## BENCHMARK DATA (WGS84)

| NAME | Y COORD | X COORD | ELEVATION |
|---|---|---|---|
| BM1 | -10725.196 | 2782492.320 | 968.194 |
| BM2 | -10717.239 | 2782039.256 | 959.450 |
| BM3 | -10729.083 | 2781893.764 | 957.142 |
| BM4 | -11029.531 | 2781744.036 | 955.552 |
| BM5 | -11275.397 | 2781725.009 | 951.814 |
| BM6 | -11673.055 | 2781658.460 | 948.085 |
| BM7 | -12085.266 | 2781477.977 | 955.702 |
| BM8 | -12296.959 | 2781445.616 | 961.690 |
| BM9 | -12430.877 | 2781360.109 | 965.366 |
| BM10 | -12492.293 | 2781659.573 | 966.330 |
| BM11 | -12608.654 | 2782131.360 | 967.912 |
| BM12 | -12688.449 | 2782386.543 | 965.972 |
| BM13 | -13091.908 | 2782650.777 | 971.313 |
| BM14 | -13277.279 | 2782872.248 | 972.395 |
| BM15 | -13509.619 | 2783088.796 | 973.769 |
| BM16 | -9949.782 | 2779309.989 | 931.909 |
| BM17 | -9667.098 | 2779030.214 | 924.584 |
| BM18 | -9442.867 | 2778625.028 | 918.633 |

ERF BOUNDARIES / ROAD RESERVE
BENCHMARKS / REFERENCE POINTS — BM
EXISTING GROUND ELEVATIONS
EXISTING FENCE-LINE
EXISTING WALL
EXISTING GUARDRAIL
EXISTING ROAD SIGN — RS
EXISTING SIGN BOARD — SB
EXISTING DISTANCE MARKER — DM
EXISTING REFUSE BIN — BIN
EXISTING TRAFFIC SIGNAL — TS
EXISTING STREET LIGHT POLE — LP
EXISTING ELECTRICAL MAST/POLE — EP
EXISTING ELEC. LINE — HV
EXISTING ELEC. OVERHEAD LINE — OH
EXISTING ELEC. MANHOLE
EXISTING ELEC. BOX/TRANSFORMER
EXISTING SEWER PIPE — SE
EXISTING SEWER MANHOLE — SE
EXISTING SEWER CLEANING EYE — IE
EXISTING STORMWATER PIPE — SW
EXISTING STORMWATER MANHOLE — SW
EXISTING WATER PIPE — W
EXISTING WATER END CAP
EXISTING WATER VALVE
EXISTING WATER METER — M
EXISTING WATER TAP — TAP
EXISTING TELKOM CABLE — T
EXISTING TELKOM MANHOLE — T
EXISTING TELEPHONE POLE — TP

