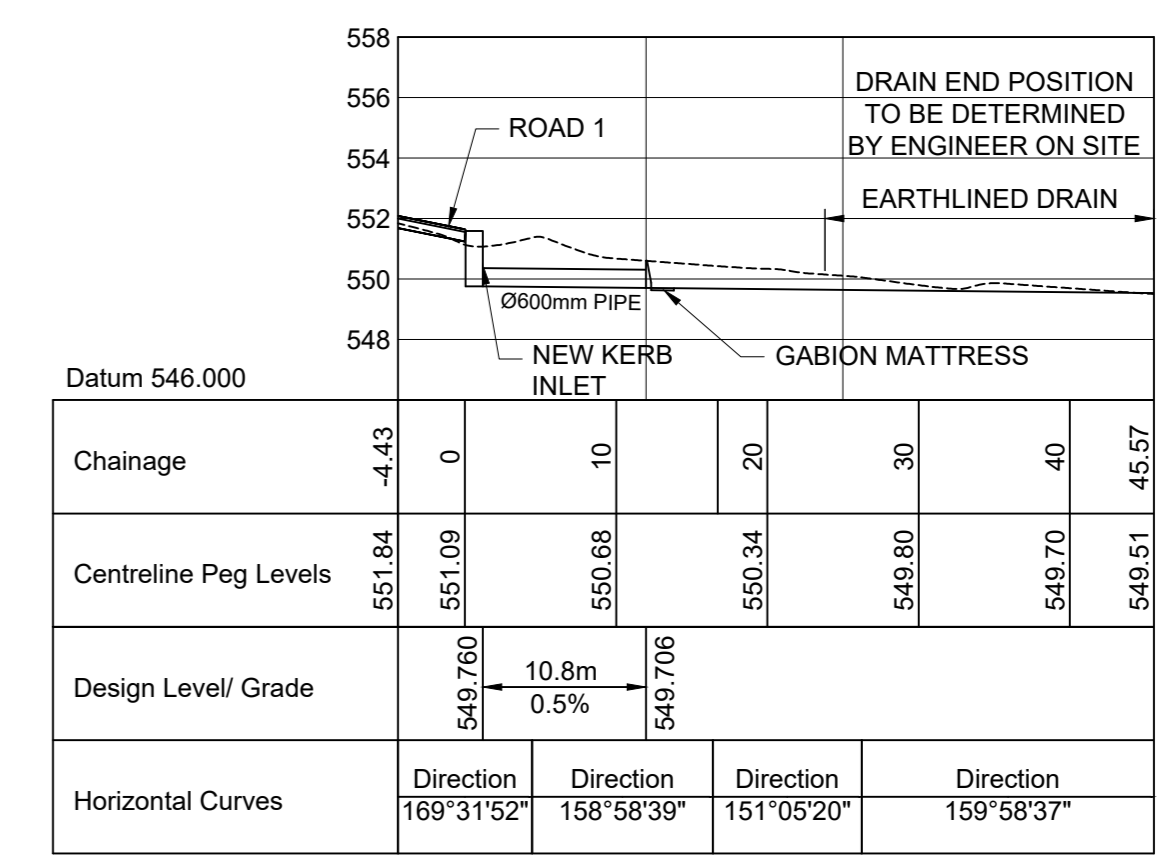


**NOTES**

1. ALL WORK TO COMPLY WITH COTO DS 2020 ENGINEERING SPECIFICATIONS, OR AS AMENDED.
2. ALL EXISTING LEVELS BASED ON TOPOGRAPHICAL SURVEY WGS 84 / LD 31.
3. ALL SETTING OUT DETAILS TO BE CONFIRMED BY THE ENGINEER PRIOR TO ANY CONSTRUCTION WORK.
4. ALL EXISTING SERVICES IN THE AREA OF CONSTRUCTION TO BE PROVIDED PRIOR TO COMMENCEMENT OF ANY EXCAVATION. EXISTING SERVICES TO BE ENCASED IN CONCRETE AT THE ENGINEER'S DISCRETION.
5. WORK TO FIGURED DIMENSIONS. CO-ORDINATES AND LEVELS ONLY. DO NOT SCALE OF DRAWINGS AND ANY DISCREPANCIES IN DIMENSIONS / CO-ORDINATES TO BE REPORTED TO THE ENGINEER.
6. ALL CUT BANKS TO BE 1:5 MAX.
7. ALL FILL BANKS TO BE 1:5 MAX.
8. VERGE SHAPING AS DIRECTED BY ENGINEER.
9. ALL SLOPE EMBANKMENTS TO BE TOPSOILED AND GRASSSED.
10. POSITION OF KERBS, DRAINS TO BE CONFIRMED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION WORK THEREOF.
11. CARE IS TO BE TAKEN WHEN WORKING IN THE VICINITY OF EXISTING BUILDINGS.
12. JOINTS TO THE INTO EXISTING ASPHALT SURFACING TO BE SAW CUT. THE INTO EXISTING SET LEVELS.
13. ALL CURVE RADI TO ACCESS TO BE 6m UNLESS OTHERWISE SHOWN.
14. ALL STORMWATER PIPES TO BE CLASS 1000 UNLESS OTHERWISE SHOWN.
15. ALL BELLMOUTH ACCESS TO HAVE ROLL OVER KERBS.
16. ALL UNDRILABLE DRIVEWAYS ARE TO BE AGREED ON SITE.
17. ALL GRAVEL TIE-INS TO EXISTING ROAD TO BE AT A MINIMUM 1:15 TAPER.
18. ALL EXISTING SERVICES TO BE PROVIDED PRIOR TO BULK EARTHWORKS OPERATIONS.
19. TIE-IN PAVING BLOCK (20m LONG, 5m WIDE).
20. TIE-IN GRAVEL (20m LONG, 5m WIDE).
21. FOR DETAILS REFER TO DRAWING 225001-001\_D02.
22. PROVIDE STOP SIGN AND ROAD MARKING ON ALL PAVED SECTIONS.



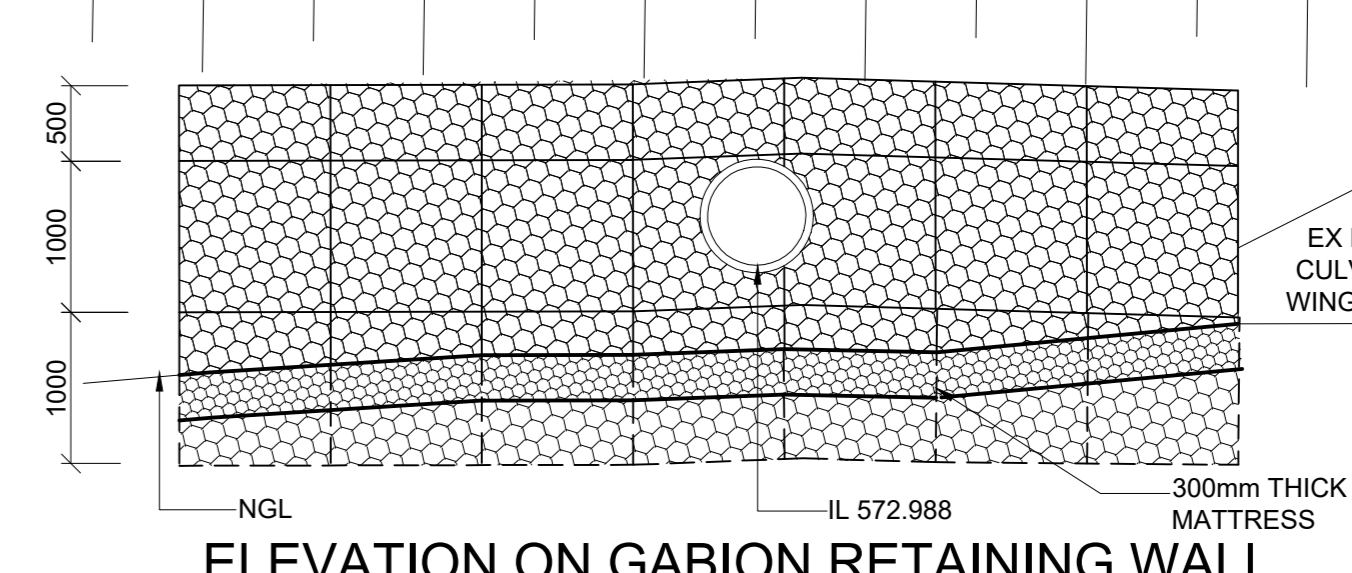
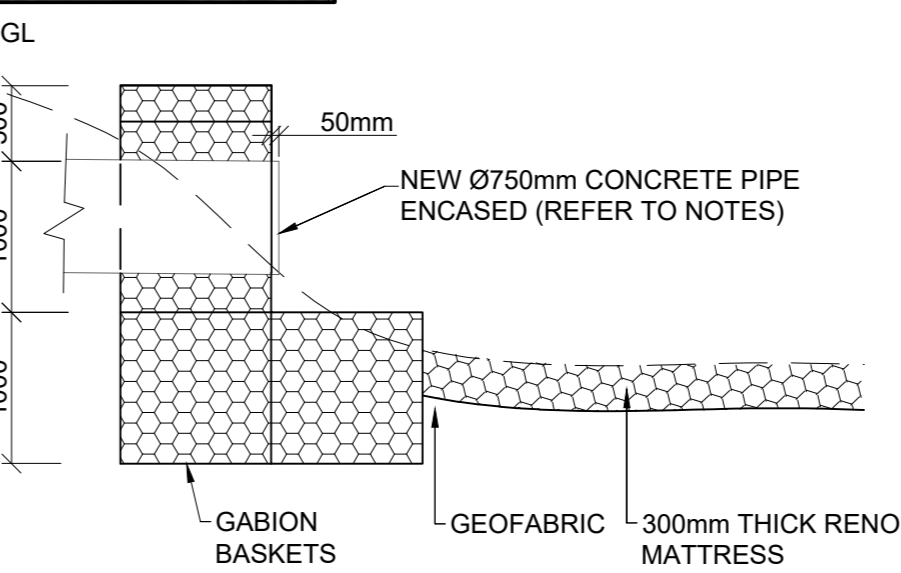
**TABLE 1: STORMWATER TABLE**

| NAME | X-COORD    | Y-COORD     | COVER    | INLET    | DEPTH  | LENGTH  | TYPE | SIZE          | SLOPE  | COMMENTS |
|------|------------|-------------|----------|----------|--------|---------|------|---------------|--------|----------|
| KI1  | -16937.643 | 2807344.719 | 553.102m | 549.700m | 1.830m | 10.800m | 6000 | 2.670 X 1.140 | 1.994% |          |
| MH1  | -16934.653 | 2807334.038 | 550.803m | 549.700m | 0.825m |         |      |               |        |          |
| KI2  | -17006.769 | 2807553.181 | 562.170m | 561.370m | 0.800m | 12.44m  | 6000 | 2.670 X 1.140 | 1.150% |          |
| MH2a | -16998.773 | 2807543.652 | 562.045m | 561.227m | 0.818m | 8.78m   | 6000 | 2.670 X 1.140 | 1.150% |          |
| MH2b | -16991.585 | 2807538.608 | 562.091m | 561.126m | 0.965m | 8.12m   | 6000 | 2.670 X 1.140 | 1.150% |          |
| MH2  | -16987.223 | 2807523.085 | 561.068m | 560.940m | 0.125m |         |      |               |        |          |
| KI3a | -17263.464 | 2807788.205 | 577.318m | 576.118m | 1.200m | 31.130m | 6000 | 2.670 X 1.140 | 1.198% |          |
| MH3a | -17261.300 | 2807757.148 | 576.810m | 575.745m | 1.065m | 10.780m | 6000 | 1.110 X 1.110 | 1.198% |          |
| MH3b | -17265.160 | 2807747.100 | 576.868m | 575.616m | 1.252m | 10.730m | 6000 | 1.110 X 1.110 | 1.198% |          |
| MH3c | -17272.905 | 2807738.669 | 577.888m | 575.487m | 2.401m | 9.740m  | 6000 | 1.110 X 1.110 | 1.653% |          |
| MH3d | -17282.131 | 2807736.548 | 577.020m | 575.309m | 1.700m | 7.450m  | 6000 | 1.110 X 1.110 | 1.003% |          |
| MH3e | -17372.112 | 2807725.742 | 576.319m | 574.602m | 1.717m | 17.610m | 6000 | 1.110 X 1.110 | 2.000% |          |
| KI3b | -17379.318 | 2807726.674 | 576.019m | 573.340m | 2.670m | 17.610m | 6000 | 2.670 X 1.140 | 2.000% |          |
| MH4  | -17388.197 | 2807710.751 | 572.988m | 572.988m | 0.772m | 16.650m | 6000 | 2.670 X 1.140 | 5.861% |          |
| KI4  | -17610.931 | 2806992.592 | 535.133m | 531.383m | 0.886m | 2.941m  | 6000 | 2.670 X 1.140 | 0.627% |          |
| MH4  | -17619.466 | 2806995.328 | 532.269m | 531.383m | 0.886m |         |      |               |        |          |
| KI6  | -17673.775 | 2807290.751 | 556.568m | 554.968m | 1.600m | 20.941m | 6000 | 2.670 X 1.140 | 0.627% |          |

NOTE 1: ALL POSITIONS OF INLET AND MANHOLES MAY BE ADJUSTED ON SITE.  
 NOTE 2: \* POSITION OF INVERT OF EXISTING PIPE TO BE VERIFIED BEFORE.

**LEGEND**

- LIMIT OF CONSTRUCTION
- ROAD CENTRE LINE
- 6000 CONCRETE STORMWATER PIPE CLASS 100 D
- PROPOSED 6000 PC CULVERT
- PROPOSED HEADWALL
- FIGURE 8c KERB AND CHANNEL
- EDGE BEAM
- CONCRETE 'Y' DRAIN
- SIDEWALK
- RETAINING WALL
- MITRE CHUTE
- MANHOLE
- SIDE INLET
- FENCE TO BE RELOCATED
- EX STORMWATER CHANNEL
- GABION TREE
- GABION PROTECTION
- SPEED HUMP
- EXISTING FENCELINE
- EXISTING CULVERT
- EXISTING POWER LINE
- EXISTING BUILDING/STRUCTURE
- EXISTING ROAD
- BENCHMARK
- EXISTING TAP
- EXISTING TELEPHONE POLE
- GRAVEL TIE-IN
- PAVING BLOCK

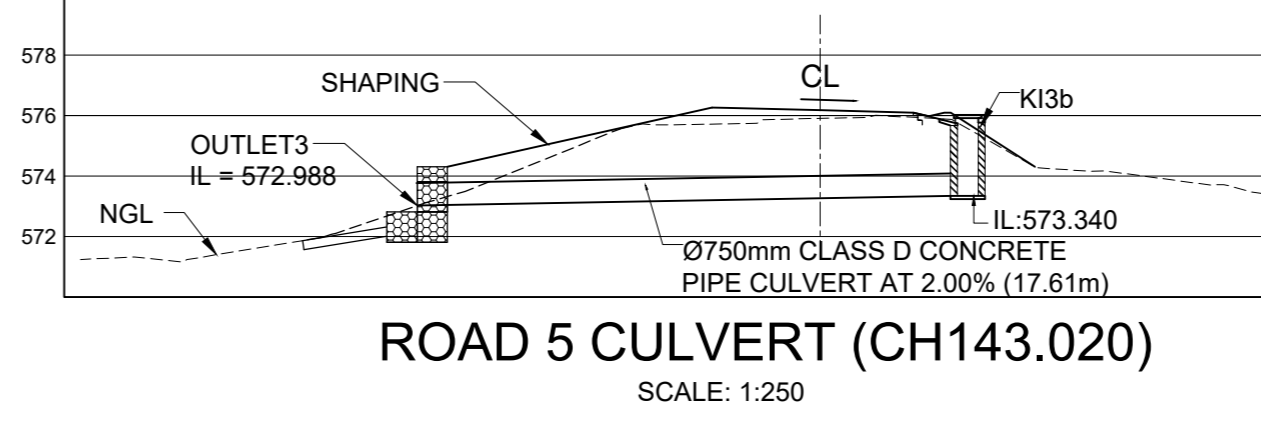


SECTION A-A GABION RETAINING WALL (ROAD 5 - CH144) SCALE: 1:50

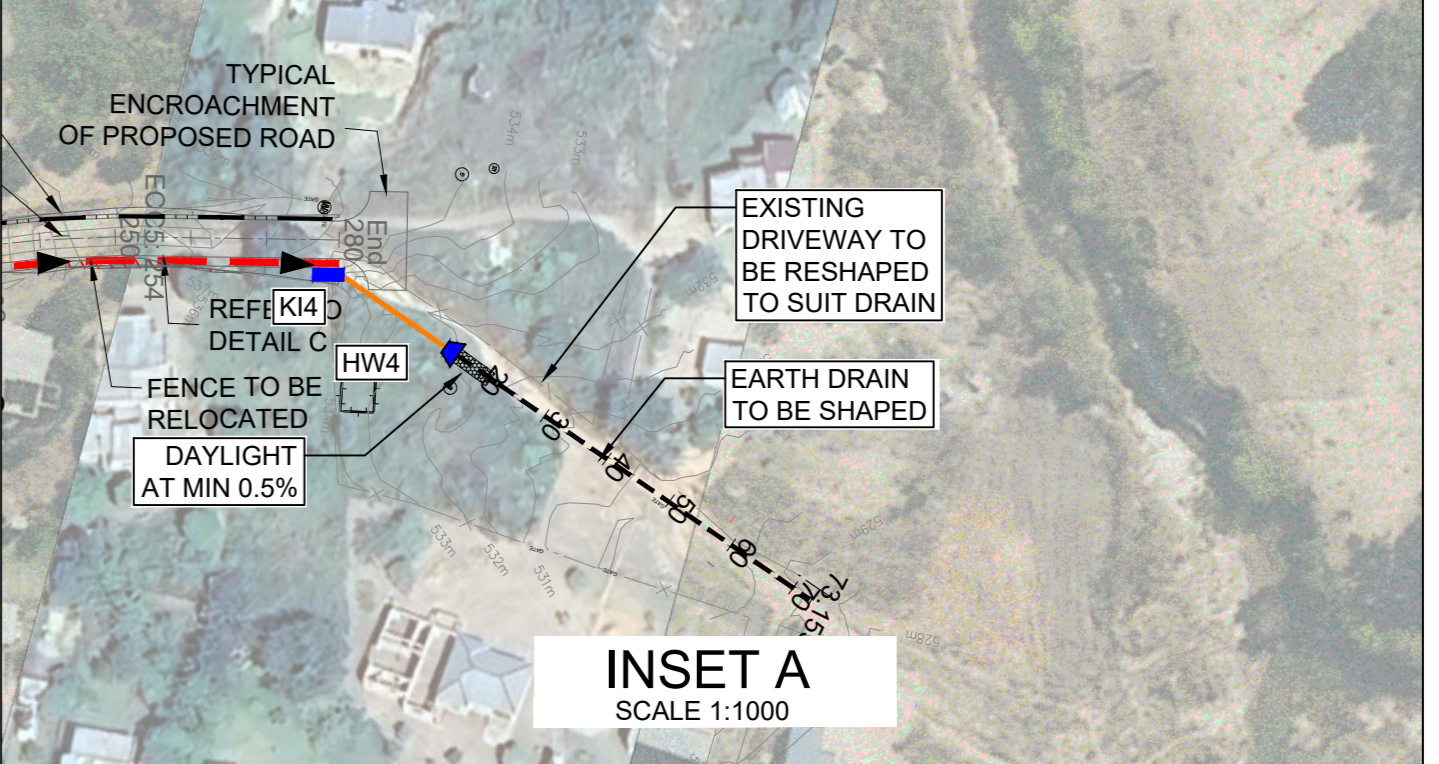
ELEVATION ON GABION RETAINING WALL AT PIPE OUTLET (ROAD 5 - CH144) SCALE: 1:50

- NOTES**
1. CONCRETE ENCASEMENT MINIMUM 1m x 1m x 1m
  2. CONCRETE STRENGTH OF 20 MPa. MINIMUM CONCRETE COVER TO PIPES TO BE 20mm.
  3. CONCRETE ENCASEMENT TO BE MADE TO SUIT ON SITE APON ENGINEERS INSTRUCTION.

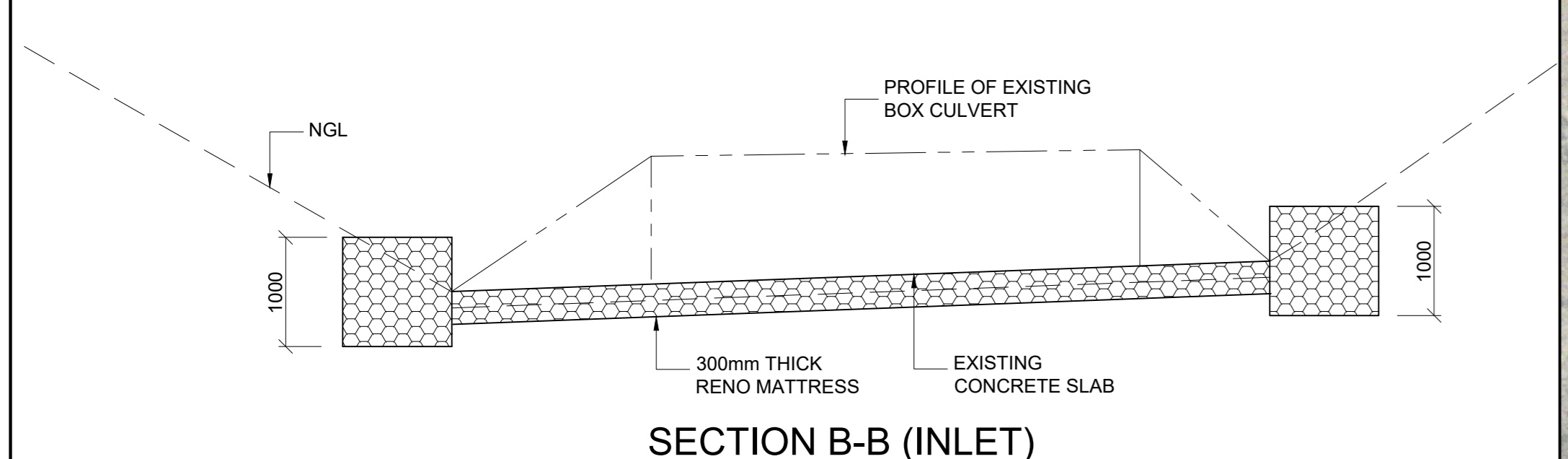
ROAD 7 DRAIN LONGITUDINAL SECTION  
 HORIZONTAL SCALE: 500  
 VERTICAL SCALE: 250



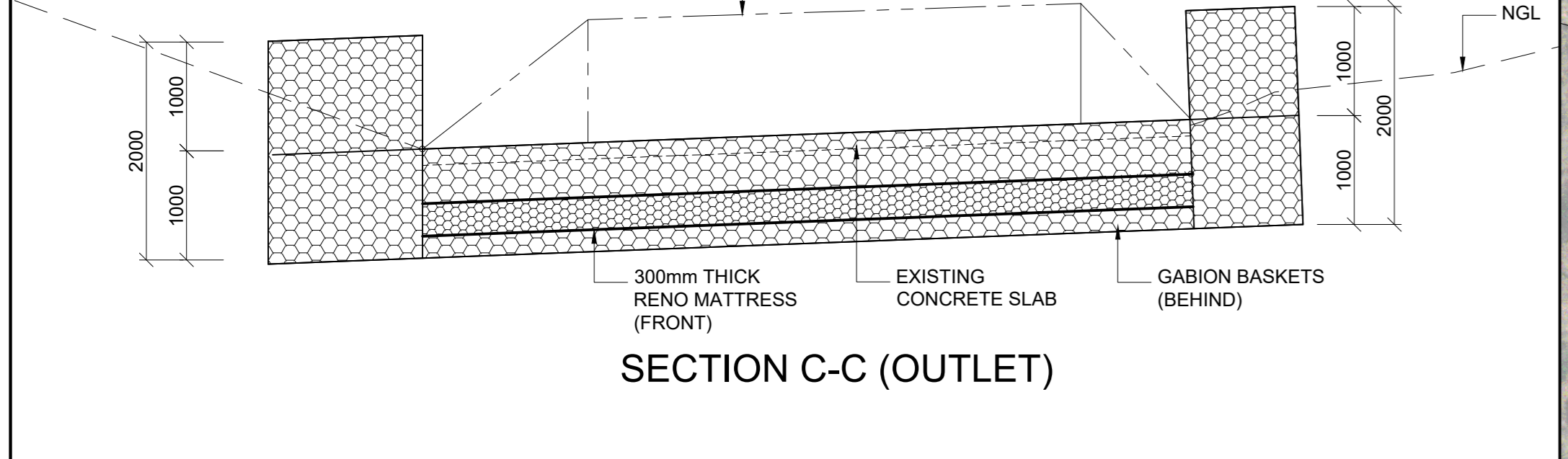
ROAD 5 CULVERT (CH143.020) SCALE: 1:250



INSET A SCALE 1:1000



SECTION B-B (INLET)



SECTION C-C (OUTLET)

| REV. | DESCRIPTION       | BY  | DATE       |
|------|-------------------|-----|------------|
| B    | ISSUED FOR TENDER | M.P | 01/07/2026 |
| A    | DETAIL DESIGN     | M.P | 18/02/2026 |

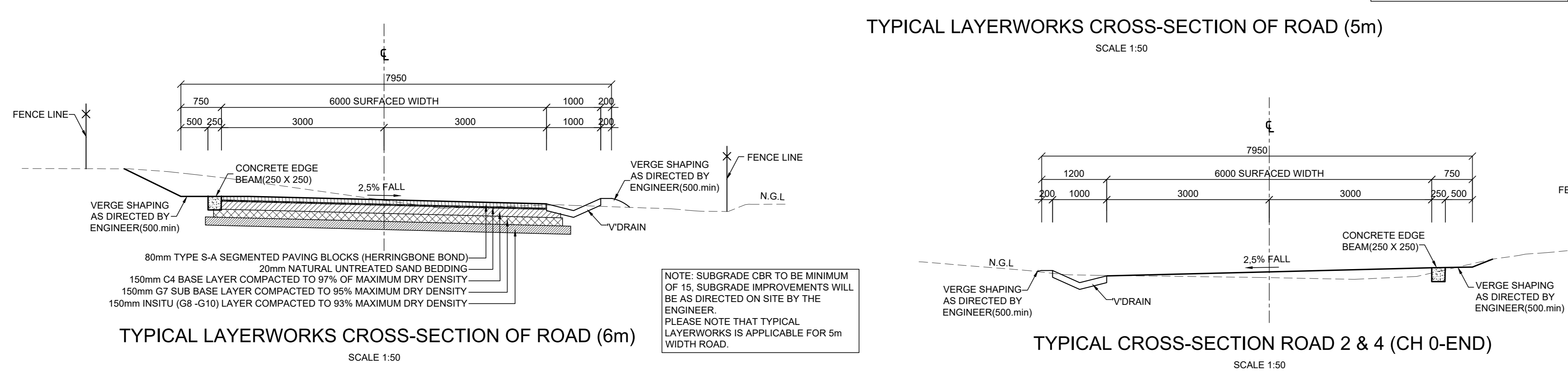
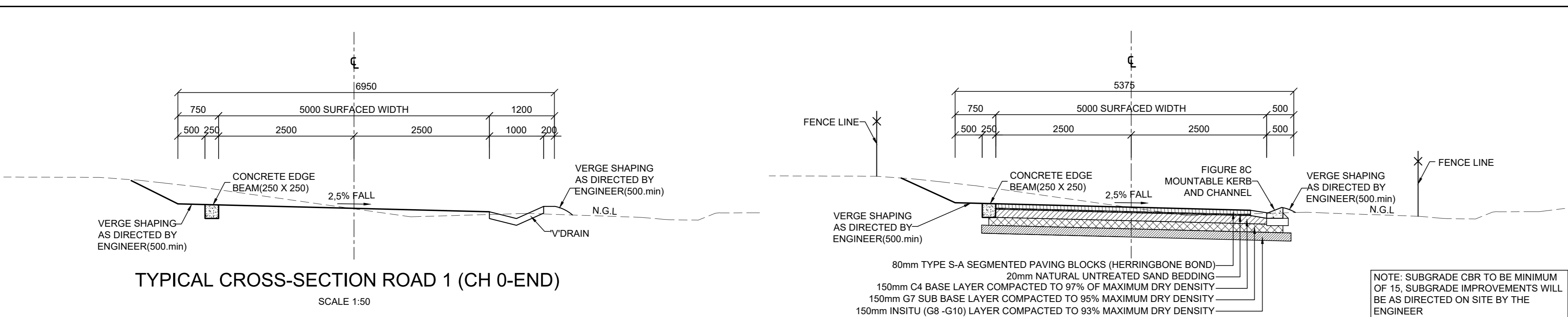
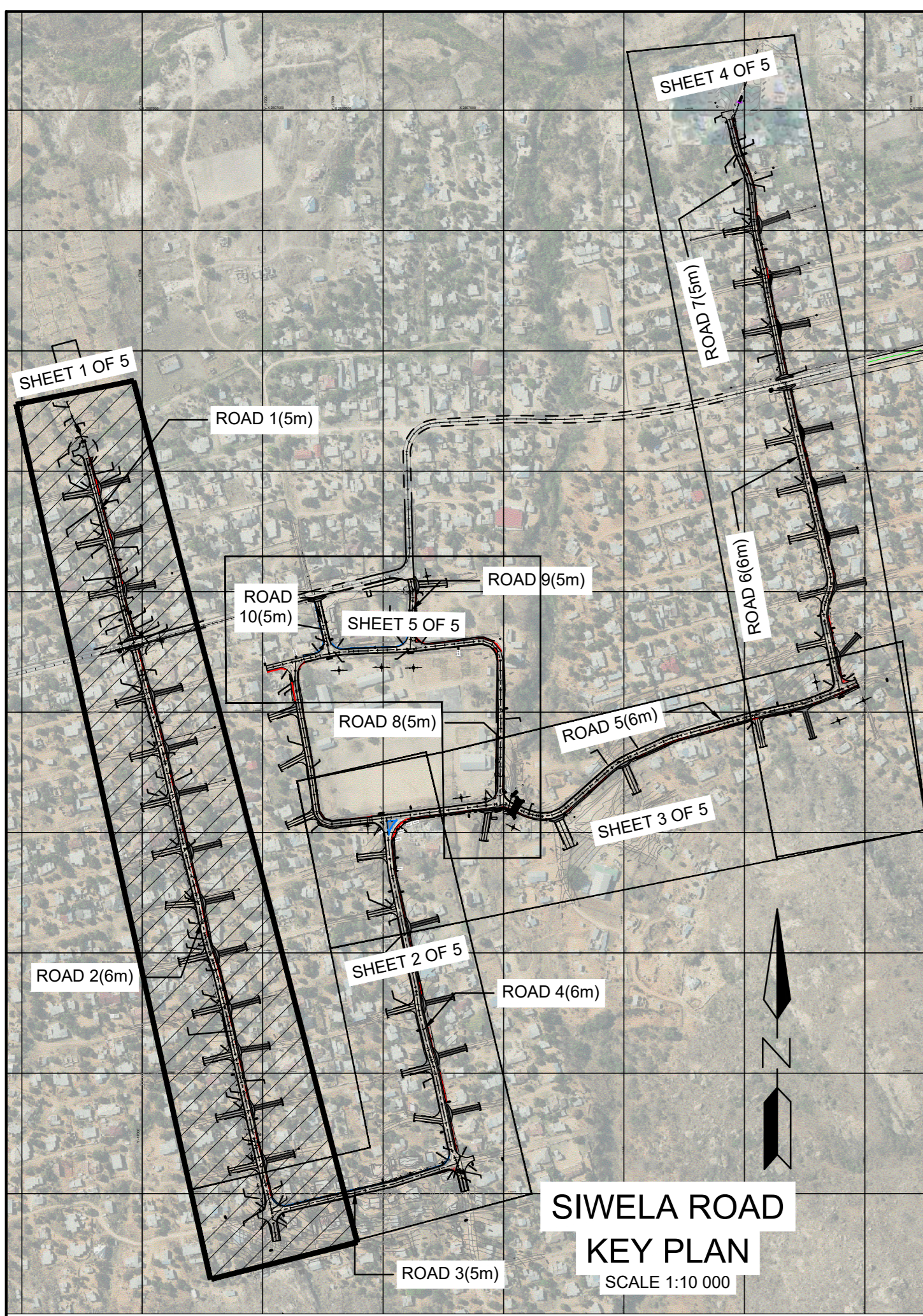
**CITY OF MBOMBELA**  
 THE ULTIMATE DESTINATION

PROJECT: SIWELA ROAD PHASE 3

DRAWING TITLE: DRAINAGE PLAN LAYOUT SHEET 1 OF 11 (ROAD 1 - 11)

**nme** NATHOO MBENYANE ENGINEERS & PROJECT MANAGERS  
 Office 001 Portion 3 of 173 R580 Platston Road The Ranch White River 1240  
 Tel: 013-750 3122 Fax: 013-750 3155 e-mail: info.mp@nme.co.za

| CHECKED | DESIGNED | SCALE      | PROJECT NO. |
|---------|----------|------------|-------------|
| R.S     | R.S      | AS SHOWN   | C25001      |
| R.S     | M.P      | DATE       | SHEET       |
|         |          | 10/02/2026 | SW1         |
|         |          |            | REVISION    |
|         |          |            | B           |



| CURVE NO | RADIUS (m) | TANGENT IN (m) | TANGENT OUT (m) | INTERSECTION ANGLE (DEG) |
|----------|------------|----------------|-----------------|--------------------------|
| 1        | 145.000    | 7.618          | 7.618           | 6°00'55"                 |
| 2        | 145.000    | 6.592          | 6.592           | 5°12'21"                 |

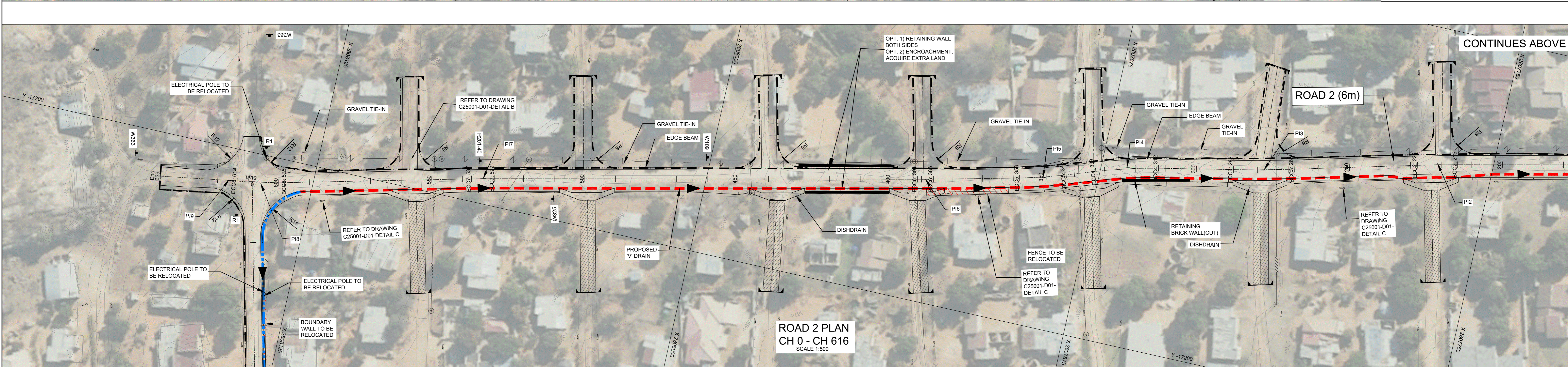
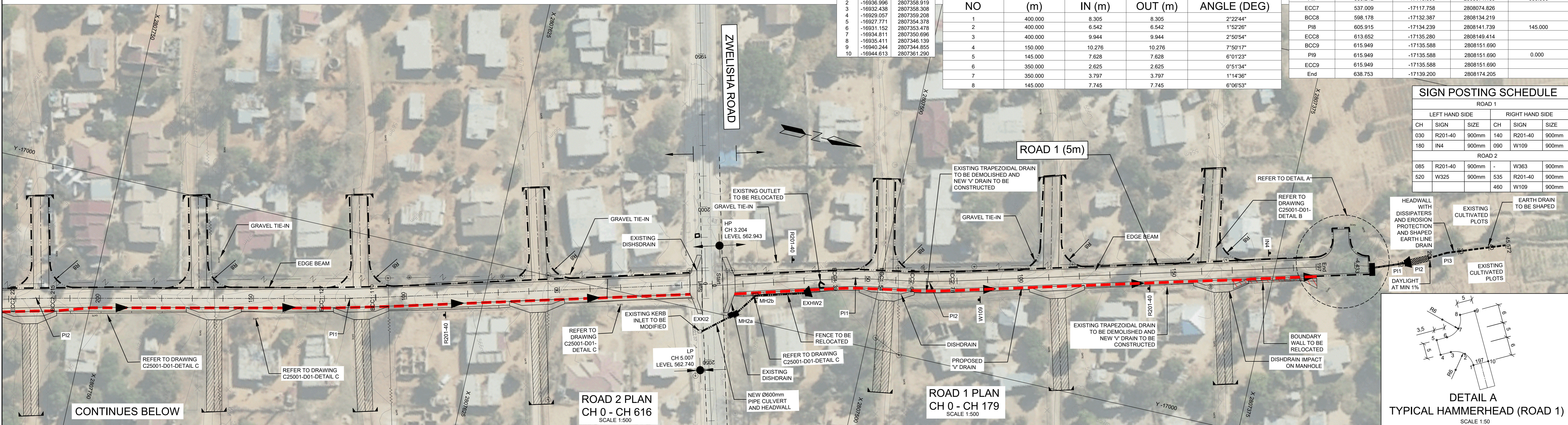
| NAME  | CHAINAGE | Y-Coord    | X-Coord     | RADIUS (m) |
|-------|----------|------------|-------------|------------|
| Start | 0        | -16991.422 | 2807553.068 | 0.000      |
| BCC1  | 39.102   | -16980.842 | 2807515.424 |            |
| P11   | 46.713   | -16978.780 | 2807508.090 | 145.000    |
| ECC1  | 54.325   | -16977.499 | 2807500.580 |            |
| BCC2  | 64.373   | -16975.809 | 2807490.675 |            |
| P12   | 70.960   | -16974.700 | 2807484.177 | 145.000    |
| ECC2  | 77.548   | -16973.006 | 2807477.806 |            |
| End   | 197.446  | -16942.198 | 2807361.934 |            |

| NAME  | CHAINAGE | Y-Coord    | X-Coord     | RADIUS (m) |
|-------|----------|------------|-------------|------------|
| Start | 0        | -16990.882 | 2807553.222 | 0.000      |
| BCC1  | 110.212  | -17019.391 | 2807659.683 |            |
| P11   | 118.516  | -17021.539 | 2807667.706 | 400.000    |
| ECC1  | 126.820  | -17023.352 | 2807675.811 |            |
| BCC2  | 214.620  | -17042.524 | 2807761.492 |            |
| P12   | 221.161  | -17043.952 | 2807767.876 | 400.000    |
| ECC2  | 227.703  | -17045.588 | 2807774.210 |            |
| BCC3  | 268.020  | -17055.873 | 2807813.245 |            |
| P13   | 277.962  | -17058.161 | 2807822.873 | 400.000    |
| ECC3  | 287.904  | -17060.167 | 2807832.613 |            |
| BCC4  | 312.393  | -17065.107 | 2807856.598 |            |
| P14   | 322.653  | -17067.180 | 2807866.663 | 150.000    |
| ECC4  | 332.913  | -17070.606 | 2807876.351 |            |
| BCC5  | 342.683  | -17073.864 | 2807885.562 |            |
| P15   | 350.304  | -17076.407 | 2807892.754 | 145.000    |
| ECC5  | 357.926  | -17078.182 | 2807900.173 |            |
| BCC6  | 386.078  | -17084.731 | 2807927.553 |            |
| P16   | 388.703  | -17085.422 | 2807930.106 | 350.000    |
| ECC6  | 391.328  | -17085.914 | 2807932.668 |            |
| BCC7  | 529.415  | -17116.022 | 2808067.433 |            |
| P17   | 533.212  | -17116.850 | 2808071.139 | 350.000    |
| ECC7  | 537.009  | -17117.758 | 2808074.826 |            |
| BCC8  | 598.178  | -17132.387 | 2808134.219 |            |
| P18   | 605.915  | -17134.239 | 2808141.739 | 145.000    |
| ECC8  | 613.652  | -17135.280 | 2808149.414 |            |
| BCC9  | 615.949  | -17135.588 | 2808151.690 |            |
| P19   | 615.949  | -17135.588 | 2808151.690 | 0.000      |
| ECC9  | 615.949  | -17135.588 | 2808151.690 |            |
| End   | 638.753  | -17139.200 | 2808174.205 |            |

| POINT | Y          | X           |
|-------|------------|-------------|
| 1     | -16938.782 | 2807362.577 |
| 2     | -16936.996 | 2807358.919 |
| 3     | -16932.438 | 2807358.308 |
| 4     | -16929.057 | 2807359.208 |
| 5     | -16927.771 | 2807354.378 |
| 6     | -16931.152 | 2807353.478 |
| 7     | -16934.811 | 2807356.696 |
| 8     | -16935.411 | 2807346.139 |
| 9     | -16940.244 | 2807344.855 |
| 10    | -16944.613 | 2807361.290 |

| CURVE NO | RADIUS (m) | TANGENT IN (m) | TANGENT OUT (m) | INTERSECTION ANGLE (DEG) |
|----------|------------|----------------|-----------------|--------------------------|
| 1        | 400.000    | 8.305          | 8.305           | 2°22'44"                 |
| 2        | 400.000    | 6.542          | 6.542           | 1°52'26"                 |
| 3        | 400.000    | 9.944          | 9.944           | 2°50'54"                 |
| 4        | 150.000    | 10.276         | 10.276          | 7°50'17"                 |
| 5        | 145.000    | 7.628          | 7.628           | 6°01'23"                 |
| 6        | 350.000    | 2.625          | 2.625           | 0°51'34"                 |
| 7        | 350.000    | 3.797          | 3.797           | 1°14'36"                 |
| 8        | 145.000    | 7.745          | 7.745           | 6°06'53"                 |

| ROAD 1         |         |       |                 |         |       |
|----------------|---------|-------|-----------------|---------|-------|
| LEFT HAND SIDE |         |       | RIGHT HAND SIDE |         |       |
| CH             | SIGN    | SIZE  | CH              | SIGN    | SIZE  |
| 030            | R201-40 | 900mm | 140             | R201-40 | 900mm |
| 180            | IN4     | 900mm | 090             | W109    | 900mm |
| ROAD 2         |         |       |                 |         |       |
| 085            | R201-40 | 900mm | -               | W363    | 900mm |
| 520            | W325    | 900mm | 535             | R201-40 | 900mm |
|                |         |       | 460             | W109    | 900mm |



- NOTES**
- ALL WORK TO COMPLY WITH COTO DS 2020 ENGINEERING SPECIFICATIONS, OR AS AMENDED.
  - ALL EXISTING LEVELS BASED ON TOPOGRAPHICAL SURVEY WS 84 / LO 31.
  - ALL SETTING OUT DETAILS TO BE CONFIRMED BY THE ENGINEER PRIOR TO ANY CONSTRUCTION WORK.
  - ALL EXISTING SERVICES IN THE AREA OF CONSTRUCTION TO BE PROTECTED PRIOR TO COMMENCEMENT OF ANY EXCAVATION. EXISTING SERVICES TO BE ENCASED IN CONCRETE AT THE ENGINEER'S DISCRETION.
  - WORK TO FIGURED DIMENSIONS. COORDINATES AND LEVELS ONLY. DO NOT SCALE OF DRAWINGS AND ANY DISCREPANCIES IN DIMENSIONS / COORDINATES TO BE REPORTED TO THE ENGINEER.
  - ALL CUT BANKS TO BE 1:5 MAX.
  - ALL FILL BANKS TO BE 1:5 MAX.
  - VERGE SHAPING AS DIRECTED BY ENGINEER.
  - ALL SLOPE EMBANKMENTS TO BE TOPSOILED AND GRASSED.
  - POSITION OF KERBS, DRAINS TO BE CONFIRMED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION WORK THEREOF.
  - CARE IS TO BE TAKEN WHEN WORKING IN THE VICINITY OF EXISTING BUILDINGS.
  - JOINTS TO BE TAKEN INTO EXISTING ASPHALT SURFACING TO BE SAW CUT, TIE INTO EXISTING SET LEVELS.
  - ALL CURVE RADII TO ACCESSIBLE TO BE 6m UNLESS OTHERWISE SPECIFIED.
  - ALL STORMWATER PIPES TO BE CLASS 1000 UNLESS OTHERWISE SHOWN.
  - ALL BELLMOUTH ACCESSORIES TO HAVE ROLL OVER KERBS, IE MOUNTABLE KERBS.
  - ALL TIE-INS TO EXISTING DRIVEWAYS ARE TO BE AGREED ON SITE.
  - ALL GRAVEL TIE-INS TO EXISTING ROAD TO BE AT A MINIMUM 1:15 TAPER.
  - ALL EXISTING SERVICES TO BE PROVIDED PRIOR TO BULK EARTHWORKS OPERATIONS.
  - TIE-IN PAVING BLOCK (30m LONG 5m WIDE)
  - TIE-IN GRAVEL (30m LONG 5m WIDE)
  - FOR DETAILS REFER TO DRAWING C25001-D01-D02
  - PROVIDE STOP SIGN AND ROAD MARKING ON ALL PAVED SECTIONS.

