VICTOR KHANYE LOCAL MUNICIPALITY

CONTRACT NUMBER: T/RSW02/MIG/P1/2023/2024

PANEL OF SERVICE PROVIDERS FOR TARRING/PAVING OF ROADS IN VICTOR KHANYE LOCAL MUNICIPALITY FOR 36 MONTHS

TENDER DOCUMENT

NAME OF TENDERER: .....

PREPARED FOR :	**PREPARED BY:**
VICTOR KHANYE LOCAL MUNICIPALITY Corner Van Der Walt and Samuel Road Delmas 2210	**KTN CONSULTING ENGINEERS AND PROJECT MANAGERS** 52 Bekker Road Thornhill Office Park MIDRAND 1686
Telephone: 013 665 6000 Contact: A Mvelase (PMU) e-mail address:: ayendam@@vklm.gov.za	Telephone: 011 805 0981 Contact: K. Mayayise e-mail address: kulani@ktnconsulting.co.za

Tenderer: .....

CIDB Registration Number: .....

CSD Registration Number:.....

Preferences claimed for tendered contract participation goal: NOT APPLICABLE

VICTOR KHANYE LOCAL MUNICIPALITY

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VICTOR KHANYE LOCAL MUNICIPALITY

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T1.1 PROJECT NOTICE

Victor Khanye Local Municipality invites Suitable service providers to submit proposals on the goods and /or services listed hereunder:

DEPARTMENT	BID NUMBER	NON-REFUNDABLE BID DOCUMENT PRICE	DESCRIPTION OF GOODS/SERVICES	COMPULSORY BRIEFING SESSION	EVALUATION CRITERIA	CLOSING DATE	ENQUIRIES
Technical Services	T/RSW02/MIG/P1/2023/204	R1007.70	A panel of service providers for Tarring/Paving of roads in Victor Khanye Local Municipality for 36 months	23 May 2023 Time: 9:00 - 11:00	Functionality 80/20 80= Price 20=targeted goals Grade 6CE/ /Higher	19 June 2023 @ 10:00am	Mr J Buthelezi 081 036 7539

Compulsory virtual site clarification meetings for the construction-related projects will be held as per the schedule outlined in the table above, and prospective bidders can request the Microsoft Teams link for the meetings by sending an email to request an invitation from Heron v/d Westhuizen email Heron@ktnconsulting.co.za no later than the 19 May 2023 before 10:00 am. The briefing will take place on the 23rd of May 2023 as per the stipulated time in the table above. This will be then followed by a non-compulsory site visit with the prospective bidders on a date to be confirmed during the scheduled briefing session.

Tender documents will be available on 15 May 2023.
Preferential Procurement Policy Framework Act, No. 5 of 2000 and as defined in the bid document, read in conjunction with the Preferential Procurement Regulation, 2022 and Supply Chain Management Policy of Victor Khanye Local Municipality will apply in the adjudication process. The evaluation of the acceptable proposals will be conducted in the following two stages: A system that awards points based on 80 points for proposal price and 20 points in respect of targeted goals.
Price should be VAT inclusive. A valid Tax Clearance Certificate, identification copy or company registration certificate, MBD1; MBD2; MBD4; MBD6,1; MBD6,16,2, MBD6,16.3, MBD8 & MBD9 and current municipal account/lease agreement must be attached. Failure to attach the requested documents will result in a bid being non-responsive.

Tenders duly, endorsed with the project number and description, must be placed in the tender box on or before 19 June 2023 at 10:00 am at the Municipal Offices, Samuel Road, Delmas or could be posted to the undermentioned address to be received before the closing date and more information can be obtained from the contact person as specified above. TENDERS WILL BE EVALUATED ACCORDING TO THE STIPULATED MINIMUM THRESHOLD FOR LOCAL PRODUCTION AND CONTENT FOR THE GOODS AND SERVICES TO BE PROVIDED IN THE PROJECTS. THE EXCHANGE RATE TO BE USED FOR THE CALCULATION OF LOCAL PRODUCTION AND CONTENT MUST BE THE EXCHANGE RATE PUBLISHED BY THE SOUTH AFRICAN RESERVE BANK (SARB) AT 12:00 PM ON THE DATE OF ADVERTISEMENT OF THE BID

Collection of tender documents: Tender documents can be downloaded on the **E-Tender pot (www.etender.gov.za) or can be obtained on payment of a non-refundable fee as specified** and can be collected at the SCM Unit, Room 33 Municipal Offices, Delmas, 013 665 6000 between 07:30-16:30 Monday to Thursday and 7:30-13:30 Friday **excluding weekend and public holidays.**

Tenders received after the closing date and time, faxed, completed with a pencil or e-mailed will not be considered.

The Council reserves the right to accept any tender or part thereof and does not bind itself to accept the lowest or any tender and not to consider any tender not suitably endorsed or comprehensively completed. Tenders completed in pencil will be regarded as invalid tenders. Tenders should be valid for a period of not less than ninety (90) days. Appraisal of submissions will be done according to the Council's Procurement Policy. Council reserves the right not to appoint. **Suppliers must be registered on CSD.**

If you do not hear from us within 90 days of the closing date, please consider your tender unsuccessful.

Enquiries related to this tender should be addressed to Mr DS Mahlangu **(SCMU) at Tel. (013) 665-6000 during office hours.**

TM Mashabela
Municipal Manager

Municipal Offices,
PO Box 6, Delmas, 2210

VICTOR KHANYE LOCAL MUNICIPALITY

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PANEL OF SERVICE PROVIDERS FOR TARRING/PAVING OF ROADS IN VICTOR KHANYE LOCAL MUNICIPALITY FOR 36 MONTHS

T1.2 TENDER DATA

The conditions of tender are the Standard Conditions of Tender as contained in Annex F of the CIDB Standard for Uniformity in Construction Procurement (Feb 2008) as published in Government Gazette No: 30692, Board Notice 9 of 2008 of 1 February 2008. (See www.cidb.org.za).

The Standard Conditions of Tender make several references to the Tender Data for details that apply specifically to this tender. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the Standard Conditions of Tender.

Each item of data given below is cross-referenced to the clause in the Standard Conditions of Tender to which it mainly applies.

Clause Number	
F.1.1	**The Employer is:** ***Victor Khanye Local Municipality*** ***P.O. Box 6*** ***Delmas*** ***Mpumalanga*** ***2210***

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

F.1.2	**The Tender documents issued by the Employer comprise the following documents:** **THE TENDER** **Part T1 : Tendering Procedures** **T1.1 Project Notice** **T1.2 Tender Data** **Part T2: Returnable Documents** **T2.1 List of Returnable documents** **T2.2 Returnable schedules** **THE CONTRACT** **Part C1: Agreements and Contract Data** **C1.1 Form of offer and acceptance**	
F.1.2	C1.2 Contract Data C1.3 Performance guarantee **Part C2: Pricing Data** C2.1 Pricing Instructions C2.2 Bill of Quantities **Part C3: Scope of Work** C3 Scope of Work **Part C4: Site Information** C4 Site Information **Part C5 : Relevant Documentation** Health and Safety Specifications Pro-forma agreement in terms of Occupational Health and Safety Act Notification of construction work Pro-forma contract between contractor and worker Pro-forma attendance register Contract person days calculation format Contractor's monthly report format	
F1.3	**Interpretation** The tender data and additional requirements contained in the tender schedules that are included in the returnable documents are deemed to be part of these tender conditions.	
F.1.4	**The Employer's Agent is:**	
	KTN Consulting Engineers and Project Managers (Pty) Ltd ***Tel: 011 805 0981***	***52 Bekker Road*** ***Thornhill Office Park*** ***MIDRAND*** ***1861***
F.1.5	**The Employer's right to accept or reject any tender offer.** The employer has the right not to accept the lowest tender and to accept the whole or part of any tender or not to consider any tender not suitably endorsed is fully reserved by Victor Khanye Local Municipality.	
F.2.2	**Compensation of tendering** Accept that the Employer will not compensate the tenderer for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer satisfy requirements.	

Contractor	*Witness 1*	*Witness 2*	*Employer*	*Witness 1*	*Witness 2*

F.2.3	**Check documents.** Check the tender documents on receipt for completeness and notify the employer of any discrepancy or omission.
F.2.4	**Confidentiality and copyright** Treat as confidential all matters arising in connection with the tender. Use and copy the documents issued by the employer only for the purpose of preparing and submitting a tender offer in response to the invitation.
F.2.5	**Reference documents** Obtain, as necessary for submitting a tender offer, copies of the latest versions of standards, specifications, conditions of contract and other publications, which are not attached but which. are incorporated into the tender documents by reference.
F2.6	**Acknowledge Addenda** Acknowledge receipt of addenda to the tender documents, which the employer may issue, and if necessary, apply for an extension of the closing time stated in the tender data, to take the addenda into account.
F.2.7	**Site briefing meeting** A compulsory clarification meeting will be held on: Date: Refer to T1.1 TENDER NOTICE AND INVITATION TO TENDER for date and time. Location: VICTOR KHANYE LOCAL MUNICIPALITY Corner Van Der Walt and Samuel Road Delmas 2210
F.2.11	**Alterations to documents** Not make any alterations or additions to the tender documents, except to comply with instructions issued by the employer, or necessary to correct errors made by the tenderer. All signatories to the tender offer shall initial all such alterations. Erasures and the use of masking fluid are prohibited.

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

F2.13	**Submitting tender offer:** No Tender document will be considered unless submitted on Council's Official Tender Document. Return all the returnable documents to the employer after completing them. Tenders must be deposited in the tender box clearly marked with project description. **Tender No: T/RSW02/MIG/P1/2023/2024 PANEL OF SERVICE PROVIDERS FOR TARRING/PAVING OF ROADS IN VICTOR KHANYE LOCAL MUNICIPALITY FOR 36 MONTHS** **Location of tender Box:** Victor Khanye Local Municipality Corner Van Der Walt and Samuel Road Delmas 2210 Telephonic, telegraphic, telex, facsimile or emailed tenders will not be considered. All tender received by the Victor Khanye Local Municipality will remain in the Municipality's possession until after the stipulated closing date and time. Accept that a tender submitted to the employer cannot be withdrawn or substituted late. No substitute tenders will be considered
F.2.16	The Tender offer validity period is 90 Days.
F.2.18	The tenderer shall, when requested by the Employer to do so, submit the names of all management and supervisory staff that will be employed to supervise the labor-intensive portion of the works together with satisfactory evidence that such staff members satisfy the eligibility requirements.
F2.20	**The tenderer is required to submit a Performance Guarantee from an approved insurer within 14 days from appointment**. A format is included in Part C1.3 of this document. The tenderer is to submit to the employer before formation of the contract, all securities, bonds, guarantees, policies and certificates of insurance required in terms of the conditions of contract identified in the contract data.

Contractor	*Witness 1*	*Witness 2*	*Employer*	*Witness 1*	*Witness 2*

F.3.11 **Tender evaluation points**

The value of this bid is estimated to not exceed R50 000 000 (all applicable taxes included) and therefore the 80/20 system shall be applicable.

Preference points for this bid shall be awarded for:
(a) Price; and
(b) Targeted Goals

The maximum points for this bid are allocated as follows:

	POINTS
PRICE	**80**
Targeted Goals	**20**
Total points for Price and Targeted Goals must not exceed	**100**

Evaluation of Tenders

The Tenderers notice is drawn to the fact that the evaluation, adjudication and awarding of this tender will be in terms of the Supply Chain Management Policy of the Victor Khanye Local Municipality.

The following steps will be followed in evaluation:

1. Determination of whether or not tender offers are complete.
2. Determination of whether or not tender offers are responsive.
3. Determination of the reasonableness of tender offers.
4. Confirmation of the eligibility of preferential points claimed by tenderers.
5. Determination of expertise and experience of tenderers.
6. Awarding of points for financial offer.
7. Ranking of tenderers according to the total points
8. Performance of risk analysis by checking the credit record of the tenderers.

Evaluation Criteria

Tenders are adjudicated in terms of Victor Khanye Local Municipality Supply Chain Management Policy, and the following framework is provided as a guideline in this regard.

Size of enterprise and current workload

- Evaluation of the Tenderer's position in terms of:
- Previous and expected current annual turnover.
- Current contractual obligations
- Capacity to execute the contract.

Staffing profile

Evaluation of the Tenderer's position in terms of:

- Staff available for this contract being Tendered for
- Qualifications and experience of key staff to be utilised on this contract.

Proposed Key Personnel

In this part of the tender, the Tenderer shall also supply Curriculum Vitae (CV's) for the Staff available named and working on full time basis for the Tenderer. The CV should follow the normal Professional Format.

Each CV should give at least the following:

- Position in the firm and within the organisation of this assignment
- PDI status (describing population group, gender and disabilities)
- Educational qualifications
- Professional Registrations
- Relevant experience (actual duties performed, involvement and responsibility), including locations, dates and durations of assignments, starting with the latest.
- Language proficiency and
- References (company name, individual name, position held, contact details)

Much importance will be placed on the experience of the staff proposed. The Tender must ensure that, if selected, the nominated staff will be assigned as proposed. Failure to do so may result in the annulment of any acceptance of the Tenders' proposal and/ or Agreement entered into by the Client for the execution of the services.

Previous experience

The procedure for the evaluation of responsive Bids will be on the previous projects where the firm was involved for Victor Khanye Local Municipality (VKLM) projects or other clients. Reference of clients other than VKLM MUST be provided.

The tenderer shall list in the appropriate Forms the appropriate related projects undertaken by the member firms of the tenderer within the last five (5) years.

Evaluation of the Tenderer's position in terms of his previous experience. Emphasis will be placed on the following:

- Experience in the relevant technical field
- Experience of contracts of similar size
- Some or all of the references will be contacted to obtain their input.

The tenderer shall provide documentation of company experience of each member of the Consortium/Joint Venture related projects

Contractor	*Witness 1*	*Witness 2*	*Employer*	*Witness 1*	*Witness 2*

	If the Tender does not meet the requirements contained in the VKLM Procurement Policy, and the mentioned framework, it will be rejected by the Council, and may not subsequently be made acceptable by correction or withdrawal of the non-conforming deviation or reservation. Penalties The VKLM will if upon investigation it is found that a preference in terms of the Act and these regulations has been obtained on a fraudulent basis, or any specified goals are not attained in the performance of the contract, on discretion of the Municipal Manager, one or more of the following penalties will be imposed: • Cancel the contract and recover all losses or damages incurred or sustained from the Tenderer. • Impose a financial penalty at the discretion of Council. Restrict the contractor, its shareholders, and directors on obtaining any business from the VKLM for a period of 5 years
F.3.11.5	**Evaluation Method 4** Which entails the balance between financial offer, preferences and Quality and 80-20 points system, will be adopted.
F.3.18	The number of paper copies of the signed contract to be provided by the Employer is one.
	The additional conditions of Tender are: 1 VKLM may also request that the Tenderer provide written evidence that his financial, labour and resources are adequate for carrying out the project. 2 The VKLM reserves the right to appoint a firm of chartered accountants and auditors and / or execute any other financial investigations on the financial resources of any Tenderer. The Tenderer shall provide all reasonable assistance in such investigations. 3 The VKLM reserves the right to appoint a different Contractor for each project. The Tenderer shall be required to complete the form of offer (C1.1) and the Bill of Quantities (C2.2) for each project.
	The tenderer is to note that the following **Additional Relevant Documents** attached into Part five (5) of this document will form part of this contract: (i) Health and Safety Specifications (ii) Pro-forma agreement in terms of Occupational Health and Safety Act (iii) Notification of construction work (iv) Pro-forma contract between contractor and worker (v) Pro-forma attendance register (vi) Contract person days calculation format (vii) Contractor's monthly report format

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

F.3.11.6 **Evaluation Criteria**

The evaluation procedure consists of three phases:

Phase 1: Tenders will be evaluated for responsiveness to the tender requirements, tenderers who do not comply will be considered to be non-responsive and disqualified.

Phase 2: Tenderers will be evaluated for functionality, tenderers who did not meet the minimum requirements will be considered to be non-responsive and eliminated.

And

Phase 3: Tenderers will be evaluated based on financial proposals and preference. Tenderers with the highest points scored will be appointed.

The Construction Firm's tender responsiveness in relation to points is therefore summarized as follows:

Organising and Staffing		30
Plant		30
Experience of Firm		30
Financials		10
	Sub-Total	**100**

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

Organising and Staffing (Maximum points obtainable 30)
Project Manager / Team Leader: …….

Evaluation Criteria	Minimum Required		Elimination Factor	Points obtainable	Minimum Threshold	Points Claimed
Academic Qualifications	Diploma in Civil or equivalent		No	6		
Academic Qualifications	Diploma in Project Management or equivalent		No	4		
	Matric		Yes	0		
Sub-total				**6**		
Experience of Team Leader in similar projects			**Elimination Factor**		8	
Involvement in comparable projects (Technical)	0 - 1		Yes	0		
	1 - 2		No	1		
	3 - 4		No	2		
	5 upwards		No	4		
Sub-total				**4**		
Total				**10**	**8**	

Site Agent:*(Maximum Points obtainable 8, minimum 6)*

Name: …….

Evaluation Criteria	Minimum Required	Elimination Factor	Points obtainable	Minimum Threshold	Points Claimed
Academic Qualifications	Diploma in civil works or equivalent	No	5	**5**	
Academic Qualifications	No formal Education in Construction	Yes	0		
Sub-total			**5**		
Years of experience in similar projects	0 - 1	Yes	0	**1**	
	1 - 2	No	1		
	3 and above	No	3		
Sub-total			**3**		
Total			**8**	**6**	

Note: Should the Site Agent be the same as Contractor Manager zero points will be allocated.

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

Site Foreman:*(Maximum Points obtainable 6; minimum 5)*

Name: …….

Evaluation Criteria	Minimum Required	Points obtainable	Minimum Threshold	Points Claimed
Academic Qualifications (Note 10) Form L	N6 in Civil or equivalent	4	4	
Academic Qualifications				
Sub-total		**2**		
Years of experience after qualification	0-1	0		
	1 – 2	1		
	3 upwards	2		
Sub-total		**2**		
Total		**4**	4	

Note: Should the Site Foremen be the same Site Agent and Team leader zero points will be allocated

Safety Officer: ***(Maximum Points obtainable 8; minimum 6)***
Name: …….

Evaluation Criteria	Minimum Required	Points obtainable	Minimum Threshold	Points Claimed
Academic Qualifications	Occupational Health and Safety Certificate or equivalent (SAMTRAC)	5	6	
Sub-total		**5**		
Years of experience after qualification	0-1	0		
	1-2	1		
	3 upwards	3		
Sub-total		**3**		
Total		**8**	6	

Note: Should the Safety Officer be the same as Team leader, Site Agent, Site Foreman zero points will be allocated.

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

ORGANISING AND STAFFING/PERSONNEL		
PERSONNEL	**TOTAL**	**SCORES**
Construction Manager/Team Leader	10	
Site Agent	8	
Health and Safety Officer	8	
Site Foreman	4	
TOTAL 30		

PLANT (Maximum Points obtainable 30)

It must be noted that total points of **25** are obtainable by the Construction Firm in relation to the requirements as mentioned on the table below, failure to submit evidential supporting documents is not an eliminating factor **BUT** a zero point will be scored. Letter of intent or quotation from the lessor must be attached.

Evaluation Criteria	Minimum Required	Points obtainable (Own)	Points obtainable (leased)	Minimum Threshold	Points Claimed
Firm's plant and equipment – **Note**: Proof of ownership the firm's equipment must be attached and failure to do so will result in forfeiting the plant points	Firm's number of Excavator x 1	7.5	4.5	25	
	Firm's number of TLBs x1	7.5	4.5		
	Firm's number of Tipper Truck x 2	7.5	4.5		
	Firm's number of BOMAC Roller x1	7.5	4.5		
Sub-total		**30**	**18**	25	
Total		**30**	**18**	25	

EXPERIENCE OF FIRM (Maximum Points obtainable 30)

Note: Company's previous completed projects

It must be noted that the experience of the firm carries a maximum of **30 points** as indicated in the table below. If proof of testimonials and appointment letters, in reference to Form E not provided, then the bidder shall obtain zero points on the experience of the firm.

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

Provide proof of the company's previous completed projects which is in the form appointment letters and completion certificates. Verifiable references (appointment letters and completion certificates) with contact details must be attached.

Evaluation Criteria	Evaluation Criteria	Points obtainable	Minimum Threshold	Points Claimed
Company experience in terms of projects of a similar scope completed	1 Project of similar scope to the value of R4m	6	20	
	2 Projects of similar scope to the value of R4m	10		
	3 Projects of similar scope to the value of R4m	20		
	4 Projects upwards of similar scope to the value of R4m	30		
Sub-Total		**30**	20	
TOTAL		**30**	20	

Evaluation Criteria	Evaluation Criteria	Points obtainable	Minimum Threshold	Points Claimed
Company experience in terms of projects of a similar scope completed	1 R1.0mil for 3 consecutive years	3	10	
	2 R2.0mil for 3 consecutive years	5		
	3 R3.0mil for 3 consecutive years	10		
Sub-Total		**10**	10	
TOTAL		**10**	10	

TOTAL SCORE:_____/100

A bidder who scores less than the minimum threshold in any of the evaluation aspect will be disqualified. A bidder who scores the minimum number of **70** points out of a maximum of **100** for functionality will qualify to be evaluated in term of the **80 /20** preference point system

Contractor	*Witness 1*	*Witness 2*	*Employer*	*Witness 1*	*Witness 2*

PART 4. PRICING DATA:

DESCRIPTION	POINTS
PRICE	**80**
Targeted Goals	**20**
Total points for price and Targeted Goals must not exceed	**100**

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

VICTOR KHANYE LOCAL MUNICIPALITY

T2.1 LIST OF RETURNABLE DOCUMENTS

The Tenderer must complete the following returnable Schedules:
Returnable Schedules required for Tender evaluation purposes.

Form A	Compulsory Enterprise Questionnaire
Form B	Record of Addenda to Tender Documents
Form C	Authority for Signatory
Form D	Preference Schedule
Form E	Schedule of Previous Experience
Form F	Schedule of Current Projects
Form G	Certificate of Attendance at Site Meeting
Form H	Proposed Key Personnel
Form I	Schedule of Plant and Equipment
Form J	Schedule of Proposed Sub-Contractors
Form K	Financial References
Form L	Certificate of Authority of Joint Ventures/ Close corporation/ Partnership/ Company/ Sole proprietor
Form M	Certificate of Registration with CIBD of 6CE or higher
Form N	Registration on National Treasury Central Supplier
Form O	Municipal Utility Account
Form P	Proposed Amendments and Qualifications
Form Q	Program and Methodology
Form R	Quality Assurance Plan
Form S	Professional registration with ECSA for one key personnel

MBD1	Invitation to bid
MBD2	Tax compliance requirements
MBD4	Declaration of Interest
MBD6.2	Local Content in terms of PPR 2017
MBD8	Declaration of bidder's past supply chain management practices
MBD9	Certificate of Independent bid determination

Returnable Documents that will be incorporated into the contract.

C1.1	Form of Offer and Acceptance
C1.2	Contract Data (Part 2)
C1.3	Form of Guarantee
C2.2	Bill of Quantities

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

VICTOR KHANYE LOCAL MUNICIPALITY

TENDER NO: T/RSW02/MIG/P1/2023/2024

PANEL OF SERVICE PROVIDERS FOR TARRING/PAVING OF ROADS IN VICTOR KHANYE LOCAL MUNICIPALITY FOR 36 MONTHS

T2.2 RETURNABLE DOCUMENTS

RETURNABLE DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

FORM A COMPULSORY ENTERPRISE QUESTIONNAIRE

The following particulars must be furnished. In the case of a joint venture, separate enterprise questionnaires in respect of each partner must be completed and submitted.

Section 1: Name of enterprise: ……....

Section 2: VAT registration number, if any: ……

Section 3: Particulars of sole proprietors and partners in partnerships

Name*	Identity number*	Personal Income tax number*

* Complete only if sole proprietor or partnership and attach separate page if more than 3 partners

Section 4: Particulars of companies and close corporations

Company registration number ……..

Close corporation number ……..

Tax reference number ……

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

Section 5: Record in the service of the state

Indicate by marking the relevant boxes with a cross, if any sole proprietor, partner in a partnership or director, manager, principal shareholder or stakeholder in a company or close corporation is currently or has been within the last 12 months in the service of any of the following:

	A member of any municipal council		A employee of any provincial department, national or provincial public entry or constitutional institution within the meaning of the Public finance Management Act, 1999 (Act 1 of 1999)
	A member of any provincial legislation		A member of an accounting authority of any national or provincial public entity
	A member of the National Assembly or the National Council of Province		A employee of Parliament or a provincial legislature
	A member of the board of directors of any municipal entity		An official of any municipality or municipal entity

If any of the above boxes are marked, disclose the following:

Name of sole proprietor, partner, director, manager, principal shareholder or stakeholder	**Name of institution, public office, board or organ of state and position held**	**Status of service**	
		Current	**Within last 12 months**

Section 6: Records of spouses, children and parents in the service of the state

Indicate by making the relevant boxes with a cross, if any spouses, child or parent of a sole proprietor, partner in a partnership or director, manager, principal shareholder or stakeholder in a company or close corporation is currently or has been within the last 12 months been in the service of any of the following:

	A member of any municipal council		An employee of any provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management act, 1999 (act 1 of 1999)
	A member of any provincial legislature		A member of an accounting authority of any national or provincial public entity
	A member of the National Assembly or the National Council of Province.		An employee of Parliament or a provincial legislature
	A member of the board of directors of any municipal entity		An official of any municipality or municipal entity

Name of spouse, child or parent	**Name of institution, public office, board or organ of state and position held**	**Status of service (tick appropriate column)**	
		Current	**Within last 12 months**

* insert separate page if necessary

The undersigned, who warrants that he/she is duly authorised to do so on behalf of the enterprise:

i) authorizes the Employer to obtain a tax clearance certificate from the South African Revenue Services that my / our tax matters are in order;

ii) confirms that the neither the name of the enterprise or the name of any partner, manager, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears on the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004.

iii) confirms that no partner, member, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears, has within the last five years been convicted of frauds or corruption;

iv) confirms that I / we are not associated, linked or involved with any other tendering entities submitting tender offers and have no other relationship with any of the tenderers or those responsible for compiling the scope of work that cold cause or be interpreted as a conflict of interest; and

v) confirms that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.

Signed: _____ Date: _____

Name: _____ Position: _____

Enterprise: _____ Name: _____

ATTACH THE FOLLOWING DOCUMENTS HERETO

1. For Closed Corporations

   CK1 or CK2 as applicable (Founding Statement)

2. For Companies

   Shareholder register

3. For Joint Venture Agreements

   Copy of the Joint Venture Agreement between all the parties, as well as the documents in (1) or (2) of each Joint Venture member.

4. Audited Financial Statements for the past three (3) years.

5. CSD Audit Report

FORM B RECORD OF ADDENDA TO TENDER DOCUMENTS

I / We confirm that the following communications received from the Victor Khanye Local Municipality before the submission of this tender offer, amending the tender documents, have been taken into account in this tender offer: *(Attach additional pages if more space is required)*

	Date	Title or Details
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		

Name of Tenderer	Signature	Date

I / We confirm that no communications were received from the Victor Khanye Local Municipality before the submission of this tender offer, amending the tender documents.

Name of Tenderer	Signature	Date

FORM C AUTHORITY OF SIGNATORY

Details of person responsible for tender process:

Name : .....

Contact number : .....

Office address : .....

Signatories for close corporations and companies shall confirm their authority by attaching to this form a **duly signed and dated original or certified copy on the Company Letterhead** of the relevant resolution of their members or their board of directors, as the case may be.

PRO-FORMA FOR COMPANIES AND CLOSE CORPORATIONS:

"By resolution of the board of directors passed on *(date)* .....

Mr .....

has been duly authorized to sign all documents in connection with the Tender for Contract Number ……and any Contract which may arise there from on behalf of ……

(BLOCK CAPTIALS)

SIGNED ON BEHALF OF THE COMPANY .....

IN HIS CAPACITY AS .....

DATE .....

: .....

FULL NAMES OF SIGNATORY .....

AS WITNESSES: 1. ……..

2. ……

Pro-Forma

PRO-FORMA FOR JOINT VENTURES:

Certificate of Authority for Joint Ventures

We, the undersigned, are submitting this tender offer in Joint Venture and hereby authorise Mr/Ms ……., authorised signatory of the company....., acting in the capacity of lead partner, to sign all documents in connection with the tender offer an any contract resulting from it on our behalf.

NAME OF FIRM	ADDRESS	DULY AUTHORISED SIGNATORY
Lead Partner: CIDB Reg No: ……		Signature: …….. Name: …… Designation: ……..
  CIDB Reg No: ……		Signature: …….. Name: …… Designation: ……..
  CIDB Reg No: ……		Signature: …….. Name: …… Designation: ……..
  CIDB Reg No: ……		Signature: …….. Name: …… Designation: ……..
  CIDB Reg No: ……		Signature: …….. Name: …… Designation: ……..

Pro-Forma

ATTACH HERETO THE DULY SIGNED AND DATED ORIGINAL OR CERTIFIED COPY OF AUTHORITY OF SIGNATORY ON COMPANY LETTERHEAD

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

FORM D TARGETED GOALS

Pt = Price of tender under consideration

Pmax = Price of highest acceptable tender

3. POINTS AWARDED FOR SPECIFIC GOALS

3.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this tender:

3.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—

(a) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system; or

(b) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system,

then the organ of state must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.

Table 1: Specific goals for the tender and points claimed are indicated per the table below.

(Note to organs of state: Where either the 90/10 or 80/20 preference point system is applicable, corresponding points must also be indicated as such.

***Note to tenderers: The tenderer must indicate how they claim points for each preference point system.*)**

The specific goals allocated points in terms of this tender	**Number of points allocated (80/20 system) (To be completed by the organ of state)**	**Number of points claimed (80/20 system) (To be completed by the tenderer)**
RACE	6	
GENDER	6	
DISABILITY	6	
RDP	2	

DECLARATION WITH REGARD TO COMPANY/FIRM

3.3. Name of company/firm…….

3.4. Company registration number: ……...

Contractor	*Witness 1*	*Witness 2*	*Employer*	*Witness 1*	*Witness 2*

3.5. TYPE OF COMPANY/ FIRM

- ☐ Partnership/Joint Venture / Consortium
- ☐ One-person business/sole propriety
- ☐ Close corporation
- ☐ Public Company
- ☐ Personal Liability Company
- ☐ (Pty) Limited
- ☐ Non-Profit Company

EVALUATION CRITERIA

The tender shall be evaluated on a 80/20 preferential points system, where 80 points will be allocated in respect of price and 20 points in respect of targeted goals.

POINTS FOR CONTRACTING AN ENTERPRISE OWNED BY HISTORICALLY DISADVANTAGED PERSONS OR INDIVIDUALS		
HISTORICALLY DISAVANTAGED PERSONS OR INDIVIDUALS	**POINTS ALLOCATION**	**SOURCE DOCUMENTS REQUIRED TO CLAIM POINTS**
100% black person or people owned enterprise	6	A copy of **a Full CSD report** not older than 3 months

POINTS FOR CONTRACTING AN ENTERPRISE OWNED BY WOMEN OR MEN		
WOMEN OR MEN	**POINTS ALLOCATION**	**SOURCE DOCUMENTS REQUIRED TO CLAIM POINTS**
More than 30% women owned enterprise	6	A copy of **a Full CSD report** not older than 3 months
Men only owned enterprise	5	

POINTS FOR CONTRACTING AN ENTERPRISE OWNED BY PEOPLE WITH DISABILITY		
PEOPLE WITH DISABILITY	**POINTS ALLOCATION**	**SOURCE DOCUMENTS REQUIRED TO CLAIM POINTS**
More than 30% people living with disability shareholding or owned enterprise	6	A copy of a Medical Certificate to confirm disability

POINTS FOR IMPLEMENTING RDP PROGRAMMES		
RDP	**POINTS ALLOCATION**	**SOURCE DOCUMENTS REQUIRED TO CLAIM POINTS**
Corporate Social Investment (CSI)	2	Local / Social Labour plan proposition
TOTAL PREFERENCE POINTS TO BE CLAIMED	20	

FORM E SCHEDULE OF PREVIOUS EXPERIENCE

Current projects:

Project		Employer	Reference / Contact person	Contact Tel. No.	Contract amount	Contract period	Date of commence-ment	Scheduled date of completion
1								
2								
3								
4								
5								

Name of Tenderer	Signature	Date

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

FORM F SCHEDULE OF CURRENT PROJECTS

Current projects:

Project		Employer	Reference / Contact person		Contact Tel. No.	Contract amount	Contract period	Date of commence-ment	Scheduled date of completion
1									
2									
3									
4									
5									

Name of Tenderer	Signature	Date

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

FORM G CERTIFICATE OF ATTENDANCE AT SITE MEETING

This is to certify that I, _____ representing

_____ in the company of

_____ attend the online MS Teams

clarification meeting on 23 May 2023 at 9am to 11am.

I have made myself familiar with all conditions likely to influence the work and the cost thereof. I further certify that I am satisfied with the description of the work and explanations given at the clarification meeting and that I understand perfectly the work to be done, as specified and implied, in the execution of this contract.

Name of Tenderer	Signature	Date

Name of Municipal Representative	Signature	Date

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

FORM H PROPOSED KEY PERSONNEL

Please attach CVs of the proposed key personnel.

In terms of the Project Specification and the Conditions of Tender, unskilled workers may only be brought in from outside the local community if such personnel are not available locally.

The Tenderer shall list below the personnel which he intends to utilize on the Works, including key personnel which may have to be brought in from outside if not available locally.

CATEGORY OF EMPLOYEE	NUMBER OF PERSONS					
	KEY PERSONNEL, PART OF THE CONTRACTOR'S ORGANISATION		KEY PERSONNEL TO BE IMPORTED IF NOT AVAILABLE LOCALLY		UNSKILLED PERSONNEL TO BE RECRUITED FROM LOCAL COMMUNITY	
	HDI	NON-HDI	HDI	NON-HDI	HDI	NON-HDI
Site Agent, Project Managers						
Foremen, Quality Control and Safety Personnel						
Technicians, Surveyors, etc						
Artisans and other Skilled workers						
Plant Operators						
Others:.....						

The Tenderer shall attach hereto the *curricula vitae*, in the form included hereafter, of at least the site agent, the foreman, safety officer and the project manager. The information is necessary for evaluation of the tender.

Name of Tenderer: …… Date: ……

Signature : ……...

Full name of signatory: ……

FORM I SCHEDULE OF PLANT AND EQUIPMENT

The following are lists of major items of relevant equipment that I / we presently own or lease and will have available for this contract if my / our tender is accepted.

(a) Details of major equipment owned by me / us and immediately available for this contract.

DESCRIPTION ***(type, size, capacity etc)***	**QUANTITY**	**YEAR OF MANUFACTURE**

Attach additional pages if more space is required

(b) Details of major equipment that will be hired, or acquired for this contract if my / our tender is accepted

DESCRIPTION ***(type, size, capacity etc)***	***QUANTITY***	**HOW ACQUIRED**	
		HIRE/ BUY	**SOURCE**

Attach additional pages if more space is required

The Tenderer undertakes to bring onto site without additional cost to the Employer any additional plant not listed but which may be necessary to complete the contract within the specified contract period.

Failure to complete this form properly and correctly, will lead to the conclusion that the tenderer does not have the necessary plant and equipment resources at his disposal, which will prejudice his tender.

Name of Tenderer: …… Date: ……

Signature : ……...

Full name of signatory: ……

FORM J SCHEDULE OF PROPOSED SUB-CONTRACTORS

We notify you that it is our intention to employ the following sub-contractors for work in this contract. If we are awarded a contract, we agree that this notification does not change the requirement for us to submit the names of proposed sub-consultants in accordance with requirements in the contract for such appointments. If there are no such requirements in the contract, then your written acceptance of this list shall be binding between us. We agree we will not subcontract more than 25% of the value of the contract to a person who is not an HDI or does not qualify for such preference.

	Name and address of proposed sub-contractor	Nature and extent of work	Previous experience with sub-contractor
1			
2			
3			
4			
5			

Name of representative	**Signature**	**Capacity**	**Date**

Name of organization:	

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

FORM K FINANCIAL REFERENCES

FINANCIAL STATEMENTS

I/We agree, if required, to furnish an audited copy of the last 3 years' set of financial statements together with my/our Directors' and Auditors' report for consideration by the Client.

DETAILS OF TENDERERS BANKING INFORMATION

I/We hereby authorise the Client/Engineer to approach all or any of the following banks for the purposes of obtaining a financial reference:

BANK NAME:	
ACCOUNT NAME: *(e.g. ABC Civil Construction cc)*	
ACCOUNT TYPE: *(e.g. Savings, Cheque etc)*	
ACCOUNT NO:	
ADDRESS OF BANK:	
CONTACT PERSON:	
TEL. NO. OF BANK / CONTACT:	
How long has this account been in existence:	0-6 months ☐ 7-12 months ☐ 13-24 months ☐ More than 24 months ☐ (Tick which is appropriate)

Name of Tenderer: …… Date: ……

Signature : ……...

Full name of signatory: ……

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

FORM L Certificate of Authority of Joint Ventures/ Close corporations/ Partnership/ Company/ Sole proprietor

Indicate the status of the Tenderer by ticking the appropriate box hereunder. The Tenderer must complete the certificate set out below for the relevant category.

(I) COMPANY	(II) CLOSE CORPORATION	(III) PARTNERSHIP	(IV) JOINT VENTURE	(V) SOLE PROPRIETOR

(I) CERTIFICATE OF COMPANY

I, ……..……., chairperson of the Board of Directors of ....., hereby confirm that by resolution of the Board (copy attached) taken on ……..... 20....., Mr/Ms ....., acting in the capacity of…….....…, was authorized to sign all documents in connection with the tender for Project No. *T/RSW02/MIG/P1/2023/2024* and any contract resulting from it on behalf of the company.

Chairman: .....

As Witnesses: 1.....

2.....

Date: .....

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

(II) CERTIFICATE FOR CLOSE CORPORATION

We, the undersigned, being the key members in the business trading as .....

..... hereby authorize Mr/Ms …….... , acting in the capacity of....., to sign all documents in connection with the tender for Contract No. T/RSW02/MIG/P1/2023/2024 and any contract resulting from it on our behalf.

NAME	ADDRESS	SIGNATURE	DATE

Note : This certificate is to be completed and signed by all of the key members upon whom rests the direction of the affairs of the Close Corporation as a whole.

(III) CERTIFICATE FOR PARTNERSHIP

We, the undersigned, being the key partners in the business trading as, ...……..…., hereby authorize Mr/Ms ..... ,

acting in the capacity of …….... , to sign all documents in connection with the tender for Contract No. T/RSW02/MIG/P1/2023/2024 and any contract resulting from it on our behalf.

NAME	ADDRESS	SIGNATURE	DATE

Note : This certificate is to be completed and signed by all of the key partners upon whom rests the direction of the affairs of the Partnership as a whole.

(IV) CERTIFICATE FOR JOINT VENTURE

This Returnable Schedule is to be completed by joint ventures.

We, the undersigned, are submitting this tender offer in Joint Venture and hereby authorise Mr/Ms . . . . . , authorised signatory of the company . . . . , acting in the capacity of lead partner, to sign all documents in connection with the tender offer and any contract resulting from it on our behalf.

NAME OF FIRM	ADDRESS	DULY AUTHORISED SIGNATORY
Lead partner		Signature. . . . . . Name …… Designation…… ……
		Signature. . . . . . Name …… Designation…… ……
		Signature. . . . . . Name …… Designation…… ……
		Signature. . . . . . Name …… Designation…… ……

Note : This certificate is to be completed and signed by all of the key partners upon whom rests the direction of the affairs of the Joint Venture as a whole.

(V) CERTIFICATE FOR SOLE PROPRIETOR

I, ..., hereby confirm that I am the sole owner of the Business

trading as …….....

Signature of Sole owner: .....

As Witnesses: Date:

1..... .....

2. ....

FORM M Certificate of Registration with CIDB

The tenderer shall provide a printed copy of the Active Contractor's Listing off the CIDB website. (www.cidb.org.za). Tenderers whose CIDB registration expires within 21 days after close of tender should attach proof of their application for re-registration (refer to Tender Data Clause F.2.1). In the case of a Joint Venture, a printed copy of the Active Contractor's Listing must be provided for each member of the Joint Venture.

Name of Contractor: .....

Contractor Grading Designation: .....

CIDB Contractor Registration Number: .....

Expiry Date: .....

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

FORM N Registration on National Treasury Central Supplier

The tenderer shall provide a printed copy of the Active Supplier Listing on the National Treasury Central Supplier Database. (www.treasury.gov.za). Tenderers who are not registered on the Central Supplier Database should attach proof of their application for registration. In the case of a Joint Venture, a printed copy of the Active Supplier Listing must be provided for each member of the Joint Venture.

Name of Contractor: .....

Central Supplier Database Supplier Number: .....

Expiry Date: .....

FORM O Municipal Utility Account

DECLARATION BY THE TENDERER

I the undersigned_____, has been duly authorized to sign all documents with the Tender for Contract Number_____on behalf of _____ hereby make a declaration as follows:
(referred to herein as "the Bidder")

1. I declare that the bidder and /or any of its director(s) / member(s) does not owe the municipality, or any other municipality and/or municipal entity any amount which is in arrears in respect of any municipal rates and taxes or municipal service charges.

2. I understand and accept that in the event that this declaration is proved to be false, the bid shall be rejected forthwith. All other rights of the municipality (including but not limited to the right to claim damages where applicable) shall remain reserved in full.

SIGNED ON BEHALF OF THE COMPANY _____

IN HIS CAPACITY AS _____

DATE _____

FULL NAMES OF SIGNATORY _____

Utility Account Number	Name of Municipality	Name of Owner

ATTACH AN ORIGINAL OR A CERTIFIED COPY OF A MUNICIPAL UTILITY ACCOUNT (NOT OLDER THAN THREE (3) MONTHS)

Important: Note the following

- List Account(s) registered either in the name(s) of the Director(s) or the Company on the declaration form attached hereto.

Attach Municipal Utility account of Company's registered office (if applicable) and in case of leased premises, attach lease agreement and the services account of leased premises. (issued in the name of the bidding company)

FORM P Proposed Amendments and Qualifications

Attached here any Proposed Amendments and Qualifications (if any)

FORM Q Program and Methodology

Attached here a Proposed Program and Methodology

FORM R Quality Assurance Plan

Attached here a Proposed Quality Assurance Plan

FORM S
Professional registration with ECSA for one key personnel

Attached here Professional registration with ECSA for one key personnel

PART A
INVITATION TO BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE VICTOR KHANYE LOCAL MUNICIPALITY					
BID NUMBER:	**T/RSW02/MIG/P1/2023/2024**	CLOSING DATE:	**19 June 2023**	CLOSING TIME:	**10h00**
DESCRIPTION	A panel of service providers for Tarring/Paving of roads in Victor Khanye Local Municipality for 36 months				

THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (MBD7).

BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX
SITUATED AT

First floor, Victor Khanye Local Municipality
Civic Centre
Corner Van Der Walt Street and Samuel Road
Delmas
2210

SUPPLIER INFORMATION					
NAME OF BIDDER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER					
FACSIMILE NUMBER	CODE		NUMBER		
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
TAX COMPLIANCE STATUS	TCS PIN:		**OR**	CSD No:	

ARE YOU THE ACCREDITED REPRESENTATIVE **IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?**	☐ Yes ☐ No [IF YES ENCLOSE PROOF] ☐	ARE YOU A FOREIGN BASED SUPPLIER FOR **THE GOODS /SERVICES /WORKS OFFERED?** ☐	Yes ☐ No ☐ [IF YES, ANSWER PART B:3]
TOTAL NUMBER OF ITEMS OFFERED		**TOTAL BID PRICE**	**R**
SIGNATURE OF BIDDER	……	**DATE**	
CAPACITY UNDER WHICH THIS BID IS SIGNED			

BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO:		**TECHNICAL INFORMATION MAY BE DIRECTED TO:**	
DEPARTMENT	SCMU	CONTACT PERSON	Mr Heron v/d Westhuizen
CONTACT PERSON	Mr DS Mahlangu	TELEPHONE NUMBER	011 805 0981
TELEPHONE NUMBER	013 665 6000		
E-MAIL ADDRESS	secmm@victorkhanyelm.gov.za	E-MAIL ADDRESS	heron@ktnconsulting.co.za

PART B
TERMS AND CONDITIONS FOR BIDDING

1. BID SUBMISSION:

1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.

1.2. ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED–(NOT TO BE RE-TYPED) OR ONLINE

2. TAX COMPLIANCE REQUIREMENTS

2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.

2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VIEW THE TAXPAYER'S PROFILE AND TAX STATUS.

2.3 APPLICATION FOR THE TAX COMPLIANCE STATUS (TCS) CERTIFICATE OR PIN MAY ALSO BE MADE VIA E-FILING. IN ORDER TO USE THIS PROVISION, TAXPAYERS WILL NEED TO REGISTER WITH SARS AS E-FILERS THROUGH THE WEBSITE WWW.SARS.GOV.ZA.

2.4 FOREIGN SUPPLIERS MUST COMPLETE THE PRE-AWARD QUESTIONNAIRE IN PART B:3.

2.5 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.

2.6 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED, EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.

2.7 WHERE NO TCS IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.

3. QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS

3.1. IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)? ☐ YES ☐ NO

3.2. DOES THE ENTITY HAVE A BRANCH IN THE RSA? ☐ YES ☐ NO

3.3. DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA? ☐ YES ☐ NO

3.4. DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA? ☐ YES ☐ NO

3.5. IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION? ☐ YES ☐ NO

IF THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 ABOVE.

NB: FAILURE TO PROVIDE ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID.
NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE.

SIGNATURE OF BIDDER: ……

CAPACITY UNDER WHICH THIS BID IS SIGNED: ……

DATE: ……...

TAX CLEARANCE REQUIREMENTS

IT IS A CONDITION OF BIDDING THAT -

1. The taxes of the successful bidder must be in order, or that satisfactory arrangements have been made with the Receiver of Revenue to meet his / her tax obligations.

2. The attached form “Application for Tax Clearance Certificate (in respect of bidders)” must be completed in all respects and submitted to the Receiver of Revenue where the bidder is registered for tax purposes. The Receiver of Revenue will then furnish the bidder with a Tax Clearance Certificate that will be valid for a period of twelve (12) months from date of issue. This Tax Clearance Certificate must be submitted in the original together with the bid. Failure to submit the original and valid Tax Clearance Certificate may invalidate the bid.

3. In bids where Consortia / Joint Ventures / Sub-contractors are involved each party must submit a separate Tax Clearance Certificate. Copies of the Application for Tax Clearance Certificates are available at any Receiver’s Office.

APPLICATION FOR TAX CLEARANCE CERTIFICATE

(IN RESPECT OF BIDDERS)

1. Name of taxpayer / bidder: .....
2. Trade name: .....
3. Identification number: | | | | | | | | | | | | | |
4. Company / Close Corporation registration number: | | | | | | | | | | |
5. Income tax reference number: | | | | | | | | | | |
6. VAT registration number (if applicable): | | | | | | | | | | |
7. PAYE employer's registration number (if applicable): | | | | | | | | | | |

Signature of contact person requiring Tax Clearance Certificate: .....
Name: .....
Telephone number: Code:…… Number: .....
Address: .....
.....
.....

DATE: 20_____ / _____ / _____

PLEASE NOTE THAT THE COMMISSIONER FOR THE SOUTH AFRICAN REVENUE SERVICE (SARS) WILL NOT EXERCISE HIS DISCRETIONARY POWERS IN FAVOUR OF ANY PERSON WITH REGARD TO ANY INTEREST, PENALTIES AND / OR ADDITIONAL TAX LEVIABLE DUE TO THE LATE- OR UNDERPAYMENT OF TAXES, DUTIES OR LEVIES OR THE RENDITION RETURNS BY ANY PERSON AS A RESULT OF ANY SYSTEM NOT BEING YEAR 2000 COMPLIANT.

DECLARATION OF INTEREST

1. No bid will be accepted from persons in the service of the state∗.
2. Any person, having a kinship with persons in the service of the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid. In view of possible allegations of favoritism, should the resulting bid, or part thereof, be awarded to persons connected with or related to persons in service of the state, it is required that the bidder or their authorised representative declare their position in relation to the evaluating/adjudicating authority and/or take an oath declaring his/her interest.

3 In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.

3.1 Full Name: ……

3.2 Identity Number: ……

3.3 Company Registration Number: ……

3.4 Tax Reference Number: ……

3.5 VAT Registration Number: ……

3.6 Are you presently in the service of the state∗ **YES / NO**

3.6.1 If so, furnish particulars.

……

……

3.7 Have you been in the service of the state for the past twelve months? **YES / NO**

3.7.1 If so, furnish particulars.

……

……

3.8 Do you, have any relationship (family, friend, other) with persons in the service of the state and who may be involved with the evaluation and the adjudication of this bid? **YES / NO**

∗ MSCM Regulations: "in the service of the state" means to be –

(a) a member of –
  (i) any municipal council;
  (ii) any provincial legislature; or
  (iii) the national Assembly or the national Council of provinces;

(b) a member of the board of directors of any municipal entity;
(c) an official of any municipality or municipal entity;
(d) an employee of any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No.1 of 1999);
(e) a member of the accounting authority of any national or provincial public entity; or
(f) an employee of Parliament or a provincial legislature.

3.8.1 If so, furnish particulars.

YES / NO

……

……

3.9 Are you, aware of any relationship (family, friend, other) between a bidder and any persons in the service of the state who may be involved with the evaluation and or adjudication of this bid? **YES / NO**

3.9.1 If so, furnish particulars.

……

……

3.10 Are any of the company's directors, managers, principle shareholders or stakeholders in service of the state? **YES / NO**

3.10.1 If so, furnish particulars.

……

……

3.11 Are any spouse, child or parent of the company's directors, managers, principle shareholders or stakeholders in service of the state? **YES / NO**

3.11.1 If so, furnish particulars.

……

……

CERTIFICATION

I, THE UNDERSIGNED …… **(NAME**)

CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM IS CORRECT. I ACCEPT THAT THE STATE MAY ACT AGAINST ME SHOULD THIS DECLARATION PROVE TO BE

FALSE.

…….. ……..……

Signature Date

……. …….

Position Name of Bidder

DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS

This Standard Bidding Document (SBD) must form part of all bids invited. It contains general information and serves as a declaration form for local content (local production and local content are used interchangeably).

Before completing this declaration, bidders must study the General Conditions, Definitions, Directives applicable in respect of Local Content as prescribed in the Preferential Procurement Regulations, 2011, the South African Bureau of Standards (SABS) approved technical specification number SATS 1286:2011 (Edition 1) and the Guidance on the Calculation of Local Content together with the Local Content Declaration Templates [Annex C (Local Content Declaration: Summary Schedule), D (Imported Content Declaration: Supporting Schedule to Annex C) and E (Local Content Declaration: Supporting Schedule to Annex C)].

1. General Conditions

1.1. Preferential Procurement Regulations, 2017 (Regulation 9) makes provision for the promotion of local production and content.

1.2. Regulation 9.(1) prescribes that in the case of designated sectors, where in the award of bids local production and content is of critical importance, such bids must be advertised with the specific bidding condition that only locally produced goods, services or works or locally manufactured goods, with a stipulated minimum threshold for local production and content will be considered.

1.3. Where necessary, for bids referred to in paragraph 1.2 above, a two-stage bidding process may be followed, where the first stage involves a minimum threshold for local production and content and the second stage price and targeted goals

1.4. A person awarded a contract in relation to a designated sector, may not sub-contract in such a manner that the local production and content of the overall value of the contract is reduced to below the stipulated minimum threshold.

1.5. The local content (LC) expressed as a percentage of the bid price must be calculated in accordance with the SABS approved technical specification number SATS 1286: 2011 as follows:

$$LC = [1 - x / y] * 100$$

Where

x is the imported content in Rand

y is the bid price in Rand excluding value added tax (VAT)

Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by South African Reserve Bank (SARB) at 12:00 on the date of advertisement of the bid as indicated in paragraph 4.1 below.

The SABS approved technical specification number SATS 1286:2011 is accessible on http:/www.thedti.gov.za/industrial development/ip.jsp at no cost.

1.6 A bid may be disqualified if –

(a) this Declaration Certificate and the Annex C (Local Content Declaration: Summary Schedule) are not submitted as part of the bid documentation; and

(b) the bidder fails to declare that the Local Content Declaration Templates (Annex C, D and E) have been audited and certified as correct.

2. Definitions

2.1. **"bid"** includes written price quotations, advertised competitive bids or proposals.

2.2. **"bid price"** price offered by the bidder, excluding value added tax (VAT);

2.3. **"contract"** means the agreement that results from the acceptance of a bid by an organ of state;

2.4. **"designated sector"** means a sector, sub-sector or industry that has been designated by the Department of Trade and Industry in line with national development and industrial policies for local production, where only locally produced services, works or goods or locally manufactured goods meet the stipulated minimum threshold for local production and content;

2.5. **"duly sign"** means a Declaration Certificate for Local Content that has been signed by the Chief Financial Officer or other legally responsible person nominated in writing by the Chief Executive, or senior member / person with management responsibility (close corporation, partnership or individual).

2.6. **"imported content"** means that portion of the bid price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the supplier or its subcontractors) and which costs are inclusive of the costs abroad (this includes labour or intellectual property costs), plus freight and other direct importation costs, such as landing costs, dock duties, import duty, sales duty or other similar tax or duty at the South African port of entry;

2.7. **"local content"** means that portion of the bid price which is not included in the imported content, provided that local manufacture does take place;

2.8. **"stipulated minimum threshold"** means that portion of local production and content as determined by the Department of Trade and Industry; and

2.9. **"sub-contract"** means the primary contractor's assigning, leasing, making out work to, or employing another person to support such primary contractor in the execution of part of a project in terms of the contract.

3. The stipulated minimum threshold(s) for local production and content (refer to Annex A of SATS 1286:2011) for this bid is/are as follows:

Description of services, works or goods	Stipulated minimum threshold
_____	_____%
_____	_____%
_____	_____%

4. Does any portion of the services, works or goods offered have any imported content?

(***Tick applicable box***)

YES		NO	

4.1 If yes, the rate(s) of exchange to be used in this bid to calculate the local content as prescribed in paragraph 1.5 of the general conditions must be the rate(s) published by SARB for the specific currency at 12:00 on the date of advertisement of the bid.

The relevant rates of exchange information is accessible on **www.reservebank.co.za.**

Indicate the rate(s) of exchange against the appropriate currency in the table below (refer to Annex A of SATS 1286:2011):

Currency	**Rates of exchange**

US Dollar	
Pound Sterling	
Euro	
Yen	
Other	

NB: Bidders must submit proof of the SARB rate (s) of exchange used.

5. Were the Local Content Declaration Templates (Annex C, D and E) audited and certified as correct?

(***Tick applicable box***)

YES		NO	

5.1. If yes, provide the following particulars:

(a) Full name of auditor: ……

(b) Practice number: ……..

(c) Telephone and cell number: …….

(d) Email address: ……..

(Documentary proof regarding the declaration will, when required, be submitted to the satisfaction of the Accounting Officer / Accounting Authority)

6. Where, after the award of a bid, challenges are experienced in meeting the stipulated minimum threshold for local content the dti must be informed accordingly in order for the dti to verify and in consultation with the AO/AA provide directives in this regard.

LOCAL CONTENT DECLARATION

(REFER TO ANNEX B OF SATS 1286:2011)

LOCAL CONTENT DECLARATION BY CHIEF FINANCIAL OFFICER OR OTHER LEGALLY RESPONSIBLE PERSON NOMINATED IN WRITING BY THE CHIEF EXECUTIVE OR SENIOR

MEMBER/PERSON WITH MANAGEMENT RESPONSIBILITY (CLOSE CORPORATION, PARTNERSHIP OR INDIVIDUAL)

IN RESPECT OF BID NO. .....

ISSUED BY: (Procurement Authority / Name of Institution): .....

NB

1. The obligation to complete, duly sign and submit this declaration cannot be transferred to an external authorized representative, auditor or any other third party acting on behalf of the bidder.

2. Guidance on the Calculation of Local Content together with Local Content Declaration Templates (Annex C, D and E) is accessible on http://www.thdti.gov.za/industrial development/ip.jsp. Bidders should first complete Declaration D. After completing Declaration D, bidders should complete Declaration E and then consolidate the information on Declaration C. **Declaration C should be submitted with the bid documentation at the closing date and time of the bid in order to substantiate the declaration made in paragraph (c) below.** Declarations D and E should be kept by the bidders for verification purposes for a period of at least 5 years. The successful bidder is required to continuously update Declarations C, D and E with the actual values for the duration of the contract.

I, the undersigned, ……..... (full names),

do hereby declare, in my capacity as …… ……..

of .....(name of bidder entity), the following:

(a) The facts contained herein are within my own personal knowledge.

(b) I have satisfied myself that:

(i) the goods/services/works to be delivered in terms of the above-specified bid comply with the minimum local content requirements as specified in the bid, and as measured in terms of SATS 1286:2011; and

(ii) the declaration templates have been audited and certified to be correct.

(c) The local content percentage (%) indicated below has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E which has been consolidated in Declaration C:

Bid price, excluding VAT (y)	R
Imported content (x), as calculated in terms of SATS 1286:2011	R
Stipulated minimum threshold for local content (paragraph 3 above)	

Local content %, as calculated in terms of SATS 1286:2011	

If the bid is for more than one product, the local content percentages for each product contained in Declaration C shall be used instead of the table above.

The local content percentages for each product have been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E.

(d) I accept that the Procurement Authority / Institution has the right to request that the local content be verified in terms of the requirements of SATS 1286:2011.

(e) I understand that the awarding of the bid is dependent on the accuracy of the information furnished in this application. I also understand that the submission of incorrect data, or data that are not verifiable as described in SATS 1286:2011, may result in the Procurement Authority / Institution imposing any or all of the remedies as provided for in Regulation 13 of the Preferential Procurement Regulations, 2011 promulgated under the Preferential Policy Framework Act (PPPFA), 2000 (Act No. 5 of 2000).

SIGNATURE: _____ **DATE:** _____

WITNESS No. 1 _____ **DATE:** _____

WITNESS No. 2 _____ **DATE:** _____

DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

1 This Municipal Bidding Document must form part of all bids invited.

2 It serves as a declaration to be used by municipalities and municipal entities in ensuring that when goods and services are being procured, all reasonable steps are taken to combat the abuse of the supply chain management system.

3 The bid of any bidder may be rejected if that bidder, or any of its directors have:

a. abused the municipality's / municipal entity's supply chain management system or committed any improper conduct in relation to such system;
b. been convicted for fraud or corruption during the past five years;
c. willfully neglected, reneged on or failed to comply with any government, municipal or other public sector contract during the past five years; or
d. been listed in the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004).

4 In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.

Item	Question	Yes	No
4.1	Is the bidder or any of its directors listed on the National Treasury's database as a company or person prohibited from doing business with the public sector? **(Companies or persons who are listed on this database were informed in writing of this restriction by the National Treasury after the *audi alteram partem* rule was applied).**	Yes ☐	No ☐
4.1.1	If so, furnish particulars:		
4.2	Is the bidder or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004)? **(To access this Register enter the National Treasury's website, www.treasury.gov.za, click on the icon "Register for Tender Defaulters" or submit your written request for a hard copy of the Register to facsimile number (012) 3265445).**	Yes ☐	No ☐
4.2.1	If so, furnish particulars:		
4.3	Was the bidder or any of its directors convicted by a court of law (including a court of law outside the Republic of South Africa) for fraud or corruption during the past five years?	Yes ☐	No ☐
4.3.1	If so, furnish particulars:		

Item	Question	Yes	No
4.4	Does the bidder or any of its directors owe any municipal rates and taxes or municipal charges to the municipality / municipal entity, or to any other municipality / municipal entity, that is in arrears for more than three months?	Yes ☐	No ☐
4.4.1	If so, furnish particulars:		
4.5	Was any contract between the bidder and the municipality / municipal entity or any other organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	Yes ☐	No ☐
4.7.1	If so, furnish particulars:		

CERTIFICATION

I, THE UNDERSIGNED (FULL NAME) ……..……..…… CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM TRUE AND CORRECT.

I ACCEPT THAT, IN ADDITION TO CANCELLATION OF A CONTRACT, ACTION MAY BE TAKEN AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.

……... **……..**
Signature **Date**

……. **……..**
Position **Name of Bidder**

MBD 9

CERTIFICATE OF INDEPENDENT BID DETERMINATION

1 This Municipal Bidding Document (MBD) must form part of all bids[1] invited.

2 Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging).[2] Collusive bidding is a *pe se* prohibition meaning that it cannot be justified under any grounds.