## ALIGNMENT DATA: R[OAD 4]

ORIGINAL PAPER SIZE: A0

| SEGMENT | CHAINAGE | Y-COORD | X-COORD | RADIUS | D.A. / BEARING | LENGTH |
|---|---|---|---|---|---|---|
| L1 | Km 0.000 to Km 0.021 | -12374.169 -12382.074 | 2781255.526 2781275.323 | | 338°14'00" | 21.317 m |
| L2 | Km 0.021 to Km 0.041 | -12382.074 -12389.833 | 2781275.323 2781293.177 | | 336°30'40" | 19.467 m |
| L3 | Km 0.041 to Km 0.073 | -12389.833 -12401.505 | 2781293.177 2781322.687 | | 338°25'10" | 31.735 m |
| C1 | BC: Km 0.073 EC: Km 0.126 | BC: -12401.505 PI: -12411.486 EC: -12411.994 | BC: 2781322.687 PI: 2781347.922 EC: 2781375.055 | 150.000 m | Δ: 20°30'30" | 53.693 m |
| L4 | Km 0.126 to Km 0.167 | -12411.994 -12412.762 | 2781375.055 2781416.149 | | 358°55'40" | 41.101 m |
| C2 | BC: Km 0.167 EC: Km 0.213 | BC: -12412.762 PI: -12413.193 EC: -12420.520 | BC: 2781416.149 PI: 2781439.189 EC: 2781461.038 | 150.000 m | Δ: 17°28'10" | 45.732 m |
| L5 | Km 0.213 to Km 0.405 | -12420.520 -12481.458 | 2781461.038 2781642.749 | | 341°27'40" | 191.657 m |
| C3 | BC: Km 0.405 EC: Km 0.447 | BC: -12481.458 PI: -12488.195 EC: -12495.355 | BC: 2781642.749 PI: 2781662.836 EC: 2781682.777 | 2000.000 m | Δ: 1°12'50" | 42.372 m |
| L6 | Km 0.447 to Km 0.598 | -12495.355 -12546.407 | 2781682.777 2781824.943 | | 340°14'50" | 151.055 m |
| C4 | BC: Km 0.598 EC: Km 0.687 | BC: -12546.407 PI: -12561.392 EC: -12573.887 | BC: 2781824.943 PI: 2781866.673 EC: 2781909.215 | 1500.000 m | Δ: 3°23'10" | 88.652 m |
| L7 | Km 0.687 to Km 1.157 | -12573.887 -12706.404 | 2781909.215 2782360.431 | | 343°38'00" | 470.272 m |
| C5 | BC: Km 1.157 EC: Km 1.270 | BC: -12706.404 PI: -12722.795 EC: -12766.564 | BC: 2782360.431 PI: 2782416.243 EC: 2782454.558 | 200.000 m | Δ: 32°26'00" | 113.216 m |
| L8 | Km 1.270 to Km 1.371 | -12766.564 -12842.203 | 2782454.558 2782520.773 | | 311°12'00" | 100.527 m |
| C6 | BC: Km 1.371 EC: Km 1.433 | BC: -12842.203 PI: -12865.957 EC: -12894.960 | BC: 2782520.773 PI: 2782541.567 EC: 2782554.034 | 200.000 m | Δ: 17°56'20" | 62.622 m |
| L9 | Km 1.433 to Km 1.526 | -12894.960 -12979.947 | 2782554.034 2782590.562 | | 293°15'30" | 92.504 m |
| C7 | BC: Km 1.526 EC: Km 1.597 | BC: -12979.947 PI: -13013.083 EC: -13039.158 | BC: 2782590.562 PI: 2782604.805 EC: 2782629.727 | 200.000 m | Δ: 20°26'40" | 71.369 m |
| L10 | Km 1.597 to Km 2.091 | -13039.158 -13396.151 | 2782629.727 2782970.936 | | 313°42'20" | 493.830 m |
| C8 | BC: Km 2.091 EC: Km 2.156 | BC: -13396.151 PI: -13420.846 EC: -13420.875 | BC: 2782970.936 PI: 2782994.539 EC: 2783028.700 | 80.000 m | Δ: 46°14'50" | 64.572 m |
| L11 | Km 2.156 to Km 2.194 | -13420.875 -13420.908 | 2783028.700 2783066.697 | | 359°57'00" | 37.996 m |

| No. | DATE | REVISIONS | BY | CHECKED BY |
|---|---|---|---|---|
| - | - | - | - | - |

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Email: admin@ralemacons.co.za

S. Bapela-Pr Tech Eng — DESIGNED
M. Jikwana — DRAWN
S. Bapela-Pr Tech Eng — CHECKED

| RALEMA CONSULTING | DEPARTMENT |
|---|---|
| ISSUED BY: ............................ | RECEIVED BY: ............................ |
| DATE: ...................... | DATE: ...................... |