- LEGEND**
- LIMIT OF CONSTRUCTION
  - ROAD CENTRE LINE
  - 6000 CONCRETE STORMWATER PIPE CLASS 100 D
  - PROPOSED 600Ø PC CULVERT
  - PROPOSED HEADWALL
  - FIGURE 8c MOUNTABLE KERB AND CHANNEL
  - EDGE BEAM
  - CONCRETE 'V' DRAIN
  - SIDEWALK
  - RETAINING WALL
  - MITRE CHUTE
  - MANHOLE
  - SIDE INLET
  - FENCE TO BE RELOCATED
  - EX STORMWATER CHANNEL
  - EXISTING TREE
  - GABION PROTECTION
  - SPEED HUMP
  - EXISTING FENCELINE
  - EXISTING CULVERT
  - EXISTING POWER LINE
  - EXISTING BUILDING/STRUCTURE
  - EXISTING ROAD
  - BENCHMARK
  - EXISTING TAP
  - EXISTING TELEPHONE POLE
  - GRAVEL TIE-IN
  - PAVING BLOCK

**CITY OF MBOMBELA**  
THE ULTIMATE DESTINATION

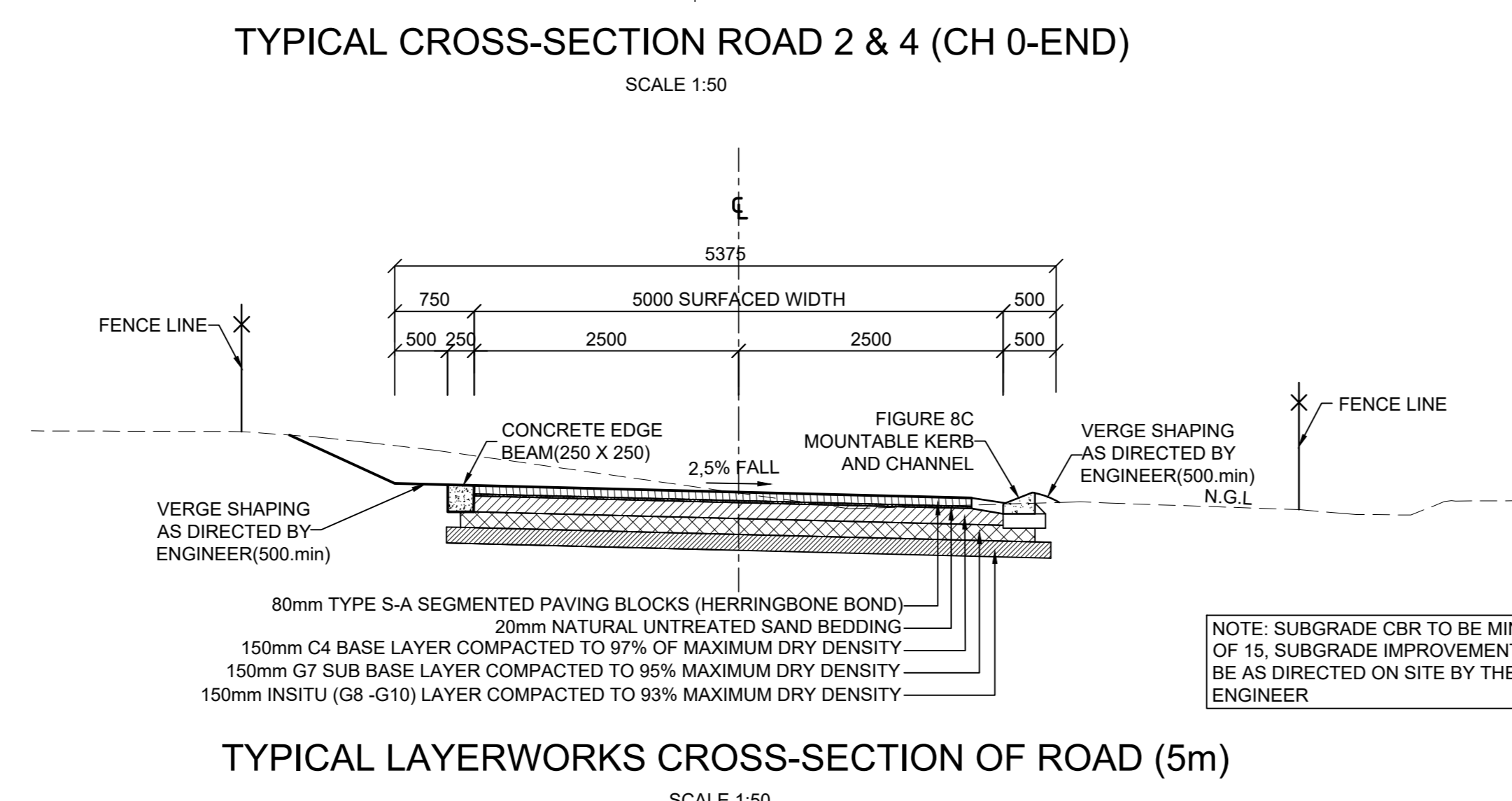
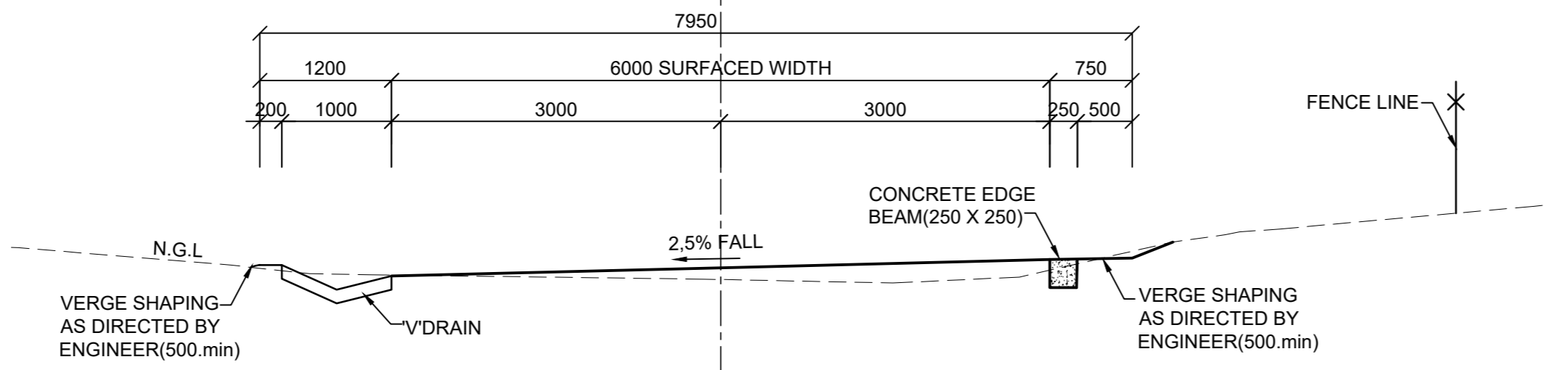
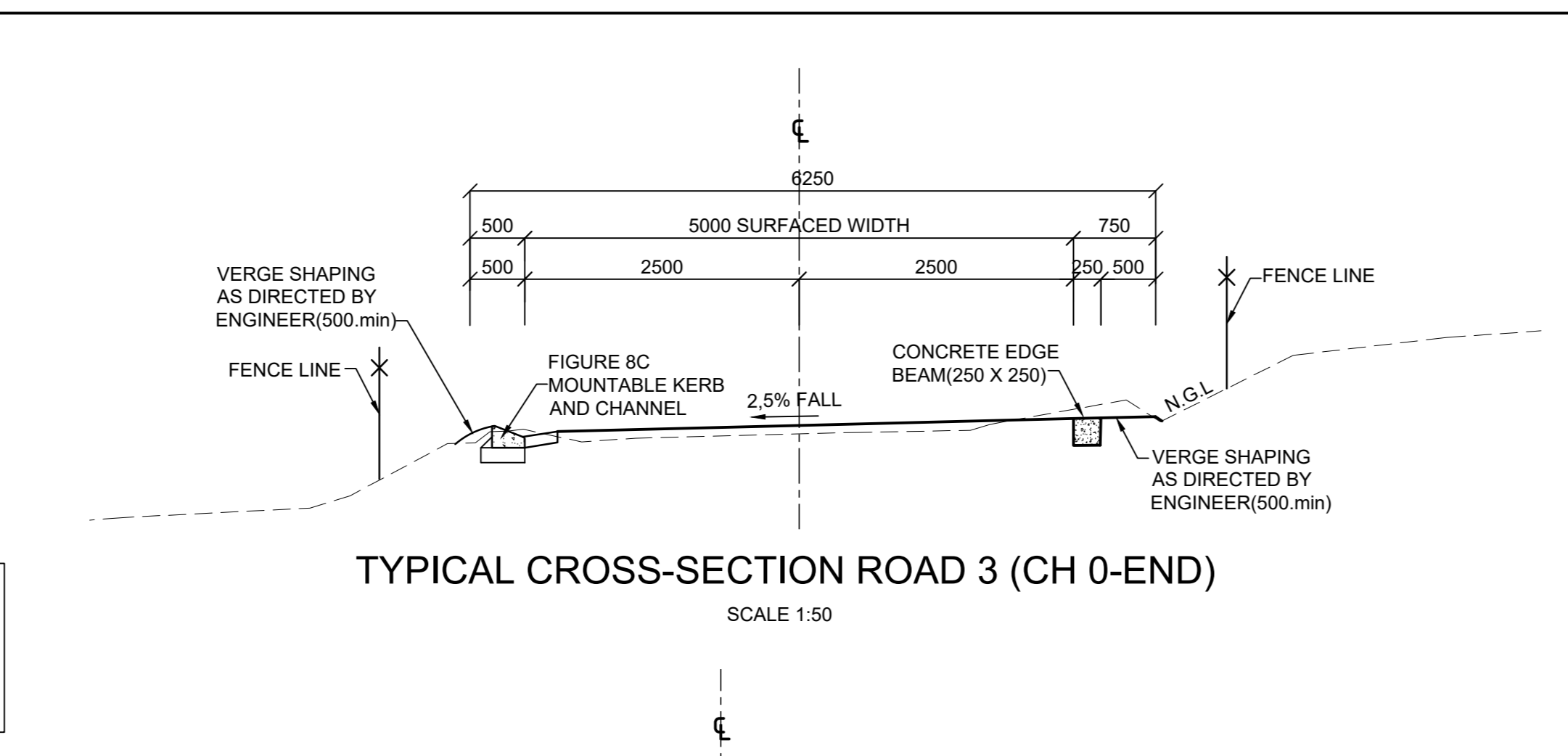
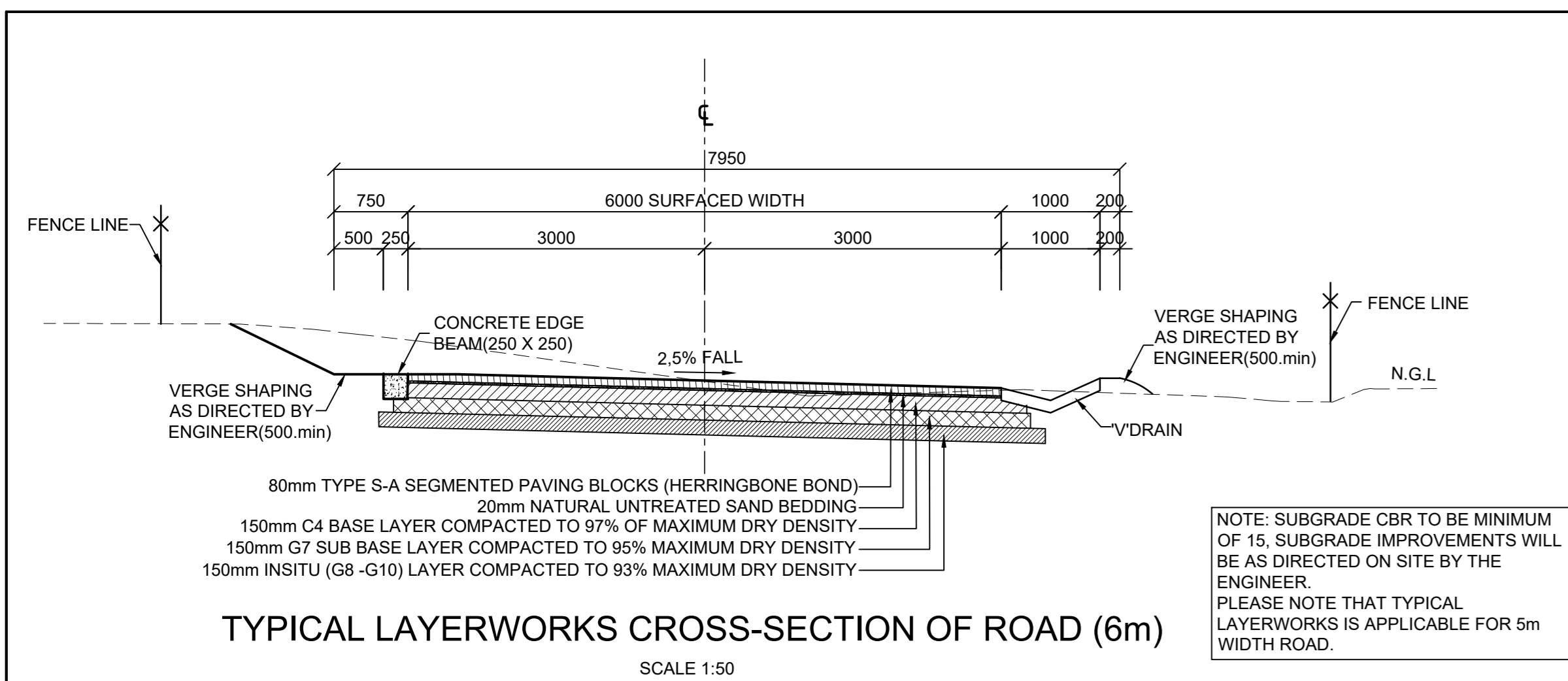
**CITY OF MBOMBELA**

**UPGRADING OF 3.25 KM OF SIWELA ROAD IN WARD 04**

**ROAD PLAN LAYOUT SHEET 1 OF 5 (ROAD 1 AND 2)**

**nme NATHOO MBENYANE ENGINEERS & PROJECT MANAGERS**  
Office 001 Portion 3 Of 173  
R580 Plaston Road The Ranch  
White River 1240  
Tel : 013-750 3122  
Fax : 013-750 3155  
e-mail : info.mp@nme.co.za

|          |       |          |                   |             |        |
|----------|-------|----------|-------------------|-------------|--------|
| DESIGNED | R.S   | REF. DRG | C25001-PL-MC-PL01 | PROJECT NO. | C25001 |
| CHECKED  | K.K.N | SCALE    | AS SHOWN          | SHEET       | PL01   |
| DRAWN    | M.C   | DATE     | 30/09/2025        | REVISION    | A      |



**CURVE DATA - ROAD 3**

| CURVE NO | RADIUS (m) | TANGENT IN (m) | TANGENT OUT (m) | INTERSECTION ANGLE (DEG) |
|----------|------------|----------------|-----------------|--------------------------|
| 1        | 0.000      | 0.000          | 0.000           | 0°25'23"                 |
| 2        | 0.000      | 0.000          | 0.000           | 4°58'13"                 |

**CURVE DATA - ROAD 4**

| CURVE NO | RADIUS (m) | TANGENT IN (m) | TANGENT OUT (m) | INTERSECTION ANGLE (DEG) |
|----------|------------|----------------|-----------------|--------------------------|
| 1        | 100.000    | 4.244          | 4.244           | 4°5'138"                 |
| 2        | 100.000    | 6.310          | 6.310           | 7°13'15"                 |
| 3        | 100.000    | 5.184          | 5.184           | 5°56'07"                 |
| 4        | 100.000    | 2.665          | 2.665           | 3°03'09"                 |
| 5        | 100.000    | 7.012          | 7.012           | 8°01'20"                 |
| 6        | 100.000    | 4.791          | 4.791           | 5°29'11"                 |
| 7        | 150.000    | 9.595          | 9.595           | 7°19'12"                 |

**HORIZONTAL ALIGNMENT - ROAD 3**

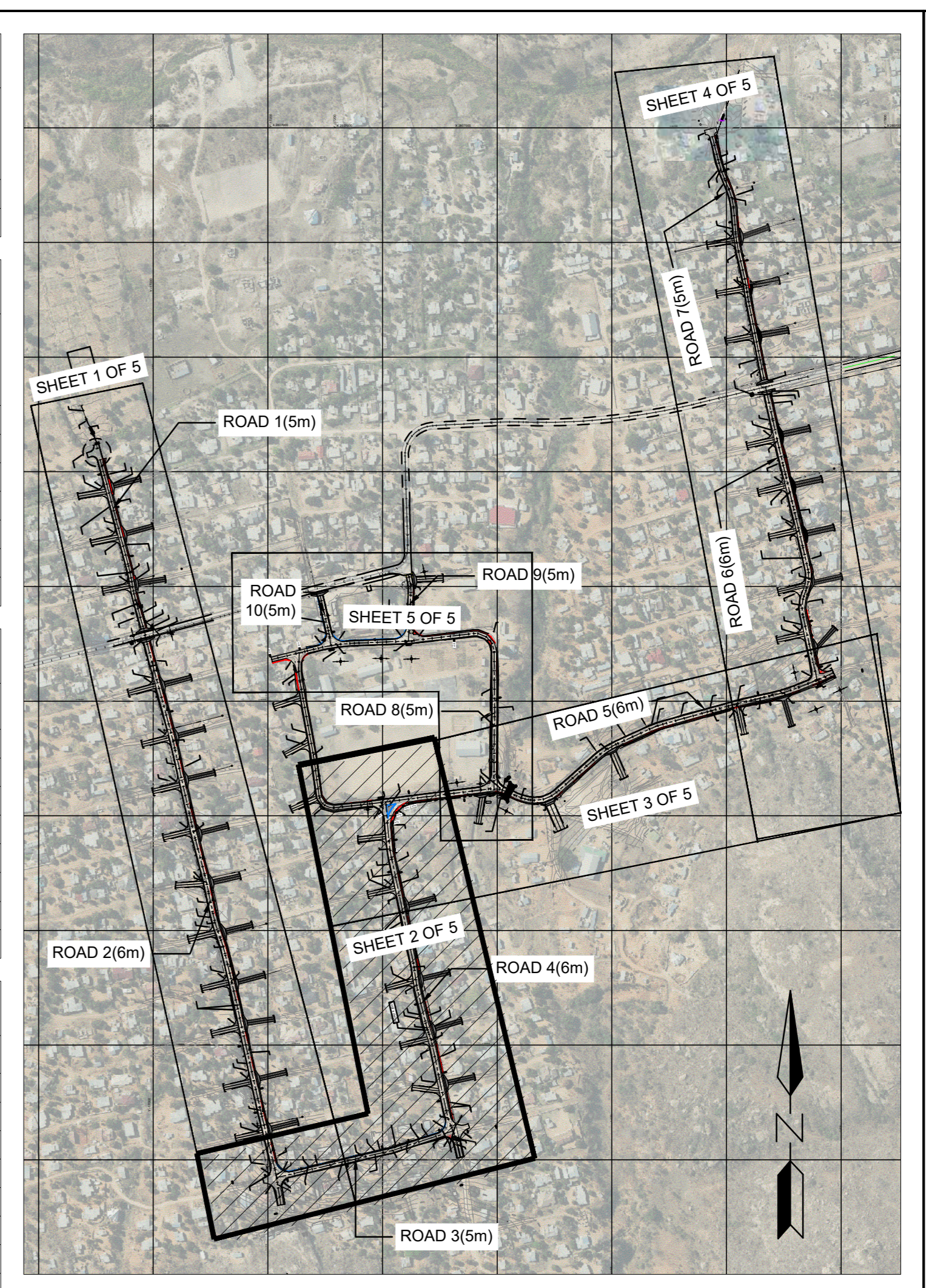
| NAME  | CHAINAGE | Y-Coord    | X-Coord     | RADIUS (m) |
|-------|----------|------------|-------------|------------|
| Start | 0        | -17134.260 | 2808144.543 | 0.000      |
| BCC1  | 73.976   | -17206.224 | 2808127.409 |            |
| P11   | 73.976   | -17206.224 | 2808127.409 | 0.000      |
| ECC1  | 73.976   | -17206.224 | 2808127.409 |            |
| BCC2  | 130.211  | -17261.025 | 2808114.788 |            |
| P12   | 130.211  | -17261.025 | 2808114.788 | 0.000      |
| ECC2  | 130.211  | -17261.025 | 2808114.788 |            |
| End   | 198.971  | -17326.442 | 2808093.609 |            |

**HORIZONTAL ALIGNMENT - ROAD 4**

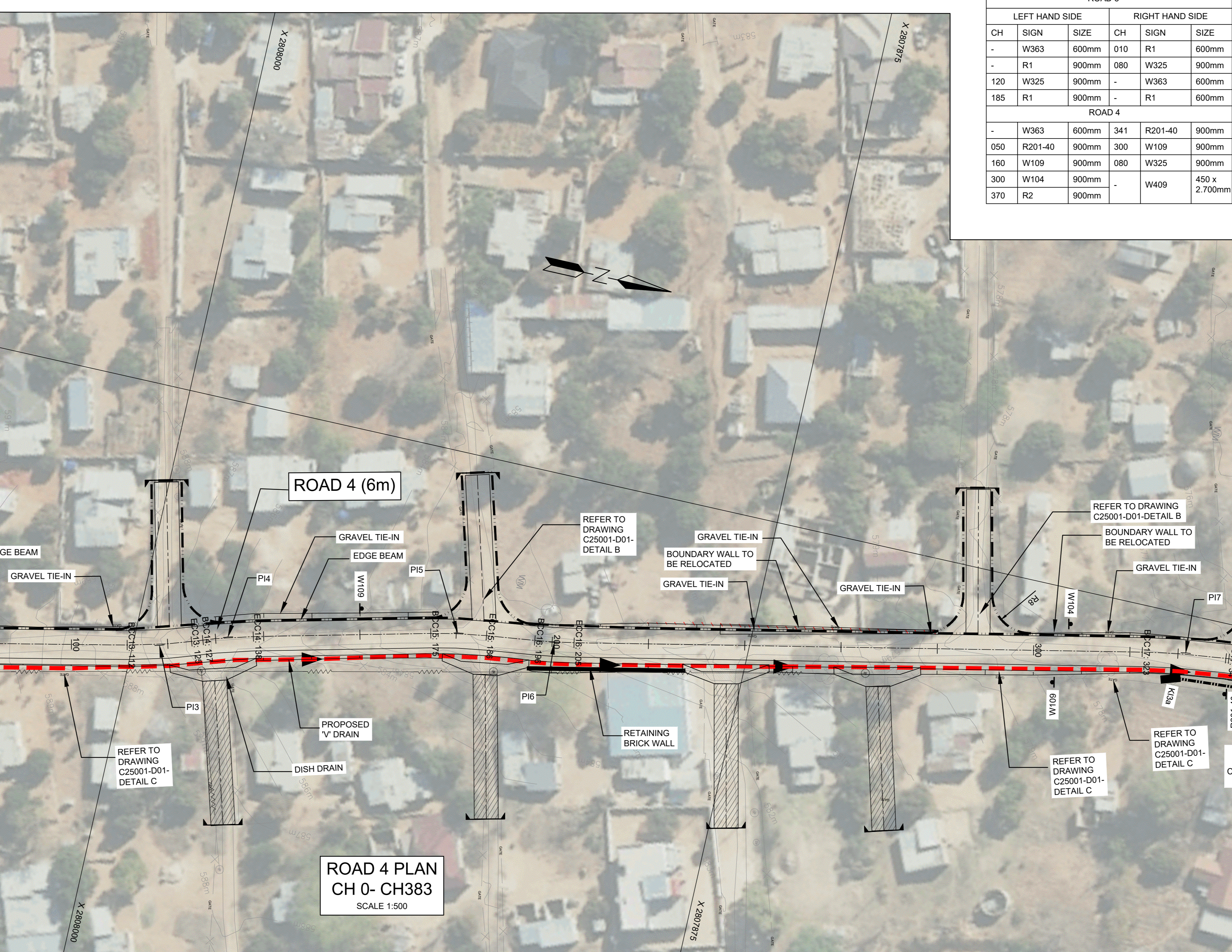
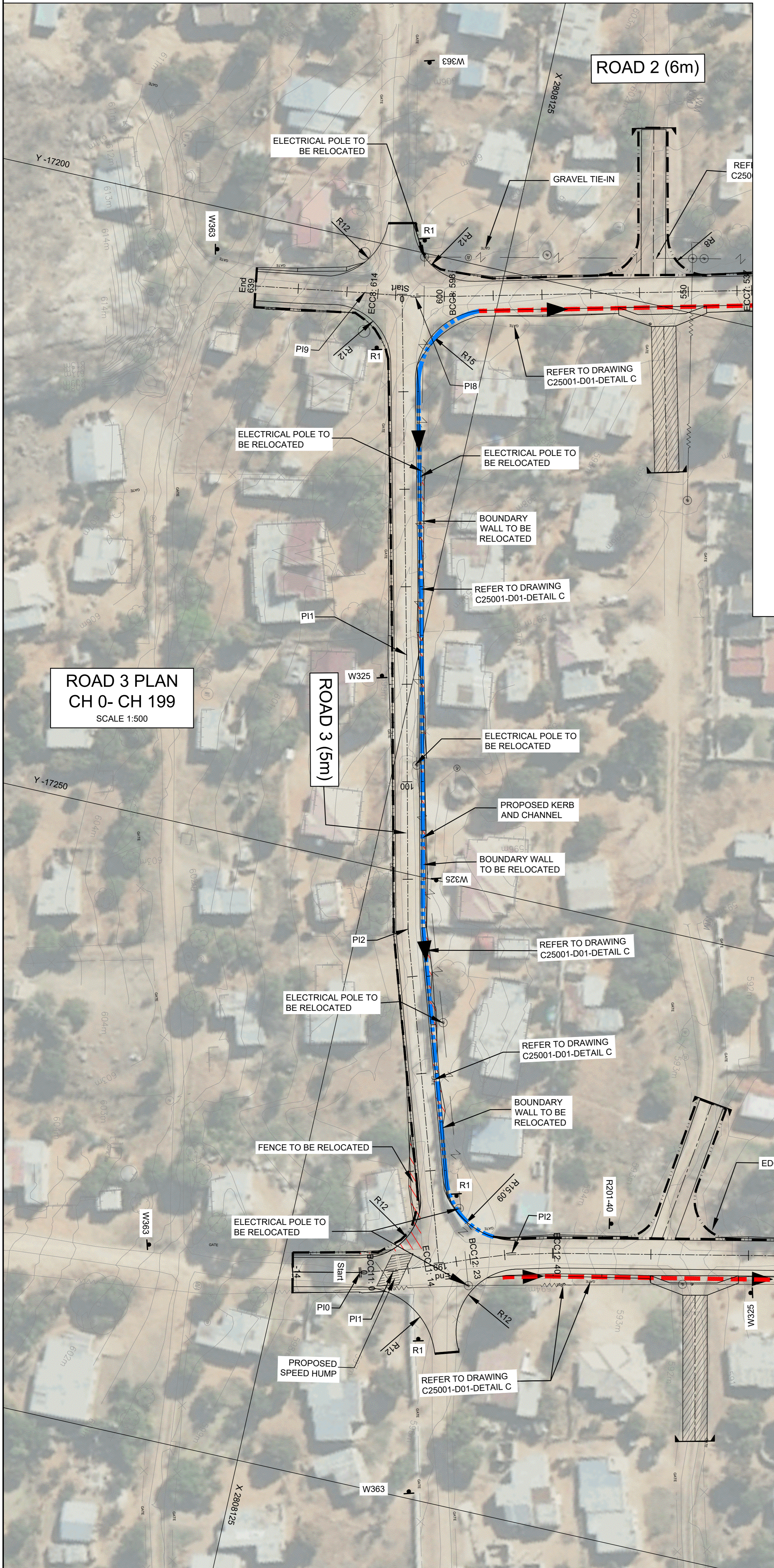
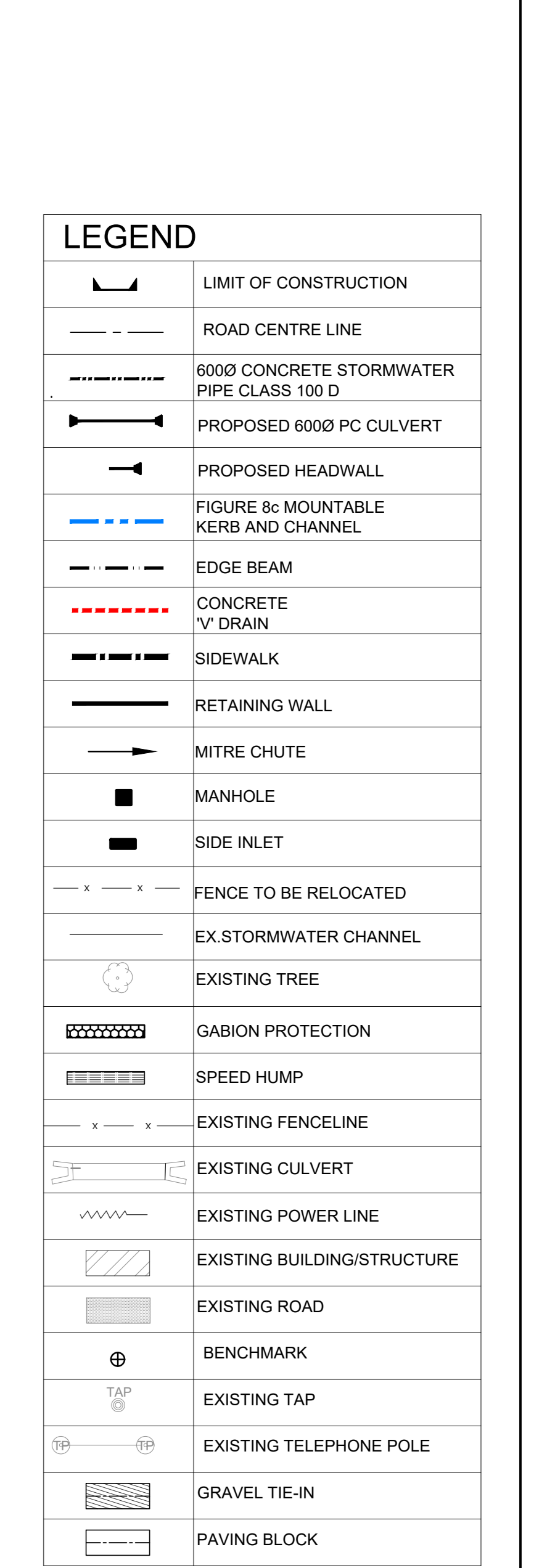
| NAME  | CHAINAGE | Y-Coord    | X-Coord     | RADIUS (m) |
|-------|----------|------------|-------------|------------|
| P10   | -13.888  | -17334.844 | 2808122.422 | 0.000      |
| BCC10 | 0        | -17331.934 | 2808109.047 |            |
| ECC10 | 0        | -17331.934 | 2808109.047 |            |
| BCC1  | 0.318    | -17331.856 | 2808108.739 |            |
| P11   | 6.926    | -17330.237 | 2808102.322 | 100.000    |
| ECC1  | 13.535   | -17327.786 | 2808096.174 |            |
| BCC2  | 22.873   | -17324.328 | 2808087.500 |            |
| P12   | 31.348   | -17321.182 | 2808079.609 | 100.000    |
| ECC2  | 39.822   | -17319.412 | 2808071.301 |            |
| BCC3  | 111.572  | -17304.463 | 2808001.125 |            |
| P13   | 118.273  | -17303.065 | 2807994.561 | 100.000    |
| ECC3  | 124.975  | -17300.802 | 2807988.242 |            |
| BCC4  | 127.342  | -17300.004 | 2807986.014 |            |
| P14   | 132.599  | -17298.230 | 2807981.061 | 100.000    |
| ECC4  | 137.855  | -17296.996 | 2807975.949 |            |
| BCC5  | 174.718  | -17288.267 | 2807940.132 |            |
| P15   | 180.507  | -17286.896 | 2807934.500 | 100.000    |
| ECC5  | 186.207  | -17286.185 | 2807928.748 |            |
| BCC6  | 196.390  | -17284.946 | 2807918.731 |            |
| P16   | 200.473  | -17284.445 | 2807914.677 | 100.000    |
| ECC6  | 204.556  | -17283.615 | 2807910.676 |            |
| BCC7  | 322.563  | -17259.632 | 2807795.133 |            |
| P17   | 331.589  | -17257.795 | 2807786.284 | 150.000    |
| ECC7  | 340.616  | -17257.034 | 2807777.278 |            |
| End   | 383.084  | -17253.458 | 2807734.961 |            |

**SIGN POSTING SCHEDULE**

| ROAD 3         |         |       |                 |         |               |
|----------------|---------|-------|-----------------|---------|---------------|
| LEFT HAND SIDE |         |       | RIGHT HAND SIDE |         |               |
| CH             | SIGN    | SIZE  | CH              | SIGN    | SIZE          |
| -              | W363    | 600mm | 010             | R1      | 600mm         |
| -              | R1      | 900mm | 080             | W325    | 900mm         |
| 120            | W325    | 900mm | -               | W363    | 600mm         |
| 185            | R1      | 900mm | -               | R1      | 600mm         |
| ROAD 4         |         |       |                 |         |               |
| -              | W363    | 600mm | 341             | R201-40 | 900mm         |
| 050            | R201-40 | 900mm | 300             | W109    | 900mm         |
| 160            | W109    | 900mm | 080             | W325    | 900mm         |
| 300            | W104    | 900mm | -               | W409    | 450 x 2.700mm |
| 370            | R2      | 900mm | -               | -       | -             |



- NOTES**
- ALL WORK TO COMPLY WITH COTO DS 2020 ENGINEERING SPECIFICATIONS, OR AS AMENDED.
  - ALL EXISTING LEVELS BASED ON TOPOGRAPHICAL SURVEY WGS 84 / LD 31.
  - ALL SETTING OUT DETAILS TO BE CONFIRMED BY THE ENGINEER PRIOR TO ANY CONSTRUCTION WORK.
  - ALL EXISTING SERVICES IN THE AREA OF CONSTRUCTION TO BE PROVIDED PRIOR TO COMMENCEMENT OF ANY EXCAVATION. EXISTING SERVICES TO BE ENCASED IN CONCRETE AT THE ENGINEER'S DISCRETION.
  - WORK TO FIGURE 8c MOUNTABLE KERBS AND CHANNELS AND LEVELS ONLY. DO NOT SCALE OF DRAWINGS AND ANY DISCREPANCIES IN DIMENSIONS / CO-ORDINATES TO BE REPORTED TO THE ENGINEER.
  - ALL CUT BANKS TO BE 1:5 MAX.
  - ALL FILL BANKS TO BE 1:3 MAX.
  - VERGE SHAPING AS DIRECTED BY ENGINEER.
  - ALL SLOPE EMBANKMENTS TO BE TOPSOILED AND GRASSED.
  - POSITION OF KERBS, DRAINS TO BE CONFIRMED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION WORK THEREOF.
  - CARE IS TO BE TAKEN WHEN WORKING IN THE VICINITY OF EXISTING BUILDINGS.
  - JOINTS TO BE MADE INTO EXISTING ASPHALT SURFACING TO BE SAW CUT. TIE INTO EXISTING SET LEVELS.
  - ALL CURVE RADII TO ACCESSIBLES TO BE 6m UNLESS OTHERWISE STATED.
  - ALL STORMWATER PIPES TO BE CLASS 1000 UNLESS OTHERWISE SHOWN.
  - ALL BELLMOUTH ACCESSIBLES TO HAVE ROLL OVER KERBS, E. MOUNTABLE KERBS.
  - ALL TIE-INS TO EXISTING DRIVEWAYS ARE TO BE AGREED ON SITE.
  - ALL GRAVEL TIE-INS TO EXISTING ROAD TO BE AT A MINIMUM 1:1.5 TAPER.
  - ALL EXISTING SERVICES TO BE PROVIDED PRIOR TO BULK EARTHWORKS OPERATIONS.
  - TIE-IN PAVING BLOCK (30m LONG 5m WIDE).
  - TIE-IN GRAVEL (30m LONG 5m WIDE).
  - FOR DETAILS REFER TO DRAWING C25001-D01-D02.
  - PROVIDE STOP SIGN AND ROAD MARKING ON ALL PAVED SECTIONS.



**CITY OF MBOMBELA**  
THE ULTIMATE DESTINATION

**CITY OF MBOMBELA**

**PROJECT**  
UPGRADING OF 3.25 KM OF SIWELA ROAD IN WARD 04

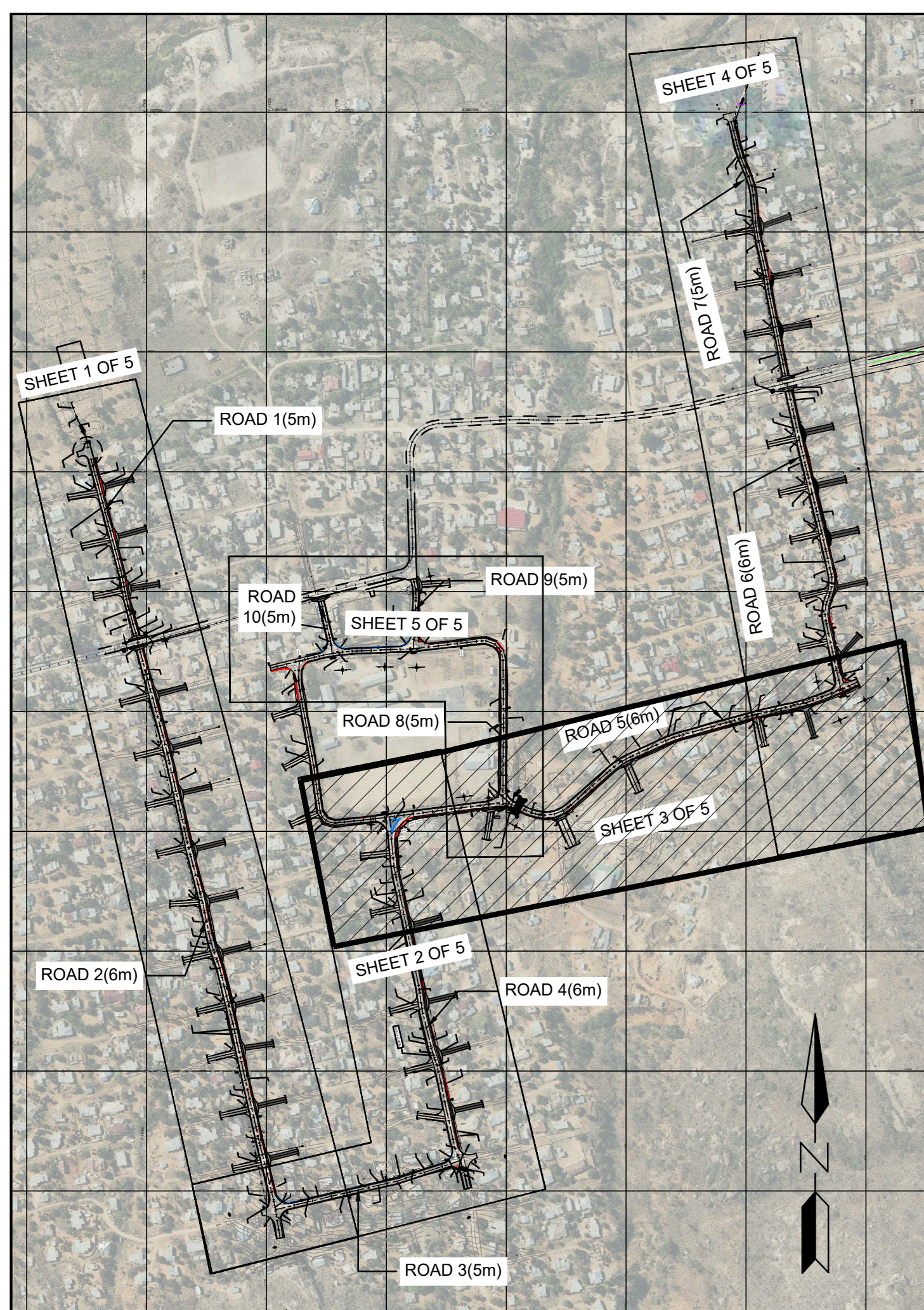
**DRAWING TITLE**  
ROAD PLAN LAYOUT SHEET 2 OF 5 (ROAD 3 AND 4)

**nme** NATHOO MBENYANE ENGINEERS ENGINEERS & PROJECT MANAGERS  
Office 001 Portion 3 Of 173 R580 Plaston Road The Ranch White River 1240  
Tel: 013-750 3122 Fax: 013-750 3155 e-mail: info.mp@nme.co.za

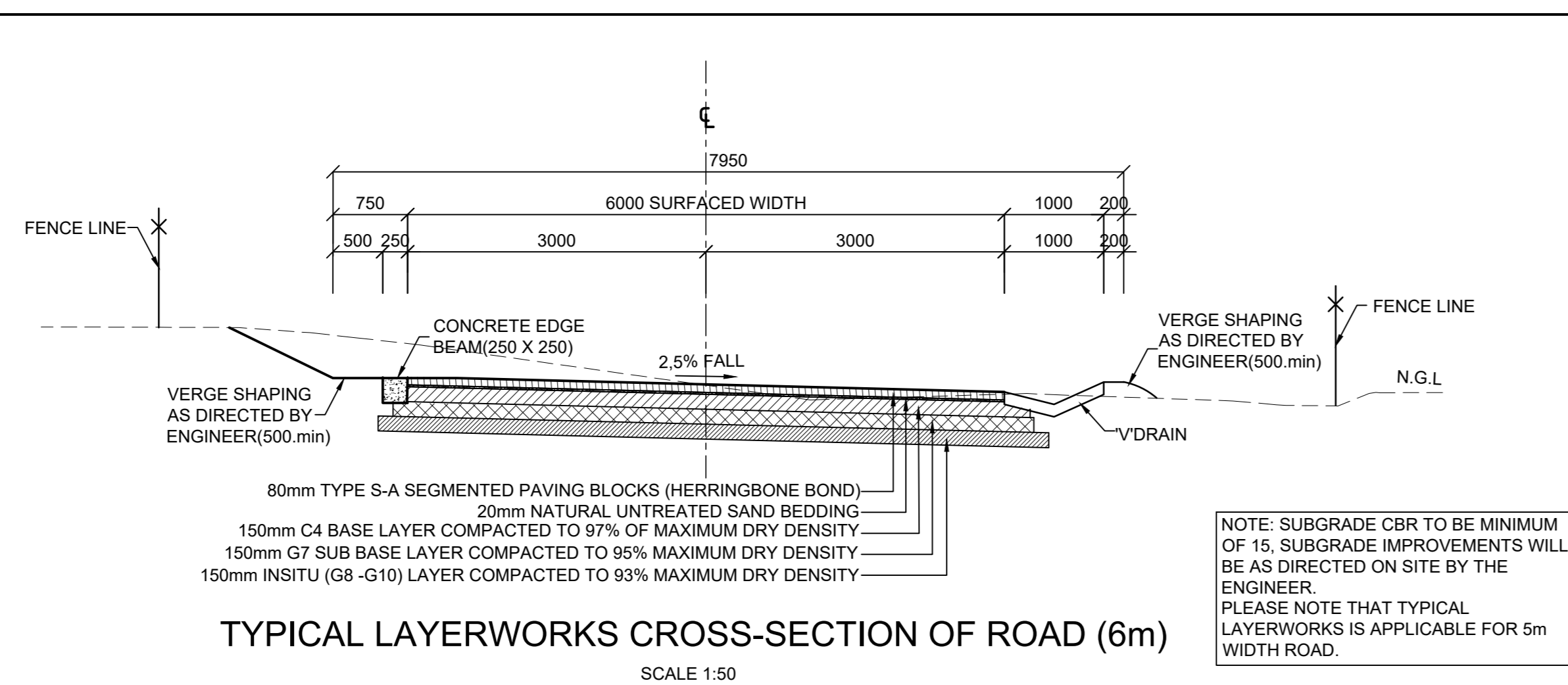
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|----------|-------|----------|-------------------|-------------|--------|
| DESIGNED | R.S   | REF. DRG | C25001-PL-MC-PL02 | PROJECT NO. | C25001 |
| CHECKED  | K.K.N | SCALE    | AS SHOWN          | SHEET       | PL02   |
| DRAWN    | M.C   | DATE     | 30/09/2025        | REVISION    | A      |

ISSUED FOR TENDER Z.X 01/07/2026

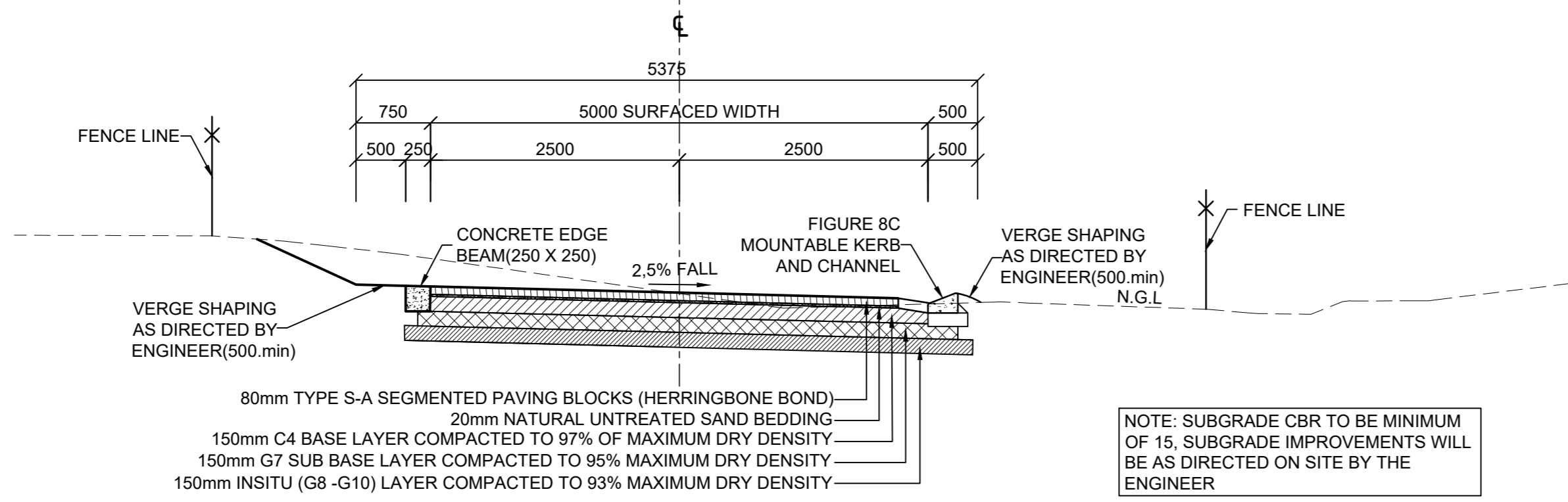
REV. DESCRIPTION. BY. DATE.