3 Municipal Supply Regulation 38 (1) prescribes that a supply chain management policy must provide measures for the combating of abuse of the supply chain management system, and must enable the accounting officer, among others, to:

a. take all reasonable steps to prevent such abuse;

b. reject the bid of any bidder if that bidder or any of its directors has abused the supply chain management system of the municipality or municipal entity or has committed any improper conduct in relation to such system; and

c. cancel a contract awarded to a person if the person committed any corrupt or fraudulent act during the bidding process or the execution of the contract.

4 This MBD serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of bid-rigging.

5 In order to give effect to the above, the attached Certificate of Bid Determination (MBD 9) must be completed and submitted with the bid:

[1] Includes price quotations, advertised competitive bids, limited bids and proposals.

[2] Bid rigging (or collusive bidding) occurs when businesses, that would otherwise be expected to compete, secretly conspire to raise prices or lower the quality of goods and / or services for purchasers who wish to acquire goods and / or services through a bidding process. Bid rigging is, therefore, an agreement between competitors not to compete.

MBD 9

CERTIFICATE OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid:

_____

(Bid Number and Description)

in response to the invitation for the bid made by:

_____

(Name of Municipality / Municipal Entity)

do hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf of:_____that:

(Name of Bidder)

1. I have read and I understand the contents of this Certificate;
2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign, the bid, on behalf of the bidder;
5. For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:

    (a) has been requested to submit a bid in response to this bid invitation;
    (b) could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
    (c) provides the same goods and services as the bidder and/or is in the same line of business as the bidder

6. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium[3] will not be construed as collusive bidding.
7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
    (a) prices;
    (b) geographical area where product or service will be rendered (market allocation)
    (c) methods, factors or formulas used to calculate prices;
    (d) the intention or decision to submit or not to submit, a bid;
    (e) the submission of a bid which does not meet the specifications and conditions of the bid; or
    (f) bidding with the intention not to win the bid.
8. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.
9. The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.

[3] Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

10. I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No. 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No. 12 of 2004 or any other applicable legislation.

……	……
Signature	Date
……..	……
Position	Name of Bidder

VICTOR KHANYE LOCAL MUNICIPALITY

TENDER NO: T/RSW02/MIG/P1/2023/2024

PANEL OF SERVICE PROVIDERS FOR TARRING/PAVING OF ROADS IN VICTOR KHANYE LOCAL MUNICIPALITY FOR 36 MONTHS

C. THE CONTRACT

Part C1: Agreements and Contract Data

C1.1 Form of Offer and Acceptance
C1.2 Contract Data
C1.3 Form of Guarantee

Part C2: Pricing Data

C2.1 Pricing Instructions
C2.2 Bills of quantities

Part C3: Scope of Work

C3 Scope of Work

Part C4: Site Information

C4 Site Information

Part C5 : Relevant Documentation

C5 Health & Safety Specifications

VICTOR KHANYE LOCAL MUNICIPALITY

TENDER NO: T/RSW02/MIG/P1/2023/2024

PANEL OF SERVICE PROVIDERS FOR TARRING/PAVING OF ROADS IN VICTOR KHANYE LOCAL MUNICIPALITY FOR 36 MONTHS

C1 AGREEMENTS AND CONTRACT DATA

C1.1 Form of Offer and Acceptance

C1.2 Contract Data

C1.3 Form of Guarantee

C1.1 FORM OF OFFER AND ACCEPTANCE

OFFER

The Employer, identified in the Acceptance signature block, has solicited offers to enter into a contract in respect of the following works: **PANEL OF SERVICE PROVIDERS FOR TARRING/PAVING OF ROADS IN VICTOR KHANYE LOCAL MUNICIPALITY FOR 36 MONTHS**

The Tenderer, identified in the Offer signature block below, has examined the documents listed in the Tender Data and addenda thereto as listed in the Tender Schedules, and by submitting this Offer has accepted the Conditions of Tender.

By the representative of the Tenderer, deemed to be duly authorised, signing this part of this Form of Offer and Acceptance, the Tenderer offers to perform all of the obligations and liabilities of the Contractor under the Contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the Conditions of Contract identified in the Contract Data.

THE OFFERED TOTAL OF THE PRICES INCLUSIVE OF VALUE ADDED TAX IS

……..
……..
…… Rand (in words); R …… (in figures).

This Offer may be accepted by the Employer by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document to the Tenderer before the end of the period of validity stated in the Tender Data, whereupon the Tenderer becomes the party named as the Contractor in the Conditions of Contract identified in the Contract Data.

Tenderer Signature(s) _____ _____

Names(s) _____ _____

Capacity _____ _____

For the tenderer _____

(Name and address of organisation)

Name of Witness _____ _____

Signature(s) _____ _____

ACCEPTANCE

By signing this part of this Form of Offer and Acceptance, the Employer identified below accepts the Tenderer's Offer. In consideration thereof, the Employer shall pay the Contractor the amount due in accordance with the Conditions of Contract identified in the Contract Data. Acceptance of the Tenderer's Offer shall form an agreement between the Employer and the Tenderer upon the terms and conditions contained in this Agreement and in the Contract that is the subject of this Agreement.

The terms of the contract are contained in:

Part 1 Agreements and Contract Data (which includes this Agreement)
Part 2 Pricing Data
Part 3 Scope of Work
Part 4 Site information
Part 5 Additional Documentation and drawings and documents or parts thereof, which may be incorporated by reference into Parts 1 to 4 above.

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Tender Schedules as well as any changes to the terms of the Offer agreed by the Tenderer and the Employer during this process of offer and acceptance, are contained in the Schedule of Deviations attached to and forming part of this Agreement. No amendments to or deviations from said documents are valid unless contained in this Schedule, which must be duly signed by the authorised representative(s) of both parties.
The Tenderer shall within two weeks after receiving a completed copy of this Agreement, including the Schedule of Deviations (if any), contact the Employer's agent (whose details are given in the Contract Data) to arrange the delivery of any bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the Conditions of Contract identified in the Contract Data at or just after the date this Agreement comes into effect. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this Agreement.

Notwithstanding anything contained herein, this Agreement comes into effect on the date when the Tenderer receives one fully completed original copy of this document, including the Schedule of Deviations. Unless the Tenderer (now Contractor) within five days of the date of such receipt notifies the Employer in writing of any reason why he cannot accept the contents of this Agreement, this Agreement shall constitute a binding contract between the parties.

Tenderer Signature(s) _____ _____

Names(s) _____ _____

Capacity _____ _____

For the tenderer _____
(Name and address of organisation)

Name of Witness _____ _____

Signature(s) _____ _____

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

SCHEDULE OF DEVIATIONS

Notes:

1. The extent of deviations from the tender documents issued by the Employer prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender.

2. A Tenderer's covering letter shall not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid, become the subject of agreements reached during the process of Offer and Acceptance, the outcome of such agreement shall be recorded here.

3. Any other matter arising from the process of offer and acceptance either as a confirmation, clarification or change to the tender documents and which it is agreed by the Parties becomes an obligation of the contract, shall also be recorded here.

4. Any change or addition to the tender documents arising from the above agreements and recorded here, shall also be incorporated into the final draft of the Contract.

1 Subject

Details

2 Subject

Details

3 Subject

Details

4 Subject

Details

5 Subject

Details

6 Subject

Details

By the duly authorised representatives signing this Schedule of Deviations, the Employer and the Tenderer

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

agree to and accept the foregoing Schedule of Deviations as the only deviations from and amendments to the documents listed in the Tender Data and addenda thereto as listed in the Tender Schedules, as well as any confirmation, clarification or change to the terms of the Offer agreed by the Tenderer and the Employer during this process of Offer and Acceptance. It is expressly agreed that no other matter whether in writing, oral communication or implied during the period between the issue of the tender documents and the receipt by the Tenderer of a completed signed copy of this Agreement shall have any meaning or effect in the contract between the parties arising from this Agreement.

FOR THE TENDERER:

Signatures (s) _____ _____

Name(s) _____ _____

Capacity _____ _____

_____
(Name and address of Organisation)

Name of Witness _____ _____

Signature(s) _____ _____

FOR THE EMPLOYER

Signatures (s) _____ _____

Name(s) _____ _____

Capacity _____ _____

Victor Khanye Local Municipality - Corner Van Der Walt and Samuel Road, Delmas

Name of Witness _____ _____

Signature(s) _____ _____

C1.2 CONTRACT DATA

PART 1: DATA PROVIDED BY THE EMPLOYER

CONDITIONS OF CONTRACT

The Conditions of Contract are the *General Conditions of Contract for Construction Works (2015)* published by the South African Institution of Civil Engineering. Copies of these conditions of contract may be obtained from the South African Institute of Civil Engineering (Tel: 011 805 5947).

Each item of data given below is cross-referenced to the clause in the Conditions of Contract to which it mainly applies.

PART 1: Data provided by the Employer

Clause	Data
1.1.1.13	The Defects Liability Period is **12** months.
1.1.1.14	This Tender/Contract is for a panel of three contractors who may be instructed to perform work for any given period and portion of the works per specific instruction to perform work (IPW) which will stipulate the contract period applicable for that specific IPW Works shall be completed on a as and when needed basis over a period specified which will fall within the **36 months contract period and will be agreed with each contractor with the issue of a specific portion of the works** as envisaged by the employer, measured from commencement/site hand-over date to due practical completion date. This period includes the Builder's Holidays.
1.1.1.15	Clause 1.1.1.5 of the GCC is replaced by the following: The "Commencement date" shall be the date the site is handed over to the Contractor in terms of GCC clause 5.4.1
1.1.1.16 **1.2.1.2**	The Name of the Employer is **Victor Khanye Local Municipality** The address of the Employer is: **Corner Van Der Walt and** **Samuel Road, Delmas** **2210** Telephone: 012 665 6000
1.1.1.26	The Pricing Strategy is Re-measurement Contract

Contractor	*Witness 1*	*Witness 2*	*Employer*	*Witness 1*	*Witness 2*

1.2.1.2	The name of the Engineer is **KTN CONSULTING ENGINEERS AND PROJECT MANAGERS** The address of the Engineer is: **52 Bekker Road** **Thornhill Office Park** **MIDRAND 1861** Telephone: 011 805 0981
3.2.3	The engineer is required in terms of his appointment with the employer to obtain the following specific approvals from the employer: 1. Approval of extension of time; 2. Approval of additional costs; 3. Approval of variation orders; 4. Approval from VKLM for the utilization of any Contingencies 5. Approval of penalties
4.3	The Health and Safety Plan shall be delivered and approved before the site hand-over/commencement date. Mail to ktn@ktnconsulting.co.za
5.2.1	The Contractor shall commence executing the Works within 14 days from the Commencement date.
5.3.1	The documentation required before commencing with the Works are: 1. Health and Safety Plan (Refer to Clause GCC 4.3) 2. Initial programme (Refer to Clause GCC 5.6) 3. Security (Refer to Clause GCC 6.2) 4. Insurance (Refer to Clause GCC 8.6) 5. Other requirements as specified
5.3.2	The time to submit the documentation required before commencement of the Works is 28 days
5.4.2	The access and possession of Site shall not be exclusive to the Contractor as there may be up to three contractors appointed by the client to work in the same area at any given time.
5.5.1	This Tender/Contract is for a panel of three contractors who may be instructed to perform work for any given period and portion of the works per specific instruction to perform work (IPW) which will stipulate the contract period applicable for that specific IPW Works shall be completed on a as and when needed basis over a period specified which will fall within the **36 months contract period and will be agreed with each contractor with the issue of a specific portion of the works** as envisaged by the employer, measured from commencement/site hand-over date to due practical completion date. This period includes the Builder's Holidays.
5.6.1	The Contractor shall deliver his program of work within 14 days of the Commencement Date
5.1.1 **5.8.1**	The special non-working days are the official builder's holiday plus all statutory public holidays and Sundays. The yearend break commences on **16 December 2023** and ends on **8 January 2024**
5.12.2.2	A delay caused by inclement weather conditions will be regarded as a delay only if, in the opinion of the Engineer, all progress on an item or items of work on the critical path of the working program of the contractor has been brought to a halt. Delays on working days only (based on a five-day working week) will be taken into account for the extension of time, but the Contractor shall make provision in his program of work for an expected delay of "n"" working days caused by normal rainy weather, for which he will not receive any extension of time, where "n" equals …… days. Extension of time during working days will be granted to the degree to which actual delays, as defined above, exceed the number of "n" workings days. **EXPECTED NUMBER OF WORKING DAYS LOST PER MONTH DUE TO NORMAL RAINFALL – WEATHER STATION** *(The Engineer/Contractor reserves the right to update Table 1 with the latest data from*

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

the Weather Bureau from a weather station close to the Site of Works)

Month	Expected number of working days lost as result of normal rainfall ("n Value")	Average monthly rainfall (mm)
January	3	96
February	3	101
March	3	77
April	2	45
May	1	11
June	0	9
July	0	3
August	0	2
September	1	15
October	2	55
November	3	73
December	5	122
Total	**23 days**	**609 mm**

5.13.1	The penalty for failing to complete the works is 3,75c per R100 per day of the contract value.
5.14.5.2	The Defects Liability Period is twelve (12) calendar months after the date of the final certificate of completion.
5.16.3	The latent defect liability period is 10 years after the date of the final approval certificate
6.2.1	The liability of the guarantee shall be 10% of the Contract Price
6.2.1	The Guarantee is to be delivered twenty-one (21) days after the Letter of Acceptance. **In the event of failure to submit the guarantee within the stipulated 21 days, the Municipality reserves the right to cancel the contract and award the Bid to the tenderer who scored the next highest points.**
6.5.1.2.3	Daywork allowances as tendered in Section 1800 of the Bill of Quantities: Materials at cost plus 15%.
6.8.2	The value of payment certificates is to be adjusted in accordance with the Contract Price Adjustment Schedule, where The value of "x" is 0,150 The values of the co-efficients are: $(1-x)\left[\frac{aLt}{Lo}+\frac{bPt}{Po}+\frac{cMt}{Mo}+\frac{dFt}{Fo}-1\right]$ CPA : Estimate more than R10 000 000 or a contract period of more than 6 months. Projects predominantly: New Road Construction — Rehabilitation — Concrete Work *(major structures only)* a = 0,20 — 0,20 — 0,15 b = 0,40 — 0,35 — 0,20 c = 0,25 — 0,35 — 0,55 d = 0,15 — 0,10 — 0,10 "L" is the "Labour Index" and shall be the "Consumer Price Index" for the urban area nearest to the Site as specified by the Engineer in the Appendix to the Tender and as published in the Statistical News Release, P0141, Table 7.1 (previously P0141.1 Table 21) of Statistics South Africa. "P" is the "Plant Index" and shall be the "Civil Engineering Plant Index" as published in the

	Statistical News Release P0142.1, Table 12 (previously P0142.1 Table 16) of Statistics South Africa. "M" is the "Materials Index" and shall be the "Civil Engineering Materials Index" as published in the Statistical News Release P0142.1, Table 11 (previously P0142.1 Table 15) of Statistics South Africa. "F" is the "Fuel Index" and shall be the "Diesel at wholesale level – Coast/Witwatersrand Index" as published in the Statistical News Release P0142.1, Table 12 (previously P0142.1 Table 16) of Statistics South Africa. The suffix "o" denotes the basic indices applicable to the base month, which shall be the month prior to the month in which the closing date for the tender falls. The suffix "t" denotes the current indices applicable to the month in which the last day of the period falls to which the relevant payment certificate relates. If any index relevant to any particular certificate is not known at the time when the certificate is prepared, the Engineer shall estimate the value of such index. Any correction, which may be necessary when the correct indices become known, shall be made by the Engineer in subsequent payment certificates. The urban area nearest the site **is Delmas.** The base month **is May 2023.** *(the month prior to the month in which the closing date of the tender falls)*
6.8.3	The following are special materials: Bitumen binder extracted from petroleum based products and used on site, including that used in asphalt, irrespective of whether it is produced and/or placed by the Contractor or an approved subcontractor. The rates and prices for the special materials shall be furnished by the contractor, which rates and prices ex refinery with the base date specified under 6.8.2 and shall exclude VAT but shall include all other obligatory taxes and levies on the basis specified in the contract price adjustment schedule
6.10.1.5	The percentage limit on materials not yet built into the Permanent Works is 80%. Proof of ownership is required.
6.10.3	The percentage retention on the amounts due to the Contractor is **10** %.
8.6.1.1.2	The value of the materials supplied by the Employer to be included in the insurance sum is nil.
8.6.1.2	The following additional and varied insurances are required: SASRIA.
10.5.1/2	Disputes are to be referred to a ad-hoc adjudication
10.5.3	The number of adjudication board members shall be 1
10.7	Disputes are to be referred for final settlement to **arbitration.**

8.6.1.1.3	The amount to cover professional fees for repairing damage and loss to be included in the insurance sum is nil.
8.6.2	The limit of indemnity for liability insurance is R **10 000 000.00**.

PART 1: DATA PROVIDED BY THE CONTRACTOR

The Contractor is advised to read the *General Conditions of Contract for Construction Works 3rd Edition (2015)*, published by the South African Institution of Civil Engineering, in order to understand the implications of this Data which is required to be completed.

Each item of data given below is cross-referenced to the clause of Conditions of Contract to which it mainly applies.

Clause	Data
1.1.1.9	The Contractor is: Name: ……
1.2.1.2	The Address of the Contractor is: Address (physical): …… …….. Address (postal): …….. Telephone: …….. Facsimile: …… E-mail: ……..
6.5.1.2.3	The percentage allowance to cover overhead charges is ……..

Contractor	*Witness 1*	*Witness 2*	*Employer*	*Witness 1*	*Witness 2*

C1.3 FORM OF GUARANTEE

FORM OF GUARANTEE

Tender No: T/RSW02/MIG/P1/2023/2024

PANEL OF SERVICE PROVIDERS FOR TARRING/PAVING OF ROADS IN VICTOR KHANYE LOCAL MUNICIPALITY FOR 36 MONTHS

WHEREAS..... at

VICTOR KHANYE LOCAL MUNICIPALITY

(Hereinafter referred to as "the Employer")

entered into, on the ..... Day of .....2020, at…….

a Contract with .....

at .....……..

(Hereinafter called "The Contractor")

for the TARRING/PAVING OF ROADS IN DELMAS as per Scope of work AND WHEREAS it is provided by such Contract that the Contractor shall provide the Employer with security by way of suretyship for the due and faithful fulfilment of such Contract by the Contractor;

AND WHEREAS .....……
has/have at the request of the Contractor, agreed to give such security;

NOW THEREFORE WE, ...……
do hereby guarantee and bind ourselves jointly and severally as Sureties and Co-principal Debtors to the Employer under renunciation of the benefits of division and execution for the due and faithful performance by the Contractor of all the terms and conditions of the said Contract, subject to the following conditions.

1. The Employer shall, without reference and/or notice to us, have complete liberty of action to act in any manner authorised and/or contemplated by the terms of the said contract, and/or to agree to any modifications, variations, alterations, directions or extensions of the Due Completion Date of the Works under the said Contract, and that its rights under this guarantee shall in no way be prejudiced nor our liability hereunder be affected by reason of any steps which the Employer may take under such Contract, or of any modification, variation, alterations of the Due Completion Date which the Employer may make, give, concede or agree to under the said Contract.

2. The Employer shall be entitled, without reference to us, to release any securities held by it, and to give time to or compound or make any other arrangement with the Contractor.

3. This guarantee shall remain in full force and effect until the issue of the Certificate of Completion in terms of the Contract, unless we are advised in writing by the Employer before the issue of the said Certificate of his intention to institute claims, and the particulars thereof, in which event this guarantee shall remain in full force and effect until all such claims have been paid or liquidated.

4. Our total liability hereunder shall not exceed the sum of (R.....).

5. We hereby choose domicilium citandi et executandi for all purposes arising hereof at

.....

IN WITNESS WHEREOF this guarantee has been executed by us at..... on

this..... day of ..... 20 .....

As witnesses:

1. ..... Signature .....

2. ..... Duly authorised to sign on behalf of .....

Address .....

.....

.....

VICTOR KHANYE LOCAL MUNICIPALITY

TENDER NO: T/RSW02/MIG/P1/2023/2024

PANEL OF SERVICE PROVIDERS FOR TARRING/PAVING OF ROADS IN VICTOR KHANYE LOCAL MUNICIPALITY FOR 36 MONTHS

C2 PRICING DATA

C2.1 PRICING INSTRUCTIONS

C2.2 BILL OF QUANTITIES

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

VICTOR KHANYE LOCAL MUNICIPALITY

TENDER NO: T/RSW02/MIG/P1/2023/2024

PANEL OF SERVICE PROVIDERS FOR TARRING/PAVING OF ROADS IN VICTOR KHANYE LOCAL MUNICIPALITY FOR 36 MONTHS

C2.1 PRICING INSTRUCTIONS

1. Measurement and payment shall be in accordance with the relevant provisions of the COLTO sections.

2. The units of measurement described in these Bills of Quantities are metric units. Abbreviations used in these Bills of Quantities are as follows:

%	=	percent
h	=	hour
ha	=	hectare
kg	=	kilogram
kl	=	kilolitre
km	=	kilometer
km-pass	=	kilometer-pass
kPa	=	kilopascal
kW	=	kilowatt
l	=	litre
m	=	metre
mm	=	millimetre
m²	=	square metre
m²-pass	=	square metre-pass
m³	=	cubic metre
m³-km	=	cubic metre-kilometer
MN	=	meganewton
MN.m	=	meganewton-metre
MPa	=	megapascal
No.	=	number
Prov sum	=	Provisional sum
PC sum	=	Prime Cost sum
R/only	=	Rate only
sum	=	lump sum
t	=	ton (1000 kg)
W/day	=	Work day

3. For the purpose of these Bills of Quantities, the following words shall have the meanings hereby assigned to them:

   Unit: The unit of measurement for each item of work as defined in the COLTO.

Quantity:	The number of units of work for each item.
Rate:	The agreed payment per unit of measurement.
Amount:	The product of the quantity and the agreed rate for an item.
Lump sum:	An agreed amount for an item, the extent of which is described in the Bills of Quantities but the quantity of work of which is not measured in any units.

4. Unless otherwise stated, items are measured net in accordance with the drawings, and no allowance is made for waste.

5 It will be assumed that prices included in the bills of quantities are based on Acts, Ordinances, Regulations, By-laws, International Standards and National Standards that were published 28 days before the closing date for tenders. (Refer to www.stanza.org.za or www.iso.org for information on standards)

6. The prices and rates in these Bills of Quantities are fully inclusive prices for the work described under the items. Such prices and rates cover all costs and expenses that may be required in and for the execution of the work described in accordance with the provisions of the Scope of Work, and shall cover the cost of all general risks, liabilities, and obligations set forth or implied in the Contract Data, as well as overhead charges and profit. These prices will be used as a basis for assessment of payment for additional work that may have to be carried out.

7 Where the Scope of Work requires detailed drawings and designs or other information to be provided, all costs associated therewith are deemed to have been provided for and included in the unit rates and sum amount tendered such items.

8. An item against which no price is entered will be considered to be covered by the other prices or rates in the Bills of Quantities. A single lump sum will apply should a number of items be grouped together for pricing purposes.

9 The quantities set out in these Bills of Quantities are approximate and do not necessarily represent the actual amount of work to be done. The quantities of work accepted and certified for payment will be used for determining payments due and not the quantities given in these Bills of Quantities.

10. Reasonable compensation will be received where no pay item appears in the Bills of Quantities in respect of work required in terms of the Contract and which is not covered in any other pay item.

11. The short descriptions of the items of payment given in these Bills of Quantities are only for the purposes of identifying the items. More details regarding the extent of the work entailed under each item appear in the Scope of Work.

12. The payment reference numbers appearing in the Bills of Quantities refer to the corresponding item numbers in the COLTO.

13. Those parts of the contract to be constructed using labor-intensive methods have been marked in the Bills of Quantities with the letter L in a separate column filled in against every item so designated. The works, or parts of the works so designated are to be constructed using labor-intensive methods only. The use of plant to provide such works, other than plant specifically provided for in the scope of work, is a variation to the contract. The items marked with the letter L are not necessarily an exhaustive list of all the activities which must be done by hand, and this clause does not over-ride any of the requirements in the generic labor-intensive specification in the Scope of Works.

14 Payment for items which are designated to be constructed labor-intensively (either in this schedule or in the Scope of Works) will not be made unless they are constructed using labor-intensive methods. Any unauthorised use of plant to carry out work which was to be done labor-intensively will not be condoned and any works so constructed will not be certified for payment.

VICTOR KHANYE LOCAL MUNICIPALITY

TENDER NO: T/RSW02/MIG/P1/2023/2024

PANEL OF SERVICE PROVIDERS FOR TARRING/PAVING OF ROADS IN VICTOR KHANYE LOCAL MUNICIPALITY FOR 36 MONTHS

C2.2 BILL OF QUANTITIES

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
1200	GENERAL REQUIREMENTS AND PROVISIONS					
B12.01	Relocation, protection or replacement of existing services					
	(a) Existing services to be relocated ,protected as ordered by the engineer :					
	(ii) Municipal services	Prov sum	1.0	400,000.00	400,000	00
	(iv) Private propertyservices	Prov sum	1.0	250,000.00	250,000	00
	(b) handling cost and profit in respect of B12.01 (a)	%	650,000			
B12.02	Excavation					
	Excavating material within the following depth ranges below ground level for the exposing of/or searching for services					
	(a) 0m to 2m:					
	(i) Soft material	m³	300			
	(ii) Hard material	m³	30			
	(b) Extra over item B12.02(a) for excavation by means of hand tools such as picks, crowbars and pneumatic					
	(i) Soft materia	m³	300			
	(ii) Hard material	m³	30			
B12.03	Excavation of test pits and sampling thereof as instructed by the engineer					
	(a) Sampling by approved materials laboratory	Prov sum	1.0	30,000.00	30,000	00
	(b) Handling cost and profit in respect of B12.03 (a)	%	30,000			
B12.04	Provision for a Community Liaison Officer					
	(a) Remuniration of CLO plus R300 cellphone allowance per month	Prov sum	1.0	72,000.00	72,000	00
	(b) Handling cost and profit in respect of subitem B12.04 (a)	%	72,000			
Total Carried Forward To Summary						

SECTION 1300

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
13.00	CONTRACTOR'S ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS					
B13.01	Contractor's general obligations					
	(a) Fixed obligations	L/sum	1.0			
	(b) Value-related obligations	L/sum	1.0			
	(c) Time-related obligations	month	12			
	The combined total tendered for sub items(a),(b) and (c) shall not exceed 15% of the tender sum (excluding VAT)					
B13.02	Supply , transport to site and erect contract signboards as per standard municipality spcecification	No	2			
Total Carried Forward To Summary						

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
14.00	HOUSING, OFFICES AND LABORA- TORY FOR THE ENGINEER'S SITE PERSONNEL					
14.01	Office and laboratory accommodation					
	(a) Offices (interior floor space only)	m²	45.0			
14.02	Office and laboratory furniture					
	(a) Chairs					
	(i) Wheeled chair black	No	3.0			
	(ii) Easy stacker office chair	No	12.0			
	(d) Desks, complete with drawers and locks					
	(i) 1.2m x 1.8m table	No	3.0			
	(f) 1.2m x 3m wooden Conference tables	No	1.0			
14.03	Office and laboratory fittings Installations and equipment					
	(a) Items measured by number					
	(1) 220/250 volt power points	No	3.0			
	(iii) LED lights producing 500 lux on all desks and tables	No	3.0			
	(vi) Wash-hand basins complete with taps and drains	No	1.0			
	(x) Fire extinguishers, 9,0 kg,all purpose dry powder type, complete, mounted on wall with brackets	No	3.0			
	(xix) Rain gauge Installed	No	1.0			
	(xx) Electric Refrigerator 120 litre	No	1.0			
	(xviii) USP to span four hour load shedding in office	No	1.0			
B 14.03	(b) Prime-cost items paid for in a lump sum:					
	(ix) Cell phone for the engineer Samsung S9 or better, including pro-rata line rentals, for calls in connection with contract administration and 5 Gig Data Per month	PC sum	1.0	36,000.00	36,000	00
	(x) Handling cost and profit in respect of sub-item B14.03 (b) (xi) above	%	36,000.0			
	(xi) Laptop to the engineer ,New Dell Precision 7520 portable work station with intel core i7-7820 hq CPU,64 gigabyte 2400 MHz DDR4 SDRAM and Samsung 960 pro 1TB SSD	Prov sum	1.0	15,000.00	15,000	00
	(xii) Handling cost and profit in respect of sub-item B14.03 (c)(xiii) above	%	15,000.0			
	(xiii) internet connection (ADSL or mobile LTE) for email connectivity	PC sum	1.0	36,000.00	36,000	00
	(xiv) Handling cost and profit in respect of sub-item B14.03 (b)(xiii)above	%	36,000.0			
14.04	Car ports					
	(a) Car ports for the engineer	No	1.0			
14.07	Rented, hotel and other accommodation					
Total Carried Forward						

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
Brought Forward						
	(a) Provisional sum for providing rented housing, hotel or other accommodation as described in subsubclause 14.03(c)(2)	Prov sum	1.0	240,000.00	240,000	00
	(b) Handling costs and profit in respect of subitem 14.07(a)	%	240,000.0			
14.08	Services					
	(a) Services at office					
	(i) Fixed costs	L/sum	1.0			
	(ii) Running costs	month	12.0			
	(c) Services for rented houses	month	12.0			
14.10	Provision of photostat facilities (i) Printer/copier/scanner including full provision for providing and maintaining an approved photocopier (capable of making A3-sized copies) and used, including all accessories such as paper ,etc, for making a maximum number of 1000 A4 copies per month	month	12.00			
14.11	Provision for travel for the engineer	Prov sum	1	240,000.00	240,000	00
	(b) Handling costs and profit in respect of subitem 14.11	%	240,000.000			
B14.13	Provision for Dump Level and tripod for use by the Engineer	Prov sum	1.0	10,000.00	10,000	00
	(b) Handling costs and profit in respect of subitem 14.13	%	10,000.000			
Total Carried Forward To Summary						

SECTION 1500

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
15.00	ACCOMMODATION OF TRAFFIC					
B15.01	Accommodating traffic and maintaining temporary deviations					
	(a) On the Route	km	5.00			
B15.03	Temporary traffic-control facilities					
LI	(a) Flagmen	man-day	2,268.0			
	(b) Portable STOP and GO-RY signs	No	6.0			
	(e) Road signs, R- and TR-series	No	12.0			
	(f) Road signs, TW-series, (1500)	No	12.0			
	(g) Road signs, STW-, DTG-, TGS- AND TG-series (excluding delineators and barricades)	m²	30.0			
	(h) Delineators (DTG50J) (size indicated):					
	(i) Single (800x200)	No	150.0			
	(ii) Mounted back to back	No	150.0			
	(i) Moveable barricade/road sign combination	No	6.0			
	(n) Road signs ,TW-series, 1500 mm Triangular sides including TIN,1500X400	No	6.0			
B15.14	Penalty to be deducted for non-compliance with requirements for accommodation of traffic					
	(a) Fixed penalty per occurance	No				
	(b) Time- related penalty	h				
B15.15	Provision of traffic safety equipment for temporary use of visitors					
	(a) Safety Jackets	No	100.0			
B15.16	Non-specifiied signage ordered by the Engineer and Site safety officer:					
	(a) Provisional sum for non-specified signage or arrangements aso rdered by the Engineer	Prov sum	1.0	60,000.00	60,000	00
	(b) Handling cost and profit in respect of item B15.17 (a)	%	60,000.0			
B15.17	Full time site Traffic safety officer:					
	(a) Provide a full time site traffic officer on site	month	12.0			
Total Carried Forward To Summary						

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
17.00	CLEARING AND GRUBBING					
B17.01	Clearing and grubbing					
	(a) Using normal construction machinery	ha	1.000			
	(b) Using hand methods	ha	1.000			
17.02	Removal and grubbing of large trees and tree stumps					
LI	(a) Using LI methods	ha	5.00			
17.04	Clearing and grubbing at inlets and outlets of hydraulic structures	m²	0.0			
Total Carried Forward To Summary						

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
1800	DAYWORKS					
B18.01	Labourers:					
LI	(i) Unskilled	Hr	2,500.0			
LI	(ii) Semi-skilled	Hr	2,500.0			
LI	(iii) Skilled	Hr	240.0			
B18.02	Foreman	Hr	240.0			
B18.03	Tipper trucks:					
	(i) 3 - 5 ton	Hr	500.0			
	(ii) 5,1 - 10 ton	Hr	240.0			
	(iii) Vibratory Roller 5-12 tons	Hr	500.0			
	(iv) Air compressors 6m3/min with two pneumatic drills	Hr	240.0			
B18.04	Loader (0,5m³) (55kW) - TLB	Hr	500.0			
B18.06	LDV	Hr	240.0			
B18.08	Hand Controlled Compactors					
	(i) Pedestrian roller (Bomag BW90 or similar)	Hr	500.0			
	(ii) Vibratory plate	Hr	500.0			
	(iii) Rammers	Hr	500.0			
B18.09	Water truck (min 10 000 l)	Hr	240.0			
B18.10	Material Procurement					
	(a) Suppy to the site material as ordered and specified by the engineer	Prov sum	1.0	300,000.00	300,000	00
	(b) Handling cost and profit in respect of Item B18.10(a)	%	300,000.0			
Total Carried Forward To Summary						

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
22.00	PREFABRICATED CULVERTS					
B22.01	Excavation					
	(a) Excavating soft material situated within the following depth ranges below the surface level:					
LI	(1) 0 m up to 1.5 m	m³	5,000			
	(2) Exceeding 1,5 m and up to 3,0 m	m³	0.0			
	(3) Exceeding 3,0 m and up to 4,5 m	m³	0.0			
	(b) Extra over subitem 22.01(a) for excavation in hard material, irrespective of depth	m³	2,000			
	(c) Extra over subitem 22.01(a) for excavation by hand using hand tools					
	(i) in soft materia	m³	500.0			
B22.02	Backfilling:					
LI	(a) Using the excavated material	m³	3,500.0			
22.05	Pipe Culverts					
	(a) Complete Pipe Culvert Class 100D OG Spigot and Socketed with rubber sealing rings on Class C Bedding					
	(1) 525 diameter	m	50			
	(2) 600 Diameter	m	1,890			
	(3) 750 Diameter	m	720			
	(4) 825 Diameter	m	430			
	(5) 900 Diameter	m	240			
	(6) 1050 Diameter	m	100			
22.09	Prefabricated concrete outlets to culverts					
	(a) Complete pre-cast unit including the headwall,wingwalls,floor and apron slab for 300-600 series nominal size 600S x 450H Code S1 wingwall dimensions 910D ,800W sealed to box culvert (ROCLA or similar product) with high tenacity polymer bitumen adhesive compond concrete joint sealing tape (DENSO tape or similar product)					
	(1) Complete to fit up to 750 diameter outlet pipe	No	2.000			
	(2) Complete and similar to (1) but to fit 900 diameter outlet pipe	No	3.000			
	(3) Complete and similar to (1) but to fit 1050 diameter outlet pipe	No	1.000			
22.13	Removing and relaying existing pipes con class C bedding complete with loading and storage					
	a) 600mm diameter	m	30			
	a) Up to 750mm diameter	m	30.000			
22.17	Brick Manholes, Catchpits, Precast Inlets and Outlet Structures complete with Benching					
Total Carried Forward						

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
Brought Forward						
	a) 220mm Brick Manholes complete with 220mm brickforce every third layer and smooth finish on inside wall face (Complete with Floor slab 200mm thick 30Mpa Concrete, Cover Slab and Type 2A Heacy Duty Lid					
	1) Up to 1m deep with cover slab and Heavy Duty Cover and Concrete Lid Type A2	No	40			
	2) Up to 1.5m deep with cover slab and Heavy Duty Cover and Concrete Lid Type A2	No	40			
	3) Up to 3m deep with cover slab and Heavy Duty Cover and Concrete Lid Type A2	No	4			
	a) Kerb Inlet Structure complete to COT Standard Specification 220mm Brick Manholes complete with 220mm brickforce every third layer and smooth finish on inside wall face (Complete with Floor slab 200mm thick 30Mpa Concrete, Cover Slabs to detail					
	1) 3m Inlet Opening with 1m transition in and 1m transition out to join kerb profile	No	30			
	2) 3m Inlet Opening with 2m transition in and 1m transition out to join kerb profile	No	30			
	3) 4m Inlet Opening with 2m transition in and 1m transition out to join kerb profile	No	20			
	4) 4m Inlet Opening at low point with 2m transition in on both sides to join kerb profile	No	8			
22.20	Benching to COT standard specifications	m²	100.000			
Total Carried Forward To Summary						

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
23.00	CONCRETE KERBING, CONCRETE CHANNELLING, CHUTES AND DOWNPIPES, AND CONCRETE LININGS FOR OPEN DRAINS					
23.01	Concrete Kerbing					
	(a) Precast kerbing in accordance with SANS 927 complete with concrete haunching at joints					
LI	(i) Figure 8c kerb 1000mm lenghts	m	5,000			
LI	(i) Figure 7 kerb 300mm lengths around bellmounts	m	2,000			
LI	(i) Figure 3 kerb 1000mm lenghts	m	5,000			
23.05	Kerb Transitions and similar structures :					
LI	(a) 1000mm Transition from Fig 8C Kerb to Fig 7 Kerb with smooth finish Cast in-situ transitions 30MPa/19mm concrete	m³	20.0			
LI	(b) 1000mm Transition from Fig 7 Kerb to Fig 3 Kerb with smooth finish Cast in-situ transition sections 30MPa/19mm concrete	m³	20.0			
LI	(c) 1000mm Transition from Fig 3 Kerb to Fig 8c Kerb with smooth finish Cast in-situ transition sections 30MPa/19mm concrete	m³	20.0			
LI	(d) Any similar purpose including edge protection and edge beams 30MPa/19mm concrete	m³	20.000			
23.07	Trimming of excavations for concrete-lined open drains					
	(a) In soft material	m³	70.0			
23.08	Concrete lining for open drains					
	(a) Class 25MPa/19mm trapezoidal open drain as per Standard Drawing cast in 3m alternative sections	m³	20.0			
	(b) Class U2 (Broom finish) surface finish to cast in-situ concrete for trapazoidal channels	m³	20.0			
23.09	Formwork to cast in situ concrete lining for open drains (Class F2 surface finish)					
	(b) Two sides with formwork on both sides (each face measured)	m²	100.0			
	(c) To ends of slabs	m²	10.0			
23.10	Sealed joints in concrete linings of open drains					
	(a) Polysulphide sealants or similar for construction joints 150mm deep at 21m intervals	m	100.0			
23.12	Steel reinforcement					
	(c) Welded steel fabric Reference 193 Mesh ,5,6mm rod thickness 1,93kg/m2	kg	100.0			
23.13	Polyethylene sheeting (0,15 mm thick) for concrete-lined open drains	m²	100.0			
Total Carried Forward To Summary						

SECTION 3100

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
3100	BORROW MATERIALS					
31.01	Excess overburden and stockpile on site	m³	400.0			
31.03	Finishing-off borrow areas in:					
	(b) Intermediate material	ha	0.3			
	(c) Soft material	ha	0.3			
B31.05	Exploration of borrow pits:					
	(a) Sampling of borrow materials by an approved	Prov sum	1.000	50,000.00	50,000	00
	(b) Handling cost and profit in respect of Item B31.05(a)	%	50,000.000			
B31.06	Royalties for the use of borrow pit					
	(a) Royalty as agreed with Employer	Prov sum	1.0	20,000.00	20,000	00
	(b) Handling Cost and profit in respect of Sub-item B31.06(a)	%	20,000.0			
Total Carried Forward To Summary						

SECTION 3200

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
32.00	SELECTION, STOCKPILING AND BREAKING DOWN THE MATERIAL FROM BORROW PITS, CUTTINGS AND EXISTING PAVEMENT LAYERS, AND PLACING AND COMPACTING THE GRAVEL LAYERS					
32.03	Crushing and screening					
	(c) Screening					
	(i) Screen stockpile material for portions bigger than 63mm maximum size	m³	5,000			
32.04	Removal of oversize pavement material biggerthan 63mm maximum size and spoil to borrow pit area	m³	5,000			
32.06	Stockpiling of material					
	(a) G9 material from cut stockpiled on site	m³	5,000			
Total Carried Forward To Summary						

SECTION 3300

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
33.00	MASS EARTHWORKS					
B33.01	Cut and borrow to fill, including free-haul up to 5km					
	(a) Material in compacted layer thickness of 200mm and less					
	(ii) Compacted to 93% mod.AASHTO density	m³	5,000			
B33.04	Cut to spoil including freehaul up to 5km					
	(a) Soft excavation measured in its original position	m³	5,000			
33.10	Roadbed preparation and the compaction of material					
	(b) Rip,shape and re-compaction to 90% of modified AASHTO density	m³	5,000			
33.13	Finishing-off cut and fill slopes, medians and interchange areas:					
LI	(a) Cut slopes	m²	3,000			
LI	(b) Fill slopes	m²	3,000			
LI	(c) Medians and interchange areas	m²	500			
Total Carried Forward To Summary						

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
34.00	PAVEMENT LAYERS OF GRAVEL MATERIAL					
B34.01	Pavement layers constructed from gravel taken from cut or borrow, including free haul up to 5 km					
	(a) Gravel selected layer compacted to:					
	(i)(a) 93% of modified AASHTO density 150mm thick minimum G9 lower selected,material from stockpile	m³	6,000			
	(i) (b)95% of modified AASHTO density (150mm thick Minimum G7 from borrow pit)	m³	6,000			
34.06	Extra over for excavating material in pavement layers in restricted areas:					
	(b) In cemented C4 layer to place kerbs	m³	500.0			
34.09	Extra over items for placing and compacting material in restricted areas behind kerbs:					
	(b) 250 mm behind kerbs with G7 material from stockpile mixed with 1:10 ordinary portland cement CEMII(B-L)	m³	600.0			
34.11	Watering the pavement excavation floor	kℓ	150.0			
B34.14	Provisional sum for sampling and testing of material for stabilisation design					
	(a) Provisional sum for testing labour,transport,supervion,accommodation of traffic and incidents	Prov sum	1.0	90,000.00	90,000	00
	Handling cost and profit in respect of item B34.13(a)	%	90,000.0			
B34.15	Construct G6 Pavement layers from a commercial source to be stabilized under item B35.01 with cement measured under item B35.05 COMPACTED TO 97% MOD AASHTO Density	m³	4,550.000			
	The tendered ratebfor this item shall include delivery to site full compensation for provinding and compaction including					
	maintaining, and decommissioning upon comletion of all the plant, equipment, labor, tools,incidentals, and supervision to carry out activity or construct the works in the item,					
	unless otherwise stated Gravel sub-base (Chemically stabilization measured under item B35.01 with cement measured under item B35.02)					
	and the loading of the commercial materials at the source, hauling it to the road,and off-loading and compaction will not be measured and paid for separately.					
	The quanties shall be measured in place in the compacted pavement layers and calculated from the authorised dimensions of the layers.					
	No distinction shall be made for materials acquired from different sources.					
	150mm G6 layer to be stabilised with cement to form C4 layer and compacted to 97% MOD AASHTO density (to be stabilized under item B35.01 with cement measured under item B35.02)					
Total Carried Forward						

SECTION 3400

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
Brought Forward						
Total Carried Forward To Summary						

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
3500	STABILIZATION					
B35.01	Chemical stabilisation extra-over unstabilized compacted layers:					
	(a) Base C4 Nominal cement 3% Extra over B34.01(f)(i)(1)	m³	5,000.0			
35.02	Chemical stabilising agent:					
	(a) Ordinary Portland Cement CEMII (B-L) 32,5N	t	300.0			
35.04	Provision and application of water for curing	kℓ	500.0			
Total Carried Forward To Summary						

BREAKING UP EXISTING PAVEMENT LAYERS

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
38.00	BREAKING UP EXISTING PAVEMENT LAYERS					
38.10	Preparing stockpile site	m²	1,500.0			
38.11	Extra over for watering and compacting stockpile site	m²	1,500.0			
Total Carried Forward To Summary						

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
51.00	PITCHING, STONEWORK AND PROTECTION AGAINST EROSION					
51.01	Stone pitching:					
	(b) Grouted stone pitching	m²	240.0			
B51.8	Speed hump to typical detail inlcuding materials needed, setting out, road markings and road signs	No	20.000			
Total Carried Forward To Summary						

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
52.00	GABIONS					
52.01	Foundation trench excavation and backfilling:					
	(b) In all other classes of materials	m³	100.0			
52.02	Surface preparation for bedding the gabions	m²	100.0			
52.03	Gabions: Complete with supply of rock suitable for gabions stuctures					
	(a) Galvanized gabion boxes					
	(3) 1,0 m wide by 1,0 m wide					
	(i) by 1,0 m long galvanised mesh wire 80mm x 2.2mm wiree Diameter	m³	100.0			
	b0 Galvanised Gabion Mattresses (1.0m diaphragm spacing, 6m long x 2m wide x 0,3m deep, mesh 80mm x 100mm x 2.2mm	m²	50.000			
52.04	Filter fabric					
	(c) Bidim U34 or Type A4 non-woven filter fabric or similiar	m²	400.0			
Total Carried Forward To Summary						

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
55.00	FENCING					
55.02	Supply and erect new fencing material for new fences and for supplementing material in existing fences which are being repaired or removed:					
	(b) Zinc-coated smooth wire					
LI	(1) 2,0mm dia,mild steel straining wire, Grade C galvanised	km	5.0			
	(2) 2,24mm dia, high tensile fencing wire					
LI	(i) Galvanised, Grade C	km	5.0			
LI	(3) 2,50mm dia, mild-steel tying wire, Grade C galvanised	km	5.0			
LI	(c) Fully Galvanaised 2.0mm Diamond mesh.50mm apeture	m³	500.0			
LI	(h) Droppers(2450mm length Y-Section)	m²	201.0			
	(L) Straining post , stays and anchors					
	(i) Vertical					
LI	(1) Steel straining posts (2400mm height 76mm Tubing appeture, 2.0mm Tubing Wall)	No	24.0			
	(ii) Inclined:					
LI	(1) Steel straining posts (2400mm height 38mm Tubing appeture, 2.0mm Tubing Wall)	No	24.0			
55.03	New gates					
LI	(i) Security gates (2400mm height 38mm Tube Appeture, 2.0mm Tubing Wall)	No	20.0			
55.04	Moving existing fences and gates:					
	(a) Fences:					
LI	(4) Security fences	km	5.0			
LI	(b) Gates	No	60.0			
Total Carried Forward To Summary						

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
56.00	ROAD SIGNS					
56.05	Extra over item 56.05 for cement-treated soil backfill					
LI	(a) Excavation and backfilling for road sign supports (not applicable to kilometre posts)	m³	18.0			
56.06	Extra over item 56.05 for cement-treated soil backfill					
LI	(a) With 5% OPC	m³	18.0			
	TRAFFIC SIGNS ERECTED COMPLETE	m³	0.0			
B56.10	Statutory signs,street names,etc. supplied and erected complete					
	(a) Provision and erection of regulatory traffic signs for 60km/h design standard,complete					
LI	(i) Stop sign (R)	No	15.0			
LI	(ii) R201 (Speed Limit 40km/h)	No	15.0			
	(b) Provision and erection of warning traffic signs for 60km/h design standard,complete					
LI	(i) W104 (T-Junction)	No	15.0			
LI	(ii) W107 or W108 (Side road junction)	No	15.0			
LI	(iii) W202 or W203	No	15.0			
	(C) Provision and erection of information traffic signs for 60km/h design standard,complete					
LI	(i) W401 or W402	No	15.0			
	(Danger Plates 150mm x 600mm)					
LI	(iii) W409					
	(T-Junction Chevron)	No	10.0			
Total Carried Forward To Summary						

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
5700	ROAD MARKINGS					
57.02	Retro-reflective road marking paint:					
	(a) White lines (broken or unbroken)					
	(i) 100 mm wide	km	6.0			
	(ii) 300 mm wide	km	6.0			
	(d) White lettering and symbols	m²	100.0			
57.06	Setting out and premarking the lines (Excluding traffic-island markings, lettering and symbols)	km	6.0			
57.07	Re-establishing the painting unit at the end of the maintenance period	No	3.0			
Total Carried Forward To Summary						

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
58.00	LANDSCAPING AND PLANTING PLANTS					
58.03	Preparing the areas for grassing:					
LI	(b) Scarifying for loosening topsoil	ha	3.5			
	(e) Providing and applying chemical fertilisers and/or soil-improvement material:					
	(v)3:2:1 (25) Fertiliser	t	3.0			
58.04	Grassing:					
	(c) Hydroseeding:					
	(iii) Hydroseeding	ha	3.5			
Total Carried Forward To Summary						

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
59.00	FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS					
	FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS					
59.01	Finishing the road and road reserve:					
LI	(b) Single carriageway road	km	5.0			
Total Carried Forward To Summary						

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
64.00	CONCRETE FOR STRUCTURES					
64.02	Manufacturing precast concrete members					
	(a) Manufacture Concrete slab to place over trapazoidal stormwater channel for vehicle access to stands complete with on-ramp and off-ramp to tie in with natural ground levels.(Clear span 2000mm, width 3000mm,Thickness 250mm reinforced concrete Min 30Mpa/19 Concrete complete with engineers certification)	No	20.0			
64.03	Transporting and erecting precast concrete members					
	Transport to site and placement of item 64.02	No	20.0			
Total Carried Forward To Summary						

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
73.00	CONCRETE BLOCK PAVING FOR ROADS					
73.01	Concrete block paving					
	(a) Grey,Type S-A,Shape A,Interlocking concrete blocks with 25MPa wet compression strength in accordance with UTG2,Complaint with SANS1058 laid in herringbone bond on 25mm river sand bedding ,compacted with plate vbrator with dry plaster sand broomed into joints while vibrating compaction untill all joints is saturated.Maximum 2mm height difference between blocks finished top level of individual blocks.					
LI	(i) 80mm Thick	m²	30,000.0			
73.02	300H x200mmW Cast in situ concrete edge beams	m³	25.0			
73.03	Provision of approved herbicide and ant poison:					
	(a) Provision of materials	PC sum	1.0			
	(b) Contractor's charges and profit added to the prime cost sum	%	60,000.0			
LI	30Mpa/19mm complete with reinforcing and jointex expanion joints at 3m max interval.					
Total Carried Forward To Summary						

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
81.00	TESTING MATERIALS AND WORKMANSHIP					
B81.04	(a) Testing by the Engineer	PC sum	1.0	350,000.00	350,000	00
	(b) Handling cost and profit in respect of subitem B81.04(a)	%	350,000.0			
	Note:					
	The cost for process control by the contractor must be included in his tendered rates and contractor to submit all					
	his lab tests to the engineer for approval. This allowance is only for additional tests ordered by the engineer.					
	Contractor testing in accordance with COLTO SECTION 8200 (SCHEME 1)					
Total Carried Forward To Summary						

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
PART B	OCCUPATIONAL HEALTH AND SAFETY ACT OBLIGATIONS(as and when required by the client)					
B10.01	(a) Contractor's initial obligations in respect of the Occupational Health and Safety Act and Construction Regulations	L/sum	1.0			
	(b)Contractor's time related obligations in respect of the Occupational Health and Safety Act and Construction Regulations	month	12.0			
	(c) Submission of the Health and Safety File	L/sum	1.0			
	(d) Provision for personal protection equipment and clothing	L/sum	1.0			
	(e) OHS training	L/sum	1.0			
B10.02	Occupational Health & Safety Agent on behalf of the Employer					
	(a) Payment of OHS Agent	Prov sum	1.0	540,000.00	540,000	00
	(d) Handling cost and profit in respect of subitem E10.02(a)	%	540,000.0			
	(c) Provision for Personal Protective Equipment & protective Clothing:					
	(i) Including but not restricted to Reflective Vests	Sum	1.0			
	(ii) Including but not restricted to Reflective Bibs	Sum	1.0			
	(iii) Including but not restricted to Hard Hats	Sum	1.0			
	(iv) Including but not restricted to protective footwear	Sum	1.0			
	(v) Including but not restricted to Earplugs	Sum	1.0			
	(vi) Including but not restricted to Dust Masks	Sum	1.0			
	(vii) Face Masks for COVID-19 (respiratory protection as required)	Sum	1.0			
	(viii) Surgical Gloves (for security and cleaning team)	Sum	1.0			
	(ix) safety Goggles for Screening Person	Sum	1.0			
	(d) Costs of medical certificate and Medical Surveillance	Sum	1.0			
	(i) Initial (baseline) medical examination screenings for Employees with COVID-19 Symptoms	Sum	1.0			
	ii) Exit examination	Sum	1.0			
	(e) Re-induction Training for Covid-19	Sum	1.0			
	(f) Provision of First Aid Boxes	Sum	1.0			
	Daily Logbook for above					
	(i) Waste Bins	Sum	1.0			
	(q) Maintenance of a register for workers contacts	Sum	1.0			
Total Carried Forward To Summary						

Number	Item Description	Unit	Quantity	Rate	Amount	
					R	c
	PART C					
C10.01	Training					
	(a) CETA Accredited Training					
	(i) Skills training (approved by Engineer)	Prov sum	1.000	600,000.00	600,000	00
	(b) Handling cost and profit in respect of subitems C10.01 (a)(i)	%	600,000.000			
C10.02	Civil Engineering Inter for training by the Engineer					
	(a) Payment of Civil Intern Min S4	Prov sum	1.000	540,000.00	540,000	00
	(b) Handling cost and profit in respect of subitem C10.02 (a)	%	540,000.000			
Total Carried Forward To Summary						

SUMMARY OF BILL OF QUANTITIES

SUMMARY OF BILL OF QUANTITIES		
SCHEDULE A : CIVIL WORKS		
SECTION	**DESCRIPTION**	**AMOUNT**
1200	General requirements and provisions	
1300	Contractor's establishment on site and general obligations	
1400	Offices and laboratory for site personnel	
1500	Accommodation of traffic	
1700	Clearing and grubbing	
1800	Dayworks	
2200	Prefabricated culverts	
2300	Concrete kerbing	
3100	Borrow Materials	
3200	Stockpiling and placing and compacting of gravel layers	
3300	Mass earthworks	
3400	Pavement layers of gravel materials	
3500	Stabilization	
3800	Breaking up exiting pavement layers	
5100	Pitching, Stonework and Protection against Erosion	
5200	Gabions	
5500	Fencing	
5600	Road signs	
5700	Road markings	
5800	Landscaping and planting plants	
5900	Finishing the road and road reserve and treating old roads	
6400	Concrete for Structures	
7300	Concrete block paving for roads	
8100	Testing materials and workmanship	
SCHEDULE A : CIVIL WORKS		
SCHEDULE B: OCCUPATIONAL HEALTH AND SAFETY ACT OBLIGATIONS		
SCHEDULE C: TRAINING		
SUBTOTAL		
ADD: 10% Contingencies		
SUBTOTAL **Carry over to next page**		

SUBTOTAL Carried over from previous page	
ADD : 15% VAT	
TENDER (CONTRACT) PRICE TO FORM OF OFFER **This amount includes 15% Vat**	

VICTOR KHANYE LOCAL MUNICIPALITY

TENDER NO: T/RSW02/MIG/P1/2023/2024

PANEL OF SERVICE PROVIDERS FOR TARRING/PAVING OF ROADS IN VICTOR KHANYE LOCAL MUNICIPALITY FOR 36 MONTHS

C3 SCOPE OF WORK

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C3.1 STANDARD SPECIFICATIONS SW.3

C3.2 PROJECT SPECIFICATIONS. SW.4

C3.3 PARTICULAR SPECIFICATIONS SW.108

C3.1 STANDARD SPECIFICATIONS

The standard specifications on which this contract is based are the COLTO Standard Specifications for Road and Bridge Works for State Road Authorities 1998 edition.

The following SANS specifications are also referred to in this document and the Contractor is advised to obtain them from Standards South Africa (a division of SABS) in Pretoria.

SANS 10396: 2003: Implementing Preferential Construction Procurement Policies using Targeted Procurement Procedures

SANS 1914-4 (2002): Targeted Construction Procurement (local resources)

SANS 1921 – 1 (2004): Construction and Management Requirements for Works Contracts Part 1: General Engineering and Construction Works and where accommodation of traffic is involved:

SANS 1921-2 (2004): Construction and Management Requirements for Works Contracts and Part 2: Accommodation of Traffic on Public Roads Occupied by the Contractor.

OTHER 1. Technical Guideline: Concrete Manual Association: A Guide for the Design and Construction of Concrete Block Paving. 5th Edition, 2007.

C3.2 PROJECT SPECIFICATIONS

PART A: GENERAL

PS-1 Project Description
PS-2 Description of the Site and Access
PS-3 Details of the Works
PS-4 Construction Management Requirements
PS-5 Management of the Works
PS-6 Procurement
PS-7 Construction
PS-8 EPWP Labor-Intensive Specification
PS-9 Generic Labor-Intensive Specification

PART B: AMENDMENTS TO THE STANDARD SPECIFICATIONS

B1 Project Specifications Relating to the Standard Specifications and Additional Specifications

PART A: GENERAL

PS-1 PROJECT DESCRIPTION

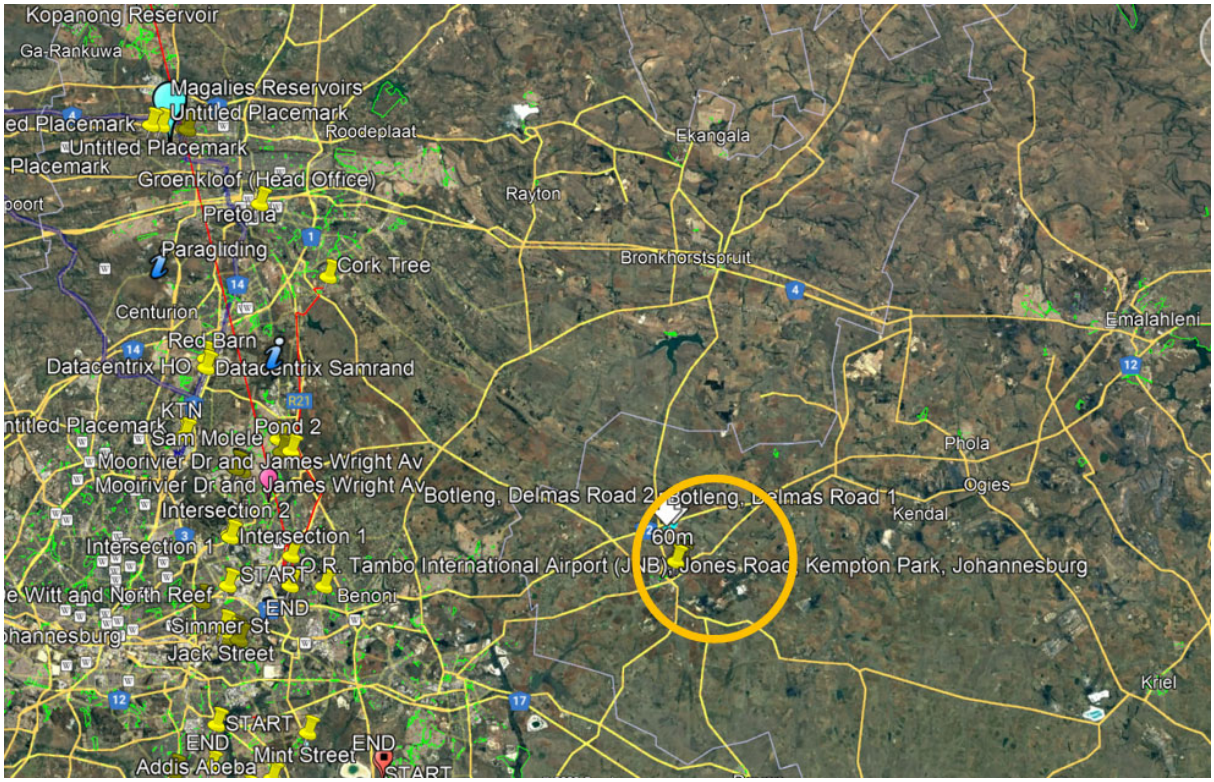
Victor Khanye Local Municipality wishes to upgrade class five residential access streets in Delpark from gravel/old asphalt to block paved roads. Twenty-Two (22) internal streets are part of the scope of works to a total length of 4.919 km which will need to be upgraded. In line with this, a stormwater management system must be constructed. A summary of the works is as follow:

PS-2 DESCRIPTION OF THE SITE AND ACCESS

The project site is situated in Delpark, adjacent to Road R555, to Witbank.
The centre of the site has the following approximate coordinates:

Latitude: 26º8,528' S
Longitude: 28º41.659' E

FIGURE 1: LOCALITY MAP





PS-3 DETAILS OF THE WORKS

The proposed works are summarised below and on drawing number 2005-004K01, of which a reduced copy is bound into this document

The proposed works are summarised below and on drawing number 2005-004K01, of which a reduced copy is bound into this document.