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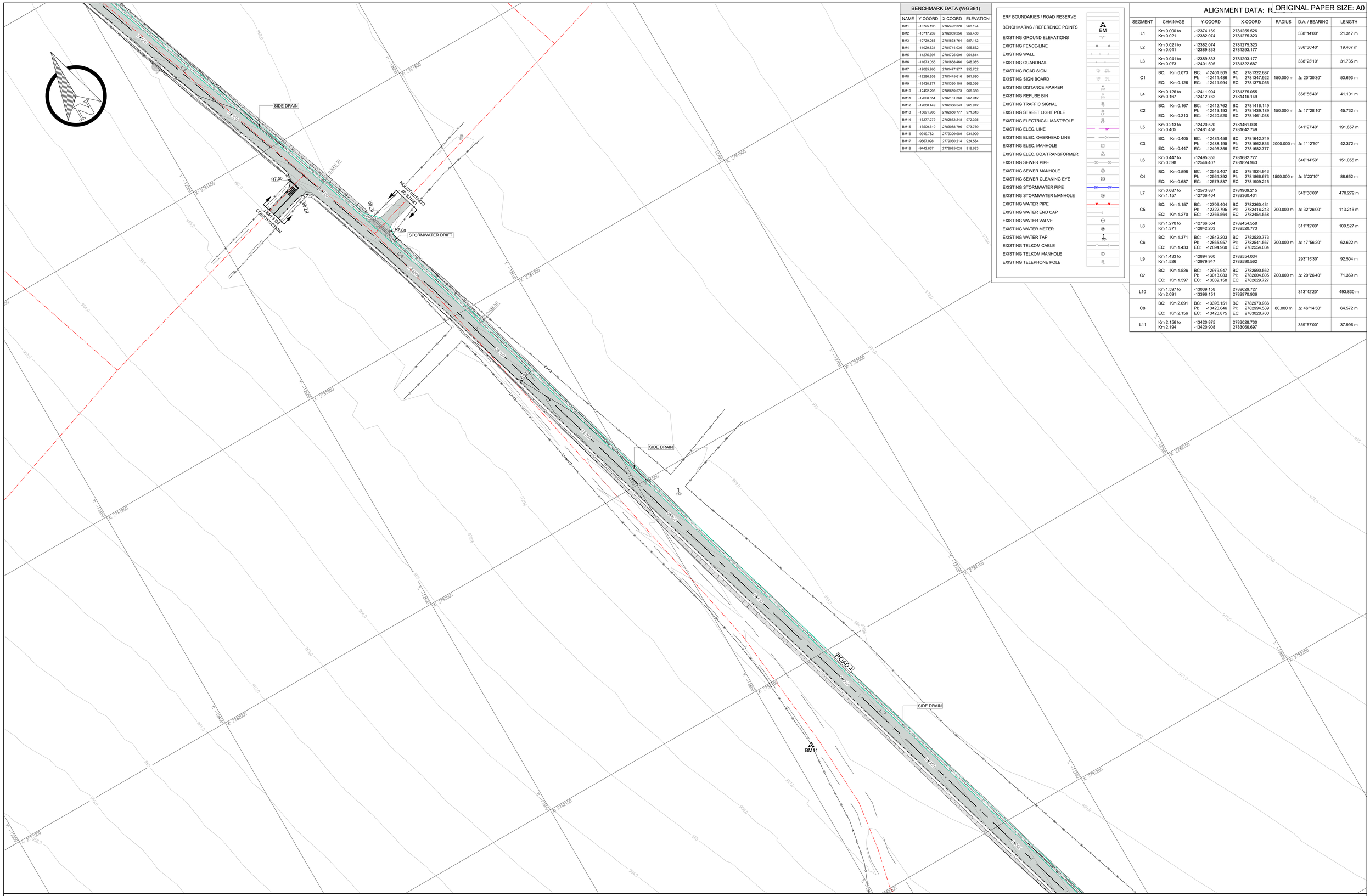
| CLIENT | ELIAS MOTSOALEDI LOCAL MUNICIPALITY | CONTRACT No. EMLM 20/2023 | IPW No. ----- | SHEET 1 OF 5 |
|---|---|---|---|---|

PROJECT TITLE
UPGRADING OF KGOBOKWANE-KGAPHAMADI ROADS, BRIDGES AND STORMWATER

DRAWING TITLE: ROAD 4: km 0+000 to 0+500: LAYOUT PLAN AND SETTING OUT DATA

| SCALE | TYPES OF PLANNING | STATUS |
|---|---|---|
| 1:500 | PLANNING / CONSTRUCTION / AS-BUILT | PLANNING |

| REVISION | PLAN No. |
|---|---|
| 00 | RCE73_EMLM_05_4LP_01 |




## BENCHMARK DATA (WGS84)

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|---|---|---|---|
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| BM3 | -10729.083 | 2781693.764 | 957.142 |
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| BM6 | -11673.055 | 2781658.460 | 948.085 |
| BM7 | -12085.266 | 2781477.977 | 955.702 |
| BM8 | -12296.959 | 2781445.616 | 961.690 |
| BM9 | -12430.877 | 2781360.109 | 965.366 |
| BM10 | -12492.293 | 2781659.573 | 966.330 |
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| BM15 | -13509.619 | 2783088.796 | 973.769 |
| BM16 | -9949.782 | 2779309.989 | 931.909 |
| BM17 | -9667.098 | 2779030.214 | 924.584 |
| BM18 | -9442.667 | 2778625.028 | 918.633 |

ERF BOUNDARIES / ROAD RESERVE
BENCHMARKS / REFERENCE POINTS
EXISTING GROUND ELEVATIONS
EXISTING FENCE-LINE
EXISTING WALL
EXISTING GUARDRAIL
EXISTING ROAD SIGN
EXISTING SIGN BOARD
EXISTING DISTANCE MARKER
EXISTING REFUSE BIN
EXISTING TRAFFIC SIGNAL
EXISTING STREET LIGHT POLE
EXISTING ELECTRICAL MAST/POLE
EXISTING ELEC. LINE
EXISTING ELEC. OVERHEAD LINE
EXISTING ELEC. MANHOLE
EXISTING ELEC. BOX/TRANSFORMER
EXISTING SEWER PIPE
EXISTING SEWER MANHOLE
EXISTING SEWER CLEANING EYE
EXISTING STORMWATER PIPE
EXISTING STORMWATER MANHOLE
EXISTING WATER PIPE
EXISTING WATER END CAP
EXISTING WATER VALVE
EXISTING WATER METER
EXISTING WATER TAP
EXISTING TELKOM CABLE
EXISTING TELKOM MANHOLE
EXISTING TELEPHONE POLE