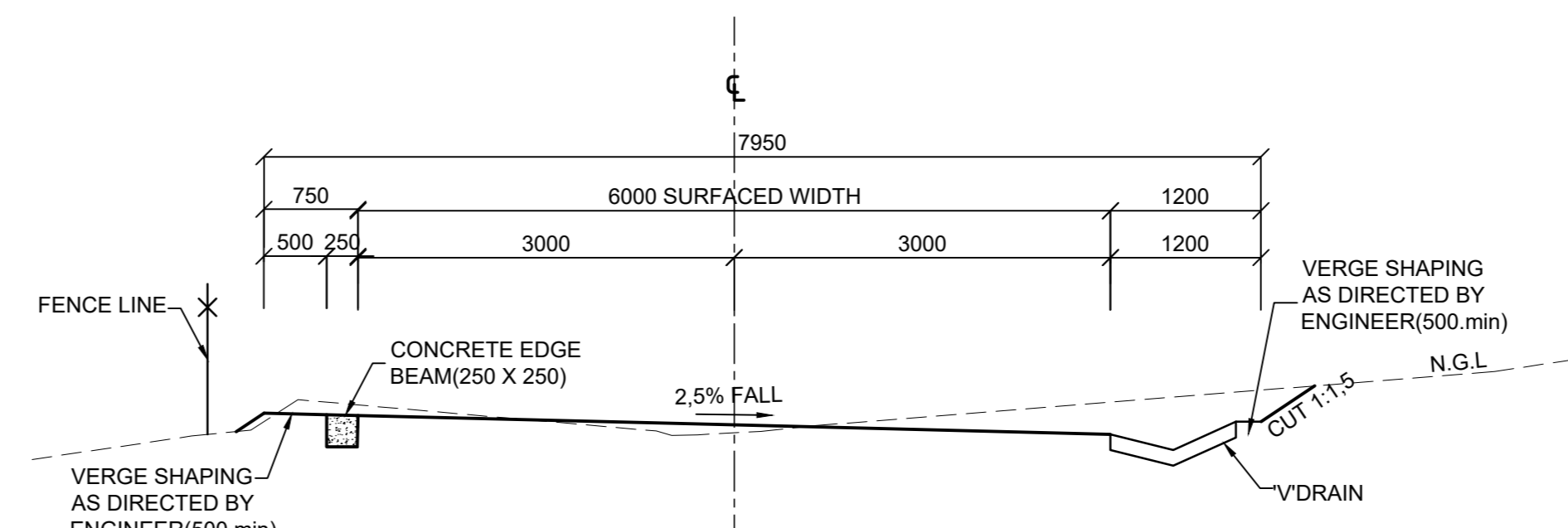
**SIWELA ROAD KEY PLAN**  
SCALE 1:10 000



**TYPICAL LAYERWORKS CROSS-SECTION OF ROAD (6m)**  
SCALE 1:50



**TYPICAL LAYERWORKS CROSS-SECTION OF ROAD (5m)**  
SCALE 1:50



**TYPICAL CROSS-SECTION ROAD 5 (CH 0-END)**  
SCALE 1:50

| CURVE DATA - ROAD 5 |            |                |                 |                          |
|---------------------|------------|----------------|-----------------|--------------------------|
| CURVE NO            | RADIUS (m) | TANGENT IN (m) | TANGENT OUT (m) | INTERSECTION ANGLE (DEG) |
| 1                   | 40.000     | 12.423         | 12.423          | 34°30'26"                |
| 2                   | 50.000     | 8.164          | 8.164           | 18°32'49"                |
| 3                   | 35.000     | 16.359         | 16.359          | 50°06'10"                |
| 4                   | 95.000     | 14.271         | 14.271          | 17°05'09"                |
| 5                   | 100.000    | 7.630          | 7.630           | 8°43'35"                 |
| 6                   | 2000.000   | 4.693          | 4.693           | 0°16'08"                 |
| 7                   | 190.000    | 2.373          | 2.373           | 1°25'52"                 |
| 8                   | 480.000    | 9.904          | 9.904           | 2°21'50"                 |
| 9                   | 190.000    | 16.699         | 16.699          | 10°02'43"                |
| 10                  | 100.000    | 2.256          | 2.256           | 2°35'04"                 |

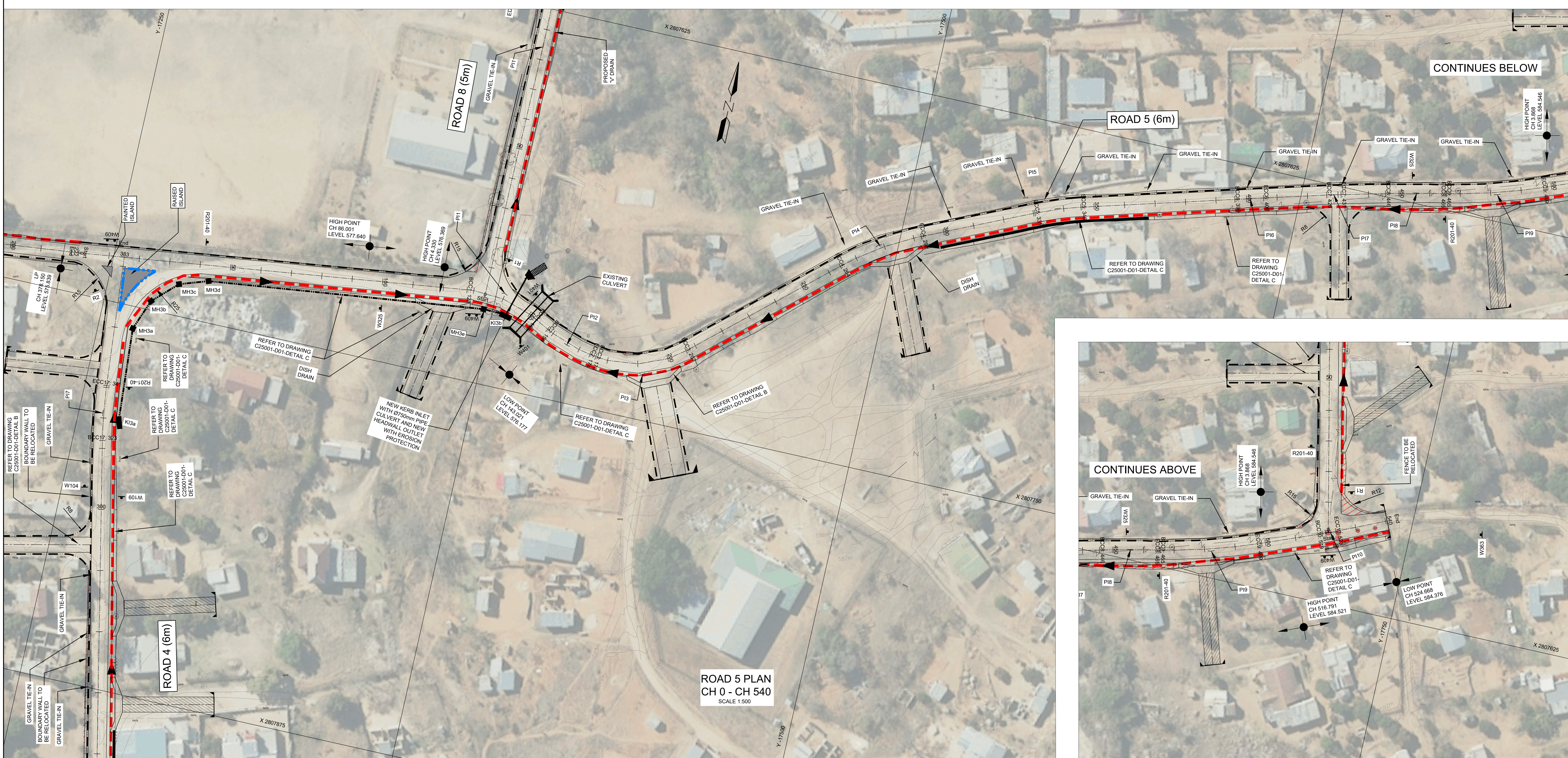
| HORIZONTAL ALIGNMENT - ROAD 5 |          |            |             |            |
|-------------------------------|----------|------------|-------------|------------|
| NAME                          | CHAINAGE | Y-Coord    | X-Coord     | RADIUS (m) |
| Start                         | 0        | -17238.575 | 2807236.888 | 0.000      |
| BCC1                          | 127.790  | -17285.343 | 2807220.758 |            |
| PI1                           | 139.835  | -17377.667 | 2807719.190 | 40.000     |
| ECC1                          | 151.880  | -17388.711 | 2807724.879 |            |
| BCC2                          | 157.712  | -17393.895 | 2807727.550 |            |
| PI2                           | 165.804  | -17401.153 | 2807731.289 | 50.000     |
| ECC2                          | 173.897  | -17409.223 | 2807732.525 |            |
| BCC3                          | 175.944  | -17411.246 | 2807732.835 |            |
| PI3                           | 191.247  | -17427.416 | 2807735.312 | 35.000     |
| ECC3                          | 200.550  | -17439.688 | 2807724.495 |            |
| BCC4                          | 264.148  | -17482.898 | 2807686.409 |            |
| PI4                           | 278.313  | -17493.603 | 2807676.973 | 95.000     |
| ECC4                          | 292.477  | -17506.608 | 2807671.099 |            |
| BCC5                          | 330.502  | -17541.283 | 2807655.446 |            |
| PI5                           | 338.117  | -17548.216 | 2807652.305 | 100.000    |
| ECC5                          | 345.732  | -17555.565 | 2807650.256 |            |
| BCC6                          | 396.176  | -17604.155 | 2807636.708 |            |
| PI6                           | 400.870  | -17608.676 | 2807635.445 | 2000.000   |
| ECC6                          | 405.563  | -17613.203 | 2807634.206 |            |
| BCC7                          | 426.256  | -17633.161 | 2807628.741 |            |
| PI7                           | 428.629  | -17635.450 | 2807628.114 | 190.000    |
| ECC7                          | 431.002  | -17637.754 | 2807627.545 |            |
| BCC8                          | 445.567  | -17651.893 | 2807624.050 |            |
| PI8                           | 455.470  | -17661.507 | 2807621.674 | 480.000    |
| ECC8                          | 465.372  | -17671.212 | 2807619.697 |            |
| BCC9                          | 465.460  | -17671.298 | 2807619.679 |            |
| PI9                           | 482.115  | -17687.660 | 2807616.345 | 190.000    |
| ECC9                          | 498.771  | -17703.190 | 2807610.208 |            |
| BCC10                         | 518.888  | -17721.899 | 2807602.814 |            |
| PI10                          | 521.144  | -17723.997 | 2807601.985 | 100.000    |
| ECC10                         | 523.399  | -17726.056 | 2807601.062 |            |
| End                           | 540.471  | -17741.633 | 2807594.079 |            |

| SIGN POSTING SCHEDULE |         |             |                      |
|-----------------------|---------|-------------|----------------------|
| ROAD 5                |         |             |                      |
| CH                    | SIGN    | SIZE        | CH SIGN SIZE         |
| 640                   | R201-40 | 900mm       | 405 R201-40 900mm    |
| 150                   | W401    | 800 X 200mm | 155 W401 800 X 200mm |
| 455                   | W325    | 900mm       | 100 W325 900mm       |

- NOTES**
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  - ALL EXISTING LEVELS BASED ON TOPOGRAPHICAL SURVEY WGS 84 / LO 31
  - ALL SETTING OUT DETAILS TO BE CONFIRMED BY THE ENGINEER PRIOR TO ANY CONSTRUCTION WORK.
  - ALL EXISTING SERVICES IN THE AREA OF CONSTRUCTION TO BE PROVIDED PRIOR TO COMMENCEMENT OF ANY EXCAVATION. EXISTING SERVICES TO BE ENCASED IN CONCRETE AT THE ENGINEER'S DISCRETION.
  - WORK TO FIGURED DIMENSIONS. CO-ORDINATES AND LEVELS ONLY. DO NOT SCALE OF DRAWINGS AND ANY DISCREPANCIES IN DIMENSIONS / CO-ORDINATES TO BE REPORTED TO THE ENGINEER.
  - ALL CUT BANKS TO BE 1:1 MAX.
  - ALL FILL BANKS TO BE 1:1 MAX.
  - VERGE SHAPING AS DIRECTED BY ENGINEER.
  - ALL SOPE EMBANKMENTS TO BE TOPSOILED AND GRASED.
  - POSITION OF KERBS, DRAINS TO BE CONFIRMED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION WORK THEREOF.
  - CARE IS TO BE TAKEN WHEN WORKING IN THE VICINITY OF EXISTING BUILDINGS.
  - JOINTS TO THE INTO EXISTING ASPHALT SURFACING TO BE AGREED ON SITE.
  - ALL GRAVEL TIE-INS TO EXISTING TO BE 8m UNLESS OTHERWISE SHOWN.
  - ALL STORMWATER PIPES TO BE CLASS 100D UNLESS OTHERWISE SHOWN.
  - ALL BELMOUTH ACCESSES TO HAVE ROLL OVER KERBS.
  - E-MOUNTABLE KERBS.
  - ALL TIE-INS TO EXISTING DRIVEWAYS ARE TO BE AGREED ON SITE.
  - ALL GRAVEL TIE-INS TO EXISTING ROAD TO BE AT A MINIMUM 1:15 TAPER.
  - ALL EXISTING SERVICES TO BE PROVIDED PRIOR TO BULK EARTHWORKS OPERATIONS.
  - TIE-IN PAVING BLOCK (30m LONG 5m WIDE)
  - TIE-IN GRAVEL (50m LONG 5m WIDE)
  - FOR DETAILS REFER TO DRAWING C25001-D01\_D02
  - PROVIDE STOP SIGN AND ROAD MARKING ON ALL PAVED SECTIONS.

**LEGEND**

- LIMIT OF CONSTRUCTION
- ROAD CENTRE LINE
- 6000 CONCRETE STORMWATER PIPE CLASS 100 D
- PROPOSED 6000 PC CULVERT
- PROPOSED HEADWALL
- FIGURE 8c MOUNTABLE KERBS AND CHANNEL
- EDGE BEAM
- CONCRETE V DRAIN
- SIDEWALK
- RETAINING WALL
- MITRE CHUTE
- MANHOLE
- SIDE INLET
- FENCE TO BE RELOCATED
- EX STORMWATER CHANNEL
- EXISTING TREE
- GABION PROTECTION
- SPEED HUMP
- EXISTING FENCELINE
- EXISTING CULVERT
- EXISTING POWER LINE
- EXISTING BUILDING/STRUCTURE
- EXISTING ROAD
- BENCHMARK
- EXISTING TAP
- EXISTING TELEPHONE POLE
- GRAVEL TIE-IN
- PAVING BLOCK



| REV. | DESCRIPTION       | BY. | DATE.      |
|------|-------------------|-----|------------|
| A    | ISSUED FOR TENDER | Z.X | 01/07/2026 |

CITY OF MBOMBELA  
THE ULTIMATE DESTINATION

**CITY OF MBOMBELA**

PROJECT  
**UPGRADING OF 3.25 KM OF SIWELA ROAD IN WARD 04**

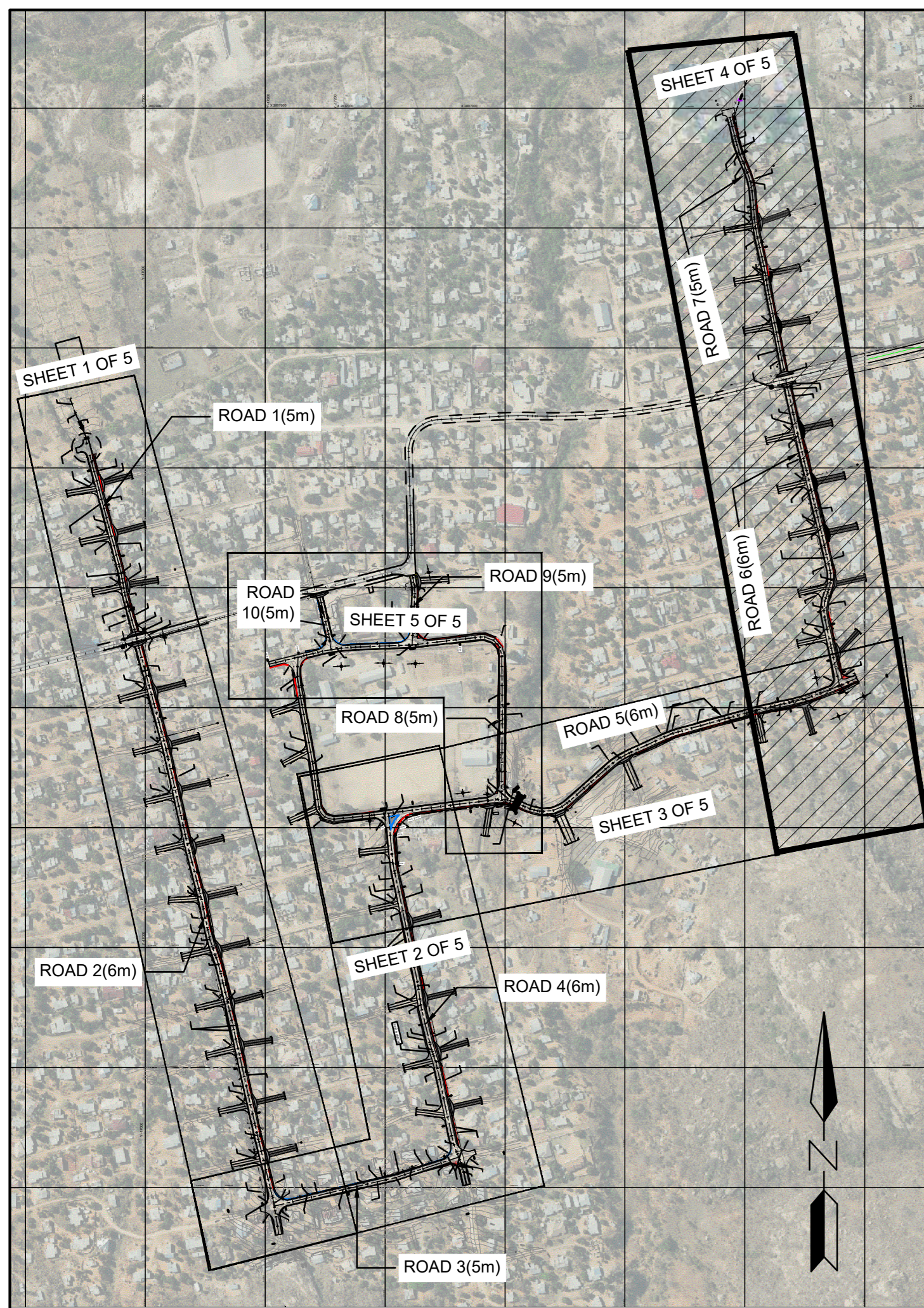
DRAWING TITLE  
**ROAD PLAN LAYOUT SHEET 3 OF 5 (ROAD 5)**

**nme** NATHOO MBENYANE ENGINEERS  
ENGINEERS & PROJECT MANAGERS  
Office 001 Portion 3 Of 173 Tel: 013-750 3122  
R580 Plaston Road The Ranch Fax: 013-750 3155  
White River e-mail: info.mp@nme.co.za  
1240

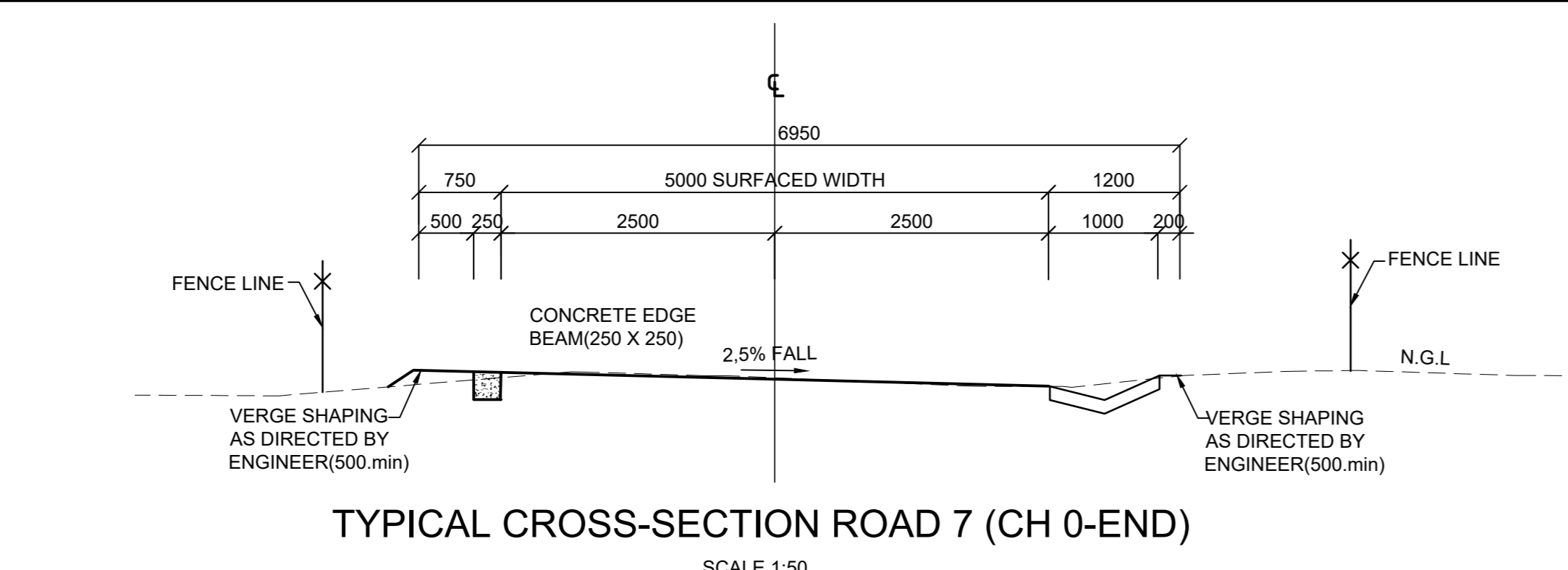
| DESIGNED | REF. DRG          | PROJECT NO. |
|----------|-------------------|-------------|
| R.S      | C25001-PL-MC-PL03 | C25001      |

| CHECKED | SCALE    | SHEET | REVISION |
|---------|----------|-------|----------|
| K.K.N   | AS SHOWN | PL03  | A        |

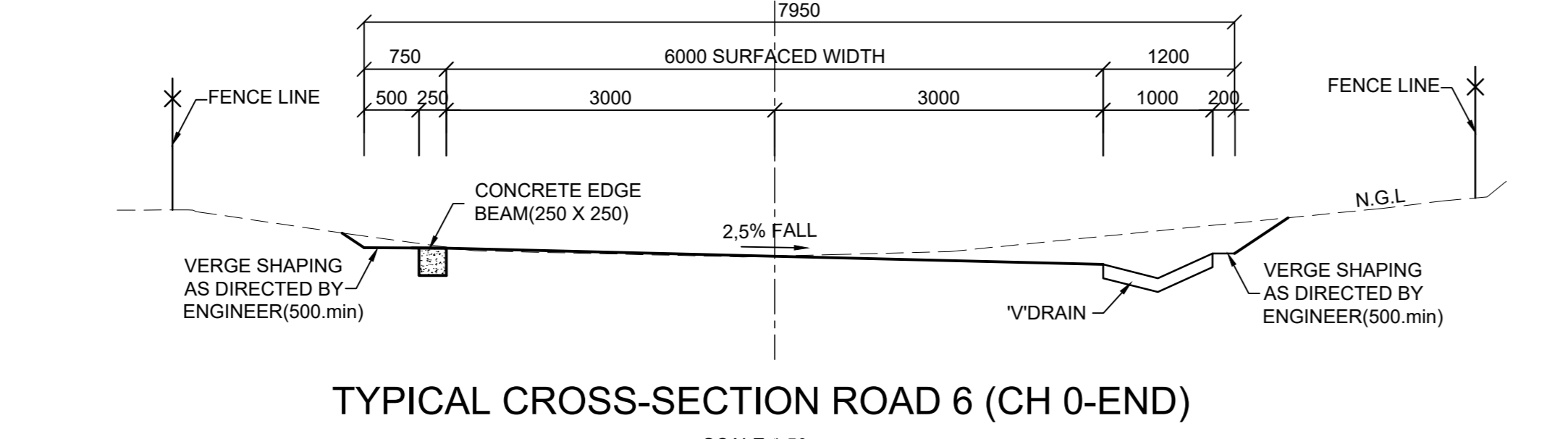
| DRAWN | DATE       |
|-------|------------|
| M.C   | 05/09/2025 |



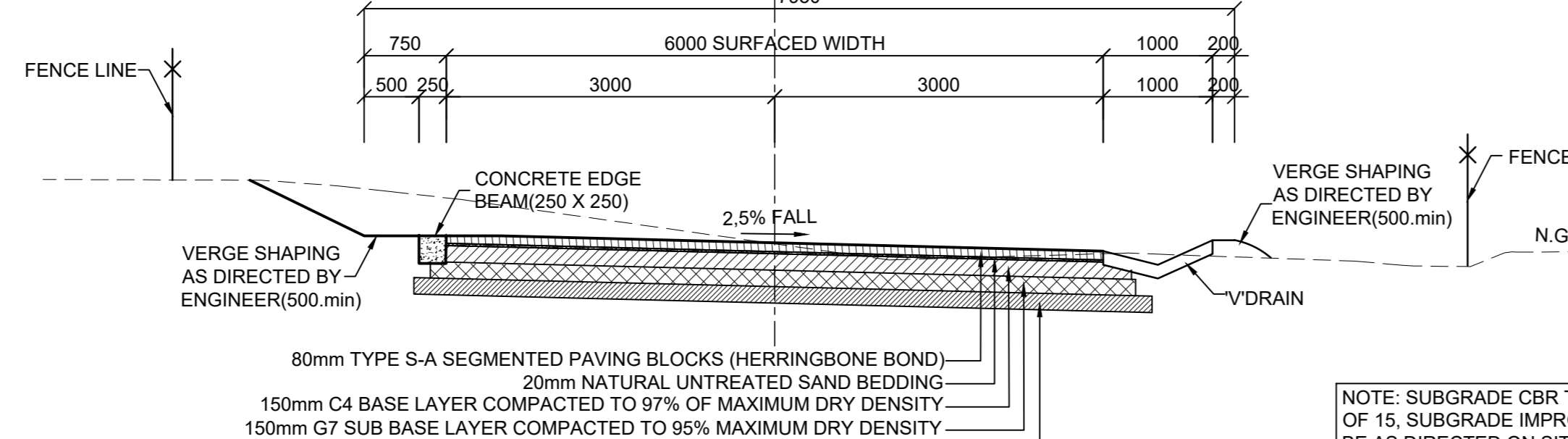
SIWELA ROAD  
KEY PLAN  
SCALE 1:10 000



TYPICAL CROSS-SECTION ROAD 7 (CH 0-END)  
SCALE 1:50



TYPICAL CROSS-SECTION ROAD 6 (CH 0-END)  
SCALE 1:50



TYPICAL LAYERWORKS CROSS-SECTION OF ROAD (6m)  
SCALE 1:50

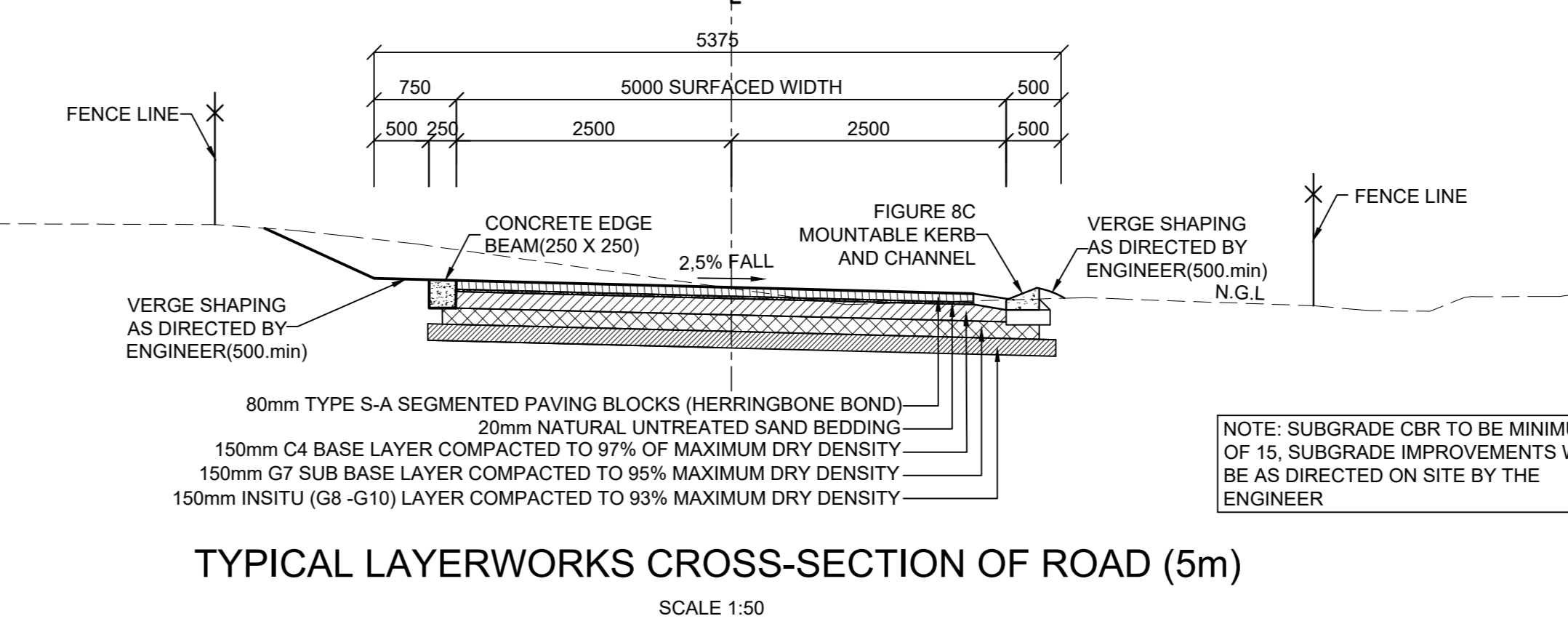
| CURVE NO | RADIUS (m) | TANGENT IN (m) | TANGENT OUT (m) | INTERSECTION ANGLE (DEG) |
|----------|------------|----------------|-----------------|--------------------------|
| 1        | 36 919     | 10 579         | 10 579          | 31°58'46"                |
| 2        | 35 000     | 10 233         | 10 233          | 32°35'41"                |
| 3        | 200 000    | 0 980          | 0 980           | 0°33'41"                 |
| 4        | 200 000    | 0 400          | 0 400           | 0°13'45"                 |
| 5        | 200 000    | 2 457          | 2 457           | 1°24'27"                 |

| NAME  | CHAINAGE | Y-Coord    | X-Coord     | RADIUS (m) |
|-------|----------|------------|-------------|------------|
| Start | 0        | -17723.730 | 2807602.039 | 0.000      |
| BCC1  | 73.266   | -17708.099 | 2807530.460 |            |
| PI1   | 83.313   | -17705.898 | 2807520.382 | 36.000     |
| ECC1  | 93.359   | -17709.369 | 2807510.668 |            |
| BCC2  | 103.310  | -17712.716 | 2807501.297 |            |
| PI2   | 113.266  | -17716.159 | 2807491.661 | 35.000     |
| ECC2  | 123.221  | -17713.869 | 2807481.687 |            |
| BCC3  | 147.604  | -17708.411 | 2807457.923 |            |
| PI3   | 167.190  | -17704.027 | 2807438.834 | 4000.000   |
| ECC3  | 186.776  | -17699.456 | 2807419.788 |            |
| BCC4  | 193.912  | -17697.791 | 2807412.849 |            |
| PI4   | 209.942  | -17694.050 | 2807397.262 | 8000.000   |
| ECC4  | 225.972  | -17690.247 | 2807381.699 |            |
| BCC5  | 243.016  | -17686.202 | 2807365.130 |            |
| PI5   | 267.577  | -17680.375 | 2807341.271 | 2000.000   |
| ECC5  | 292.136  | -17675.135 | 2807317.276 |            |
| End   | 327.704  | -17667.548 | 2807292.527 |            |

| CURVE NO | RADIUS (m) | TANGENT IN (m) | TANGENT OUT (m) | INTERSECTION ANGLE (DEG) |
|----------|------------|----------------|-----------------|--------------------------|
| 1        | 150 000    | 5 129          | 5 129           | 3°54'59"                 |
| 2        | 150 000    | 6 980          | 6 980           | 5°19'42"                 |
| 3        | 150 000    | 10 387         | 10 387          | 7°55'21"                 |
| 4        | 65 000     | 10 274         | 10 274          | 17°57'51"                |
| 5        | 150 000    | 11 021         | 11 021          | 8°24'15"                 |

| NAME  | CHAINAGE | Y-Coord    | X-Coord     | RADIUS (m) |
|-------|----------|------------|-------------|------------|
| Start | 0        | -17667.559 | 2807282.539 | 0.000      |
| BCC1  | 94.738   | -17649.077 | 2807189.622 |            |
| PI1   | 99.864   | -17648.076 | 2807184.592 | 150.000    |
| ECC1  | 104.991  | -17647.421 | 2807179.505 |            |
| BCC2  | 105.910  | -17647.304 | 2807178.594 |            |
| PI2   | 112.885  | -17646.483 | 2807171.671 | 150.000    |
| ECC2  | 119.860  | -17644.883 | 2807164.861 |            |
| BCC3  | 151.486  | -17637.950 | 2807134.004 |            |
| PI3   | 161.856  | -17635.673 | 2807123.869 | 150.000    |
| ECC3  | 172.227  | -17634.815 | 2807113.517 |            |
| BCC4  | 196.526  | -17632.642 | 2807087.308 |            |
| PI4   | 206.716  | -17631.793 | 2807077.969 | 65.000     |
| ECC4  | 216.896  | -17627.827 | 2807067.591 |            |
| BCC5  | 231.901  | -17622.812 | 2807055.603 |            |
| PI5   | 242.902  | -17618.668 | 2807045.437 | 150.000    |
| ECC5  | 253.903  | -17615.836 | 2807034.757 |            |
| End   | 279.601  | -17609.489 | 2807009.856 |            |

| ROAD 6          |         |                |                |         |       |
|-----------------|---------|----------------|----------------|---------|-------|
| RIGHT HAND SIDE |         |                | LEFT HAND SIDE |         |       |
| CH              | SIGN    | SIZE           | CH             | SIGN    | SIZE  |
| 030             | R201-40 | 900mm          | 060            | W104    | 900mm |
| 070             | W109    | 900mm          | 020            | R1      | 900mm |
| -               | W409    | 9450 x 2.700mm |                |         |       |
| ROAD 7          |         |                |                |         |       |
| 170             | W325    | 900mm          | 240            | R201-40 | 900mm |
|                 |         |                | 270            | R201-30 | 900mm |
|                 |         |                | 232            | W109    | 900mm |

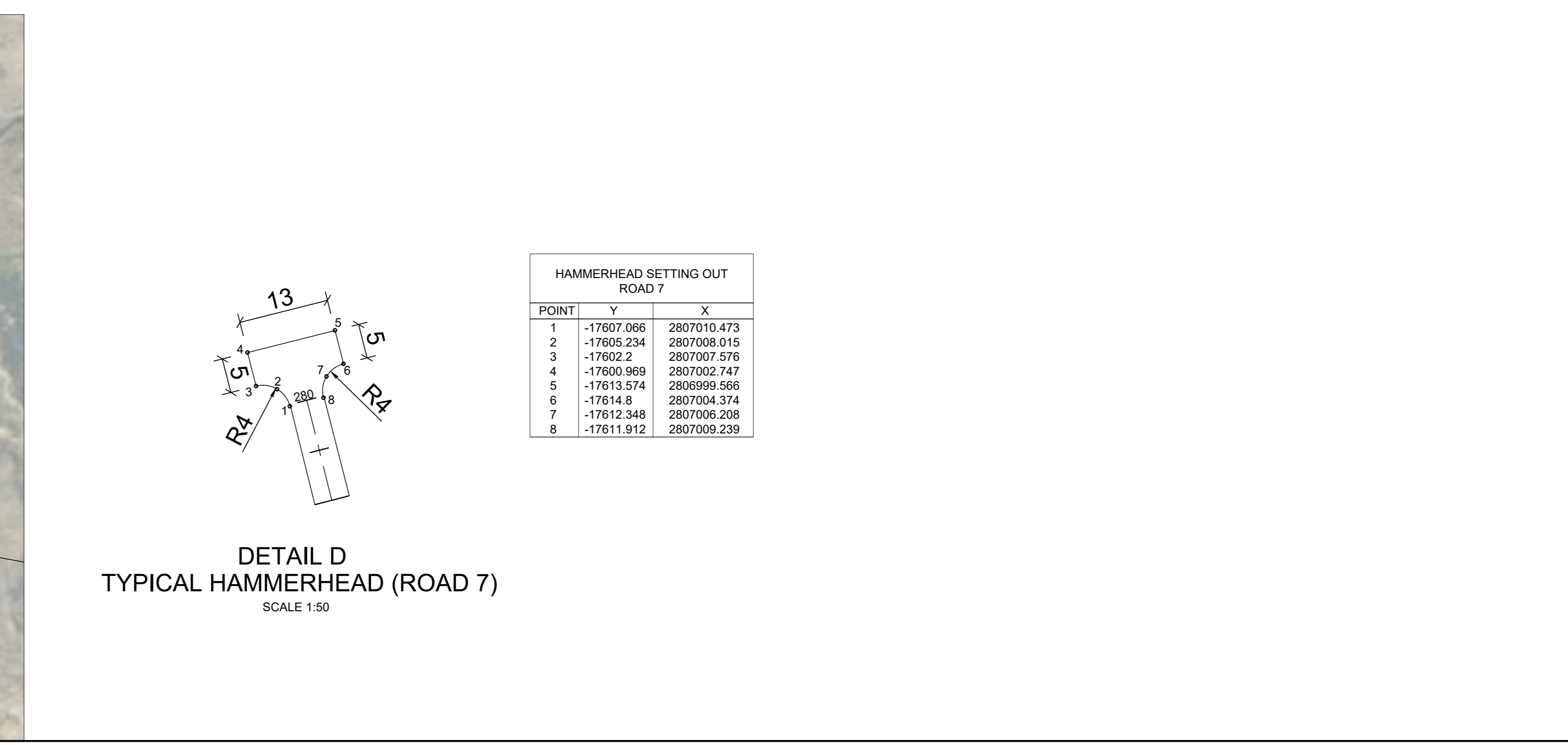
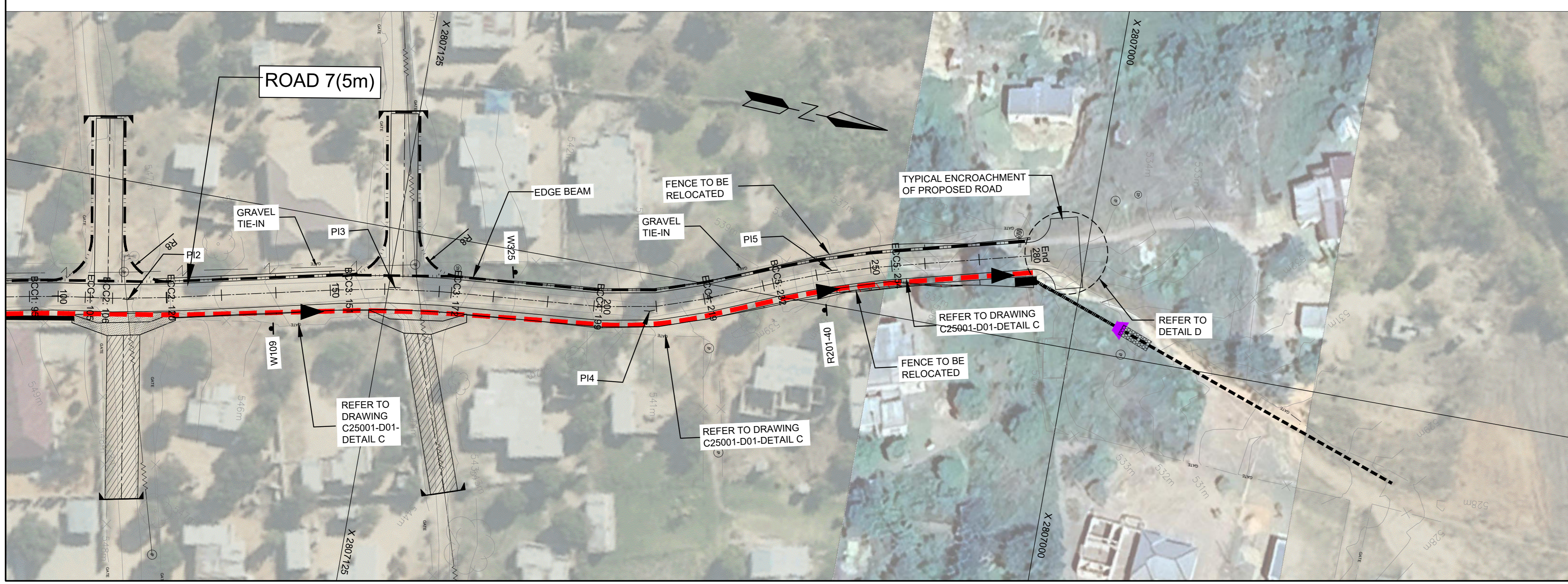
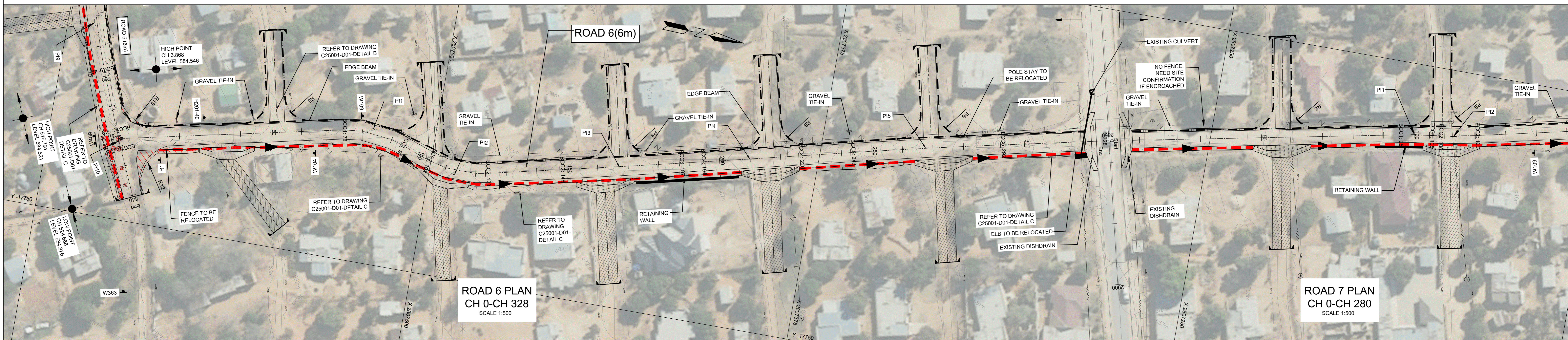


TYPICAL LAYERWORKS CROSS-SECTION OF ROAD (5m)  
SCALE 1:50

- NOTES**
- ALL WORK TO COMPLY WITH COTO DS 2020 ENGINEERING SPECIFICATIONS, OR AS AMENDED.
  - ALL EXISTING LEVELS BASED ON TOPOGRAPHICAL SURVEY WDS 84/LD/31.
  - ALL SETTING OUT DETAILS TO BE CONFIRMED BY THE ENGINEER PRIOR TO ANY CONSTRUCTION WORK.
  - ALL EXISTING SERVICES IN THE AREA OF CONSTRUCTION TO BE PROVIDED PRIOR TO COMMENCEMENT OF ANY EXCAVATION. EXISTING SERVICES TO BE ENCASED IN CONCRETE AT THE ENGINEER'S DISCRETION.
  - WORK TO FIGURED DIMENSIONS. CO-ORDINATES AND LEVELS ONLY. DO NOT SCALE OF DRAWINGS AND ANY DISCREPANCIES IN DIMENSIONS / CO-ORDINATES TO BE REPORTED TO THE ENGINEER.
  - ALL CUT BANKS TO BE 1:1 MAX.
  - ALL FILL BANKS TO BE 1:3 MAX.
  - VERGE SHAPING AS DIRECTED BY ENGINEER.
  - ALL SLOPE EMBANKMENTS TO BE TOSPOLED AND GRASSED.
  - POSITION OF KERBS, DRAINS TO BE CONFIRMED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION WORK THEREON.
  - CASE IS TO BE TAKEN WHEN WORKING IN THE VICINITY OF EXISTING BUILDINGS.
  - ALL CURVE RADII TO ACCESS TO BE 6m UNLESS OTHERWISE STATED.
  - ALL STORMWATER PIPES TO BE CLASS 100D UNLESS OTHERWISE SHOWN.
  - ALL BELLMOUTH ACCESS TO HAVE ROLL OVER KERBS, IE - MOUNTABLE KERBS.
  - ALL TIE-INS TO EXISTING DRIVEWAYS ARE TO BE AGREED ON SITE.
  - ALL GRAVEL TIE-INS TO EXISTING ROAD TO BE AT A MINIMUM 1:1:5 TAPER.
  - ALL EXISTING SERVICES TO BE PROVIDED PRIOR TO BULK EARTHWORKS OPERATIONS.
  - TIE-IN PAVING BLOCK (30m LONG, 5m WIDE).
  - TIE-IN GRAVEL (30m LONG, 5m WIDE).
  - FOR DETAILS REFER TO DRAWING C25001-D01-D02.
  - PROVIDE STOP SIGN AND ROAD MARKING ON ALL PAVED SECTIONS.