- Construct **4919m** class U5b urban residential streets with 80mm Block Surface.
- Construct minor stormwater drainage systems (**2650m**) from the start of upgrade and down to an acceptable discharge location.
- These systems consist of precast concrete pipes and culverts with diameters:
    - 600mm diameters interlocking concrete pipes
    - 750mm diameters interlocking concrete pipes
    - 1200mm diameters interlocking concrete pipes
    - 1350mm diameters interlocking concrete pipes,
- 260m length of 900mm x 600mm precast concrete portal units

- 40 no 3m long kerb inlet structures
- 47 no manholes
- 50m long stone-pitched daylight trenches
- 20No stormwater Outles discharge structures.

The following pavement types are proposed for Roads 1 to 22:

- Precast concrete block pavement

  Drawing no. 2005-004X01-02, included under Appendix 2, illustrate the proposed road pavements.

Road 1 (5m wide measured between kerbs)
Road 2 (6m wide measured between kerbs)

- *Cut/Fill Material In-situ G6/G7: Compacted to 9**3**% MOD AASHTO Density*
- *Roadbed Prep G6/G7: Compacted to 93% MOD AASHTO Density*
- *1**25**mm Subbase (G5 Stabilised with CEM II (AL) 32.5n to form C4: 95% MOD AASHTO Density*
- *125mm Base (G5 Stabilised with CEM II (AL) 32.5n to form C4: 95% MOD AASHTO Density*
- *2**0**mm River sand Bedding*
- *80mm Grey, Type S-A, Shape A, Interlocking Concrete Blocks 25MPa Wet Compression strength in accordance with UTG2, Complaint with SANS1058 Layed in herringbone pattern and compacted with plate vibrator while apply dry plaster sand until all joints saturated.*

Method of construction for Road 1

1. Box-cut 350mm and stockpile the material.
2. Screen the material to remove the oversize portions larger than 63mm.
3. Import 30% G5 material from commercial sources and mechanically modify the stockpiled material to a consistent minimum G6.
4. Rip and recompact the bottom of the excavation to 93 MOD AASHTO Density
5. Construct 125mm subbase layer C4 from modified stockpile material by adding Cement as detailed.
6. Construct 125mm base layer C4 from modified stockpile material by adding Cement as detailed.
7. Construct 80mm block paving on 25mm river sand

3.1 General

Roadworks:

- Setting out of the works.
- Clearing and grubbing of the site.
- Bulk earthworks to achieve the required design levels.
- Construction of layer works, roadbed, cement stabilised sub-base and gravel base layers as per the pavement design specification.
- Construction of (Fig 8c, SANS 927) concrete kerbing

- River sand layer.
- Instillation of block paving surface course.
- Painting of road markings;
- Erection of signage;
- Finishing of the road reserve.

Stormwater:

- Excavation of trenches for stormwater pipes;
- Installation of kerb-inlet structures;
- The construction of storm water junction boxes;
- The construction of storm water outlet structures;
- Installation of stormwater pipes;

3.2 Road reserve and typical cross section

Road 1 is a Class U5b road with a lane with of 2.5m and overall road with of 5m measured between kerbs.
Road 2 is a Class U4b road with a lane with of 3.0m and overall road with of 6m measured between kerbs.

3.3 Temporary Works

The Contractor shall, as relevant,

a) provide temporary drainage works, temporary pumps and other equipment as might be necessary for the protection, draining and dewatering of the works; and

b) Construct and maintain haulage, temporary access and construction roads, subject to the approval of the Employer, and permit the Employer, other Contractors, statutory bodies or any other person who might require legitimate access to or through the site for executing legitimate business, free and unhindered usage of such roads.

c) Temporary water connections, Contractor's offices, storage sheds, latrines, barricading of Works shall be in an approved location and subject to the approval of all authorities concerned.
d) Safety and Security of the Contractor's temporary works shall be at the Contractor's discretion.
e) The camp shall be adequately guarded during or outside working hours.

3.4 Accommodation of traffic

Clear communication with residents shall be undertaken, and alternative access provided. Protection of the works especially stabilised layers would be vested with the contractor.

Drawings

The list of drawings is included in **PART C4** of this document and is subject to revision. The revised drawings shall be issued timeously by the Engineer.

P**S-4 CONSTRUCTION MANAGEMENT REQUIREMENTS**

4.1 General

The Contractor is referred to SANS 1921: 2004 parts 1, 2 and 3: Construction and Management Requirements for Works Contracts. These specifications shall be applicable to the contract under consideration and the Contractor shall comply with all requirements relevant to the project.

Certain aspects however require further attention as described hereafter.

4.1.7 Drawings *(Read with SANS 1921 – 1: 2004 clauses 4.1.7; 4.1.11 & 4.1.12)*

The requirements for drawings, information and calculations for which the Contractor is responsible are: *None*.

The reduced drawings which form part of the tender documents shall be used for tendering purposes only.

The contractor shall be supplied with three complete paper copies of the construction drawings free of charge. The Contractor shall, at his own expense, produce there from all further paper prints required for the construction of the work.

At the completion of the contract, the Contractor shall return to the Engineer all drawings, provided or made, during the contract period. Any information which the Contractor has control over and which is required by the Resident Engineer to complete the as-built drawings shall be made available to the Resident Engineer before the completion certificate is issued.

Only written dimensions may be used. Dimensions are not to be scaled from drawings unless ordered by the Engineer. The Engineer will supply all figures / dimensions which are not shown on the drawings. The levels or dimensions given on the drawings are subject to confirmation on site. The Contractor shall submit all levels and dimensions to the Engineer for confirmation before he commences with any structural construction work. The Contractor shall also check all clearances which are given on the drawings and inform the Engineer of any conflicting dimensions.

Any destination names on road signs which may be indicated on the drawings are subject to confirmation by the Engineer before these signs are manufactured.

4.2 Responsibilities for design and construction

Consulting Engineer

The Consulting engineer responsible for the design in accordance with the specification is: KTN *Consulting Engineers and Project Managers*.

4.3 Planning and Program *(Read with SANS1921-1:2004 clause 4.3)*

Preliminary program

The Contractor shall include with his tender a preliminary program on the prescribed form to be completed by all Tenderers. The program shall be in the form of a simplified bar chart with sufficient details to show clearly how the works will be performed within the time for completion as stated in the

Contract Data.

Tenderers may submit tenders for an alternative Time for Completion in addition to a tender based on the specified Time for Completion. Each such alternative tender shall include a preliminary program similar to the program above for the execution of the works and shall motivate his proposal clearly by stating all the financial implications of the alternative completion time.

The Contractor shall be deemed to have allowed fully in his tendered rates and prices as well as in his program for all possible delays due to normal adverse weather conditions and special non-working days as specified in the Special Conditions of Contract, in the Project Specifications and in the Contract Data.

The following constraints shall be considered in preparing the preliminary construction program which must be submitted with the Tender. These same constraints shall apply to the final construction program.

1. The Contract time is **12 months**. Plant and personnel requirements to complete the project within the allocated duration must be incorporated in the Tender.
2. A high standard of traffic accommodation
3. The relocation of services
4. Ancillary works by Emerging Contractors

Program in terms of Clause 5.6 of the General Conditions of Contract

It is essential that the construction program, which shall conform in all respects to Clause 5.6 of the General Conditions of Contract 2015 edition, be furnished within the time stated in the Contract Data. The preliminary program to be submitted with the tender shall be used as basis for this program. The Contractor's attention is also drawn to clause 5.7.1 of the General Conditions of Contract.

4.4 **Quality Assurance (QA)** *(Read with SANS 1921 – 1: 2004 clause 4.4)*

The Contractor will be solely responsible to produce work that complies with the Specifications to the satisfaction of the Engineer. To this end it will be the full responsibility of the Contractor to institute an appropriate Quality Assurance (QA) system on site. The Engineer will audit the Contractor's quality assurance (QA) system on a regular basis to verify that adequate independent checks and tests are being carried out and to ensure that the Contractor's own control is sufficient to identify any possible quality problems which could cause a delay or failure.

The Contractor shall ensure that efficient supervisory staff, the required transport, instruments, equipment and tools are available to control the quality of his own workmanship in accordance with his QA-system. His attention is drawn to the fact that it is not the duty of the Engineer or the Engineer's representative to act as foreman or surveyor.

4.6 **Management and disposal of water** *(Read with SANS 1921 - 1 : 2004 clause 4.6)*

The Contractor shall pay special attention to the management and disposal of water and stormwater on the site. It is essential that all completed works or parts thereof are kept dry and properly drained. Claims for delay and for repair of damage caused to the works as a result of the Contractor's failure to properly manage rain and surface water, will not be considered.

4.10 **Earthworks,**
Borrow pits and spoil areas *(Read with SANS 1921 - 1 : 2004 clause 4.10)*

No borrow pits will be used for this contract The Contractor shall be required to import all

material from commercial sources approved by the Engineer.

The spoil sites shall be determined on site in conjunction with the Engineer, the PLC, and the local communities. The Contractor shall be permitted to use only those spoil areas approved by the Engineer. Should the Contractor wish to use any other tip area for the disposal of soil, rubble, vegetation, etc, its use shall be subject to the approval of the Engineer and the landowner.

4.11 **Testing** *(Read with SANS 1921 – 1 : 2004 clause 4.11)*

Process control

The Contractor shall arrange for all tests required for process control to be done by a laboratory acceptable to and approved by the Engineer.

The Contractor may establish his own laboratory on site or he may employ the services of an independent commercial laboratory. Whatever method is used, the Contractor must submit the results of tests carried out on materials and workmanship when submitting work for acceptance by the Engineer. The costs for these tests shall be deemed to be included in the relevant rates and no additional payment will be made for testing as required.

Acceptance control

The process control test results submitted by the Contractor for approval of materials and workmanship may be used by the Engineer for acceptance control. However, before accepting any work, the Engineer may have further control tests carried out by a laboratory of his choice. The cost of such additional tests will be covered by a provisional sum provided in the schedule of quantities, but tests that failed to confirm compliance with the specifications, will be regarded as process control and for the account of the Contractor.

4.14 **Site Establishment** *(Read with SANS 1921 - 1 : 2004 clause 4.14)*
Contractor's camp site and depot

The Contractor is responsible to provide a suitable site for his camp and to provide accommodation for his personnel and labourers. If the Employer can make any specific site available to the Contractor, such site will be pointed out to the Contractor.

The chosen site shall be subject to the approval of the Engineer, the local Tribal Authorities and the Project Liaison Committee (PLC). Possible locations for a campsite shall be pointed out at the Site inspection. The Contractor shall conform to all local authority, environmental and industrial regulations.

The Contractor shall make his own arrangements concerning the supply of electrical power and all other services. No direct payment shall be made for the provision of electrical and other services. The cost thereof shall be deemed to be included in the rates and amounts tendered for the various items of work for which these services are required.

The Contractor shall provide security watchmen for the contract as he deems fit at no extra cost for the Employer. The Contractor must ensure that all his employees as well as the employees of his subcontractors are able to identify themselves as members of the construction team.

Accommodation of Employees

No employees except for security guards will be allowed to sleep or be accommodated on the site in

urban areas.

No housing is available for the Contractor's employees and the Contractor shall make his own arrangements to house his employees and to transport them to site.

No informal housing or squatting will be allowed.

The Contractor shall provide the necessary ablution facilities at his camp site and the site of the works for the use of his employees. Chemical toilets only will be allowed where temporary facilities must be provided.

4.15 **Survey beacons** *(Read with SANS 1921 - 1 : 2004 clause 4.15)*

The Contractor shall take special precautions to protect all permanent survey beacons or pegs such as benchmarks, stand boundary pegs and trigonometrical beacons, regardless whether such beacons or pegs were placed before or during the execution of the Contract. If any such beacons or pegs have been disturbed by the Contractor or his employees, the Contractor shall have them replaced by a registered land surveyor at his own cost.

4.17 **Existing Services** *(Read with SANS 1921 - 1 : 2004 clause 4.17)*

The Contractor shall make himself acquainted with the position of all existing services before any excavation or other work likely to affect the existing services is commenced.

The Contractor will be held responsible for any damage to known existing services caused by or arising out of his operations and any damage shall be made good at his own expense. Damage to unknown services shall be repaired as soon as possible and liability shall be determined on site when such damage should occur.

Services belonging to the following service owners are indicated on the drawings:

Service owner	Type of service.
Eskom/municipality	Electricity lines
Local Community	Household water connections

A provisional amount is included in the bill of quantities for the protection of services.

Prior to commencing construction activities in a particular area, the Contractor shall also diligently enquire of local landowners as to whether there are any other known services which have not been shown on the drawings, but which may be affected by the construction activities in that area, and any such services shall be brought to the attention of the Engineer immediately.

The Contractor shall take note of the requirements of clause 1202 of the standard specifications with regard to services.

4.18 **Health and Safety** *(Read with SANS 1921 - 1: 2004 clause 4.18)*

4.18.1 General statement

It is a requirement of this contract that the Contractor shall provide a safe and healthy working environment and to direct all his activities in such a manner that his employees and any other persons who may be directly affected by his activities, are not exposed to hazards their health and safety. To this end the Contractor shall assume full responsibility to conform to all the provisions of the

Occupational Health and Safety Act No 85 and Amendment Act No 181 of 1993, and the OHSA 1993 Construction Regulations 2014 issued on 07 February 2014 by the Department of Labour.

For this contract, the Contractor is required to confirm his status as mandatory and employer in his own right for the execution of the contract by entering into an agreement with the Employer in terms of the Occupational Health and Safety Act in the form as included in Part V of the Returnable Schedules.

Health and Safety Specifications and Plans

a) Employer's Health and Safety Specification

The Employer's Health and Safety Specification will be included in the tender documents as part of the Project Specifications.

b) Tenderer's Health and Safety Plan

The Tenderer shall submit with his tender his own documented Health and Safety Plan he proposes to implement for the execution of the work under the contract and shall cover the following:

(i) a proper risk assessment of the works, risk items, work methods and procedures in terms of Regulations 7 to 28;
(ii) pro-active identification of potential hazards and unsafe working conditions;
(iii) provision of a safe working environment and equipment;
(iv) statements of methods to ensure the health and safety of subcontractors, employees and visitors to the site, including safety training in hazards and risk areas (Regulation 5);
(v) monitoring health and safety on the site of works on a regular basis, and keeping of records and registers as provided for in the Construction Regulations;
(vi) details of the Construction Supervisor, the Construction Safety Officers and other competent persons he intends to appoint for the construction works in terms of Regulation 6 and other applicable regulations; and
(vii) details of methods to ensure that his Health and Safety Plan is carried out effectively in accordance with the Construction Regulations 2014.

The Contractor's Health and Safety Plan will be subject to approval by the Employer, or amendment if necessary, before commencement of construction work. The Contractor will not be allowed to commence work, or his work will be suspended if he had already commenced work before he has obtained the Employer's written approval of his Health and Safety Plan.

Time lost due to delayed commencement or suspension of the work as a result of the Contractor's failure to obtain approval for his safety plan, shall not be used as a reason to claim for extension of time or standing time and related costs.

Cost of compliance with the OHSA Construction Regulations

The rates and prices tendered by the Contractor shall be deemed to include all costs for conforming to the requirements of the Act, the Construction Regulations and the Employer's Health and Safety Specification as applicable to this contract.

Should the Contractor fail to comply with the provisions of the Construction Regulations, he will be liable

for penalties as provided in the Construction Regulations and in the Employer's Health and Safety Specification.

4.18.2 Requirements for Accommodation of Traffic *(Read with SANS 1921 - 2 : 2004)*

General

The Contractor will be responsible for the safe and easy passage of public traffic past and on sections of roads of which he has occupation or where work has to be done near traffic.
The travelling public shall have the right of way on public roads, and the Contractor shall make use of approved methods to control the movement of his equipment and vehicles so as not to constitute a hazard on the road.

Accommodation of traffic, where applicable shall comply with SANS 1921-2: 2004: Construction and Management Requirements for Works Contracts, Part 2: Accommodation of Traffic on Public Roads occupied by the Contractor. The Contractor shall obtain this specification from Standards South Africa if accommodation of traffic will be involved on any part of the construction works.

Basic Requirements

The Contractor shall ensure that all road signs, barricades, delineators, flagmen and speed controls are effective, and that courtesy is extended to the public at all times.

Failure to maintain road signs, warning signs or flicker lights, etc, in a good condition shall constitute ample reason for the Engineer to suspend the work until the road signs, etc, have been repaired to his satisfaction.

The Contractor may not commence constructional activities affecting existing roads before adequate provision has been made to accommodate traffic in accordance with the requirements of this document and the South African Road Traffic Signs Manual.

The Contractor shall construct and maintain all temporary drainage works necessary for temporary deviations.

The Contractor shall provide and grant access to persons whose properties fall within or adjoin the area in which he is working.

Payment

The Contractor's tendered rates for the relevant items in the Bill of Quantities shall include full compensation for all possible additional costs which may arise from this, and no claims for extra payment due to inconvenience as a result of the modus operandi will be considered.

4.19 Management of the environment *(Read with SANS 1921 - 1 : 2004 clause 4.19)*

Respect for the environment is an important aspect of this contract and the Contractor shall pay special attention to the following:

(a) Natural Vegetation

The Contractor shall confine his operation to the limits of the road reserve for the purpose of constructing the works and where applicable detours, shall be sited in consultation with the

Engineer and the local communities.

Only those trees and shrubs directly affected by the works and such others as the Engineer may direct I writing shall be cut down and stumped. The natural vegetation, grassing and other plants shall not be disturbed other than in areas where it is essential for the execution of the work or where directed by the Engineer.

(b) Fires

The Contractor shall comply with the statutory and local fire regulations. He shall also take all necessary precautions to prevent any fires. In the event of fire, the Contractor shall take active steps to limit and extinguish the fire and shall accept full responsibility for damages and claims resulting from such fires which may have been caused by him or his employees.

(c) Environmental Management Plan

In addition to the above all requirements according to the Environmental Management Plan as detailed in C3.3, Particular Specifications, will be adhered to.

PS 5 MANAGEMENT OF THE WORKS

5.1 Applicable SANS 1921 standards

The following parts of SANS 1921 Construction works standards and associated specification data are applicable to the works:

1) SANS 1921-1: General engineering and construction works
2) SANS 1921-2: Accommodation of traffic
3) SANS 1921-6: HIV/Aids awareness

The abovementioned South African National Standards make several references to the Specification Data for data, provisions and variations that make these standards applicable to this contract. The Specification Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and these standards.

Each item of Specification Data given below is cross-referenced to the clause in the standard to which it mainly applies.

SANS 1921-1, Construction and management requirements for works contracts – Part 1: General engineering and construction works	
Clause	**Specification data**
Essential data	
4.1.7	There are no requirements for drawings, information and calculations for which the contractor is responsible
4.2.1	The responsibility strategy assigned to the contractor for the works is **A**.
4.2.2	The engineer is KTN Consulting Engineers.

4.3.1	The planning, program and method statements are to comply with the following: The Contract time is 9 months a) Plant and personnel requirements to complete the project in 9 months shall be incorporated. b) A high standard of traffic accommodation. c) The relocation of services (if required). d) Ancillary works by Emerging Contractors. State requirements for format of program, level of detail, critical path activities and their dependencies, frequency of updating, etc., if not provided in the contract data. Provide particulars of phased completion, program constraints, milestone dates for completion, etc., as necessary. State requirements for sequencing, as required. State any requirements for software for programs.
4.3.3	The notice period for inspection is 2 Days
4.12.2	The samples of materials, workmanship and finishes that the contractor is to provide and deliver to the employer are as requested by the engineer per site instruction.

4.14.3	The office accommodation, equipment, accommodation for site meetings and other facilities for use by the employer and his agents are: 1) **Site office** which shall be used for site meetings and for the contractor's use. Such an office shall comprise a minimum of 48m^2 in area and 3 m high, be ventilated, have good lamination, must be reasonably soundproof, and have a hard floor construction. It shall be furnished with a desk on which. drawings can be rolled open and on which there is sufficient writing space and sufficient temporary chairs or benches to accommodate all persons present at site meetings. 2) A meeting room will be provided and equipped to accommodate the employer, his agent and the Contractor and community liaison officer in meetings.
4.14.5	The Contractor is required to provide latrine and ablution facilities.
4.14.6	The requirements for the provision and erection of sign boards for consultants and subcontractors are: 1) The boards must comply with the official standard type of signboard of the Employer as issued by the engineer's construction drawings.

4.17.1	The requirements for the termination, diversion or maintenance of existing services are: The Contractor shall make himself acquainted with the position of all existing services before any excavation or other work likely to affect the existing services is commenced. The Contractor will be held responsible for any damage to known existing services caused by or arising out of his operations and any damage shall be made good at his own expense. Damage to unknown services shall be repaired as soon as possible and liability shall be determined on site when such damage should occur. Prior to commencing construction activities in a particular area, the Contractor shall also diligently enquire of local landowners as to whether there are any other known services which have not been shown on the drawings but which may be affected by the construction activities in that area, and any such services shall be brought to the attention of the Engineer immediately. The Contractor shall take note of the requirements of clause 1202 of the standard specifications with regard to services. The Contractor shall fulfil all wayleaves requirements/permits prior to and during construction.

4.17.3	Services which are known to exist on the site are: 1 Electricity poles 2 Fences 3 Water pipes
4.17.4	The requirements for detection apparatus are: Where applicable, the Contractor shall use appropriate detection equipment to locate underground services. The Engineer shall be informed immediately of such activities.

Variations

None

Additional clauses

1 Site meetings and procedures

The Employer's Representative and the Contractor shall hold meetings relating to the progress of the works at regular intervals and at other such times as may be necessary. The Contractor shall attend all site meetings and shall ensure that all persons under his jurisdiction are notified timeously of all site meetings should the Employer's Representative require their attendance at such meetings.

The Contractor shall keep on site a set of minutes of all site meetings, daily records of resources (people and equipment employed), a site instruction book, a complete set of contract working drawings and a copy of the procurement document and make these available at all reasonable times to all persons concerned with the contract.

2 Water and electricity

The Employer does not warrant that any water supply or electricity supply that may exist is adequate for the proper execution of the works. The responsibility strategies in terms of the tabulation below that will apply to the contract is:

Service	Contractor responsibility
Water	The Contractor is to provide, and remove and make good upon completion, al the necessary temporary plumbing connections and purchase water from the local authority for the works at his own cost.
Electricity	The Contractor is to provide, and remove and make good upon completion, all the necessary temporary electrical connections and installations and purchase electricity from the local authority / ESKOM for the works at his own cost.
Telecommunication	The Contractor is to provide, and remove and make good upon completion, all the necessary temporary telecommunication connections and installations and purchase bandwidth/units from the supplier for the works at his own cost.
Sanitation	The Contractor is to provide, and remove and make good upon completion, all the necessary temporary plumbing connections for the works at his own cost. The contractor shall ensure the provision of this service at the site camp and at accommodation of contractor's employees

		contractor's employees.	
	Waste disposal	The Contractor is to provide, and remove and make good upon completion, all the necessary temporary waste disposal means for the works at his own cost.	
	Security services	The Contractor is to provide, and remove and make good upon completion, all the necessary temporary security arrangements and purchase such goods and services for the works at his own cost.	

Clause	**Specification Data**
Essential Data:	
5.1	The depth of trenches which are to be excavated by hand is as per construction drawings.
Additional clauses:	
1	**Stone pitching and concrete masonry** All stone required for stone pitching and concrete masonry, whether grouted or dry, shall be collected, loaded, off loaded and placed by hand. Sand and stone shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150m.
2	**Manufactured Elements** Elements manufactured or designed by the Contractor (if any), such as cover slabs and precast concrete planks shall not individually, have a mass of more than 320kg. In addition, the items shall be large enough so that four workers can conveniently and simultaneously acquire a proper hand hold on them when carrying.
SANS 1921-6, Construction and management requirements for works contracts – Part 6: HIV/AIDS awareness.	
4.2.1(a)	A qualified service provider is a service provider that is one that is accredited or provisionally accredited training service provider in the HIV/AIDS field. A list of accredited service providers can be obtained from the Construction SETA (CETA) (Tel: 011-265 5900), Health and Welfare SETA (HWSETA) (011-622 6852) or on the Health and Welfare SETA website: www.hwseta.org.za.
4.2.1(a)	The HIV/AIDS awareness program is to be repeated at three (3) month intervals throughout the duration of the contract. (Initial one at the start of the contract.)
Additional clauses	
	The duration of each workshop is not to be less than **2 ½ hours**.

5.2 Particular / generic specifications

The management of the site shall be in accordance with the provisions of the COLTO Standard Specification for Road and Bridge Works for State Authorities (1998 edition), obtainable from the South African Institution of Civil Engineering.

5.3 Recording of weather

The Contractor shall erect an effective rainfall gauge on the site and record the daily rainfall figures in a book. Such book shall be handed to the employer's representative for his signature no later than 12 days after rain that is considered to justify an extension of time occurs.

5.4 Unauthorised persons

The Contractor shall always keep unauthorized persons from the works. Under no circumstances may any person except guards be allowed to sleep on the building site.

5.5 Management meetings

Project management meetings will be held once a month. This meeting will be attended by the representatives of the Employer, the representatives of the contractor as well as the representatives of the consultant.

All representatives at the meeting(s) must be delegated to take binding decisions, although it may be sometimes necessary to refer some decisions to higher authority.

Any claim or intention to claim must be brought to the attention of the Employer / Engineer / consultant in writing and within 28 days of the cause of the delay or where contractually required any specific shorter period. Not complying with this instruction / procedure will be regarded as relinquishment of the claim.

All important matters must be brought to the attention of the meeting timorously and supported by a written notification.

5.6 Forms for contract administration

Forms for contract administration will be completed by the consultant's staff on site.

5.7 Electronic payments

The contractor is to fulfil the electronic payment requirements of the Client to be paid electronically.

The Contractor is also advised to pay all his staff electronically to avoid handling large quantities of money on site.

5.8 Daily records

The contractor is required to keep a site diary in which to record daily occurrences on site.

5.9 Payment certificates

The Contractor shall be entitled to receive a monthly progress payment, which shall be based on a progress on site and payment certificate issued by the Consultant.

The Contractor shall on monthly basis submit a monthly statement of all moneys due to him. On such a statement he shall also include all materials on site. The statement submitted by the contractor shall indicate measured quantities. The consultant shall submit to the Victor Khanye Local Municipality a signed certificate which indicates the amount due to the contractor.

PS 6 PROCUREMENT

Preferential procurement procedures

Direct preference is given based on the Targeted Enterprise status of the tenderer. Functionality points are allocated based on the Contract Participation Goal offered in terms of the engagement of Local Enterprises and Local Labour.

Scope of mandatory subcontract work

It is mandatory to subcontract work of at least thirty percent (30%) of the value to the local enterprises to achieve the Contract Participation Goal. The choice of who and for which portions of the work he does is to be agreed with the Project Steering Committee or the Community Forum in liaison with the Liaison Officer and the Ward Councilor. The Contractor commits himself to work closely with the Community Forum, who will compile a local resource database to assist the Contractor in maximizing the use of local resources. In inviting local enterprises to tender for subcontracted work, the Contractor shall include the local enterprises identified by the Community Forum, except if they are deemed by the Contractor to be unfit to provide the service or deliver the goods at the required quality, considering the entrepreneurial training available to empower them. In the event of a dispute between the Community Forum and the Contractor as to the ability of an identified service local enterprise for a particular subcontract, the final choice shall rest with the Contractor, following discussions with the CLO and the Engineer.

PS 7 CONSTRUCTION

Applicable SANS 2001 standards for construction works.

There are no SANS 2001 standards applicable.

Applicable national and international standards

The relevant provisions of the COLTO Standard Specification for Road and Bridge Works for State Authorities (1998 edition) shall apply to the contract.

Applicable SA National Standards (SANS)

Reference is made to certain provisions of:

SANS 1921-5	Construction and management requirements for works contracts: Earthworks activities which are to be performed by hand.
SANS 1914-5	Targeted construction procurement: Participation of targeted labour

These Specifications are not issued with this volume but are available at the Contractor’s expense from: Standards South Africa,

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1 Dr Lategan
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0001

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Email: sales@sabs.co.za

Particular/ Generic Specifications

The relevant provisions of the COLTO Standard Specification for Road and Bridge Works for State Authorities (1998 edition) shall apply to the contract with the following amendments:

1115	Replace clause with the following: The general conditions of contract are the General Conditions of Contract for Construction Works Third edition (2015) as published by the South African Institution of Civil Engineering read in conjunction with the Contract Data.
1202	Replace “Clause 15” with “Clause 5.6”.
1206	Replace the first sentence with the following: The contractor shall comply with all legal provisions in regard to surveying and setting out work.
1209(e)	Replace “Clause 52” with “Clauses 6.9 and 6.10.2”.
1210	Replace “Clause 54” with “Clause 5.14”.
1212(1)	Replace “Clause 49” with “Clause 6.8”.
1215	Replace “Clause 45” with “Clause 5.12”.
1217	Replace “Clause 35” with “Clause 8.1”.
1303	Replace “Clauses 49 and 53” with “Clause 6.11”.
13.01(3)	Replace “Clauses 12 and 45” with “Clauses 1.1.1.5 and 5.12”.
14.03(c)	Replace “Clause 40(1)” with “Clause 6.4”.
1505	Replace “Clauses 40 and 53” with “Clause 6.4”.
3204(b)(iii)	Replace “Clauses 40 and 53” with “Clause 6.4”.

PS 8 EPWP LABOUR- INTENSIVE SPECIFICATION

EPWP LABOUR-INTENSIVE SPECIFICATION

Employer’s objective

The objective of the Employer is to optimise the usage of local labour where possible.

8.1 Labour-intensive works

Labour-intensive works comprise the activities described in the SANS 1921-5, Earthworks *activities which are to be performed by hand,* and its associated specification data. Such works shall be constructed using local workers who are temporarily employed in terms of this scope of work.

8.1.1 Labour-intensive competencies of supervisory and management staff

Contractors having a CIDB contractor grading of 6CE and higher shall only engage supervisory and management staff in labour intensive works who have either completed, or within the three year period prior to the commencement of this project, are registered for training towards, the skills program outlined in Table 1.

The managing principal of the Contractor, namely, a sole proprietor, the senior partner, the managing director or managing member of a close corporation, as relevant, having a Contractor grading designation of 1CE, 2CE, 3CE and 4CE shall have personally completed, or within the three year period prior to the commencement of this project be registered on a skills program for the NQF level 2. All other site supervisory staff in the employ of such Contractors must have completed, or for within the three year period prior to the commencement of this project be registered on a skills program for, the NQF level 2 unit standards or NQF level 4 unit standards.

Table 1: Skills program for supervisory and management staff

Personnel	**NQF level**	**Unit standard titles**	**Skills program description**
Team leader / supervisor	2	Apply Labour Intensive Construction Systems and Techniques to Work Activities	This unit standard must be completed, **and**
		Use Labour Intensive Construction Methods to Construct and Maintain Roads and Stormwater Drainage	any one of these 3 unit standards
		Use Labour Intensive Construction Methods to Construct and Maintain Water and Sanitation Services	
		Use Labour Intensive Construction Methods to Construct, Repair and Maintain Structures	
Foreman/ supervisor	4	Implement labour Intensive Construction Systems and Techniques	This unit standard must be completed, **and**
		Use Labour Intensive Construction Methods to Construct and Maintain Roads and Stormwater Drainage	any one of these 3 unit standards
		Use Labour Intensive Construction Methods to Construct and Maintain Water and Sanitation Services	
		Use Labour Intensive Construction Methods to Construct, Repair and Maintain Structures	
Site Agent / Manager (i.e the contractor's most senior representative that is resident on the site)	5	Manage Labour Intensive Construction Processes	Skills Program against this single unit standard

8.1.2 Employment of unskilled and semi-skilled workers in labour-intensive works

8.1.2.1 Requirements for the sourcing and engagement of labour.

8.1.2.1.1 Unskilled and semi-skilled labour required for the execution of all labour-intensive works shall be engaged strictly in accordance with prevailing legislation and SANS1914-5, Participation of Targeted Labour.

8.1.2.1.2 The rate of pay set for the SPWP is as determined by the Civil Engineering Industry task rate

8.1.2.1.3 Tasks established by the contractor must be such that:

a) the average worker completes 5 tasks per week in 40 hours or less; and
b) the weakest worker completes 5 tasks per week in 55 hours or less.

8.1.2.1.4 The contractor must revise the time taken to complete a task whenever it is established that the time taken to complete a weekly task is not within the requirements of 8.1.2.1.3.

8.1.2.1.5 The Contractor shall, through all available community structures, inform the local community of the labour-intensive works and the employment opportunities presented thereby. Preference must be given to people with previous practical experience in construction and / or who come from households:

a) where the head of the household has less than a primary school education.
b) that have less than one full time person earning an income.
c) where subsistence agriculture is the source of income.
d) those who are not in receipt of any social security pension income.

8.1.2.1.6 The Contractor shall endeavor to ensure that the expenditure on the employment of temporary workers is in the following proportions:

a) 60 % women.
b) 20% youth who are between the ages of 18 and 25; and
c) 2% on persons with disabilities.

8.1.2.2 Specific provisions pertaining to SANS 1914-5

8.1.2.1 Definitions

Targeted labour: Unemployed persons who are employed as local labour on the project.

8.1.2.2.2 Contract participation goals

8.1.2.2.2.1 Contract participation goals have been specified for the contract. The contract participation goal shall be measured in the performance of the contract to enable the employment provided to targeted labour to be quantified.

8.1.2.2.2.2 The wages and allowances used to calculate the contract participation goal shall, with respect to both time-rated and task rated workers, comprise all wages paid, and any training allowance paid in respect of agreed training programs.

8.1.2.2.3 Terms and conditions for the engagement of targeted labour

Further to the provisions of clause 3.3.2 of SANS 1914-5, written contracts shall be entered into with targeted labour.

8.1.2.2.2.4 Variations to SANS 1914-5

8.1.2.2.2.4.1 The definition for net amount shall be amended as follows:

Financial value of the contract upon completion, exclusive of any value added tax or sales tax which the law requires the employer to pay the contractor.

8.1.2.2.2.4.2 The schedule referred to in labour-intensive construction shall in addition reflect the status of targeted labour as women, youth and persons with disabilities and the number of days of formal training provided to targeted labour.

8.1.2.2.2.5 Training of targeted labour

8.1.2.2.2.5.1 The contractor shall provide all the necessary on-the-job training to targeted labour to enable such labour to master the basic work techniques required to undertake the work in accordance with the requirements of the contract in a manner that does not compromise worker health and safety.

8.1.2.2.2.5.2 The cost of the formal training of targeted labour, will be funded by the provincial office of the Department of Labour. This training should take place as close to the project site as practically possible. The contractor must access this training by informing the relevant provincial office of the Department of Labour in writing, within 14 days of being awarded the contract, of the likely number of persons that will undergo training and when such training is required. The employer must be furnished with a copy of this request.

8.1.2.2.2.5.3 A copy of this training request made by the contractor to the DOL provincial office must also be faxed to the EPWP Training Director in the Department of Public Works - Cinderella Makunike, email cinderella.makunike@dpw.gov.za Tel:083 677 4026.

8.1.2.2.2.5.4 The contractor shall be responsible for scheduling the training of workers and shall take all reasonable steps to ensure that each beneficiary is provided with a minimum of six (6) days of formal training if he/she is employed for 3 months or less and a minimum of ten (10) days if he she is employed for 4 months or more.

8.1.2.2.2.5.5 The contractor shall do nothing to dissuade targeted labour from participating in training programs.

8.1.2.2.2.5.6 An allowance equal to 100% of the task rate or daily rate shall be paid by the contractor to workers who attend formal training, in terms of 8.1.2.2.2.5.4 above.

8.1.2.2.2.5.7 Proof of compliance with the requirements of 8.1.2.2.2.5.2 to 8.1.2.2.2.5.6 must be provided by the Contractor to the Employer prior to submission of the final payment certificate.

PS 9 GENERIC LABOUR- INTENSIVE SPECIFICATION

The Generic Labour-intensive specification below (informed by SANS 1921-5, Construction and management requirements for works contracts - Part 5: Earthworks) covers activities which are to be performed by hand and should be included in the scope of works without amendment or modification as set out below.

This specification establishes general requirements for activities which are to be executed by hand involving the following:

- ☐ trenches having a depth of less than 1.5 metres
- ☐ stormwater drainage
- ☐ roads
- ☐ sidewalks and non-motorised transport infrastructure
- ☐ water and sanitation

Precedence
Where this specification is in conflict with any other standard or specification referred to in the Scope of Works to this Contract, the requirements of this specification shall prevail.

Hand excavatable material

Hand excavatable material is:

a) granular materials:

i) whose consistency when profiled may in terms of table 2 be classified as very loose, loose, medium dense, or dense; or

ii) where the material is a gravel having a maximum particle size of 10mm and contains no cobbles or isolated boulders, no more than 15 blows of a dynamic cone penetrometer is required to penetrate 100mm;

b) cohesive materials:

i) whose consistency when profiled may in terms of table 2 be classified as very soft, soft, firm, stiff and stiff / very stiff; or

ii) where the material is a gravel having a maximum particle size of 10mm and contains no cobbles or isolated boulders, no more than 8 blows of a dynamic cone penetrometer is required to penetrate 100mm;

Note

1) A boulder is material with a particle size greater than 200mm, a cobble and gravel is material between 60 and 200mm.

2) A dynamic cone penetrometer is an instrument used to measure the in-situ shear resistance of a soil comprising a drop weight of approximately 10 kg which falls through a height of 400mm and drives a cone having a maximum diameter of 20mm (cone angle of 60° with respect to the horizontal) into the material being used.

Table 2: Consistency of materials when profiled			
GRANULAR MATERIALS		**COHESIVE MATERIALS**	
CONSISTENCY	**DESCRIPTION**	**CONSISTENCY**	**DESCRIPTION**
Very loose	Crumbles very easily when scraped with a geological pick.	Very soft	Geological pick head can easily be pushed in as far as the shaft of the handle.
Loose	Small resistance to penetration by sharp end of a geological pick.	Soft	Easily dented by thumb; sharp end of a geological pick can be pushed in 30-40 mm; can be moulded by fingers with some pressure.
Medium dense	Considerable resistance to penetration by sharp end of a geological pick.	Firm	Indented by thumb with effort; sharp end of geological pick can be pushed in up to 10 mm; very difficult to mould with fingers; can just be
Dense	Very high resistance to penetration by the sharp end of a geological pick; requires many blows for excavation.	Stiff	can be indented by thumb-nail; slight indentation produced by pushing geological pick point into soil; cannot be moulded by fingers.
Very dense	High resistance to repeated blows of a geological pick.	Very stiff	Indented by thumbnail with difficulty; slight indentation produced by blow of a geological pick point.

Trench excavation

All hand excavatable material in trenches having a depth of less than 1,5 meters shall be excavated by hand.

Compaction of backfilling to trenches (areas not subject to traffic)

Backfilling to trenches shall be placed in layers of thickness (before compaction) not exceeding 100mm. Each layer shall be compacted using hand stampers;

a) to 90% Mod AASHTO;

b) such that in excess of 5 blows of a dynamic come penetrometer (DCP) is required to penetrate 100 mm of the backfill, provided that backfill does not comprise more than 10% gravel of size less than 10mm and contains no isolated boulders, or

c) such that the density of the compacted trench backfill is not less than that of the surrounding undisturbed soil when tested comparatively with a DCP.

Excavation

All excavatable material including topsoil classified as hand excavatable shall be excavated by hand. Harder material may be loosened by mechanical means prior to excavation by hand. Any material which presents the possibility of danger or injury to workers shall not be excavated by hand.

Clearing and grubbing

Grass and bushes shall be cleared by hand.

Shaping

All shaping shall be undertaken by hand.

Loading

All loading shall be done by hand. Haulage equipment should be selected in a manner that allows loading by hand to the greatest extent possible.

Haul

Excavation material shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150m.

Offloading

All material, however transported, is to be off-loaded by hand, unless tipper-trucks are utilised for haulage.

Spreading

All material shall be spread by hand.

Compaction

Small areas may be compacted by hand provided that the specified compaction is achieved.

Appropriate rollers should be used where higher (than can be achieved by hand) levels of compaction are required or for large areas.

Grassing

All grassing shall be undertaking by sprigging, sodding, or seeding by hand.

Stone pitching and rubble concrete masonry

All stone required for stone pitching and rubble concrete masonry, whether grouted or dry, must to be collected, loaded, off loaded and placed by hand. Sand and stone shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150m. Grout shall be mixed and placed by hand.

Manufactured Elements

Elements manufactured or supplied by the Contractor, such as manhole rings and cover slabs, precast concrete planks and pipes, masonry units and edge beams shall not individually, have a mass of more than 320kg. Where the mass of an element exceeds 55 kg, consideration should be given to the size of the element relative to its total mass related to the number of workers who would be needed to lift such mass.

PART B: AMENDMENTS TO THE STANDARD SPECIFICATIONS

Introductory Notes to Tenderer

This part of the project specifications deals with matters relating to the standard specifications. Where reference is made in the standard specifications to the project specifications this part shall also contain the relevant information e.g. the requirements where a choice of materials or construction methods are provided for in the standard specifications.

1. **In certain clauses the Standard Specifications allow a choice to be specified in the project specifications between alternative materials or methods of construction and for additional requirements to be specified to suit a particular contract. Details of such alternatives or additional requirements applicable to this contract are contained in this part of the project specifications. It also contains some additional specifications required for this particular contract.**

2. **The number of each clause and each payment item in this part of the project specifications consists of the prefix B followed by a number corresponding to the number of the relevant clause or payment item in the standard specifications where applicable. The number of a new clause or a new payment item which does not form part of a clause or a payment item in the standard specifications and which is included here, is also prefixed by B followed by a new number. The new numbers follow on the last clause or item number used in the relevant section of the standard specifications. New payment items introduced do not necessarily replace existing items which may still be used for works on any PART(S) of the project.**

3. **The tenderer shall note that the standard COLTO specification is based on the COLTO General Conditions of Contract. References to specific COLTO General Conditions of Contract clauses in the specifications shall be exchanged for the equivalent clause in the SAICE Conditions of Contract as amended by the Particular Conditions of Contract to be found in C3.2.1 of this section which are not necessarily inclusive with omissions possible. The Employer assumes no responsibility for the contractor's interpretation of which is the correct or applicable relevant clauses. Clarification in this regard can be confirmed with the Employer if deemed necessary during the tender period.**

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1100	Definitions and Terms
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2300	Concrete kerbing
3100	Borrow Materials
3200	Stockpiling and placing and compacting of gravel layers
3300	Mass earthworks
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5800	Landscaping and planting plants
5900	Finishing the road and road reserve and treating old roads
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7300	Concrete block paving for roads
8100	Testing materials and workmanship
SCHEDULE A : CIVIL WORKS	
SCHEDULE B: OCCUPATIONAL HEALTH AND SAFETY ACT OBLIGATIONS	
SCHEDULE C: TRAINING	

SECTION 1100: DEFINITIONS AND TERMS

B1115 GENERAL CONDITIONS OF CONTRACT

Replace Clause 1115 with the following:

"The General Conditions applicable to this contract are the "General Conditions of Contract for Construction Works (Third edition 2015), issued by the South African Institution of Civil Engineering (SAICE). Accordingly, all reference in the Standard Specifications to any other General Conditions of Contract (GCC) has to be amended. The Standard Specifications have been scrutinized and clauses which refer to another GCC identified. These are tabulated below together with the relevant equivalent clause in the SAICE Conditions of Contract. The context of the reference to the GCC is also noted.

Whereas every effort has been made to include all of the affected clauses in the table, there may be some omissions. In every case, however, the SAICE Conditions of Contract for Construction, as amended by the Particular Conditions of Contract in Section C1.2, Contract Data of this Volume, shall apply and the contractor shall be responsible for interpretation of the equivalent clause

CHANGES TO REFERENCES BY THE COLTO STANDARD SPECIFICATIONS TO THE GENERAL CONDITIONS OF CONTRACT 2015 AND SAICE GENERAL CONDITIONS

COLTO Standard Specification		**General Conditions of Contract 2015 (GCC)**		**SAICE Conditions of Contract for Construction works 3rd edition 2015**	
Clause No	**Page No**	**Clause No**	**Description or Reference**	**Clause No**	**Description or Reference**
1115	1100-2		Definition of GCC	1	Definition of SAICE
1204	1200-2	15	Construction programme	5.6	Construction programme
1204	1200-2		General reference to GCC		Applicable to SAICE
1206	1200-3	14	Setting out of works		Not covered
1209(a)	1200-4		General references to GCC		Applicable to SAICE
1209(e)	1200-5	52(2)	Valuation of material brought onto site	6.9	Valuation of material brought onto site
1210	1200-5	54 (1)	Certificate of practical completion	5.14	Certificate of practical completion
1212(1)	1200-7	49 (2)	CPA on alternative designs		Not covered.
1215	1200-9	45 (2)	Extension of time for completion due to abnormal rainfall.	5.12	Extension of time for practical completion due to abnormal climatic conditions.
1217	1200-10	35	Care of the works	8.2	Care of the works
1303(ii)	1300-1		General reference to GCC		Applicable to SAICE
1303(iii)	1300-1	49	Price adjustment Item 13.01 (a)	6.8	Adjustment in rates and/or prices.
1303 (iii)	1300-2	49	Price adjustment Item 13.01 (b)	6.8	Adjustment in rates and/or prices.
1303 (iii) 1303 (iii)	1300-1 1300-2	53 53	Variations exceeding 20% Variations exceeding 20%	6.11 6.11	Variations exceeding 15%
1303	1300-2	12	Payment Item 13.01 (c)	6	Payments
1303	1300-2	45	Payment Item 13.01 (c)	6	Payments
1403(c) (ii)	1400-4	40 (1)	Variation for rented accommodation	6.3&6.6	Variations and provisional sums
1505	1500-3	40 (1)	Variation for temporary drainage	6.3	Variation
Item 15.08	1500-8	48	Payment of Provisional Sum	6.6	Provisional Sums
Item 15.09	1500/8	48	Payment of Provisional Sum	6.6	Provisional Sums

COLTO Standard Specification		**General Conditions of Contract (GCC)**		**SAICE Conditions of Contract for Construction works 3rd edition 2015**	
Clause No	**Page No**	**Clause No**	**Description or Reference**	**Clause No**	**Description or Reference**
Item 15.11	1500-8	48	Payment of Provisional Sum	6.6	Provisional Sums
Note (2)	3100-4	40	Payment for prospecting for materials	6.3	Variations
3204(b) (iii)	3200-2	40	Payment for oversize material	6.3	Variations
3303(b)	3300-2	2	Engineer's decisions, with reference to materials classification	3.2	Functions of the Engineer
Item 44.06	4400-3		General reference to GCC, PC Sums	6.6	Provisional Sums
Item 45.06	4500-3		General reference to GCC, PC Sums	6.6	Provisional Sums
5803 (c)	5800-3	40	Variation, for landscaping	6.3	Variations
5805 (d)	5800-4	40	Variation, for grassing	6.3	Variations
Item 58.10	5800-10	48	Payment for Extra Work	6.3 6.5	Variations Dayworks
8103 (c)	8100-1	40	Variation, for testing material	6.3	Variation, for testing material
Item 81.02	8100-26		General reference to GCC, Provisional Sums	6.6	Provisional Sums
Item 81.03	8100-26	22	Clearance of site on completion, with reference to core drilling	5.15	Clearance of site.

Amend the following clauses:

"B1131 RECYCLING

The process of recycling shall also mean the breaking up of existing pavement layers and/or the mixing of pavement layer materials with a recycling machine.

B1155 WORK IN RESTRICTED AREAS

Under this contract, no additional or extra over payment will be made for work in restricted areas."

Add the following clauses:

"B1156 OTHER DEFINITIONS

The COLTO Standard Specification for Roads and Bridges has been written for all contractors, employers and engineers. Similarly, the works and the site are not defined and the general nature of the entities and elements that collectively constitute construction under a contract are characterized by the use of lower case letters throughout.

These project specifications continue to use lowercase spellings in order to avoid the appearance of the capitalized and non-capitalized words to describe or prescribe the same elements of work required on this project. However, for the purposes of this contract the following definitions shall apply:

Contractor

The Contractor and the contractor is the same persona defined under clause 1.1.1.9 of the Conditions of Contract, but who will only be formally identified by the formal Letter of Acceptance which will be bound into the final contract document.

Employer

The Employer and employer is the same persona and is defined in Section C1.2.2, Contract Data and clause 1.1.1.15 of the Conditions of Contract.

Engineer

The Engineer and engineer is the same persona and is defined in Section C1.2.2, Contract Data and clause 1.1.1.16 of the Conditions of Contract.

Site

The site is defined in clause 1.1.1.29 of the Conditions of Contract. It is bound by the limits of construction as shown in the drawings or the description of the project and extends to also include the following:

All areas necessary for accommodating the traffic as prescribed in section 1500 of the specification and the drawings.

Works

The works is described in **PART C3.2** of this document and is as defined in clause 1.1.1.28 of the Conditions of Contract."

Process Control

Process control means all testing required to be carried out by the contractor at his cost in order to ensure that the completed permanent works comply with the specifications and drawings. All such testing will be subject to inspection and approval by the engineer.

Acceptance Control

Acceptance control means whatever testing the engineer carries out over and above the process control testing already carried out by the contractor in order to decide on the acceptability of any work submitted by the contractor. Such testing will be carried out at the cost of the employer in either the engineer's laboratory or one approved by him.

B1159 AGGREGATE SIZE

Where reference is made in this specification or the standard specifications to aggregate size, nominal aggregate size or maximum aggregate size, the aggregate size as listed shall be replaced with the new corresponding aggregate size as indicated in the following table:

Aggregate size	New aggregate size
75	75
63	63
53	50
37,5	37,5
26,5	28
19	20
13,2	14
9,5	10

6,7	7.1
4,75	5
2,36	2
1,18	1 ”

SECTION 1200: GENERAL REQUIREMENTS AND PROVISIONS

B1202 SERVICES

Delete and replace the words:

"Clause 12 of the general conditions of contract" in the first sentence of the eleventh paragraph with Clause 5.6 of the General Conditions of Contract for construction works 2015 edition."

In the second paragraph, delete the word "utility" at the end of the second line.

Add the following:

"Provision is made in the pricing schedule for relocation and/or adjustment of existing services under Provisional and Prime Cost Sums. The work is to be undertaken by the contractor himself or by a nominated sub-contractor, depending on required know-how for each case."

B1204 PROGRAMME OF WORK

(a) General requirements

Insert the following before the first paragraph:

"A network-based programme in accordance with the precedence method shall be provided showing the various activities in such detail as may be required by the engineer. The programme shall be updated monthly in accordance with the progress made by the contractor.

Failure to comply with these requirements will entitle the employer to invoke clause 5.3.2 in the GCC. Alternatively, and upon the employers instruction, request the engineer to apply a programme based on his own assumptions for the purpose of evaluating claims for extension of time for completion of the works, or for additional compensation."

Add the following as a continuation of the first paragraph:

"In drawing up the programme the contractor shall make allowance for the following general requirements:

(i) All special non-working days defined in Part C1.2.2 Contract Data.

(ii) Allowance to be made in terms of clause B1215, dealing with inclement weather delays.

(iii) No construction will be allowed during the December break.

(iv) The requirement that chemically stabilized subbase layers have to be cured by covering with the subsequent layer which, for upper subbase layers, consists of crushed-stone base material.

(v) Phasing of construction work in terms of material utilisation will be the responsibility of the contractor, e.g. cut to fill operations, obtaining commercially supplied pavement layer materials, etc.

(vi) Asphalt surfacing to be completed prior to construction of road surface drainage concrete structures in cuttings and on fills.

(vii) All levels, dimensions and coordinates shall be checked and confirmed on site with the Engineer before construction commences.

(viii) A risk assessment with specific focus on the construction activities within an urban area, pedestrian and traffic management, to be compiled with assistance from the Employer's Agent.

(ix) Communications and liaison with the local PCS.

(b) Programme of work for rehabilitation work

Add the following new third paragraph to this section:

"In addition to the requirements of clause B1204(a) the programme of work shall include the following details:
(i) A work breakdown structure that identifies all major activities.
(ii) Scheduled start and end dates for each activity on every phase / section.
(iii) Linkages between activities that clearly identify sequence, floats and critical path.
(iv) Intended working hours and resource allocations (plant and labour).
(v) Monthly cash flow projections.
(vi) Key dates in respect of information required or due delivery.
(vii) The contractor's payment weekends and non-work days (periods)
(viii) Complete finishing of borrow pits for approval by DMR

B1205 WORKMANSHIP AND QUALITY CONTROL

Add the following:

Quality control (Scheme 1) as detailed in Section 8200 will be used for determining the acceptance levels with respect to the properties of the materials and workmanship executed by the contractor.

Delete the second, third, fourth and fifth paragraphs and replace with the following:

"The contractor shall submit the quality assurance plan and system he proposes using to the engineer for his approval within two weeks of site handover. Once accepted it shall not be deviated from unless written notification of proposed changes have similarly been submitted and approved. The system shall record lines and levels of responsibility and indicate the method by which testing procedures will be conducted."

Add the following to the end of this clause:

"The engineer shall for the purpose of acceptance control on products and workmanship, assess test results and measurements in accordance with the provisions of section 8200 of the standard specifications. Where small quantities of work are involved, a lot shall mean a full day's production for a specific item of work subject to acceptance control testing.

B1206 THE SETTING-OUT OF WORK AND PROTECTION OF BEACONS

Delete the entire contents of the first paragraph and the following words in the first sentence of the sixth paragraph.

"and of clause 5.3 of the general conditions of contract."

Add the following at the end of the fourth paragraph:

The repair method of this route is to reconstruct the road to existing levels with some localised

section to be indicated by the Engineer to be constructed to redesigned lines and levels.

B1207 NOTICES, SIGNS AND ADVERTISEMENTS

One signboard shall be erected and maintained for the duration of the contract at points to be indicated by the engineer. Details of the signboards are included in the contract drawings.

Delete the last paragraph and replace with the following:

"All signboards erected in accordance with the drawings or as ordered by the Safety Officer / Engineer shall be removed at the same time as the de-establishment of the contractor's camp. Payment under item 13.01 for the final instalment of 15% of the tendered lump sum shall not be made unless all the advertisements, notices and temporary signs have been removed."

B1209 PAYMENT

(b) Rates to be inclusive

Add the following to the first paragraph:

"VAT shall be excluded from the rates."

Amend sub clause (e) Materials on site by deleting and replacing the words:

"Clause 52 of the general conditions of contract" in the first sentence of the first paragraph with Clause 6.10 of the General Conditions of Contract for construction works 2010 edition.

B1210 CERTIFICATE OF PRACTICAL COMPLETION OF THE WORKS

Delete and replace the words in the first paragraph:

"Clause 54 of the general conditions of contract" in the fourth line of the first sentence with Clause 5.14 of the General Conditions of Contract for construction works third edition (2015).

Add the following to subclause (e) before the semicolon:

"(Including road studs)"

Add the following paragraphs under new item (h):

"Notwithstanding that there might be natural or programmed sections or portions of the works that will result in them being completed in their entirety before other sections of the works, no consideration shall be given to the issuing of practical completion certificates for sections of the works. The use of any completed roadway or sections of the work, whether for unhindered use by the public or for accommodation of traffic while other sections are being constructed, shall not constitute use or occupation by the employer.

In addition to the listed specified items of work and regardless of the degree of beneficial occupation by the employer, the works shall be considered for practical completion only if the following criteria have also been met:

(i) The estimated cost to complete the outstanding work is less than 2% of the tendered sum for the work plus the cost of any variation or extra work orders, but excluding CPA and VAT.

(ii) The written list of outstanding items of work can be completed within 30 calendar days of the list having been accepted in writing by the contractor.

(iii) Any information in the contractor's possession, which is required by the engineer and has been requested in writing, has been supplied.

(iv) The Regional Manager of the Department of Mineral Resources (DMR) has issued written confirmation to the contractor that they are satisfied with the final shaping to all quarries, borrow pits, stockpile areas, and spoil sites used or intended to be used under this contract. In the event of this written confirmation is not obtained from DMR within 60 days, the acceptance by the Independent Environmental Practitioner (IEP) will be sufficient for the issuing of the Certificate of Completion. The confirmation from DMR will be a condition of the issue of the Certificate of Completion."

B1211 TRAFFIC OVER COMPLETED LAYERS

Add the following after the first paragraph:

"No construction traffic shall be allowed on completed recycled subbases or base prior to the final asphalt overlay being completed. In the event that access to properties result in traffic having to be accommodated over stabilised layers, the contractor shall make allowance for a protection layer of at least 50mm sand layer on top of the stabilised layer."

B1212 ALTERNATIVE DESIGNS AND OFFERS

Add the following to the end of sub clause (m):

"The provision for contract price adjustment in the original tender summary must not under any circumstances be altered in an alternative tender"

B1214 CONTRACTOR'S ACTIVITIES IN RESPECT OF PROPERTY OUTSIDE THE ROAD RESERVE AND OF SERVICES MOVED, DAMAGED OR ALTERED

Add the following to the last paragraph of sub clause (d)

"These written statements shall be handed to the engineer before the final certificate will be issued. Failing to obtain these written statements from all landowners and authorities concerned, the period of maintenance will be extended including all conditions related to such an extension, until such time that all these statements are obtained.

The obtaining of any such written statements will not relieve the contractor of the execution of any of his obligations to the satisfaction of the landowner or authority concerned, and to the approval of the engineer."

B1215 EXTENSION OF TIME RESULTING FROM ABNORMAL RAINFALL

Delete and replace the words in the first paragraph:

"Clause 45 of the general conditions of contract" in the first line of the first sentence with Clause 5.12 of the General Conditions of Contract for Construction Works Third edition (2015).

Add the following after the first paragraph:

Method (ii) (Critical-path method) shall be used on this contract.

Method (ii) (Critical-path method)

Delete and replace the words in the second paragraph with the following:

Replace the word "five-day" in the second paragraph with "six-day".

The value of "n" is twenty (20)days.

Refer to historical data included in **PART C4** of this document.

B1217 PROTECTION OF THE WORKS AND REQUIREMENTS TO BE MET BEFORE CONSTRUCTION OF NEW WORK ON TOP OF COMPLETED IS COMMENCED

Delete and replace the words in the first paragraph:

“Clause 35 of the general conditions of contract” in the second line of the first sentence with Clause 8 of the General Conditions of Contract for construction works third edition (2015).”

B1219 WATER

Add the following:

“Water for use on site other than municipal, shall be subject to required permits from DWA submitted to the Contract Engineer by the Contractor. This shall include such extraction points as rivers, privately owned dams, streams, and boreholes. Farmers along the existing rivers could be operating under a quota system of DWA and the contractor shall make his own arrangements for obtaining water from landowners who are not utilizing their quotas to the full or who are willing to provide water. All related arrangements and cost shall be included in the tender rates as applicable.”

Use Table B1219 below to determine the suitability of water for construction purposes.

Property	Unit	Water Quality Classification Code						Method
		H0	H1	H2	H3	H4	H5	
		Pure water (AR)	Clean water (Rain)	Treated water (Municipal)	Silty (muddy) water with low salt content	Highly mineralised chloride sulphate water (brackish)	Waste brack, sewage, marsh, sea, etc. water	
PH*	-	7.0	5.7 – 7.9	4.5 – 6.5	4.5 – 8.5	9.0	-	SABS M113 SM 11 - 1990
Dissolved solids*	ppm	0	1000	1500	3000	-	-	SABS 213 SM213 - 1990
Total hardness*	-	None	None	Temporary	Temporary	Permanent	-	SABS 215 SM 215 – 1971
Suspended matter	ppm	0	2000	2000	5000	-	-	SABS 1049 SM 1049 – 1990
Electrical conductivity	mS/m	0	200	200	500	-	-	SABS 1057 SM 1057 – 1982
Sulphates (SO4)	ppm	0	200	300	500	1000	-	SABS 212 SM 212 – 1971
Chlorides (Cl)	ppm	0	500	1000	3000	5000	-	SABS 202 SM 202 – 1983
Alkali Carbonates (CO3) & Bicarbonates (HCO3)	ppm	0	500	1000	1000	2000	-	SABS 241 – 1999
Sugar	-	Negative	Negative	Negative	Negative	Negative	-	SABS 833
Quality of water required		Untreated layer works	✔	✔	✔	✔	Investigate the effect on the quality of the material	
		Chemically treated layer works	✔	✔	✔	Investigate the effect on the quality of the material		
		Concrete mass	✔	✔	✔	Investigate the effect on the quality of the material		
		Concrete prestressed	✔	✔	References: 1. Concrete Technology – Dr S Fulton (1989) 2. Materials Manual (PAWC)			
		Slurry & emulsion	✔	✔				
		Soil/gravel tests	✔	✔				
		Chemical or control tests	✔	✔				

- A primary property. The quality of the water is that quality where all three of the primary properties are within the limits.
- The tabulated single values are maximum value except in the case of the pH value for pure water, which must be 7.0

B1222 USE OF EXPLOSIVES

Add the following subclauses:

"(h) Definitions

(i) "**Specified excavation or Payment line**" means the excavation profile given on the Drawings or determined by the engineer for the Works, within which no unexcavated or loose material shall occur after the excavation is complete except as allowed within the specified tolerances. It is also the line to which payment for excavation will be made.