## ALIGNMENT DATA: R ORIGINAL PAPER SIZE: A0

| SEGMENT | CHAINAGE | Y-COORD | X-COORD | RADIUS | D.A. / BEARING | LENGTH |
|---|---|---|---|---|---|---|
| L1 | Km 0.000 to Km 0.021 | -12374.169 -12382.074 | 2781255.526 2781275.323 | | 338°14'00" | 21.317 m |
| L2 | Km 0.021 to Km 0.041 | -12382.074 -12389.833 | 2781275.323 2781293.177 | | 336°30'40" | 19.467 m |
| L3 | Km 0.041 to Km 0.073 | -12389.833 -12401.505 | 2781293.177 2781322.687 | | 338°25'10" | 31.735 m |
| C1 | BC: Km 0.073<br>EC: Km 0.126 | BC: -12401.505<br>PI: -12411.486<br>EC: -12411.994 | BC: 2781322.687<br>PI: 2781347.922<br>EC: 2781375.055 | 150.000 m | Δ: 20°30'30" | 53.693 m |
| L4 | Km 0.126 to Km 0.167 | -12411.994 -12412.762 | 2781375.055 2781416.149 | | 358°55'40" | 41.101 m |
| C2 | BC: Km 0.167<br>EC: Km 0.213 | BC: -12412.762<br>PI: -12413.193<br>EC: -12420.520 | BC: 2781416.149<br>PI: 2781439.189<br>EC: 2781461.038 | 150.000 m | Δ: 17°28'10" | 45.732 m |
| L5 | Km 0.213 to Km 0.405 | -12420.520 -12481.458 | 2781461.038 2781642.749 | | 341°27'40" | 191.657 m |
| C3 | BC: Km 0.405<br>EC: Km 0.447 | BC: -12481.458<br>PI: -12488.195<br>EC: -12495.355 | BC: 2781642.749<br>PI: 2781662.836<br>EC: 2781682.777 | 2000.000 m | Δ: 1°12'50" | 42.372 m |
| L6 | Km 0.447 to Km 0.598 | -12495.355 -12546.407 | 2781682.777 2781824.943 | | 340°14'50" | 151.055 m |
| C4 | BC: Km 0.598<br>EC: Km 0.687 | BC: -12546.407<br>PI: -12561.392<br>EC: -12573.887 | BC: 2781824.943<br>PI: 2781866.673<br>EC: 2781909.215 | 1500.000 m | Δ: 3°23'10" | 88.652 m |
| L7 | Km 0.687 to Km 1.157 | -12573.887 -12706.404 | 2781909.215 2782360.431 | | 343°38'00" | 470.272 m |
| C5 | BC: Km 1.157<br>EC: Km 1.270 | BC: -12706.404<br>PI: -12722.795<br>EC: -12766.564 | BC: 2782360.431<br>PI: 2782416.243<br>EC: 2782454.558 | 200.000 m | Δ: 32°26'00" | 113.216 m |
| L8 | Km 1.270 to Km 1.371 | -12766.564 -12842.203 | 2782454.558 2782520.773 | | 311°12'00" | 100.527 m |
| C6 | BC: Km 1.371<br>EC: Km 1.433 | BC: -12842.203<br>PI: -12865.957<br>EC: -12894.960 | BC: 2782520.773<br>PI: 2782541.567<br>EC: 2782554.034 | 200.000 m | Δ: 17°56'20" | 62.622 m |
| L9 | Km 1.433 to Km 1.526 | -12894.960 -12979.947 | 2782554.034 2782590.562 | | 293°15'30" | 92.504 m |
| C7 | BC: Km 1.526<br>EC: Km 1.597 | BC: -12979.947<br>PI: -13013.083<br>EC: -13039.158 | BC: 2782590.562<br>PI: 2782604.805<br>EC: 2782629.727 | 200.000 m | Δ: 20°26'40" | 71.369 m |
| L10 | Km 1.597 to Km 2.091 | -13039.158 -13396.151 | 2782629.727 2782970.936 | | 313°42'20" | 493.830 m |
| C8 | BC: Km 2.091<br>EC: Km 2.156 | BC: -13396.151<br>PI: -13420.846<br>EC: -13420.875 | BC: 2782970.936<br>PI: 2782994.539<br>EC: 2783028.700 | 80.000 m | Δ: 46°14'50" | 64.572 m |
| L11 | Km 2.156 to Km 2.194 | -13420.875 -13420.908 | 2783028.700 2783066.697 | | 359°57'00" | 37.996 m |

