | R 41.40 | R 84 249.00 |
| PSC 8.2.14 | Saw cutting of existing surface: | | | | |
| | a) Asphalt | m | 36 | R 27.60 | R 993.60 |
| | b) Concrete | m | 300 | R 33.35 | R 10 005.00 |
| 8.2.5 PS 9.2 PSC 8.2.17 | Dismantle existing fencing, move to storage and later reinstate as directed by the Engineer: | | | | |
| | i) All precast concrete fence. | m | 200 | R 126.00 | R 25 200.00 |
| | ii) All timber fence. | m | 200 | R 172.50 | R 34 500.00 |
| | iii) All galvanized weld mesh fence. | m | 200 | R 97.75 | R 19 550.00 |
| | iv) All galvanized diamond mesh fence. | m | 200 | R 207.00 | R 41 400.00 |
| | v) All electric fence | m | 200 | R 300.00 | R 60 000.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 4 542 849.65 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------------|----------|----------|---------------------|
| SANS 1200 D | SECTION 3 : EARTHWORKS | | | | |
| | EXCAVATION | | | | |
| 8.3.3(a) PSD 5.2.2.1 | Restricted excavation in all materials and use for backfill and compact to specified densities or dispose as ordered for: | | | | |
| | DN1930 Isolating Valve Chambers (3 Off) | m ³ | 752 | R 132.02 | R 99 279.04 |
| | DN1524 Isolating Valve Chamber (1 Off) | m ³ | 252 | R 132.02 | R 33 269.04 |
| | DN1700 Meter Chamber (1 Off) | m ³ | 252 | R 132.02 | R 33 269.04 |
| | Scour Valve Chambers | | | | |
| | a) Type 1 (16 Off) | m ³ | 924 | R 132.02 | R 121 986.48 |
| 8.3.2.(b) | Extra-over item 8.3.3 for excavation in: | | | | |
| 8.3.3.(b).1 | Intermediate Material (Provisional Quantity) | m ³ | 550 | R 20.70 | R 11 385.00 |
| 8.3.3.(b).2 | Hard Rock (Provisional Quantity) | m ³ | 330 | R 295.55 | R 97 531.50 |
| | FINISHINGS | | | | |
| PSD 8.3.14 PSD 5.1.1.1 | Barricading | | | | |
| | i) Barrier Fence | m | 1000 | R 93.15 | R 93 150.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 489 870.10 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-------------------------|--|----------------|----------|-------------|------------------------|
| SANS 1200 DB | SECTION 4 : PIPE TRENCHES | | | | |
| | EXCAVATION | | | | |
| 8.3.2(a) | Excavate in all materials for trenches, backfill with graded material, compact hydraulically/ mechanically to specified density and dispose of surplus/unsuitable material: for DN1930 pipe 4-5 m | m ³ | 192160 | R 156.01 | R 29 978 881.60 |
| 8.3.2(b) | Extra-over items 8.3.2(a) for : | | | | |
| 1) | Intermediate Material (Provisional Quantity) | m ³ | 48040 | R 20.70 | R 994 428.00 |
| 2) | Hard Rock (Provisional Quantity) | m ³ | 28825 | R 243.80 | R 7 027 535.00 |
| | Extra-over items 8.3.2(a) for : | | | | |
| PSDB3.7 | Removal of suitable backfill material off site, store at temporary site, load and haul back to site.(Provisional Quantity) | m ³ | 3845 | 93.22 | R 358 430.90 |
| 8.3.2(c) PSDB5.5 | Excavate and dispose of unsuitable material from trench bottom (Provisional Quantity) DN1524 pipe 3-4 m 4-5 m | m ³ | 1925 | R 81.32 | R 156 541.00 |
| | | m ³ | 41685 | R 156.01 | R 6 503 276.85 |
| | | m ³ | 5035 | R 171.47 | R 863 351.45 |
| 8.3.2(b) | Extra-over items 8.3.2(a) for : | | | | |
| 1) | Intermediate Material (Provisional Quantity) | m ³ | 11935 | R 20.70 | R 247 054.50 |
| 2) | Hard Rock (Provisional Quantity) | m ³ | 7260 | R 243.80 | R 1 769 988.00 |
| | Extra-over items 8.3.2(a) for : | | | | |
| PSDB3.7 | Removal of suitable backfill material off site, store at temporary site, load and haul back to site.(Provisional Quantity) | m ³ | 935 | 93.22 | R 87 160.70 |
| 8.3.2(c) PSDB5.5 | Excavate and dispose of unsuitable material from trench bottom (Provisional Quantity) | m ³ | 470 | R 81.32 | R 38 220.40 |
| | SELECTED BACKFILL | | | | |
| 8.3.3.3 | Compaction in road reserves to 97% MOD AASHTO (Provisional Quantity) | m ³ | 100 | R 35.08 | R 3 508.00 |
| | EXISTING SERVICES | | | | |
| 8.3.5(a) PSDB 8.3.5 | Protect, maintain, repair all services that intersect a trench | Prov Sum | 1 | R 82 500.00 | R 82 500.00 |
| 8.3.5(b) PSDB8.3.5 | Protect, maintain, repair all services that adjoin a trench | Prov Sum | 1 | R 82 500.00 | R 82 500.00 |
| | FINISHINGS | | | | |
| | Topsoiling | m ² | 959700 | R 10.47 | R 10 048 059.00 |
| CARRIED FORWARD | | | | | R 58 241 435.40 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------------|----------|------------|------------------------|
| BROUGHT FORWARD | | | | | R 58 241 435.40 |
| PSDB 5.1.2.2 | Reinstate roads and driveways complete with all courses | | | | |
| | a) Gravel in driveways | m ² | 2675 | R 97.75 | R 261 481.25 |
| | b) Asphalt of 30 - 60mm thickness in roadway | m ² | 215 | R 162.15 | R 34 862.25 |
| | c) Concrete | m ³ | 2035 | R 247.12 | R 502 889.20 |
| | Installation of permanent subsoil drainage systems in accordance with drawing no, inclusive of gabion, geofabric, pipe, stone and other materials for completion as directed by the Engineer (Provisional Quantity) | No. | 5 | R 2 505.24 | R 12 526.20 |
| CARRIED FORWARD TO SUMMARY | | | | | R 59 053 194.30 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------------|----------|------------|-----------------------|
| SANS 1200 DK | SECTION 5: GABIONS AND PITCHING | | | | |
| | GABIONS | | | | |
| 8.2.2 PSDK 3.1.2 | Construct gabions using double twisted hexagonal mesh type 80 with 3.4mm OD frame wire and 2.7mm OD mesh wire to SANS 1580:2005: | | | | |
| 8.2.2 | a) Reno mattresses of depth 0,3 m with diaphragms providing 2 m x 1 m cells. (Provisional Quantity) | m ² | 877 | R 1 355.24 | R 1 188 545.48 |
| 8.2.4 PSDK 3.1.3 | Geotextile (Type AG 200) placed where ground water seepage occurs: | | | | |
| 8.2.4 | a) below reno mattresses (Provisional Quantity) | m ² | 877 | R 15.99 | R 14 023.23 |
| PSDK 3.2 | STONE PITCHING | | | | |
| | Supply all labour, plant and material and lay medium grouted pitching as indicated, including for all surface preparation and compaction (Provisional Quantity) | m ² | 125 | R 413.97 | R 51 746.25 |
| CARRIED FORWARD TO SUMMARY | | | | | R 1 254 314.96 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------|---|----------------|----------|------------|---------------------|
| SANS 1200 G | SECTION 6 : CONCRETE STRUCTURAL | | | | |
| 8.2 PSG 4.5, 7.2 | FORMWORK | | | | |
| | DN1930 IV Chambers (4 Off) | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 720 | R 272.90 | R 196 488.00 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 640 | R 406.79 | R 260 345.60 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide | | | | |
| | 200mm wide | m | 140 | R 143.73 | R 20 122.20 |
| 8.2.6 | Box out holes/form voids: | | | | |
| 8.2.6(a) | Small, circular, up to 0,35 m dia., depth 0 m to 0,5 metres | | | | |
| | DN200 pipe through chamber walls | No. | 4 | R 381.55 | R 1 526.20 |
| | DN300 pipe through chamber walls | No. | 8 | R 476.94 | R 3 815.52 |
| | Large, circular, diameter greater than 1,0m, depth 0m to 0,5m | | | | |
| | DN1930 pipe through chamber walls | No. | 8 | R 3 091.57 | R 24 732.56 |
| | DN1524 IV Chambers (1 Off) | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 180 | R 272.90 | R 49 122.00 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 160 | R 406.79 | R 65 086.40 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide | | | | |
| | 200mm wide | m | 35 | R 143.73 | R 5 030.55 |
| 8.2.6 | Box out holes/form voids: | | | | |
| 8.2.6(a) | Small, circular, up to 0,35 m dia., depth 0 m to 0,5 metres | | | | |
| | DN200 pipe through chamber walls | No. | 1 | R 381.55 | R 381.55 |
| | DN300 pipe through chamber walls | No. | 2 | R 476.94 | R 953.88 |
| | Large, circular, diameter greater than 1,0m, depth 0m to 0,5m | | | | |
| | DN1524 pipe through chamber walls | No. | 2 | R 3 091.57 | R 6 183.14 |
| | DN1700 Meter Chamber (1 Off) | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 180 | R 272.90 | R 49 122.00 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 160 | R 406.79 | R 65 086.40 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide | | | | |
| | 200mm wide | m | 35 | R 143.73 | R 5 030.55 |
| CARRIED FORWARD | | | | | R 753 026.55 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|--|---|----------------|----------|-------------|-----------------------|
| BROUGHT FORWARD | | | | | R 753 026.55 |