**LEGEND**

- LIMIT OF CONSTRUCTION
- - - ROAD CENTRE LINE
- 6000 CONCRETE STORMWATER PIPE CLASS 100 D
- PROPOSED 6000 PC CULVERT
- PROPOSED HEADWALL
- FIGURE 8C MOUNTABLE KERB AND CHANNEL
- EDGE BEAM
- CONCRETE 'Y' DRAIN
- SIDEWALK
- RETAINING WALL
- MITRE CHUTE
- MANHOLE
- SIDE INLET
- FENCE TO BE RELOCATED
- EX STORMWATER CHANNEL
- EXISTING TREE
- GABION PROTECTION
- SPEED HUMP
- EXISTING FENCELINE
- EXISTING CULVERT
- EXISTING POWER LINE
- EXISTING BUILDING/STRUCTURE
- EXISTING ROAD
- BENCHMARK
- EXISTING TAP
- EXISTING TELEPHONE POLE
- GRAVEL TIE-IN
- PAVING BLOCK



| REV. | DESCRIPTION       | BY. | DATE.      |
|------|-------------------|-----|------------|
| A    | ISSUED FOR TENDER | Z.X | 01/07/2026 |

**CITY OF MBOMBELA**  
THE ULTIMATE DESTINATION

**CITY OF MBOMBELA**

PROJECT  
**UPGRADING OF 3.25 KM OF SIWELA ROAD IN WARD 04**

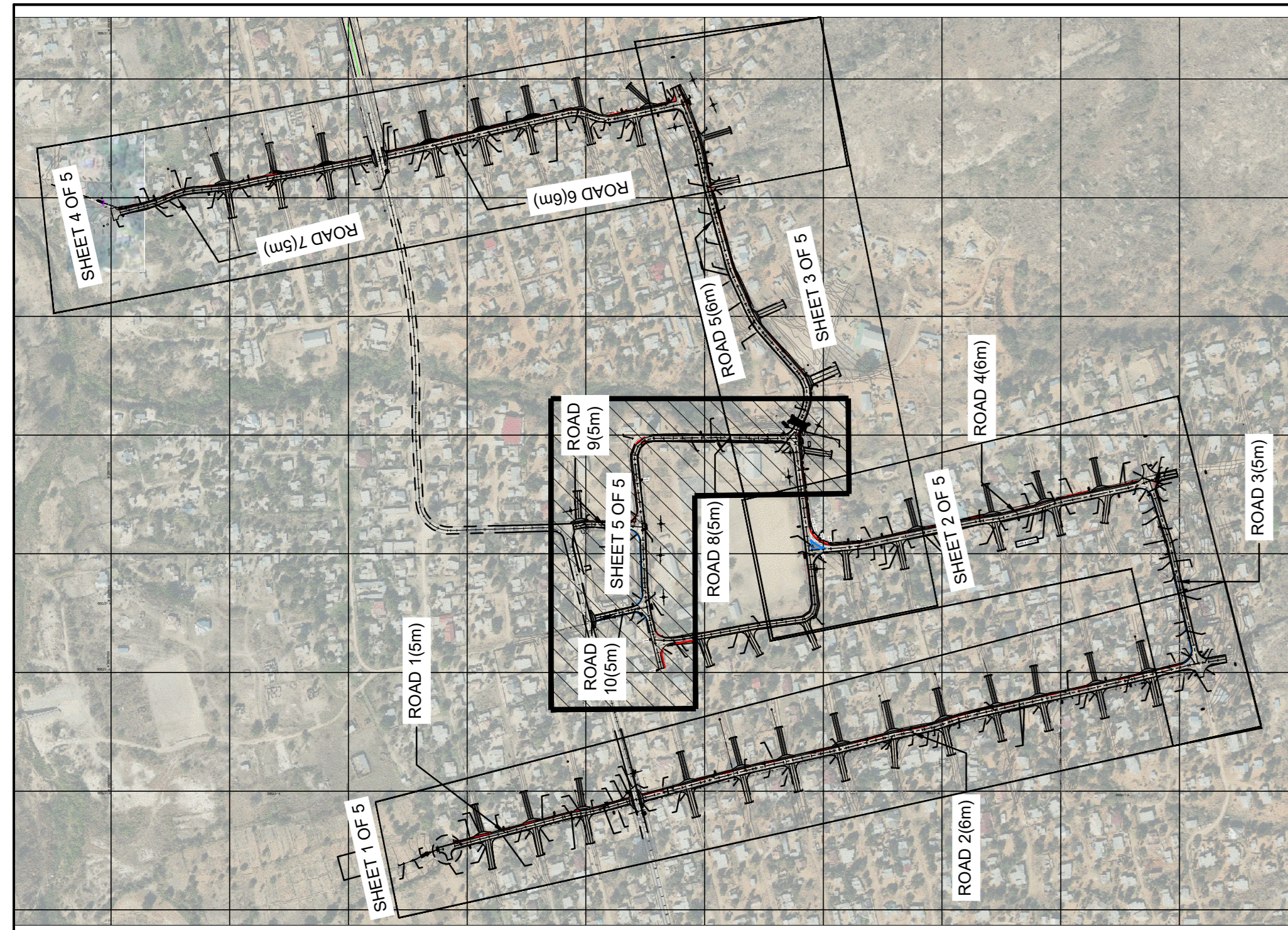
DRAWING TITLE  
**ROAD PLAN LAYOUT SHEET 4 OF 5 (ROAD 6,7)**

**nmme** NATHOO MBENYANE ENGINEERS & PROJECT MANAGERS  
Office 001 Portion 3 Of 173  
R580 Platton Road The Ranch  
White River  
1240  
Tel: 013-750 3122  
Fax: 013-750 3155  
e-mail: info.mp@nmme.co.za

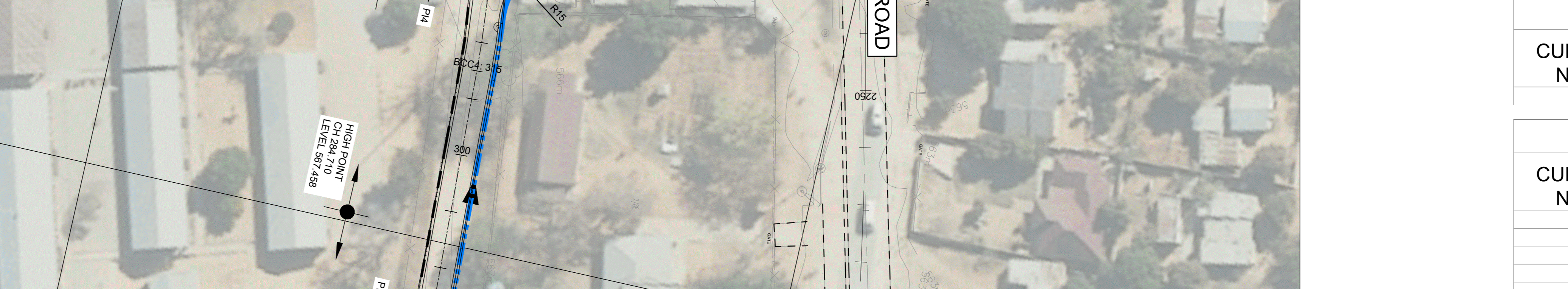
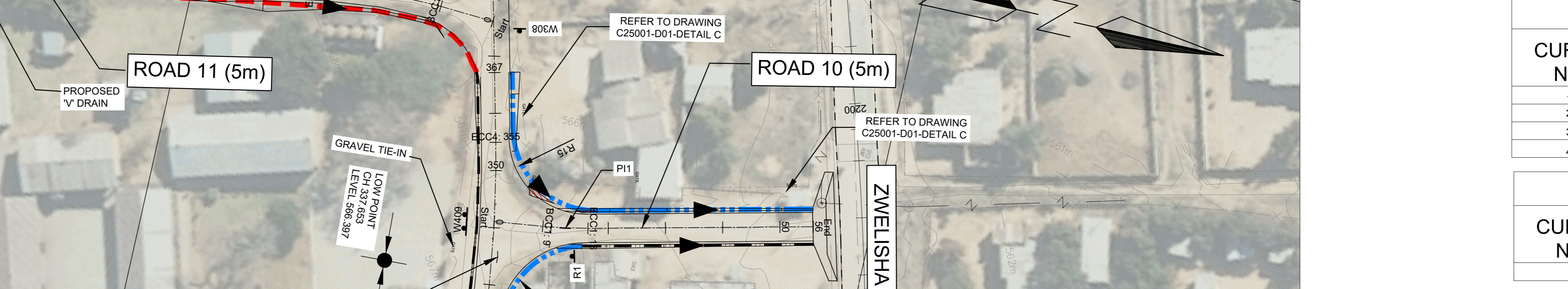
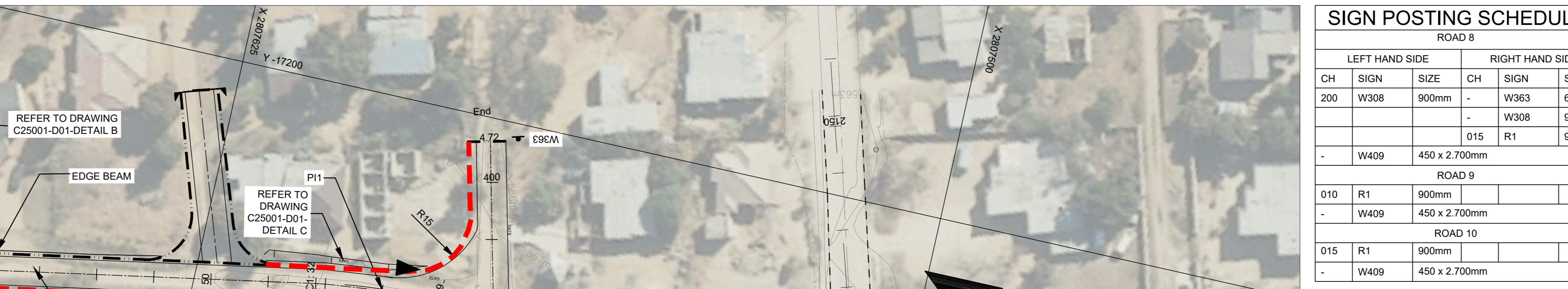
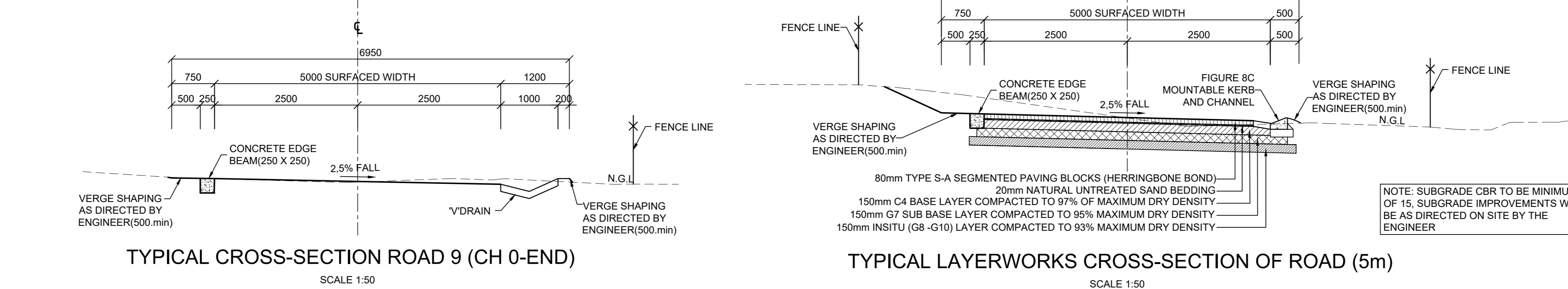
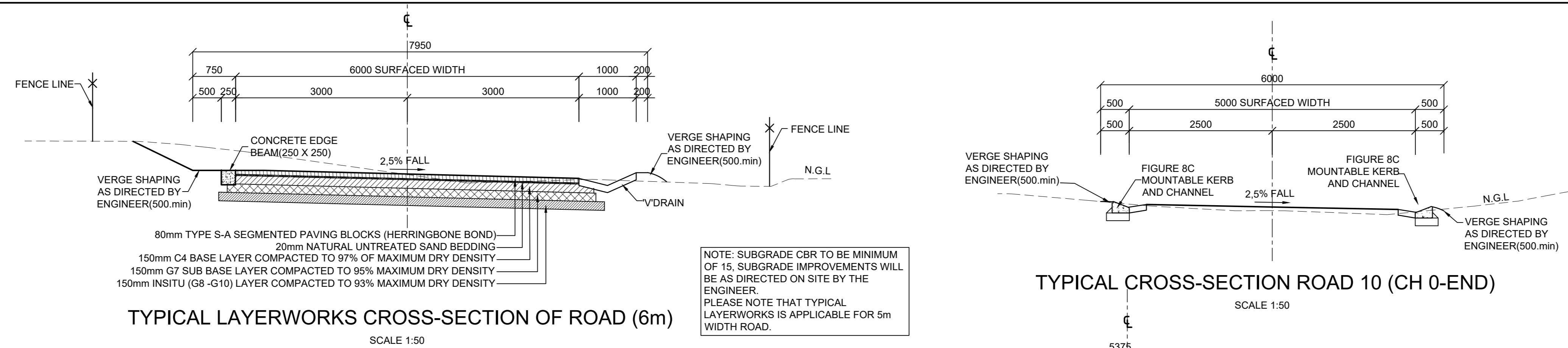
| DESIGNED | REF. DRG          | PROJECT No |
|----------|-------------------|------------|
| R.S      | C25001-PL-MC-PL04 | C25001     |

| CHECKED | SCALE    | SHEET | REVISION |
|---------|----------|-------|----------|
| K.K.N   | AS SHOWN | PL04  | A        |

| DRAWN | DATE       |
|-------|------------|
| M.C   | 05/09/2025 |



**SIWELA ROAD  
KEY PLAN**  
SCALE 1:10 000



**HORIZONTAL ALIGNMENT - ROAD 8**

| NAME  | CHAINAGE | Y-Coord    | X-Coord     | RADIUS (m) |
|-------|----------|------------|-------------|------------|
| Start | 0        | -17371.448 | 2807721.942 | 0.000      |
| BCC1  | 84.745   | -17372.126 | 2807637.200 |            |
| P11   | 84.745   | -17372.126 | 2807637.200 | 0.000      |
| ECC1  | 84.745   | -17372.126 | 2807637.200 |            |
| BCC2  | 150.860  | -17371.668 | 2807571.087 |            |
| P12   | 167.847  | -17371.514 | 2807548.804 | 20.000     |
| ECC2  | 184.434  | -17371.377 | 2807551.357 |            |
| BCC3  | 256.199  | -17278.085 | 2807559.579 |            |
| P13   | 256.199  | -17278.085 | 2807559.579 | 0.000      |
| ECC3  | 256.199  | -17278.085 | 2807559.579 |            |
| BCC4  | 314.970  | -17219.358 | 2807561.846 |            |
| P14   | 334.948  | -17199.328 | 2807562.619 | 200.000    |
| ECC4  | 354.926  | -17179.850 | 2807567.351 |            |
| End   | 367.128  | -17167.993 | 2807570.232 |            |

**HORIZONTAL ALIGNMENT - ROAD 9**

| NAME  | CHAINAGE | Y-Coord    | X-Coord     | RADIUS (m) |
|-------|----------|------------|-------------|------------|
| Start | 0        | -17278.085 | 2807559.579 | 0.000      |
| BCC1  | 53.308   | -17280.868 | 2807506.344 |            |
| P11   | 61.845   | -17281.318 | 2807497.735 | 50.000     |
| ECC1  | 70.382   | -17278.859 | 2807489.427 |            |
| End   | 72.895   | -17278.142 | 2807487.064 |            |

**HORIZONTAL ALIGNMENT - ROAD 10**

| NAME  | CHAINAGE | Y-Coord    | X-Coord     | RADIUS (m) |
|-------|----------|------------|-------------|------------|
| Start | 0        | -17193.415 | 2807564.582 | 0.000      |
| BCC1  | 8.547    | -17192.364 | 2807556.100 |            |
| P11   | 12.495   | -17191.878 | 2807552.178 | 75.000     |
| ECC1  | 16.444   | -17190.982 | 2807548.329 |            |
| End   | 55.835   | -17182.056 | 2807509.963 |            |

**HORIZONTAL ALIGNMENT - ROAD 11**

| NAME  | CHAINAGE | Y-Coord    | X-Coord     | RADIUS (m) |
|-------|----------|------------|-------------|------------|
| Start | 0        | -17159.330 | 2807572.487 | 0.000      |
| BCC1  | 9.450    | -17158.749 | 2807581.918 |            |
| P11   | 20.556   | -17158.063 | 2807593.058 | 92.000     |
| ECC1  | 31.663   | -17160.061 | 2807604.039 |            |
| BCC2  | 112.487  | -17174.526 | 2807683.557 |            |
| P12   | 112.487  | -17174.526 | 2807683.557 | 0.000      |
| ECC2  | 112.487  | -17174.526 | 2807683.557 |            |
| BCC3  | 157.716  | -17180.746 | 2807728.357 |            |
| P13   | 169.243  | -17182.740 | 2807742.719 | 15.000     |
| ECC3  | 180.769  | -17197.162 | 2807741.213 |            |
| End   | 222.408  | -17238.575 | 2807736.888 |            |

**SIGN POSTING SCHEDULE**

| ROAD 8         |      |               |                 |      |       |
|----------------|------|---------------|-----------------|------|-------|
| LEFT HAND SIDE |      |               | RIGHT HAND SIDE |      |       |
| CH             | SIGN | SIZE          | CH              | SIGN | SIZE  |
| 200            | W308 | 900mm         | -               | W363 | 600mm |
| -              | W409 | 450 x 2.700mm | -               | W308 | 900mm |
| -              |      |               | O15             | R1   | 900mm |

**CURVE DATA - ROAD 8**

| CURVE NO | RADIUS (m) | TANGENT IN (m) | TANGENT OUT (m) | INTERSECTION ANGLE (DEG) |
|----------|------------|----------------|-----------------|--------------------------|
| 1        | 0.000      | 0.000          | 0.000           | 0°51'20"                 |
| 2        | 20.000     | 22.283         | 22.283          | 96°10'53"                |
| 3        | 0.000      | 0.000          | 0.000           | 4°22'06"                 |
| 4        | 200.000    | 20.045         | 20.045          | 11°26'48"                |

**CURVE DATA - ROAD 9**

| CURVE NO | RADIUS (m) | TANGENT IN (m) | TANGENT OUT (m) | INTERSECTION ANGLE (DEG) |
|----------|------------|----------------|-----------------|--------------------------|
| 1        | 50.000     | 8.621          | 8.621           | 19°33'54"                |

**CURVE DATA - ROAD 10**

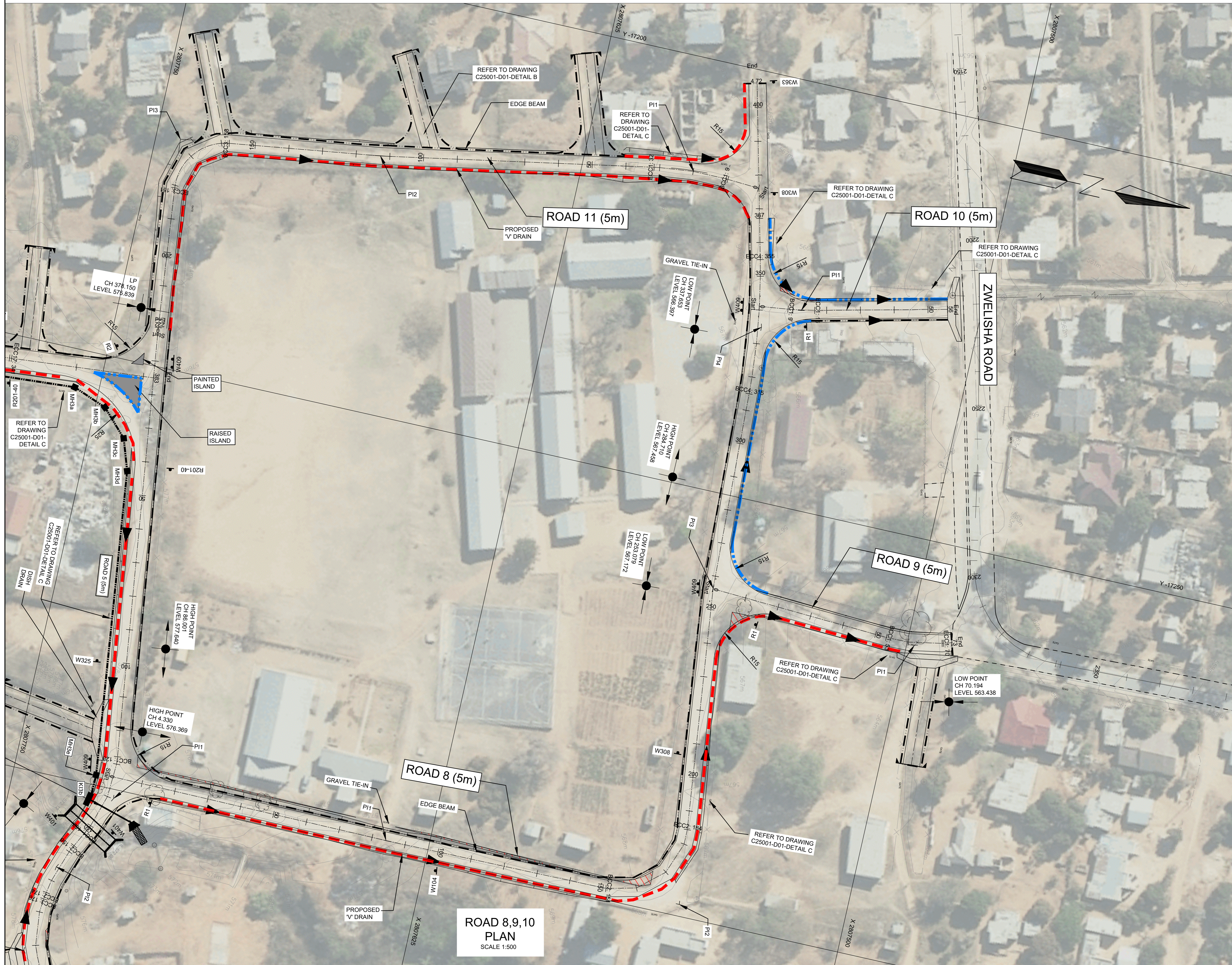
| CURVE NO | RADIUS (m) | TANGENT IN (m) | TANGENT OUT (m) | INTERSECTION ANGLE (DEG) |
|----------|------------|----------------|-----------------|--------------------------|
| 1        | 75.000     | 3.952          | 3.952           | 6°01'58"                 |

**CURVE DATA - ROAD 11**

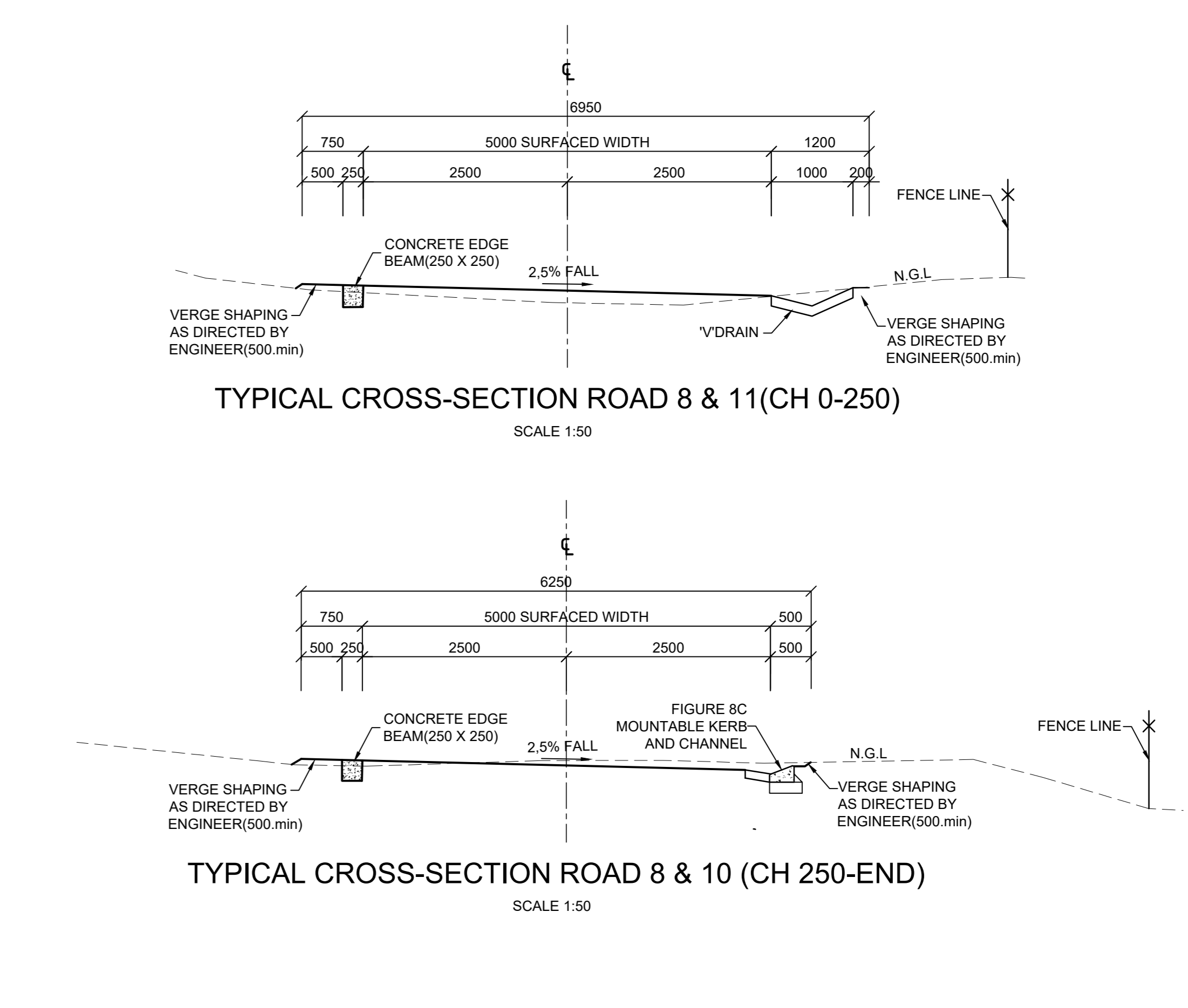
| CURVE NO | RADIUS (m) | TANGENT IN (m) | TANGENT OUT (m) | INTERSECTION ANGLE (DEG) |
|----------|------------|----------------|-----------------|--------------------------|
| 0        | 0.000      | 0.000          | 0.000           | 0°00'00"                 |
| 1        | 92.000     | 11.161         | 11.161          | 13°50'02"                |
| 2        | 0.000      | 0.000          | 0.000           | 2°24'21"                 |
| 3        | 15.000     | 14.500         | 14.500          | 88°03'28"                |
| 4        | 0.000      | 0.000          | 0.000           | 0°00'00"                 |

- NOTES**
- ALL WORK TO COMPLY WITH COTO DS 2020 ENGINEERING SPECIFICATIONS, OR AS AMENDED.
  - ALL EXISTING LEVELS BASED ON TOPOGRAPHICAL SURVEY WGS 84 / LO 31.
  - ALL SETTING OUT DETAILS TO BE CONFIRMED BY THE ENGINEER PRIOR TO ANY CONSTRUCTION WORK.
  - ALL EXISTING SERVICES IN THE AREA OF CONSTRUCTION TO BE PROVIDED PRIOR TO COMMENCEMENT OF ANY EXCAVATION. EXISTING SERVICES TO BE ENCASED IN CONCRETE AT THE ENGINEER'S DISCRETION.
  - WORK TO FIGURED DIMENSIONS, CO-ORDINATES AND LEVELS ONLY. DO NOT SCALE DRAWINGS AND ANY DISCREPANCIES IN DIMENSIONS / CO-ORDINATES TO BE REPORTED TO THE ENGINEER.
  - ALL CUT BANKS TO BE 1:5 MAX.
  - ALL FILL BANKS TO BE 1:5 MAX.
  - VERGE SHAPING AS DIRECTED BY ENGINEER.
  - ALL SLOPE EMBANKMENTS TO BE TOPSOILED AND GRASSED.
  - POSITION OF KERBS, DRAINS TO BE CONFIRMED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION WORK THEREOF.
  - CARE IS TO BE TAKEN WHEN WORKING IN THE VICINITY OF EXISTING BUILDINGS.
  - JOINTS TO THE INTO EXISTING ASPHALT SURFACING TO BE SAW CUT INTO EXISTING SET LEVELS.
  - ALL CURVE RADII TO ACCESSSES TO BE 6m UNLESS OTHERWISE SHOWN.
  - ALL STORMWATER PIPES TO BE CLASS 1000 UNLESS OTHERWISE SHOWN.
  - ALL BULKHEAD ACCESSSES TO HAVE ROLL OVER KERBS, IE - MOUNTABLE KERBS.
  - ALL TIE-INS TO EXISTING DRIVEWAYS ARE TO BE AGREED ON SITE.
  - ALL GRAVEL TIE-INS TO EXISTING ROAD TO BE AT A MINIMUM 1:15 TAPER.
  - ALL EXISTING SERVICES TO BE PROVIDED PRIOR TO BULK EARTHWORKS OPERATIONS.
  - TIE-IN PAVING BLOCKS (30m LONG x 5m WIDE).
  - TIE-IN GRAVEL (30m LONG x 5m WIDE).
  - FOR DETAILS REFER TO DRAWING C25001-D01\_D02.
  - PROVIDE STOP SIGN AND ROAD MARKING ON ALL PAVED SECTIONS.

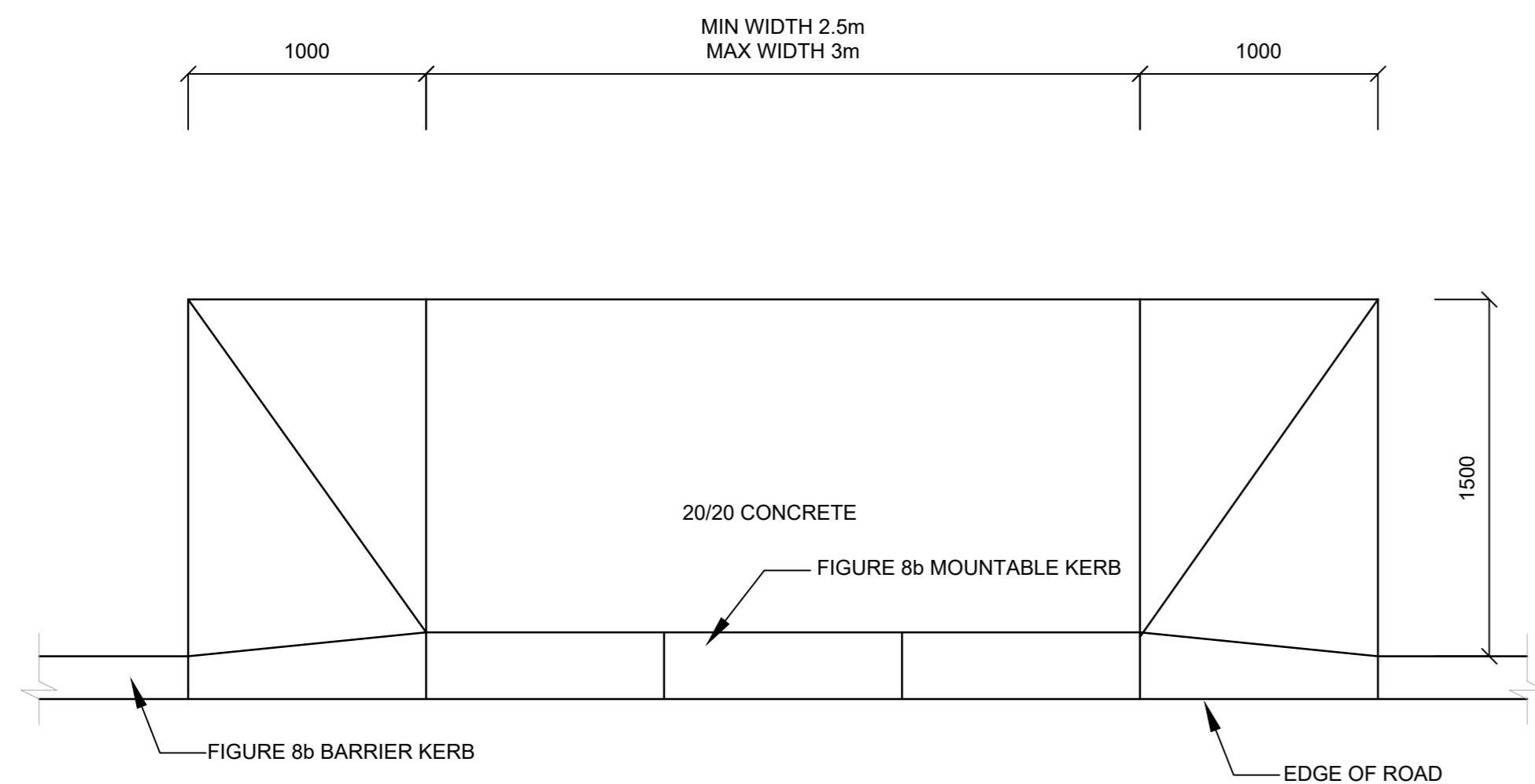
- LEGEND**
- LIMIT OF CONSTRUCTION
  - ROAD CENTRE LINE
  - 6000 CONCRETE STORMWATER PIPE CLASS 100 D
  - PROPOSED 6000 PC CULVERT
  - PROPOSED HEADWALL
  - FIGURE 8C MOUNTABLE KERB AND CHANNEL
  - EDGE BEAM
  - CONCRETE V DRAIN
  - SIDEWALK
  - RETAINING WALL
  - MITRE CHUTE
  - MANHOLE
  - SIDE INLET
  - FENCE TO BE RELOCATED
  - EX. STORMWATER CHANNEL
  - EXISTING TREE
  - GABION PROTECTION
  - SPEED HUMP
  - EXISTING FENCELINE
  - EXISTING CULVERT
  - EXISTING POWER LINE
  - EXISTING BUILDING/STRUCTURE
  - EXISTING ROAD
  - BENCHMARK
  - EXISTING TAP
  - EXISTING TELEPHONE POLE
  - GRAVEL TIE-IN
  - PAVING BLOCK



**ROAD 8,9,10  
PLAN**  
SCALE 1:300

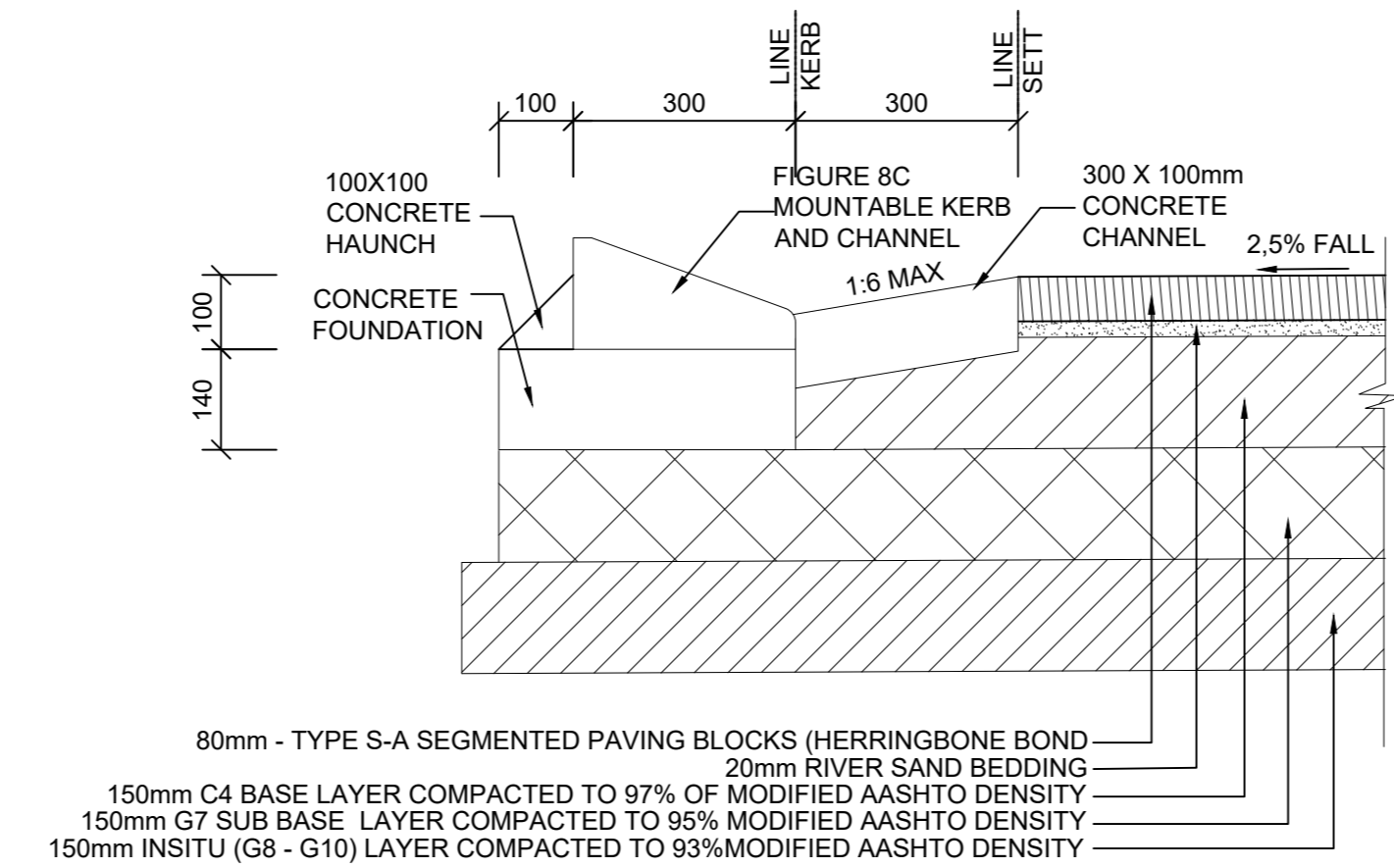


| A                                                                            | ISSUED FOR TENDER          | Z.X         | 01/07/2025 |
|------------------------------------------------------------------------------|----------------------------|-------------|------------|
| REV.                                                                         | DESCRIPTION                | BY.         | DATE       |
| CLIENT                                                                       |                            |             |            |
| <p><b>CITY OF MBOMBELA</b></p>                                               |                            |             |            |
| PROJECT                                                                      |                            |             |            |
| <b>UPGRADING OF 3.25 KM OF<br/>SIWELA ROAD IN WARD 04</b>                    |                            |             |            |
| DRAWING TITLE                                                                |                            |             |            |
| <b>ROAD PLAN LAYOUT<br/>SHEET 5 OF 5<br/>(ROAD 8,9,10)</b>                   |                            |             |            |
| <p><b>NATHOO MBENYANE ENGINEERS</b><br/>ENGINEERS &amp; PROJECT MANAGERS</p> |                            |             |            |
| Office 001 Portion 3 Of 173                                                  | Tel : 013-750 3122         |             |            |
| R580 Plaston Road The Ranch                                                  | Fax : 013-750 3155         |             |            |
| White River                                                                  | e-mail : info.mp@nme.co.za |             |            |
| DESIGNED                                                                     | REF. DRG                   | PROJECT No. |            |
| R.S                                                                          | C25001-PL-MC-PL05          | C25001      |            |
| CHECKED                                                                      | SCALE                      | SHEET       | REVISION   |
| K.K.N                                                                        | AS SHOWN                   | PL05        | A          |
| DRAWN                                                                        | DATE                       |             |            |
| M.C                                                                          | 05/09/2025                 |             |            |



DRIVEWAY ACCESS AT KERB

SCALE 1:25



KERB AND CHANNEL DETAIL

SCALE 1:10

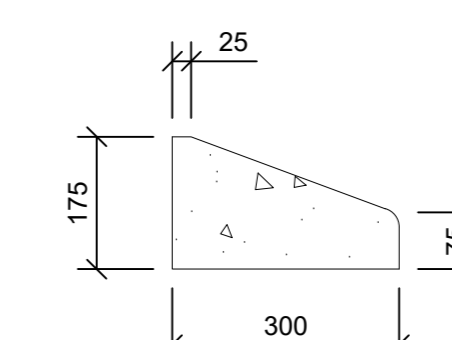


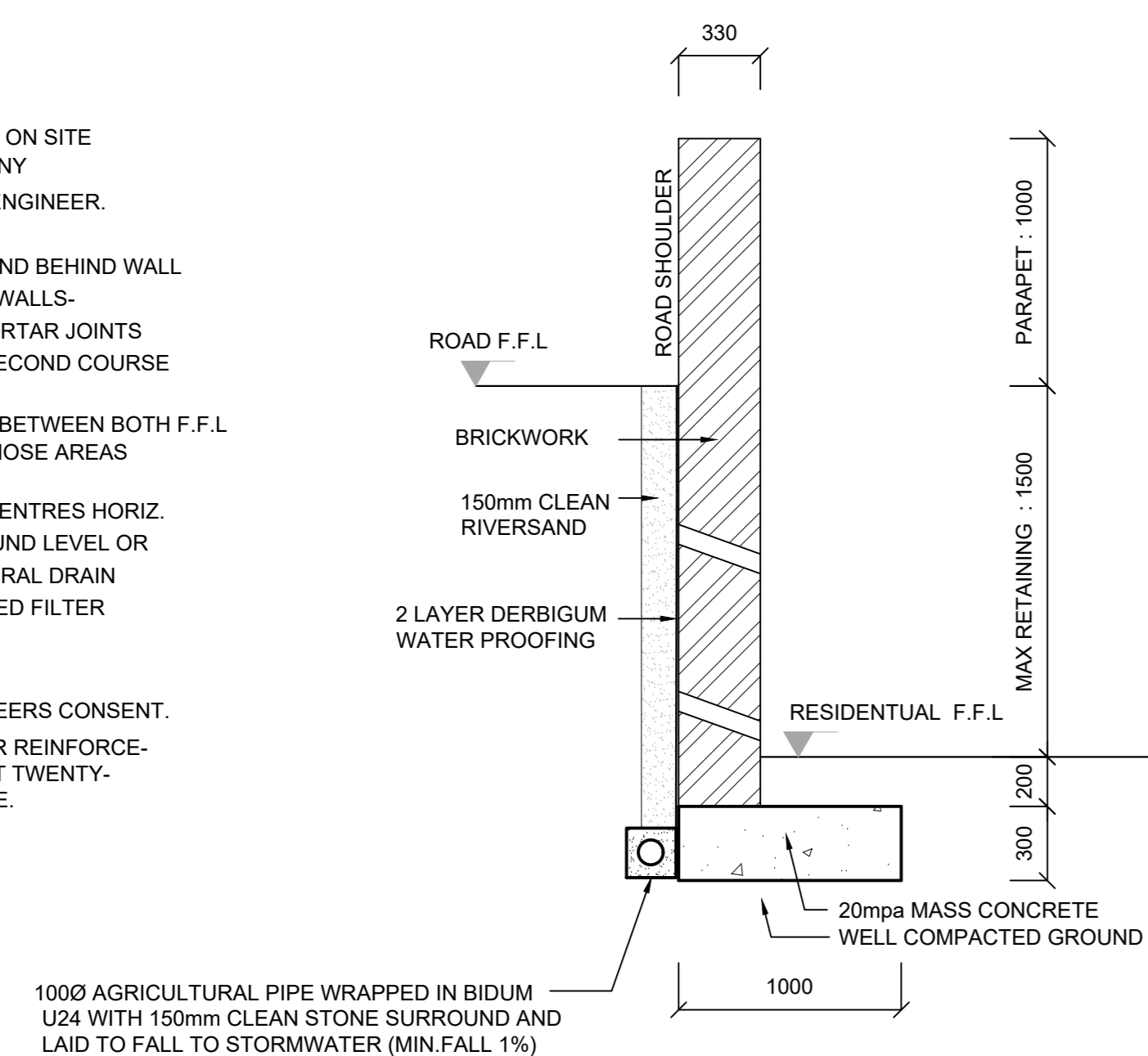
FIGURE 8c KERB

SCALE 1:10

**NOTE TO CONTRACTOR:**  
ALL RETAINING WALL HEIGHTS TO CHECKED ON SITE PRIOR TO ANY WORK BEING PUT TO HAND ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER.

**GENERAL NOTES ON RETAINING WALLS:**  
1. PROVIDE A 150mm LAYER CLEAN RIVER SAND BEHIND WALL.  
2. ALL BRICKWORK/BLOCKWORK RETAINING WALLS - WALL TO BE CROSSBONDED WITH SOLID MORTAR JOINTS AND BRICKFORCE EVERY THIRD COURSE (SECOND COURSE IN BLOCKWORK).  
3. SHOULD WALL EXCEED 1.5m HEIGHT DIFF. BETWEEN BOTH F.F.L LEVELS, ENGINEER IS TO BE NOTIFIED AS THOSE AREAS WILL HAVE A DIFFERENT DESIGN.  
4. PROVIDE 75 DIA WEEPHOLES AT 1200mm CENTRES HORIZ. AND VERTICALLY APPX. 300mm ABOVE GROUND LEVEL OR  
5. PROVIDE V.D.P.C. AND 100 DIA. AGRICULTURAL DRAIN WRAPPED IN BIDUM #4 OR SIMILAR APPROVED FILTER FABRIC.

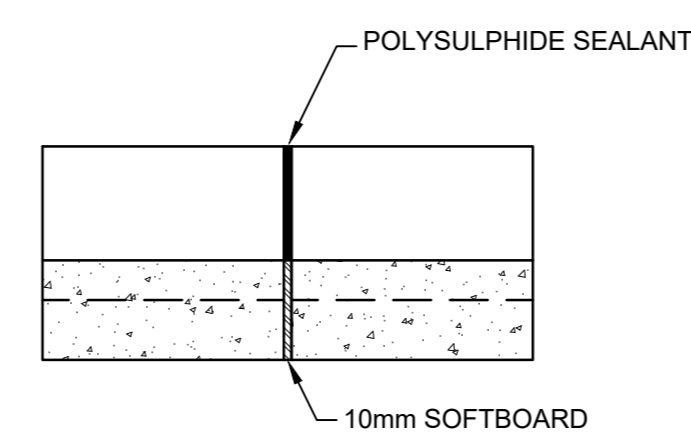
**CONCRETE NOTES**  
1. NO CONC. TO BE POURED WITHOUT ENGINEERS CONSENT.  
2. NOTICE TO INSPECT FOUNDATIONS AND/OR REINFORCEMENT TO BE GIVEN TO ENGINEER AT LEAST TWENTY-FOUR HOURS BEFORE POURING CONCRETE.



1.5m VERTICAL RETAINING WALL

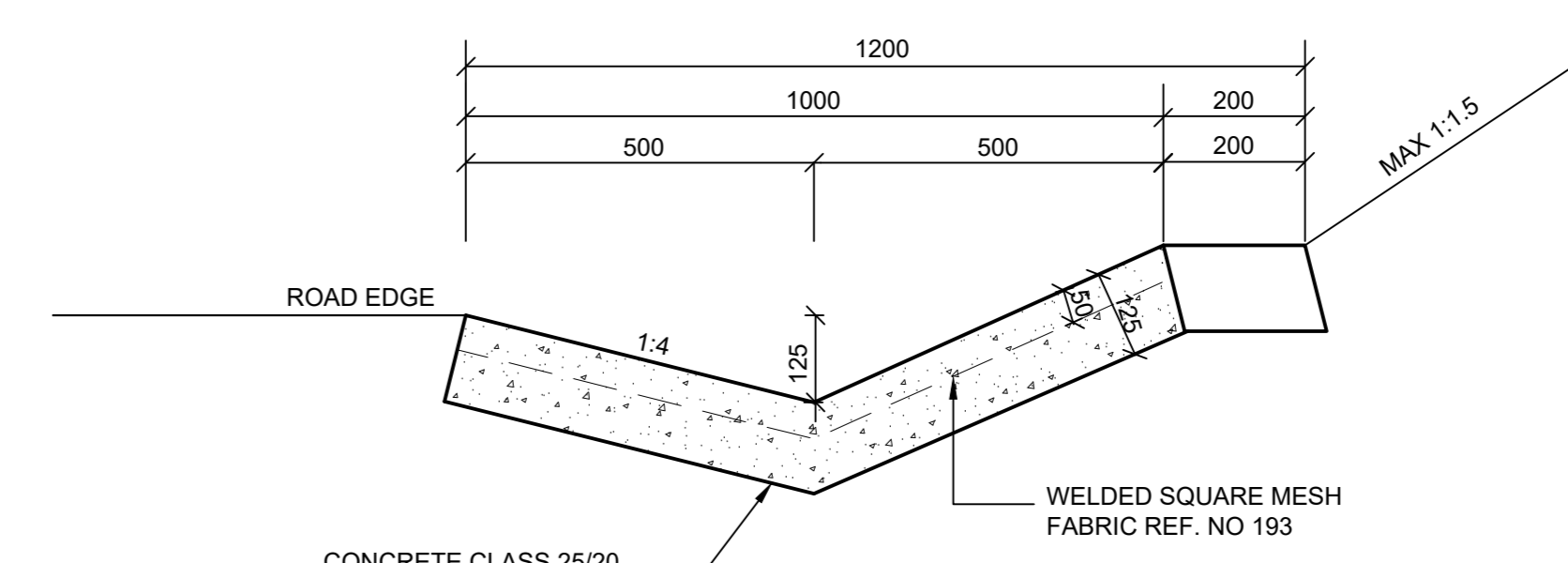
SCALE 1:25

- NOTES :**
1. CONCRETE CHANNEL CAST IN 2m ALTERNATE PANELS 10mm SOFTBOARD
  2. EXPANSION JOINTS TO BE PROVIDED AT EVERY 5m PANEL JOINTS TO BE FILLED WITH POLYSULPHIDE SEALANT
  3. SURFACE FINISH TO BE WOOD
  4. CONCRETE CLASS 20/20



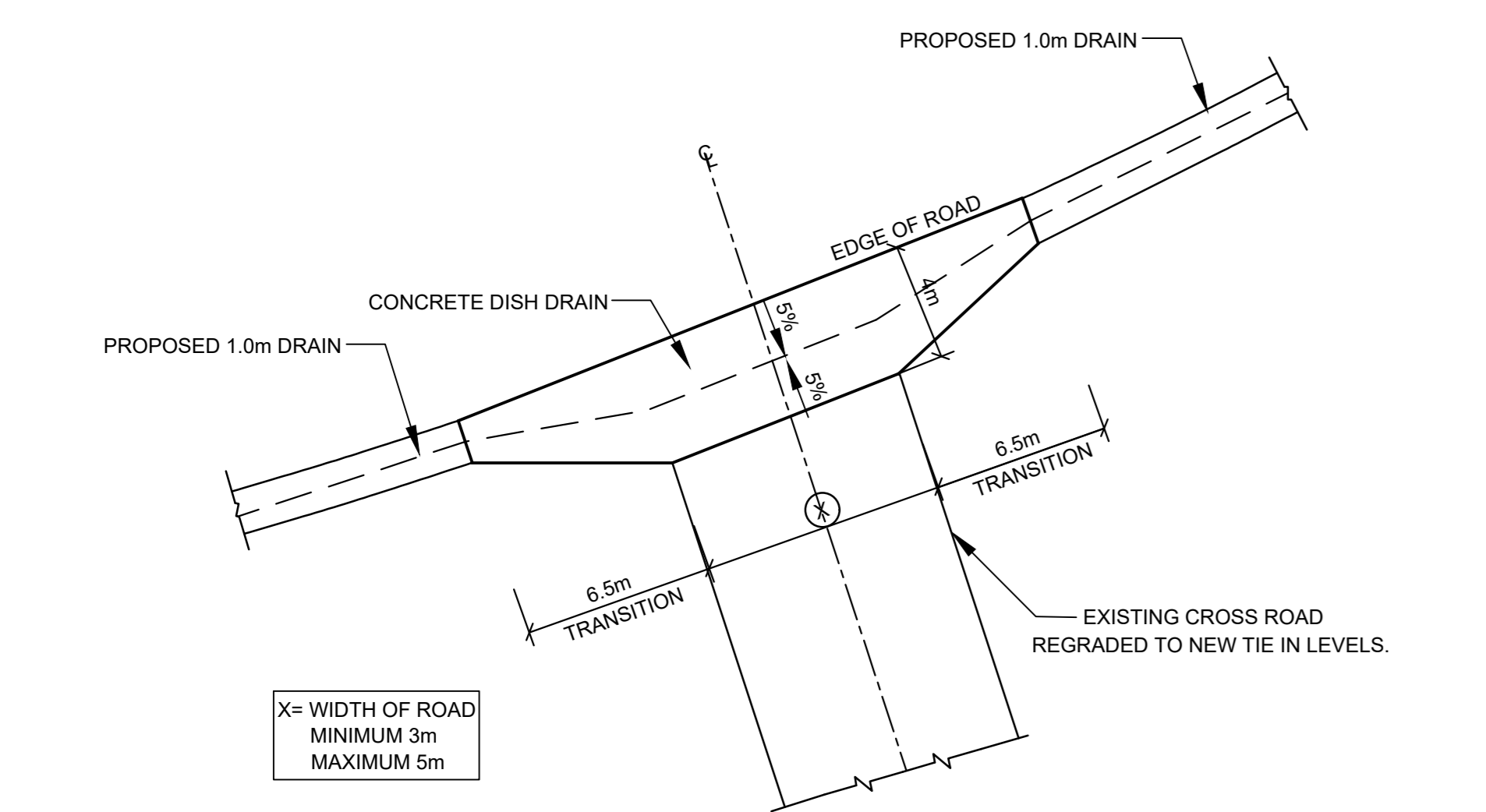
CONCRETE V DRAIN JOINT DETAIL

SCALE 1:10



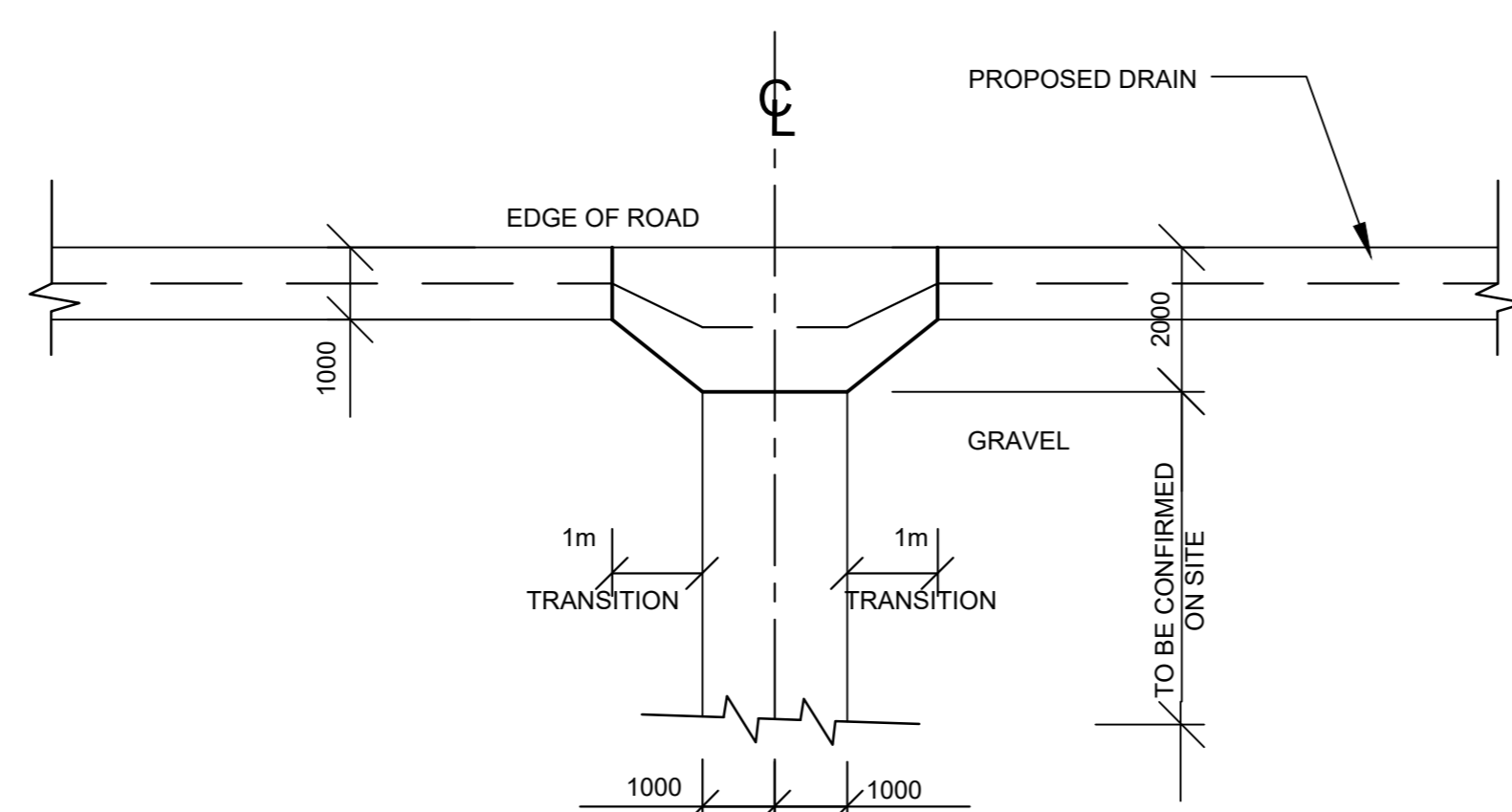
CONCRETE 1.0m V-DRAIN

SCALE 1:10

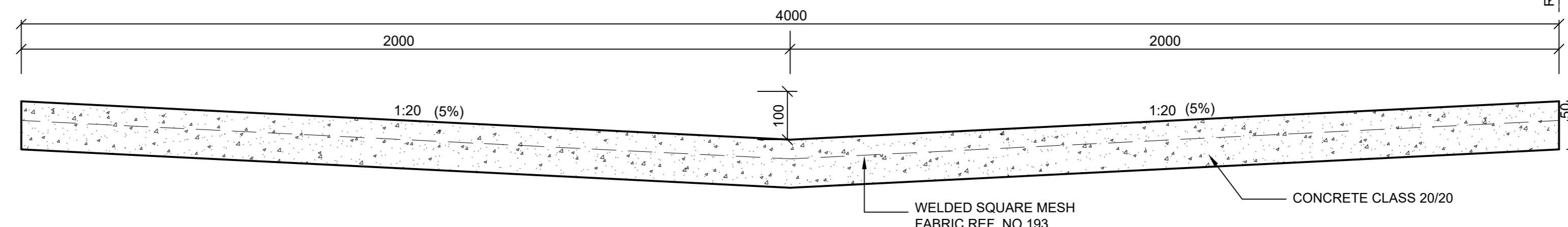


TYPICAL CONCRETE DISH DRAIN LAYOUT AT ACCESS ROAD - (DETAIL B)