| No. | DATE | REVISIONS | BY | CHECKED BY |
|---|---|---|---|---|
| - | - | - | - | - |

DESIGNED BY: RALEMA CONSULTING ENGINEERS


RALEMA CONSULTING ENGINEERS
34 MEZZANINE OXFORD OFFICE PARK
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|---|---|
| S. Bapela-Pr Tech Eng | DESIGNED |
| M. Jikwana | DRAWN |
| S. Bapela-Pr Tech Eng | CHECKED |

| RALEMA CONSULTING | DEPARTMENT |
|---|---|
| ISSUED BY: ..... DATE: ..... | RECEIVED BY: ..... DATE: ..... |

CLIENT ADDRESS

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| | | | |
|---|---|---|---|
| CLIENT | ELIAS MOTSOALEDI LOCAL MUNICIPALITY | CONTRACT No. EMLM 20/2023 | IPW No. ----- | SHEET 2 OF 5 |
| PROJECT TITLE | UPGRADING OF KGOBOKWANE-KGAPHAMADI ROADS, BRIDGES AND STORMWATER | | | |
| DRAWING TITLE | ROAD 4: km 0+500 to 1+000: LAYOUT PLAN AND SETTING OUT DATA | | | |

| SCALE | TYPES OF PLANNING | STATUS |
|---|---|---|
| 1:500 | PLANNING<br>CONSTRUCTION<br>AS-BUILT | PLANNING |

| REVISION | PLAN No. |
|---|---|
| 00 | RCE73_EMLM_05_4LP_02 |

ORIGINAL PAPER SIZE: A0

## BENCHMARK DATA (WGS84)

| NAME | Y COORD | X COORD | ELEVATION |
|---|---|---|---|
| BM1 | -10725.196 | 2782492.320 | 968.194 |
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| BM3 | -10729.083 | 2781693.764 | 957.142 |
| BM4 | -11029.531 | 2781744.036 | 955.552 |
| BM5 | -11275.397 | 2781725.009 | 951.814 |
| BM6 | -11673.055 | 2781658.460 | 948.085 |
| BM7 | -12085.266 | 2781477.977 | 955.702 |
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| BM16 | -9949.782 | 2779309.989 | 931.909 |
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| BM18 | -9442.867 | 2778625.028 | 918.633 |

ERF BOUNDARIES / ROAD RESERVE

BENCHMARKS / REFERENCE POINTS

EXISTING GROUND ELEVATIONS

EXISTING FENCE-LINE

EXISTING WALL

EXISTING GUARDRAIL

EXISTING ROAD SIGN

EXISTING SIGN BOARD

EXISTING DISTANCE MARKER

EXISTING REFUSE BIN

EXISTING TRAFFIC SIGNAL

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EXISTING WATER PIPE

EXISTING WATER END CAP

EXISTING WATER VALVE

EXISTING WATER METER

EXISTING WATER TAP

EXISTING TELKOM CABLE

EXISTING TELKOM MANHOLE

EXISTING TELEPHONE POLE

## ALIGNMENT DATA: R

| SEGMENT | CHAINAGE | Y-COORD | X-COORD | RADIUS | D.A. / BEARING | LENGTH |
|---|---|---|---|---|---|---|
| L1 | Km 0.000 to Km 0.021 | -12374.169 -12382.074 | 2781255.526 2781275.323 | | 338°14'00" | 21.317 m |
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| L11 | Km 2.156 to Km 2.194 | -13420.875 -13420.908 | 2783028.700 2783066.697 | | 359°57'00" | 37.996 m |

SIDE DRAIN
NEW PROPOSED FENCE LINE
EXISTING FENCE TO BE RELOCATED
NEW CULVERT CROSSING
FLOW DIRECTION
ROAD 4
BM12

| No. | DATE | REVISIONS | BY | CHECKED BY |
|---|---|---|---|---|
| - | - | - | - | - |

DESIGNED BY: RALEMA CONSULTING ENGINEERS

RALEMA CONSULTING ENGINEERS

34 MEZZANINE OXFORD OFFICE PARK
03 BAUHINIA STREET
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S. Bapela-Pr Tech Eng — DESIGNED
M. Jikwana — DRAWN
S. Bapela-Pr Tech Eng — CHECKED

RALEMA CONSULTING

ISSUED BY: ..... DATE: .....

DEPARTMENT

RECEIVED BY: ..... DATE: .....