| 8.2.6 | Box out holes/form voids: Large, circular, diameter greater than 1,0m, depth 0m to 0,5m DN1700 pipe through chamber walls | No. | 2 | R 2 033.93 | R 4 067.86 |
| DN200 Scour Chambers (16 Off) | | | | | |
| 8.2.1 | Rough to External walls above and below ground level | m ² | 994 | R 272.90 | R 271 340.57 |
| 8.2.2 | Smooth to exposed face of Internal walls | m ² | 754 | R 406.79 | R 306 835.89 |
| 8.2.2 | Smooth to underside of roof slab | m ² | 109 | R 435.54 | R 47 287.20 |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide 200mm wide | m | 171 | R 143.73 | R 24 639.43 |
| 8.2.6 | Box out holes/form voids: | | | | |
| 8.2.6(a) | Small, circular, up to 0,35 m dia., depth 0 m to 0,5 metres DN200 pipe through chamber wall | No. | 32 | R 476.94 | R 15 262.08 |
| | DN200 air vents in roof slab | No. | 32 | R 476.94 | R 15 262.08 |
| | Large, circular, diameter greater than 1,0m, depth 0m to 0,5m DN550 manhole access in roof slab | No. | 16 | R 1 586.47 | R 25 383.52 |
| DN200 Air Valve Chamber Type 2 (18 Off) | | | | | |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide 150mm wide | m | 395 | R 143.73 | R 56 718.07 |
| DN200 Air Valve Chamber Type 4 (18 Off) | | | | | |
| 8.2.5 | Horizontal / Vertical narrow widths up to 300mm wide 150mm wide | m | 395 | R 143.73 | R 56 718.07 |
| 8.3 | REINFORCEMENT | | | | |
| DN1930 IV Chambers (4 Off) | | | | | |
| 8.3.1 | Mild Steel | t | 7.52 | R 12 032.07 | R 90 481.17 |
| 8.3.1 | High Tensile Steel | t | 30.00 | R 12 032.07 | R 360 962.10 |
| DN1524 IV Chambers (1 Off) | | | | | |
| 8.3.1 | Mild Steel | t | 1.88 | R 12 032.07 | R 22 620.29 |
| 8.3.1 | High Tensile Steel | t | 7.50 | R 12 032.07 | R 90 240.53 |
| DN1700 Meter Chamber (1 Off) | | | | | |
| 8.3.1 | Mild Steel | t | 1.88 | R 12 032.07 | R 22 620.29 |
| 8.3.1 | High Tensile Steel | t | 7.50 | R 12 032.07 | R 90 240.53 |
| DN200 Scour Chambers (16 Off) | | | | | |
| CARRIED FORWARD | | | | | R 2 253 706.21 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|--|---|----------------|----------|-------------|-----------------------|
| BROUGHT FORWARD | | | | | R 2 253 706.21 |
| 8.3.1 | Mild Steel | t | 8.35 | R 12 032.07 | R 100 519.35 |
| 8.3.1 | High Tensile Steel | t | 33.43 | R 12 032.07 | R 402 214.91 |
| DN200 Air Valve Chamber Type 2 (18 Off) | | | | | |
| 8.3.1 | Mild Steel | t | 0.26 | R 12 032.07 | R 3 165.36 |
| 8.3.1 | High Tensile Steel | t | 1.04 | R 12 032.07 | R 12 494.84 |
| DN200 Air Valve Chamber Type 4 (18 Off) | | | | | |
| 8.3.1 | Mild Steel | t | 0.26 | R 12 032.07 | R 3 165.36 |
| 8.3.1 | High Tensile Steel | t | 1.04 | R 12 032.07 | R 12 494.84 |
| Concrete encasement DN1930 pipe at river crossings (Provisional Quantity) | | | | | |
| 8.3.1 | Mild Steel | t | 2.50 | R 12 032.07 | R 30 080.18 |
| 8.3.1 | High Tensile Steel | t | 10.00 | R 12 032.07 | R 120 320.70 |
| Concrete encasement DN1524 pipe at river crossings (Provisional Quantity) | | | | | |
| 8.3.1 | Mild Steel | t | 2.50 | R 12 032.07 | R 30 080.18 |
| 8.3.1 | High Tensile Steel | t | 10.00 | R 12 032.07 | R 120 320.70 |
| 8.4 | CONCRETE | | | | |
| DN1930 IV Chambers (4 Off) | | | | | |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 188 | R 125.27 | R 23 550.76 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Base | m ³ | 88 | R 1 955.23 | R 172 060.24 |
| | Walls | m ³ | 216 | R 1 955.23 | R 422 329.68 |
| DN1524 IV Chambers (1 Off) | | | | | |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 47 | R 125.27 | R 5 887.69 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Base | m ³ | 22 | R 1 955.23 | R 43 015.06 |
| | Walls | m ³ | 54 | R 1 955.23 | R 105 582.42 |
| DN1700 Meter Chamber (1 Off) | | | | | |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 47 | R 125.27 | R 5 887.69 |
| 8.4.3 | 15MPa concrete for platforms, steps, pipe supports etc. | | | | |
| | Pipe supports | m ³ | 7.5 | R 1 789.80 | R 13 423.50 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Base | m ³ | 44 | R 1 955.23 | R 86 030.12 |
| | Walls | m ³ | 54 | R 1 955.23 | R 105 582.42 |
| DN200 Scour Chambers (16 Off) | | | | | |
| CARRIED FORWARD | | | | | R 4 071 912.21 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------|---|----------------|----------|------------|-----------------------|
| BROUGHT FORWARD | | | | | R 4 071 912.21 |
| 8.4.2 | 10 MPa concrete 55mm thk for blinding | m ² | 286 | R 125.27 | R 35 791.43 |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Base | m ³ | 129 | R 1 955.23 | R 252 503.99 |
| | Walls | m ³ | 183 | R 1 955.23 | R 358 645.05 |
| | Roof slab | m ³ | 21.7 | R 1 955.23 | R 42 456.42 |
| | DN200 Air Valve Chamber Type 2 (18 Off) | | | | |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Strip Foundation | m ³ | 10.4 | R 1 955.23 | R 20 304.31 |
| | DN200 Air Valve Chamber Type 4 (18 Off) | | | | |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Strip Foundation | m ³ | 10.4 | R 1 955.23 | R 20 304.31 |
| | Concrete encasement DN1930 pipe at river crossing (Provisional Quantity) | | | | |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Concrete encasement of pipe | m ³ | 75 | R 2 215.64 | R 166 173.00 |
| | Concrete encasement DN1524 pipe at river crossing (Provisional Quantity) | | | | |
| 8.4.3 | Concrete, Grade 25MPa/19mm for: | | | | |
| | Concrete encasement of pipe | m ³ | 100 | R 2 215.64 | R 221 564.00 |
| 8.4.4 | UNFORMED SURFACE FINISHES | | | | |
| | DN1930 IV Chambers (4 Off) | | | | |
| 8.4.4(a) | Wood-floated | | | | |
| | To floor slabs | m ² | 156 | R 21.55 | R 3 361.80 |
| | To top of walls | m ² | 40 | R 21.55 | R 862.00 |
| | DN1524 IV Chambers (1 Off) | | | | |
| 8.4.4(a) | Wood-floated | | | | |
| | To floor slabs | m ² | 39 | R 21.55 | R 840.45 |
| | To top of walls | m ² | 10 | R 21.55 | R 215.50 |
| | DN200 Scour Chambers (16 Off) | | | | |
| 8.4.4(a) | Wood-floated | | | | |
| | To floor slabs | m ² | 286 | R 21.55 | R 6 157.14 |
| | To roof slabs | m ² | 108 | R 21.55 | R 2 329.86 |
| | To top of walls | m ² | 73 | R 21.55 | R 1 583.62 |
| | MISCELLANEOUS | | | | |
| | Bitumen impregnated soft board | m | 80 | R 33.92 | R 2 713.60 |
| CARRIED FORWARD | | | | | R 5 207 718.69 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|--|----------------|----------|------------|-----------------------|
| BROUGHT FORWARD | | | | | R 5 207 718.69 |
| PSG 8.4.5 | Polyurethane joint sealant (10mm x 20mm) | m | 80 | R 44.41 | R 3 552.80 |
| | Neoprene inserts for pipes at pipe supports - For DN1930 | m ² | 20 | R 114.33 | R 2 286.60 |
| | Neoprene inserts for pipes at pipe supports - For DN1524 | m ² | 20 | R 114.33 | R 2 286.60 |
| | Concrete complete with formwork, reinforcing, surface finishing, holes, vents if applicable and joints, for: | | | | |
| | Removable roof slabs in IV chambers | m ³ | 18.7 | R 2 215.64 | R 41 432.47 |
| | Removable roof slabs in Meter Chambers | m ³ | 9.5 | R 2 215.64 | R 21 048.58 |
| | Removable roof slabs in Air Valve-Type2 | m ³ | 21.0 | R 2 215.64 | R 46 630.70 |
| PSG 8.9 | Removable roof slabs in Air Valve Type 4 | m ³ | 21.0 | R 2 215.64 | R 46 630.70 |
| | Grouting of pipes/specials through walls or slabs inclusive of pipe wall joint sealing | | | | |
| | iv) DN1930 in IV Chamber | No. | 8 | R 6 618.09 | R 52 944.72 |
| | v) DN1524 in IV Chamber | No. | 2 | R 6 618.09 | R 13 236.18 |
| | vi) DN300 in IV Chamber | No. | 10 | R 2 873.22 | R 28 732.20 |
| | vii) DN200 in IV Chamber | No. | 5 | R 1 969.29 | R 9 846.45 |
| | viii) DN1700 in Meter Chamber | No. | 2 | R 5 165.34 | R 10 330.68 |
| PSG 8.10 | ix) DN200 in Scour Chamber | No. | 16 | R 1 969.29 | R 31 508.64 |
| | Casting of pipes/specials through walls or slabs | | | | |
| | Air vents in roof slab in chambers | No. | 32 | R 750.50 | R 24 016.00 |
| | Securex manhole cover in roof slab in chambers | No. | 16 | R 2 680.10 | R 42 881.60 |
| CARRIED FORWARD TO SUMMARY | | | | | R 5 585 083.61 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------|---|------|----------|-------------|-------------------------|
| SANS 1200 L | SECTION 7 : MEDIUM PRESSURE PIPELINES | | | | |
| | Supply and transport of polyurethane coated, epoxy lined steel pipe | | | | |
| | DN1930 * 12mm thick * grade X42 pipe | m | 15278 | R 9 649.00 | R 147 412 597.50 |
| | DN1524 * 10mm thick * grade X42 pipe | m | 4788 | R 6 347.00 | R 30 389 436.00 |