SCALE 1:200

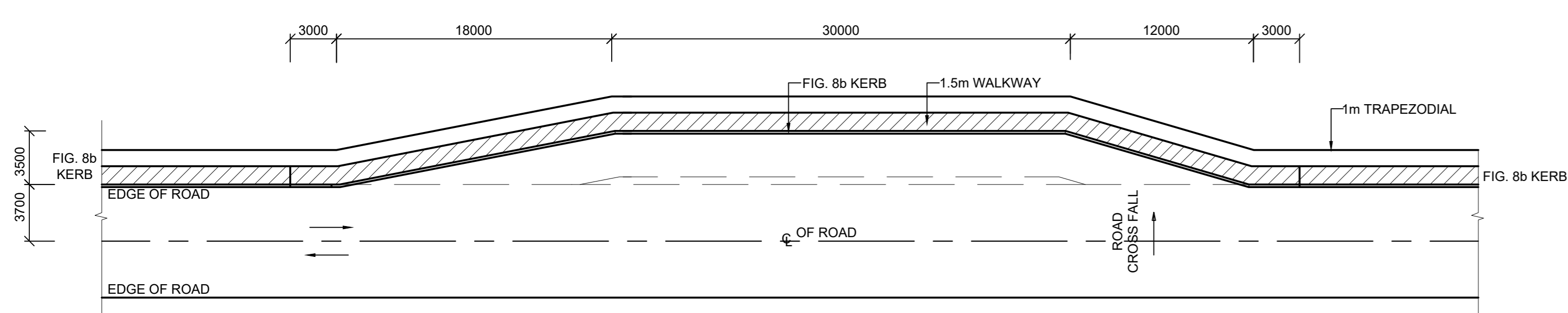


TYPICAL CONCRETE DISH DRAIN LAYOUT AT GRAVEL ACCESS ROAD - (DETAIL C)



CONCRETE DISH DRAIN AT CROSS ACCESS

SCALE 1:10



TYPICAL TAXI/BUS BAY LAYOUT

SCALE 1:250

|      |                   |     |            |
|------|-------------------|-----|------------|
| A    | ISSUED FOR TENDER | Z.X | 01/07/2026 |
| REV. | DESCRIPTION       | BY. | DATE.      |

CLIENT



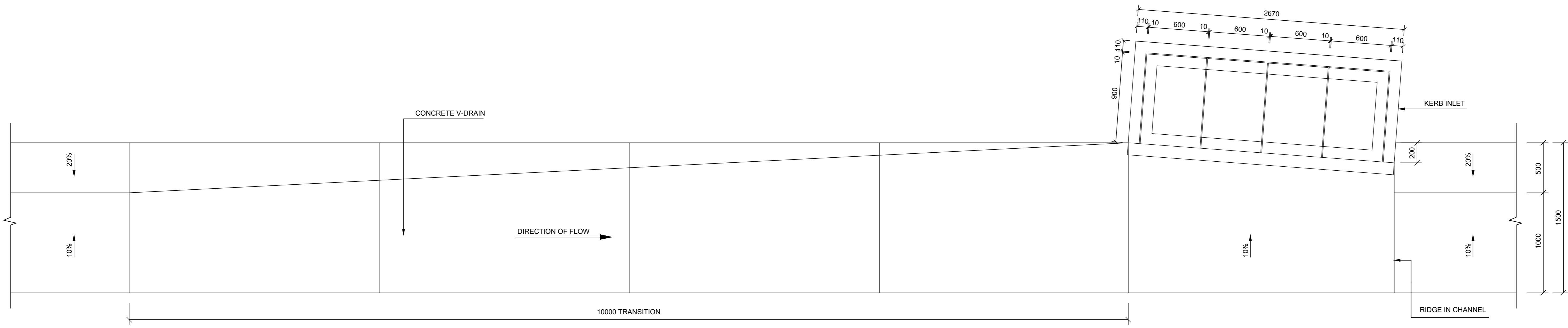
CITY OF MBOMBELA

PROJECT  
UPGRADING OF 3.25 KM OF SIWELA ROAD IN WARD 04

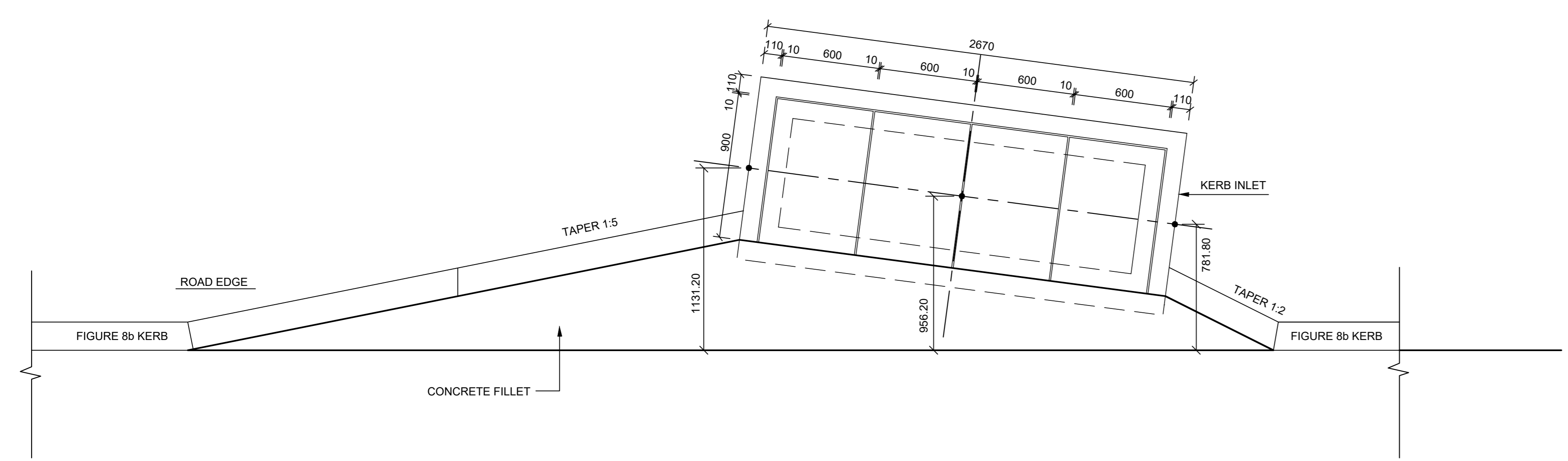
DRAWING TITLE  
DETAILS

**nme** NATHOO MBENYANE ENGINEERS  
ENGINEERS & PROJECT MANAGERS  
Office 001 Portion 3 Of 173  
R580 Plaston Road The Ranch  
White River  
1240  
Tel : 013-750 3122  
Fax : 013-750 3155  
e-mail : info.mp@nme.co.za

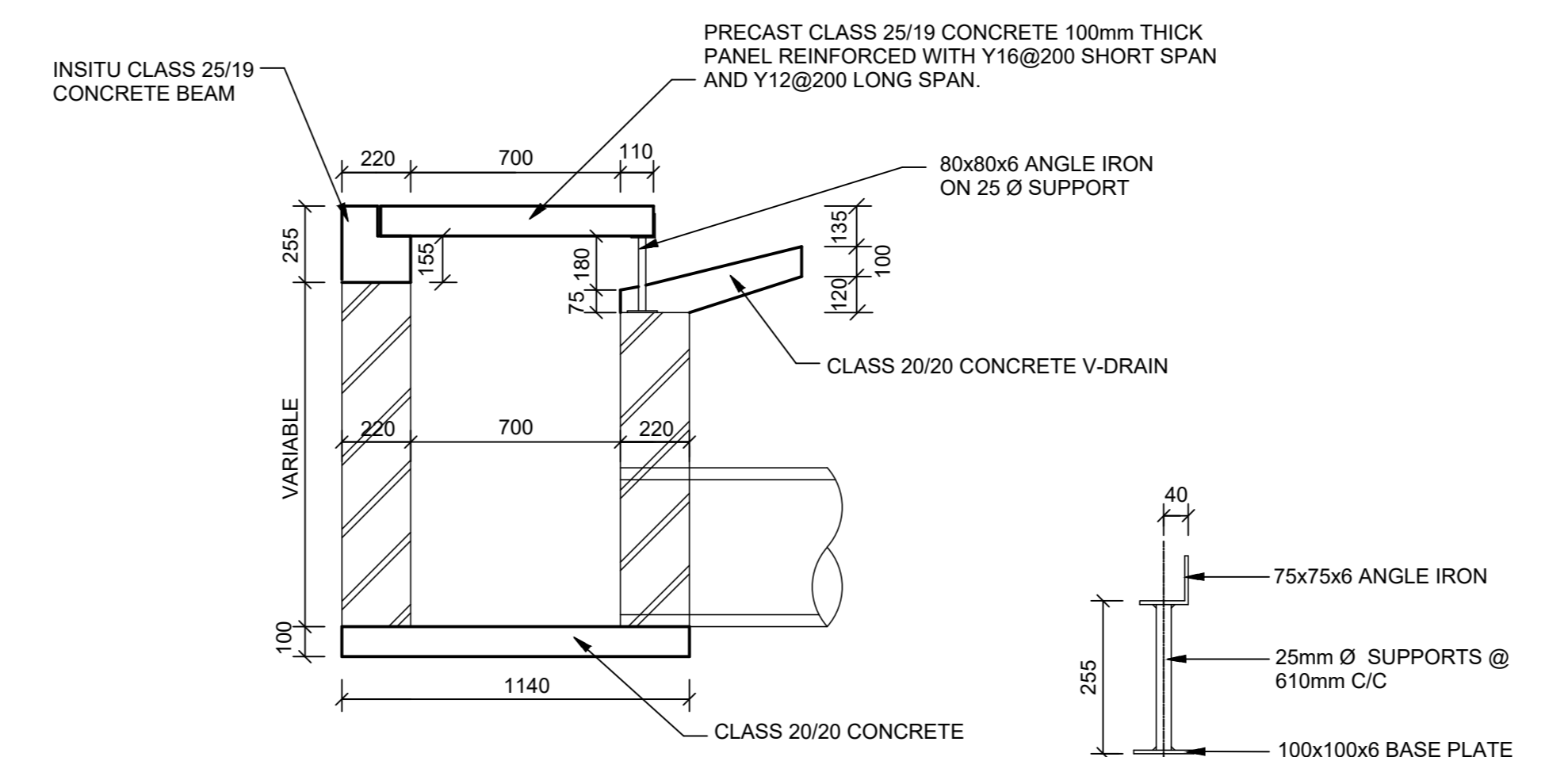
|          |     |          |                   |             |        |
|----------|-----|----------|-------------------|-------------|--------|
| DESIGNED | R.S | REF. DRG | C25001-DET-MC-001 | PROJECT No. | C25001 |
| CHECKED  | D.C | SCALE    | AS SHOWN          | SHEET       | D01    |
| DRAWN    | M.C | DATE     | 09/09/2025        | REVISION    | A      |



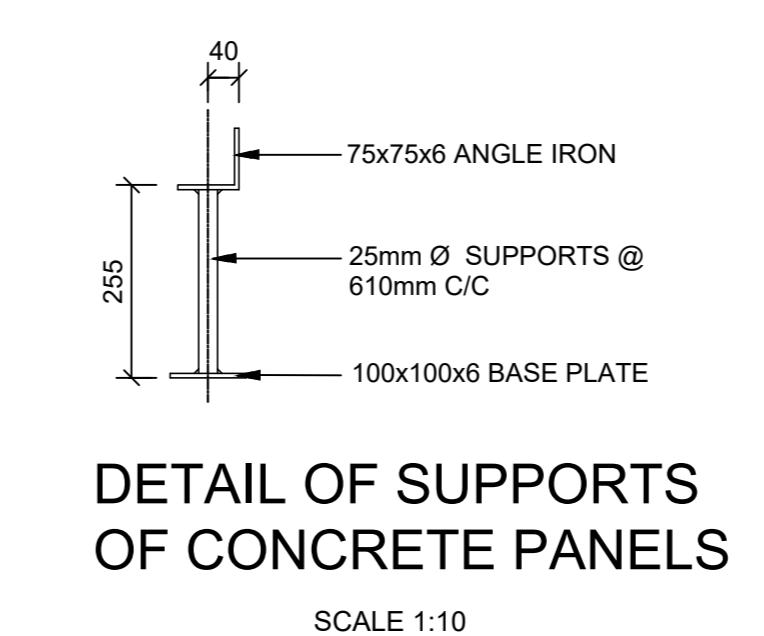
PLAN OF KERB INLET AND DRAIN TRANSITION  
SCALE 1:20



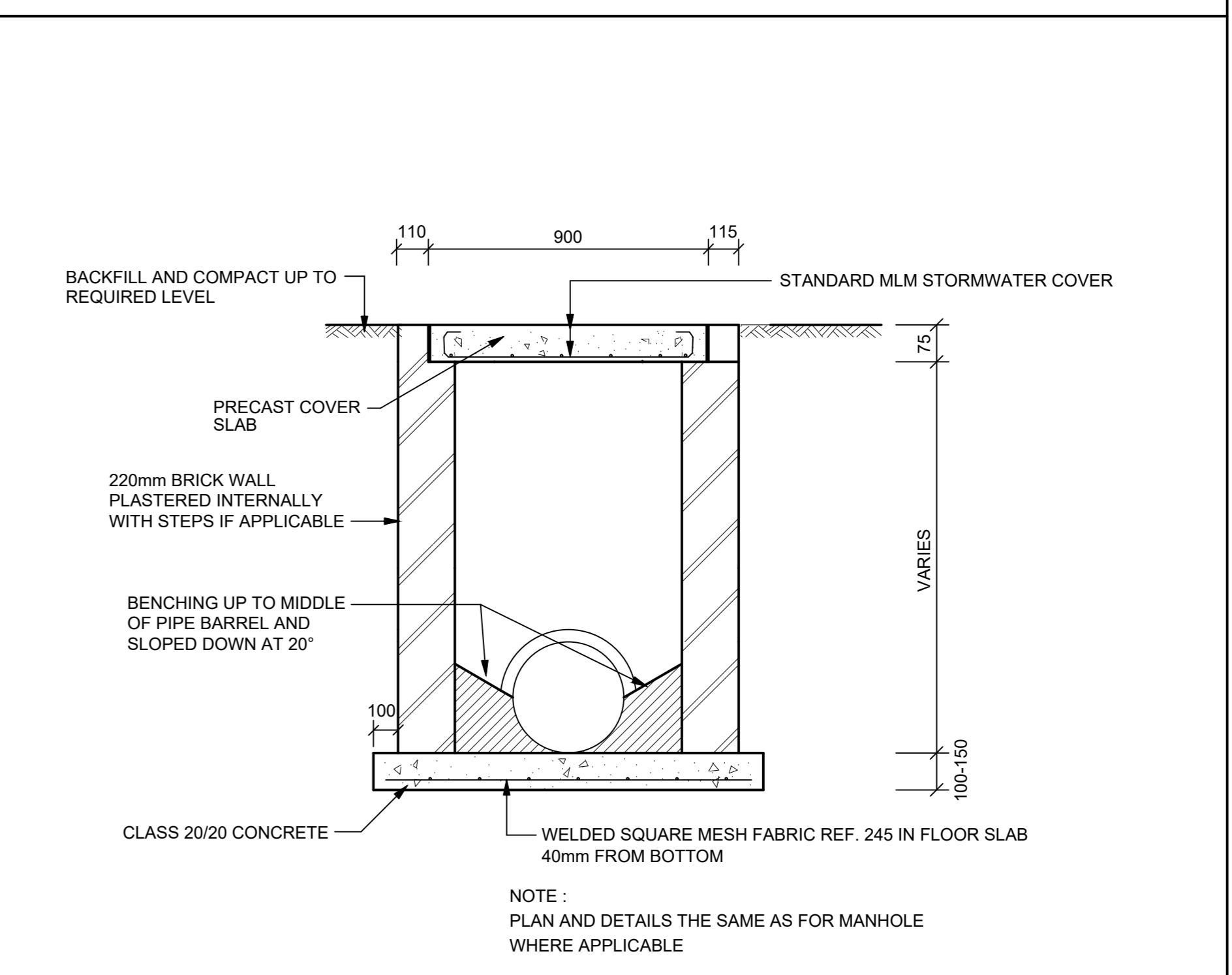
PLAN OF KERB INLET - SETTING OUT ON STRAIGHT ROAD  
SCALE 1:20



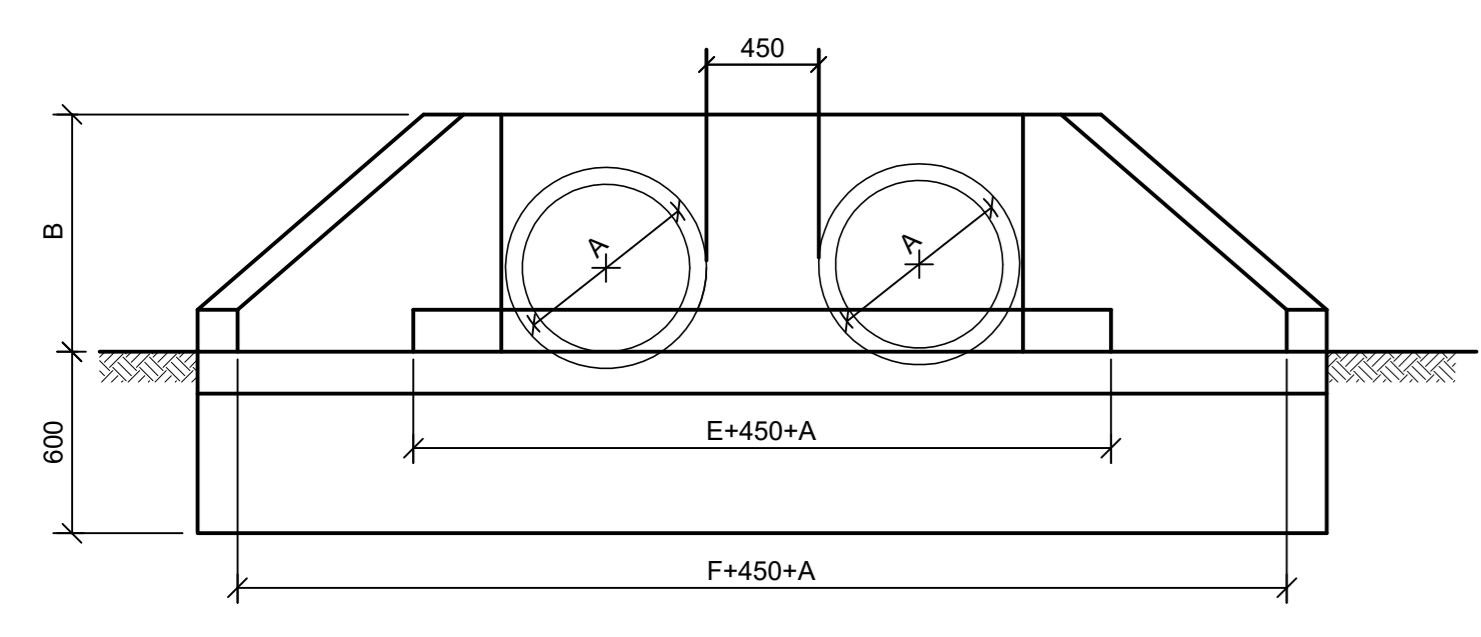
SECTION OF KERB INLET  
SCALE 1:20



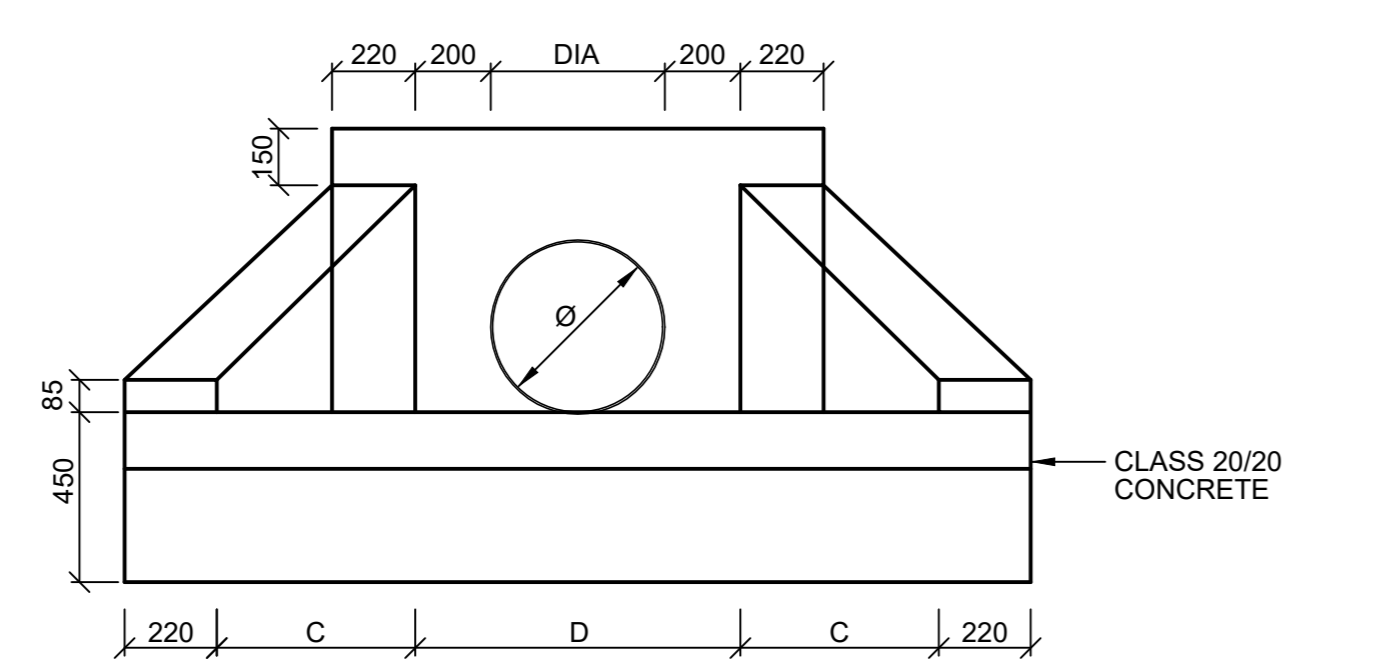
DETAIL OF SUPPORTS OF CONCRETE PANELS  
SCALE 1:10



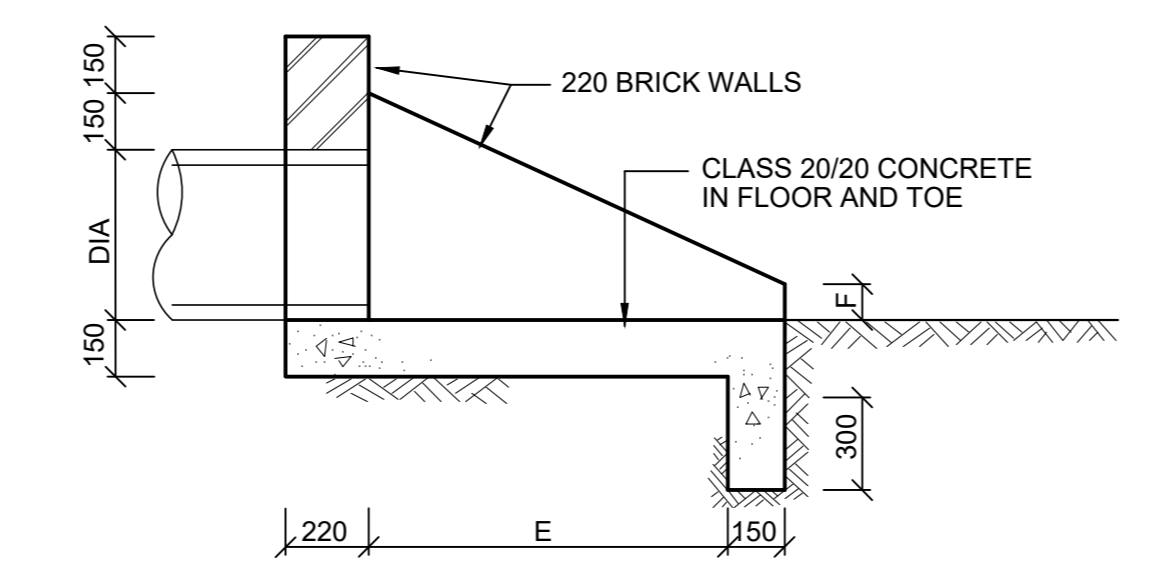
TYPICAL SECTION : JUNCTION BOX  
SCALE 1:20



FRONT ELEVATION - MULTIPLE PIPES

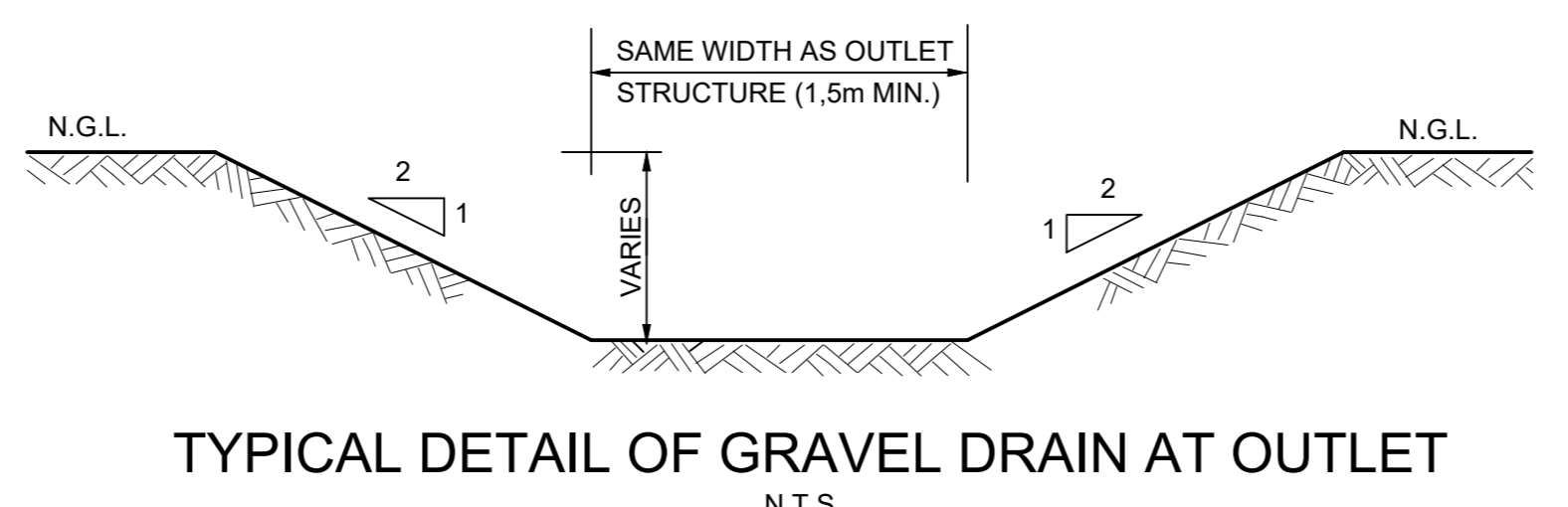


ELEVATION  
SCALE 1:20



SECTION C-C

DETAIL : IN - OR OUTLET STRUCTURE.  
SCALE 1:20

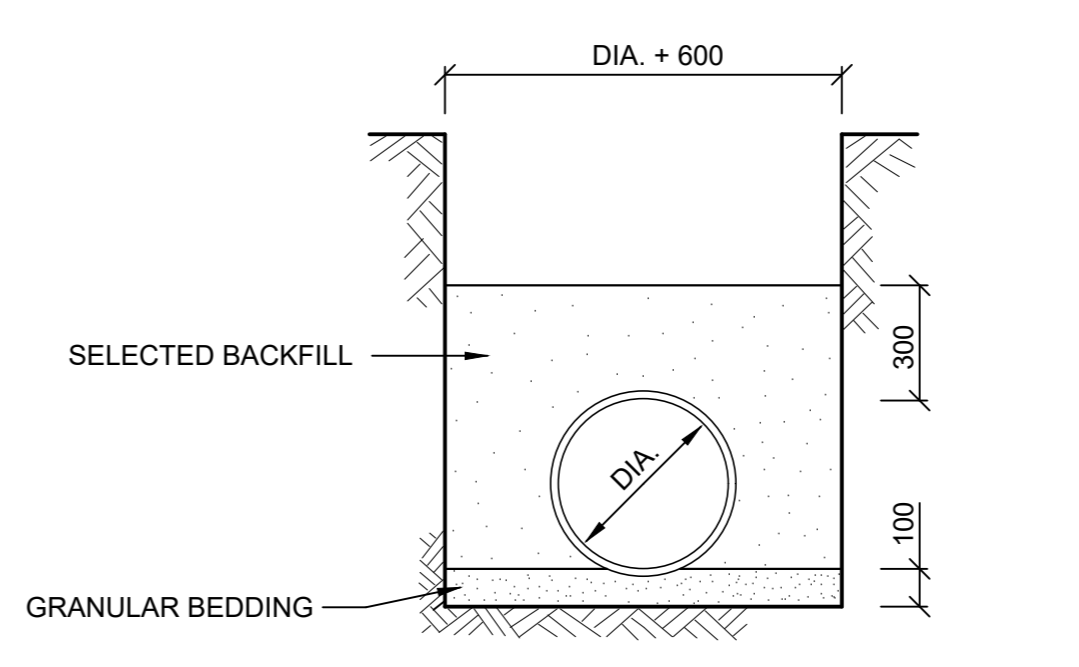


TYPICAL DETAIL OF GRAVEL DRAIN AT OUTLET  
N.T.S.

| DIMENSION FOR STRUCTURE WITH DIFFERENT DIA. PIPES (x 1 PIPE) |             |               |               |               |
|--------------------------------------------------------------|-------------|---------------|---------------|---------------|
|                                                              | ≤ 750Ø      | 900Ø          | 1050Ø         | 1200Ø         |
| A                                                            | 920mmx920mm | 1270mmx1270mm | 1500mmx1500mm | 1840mmx1840mm |
| B                                                            | 150mm       | 150mm         | 175mm         | 200mm         |
| C                                                            | 525mm       | 600mm         | 750mm         | 900mm         |
| D                                                            | 1150mm      | 1300mm        | 1450mm        | 1600mm        |
| E                                                            | 950mm       | 1200mm        | 1500mm        | 1800mm        |
| F                                                            | 170mm       | 340mm         | 510mm         | 680mm         |

| DIMENSION FOR STRUCTURE WITH DIFFERENT DIA. PIPES (x 2 PIPES) |             |               |               |               |
|---------------------------------------------------------------|-------------|---------------|---------------|---------------|
|                                                               | ≤ 750Ø      | 900Ø          | 1050Ø         | 1200Ø         |
| A                                                             | 920mmx920mm | 1270mmx1270mm | 1500mmx1500mm | 1840mmx1840mm |
| B                                                             | 150mm       | 150mm         | 175mm         | 200mm         |
| C                                                             | 525mm       | 600mm         | 750mm         | 900mm         |
| D                                                             | 2050mm      | 2200mm        | 2350mm        | 2500mm        |
| E                                                             | 950mm       | 1200mm        | 1500mm        | 1800mm        |
| F                                                             | 170mm       | 340mm         | 510mm         | 680mm         |

| DIMENSION FOR STRUCTURE WITH DIFFERENT DIA. PIPES (x 3 PIPES) |             |               |               |               |
|---------------------------------------------------------------|-------------|---------------|---------------|---------------|
|                                                               | ≤ 750Ø      | 900Ø          | 1050Ø         | 1200Ø         |
| A                                                             | 920mmx920mm | 1270mmx1270mm | 1500mmx1500mm | 1840mmx1840mm |
| B                                                             | 150mm       | 150mm         | 175mm         | 200mm         |
| C                                                             | 525mm       | 600mm         | 750mm         | 900mm         |
| D                                                             | 2950mm      | 3400mm        | 3850mm        | 4300mm        |
| E                                                             | 950mm       | 1200mm        | 1500mm        | 1800mm        |
| F                                                             | 170mm       | 340mm         | 510mm         | 680mm         |



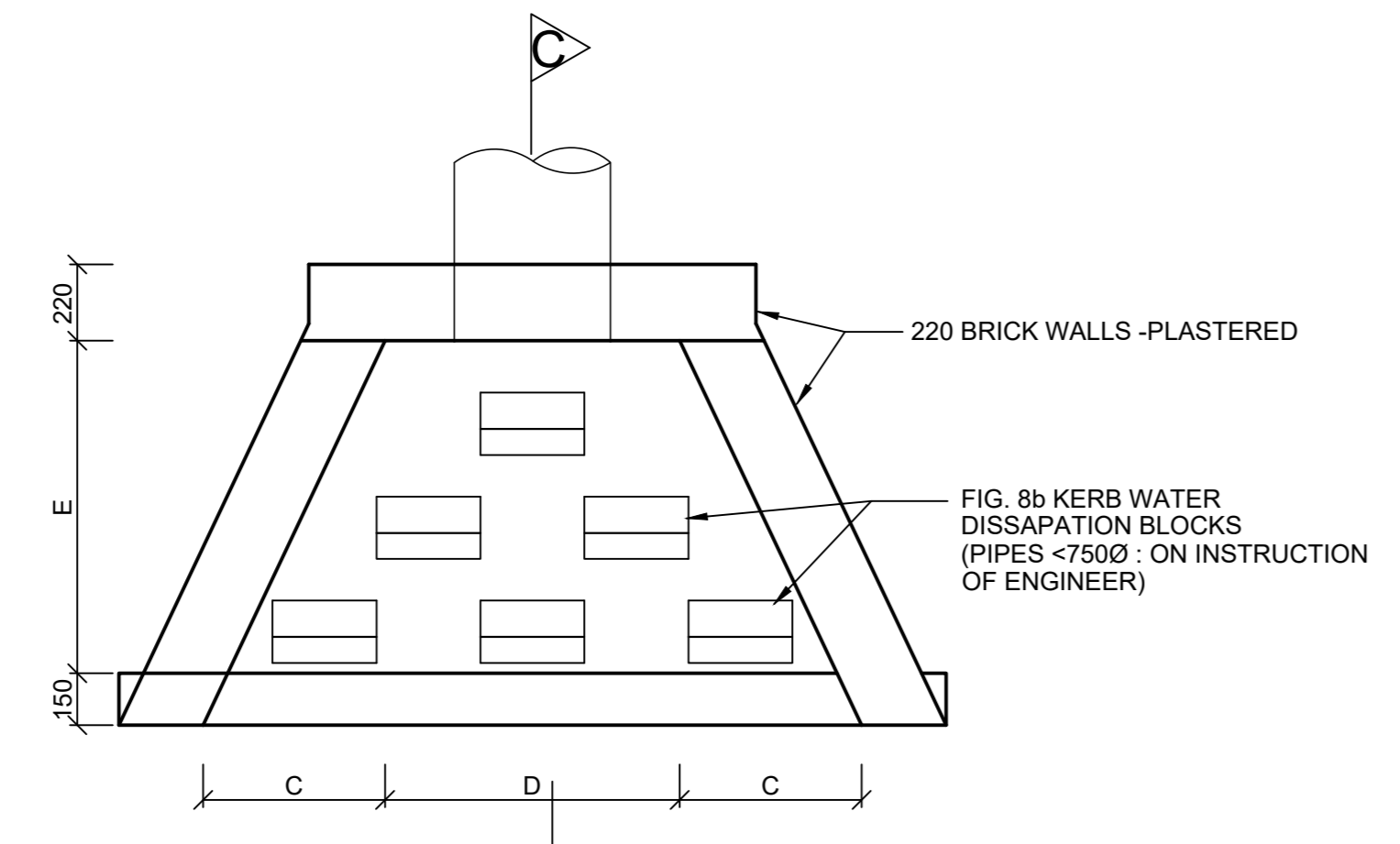
TYPICAL DETAIL : PIPE TRENCH  
N.T.S.

- NOTES:
- SPLITTER BLOCK & PITCHING TO BE PROVIDED AT ALL OUTLETS
  - SPLITTER BLOCK MAY BE OMITTED IF DISCHARGE VELOCITY IS LESS THAN 0.9m/s
  - CUT OFF WALLS MAY BE OMITTED IF STRUCTURE IS FOUND ON ROCK
  - FOR MULTIPLE PIPE CULVERTS INCREASE DIMENSIONS 'E' & 'F' BY (n-1)(A+450)mm WHERE n = NUMBER OF PIPES
  - WHERE A = NOMINAL DIAMETER OF PIPES
  - PIPES TO BE CUT FLUSH WITH HEADWALL
  - FOR SKEW PIPE CULVERTS THE HEADWALL SHALL BE PARALLEL TO THE CENTRE OF THE ROAD
  - ALL CONCRETE TO BE 20/19
  - SQUARE MESH FABRIC (REF 193) TO BE PLACED IN ALL APRON SLABS

| SETTING OUT DATA |            |     |       |       |       |       |
|------------------|------------|-----|-------|-------|-------|-------|
| NOMINAL DIAMETER | DIMENSIONS |     |       |       |       |       |
| A                | B          | C   | D     | E     | F     | G     |
| 300              | 600        | 150 | 710   | 940   | 1460  | 1 010 |
| 450              | 750        | 150 | 940   | 1 160 | 2 080 | 1 160 |
| 600              | 900        | 150 | 1 170 | 1 380 | 2 775 | 1 310 |
| 750              | 1 050      | 150 | 1 400 | 1 600 | 3 395 | 1 470 |
| 900              | 1 200      | 230 | 1 640 | 1 830 | 3 910 | 1 760 |
| 1 050            | 1 350      | 230 | 1 870 | 2 050 | 4 530 | 1 920 |
| 1 200            | 1 500      | 230 | 2 150 | 2 310 | 4 770 | 2 110 |

NOTE: THE DIMENSIONS 'F' & 'G' HAVE BEEN CALCULATED USING THE WALL THICKNESS OF A 500 PIPE

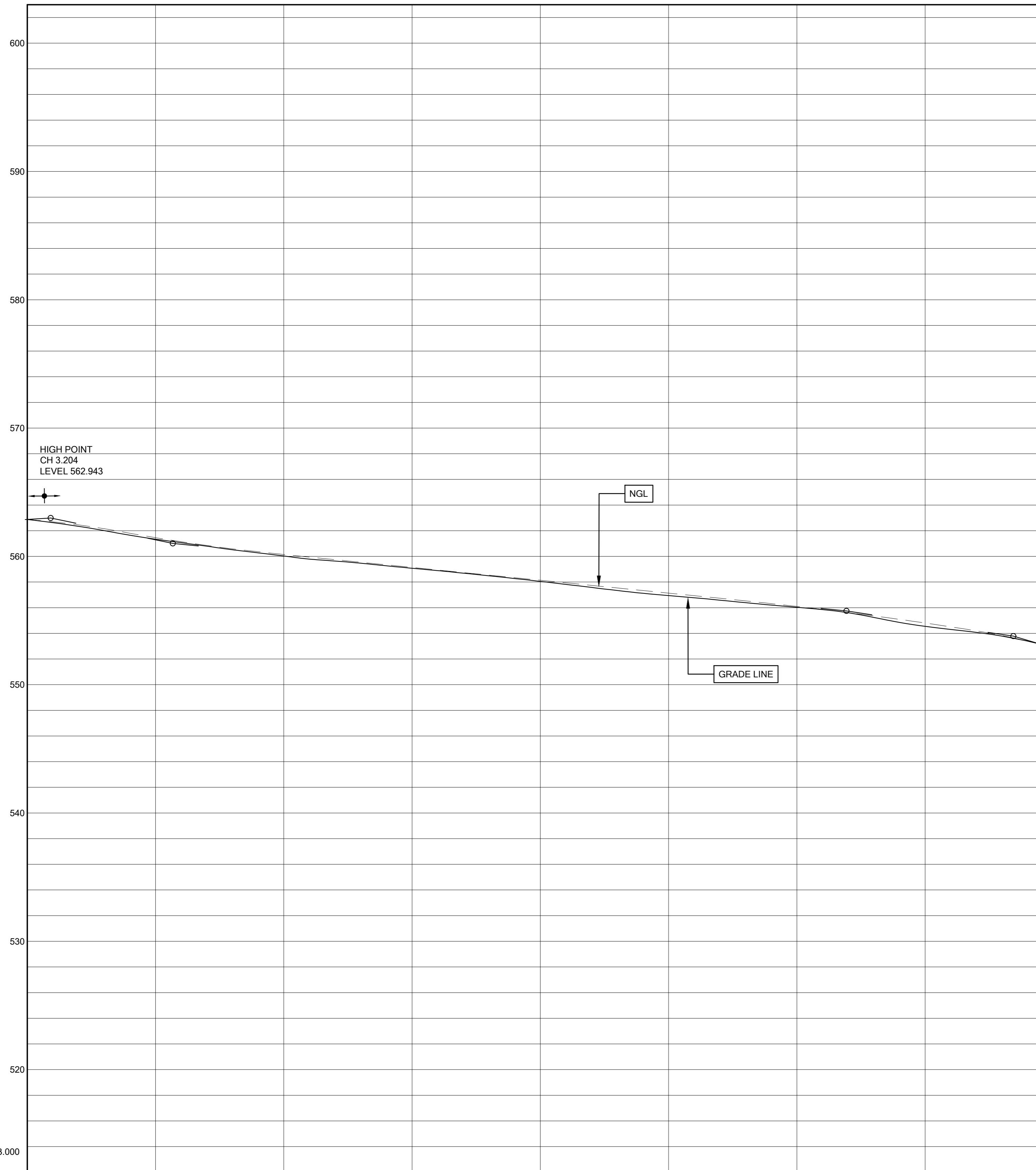
| REINFORCEMENT SCHEDULE |        |          |      |            |         |
|------------------------|--------|----------|------|------------|---------|
| ITEM                   | NUMBER | DIAMETER | CODE | CUT LENGTH | BENDING |
| A1                     | varies | Y8       | 60   | varies     | □       |
| A2                     | varies | Y12      | 20   | varies     | —       |
| A3                     | varies | Y12      | 32   | 550        | —       |



PLAN  
SCALE 1:20

INLET AND OUTLET STRUCTURE DETAILS  
SCALE: AS SHOWN

|                                                                                                                                                                                                                                  |                   |             |            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------|------------|
| A                                                                                                                                                                                                                                | ISSUED FOR TENDER | Z.X         | 01/07/2026 |
| REV.                                                                                                                                                                                                                             | DESCRIPTION       | BY.         | DATE.      |
| CLIENT                                                                                                                                                                                                                           |                   |             |            |
| <br><b>CITY OF MBOMBELA</b><br>THE ULTIMATE DESTINATION                                                                                                                                                                          |                   |             |            |
| PROJECT                                                                                                                                                                                                                          |                   |             |            |
| <b>UPGRADING OF 3.25 KM OF SIWELA ROAD IN WARD 04</b>                                                                                                                                                                            |                   |             |            |
| DRAWING TITLE                                                                                                                                                                                                                    |                   |             |            |
| <b>STORMWATER DETAILS</b>                                                                                                                                                                                                        |                   |             |            |
| <b>nme</b> NATHOO MBENYANE ENGINEERS<br>ENGINEERS & PROJECT MANAGERS<br>Office 001 Portion 3 Of 173<br>R580 Plaston Road The Ranch<br>White River<br>1240<br>Tel: 013-750 3122<br>Fax: 013-750 3155<br>e-mail: info.mp@nme.co.za |                   |             |            |
| DESIGNED                                                                                                                                                                                                                         | REF. DRG          | PROJECT NO. |            |
| R.S                                                                                                                                                                                                                              | C25001-DET-MC-002 | C25001      |            |
| CHECKED                                                                                                                                                                                                                          | SCALE             | SHEET       | REVISION   |
| D.C                                                                                                                                                                                                                              | AS SHOWN          | D02         | A          |
| DRAWN                                                                                                                                                                                                                            | DATE              |             |            |
| M.C                                                                                                                                                                                                                              | 09/09/2025        |             |            |



| Chainage | Finished Road Levels |           |                 |            |                 | Gradient | Basic Grade Line     |                   |
|----------|----------------------|-----------|-----------------|------------|-----------------|----------|----------------------|-------------------|
|          | Ground Line          | Left Edge | Base Grade Line | Right Edge | Vertical Curves |          | Superelevation       | Horizontal Curves |
| 0        | 562.88               | 562.861   | 562.879         | 562.867    | 5.75            | 0.500    | Direction 164°18'05" |                   |
| 10       | 562.52               | 562.509   | 562.540         | 562.511    | 7.07            | 0.500    | Direction 170°19'00" |                   |
| 20       | 561.58               | 561.634   | 561.750         | 561.726    | 28.384          | 0.500    | Direction 165°08'38" |                   |
| 30       | 561.08               | 561.127   | 561.190         | 561.065    | 561.010         | 0.500    |                      |                   |
| 40       | 560.51               | 560.645   | 560.645         | 560.519    | 40.000m VC      | 0.500    |                      |                   |
| 50       | 560.04               | 560.205   | 560.143         | 560.081    | 28.384          | 0.500    |                      |                   |
| 60       | 559.64               | 559.806   | 559.742         | 559.679    | 40.000m VC      | 0.500    |                      |                   |
| 70       | 559.26               | 559.404   | 559.341         | 559.279    | 28.384          | 0.500    |                      |                   |
| 80       | 558.90               | 559.002   | 558.940         | 558.879    | 40.000m VC      | 0.500    |                      |                   |
| 90       | 558.49               | 558.602   | 558.540         | 558.477    | 28.384          | 0.500    |                      |                   |
| 100      | 558.06               | 558.201   | 558.139         | 558.076    | 40.000m VC      | 0.500    |                      |                   |
| 110      | 557.58               | 557.800   | 557.738         | 557.675    | 28.384          | 0.500    |                      |                   |
| 120      | 557.09               | 557.399   | 557.337         | 557.274    | 40.000m VC      | 0.500    |                      |                   |
| 130      | 556.70               | 556.998   | 556.936         | 556.873    | 28.384          | 0.500    |                      |                   |
| 140      | 556.38               | 556.597   | 556.535         | 556.472    | 40.000m VC      | 0.500    |                      |                   |
| 150      | 556.03               | 556.189   | 556.127         | 556.064    | 28.384          | 0.500    |                      |                   |
| 160      | 555.71               | 555.891   | 555.828         | 555.766    | 40.000m VC      | 0.500    |                      |                   |
| 170      | 555.18               | 555.181   | 555.099         | 555.038    | 28.384          | 0.500    |                      |                   |
| 180      | 554.79               | 554.581   | 554.518         | 554.456    | 40.000m VC      | 0.500    |                      |                   |
| 190      | 553.89               | 553.984   | 553.892         | 553.829    | 28.384          | 0.500    |                      |                   |
| 197.446  | 553.16               | 553.227   | 553.165         | 553.102    | 192.200         | 0.500    |                      |                   |

Curve 1 Right  
Radius=145.000  
I= 6°00'55"

Curve 2 Left  
Radius=145.000  
I= 5°12'21"

- NOTES**
- ALL WORK TO COMPLY WITH COTO DS 2020 ENGINEERING SPECIFICATIONS, OR AS AMENDED.
  - ALL EXISTING LEVELS BASED ON TOPOGRAPHICAL SURVEY WGS 84 / LD 31.
  - ALL SETTING OUT DETAILS TO BE CONFIRMED BY THE ENGINEER PRIOR TO ANY CONSTRUCTION WORK.
  - ALL EXISTING SERVICES IN THE AREA OF CONSTRUCTION TO BE PROVIDED PRIOR TO COMMENCEMENT OF ANY EXCAVATION. EXISTING SERVICES TO BE ENCASED IN CONCRETE AT THE ENGINEER'S DISCRETION.
  - WORK TO FIGURED DIMENSIONS, CO-ORDINATES AND LEVELS ONLY. DO NOT SCALE OF DRAWINGS AND ANY DISCREPANCIES IN DIMENSIONS / CO-ORDINATES TO BE REPORTED TO THE ENGINEER.
  - ALL CUT BANKS TO BE 1:5 MIN.
  - ALL FILL BANKS TO BE 1:5 MIN.
  - VERGE SHAPING AS DIRECTED BY ENGINEER.
  - ALL SLOPE EMBANKMENTS TO BE TOPSOILED AND GRASSED.
  - POSITION OF KERBS, DRAINS TO BE CONFIRMED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION WORK THEREOF.
  - CARE IS TO BE TAKEN WHEN WORKING IN THE VICINITY OF EXISTING BUILDINGS.
  - JOINTS TO THE INTO EXISTING ASPHALT SURFACING TO BE SAW CUT, TIE INTO EXISTING SET LEVELS.
  - ALL CURVE RADII TO ACCESSORIES TO BE 6m UNLESS OTHERWISE SHOWN.
  - ALL STORMWATER PIPES TO BE CLASS 1000 UNLESS OTHERWISE SHOWN.
  - ALL BELLMOUTH ACCESSORIES TO HAVE ROLL OVER KERBS, E- MOUNTABLE KERBS.
  - ALL TIE-INS TO EXISTING DRIVEWAYS ARE TO BE AGREED ON SITE.
  - ALL GRAVEL TIE-INS TO EXISTING ROAD TO BE AT A MINIMUM 1:1.5 TAPER.
  - ALL EXISTING SERVICES TO BE PROVIDED PRIOR TO BULK EARTHWORKS OPERATIONS.