(ii) "**Pre-splitting**" comprises drilling a line of closely spaced parallel holes of appropriate diameter, spaced not more than ten times the hole diameter or 600mm, whichever is the smaller and charging the holes with an appropriate amount (decoupled if necessary) and type of explosive to shear the rock, forming a surface along the line of drill holes.

Either all the holes in a presplit line shall be drilled, charged and detonated simultaneously prior to drilling the production holes for the excavation adjacent to the presplit line, or pre-splitting shall be accomplished by delaying detonation in the production holes to allow the presplit holes to fire first. The first line of production holes next to the presplit face shall be lightly charged to ensure that the presplit face is not damaged when the charges in the production holes are detonated.

(iii) "**Smooth blasting**" comprises the drilling of a number of closely spaced parallel holes along the required excavation surface, with a suitable burden/spacing ratio, loading all the holes lightly with a uniform continuous charge of small diameter explosive and detonating all these charges simultaneously, after the detonation of the main production blast.

(iv) "**Line Drilling**" comprises drilling a line of holes of appropriate diameter spaced not more than twice the whole diameter to form a surface of weakness along which the rock will break. Blasting is not permitted in the line drilled holes, and the first line of production holes next to the line drilled holes shall be lightly charged to avoid damage to the line drilled break surface.

(v) "**Cushion Blasting**" comprises the separate removal of a protective zone of rock which has been purposely left within the specified limits of excavation for flat areas and shallow slopes. Drilling for cushion blasting shall consist of a regular pattern of holes at appropriate spacings and angles and to accurate depths.The holes shall be lightly charged and detonated in relays to lift the rock progressively to form the final excavated surface without shattering the surrounding rock.

(vi) "**Overbreak**" means any excavation area which extends beyond the payment line, irrespective of the reason for such excavation.

(i) General

The design of blasts shall be undertaken be a suitably qualified person. A copy of all certificates issued to workmen to permit them to undertake blasting, and to the contractor to cover the purchasing, storage and transport of explosives shall be handed to the engineer before any blasting work is undertaken.

The contractor shall submit to the Engineer at least 28 days before the commencement of any excavation work or drilling, full details of his proposed methods and sequence of excavation and

programme for the use of explosives.

Within 2 weeks of receipt of the proposals, the engineer shall indicate acceptance in part or in whole, in writing, to the contractor. The engineer reserves the right to reject the proposals if, in his opinion, undesirable damage to permanent rock surfaces or existing structures will result from carrying out the blasting as proposed. If acceptance is withheld, new proposals in whole or in part shall be submitted.

No drilling or blasting shall be carried out in areas for which the proposals have not been accepted by the engineer, and any changes to the accepted methods shall be subject to the engineer's approval.

The work shall be programmed so as to minimise blasting adjacent to previously constructed sections of the Works.

Where blasting is necessary every precaution including the use of blast mats, timber boarding or other means shall be exercised to protect the Works and persons, animals and property in the vicinity of the Site. The contractor shall accept responsibility for all injury or damage occasioned by any blasting operations and shall make good such damage without any additional payment.

The contractor shall, in particular, note the requirement that he must limit to the maximum extent practicable the spillage of material from surface excavations, whether by blasting or other means. To this end the contractor shall take all necessary precautions including, if necessary, covering the rock prior to blasting with sufficient loose material to prevent the blasted material being thrown. If, however, during the course of excavation on a hillside, the engineer is of the opinion that insufficient precautions are being taken to minimise the spillage of material, he may instruct the contractor to adopt further measures to reduce the spillage. No separate payment will be made for any such measures required.

Each separate blast shall be designed in accordance with modern blasting practice to break out the rock with the minimum explosive force. Full details of each blast, unless such blast is unchanged from the previous one, shall be submitted to the engineer for scrutiny not later than 24 hours prior to the commencement of drilling for that blast. The details shall include the location, depth and area of blast holes, the type, strength, amount, column load and distribution of explosives to be used per hole, per delay and per blast, the sequence and pattern of delays, the maximum expected level of shockwaves on adjacent structures, and the description and purpose of any special methods to be adopted by the contractor.

The consent by the engineer to any blasting proposals shall not relieve the contractor of his responsibilities under the Contract and the law.

Should the contractor excavate to dimensions in excess of those specified or instructed by the engineer, whether to remove damaged material or for reasons of safety or for his own convenience, he shall at his own expense and when required by the engineer, fill in the excess excavatio n with concrete or sprayed concrete of approved quality or with other material approved by the engineer, or carry out additional trimming to the satisfaction of the engineer.

The contractor shall provide the engineer each day with a copy of the record for the previous day's excavations. Where applicable the following data shall be recorded for each working area together with such other data as the engineer may request.

(i) location of the excavation and position within the excavation
(ii) drilling pattern
(iii) type and amount of explosive used, including blasting pattern and delays used
(iv) details of rock support
(v) surface area of sprayed concrete and location
(vi) number and classification of labour and plant
(vii) unusual occurrences, rockfalls, unstable or soft ground and inflows of water
(viii) progress, delays and reasons for delays
(ix) name and permit number of blaster

(x) date
(xi) distance of blasts to structures and existing services

(j) Quality of Excavated Surface

Unless otherwise instructed by the engineer all blasting work shall be carried out using controlled blasting techniques to minimise any damage to the final profile.
Use shall be made of approved special explosives and/or blasting techniques which will minimise blasting induced fractures, or disturbance, on the rock faces outside the excavation line so preserving the rock in the soundest possible condition. No separate payment will be made for cushion blasting. The cost of using cushion blasting techniques shall be included in the rates for excavation.

The surface after blasting shall exhibit a regular fracture plane between barrels without back break and with half barrels visible over the major portion of the surface. The surface shall be scaled down of all loose and hollow sounding rock to leave a solid, intact surface. Light charges shall be used for enlarging or correcting the excavated profile and also for excavating trenches.

If in the opinion of the engineer, the methods of blasting are at any time causing excessive or undesirable disturbance of the rock mass surrounding the excavated space, he may order the contractor to change his methods of blasting and/or carry out blasting trials until the desired results are achieved. No additional payment shall be made for any change or further trials ordered by the engineer or any delays resulting there from.

The spacing of holes and explosive charges shall be adjusted so that a minimum of oversize material is produced (a maximum particle size of 600mm). The engineer shall have the right to order the contractor to adjust his blasting pattern and/or carry out secondary blasting at his own cost, should he be of the opinion that the contractor is not taking sufficient care too produce rock of the required size.

(k) Monitoring of Blasts

The contractor shall supply and operate an approved tri-axial particle velocity meter equipped with a permanent paper trace output, which shall be used as and where directed by the engineer to monitor blasting work.

The paper trace output records shall show the time and location of each blast, the type and amount of explosive used, together with any other relevant data. Copies of these records shall accompany the daily records required in terms of Clause (i) above.

The contractor shall 7 days prior to submission of blast designs, complete a single hole detonation for each blast site. This blast is to be accurately monitored by the contractor in order to obtain the rock factor (k), which will be used in Langefors' formula to estimate the peak particle velocities.

(l) Notification of Blasts

Prior to any blasting, 28 days' notice is to be given to the engineer and relevant authorities. The contractor shall further notify the engineer of the intention to blast at least 48 hours before that operation is carried out. The notification shall show the location of and the intended time of each blast and the name of the licensed blaster and shift foreman responsible. No blasting shall be undertaken during any known peak hour days on specific peak hours (long weekends).

The contractor shall distribute written notification to all organisations on site, and relevant authorities, 24 hours prior to undertaking blasting. Any delay or postponement of any blasts shall be notified to all organisations immediately. The firing of explosives shall be restricted as detailed in Item B1222(r) of this specification.

(m) Blasting near Structures

The amount of explosives that may be detonated shall not result in a ground vibration with a peak particle velocity in excess of 25mm/sec at the nearest point of any part of Permanent Works. Where circumstances dictate, such as when blasting near to partially cured concrete, the peak particle velocity permitted may be reduced by the engineer.

Blasting shall not be carried out within 10m of any Works, unless otherwise agreed to in writing by the engineer.

(n) Controlled Blasting

Controlled blasting methods shall comprise pre-splitting, smooth blasting, line drilling or cushion blasting techniques.

All charges shall be accurately made up and inserted into the holes at the correct spacing, and all holes shall be correctly stemmed and connected in the correct sequence, with detonators being correctly delayed.

If at any time the methods of drilling and blasting do not produce the desired results of a uniform profile and shear face without overbreak, all within the tolerances specified, the contractor shall be required to undertake tests as until a technique is arrived at that will produce the desired results.

Controlled blasting shall be used in the widening of the cuttings or otherwise where called for by the engineer.

(o) Drilling

In all controlled blasting, drilling accuracy of perimeter holes is of prime importance and the contractor shall take particular care and make use of sight lines and guide rails in surface work to control the alignment and depth of blast holes. Holes which are likely to protrude more than 100mm beyond the excavation profile, shall not be charged up, but shall be redrilled.

The blast pattern shall be accurately set out and holes shall be collared within 50mm of the required position. Holes which are overdrilled shall be fully stemmed to the required depth before charging up takes place.

The length of perimeter holes for any individual lift shall not exceed 10m or any lesser depth detailed on the drawings. All perimeter holes for surface blasting shall be drilled to a depth of 1m below the bottom of any production holes adjacent to the perimeter plane.

(p) Use of Explosives

Both cartridge and bulk explosives may be used where appropriate.

In controlled blasting the type, size, decoupling and charge concentration of perimeter and bulk charges shall be within established parameters unless otherwise proven acceptable by site trials.

The bottom charge of a pre-split hole shall not be larger than the line charges unless otherwise directed. The top charge of the pre-splitting hole shall be placed far enough below the collar to avoid overbreaking the final profile.

Adequate stemming shall be used to avoid blow-outs.

(q) Checking and Correcting the Excavated Profile

The excavated profile shall be checked for line, level and underbreak using methods approved by the engineer. No projections of rock shall protrude within the payment line, except as allowed within the specified tolerances.

The contractor shall submit his proposals for removing any underbreak to the engineer for his consent prior to carrying out any such work of removal. Any work executed or delays, which are due to the contractor having to re-excavate underbreak and then re-install support shall be carried out without additional payment, and no extension of time will be allowed for this work.

(r) Accommodation and Protection of Existing Services and Infrastructure

In the event of the laid-down vibration parameters as detailed in (m) above being exceeded or in the event of a valid recording not being made available as stipulated above, the engineer reserves the right to ascertain by whatever means, whether damage was caused by the blast to the service or structure. All costs incurred in establishing such possible resultant damage and the repair thereof will be to the contractor's account.

(s) Specific blasting

If considered necessary by the Engineer to order a specific type of blasting method it shall be indicated in the documents and/or pricing schedule. The ordering of a specific type of blasting method by the Engineer shall not relieve the Contractor from his obligations relating to the accuracy of the excavated profile.

(t) Blasting near Roads

Blasting near existing roads shall be undertaken during off peak traffic hours. Reference shall be made to sub-clause B1502(m) of these specifications."

B1224 THE HANDING-OVER OF THE ROAD RESERVE

Add the following:

"The full extent of the road reserve will be handed over to the Contractor at the beginning of the contract. The total area taken up by the road reserve and borrow pits as well as quarries are applicable. He shall be responsible for the maintenance along this portion of the road until completion of the contract."

B1227 MONTHLY SITE MEETINGS

Add the following to this clause:

"The contractor's representative attending site meetings shall have the authority to take decisions and make commitments on behalf of the contractor. The contractor shall prepare and submit progress and information reports as required by the engineer five days before the meeting date agreed. These report sheets shall be discussed and reviewed at the monthly meeting or at any other meeting if deemed necessary by the engineer."

B1229 SABS CEMENT SPECIFICATIONS

The standard cement specifications SABS 471, SABS 626, SABS 831 and SABS 1466 have been withdrawn and are replaced by the new SANS 50197-1 and -2: Common cements, and SANS 50413-1 and -2: Masonry cement. These specifications will be applicable to this contract, and the descriptions and types of cements specified, will be based on the designations as defined in these specifications.

Add the following clauses:

"B1230 MATERIALS

(a) General

The contractor, when using materials that are required to comply with any standard specification, shall, if so ordered, furnish the engineer with certificates showing that the materials do so comply.

Where so specified, materials shall bear the official mark of the appropriate authority. Samples ordered or specified shall be delivered to the Contract Engineer's office on the site, free of charge.

Where proprietary products have been specified, similar products may be used subject to the prior written approval of the engineer (as allowed for in an alternative tender).

Unless otherwise specified, all proprietary materials shall be used and placed in strict accordance with the relevant manufacturer's current published instructions.

Unless anything to the contrary is specified, all manufactured articles or materials supplied by the contractor for the permanent works shall be unused or new materials.

Earth, stone, gravel, sand, and all other materials excavated or present on the site or within the road reserve, or in borrow areas shall not become the property of the contractor, but will be at his disposal only in so far as they are approved for use on the contract.

Existing structures on the site shall remain the property of the employer and except as and to the extent required elsewhere in the contract, shall not be interfered with by the contractor in any way (except for structures to be fully or partially broken down).

Materials to be included in the works shall not be damaged in any way and, should they be damaged on delivery or by the contractor during handling, transportation, storage, installation or testing they shall be replaced by the contractor at his own expense.

All places where materials are being manufactured or obtained for use in the works, and all the processes in their entirety connected therewith shall be open to inspection by the engineer (or other persons authorised by the engineer) at all reasonable times, and the engineer shall be at liberty to suspend any portion of work which is not being executed in conformity with these specifications.

The contractor shall satisfy himself that any quarry or commercial source selected and identified for use provides the specified quality material in accordance with the specification.

All road signs used for accommodation of traffic shall be serviceable in terms of reflectivity, unbroken in any manner and to the correct sizes as specified. Signs not fit for purpose or damaged during use shall be replaced and removed from the site at the contractor’s cost.

(b) Compaction

All references to “% of modified AASHTO density” made in the standard specifications and project documents shall be read as “% of MDD”.

B1231 ENVIRONMENTAL IMPACT CONTROL

Respect for the environment is an important aspect of this contract. The environmental control of the site shall comply to the following list of activities.

(a) The Contractor must allow for the satisfactory combating of dust and noise nuisance throughout the contract length during construction.

(b) The Contractor must make provision for the prevention of excessive erosion and siltation throughout the Contract and in particular on adjacent land. Should excessive erosion and/or siltation take place outside the road reserve as a direct result of the Contractor's construction activities it will be the Contractor's responsibility to make good the erosion/siltation to the satisfaction of the landowner and the Engineer.

(c) No littering by construction workers shall be allowed. A refuse control system shall be established for the collection and removal of refuse to the satisfaction of the engineer.

(d) Adequate provision shall be made for temporary toilet requirements in construction areas. Use of the veld for this purpose shall not, under any circumstances be allowed.

(e) Streams, rivers and dams shall be protected from direct or indirect spillage of pollutants, such as refuse, garbage, cement, concrete, sewage, chemicals, fuels, oils, aggregate tailings, wash water, organic materials and bituminous products. In the event of spillage, prompt action shall be taken to clear the affected area.

Emergency measures in the event of spillage must be set out and the responsible person made aware of the required action. The construction of temporary and or permanent dams must be done with the necessary approvals from the Department of Water Affairs and Forestry and Environmental Affairs and Tourism.

(f) Bituminous and/or other hazardous products shall not be spoiled on site and may only be disposed of in licensed authorised disposal facilities.

(g) Control of invader species of plants.

(h) Clearing shall be limited to the road prism and, where applicable, detours, which shall be sited in consultation with the Engineer and the local communities.

No separate payment will be made for observing these requirements as it is deemed to be included in the amount tendered for Item 13.01(c) but any avoidable non-compliance with these rules may be considered sufficient grounds for withholding payment of part or all of the amounts to be paid for the above item.

B1232 WORKMEN'S COMPENSATION ACT

All labour employed on the site shall be covered by the Workmen's Compensation Act. The Contractor shall pay in full, including the payment of the necessary levies, such amounts as are due in terms of the Act.

The manner in which Workmen's Compensation shall be handled shall be resolved by the Contractor at the commencement of the contract.

B1233 CARE OF WORKS, DAMAGE, INJURY AND INSURANCE

Compliance with Road Traffic Act:

When a service necessitates vehicles or plant travelling or working on a public road the following shall apply:

- The vehicles and plant shall be licensed in terms of the National Road Traffic Act 1996 (Act No. 93 of 1996) as amended.
- Every driver and operator of a vehicle or an item of plant shall be in possession of a valid permit in respect of the class of vehicle or item of plant he is driving or operating.

The contractor shall provide, erect and maintain sufficient road signs, barricades, fencing and guarding as may be necessary or required by the Engineer or by any act, regulation or statutory authority in order to minimise the danger and inconvenience caused to vehicle and pedestrian traffic.

The Contractor by accepting this contact shall be deemed to have indemnified the Employer and the Engineer against any claims, damages and / or costs that may arise in this regard.

B1231 MEASUREMENT AND PAYMENT

Item **Unit**

B12.01 Relocation, protection or replacement of existing services:

(a) Allow a provisional sum for existing services to be relocated, protected or replaced as ordered by the engineer:

(ii) Municipal services..... provisional sum (prov sum)

(iv) Private property services.....provisional sum (prov sum)

(b) Handling cost and profit in respect of:

B12.01(a) .....percentage (%)

The provisional sum item shall be paid in accordance with the provisions of the General Conditions of contract as amended if applicable. The tendered percentage is a percentage of the amount actually spent under the items agreed and shall include full compensation including profit etc. for providing equipment, if required, labour transport, supervision, accommodation of traffic and incidentals."

Item **Unit**

B12.02 Excavation:

Excavating material within the following depth ranges below ground level for the exposing of/or searching for services

(a) 0m to 2m:
(i) Soft material.....cubic metre (m^3)
(ii) Hard material.....cubic metre (m^3)

(b) Extra over item B12.02(a) for excavation by means of hand tools such as picks, crowbars and pneumatic tools or mechanical breakers in close vicinity of services where no blasting or machine excavation is permitted:
(i) Soft material.....cubic metre (m^3)
(ii) Hard material.....cubic metre (m^3)

Measurement and payment shall be as specified for item 22.01 in the standard specifications.

Item **Unit**

B12.03 Excavation of test pits and sampling thereof along the Road as instructed by the engineer

(a) Sampling by approved materials laboratory.....prime cost sum (PC sum)

(b) Handling cost and profit in respect of (specify sub-subitem) .....percentage (%)

The PC sum items shall be paid in accordance with the provisions of the General Conditions of Contract as amended by Particular Conditions of Contract. The tendered percentage is a percentage of the amount actually spent under the prime cost sum and provisional sum items, which shall include full inclusive compensation including profit to the contractor in connection with providing the specified service.

Item **Unit**

B12.04 Community Liaison Officer (CLO)

(a) Remuneration of Community Liaison Officer plus R300 cellphone allowance per month
……..provisional sum

(b) Handling costs and profit in respect of sub-item B12.04 (a) and (b) ." percentage (%)

The CLO shall be paid at a rate as determined by the Employer.

The following General Requirements and Provisions refer to section C3.3 of this document.

SECTION 1300: CONTRACTOR'S SITE ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS

B1302: General Requirements

(c) Legal and contractual requirements and responsibility to the public

Add the following:

"All costs incurred to comply with the requirements of the Occupational Health and Safety act of 1993 including Construction Regulations of 2014 as well as additional requirements as specified in the VKLM Health and Safety and Environmental Management documents, shall be included in the contractor's general obligations tendered by the contractor.

When the activities of the contractor cause damage to vehicles of the travelling public, directly or indirectly, such as damage caused by loose aggregates on the road surface, and the contractor or his insurance company does not satisfactorily settle claims emanating from s uch occurrences, the employer reserves the right to settle such claims on behalf of the contractor and deduct such costs from the monthly payment certificates. Such payments are provided for in Section 1300 of the pricing schedule."

Add the following new sub-clause:

(e) Contractors ablution facilities

The Contractor shall, at each construction section, provide sufficient portable chemical latrine units. Furthermore, the contractor shall also provide a portable chemical latrine unit at each temporary traffic control facility complying with the EMP. The latrine units shall be serviced daily and kept in a hygienic and orderly state to the approval of the engineer. No separate payment shall be made for this requirement and the costs thereof shall be deemed to be included in the rates tendered for the items B13.01(c)."

"(f) Appointments

The Contractor shall as a minimum appoint the following staff members:

- Traffic Safety Officer
- Site environmental Officer
- Health and Safety Officer in terms of the Occupational Health and Safety Act.

The contractor shall submit a CV of the candidates with previous similar experience to the engineer for approval before the candidate is appointed."

B1303: PAYMENT

Item **Unit**

B13.01 The contractor's general obligations

Add the following paragraph

The combined total tendered for sub items(a),(b) and (c) shall not exceed 15% of the tender sum (excluding VAT)

Item **Unit**

B13.02 Supply, transport to site and erect contract signboards..... Number(No.)

The item shall cover all costs with regard to producing and erecting the signboards in accordance with the drawing and leave them erected at the end of the contract.

SECTION 1400: HOUSING, OFFICES AND LABORATORIES FOR THE ENGINEER'S SITE PERSONNEL

B1402 OFFICES AND LABORATORIES

b) Offices

Amend sub-clause (xvii) to read as follows:

"(xvii) A combination colour printer/copier/scanner/facsimile machine for A3 and A4 size documents."

(xix) An electric refrigerator of specified capacity.

B1404 SERVICES

c) Water electricity and gas

Add the following to the end of the third paragraph:

"The power supply shall be regulated by a suitable voltage regulator in order to maintain a constant current and voltage level at all times to prevent damage to the office and laboratory equipment and related machinery during power surges. In the event of damage to the office and laboratory equipment and related machinery because of a faulty voltage regulator, the contractor shall be liable for payment of all repair or

replacement costs of such damaged items."

Add the following paragraph:

"The supply of electricity and water to the offices and laboratories of the engineer's supervisory staff shall be maintained 24 hours per day"

B1405 GENERAL

Add the following to paragraph (e):

"In addition, the offices and laboratories shall be supplied with approved burglar proofing and the whole site shall be guarded full time during the day and night, as well as over weekends and holidays. The site shall also be fenced with a 2,4m high security fence with a razor-cut wire being used as strands or with a brick wall. The cost of this protection shall be included in item B13.01."

B1406 MEASUREMENT AND PAYMENT

Item	**Unit**
B14.03 Office and laboratory fittings, installations and equipment	
a) Items measured by number	
Add the following subitems:	
(b) Prime-cost items paid for in a lump sum:	
(ix) Cell phone for the engineer Samsung S9 or better, including pro-rata line rentals, for calls in connection with contract administration and 5 Gig Data Per month	PC sum
(x) Handling cost and profit in respect of sub-item B14.03 (b) (xi) above	%
(xi) Laptop to the engineer ,New Dell Precision 7520 portable work station with intel core i7-7820 hq CPU,64 gigabyte 2400 MHz DDR4 SDRAM and Samsung 960 pro 1TB SSD	Prov sum
(xii) Handling cost and profit in respect of sub-item B14.03 (c)(xiii) above	%
(xiii) internet connection (ADSL or mobile LTE) for email connectivity	PC sum
(xiv) Handling cost and profit in respect of sub-item B14.03 (b)(xiii)above	%

Item	**Unit**
B14.13 Provision for Dump Level and tripod for use by the Engineer	
a) Items measured by number	
Add the following subitems:	
(b) Provisional sum items paid for:	
Provision for Dump Level and tripod for use by the Engineer	Prov sum
(b) Handling cost and profit in respect of sub-item 14.13	%

SECTION 1500: ACCOMMODATION OF TRAFFIC

B1501 SCOPE

Add the following:

"It is a condition of this contract that traffic is accommodated taking into account the provisions of the latest edition of the South African Road Traffic Signs Manual (SARTSM). The latest version for use in the accommodation of traffic is volume 2, chapter 13 of the June 1999 edition. Copies of this publication are available from Government Printers
Tel: (012) 334 4507/8/9 or (012) 334 4510 Fax: (012) 323 9574.

Although drawings are included in the contract, these drawings are taken to be indicatory only and shall not in any way relief the contractor from his obligations in terms of the contract related to safe passage of traffic and regulations in Chapter 13 of Traffic Signs manual as specified below:

Arrangements expected to be most commonly used are given in the drawings. The Contractor shall assess the drawings in terms of actual site conditions and traffic and amend the drawings as required for the safe passage of traffic. Any amendment or addition to the drawings shall be with the approval of the Contract Engineer.

This section also covers the provision of additional information signs for motorists and the release of any notices to the media and public."

B1502 GENERAL REQUIREMENTS

Insert the following:

"The whole of the site will be handed over to the contractor at the beginning of the contract. The sequence in which various parts of the site may be occupied by the contractor for the execution of the different items of work shall be subject to the requirements of the contract documents regarding, inter alia, working hours and the number, spacing and length of the work areas which may be occupied at any particular time.

The contractor shall programme his work taking due cognizance of restrictive conditions indicated in Clause B1204. The contractor's tendered rates shall include full compensation for all possible additional costs which may arise from the above and no claims for extra payment as a result of this modus operandi will be considered. The contractor shall in particular note that no additional compensation shall be made for work that could be considered as half-width construction."

(a) Safety

Add the following as an introductory sentence to this sub clause:

"Traffic shall be accommodated in accordance with the South African Road Traffic Signs Manual with the least delay and discomfort to the public."

(b) Providing Temporary Deviations

Add to Sub-clause 1502(b) the following:

The contractor shall keep the provincial traffic police, the municipal traffic departments and the engineer fully informed with regard to any changes in the normal traffic flow and obtain their approval for these changes.

During the non-working hours, all unnecessary obstructions to the traffic shall be removed and all signs no longer applicable to the situation shall be removed or effectively covered.

(i) Traffic Safety Officer

Add the following to the end of the second paragraph:

"The contractor shall submit a CV of the candidate to the engineer for approval before the candidate is appointed as the traffic safety officer. "

Insert the following as the opening phrase to sub-sub-clause (i):

"make himself available to discuss road safety and traffic accommodation matters whenever required by the engineer and shall be responsible…"

Delete sub-sub-clauses (ii) and (iii) and replace with the following:

"(ii) Record on neat and dimensioned sketches and submits to the engineer the position and sign reference number, where applicable, of each sign, barricade, delineator, cone, amber flicker light, guardrail and permanent or temporary painted road marking feature. The position of each shall be adequately referenced from the marker boards or other surveyed points on the site of the works.

These records shall also show the date and time at which the recorded traffic accommodation features are certified correct by the traffic safety officer, and shall be signed by the traffic safety officer before being submitted to the engineer.

The records shall similarly account for whatever changes are made in the field. Such changes shall record the position of flagmen and stop/go control men and their associated traffic accommodation equipment wherever they are used.

(iii) Personally inspect the position and condition of each traffic accommodation feature on the whole site of works twice each day by 9h30 and by 16h30, to record all irregularities discovered and the remedial action taken, and to sign off as correct and submit to the engineer such record sheets by midday of the next working day. The traffic safety officer shall keep a duplicate book for this specific purpose.

The traffic safety officer shall also submit with this report the daily labour returns of flagmen, stop/go and traffic signal control men employed."

Add the following sub-sub-clauses:

"(ix) The traffic safety officer shall be equipped with a cellular telephone and shall have a vehicle and sufficient labour at his disposal 24 hours a day, including all prescribed non working days, and shall not be utilised for other duties. He shall be directly answerable to the contractor's site agent. The traffic safety vehicle shall be a 1 ton LDV and shall be equipped with a high visibility rear panel in accordance with the requirements of the SARTSM. The words TRAFFIC CONTROL shall be written on a warning sign in highly legible letters, not less than 150 mm high, and the sign shall be mounted on the vehicle at least 1,5 m above ground level. The proposed sign and letter dimensions shall be submitted to the engineer for his approval.

The vehicle shall also be equipped with an amber-coloured flashing light of the rotating parabolic reflector type with a minimum intensity of 100 W. The warning light shall be switched on at all times and the sign shall be displayed when the vehicle is used on site.

The traffic safety officer shall have a direct line of communication at all times with the police and traffic officers responsible for the area within limits of the contract. The provision of the road safety vehicle, driver, labourers and the cost of the cellular telephone shall be deemed to be included in the rates tendered for the contractor's establishment on site.

(xii) Ensure that all obstructions related to the contractor's activities be removed before nightfall where applicable as instructed by the engineer and that the roads are safe for night traffic.

(xiii) The traffic safety officer shall, in addition to the duties listed in paragraph 1502 (i), also be responsible for the removal of broken down vehicles off the roadway and implementing actions requested by the traffic authorities with regard to the work to be carried out, be responsible for the erection and maintenance of all traffic signs necessary for the accommodation of traffic.

(xiv) In the advent of an accident the traffic officer shall record in a written report the details of the accident, record the position of all temporary road signs, barricades, delineators, flagmen and any other devices used for traffic accommodation. In addition the report shall include a neat dimensional sketch, photographs, identifiable permanent features, and any other relevant information."

Add the following subclause:

"(j) Site Personnel

The contractor shall ensure that all his personnel, excluding those who are permanently office bound, are equipped with reflective safety jackets and yellow or orange overalls as well as safety head gear at structural sites and that these are worn at all times when working on or near to the travelled way. Any person found not wearing a reflective jacket or safety head gear under these circumstances shall be removed from the site until such time as he is in possession of and wearing a reflective jacket. Reflective safety jackets and head gear shall be kept in good condition and any that are, in the opinion of the engineer, ineffective shall be immediately replaced by the contractor."

(k) Failure to comply with provisions

Failure or refusal on the part of the contractor to take the necessary steps to ensure the safety and convenience of the travelling public, accommodation of traffic, plant and personnel in accordance with these specifications or as required by statutory authorities or ordered by the engineer, shall be sufficient cause for the engineer to apply penalties as follows:

A fixed penalty of R5 000,00 per occurrence shall be deducted for each and every occurrence of non-compliance with any of the requirements of section 1500 of the standard specifications and section B1500 of the project specifications.

In addition, a time-related penalty of R500,00 per hour over and above the fixed penalty shall be deducted for non-compliance to rectify any defects in the accommodation of traffic within the allowable time after the engineer has given an instruction to this effect. The engineer's instruction shall state the allowable time, which shall be the time in hours for reinstatement of the defects. Should the contractor fail to adhere to this instruction, the time-related penalty shall be applied from the time the instruction was given."

(l) Blasting

Blasting could be necessary. Blasting notification to the public shall be displayed visibly on signage approved by the Engineer. And displayed for 14 days prior to the blast date.

All traffic shall be stopped outside the blast area prior to the detonation of the blast. The Contractor shall ensure that it is not possible for any vehicle or pedestrians to enter this area at this time.

No blasting shall be undertaken without required suitable plant and labour available to clear / clean the road surface after blasting.

On completion of the blast and after the blaster has given the go-ahead, the Contractor shall inspect the road surface for debris and clear this away before opening the road again to traffic.

(m) Public traffic

The contractor must plan and conduct his activities so as to bring about the least possible disruption to the traffic on the road. All halting of traffic will require the prior approval of the engineer and must be pre-arranged with the appropriate traffic authorities.

In all dealings with the public the Contractor shall bear in mind the public's right to enjoy the use of the road, and the Employer's desire to interfere as little as possible with this right. At all points of contact with the public, the Contractor shall deal with deliberate courtesy and understanding in any discussions or disputes.

(n) Access to work area

Construction traffic will only be permitted to enter or leave the work area at points approved by the Engineer and as clearly indicated on the traffic management plans. When any access point is in use, flagmen shall be provided for each such point. At least two flagmen shall be stationed at the access point to control the movement of construction traffic, and to warn public traffic on both lanes of the existing road. It is not the purpose of these flagmen to stop public traffic flow.

(o) Extension of time for completion

Accommodation of public traffic on the works or any delays caused thereby, as well as any suspensions due to failure by the Contractor to comply with the provisions for the accommodation of traffic, will not be regarded as special circumstances for an extension of time.

(p) Handing over site (additional sub clause):

The entire road reserve within the construction limits will be handed over to the contractor on commencement of the contract. The contractor will then be responsible for the accommodation of traffic on, and maintenance and repair work to be done on the existing roadways, from the date of handing over up to the issue of the Certificate of Completion.

The contractor's programme for the accommodation of traffic and any proposed deviation therefrom must be approved by the engineer on the site.

The Road Safety Officer to be appointed by the contractor shall be on full-time duty and shall be responsible for traffic control and safety on site, and for ensuring that all the requirements for accommodation are met.

B1503 TEMPORARY TRAFFIC-CONTROL FACILITIES

(e) Warning devices

Add the following:

“All construction vehicles and plant used on the works shall be equipped with amber flashing lights and warning boards as specified. All vehicles and plant, before being allowed onto the site, shall obtain a clearance permit from the engineer.

(i) Vehicle mounted flashing lights

Flashing lights shall have an amber lens of minimum height of 200 mm and shall be mounted in such a way as to be highly visible from all directions. The lights on construction vehicles shall not be switched on while vehicles are being operated on unrestricted sections of a public road, but shall be switched on while construction vehicles are operating within the accommodation of traffic area or public road, as the vehicles decelerate to enter a construction area, and as the vehicles accelerate to the general speed when entering the road from a construction area. Lights on plant shall operate continuously while the plant is working alongside sections of road open to public traffic.

All LDV's and cars operating on site shall also be equipped with amber flashing lights which shall be placed so as to be highly visible and operated continuously while the vehicles are manoeuvring in or out of traffic or are travelling or parked alongside roads open to public traffic. The lights and application thereof shall comply with the National Road Traffic Act No.93 of 1996/ Regulations/ GNR225 of 17 March 2000: National Road Traffic Regulations, 2000/176. Identification lamps.

Flashing lights and the "construction vehicle" signs on the contractor's vehicles and plant shall not be paid for separately but shall be included in the rates for traffic accommodation.

The contractor shall apply and maintain lights together with temporary mounting brackets, to the approval of the engineer. Vehicles and plant that do not comply with these requirements shall be removed from the site.

Add the following sub clauses:

"(g) Other traffic control measures ordered by the Engineer

The OHS Officer or Engineer may instruct the Contractor to provide any other road sign, reflective tape, etc. not measured in standard pay items and/or shown on the drawings or indicated in the mentioned Road Sign manual. A provisional sum is allowed for in the pricing schedule for this purpose (Item B15.17). Such road signs shall conform to the requirements of the SARTSM, or specification provided by the engineer. Similarly, in order to ensure that the travelling public is kept fully informed and warned on matters relating to the accommodation of traffic, construction sign posting and the effect of the construction on the free flow of traffic through the site, the Engineer may arrange for advertising in the press and/or for other forms of publicity.

(h) Flagmen

Flagmen shall be provided where shown on the drawings or required by the specification or circumstances requiring flagmen.

Flagmen shall be adequately trained in the standard flagging techniques as described in the SARTSM (refer to figure 13.23 of detail 13.23.1) and be provided with conspicuous clothing such as safety jackets utilizing retro-reflective and / or fluorescent panels in red, yellow and / or white.

Flags shall be made from bright red or red-orange material and shall be square with a minimum side length of 600 mm. The flag shall be attached to a staff at least 1,0 m in length.

In terms of lateral clearance and safety, flagmen shall stand on the shoulder of the lane of traffic that is being controlled and under no circumstances shall flagmen be permitted to stand within the traffic lane. In order to obtain maximum visual impact for the travelling public, flagmen shall stand-alone. Flagmen shall not be paid for separately with the cost included in item B1501."

B1511 MAINTENANCE OF GRAVEL TEMPORARY DEVIATIONS AND EXISTING GRAVEL ROADS USED AS TEMPORARY DEVIATIONS

Add to Clause 1511 the following:

Where applicable, all references to gravel roads and/or diversions shall also include gravel shoulders used as diversions.

B1513 ACCOMMODATION OF TRAFFIC WHERE THE ROAD IS CONSTRUCTED IN HALF WIDTHS

Where the work on the road surface is undertaken for rehabilitation of the pavement, such work shall be carried out in areas as indicated on the drawings.

All work adjoining the carriageway shall be undertaken only when the shoulder is barricaded and the required road signs, barricades and cones have been installed as shown on the drawings or as instructed by the engineer.

During construction, when work is in progress on one portion of the carriageway and shoulder of the road, the other portion of the road shall remain open at all times to allow for safe one-way traffic flow.

The speed of vehicles alongside actual construction areas must be limited to a maximum of 40 km/h. STOP/GO signs and flagmen shall be employed at the points where construction traffic enter the working area thus creating a potential danger situation for public traffic.

In the case of intersections, provision shall be made, where necessary, for STOP/GO signs. Intersections shall also, at all times, be able to safely carry traffic.

As soon as a section of road has been repaired or treated, the centreline shall immediately be indicated by means of pre-marking.

Amend Clause 1513 as follows:

In the third line of the third paragraph, delete “4 km” and replace with “2 km”.

In the second line of the fourth paragraph, delete the word “four” and replace with “two”. Also, delete “2 km” and replace with “2 km”.

B1517: MEASUREMENT AND PAYMENT

Amend item 15.01 to read as follows:

Item **Unit**

B15.01 Accommodating traffic and maintaining temporary deviations:

(a) On the route ..... kilometre (km)

Replace the first paragraph with the following:

“The unit of measurement shall be the kilometre, measured along the centre lines of the road, where work is carried out. Accommodation of traffic shall be measured once only, that is no separate payments shall be made for lane and shoulder rehabilitation, slurry, reseal, asphalt overlay, side drains, etc. The bypass for abnormal vehicles and gravel service roads shall not be measured. Only the net distance of the road shall be measured and overlapping distances during staged rehabilitation shall not be measured. A distinction shall be made between accommodation of traffic on the through road and accommodation of traffic on the ramps and cross roads of interchanges.

In the second paragraph, replace the comma after “deviations” at the start of the third line with a full stop and delete the remainder of this first sentence. Also delete the whole of the second sentence, which refers to compensation for the traffic safety officer.

In the third paragraph second sentence, insert a full stop after “use” and delete the remainder of the sentence."

B15.03 Temporary traffic-control facilities

Add the following sub-items:

Item **Unit**

Replace the payment description according to the following:

“(a) Flagmen ..... man-day

The unit of measurement shall be a full day and night worked by flagmen. A man-day shall be deemed to comprise of three eight hour shifts in a twenty-four-hour period. Three shifts of eight hours per flagman equates to one man-day. Shorter single portion shifts (6 to 10 hours) shall be measured as a half man-day.”

Item **Unit**

“(n) Amber rotating flashing lights with magnet base as specified for the engineer’s use number ..... (No)

The unit of measurement is the number of amber rotating flashing lights with magnet bases supplied to the engineer as specified. The tendered rate shall include full compensation for supplying the amber rotating flashing lights to the engineer on site as well as maintenance and, if necessary replacement, thereof to keep it in a good working condition at all times for the duration of the contract.

Item **Unit**

(o) Provision of a robot system ..... Number (No)

The unit of measurement shall include full compensation for the procurement, erecting, operating and maintaining a set of traffic lights, consisting of two units erected on both ends of a deviation.

Payment for the traffic lights shall include a set of radio’s or any other equipment that will enable the operators to effectively communicate and operate the robots over the distance that the robots are apart, when the system is not operated automatically.

The robot system shall be an automatic system of which the cycle time are adjustable in order to optimize the green time for traffic with variation in the length of road under construction. The robot system shall be reliable to operate 24 hours per day continually.

Amend the following notes under the subheading “(b), (d), (e), (f) and (h)” in the measurement paragraphs as follows:

The tendered rate for sub item (h) shall also include full compensation for the sign stand, for the provision of two sandbags per delineator to hold it in position and for their replacement when necessary due to whatever reason. Only the standard plastic type road signs TW 401/402 (Old DTG 50 J) will be allowed on this contract.

Amend payment paragraph (j) to read as follows:

“The unit of measurement shall be the number of cones provided over and above those indicated on the drawings as required by the engineer. Payment for these cones shall include supply, re-use or removal of the traffic cones as necessary."

Under the subheading "General" add the following to the last paragraph:

"Only items additional to those shown on the drawings are scheduled for payment."

B15.04 Relocation of traffic-control facilities

Divide item B15.04 in the following sub items:

Item **Unit**

(a) Relocation of traffic-control facilities, excluding robot systems ..... Lump sum
(b) Relocation of robot systems in excess of 100 m ..... number (No)

Sub-item (a) is only applicable to those items ordered by the engineer and for which the cost of relocation is not already included in Item 15.03 (or B15.03)

Sub-item (b) for the relocation of the robot systems shall only be applicable upon removal of the system to an entirely new position approved by the engineer. No payment shall be made for their removal to a new position if the distance moved is less than 100 meters.

The tendered rate for sub-item (b) shall include full compensation for the number of robot sets relocated in excess of 100 m. Payment under this item shall be full compensation for all labour, plant, equipment, tools, transport or any other cost to remove and re-erect the robot system to its new position.

Item **Unit**

B15.14 Penalty to be deducted for non-compliance with requirements for accommodation of traffic

(a) Fixed penalty per occurrence ..... number (No)

(b) Time related penalty ..... hour (h)

In subitem B15.14(a) a fixed penalty of R5 000.00 per occurrence shall be deducted for each and every occurrence of non-compliance with any of the requirements of section 1500 of the standard specifications and section B1500 of the project specifications.

In addition, in subitem B15.14 (b), a time-related penalty of R500.00 per hour over and above the fixed penalty in subitem B15.14 (a) shall be deducted for non-compliance to rectify any defects in the accommodation of traffic within reasonable time after the engineer has given an instruction to this effect. The engineer's instruction shall state the time in hours for re-instatement of the defects. Should the contractor fail to adhere to the instruction, the time-related penalty will be applied from the time the instruction was given.

B15.15 Provision of traffic safety equipment for visitors

Item **Unit**

(a) Safety jackets ..... number (No)

The unit of measurement shall be the number of each item provided as specified, and approved by the engineer.

The tendered rates for the various safety items shall include full compensation for provision thereof and maintenance in good working order.

Item **Unit**

B15.16 Non-specified signage ordered by the Engineer and Site Safety officer:

(a) Provisional sum for non-specified signage or arrangements as ordered by the Engineer ..... provisional sum (prov. Sum)

(b) Handling cost and profit in respect of Item B15.17(a).....Percentage (%)

The provisional sum items shall be paid in accordance with the provisions of the General Conditions of contract as amended if applicable. The tendered percentage is a percentage of the amount actually spent under the items agreed and shall include full compensation including profit etc. for items as ordered by the engineer."

Item **Unit**

B15.17 Full time site Traffic Safety officer:

(a) Provide a full time site traffic officer on site .....month

SECTION 1700: CLEARING AND GRUBBING

B1702: DESCRIPTION OF WORK

(a) Clearing

Add the following:

"Clearing shall not be undertaken outside the road prism finishing toe line. Clearing shall include the removal of material to a thickness of up to 150mm in-situ material as ordered by the engineer before roadbed compaction below existing ground level or excavation of cuttings commences. No payment shall be made for temporary stockpiling of topsoil material in the case where this material is applied as topsoil after completion of roadside slopes.

Should the required depth exceed 150mm, the total volume of material removed shall either be classified as "temporary stockpiling of topsoil" or "unsuitable roadbed material" or "cut to spoil" whichever is applicable as allowed for in the standard specifications. In these cases no payment shall be made for clearing and grubbing.

Clearing as described shall in all cases be undertaken in such a manner that the topsoil is preserved and not contaminated with other debris or rubbish. Cross-sections for the determination of earthworks quantities, where applicable, shall be taken after clearing (topsoil or unsuitable roadbed material) and roadbed preparation if applicable."

(c) Conservation of Topsoil

Add to the end of the 1st paragraph:

"The contractor will not be required to remove topsoil to more than an average depth of 200mm, from any particular area. The depth of topsoil removed shall be reliant on the terrain, suitability of material and topsoil requirements of the work."

Replace the second paragraph of this clause with the following:

"After clearing and grubbing, all topsoil shall be removed to stockpiles as agreed with the Engineer. Where ordered by the engineer, any topsoil that shall be required for the top soiling of new banks and cuts, but which cannot be accommodated within the construction site, shall be loaded and hauled to the designated stockpile area where it shall be placed in temporary stockpiles for later use in the rehabilitation of the site affected by construction activities. Where new borrow pits are to be opened up the topsoil shall first be removed (independently of the overburden) and placed in temporary stockpiles inside the parameters of the borrow pit. The moving of topsoil from windrow or the loading of topsoil from temporary stockpiles and the placing and spreading thereof on cut or fill slopes or on borrow pit soil sites, is covered in Section 5800.

Reference to clause 5802 (g) of this project specification and stipulations of relevant documentation are required".

Add the following new subclause:

"(e) Clearing and grubbing by hand or similar means

Where clearing and grubbing cannot be undertaken by means of normal construction machinery, the engineer may order clearing and grubbing to be undertaken using hand methods. This method of clearing and grubbing will normally apply to existing steep fill embankments or cut slopes where widening of the existing road is specified or other restricted areas indicated by the engineer. Separate payment for this method of clearing and grubbing is allowed under payment item B17.01(b) of these project specifications."

B1704 MEASUREMENT AND PAYMENT

Amend item 17.01 to read as follows:

Item	**Unit**
B17.01 Clearing and grubbing	

B17.01 Clearing and grubbing:

(a) Using normal construction machinery .....hectare (ha)
(b)Using hand methods.....hectare (ha)

Measurement and payment for subitem B17.01(a) shall be as specified for item 17.01 of the standard specifications. The unit of measurement for subitem B17.01(b) shall be the hectare of clearing and grubbing using hand methods. The tendered rate shall include full compensation for all labour and appropriate hand-held tools to execute clearing and grubbing by hand to the standard as specified for normal clearing and grubbing.

Add to Payment Item 17.01 the following:

"Clearing and grubbing of the construction camp sites shall not be measured separately and shall be deemed to be included in the rates tendered for item B13.01

Within the road reserves clearing and grubbing will only be measured and paid for where required for road works. All topsoil removed in this process must be stockpiled in heaps not exceeding 1 m height for later use during rehabilitation and landscaping."

SECTION 1800: DAYWORKS

Refer to the particular specification.

SECTION 2100: DRAINS

B2101 SCOPE

Amend the first paragraph to read:

"This section covers all work both rehabilitative and new work in connection with the excavation and construction of open drains, subsoil drainage and banks and dykes at the locations and to the sizes, shapes, grades and dimensions as shown on the drawings or as directed by the engineers, and the test flushing of subsoil drains."

B2107 MEASUREMENT AND PAYMENT

Item **Unit**

B21.01 Excavation for open drains

Add the following to the penultimate paragraph:

"The tendered rate shall also include full compensation for trimming the open drains and preserving excavated material for shoulder reconstruction"

SECTION 2200: PREFABRICATED CULVERTS

B2201 SCOPE

Add to Clause 2201 the following:

This section also covers work associated with the removal of existing pipes and their inlet and outlet structures. Due to the nature of the project, the Contractor can expect that works associated with the installation of pipe culverts will have to be carried out under traffic.

B2204 CONSTRUCTION METHODS

Add to Clause 2204 the following:

Generally, prefabricated stormwater drainage pipes and rectangular culverts will be installed using the 'trench method'. Installation in half widths can be anticipated.

B2210 LAYING AND BEDDING OF PREFABRICATED CULVERTS

(f) General

Add to Sub-clause 2210(f) the following:

Pipe culverts have been designed to the positions, lengths and elevations shown on the drawings. However, site conditions may dictate that changes are necessary. Any such changes will be agreed with the Engineer and recorded in writing.

B2211 BACKFILLING OF PREFABRICATED CULVERTS

Add to the fourth paragraph of Clause 2211 the following:

Where backfilling is done in the upper layers of the road formation, the quality and strength of the backfill material shall at least match that of the surrounding layers.

B2212 INLET AND OUTLET STRUCTURES, CATCHPITS AND MANHOLES

Add to Sub-clause 2212(c) the following:

"Under this contract, no inlet and outlet structures at culverts (head- and wingwalls) shall be constructed from brickwork"

Add to Clause 2212 the following new sub-clause (j):

(i) Subsurface drain outlet into catch-pits and manholes

Where required, sub-surface drain pipes shall be led into standard stormwater catchpits or manholes, as shown on the drawings or as directed by the Engineer. This shall be done either by making provision during the construction of the chamber, or by breaking out and making good after completion of the chamber.

B2218 MEASUREMENT AND PAYMENT

Add the following subitem to item 22.01:

Item **Unit**

B22.01 (c) Extra over sub-item 22.01(a) for excavation by hand using hand tools

(i) In softmaterial .....cubic metre (m³)
(ii) In hard material .....cubic metre (m³)

Measurement and payment shall be as specified for item 22.01 of the standard specifications."

Item **Unit**

B22.02 Backfilling

Replace the last sentence in the fourth paragraph with:

"....including a free haul of 5,0km."

SECTION 2300 : CONCRETE KERBING, CONCRETE CHANNELLING, CHUTES AND DOWNPIPES AND CONCRETE LININGS FOR OPEN DRAINS

B2304 CONSTRUCTION

(g) Concrete-lined open drains

Add the following:

"Before construction of concrete open drains, the bedding shall be prepared as described in Clause 2102. The bedding shall be compacted for at least 150mm to a minimum density of 93% of modified AASHTO density.

Before placing the concrete, the bedding shall be watered without having pools of water standing in the excavation."

(k) Cutting existing bituminous surfacing and pavement layers

Add the following:

"All concrete side drains, adjacent to the pavement, shall be constructed after completion of the asphalt surfacing that shall be trimmed as specified. The asphalt shall be protected by placing a polyethylene sheet, at least 600mm wide inside the cut face and folded back over the asphalt. After the concrete has dried, the sheet shall be neatly cut level with the surface."

Add the following new subclauses:

(l) Shrinkage joints for cast in-situ concretework.

Unless shown otherwise on the drawings, cast in situ channels shall be provided with shrinkage joints spaced a maximum of 2m apart. Shrinkage joints shall be constructed so that shrinkage cracks are generated at the joints. Sections of channel which have cracked between shrinkage joints shall be removed and replaced by the contractor at his own cost.

(m) Formwork and finish

All visible edges of cast in-situ channels shall be rounded with a rounding tool. Formwork and finish of concrete kerbs and linings shall comply with the requirements of section 6200. Templates for cast in-situ drains shall consist of 3mm thick steel plate. All visible edges on the sides or at joints of cast in- situ concrete kerbs or channels shall be neatly rounded with a rounding tool.

B2307 MEASUREMENT AND PAYMENT

Item

B23.07 Trimming of excavations for concrete-lined open drains

Delete the second sentence of the second paragraph and replace with the following:

"All excavation, backfilling, compaction and other requirements to establish the bedding for concrete-lined drains shall be included in the tendered rates for trimming of excavations."

SECTION 3100: BORROW MATERIALS

B3102 NEGOTIATIONS WITH OWNERS AND AUTHORITIES

Add to Sub-clause 3102(a) the following:

The Contractor may be required to effect the payment of compensation to the affected land owners when ordered to do so by the Engineer. In this case, the costs will be recovered via the Provisional Sum allowed in PART C of the Schedule of Quantities.

The Contractor will be responsible for the arrangements associated with constructing suitable accesses to the borrow pits.

B3103 OBTAINING BORROW MATERIALS

(a) General

Add to Sub-clause 3103(a) the following:

The Contractor shall note that natural materials which meet the requirements for the selected and sub-base layers are scarce, even when the properties are improved via stabilisation. Therefore, careful selection of materials will be required in the borrow pits. The Contractor shall refer to Section 3200 of the standard specifications with regard to his liabilities in respect of the contamination of good quality materials.

B3104 OPENING AND WORKING BORROW PITS AND HAUL ROADS

(a) Removing topsoil

Add to Sub-clause 3104(a) the following:

The topsoil to be stockpiled shall be placed between the Road and the physical borrow pit area so as to provide a temporary visual screen in front of the borrow activities. The topsoil shall not be stockpiled for longer than 3 months, nor shall the stockpile be higher than 2,5m.

(g) Un-proclaimed private access roads

The Contractor is responsible for proper maintenance of haul roads in cases where the material from the borrow pit areas has to be transported over secondary, tertiary, private or access roads. At the completion of activities in the borrow pits, the haul roads shall be restored to their original state and to the satisfaction of the Engineer.

Expropriation of borrow pits on private property by the Employer, will include access roads to the borrow pits. However, the Contractor is fully responsible for negotiating details of the right of access to the borrow pits with the private owners as well as for the building, maintenance and later removal of all access roads.

No additional payment will be made for this work and full remuneration will be deemed to be included in the tendered rates for the various items where the material is to be used.

B3105 FINISHING OFF BORROW AREAS

There shall be no measurement of Intermediate class finishing. All finishing that is not Hard shall be deemed as Soft.

B3108 MEASUREMENT AND PAYMENT

Add the following new pay items:

Item **Unit**

B31.05 Exploration of borrow pits:

(a) Sampling of borrow materials by an approved materials laboratory.....……..Prov Sum

(b) Handling cost and profit in respect of Item B31.05(a) .....Percentage (%)

The prime cost sum item shall be paid in accordance with the provisions of the General Conditions of contract as amended if applicable. The tendered percentage is a percentage of the amount actually spent under the items agreed and shall include full compensation for handling costs and profit and all other incidentals for arranging and making payments for the exploration of borrow pits.

Item **Unit**

B31.06 Royalties for the use of borrow pit

(a) Royalty as agreed with Employer ..... Provisional sum

(b) Handling Cost and profit in respect of Sub-item B31.06(a)..... percentage (%)

The provisional sum item shall be paid in accordance with the provisions of the General Conditions of contract as amended if applicable. The tendered percentage is a percentage of the amount actually spent under the items agreed and shall include full compensation including profit etc. for items as ordered by the engineer."

Add to the notes at the end of the payment items under Clause 3108 the following:

(3) The tendered rate shall include full compensation for all moneys payable and all expenses incurred by the Contractor for the acquisition of all material for the proper completion of the works, irrespective of whether the material is obtained from borrow pits indicated in the Materials Information included in this document, from additional borrow pits identified by the Engineer, from commercial sources, or from borrow pits obtained by the Contractor himself.

SECTION 3300: MASS EARTHWORKS

B3301 SCOPE

Add to Clause 3301 the following:

"The Contractor shall note the restricted nature of the earthworks in general, and where the widening of existing cuts and fills are required in particular. No extra over rates for widening of cuts, widening of fills or for working in restricted areas shall be applicable to this Contract."

B3303 CLASSIFICATION OF CUT AND BORROW

Add to Clause 3302 the following:

"All material excavated from the existing road prism including subgrade, subbase, base, seals and shoulders shall be classified as soft material. No additional payment will be made for other classes of material excavated from the road prism."

(a) Classes of excavation

Add to Sub-clause 3303(a) the following:

"Soft excavation shall be excavation in material which can be efficiently ripped by a bulldozer with a mass of at least 35 tons when fitted with single tine ripper and an engine developing approximately 220 kW at the flywheel".

Remove item 3303 (a)(ii) Intermediate excavation. There will be no intermediate material measured in this contract and except from blasting all excavations must be considered as soft excavation.

Cut material for fills will, apart from natural in-situ material, also consist of existing fill and pavement layers from the existing road. Excavation from existing fill and pavement layers varies in depth, but no distinction is made between this excavation and excavation in other materials, except for classification as soft, intermediate and hard materials."

Payment items 33.14 and 33.15 will not apply on this Contract.

B3306 CUT AND BORROW

(a) Dimensions of Cuts

Delete the third paragraph from Clause 3306(a), apart from the first sentence thereof.
Add the following:

Cut and borrow to fill will be measured under Item 33.01. The Contractor shall take note of the nature of the earthworks alongside the existing road. No extra over payments will be made in respect of the nature of the site or due to the dimensions of a particular cutting.

B3307 FILLS

a) General

Add the following:

"Where existing embankments are to be widened, or where new embankments are to be constructed adjacent to existing embankments, the existing side slopes shall be benched as specified in sub clause 3307(d) and in accordance with the details on the drawings.

In addition, the material in the fill widening shall, unless otherwise instructed by the engineer, be compacted as follows:

(i) where the thickness exceeds 1,5m, it shall be compacted to a minimum of 93% modified AASHTO density to a depth of at least 1,5m below the final road level; or

(ii) where the thickness is less than 1,5m, the in situ roadbed and fill material shall be compacted to 93% modified AASHTO density."

(c) Constructing a pioneer layer

Add the following to the first paragraph:

“For the purpose of this contract, pioneer layers shall be compacted by means of eight-pass roller compaction using vibratory rollers as specified in subclause 3304(b) of the standard specifications. Suitable coarse rock material, up to a maximum size of 500 mm, obtained from commercial quarries, shall be used for the construction ofpioneer layers.”

d) Benching

Replace the first sentence of the second paragraph with the following:

"It is a requirement that benching shall always be started at the bottom of the existing fill progressing to the top of the formation The dimensions of benches as well as the extent to which existing fills have to be cut back to form benches shall be as indicated on the drawings or indicated by the engineer."

Add the following after the second paragraph:

"In order to obtain sufficient working width for road-building equipment when the existing road fill is widened, it may be necessary to form benches that extend beyond the normal road prism or to cut back into the existing road fill or both. The contractor shall submit his proposals in this regard to the engineer for approval before proceeding with such work. The contractor will be paid in accordance with the relevant payment items for work required to obtain a working width of up to 4 m. Additional work required to provide a working width in excess of 4m shall be at the contractor's expense. "

(i) Widening of fills

In the eight paragraph of Sub-clause 3307(i), delete the sentence "An extra over payment for the widening

of existing fills will apply under Item 13.16."

Add the following:

No extra over payments will be made in respect of the nature of the site or due to the dimensions of the fills being widened or constructed.

Add the following new sub-subclause:

"(k) Stormwater drainage of fills and fill slopes:

Should erosion occur on the outside slopes of the embankment resulting in scour of the embankment, such erosion shall be benched and backfilled before the placing of any pavement materials on the road embankment.

B3312 MEASUREMENT AND PAYMENT

General directions

Delete Note (3) Work in Restricted Areas and replace with the following:

On this Contract, no extra over payment will be made due to the nature of the site or the size of the work area available. All costs associated with carrying out the works are deemed to be included in the tendered rates for the items in the Schedule of Quantities.

Amend the payment items under Clause 3312 as follows:

Item

B33.01 Cut and borrow to fill, including free-haul up to 5km:

In the description of Item 33.01, delete "free-haul up to 0.5 km" and replace with "free- haul up to 5.0 km."

In the fifth paragraph, referring to the tendered rates, delete the words "free-haul distance of 0.5 km" and replace with "free-haul distance of 5.0 km."

Also in the fifth paragraph, after the words "the cutting of benches" insert the words "including benches in existing fill slopes to be widened."

Item

B33.04 Cut to spoil including free-haul up to 5,0km:

B33.04 In the description of Item 33.04, delete "free-haul up to 0.5 km" and replace with "free-haul up to 5.0 km."

In the fourth paragraph delete "free-haul distance of 0.5 km" and replace with "free-haul distance of 5.0 km."

SECTION 3400: PAVEMENT LAYERS OF GRAVEL MATERIAL

B3402 MATERIALS

a) General

The following changes are applicable:

"The maximum size for the crushed G5 material in Table 3402/1 shall be 53mm.

Table 3402/1, the grading requirements for G5 type crushed (commercial) material for the fraction passing the 2,00mm sieve shall be changed to read "nor more than 60%."

In Table 3402/2 of the specification change the CBR specified for G7 and G8 material as follows:

G7 : 20% at 93% of modified AASHTO density
G8 : 15% at 93% of modified density

Add the following at the end of the second paragraph:

"For chemically stabilised layers the material shall conform to the requirements in table B3402/5." For cold in situ recycled layers the target grading shall be as indicated in table B3402/7"

Replace Table 3402/5 with:

"TABLE B3402/5: REQUIREMENTS FOR CHEMICALLY STABILISED LAYERS

Classification	**C1**	**C2**	**C3**	**C4**
Material before treatment	At least G2 quality	At least G4 quality	At least G5 quality	At least G6 quality
PI after treatment	Non-plastic	Non-plastic	6 max. *(1)	6 max. *(1)
UCS (MPa) *(2)	6 min.	4 min.	1,5 min	0,75 min.
ITS (kPa) *(3)	-	-	250 min.	200 min.
WDD (% loss)	5 max.	10 max.	20 max.	30 max.

Note:

*(1) For materials derived from the basic crystalline rock group, the Plasticity Index after stabilisation shall be non-plastic.

* (2) Unconfined Compressive Strength @ 100% Mod. AASHTO density

* (3) Indirect tensile Strength @ 100% Mod. AASHTO density (Rapid Curing) * (4) Wet/Dry

TABLE B3402/7: TARGET GRADING ENVELOPE FOR COLD IN SITU RECYCLED PAVEMENT LAYERS

Sieve Size (mm)	Percent Passing Cement / Lime
50	100
37.5	87 – 100
28	82 – 100
20	72 - 100
14	60 -90
10	51 - 77
7.1	42 -65
5	36 - 57
0.425	12 – 26
0.075	4 - 10

b) Compaction requirements

Amend the compaction requirements as follows:

Fill Material 93% MOD AASHTO
Lower selected layer 93% MOD AASHTO – G7
Upper selected layer: 95% MOD AASHTO – G7
Subbase (insitu or G5 imported): 95% MOD AASHTO
Shoulder material (Where applicable) 95% MOD AASHTO- G5

Add the following:

"The compaction of recycled material, stabilized with chemical agents and placed as subbase pavement layers in one operation for 300mm or more up to 400mm thickness, shall be 96% of mod. AASHTO density on average measured for the full depth of the layer with a minimum of 97% of mod. AASHTO compaction for the upper 150mm.