| PSL 8.2.1 | Lay, bed and joint pipes, inclusive of internal epoxy lining repair, external coating repair and NDT testing | | | | |
| | DN1930 * 12mm thick * grade X42 pipe | m | 15278 | R 3 196.86 | R 48 840 028.65 |
| | DN1524 * 10mm thick * grade X42 pipe | m | 4788 | R 1 993.33 | R 9 544 064.04 |
| | Manufacturing of Simple and Compound Bends, inclusive of reinstatement of testing, external coating and internal lining reinstatement, transportation and handling: | | | | |
| | Bends for DN1930 * 12mm thick * grade X42 pipe: | | | | |
| 8.2.3 & PSL 3.4.4.1 | up to 15 deg | No. | 20 | R 12 554.64 | R 251 092.89 |
| 8.2.3 & PSL 3.4.4.1 | 16 to 30 deg | No. | 19 | R 21 126.77 | R 401 408.65 |
| 8.2.3 & PSL 3.4.4.1 | 31 to 45 deg | No. | 16 | R 27 780.49 | R 444 487.84 |
| 8.2.3 & PSL 3.4.4.1 | 46 to 60 deg | No. | 3 | R 27 780.49 | R 83 341.47 |
| 8.2.3 & PSL 3.4.4.1 | 61 to 75 deg | No. | 1 | R 35 502.69 | R 35 502.69 |
| 8.2.3 & PSL 3.4.4.1 | 76 to 90 deg | No. | 2 | R 40 699.39 | R 81 398.78 |
| | Bends for DN1524 * 10mm thick * grade X42 pipe: | | | | |
| 8.2.3 & PSL 3.4.4.1 | up to 15 deg | No. | 20 | R 7 828.16 | R 156 563.22 |
| 8.2.3 & PSL 3.4.4.1 | 16 to 30 deg | No. | 10 | R 13 173.11 | R 131 731.14 |
| 8.2.3 & PSL 3.4.4.1 | 31 to 45 deg | No. | 6 | R 17 321.89 | R 103 931.33 |
| 8.2.3 & PSL 3.4.4.1 | 46 to 60 deg | No. | 3 | R 17 321.89 | R 51 965.66 |
| 8.2.3 & PSL 3.4.4.1 | 61 to 75 deg | No. | 3 | R 22 136.89 | R 66 410.66 |
| 8.2.3 & PSL 3.4.4.1 | 76 to 90 deg | No. | 4 | R 25 377.17 | R 101 508.68 |
| | SPECIAL ASSEMBLIES | | | | |
| 8.2.3 | Supply, fabricate, handle and install the following assemblies: | | | | |
| PSL 5.1.7 | DN200 Air Valve Assembly - Type 2, PN 16, Inclusive of all Pipe Reinforcing | No. | 18 | R 84 748.30 | R 1 525 469.40 |
| CARRIED FORWARD | | | | | R 239 620 938.60 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|------|----------|----------------|-------------------------|
| BROUGHT FORWARD | | | | | R 239 620 938.60 |
| PSL 5.1.8 | DN200 Air Valve Assembly - Type 4, PN 16, Inclusive of all Pipe Reinforcing | No. | 18 | R 140 890.51 | R 2 536 029.18 |
| | DN200 Scour Valve Assembly, Terminal End Type 1, PN16, Inclusive of Collar Plates. | No. | 16 | R 30 216.41 | R 483 462.56 |
| | DN1930 Isolating Valve Assembly Complete | No. | 4 | R 2 260 891.73 | R 9 043 566.92 |
| | DN1524 Isolating Valve Assembly Complete | No. | 1 | R 1 643 040.65 | R 1 643 040.65 |
| | DN1700 Meter Chamber Assembly Complete | No. | 1 | R 3 054 571.07 | R 3 054 571.07 |
| 8.2.13 | VALVE CHAMBER AND MANHOLES | | | | |
| | Note : The following rates are to include for the installation of all GRP access ladders, safety cages, step irons, sealing joints, air vents, handrails, access manholes & frames, GRP landings & plastic gratings. All in situ and pre cast concrete elements,shuttering, surface finishing, curing of concrete and ancillaries to be included and rate supplied to be for full functional unit | | | | |
| | Supply and install units COMPLETE with related items for the construction of chambers for: | | | | |
| | Scour Valve Chamber | | | | |
| | a) Type 1 | No. | 16 | R 28 475.27 | R 455 604.32 |
| | Air Valve Chambers | | | | |
| | a) Type 2 | No. | 18 | R 61 874.57 | R 1 113 742.26 |
| | b) Type 4 | No. | 18 | R 61 875.57 | R 1 113 760.26 |
| PSL 5.1.5 | Supply and install Pipe Route Marker Posts. | No. | 100 | R 421.80 | R 42 318.14 |
| PSL 7.3 | HYDRAULIC TESTING | | | | |
| | Fabrication, Installation, Remove & Handover to the employer Bullnoses of : | | | | |
| | DN1930 * 12mm thick * grade X42 pipe | No. | 2 | R 23 312.30 | R 46 624.60 |
| | DN1524 * 10mm thick * grade X42 pipe | No. | 2 | R 14 535.85 | R 29 071.70 |
| PSL 7.3 & PSL 8.2.19 | End cap, filling and testing of pipeline within sections specified by the Engineer | m | 20066 | R 56.91 | R 1 141 927.61 |
| CARRIED FORWARD TO SUMMARY | | | | | R 260 324 657.87 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|--|----------------|----------|----------|------------------------|
| SANS 1200 LB | SECTION 8 : BEDDING (PIPES) | | | | |
| | Bedding material | | | | |
| | Supply of selected granular material for 300mm bedding cradle below pipe invert and for fill blanket from pipe invert to 300mm above pipe crown, from commercial sources | | | | |
| | i) DN1930 pipe | m ³ | 73345 | R 284.97 | R 20 901 124.65 |
| | ii) DN1524 pipe | m ³ | 17855 | R 284.97 | R 5 088 139.35 |
| | Selected Backfill | | | | |
| | Selected fill material including for screening or other treatment, to achieve grading suitable to comply with the bedding material specification compacted to 97% MOD AASHTO: | | | | |
| | i) from commercial sources (Provisional Quantity) | m ³ | 100 | R 284.97 | R 28 497.00 |
| PSLB 3.3 | Cement stabilised selected fill bedding (Soilcrete Bedding - 4% CEMENT) | m ³ | 100 | R 425.07 | R 42 507.00 |
| PSLB 5.1.2.1 PSLB 8.2.6 | Stone Bedding for pipe, supplied, placed and compacted, from a commercial source. (Provisional Quantity) | m ³ | 100 | R 726.55 | R 72 655.00 |
| PSLB 5.1.2.1 | Supply and place into position, geotextile for sub soil drains | m ² | 1000 | R 15.99 | R 15 990.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 26 148 913.00 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|--------------------------|---|----------|----------|--------------|-----------------------|
| SANS 1200LG | SECTION 9 : PIPE JACKING | | | | |
| | DN3000 PIPE JACK 2 - R56 | | | | |
| 8.2.1 PSLG 8.2.1 | Jacking establishment: | | | | |
| 8.2.1(a) | Fixed Charges | Sum | 1 | R 402 500.00 | R 402 500.00 |
| 8.2.2(b) | Time Related: State time: Weeks | Sum | 1 | R 690 000.00 | R 690 000.00 |
| PS LG 5.2.3.2 | Initial survey of ground and structures at jacking fronts | Sum | 1 | R 1 725.00 | R 1 725.00 |
| PS LG5.2.3.1, 8.2.19 | Conduct monitoring surveys | No. | 7 | R 402.50 | R 2 817.50 |
| PSLG 8.2.2 | Supply of Pipes to be Jacked: | | | | |
| 8.2.2 PSLG 3 | DN3000 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes to be delivered to the required location" | m | 20 | R 47 196.00 | R 943 920.00 |
| PSLG 8.2.3 | Jacking of Pipes: | | | | |
| 8.2.3 PSLG 5.4.3 | DN3000 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes | m | 20 | R 41 400.00 | R 828 000.00 |
| 8.2.4 PSLG 4.3, 5.1.4 | Excavation for Jacking in all materials | m3 | 260 | R 1 840.00 | R 478 400.00 |
| 8.2.5 | Extra-over item 8.2.4 for unforeseen rock or boulders | Prov Sum | 1 | R 20 000.00 | R 20 000.00 |
| 8.2.9 PSLG 8.2.9 | Stabilization of unstable areas or grouting of voids where ordered by the Engineer: | | | | |
| 8.2.9(a) | Provision and establishment of equipment on site, and removal on completion of operation (Provisional Quantity) | Sum | 1 | R 5 750.00 | R 5 750.00 |
| 8.2.9(b) | Operation of Equipment (Provisional Quantity) | Day | 10 | R 575.00 | R 5 750.00 |
| 8.2.9(c) | Materials Used (Provisional Quantity) | m3 | 20 | R 2 875.00 | R 57 500.00 |
| 8.2.10 | Standing time for pipe jacking gang and jacking equipment (Provisional Quantity) | hr | 45 | R 1 265.00 | R 56 925.00 |
| PSLG 5.7 | Grouting of sleeve | m3 | 60 | R 3 450.00 | R 207 000.00 |
| PSLG 8.2.11 | Hand excavation and backfilling of trench to expose services | m3 | 15 | R 287.50 | R 4 312.50 |
| PSLG 5.10 | Grouting in of steel pipe inside sleeve | m3 | 85 | R 3 450.00 | R 293 250.00 |
| PSLG 8.2.15, 5.11 | Close DN3000 sleeve end with brick wall | No. | 2 | R 4 636.80 | R 9 273.60 |
| PSLG 8.2.16, 5.12 | Supply and install marker posts | No. | 2 | R 1 725.00 | R 3 450.00 |
| | DN3000 PIPE JACK 2 - R624 | | | | |
| 8.2.1 PSLG 8.2.1 | Jacking establishment: | | | | |
| 8.2.1(a) | Fixed Charges | Sum | 1 | R 402 500.00 | R 402 500.00 |
| 8.2.2(b) | Time Related: State time: Weeks | Sum | 1 | R 690 000.00 | R 690 000.00 |
| PS LG 5.2.3.2 | Initial survey of ground and structures at jacking fronts | Sum | 1 | R 1 725.00 | R 1 725.00 |
| CARRIED FORWARD | | | | | R 5 104 798.60 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|--------------------------|---|----------|----------|--------------|-----------------------|
| BROUGHT FORWARD | | | | | R 5 104 798.60 |
| PS LG5.2.3.1, 8.2.19 | Conduct monitoring surveys | No. | 7 | R 402.50 | R 2 817.50 |