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Groblersdal
0950

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Fax: (013) 962 1017

CLIENT: ELIAS MOTSOALEDI LOCAL MUNICIPALITY

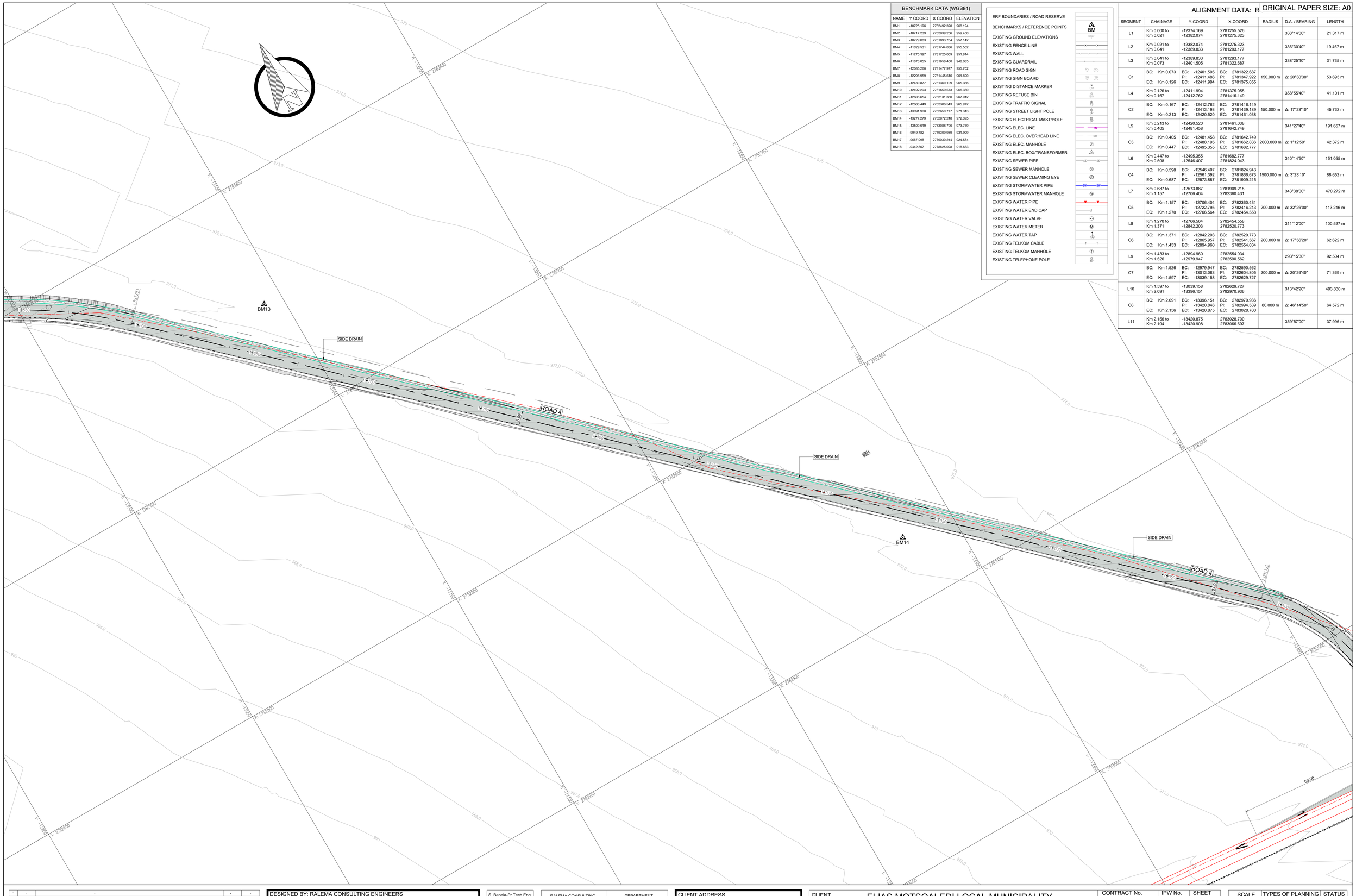
CONTRACT No.: EMLM 20/2023 | IPW No.: ----- | SHEET: 3 of 5