**LEGEND**

|     |            |
|-----|------------|
| --- | NGL        |
| --- | ROAD       |
| ◆   | HIGH POINT |
| ◆   | LOW POINT  |

| REV. | DESCRIPTION       | BY. | DATE.      |
|------|-------------------|-----|------------|
| A    | ISSUED FOR TENDER | M.M | 01/07/2026 |

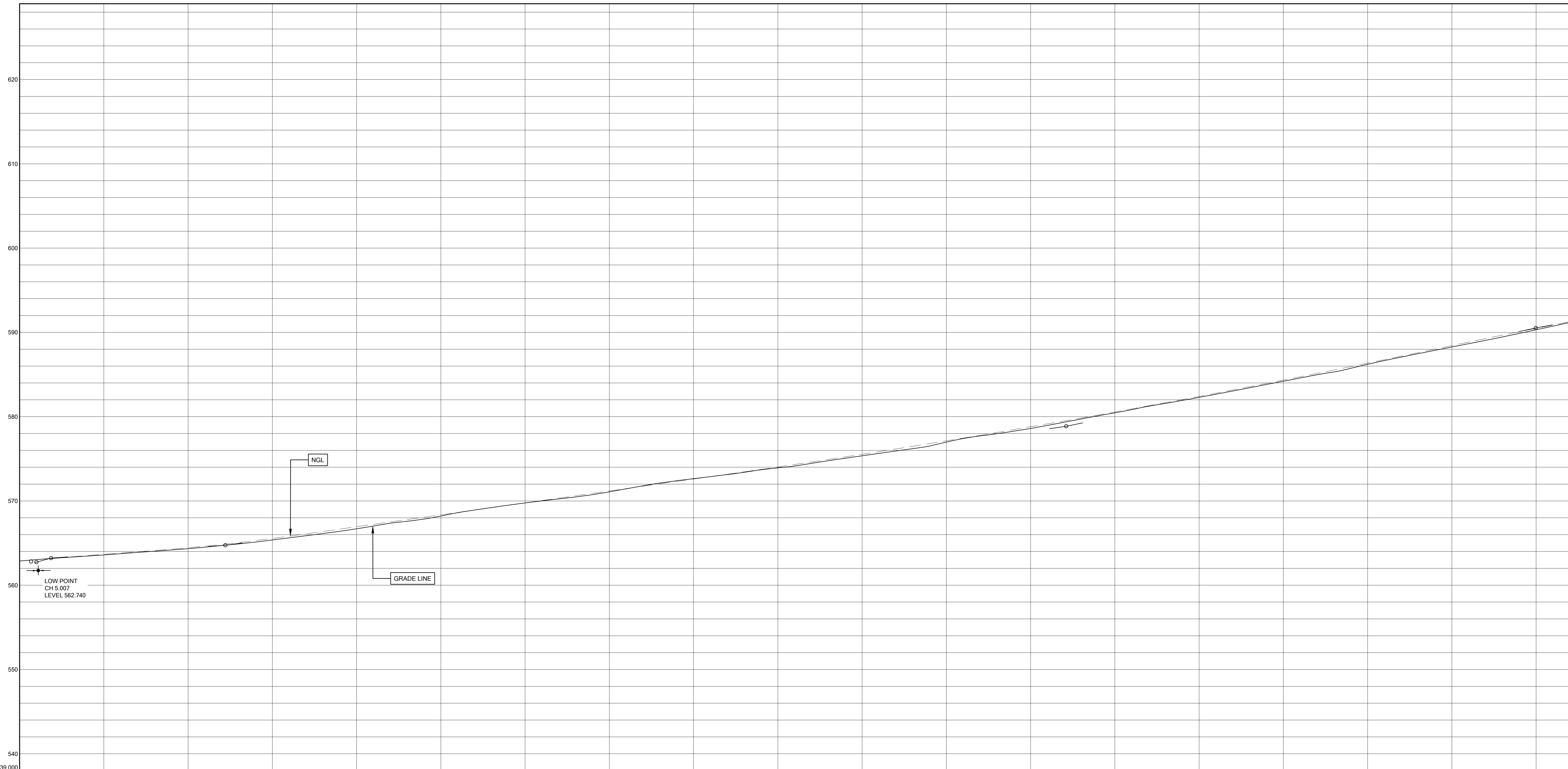
**CITY OF MBOMBELA**  
THE ULTIMATE DESTINATION

**PROJECT**  
UPGRADING OF 3.25 KM OF SIWELA ROAD IN WARD 04

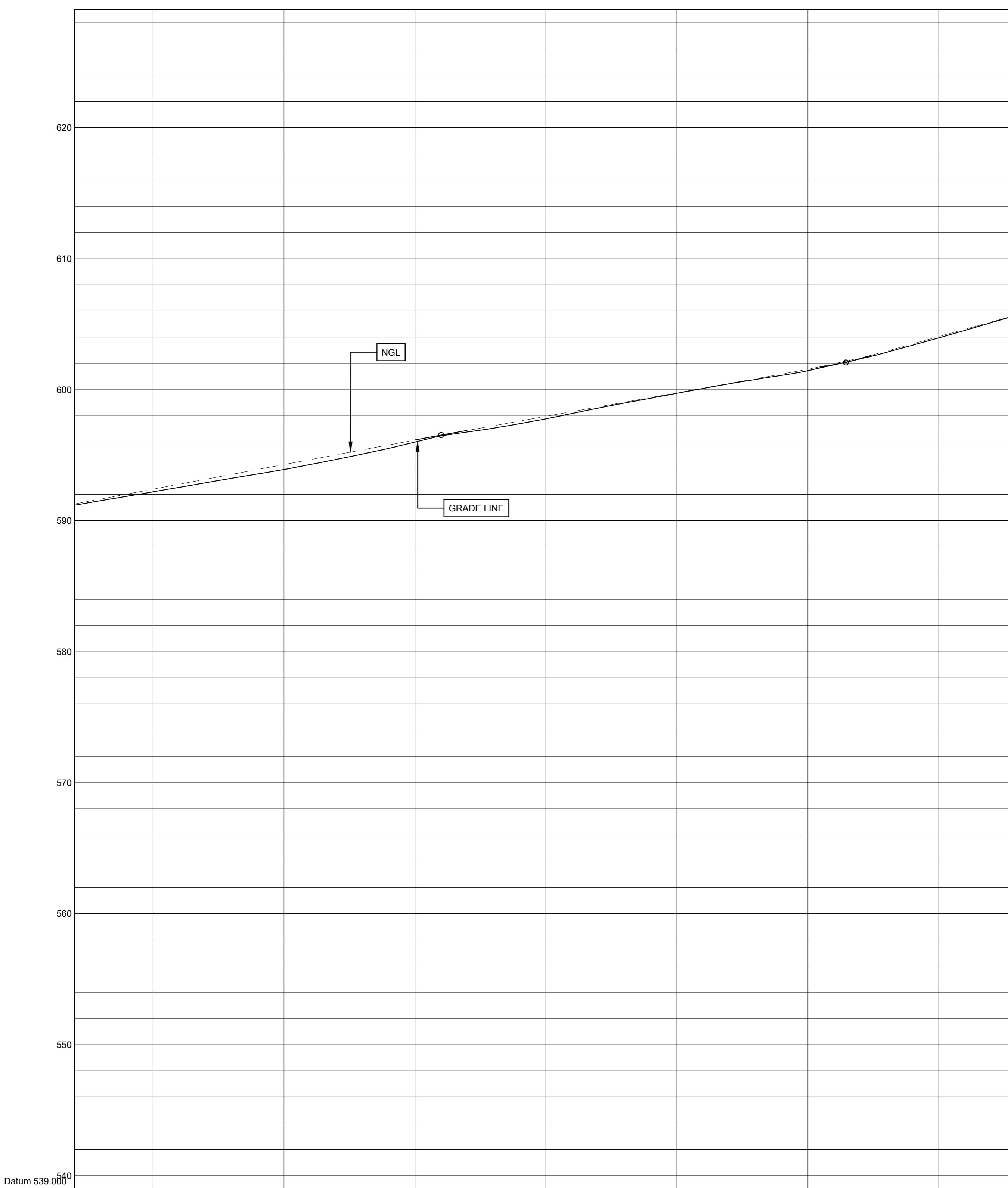
**DRAWING TITLE**  
LONGITUDINAL SECTIONS ROAD 1 (SHEET 1 OF 1)

**nme NATHOO MBENYANE ENGINEERS**  
ENGINEERS & PROJECT MANAGERS  
Office 001 Portion 3 Of 173  
R580 Plaston Road The Ranch  
White River  
1240  
Tel : 013-750 3122  
Fax : 013-750 3155  
e-mail : info.mp@nme.co.za

| DESIGNED | REF. DRG          | PROJECT No. |
|----------|-------------------|-------------|
| R.S      | C25001-LS-MML-S01 | C25001      |
| CHECKED  | SCALE             | HOR. VERT.  |
| M.P      | 500<br>200        |             |
| DRAWN    | DATE              | SHEET       |
| M.M      | 02/04/2026        | LS01        |
| REVISION | SHEET             | REVISION    |
|          | A                 |             |



| Chainage | Finished Road Levels |           |                 |            |            | Gradient | Vertical Curves |        | Superelevation       | Horizontal Curves |
|----------|----------------------|-----------|-----------------|------------|------------|----------|-----------------|--------|----------------------|-------------------|
|          | Ground Line          | Left Edge | Base Grade Line | Right Edge | Right Edge |          | Curve Type      | Radius |                      |                   |
| 0        | 562.88               | 562.80    | 562.876         | 562.953    | 562.953    | -1.083%  | 7000m VC        | 2.500  | Direction 345°00'32" |                   |
| 10       | 563.21               | 563.11    | 563.186         | 563.201    | 563.201    | -4.439%  | 7000m VC        | 2.500  | Direction 347°23'16" |                   |
| 20       | 563.44               | 563.452   | 563.527         | 563.602    | 563.602    | 2.948%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 30       | 563.74               | 563.747   | 563.822         | 563.897    | 563.897    | 2.948%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 40       | 564.04               | 564.042   | 564.117         | 564.192    | 564.192    | 10.901%  | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 50       | 564.31               | 564.304   | 564.439         | 564.514    | 564.514    | 61.073%  | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 60       | 564.71               | 564.703   | 564.828         | 564.903    | 564.903    | 14.759%  | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 70       | 565.10               | 565.10    | 565.235         | 565.310    | 565.310    | 61.073%  | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 80       | 565.63               | 565.63    | 565.774         | 565.849    | 565.849    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 90       | 566.12               | 566.12    | 566.300         | 566.375    | 566.375    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 100      | 566.67               | 566.67    | 566.896         | 567.016    | 567.016    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 110      | 567.37               | 567.37    | 567.696         | 567.816    | 567.816    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 120      | 568.00               | 568.00    | 568.375         | 568.495    | 568.495    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 130      | 568.63               | 568.63    | 569.053         | 569.173    | 569.173    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 140      | 569.26               | 569.26    | 569.773         | 569.893    | 569.893    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 150      | 569.89               | 569.89    | 570.404         | 570.524    | 570.524    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 160      | 570.52               | 570.52    | 571.015         | 571.135    | 571.135    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 170      | 571.15               | 571.15    | 571.626         | 571.746    | 571.746    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 180      | 571.78               | 571.78    | 572.237         | 572.357    | 572.357    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 190      | 572.41               | 572.41    | 572.908         | 573.028    | 573.028    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 200      | 573.04               | 573.04    | 573.539         | 573.659    | 573.659    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 210      | 573.67               | 573.67    | 574.150         | 574.270    | 574.270    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 220      | 574.30               | 574.30    | 574.641         | 574.761    | 574.761    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 230      | 574.93               | 574.93    | 575.252         | 575.372    | 575.372    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 240      | 575.56               | 575.56    | 575.763         | 575.883    | 575.883    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 250      | 576.19               | 576.19    | 576.494         | 576.614    | 576.614    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 260      | 576.82               | 576.82    | 577.105         | 577.225    | 577.225    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 270      | 577.45               | 577.45    | 577.606         | 577.726    | 577.726    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 280      | 578.08               | 578.08    | 578.237         | 578.357    | 578.357    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 290      | 578.71               | 578.71    | 578.868         | 578.988    | 578.988    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 300      | 579.34               | 579.34    | 579.495         | 579.615    | 579.615    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 310      | 579.97               | 579.97    | 580.126         | 580.246    | 580.246    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 320      | 580.60               | 580.60    | 580.677         | 580.797    | 580.797    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 330      | 581.23               | 581.23    | 581.304         | 581.424    | 581.424    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 340      | 581.86               | 581.86    | 581.937         | 582.057    | 582.057    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 350      | 582.49               | 582.49    | 582.570         | 582.690    | 582.690    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 360      | 583.12               | 583.12    | 583.203         | 583.323    | 583.323    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 370      | 583.75               | 583.75    | 583.836         | 583.956    | 583.956    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 380      | 584.38               | 584.38    | 584.469         | 584.589    | 584.589    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 390      | 585.01               | 585.01    | 585.102         | 585.222    | 585.222    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 400      | 585.64               | 585.64    | 585.735         | 585.855    | 585.855    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 410      | 586.27               | 586.27    | 586.368         | 586.488    | 586.488    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 420      | 586.90               | 586.90    | 586.991         | 587.111    | 587.111    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 430      | 587.53               | 587.53    | 587.624         | 587.744    | 587.744    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 440      | 588.16               | 588.16    | 588.257         | 588.377    | 588.377    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 450      | 588.79               | 588.79    | 588.880         | 589.000    | 589.000    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 460      | 589.42               | 589.42    | 589.513         | 589.633    | 589.633    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 470      | 590.05               | 590.05    | 590.146         | 590.266    | 590.266    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 480      | 590.68               | 590.68    | 590.779         | 590.899    | 590.899    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 490      | 591.31               | 591.31    | 591.402         | 591.522    | 591.522    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 500      | 591.94               | 591.94    | 592.035         | 592.155    | 592.155    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 510      | 592.57               | 592.57    | 592.668         | 592.788    | 592.788    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 520      | 593.20               | 593.20    | 593.291         | 593.411    | 593.411    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 530      | 593.83               | 593.83    | 593.922         | 594.042    | 594.042    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 540      | 594.46               | 594.46    | 594.557         | 594.677    | 594.677    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 550      | 595.09               | 595.09    | 595.190         | 595.310    | 595.310    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 560      | 595.72               | 595.72    | 595.813         | 595.933    | 595.933    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 570      | 596.35               | 596.35    | 596.446         | 596.566    | 596.566    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 580      | 596.98               | 596.98    | 597.079         | 597.199    | 597.199    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 590      | 597.61               | 597.61    | 597.702         | 597.822    | 597.822    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 600      | 598.24               | 598.24    | 598.335         | 598.455    | 598.455    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 610      | 598.87               | 598.87    | 598.968         | 599.088    | 599.088    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 620      | 599.50               | 599.50    | 599.591         | 599.711    | 599.711    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 630      | 600.13               | 600.13    | 600.224         | 600.344    | 600.344    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 640      | 600.76               | 600.76    | 600.857         | 600.977    | 600.977    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 650      | 601.39               | 601.39    | 601.480         | 601.600    | 601.600    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 660      | 602.02               | 602.02    | 602.113         | 602.233    | 602.233    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 670      | 602.65               | 602.65    | 602.746         | 602.866    | 602.866    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 680      | 603.28               | 603.28    | 603.379         | 603.499    | 603.499    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 690      | 603.91               | 603.91    | 604.002         | 604.122    | 604.122    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 700      | 604.54               | 604.54    | 604.635         | 604.755    | 604.755    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 710      | 605.17               | 605.17    | 605.268         | 605.388    | 605.388    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 720      | 605.80               | 605.80    | 605.899         | 606.019    | 606.019    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 730      | 606.43               | 606.43    | 606.534         | 606.654    | 606.654    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 740      | 607.06               | 607.06    | 607.167         | 607.287    | 607.287    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 750      | 607.69               | 607.69    | 607.790         | 607.910    | 607.910    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 760      | 608.32               | 608.32    | 608.423         | 608.543    | 608.543    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 770      | 608.95               | 608.95    | 609.056         | 609.176    | 609.176    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 780      | 609.58               | 609.58    | 609.689         | 609.809    | 609.809    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 790      | 610.21               | 610.21    | 610.312         | 610.432    | 610.432    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 800      | 610.84               | 610.84    | 610.945         | 611.065    | 611.065    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 810      | 611.47               | 611.47    | 611.578         | 611.698    | 611.698    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 820      | 612.10               | 612.10    | 612.211         | 612.331    | 612.331    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 830      | 612.73               | 612.73    | 612.834         | 612.954    | 612.954    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 840      | 613.36               | 613.36    | 613.467         | 613.587    | 613.587    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 850      | 613.99               | 613.99    | 614.100         | 614.220    | 614.220    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 860      | 614.62               | 614.62    | 614.721         | 614.841    | 614.841    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 870      | 615.25               | 615.25    | 615.356         | 615.476    | 615.476    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 880      | 615.88               | 615.88    | 615.989         | 616.109    | 616.109    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 890      | 616.51               | 616.51    | 616.612         | 616.732    | 616.732    | 5.658%   | 40.000m VC      | 2.500  | Direction 347°23'16" |                   |
| 900      | 617.14               | 617.14    | 617.245         | 617.365    | 617.365    | 5.658%   | 40.000m VC      | 2.500  | Direction 345°30'50" |                   |
| 910      | 617.77               | 617.77    |                 |            |            |          |                 |        |                      |                   |



| Chainage | Finished Road Levels |           |                 |            |                 | Gradient | Basic Grade Line                                                                                         |                         |  |
|----------|----------------------|-----------|-----------------|------------|-----------------|----------|----------------------------------------------------------------------------------------------------------|-------------------------|--|
|          | Ground Line          | Left Edge | Base Grade Line | Right Edge | Vertical Curves |          | Superelevation                                                                                           | Horizontal Curves       |  |
| 460      | 591.17               | 591.19    | 591.26          | 591.34     | 591.40          | 7.508 %  | 40.000m VC<br>K = 40.410<br>8.4%<br>40.000m VC<br>K = 117.112<br>8.4%<br>15.000m VC<br>K = 3.742<br>8.4% | Direction<br>347°24'23" |  |
| 470      | 591.86               | 591.95    | 592.02          | 592.10     | 592.18          |          |                                                                                                          |                         |  |
| 480      | 592.54               | 592.72    | 592.77          | 592.85     | 592.93          | 7.168 %  | 2.500<br>-2.500                                                                                          | Direction<br>340°09'48" |  |
| 490      | 593.24               | 593.45    | 593.50          | 593.63     | 593.76          |          |                                                                                                          |                         |  |
| 500      | 593.87               | 594.20    | 594.27          | 594.34     | 594.41          | 11.175 % | Direction<br>350°53'08"                                                                                  |                         |  |
| 510      | 594.68               | 594.95    | 595.02          | 595.10     | 595.18          |          |                                                                                                          |                         |  |
| 520      | 595.48               | 595.70    | 595.76          | 595.85     | 595.93          |          |                                                                                                          |                         |  |
| 530      | 596.48               | 596.43    | 596.51          | 596.59     | 596.67          |          |                                                                                                          |                         |  |
| 540      | 597.05               | 597.19    | 597.24          | 597.31     | 597.37          |          |                                                                                                          |                         |  |
| 550      | 597.74               | 597.88    | 597.86          | 598.03     | 598.09          |          |                                                                                                          |                         |  |
| 560      | 598.62               | 598.60    | 598.61          | 598.76     | 598.79          |          |                                                                                                          |                         |  |
| 570      | 599.33               | 599.32    | 599.37          | 599.47     | 599.52          |          |                                                                                                          |                         |  |
| 580      | 600.11               | 600.03    | 600.11          | 600.19     | 600.26          |          |                                                                                                          |                         |  |
| 590      | 600.79               | 600.79    | 600.81          | 600.85     | 600.88          |          |                                                                                                          |                         |  |
| 600      | 601.44               | 601.47    | 601.54          | 601.62     | 601.67          |          |                                                                                                          |                         |  |
| 610      | 602.34               | 602.30    | 602.40          | 602.47     | 602.53          |          |                                                                                                          |                         |  |
| 620      | 603.39               | 603.41    | 603.49          | 603.56     | 603.60          |          |                                                                                                          |                         |  |
| 630      | 604.51               | 604.54    | 604.69          | 604.84     | 604.88          |          |                                                                                                          |                         |  |
| 638.753  | 605.96               | 605.52    | 605.97          | 606.62     | 606.62          |          |                                                                                                          |                         |  |

Curve 7 Left  
Radius=350.000  
I= 1°14'36"

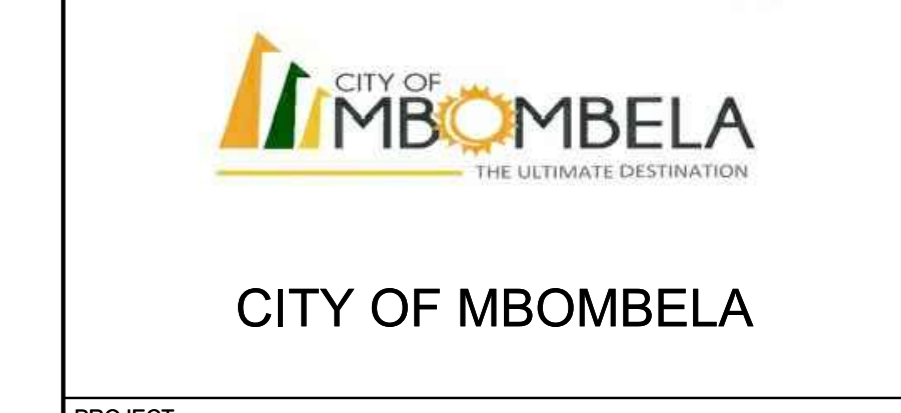
Curve 8 Right  
Radius=165.000  
I= 6°06'53"

- NOTES**
1. ALL WORK TO COMPLY WITH COTO DS 2020 ENGINEERING SPECIFICATIONS, OR AS AMENDED.
  2. ALL EXISTING LEVELS BASED ON TOPOGRAPHICAL SURVEY WGS 84 / LO 31
  3. ALL SETTING OUT DETAILS TO BE CONFIRMED BY THE ENGINEER PRIOR TO ANY CONSTRUCTION WORK.
  4. ALL EXISTING SERVICES IN THE AREA OF CONSTRUCTION TO BE PROVED PRIOR TO COMMENCEMENT OF ANY EXCAVATION. EXISTING SERVICES TO BE ENCASED IN CONCRETE AT THE ENGINEER'S DISCRETION.
  5. WORK TO FIGURED DIMENSIONS, CO-ORDINATES AND LEVELS ONLY. DO NOT SCALE OF DRAWINGS AND ANY DISCREPANCIES IN DIMENSIONS / CO-ORDINATES TO BE REPORTED TO THE ENGINEER.
  6. ALL CUT BANKS TO BE 1:5 MIN. ALL FILL BANKS TO BE 1:5 MIN. VERGE SHAPING AS DIRECTED BY ENGINEER.
  7. ALL SLOPE EMBANKMENTS TO BE TOPSOILED AND GRASSED.
  8. POSITION OF KERBS, DRAINS TO BE CONFIRMED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION WORK THEREOF.
  9. CARE IS TO BE TAKEN WHEN WORKING IN THE VICINITY OF EXISTING BUILDINGS.
  10. JOINTS TO TIE INTO EXISTING ASPHALT SURFACING TO BE SAW CUT, TIE INTO EXISTING SET LEVELS.
  11. ALL CURVE RADII TO ACCESSSES TO BE 6m UNLESS OTHERWISE SHOWN.
  12. ALL STORMWATER PIPES TO BE CLASS 1000 UNLESS OTHERWISE SHOWN.
  13. ALL BELLMOUTH ACCESSSES TO HAVE ROLL OVER KERBS, IE - MOUNTABLE KERBS.
  14. ALL TIE-INS TO EXISTING DRIVEWAYS ARE TO BE AGREED ON SITE.
  15. ALL GRAVEL TIE-INS TO EXISTING ROAD TO BE AT A MINIMUM 1:15 TAPER.
  16. ALL EXISTING SERVICES TO BE PROVED PRIOR TO BULK EARTHWORKS OPERATIONS.

**LEGEND**

|     |            |
|-----|------------|
| --- | NGL        |
| --- | ROAD       |
| ◆   | HIGH POINT |
| ◆   | LOW POINT  |

|      |                   |     |            |
|------|-------------------|-----|------------|
| A    | ISSUED FOR TENDER | M.M | 01/07/2026 |
| REV. | DESCRIPTION.      | BY. | DATE.      |



**PROJECT**

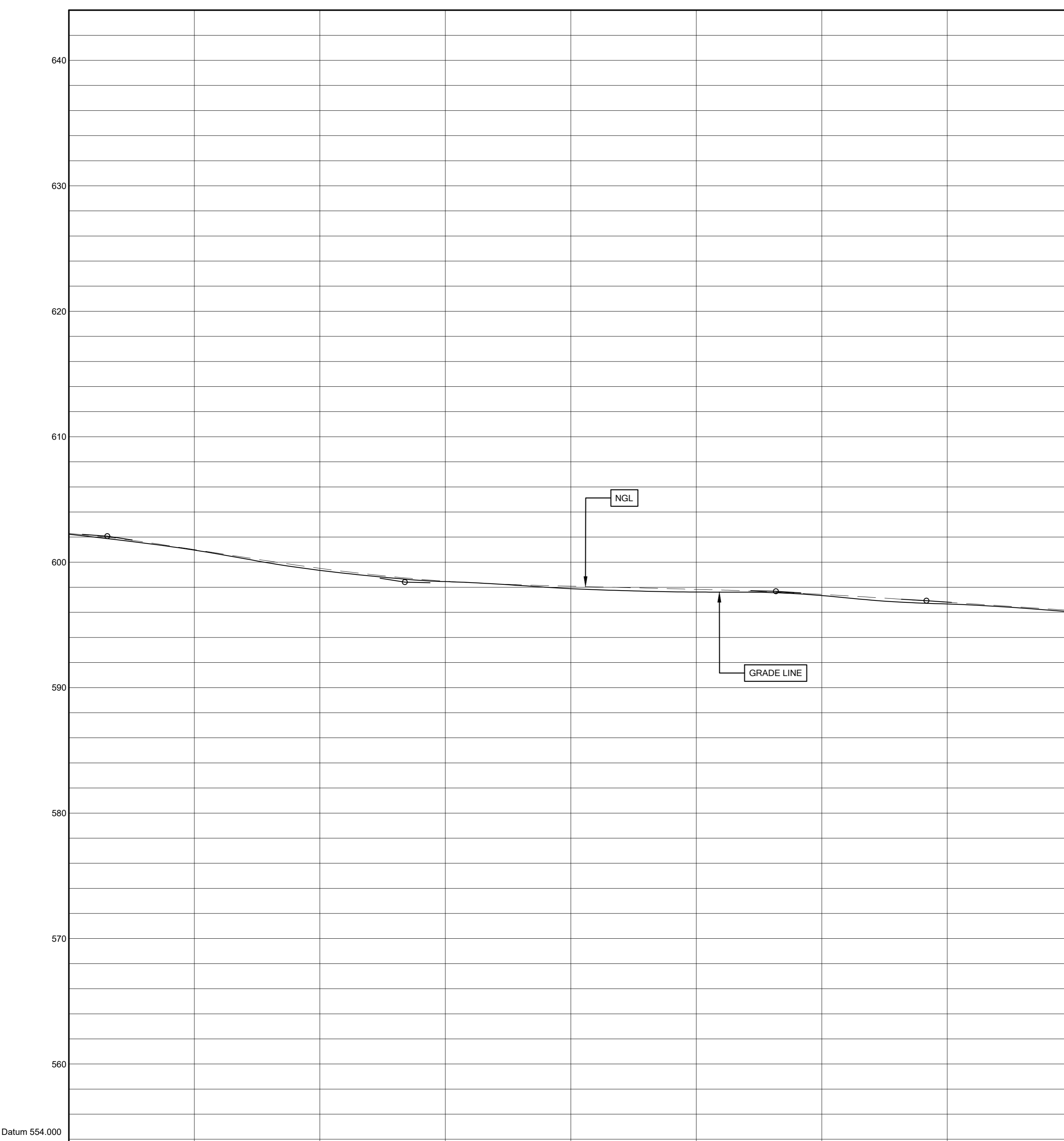
UPGRADING OF 3.25 KM OF SIWELA ROAD IN WARD 04

**DRAWING TITLE**

LONGITUDINAL SECTIONS ROAD 2 (SHEET 2 OF 2)

**nme** NATHOO MBENYANE ENGINEERS  
ENGINEERS & PROJECT MANAGERS  
Office 001 Portion 3 Of 173  
R580 Piaston Road The Ranch  
White River  
1240  
Tel : 013-750 3122  
Fax : 013-750 3155  
e-mail : info.mp@nme.co.za

|          |     |          |                       |             |        |
|----------|-----|----------|-----------------------|-------------|--------|
| DESIGNED | R.S | REF. BRO | C25001+LS-MM+LS03     | PROJECT NO. | C25001 |
| CHECKED  | M.P | SCALE    | HOR: 500<br>VERT: 200 | SHEET       | LS03   |
| DRAWN    | M.M | DATE     | 02/04/2026            | REVISION    | A      |



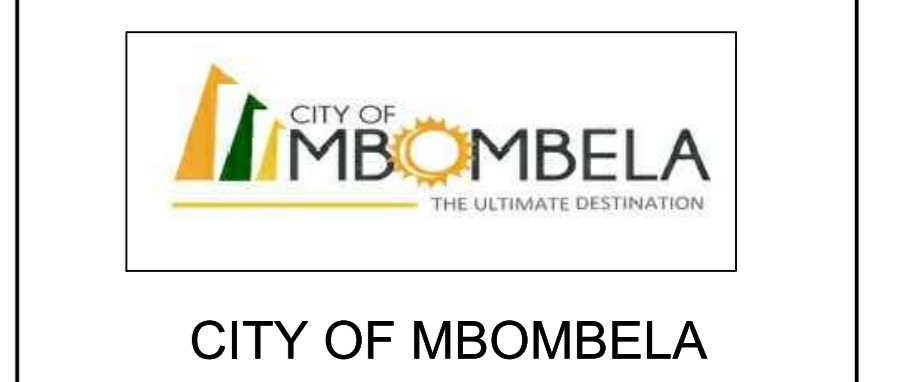
| Chainage | Finished Road Levels |                 |            |                   | Gradient                  | Vertical Curves | Superelevation       | Horizontal Curves |
|----------|----------------------|-----------------|------------|-------------------|---------------------------|-----------------|----------------------|-------------------|
|          | Left Edge            | Base Grade Line | Right Edge | Gradient          |                           |                 |                      |                   |
| 0        | 602.271              | 602.207         | 602.010    | 7.65%             | 500m VC<br>K = 1.534      | -1.5%           | Direction 256°30'28" |                   |
| 10       | 601.696              | 601.930         | 601.178    | -8.18%            |                           |                 |                      |                   |
| 20       | 601.121              | 601.312         | 601.121    | -6.540% / -6.411% | 50.000m VC<br>K = 9.631   | 4.1%            | Direction 257°01'51" |                   |
| 30       | 600.546              | 600.604         | 600.546    |                   |                           |                 |                      |                   |
| 40       | 600.071              | 600.070         | 600.071    | -2.517%           | 30.000m VC<br>K = 19.637  | 2.500%          | Direction 252°03'30" |                   |
| 50       | 599.492              | 599.429         | 599.33     |                   |                           |                 |                      |                   |
| 60       | 598.917              | 598.917         | 598.90     | -2.689%           | 30.000m VC<br>K = 174.222 | 2.500%          |                      |                   |
| 70       | 598.342              | 598.341         | 598.342    |                   |                           |                 |                      |                   |
| 80       | 597.767              | 597.767         | 597.767    |                   |                           |                 |                      |                   |
| 90       | 597.192              | 597.192         | 597.192    |                   |                           |                 |                      |                   |
| 100      | 596.617              | 596.617         | 596.617    |                   |                           |                 |                      |                   |
| 110      | 596.042              | 596.042         | 596.042    |                   |                           |                 |                      |                   |
| 120      | 595.467              | 595.467         | 595.467    |                   |                           |                 |                      |                   |
| 130      | 594.892              | 594.892         | 594.892    |                   |                           |                 |                      |                   |
| 140      | 594.317              | 594.317         | 594.317    |                   |                           |                 |                      |                   |
| 150      | 593.742              | 593.742         | 593.742    |                   |                           |                 |                      |                   |
| 160      | 593.167              | 593.167         | 593.167    |                   |                           |                 |                      |                   |
| 170      | 592.592              | 592.592         | 592.592    |                   |                           |                 |                      |                   |
| 180      | 592.017              | 592.017         | 592.017    |                   |                           |                 |                      |                   |
| 190      | 591.442              | 591.442         | 591.442    |                   |                           |                 |                      |                   |
| 158.971  | 590.867              | 590.867         | 590.867    |                   |                           |                 |                      |                   |

- NOTES**
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  12. ALL CURVE RADII TO ACCESS TO BE 6m UNLESS OTHERWISE
  13. ALL STORMWATER PIPES TO BE CLASS 1000 UNLESS OTHERWISE SHOWN
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  16. ALL GRAVEL TIE-INS TO EXISTING ROAD TO BE AT A MINIMUM 1:15 TAPER
  17. ALL EXISTING SERVICES TO BE PROVED PRIOR TO BULK EARTHWORKS OPERATIONS

**LEGEND**

|     |            |
|-----|------------|
| --- | NGL        |
| --- | ROAD       |
| ◆   | HIGH POINT |
| ◆   | LOW POINT  |

|      |                   |     |            |
|------|-------------------|-----|------------|
| A    | ISSUED FOR TENDER | M.M | 01/07/2026 |
| REV. | DESCRIPTION       | BY. | DATE.      |



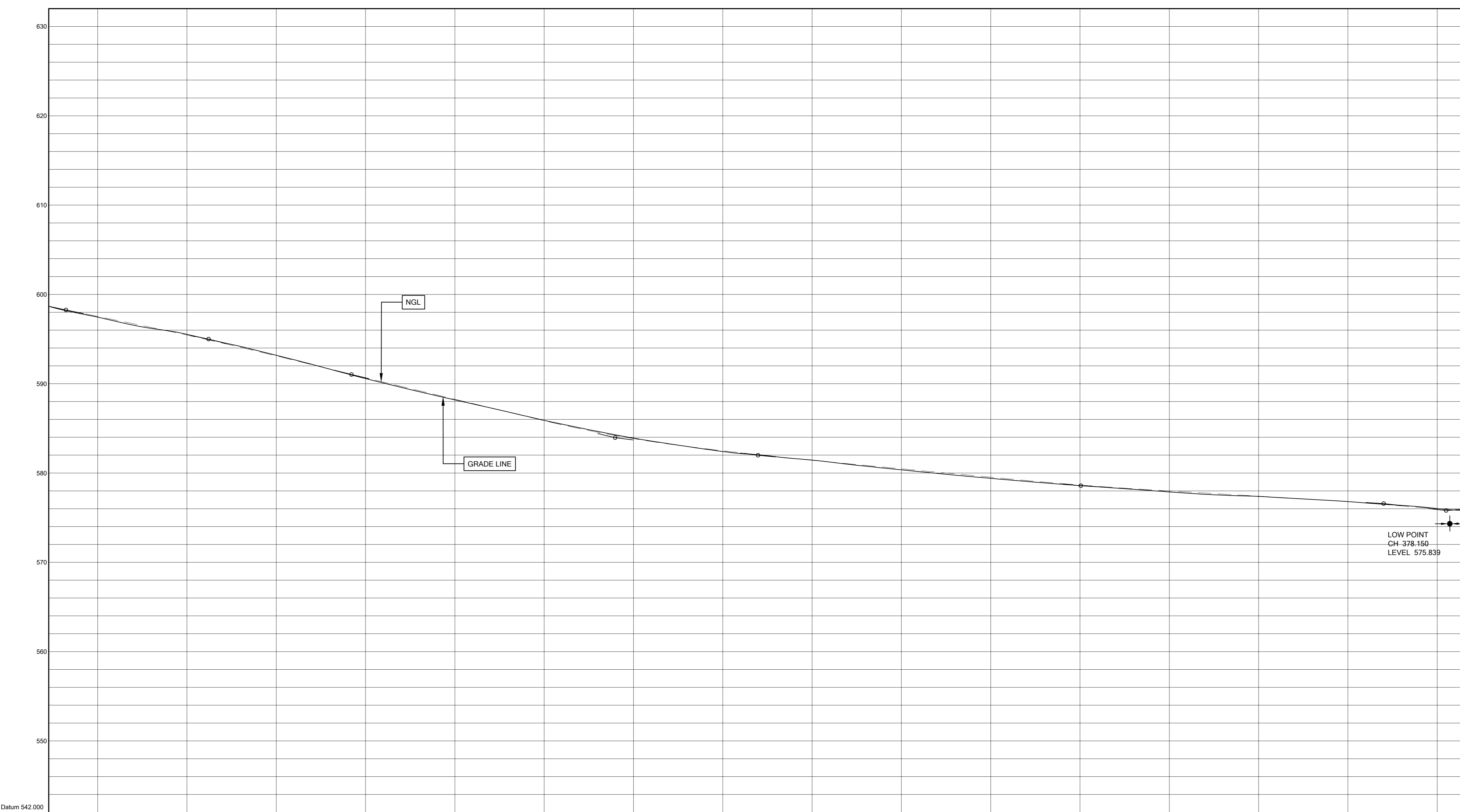
**CITY OF MBOMBELA**

PROJECT  
UPGRADING OF 3.25 KM OF SIWELA ROAD IN WARD 04

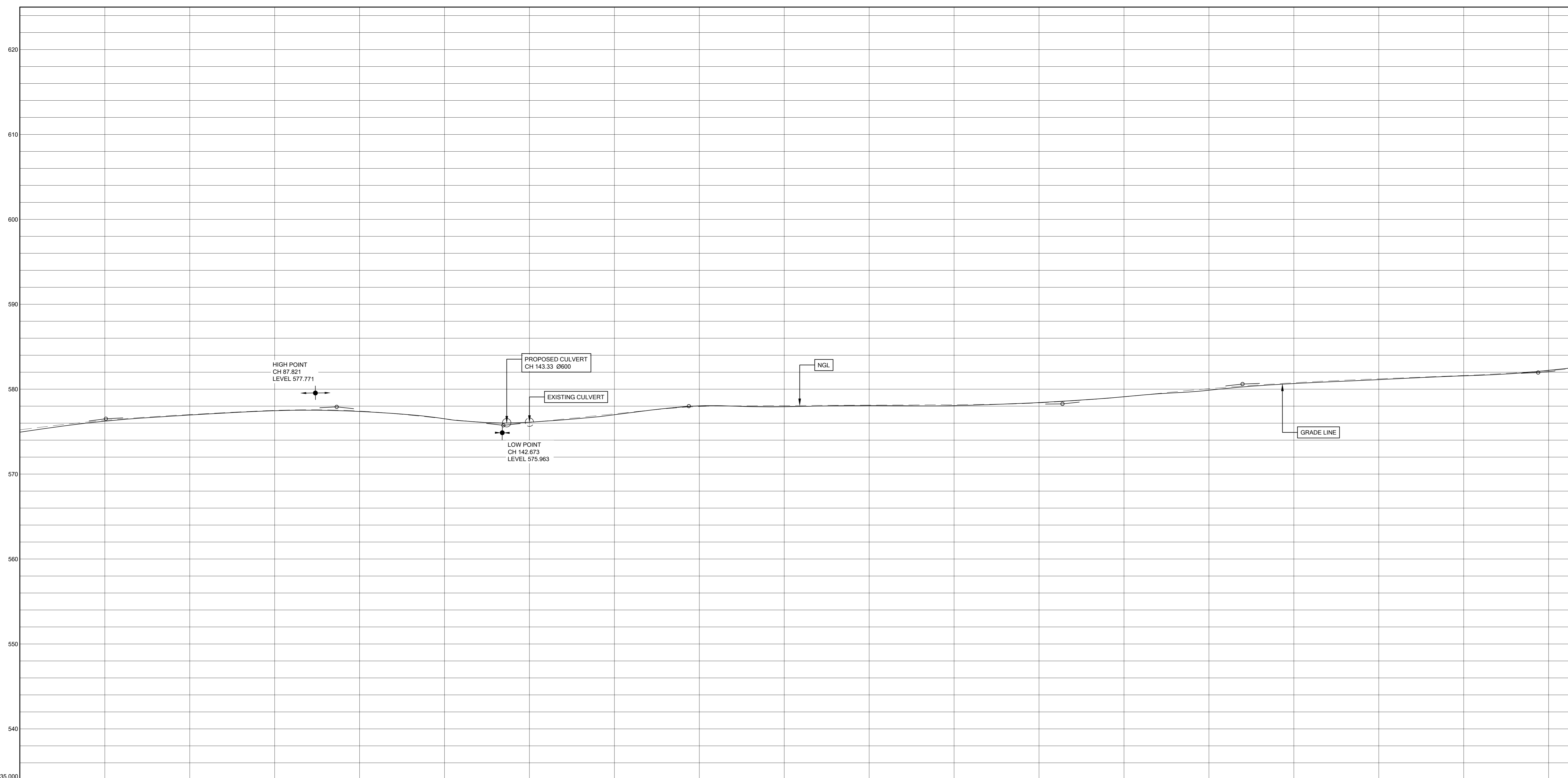
DRAWING TITLE  
LONGITUDINAL SECTIONS ROAD 3 (SHEET 1 OF 1)