| PSLG 8.2.2 | Supply of Pipes to be Jacked: | | | | |
| 8.2.2 PSLG 3 | DN3000 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes to be delivered to the required location" | m | 20 | R 47 196.00 | R 943 920.00 |
| PSLG 8.2.3 | Jacking of Pipes: | | | | |
| 8.2.3 PSLG 5.4.3 | DN3000 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes | m | 20 | R 41 400.00 | R 828 000.00 |
| 8.2.4 PSLG 4.3, 5.1.4 | Excavation for Jacking in all materials | m3 | 260 | R 1 840.00 | R 478 400.00 |
| 8.2.5 | Extra-over item 8.2.4 for unforeseen rock or boulders | Prov Sum | 1 | R 20 000.00 | R 20 000.00 |
| 8.2.9 PSLG 8.2.9 | Stabilization of unstable areas or grouting of voids where ordered by the Engineer: | | | | |
| 8.2.9(a) | Provision and establishment of equipment on site, and removal on completion of operation (Provisional Quantity) | Sum | 1 | R 5 750.00 | R 5 750.00 |
| 8.2.9(b) | Operation of Equipment (Provisional Quantity) | Day | 10 | R 575.00 | R 5 750.00 |
| 8.2.9(c) | Materials Used (Provisional Quantity) | m3 | 20 | R 2 875.00 | R 57 500.00 |
| 8.2.10 | Standing time for pipe jacking gang and jacking equipment (Provisional Quantity) | hr | 45 | R 1 265.00 | R 56 925.00 |
| PSLG 5.7 | Grouting of sleeve | m3 | 60 | R 3 450.00 | R 207 000.00 |
| PSLG 8.2.11 | Hand excavation and backfilling of trench to expose services | m3 | 15 | R 287.50 | R 4 312.50 |
| PSLG 5.10 | Grouting in of steel pipe inside sleeve | m3 | 85 | R 3 450.00 | R 293 250.00 |
| PSLG 8.2.15, 5.11 | Close DN3000 sleeve end with brick wall | No. | 2 | R 4 636.80 | R 9 273.60 |
| PSLG 8.2.16, 5.12 | Supply and install marker posts | No. | 2 | R 1 725.00 | R 3 450.00 |
| | DN2750 PIPE JACK 2 - R603 | | | | |
| 8.2.1 PSLG 8.2.1 | Jacking establishment: | | | | |
| 8.2.1(a) | Fixed Charges | Sum | 1 | R 402 500.00 | R 402 500.00 |
| 8.2.2(b) | Time Related: State time: Weeks | Sum | 1 | R 690 000.00 | R 690 000.00 |
| PS LG 5.2.3.2 | Initial survey of ground and structures at jacking fronts | Sum | 1 | R 1 725.00 | R 1 725.00 |
| PS LG 5.2.3.1, 8.2.19 | Conduct monitoring surveys | No. | 7 | R 402.50 | R 2 817.50 |
| 8.2.2 PSLG 3 | DN2750 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes to be delivered to the required location" | m | 20 | R 39 657.75 | R 793 155.00 |
| PSLG 8.2.3 | Jacking of Pipes: | | | | |
| CARRIED FORWARD | | | | | R 9 911 344.70 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|--|---|----------|----------|--------------|------------------------|
| BROUGHT FORWARD | | | | | R 9 911 344.70 |
| 8.2.3 PSLG 5.4.3 | DN2750 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes | m | 20 | R 34 787.50 | R 695 750.00 |
| 8.2.4 PSLG 4.3, 5.1.4 | Excavation for Jacking in all materials | m3 | 225 | R 1 840.00 | R 414 000.00 |
| 8.2.5 | Extra-over item 8.2.4 for unforeseen rock or boulders | Prov Sum | 1 | R 20 000.00 | R 20 000.00 |
| 8.2.9 PSLG 8.2.9 | Stabilization of unstable areas or grouting of voids where ordered by the Engineer: | | | | |
| 8.2.9(a) | Provision and establishment of equipment on site, and removal on completion of operation (Provisional Quantity) | Sum | 1 | R 5 750.00 | R 5 750.00 |
| 8.2.9(b) | Operation of Equipment (Provisional Quantity) | Day | 10 | R 575.00 | R 5 750.00 |
| 8.2.9(c) | Materials Used (Provisional Quantity) | m3 | 20 | R 2 875.00 | R 57 500.00 |
| 8.2.10 | Standing time for pipe jacking gang and jacking equipment (Provisional Quantity) | hr | 45 | R 1 265.00 | R 56 925.00 |
| PSLG 5.7 | Grouting of sleeve | m3 | 55 | R 3 450.00 | R 189 750.00 |
| PSLG 8.2.11 | Hand excavation and backfilling of trench to expose services | m3 | 15 | R 287.50 | R 4 312.50 |
| PSLG 5.10 | Grouting in of steel pipe inside sleeve | m3 | 85 | R 3 450.00 | R 293 250.00 |
| PSLG 8.2.15, 5.11 | Close DN2750 sleeve end with brick wall | No. | 2 | R 3 896.20 | R 7 792.40 |
| PSLG 8.2.16, 5.12 | Supply and install marker posts | No. | 2 | R 1 725.00 | R 3 450.00 |
| DN2750 PIPE JACK 2 - UMLAAS ROAD RAIL | | | | | |
| 8.2.1 PSLG 8.2.1 | Jacking establishment: | | | | |
| 8.2.1(a) | Fixed Charges | Sum | 1 | R 402 500.00 | R 402 500.00 |
| 8.2.2(b) | Time Related: State time: Weeks | Sum | 1 | R 690 000.00 | R 690 000.00 |
| PS LG 5.2.3.2 | Initial survey of ground and structures at jacking fronts | Sum | 1 | R 1 725.00 | R 1 725.00 |
| PS LG 5.2.3.1, 8.2.19 | Conduct monitoring surveys | No. | 7 | R 402.50 | R 2 817.50 |
| PSLG 8.2.2 | Supply of Pipes to be Jacked: | | | | |
| 8.2.2 PSLG 3 | DN2750 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes to be delivered to the required location" | m | 35 | R 39 657.75 | R 1 388 021.25 |
| PSLG 8.2.3 | Jacking of Pipes: | | | | |
| 8.2.3 PSLG 5.4.3 | DN2750 x 2440mm long, ROCLA IN-THE-WALL" Class 100D RC pipes | m | 35 | R 34 787.50 | R 1 217 562.50 |
| 8.2.4 PSLG 4.3, 5.1.4 | Excavation for Jacking in all materials | m3 | 400 | R 1 840.00 | R 736 000.00 |
| 8.2.5 | Extra-over item 8.2.4 for unforeseen rock or boulders | Prov Sum | 1 | R 20 000.00 | R 20 000.00 |
| 8.2.9 PSLG 8.2.9 | Stabilization of unstable areas or grouting of voids where ordered by the Engineer: | | | | |
| CARRIED FORWARD | | | | | R 16 124 200.85 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|------|----------|------------|------------------------|
| BROUGHT FORWARD | | | | | R 16 124 200.85 |
| 8.2.9(a) | Provision and establishment of equipment on site, and removal on completion of operation (Provisional Quantity) | Sum | 1 | R 5 750.00 | R 5 750.00 |
| 8.2.9(b) | Operation of Equipment (Provisional Quantity) | Day | 10 | R 575.00 | R 5 750.00 |
| 8.2.9(c) | Materials Used (Provisional Quantity) | m3 | 20 | R 2 875.00 | R 57 500.00 |
| 8.2.10 | Standing time for pipe jacking gang and jacking equipment (Provisional Quantity) | hr | 45 | R 1 265.00 | R 56 925.00 |
| PSLG 5.7 | Grouting of sleeve | m3 | 100 | R 3 450.00 | R 345 000.00 |
| PSLG 8.2.11 | Hand excavation and backfilling of trench to expose services | m3 | 15 | R 287.50 | R 4 312.50 |
| PSLG 5.10 | Grouting in of steel pipe inside sleeve | m3 | 145 | R 3 450.00 | R 500 250.00 |
| PSLG 8.2.15, 5.11 | Close DN2750 sleeve end with brick wall | No. | 2 | R 3 896.20 | R 7 792.40 |
| PSLG 8.2.16, 5.12 | Supply and install marker posts | No. | 2 | R 1 725.00 | R 3 450.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 17 110 930.75 |

SUMMARY

| SECTION | DESCRIPTION | TOTAL |
|--|--------------------------------------|------------------------|
| SECTION 1 | LAND ACQUISITION | R 0.00 |
| SECTION 2 | CROP COMPENSATION - FORESTRY | R 0.00 |
| SECTION 3 | CROP COMPENSATION - SUGAR CANE | R 19 442 869.18 |
| SECTION 4 | CROP COMPENSATION - MAIZE | R 1 842 750.00 |
| SECTION 5 | CROP COMPENSATION - ORCHARDS | R 1 512 000.00 |
| SECTION 6 | CROP COMPENSATION - OTHER CROPS | R 2 391 275.30 |
| SECTION 7 | CROP COMPENSATION - GRAZING PASTURES | R 1 999 350.00 |
| SECTION 8 | LAND RENTAL | R 3 104 580.43 |
| TOTAL CARRIED TO BILL OF QUANTITIES 2 C - PHASE 2 | | R 30 292 824.91 |

SUMMARY

| SECTION | DESCRIPTION | TOTAL |
|--|-----------------------------|------------------------|
| SECTION 1 | PRELIMINARY AND GENERAL | R 10 206 474.00 |
| SECTION 2 | SITE ESTABLISHMENT - PILING | R 120 000.00 |
| SECTION 3 | STRUCTURAL STEEL | R 8 400 000.00 |
| SECTION 4 | CONCRETE | R 6 000 000.00 |
| SECTION 5 | REINFORCEMENT | R 4 400 000.00 |
| SECTION 6 | FINISHING CONCRETE | R 8 580.00 |
| SECTION 7 | FORMWORK | R 351 000.00 |
| SECTION 8 | PILING | R 192 000.00 |
| SECTION 9 | CABLES | R 14 550 000.00 |
| TOTAL CARRIED TO BILL OF QUANTITIES 2 | | R 44 228 054.00 |

SUMMARY

| SECTION | DESCRIPTION | AMOUNT (RANDS) |
|--|----------------------------------|-----------------------|
| SECTION 1 | PRELIMINARY AND GENERAL | R 1 783 735.28 |
| SECTION 2 | SITE CLEARANCE | R 219 811.60 |
| SECTION 3 | EARTHWORKS (ROADS. SUBGRADE) | R 312 358.40 |
| SECTION 4 | SUBBASE | R 949 836.76 |
| SECTION 5 | BASE | R 822 093.04 |
| SECTION 6 | ASPHALT, BASE AND SURFACING | R 1 455 959.81 |
| SECTION 7 | CONCRETE KERBING AND CHANNELLING | R 943 881.03 |
| SECTION 8 | ANCILLARY ROAD WORKS | R 1 241 843.64 |
| TOTAL CARRIED TO BILL OF QUANTITIES 2 | | R 7 729 519.56 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|--|-------|----------|-------------|---------------------|