The compaction density shall be calculated as follows:

$D_{(150-300)} = 2 \times D_{(0-300)} - D_{(0-150)}$

Where
$D_{(0-150)}$ = Density as measured for 0 to 150mm layer
$D_{(0-300)}$ = Density as measured for 0 to 300mm layer
$D_{(150-300)}$ = Density as calculated for 150 to 300mm layer

B3403 CONSTRUCTION

Add the following subparagraph:

"(f) Cold in situ recycling and mixing

Where the in situ layer consisting of granular or cemented layers, which may include asphalt or bituminous surfacing above granular or cemented support layer is to be recycled, with or without any make-up material, the layer must be constructed according to the method described in Section 3500."

B3405 CONSTRUCTION TOLERANCES

(a) Level

Replace the table in the sub-sub-clause with the following:

	H_{90}	H_{max}
Selected layers	25 mm	30 mm
Sub-base layers	15 mm	20 mm
Base layers	12 mm	15 mm
Shoulders	20 mm	25 mm"

Add the following:

"Level control for the various pavement layers shall be done at least at the following intervals in the longitudinal direction:

Layer	**Interval**
Selected layer, sub-base, shoulders and wearing course	20 m
Base	10 m

(b) Layer thicknesses

Replace the table in the sub-sub-clause with the following:

	D_{90}	D_{max}	D_{ave}
Selected layers	25 mm	35 mm	8 mm
Sub-base layers	18 mm	24 mm	5 mm
Base layers	15 mm	22 mm	5 mm"
Shoulders		30 mm	0 mm

(f) Surface regularity

Replace the second paragraph with the following:

"(i) the average number of irregularities per 100m equal to or exceeding 5mm when taken over 300 – 600m lengths 3

(ii) the number of irregularities equal to or exceeding 5mm when taken over 100m lengths ..... 4"

Add the following:

"Where transverse construction joints in layers are made between newly and previously constructed sections, the contractor shall exercise careful level control at such joints by installing level poles at 5m

intervals on either side of the joint of the layer covering at least a 30m length into the newly constructed section."

B3406 QUALITY OF MATERIALS AND WORKMANSHIP

Replace the second paragraph with the following:

"Test results and measurements will be assessed in accordance with the provisions of Section 8200."

B3407: MEASUREMENT AND PAYMENT

Change item 34.01 to read as follows:

Item		**Unit**
B34.01	**Pavement layers constructed from gravel taken from cut or borrow, including free-haul up to 5,0 km (source and layer specified, layer thickness and compaction indicated)**	cubic metre (m^3)

Add the following sub-subitem to Subitem 34.06(e)

Item		**Unit**
B34.14	**Provisional sum for sampling and testing of materials for stabilisation design:**	
	(a) Provisional sum for labour, transport, supervision, accommodation of traffic and incidentals.....	provisional sum (prov.sum)
	(b) Handling cost and profit in respect of item B34.16(a)	Percentage (%)

The provisional sum item shall be paid in accordance with the provisions of the General Conditions of contract as amended if applicable. The tendered percentage is a percentage of the amount actually spent under the items agreed and shall include full compensation including profit etc. for providing equipment, including recycling plant if required, labour transport, supervision, accommodation of traffic and incidentals to sample the required materials for testing."

Item		**Unit**
B34.15	**Construct G6 Pavement layers from a commercial source to be stabilized under item B35.01 with cement measured under item B35.05:**	
	Construct G6 Pavement layers from a commercial source to be stabilized under item B35.01 with cement measured under item B35.05:.....	cubic metre (m^3)

SECTION B3500: STABILIZATION

B3501 SCOPE

Add the following:

"In terms of chemically stabilized pavement layers, the contractor shall allow in his programme of work a period of at least 3 weeks for the Engineer to confirm the stabilization designs of relevant pavement materials in order to determine the required dosages of stabilising agent. The actual application rate of the stabilizing agent for the specific material or layer shall however remain the Contractor's responsibility in terms of the acceptance of the pavement specified.

The actual quantity of stabilizing agent agreed to shall be payable."

B3502 MATERIALS

a) Chemical stabilizing agents

Delete sub-clauses (ii) Ordinary Portland cement and (iii) Portland blast-furnace cement and replace with the following:

"Cement shall comply with the relevant requirements of SANS 50197-1:2000. The use of strength classes greater than 32,5 shall not be permitted.

On this contract CEM II(B-4) 32.5 shall be used for stabilization purposes. The use of other types of cement shall be subject to laboratory testing and to the approval of the engineer with no additional payment applicable for higher application rates resulting from the use of such other types of stabilizing agents.

The contractor shall provide all labour, plant, materials, transport, accommodation of traffic and all other incidentals to sample the necessary materials to undertake the stabilisation design as ordered by the Engineer."

B3503 CHEMICAL STABILIZATION

a) Preparing the layer

Insert the following before the first paragraph:

"Moisture content tests shall not be undertaken more than one day in advance of in situ stabilization operations. Care shall be taken to ensure that samples are representative of the in situ material. Checks shall be conducted when wet weather occurs between initial testing and work commencing on any section."

b) Applying the stabilizing agent

Replace the second sentence of the second paragraph with the following:

"Under this Contract, stabilizing agent shall be provided in pockets to be packed out onto the layer to be stabilized. Mechanical spreaders shall not be allowed. Spreading of stabilizing agent shall always be

done by hand, using rubber squeegees to evenly spread the agent before mixing of the material may commence. Double application of stabilizer at construction joints shall not be allowed except as specifically shown on drawings or for re-working oflayers when required.

Spreading shall only commence when the engineer is satisfied that the correct quantity of stabilizing agent has been placed on the layer and has given permission that the stabilizing agent may bespread uniformly over the entire surface to betreated."

(d) Mixing in the stabilizing agent

Replace second paragraph with the following:

"Mixing shall be done with a recycling unit capable of milling and recycling of material to a depth up to 300mm minimum and a width up to 2,0m. The Contractor shall control the length of sections of subbase layer construction in such a manner that the specified time limitations for processing of cemented layers as specified shall not be exceeded.

Before recycling for stabilization commences, the stabilizing agent shall be manually spread to obtain the correct application rate. The recycler shall mix in the stabilizer together with the required metered quantity of water.

Where the required stabilising agent dosage is such that a build-up of the agent is noted in front of the recycling unit, the layer shall first be treated with light ripping by a motor-grader to a depth not exceeding 100 mm. No separate payment shall be applicable to the ripping operation.

Where two adjacent lanes are reworked the longitudinal overlap shall be maintained along recycled strips of stabilized material in such a manner that final recycling longitudinal joints are in the centre of travel lanes or on the painted lines demarcating the travel lanes. The Contractor shall submit his stabilization plan to the Engineer for his approval. Where the width of the layer to be stabilized is such that part of the width of recycling falls within the gravel shoulder outside the stabilizing limits, payment under item B35.01 shall only be applicable to the stabilized part of the recycled width. Double recycling of material with cement and water added shall not be allowed. The contractor shall plan his recycling activities in accordance with the above limitation and/or by applying a recycler of suitable width. If recycling plan is such that double recycling of material is applicable, cement and water shall only be applied to the final recycling process. Material which is double worked shall not be paid for.

The rotating drum speed of the recycling machine and the moving forward of the machine shall be such that the grading of the material is not significantly changed to fall outside the specified grading limits of the materials used in the layer."

(f) Compaction

Add the following:

"Material placed for chemical stabilization shall, prior to the applying and mixing in of the stabilizing agent, be lightly compacted with 3-pass static rolling (vibratory roller in static mode). Payment for this required operation is allowed for in item 33.11. Once the mixing in of the stabilizing agent by means of a recycling unit is completed, the layer immediately behind the recycle unit shall be compacted by means of 3-pass or more vibratory rolling (roller as specified in subclause 3304(b)) or until the rubber wheel footprints of the

recycler is completely removed. Level cutting shall follow this compaction before final processing and compaction of the layer is commenced with. No additional payment will be considered for this requirement which shall form part of the compaction process."

h) Curing the stabilized work

Add the following paragraph:

"Curing of stabilized pavement layers shall be undertaken in accordance with protection method (ii) as specified. Any other method of curing shall only be allowed in special circumstances as agreed to by the Engineer, but no additional payment whatsoever over and above that allowed for in item 35.05 shall be made. Method (iii) and (iv) shall not be applicable on gravel stabilized layers. The curing of stabilized subbase layers by covering with gravel material where applicable will be dependent on the availability of the G5 base material and must be incorporated in the contractor's programme of work.

Curing of stabilized pavement layers for the construction of the stabilised base for interlocking paving roads shall be undertaken in accordance with protection method (i) as specified.

Add the following to method (ii):

"The covering material shall be placed by end-tipping, spread, and not compacted until the underlaying layer has cured for at least 7 days."

i) Construction limitations

Replace the fourth paragraph starting with "No stabilization ..." with the following:

"No stabilization shall be done during windy conditions, wet weather or with falling air temperatures (7°C and dropping), or during rising air temperatures (when the air temperature is below 3°C).

The surface temperature of a compacted stabilized layer shall not be allowed to fall below 1°C during the first three (3) days after stabilization. The contractor shall be responsible for taking the necessary precautions to prevent the layer from freezing.

All stabilized layers damaged by rain, frost or by the formation of ice in the layer shall be removed and replaced by the contractor at his own expense.

The contractor shall make allowance for these requirements in his construction programme."

In Table 3503/1, delete "8 hours" for Ordinary portland cements and cement blends and replace with "6 hours".

B3507 CONSTRUCTION OF TRIAL SECTION

Insert the following before the second paragraph:

"Prior to carrying out the trial section for cold in situ recycling, the contractor shall assemble all items of plant and equipment that he proposes to use for the recycling operation. Only those machines he intends

using for production work shall be used to construct the trial section and under no circumstances shall he be permitted to use any substitutes. The first section of pavement to be recycled shall be regarded as a trial section with the objective of:

- demonstrating that the equipment and processes he proposes to employ are capable of constructing the recycled layer in accordance with the specified requirements;

- determining the effect on the grading of the recycled material by varying the forward speed of the recycling machine and the rate of rotation of the milling drum; and

- determining the amount of rolling necessary to achieve the compaction requirements.

The trial section shall be at least 200m in length and shall cover the full lane-width or half-road width in accordance with the geometry of the road and the accepted work plan.

To allow the engineer sufficient time to assess all aspects of quality of the completed trial section and contingent on the results being satisfactory, the contractor shall programme to start production recycling work no sooner than one week after constructing the trial section.

Should the contractor make any alterations in the methods, processes, equipment or materials used, or if he is unable to comply consistently with the specifications due to variations in the in situ material, or for any other reason, he may be required to undertake further trial sections before continuing with the permanent work."

Insert the following new paragraph after the third paragraph:

"For cold in situ recycling provision is made for payment for the first approved trial section. Such payment will be made as an extra-over to the various payment items for recycling work together with all additives that will be measured and paid as normal production work. Any further trial sections ordered by the engineer shall likewise be paid provided they are approved."

B3509 QUALITY OF MATERIALS AND WORKMANSHIP

Add the following after the second paragraph:

Add the following paragraphs:

"The engineer shall be notified in good time to enable him to conduct tests himself.

Sample preparation and testing for cement stabilization testing shall be done by means of the Rapid Cure Method as described in clause B8110.

The stabilized material sampled from the layer for the compaction of modified AASHTO briquettes, shall be prepared according to SANS 3001; GR54; ie discard material coarser than a
37,5 mm test sieve, and compacted according to SANS 3001; GR31.

Any delamination of the completed layer (biscuiting), identified by the hollow sound caused when a chain is dragged over the stabilized layer, shall be removed and repaired prior to the construction of subsequent

layers. The repair method shall be approved by the engineer. No payment will be made for repairs.

(a) Process control for cold in situ recycling

The contractor shall establish a comprehensive process control system for the recycling work.
The following daily reports shall be submitted as a minimum:

- The production plan;
- The completed pre-start check list;
- Weather conditions and temperature measurements;
- Details of the recycling work completed during the day with the following information for each cut that was made:
  - start and end chainage;
  - depth of cut (including a schedule of dip measurements);
  - width of application of stabilising agent(s);
  - nozzle settings (closures) for each spray bar (where relevant);
  - computer data input;
  - cement / lime spreading check measurements (where relevant); and
- Where the material is treated with a bitumen stabilising agent, the following shall be included:
  - bitumen emulsion or Pen-grade bitumen consumption;
  - average temperature and pressure measured at the spray bar; and
  - all other details shown in the sample report included in the Appendices of the latest edition of SAPEM and TG2:
- Relevant comments / information concerning the recycling operation. These shall include but shall not be limited to:
  - standing time and the reason(s);
  - sections where in situ pavement conditions changed together with a description of the change (e.g. thick asphalt between km 1+200 and km 1+230 in Cut #2);
  - details of any non-routine tests that were undertaken;
  - any changes in the weather during the day (e.g. strong wind from 13:00); and
  - relevant instructions received and from whom; and
- The location where the daily sample of pulverised material was taken."

B3510 MEASUREMENT AND PAYMENT

Change item 35.01 to B35.01 with the heading as follows:

Item		**Unit**
B35.01	**Chemical stabilization (150mm layer thickness) extra over unstabilized layers (layers and materials to be stabilized to be indicated)**	cubic metre (m^3)

Add the following to pay-item 35.02:"The quantity of stabilizing agents indicated in the schedule is a nominal rate of application. Only approved quantities will be paid for at the rates tendered."

Add the following to pay-item 35.03:"Mechanical modification shall not be paid for different materials if mixed with the recycle machine."

SECTION B5100: PITCHING, STONEWORK AND PROTECTION AGAINST EROSION

B5102 Materials

a) Stone

Replace the 2nd paragraph with the following:

"Unless suitable stone can be located on site, the stone for pitching shall come from commercial sources but, from whatever source, its use shall be subject to the prior approval of the engineer."

c) Sand

(ii) Sand for bedding

Replace this sub-sub-clause with the following:

Sand for bedding used for paving blocks shall not contain any deleterious impurities and shall comply with the requirements given in Table B5102/1.

TABLE B5102/1

Sieve size (mm)	Percentage passing
10	100
5	95 – 100
2	73 – 86
1	43 - 78
0,600	25 – 60
0,300	10 - 30
0,150	5 – 15
0,075	5 - 10

Note:
Refer to standard COLTO table for COLTO grading if required

B5106 SEGMENTAL BLOCK PAVING

d) Edge beams

Add the following paragraph:

"Where concrete edge beams are constructed the relevant specifications under section 2300 shall apply."

B5108 MEASUREMENT AND PAYMENT

Add the following following payment items:

Item		Unit
B51.08	**Speed hump with paving blocks.....**	No

The unit of measurement shall be the number of speed humps, complete with road marking and road signs, constructed in accordance with the CTO standard speedhump drawings.

SECTION 5600: ROAD SIGNS

B5609 MEASUREMENT AND PAYMENT

Add the following new payment item:

Item	Unit
B56.10 Statutory signs, street names, etc. supplied and erected complete	
Statutory signs,street names,etc. supplied and erected complete	
(a) Provision and erection of regulatory traffic signs for 60km/h design standard,complete	
(i) Stop sign (R)	No
(ii) R201 (Speed Limit 40km/h)	No
(b) Provision and erection of warning traffic signs for 60km/h design standard,complete	
(i) W104 (T-Junction)	No
(ii) W107 or W108 (Side road junction)	No
(iii) W202 or W203	No
(C) Provision and erection of information traffic signs for 60km/h design standard,complete	
(i) W401 or W402	No
(Danger Plates 150mm x 600mm)	
(iii) W409	
(T-Junction Chevron)	No

The unit of measurement shall be the number of signs (as stated). The rate shall include full compensation for procurement, delivery and installation complete with sign face, support (150mm diameter CCA treated timber post) and brackets, as instructed by the engineer and in accordance with the drawings.

SECTION 5700: ROAD MARKINGS

B5702 MATERIALS

(a) Paint

(ii) Retro-reflective road-marking paint

Add to Sub-clause 5702(a)(ii) the following:

During actual painting the Contractor shall supply sealed samples of the paint to be used to the Engineer together with details of the paint batch numbers and testing carried out on these particular batches by the paint manufacturer to prove compliance with this specification. These samples shall be kept until the end

of the defects liability period.

B5704 MECHANICAL EQUIPMENT FOR PAINTING

Add to Clause 5704 the following:

The machine shall always operate in the direction of the traffic when applying lane markings.

B5707 APPLYING THE PAINT

Add the following:

"The Contractor's establishment on site and general obligation shall be deemed to fully include the establishment of the road-marking team, irrespective of the number of times the road-marking team is required to be on site or is required to move within the site."

B5711 GENERAL

*Insert the following into the last sentence of the last paragraph between "*black paint*" and "*or chemical paint remover*":*

", bituminous Emulsion, slurry"

Add the following to the last paragraph:

"Where black paint is used, it shall be matt."

SECTION 5900: FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS

B5902 FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS

Add the following to the first paragraph:

"The contractor shall pay special attention to the collection and removal of all waste materials originating from the construction activities. All materials trimmed or excavated from the road shall be collected and removed from the road reserve to the satisfaction of the engineer.

This requirement shall be deemed to be incorporated in the tendered rates for item 59.01 of the bill of quantities or such other items as the contractor may decideupon.

The engineer may order additional finishing of the road reserve which will entail the collection and disposal of loose rocks etc. Payment for this work will be made under daywork items included in section 5900 of the bill of quantities as described in section 1800 of these project specifications."

SECTION 8100: TESTING MATERIALS AND WORKMANSHIP

B8117 MEASUREMENT AND PAYMENT

Add the following new payment item:

Item	**Unit**
B81.04 Acceptance control	
(a) Testing by the engineer	Prime-Cost Sum (PC Sum)
(b) Handling cost and profit in respect of subitem B81.04(a).....	Percentage (%)

The prime-cost shall be paid in accordance with the provisions of the general conditions of contract The tendered percentage is a percentage of the amount actually spent under the prime-cost item, which shall include full compensation for the handling cost of the contractor, and the profit in connection with providing the specified service.

The cost for process control by the contractor must be included in his tendered rates and contractor to submit all his lab tests to the engineer for approval. This allowance is only for additional tests ordered by the engineer. Contractor testing in accordance with COLTO SECTION 8200 (SCHEME 1)

SECTION 8200: QUALITY CONTROL (SCHEME 1)

B8201 SCOPE

Add the following to Clause 8201 of the Specifications:

Quality control shall be carried out in accordance with the requirements of Section 8200: Quality Control (Scheme 1).

B8209 PROCESS CONTROL BY THE CONTRACTOR

Add the following:

For the purpose of this Contract process or quality control by the Contractor comprises at least the following:

Soil Tests:

Field densities, maximum dry density and optimum moisture content determinations, CBR, UCS, ITS, indicator tests (grading and PI), moisture contents and chemical tests relating to stabilizing agent contents;

Concrete tests:

Slump and cube crushing strengths.

PART B: OCCUPATIONAL HEALTH AND SAFETY ACT OBLIGATIONS

This Section covers the Health & Safety Obligations and has been extended to include the new specifications for COVID-19 prevention

Item	**Unit**
B10.01	
(a) Contractor's initial obligations in respect of the Occupational Health and Safety Act and Construction Regulations	L/sum
(b)Contractor's time related obligations in respect of the Occupational Health and Safety Act and Construction Regulations	month
(c) Submission of the Health and Safety File	L/sum
(d) Provision for personal protection equipment and clothing	L/sum
(e) OHS training	L/sum

B10.02 **Item**	**Unit**
Occupational Health & Safety Agent on behalf of the Employer	
(a) Payment of OHS Agent	Prov sum
(d) Handling cost and profit in respect of subitem E10.02(a)	%
(c) Provision for Personal Protective Equipment & protective Clothing:	
(i) Including but not restricted to Reflective Vests	Sum
(ii) Including but not restricted to Reflective Bibs	Sum
(iii) Including but not restricted to Hard Hats	Sum
(iv) Including but not restricted to protective footwear	Sum
(v) Including but not restricted to Earplugs	Sum
(vi) Including but not restricted to Dust Masks	Sum
(vii) Face Masks for COVID-19 (respiratory protection as required)	Sum
(viii) Surgical Gloves (for security and cleaning team)	Sum
(ix) safety Goggles for Screening Person	Sum
(d) Costs of medical certificate and Medical Surveillance	Sum
(i) Initial (baseline) medical examination screenings for Employees with COVID-19 Symptoms	Sum
ii) Exit examination	Sum
(e) Re-induction Training for Covid-19	Sum
(f) Provision of First Aid Boxes	Sum
Daily Logbook for above	
(i) Waste Bins	Sum
(q) Maintenance of a register for workers contacts	Sum

PART C: TRAINING

Item **Unit**

C10.01 Training

(a) CETA Accredited training

(i) Skills Training (Approved by Engineer) ……..provisional sum

(b) Handling costs and profit in respect of sub-item C10.01(a)(i)…….percentage (%)

C10.02 Civil Engineering Inter for training by the Engineer

Contractor to appoint a Civil Engineering student with Minimum S4 qualification to work on project and report to the RE and perform daily tasks towards their experiential training. Student to be interviewed and approved by the Engineer, but appointed and paid for by the contract.

(a) Payment of Civil Intern Min S4 …… provisional sum
(b) (b) Handling cost and profit in respect of subitem C10.02 …… percentage (%)

VICTOR KHANYE LOCAL MUNICIPALITY

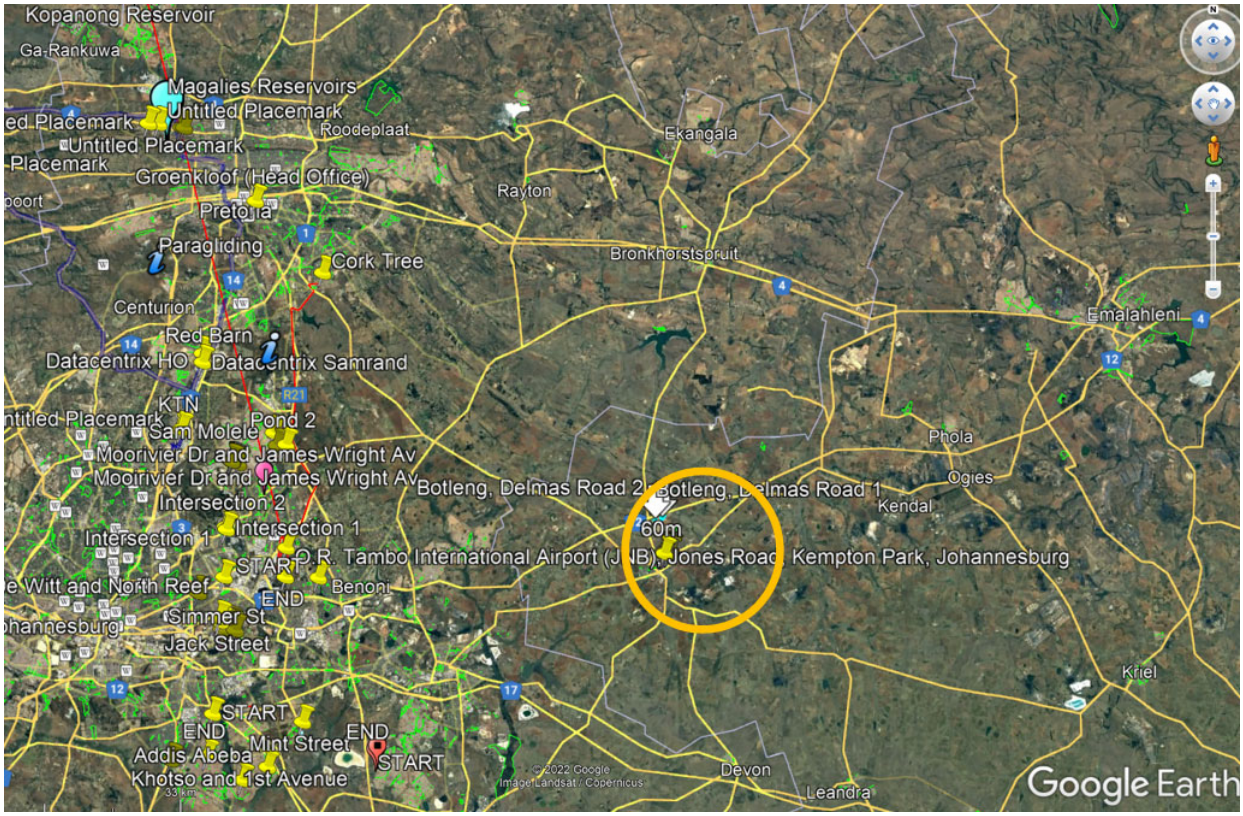
TENDER NO: T/RSW02/MIG/P1/2023/2024
PANEL OF SERVICE PROVIDERS FOR TARRING/PAVING OF ROADS IN VICTOR KHANYE LOCAL MUNICIPALITY FOR 36 MONTHS

PART C4 - SITE INFORMATION

Locality plan

The center of the site has the following approximate coordinates:

Latitude: 26º8,528' S Longitude: 28º41.659' E





EXPECTED NUMBER OF WORKING DAYS LOST PER MONTH DUE TO NORMAL RAINFALL – WEATHER STATION

(The Engineer/Contractor reserves the right to update Table 1 with the latest data from the Weather Bureau from a weather station close to the Site of Works)

Month	Expected number of working days lost as result of normal rainfall	Average monthly rainfall (mm)
January	3	96
February	3	101
March	3	77
April	2	45
May	1	11
June	0	9
July	0	3
August	0	2
September	1	15
October	2	55
November	3	73
December	5	122
Total	**23 days**	**609 mm**

ANNEXURE A

Health and Safety Specifications

HEALTH AND SAFETY SPECIFICATIONS

1. OH&S MANAGEMENT

Structure and Organization of OH&S Responsibilities

1.1.1. Overall Supervision and Responsibility for OH&S

The Client is to ensure that the Principal Contractor, appointed in terms of Construction Regulation 4(1)(c), implements and maintains the agreed and approved OH&S Plan.

The Chief Executive Officer of the Principal Contractor in terms of Section 16 (1) of the Act is to ensure that the Employer (as defined in the Act) complies with the Act. Annexure 2 - “Legal Compliance Audit” may be used for this purpose.
Any OH&S Act (85 /1993), Section 16 (2) appointee/s as detailed in his/her respective appointment forms.

The Construction Supervisor and Assistant Construction Supervisor/s appointed in terms of Construction Regulation 6.

Further (Specific) Supervision Responsibilities for OH&S

Appointments required by the Act and Regulations:

- OH&S Representatives (Sections 17/18 of the Act)
- OH&S Committees (Sections 19/20 of the Act)
- Risk Assessor (Construction Regulation. 7(1))
- Accident/Incident Investigations Co-ordinator (General Administrative Regulation 9 (2))
- Form/Support work Supervisor (Construction Regulation 10(a))
- Batch Plant Supervisor (Construction Regulation 18(1))
- Stacking & Storage Supervisor (Construction Regulation 26(a))
- Fire Equipment Inspector (Construction Regulation 27(h))
- Electrical Installations, Machinery & Appliances Inspector (Construction Regulation 22)
- Excavations Supervisor (Construction Regulation 11(1))
- Demolition Supervisor (Construction Regulation 12(1))
- OH & S Officer (where necessary) (Construction Regulation 6(6))
- Person Responsible for Machinery (General Machinery Regulation 2)
- Emergency, Security and Fire Co-ordinator (Construction Regulation 27(h) & Environmental Regulation 9)
- Fire Equipment Inspector (Construction Regulation 27(h) Environmental Regulation 9)
- First Aider (General Safety Regulation 3(2))
- Hazardous Chemical Substances Supervisor (HCS Regulations)
- Ladders Inspector (General Safety Regulation 13A)
- Lifting Equipment Inspector (Construction Regulation 20)
- Operators & Drivers of Construction Plant & Vehicles (Construction Regulation 21 (i))
- Structures Supervisor (Construction Regulation 9)
- Users Operators of Construction Equipment (Construction Regulation 21(i))
- Welding Supervisor (General Safety Regulation 9)
- Communication and Liaison

OH&S liaison between the Client, the Principal Contractor, the other Contractors, the Consulting Engineer and other concerned parties will be through the OH&S Committee as in 3.10.

In addition to the above, communication may be directly to the Client or his appointed Agent, verbally or in writing, as and when the need arises.

Consultation with the workforce on OH&S matters will be through their Supervisors, OH&S Representatives, the OH&S Committee and their elected Trade Union Representatives, if any.

The Principal Contractor will be responsible for the dissemination of all relevant OH&S information to the other Contractors e.g. design changes agreed with the Client and the Consulting Engineer,

instructions by the Client and/or his/her agent, exchange of information between Contractors, the reporting of hazardous/dangerous conditions/situations etc.

1.3. OH & S File

The Principal Contractor must, in terms of Construction Regulation 5 (7), keep a health and safety file on site at all times that must include all documentation required in terms of the Act and Regulations and must also include a list of all Contractors on site that are accountable to the Principal Contractor and the agreements between the parties and details of work being done.

The following documents must be kept in the OH & S file:

1) Notification of Construction Work (Construction Regulation 3.)
2) Copy of OH&S Act (updated) (General Administrative Regulation 4.)
3) Proof of Registration and good standing with a COID Insurer (Construction Regulation 4 (g))
4) Copy of health and safety plan (construction regulation 5 (1)
5) OH&S Program agreed with Client including the underpinning Risk Assessment and Method Statements (Construction regulation 5 (1))
6) Designs/drawings (Construction Regulation 5 (8))
7) A list of Contractors (Subcontractors) including copies of the agreements between the parties and the type of work being done by each contractor (Construction Regulation 9)
8) Appointment / Designation forms as per 3.1.1. and 3.1.2. above.

Registers as follows:

- Accident/Incident Register (Annexure 1 of the General Administrative Regulations)
- OH & S Representatives Inspection Register
- Form/Support work Inspection
- Excavations Inspection
- Lifting Equipment
- Demolition Inspections
- Designer's Inspection of Structures Record
- Batch Plant Inspections
- Arc & Gas Welding & Flame Cutting Equipment Inspections
- Construction Vehicles & Mobile Plant Inspections
- Electrical Installation and Machinery Inspections
- Fire Equipment Inspection & Maintenance
- First Aid
- Hazardous Chemical Substances
- Lifting Tackle and Equipment Inspections
- Inspection of Cranes
- Inspection of Ladders
- Inspection of Vessels under Pressure
- Machinery Inspections
- Drivers/Operators of Mobile Plant/Construction Vehicles Daily Inspections

The Principal Contractor will be required to submit the abovementioned registers monthly to the chairperson of the OH&S Committee for endorsement.

The Health & Safety File must be handed over to the Client on completion of the contract. It must contain all the documentation handed to the Principal Contractor by any subcontractors together with a record of all drawings, designs, materials used and other similar information concerning the completed project.

1.4. OH & S Goals and Objectives and Arrangements for Monitoring and Review of OH&S Performance

The Principal Contractor is required to maintain a Compensation Incidence Frequency Rate (CIFR) of at least 8 (Refer Annexure 3 - "Measuring Injury Experience") and to report on this to the Client on a monthly basis.

Identification of Hazards and Development of Risk Assessments, Standard Working Procedures (SWP) and Method Statements

The Principal Contractor is required to develop Risk Assessments, Standard Working Procedures (SWP) and Method Statements for each activity executed in the contract or project (Refer to Section 4. below “Project/Site Specific Requirements”)

Arrangements for Monitoring and Review

Monthly Audit by Client

The Client will be conducting a Monthly Audit to comply with Construction Regulation 4 (1) (d) to ensure that the Principal Contractor has implemented and is maintaining the agreed and approved OH&S Plan.

Other Audits and Inspections by Client

The Client reserves the right to conduct other ad hoc audits and inspections as deemed necessary.

A representative of the Principal Contractor must accompany the Client on all Audits and Inspections and may conduct his/her own audit/inspection at the same time. Each party will, however, take responsibility for the results of his/her own audit/inspection results.

1.6.3 Reports

The Principal Contractor is required to provide the Client with a monthly report in the format as per the attached Annexure 4: “SHE Risk Management Report”

The Principal Contractor must report all incidents where an employee is injured on duty to the extent that he/she:

- dies
- becomes unconscious
- loses a limb or part of a limb

is injured or becomes ill to such a degree that he/she is likely either to die, or to suffer a permanent physical defect, or likely to be unable for a period of at least 14 days either to work or continue with the activity for which he/she was usually employed

or where:

- a major incident occurred
- the health or safety of any person was endangered
- where a dangerous substance was spilled
- the uncontrolled release of any substance under pressure took place
- machinery or any part of machinery fractured or failed resulting in flying, falling or uncontrolled moving objects
- machinery ran out of control

To the Provincial Director of the Department of Labour within seven days. (Section 24 of the General Administrative Regulation 8.). The Principal Contractor is required to provide the Client with copies of all statutory reports required in terms of the Act.

The Principal Contractor is required to provide the Client with copies of all internal and external accident/incident investigation reports including the reports contemplated in 3.9. below.

1.6.4 Review

The Principal Contractor is to review the Hazard Identification, Risk Assessments and SWP’s at each two weekly site inspection/meeting as the construction work develops and progresses and each time that changes are made to the designs, plans and construction methods and processes.

The Principal Contractor must provide the Client, other Contractors and all other concerned parties with copies of any changes, alterations or amendments.

Site Rules and Other Restrictions

Site OH&S Rules

The Principal Contractor must develop a set of site-specific OH&S rules that will be applied to regulate the OH&S aspects of the construction.

1.7.2. Security and Emergency Arrangements

The Principal Contractor must establish site access rules and implement and maintain these throughout the construction period.

Access control must include the rule that non-employees will not be allowed on site unaccompanied.

The Principal Contractor must develop a set of security rules and procedures and maintain these throughout the construction period.

The Principal Contractor must appoint a competent Emergency Controller who must develop emergency contingency plans for any emergency that may arise on site as indicated by the risk assessments. These must include a monthly practice/testing program for the plans e.g. January: trench collapse, February: flooding etc. and practiced/tested with all persons on site at the time, participating.

1.8 Training

The contents and syllabi of all training required by the Act and Regulations must be included in the Principal Contractor's OH&S Plan.

General Induction Training
All employees of the Principal and other Contractors to be in possession of proof of General Induction Training

Site Specific Induction Training

All employees of the Principal and other Contractors to be in possession of Site Specific OH&S Induction Training.

Other Training

All operators, drivers and users of construction vehicles, mobile plant and other equipment to be in possession of valid proof of training.

All employees in jobs requiring training in terms of the Act and Regulations to be in possession of valid proof of training.

OH&S TRAINING REQUIREMENTS: (AS REQUIRED BY THE CONSTRUCTION REGULATIONS AND AS INDICATED BY THE OH&S SPECIFICATION AND THE RISK ASSESSMENT/S):

- General Induction (Section 8 of the Act)
- Site/Job Specific Induction (also visitors) (Sections 8 & 9 of the Act)
- Site/Project Manager
- Construction Supervisor
- OH&S Representatives (Section 18 (3) of the Act)
- Training of the Appointees indicated in 3.1.1. & 3.1.2. above
- Operation of Cranes (Driven Machinery Regulations 18 (11))
- Operators and Drivers of Construction Vehicles & Mobile Plant (Construction Regulation 21)
- Basic Fire Prevention & Protection (Environmental Regulations 9 and Construction regulation 27)
- Basic First Aid (General Safety Regulations 3)
- Storekeeping Methods & Safe Stacking (Construction Regulation 26)
- Emergency, Security and Fire Co-ordinator

1.9. Accident and Incident Investigation

The Principal Contractor is responsible for the investigation of all accidents/incidents where employees and non-employees were injured to the extent that he/she had to be referred for medical treatment by a doctor, hospital or clinic. (General Administrative Regulation 9).

The results of the investigation to be entered into the Accident/Incident Register. (General Administrative Regulation 9)

The Principal Contractor is responsible for the investigation of all non-injury incidents as described in Section 24 (1) (b) & (c) of the Act and keeping a record of the results of such investigations including the steps taken to prevent similar accidents in future.

The Principal Contractor is responsible for the investigation of all road traffic accidents and keeping a record of the results of such investigations including the steps taken to prevent similar accidents in future.

OH & S Representatives and Committees

Designation of OH&S Representatives

Where the Principal Contractor employs more than 20 persons (including the employees of other contractors (sub-contractors) he has to appoint one OH&S Representative for every 50 employees or part thereof. General Administrative Regulation 6 requires that the appointment or election and subsequent designation of the OH&S Representative is executed in consultation with Employee Representatives or Employees. (Section 17 of the Act and General Administrative Regulation 6. & 7.)

OH & S Representatives have to be designated in writing and the designation must include the area of responsibility of the person and term of the designation.

Duties and Functions of the OH&S Representatives

The Principal Contractor must ensure that the designated OH&S Representatives conduct a minimum monthly inspection of their respective areas of responsibility using a checklist and report thereon to the Principal Contractor.
OH & S representatives must be included in accident/incident investigations.

OH & S representatives must attend all OH&S committee meetings.

1.10.3. Appointment of OH&S Committee

The Principal Contractor must establish an OH & S Committee consisting of all the designated OH&S Representatives together with a number of management representatives (this number is not to exceed the number of OH&S representatives on the committee) and a representative of the Client who shall act as the chairperson without a vote. The members of the OH&S committee must be appointed in writing.

THE OH&S COMMITTEE MUST MEET MINIMUM MONTHLY AND CONSIDER, AT LEAST, THE FOLLOWING AGENDA:

1) Opening and welcome
2) Present/Apologies/Absent
3) Minutes of previous meeting
4) Matters arising from the previous minutes.
5) OH&S Representatives Reports
6) Incident Reports & Investigations
7) Incident /Injury statistics
8) Other matters
9) Endorsement of Registers and the statutory documents by a representative of the Principal Contractor
10) Close/Next Meeting

PROJECT / SITE SPECIFIC REQUIREMENTS

The following is a list of specific activities and considerations that have been identified for the project and the construction site and for which Risk Assessments, Standard Working Procedures (SWP), management and control measures and Method Statements (where necessary) have to be developed by the Principal Contractor:
Clearing & Grubbing of the Area/Site

SITE ESTABLISHMENT INCLUDING:

- Office/s
- Secure/safe storage for materials, plant & equipment
- Ablutions
- Sheltered eating area
- Maintenance workshop
- Vehicle access to the site
- Dealing with existing structures (NB: the existing pipeline is also a structure.)
- Location of existing services
- Installation and maintenance of temporary construction electrical supply, lighting and equipment
- Adjacent land uses/surrounding property exposures
- Boundary and access control/Public Liability Exposures (NB: the Employer is also responsible for the OH&S of non-employees affected by his/her work activities.)

HEALTH RISKS ARISING FROM NEIGHBORING AS WELL AS OWN ACTIVITIES AND FROM THE ENVIRONMENT E.G. THREATS BY DOGS, BEES, SNAKES, LIGHTNING ETC.

- Exposure to noise
- Exposure to vibration
- Protection against dehydration and heat exhaustion
- Protection from wet & cold conditions
- Dealing with HIV/Aids and other diseases
- Use of Portable Electrical Equipment including
- Angle grinder
- Electrical drilling machine
- Skill saw
- Excavations including
- Ground/soil conditions
- Trenching
- Shoring
- Drainage of trench
- Welding including
- Arc Welding
- Gas welding
- Flame cutting
- Use of LP gas torches and appliances
- Loading & offloading of trucks
- Aggregate/sand and other materials delivery
- Manual and mechanical handling
- Lifting and lowering operations
- Driving & operation of construction vehicles and mobile plant including
- Trenching machine
- Excavator
- Bomag roller
- Plate compactor
- Front end loader
- Mobile cranes and the ancillary lifting tackle
- Parking of vehicles & mobile plant
- Towing of vehicles & mobile plant
- Use and storage of flammable liquids and other hazardous substances

- Layering and bedding of trench floor
- Installation of pipes in trench
- Pressure testing of pipeline
- Installing heat shrink joint sleeves
- Backfilling of trench
- Protection against flooding
- Gabion work
- Use of explosives
- Protection from overhead power lines
- As discovered by the Principal Contractor's hazard identification exercise
- As discovered from any inspections and audits conducted by the Client or by the Principal Contractor or any other Contractor on site
- As discovered from any accident/incident investigation.

Annexure 1: Safety Agreement
Annexure 2: Construction Occupational Health – Safety – Environment Audit System
Annexure 3: Guidelines for the development of a Health and Safety Plan.
Annexure 4: Guide to Risk Assessment

ANNEXURE 1

VICTOR KHANYE LOCAL MUNICIPALITY

TENDER NO: T/RSW02/MIG/P1/2023/2024
PANEL OF SERVICE PROVIDERS FOR TARRING/PAVING OF ROADS IN VICTOR KHANYE LOCAL MUNICIPALITY FOR 36 MONTHS
SAFETY AGREEMENT

MEMORANDUM OF AGREEMENT CONCLUDED BY AND BETWEEN:
VICTOR KHANYE LOCAL MUNICIPALITY
(HEREINAFTER REFERRED TO AS THE CLIENT)

herein represented by _____

in his capacity as _____

of the Client, he being duly authorized thereto

and

(hereinafter referred to as the Mandatory)

herein represented by _____

in his capacity as _____

of the Mandatory, he being duly authorized thereto

WHEREAS:

The Client and the mandatory entered into a written, alternatively oral agreement on the……..Day of ……20…….. in terms of which the Mandatory undertook to carry out the following work for the client , viz. (give a short description of the type of contract work to be done as well as the address where work will be done)

_____

_____

_____

*(The said contract work is hereinafter referred to as the **Work**)*

The Occupational Health and Safety Act, Act 85 of 1993 as amended (hereinafter referred to as **the Act**) contains amongst others certain provisions with regard to the health and safety of people at work and in connection with the usage of plant and machinery, as well as the protection of other persons than persons at work against hazards to health and safety that originates from or in connection with the activities of persons at work.

Section 37(2) of the Act makes provision for the exclusion by the parties, by way of a written agreement, of supposition and accompanying liability of the Client as stipulated in section 37(1) of the Act.

The parties have reached consensus with regard to the terms and conditions to which they agree in terms of the provisions of section 37(2) of the Act.

NOW THEREFOR THE PARTIES AGREE AS FOLLOWS

1. WRITTEN AGREEMENT

The parties herewith agree in terms of section 37(2) of the Act on the arrangements and procedures that must be followed to ensure compliance with the provisions of the Act by the Mandatory.

2. ACKNOWLEDGEMENT BY THE MANDATARY

The mandatory acknowledge herewith that he is fully acquainted with the contents of the Act, as well as with all regulations and SABS codes of practice that have been made in terms of section 43 of the Act.

3. UNDERTAKING BY MANDATARY

(a) The Mandatory hereby undertakes and binds himself to the Client to ensure prompt and strict compliance with the provisions of the Act and the said regulations as well as with the provisions included in this Safety Agreement at all times during the execution of the Works
(b) It is hereby recorded that the provisions of this Safety Agreement as set out hereinafter are in no way intended to restrict the duties of the Mandatory, nor to exempt the Mandatory from his obligation in accordance with the Act and the said regulations

4. PERSONAL PROTECTIVE EQUIPMENT

(a) It is compulsory to wear equipment for eye protection when working in an eye protection zone or where the Work requires eye protection.
(b) It is compulsory to wear safety helmets when working in a safety helmet zone or where the Work requires safety helmets.
(c) It is compulsory to wear hearing protection when working in a noise zone or where the Work requires hearing protection.
(d) The wearing of other protective clothing and equipment as prescribed by the Occupational Health and Safety Officer of the Client is compulsory.
(e) The Mandatory shall ensure that the statutory requirements are complied with at all times.

5. FENCING AND GENERAL MACHINERY PROTECTION

No shield or fencing may be removed from or be moved at any machinery or installation without written permission.

6. SCAFFOLDING, LADDERS, TOOLS, ET CETERA

The Mandatory without the written permission of the Client may use no equipment or tools that belong to the Client.

Except where agreed before hand the Mandatory shall provide enough tools and equipment to enable him to complete the Works and the Mandatory shall provide all storerooms, offices and eating halls that he may need. The Mandatory will be responsible for all his material on site.

In special case where the Client may lend equipment, tools or materials to the Mandatory, the Mandatory will use such equipment, tools and/or materials at his own risk and the Mandatory herewith indemnifies the Client against any liability of whichever nature or from any cause whatsoever, whether direct or indirect, that may arise from such usage.

7. SERVICES AND WORKING METHODS

The written permission of the Chief Executive/Town Clerk of the Client shall be obtained where any work which must be undertaken by the Mandatory is connected with a working process or machinery or any other service in connection therewith, or may possibly affect it, before he commences with such work.

Approval shall be obtained from the City Electrical Engineer of the Client before any equipment is connected to the electrical supply of the Client All equipment shall be isolated before any equipment is connected to the electrical supply of the Client.
It shall be isolated and be provided with earth leakage protection. Electrical machinery, portable electrical tools and portable lights must comply with the requirements of the applicable regulations.

Work permits must be issued in terms of the Occupational Health and Safety Act and Regulations when the nature of the work requires it. Permits must be issued by the relevant departmental head where necessary.

8. EXCAVATIONS

Written permission for excavations shall be obtained from the City Engineer of the Client and the Mandatory shall make sure of the existence and position of electrical cables, discharge pipes, gas lines, water conduits, et cetera before he commences with any excavation work.

All excavations and obstructions and/or any openings in platforms or floors shall be enclosed in a safe way and warning notices shall be erected to ensure absolute safety. An adequate number of red or orange caution lights shall be provided when it is dark or should bad light prevail.

The area surrounding excavations shall be kept in a safe, orderly and tidy condition. No walkways or workplaces.

Nobody may enter into any restricted area in which hazardous fumes or a shortage of oxygen exists without a permit giving permission to do so, issued by the head of the relevant department of the Client and until it has been certified safe for entrance by the Occupational Health and Safety Officer and the Health Inspector of the Client.

9. RESTRICTION TO WORKPLACE

Employees of the Mandatory shall be restricted to their workplaces except when they have to leave their area for work purposes or when they visit toilets.

10. SUBCONTRACTORS

The Mandatory shall ensure that all subcontractors receive a copy of this safety agreement and must ensure they comply with it.

11. OCCUPATIONAL HEALTH AND SAFETY OFFICER AND THE REPORTING OF ALL ACCIDENTS

The Occupational Health and Safety Officer of the Client is available for consultation and he will make periodical visits to the workplace of the Mandatory. Any hazardous occurrence or incident to the employees of the Mandatory that results in absence from work for a period longer than three days shall be reported in writing to the Occupational Health and Safety Officer of the Client within forty eight hours as well as to the Department of Labour as specified by the Act. Every user, employer, occupier, builder or excavator must, under this Act, keep record of all accidents that occur.

In the case of an accident that results in loss of life, nobody may disturb the scene of the accident or any articles involved in the accident prior to the arrival of the Occupational Health and Safety Officer and the Inspector, unless it is to prevent another accident from happening or the prevention of loss of life or to remove corpses.

The Occupational Health and Safety Officer will issue contravention notices to the Mandatory or a sub contractor when there is a non compliance and will specify the time in which it must be rectified.

The Occupational Health and Safety Officer will issue work stop notices to the Mandatory or sub contractor whenever he is of the opinion that the health and safety of any person at work is threatened or that the contravention notices are not adhered to.

12. FIRST AID

Where five or more persons are employed at a workplace, the Mandatory shall provide and maintain an adequately equipped first-aid box that meets the following requirements:

(a) Every first-aid box shall contain the minimum contents as prescribed by the Occupational Health and Safety Act.

(b) Nothing except articles and equipment required for first-aid purposes may be kept in the first-aid box.

(c) Each first-aid box shall be kept in a place readily accessible in case of an accident.
All first-aid boxes shall be placed under control of a responsible person except where five or less persons are at work. The responsible person must be in the possession of a valid first-aid certificate issued by one of the following organizations:

A South-African Red Cross Society
B St. John's Ambulance Foundation
C South-African First-Aid League

A notice indicating where the first-aid box is kept as well as the name of the person in charge shall be affixed in a conspicuous place. The first-aid facilities of the Client may be used during emergencies.

13. FIRE PREVENTION MEASURES AND STORAGE OF FLAMMABLE MATERIAL

The Fire department of the Client shall be notified before any welding, oxyacetylene welding, cutting, burning of paint or tar from floors or roofs is undertaken so that the necessary fire prevention measures can be arranged. All "NO SMOKING AND OPEN SURFACE FIRES/LIGHTS PROHIBITED" notices shall be adhered to. The Mandatory and his senior employee shall acquaint themselves and their fellow workers with the fire prevention measures of the Client, which will also include fire alarm notices and exits in case of fire, and they shall ensure that these rules are strictly complied with.

14. COMPLETION OF WORK

Before the mandatory or his sub-contractors leaves the site they shall inform the Head of the relevant Department of the Client and obtain his/her written approval that the work has been completed satisfactory and that the site of the work is left in a good condition.

15. SALVAGED MATERIAL AND EQUIPMENT

Any building demolished or equipment or materials that are salvaged whilst carrying out the work shall remain the property of the Client, unless the contract specifically provides otherwise.

16. BREAKING OF THESE RULES AND POOR CONDUCT

The Mandatory is warned that no behavior that causes danger to their own employees, to the employees of the Client or general public will be tolerated. The Occupational Health and Safety Officer of the Client reserves the right of the withdrawal of any employees of the Mandatory or Client from the premises in the case of any default or breach of the agreement and to order that the completion of the work be stayed, pending compliance with this agreement; alternatively to cancel the agreement referred to in par.2 in which event the Client will be entitled to appoint an alternative contractor to complete the work and recover the costs thereof from the mandatory, without prejudice to any alternative or additional right or action or remedy to the Client, to recover from the mandatory damages for the default or breach and the cancellation.

The senior employees of the Mandatory shall sign a note of acknowledgement of this safety agreement to certify that they have received the regulations as included herein and that they understand the regulations.

17. INTOXICATION

Nobody that is in a state of intoxication or that is in any other condition that causes or may cause his/her incapability to control him/herself or persons under his control may and shall not be permitted on the premises of the Client. The Occupational Health and Safety Officer of the Client reserves the right to the withdrawal of any employees of the Mandatory or Client from the premises in the case of any transgression of this nature.

18. CONFIDENTIALLY

The Mandatory shall at all times treat data and information that have been made known to him or that he requires in connection with his work from the Client as confidential and he may not make unauthorized use thereof. He must also ensure that such data and information are not communicated to anybody else that is not an employee of the Mandatory without obtaining prior written approval from the Client and he must further ensure that such persons do in fact know that the said information is confidential and that they are obliged to treat it as such.

The Mandatory shall provide for adequate physical protection for any confidential documents, sketches, et cetera that he receives from the Client in connection with the work as well as for any copies thereof that he makes. He shall hand back all documents sketches and copies thereof to the Client upon completion of the work, or earlier, if so requested by the Client. The Mandatory shall inform the Client immediately should any such documents or sketches become lost.

19. INDEMNIFICATION BY THE MANDATORY

<u>The following conditions will be applicable to the Mandatory:</u>

(a) The Mandatory is liable and herewith indemnifies the Client irrevocably and in full against any claim for loss or damage to property or arising from death or injury of any person and any associated loss or damage suffered, and against all lawsuits, claims, demands, costs, expenses, and charges that may arise when the said occurrences are caused on purpose or through the negligence, violation of legal obligations or failure by the Mandatory or its employees.

(b) Whenever any of the employees of the Client is busy with work to, or with the supply of material that will be used during the execution of the work by the Mandatory, or otherwise busy with work under the instruction and supervision of the Mandatory, in as far as they may be negligent or fail to do there duty, they will be regarded as employees of the mandatory

(c) All installations, equipment, hoisting-apparatus and other implements, scaffolding, ladders, material, et cetera that are borrowed from the Client by the Mandatory for usage during the execution of the work, will be used entirely at the risk of the Mandatory or employees of the Mandatory and the Mandatory herewith indemnifies the Client irrevocably and in full against any liability that may arise from such usage.

20. AMENDMENTS MUST BE IN WRITING

The parties agree herewith that this safety agreement is the only safety agreement between them and that no amendment thereof will be valid unless it is in writing and signed by both parties.

20. JURISDICTION AND LEGAL COSTS

In the event of any legal action being instituted pertaining to the this agreement the party in default or breach will be liable for the other party’s legal costs on the scale as between attorney and own client and the parties consent to the jurisdiction of the magistrate’s court for purpose of any legal action being instituted.

PARTICULARS OF THE MANDATORY

Name (Mandatory) _____

C.E.O. (Section 16(1)) _____

ID NO. : _____

Designation: _____

Name of Business_____

Address of Business :

_____

_____

Tel number (h)_____(w) _____ e-m ail _____

Number of employees employed _____

Registration number as allocated to the Mandatory by the Workman's Compensation

Commissioner _____

Date allocated _____

Thus done and signed on this _____day of_____20 _____

As witnesses:

_____ (Signature) _____(Name in print)

_____ (Signature) _____(Name in print)

_____ (Signature) _____ (Name in print)

THE MANDATORY

Thus done and signed on this day of_____20_____

As witnesses

_____ (Signature) _____(Name in print)

_____ (Signature) _____(Name in print)

_____(Signature) _____(Name in print)

THE CLIENT

Acknowledgement of receipt of the agreement:

_____

THE MANDATORY

ANNEXURE 2

CONSTRUCTION OCCUPATIONAL HEALTH - SAFETY - ENVIRONMENT
AUDIT SYSTEM
(Based on the New Construction Regulations)

**** Denotes items applicable to both Construction sites and Contractors Plant/Storage***

1. ADMINISTRATIVE & LEGAL REQUIREMENTS

Section/Regulation	*Subject*	*Requirements*	*Yes/No*
Construction. Regulation 3	Notice of carrying out Construction work	Department of Labour notified Copy of Notice available on Site	
General Admin. Regulation 3	*Copy of OH&S Act (Act 85 of 1993)	Updated copy of Act & Regulations on site Readily available for perusal by employees	
COID Act Section 80	*Registration with Compels. Insurer	Written proof of registration / Letter of good standing available on Site	
Construction. Regulation 4 & 5(1)	OH&S Specification & Plan	OH&S Specification received from Client OH&S plan developed Updated regularly	
Section 8(2)(d) and Construction. Regulation 6	*Hazard Identification & Risk Assessment	Hazard Identification carried out/Recorded Risk Assessment and Plan drawn up/Updated Risk Assessment Plan available on Site Employees/Subcontractors informed/trained	
Section 16(2)	*Assigned duties (Managers)	Responsibility of complying with the OH&S Act assigned to other person/s by CEO.	
Construction. Regulation 5(2)	Designation of Person Responsible on Site	Competent person appointed in writing as Construction Supervisor	
Construction. Regulation 5(5)(a)	Designation of Subordinate Person	Competent person appointed in writing as Sub-ordinate Construction Supervisor	
Section 17 & 18	*Designation of Occupational Health & Safety Representatives	More than 20 employees - one OH&S Representative, one additional OH&S Rep. for each 50 employees or part thereof. Designation in writing, period and area of responsibility specified. Meaningful OH&S Rep. reports. Reports actioned by Management.	
Section 19 & 20	*Occupational Health & Safety Committee/s	OH&S Committee/s established. Members appointed in writing. Meetings held monthly. Minutes kept. Actioned by Management.	

Section/Regulation	***Subject***	***Requirements***	***Yes/ No***
Section 37	*Agreement with Mandatories (Sub-Contractors)	Written agreement with Subcontractors. List of Subcontractors displayed. Proof of Registration with Compensation Insurer/Letter of Good Standing Construction Work Supervisor designated Written arrangements concerning OH&S Reps & OH&S Committee Written arrangements regarding First Aid	
Construction. Regulation 7	Fall Prevention & Protection	Competent person appointed to draw up and supervise the Fall Protection Plan Proof of appointees competence available on Site Risk Assessment carried out for work at heights Fall Protection Plan drawn up/updated Available on Site	
Construction. Regulation 8	Roofwork	Competent person appointed to plan & supervise Roofwork. Proof of appointees competence available on Site Risk Assessment carried out Roofwork Plan drawn up/updated Roofwork inspect before each shift. Inspection register kept Employees medically examined for physical & psychological fitness. Written proof available	
Construction. Regulation 9	Structures	Information re. the structure being erected received from the Designer including: - geo-science technical report where relevant - the design loading of the structure - the methods & sequence of construction - anticipated dangers/hazards/special Measures to construct safely Risk Assessment carried out Method statement drawn up All above available on Site Structures inspected before each shift. Inspections register kept	
Construction. Regulation 10	Formwork & Support work	Competent person appointed in writing to supervise erection, maintenance, use and dismantling of Support & Formwork Design drawings available on site Risk Assessment carried out Support & Formwork inspected: - before use/inspection - before pouring of concrete - weekly whilst in place - before stripping/dismantling. Inspection register kept	

Section/Regulation	*Subject*	*Requirements*	*Yes/No*
Construction. Regulation 11	Scaffolding	Competent persons appointed in writing to: - erect scaffolding (Scaffold Erector/s) - act as Scaffold Team Leaders - inspect Scaffolding weekly and after inclement weather (Scaffold Inspector/s) Written Proof of Competence of above appointees available on Site Copy of SABS 085 available on Site Risk Assessment carried out Inspected weekly/after bad weather. Inspection register/s kept	
Construction. Regulation 12	Suspended Scaffolding	Competent persons appointed in writing to: - erect Susp.scaffolding (Scaffold Erector/s) - act as Susp.Scaffold Team Leaders - inspect Susp.Scaffolding weekly and after inclement weather (Scaffold Inspector/s) Risk Assessment conducted Certificate of Authorization issued by a registered professional engineer available on Site/copy forwarded to the Department of Labour The following inspections of the whole installation carried out by a competent person - after erection and before use - daily prior to use. Inspection register kept The following tests to be conducted by a competent person: - load test of whole installation and working parts every 12 months - hoisting ropes/hooks/load attaching devices quarterly. Tests log book kept Employees working on Susp.Scaffold medically examined for physical & psychological fitness. Written proof available	
Construction. Regulation 13	Excavations	Competent person/s appointed in writing to supervise and inspect excavation work Written Proof of Competence of above appointee/s available on Site Risk Assessment carried out Inspected: - before every shift - after any blasting - after an unexpected fall of ground - after any substantial damage to the shoring - after rain. Inspections register kept Method statement developed where explosives will be/ are used	
Constructions . Regulation 14	Demolition Work	Competent person/s appointed in writing to supervise and control Demolition work Written Proof of Competence of above appointee/s available on Site Risk Assessment carried out Engineering survey and Method Statement available on Site Inspections to prevent premature collapse carried out by competent person before each shift.	