**nme** NATHOO MBENYANE ENGINEERS & PROJECT MANAGERS  
Office 001 Portion 3 Of 173 White River 1240  
Tel : 013-750 3122 Fax : 013-750 3155 e-mail : info.mp@nme.co.za

|          |                   |                    |
|----------|-------------------|--------------------|
| DESIGNED | REF. DRG          | PROJECT No.        |
| R.S      | C25001-LS-MM-LS04 | C25001             |
| CHECKED  | SCALE             | HOR: 500 VERT: 200 |
| M.P      |                   |                    |
| DRAWN    | DATE              | SHEET REVISION     |
| M.M      | 02/04/2026        | LS04 A             |



| Chainage | Finished Road Levels |                 |            |          | Gradient   | Vertical Curves |         | Superelevation | Horizontal Curves      |                |
|----------|----------------------|-----------------|------------|----------|------------|-----------------|---------|----------------|------------------------|----------------|
|          | Left Edge            | Base Grade Line | Right Edge | Gradient |            | VC Type         | VC Data |                | Curve Type             | Curve Data     |
| 0+000    | 586.252              | 586.007         | 586.286    | 0.000    | 8.000m VC  | B/C             | 11.307  | 100%           | Direction 165° 40' 11" | Curve 11 Left  |
| 0+100    | 586.031              | 586.030         | 586.286    | -0.183 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 167° 43' 41" | Curve 12 Right |
| 0+200    | 585.814              | 585.733         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 167° 58' 29" | Curve 13 Left  |
| 0+300    | 585.597              | 585.415         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" | Curve 14 Right |
| 0+400    | 585.380              | 585.198         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" | Curve 15 Right |
| 0+500    | 585.163              | 584.981         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" | Curve 16 Left  |
| 0+600    | 584.946              | 584.764         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" | Curve 17 Right |
| 0+700    | 584.729              | 584.547         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 0+800    | 584.512              | 584.330         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 0+900    | 584.295              | 584.113         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 1+000    | 584.078              | 583.896         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 1+100    | 583.861              | 583.679         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 1+200    | 583.644              | 583.462         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 1+300    | 583.427              | 583.245         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 1+400    | 583.210              | 583.028         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 1+500    | 582.993              | 582.811         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 1+600    | 582.776              | 582.594         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 1+700    | 582.559              | 582.377         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 1+800    | 582.342              | 582.160         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 1+900    | 582.125              | 581.943         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 2+000    | 581.908              | 581.726         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 2+100    | 581.691              | 581.509         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 2+200    | 581.474              | 581.292         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 2+300    | 581.257              | 581.075         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 2+400    | 581.040              | 580.858         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 2+500    | 580.823              | 580.641         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 2+600    | 580.606              | 580.424         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 2+700    | 580.389              | 580.207         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 2+800    | 580.172              | 579.990         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 2+900    | 579.955              | 579.773         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 3+000    | 579.738              | 579.556         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 3+100    | 579.521              | 579.339         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 3+200    | 579.304              | 579.122         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 3+300    | 579.087              | 578.905         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 3+400    | 578.870              | 578.688         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 3+500    | 578.653              | 578.471         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 3+600    | 578.436              | 578.254         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 3+700    | 578.219              | 578.037         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 3+800    | 577.992              | 577.810         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 3+900    | 577.775              | 577.593         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 4+000    | 577.558              | 577.376         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 4+100    | 577.341              | 577.159         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 4+200    | 577.124              | 576.942         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 4+300    | 576.907              | 576.725         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 4+400    | 576.690              | 576.508         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 4+500    | 576.473              | 576.291         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 4+600    | 576.256              | 576.074         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 4+700    | 576.039              | 575.857         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 4+800    | 575.822              | 575.640         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 4+900    | 575.605              | 575.423         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 5+000    | 575.388              | 575.206         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 5+100    | 575.171              | 574.989         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 5+200    | 574.954              | 574.772         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 5+300    | 574.737              | 574.555         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 5+400    | 574.520              | 574.338         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 5+500    | 574.303              | 574.121         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 5+600    | 574.086              | 573.904         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 5+700    | 573.869              | 573.687         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 5+800    | 573.652              | 573.470         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 5+900    | 573.435              | 573.253         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 6+000    | 573.218              | 573.036         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 6+100    | 572.991              | 572.809         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 6+200    | 572.774              | 572.592         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 6+300    | 572.557              | 572.375         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 6+400    | 572.340              | 572.158         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 6+500    | 572.123              | 571.941         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 6+600    | 571.906              | 571.724         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 6+700    | 571.689              | 571.507         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 6+800    | 571.472              | 571.290         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 6+900    | 571.255              | 571.073         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 7+000    | 571.038              | 570.856         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 7+100    | 570.821              | 570.639         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 7+200    | 570.604              | 570.422         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 7+300    | 570.387              | 570.205         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 7+400    | 570.170              | 569.988         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 7+500    | 569.953              | 569.771         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 7+600    | 569.736              | 569.554         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 7+700    | 569.519              | 569.337         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 7+800    | 569.302              | 569.120         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 7+900    | 569.085              | 568.903         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 8+000    | 568.868              | 568.686         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 8+100    | 568.651              | 568.469         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 8+200    | 568.434              | 568.252         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 8+300    | 568.217              | 568.035         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 8+400    | 567.990              | 567.808         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 8+500    | 567.773              | 567.591         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 8+600    | 567.556              | 567.374         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168° 19' 07" |                |
| 8+700    | 567.339              | 567.157         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 172° 57' 10" |                |
| 8+800    | 567.122              | 566.940         | 586.030    | -0.903 % | 40.000m VC | B/C             | 11.307  | 100%           | Direction 168°         |                |



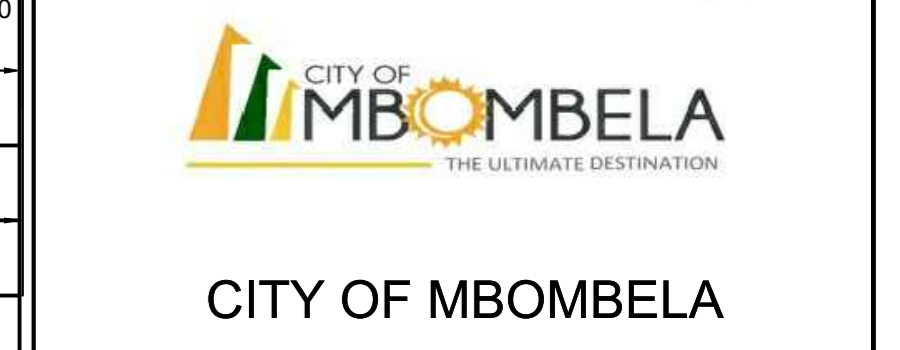
| Chainage | Finished Road Levels |           |                 |            |                          |                          |                |                                               |             |           | Basic Grade Line |            |                          |                          |                |                                               |  |  |  |  |
|----------|----------------------|-----------|-----------------|------------|--------------------------|--------------------------|----------------|-----------------------------------------------|-------------|-----------|------------------|------------|--------------------------|--------------------------|----------------|-----------------------------------------------|--|--|--|--|
|          | Ground Line          | Left Edge | Base Grade Line | Right Edge | Gradient                 | Vertical Curves          | Superelevation | Horizontal Curves                             | Ground Line | Left Edge | Base Grade Line  | Right Edge | Gradient                 | Vertical Curves          | Superelevation | Horizontal Curves                             |  |  |  |  |
| 0        | 574.94               | 575.149   | 575.224         | 576.309    | 5.109 %                  | BVC 16.8350              | 2.500          | Direction 262°44'56"                          | 574.94      | 575.149   | 575.224          | 576.309    | 5.109 %                  | BVC 16.8350              | 2.500          | Direction 262°44'56"                          |  |  |  |  |
| 20       | 576.15               | 576.154   | 576.229         | 576.896    | 25.330/576.518           | 20,000m VC<br>K = 6.574  | -2.500         | Curve 2 Right<br>Radius=40,000<br>I=34°30'26" | 576.15      | 576.154   | 576.229          | 576.896    | 25.330/576.518           | 20,000m VC<br>K = 6.574  | -2.500         | Curve 2 Right<br>Radius=40,000<br>I=34°30'26" |  |  |  |  |
| 40       | 576.73               | 576.746   | 576.821         | 577.309    | 2.066 %                  | EVC 35.8300              | 2.500          | Direction 262°44'56"                          | 576.73      | 576.746   | 576.821          | 577.309    | 2.066 %                  | EVC 35.8300              | 2.500          | Direction 262°44'56"                          |  |  |  |  |
| 60       | 577.19               | 577.199   | 577.224         | 577.688    | 83.280/577.922           | 30,000m VC<br>K = 4.618  | -2.500         | Direction 262°44'56"                          | 577.19      | 577.199   | 577.224          | 577.688    | 83.280/577.922           | 30,000m VC<br>K = 4.618  | -2.500         | Direction 262°44'56"                          |  |  |  |  |
| 80       | 577.61               | 577.621   | 577.644         | 577.987    | -4.431 %                 | BVC 76.3900              | 2.500          | Direction 262°44'56"                          | 577.61      | 577.621   | 577.644          | 577.987    | -4.431 %                 | BVC 76.3900              | 2.500          | Direction 262°44'56"                          |  |  |  |  |
| 100      | 577.44               | 577.444   | 577.500         | 577.513    | 142.325/575.749          | 20,000m VC<br>K = 2.336  | -2.500         | Curve 3 Left<br>Radius=50,000<br>I=18°32'49"  | 577.44      | 577.444   | 577.500          | 577.513    | 142.325/575.749          | 20,000m VC<br>K = 2.336  | -2.500         | Curve 3 Left<br>Radius=50,000<br>I=18°32'49"  |  |  |  |  |
| 120      | 576.87               | 576.813   | 576.813         | 576.864    | 4.133 %                  | EVC 132.8350             | 2.500          | Direction 278°42'32"                          | 576.87      | 576.813   | 576.813          | 576.864    | 4.133 %                  | EVC 132.8350             | 2.500          | Direction 278°42'32"                          |  |  |  |  |
| 130      | 576.30               | 576.371   | 576.371         | 576.219    | 0.235 %                  | BVC 152.9250             | 2.500          | Direction 278°42'32"                          | 576.30      | 576.371   | 576.371          | 576.219    | 0.235 %                  | BVC 152.9250             | 2.500          | Direction 278°42'32"                          |  |  |  |  |
| 140      | 576.94               | 576.053   | 576.053         | 576.903    | 4.423 %                  | EVC 172.9250             | 2.500          | Direction 245°41'31"                          | 576.94      | 576.053   | 576.053          | 576.903    | 4.423 %                  | EVC 172.9250             | 2.500          | Direction 245°41'31"                          |  |  |  |  |
| 150      | 576.10               | 576.153   | 576.153         | 576.003    | 359.900/580.608          | 15,000m VC<br>K = 3.848  | -2.500         | Direction 254°21'06"                          | 576.10      | 576.153   | 576.153          | 576.003    | 359.900/580.608          | 15,000m VC<br>K = 3.848  | -2.500         | Direction 254°21'06"                          |  |  |  |  |
| 160      | 576.39               | 576.555   | 576.555         | 576.404    | 1.550 %                  | BVC 189.9400             | 2.500          | Direction 256°07'06"                          | 576.39      | 576.555   | 576.555          | 576.404    | 1.550 %                  | BVC 189.9400             | 2.500          | Direction 256°07'06"                          |  |  |  |  |
| 170      | 576.73               | 576.965   | 576.965         | 576.820    | 446.917/581.957/460.000  | 48,000m VC<br>K = 10.984 | 2.500          | Curve 7 Right<br>Radius=100,000<br>I=0°16'08" | 576.73      | 576.965   | 576.965          | 576.820    | 446.917/581.957/460.000  | 48,000m VC<br>K = 10.984 | 2.500          | Curve 7 Right<br>Radius=100,000<br>I=0°16'08" |  |  |  |  |
| 180      | 577.25               | 577.304   | 577.304         | 577.228    | 3.837 %                  | EVC 209.9400             | 2.500          | Direction 252°11'09"                          | 577.25      | 577.304   | 577.304          | 577.228    | 3.837 %                  | EVC 209.9400             | 2.500          | Direction 252°11'09"                          |  |  |  |  |
| 190      | 577.76               | 577.794   | 577.794         | 577.644    | 60.000m VC<br>K = 20.889 | BVC 329.9400             | 2.500          | Direction 254°41'14"                          | 577.76      | 577.794   | 577.794          | 577.644    | 60.000m VC<br>K = 20.889 | 329.9400                 | 2.500          | Direction 254°41'14"                          |  |  |  |  |
| 200      | 578.08               | 578.080   | 578.086         | 577.913    | 4.423 %                  | EVC 349.9400             | 2.500          | Direction 256°07'06"                          | 578.08      | 578.080   | 578.086          | 577.913    | 4.423 %                  | EVC 349.9400             | 2.500          | Direction 256°07'06"                          |  |  |  |  |
| 220      | 577.84               | 577.135   | 577.135         | 577.985    | 3.837 %                  | BVC 369.9400             | 2.500          | Direction 252°11'09"                          | 577.84      | 577.135   | 577.135          | 577.985    | 3.837 %                  | BVC 369.9400             | 2.500          | Direction 252°11'09"                          |  |  |  |  |
| 240      | 578.09               | 578.099   | 578.102         | 578.032    | 60.000m VC<br>K = 20.889 | EVC 389.9400             | 2.500          | Direction 254°41'14"                          | 578.09      | 578.099   | 578.102          | 578.032    | 60.000m VC<br>K = 20.889 | 389.9400                 | 2.500          | Direction 254°41'14"                          |  |  |  |  |
| 260      | 578.00               | 578.000   | 578.002         | 578.079    | 1.550 %                  | BVC 409.9400             | 2.500          | Direction 256°07'06"                          | 578.00      | 578.000   | 578.002          | 578.079    | 1.550 %                  | BVC 409.9400             | 2.500          | Direction 256°07'06"                          |  |  |  |  |
| 270      | 578.02               | 578.020   | 578.022         | 578.102    | 3.837 %                  | EVC 429.9400             | 2.500          | Direction 252°11'09"                          | 578.02      | 578.020   | 578.022          | 578.102    | 3.837 %                  | EVC 429.9400             | 2.500          | Direction 252°11'09"                          |  |  |  |  |
| 280      | 578.11               | 578.111   | 578.117         | 578.128    | 446.917/581.957/460.000  | BVC 449.9400             | 2.500          | Direction 254°41'14"                          | 578.11      | 578.111   | 578.117          | 578.128    | 446.917/581.957/460.000  | 449.9400                 | 2.500          | Direction 254°41'14"                          |  |  |  |  |
| 290      | 578.25               | 578.241   | 578.241         | 578.166    | 3.837 %                  | EVC 469.9400             | 2.500          | Direction 256°07'06"                          | 578.25      | 578.241   | 578.241          | 578.166    | 3.837 %                  | EVC 469.9400             | 2.500          | Direction 256°07'06"                          |  |  |  |  |
| 300      | 578.41               | 578.441   | 578.441         | 578.291    | 4.423 %                  | BVC 489.9400             | 2.500          | Direction 252°11'09"                          | 578.41      | 578.441   | 578.441          | 578.291    | 4.423 %                  | BVC 489.9400             | 2.500          | Direction 252°11'09"                          |  |  |  |  |
| 320      | 578.94               | 578.964   | 578.964         | 578.812    | 60.000m VC<br>K = 20.889 | EVC 509.9400             | 2.500          | Direction 254°41'14"                          | 578.94      | 578.964   | 578.964          | 578.812    | 60.000m VC<br>K = 20.889 | 509.9400                 | 2.500          | Direction 254°41'14"                          |  |  |  |  |
| 340      | 579.60               | 579.778   | 579.778         | 579.629    | 1.550 %                  | BVC 529.9400             | 2.500          | Direction 256°07'06"                          | 579.60      | 579.778   | 579.778          | 579.629    | 1.550 %                  | BVC 529.9400             | 2.500          | Direction 256°07'06"                          |  |  |  |  |
| 360      | 580.34               | 580.470   | 580.470         | 580.321    | 3.837 %                  | EVC 549.9400             | 2.500          | Direction 252°11'09"                          | 580.34      | 580.470   | 580.470          | 580.321    | 3.837 %                  | EVC 549.9400             | 2.500          | Direction 252°11'09"                          |  |  |  |  |
| 380      | 580.78               | 580.971   | 580.971         | 580.821    | 4.423 %                  | BVC 569.9400             | 2.500          | Direction 254°41'14"                          | 580.78      | 580.971   | 580.971          | 580.821    | 4.423 %                  | BVC 569.9400             | 2.500          | Direction 254°41'14"                          |  |  |  |  |
| 400      | 581.12               | 581.305   | 581.305         | 581.165    | 1.550 %                  | EVC 589.9400             | 2.500          | Direction 256°07'06"                          | 581.12      | 581.305   | 581.305          | 581.165    | 1.550 %                  | EVC 589.9400             | 2.500          | Direction 256°07'06"                          |  |  |  |  |
| 420      | 581.53               | 581.610   | 581.610         | 581.465    | 3.837 %                  | BVC 609.9400             | 2.500          | Direction 252°11'09"                          | 581.53      | 581.610   | 581.610          | 581.465    | 3.837 %                  | BVC 609.9400             | 2.500          | Direction 252°11'09"                          |  |  |  |  |
| 430      | 581.64               | 581.795   | 581.795         | 581.635    | 4.423 %                  | EVC 629.9400             | 2.500          | Direction 254°41'14"                          | 581.64      | 581.795   | 581.795          | 581.635    | 4.423 %                  | EVC 629.9400             | 2.500          | Direction 254°41'14"                          |  |  |  |  |
| 440      | 581.83               | 582.000   | 582.000         | 581.849    | 1.550 %                  | BVC 649.9400             | 2.500          | Direction 256°07'06"                          | 581.83      | 582.000   | 582.000          | 581.849    | 1.550 %                  | BVC 649.9400             | 2.500          | Direction 256°07'06"                          |  |  |  |  |
| 450      | 582.22               | 582.290   | 582.290         | 582.110    | 3.837 %                  | EVC 669.9400             | 2.500          | Direction 252°11'09"                          | 582.22      | 582.290   | 582.290          | 582.110    | 3.837 %                  | EVC 669.9400             | 2.500          | Direction 252°11'09"                          |  |  |  |  |
| 460      | 582.65               | 582.652   | 582.652         | 582.417    | 4.423 %                  | BVC 689.9400             | 2.500          | Direction 254°41'14"                          | 582.65      | 582.652   | 582.652          | 582.417    | 4.423 %                  | BVC 689.9400             | 2.500          | Direction 254°41'14"                          |  |  |  |  |
| 480      | 582.65               | 582.652   | 582.652         | 582.417    | 1.550 %                  | EVC 709.9400             | 2.500          | Direction 256°07'06"                          | 582.65      | 582.652   | 582.652          | 582.417    | 1.550 %                  | EVC 709.9400             | 2.500          | Direction 256°07'06"                          |  |  |  |  |
| 490      | 582.65               | 582.652   | 582.652         | 582.417    | 3.837 %                  | BVC 729.9400             | 2.500          | Direction 252°11'09"                          | 582.65      | 582.652   | 582.652          | 582.417    | 3.837 %                  | BVC 729.9400             | 2.500          | Direction 252°11'09"                          |  |  |  |  |

- NOTES**
- ALL WORK TO COMPLY WITH COTO DS 2020 ENGINEERING SPECIFICATIONS, OR AS AMENDED
  - ALL EXISTING LEVELS BASED ON TOPOGRAPHICAL SURVEY WGS 84 L0 31
  - ALL SETTING OUT DETAILS TO BE CONFIRMED BY THE ENGINEER PRIOR TO ANY CONSTRUCTION WORK
  - ALL EXISTING SERVICES IN THE AREA OF CONSTRUCTION TO BE PROVED PRIOR TO COMMENCEMENT OF ANY EXCAVATION EXISTING SERVICES TO BE ENCASED IN CONCRETE AT THE ENGINEER'S DISCRETION
  - WORK TO FIGURED DIMENSIONS, CO-ORDINATES AND LEVELS ONLY, DO NOT SCALE OF DRAWINGS AND ANY DISCREPANCIES IN DIMENSIONS / CO-ORDINATES TO BE REPORTED TO THE ENGINEER
  - ALL CUT BANKS TO BE 1:5 MIN
  - ALL FILL BANKS TO BE 1:5 MIN
  - VERGE SHAPING AS DIRECTED BY ENGINEER
  - ALL SLOPE EMBANKMENTS TO BE TOPSOILED AND GRASSES
  - POSITION OF KERBS, DRAINS TO BE CONFIRMED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION WORK THEREOF
  - CARE IS TO BE TAKEN WHEN WORKING IN THE VICINITY OF EXISTING BUILDINGS
  - JOINTS TO TIE INTO EXISTING ASPHALT SURFACING TO BE SAW CUT, TIE INTO EXISTING SET LEVELS
  - ALL CURVE RADII TO ACCESSSES TO BE 6m UNLESS OTHERWISE SHOWN
  - ALL STORMWATER PIPES TO BE CLASS 1000 UNLESS OTHERWISE SHOWN
  - ALL BELLMOUTH ACCESSSES TO HAVE ROLL OVER KERBS, E - MOUNTABLE KERBS
  - ALL TIE-INS TO EXISTING DRIVEWAYS ARE TO BE AGREED ON SITE
  - ALL GRAVEL TIE-INS TO EXISTING ROAD TO BE AT A MINIMUM 1:15 TAPER
  - ALL EXISTING SERVICES TO BE PROVED PRIOR TO BULK EARTHWORKS OPERATIONS

**LEGEND**

|     |                  |
|-----|------------------|
| --- | NGL              |
| --- | ROAD             |
| ○   | PROPOSED CULVERT |
| ○   | EXISTING CULVERT |
| +   | HIGH POINT       |
| -   | LOW POINT        |

| REV. | DESCRIPTION       | BY. | DATE.      |
|------|-------------------|-----|------------|
| A    | ISSUED FOR TENDER | MM  | 01/07/2026 |

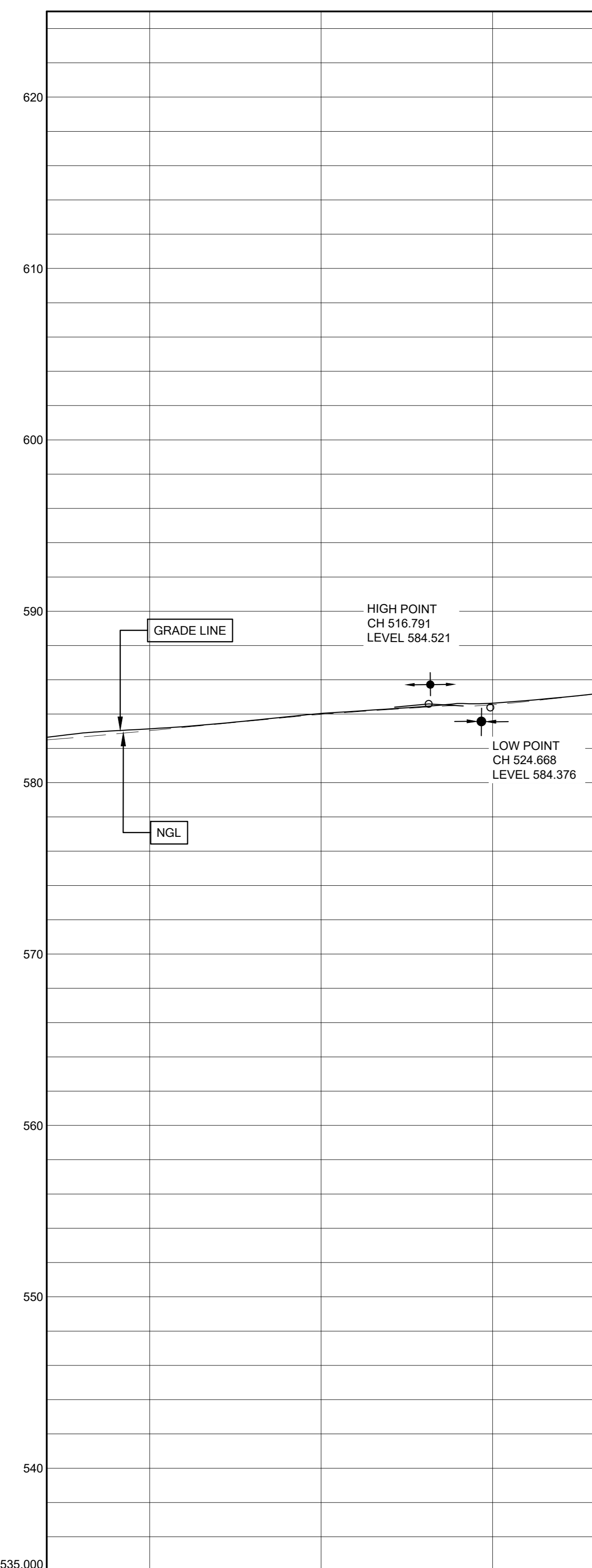


**CITY OF MBOMBELA**  
UPGRADING OF 3.25 KM OF SIWELA ROAD IN WARD 04

**LONGITUDINAL SECTIONS ROAD 5 (SHEET 1 OF 2)**

**NATHO MBENYANE ENGINEERS**  
ENGINEERS & PROJECT MANAGERS  
Office 001 Portion 3 Of 173  
R580 Platson Road The Ranch  
White River  
Tel : 013-750 3122  
Fax : 013-750 3155  
e-mail : info.nme@mme.co.za

| DESIGNED | REF. DRG              | PROJECT No. |
|----------|-----------------------|-------------|
| R.S      | C25001-LS-MM-LS06     | C25001      |
| CHECKED  | SCALE                 | SHEET       |
| M.P      | HOR: 500<br>VERT: 200 | LS06        |
| DRAWN    | DATE                  | REVISION    |
| M.M      | 02/04/2026            | A           |



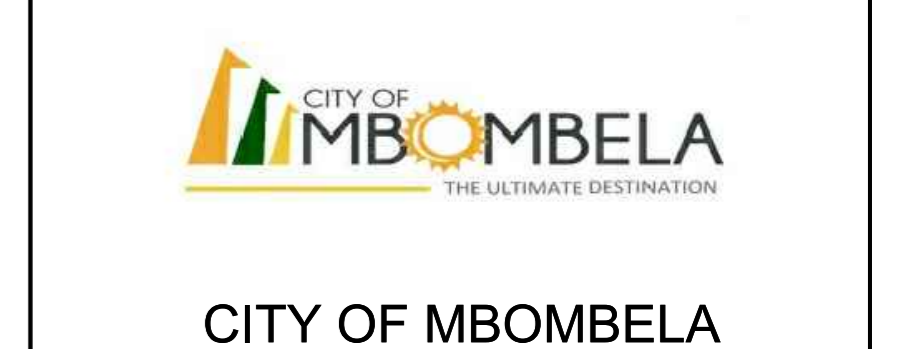
|                                                |                   | 460                                                 | 470     | 480                                             | 490     | 500                                           | 510                         | 520                                                                               | 530     | 540     |
|------------------------------------------------|-------------------|-----------------------------------------------------|---------|-------------------------------------------------|---------|-----------------------------------------------|-----------------------------|-----------------------------------------------------------------------------------|---------|---------|
| Chainage                                       |                   | 460                                                 | 470     | 480                                             | 490     | 500                                           | 510                         | 520                                                                               | 530     | 540     |
| Ground Line                                    |                   | 582.85                                              | 583.04  | 583.24                                          | 583.03  | 584.04                                        | 584.68                      | 585.19                                                                            | 585.26  | 585.29  |
| Finished Road Levels                           | Left Edge         | 582.96                                              | 582.902 | 582.252                                         | 583.02  | 583.953                                       | 584.453                     | 584.68                                                                            | 585.178 | 585.242 |
|                                                | Base Grade Line   | 582.952                                             | 582.844 | 583.227                                         | 583.610 | 583.994                                       | 584.489                     | 584.68                                                                            | 585.178 | 585.242 |
|                                                | Right Edge        | 582.417                                             | 582.785 | 583.201                                         | 583.619 | 584.034                                       | 584.514                     | 584.68                                                                            | 585.108 | 585.142 |
| Gradient                                       |                   |                                                     |         | 3.837 %                                         |         |                                               | 515.688/584.586<br>-2.456 % | 584.376                                                                           |         | 584.376 |
| Basic Grade Line                               | Vertical Curves   | 50.000m V.C.<br>K = 21.862                          |         | 7.976m P.I.C.<br>Gr                             |         | 50.000m V.C.<br>K = 1.581                     |                             | 50.000m V.C.<br>K = 1.581                                                         |         |         |
|                                                | Superelevation    | 2.500                                               |         | 2.500                                           |         | 2.500                                         |                             | 2.500                                                                             |         |         |
|                                                | Horizontal Curves | Direction<br>298°28'56"<br>ECC<br>433°27'42"<br>B/C |         | Curve 10 Left<br>Radius=190.000<br>I= 10°02'43" |         | ECC<br>438°77'1"                              |                             | Direction<br>248°28'13"<br>B/C<br>518°588"<br>524°289"<br>Direction<br>245°51'09" |         |         |
| Curve 9 Right<br>Radius=490.000<br>I= 2°21'50" |                   |                                                     |         |                                                 |         | Curve 11 Left<br>Radius=100.000<br>I= 2°30'4" |                             |                                                                                   |         |         |

- ### NOTES
- ALL WORK TO COMPLY WITH COTO DS 200 ENGINEERING SPECIFICATIONS, OR AS AMENDED.
  - ALL EXISTING LEVELS BASED ON TOPOGRAPHICAL SURVEY WGS 84 LLO 31.
  - ALL SETTING OUT DETAILS TO BE CONFIRMED BY THE ENGINEER PRIOR TO ANY CONSTRUCTION WORK.
  - ALL EXISTING SERVICES IN THE AREA OF CONSTRUCTION TO BE PROVED PRIOR TO COMMENCEMENT OF ANY EXCAVATION. EXISTING SERVICES TO BE ENGAGED IN CONCRETE AT THE ENGINEER'S DISCRETION.
  - WORK TO FIGURED DIMENSIONS. CO-ORDINATES AND LEVELS ONLY. DO NOT SCALE DRAWINGS AND ANY DISCREPANCIES IN DIMENSIONS / CO-ORDINATES TO BE REPORTED TO THE ENGINEER.
  - ALL CUT BANKS TO BE 1:5 MIN.
  - ALL FILL BANKS TO BE 1:5 MIN.
  - VERGE SHAPING AS DIRECTED BY ENGINEER.
  - ALL SLOPE EMBANKMENTS TO BE TOPSOILED AND GRASSED.
  - POSITION OF KERBS, DRAINS TO BE CONFIRMED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION WORK THEREOF.
  - CARE IS TO BE TAKEN WHEN WORKING IN THE VICINITY OF EXISTING BUILDINGS.
  - JOINTS TO THE INTO EXISTING ASPHALT SURFACING TO BE SAW CUT, TIE INTO EXISTING SET LEVELS.
  - ALL CURVE RADII TO ACCESSSES TO BE 6m UNLESS OTHERWISE OTHERWISE SHOWN.
  - ALL STORMWATER PIPES TO BE CLASS 1000 UNLESS OTHERWISE SHOWN.
  - ALL BELMOUTH ACCESSSES TO HAVE ROLL OVER KERBS, IE - MOUNTABLE KERBS.
  - ALL TIE-INS TO EXISTING DRIVEWAYS ARE TO BE AGREED ON SITE.
  - ALL GRAVEL TIE-INS TO EXISTING ROAD TO BE AT A MINIMUM 1:15 TAPER.
  - ALL EXISTING SERVICES TO BE PROVED PRIOR TO BULK EARTHWORKS OPERATIONS.

### LEGEND

|     |            |
|-----|------------|
| --- | NGL        |
| --- | ROAD       |
| ●   | HIGH POINT |
| ●   | LOW POINT  |

| REV. | DESCRIPTION.      | BY. | DATE.      |
|------|-------------------|-----|------------|
| A    | ISSUED FOR TENDER | M.M | 01/07/2026 |



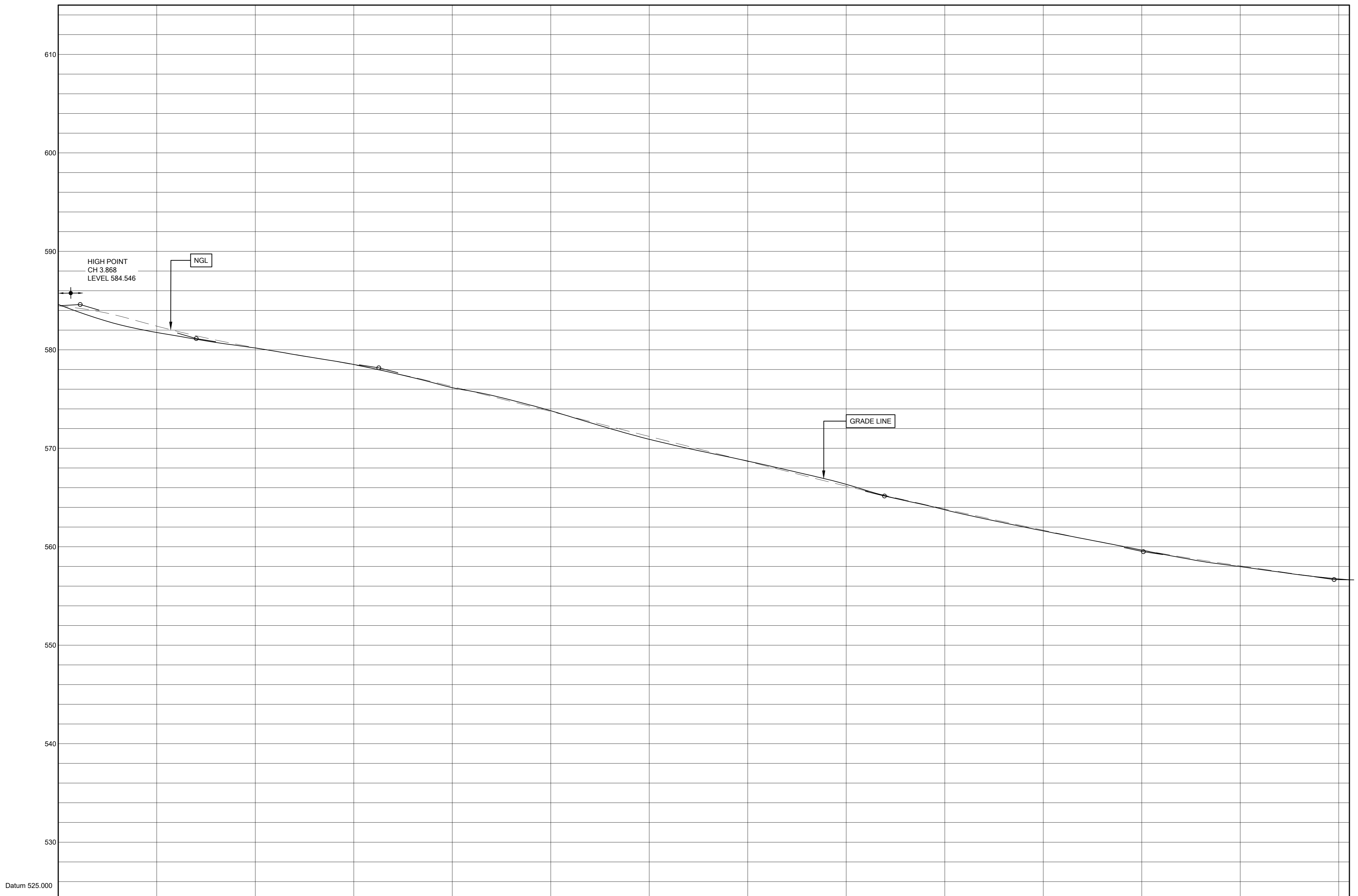
**CITY OF MBOMBELA**

PROJECT  
UPGRADING OF 3.25 KM OF SIWELA ROAD IN WARD 04

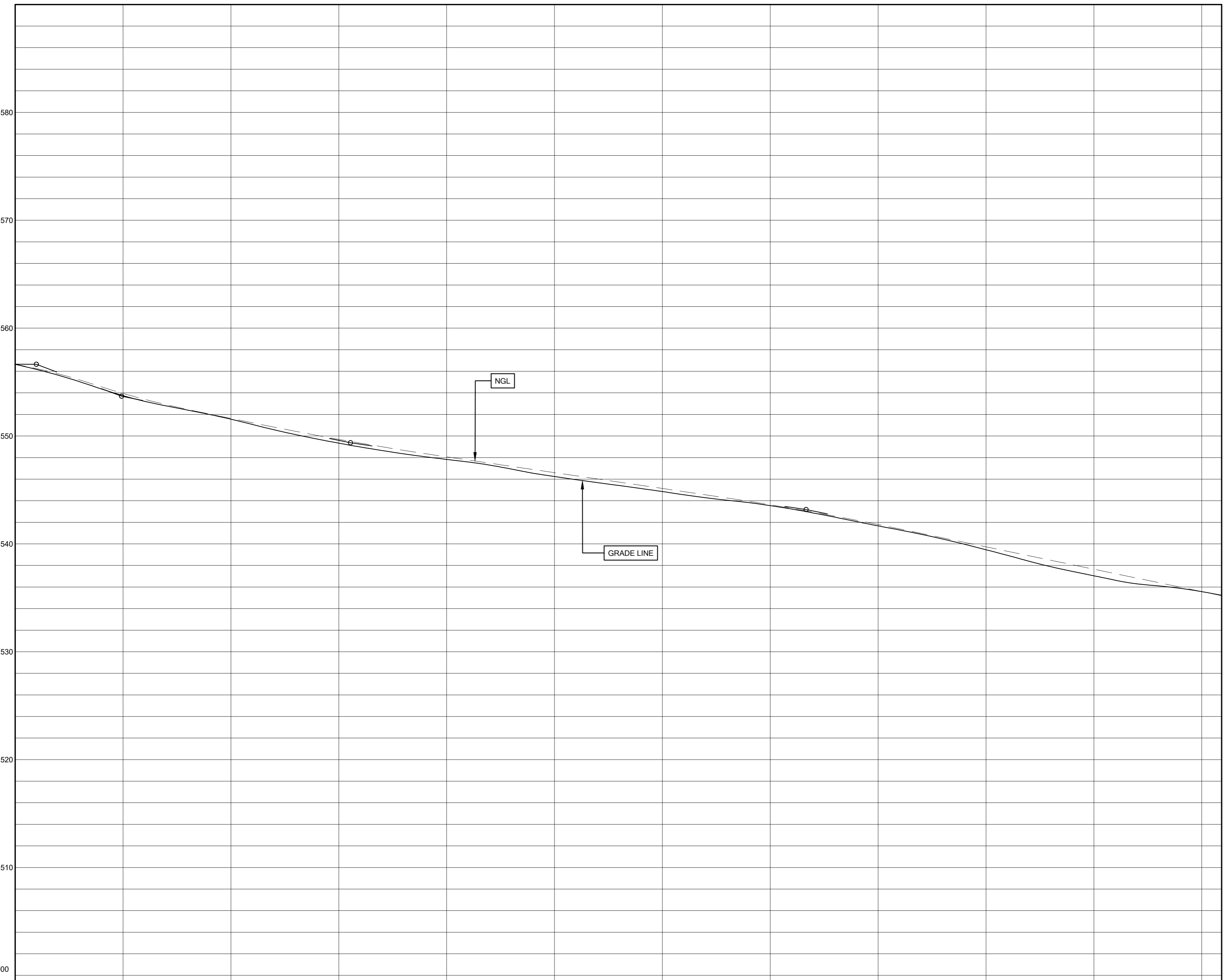
DRAWING TITLE  
**LONGITUDINAL SECTIONS ROAD 5 (SHEET 2 OF 2)**

**nme** NATHOO MBENYANE ENGINEERS & PROJECT MANAGERS  
Office: 001 Funtlun 3 Of 173  
R580 Plaston Road The Ranch White River 1240  
Toll : 013-750 3122  
Fax : 013-750 3155  
e-mail : info.mp@nme.co.za

| DESIGNED | REF. DRG          | PROJECT No.   |
|----------|-------------------|---------------|
| R.S      | C25001-LS-MM-LS07 | <b>C25001</b> |
| CHECKED  | SCALE             | HOR. SCALE    |
| M.P      | VERT: 200         | SHEET         |
| DRAWN    | DATE              | REVISION      |
| M.M      | 02/04/2026        | LS07 A        |



| Chainage    | 0      | 10     | 20     | 30     | 40     | 50     | 60     | 70     | 80     | 90     | 100    | 110    | 120    | 130    | 140    | 150    | 160    | 170    | 180    | 190    | 200    | 210    | 220    | 230    | 240    | 250    | 260    | 270    | 280    | 290    | 300    | 310    | 320    | 330    | 340    | 350    | 360    | 370    | 377.794 |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |    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-|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| Ground Line | 584.60 | 583.07 | 582.06 | 581.44 | 580.70 | 580.22 | 579.50 | 578.66 | 577.62 | 576.42 | 575.02 | 573.51 | 571.99 | 570.41 | 568.85 | 567.24 | 565.58 | 563.88 | 562.16 | 560.43 | 558.69 | 556.95 | 555.20 | 553.45 | 551.70 | 549.95 | 548.20 | 546.45 | 544.70 | 542.95 | 541.20 | 539.45 | 537.70 | 535.95 | 534.20 | 532.45 | 530.70 | 528.95 | 527.20  | 525.45 | 523.70 | 521.95 | 520.20 | 518.45 | 516.70 | 514.95 | 513.20 | 511.45 | 509.70 | 507.95 | 506.20 | 504.45 | 502.70 | 500.95 | 999.20 | 997.45 | 995.70 | 993.95 | 992.20 | 990.45 | 988.70 | 986.95 | 985.20 | 983.45 | 981.70 | 979.95 | 978.20 | 976.45 | 974.70 | 972.95 | 971.20 | 969.45 | 967.70 | 965.95 | 964.20 | 962.45 | 960.70 | 958.95 | 957.20 | 955.45 | 953.70 | 951.95 | 950.20 | 948.45 | 946.70 | 944.95 | 943.20 | 941.45 | 939.70 | 937.95 | 936.20 | 934.45 | 932.70 | 930.95 | 929.20 | 927.45 | 925.70 | 923.95 | 922.20 | 920.45 | 918.70 | 916.95 | 915.20 | 913.45 | 911.70 | 909.95 | 908.20 | 906.45 | 904.70 | 902.95 | 901.20 | 899.45 | 897.70 | 895.95 | 894.20 | 892.45 | 890.70 | 888.95 | 887.20 | 885.45 | 883.70 | 881.95 | 880.20 | 878.45 | 876.70 | 874.95 | 873.20 | 871.45 | 869.70 | 867.95 | 866.20 | 864.45 | 862.70 | 860.95 | 859.20 | 857.45 | 855.70 | 853.95 | 852.20 | 850.45 | 848.70 | 846.95 | 845.20 | 843.45 | 841.70 | 839.95 | 838.20 | 836.45 | 834.70 | 832.95 | 831.20 | 829.45 | 827.70 | 825.95 | 824.20 | 822.45 | 820.70 | 818.95 | 817.20 | 815.45 | 813.70 | 811.95 | 810.20 | 808.45 | 806.70 | 804.95 | 803.20 | 801.45 | 799.70 | 797.95 | 796.20 | 794.45 | 792.70 | 790.95 | 789.20 | 787.45 | 785.70 | 783.95 | 782.20 | 780.45 | 778.70 | 776.95 | 775.20 | 773.45 | 771.70 | 769.95 | 768.20 | 766.45 | 764.70 | 762.95 | 761.20 | 759.45 | 757.70 | 755.95 | 754.20 | 752.45 | 750.70 | 748.95 | 747.20 | 745.45 | 743.70 | 741.95 | 740.20 | 738.45 | 736.70 | 734.95 | 733.20 | 731.45 | 729.70 | 727.95 | 726.20 | 724.45 | 722.70 | 720.95 | 719.20 | 717.45 | 715.70 | 713.95 | 712.20 | 710.45 | 708.70 | 706.95 | 705.20 | 703.45 | 701.70 | 699.95 | 698.20 | 696.45 | 694.70 | 692.95 | 691.20 | 689.45 | 687.70 | 685.95 | 684.20 | 682.45 | 680.70 | 678.95 | 677.20 | 675.45 | 673.70 | 671.95 | 670.20 | 668.45 | 666.70 | 664.95 | 663.20 | 661.45 | 659.70 | 657.95 | 656.20 | 654.45 | 652.70 | 650.95 | 649.20 | 647.45 | 645.70 | 643.95 | 642.20 | 640.45 | 638.70 | 636.95 | 635.20 | 633.45 | 631.70 | 629.95 | 628.20 | 626.45 | 624.70 | 622.95 | 621.20 | 619.45 | 617.70 | 615.95 | 614.20 | 612.45 | 610.70 | 608.95 | 607.20 | 605.45 | 603.70 | 601.95 | 600.20 | 598.45 | 596.70 | 594.95 | 593.20 | 591.45 | 589.70 | 587.95 | 586.20 | 584.45 | 582.70 | 580.95 | 579.20 | 577.45 | 575.70 | 573.95 | 572.20 | 570.45 | 568.70 | 566.95 | 565.20 | 563.45 | 561.70 | 559.95 | 558.20 | 556.45 | 554.70 | 552.95 | 551.20 | 549.45 | 547.70 | 545.95 | 544.20 | 542.45 | 540.70 | 538.95 | 537.20 | 535.45 | 533.70 | 531.95 | 530.20 | 528.45 | 526.70 | 524.95 | 523.20 | 521.45 | 519.70 | 517.95 | 516.20 | 514.45 | 512.70 | 510.95 | 509.20 | 507.45 | 505.70 | 503.95 | 502.20 | 500.45 | 498.70 | 496.95 | 495.20 | 493.45 | 491.70 | 489.95 | 488.20 | 486.45 | 484.70 | 482.95 | 481.20 | 479.45 | 477.70 | 475.95 | 474.20 | 472.45 | 470.70 | 468.95 | 467.20 | 465.45 | 463.70 | 461.95 | 460.20 | 458.45 | 456.70 | 454.95 | 453.20 | 451.45 | 449.70 | 447.95 | 446.20 | 444.45 | 442.70 | 440.95 | 439.20 | 437.45 | 435.70 | 433.95 | 432.20 | 430.45 | 428.70 | 426.95 | 425.20 | 423.45 | 421.70 | 419.95 | 418.20 | 416.45 | 414.70 | 412.95 | 411.20 | 409.45 | 407.70 | 405.95 | 404.20 | 402.45 | 400.70 | 398.95 | 397.20 | 395.45 | 393.70 | 391.95 | 390.20 | 388.45 | 386.70 | 384.95 | 383.20 | 381.45 | 379.70 | 377.95 | 376.20 | 374.45 | 372.70 | 370.95 | 369.20 | 367.45 | 365.70 | 363.95 | 362.20 | 360.45 | 358.70 | 356.95 | 355.20 | 353.45 | 351.70 | 349.95 | 348.20 | 346.45 | 344.70 | 342.95 | 341.20 | 339.45 | 337.70 | 335.95 | 334.20 | 332.45 | 330.70 | 328.95 | 327.20 | 325.45 | 323.70 | 321.95 | 320.20 | 318.45 | 316.70 | 314.95 | 313.20 | 311.45 | 309.70 | 307.95 | 306.20 | 304.45 | 302.70 | 300.95 | 299.20 | 297.45 | 295.70 | 293.95 | 292.20 | 290.45 | 288.70 | 286.95 | 285.20 | 283.45 | 281.70 | 279.95 | 278.20 | 276.45 | 274.70 | 272.95 | 271.20 | 269.45 | 267.70 | 265.95 | 264.20 | 262.45 | 260.70 | 258.95 | 257.20 | 255.45 | 253.70 | 251.95 | 250.20 | 248.45 | 246.70 | 244.95 | 243.20 | 241.45 | 239.70 | 237.95 | 236.20 | 234.45 | 232.70 | 230.95 | 229.20 | 227.45 | 225.70 | 223.95 | 222.20 | 220.45 | 218.70 | 216.95 | 215.20 | 213.45 | 211.70 | 209.95 | 208.20 | 206.45 | 204.70 | 202.95 | 201.20 | 199.45 | 197.70 | 195.95 | 194.20 | 192.45 | 190.70 | 188.95 | 187.20 | 185.45 | 183.70 | 181.95 | 180.20 | 178.45 | 176.70 | 174.95 | 173.20 | 171.45 | 169.70 | 167.95 | 166.20 | 164.45 | 162.70 | 160.95 | 159.20 | 157.45 | 155.70 | 153.95 | 152.20 | 150.45 | 148.70 | 146.95 | 145.20 | 143.45 | 141.70 | 139.95 | 138.20 | 136.45 | 134.70 | 132.95 | 131.20 | 129.45 | 127.70 | 125.95 | 124.20 | 122.45 | 120.70 | 118.95 | 117.20 | 115.45 | 113.70 | 111.95 | 110.20 | 108.45 | 106.70 | 104.95 | 103.20 | 101.45 | 99.70 | 97.95 | 96.20 | 94.45 | 92.70 | 90.95 | 89.20 | 87.45 | 85.70 | 83.95 | 82.20 | 80.45 | 78.70 | 76.95 | 75.20 | 73.45 | 71.70 | 69.95 | 68.20 | 66.45 | 64.70 | 62.95 | 61.20 | 59.45 | 57.70 | 55.95 | 54.20 | 52.45 | 50.70 | 48.95 | 47.20 | 45.45 | 43.70 | 41.95 | 40.20 | 38.45 | 36.70 | 34.95 | 33.20 | 31.45 | 29.70 | 27.95 | 26.20 | 24.45 | 22.70 | 20.95 | 19.20 | 17.45 | 15.70 | 13.95 | 12.20 | 10.45 | 8.70 | 6.95 | 5.20 | 3.45 | 1.70 | 0.95 | 0.20 | 0.45 | 0.70 | 0.95 | 1.20 | 1.45 | 1.70 | 1.95 | 2.20 | 2.45 | 2.70 | 2.95 | 3.20 | 3.45 | 3.70 | 3.95 | 4.20 | 4.45 | 4.70 | 4.95 | 5.20 | 5.45 | 5.70 | 5.95 | 6.20 | 6.45 | 6.70 | 6.95 | 7.20 | 7.45 | 7.70 | 7.95 | 8.20 | 8.45 | 8.70 | 8.95 | 9.20 | 9.45 | 9.70 | 9.95 | 10.20 | 10.45 | 10.70 | 10.95 | 11.20 | 11.45 | 11.70 | 11.95 | 12.20 | 12.45 | 12.70 | 12.95 | 13.20 | 13.45 | 13.70 | 13.95 | 14.20 | 14.45 | 14.70 | 14.95 | 15.20 | 15.45 | 15.70 | 15.95 | 16.20 | 16.45 | 16.70 | 16.95 | 17.20 | 17.45 | 17.70 | 17.95 | 18.20 | 18.45 | 18.70 | 18.95 | 19.20 | 19.45 | 19.70 | 19.95 | 20.20 | 20.45 | 20.70 | 20.95 | 21.20 | 21.45 | 21.70 | 21.95 | 22.20 | 22.45 | 22.70 | 22.95 | 23.20 | 23.45 | 23.70 | 23.95 | 24.20 | 24.45 | 24.70 | 24.95 | 25.20 | 25.45 | 25.70 | 25.95 | 26.20 | 26.45 | 26.70 | 26.95 | 27.20 | 27.45 | 27.70 | 27.95 | 28.20 | 28.45 | 28.70 | 28.95 | 29.20 | 29.45 | 29.70 | 29.95 | 30.20 | 30.45 | 30.70 | 30.95 | 31.20 | 31.45 | 31.70 | 31.95 | 32.20 | 32.45 | 32.70 | 32.95 | 33.20 | 33.45 | 33.70 | 33.95 | 34.20 | 34.45 | 34.70 | 34.95 | 35.20 | 35.45 | 35.70 | 35.95 | 36.20 | 36.45 | 36.70 | 36.95 | 37.20 | 37.45 | 37.70 | 37.95 | 38.20 | 38.45 | 38.70 | 38.95 | 39.20 | 39.45 | 39.70 | 39.95 | 40.20 | 40.45 | 40.70 | 40.95 | 41.20 | 41.45 | 41.70 | 41.95 | 42.20 | 42.45 | 42.70 | 42.95 | 43.20 | 43.45 | 43.70 | 43.95 | 44.20 | 44.45 | 44.70 | 44.95 | 45.20 | 45.45 | 45.70 | 45.95 | 46.20 | 46.45 | 46.70 | 46.95 | 47.20 | 47.45 | 47.70 | 47.95 | 48.20 | 48.45 | 48.70 | 48.95 | 49.20 | 49.45 | 49.70 | 49.95 | 50.20 | 50.45 | 50.70 | 50.95 | 51.20 | 51.45 | 51.70 | 51.95 | 52.20 | 52.45 | 52.70 | 52.95 | 53.20 | 53.45 | 53.70 | 53.95 | 54.20 | 54.45 | 54.70 | 54.95 | 55.20 | 55.45 | 55.70 | 55.95 | 56.20 | 56.45 | 56.70 | 56.95 | 57.20 | 57.45 | 57.70 | 57.95 | 58.20 | 58.45 | 58.70 | 58.95 | 59.20 | 59.45 | 59.70 | 59.95 | 60.20 | 60.45 | 60.70 | 60.95 | 61.20 | 61.45 | 61.70 | 61.95 | 62.20 | 62.45 | 62.70 | 62.95 | 63.20 | 63.45 | 63.70 | 63.95 | 64.20 | 64.45 | 64.70 | 64.95 | 65.20 | 65.45 | 65.70 | 65.95 | 66.20 | 66.45 | 66.70 | 66.95 | 67.20 | 67.45 | 67.70 | 67.95 | 68.20 | 68.45 | 68.70 | 68.95 | 69.20 | 69.45 | 69.70 | 69.95 | 70.20 | 70.45 | 70.70 | 70.95 | 71.20 | 71.45 | 71.70 | 71.95 | 72.20 | 72.45 | 72.70 | 72.95 | 73.20 | 73.45 | 73.70 | 73.95 | 74.20 | 74.45 | 74.70 | 74.95 | 75.20 | 75.45 | 75.70 | 75.95 | 76.20 | 76.45 | 76.70 | 76.95 | 77.20 | 77.45 | 77.70 | 77.95 | 78.20 | 78.45 | 78.70 | 78.95 | 79.20 | 79.45 | 79.70 | 79.95 | 80.20 | 80.45 | 80.70 | 80.95 | 81.20 | 81.45 | 81.70 | 81.95 | 82.20 | 82.45 | 82.70 | 82.95 | 83.20 | 83.45 | 83.70 | 83.95 | 84.20 | 84.45 | 84.70 | 84.95 | 85.20 | 85.45 | 85.70 | 85.95 | 86.20 | 86.45 | 86.70 | 86.95 | 87.20 | 87.45 | 87.70 | 87.95 | 88.20 | 88.45 | 88.70 | 88.95 | 89.20 | 89.45 | 89.70 | 89.95 | 90.20 | 90.45 | 90.70 | 90.95 | 91.20 | 91.45 | 91.70 | 91.95 | 92.20 | 92.45 | 92.70 | 92.95 | 93.20 | 93.45 | 93.70 | 93.95 | 94.20 | 94.45 | 94.70 | 94.95 | 95.20 | 95.45 | 95.70 | 95.95 | 96.20 | 96.45 | 96.70 | 96.95 | 97.20 | 97.45 | 97.70 | 97.95 | 98.20 | 98.45 | 98.70 | 98.95 | 99.20 | 99.45 | 99.70 | 99. |