| SANS 1200 C | SITE CLEARANCE | | | | |
| | CLEAR SITE | | | | |
| 8.2.1 | Clear and grub site | ha | 2.9 | R 9 775.00 | R 28 347.50 |
| 8.2.3 | Remove and grub large trees and tree stumps regardless of girth | ha | 0.5 | R 39 716.00 | R 19 858.00 |
| 8.2.9 | Transport Materials and Debris to unspecified sites and dump (Provisional Quantity) | m3.km | 2890 | R 7.48 | R 21 617.20 |
| 8.2.10 | Remove topsoil to nominal depth 150mm, stockpile and maintain | m2 | 11560 | R 3.22 | R 37 223.20 |
| PSC 8.2.12 | Remove existing gravel layerworks to stockpile and maintain (for use as selected layers) as instructed by the Engineer | | | | |
| | i) Unstabilised gravel and crushed stone layerworks to roads | m3 | 1105 | R 48.18 | R 53 238.90 |
| | ii) Stabilised gravel layerworks to roads | m3 | 185 | R 48.18 | R 8 913.30 |
| | Remove existing road asphalt surfacing (25 -45mm thickness) | m2 | 2 450 | R 10.11 | R 24 769.50 |
| | FENCING | | | | |
| 8.2.5 | Dismantle existing fencing, move to storage and later reinstate as directed by the Engineer: | | | | |
| | i) All galvanized weld mesh fence.(Provisional Quantity) | m | 200 | R 48.99 | R 9 798.00 |
| | ii) All galvanized diamond mesh fence.(Provisional Quantity) | m | 200 | R 48.99 | R 9 798.00 |
| | iii) All electric fence (Provisional Quantity) | m | 100 | R 62.48 | R 6 248.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 219 811.60 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------------|----------|----------|---------------------|
| SANS 1200 DM | EARTHWORKS (ROADS. SUBGRADE) | | | | |
| | TREATMENT OF ROAD-BED | | | | |
| 8.3.3(a) | Road-bed preparation rip and recompact insitu material to : | | | | |
| | i) Minimum 90% of Mod. AASHTO density | m ³ | 1960 | R 43.42 | R 85 103.20 |
| | EARTHWORKS | | | | |
| 8.3.4(a) | Cut to fill (G10 quality material), from stockpile in item 1.5.1 | | | | |
| | i) Compact to 90% mod. AASHTO density | m ³ | 365 | R 43.42 | R 15 848.30 |
| 8.3.5 | Selected Natural Gravel Subgrade (G7 quality material), compacted to 93% Mod AASHTO Density | | | | |
| | i) From commercial source | m ³ | 1325 | R 34.69 | R 45 964.25 |
| | ii) From stockpile in item 1.5.1 | m ³ | 365 | R 96.33 | R 35 160.45 |
| 8.3.5 | Selected Natural Gravel Subgrade (G9 quality material), compacted to 93% Mod AASHTO Density | | | | |
| | i) From commercial source | m ³ | 1735 | R 34.69 | R 60 187.15 |
| | ii) From stockpile in item 1.5.1 | m ³ | 365 | R 96.33 | R 35 160.45 |
| 8.3.13(a) | SURFACE FINISHES | | | | |
| 8.3.13(a) | Topsoiling measured under PSD | | | | |
| 8.3.15 | Catchwater mounds and channels | m ³ | 30 | R 103.82 | R 3 114.60 |
| | MISCELLANEOUS | | | | |
| PSDM 8.3.17 | Construction of new-to-existing road joint | m | 1000 | R 31.82 | R 31 820.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 312 358.40 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|--|----------------|----------|------------|---------------------|
| SANS1200ME | SUBBASE | | | | |
| | Construct Selected Natural Subbase (G5 quality material), 200mm thick for Asphalt Roads compacted to 95% Mod AASHTO density. | | | | |
| 8.3.2 | From stockpile in item 1.5.1 and 1.5.2 | m ³ | 180 | R 330.44 | R 59 478.75 |
| 8.3.3 | From commercial source | m ³ | 445 | R 200.00 | R 89 000.00 |
| 8.3.5 (a) | Extra over for screening of G5 material from stockpile in item 1.5.1 and 1.5.2 and disposing of the screened-out material for: | | | | |
| | 200mm thick for Asphalt Roads | m ³ | 180 | R 268.78 | R 48 380.40 |
| 8.3.5 (d) | Extra over for stabilization of G5 material with road lime to meet B2 quality specification for: | | | | |
| | 200mm thick for Asphalt Roads | m ³ | 535 | R 193.58 | R 103 565.30 |
| | Construct Selected Natural Subbase (G6 quality material), 150mm thick for Asphalt Roads compacted to 95% Mod AASHTO density. | | | | |
| 8.3.2 | From stockpile in item 1.5.1 and 1.5.2 | m ³ | 180 | R 251.12 | R 45 201.15 |
| 8.3.3 | From commercial source | m ³ | 1160 | R 170.00 | R 197 200.00 |
| 8.3.5 (a) | Extra over for screening of G6 material from stockpile in item 1.5.1 and 1.5.2 and disposing of the screened-out material for: | | | | |
| | 150mm thick for Asphalt Roads | m ³ | 180 | R 193.58 | R 34 844.40 |
| 8.3.5 (d) | Extra over item for stabilization of G6 material with road lime to meet C1 quality specification | | | | |
| | 150mm thick for Asphalt Roads | m ³ | 1250 | R 268.78 | R 335 975.00 |
| 8.3.8 | Stabilizing Agent | | | | |
| | a) Road Lime | t | 10 | R 2 579.06 | R 25 790.55 |
| | b) PBFC (CEM 111/A) | t | 5 | R 2 080.24 | R 10 401.21 |
| CARRIED FORWARD TO SUMMARY | | | | | R 949 836.76 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-------------------------------------|---|------|----------|----------|---------------------|
| SANS 1200MF 8.3.3 (b) | BASE Construct 26.5mm Graded Crushed Stone Base with material from commercial source, (G2 quality material to TRH 14 compliance) compacted to 102% Mod AASHTO density i) 150mm thick for Asphalt Roads | m3 | 1605 | R 512.21 | R 822 093.04 |
| CARRIED FORWARD TO SUMMARY | | | | | R 822 093.04 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|----------|----------|---------|-----------------------|
| SANS 1200MH | ASPHALT, BASE AND SURFACING | | | | |
| | ASPHALT | | | | |
| 8.5.1 | Prime Coat: Prime coat using MC 30 bitumen (or similar approved) at 0.7 litres/m2 | m2 | 10405 | R 15.95 | R 165 959.75 |
| 8.5.5 | Variations in quantities of prime: i) Mc 30 | litre(l) | 7285 | R 17.20 | R 125 283.79 |
| 8.5.3 | Tack Coat: Spray surface using 30% stable grade emulsion at 0.3 litres/m2 | m2 | 10405 | R 8.01 | R 83 292.03 |
| 8.5.5 | Variations in quantities of emulsion: i) 30% stable grade emulsion | litre | 3125 | R 15.26 | R 47 687.50 |
| PSMH 8.5.4 | Asphalt Surfacing: Continuously medium graded asphalt surfacing using 60/70 Pen.grade bitumen: i) 30mm to roads | m2 | 10405 | R 99.35 | R 1 033 736.75 |
| CARRIED FORWARD TO SUMMARY | | | | | R 1 455 959.81 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|------|----------|------------|---------------------|
| SANS 1200 MK | CONCRETE KERBING AND CHANNELLING | | | | |
| | KERB | | | | |
| | Extruded Asphalt kerb | m | 500 | R 227.31 | R 113 655.00 |
| 8.2.1 | Fig 6 kerb and cast insitu 25Mpa offset, laid straight or curved equal to or exceeding 20m radius | m | 2865 | R 270.76 | R 775 734.56 |
| 8.2.1 | Fig 6 kerb and cast insitu 25Mpa offset, laid on curves less than 20m radius | m | 65 | R 306.88 | R 19 946.88 |
| 8.2.6 | ANCILLARIES | | | | |
| | Cast in-situ transitions: | | | | |
| 8.2.6.2 | i) Concrete, specified strength 25MPa | m3 | 15 | R 1 662.88 | R 24 943.24 |
| 8.2.6.2 | ii) Formwork, Class 1 finish, exposed face only | m2 | 30 | R 320.05 | R 9 601.35 |
| CARRIED FORWARD TO SUMMARY | | | | | R 943 881.03 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------|---|----------------|----------|------------|---------------------|
| SANS 1200MM | ANCILLARY ROAD WORKS | | | | |
| | GUARDRAILS | | | | |
| 8.2.1 | Supply and erect galvanized steel guardrails on timber posts, backfilled with material available from site | m | 1500 | R 489.84 | R 734 760.00 |
| 8.2.2 | Extra-over Item 7.1.1 for horizontally curved guardrails factory-bent to a radius of less than 150m | m | 50 | R 46.78 | R 2 339.13 |
| 8.2.3 | End Units: | | | | |
| | a) End wings | No | 4 | R 436.82 | R 1 747.28 |
| 8.2.4 | Additional guardrail posts | No | 10 | R 351.76 | R 3 517.55 |
| | PERMANENT TRAFFIC SIGNS | | | | |
| 8.3.1 | Sign faces with painted background. Symbols, characters, legend, and borders in Engineering grade retro-reflective material with signboards constructed from aluminium sheet (2mm thick) of area: | | | | |
| | i) up to 2m ² | m ² | 5 | R 2 250.94 | R 11 254.70 |
| 8.3.3 | Sign Supports: | | | | |
| 8.3.4 | Excavation and backfilling for sign supports and backfilling with concrete | m ³ | 10 | R 273.51 | R 2 735.13 |
| | ROAD MARKINGS | | | | |
| PSMM 8.4.1 | Retro-reflective paint applied at nominal rate of 0,42 l/m ² (including glass beads, setting out and pre-marking) | | | | |
| | a) White lines (broken or unbroken) (width 100 mm) | m | 1445 | R 4.97 | R 7 181.65 |
| | b) White lines (broken or unbroken) (width 200mm) | m | 2890 | R 6.11 | R 17 657.90 |