PROJECT TITLE: UPGRADING OF KGOBOKWANE-KGAPHAMADI ROADS, BRIDGES AND STORMWATER

DRAWING TITLE: ROAD 4: km 1+000 to 1+550: LAYOUT PLAN AND SETTING OUT DATA

| SCALE | TYPES OF PLANNING | STATUS |
|---|---|---|
| 1:500 | PLANNING<br>CONSTRUCTION<br>AS-BUILT | PLANNING |

| REVISION | PLAN No. |
|---|---|
| 00 | RCE73_EMLM_05_4LP_03 |




## BENCHMARK DATA (WGS84)

| NAME | Y COORD | X COORD | ELEVATION |
|---|---|---|---|
| BM1 | -10725.196 | 2782492.320 | 968.194 |
| BM2 | -10717.239 | 2782039.256 | 959.450 |
| BM3 | -10729.083 | 2781693.764 | 957.142 |
| BM4 | -11029.531 | 2781744.036 | 955.552 |
| BM5 | -11275.397 | 2781725.009 | 951.814 |
| BM6 | -11673.055 | 2781658.460 | 948.085 |
| BM7 | -12085.266 | 2781477.977 | 955.702 |
| BM8 | -12296.959 | 2781445.616 | 961.690 |
| BM9 | -12430.877 | 2781360.109 | 965.366 |
| BM10 | -12492.293 | 2781659.573 | 966.330 |
| BM11 | -12608.654 | 2782131.360 | 967.912 |
| BM12 | -12688.449 | 2782386.543 | 965.972 |
| BM13 | -13091.908 | 2782650.777 | 971.313 |
| BM14 | -13277.279 | 2782872.248 | 972.395 |
| BM15 | -13509.619 | 2783088.796 | 973.769 |
| BM16 | -9949.782 | 2779309.989 | 931.909 |
| BM17 | -9667.098 | 2779030.214 | 924.584 |
| BM18 | -9442.867 | 2778625.028 | 918.633 |

ERF BOUNDARIES / ROAD RESERVE
BENCHMARKS / REFERENCE POINTS
EXISTING GROUND ELEVATIONS
EXISTING FENCE-LINE
EXISTING WALL
EXISTING GUARDRAIL
EXISTING ROAD SIGN
EXISTING SIGN BOARD
EXISTING DISTANCE MARKER
EXISTING REFUSE BIN
EXISTING TRAFFIC SIGNAL
EXISTING STREET LIGHT POLE
EXISTING ELECTRICAL MAST/POLE
EXISTING ELEC. LINE
EXISTING ELEC. OVERHEAD LINE
EXISTING ELEC. MANHOLE
EXISTING ELEC. BOX/TRANSFORMER
EXISTING SEWER PIPE
EXISTING SEWER MANHOLE
EXISTING SEWER CLEANING EYE
EXISTING STORMWATER PIPE
EXISTING STORMWATER MANHOLE
EXISTING WATER PIPE
EXISTING WATER END CAP
EXISTING WATER VALVE
EXISTING WATER METER
EXISTING WATER TAP
EXISTING TELKOM CABLE
EXISTING TELKOM MANHOLE
EXISTING TELEPHONE POLE