Section/Regulation	*Subject*	*Requirements*	*Yes/No*
		Inspection register kept	
Construction. Regulation 16	Materials Hoist	Competent person appointed in writing to inspect the Material Hoist Written Proof of Competence of above appointee available on Site. Materials Hoist to be inspected weekly by a competent person. Inspections register kept.	
Construction. Regulation 17	Caissons & Coffer dams	Competent person appointed in writing to supervise, control & inspect the construction, installation/dismantling of caissons/coffer dams Written Proof of Competence of above appointee available on Site Risk Assessment carried out To be inspected daily by a competent person. Inspections register kept	
Construction. Regulation 18	Explosive Powered Tools	Competent person appointed to control the issue of the Explosive Powered Tools & cartridges and the service, maintenance and cleaning. Register kept of above Empty cartridge cases/nails/fixing bolts returns recorded Cleaned daily after use	
Construction. Regulation 19	Batch Plants	Competent person appointed to control the operation of the Batch Plant and the service, maintenance and cleaning. Register kept of above Risk Assessment carried out Batch Plant to be inspected weekly by a competent person. Inspections register kept	
Construction. Regulation 20/ Mine Health & Safety Act (29 of 1996)	Tunneling	Complying with Mines Health & Safety Act (29 of 1996) Risk Assessment carried out	
Construction. Regulation 21/ Driven Machinery Regulations 18 & 19	Cranes & Lifting Machines Equipment	Competent person appointed in writing to inspect Cranes, Lifting Machines & Equipment Written Proof of Competence of above appointee available on Site. Cranes & Lifting tackle identified/numbered Register kept for Lifting Tackle Log Book kept for each individual Crane Inspection: - All cranes - **daily by operator** - Tower Crane/s – **after erection/6monthly** - Other cranes – **annually by comp. person** - Lifting tackle(slings/ropes/chain slings etc.) - **3 monthly** Risk Assessment carried out	
Construction. Regulation 22/Electrical Machinery Regulations 9 &	*Inspection & Maintenance of Electrical Installation & Equipment (including portable electrical tools)	Competent person appointed in writing to inspect/test the installation and equipment. Written Proof of Competence of above appointee available on Site. Inspections:	

Section/Regulation	*Subject*	*Requirements*	*Yes/No*
10/Electrical Installation Regulations		- Electrical Installation & equipment inspected after installation, after alterations and quarterly. Inspection Registers kept Portable electric tools and -lights and extension leads identified/numbered. Monthly visual inspection by User/Issuer/ Storeman. Register kept.	
Construction. Regulation 2 Diving Regulations	Water Environments	Competent person appointed in writing to supervise diving operations and ensure maintenance, statutory inspection and testing by an Approved Inspection Authority of equipment used Written Proof of Competence of above appointee available on Site Proof of registration of all divers present on site available Risk Assessment carried out Diving Manual produced. Available on Site Record of Voice Communications kept Diving Operations record kept Each Diver keeps a personal logbook. Entries countersigned by the Diving Supervisor Decompression tables available on Site Records of any Decompression illness kept Certificate of Manufacture of any Compression Chamber or Diving Bell in use available on Site	
Construction. Regulation 30/ General Safety Regulation 8(1)(a)	*Designation of Stacking & Storage Supervisor.	Competent Person/s with specific knowledge and experience designated to supervise all Stacking & Storage Written Proof of Competence of above appointee available on Site	
Construction. Regulation 31/ Environmental Regulation 9	*Designation of a Person to Co-ordinate Emergency Planning And Fire Protection	Person/s with specific knowledge and experience designated to co-ordinate emergency contingency planning and execution and fire prevention measures Emergency Evacuation Plan developed: - Drilled/Practiced - Plan & Records of Drills/Practices available on Site Fire Risk Assessment carried out All Fire Extinguishing Equipment identified and on register. Inspected weekly. Inspection Register kept Serviced annually	
Construction. Regulation 32/ General Safety Regulation 3	*First Aid	Every workplace provided with sufficient number of First Aid boxes. (Required where 5 persons or more are employed) First Aid freely available Equipment as per the list in the OH&S Act. One qualified First Aider appointed for every 50 employees. (Required where more than 10 persons are employed) List of First Aiders and Certificates	

Section/Regulation	*Subject*	*Requirements*	*Yes/No*
		Name of person/s in charge of First Aid box/es displayed. Location of F/Aid box/es clearly indicated. Signs instructing employees to report all Injuries/illness including first aid injuries	
Construction. Regulation 33/ General Safety Regulation 2	Personal Safety Equipment (PSE)	PSE Risk Assessment carried out Items of PSE prescribed/use enforced Records of Issue kept Undertaking by Employee to use/wear PSE	
Construction. Regulation 34/ General Safety Regulation 9	*Inspection & Use of Welding/Flame Cutting Equipment	Competent Person/s with specific knowledge and experience designated to Inspect Electric Arc, Gas Welding and Flame Cutting Equipment Written Proof of Competence of above appointee available on Site Equipment identified/numbered and entered into a register Equipment inspected monthly. Inspection Register kept	
Construction. Regulation 35/ Hazardous Chemical Substances **(HCS)**	*Control of Storage & Usage of HCS	Competent Person/s with specific knowledge and experience designated to Control the Storage & Usage of **HCS** Written Proof of Competence of above appointee available on Site Risk Assessment carried out Register of HCS kept/used on Site	
Construction. Regulation 36/Vessels under Pressure Regulations	Vessels under Pressure (VUP)	Competent Person/s with specific knowledge and experience designated to supervise the use, storage, maintenance, statutory inspections & testing of VUP's Written Proof of Competence of above appointee available on Site Risk Assessment carried out Certificates of Manufacture available on Site Register of VUP's on Site Inspections & Testing by Approved Inspection Authority (AIA): - after installation/re-erection or repairs - every 36 months. - Register/Log kept of inspections, tests. Modifications & repair	
Construction. Regulation 37	Construction Vehicles & Earth Moving Equipment	Operators/Drivers appointed to: - Carry out a daily inspection prior to use - Drive the vehicle/plant that he/she is competent to operate/drive Written Proof of Competence of above appointee available on Site Record of Daily inspections kept	
Construction. Regulation 38/	*Inspection of Ladders	Competent person appointed in writing to inspect Ladders	

Section/Regulation	***Subject***	***Requirements***	***Yes/No***
General Safety Regulation 13D		Ladders inspected at arrival on site and monthly there after . Inspections register kept	
Construction. Regulation 39/ General Safety regulation 13B	Ramps	Competent person appointed in writing to Supervise the erection & inspection of Ramps. Inspection register kept.	

ANNEXURE 2

GUIDELINES FOR THE DEVELOPMENT OF A HEALTH & SAFETY PLAN

1. PROJECT BACKGROUND

In terms of the Construction Regulations [Regulation 4 (1) (a)] of the Occupational Health and Safety Act, No 85 of 1993, the Client is required to compile an Occupational Health and Safety specification for each of its projects and the Principle Contractor, appointed by the Client in terms of Regulation 4 (1) (c), is required to prepare an Occupational Health and Safety Plan. This plan has to be prepared in terms of Regulation 5 (1) as well as the Client's Occupational Health & Safety Specification. In terms of Regulation 4 (2), the Client and the Principle Contractor are required to agree on the Occupational Health and Safety Plan before any work may commence.

2. FRAMEWORK FOR AN OCCUPATIONAL HEALTH AND SAFETY PLAN

2.1 INTRODUCTION

The Principal Contractor has to demonstrate to the Client that he has a suitable and sufficiently documented Occupational Health and Safety Plan as well as the necessary competencies, experience and resources to perform the construction work safely. The Principle Contractor could be required to submit the following documentation for perusal and verification by the Client:

- *Management Structure*
- *Quality Plan*
- *Human Resources Plan*
- *Registered Workplace Skills Plan*
- *"Letter of good standing" from the Compensation Commissioner or licensed compensation insurer.*
- *Proof of induction and other training of employees*
- *Example copy minutes of previous Occupational Health and Safety Committee meetings and copies of Incident Investigation Reports*

2.2 CONTENTS OF AN OCCUPATIONAL HEALTH AND SAFETY PLAN

2.2.1 Occupational Health and Safety Management Program

- Management of Occupational Health and Safety risks
- Occupational Health and Safety structures and appointments
- Program of Occupational Health and Safety inspections
- Occupational Health and Safety Representatives
- Occupational Health and Safety committee

2.2.2 Communication and Management of the Work

- Management structure and responsibilities
- Occupational Health and Safety goals for the project and arrangements for monitoring and review of Occupational Health and Safety performance.
- **Arrangements for:**
  - Regular liaison between parties on site
  - Consultation with the workforce
    - The exchange of design information between the Client, engineer, supervisors and contractors on site

- Handling design changes during the project
- Selection and control of contractors
- The exchange of Occupational Health and Safety information between all contractors
- Security
- Site induction and onsite training
- Facilities and first-aid
- The reporting and investigation of accidents and incidents
- The production and approval of risk assessments and method statements
- Site OH&S rules
- Fire and emergency procedures
- Reporting to the Client i.e. results of Occupational Health and Safety inspections, incident
- and incident investigations and committee meetings
- Reporting of incidents to the Department of Labour and Compensation insurer where appropriate

2.2.3 Arrangements for controlling significant site risks

The following are some examples of the arrangements for controlling the most significant site risks:

- **SAFETY RISKS**
  - Services, including temporary electrical installations
  - Preventing employees from falling into excavations, from trucks etc.
  - Work with, on or near fragile materials
  - Control of lifting operations
  - The maintenance of plant and equipment
  - Poor ground conditions
  - Traffic routes and segregation of vehicles and pedestrians
  - Storage of hazardous materials
  - Dealing with existing unstable structures/land
  - Accommodating adjacent land use
  - Other significant safety risks as and when identified
- **HEALTH RISKS**
  - Storage and use of hazardous chemical substances
  - Dealing with contaminated land or material
  - Manual handling
  - Reducing noise and vibration
  - Provision of adequate lighting
  - Ventilation considerations
  - Extreme heat and cold temperature considerations
  - Dealing with HIV/Aids and other illnesses
  - Provision of and maintaining ablution and eating facilities
  - Other significant health risks as and when identified

2.2.4 Preparation of an Occupational Health and Safety Operational Reference File/Manual

THE FOLLOWING ARE SOME OF THE REQUIREMENTS TO BE ADDRESSED:

- Layout, format and content requirements
- Arrangement for the collection and gathering of information
- Storage and archiving of all the information
- Copy to the Client at completion of project

SUGGESTED CONTENTS OF AN OH&S FILE/MANUAL

- OH&S Policy
- Notice of new project
- Site start-up
- Security measures
- Written designations & appointments
- Arrangements with contractors/mandatories
- OH&S rules and procedures
- Induction
- OH&S training
- OH&S promotion
- OH&S representatives
- OH&S committees
- Workplace facilities e.g. ablutions, sheltered eating areas etc.
- Protective equipment
- Workplace inspections and audits
- Investigation & reporting of incidents/accidents
- Mechanical safeguarding
- Electrical safeguarding
- Safeguarding against hazardous substances
- Lifting machinery & equipment
- Construction vehicles & mobile plant
- Welding, heating & flame cutting
- Excavations
- Protection of the environment affected by construction activities
- Keeping of records in terms of the OH&S Act (85 of 1993)

ANNEXURE 3

GUIDE TO RISK ASSESSMENT

1. HOW TO DO IT?

2. STEPS TO EFFECTIVE RISK ASSESSMENT

Step 1 : Identifying the hazards

Step 2 : Aim to identify major hazards, don't waste time on the minor & detail

Step 3 : Involve as many people as possible in the process especially those at risk

Step 4 : Gather all the information and analyze it

Step 5 : Look at what actually occurs including non-routine operations

Step 6 : Use a systematic approach to ensure all hazards are adequately addressed

Step 7 : Assess the risks arising taking into account the effectiveness of controls

Step 8 : Ensure the process is practical and realistic

Step 9 : Always record the assessment in writing including assumptions and why

3. HOW SERIOUS IS IT?

PROBABILITY

	CONSEQUENCES
A Common	1 Fatality or permanent disability
B Has Happened	2 Major injury
C Could Happen	3 Average Lost Time Injury
D Not Likely	4 Minor Injury
E Practically impossible	5 Medical Treatment or less

CONSEQUENCES	PROBABILITY A	B	C	D	E
1	1	2	3	4	5
2	2	3	4	5	6
3	3	4	5	6	7
4	4	5	6	7	8
5	5	6	7	8	9

Risk Rating:			***ACTION***
	1 – 3 =	Serious	Immediate (within 1 week)
	4 - 5 =	High	Within 1 month
	6 – 7 =	Moderate	> 4 weeks
	8 – 9 =	Acceptable	No action

ANNEXURE B

Pro-forma agreement in terms of Occupational Health and Safety Act

PRO-FORMA AGREEMENT IN TERMS OF

OCCUPATIONAL HEALTH AND SAFETY ACT 1993 – SECTION 37 (2)

NEW CONSTRUCTION SAFETY REGULATIONS

The above-mentioned regulations were promulgated in the Govt. Gazette on Friday, 18 July 2003 under the Occupational Health & Safety Act (85 of 1993) and are now in force.

The Employer and the Contractor hereby agree, in terms of the provisions of Section 37(2) of the Occupational Health and Safety Act 1993 (Act 85 of 1993, hereinafter referred to as the Act), that the following arrangements and procedures shall apply between them to ensure compliance by the Contractor with the provisions of the Act, namely:

(a) The Contractor undertakes to acquaint the appropriate officials and employees of the Contractor with all the relevant provisions of the Act and the regulations promulgated in terms of the Act, and the Employer's Health and Safety Specifications included in the contract documents.

(b) The Contractor undertakes that all relevant duties, obligations and prohibitions imposed in terms of the Act and Regulations and the Employer's Health and Safety Specifications included in the contract documents will be complied with in all respects.

(c) In relation to any work or activity performed by the Contractor, his workmen or any other person for whose acts or omissions the Contractor is responsible in terms of the Contract, the Contractor hereby accepts sole liability for such due compliance with the relevant duties, obligations and prohibitions imposed by the Act and Regulations and expressly absolves the Employer from itself being obliged to comply with any of the aforesaid duties, obligations and prohibitions.

(d) The Contractor agrees that any duly authorised officials of the Employer shall be entitled, although not obliged, to take such steps as may be necessary to ensure that the Contractor has complied with his undertakings as set out more fully in paragraphs (a) and (b) above, which steps may include, but will not be limited to, the right to inspect any appropriate site or premises occupied by the Contractor, or to inspect any appropriate records held by the Contractor.

(e) The Contractor shall be obliged to report forthwith in writing to the Representative/Agent full details of any investigation, complaint or criminal charge which may arise as a consequence of the provisions of the Act and Regulations, pursuant to work performed in terms of this Contract.

(f) Forward "safety meeting" minutes to the representative/Agent.

For the Employer: _____ Date: _____

Witnesses: 1) :_____ 2)_____

For the Contractor:_____ Date:_____

Witnesses: 1) :_____ 2) _____

ANNEXURE C

Notification of construction work

NOTIFICATION OF CONSTRUCTION WORK
(Regulation 3 of the Construction Regulations, 2003)

1. CONTRACTOR

1.1 Name and postal address of Contractor :

_____
_____
_____

1.2 Name and telephone number of Contractor's contact person :

_____

1.3 Contractor's compensation registration number :

_____

1.4 Name and telephone number of Contractor's Construction Supervisor :

_____

1.5 Physical address of the construction site or site office:

_____
_____
_____

1.5 Estimated number of persons on the construction site :

_____

1.6 Estimated number of Subcontractors on the construction site accountable to the Contractor :

_____

2. EMPLOYER

2.1 Name and postal address of Employer :

_____
_____
_____

2.2 Name and telephone number of Employer's Principal

Agent:_____

3. DESIGN CONSULTANTS

3.1 Name and postal address of design consultants:

3.1.1 Construction project managers:

_____
_____
_____

3.1.2 Architects:

_____
_____
_____

3.1.3 Structural engineer :

_____
_____
_____

3.1.4 Electrical engineer:

_____
_____
_____

3.1.5 Mechanical engineer :

_____
_____
_____

3.1.6 Civil engineer :

_____
_____
_____

3.1.7 Security engineer

_____
_____
_____

3.1.8 Other (if any) : _____
_____
_____

3.2 Name and telephone number of design consultant's contact person :

3.2.1 Construction project managers :

_____

3.2.2 Architects :

_____

3.2.3 Structural engineer :

_____

3.2.4 Electrical engineer :

_____

3.2.5 Mechanical engineer :

_____

3.2.6 Civil engineer :

_____

3.2.7 Security engineer :

_____

3.2.8 Other (if any) :

_____

4. THE WORKS

Nature of the works :

_____
_____
_____

Commencement date :

_____

Completion date :

_____

Contractor:_____ Date: _____

Employer:_____ Date: _____

THIS DOCUMENT IS TO BE FORWARDED TO THE OFFICE OF THE DEPARTMENT OF LABOUR **PRIOR TO COMMENCEMENT** OF WORK ON SITE.

ALL CONTRACTORS THAT QUALIFY TO NOTIFY MUST DO SO EVEN IF ANOTHER CONTRACTOR ON THE SITE HAD DONE SO PRIOR TO THE COMMENCEMENT OF WORK.

ANNEXURE D

Pro-forma Contract between Contractor and Worker

SPECIAL PUBLIC WORKS PROGRAMS

CONTRACT OF EMPLOYMENT BETWEEN

CONTRACTOR
Name:
Address:
ID:

AND

WORKER
Name:
Details
ID:

I am pleased to confirm that you have been appointed to work on a task based employment contract within a Special Public Works Program (SPWP) project. Within this contract you will undertake numerous groups of tasks.

This contract must be read in conjunction with the standard terms and conditions of employment on SPWP attached.

The project where you will be employed is located at …….

The contract will start on …….

You must be aware that this contract is a limited term contract and not a permanent job. The contract may be terminated for one of the following reasons:

a) If the contractor does not get additional contracts from the SPWP.
b) Funding for the program in your area comes to an end.
c) You repeatedly do not perform in terms of the tasks set out in your work program.

6 You will be employed as a …… within the team.

7 While you are working you will report to ……

8 Payment

a) You will be paid a fixed amount of R…… for completing a fixed amount of work .
b) The amount of work required for the agreed rate of pay will vary from task to task. You will be informed at the beginning of each task or group of tasks how much work you are expected to complete per day.
c) You will only be paid for work completed.
d) You will be paid the amount for the number of days quoted in the contract even if you finish the work before the time or after the estimated date of completion.
e) A contractor must pay you the production bonus (the extra days if the work is finished early) if you have completed your share of tasks.
f) The contractor will be paid within 30 days after the work is completed. You will be paid within 5 days of the contractor being paid.

9 In addition to the conditions above all the terms and conditions of employment on SPWP apply to your employment. If you breach any of these terms you contract may be terminated.

10 Signatures:

Signed on this day …… of …….. 201...

Contractor: …….. Date: ……

Worker:…….. Date. ……..

Witness: …….. Date: ……..

ANNEXURE E

Pro-forma Attendance Register

EXPANDED PUBLIC WORKS PROGRAMME - POVERTY RELIEF PROJECT

CONTRACTOR'S PERSON-DAYS, TRAINING AND ATTENDANCE REGISTER

PARK:		MONTH:	
PROJECT:		CONTRACTOR:	

		ATTENDANCE																													A	B	C							D		
NAME	ID NUMBER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	PERSON-DAYS	TRAINING DAYS	TOTAL DAYS	CATEGORY	MALE	FEMALE	YOUTH	DISABLED	LOCAL COMM	WAGES PER DAY	PAYMENT (C x	SIGNATURE
																																												0	

ANNEXURE F

Contract Person Days Calculation Format

CONTRACT MAN / DAYS CALCULATION FORMAT

This calculation must be in accordance with the attached Special Public Works Program (SPWP) (ANNEXURE G).

The labour value of the contract must be equal to a minimum of 30% of your contract tendered sum.

You will be allowed to use the following values in order to calculate the minimum Man / day requirements: (In Lieu of the R35-00 minimum labour rate per day as specified)

80% General Labour at R50-00 per day
10% Skilled Labour at R80-00 per day
10% Supervisory Labour at R120-00 per day

The Man / days will be calculated as follows:

30% of the Contract sum = Minimum Labour Value.

a) General Labour
80% of Labour value divided by R50-00 per day = Labour Man / days.

b) Skilled Labour
10% of Labour value divided by R80-00 per day = Skilled Man / days.

c) Supervisory Labour
10% of Labour value divided by R120-00 per day = Supervisory Man / days.

d) Total Man / days
Total Man / days for the duration of the contract = a + b + c

Example

Say your tender sum equal R1, 000,000-00

R1, 000,000-00 x 30% = R300, 000-00 (Minimum Labour Value)

a)	Labour R300, 000-00 x 80% / R50-00 =	4800 Labour Man / days
a)	Skilled R300, 000-00 x 10% / R80-00 =	375 Skilled Man / days
b)	Supervisory R300, 000-00 x 10% / R120 =	250 Supervisory Man / days.
	Total Man / days	5425 Man / days

ANNEXURE G

Contractor’s monthly report format

CONTRACTOR'S MONTHLY REPORT

Part 1

Tender number:	**T/RSW02/MIG/P1/2023/2024C**
Project name:	TARRING/PAVING OF ROADS IN VICTOR KHANYE LOCAL MUNICIPALITY
Project description:	BOTLENG ROAD 1 AND 2
Contract number:	**T/RSW02/MIG/P1/2023/2024C**
Name of Contractor:	
Payment certificate number:	
For month ending:	
Date of report:	

The Contractor's monthly report comprises an integral part of the Contractor's payment certificate and must be submitted together with the payment claim. The payment certificate will not be processed without this signed report, i.e. "NO REPORT – NO PAYMENT".

Attachments:

Part 2: Overall Project Worker Schedule: Schedule of all local labourers employed since the start of the project

Part 3: Weekly Task Wage Register

Part 4: Local Labour Schedule

Part 2

OVERALL PROJECT WORKER SCHEDULE (local labourers only)

Sheet: ...

Names of all Local Workers employed at any time on the project are to be entered in the table below irrespective of how long they worked on the project.

No.	Name of local worker	Identity number	Month worker started	Age of worker	Age (tick applicable column)			
					Woman		Man	
					Over 35 years 2A	35 years & under 2B	Over 35 years 2C	35 years & under 2D
Totals for this sheet								
Totals brought forward from previous sheet								
Totals carried forward to next sheet								

Total number of workers employed =

Completed by:

....

signed *initials and surname*

....

capacity *date*

Part 3

WEEKLY TASK WAGE REGISTER (local labourers only)

Sheet: ..

Entries in this portion to be completed by Foreman									*Entries in this portion to be Completed by Contractor*				
No.		**Day Tasks Worked**							**Payment**				
		M	**T**	**W**	**T**	**F**	**S**	**S**	**Total DAY TASKS worked this week**	**Rate per DAY TASK**	**Total payment due to worker**	**Workers signature on receipt of payment**	**Date payment received by worker**
Totals for this sheet													
Totals brought forward from previous sheet													
Totals carried forward to next sheet													

3(A) 3(B)

Completed by:

....

signed *initials and surname* *capacity* *date*

Part 4

LOCAL LABOUR AND SUPPLIER SCHEDULE

1. Summary of day tasks worked and amount spent on local labour this month

Week No.	Week Ending	Total Day Tasks / Person Days Worked *Total of 3(A) from Part 3 for each week*	Total Amount Paid *Total of 3(B) from Part 3 for each week*
1			
2			
3			
4			
5			
	Total this month		

2. Summary of amount spent on local labour to date

1. Previous amount spent on local labour (from previous claim)	R
2. Amount spent on local labour this month (from total above)	R
3. Total amount spent on local labour to date (3) = (1+2)	R

3. Local labour schedule

Summary of Local Labour Employed ***Refer to Part 2***	Number of local workers who worked on the project to date	**% of Total**
1. Total number of ***individual local workers*** who have worked on the project		100%
2. Number of ***local youth*** (35 yrs and under) (columns B plus D)		
3. Number of ***local women*** (columns A plus B)		

4. Summary of amount spent on local suppliers to date

1. Previous amount spent on local suppliers (from previous claim)	R
2. Amount spent on local suppliers this month (from total above)	R
3. Total amount spent on local suppliers to date (3) = (1+2)	R

Completed by:

....

Signed *initials and surname*

....

Capacity *date*

TENDER DRAWINGS



DALPARK
EXISTING ROAD SURFACE

PREVIOUSLY SURFACED POOR CONDITION

GRAVEL ROAD

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

TELL NO.: +27 (0) 805 0981
FAX NO.: +27 (0) 11 604 0039
EMAIL: KTN@KTNCONSULTING.CO.ZA
WEBSITE: www.ktnconsulting.co.za

KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE
DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
KEY PLAN

CONTRACT No. :
PROJECT No. : 2005B
SCALE : N.T.S
DATE : NOVEMBER 2022

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME SIGNATURE & PR NUMBER DATE

INSPECTOR OF WORKS:
SIGNATURE DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

DRAWING NO. 2005B-004K01
SHEET NO: 1 OF 1
VERSION: 0



DALPARK
EXISTING ROAD SURFACE

PREVIOUSLY SURFACED POOR CONDITION

GRAVEL ROAD

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

TELL NO.: +27 (0) 805 0981
FAX NO.: +27 (0) 11 604 0039
EMAIL: KTN@KTNCONSULTING.CO.ZA
WEBSITE: www.ktnconsulting.co.za

KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE
DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
EXISTING ROADS IN POOR CONDITION
EXISTING ROADS IN GRAVEL

CONTRACT No. :
PROJECT No. : 2005b
SCALE : N.T.S
DATE : NOVEMBER 2022

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME SIGNATURE & PR NUMBER DATE

INSPECTOR OF WORKS:
SIGNATURE DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

DRAWING NO. 2005B-004K02
SHEET NO: 1 OF 1
VERSION: 0



DALPARK
ROAD UPGRADE LENGTHS

ROAD 1:	263m	ROAD 18:	424m
ROAD 2:	316m	ROAD 19:	258m
ROAD 3:	292m	ROAD 20:	69m
ROAD 4:	247m	ROAD 21:	41m
ROAD 5:	291m	ROAD 22:	66m
ROAD 6:	302m	ROAD 23:	91m
ROAD 7:	239m	**TOTAL:**	**4,812km**
ROAD 8:	344m		
ROAD 9:	313m		
ROAD 10:	97m		
ROAD 11:	241m		
ROAD 12:	96m		
ROAD 13:	57m		
ROAD 14:	179m		
ROAD 15:	88m		
ROAD 16:	298m		
ROAD 17:	200m		

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
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SCALE: N.T.S

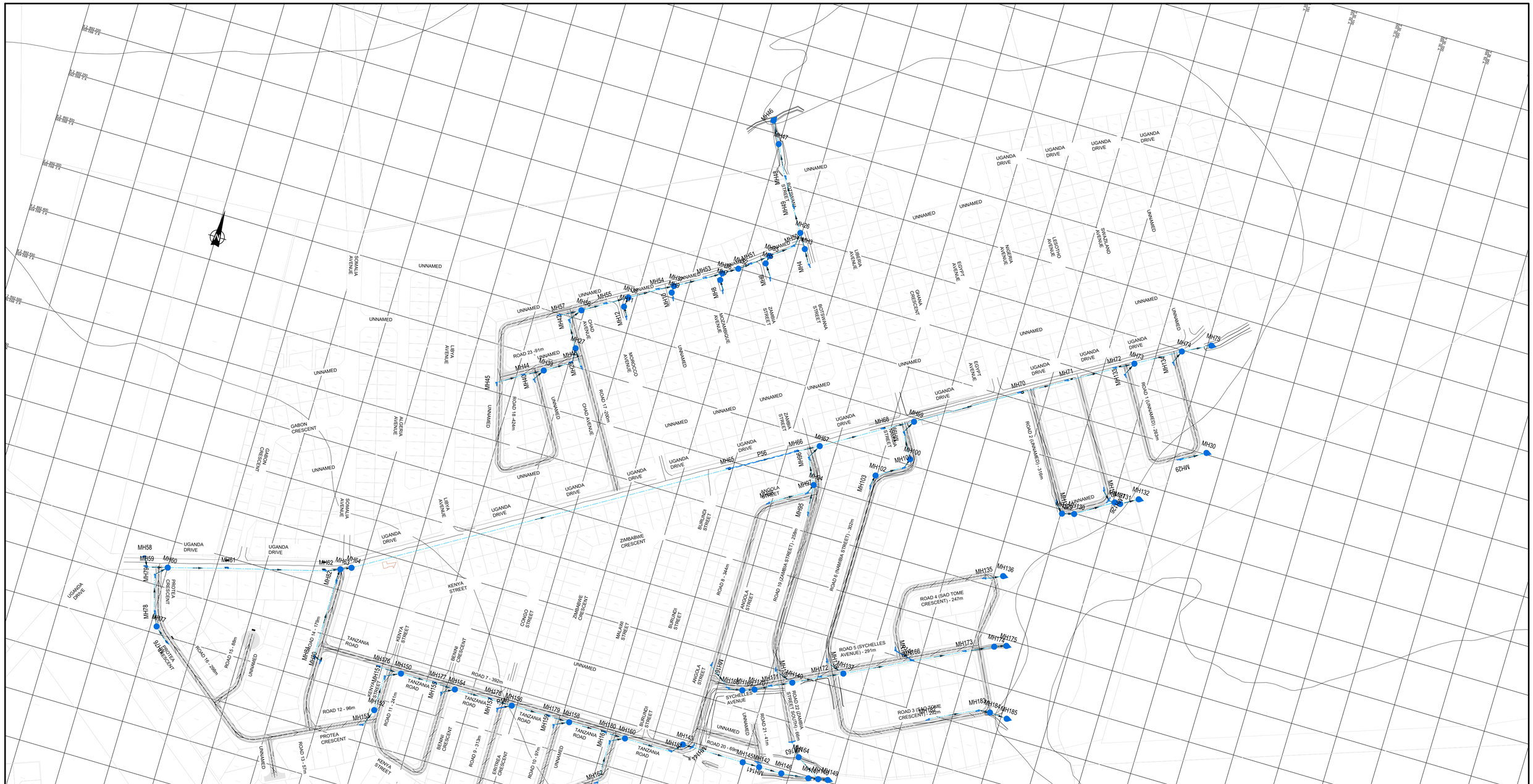
LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK,
DELMAS

DESCRIPTION OF PROJECT
ROADS NAMES, NUMBER AND LENGTHS

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME SIGNATURE & PR NUMBER DATE
INSPECTOR OF WORKS: SIGNATURE DATE
REMARKS:
ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005b	N.T.S	NOVEMBER 2022	2005B-004K03	1 OF 1	0



AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS

KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

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KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ...
SIGNATURE DATE

DIRECTOR: ...
SIGNATURE DATE

DIRECTOR: ...
SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY

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DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER NETWORK KEY PLAN

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

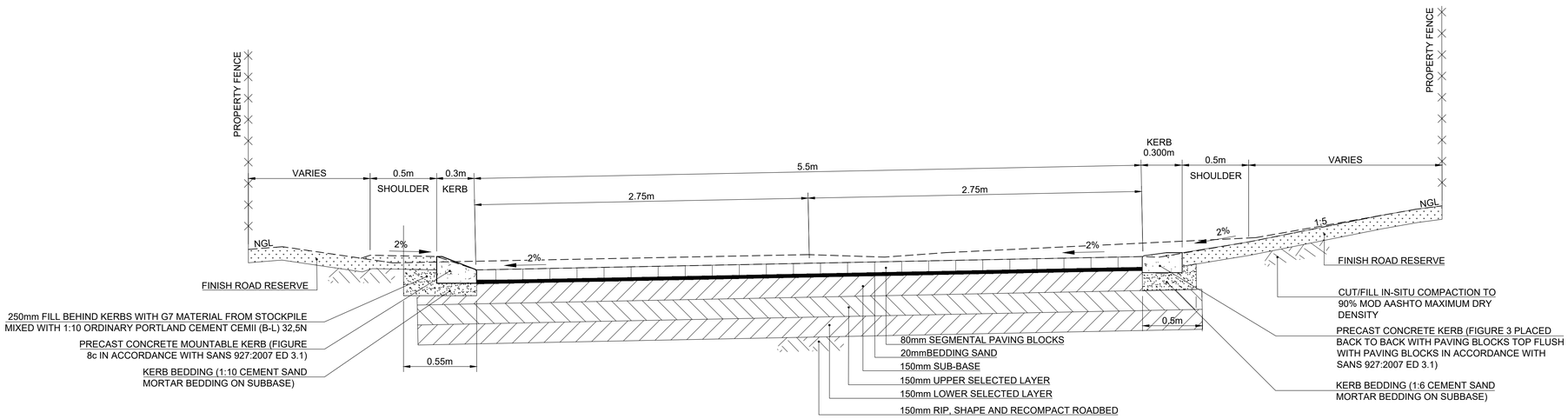
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005KP01	1 OF 1	0

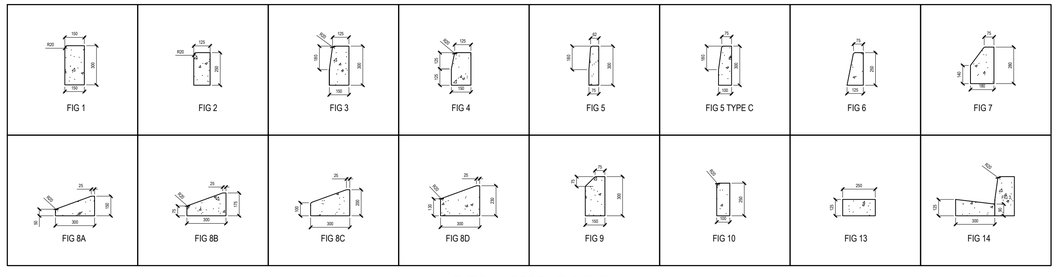


TYPICAL SECTION THROUGH BLOCK PAVING ROAD - KERB LEFT

SCALE 1:20

ROAD PAVEMENT DETAILS

LAYER DESCRIPTION	LAYER THICKNESS	MATERIAL DESCRIPTION	COMPACTION
SEGMENTAL PAVING BLOCKS	80mm	80mm THICK GRAY, TYPE S-A, SHAPE A, INTERLOCKING CONCRETE BLOCKS WITH 25MPa WET COMPRESSION STRENGTH IN ACCORDANCE WITH UTG2, COMPLAINT WITH SANS1058 LAYED IN HERRINGBONE BOND ON RIVER SAND BEDDING , COMPACTED WITH DRY PLASTER SAND BROOMED INTO JOINTS DURING COMPACTION UNTILL ALL JOINTS ARE SEALED	N/A
BEDDING	20mm	SAND BEDDING	N/A
SUB-BASE	150mm	G6 FROM COMMERCIAL, CEMENT STABILISED WITH CEM II (BL) 32.5N TYPE CEMENT TO FORM C4	97% MOD AASHTO MAXIMUM DRY DENSITY
UPPER SELECTED LAYER	150mm	G7 MIN UPPER SELECTED LAYER FROM BORROW PIT	95% MOD AASHTO MAXIMUM DRY DENSITY
LOWER SELECTED LAYER	150mm	G9 MIN LOWER SELECTED LAYER FROM BORROW PIT	93% MOD AASHTO MAXIMUM DRY DENSITY
ROADBED PREPARATION	150mm	RIP AND RECOMPACT IN-SITU MATERIAL MIN G9	90% MOD AASHTO MAXIMUM DRY DENSITY
CUT/FILL		G9 MATERIAL FROM ON-SITE EXCAVATIONS	90% MOD AASHTO MAXIMUM DRY DENSITY IN LAYERS NOT EXCEEDING 150mm THICKNESS AFTER COMPACTION



TYPICAL KERB DIMENSIONS

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

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ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE
DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
ROAD LAYERWORKS - KERB LEFT

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

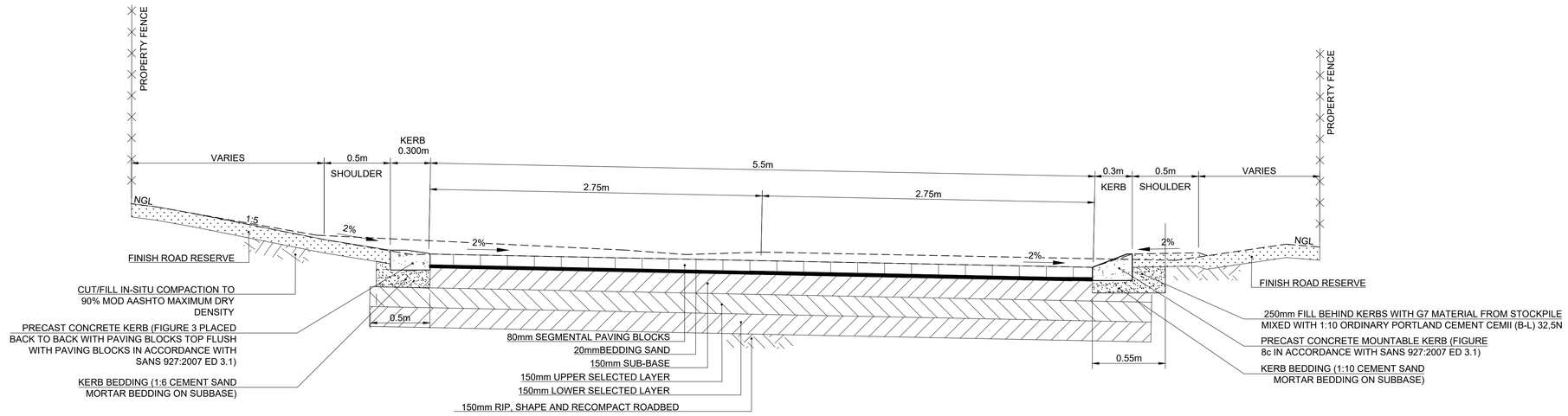
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME SIGNATURE & PR NUMBER DATE

INSPECTOR OF WORKS:
SIGNATURE DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-004LS01	1 OF 1	0

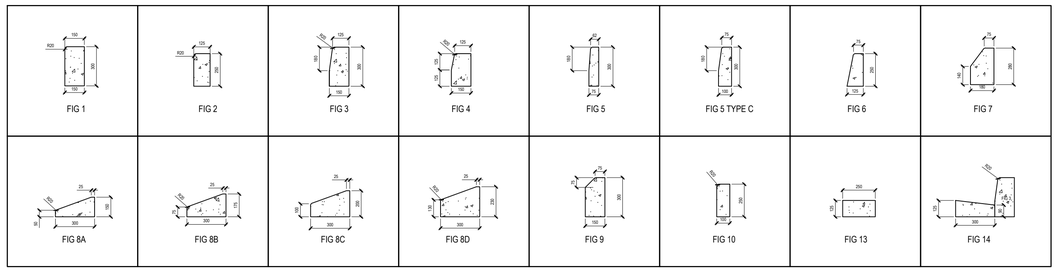


TYPICAL SECTION THROUGH BLOCK PAVING ROAD
KERB RIGHT

SCALE 1:20

ROAD PAVEMENT DETAILS

LAYER DESCRIPTION	LAYER THICKNESS	MATERIAL DESCRIPTION	COMPACTION
SEGMENTAL PAVING BLOCKS	80mm	80mm THICK GRAY, TYPE S-A, SHAPE A, INTERLOCKING CONCRETE BLOCKS WITH 25MPa WET COMPRESSION STRENGTH IN ACCORDANCE WITH UTG2, COMPLAINT WITH SANS1058 LAYED IN HERRINGBONE BOND ON RIVER SAND BEDDING , COMPACTED WITH DRY PLASTER SAND BROOMED INTO JOINTS DURING COMPACTION UNTILL ALL JOINTS ARE SEALED	N/A
BEDDING	20mm	SAND BEDDING	N/A
SUB-BASE	150mm	G6 FROM COMMERCIAL, CEMENT STABILISED WITH CEM II (BL) 32.5N TYPE CEMENT TO FORM C4	97% MOD AASHTO MAXIMUM DRY DENSITY
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ROADBED PREPARATION	150mm	RIP AND RECOMPACT IN-SITU MATERIAL MIN G9	90% MOD AASHTO MAXIMUM DRY DENSITY
CUT/FILL		G9 MATERIAL FROM ON-SITE EXCAVATIONS	90% MOD AASHTO MAXIMUM DRY DENSITY IN LAYERS NOT EXCEEDING 150mm THICKNESS AFTER COMPACTION



TYPICAL KERB DIMENSIONS

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
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52 BEKKER ROAD, MIDRAND.

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ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE
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VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
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2210

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SCALE: N.T.S

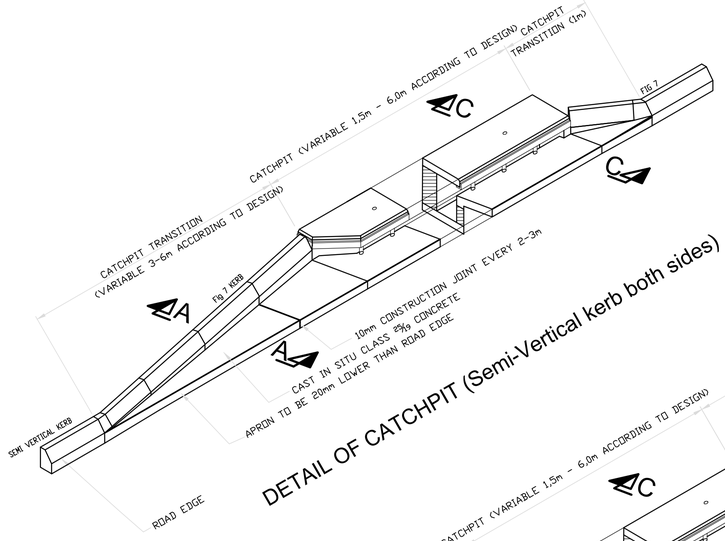
LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
ROAD LAYERWORKS - KERB RIGHT

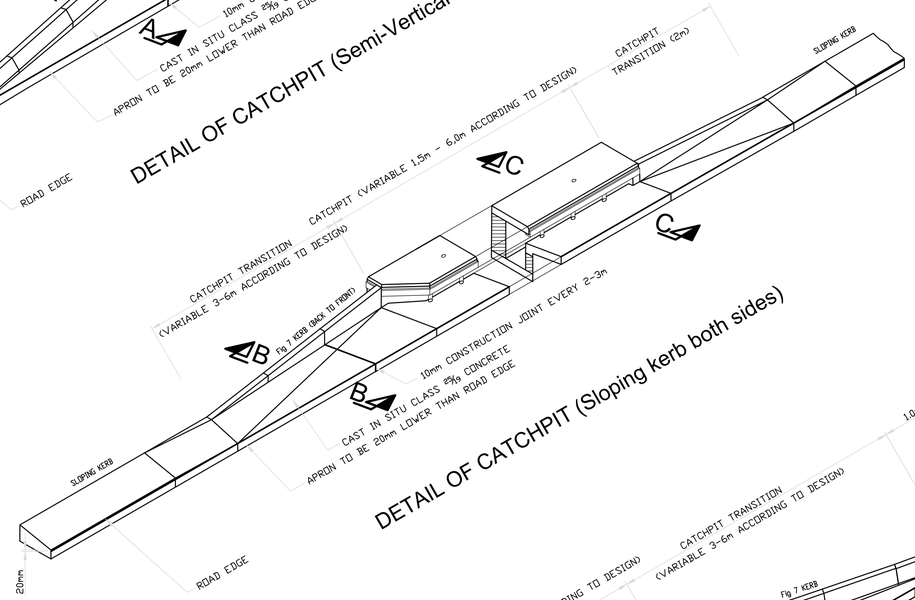
PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME SIGNATURE & PR NUMBER DATE
INSPECTOR OF WORKS:
SIGNATURE DATE
REMARKS:
ORIGINAL PAPER SIZE: A1

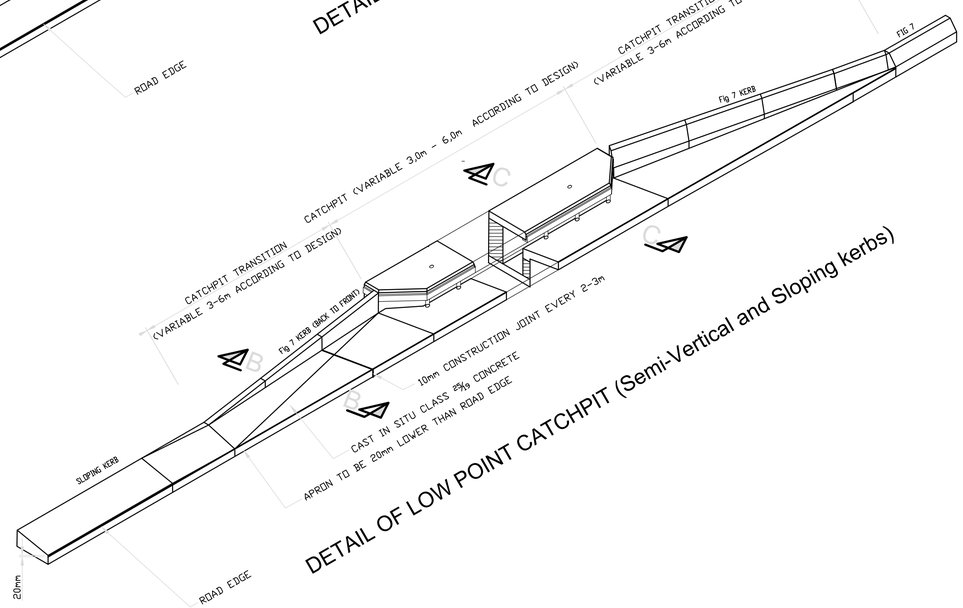
CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-004LS01	1 OF 1	0



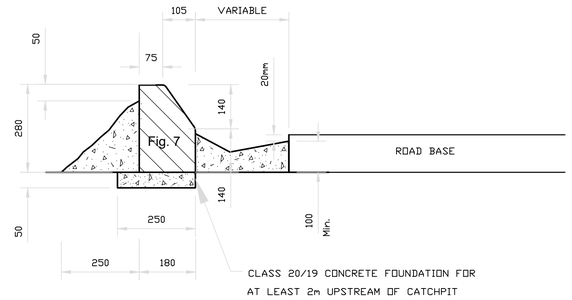
DETAIL OF CATCHPIT (Semi-Vertical kerb both sides)



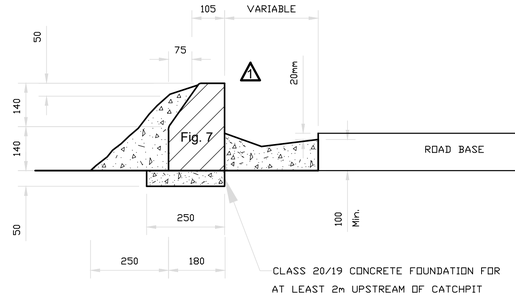
DETAIL OF CATCHPIT (Sloping kerb both sides)



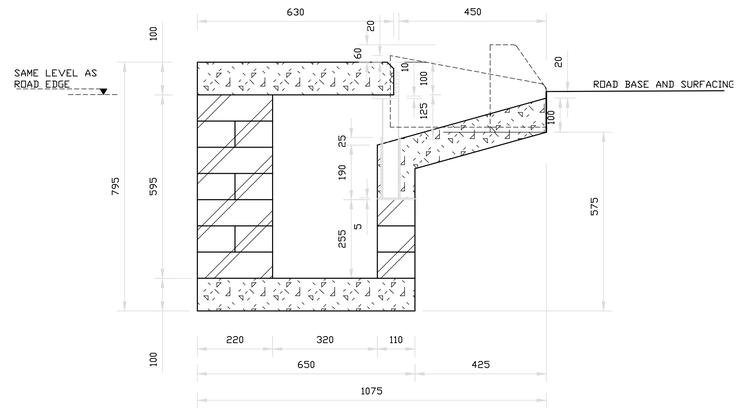
DETAIL OF LOW POINT CATCHPIT (Semi-Vertical and Sloping kerbs)



SECTION A-A



SECTION B-B



SECTION C-C

NOTES AND SPECIFICATIONS

1. PERMISSION MUST BE OBTAINED FROM THE ENGINEER IF ANY OTHER CATCHPIT TYPE IS PROPOSED.
2. "SILT TRAP CATCHPITS" WILL BE SPECIFIED BY THE ENGINEER IN AREAS SUBJECT TO SANITATION. "SILT TRAP CATCHPITS" WILL BE CONSTRUCTED BY LOWERING THE CATCHPIT FLOOR WITH ONE BRICK LAYER AND CONSTRUCTING A 170mm HIGH DOUBLE BRICK WALL AT THE CATCHPIT OUTLET. THE WALL MUST NOT BE CONNECTED TO THE WALLS OF THE CATCHPIT, BUT A 10mm SLOT MUST BE FORMED ON EACH SIDE TO ENSURE WATER SEEPING THROUGH INTO THE JUNCTION BOX. THE OTHER LEVELS AND DIMENSIONS OF THE CATCHPIT REMAIN THE SAME.
3. ALL BRICKS SHALL COMPLY WITH SANS 227 AND SHALL BE ENGINEERING UNITS OF CLASS FBS (FACE BRICK STANDARD) WITH A NOMINAL COMPRESSIVE STRENGTH OF 12 MPa.

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

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ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE
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VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE
DEPARTMENT
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DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
KERB INLET DETAIL:
ISOMETRIC VIEW AND CROSS SECTIONS

CONTRACT No. : | PROJECT No. : 2005B | SCALE : N.T.S | DATE : NOVEMBER 2022

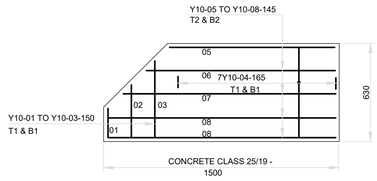
PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE
INSPECTOR OF WORKS:
SIGNATURE | DATE
REMARKS:
ORIGINAL PAPER SIZE: A1

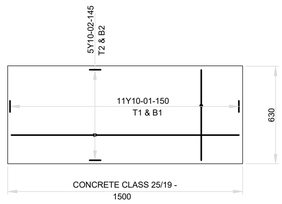
DRAWING NO.: 2005B-004D01 | SHEET NO.: 1 OF 1 | VERSION: 0

MEMBER	NO. OFF	TYPE, SIZE & SHAPE	NO.OFF IN EACH	TOTAL NO OFF	CUTTING LENGTH (mm)	CODE	A mm	B mm	C mm	D mm	E/R mm	MASS kg
L = 1500 SPLAYED CORNER		Y10-01	2		185	20	185					
		Y10-02	2		335	20	335					
		Y10-03	2		485	20	485					
		Y10-04	14		580	20	580					
		Y10-05	2		1050	20	1050					
		Y10-06	2		1205	20	1205					
		Y10-07	2		1355	20	1355					
		Y10-08	4		1450	20	1450					
		R10-09	6		450	83	150	55	100			
L = 2000 SPLAYED CORNER		Y10-01	2		185	20	185					
		Y10-02	2		335	20	335					
		Y10-03	2		485	20	485					
		Y10-04	22		580	20	580					
		Y10-05	2		1550	20	1550					
		Y10-06	2		1705	20	1705					
		Y10-07	2		1855	20	1855					
		Y10-08	4		1950	20	1950					
		R10-09	6		450	83	150	55	100			
L = 2500 SPLAYED CORNER		Y10-01	2		185	20	185					
		Y10-02	2		335	20	335					
		Y10-03	2		485	20	485					
		Y10-04	28		580	20	580					
		Y10-05	2		2050	20	2050					
		Y10-06	2		2205	20	2205					
		Y10-07	2		2355	20	2355					
		Y10-08	4		2450	20	2450					
		R10-09	6		450	83	150	55	100			

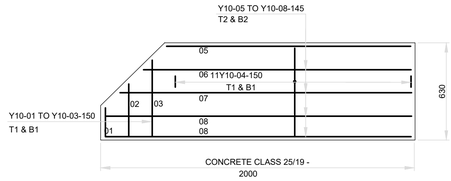
MEMBER	NO. OFF	TYPE, SIZE & SHAPE	NO.OFF IN EACH	TOTAL NO OFF	CUTTING LENGTH (mm)	CODE	A mm	B mm	C mm	D mm	E/R mm	MASS kg
L = 1500 RECTANGULAR PANEL		Y10-01	22		580	20	580					
		Y10-02	5		1450	20	1450					
		R10-03	6		450	83	150	55	100			
L = 2000 RECTANGULAR PANEL		Y10-01	28		580	20	580					
		Y10-02	5		1950	20	1950					
		R10-03	6		450	83	150	55	100			
L = 2500 RECTANGULAR PANEL		Y10-01	34		580	20	580					
		Y10-02	5		2450	20	2450					
		R10-03	6		450	83	150	55	100			



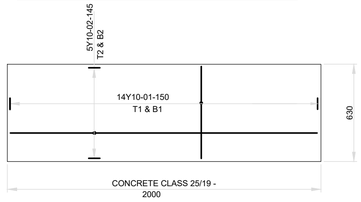
SPLAYED CORNER L=1500



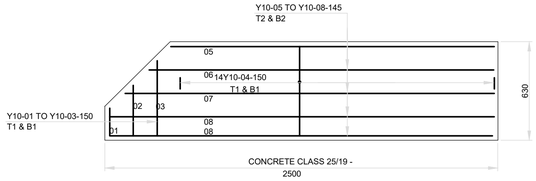
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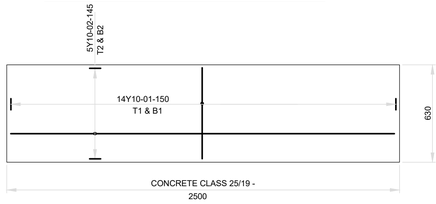
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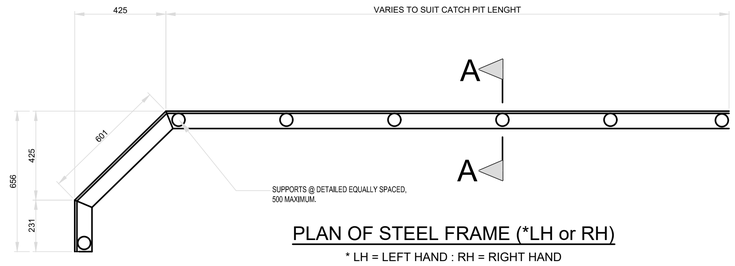
RECTANGULAR PANEL L=2000



SPLAYED CORNER L=2500

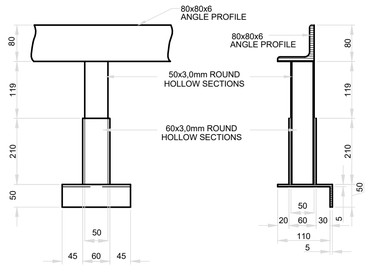


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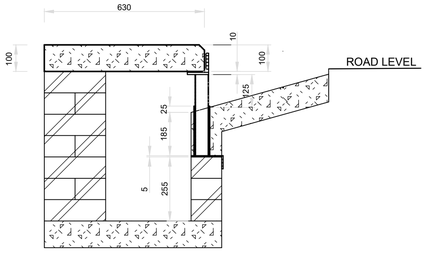


PLAN OF STEEL FRAME (*LH or RH)

* LH = LEFT HAND : RH = RIGHT HAND



ELEVATION OF STEEL FRAME SECTION A-A



CATCHPIT X-SECTION

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
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FAX NO.: +27 (0) 11 604 0039
EMAIL: KTN@KTNCONSULTING.CO.ZA
WEBSITE: www.ktnconsulting.co.za

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

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VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE
DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT

KERB INLET DETAIL: DETAILS OF STEEL FRAME AND PRECAST COVER SLABS

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :
	2005B	N.T.S	NOVEMBER 2022

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

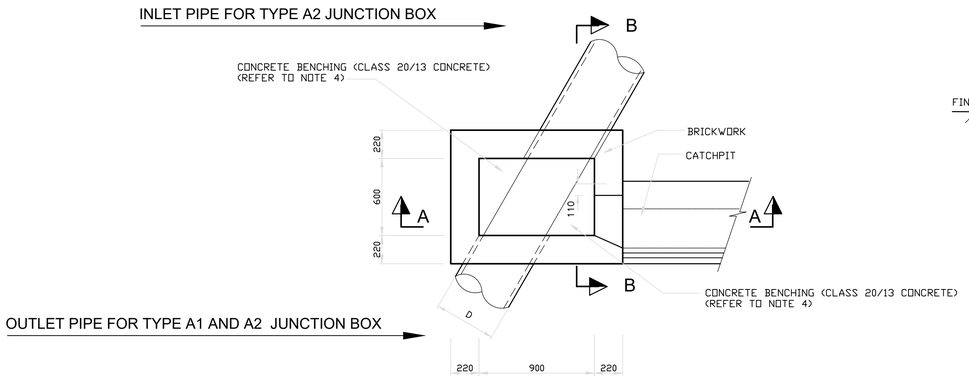
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

INSPECTOR OF WORKS:
SIGNATURE | DATE

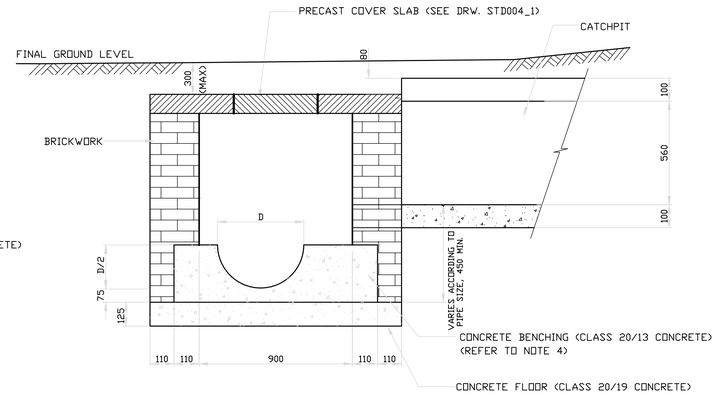
REMARKS:

ORIGINAL PAPER SIZE: A1

DRAWING NO.	SHEET NO:	VERSION:
2005B-004D02	1 OF 1	0



PLAN OF TYPE A JUNCTION BOX (WITHOUT COVER SLAB)



SECTION A-A

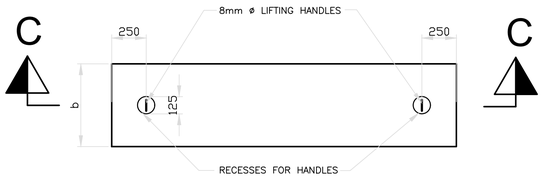
(INLET / OUTLET PIPES NOT SHOWN)

TABLE A: PRECAST COVER SLAB REINFORCEMENT DETAILS			
Span (mm) L	Thickness (mm) t	Main Reinforcement	
		b = 450	b = 600
Up to 500	125	4Y12 -125	5Y12 -125
Up to 1000	150	5Y12 -100	5Y12 - 125
Up to 1250	150	4Y16 -125	5Y12 - 125
Up to 1500	175	4Y 16 -125	5Y12 - 125
Up to 1750	175	4Y16 -125	5Y16 - 125
Up to 2000	200	4Y16 -125	5Y16 - 125
Up to 2250	200	4Y 16 -125	5Y16 - 125
Up to 2500	200	5Y16 -100	5Y16 - 125
Up to 2750	225	5Y16 -100	5Y16 - 125
Up to 3000	225	5Y16 -100	6Y16 - 125
Distribution reinforcement: Y10 bars @ 125 c/c for all spans			
Refer to notes for bending details.			

NOTES

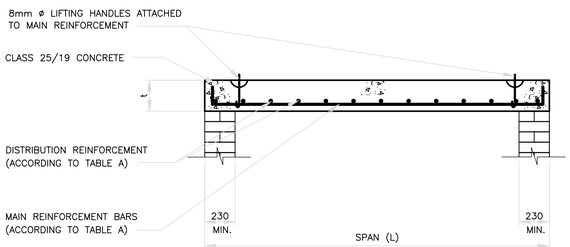
1. ALL STORMWATER PIPES TO BE LAID SOFFIT TO SOFFIT.
2. MINIMUM PIPE DIAMETER OF PIPES IS 450mm.
3. WHERE A PIPE WALL IS AT LEAST 75mm FROM THE NEAREST JUNCTION BOX WALL, THE CONCRETE BENCHING CAN BE STARTED ADJACENT TO THE DOUBLE BRICK WALL.
4. WHERE THE TOTAL DEPTH OF THE JUNCTION BOX (INVERT LEVEL TO FINISHED GROUND LEVEL) EXCEEDS 2.0m A STRUCTURAL DESIGN MUST BE SUBMITTED BY A PROFESSIONAL ENGINEER.
5. ALL BRICKS SHALL COMPLY WITH SANS 227 AND SHALL BE ENGINEERING UNITS OF CLASS FBS (FACE BRICK STANDARD) WITH A NOMINAL COMPRESSIVE STRENGTH OF 12 MPA.
6. CONCRETE TO BE CLASS 25/19 (25MPa).
7. CONCRETE TO BE CURED FOR A MINIMUM PERIOD OF 7 DAYS.
8. MINIMUM COVER TO REINFORCEMENT = 20mm
9. LIFTING HANDLES AS SPECIFIED OR OTHERWISE APPROVED BY THE ENGINEER.
10. REINFORCEMENT
    i. TYPE, BAR AND SPACING AS SPECIFIED IN TABLE A
    ii. MAIN REINFORCEMENT TO BE SHAPE CODE 38, WITH HOOK LENGTH (A DIMENSION NOT LESS THAN t - 60, EXCEPT FOR SLABS WITH A SPAN NOT EXCEEDING 1000mm, WHERE NO HOOKS ARE REQUIRED AND SHAPE CODE 20 IS USED.