| | c) Yellow lines (broken or unbroken) (width 100mm) | m | 2890 | R 9.71 | R 28 061.90 |
| | d) White characters and symbols | m ² | 20 | R 4.97 | R 99.40 |
| | e) Traffic island markings (any colour) | m ² | 20 | R 6.11 | R 122.20 |
| 8.4.2 | Variation rates of application: | | | | |
| | a) White paint | litre | 305 | R 39.97 | R 12 190.85 |
| | b) Yellow paint | litre | 125 | R 39.97 | R 4 996.25 |
| | c) Glass beads | kg | 10 | R 39.97 | R 399.70 |
| 8.4.3 | ROAD STUDS | | | | |
| | a) Supply and install Lynkor "Lynx" road studs with anchor shanks and 23/23 glass element reflectors: | | | | |
| | (i) red/red | No | 75 | R 159.88 | R 11 991.00 |
| | MISCELLANEOUS | | | | |
| 8.4.4 | Setting out and premarking of lines (excluding traffic island markings, characters, and symbols) | m | 1445 | R 1.50 | R 2 167.50 |
| CARRIED FORWARD | | | | | R 841 222.14 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|-----------------------------------|---|------|----------|--------------|-----------------------|
| BROUGHT FORWARD | | | | | R 841 222.14 |
| PSMM 8.9.1 | ACCOMODATION OF TRAFFIC | | | | |
| | Accomodation of traffic | Sum | 1 | R 200 000.00 | R 200 000.00 |
| | BARRICADING | | | | |
| | Supply, install, maintain, remove and relocate: | | | | |
| | i) Barrier Fence | m | 1500 | R 68.55 | R 102 825.00 |
| | ii) Rigid Barricades for preventing access | m | 250 | R 53.33 | R 13 332.50 |
| | iii) Armco type barriers | m | 100 | R 543.72 | R 54 372.00 |
| | iv) New Jersey type barriers | m | 100 | R 300.92 | R 30 092.00 |
| CARRIED FORWARD TO SUMMARY | | | | | R 1 241 843.64 |

SUMMARY

| SECTION | DESCRIPTION | TOTAL |
|--|------------------------------|---------------------------|
| SECTION 1 | PRELIMINARY AND GENERAL | R 380 115 659.03 |
| SECTION 2 | BULK EARTHWORKS | R 192 307 972.97 |
| SECTION 3 | CIVIL WORKS (EXCL BUILDINGS) | R 436 902 862.00 |
| SECTION 4 | BUILDINGS | R 79 822 720.00 |
| SECTION 5 | M&E EQUIPMENT | R 510 145 436.00 |
| SECTION 6 | 11kV BULK POWER SUPPLY | R 47 873 205.80 |
| TOTAL CARRIED TO BILL OF QUANTITIES 2 | | R 1 647 167 855.80 |

SUMMARY

| SECTION | DESCRIPTION | TOTAL |
|--|--|-------------------------|
| SECTION 1 | PRELIMINARY AND GENERAL | R 44 835 568.91 |
| SECTION 2 | SITE CLEARANCE (MEASURED IN WTW BOQ) | |
| SECTION 3 | EARTHWORKS (MEASURED IN WTW BOQ) | |
| SECTION 4 | PIPE TRENCHES (3.5 X 50ML) | R 545 602.52 |
| SECTION 5 | CONCRETE STRUCTURAL (3.5 X 50ML) | R 138 941 180.19 |
| SECTION 6 | MEDIUM PRESSURE PIPELINES (3.5 X 50ML) | R 9 343 848.18 |
| SECTION 7 | BEDDING (PIPES) (3.5 X 50ML) | R 621 265.47 |
| TOTAL CARRIED TO BILL OF QUANTITIES 2 | | R 194 287 465.26 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|---------------------------------|---|-------|----------|------------|-----------------------|
| SANS 1200 DB | SECTION 4 : PIPE TRENCHES | | | | |
| | EXCAVATION | | | | |
| 8.3.2(a) | Excavate in all materials for trenches, backfill and compact or dispose of surplus/unsuitable material up to a freehaul distance of 10km for: | | | | |
| | DN1000mm pipe | | | | |
| | 2,5 to 3,0m | m3 | 4503 | R 156.01 | R 702 435.03 |
| | DN 2200mm pipe | | | | |
| | over 3,0m | m3 | 664 | R 156.01 | R 103 512.64 |
| | DN 2500mm pipe | | | | |
| | over 3,0m | m3 | 3820 | R 171.47 | R 654 929.67 |
| | DN 2700mm pipe | | | | |
| | over 3,0m | m3 | 816 | R 171.47 | R 139 833.79 |
| 8.3.2(b) PSDB 8.3.2 | Extra-over items for : | | | | |
| 1) | Intermediate Material (Provisional Quantity) | m3 | 2451 | R 20.70 | R 50 725.35 |
| 2) | Hard Rock (Provisional Quantity) | m3 | 980 | R 243.80 | R 238 924.00 |
| PSD 5.2.5.2 PSD 8.3.6 | Long overhaul: | | | | |
| | Type 1 (over 10km) (Provisional Quantity) | m3.km | 4500 | R 6.73 | R 30 285.00 |
| | FINISHINGS | | | | |
| SABS 1200D, 8.3.10 | Topsoiling measured under PSD | | | | |
| PSDB 5.1.2.2 | Installation of permanent subsoil drainage systems, inclusive of gabion, geofabric, pipe, stone and other materials for completion as directed by the Engineer (Provisional Quantity) | No | 2 | R 2 505.24 | R 5 010.48 |
| TOTAL CARRIED TO SUMMARY | | | | | R 1 925 655.94 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------------|---|------|----------|------------|------------------------|
| SANS 1200G | SECTION 5 : CONCRETE STRUCTURAL | | | | |
| 8.1.3 | CONCRETE | | | | |
| 8.4.2 | Blinding layer in grade 15/19 concrete: | | | | |
| | 75mm thick blinding to: | | | | |
| | Reservoir Base | m2 | 5945 | R 125.27 | R 744 730.15 |
| | Scour Chamber Base | m2 | 60 | R 125.27 | R 7 516.20 |
| | Control Valve Chamber Base | m2 | 9 | R 125.27 | R 1 127.43 |
| | Mass concrete in grade 15/19concrete: | | | | |
| | Pipe bedding cradle to peripheral drain | m3 | 15 | R 1 927.23 | R 28 908.45 |
| | Outlet pipework encasing | m3 | 200 | R 1 927.23 | R 385 446.00 |
| | Benching in manholes and screeding in Inlet, Outlet Chamber floors and reservoir roof | m3 | 20 | R 1 927.23 | R 38 544.60 |
| 8.4.3 | Strength concrete: Grade 25/19 | | | | |
| | Upstand beam to roof slab | m3 | 21 | R 1 955.23 | R 41 059.83 |
| | Control valve chamber base | m3 | 2.7 | R 1 747.04 | R 4 717.01 |
| | Control valve chamber walls | m3 | 10.8 | R 1 955.23 | R 21 116.48 |
| | Outlet, Scour and Overflow chamber base slab | m3 | 15 | R 1 747.04 | R 26 205.60 |
| | Outlet, Scour and Overflow chamber walls | m3 | 63 | R 1 955.23 | R 123 179.49 |
| | Precast concrete roof slabs over control valve chamber | m3 | 2.07 | R 1 955.23 | R 4 047.33 |
| | Precast concrete roof slabs over outlet/scour chamber | m3 | 8 | R 1 955.23 | R 15 641.84 |
| | Precast concrete roof slabs over overflow shaft | m3 | 1 | R 1 955.23 | R 1 955.23 |
| 8.4.3 | Strength concrete: Grade 35/19 | | | | |
| | Reservoir Wall Bases | m3 | 810 | R 2 279.39 | R 1 846 305.90 |
| | Reservoir Floor Slab Panels | m3 | 635 | R 2 279.39 | R 1 447 412.65 |
| | Reservoir Walls | m3 | 1650 | R 2 279.39 | R 3 760 993.50 |
| | Reservoir Columns, pedestals and column heads | m3 | 175 | R 4 558.78 | R 797 786.50 |
| | Reservoir Roof Slab | m3 | 1387 | R 4 558.78 | R 6 323 027.86 |
| | Provide no-fines concrete (1:9 cement stone 19mm) to underfloor drains around slotted pipe (measured elsewhere) | m3 | 115 | R 1 431.11 | R 164 577.65 |
| | FORMWORK - excl that for construction joints | | | | |
| Total carried forward | | | | | R 15 784 299.70 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------------|--|------|----------|-------------|------------------------|
| Total brought forward | | | | | R 15 784 299.70 |
| | Smooth to walls below ground | | | | |
| | Inclined plane of external reservoir wall | m2 | 3000 | R 764.98 | R 2 294 940.00 |
| | Vertical plane to external reservoir base (500mm thick) | m2 | 150 | R 543.72 | R 81 558.00 |
| | Outlet, scour and overflow chamber walls | m2 | 240 | R 543.72 | R 130 492.80 |
| | Control valve chamber walls | m2 | 72 | R 543.72 | R 39 147.84 |
| | Upstand wall to reservoir perimeter | m2 | 270 | R 543.72 | R 146 804.40 |
| | Soffit of pre-cast roof slabs | m2 | 70 | R 606.05 | R 42 423.50 |
| | Special off form to internal reservoir surfaces (refer class 3a Smooth Finish) | | | | |
| | Vertical plane of internal reservoir walls | m2 | 3000 | R 893.32 | R 2 679 960.00 |
| | 350mm dia. Columns in reservoir | m2 | 1375 | R 322.71 | R 443 726.25 |
| | 1200mm dia. X 465mm deep column heads, inclined at 45deg to the horizontal | m2 | 210 | R 587.54 | R 123 383.40 |
| | 1000mm dia. X 250mm high pedestal with 100mm high kicker for 350mm dia. column | No | 130 | R 843.44 | R 109 647.20 |
| | Decking for roof slab | m2 | 5544 | R 1 459.60 | R 8 092 022.40 |
| | Vertical narrow widths up to 300mm wide to: | | | | |
| | Reservoir walls - 100mm kicker | m | 300 | R 64.75 | R 19 425.00 |
| | Control valve chamber bases floor slab | m | 12 | R 64.75 | R 777.00 |
| | Outlet chamber bases floor slab | m | 32 | R 64.75 | R 2 072.00 |
| | Box out holes/form voids | | | | |
| | 300mm dia through reservoir roof for ultrasonic depth meter | No | 1 | R 1 220.36 | R 1 220.36 |
| | Form access opening through reservoir roof | No | 2 | R 1 220.36 | R 2 440.72 |
| | Form opening through reservoir roof for submersible pump installation | No. | 1 | R 1 220.36 | R 1 220.36 |