## ALIGNMENT DATA: R

ORIGINAL PAPER SIZE: A0

| SEGMENT | CHAINAGE | Y-COORD | X-COORD | RADIUS | D.A. / BEARING | LENGTH |
|---|---|---|---|---|---|---|
| L1 | Km 0.000 to Km 0.021 | -12374.169 -12382.074 | 2781255.526 2781275.323 | | 338°14'00" | 21.317 m |
| L2 | Km 0.021 to Km 0.041 | -12382.074 -12389.833 | 2781275.323 2781293.177 | | 336°30'40" | 19.467 m |
| L3 | Km 0.041 to Km 0.073 | -12389.833 -12401.505 | 2781293.177 2781322.687 | | 338°25'10" | 31.735 m |
| C1 | BC: Km 0.073<br>PI:<br>EC: Km 0.126 | BC: -12401.505<br>PI: -12411.486<br>EC: -12411.994 | BC: 2781322.687<br>PI: 2781347.922<br>EC: 2781375.055 | 150.000 m | Δ: 20°30'30" | 53.693 m |
| L4 | Km 0.126 to Km 0.167 | -12411.994 -12412.762 | 2781375.055 2781416.149 | | 358°55'40" | 41.101 m |
| C2 | BC: Km 0.167<br>PI:<br>EC: Km 0.213 | BC: -12412.762<br>PI: -12413.193<br>EC: -12420.520 | BC: 2781416.149<br>PI: 2781439.189<br>EC: 2781461.038 | 150.000 m | Δ: 17°28'10" | 45.732 m |
| L5 | Km 0.213 to Km 0.405 | -12420.520 -12481.458 | 2781461.038 2781642.749 | | 341°27'40" | 191.657 m |
| C3 | BC: Km 0.405<br>PI:<br>EC: Km 0.447 | BC: -12481.458<br>PI: -12488.195<br>EC: -12495.355 | BC: 2781642.749<br>PI: 2781662.836<br>EC: 2781682.777 | 2000.000 m | Δ: 1°12'50" | 42.372 m |
| L6 | Km 0.447 to Km 0.598 | -12495.355 -12546.407 | 2781682.777 2781824.943 | | 340°14'50" | 151.055 m |
| C4 | BC: Km 0.598<br>PI:<br>EC: Km 0.687 | BC: -12546.407<br>PI: -12561.392<br>EC: -12573.887 | BC: 2781824.943<br>PI: 2781866.673<br>EC: 2781909.215 | 1500.000 m | Δ: 3°23'10" | 88.652 m |
| L7 | Km 0.687 to Km 1.157 | -12573.887 -12706.404 | 2781909.215 2782360.431 | | 343°38'00" | 470.272 m |
| C5 | BC: Km 1.157<br>PI:<br>EC: Km 1.270 | BC: -12706.404<br>PI: -12722.795<br>EC: -12766.564 | BC: 2782360.431<br>PI: 2782416.243<br>EC: 2782454.558 | 200.000 m | Δ: 32°26'00" | 113.216 m |
| L8 | Km 1.270 to Km 1.371 | -12766.564 -12842.203 | 2782454.558 2782520.773 | | 311°12'00" | 100.527 m |
| C6 | BC: Km 1.371<br>PI:<br>EC: Km 1.433 | BC: -12842.203<br>PI: -12865.957<br>EC: -12894.960 | BC: 2782520.773<br>PI: 2782541.567<br>EC: 2782554.034 | 200.000 m | Δ: 17°56'20" | 62.622 m |
| L9 | Km 1.433 to Km 1.526 | -12894.960 -12979.947 | 2782554.034 2782590.562 | | 293°15'30" | 92.504 m |
| C7 | BC: Km 1.526<br>PI:<br>EC: Km 1.597 | BC: -12979.947<br>PI: -13013.083<br>EC: -13039.158 | BC: 2782590.562<br>PI: 2782604.805<br>EC: 2782629.727 | 200.000 m | Δ: 20°26'40" | 71.369 m |
| L10 | Km 1.597 to Km 2.091 | -13039.158 -13396.151 | 2782629.727 2782970.936 | | 313°42'20" | 493.830 m |
| C8 | BC: Km 2.091<br>PI:<br>EC: Km 2.156 | BC: -13396.151<br>PI: -13420.846<br>EC: -13420.875 | BC: 2782970.936<br>PI: 2782994.539<br>EC: 2783028.700 | 80.000 m | Δ: 46°14'50" | 64.572 m |
| L11 | Km 2.156 to Km 2.194 | -13420.875 -13420.908 | 2783028.700 2783066.697 | | 359°57'00" | 37.996 m |

| No. | DATE | REVISIONS | BY | CHECKED BY |
|---|---|---|---|---|
| - | - | - | - | - |

DESIGNED BY: RALEMA CONSULTING ENGINEERS

RALEMA CONSULTING ENGINEERS

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HIGHVELD PARK, CENTURION
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S. Bapela-Pr Tech Eng — DESIGNED
M. Jikwana — DRAWN
S. Bapela-Pr Tech Eng — CHECKED

RALEMA CONSULTING — DEPARTMENT
ISSUED BY: ..... DATE: .....
RECEIVED BY: ..... DATE: .....

CLIENT ADDRESS

GROBLERSDAL
PRIVATE BAG X5006
Groblersdal
0950

Tel: (013) 962 1828
Fax: (013) 962 1017

CLIENT: ELIAS MOTSOALEDI LOCAL MUNICIPALITY
CONTRACT No.: EMLM 20/2023
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SHEET: 4 of 5

PROJECT TITLE: UPGRADING OF KGOBOKWANE-KGAPHAMADI ROADS, BRIDGES AND STORMWATER

DRAWING TITLE: ROAD 4: km 1+550 to 2+000: LAYOUT PLAN AND SETTING OUT DATA

| SCALE | TYPES OF PLANNING | STATUS |
|---|---|---|
| 1:500 | PLANNING<br>CONSTRUCTION<br>AS-BUILT | PLANNING |

| REVISION | PLAN No. |
|---|---|
| 00 | RCE73_EMLM_05_4LP_04 |

ALIGNMENT DATA: R ORIGINAL PAPER SIZE: A0

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| BM7 | -12085.266 | 2781477.977 | 955.702 |
| BM8 | -12296.959 | 2781445.616 | 961.690 |
| BM9 | -12430.877 | 2781360.109 | 965.366 |
| BM10 | -12492.293 | 2781659.573 | 966.330 |
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| No. | DATE | REVISIONS | BY | CHECKED BY |
|---|---|---|---|---|
| - | - | - | - | - |

DESIGNED BY: RALEMA CONSULTING ENGINEERS

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S. Bapela-Pr Tech Eng — DESIGNED
M. Jikwana — DRAWN
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| REVISION | PLAN No. |
|---|---|
| 00 | RCE73_EMLM_05_4LP_05 |