PRECAST COVER SLAB FOR JUNCTION BOXES



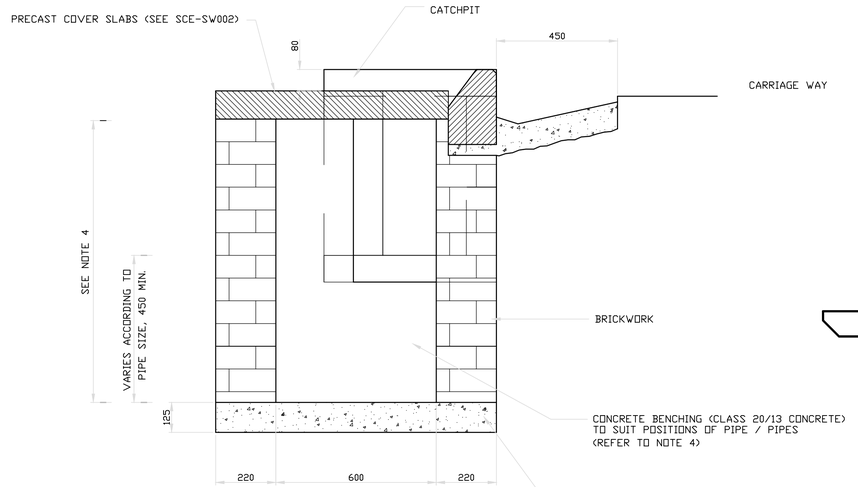
PLAN OF PRECAST COVER SLAB

SCALE 1: 20



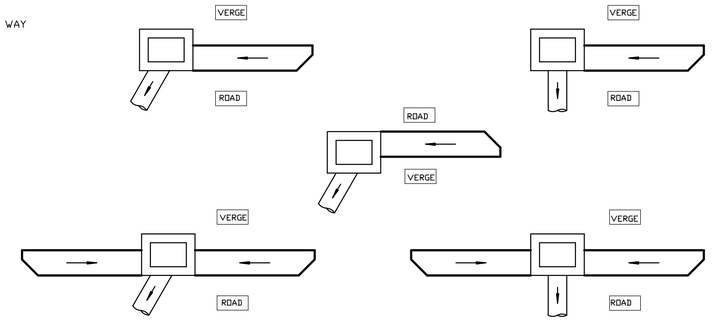
SECTION C-C

SCALE 1: 20

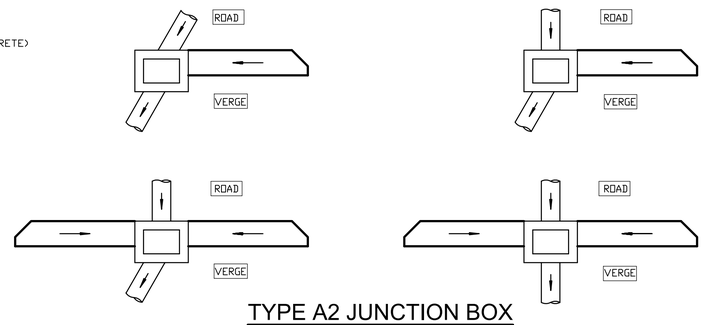


SECTION B-B

(CONCRETE BENCHING NOT SHOWN)



TYPE A1 JUNCTION BOX



TYPE A2 JUNCTION BOX

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
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VICTOR KHANYE LOCAL MUNCIPALITY

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2210

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DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

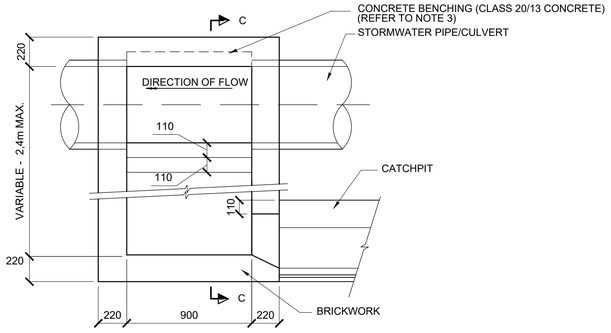
DESCRIPTION OF PROJECT
JUNCTION BOX AND MANHOLE DETAILS COVER SLAB AND TYPE A JUNCTION BOX

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :
	2005B	N.T.S	NOVEMBER 2022

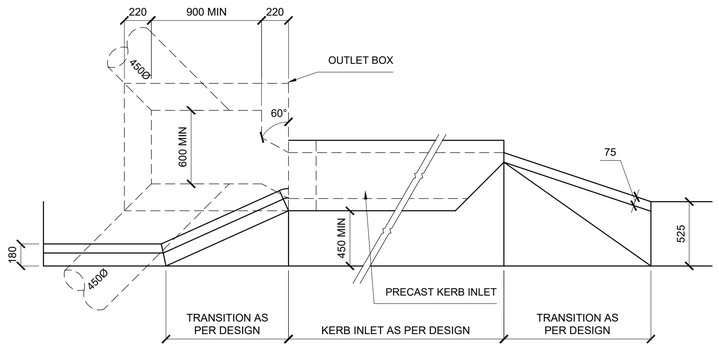
PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE
INSPECTOR OF WORKS:
SIGNATURE | DATE
REMARKS:
ORIGINAL PAPER SIZE: A1

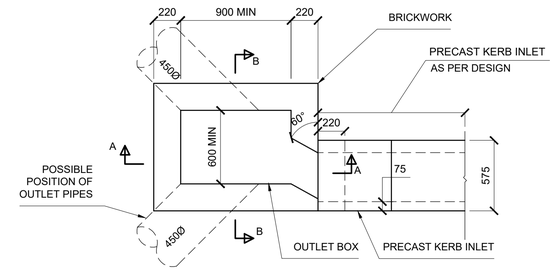
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SHEET NO: 1 OF 1
VERSION: 0



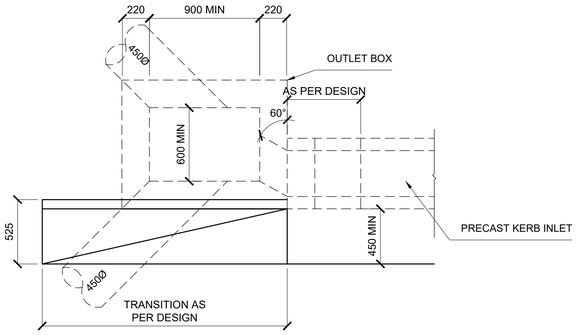
PLAN OF TYPE B JUNCTION BOX (WITHOUT COVER SLAB)



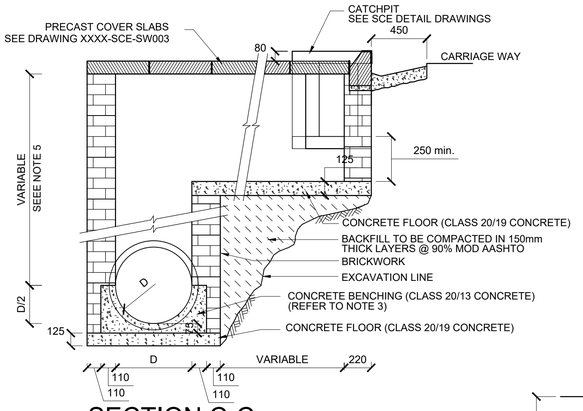
PLAN OF KERB INLET SHOWING OUTLET BOX POSITION UNDER VERTICAL KERB



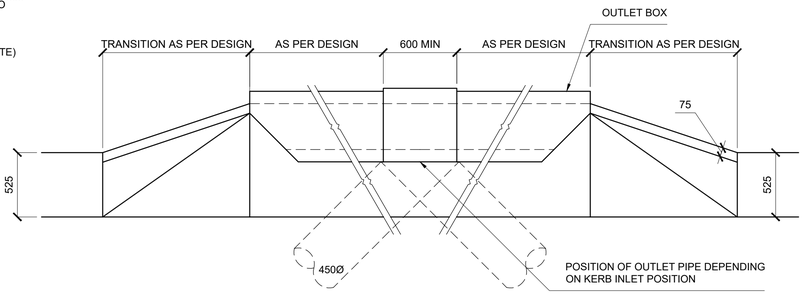
PLAN OF KERB INLET NOT DISCHARGING DIRECTLY INTO MAIN STORMWATER DRAIN (WITHOUT COVER)



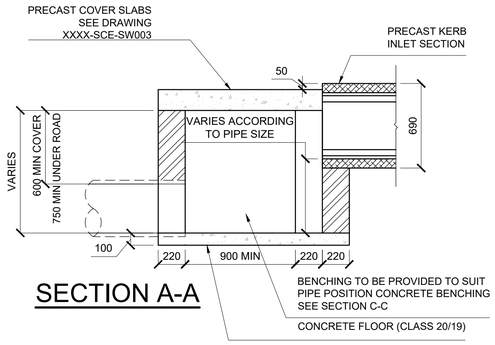
PLAN OF KERB INLET SHOWING OUTLET BOX POSITION UNDER SLOPING KERB



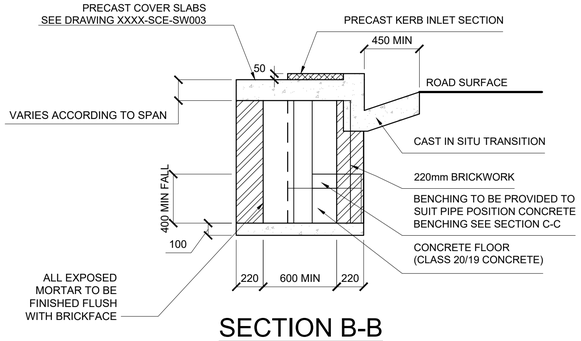
SECTION C-C



PLAN OF KERB INLET AT A LOW POINT SHOWING POSITION OF OUTLET BOX



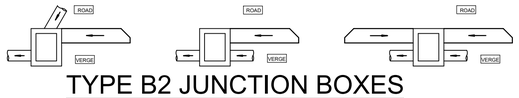
SECTION A-A



SECTION B-B



TYPE B1 JUNCTION BOXES



TYPE B2 JUNCTION BOXES



TYPE B3 JUNCTION BOXES

NOTES

1. ALL STORMWATER PIPES TO BE LAID SOFFIT TO SOFFIT.
2. MINIMUM PIPE DIAMETER OF PIPES IS 450mm.
3. WHERE A PIPE WALL IS AT LEAST 75mm FROM THE NEAREST JUNCTION BOX WALL, THE CONCRETE BENCHING CAN BE STARTED ADJACENT TO THE DOUBLE BRICK WALL.
4. WHERE THE TOTAL DEPTH OF THE JUNCTION BOX (INVERT LEVEL TO FINISHED GROUND LEVEL) EXCEEDS 2.0m A STRUCTURAL DESIGN MUST BE SUBMITTED BY A PROFESSIONAL ENGINEER.
5. ALL BRICKS SHALL COMPLY WITH SANS 227 AND SHALL BE ENGINEERING UNITS OF CLASS FBS (FACE BRICK STANDARD) WITH A NOMINAL COMPRESSIVE STRENGTH OF 12 MPA.

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
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WEBSITE: www.ktnconsulting.co.za

KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
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VICTOR KHANYE LOCAL MUNCIPALITY
TECHNICAL SERVICE
DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
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DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
KERB INLETS
JUNCTION BOX DETAILS
TYPE B

CONTRACT No. :
PROJECT No. : 2005B
SCALE : N.T.S
DATE : NOVEMBER 2022

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

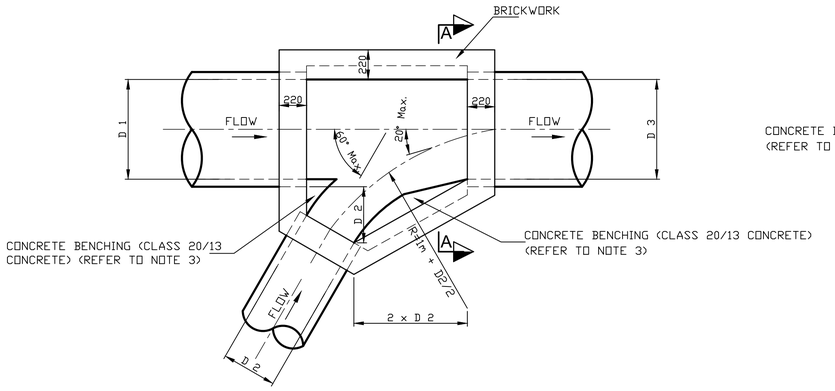
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

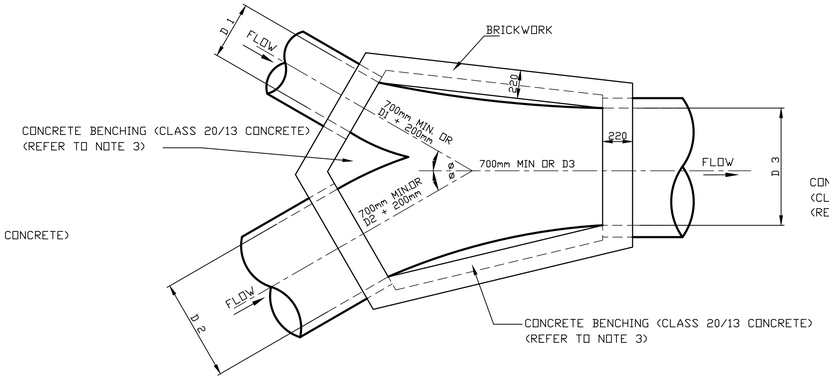
ORIGINAL PAPER SIZE: A1

DRAWING NO. 2005B-004D04
SHEET NO: 1 OF 1
VERSION: 0



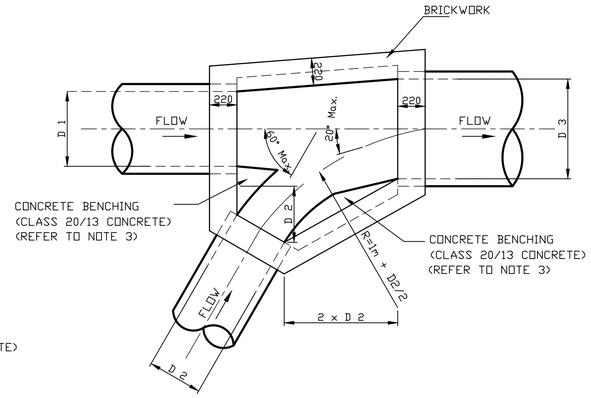
PLAN OF TYPE C JUNCTION BOX (WITHOUT COVER SLAB)

D 1 = D 3 AND D 2 VARIES



PLAN OF TYPE C JUNCTION BOX (WITHOUT COVER SLAB)

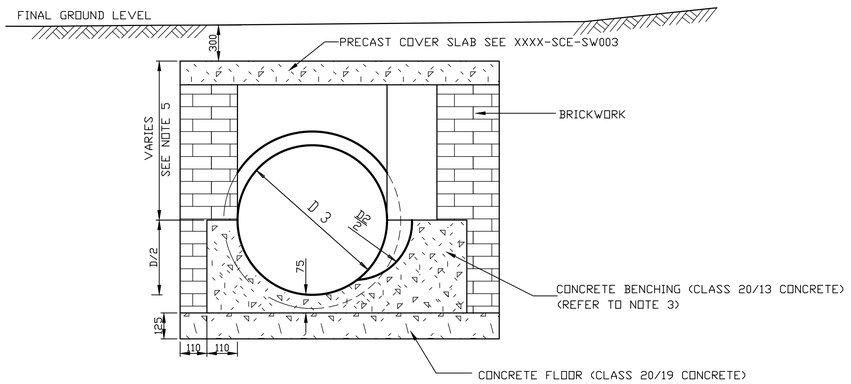
D 1 ≠ D2 ≠ D 3 AND Ø < 30°



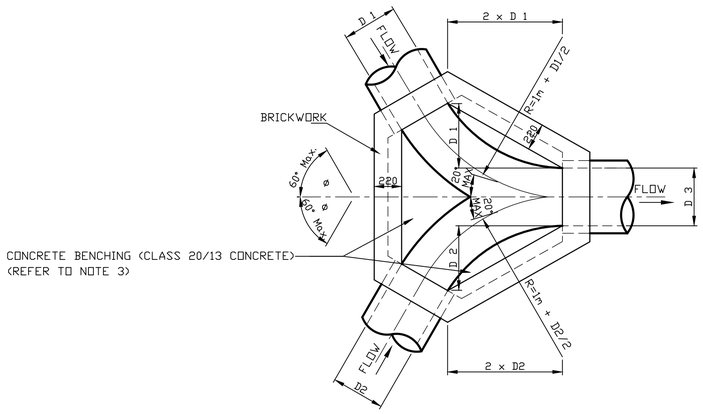
PLAN OF TYPE C JUNCTION BOX

(WITHOUT COVER SLAB)

D 1 ≠ D 3 AND D 2 VARIES



SECTION A-A



PLAN OF TYPE C JUNCTION BOX (WITHOUT COVER SLAB)

D 1 = D2 = D 3 AND Ø ≯ 30°

NOTES

1. ALL STORMWATER PIPES TO BE LAID SOFFIT TO SOFFIT.
2. MINIMUM PIPE DIAMETER OF PIPES IS 450mm.
3. WHERE A PIPE WALL IS AT LEAST 75mm FROM THE NEAREST JUNCTION BOX WALL, THE CONCRETE BENCHING CAN BE STARTED ADJACENT TO THE DOUBLE BRICK WALL.
4. WHERE THE TOTAL DEPTH OF THE JUNCTION BOX (INVERT LEVEL TO FINISHED GROUND LEVEL) EXCEEDS 2.0m A STRUCTURAL DESIGN MUST BE SUBMITTED BY A PROFESSIONAL ENGINEER.
5. ALL BRICKS SHALL COMPLY WITH SANS 227 AND SHALL BE ENGINEERING UNITS OF CLASS FBS (FACE BRICK STANDARD) WITH A NOMINAL COMPRESSIVE STRENGTH OF 12 MPA.

AMENDMENTS

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KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
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VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
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2210

TEL NO: 013 665 6000
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DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
JUNCTION BOX AND MANHOLE DETAILS TYPE C

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

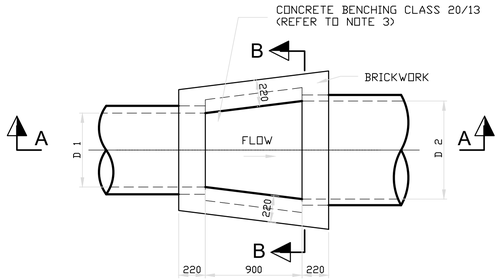
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

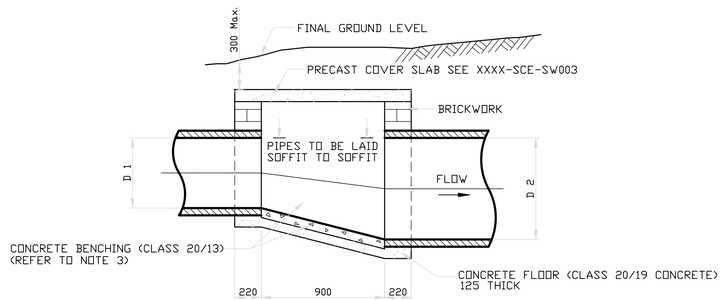
ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-004D05	1 OF 1	0

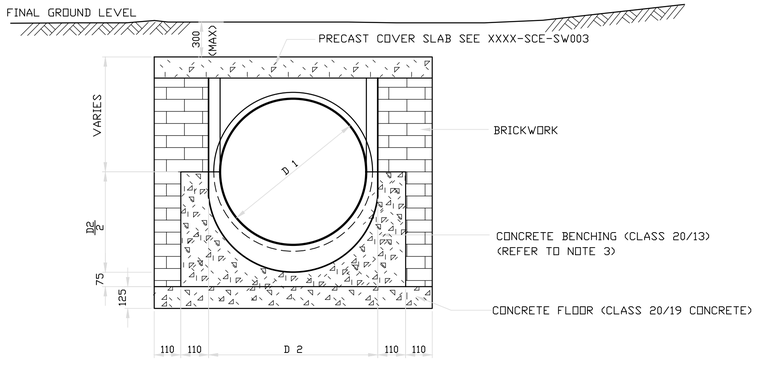


PLAN OF TYPE D JUNCTION BOX (WITHOUT COVER SLAB)

D 1 < D 2



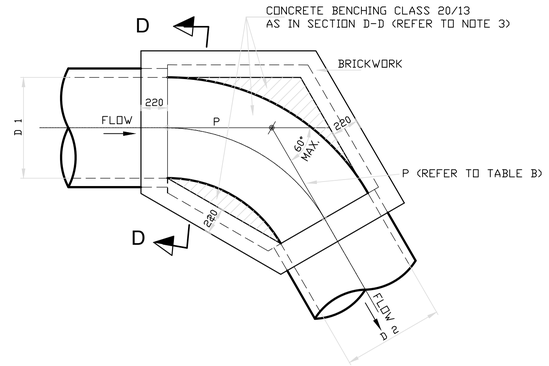
SECTION A-A



SECTION B-B

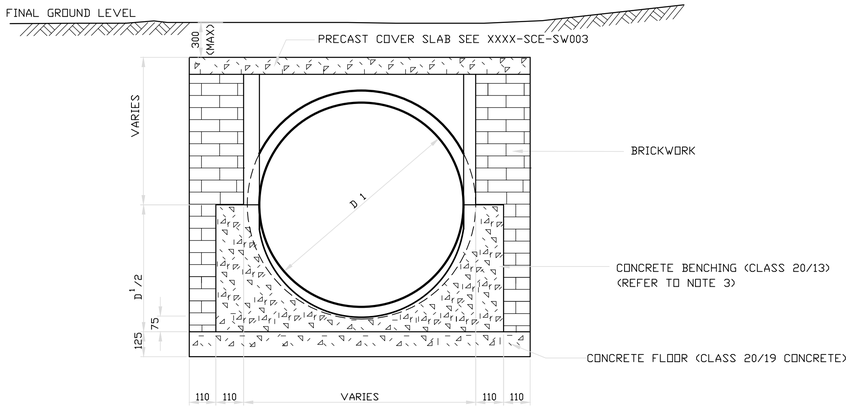
TABLE B

D 2 DIAMETER OF DOWN STREAM PIPE	DISTANCE P
450	700
525	700
600	750
675	780
750	800
825	825
900	850
1050	870
1200	925
1350	1000
1500	1100



PLAN OF TYPE D JUNCTION BOX (WITHOUT COVER SLAB)

D 1= D 2 OR D 1 < D 2



SECTION D-D

NOTES

1. ALL STORMWATER PIPES TO BE LAID SOFFIT TO SOFFIT.
2. MINIMUM PIPE DIAMETER OF PIPES IS 450mm.
3. WHERE A PIPE WALL IS AT LEAST 75mm FROM THE NEAREST JUNCTION BOX WALL, THE CONCRETE BENCHING CAN BE STARTED ADJACENT TO THE DOUBLE BRICK WALL.
4. WHERE THE TOTAL DEPTH OF THE JUNCTION BOX (INVERT LEVEL TO FINISHED GROUND LEVEL) EXCEEDS 2.0m A STRUCTURAL DESIGN MUST BE SUBMITTED BY A PROFESSIONAL ENGINEER.
5. ALL BRICKS SHALL COMPLY WITH SANS 227 AND SHALL BE ENGINEERING UNITS OF CLASS FBS (FACE BRICK STANDARD) WITH A NOMINAL COMPRESSIVE STRENGTH OF 12 MPA.

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
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ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

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DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY

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DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
JUNCTION BOX AND MANHOLE DETAILS TYPE D

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

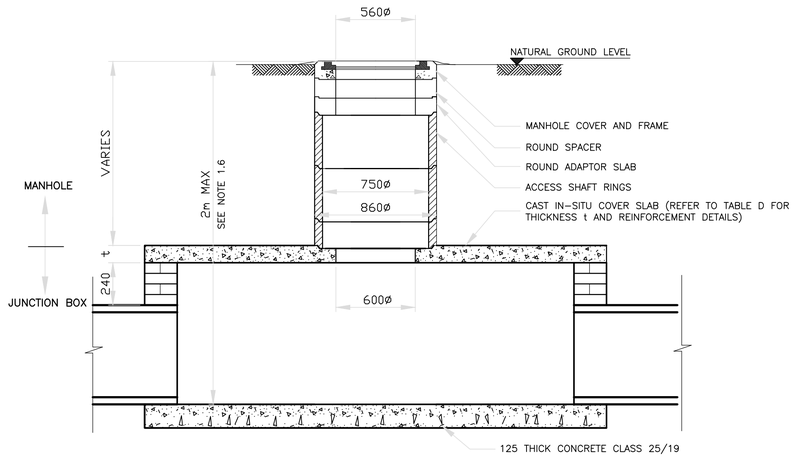
INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

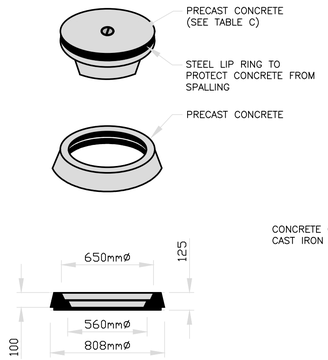
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	2005B	N.T.S	NOVEMBER 2022	2005B-004D06	1 OF 1	0

TYPICAL CROSS SECTION THROUGH JUNCTION BOX AND MANHOLE

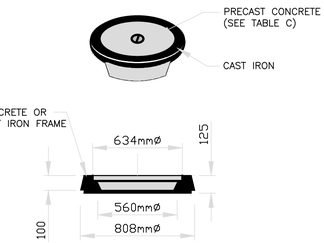


MANHOLE WITH PRECAST SHAFT

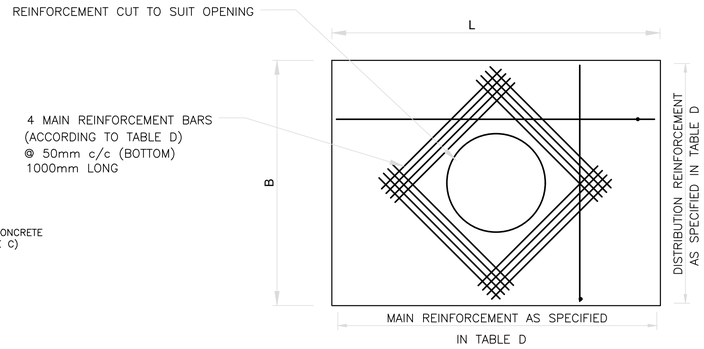
MANHOLE FRAME AND COVER



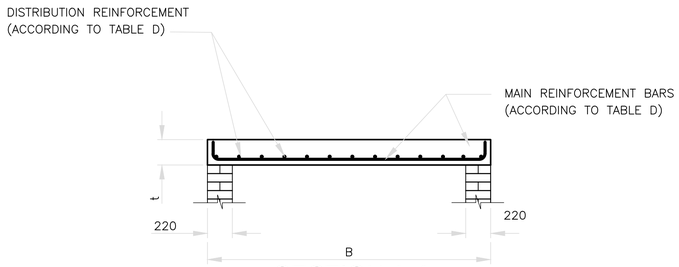
PRECAST CONCRETE FRAME AND COVER



COMBINATION PRECAST CONCRETE / CAST IRON FRAME AND COVER

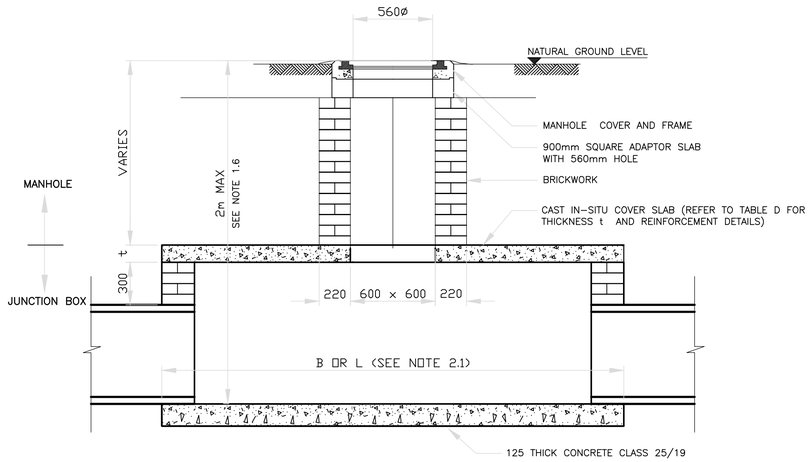


CAST INSITU COVER SLAB FOR CIRCULAR SHAFT SECTION



SECTION A-A

(NOT INDICATING REINFORCEMENT AROUND HOLE)



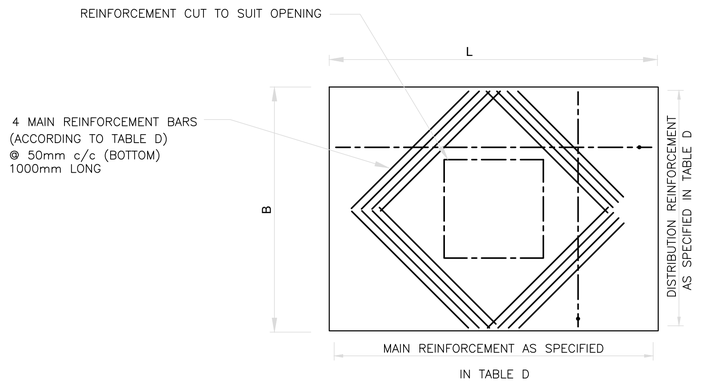
MANHOLE WITH MASONARY SHAFT

TABLE C: USE OF MANHOLES AT JUNCTION BOXES

APPLICATION	TYPE OF COVER AND FRAME
At junction boxes falling underneath the carriage way.	SABS Type 2A Cast Iron Heavy duty
At least every 100m on long inaccessible stormwater lines.	SABS Type 4 Precast Concrete Medium duty
At junction boxes falling underneath block or concrete paving on the sidewalk.	SABS Type 4 Precast Concrete Medium duty
At junction boxes where the main stormwater line changes course	SABS Type 4 Precast Concrete Medium duty
At junction boxes indicated otherwise on the drawings or specified by the Engineer.	SABS Type 4 As specified

TABLE D: REINFORCEMENT DETAILS FOR CAST IN-SITU COVER SLABS
(Note: B < L)

Span (B) (mm)	Thickness (t) (mm)	Main Reinforcement
Up to 1500	175	Y12 - 120
Up to 2500	200	Y16 - 150
Up to 3000	225	Y16 - 150
> 3000	Design to be submitted	
Distribution reinforcement: Y12 bars @ 200 c/c		
Refer to notes for bending details.		



CAST INSITU COVER SLAB FOR SQUARE SHAFT SECTION

NOTES:

1.1 ALL PRECAST MANHOLE SECTIONS SHALL COMPLY WITH THE RELEVANT REQUIREMENTS OF SANS 1294.
1.2 NO STEP IRONS SHALL BE REQUIRED UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
1.3 DIMENSIONS OF PRECAST MANHOLE SECTIONS ARE APPROXIMATE AND MAY VARY SLIGHTLY ACCORDING TO DIFFERENT MANUFACTURER'S SPECIFICATIONS.
1.4 POSITION OF MANHOLES SHALL BE DIRECTLY ABOVE THE PI OF ADJOINING STORMWATER PIPES.
1.5 MANHOLE COVERS AND FRAMES MADE OF OTHER MATERIALS, LIKE POLYMER CONCRETE, MUST COMPLY WITH THE RELEVANT SANS-SPECIFICTAIONS, BE APPROVED BY THE ENGINEER IN WRITING AND BE INSTALLED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS.
1.6 WHERE THE TOTAL DEPTH OF THE JUNCTION BOX/MANHOLE COMBINATION (INVERT LEVEL TO FINISHED GROUND LEVEL) EXCEEDS 2.0m, A STRUCTURAL DESIGN MUST BE SUBMITTED BY A PROFESSIONAL ENGINEER.
1.7 ALL BRICKS SHALL COMPLY WITH SANS 227 AND SHALL BE ENGINEERING UNITS OF CLASS FBS (FACE BRICK STANDARD) WITH A NOMINAL COMPRESSIVE STRENGTH OF 12MPa.
2.1 MEASUREMENT B IS ALWAYS SMALLER THAN L.
2.2 CONCRETE TO BE CLASS 25/19
2.3 CONCRETE TO BE CURED FOR A MINIMUM PERIOD OF 7 DAYS.
2.4 MINIMUM COVER TO REINFORCEMENT IS 20mm.
2.5 TYPE, BAR AND SPACING OF REINFORCEMENT AS SPECIFIED IN TABLE D.
2.6 MAIN REINFORCEMENT TO BE SHAPE CODE 38, WITH HOOK LENGTH (A-DIMENSION) NOT LESS THAN t MINUS 60, EXCEPT FOR SLABS WITH A SPAN NOT EXCEEDING 1000, WHERE NO HOOKS ARE REQUIRED AND SHAPE CODE 20 IS USED.

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
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ROADS AND STORMWATER
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DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
JUNCTION BOX AND MANHOLE DETAILS
SW MANHOLE DETAILS

CONTRACT No. :
PROJECT No. : 2005B
SCALE : N.T.S
DATE : NOVEMBER 2022

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

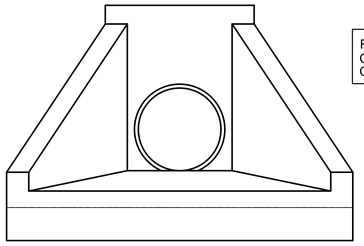
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

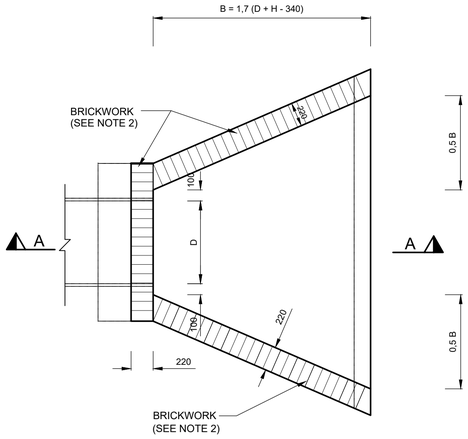
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DRAWING NO. 2005B-004D07
SHEET NO: 1 OF 1
VERSION: 0

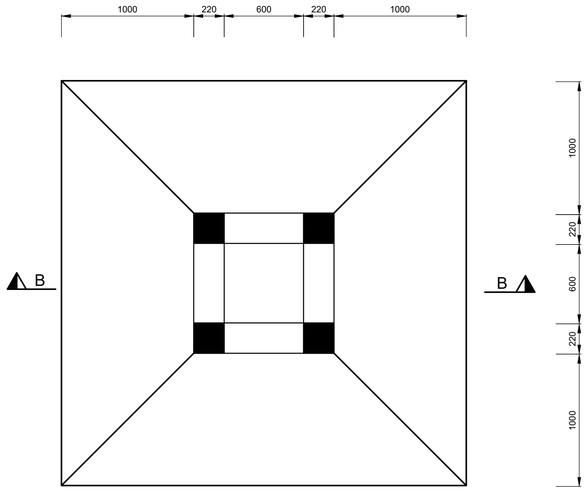


REFER TO NOTE 1 FOR APPLICATION OF TYPICAL STORMWATER OUTLET STRUCTURE

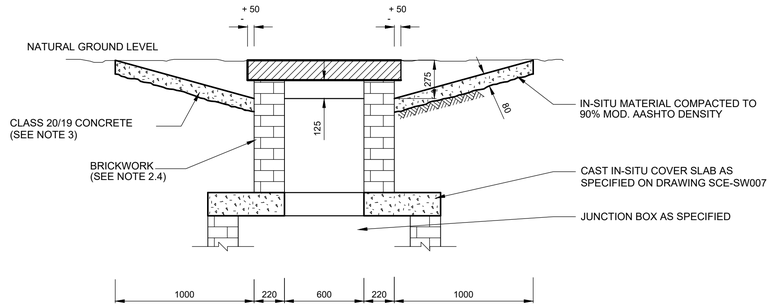
ELEVATION OF TYPICAL STORMWATER OUTLET STRUCTURE



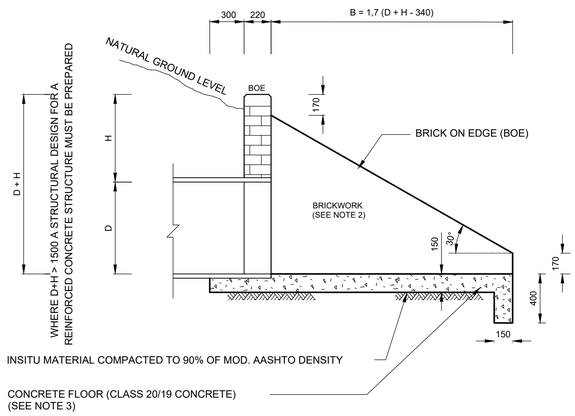
PLAN OF TYPICAL STORMWATER OUTLET STRUCTURE



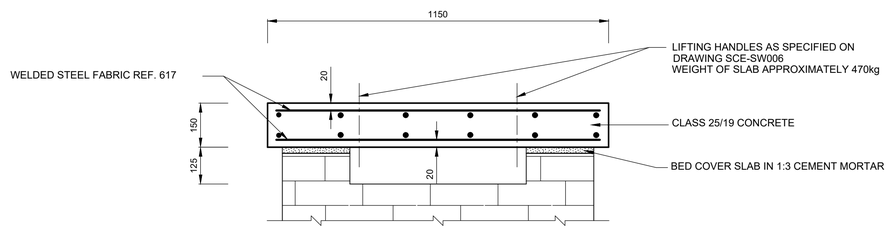
PLAN OF FIELD INLET (Without cover slab)



SECTION B-B



SECTION A-A



DETAIL OF PRECAST COVER SLAB

NOTES :

1 THE TYPICAL STORMWATER OUTLET STRUCTURE
MAY ONLY BE USED IF SPECIFIED BY THE ENGINEER

2.1 MASONRY WALLING SHALL CONFORM IN ALL RESPECTS TO THE REQUIREMENTS OF SANS 10164-1

2.2 MORTAR SHALL BE CLASS II (COMPRESSIVE STRENGTH OF 7 MPa AT 28 DAYS).

2.3 THE REQUIREMENTS SET OUT IN APPENDIX B OF SANS 10164-1: SHALL BE ADHERED TO UNLESS OTHERWISE APPROVED OR DIRECTED BY THE ENGINEER.

2.4 ALL BRICKS SHALL COMPLY WITH SANS 227 AND SHALL BE ENGINEERING UNITS OF CLASS FBS (FACE BRICK STANDARD) WITH A NOMINAL COMPRESSIVE STRENGTH OF 12 MPa.

3. CONCRETE

3.1 ALL CONCRETE TO BE CURED FOR A MINIMUM PERIOD OF 7 DAYS.

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
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VICTOR KHANYE LOCAL MUNCIPALITY

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DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
FIELD INLET AND STORMWATER OUTLET STRUCTURES

CONTRACT No. :
PROJECT No. : 2005B
SCALE : N.T.S
DATE : NOVEMBER 2022

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

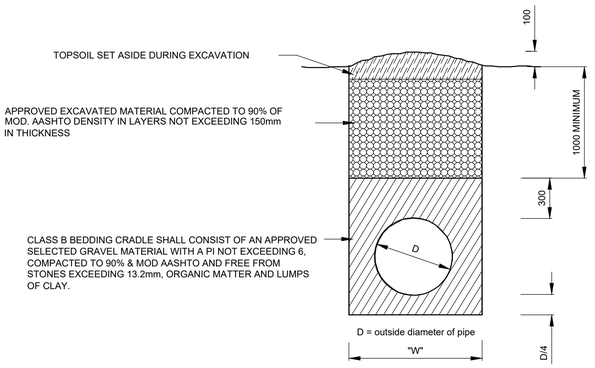
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME SIGNATURE & PR NUMBER DATE

INSPECTOR OF WORKS:
SIGNATURE DATE

REMARKS:

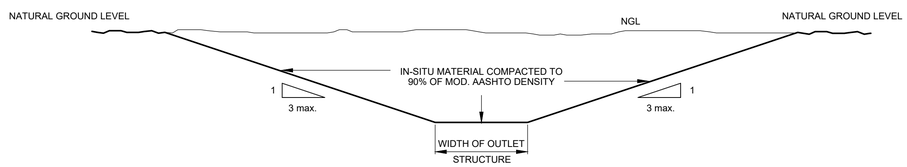
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DRAWING NO. 2005B-004D08
SHEET NO: 1 OF 1
VERSION: 0



DETAIL 1
BACKFILL OF TRENCHES NOT IN ROADS

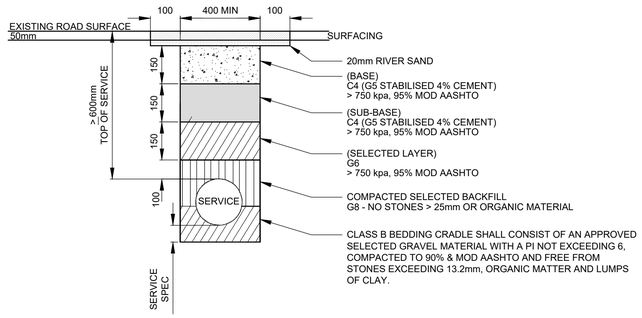
EROSION PROTECTION MEASURES AS SPECIFIED BY THE ENGINEER.
WHERE HYDROSEEDING GRASS IS SPECIFIED, SCARIFY AND HYDROSEED WITH THE FOLLOWING MIX OF GRASS SEED UNLESS ANOTHER MIX HAS BEEN SPECIFIED:
- CLORIS GYANA (10kg/ha)
- CYNODON DACTYLON (15kg/ha)
- ERAGROSTIS TEF (5kg/ha)



TYPICAL SECTION THROUGH STORMWATER FURROW AT OUTLET STRUCTURE

NOTES :

1.1 ALL STORMWATER PIPES TO BE LAID SOFFIT TO SOFFIT.
1.2 MIMIMUM PIPE DIAMETER IS 450mm, UNLESS OTHERWISE INDICATED BY ENGINEER
2.1 ALL MATERIALS FOR PAVEMENT LAYERS SHALL CONFORM TO THE REQUIREMENTS OF TRH 14.



TRENCH BACKFILLING FOR SURFACED ROADS

LAYER	MAXIMUM DCP PENETRATION (mm/blow)			
	SURFACED ROAD		PAVED ROAD	
	DEPTH (mm)	DCP (MAX mm/blow)	DEPTH (mm)	DCP (MAX mm/blow)
BASE	50 - 200	4	80 - 230	4
SUBBASE	200 - 350	6	-	-
SELECTED LAYER	350 - 500	14	-	-
BACKFILL	> 500	19	> 230	19

GUIDELINE INDICATING MINIMUM SHEAR STRENGTHS AS MEASURED WITH THE DCP:

BACKFILLING COMPACTION GUIDE

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
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DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT: PAVING OF ROADS IN DELPARK, DELMAS

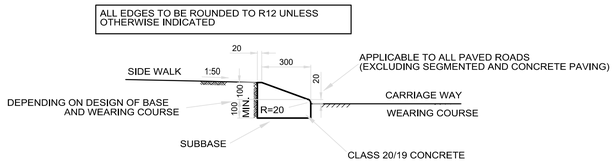
DESCRIPTION OF PROJECT: STORMWATER TRENCH BACKFILLING DETAIL

CONTRACT No. :
PROJECT No. : 2005B
SCALE : N.T.S
DATE : NOVEMBER 2022

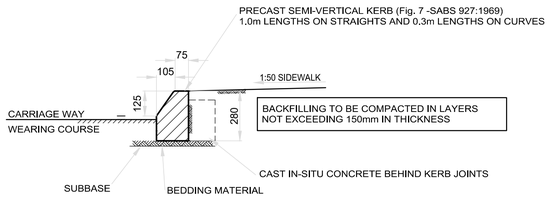
PROJECT STATUS: ○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

PROJECT ENGINEER: K. MAYAYISE — INITIALS AND SURNAME — SIGNATURE & PR NUMBER — DATE
INSPECTOR OF WORKS: SIGNATURE — DATE
REMARKS:
ORIGINAL PAPER SIZE: A1

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SHEET NO: 1 OF 1
VERSION: 0

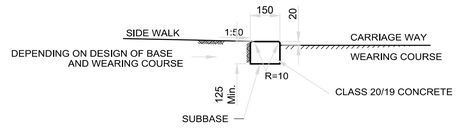


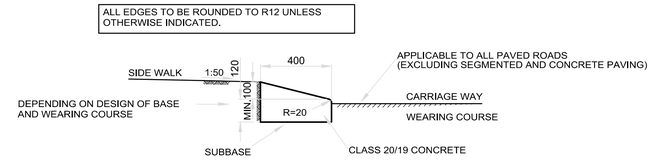
300 SLOPING KERB



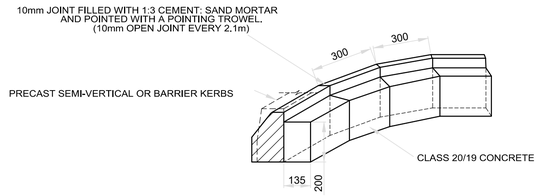
SEMI-VERTICAL KERB

(FIG. 7 - SABS 927:1969)



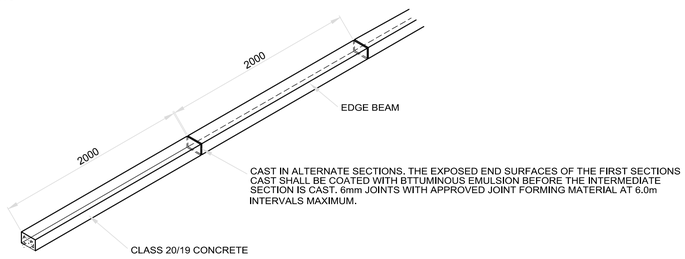


400 SLOPING KERB

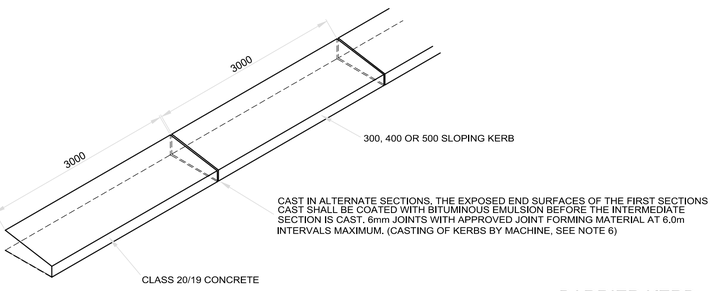


SEMI-VERTICAL / BARRIER KERBS ON CURVED SECTIONS

(NOTE: TO BE USED UP TO AND INCLUDING A 15m RADIUS)

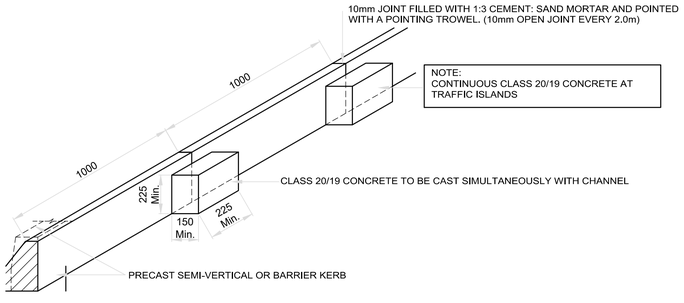


EDGE BEAM



500 SLOPING KERB

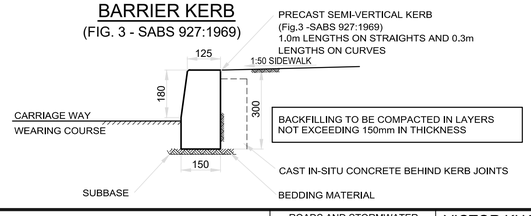
DETAIL OF SLOPING KERB



SEMI-VERTICAL / BARRIER KERBS ALONG STRAIGHT SECTIONS

BARRIER KERB

(FIG. 3 - SABS 927:1969)



NOTES :

1. THE 20mm LIP ON ALL KERBS IS APPLICABLE TO ALL PAVED ROADS EXCEPT WHERE BLOCK OR CONCRETE PAVING IS USED.
2. CONCRETE TO BE CLASS 20/19.
3. CONCRETE TO BE CURED FOR A MINIMUM PERIOD OF 7 DAYS.
4. ALL CONCRETE TO BE USED FOR SLOPING KERBS OR EDGE BEAMS SHALL HAVE A SLUMP NOT GREATER THAN 60mm.
5. WHERE THERE IS A DIFFERENCE BETWEEN THE TOP OF THE SUBBASE AND THE BOTTOM OF THE CAST IN-SITU KERBS OF LESS THAN 75mm, SUCH DIFFERENCE SHALL BE MADE UP WITH THE SAME CONCRETE AS SPECIFIED FOR THE KERB, OTHERWISE COMPACTED SUBBASE MATERIAL SHALL BE USED.
6. THE USE OF MACHINE TO PLACE CAST IN-SITU KERBS MUST FIRST BE APPROVED BY THE ENGINEER.
7. ALL PRECAST KERBS SHALL COMPLY WITH THE REQUIREMENTS OF SANS 927.

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

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WEBSITE: www.ktnconsulting.co.za

KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

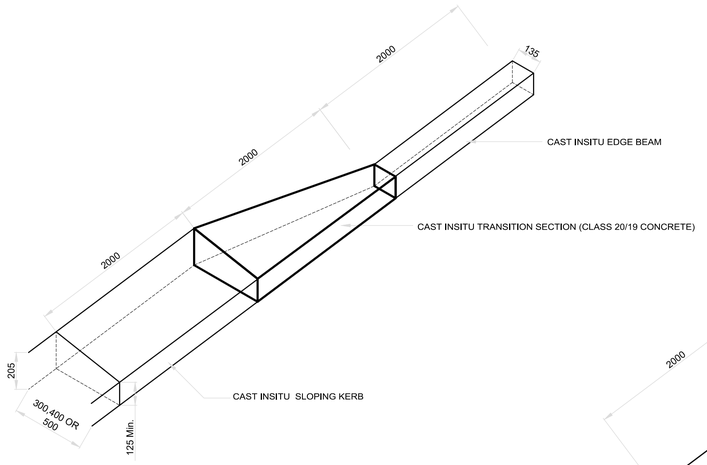
DESCRIPTION OF PROJECT
SLOPING KERB, SEMI-VERTICAL KERBS AND EDGE BEAM

CONTRACT No. :
PROJECT No. : 2005B
SCALE : N.T.S
DATE : NOVEMBER 2022

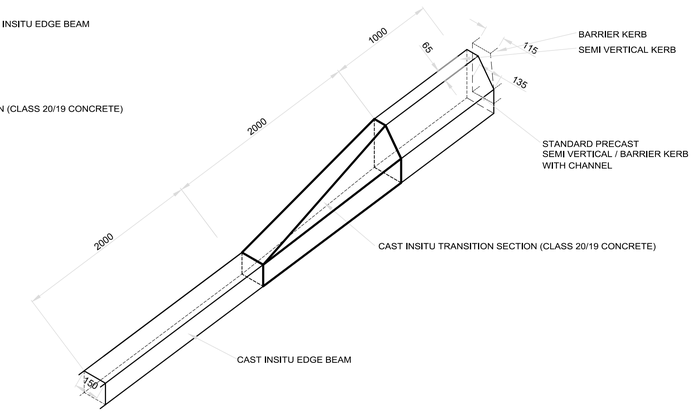
PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

PROJECT ENGINEER: K. MAYAYISE — INITIALS AND SURNAME — SIGNATURE & PR NUMBER — DATE
INSPECTOR OF WORKS: SIGNATURE — DATE
REMARKS:
ORIGINAL PAPER SIZE: A1

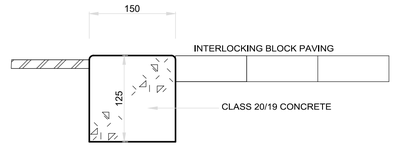
DRAWING NO. 2005B-004D10
SHEET NO: 1 OF 1
VERSION: 0



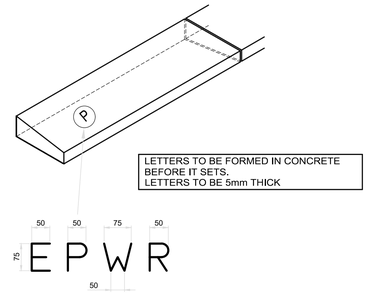
TRANSITION FROM SLOPING KERB
TO EDGE BEAM



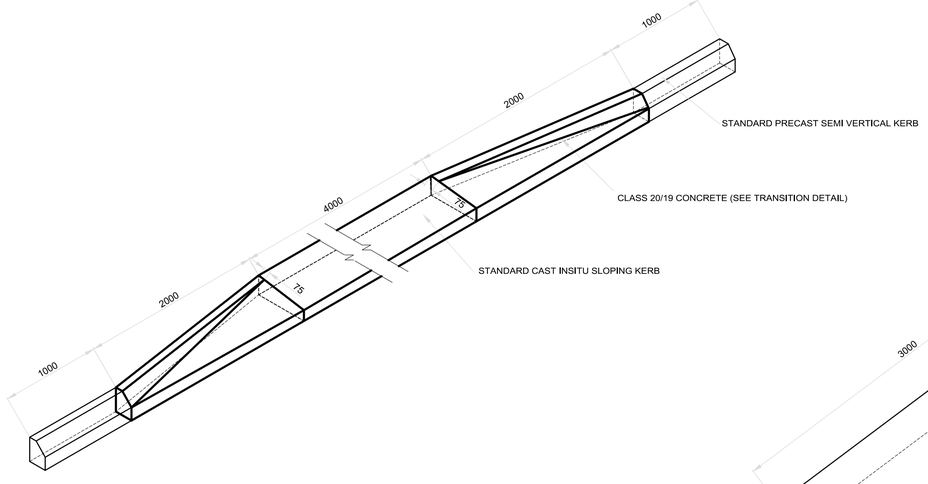
TRANSITION FROM SEMI VERTICAL / BARRIER KERB
TO EDGE BEAM



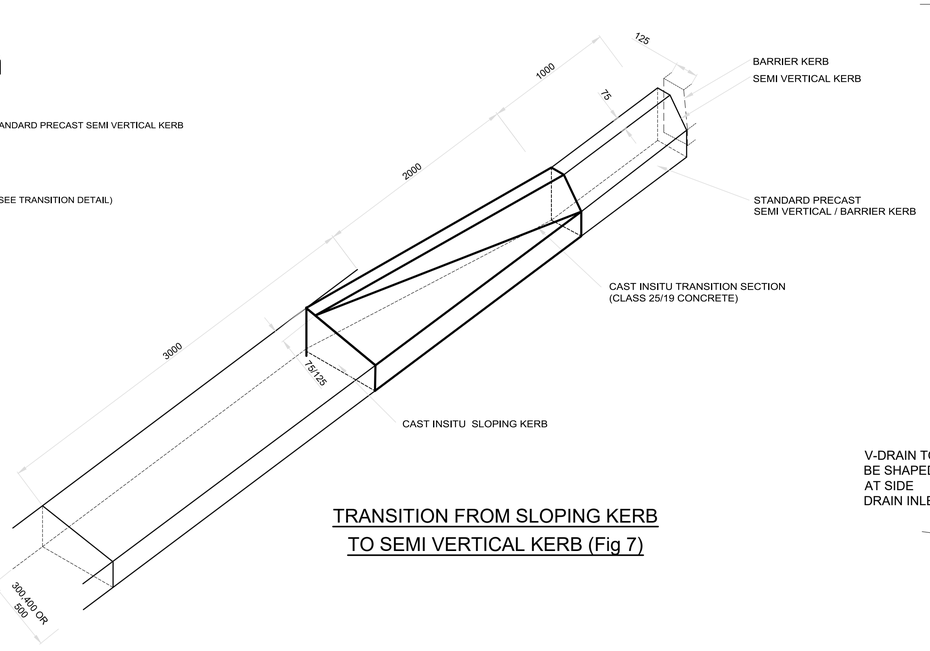
TYPICAL SECTION OF EDGE BEAM AT THE
TRANSITION OF TWO TYPES OF PAVING



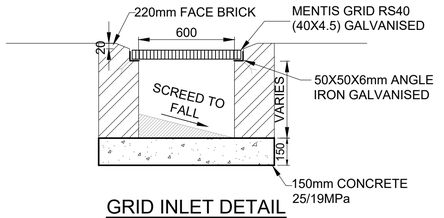
DETAIL FOR THE IDENTIFICATION OF SLEEVE POSITIONS



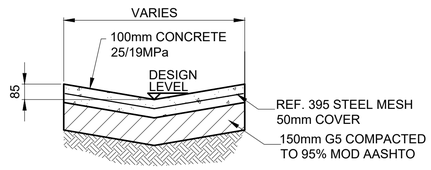
DETAIL OF VEHICLE ENTRANCE
IN SEMI VERTICAL KERBING



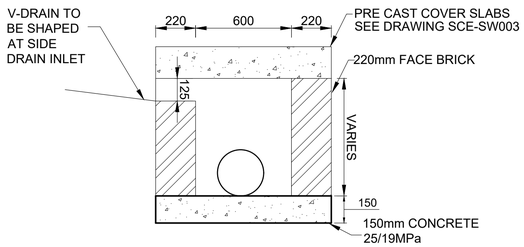
TRANSITION FROM SLOPING KERB
TO SEMI VERTICAL KERB (Fig 7)



GRID INLET DETAIL



V-DRAIN DETAIL



SIDE DRAIN INLET DETAIL

NOTES :

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AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND
PROJECT MANAGERS
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DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

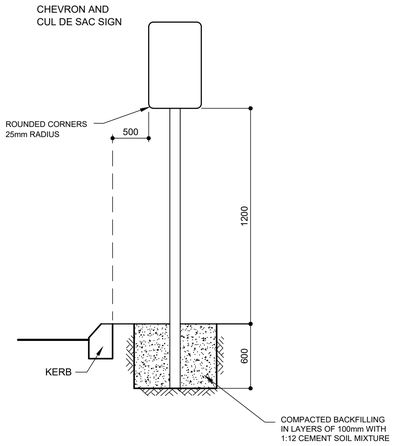
LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK,
DELMAS

DESCRIPTION OF PROJECT
TRANSITION SECTIONS AND
STORMWATER DRAIN DETAILS

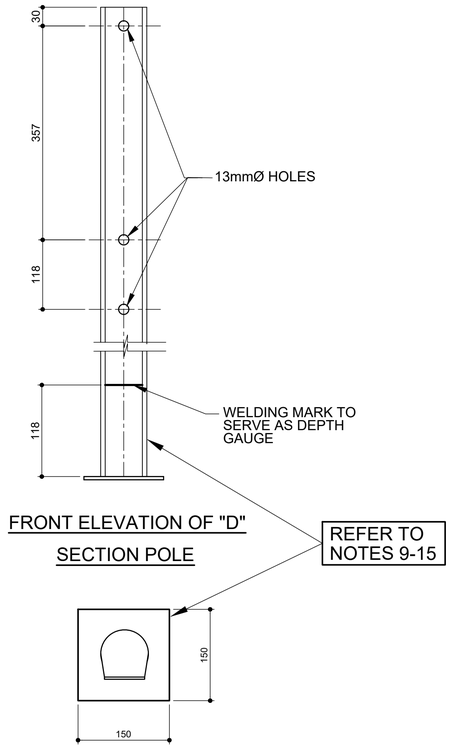
PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

PROJECT ENGINEER: K. MAYAYISE (INITIALS AND SURNAME) (SIGNATURE & PR NUMBER) (DATE)
INSPECTOR OF WORKS: (SIGNATURE) (DATE)
REMARKS:
ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO.	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-004D11	1 OF 1	0

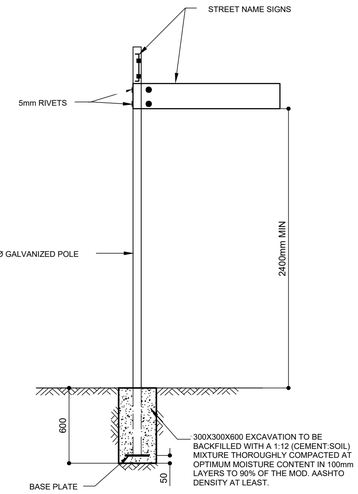


CHEVRON OR CUL DE SAC SIGN
INSTALLATION DETAIL

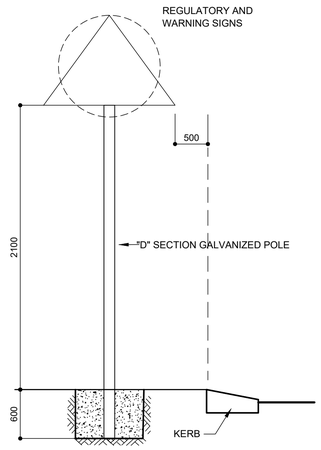


FRONT ELEVATION OF "D"
SECTION POLE

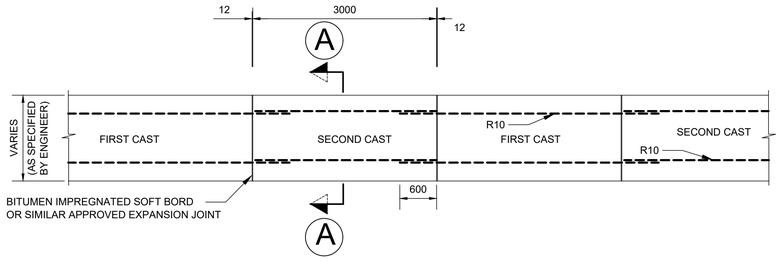
PLAN OF "D"
SECTION POLE



STREET NAME BOARD
INSTALLATION DETAIL

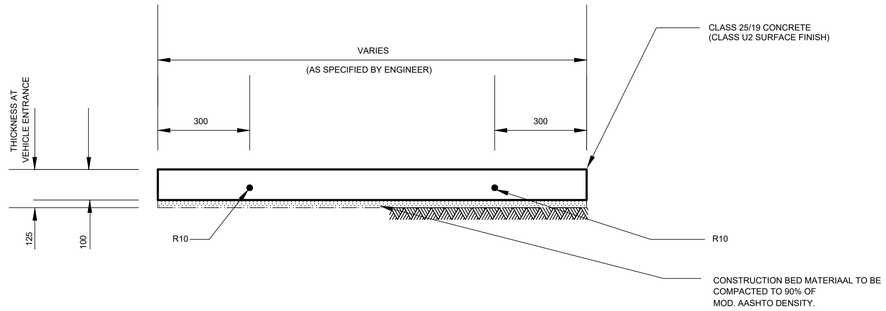


REGULATORY / WARNING SIGNS
INSTALLATION DETAIL

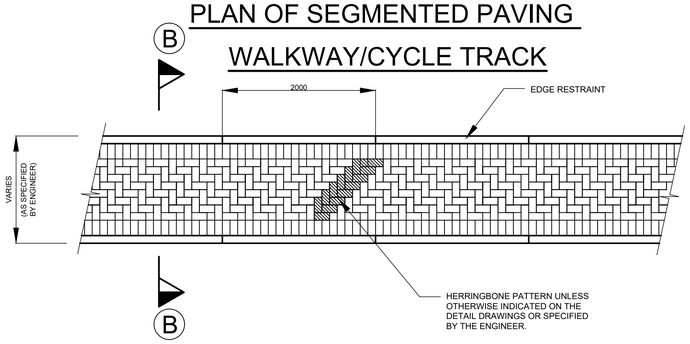


PLAN OF CAST INSITU CONCRETE
WALKWAY /CYCLE TRACK

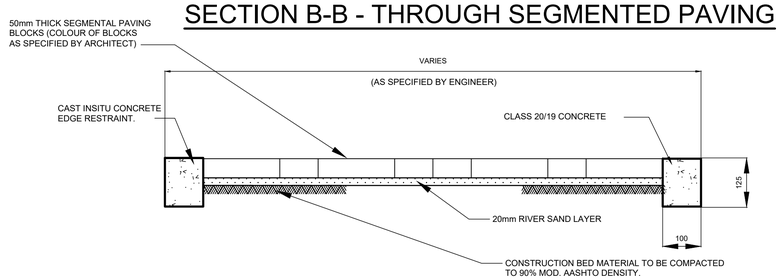
SECTION A-A - THROUGH CAST INSITU CONCRETE



PLAN OF SEGMENTED PAVING
WALKWAY/CYCLE TRACK



SECTION B-B - THROUGH SEGMENTED PAVING



NOTES :

1. THE WIDTH OF ALL WALKWAYS AND CYCLE TRACKS SHALL BE SPECIFIED BY THE ENGINEER.
2. IF REQUIRED REGULATORY TRAFFIC SIGNS R110 TO R115, APPROPRIATE TO THE APPLICATION, SHALL BE ERECTED AT POSITIONS INDICATED BY THE ENGINEER.
3. SIDEWALKS AND WALKWAYS SHALL HAVE A CROSS FALL OF 2% (1:50) TOWARDS THE ROADWAY.
4. CONCRETE TO BE CLASS 25/19.
5. CONCRETE TO BE CURED FOR A MINIMUM PERIOD OF 7 DAYS.
6. ALL PRECAST CONCRETE SEGMENTAL BLOCKS SHALL COMPLY WITH THE REQUIREMENTS OF SANS 1058 AND SHALL BE SUPPLIED BY A MANUFACTURER APPROVED BY THE ENGINEER.
7. PRECAST EDGE RESTRAINTS ARE PERMITTED IF INDICATED ON THE DETAIL DRAWINGS OR SPECIFIED BY THE ENGINEER.
8. CAST IN-SITU EDGE RESTRAINTS SHALL BE CAST IN ALTERNATE SECTIONS. THE EXPOSED END SURFACES OF THE FIRST CAST SHALL BE COATED WITH BITUMINOUS EMULSION BEFORE THE INTERMEDIATE SECTION IS CAST. 6mm JOINTS SHALL BE PROVIDED WITH APPROVED JOINT FORMING MATERIAL AT 6m INTERVALS MAXIMUM.
9. THE POLE SHALL BE OF A "D" SECTION OBTAINED BY ROLLING FLAT MILD STEEL PLATE OF 2mm WALL THICKNESS TO THE DESIRED FORM, AND SEAM-WELDING IT ALONG THE ENTIRE LENGTH. THE D-SECTION EXTRUDED FROM STANDARD PIPE SECTION IS NOT ACCEPTABLE.
10. THE D-SECTION MUST HAVE A FLAT BASE OF APPROXIMATELY 63mm MEASURED EXTERNALLY AND THE CIRCULAR PART AN EXTERNAL DIAMETER OF 76mm.
11. THE HEIGHT FROM THE FLAT BASE TO THE TOP OF THE CIRCLE MUST BE 76mm MEASURED EXTERNALLY.
12. EACH POST IS TO BE BLANKED-OFF AT THE TOP BY MEANS OF A MILD STEEL PLATE, WITH THE SAME FORM AS THE D-SECTION AND AT LEAST 2mm THICK, WELDED TO THE TOP. THE WELDING JOINT MUST BE WATERTIGHT AND SMOOTHED OFF AFTER WELDING.
13. THE BASEPLATE OF 2mm THICK AND 150mm SQUARE IS TO BE WELDED TO THE BASE OF EACH POST BY MEANS OF 4 EVENLY SPACED WELDS, EACH NOT LESS THAN 20mm LONG.
14. THE POST SHALL BE HOT DIPPED ZINC COATED (GALVANISED).
15. HOLES TO BE DRILLED AS DIRECTED BY THE ENGINEER.