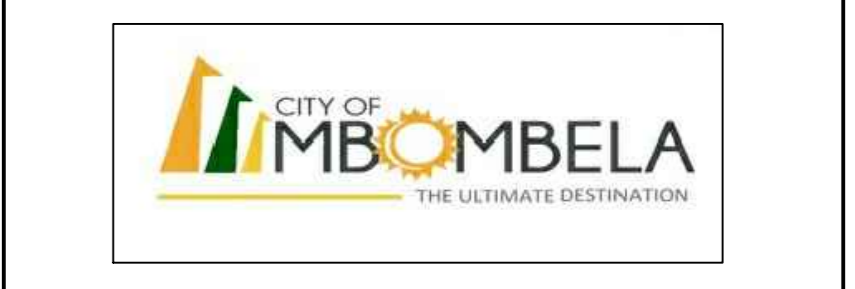
| Chainage | Finished Road Levels |           |                 |            |            | Gradient | Vertical Curves |  | Superelevation | Horizontal Curves |
|----------|----------------------|-----------|-----------------|------------|------------|----------|-----------------|--|----------------|-------------------|
|          | Ground Line          | Left Edge | Base Grade Line | Right Edge | Right Edge |          |                 |  |                |                   |
| 0        | 546.62               | 546.22    | 546.60          | 546.67     | 546.67     | 3.05%    | 30.00m VC       |  |                |                   |
| 10       | 545.75               | 545.84    | 545.84          | 545.82     | 545.84     | -14.96%  | 30.00m VC       |  |                |                   |
| 20       | 544.30               | 544.27    | 544.27          | 544.44     | 544.44     |          | 30.00m VC       |  |                |                   |
| 30       | 543.11               | 543.24    | 543.24          | 543.29     | 543.29     |          | 30.00m VC       |  |                |                   |
| 40       | 542.42               | 542.504   | 542.504         | 542.37     | 542.42     |          | 30.00m VC       |  |                |                   |
| 50       | 541.60               | 541.691   | 541.691         | 541.56     | 541.60     | -8.134%  | 30.00m VC       |  |                |                   |
| 60       | 540.54               | 540.679   | 540.679         | 540.54     | 540.54     |          | 30.00m VC       |  |                |                   |
| 70       | 540.11               | 540.107   | 540.107         | 540.02     | 540.11     |          | 30.00m VC       |  |                |                   |
| 80       | 540.06               | 540.091   | 540.091         | 540.00     | 540.06     |          | 30.00m VC       |  |                |                   |
| 90       | 540.34               | 540.332   | 540.332         | 540.29     | 540.34     |          | 30.00m VC       |  |                |                   |
| 100      | 540.81               | 540.807   | 540.807         | 540.76     | 540.81     |          | 30.00m VC       |  |                |                   |
| 110      | 541.33               | 541.344   | 541.344         | 541.29     | 541.33     |          | 30.00m VC       |  |                |                   |
| 120      | 541.85               | 541.855   | 541.855         | 541.80     | 541.85     |          | 30.00m VC       |  |                |                   |
| 130      | 542.37               | 542.372   | 542.372         | 542.32     | 542.37     |          | 30.00m VC       |  |                |                   |
| 140      | 542.90               | 542.904   | 542.904         | 542.85     | 542.90     |          | 30.00m VC       |  |                |                   |
| 150      | 543.42               | 543.423   | 543.423         | 543.37     | 543.42     |          | 30.00m VC       |  |                |                   |
| 160      | 543.95               | 543.954   | 543.954         | 543.90     | 543.95     |          | 30.00m VC       |  |                |                   |
| 170      | 544.48               | 544.481   | 544.481         | 544.43     | 544.48     |          | 30.00m VC       |  |                |                   |
| 180      | 545.01               | 545.012   | 545.012         | 544.96     | 545.01     |          | 30.00m VC       |  |                |                   |
| 190      | 545.54               | 545.543   | 545.543         | 545.49     | 545.54     |          | 30.00m VC       |  |                |                   |
| 200      | 546.07               | 546.074   | 546.074         | 546.02     | 546.07     |          | 30.00m VC       |  |                |                   |
| 210      | 546.60               | 546.607   | 546.607         | 546.55     | 546.60     |          | 30.00m VC       |  |                |                   |
| 220      | 547.13               | 547.134   | 547.134         | 547.08     | 547.13     |          | 30.00m VC       |  |                |                   |
| 230      | 547.66               | 547.667   | 547.667         | 547.61     | 547.66     |          | 30.00m VC       |  |                |                   |
| 240      | 548.19               | 548.194   | 548.194         | 548.14     | 548.19     |          | 30.00m VC       |  |                |                   |
| 250      | 548.72               | 548.727   | 548.727         | 548.67     | 548.72     |          | 30.00m VC       |  |                |                   |
| 260      | 549.25               | 549.254   | 549.254         | 549.20     | 549.25     |          | 30.00m VC       |  |                |                   |
| 270      | 549.78               | 549.787   | 549.787         | 549.73     | 549.78     |          | 30.00m VC       |  |                |                   |
| 279.691  | 550.31               | 550.314   | 550.314         | 550.26     | 550.31     |          | 30.00m VC       |  |                |                   |

- NOTES**
1. ALL WORK TO COMPLY WITH COTO DS 2020 ENGINEERING SPECIFICATIONS, OR AS AMENDED.
  2. ALL EXISTING LEVELS BASED ON TOPOGRAPHICAL SURVEY WGS 84 / LD 31.
  3. ALL SETTING OUT DETAILS TO BE CONFIRMED BY THE ENGINEER PRIOR TO ANY CONSTRUCTION WORK.
  4. ALL EXISTING SERVICES IN THE AREA OF CONSTRUCTION TO BE PROVED PRIOR TO COMMENCEMENT OF ANY EXCAVATION. EXISTING SERVICES TO BE ENCASED IN CONCRETE AT THE ENGINEER'S DISCRETION.
  5. WORK TO FIGURED DIMENSIONS. CO-ORDINATES AND LEVELS ONLY. DO NOT SCALE OF DRAWINGS AND ANY DISCREPANCIES IN DIMENSIONS / CO-ORDINATES TO BE REPORTED TO THE ENGINEER.
  6. ALL CUT BANKS TO BE 1:5 MIN. ALL FILL BANKS TO BE 1:5 MIN. VERGE SHAPING AS DIRECTED BY ENGINEER.
  7. ALL SLOPE EMBANKMENTS TO BE TOPSOILED AND GRASSIED.
  8. POSITION OF KERBS, DRAINS TO BE CONFIRMED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION WORK THEREOF.
  9. CARE IS TO BE TAKEN WHEN WORKING IN THE VICINITY OF EXISTING BUILDINGS.
  10. JOINTS TO THE INTO EXISTING ASPHALT SURFACING TO BE SAW CUT, THE INTO EXISTING SET LEVELS.
  11. ALL CURVE RADI TO ACCESSSES TO BE 6m UNLESS OTHERWISE SHOWN.
  12. ALL STORMWATER PIPES TO BE CLASS 1000 UNLESS OTHERWISE SHOWN.
  13. ALL BELLMOUTH ACCESSSES TO HAVE ROLL OVER KERBS, IE. MOUNTABLE KERBS.
  14. ALL TIE-INS TO EXISTING DRIVEWAYS ARE TO BE AGREED ON SITE.
  15. ALL GRAVEL TIE-INS TO EXISTING ROAD TO BE AT A MINIMUM 1:15 TAPER.
  16. ALL EXISTING SERVICES TO BE PROVED PRIOR TO BULK EARTHWORKS OPERATIONS.

**LEGEND**

|     |            |
|-----|------------|
| --- | NGL        |
| --- | ROAD       |
| ▲   | HIGH POINT |
| ▼   | LOW POINT  |

| REV. | DESCRIPTION.      | BY. | DATE.      |
|------|-------------------|-----|------------|
| A    | ISSUED FOR TENDER | M.M | 01/07/2026 |



**CITY OF MBOMBELA**

**PROJECT**

**UPGRADING OF 3.25 KM OF SIWELA ROAD IN WARD 04**

**DRAWING TITLE**

**LONGITUDINAL SECTIONS ROAD 7 (SHEET 1 OF 1)**

**pme NATHOO MBENYANE ENGINEERS**  
ENGINEERS & PROJECT MANAGERS  
Office 001 Portion 3 Of 173 R580 Plaston Road The Ranch White River 1240  
Tel : 013-750 3122 Fax : 013-750 3155 e-mail : info.pme@pme.co.za

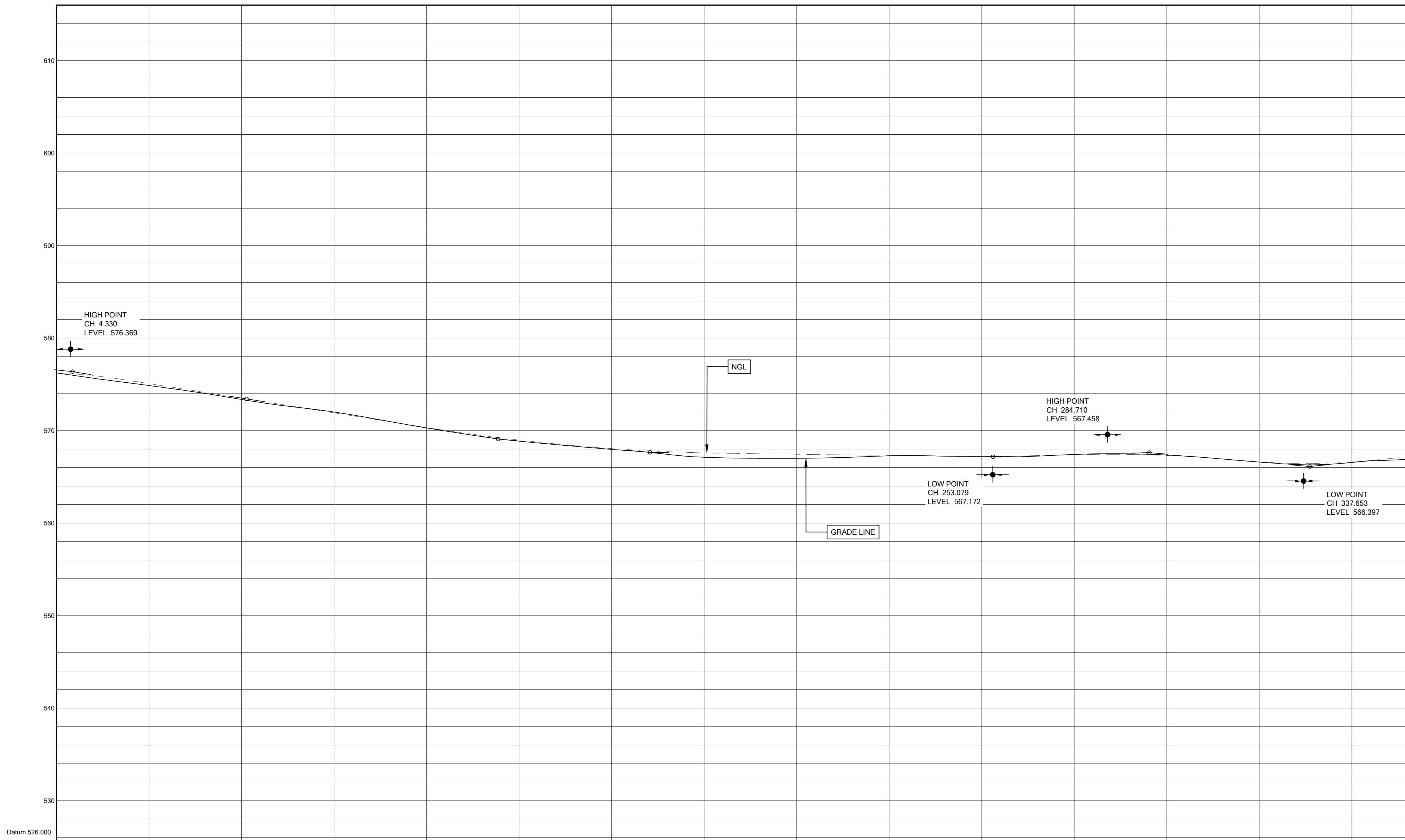
| DESIGNED | REF DRG            | PROJECT No. |
|----------|--------------------|-------------|
| R.S      | C25001-LS-MM-LS09  | C25001      |
| CHECKED  | SCALE              | SHEET       |
| M.P      | HOR: 500 VERT: 200 | LS09        |
| DRAWN    | DATE               | REVISION    |
| M.M      | 02/04/2026         | A           |

**NOTES**

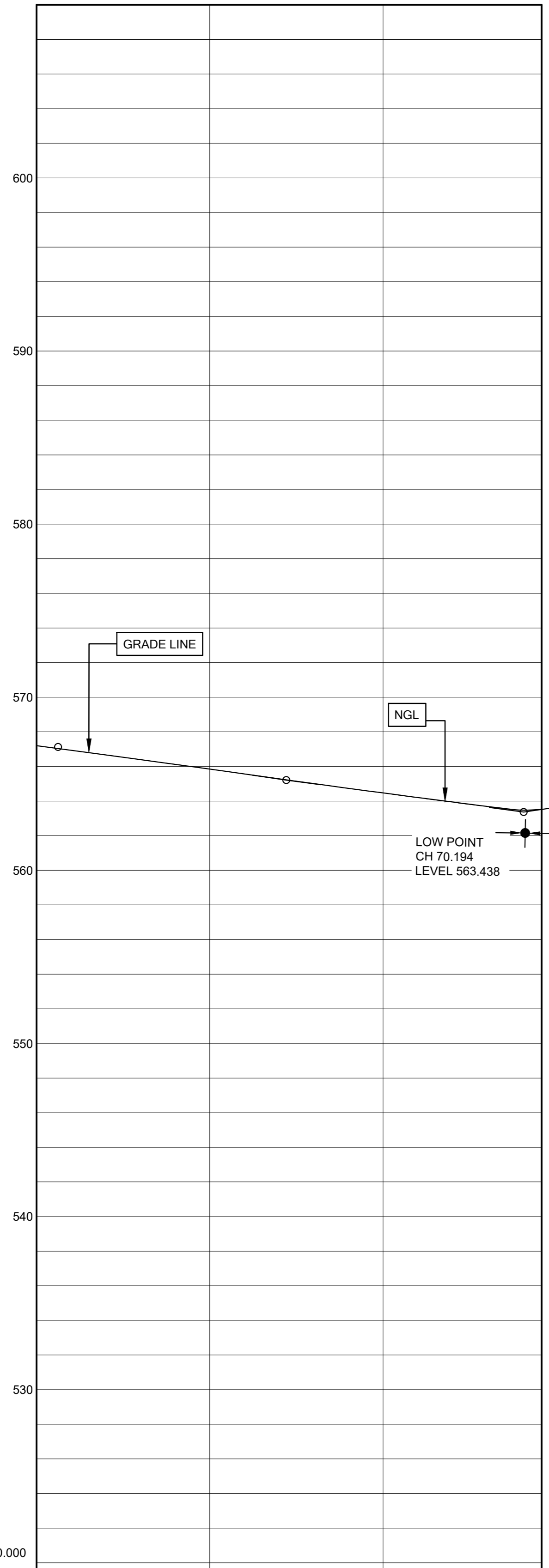
1. ALL WORK TO COMPLY WITH COTO DS 2020 ENGINEERING SPECIFICATIONS, OR AS AMENDED
2. ALL EXISTING LEVELS BASED ON TOPOGRAPHICAL SURVEY WGS 84 / LO 31
3. ALL SETTING OUT DETAILS TO BE CONFIRMED BY THE ENGINEER PRIOR TO ANY CONSTRUCTION WORK
4. ALL EXISTING SERVICES IN THE AREA OF CONSTRUCTION TO BE PROVIDED PRIOR TO COMMENCEMENT OF ANY EXCAVATION. EXISTING SERVICES TO BE ENCASED IN CONCRETE AT THE ENGINEER'S DISCRETION.
5. WORK TO FIGURED DIMENSIONS. CO-ORDINATES AND LEVELS ONLY. DO NOT SCALE OF DRAWINGS AND ANY DISCREPANCIES IN DIMENSIONS / CO-ORDINATES TO BE REPORTED TO THE ENGINEER.
6. ALL CUT BANKS TO BE 1:5 MIN  
ALL FILL BANKS TO BE 1:5 MIN  
VERGE SHAPING AS DIRECTED BY ENGINEER.
7. ALL SLOPE EMBANKMENTS TO BE TOPSOILED AND GRASSED.
8. POSITION OF KERBS, DRAINS TO BE CONFIRMED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION WORK THEREOF.
9. CARE IS TO BE TAKEN WHEN WORKING IN THE VICINITY OF EXISTING BUILDINGS
10. JOINTS TO BE MADE INTO EXISTING ASPHALT SURFACING TO BE SAW CUT. TIE-INS INTO EXISTING SET LEVELS
11. ALL CURVE RADII TO ACCESS TO BE 6m UNLESS OTHERWISE SHOWN
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**LEGEND**

|     |            |
|-----|------------|
| --- | NGL        |
| --- | ROAD       |
| ◆   | HIGH POINT |
| ▼   | LOW POINT  |



| Chainage             | 0               | 10      | 20      | 30      | 40      | 50      | 60      | 70      | 80      | 90      | 100     | 110     | 120     | 130     | 140     | 150     | 160     | 170     | 180     | 190     | 200     | 210     | 220     | 230     | 240     | 250     | 260     | 270     | 280     | 290     | 300     | 310     | 320     | 330     | 340     | 350     |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         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| Ground Line          | 576.24          | 576.31  | 576.4   | 576.5   | 576.6   | 576.7   | 576.8   | 576.9   | 577.0   | 577.1   | 577.2   | 577.3   | 577.4   | 577.5   | 577.6   | 577.7   | 577.8   | 577.9   | 578.0   | 578.1   | 578.2   | 578.3   | 578.4   | 578.5   | 578.6   | 578.7   | 578.8   | 578.9   | 579.0   | 579.1   | 579.2   | 579.3   | 579.4   | 579.5   | 579.6   | 579.7   | 579.8   | 579.9   | 580.0   |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         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       |         |       |         |         |         |         |        |         |         |         |         |        |         |         |         |         |        |         |         |         |         |        |         |         |         |         |        |         |       |         |         |         |         |        |         |         |         |
| Finished Road Levels | Left Edge       | 576.31  | 576.4   | 576.5   | 576.6   | 576.7   | 576.8   | 576.9   | 577.0   | 577.1   | 577.2   | 577.3   | 577.4   | 577.5   | 577.6   | 577.7   | 577.8   | 577.9   | 578.0   | 578.1   | 578.2   | 578.3   | 578.4   | 578.5   | 578.6   | 578.7   | 578.8   | 578.9   | 579.0   | 579.1   | 579.2   | 579.3   | 579.4   | 579.5   | 579.6   | 579.7   | 579.8   | 579.9   | 580.0   |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         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       |         |       |         |         |         |         |        |         |         |         |         |        |         |         |         |         |        |         |         |         |         |        |         |         |         |         |        |         |       |         |         |         |         |        |         |         |         |
|                      | Base Grade Line | 576.29  | 576.36  | 576.43  | 576.5   | 576.57  | 576.6   | 576.63  | 576.66  | 576.68  | 576.69  | 576.7   | 576.71  | 576.72  | 576.73  | 576.74  | 576.75  | 576.76  | 576.77  | 576.78  | 576.79  | 576.8   | 576.81  | 576.82  | 576.83  | 576.84  | 576.85  | 576.86  | 576.87  | 576.88  | 576.89  | 576.9   | 576.91  | 576.92  | 576.93  | 576.94  | 576.95  | 576.96  | 576.97  | 576.98  | 576.99  | 577.0   |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         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        |        |         |         |         |         |        |         |       |         |         |         |         |        |         |         |         |         |        |         |         |         |         |        |         |         |         |         |        |         |         |         |         |        |         |       |         |         |         |         |        |         |         |         |         |        |         |         |         |         |        |         |         |         |         |        |         |         |         |         |        |         |       |         |         |         |         |        |         |         |         |         |        |         |         |         |         |        |         |         |         |         |        |         |         |         |         |        |         |       |         |         |         |         |        |         |         |         |         |        |         |         |         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       |         |       |         |         |         |         |        |         |         |         |         |        |         |         |         |         |        |         |         |         |         |        |         |         |         |         |        |         |       |         |         |         |         |        |         |         |         |
|                      | Right Edge      | 576.196 | 576.269 | 576.343 | 576.417 | 576.491 | 576.565 | 576.639 | 576.713 | 576.787 | 576.861 | 576.935 | 577.009 | 577.083 | 577.157 | 577.231 | 577.305 | 577.379 | 577.453 | 577.527 | 577.601 | 577.675 | 577.749 | 577.823 | 577.897 | 577.971 | 578.045 | 578.119 | 578.193 | 578.267 | 578.341 | 578.415 | 578.489 | 578.563 | 578.637 | 578.711 | 578.785 | 578.859 | 578.933 | 579.007 | 579.081 | 579.155 | 579.229 | 579.303 | 579.377 | 579.451 | 579.525 | 579.599 | 579.673 | 579.747 | 579.821 | 579.895 | 579.969 | 580.043 | 580.117 | 580.191 | 580.265 | 580.339 | 580.413 | 580.487 | 580.561 | 580.635 | 580.709 | 580.783 | 580.857 | 580.931 | 581.005 | 581.079 | 581.153 | 581.227 | 581.301 | 581.375 | 581.449 | 581.523 | 581.597 | 581.671 | 581.745 | 581.819 | 581.893 | 581.967 | 582.041 | 582.115 | 582.189 | 582.263 | 582.337 | 582.411 | 582.485 | 582.559 | 582.633 | 582.707 | 582.781 | 582.855 | 582.929 | 583.003 | 583.077 | 583.151 | 583.225 | 583.299 | 583.373 | 583.447 | 583.521 | 583.595 | 583.669 | 583.743 | 583.817 | 583.891 | 583.965 | 584.039 | 584.113 | 584.187 | 584.261 | 584.335 | 584.409 | 584.483 | 584.557 | 584.631 | 584.705 | 584.779 | 584.853 | 584.927 | 585.001 | 585.075 | 585.149 | 585.223 | 585.297 | 585.371 | 585.445 | 585.519 | 585.593 | 585.667 | 585.741 | 585.815 | 585.889 | 585.963 | 586.037 | 586.111 | 586.185 | 586.259 | 586.333 | 586.407 | 586.481 | 586.555 | 586.629 | 586.703 | 586.777 | 586.851 | 586.925 | 587.0 | 587.074 | 587.148 | 587.222 | 587.296 | 587.37 | 587.444 | 587.518 | 587.592 | 587.666 | 587.74 | 587.814 | 587.888 | 587.962 | 588.036 | 588.11 | 588.184 | 588.258 | 588.332 | 588.406 | 588.48 | 588.554 | 588.628 | 588.702 | 588.776 | 588.85 | 588.924 | 589.0 | 589.074 | 589.148 | 589.222 | 589.296 | 589.37 | 589.444 | 589.518 | 589.592 | 589.666 | 589.74 | 589.814 | 589.888 | 589.962 | 590.036 | 590.11 | 590.184 | 590.258 | 590.332 | 590.406 | 590.48 | 590.554 | 590.628 | 590.702 | 590.776 | 590.85 | 590.924 | 591.0 | 591.074 | 591.148 | 591.222 | 591.296 | 591.37 | 591.444 | 591.518 | 591.592 | 591.666 | 591.74 | 591.814 | 591.888 | 591.962 | 592.036 | 592.11 | 592.184 | 592.258 | 592.332 | 592.406 | 592.48 | 592.554 | 592.628 | 592.702 | 592.776 | 592.85 | 592.924 | 593.0 | 593.074 | 593.148 | 593.222 | 593.296 | 593.37 | 593.444 | 593.518 | 593.592 | 593.666 | 593.74 | 593.814 | 593.888 | 593.962 | 594.036 | 594.11 | 594.184 | 594.258 | 594.332 | 594.406 | 594.48 | 594.554 | 594.628 | 594.702 | 594.776 | 594.85 | 594.924 | 595.0 | 595.074 | 595.148 | 595.222 | 595.296 | 595.37 | 595.444 | 595.518 | 595.592 | 595.666 | 595.74 | 595.814 | 595.888 | 595.962 | 596.036 | 596.11 | 596.184 | 596.258 | 596.332 | 596.406 | 596.48 | 596.554 | 596.628 | 596.702 | 596.776 | 596.85 | 596.924 | 597.0 | 597.074 | 597.148 | 597.222 | 597.296 | 597.37 | 597.444 | 597.518 | 597.592 | 597.666 | 597.74 | 597.814 | 597.888 | 597.962 | 598.036 | 598.11 | 598.184 | 598.258 | 598.332 | 598.406 | 598.48 | 598.554 | 598.628 | 598.702 | 598.776 | 598.85 | 598.924 | 599.0 | 599.074 | 599.148 | 599.222 | 599.296 | 599.37 | 599.444 | 599.518 | 599.592 | 599.666 | 599.74 | 599.814 | 599.888 | 599.962 | 600.036 | 600.11 | 600.184 | 600.258 | 600.332 | 600.406 | 600.48 | 600.554 | 600.628 | 600.702 | 600.776 | 600.85 | 600.924 | 601.0 | 601.074 | 601.148 | 601.222 | 601.296 | 601.37 | 601.444 | 601.518 | 601.592 | 601.666 | 601.74 | 601.814 | 601.888 | 601.962 | 602.036 | 602.11 | 602.184 | 602.258 | 602.332 | 602.406 | 602.48 | 602.554 | 602.628 | 602.702 | 602.776 | 602.85 | 602.924 | 603.0 | 603.074 | 603.148 | 603.222 | 603.296 | 603.37 | 603.444 | 603.518 | 603.592 | 603.666 | 603.74 | 603.814 | 603.888 | 603.962 | 604.036 | 604.11 | 604.184 | 604.258 | 604.332 | 604.406 | 604.48 | 604.554 | 604.628 | 604.702 | 604.776 | 604.85 | 604.924 | 605.0 | 605.074 | 605.148 | 605.222 | 605.296 | 605.37 | 605.444 | 605.518 | 605.592 | 605.666 | 605.74 | 605.814 | 605.888 | 605.962 | 606.036 | 606.11 | 606.184 | 606.258 | 606.332 | 606.406 | 606.48 | 606.554 | 606.628 | 606.702 | 606.776 | 606.85 | 606.924 | 607.0 | 607.074 | 607.148 | 607.222 | 607.296 | 607.37 | 607.444 | 607.518 | 607.592 | 607.666 | 607.74 | 607.814 | 607.888 | 607.962 | 608.036 | 608.11 | 608.184 | 608.258 | 608.332 | 608.406 | 608.48 | 608.554 | 608.628 | 608.702 | 608.776 | 608.85 | 608.924 | 609.0 | 609.074 | 609.148 | 609.222 | 609.296 | 609.37 | 609.444 | 609.518 | 609.592 | 609.666 | 609.74 | 609.814 | 609.888 | 609.962 | 610.036 | 610.11 | 610.184 | 610.258 | 610.332 | 610.406 | 610.48 | 610.554 | 610.628 | 610.702 | 610.776 | 610.85 | 610.924 | 611.0 | 611.074 | 611.148 | 611.222 | 611.296 | 611.37 | 611.444 | 611.518 | 611.592 | 611.666 | 611.74 | 611.814 | 611.888 | 611.962 | 612.036 | 612.11 | 612.184 | 612.258 | 612.332 | 612.406 | 612.48 | 612.554 | 612.628 | 612.702 | 612.776 | 612.85 | 612.924 | 613.0 | 613.074 | 613.148 | 613.222 | 613.296 | 613.37 | 613.444 | 613.518 | 613.592 | 613.666 | 613.74 | 613.814 | 613.888 | 613.962 | 614.036 | 614.11 | 614.184 | 614.258 | 614.332 | 614.406 | 614.48 | 614.554 | 614.628 | 614.702 | 614.776 | 614.85 | 614.924 | 615.0 | 615.074 | 615.148 | 615.222 | 615.296 | 615.37 | 615.444 | 615.518 | 615.592 | 615.666 | 615.74 | 615.814 | 615.888 | 615.962 | 616.036 | 616.11 | 616.184 | 616.258 | 616.332 | 616.406 | 616.48 | 616.554 | 616.628 | 616.702 | 616.776 | 616.85 | 616.924 | 617.0 | 617.074 | 617.148 | 617.222 | 617.296 | 617.37 | 617.444 | 617.518 | 617.592 | 617.666 | 617.74 | 617.814 | 617.888 | 617.962 | 618.036 | 618.11 | 618.184 | 618.258 | 618.332 | 618.406 | 618.48 | 618.554 | 618.628 | 618.702 | 618.776 | 618.85 | 618.924 | 619.0 | 619.074 | 619.148 | 619.222 | 619.296 | 619.37 | 619.444 | 619.518 | 619.592 | 619.666 | 619.74 | 619.814 | 619.888 | 619.962 | 620.036 | 620.11 | 620.184 | 620.258 | 620.332 | 620.406 | 620.48 | 620.554 | 620.628 | 620.702 | 620.776 | 620.85 | 620.924 | 621.0 | 621.074 | 621.148 | 621.222 | 621.296 | 621.37 | 621.444 | 621.518 | 621.592 | 621.666 | 621.74 | 621.814 | 621.888 | 621.962 | 622.036 | 622.11 | 622.184 | 622.258 | 622.332 | 622.406 | 622.48 | 622.554 | 622.628 | 622.702 | 622.776 | 622.85 | 622.924 | 623.0 | 623.074 | 623.148 | 623.222 | 623.296 | 623.37 | 623.444 | 623.518 | 623.592 | 623.666 | 623.74 | 623.814 | 623.888 | 623.962 | 624.036 | 624.11 | 624.184 | 624.258 | 624.332 | 624.406 | 624.48 | 624.554 | 624.628 | 624.702 | 624.776 | 624.85 | 624.924 | 625.0 | 625.074 | 625.148 | 625.222 | 625.296 | 625.37 | 625.444 | 625.518 | 625.592 | 625.666 | 625.74 | 625.814 | 625.888 | 625.962 | 626.036 | 626.11 | 626.184 | 626.258 | 626.332 | 626.406 | 626.48 | 626.554 | 626.628 | 626.702 | 626.776 | 626.85 | 626.924 | 627.0 | 627.074 | 627.148 | 627.222 | 627.296 | 627.37 | 627.444 | 627.518 | 627.592 | 627.666 | 627.74 | 627.814 | 627.888 | 627.962 | 628.036 | 628.11 | 628.184 | 628.258 | 628.332 | 628.406 | 628.48 | 628.554 | 628.628 | 628.702 | 628.776 | 628.85 | 628.924 | 629.0 | 629.074 | 629.148 | 629.222 | 629.296 | 629.37 | 629.444 | 629.518 | 629.592 | 629.666 | 629.74 | 629.814 | 629.888 | 629.962 | 630.036 | 630.11 | 630.184 | 630.258 | 630.332 | 630.406 | 630.48 | 630.554 | 630.628 | 630.702 | 630.776 | 630.85 | 630.924 | 631.0 | 631.074 | 631.148 | 631.222 | 631.296 | 631.37 | 631.444 | 631.518 | 631.592 |



| Chainage          | Finished Road Levels |               |                          |                                                |                      |               | Basic Grade Line      |                         |
|-------------------|----------------------|---------------|--------------------------|------------------------------------------------|----------------------|---------------|-----------------------|-------------------------|
|                   | 0                    | 20            | 40                       | 60                                             | 70                   | 72.895        | 70.312                | 72.812                  |
| Ground Line       | 567.20               | 566.13        | 564.98                   | 563.94                                         | 563.44               | 563.52        |                       |                         |
| Left Edge         | 567.214              | 566.193       | 565.095                  | 563.970                                        | 563.488              | 563.570       |                       |                         |
| Base Grade Line   | 567.201              | 566.123       | 565.004                  | 563.923                                        | 563.438              | 563.520       |                       |                         |
| Right Edge        | 567.188              | 566.093       | 564.953                  | 563.876                                        | 563.398              | 563.470       |                       |                         |
| Gradient          | 3.111                | 567.121       | 38.056                   | 565.213                                        | 70.312               | 563.367       |                       |                         |
|                   | -2.672%              |               | -5.791%                  |                                                | -5.389%              |               |                       |                         |
| Vertical Curves   | 3.111                | BVC<br>53.350 | 20.000m VC<br>K = 48.873 | EVC<br>76.350                                  | BVC<br>72.711        | EVC<br>72.812 | 5.000m VC<br>K = 0.44 |                         |
| Superelevation    | 0.519                |               | 2.000                    |                                                | -2.000               |               |                       |                         |
| Horizontal Curves |                      |               | Direction<br>182°59'34"  | 64.336<br>PCC                                  | 5.000<br>C<br>70.352 |               |                       |                         |
|                   |                      |               |                          | Curve 3 Left<br>Radius=50.000<br>I = 19°33'54" |                      |               |                       | Direction<br>163°25'40" |

**NOTES**

1. ALL WORK TO COMPLY WITH COTO 08 2020 ENGINEERING SPECIFICATIONS, OR AS AMENDED.
2. ALL EXISTING LEVELS BASED ON TOPOGRAPHICAL SURVEY WGS 84 / LO 31
3. ALL SETTING OUT DETAILS TO BE CONFIRMED BY THE ENGINEER PRIOR TO ANY CONSTRUCTION WORK.
4. ALL EXISTING SERVICES IN THE AREA OF CONSTRUCTION TO BE PROVED PRIOR TO COMMENCEMENT OF ANY EXCAVATION. EXISTING SERVICES TO BE ENCASED IN CONCRETE AT THE ENGINEER'S DISCRETION.
5. WORK TO FIGURED DIMENSIONS. CO-ORDINATES AND LEVELS ONLY. DO NOT SCALE OF DRAWINGS AND ANY DISCREPANCIES IN DIMENSIONS / CO-ORDINATES TO BE REPORTED TO THE ENGINEER.
6. ALL CUT BANKS TO BE 1:5 MIN.
7. ALL SLOPE EMBANKMENTS TO BE TOPSOILED AND GRASSED.
8. POSITION OF KERBS, DRAINS TO BE CONFIRMED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION WORK THEREOF.
9. CARE IS TO BE TAKEN WHEN WORKING IN THE VICINITY OF EXISTING BUILDINGS.
10. JOINTS TO BE TIED INTO EXISTING ASPHALT SURFACING TO BE SAW CUT, TIE INTO EXISTING SET LEVELS.
11. ALL CURVE RADII TO ACCESSES TO BE 6m UNLESS OTHERWISE SHOWN.
12. ALL STORMWATER PIPES TO BE CLASS 1000 UNLESS OTHERWISE SHOWN.
13. ALL BELLMOUTH ACCESSES TO HAVE ROLL OVER KERBS, IE - MOUNTABLE KERBS.
14. ALL TIE-INS TO EXISTING DRIVEWAYS ARE TO BE AGREED ON SITE.
15. ALL GRAVEL TIE-INS TO EXISTING ROAD TO BE AT A MINIMUM 1:15 TAPER.
16. ALL EXISTING SERVICES TO BE PROVED PRIOR TO BULK EARTHWORKS OPERATIONS.

**LEGEND**

|     |            |
|-----|------------|
| --- | NGL        |
| —   | ROAD       |
| ●   | HIGH POINT |
| ●   | LOW POINT  |

|     |                   |     |            |
|-----|-------------------|-----|------------|
| A   | ISSUED FOR TENDER | M.M | 01/07/2026 |
| REV | DESCRIPTION       | BY  | DATE       |



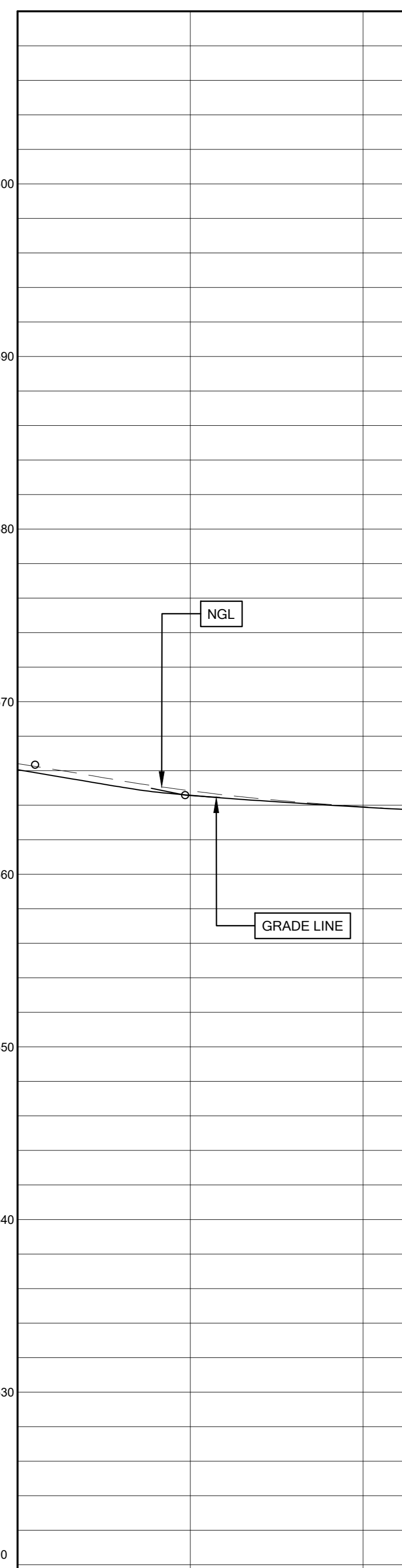
**CITY OF MBOMBELA**

**PROJECT**  
UPGRADING OF 3.25 KM OF SIWELA ROAD IN WARD 04

**DRAWING TITLE**  
LONGITUDINAL SECTIONS ROAD 9 (SHEET 1 OF 1)

**nme** NATHOO MBENYANE ENGINEERS  
ENGINEERS & PROJECT MANAGERS  
Office 001 Portion 3 Of 173  
R580 Plaston Road The Ranch  
White River  
1240  
Tel : 013-750 3122  
Fax : 013-750 3155  
e-mail : info.mp@nme.co.za

|          |     |          |                       |             |        |
|----------|-----|----------|-----------------------|-------------|--------|
| DESIGNED | R.S | REF. DRG | C25001-S-MM-L-S11     | PROJECT No. | C25001 |
| CHECKED  | M.P | SCALE    | HQR: 500<br>VERT: 200 | SHEET       | LS11   |
| DRAWN    | M.M | DATE     | 02/04/2026            | REVISION    | A      |



| Chainage             | 0                 | 10                                           | 20       | 30      | 40       | 50      | 55.835  |        |
|----------------------|-------------------|----------------------------------------------|----------|---------|----------|---------|---------|--------|
| Ground Line          | 566.08            | 565.38                                       | 564.74   | 564.49  | 564.13   | 563.88  | 563.78  |        |
| Finished Road Levels | Left Edge         | 566.413                                      | 565.815  | 565.147 | 564.617  | 564.217 | 563.773 |        |
|                      | Right Edge        | 566.283                                      | 565.714  | 565.079 | 564.528  | 564.114 | 563.748 |        |
| Base Grade Line      | 566.413           | 565.785                                      | 565.079  | 564.572 | 564.194  | 563.932 | 563.761 |        |
| Gradient             | -2.84 %           |                                              | -8.143 % |         | -2.594 % |         |         |        |
| Basic Grade Line     | Vertical Curves   | 40.000m VC<br>K = 7.209                      |          |         |          |         | 24.807  | 24.807 |
|                      | Superelevation    | 2.000<br>-2.000                              |          |         |          |         |         |        |
|                      | Horizontal Curves | Direction 172°50'30"<br>Direction 169°54'10" |          |         |          |         |         |        |

Curve 1 Left  
Radius: 75.000  
I = 0°15'58"

**NOTES**

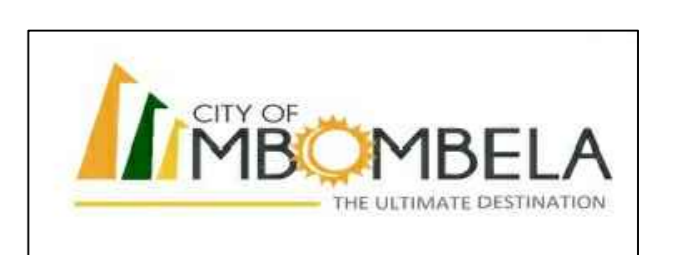
1. ALL WORK TO COMPLY WITH COTO DS 2020 ENGINEERING SPECIFICATIONS, OR AS AMENDED.
2. ALL EXISTING LEVELS BASED ON TOPOGRAPHICAL SURVEY WGS 84 / LO 31
3. ALL SETTING OUT DETAILS TO BE CONFIRMED BY THE ENGINEER PRIOR TO ANY CONSTRUCTION WORK.
4. ALL EXISTING SERVICES IN THE AREA OF CONSTRUCTION TO BE PROVED PRIOR TO COMMENCEMENT OF ANY EXCAVATION. EXISTING SERVICES TO BE ENCASED IN CONCRETE AT THE ENGINEER'S DISCRETION.
5. WORK TO FIGURED DIMENSIONS, CO-ORDINATES AND LEVELS ONLY. DO NOT SCALE OF DRAWINGS AND ANY DISCREPANCIES IN DIMENSIONS / CO-ORDINATES TO BE REPORTED TO THE ENGINEER.
6. ALL CUT BANKS TO BE 1:5 MIN.  
ALL FILL BANKS TO BE 1:5 MIN.  
VERGE SHAPING AS DIRECTED BY ENGINEER.
7. ALL SLOPE EMBANKMENTS TO BE TOPSOILED AND GRASSED.
8. POSITION OF KERBS, DRAINS TO BE CONFIRMED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION WORK THEREOF.
9. CARE IS TO BE TAKEN WHEN WORKING IN THE VICINITY OF EXISTING BUILDINGS.
10. JOINTS TO BE INTO EXISTING ASPHALT SURFACING TO BE SAW CUT, TIE INTO EXISTING SET LEVELS.
11. ALL CURVE RADII TO ACCESSSES TO BE 6m UNLESS OTHERWISE SHOWN.
12. ALL STORMWATER PIPES TO BE CLASS 1000 UNLESS OTHERWISE SHOWN.
13. ALL BELLMOUTH ACCESSSES TO HAVE ROLL OVER KERBS, IE - MOUNTABLE KERBS.
14. ALL TIE-INS TO EXISTING DRIVEWAYS ARE TO BE AGREED ON SITE.
15. ALL GRAVEL TIE-INS TO EXISTING ROAD TO BE AT A MINIMUM 1:10 TAPER.
16. ALL EXISTING SERVICES TO BE PROVED PRIOR TO BULK EARTHWORKS OPERATIONS.

**LEGEND**

|     |            |
|-----|------------|
| --- | NGL        |
| --- | ROAD       |
| •   | HIGH POINT |
| •   | LOW POINT  |

| A    | ISSUED FOR TENDER | M.M | 01/07/2026 |
|------|-------------------|-----|------------|
| REV. | DESCRIPTION.      | BY. | DATE.      |

CLIENT



**CITY OF MBOMBELA**

PROJECT

**UPGRADING OF 3.25 KM OF SIWELA ROAD IN WARD 04**

DRAWING TITLE

**LONGITUDINAL SECTIONS ROAD 10 (SHEET 1 OF 1)**

**nme** NATHOO MBENYANE ENGINEERS & PROJECT MANAGERS  
Office 001 Portion 3 Of 173  
R580 Plasston Road The Ranch  
White River  
1240

|          |     |          |                       |             |        |
|----------|-----|----------|-----------------------|-------------|--------|
| DESIGNED | R.S | REF. DRG | C25001-LS-MM-LS12     | PROJECT No. | C25001 |
| CHECKED  | M.P | SCALE    | HQR: 500<br>VERT: 200 | SHEET       | LS12   |
| DRAWN    | M.M | DATE     | 02/04/2026            | REVISION    | A      |