| | REINFORCEMENT | | | | |
| | Mild steel bars | t | 25 | R 12 031.07 | R 300 776.75 |
| | High Tensile steel bars | t | 675 | R 12 031.07 | R 8 120 972.25 |
| | UNFORMED SURFACE FINISHES | | | | |
| | Steel-float finish | | | | |
| | All internal floors, upper surface of reservoir roof, all footings and pre-cast roof slabs over chambers | m2 | 11315 | R 21.55 | R 243 838.25 |
| | JOINTS | | | | |
| Total carried forward | | | | | R 38 661 148.18 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------------|---|------|----------|----------|------------------------|
| Total brought forward | | | | | R 38 661 148.18 |
| | Construct construction joints for: (rate to include for the supply and fixing of the waterstop where provided, provision of the split stop ends to accommodate the water stop and perforated stop ends where necessary for continuous reinforcing) | | | | |
| | Horizontal base/wall construction joint at base of reservoir wall as per detail 5 (Rate to be inclusive of supply and installing 100mm wide bandage type sealant - "Sikadur Combiflex 1mm thick" or similar approved) | m | 300 | R 90.53 | R 27 159.00 |
| | Horizontal construction joint in floor slab (with continuous reinforcing). (Rate to be inclusive of supply and installing 100mm wide bandage type sealant - "Sikadur Combiflex 1mm thick" or similar approved) and 150mm wide uPVC waterstop ("Expandite Supercast Rearguard or similar approved) | m | 1248 | R 329.90 | R 411 715.20 |
| | Vertical construction in tapered wall base (with continuous reinforcement) as per detail . (Rate to be inclusive of supply and installing 100mm wide bandage type sealant ("Sikadur Combiflex 1mm thick" or similar approved) and 150mm wide dumb-bell waterstop ("Expandite Waterfoil or similar approved) | m | 300 | R 401.95 | R 120 585.00 |
| | Vertical wall joint (with continuous reinforcement) as per detail. (Rate to be inclusive of supply and installing 100mm wide bandage type sealant ("Sikadur Combiflex 1mm thick" or similar approved) and 150mm wide uPVC waterstop ("Expandite Supercast Rearguard or similar approved) | m | 420 | R 401.95 | R 168 819.00 |
| | Roof slab construction joint (with continuous reinforcement) as per detail. Rate to include for supply and installation of 100mm wide self adhesive aluminium backed sealing strip ("Bostik Ditsit" or similar approved) on top and 2 coats of "Sikatop 107" or similar approved, below. | m | 300 | R 237.51 | R 71 253.00 |
| | Horizontal roof sliding joint on top of wall as per detail. Rate to include for two layers of tempered masonite. | m | 300 | R 27.77 | R 8 331.00 |
| | Seal between precast concrete roof slabs and walls with bitumastic sealant ("Bituseal Joiint Putty" or similar approved) | m | 70 | R 37.87 | R 2 650.90 |
| | Plug 75mm dia. Lifting holes with bitumastic sealant ("Bituseal Joint Putty" or similar approved). Rate to be inclusive of wooden plugs | No | 6 | R 138.87 | R 833.22 |
| | Supply all material and labour and apply 2 coats of "Vandex Super", 100mm wide at construction joint between floor and pedestal and column kicker and column. | m | 552 | R 82.23 | R 45 390.96 |
| Total carried forward | | | | | R 39 517 885.46 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------------|--|----------|----------|-------------|------------------------|
| Total brought forward | | | | | R 39 517 885.46 |
| | Miscellaneous | | | | |
| | Supply labour and form 2100mm dia. By 500mm radius bellmouth in concrete for outlet | No | 1 | R 1 545.79 | R 1 545.79 |
| | Supply labour and form 600mm dia. By 100mm radius bellmouth in concrete for scour | No | 1 | R 1 545.79 | R 1 545.79 |
| | Allow for collection of chemicals from the council's stores, washing and sterilizing as per specifications | No | 1 | R 9 775.00 | R 9 775.00 |
| | Allow for ponding and watertightness testing of the roof | No | 1 | R 23 000.00 | R 23 000.00 |
| | Allow for hydraulic testing of the reservoir as specified. | No | 1 | R 78 775.00 | R 78 775.00 |
| | Curing of Concrete | | | | |
| | Supply all materials, plant, labour and cure concrete with curing compound | | | | |
| | Reservoir floor slab and wall bases | m2 | 5940 | R 13.57 | R 80 605.80 |
| | Reservoir walls | m2 | 6000 | R 13.57 | R 81 420.00 |
| | Top surface of reservoir roof slab | m2 | 5544 | R 13.57 | R 75 232.08 |
| | Soffit of reservoir roof slab | m2 | 5544 | R 13.57 | R 75 232.08 |
| | Reservoir columns, pedestal and column head | No | 130 | R 13.57 | R 1 764.10 |
| | Provisional Sums | | | | |
| | Provisional sum for concrete cube testing by nominated laboratory | Prov Sum | 1 | R 40 000.00 | R 40 000.00 |
| | Provisional sum for durability testing by nominated laboratory | Prov Sum | 1 | R 40 000.00 | R 40 000.00 |
| | Extra over item for Contractor's charges% x R80000 | % | 80000 | | R 8 000.00 |
| | Miscellaneous steelwork | | | | |
| | Supply and install, including all nuts, bolts, washers, anchors, etc., the following elements Grade 316 stainless steel: | | | | |
| | Access ladders as per typical detail for: | | | | |
| | Reservoir inlet and overflow weir (6500mm long) | No | 2 | R 19 780.00 | R 39 560.00 |
| | Reservoir outlet chamber (4500mm long) | No | 1 | R 15 927.00 | R 15 927.00 |
| | Inlet pipe clamps as detailed for inlet pipework to inside of reservoir | No | 3 | R 7 475.00 | R 22 425.00 |
| | Vertical, Top mounted "Wecrolok" hot dip galvanised Handrail as per detail. (Provisional Quantity) | m | 100 | R 546.25 | R 54 625.00 |
| Total carried forward | | | | | R 40 167 318.10 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------------|--|------|----------|-------------|------------------------|
| Total brought forward | | | | | R 40 167 318.10 |
| | Brass benchmark plaque and stainless steel reference bolt as detailed | No | 1 | R 4 025.00 | R 4 025.00 |
| | Hot Dip Galvanised | | | | |
| | Supply and install, including all nuts, bolts, washers, anchors, etc., the following elements in hot dip galvanised steel 300W: | | | | |
| | 100mm dia. 6500mm long air vent in outlet chamber | No | 1 | R 10 925.00 | R 10 925.00 |
| | Air vents in control valve chamber and scour chamber | No | 3 | R 2 282.75 | R 6 848.25 |
| | 900mm x 900mm Lockable manhole covers and frames | No | 3 | R 3 208.50 | R 9 625.50 |
| | Sundries | | | | |
| | Supply all materials, plant and labour and repair 65mm dia. X 100mm deep test core holes using a repair mortar ("Sikatop 615HB" or similar approved) | No | 80 | R 537.05 | R 42 964.00 |
| | Supply and fix into concrete "Calcamite" or similar approved step irons. (Provisional Quantity) | No | 50 | R 256.45 | R 12 822.50 |
| | PROTECTION WORKS | | | | |
| | Supply and install circular concrete lockable manhole covers (500mm dia. opening) in various valve chambers on site | No | 10 | R 3 208.50 | R 32 085.00 |
| | SITE DRAINAGE | | | | |
| | Supply and lay "Kaymat U14" or similar approved geotextile including all laps, cutting and waste: | | | | |
| | To surround to reservoir peripheral drain | m2 | 720 | R 14.95 | R 10 764.00 |
| | Supply and place clean, crushed, washed igneous stone: | | | | |
| | 25mm nom. size in reservoir peripheral drain | m3 | 70 | R 431.25 | R 30 187.50 |
| | 25mm nom. size on reservoir roof in 150mm layers (Provisional Quantity) | m3 | 835 | R 431.25 | R 360 093.75 |
| | Supply and lay to fall as indicated, the following drain pipes, including all couplings, cuttings and waste (trenching measured elsewhere) | | | | |
| | 100mm nom. dia. Rigid uPVC (Heavy Duty) slotted drainage pipes ("Cordrain Pushfit" or similar) | m | 1200 | R 88.55 | R 106 260.00 |
| | 100mm nom. dia. Rigid uPVC (Heavy Duty) drainage pipes | m | 200 | R 88.55 | R 17 710.00 |
| | 150mm nom. dia. Rigid uPVC (Heavy Duty) slotted drainage pipes ("Cordrain Pushfit" or similar) | m | 300 | R 104.65 | R 31 395.00 |
| Total carried forward | | | | | R 40 843 023.60 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|---------------------------------|--|------|----------|----------|------------------------|
| Total brought forward | | | | | R 40 843 023.60 |
| | 150mm nom. dia. Rigid uPVC (Heavy Duty) drainage pipes | m | 100 | R 104.65 | R 10 465.00 |
| | 100mm nom. dia. PVC 90 deg. bends | No | 2 | R 167.90 | R 335.80 |
| | 100mm nom. dia. PVC 45 deg. bends | No | 20 | R 167.90 | R 3 358.00 |
| | 100mm nom. dia. PVC 22.5 deg. bends | No | 4 | R 167.90 | R 671.60 |
| | 150mm nom. dia. PVC 90 deg. bends | No | 14 | R 359.95 | R 5 039.30 |
| | 150mm nom. dia. PVC 45 deg. bends | No | 6 | R 359.95 | R 2 159.70 |
| TOTAL CARRIED TO SUMMARY | | | | | R 40 865 053.00 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|------------------------------|---|------|----------|--------------|------------------------|
| SANS 1200 L | SECTION 6 : MEDIUM PRESSURE PIPELINES | | | | |
| PSL 8.2.1 | Supply | | | | |
| | DN1000 * 16mm thick * grade X42 pipe | m | 740 | R 6 184.63 | R 4 576 626.20 |
| | DN2200 * 16mm thick * grade X42 pipe | m | 48 | R 12 905.00 | R 612 987.50 |
| | DN2500 * 16mm thick * grade X42 pipe | m | 230 | R 15 610.00 | R 3 590 300.00 |
| | DN2700 * 16mm thick * grade X42 pipe | m | 45 | R 16 425.00 | R 739 125.00 |
| PSL 8.2.1 | Lay, bed, joint and test pipes for diameter: | | | | |
| | DN1000 * 16mm thick * grade X42 pipe | m | 740 | R 10 000.00 | R 7 400 000.00 |
| | DN2200 * 16mm thick * grade X42 pipe | m | 48 | R 19 914.27 | R 945 927.83 |
| | DN2500 * 16mm thick * grade X42 pipe | m | 230 | R 24 697.40 | R 5 680 402.00 |
| | DN2700 * 16mm thick * grade X42 pipe | m | 45 | R 29 994.85 | R 1 349 768.25 |
| | Manufacturing of Simple and Compound Bends, inclusive of reinstatement of testing, external coating and internal lining reinstatement, transportation and handling: | | | | |
| | DN1000 * 16mm thick * grade X42 pipe | | | | |
| 8.2.3 & PSL 3.4.4.1 | 76 to 90 deg | No. | 14 | R 11 278.74 | R 152 262.99 |
| | DN2200 * 16mm thick * grade X42 pipe | | | | |
| 8.2.3 & PSL 3.4.4.1 | 76 to 90 deg | No. | 1 | R 52 883.31 | R 52 883.31 |
| | DN2500 * 16mm thick * grade X42 pipe | | | | |
| 8.2.3 & PSL 3.4.4.1 | 76 to 90 deg | No. | 2 | R 65 585.14 | R 131 170.28 |
| | DN2700 * 18mm thick * grade X42 pipe | | | | |
| 8.2.3 & PSL 3.4.4.1 | 76 to 90 deg | No. | 1 | R 79 652.76 | R 79 652.76 |
| | Supply and install, inclusive of reinstatement of testing, external coating and internal lining reinstatement, transportation and handling: | | | | |
| | Butterfly Valve - DN1000 | No. | 24 | R 217 879.00 | R 5 229 096.00 |
| | DN1000 Equal Tee | No. | 22 | R 43 470.00 | R 956 340.00 |
| | DN1000 90 deg long radius bend | No. | 8 | R 37 662.50 | R 301 300.00 |
| | Reducing Tee DN2200 x DN1000 | No. | 4 | R 50 715.00 | R 202 860.00 |
| | Reducing Tee DN2400 x DN1000 | No. | 1 | R 69 028.75 | R 69 028.75 |
| Total carried forward | | | | | R 32 069 730.86 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT | |
|------------------------------|--|------|----------|-------------|------------------------|------------------------|
| Total brought forward | | | | | R 32 069 730.86 | |
| 8.2.5 | Reducing Tee DN2700 x DN1000 | No. | 1 | R 83 835.00 | R 83 835.00 | |
| | Reducer DN2200 to DN1000 | No. | 1 | R 28 692.50 | R 28 692.50 | |
| | Reducer DN2400 to DN1000 | No. | 2 | R 39 053.68 | R 78 107.36 | |
| | Reducer DN2400 to DN2100 | No. | 1 | R 39 053.68 | R 39 053.68 | |
| | Reducer DN2700 to DN2400 | No. | 1 | R 47 430.46 | R 47 430.46 | |
| | OUTLET/SCOUR CHAMBER (PIPE TO BE TAPE WRAPPED AND MORTAR LINED) | | | | | |
| | 2100mm dia bellmouth | No. | 1 | R 22 310.00 | R 22 310.00 | |
| | Item 1 - 2100mm dia. X 90 deg. gusseted bend | No. | 1 | R 48 070.00 | R 48 070.00 | |
| | Item 2 - 2100mm dia. X 3400mm long spool piece, FOE | No. | 1 | R 58 765.00 | R 58 765.00 | |
| | Item 4 - 2200mm dia. X 710mm long spool piece, FBE | No. | 1 | R 58 765.00 | R 58 765.00 | |
| | Item 5 - 2200mm dia. Insulating flange | No. | 1 | R 15 881.50 | R 15 881.50 | |
| | Item 7 - 600mm dia. X 90 deg. gusseted bend | No. | 1 | R 14 662.50 | R 14 662.50 | |
| | Item 7a - 600mm dia. X 600mm long spool piece | No. | 1 | R 5 721.25 | R 5 721.25 | |
| | Item 8 - 600mm dia x 5000mm long spool piece, FOE | No. | 1 | R 35 431.50 | R 35 431.50 | |
| | Item 10 - 600mm dia. X 90 deg. long radius bend, FBE | No. | 1 | R 26 125.70 | R 26 125.70 | |
| | Item 11 - 600mm dia. X 650mm long spool piece, FOE | No. | 1 | R 10 752.50 | R 10 752.50 | |
| | Item 12 - 200mm dia air valve | No. | 1 | R 20 962.89 | R 20 962.89 | |
| | Item 13 - 200mm ball-o-stop valve | No. | 1 | R 5 808.19 | R 5 808.19 | |
| | Item 14 - 200mm dia. 500mm long spool piece | No. | 1 | R 3 415.50 | R 3 415.50 | |
| | Item 15 - 200mm dia wafer butterfly valve | No. | 1 | R 3 826.16 | R 3 826.16 | |
| | INLET CHAMBER (PIPES TO BE COATED AND LINED WITH SFE EPOXY) | | | | | |
| | Item 1 - 1000mm dia. X 800mm long spool piece, FBE with 20mm thick puddle flange | No. | RO | | R 35 282.00 | R 35 282.00 |
| | Item 2 - 1000mm dia. X 90 deg. long radius bend, FBE | No. | 1 | | R 47 288.00 | R 47 288.00 |
| | Item 3 - 1000mm dia. X 600mm long spool piece, FOE | No. | 1 | | R 26 461.00 | R 26 461.00 |
| | Item 4 - 1000mm dia. X 45 deg. gusseted bend | No. | 1 | | R 26 657.00 | R 26 657.00 |
| | Total carried forward | | | | | R 32 813 035.55 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|---------------------------------|---|------|----------|-------------|------------------------|
| Total brought forward | | | | | R 32 813 035.55 |
| | Item 5 - 1000mm dia. X 90 deg. long radius bend with 150mm long spool piece welded, FOE | No. | 1 | R 39 962.50 | R 39 962.50 |
| | Item 6 - 1000mm dia x 425mm long spool piece, FOE | No. | 1 | R 21 988.00 | R 21 988.00 |
| | Item 7 - 1000mm dia. X 90 deg. long radius bend, FBE | No. | 1 | R 47 288.00 | R 47 288.00 |
| | Item 8 - 1000mm dia. Insulating flange | No. | 1 | R 10 938.00 | R 10 938.00 |
| | Item 9 - 1000mm dia control valve | No | 1 | R 11 062.89 | R 11 062.89 |
| | Item 10 - 200mm dia air valve | No. | 1 | R 20 962.89 | R 20 962.89 |
| | Item 11 - 200mm ball-o-stop valve | No. | 1 | R 5 808.19 | R 5 808.19 |
| | Item 12 - 200mm dia. 500mm long spool piece | No. | 1 | R 3 415.50 | R 3 415.50 |
| | Item 13 - 200mm dia wafer butterfly valve | No. | 1 | R 3 826.16 | R 3 826.16 |
| TOTAL CARRIED TO SUMMARY | | | | | R 32 978 287.68 |

| PAYMENT | DESCRIPTION | UNIT | QUANTITY | RATE | AMOUNT |
|--|--|----------------|----------|--------------|-----------------------|
| SANS 1200 LB | SECTION 7 : BEDDING (PIPES) | | | | |
| | FROM COMMERCIAL SOURCES | | | | |
| | FOR DN1000 PIPE | | | | |
| | Bedding material Supply of selected granular material for 300mm bedding cradle below pipe invert and for fill blanket from pipe invert to 300mm above pipe crown | m ³ | 1663 | R 284.97 | R 473 905.11 |
| | Selected Backfill Selected fill material including for screening or other treatment,to achieve grading suitable to comply with the bedding material specification compacted to 97% MOD AASHTO | m ³ | 2240 | R 284.97 | R 638 190.32 |
| | FOR DN2200 PIPE | | | | |
| | Bedding material Supply of selected granular material for 300mm bedding cradle below pipe invert and for fill blanket from pipe invert to 300mm above pipe crown | m ³ | 261 | R 284.97 | R 74 234.69 |
| | Selected Backfill Selected fill material including for screening or other treatment,to achieve grading suitable to comply with the bedding material specification compacted to 97% MOD AASHTO | m ³ | 235 | R 284.97 | R 66 967.95 |
| | FOR DN2500 PIPE | | | | |
| | Bedding material Supply of selected granular material for 300mm bedding cradle below pipe invert and for fill blanket from pipe invert to 300mm above pipe crown | m ³ | 1476 | R 284.97 | R 420 615.72 |
| Selected Backfill Selected fill material including for screening or other treatment,to achieve grading suitable to comply with the bedding material specification compacted to 97% MOD AASHTO | m ³ | 1260 | R 284.97 | R 358 919.72 | |
| FOR DN2700 PIPE | | | | | |
| Bedding material Supply of selected granular material for 300mm bedding cradle below pipe invert and for fill blanket from pipe invert to 300mm above pipe crown | m ³ | 301 | R 284.97 | R 85 633.49 | |
| Selected Backfill Selected fill material including for screening or other treatment,to achieve grading suitable to comply with the bedding material specification compacted to 97% MOD AASHTO | m ³ | 261 | R 284.97 | R 74 234.69 | |
| TOTAL CARRIED TO SUMMARY | | | | | R 2 192 701.67 |