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND
PROJECT MANAGERS
THORNHILL OFFICE PARK,
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EMAIL: KTN@KTNCONSULTING.CO.ZA
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DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK,
DELMAS

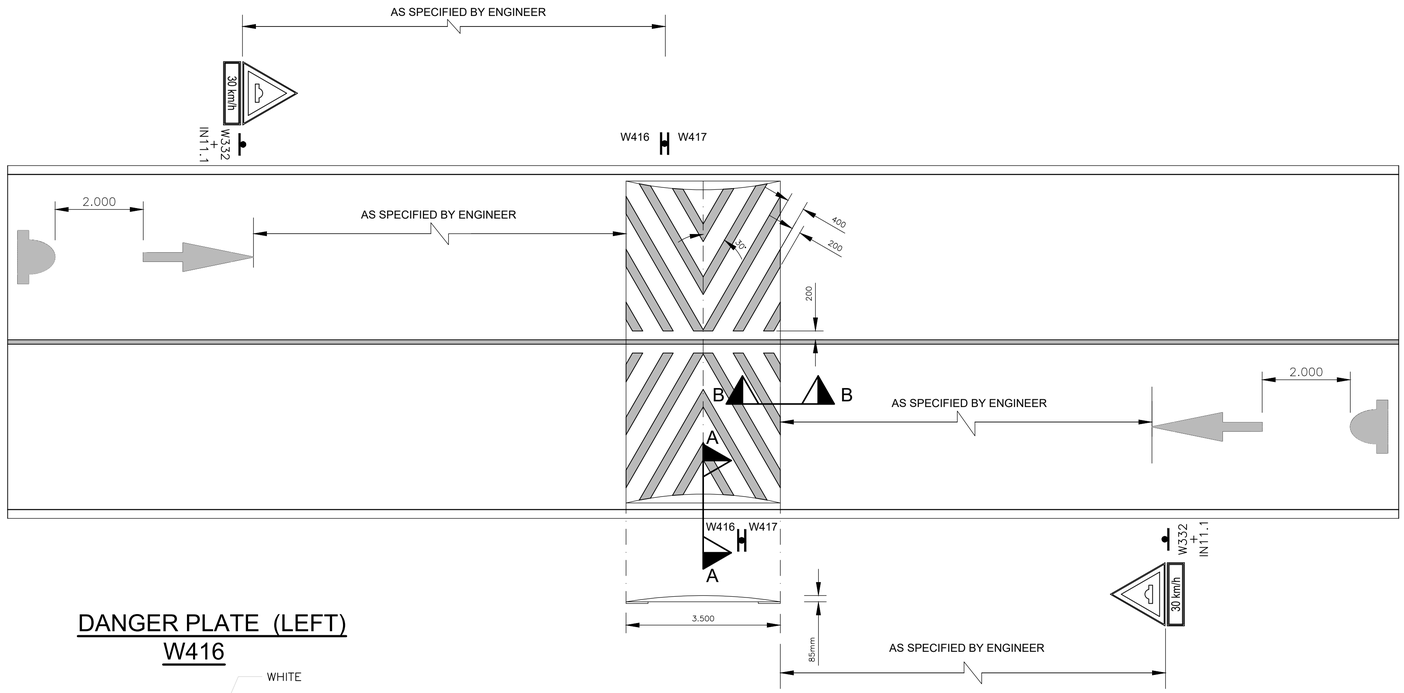
DESCRIPTION OF PROJECT
WALKWAY AND CYCLE TRACKS,
SIGN BOARDS AND STREET
NAME SIGNS.

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :
	2005B	N.T.S	NOVEMBER 2022

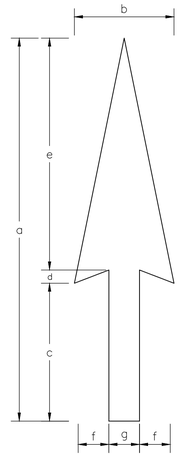
PROJECT STATUS
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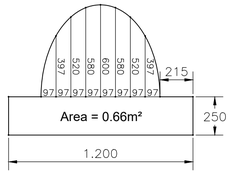
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME ____ SIGNATURE & PR NUMBER ____ DATE ____
INSPECTOR OF WORKS: ____
SIGNATURE ____ DATE ____
REMARKS:
ORIGINAL PAPER SIZE: A1

DRAWING NO. 2005B-004D12
SHEET NO: 1 OF 1
VERSION: 0



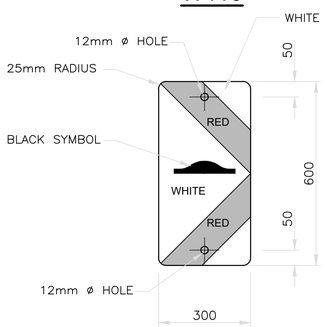
PLAN OF SPEED HUMP





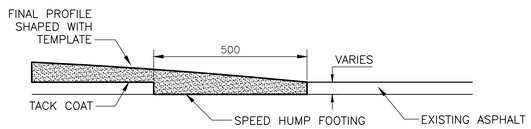
OPERATING SPEED km/h	TYPICAL APPLICATIONS	a	a*	b	c	c*	d	e	f	g
30 - 40	CITY CENTRE	1250	2000	1250	450	400	50	750	500	250
50 - 60	URBAN	2500	4000	1250	900	800	100	1500	500	250

DANGER PLATE (LEFT)
W416

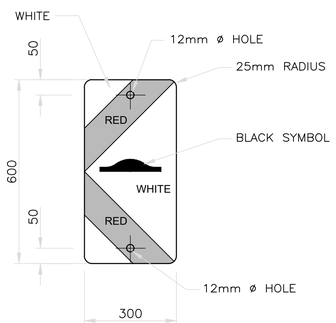


NOTE:
HIGH INTENSITY GRADE
RETRO-REFLECTIVE SHEETING
1,4 CHROMADECK BACKINGPLATE

SECTION B-B:
CONSTRUCTION DETAIL OF SPEED HUMP

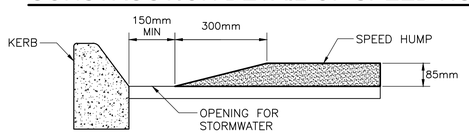


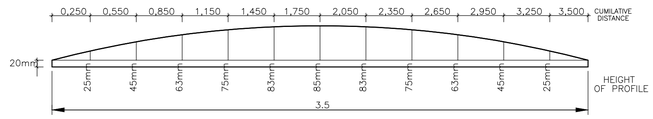
DANGER PLATE (RIGHT)
W417



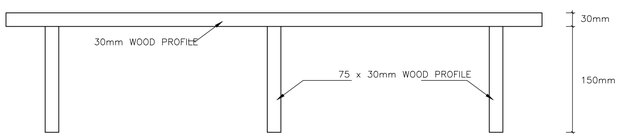
NOTE:
HIGH INTENSITY GRADE
RETRO-REFLECTIVE SHEETING
1,4 CHROMADECK BACKINGPLATE

SECTION A-A:
CONSTRUCTION DETAIL OF SPEED HUMP





SIDE ELEVATION



PLAN
TEMPLATE DETAIL FOR CONSTRUCTION OF SPEED HUMP

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
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WEBSITE: www.ktnconsulting.co.za

KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE
DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK,
DELMAS

DESCRIPTION OF PROJECT
TYPICAL SPEED HUMP DETAIL

CONTRACT No. :
PROJECT No. : 2005B
SCALE : N.T.S
DATE : NOVEMBER 2022

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

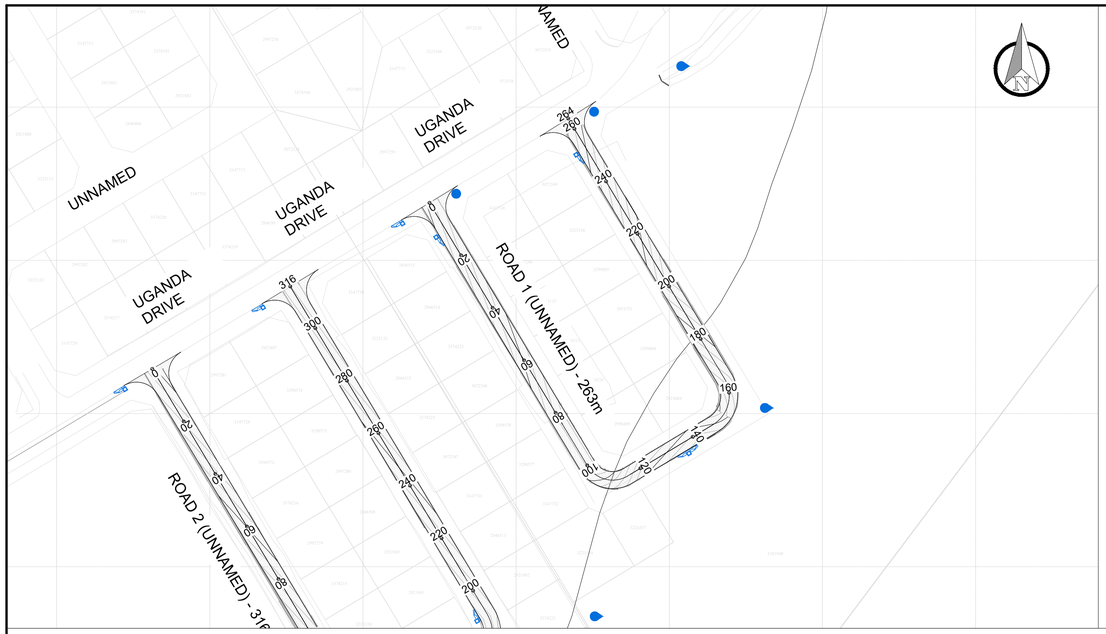
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME SIGNATURE & PR NUMBER DATE

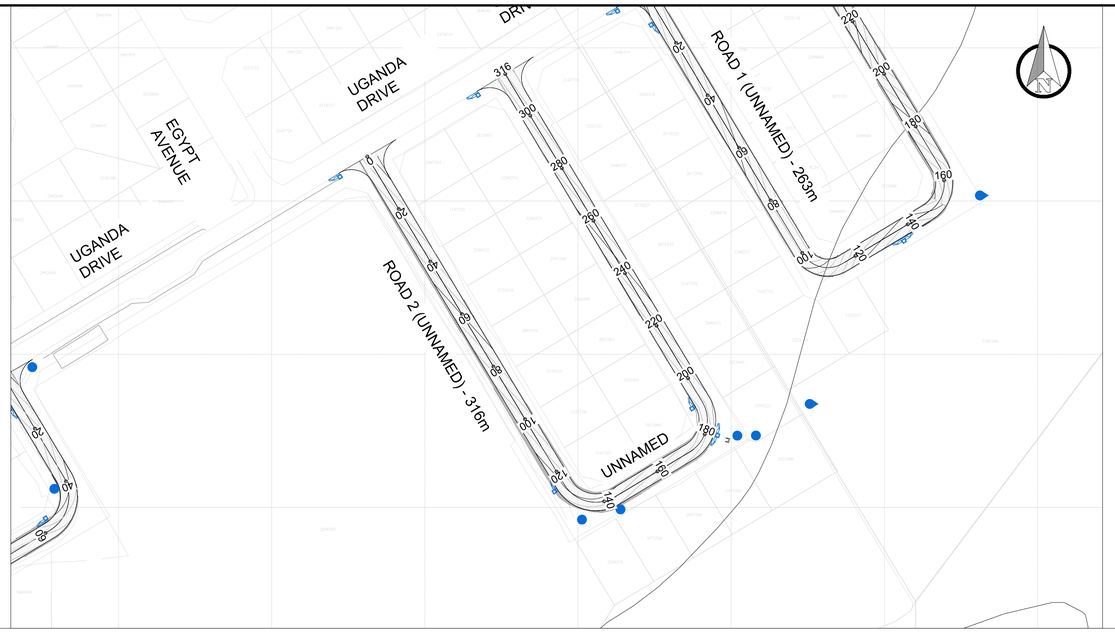
INSPECTOR OF WORKS:
SIGNATURE DATE

REMARKS:

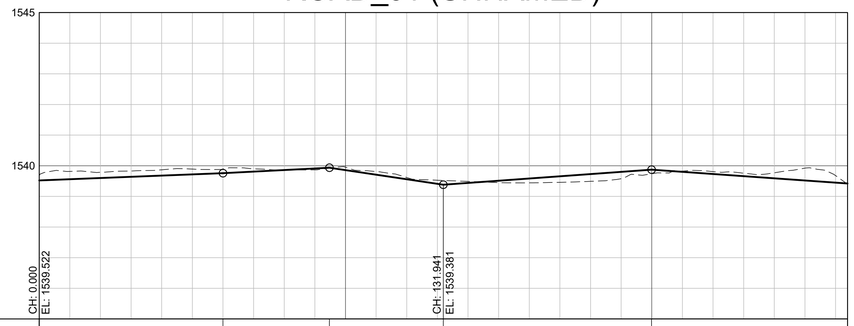
ORIGINAL PAPER SIZE: A1

DRAWING NO. 2005B-004D13
SHEET NO: 1 OF 1
VERSION: 0





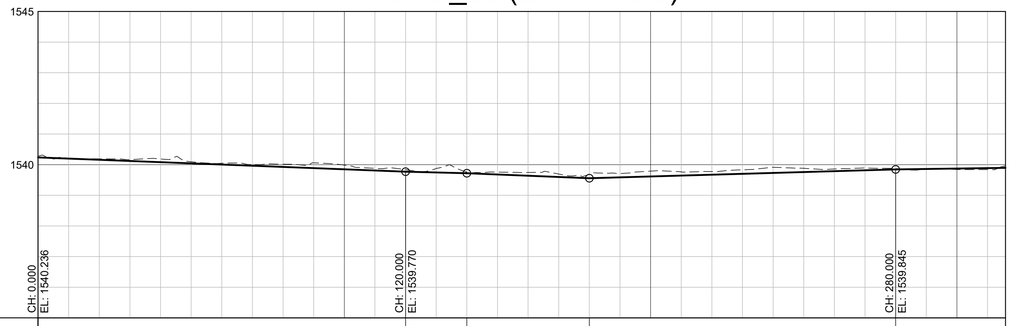
ROAD_01 (UNNAMED)



SCALES:
HORIZONTAL 1:1000
VERTICAL 1:100
DATUM 1535.000

VERTICAL PROFILE GRADES		0.394%				0.513%				-1.493%				0.723%				-0.707%										
FINAL DESIGN ROAD LEVELS	LEFT EDGE (2.75m)	1539.577	1539.617	1539.656	1539.695	1539.735	1539.774	1539.813	1539.865	1539.916	1539.915	1539.913	1539.764	1539.615	1539.555	1539.495	1539.567	1539.531	1539.602	1539.674	1539.746	1539.817	1539.747	1539.676	1539.605	1539.535	1539.464	1539.393	1539.366
	CENTRE LINE (CL)	1539.522	1539.562	1539.601	1539.640	1539.680	1539.719	1539.758	1539.810	1539.861	1539.912	1539.858	1539.709	1539.560	1539.410	1539.440	1539.512	1539.584	1539.657	1539.729	1539.801	1539.872	1539.802	1539.731	1539.660	1539.590	1539.519	1539.448	1539.421
	RIGHT EDGE (2.75m)	1539.467	1539.507	1539.546	1539.585	1539.625	1539.664	1539.703	1539.755	1539.806	1539.805	1539.803	1539.659	1539.505	1539.445	1539.385	1539.467	1539.639	1539.712	1539.784	1539.856	1539.927	1539.857	1539.786	1539.715	1539.645	1539.574	1539.503	1539.476
GROUND LEVELS ON CL		1539.657	1539.816	1539.786	1539.830	1539.869	1539.892	1539.893	1539.901	1539.857	1539.866	1539.954	1539.812	1539.616	1539.528	1539.489	1539.449	1539.442	1539.460	1539.492	1539.578	1539.739	1539.824	1539.809	1539.758	1539.771	1539.924	1539.679	1539.418
SUPERELEVATION	LEFT ..... RIGHT — —																												
HORIZONTAL ALIGNMENT		DIRECTION 329°00'10"										ECC1	CURVE	ECC1	DIRECTION 239°00'00"			ECC2	CURVE	ECC2	DIRECTION 149°00'00"								
												100.198	R=9.6m	15.212				47.652	R=11.0m	64.935									
													I=284°00'10"						I=194°00'00"										
DISTANCE (m)	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	264	

ROAD_02 (UNNAMED)



SCALES:
HORIZONTAL 1:1000
VERTICAL 1:100
DATUM 1535.000

VERTICAL PROFILE GRADES		-0.388%								-0.250%		-0.406%										0.287%						0.144%
FINAL DESIGN ROAD LEVELS	LEFT EDGE (2.75m)	1540.291	1540.252	1540.213	1540.175	1540.136	1540.097	1540.058	1540.019	1539.981	1539.942	1539.903	1539.864	1539.825	1539.800	1539.775	1539.735	1539.694	1539.653	1539.612	1539.532	1539.560	1539.589	1539.618	1539.646	1539.675	1539.704	1539.733	1539.761
	CENTRE LINE (CL)	1540.236	1540.197	1540.158	1540.120	1540.081	1540.042	1540.003	1539.964	1539.926	1539.887	1539.848	1539.809	1539.770	1539.745	1539.720	1539.680	1539.639	1539.599	1539.558	1539.587	1539.615	1539.644	1539.673	1539.701	1539.730	1539.759	1539.788	1539.816
	RIGHT EDGE (2.75m)	1540.181	1540.142	1540.103	1540.065	1540.026	1539.987	1539.948	1539.909	1539.871	1539.832	1539.793	1539.754	1539.715	1539.693	1539.682	1539.636	1539.584	1539.555	1539.508	1539.588	1539.670	1539.699	1539.728	1539.756	1539.785	1539.814	1539.843	1539.871
GROUND LEVELS ON CL		1540.283	1540.216	1540.190	1540.164	1540.166	1540.095	1540.048	1540.002	1540.017	1540.062	1539.966	1539.881	1539.839	1539.876	1539.758	1539.757	1539.746	1539.694	1539.688	1539.713	1539.789	1539.764	1539.775	1539.833	1539.915	1539.881	1539.859	1539.893
SUPERELEVATION	LEFT ..... RIGHT — —																												
HORIZONTAL ALIGNMENT		DIRECTION 329°00'10"													ECC1	CURVE	ECC1	DIRECTION 239°00'50"			ECC2	CURVE	ECC2	DIRECTION 148°59'10"					
															24.892	R=12.0m	143.739				172.296	R=12.0m	191.114						
																I=284°00'30"						I=194°00'00"							
DISTANCE (m)	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	316

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

TELL NO.: +27 (0) 805 0981
FAX NO.: +27 (0) 11 604 0039
EMAIL: KTN@KTNCONSULTING.CO.ZA
WEBSITE: www.ktnconsulting.co.za

KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

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VICTOR KHANYE LOCAL MUNCIPALITY
TECHNICAL SERVICE DEPARTMENT
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DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

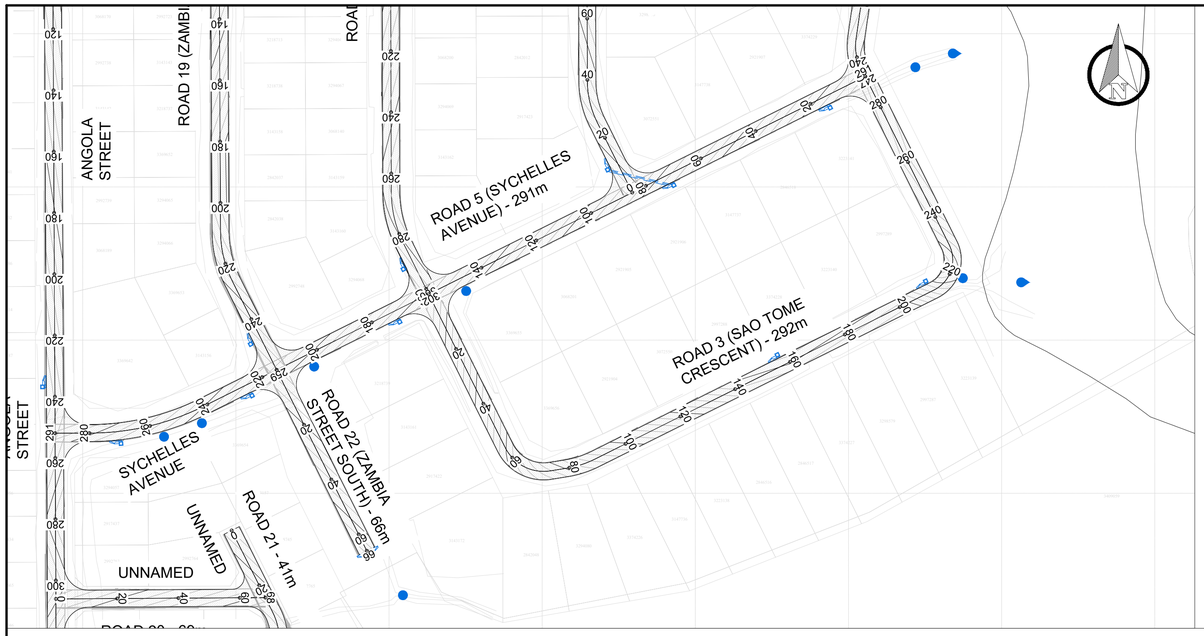
DESCRIPTION OF PROJECT
ROAD LAYOUT AND LONG SECTIONS

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE
INSPECTOR OF WORKS:
SIGNATURE | DATE
REMARKS:

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	ORIGINAL PAPER SIZE:	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	A1	1 OF 1	0

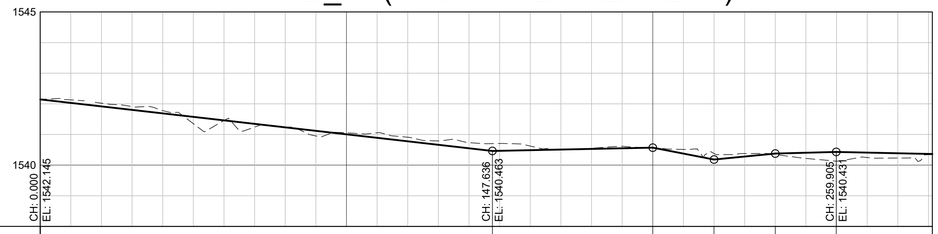
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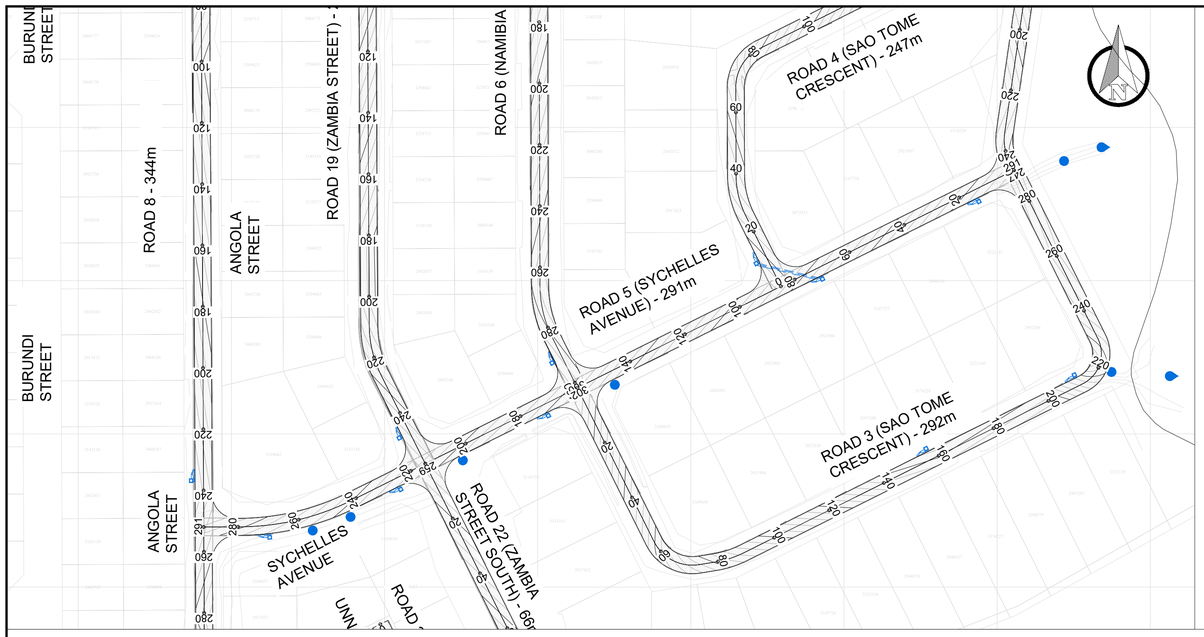


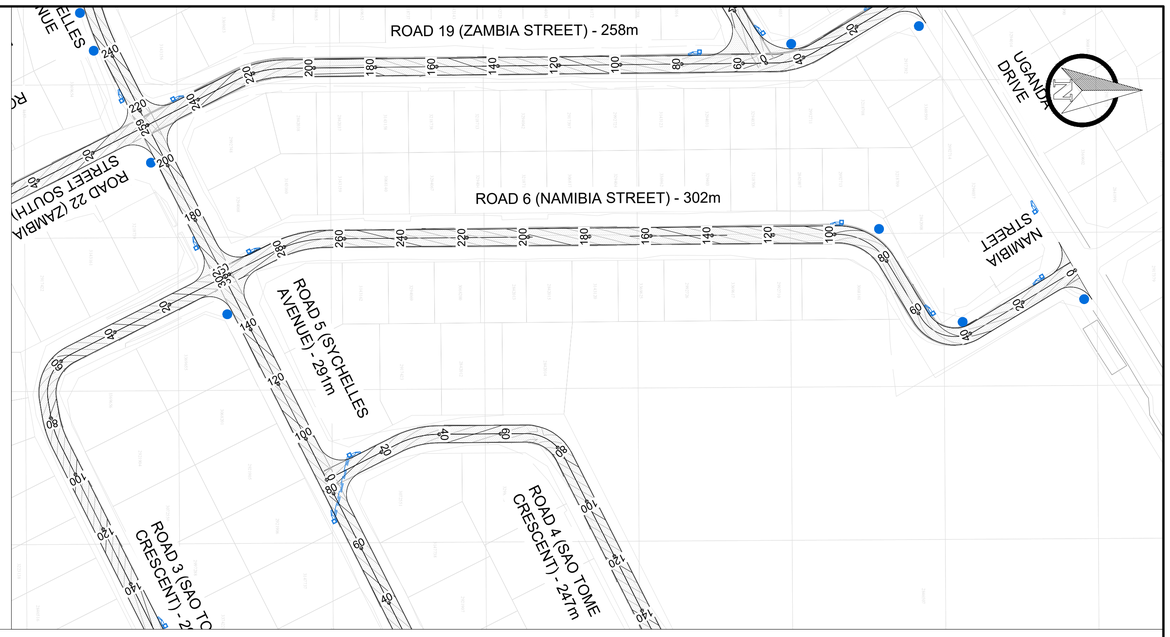
ROAD_03 (SAO TOME CRESCENT)

SCALES:
HORIZONTAL 1:1000
VERTICAL 1:100
DATUM 1538.000

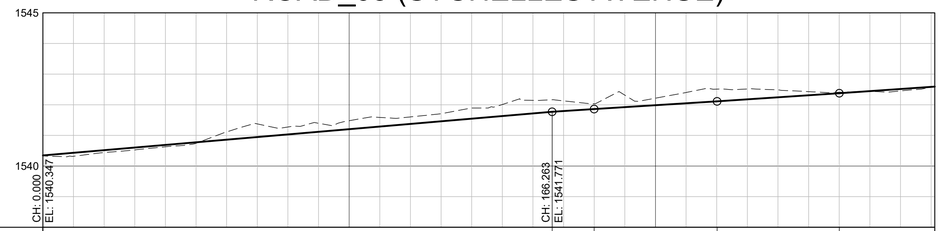


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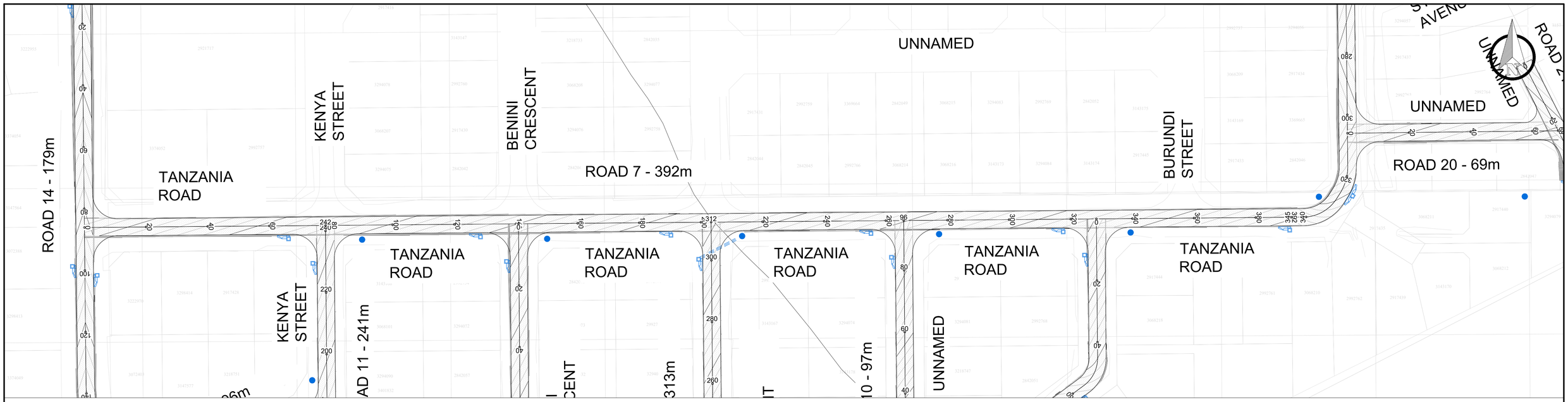


ROAD_05 (SYCHELLES AVENUE)

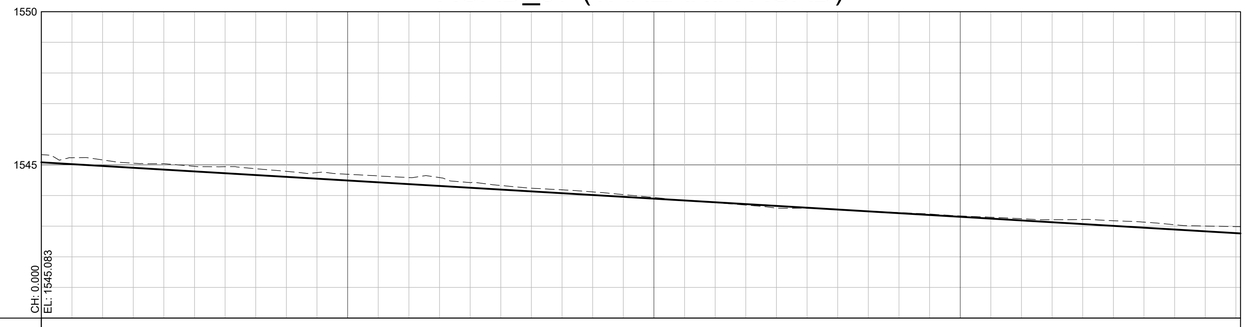


SCALES:
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VERTICAL 1:100
DATUM 1538.000

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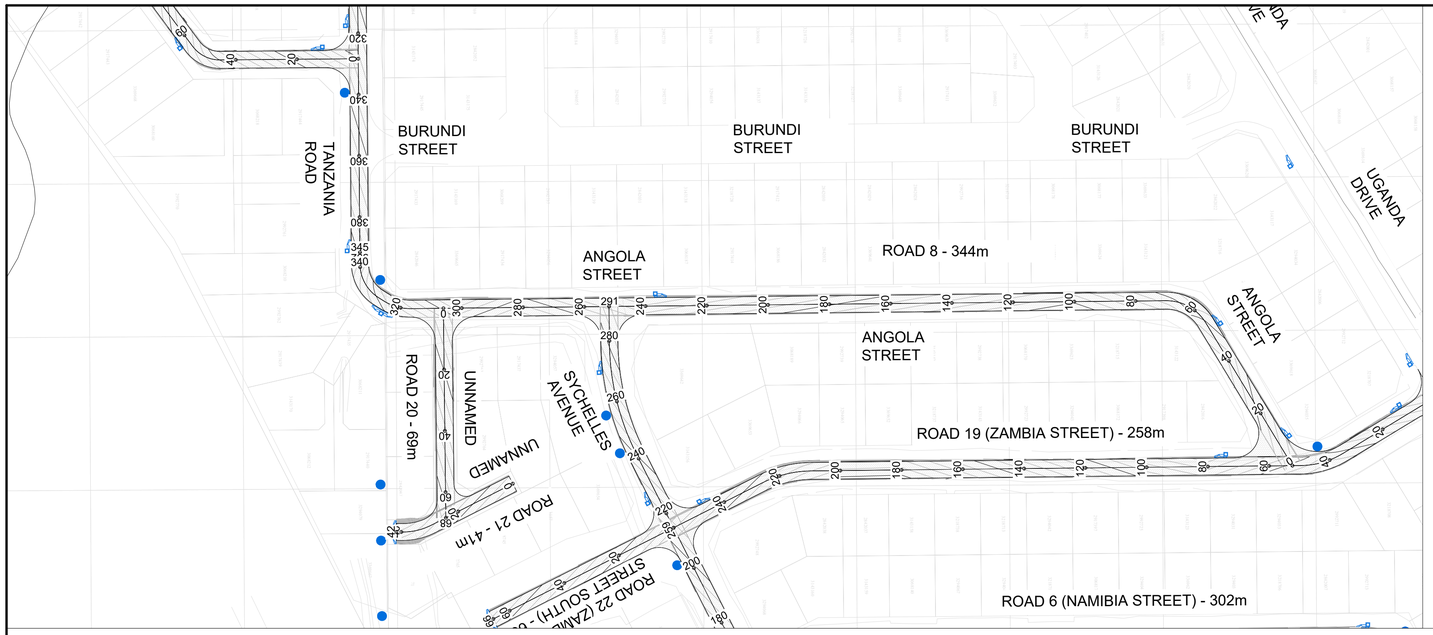
ROAD_07 (TANZANIA ROAD)

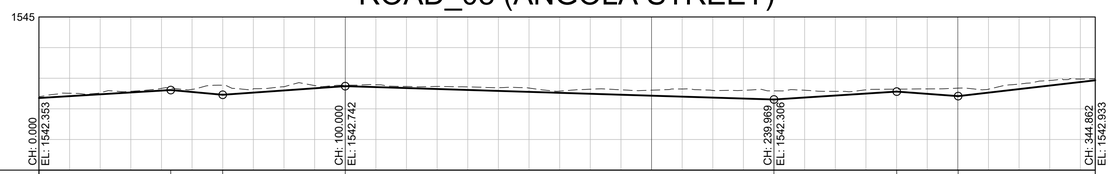


SCALES:
HORIZONTAL 1:1000
VERTICAL 1:100
DATUM 1540.000

VERTICAL PROFILE GRADES: -0.592%

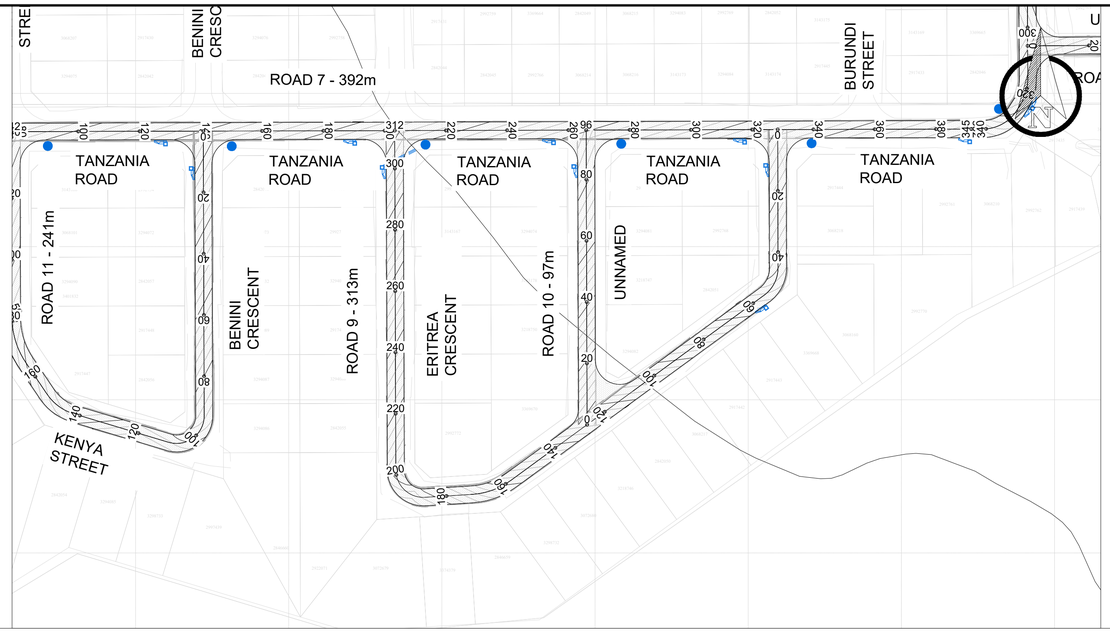
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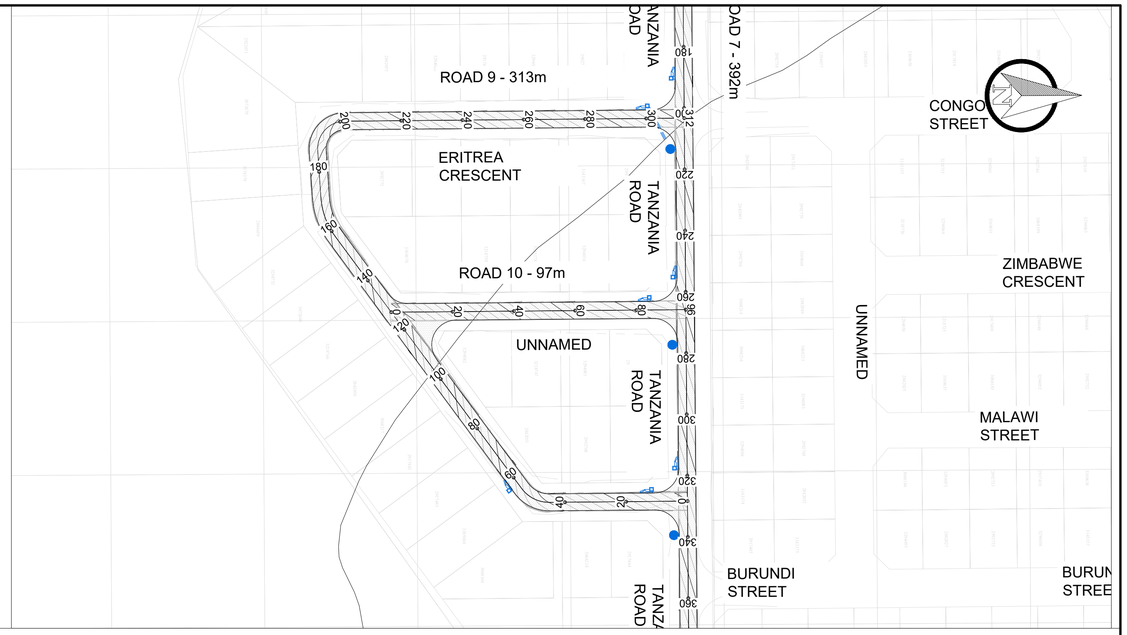




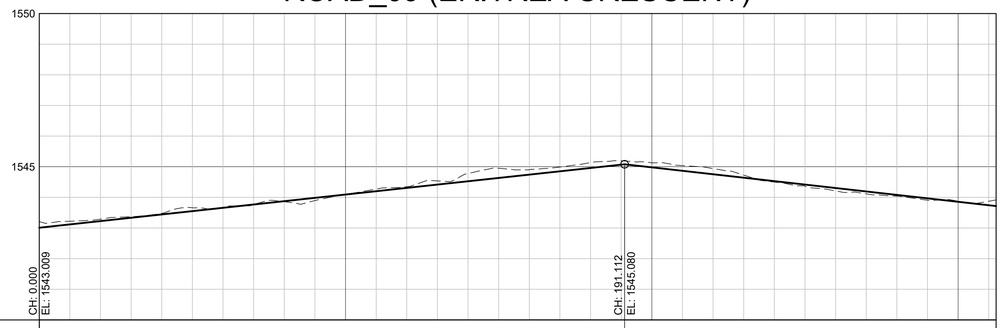
SCALES:
HORIZONTAL 1:1000
VERTICAL 1:100
DATUM 1540.000

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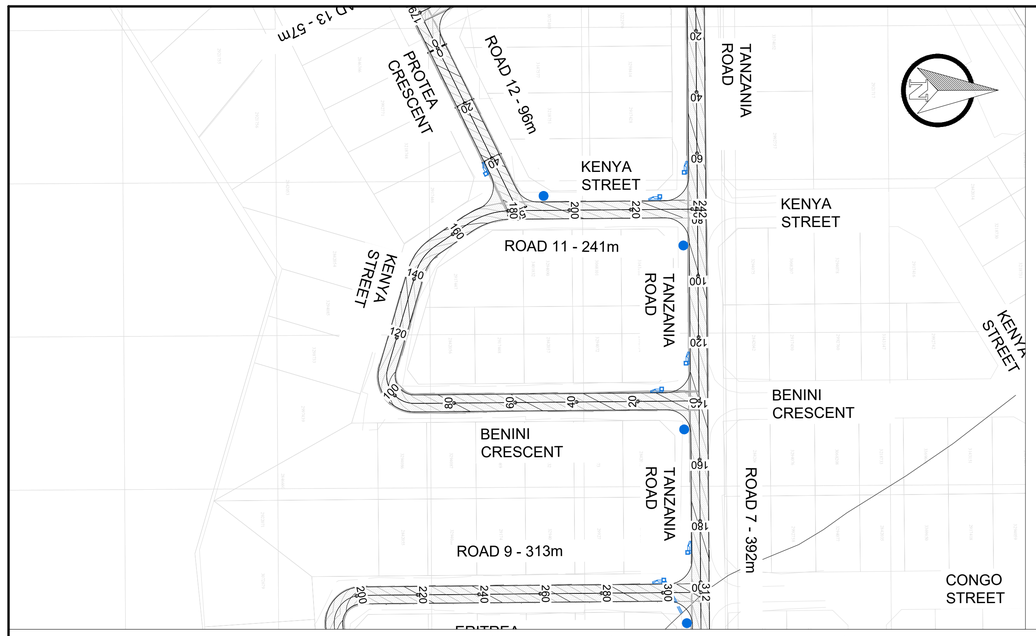
ROAD_09 (ERITREA CRESCENT)

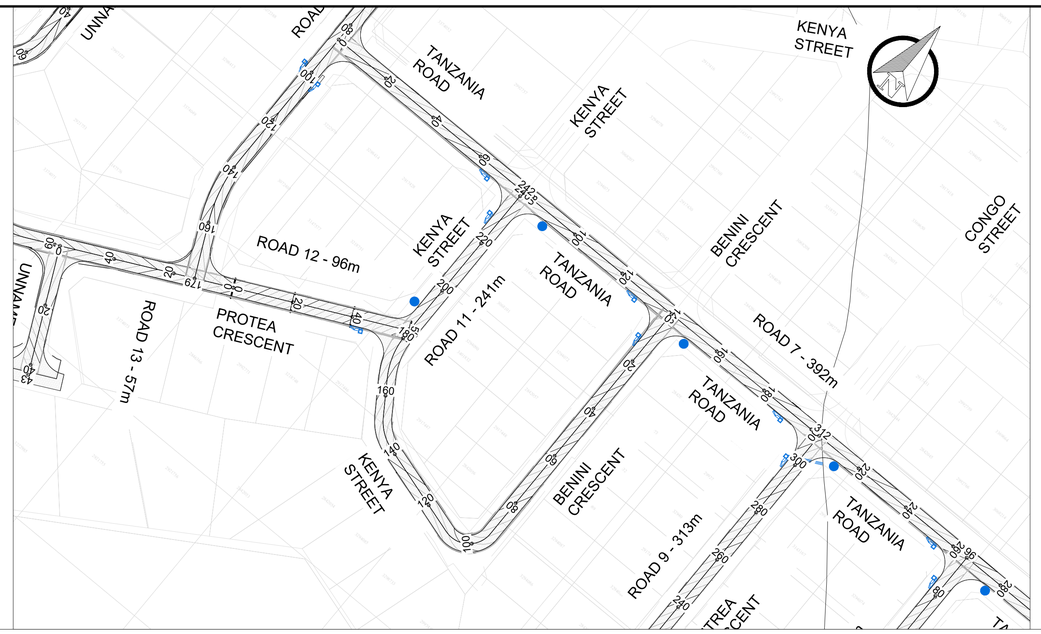


SCALES:
HORIZONTAL 1:1000
VERTICAL 1:100
DATUM 1540.000

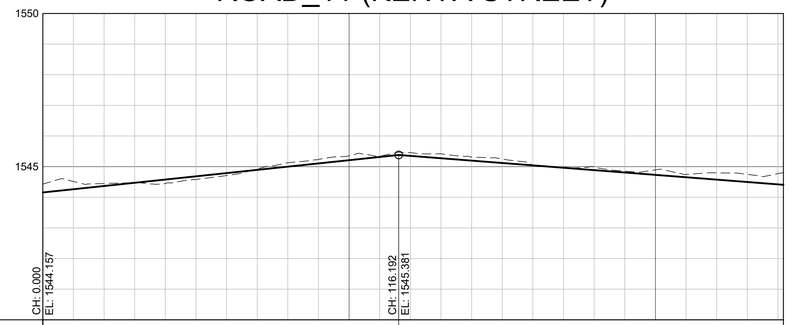
VERTICAL PROFILE GRADES			1.084%																-1.124%										
FINAL DESIGN ROAD LEVELS	LEFT EDGE (2.75m)	1543.064	1543.172	1543.281	1543.389	1543.497	1543.606	1543.714	1543.822	1543.931	1544.039	1544.148	1544.256	1544.364	1544.473	1544.581	1544.689	1544.798	1544.906	1545.014	1545.123	1544.961	1544.813	1544.700	1544.588	1544.475	1544.363	1544.251	1544.138	1544.026	1543.914	1543.801	1543.688	1543.682
	CENTRE LINE (CL)	1543.009	1543.117	1543.226	1543.334	1543.442	1543.551	1543.659	1543.767	1543.876	1543.984	1544.093	1544.201	1544.309	1544.418	1544.526	1544.634	1544.743	1544.851	1544.959	1545.068	1544.980	1544.868	1544.755	1544.643	1544.530	1544.418	1544.306	1544.193	1544.081	1543.969	1543.856	1543.744	1543.741
	RIGHT EDGE (2.75m)	1542.954	1543.062	1543.171	1543.279	1543.387	1543.496	1543.604	1543.712	1543.821	1543.929	1544.038	1544.146	1544.254	1544.363	1544.471	1544.579	1544.688	1544.796	1544.904	1545.013	1544.939	1544.923	1544.810	1544.698	1544.585	1544.473	1544.361	1544.248	1544.136	1544.024	1543.911	1543.799	1543.792
GROUND LEVELS ON CL		1543.209	1543.221	1543.288	1543.370	1543.478	1543.662	1543.674	1543.768	1543.857	1543.895	1544.103	1544.271	1544.350	1544.538	1544.779	1544.950	1544.901	1544.992	1545.137	1545.192	1545.130	1545.037	1544.940	1544.728	1544.498	1544.363	1544.211	1544.115	1544.041	1543.907	1543.877	1543.874	1543.865
SUPERELEVATION	LEFT · · · · · · RIGHT — —																																	
HORIZONTAL ALIGNMENT			DIRECTION 359°50'10"			CC1 R=11.0m I=26°50'00"	EC1	CC2 R=24.0m I=70°07'50"	EC2	DIRECTION 53°50'00"																								
DISTANCE (m)		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	312

HORIZONTAL ALIGNMENT																													
			DIRECTION 53°50'00"																										



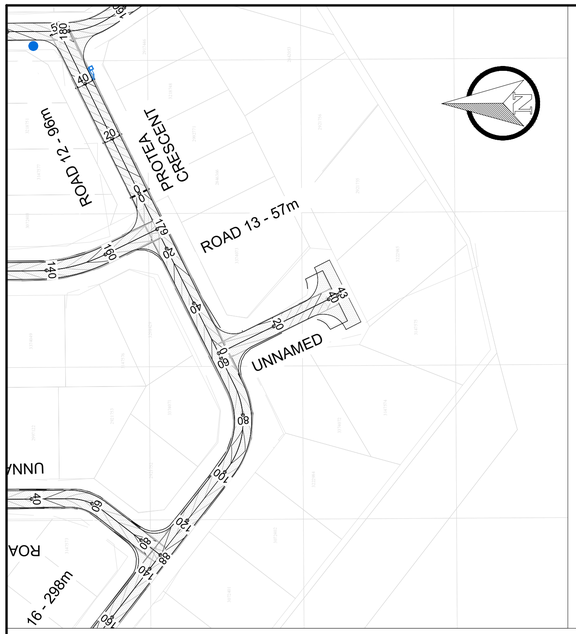


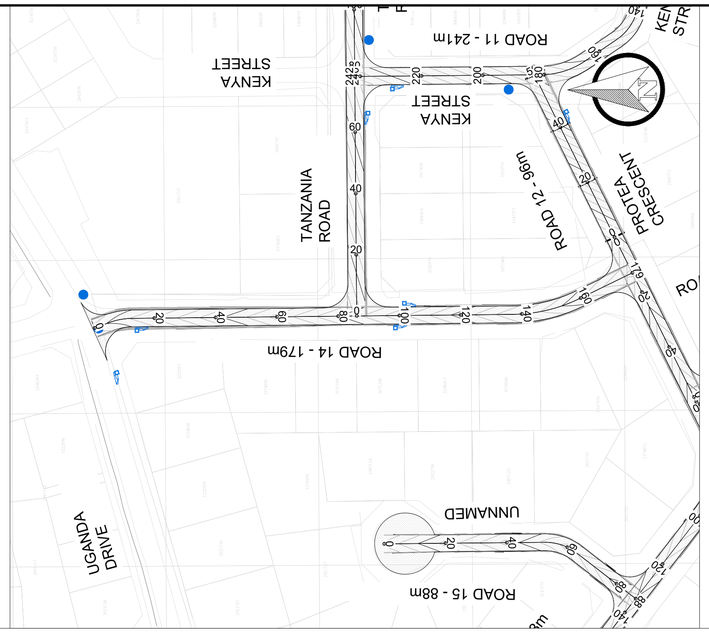
ROAD_11 (KENYA STREET)

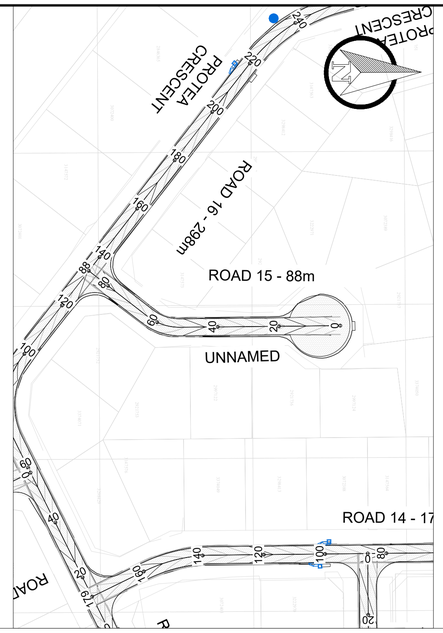


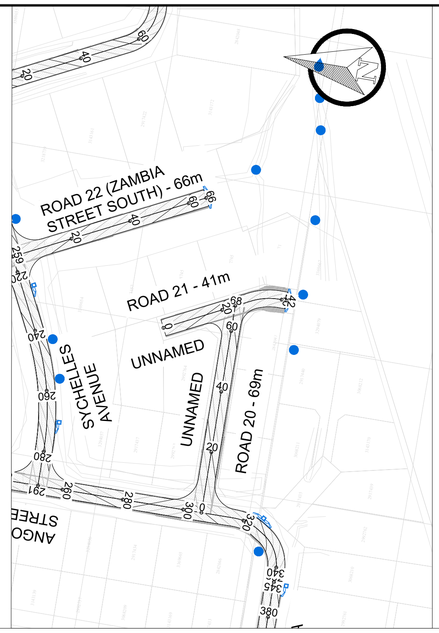
SCALES:
HORIZONTAL 1:1000
VERTICAL 1:100
DATUM 1540.000

| | | |

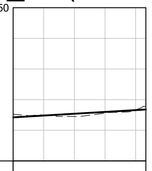








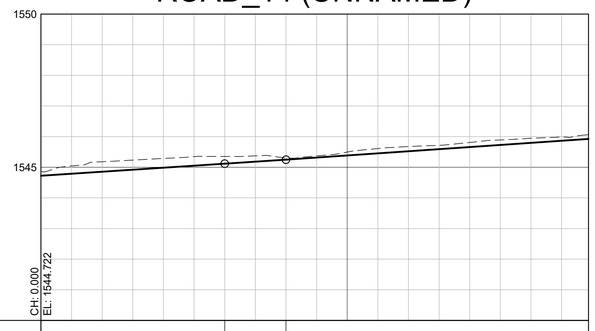
ROAD_13 (UNNAMED)



SCALES:
HORIZONTAL 1:1000
VERTICAL 1:100
DATUM 1545.000

VERTICAL PROFILE GRADES			0.589%				
FINAL DESIGN ROAD LEVELS	LEFT EDGE (2.75m)	1546.805	1546.769	1546.733	1546.875	1547.018	
	CENTRE LINE (CL)		1546.481	1546.540	1546.599	1546.658	1546.678
	RIGHT EDGE (2.75m)	1546.915	1546.879	1546.843	1546.985	1547.128	
GROUND LEVELS ON CL		1546.522	1546.499	1546.450	1546.559	1546.664	1546.779
SUPERELEVATION	LEFT / RIGHT						
HORIZONTAL ALIGNMENT			DIRECTION 334°10'20"				
DISTANCE (m)		0	10	20	30	40	43

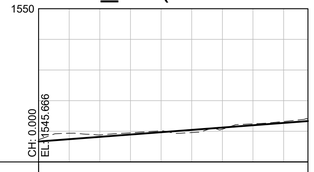
ROAD_14 (UNNAMED)



SCALES:
HORIZONTAL 1:1000
VERTICAL 1:100
DATUM 1540.000

VERTICAL PROFILE GRADES			0.657%							0.650%									0.687%							
FINAL DESIGN ROAD LEVELS	LEFT EDGE (2.75m)	1544.667	1544.742	1544.799	1544.864	1544.930	1544.996	1545.062	1545.127	1545.192	1545.260	1545.329	1545.398	1545.466	1545.535	1545.604	1545.672	1545.741	1545.810	1545.870						
	CENTRE LINE (CL)	1544.722	1544.788	1544.854	1544.919	1544.985	1545.051	1545.117	1545.182	1545.247	1545.315	1545.384	1545.453	1545.521	1545.590	1545.659	1545.727	1545.796	1545.865	1545.925						
	RIGHT EDGE (2.75m)	1544.667	1544.733	1544.799	1544.864	1544.930	1544.996	1545.062	1545.127	1545.192	1545.260	1545.329	1545.398	1545.466	1545.542	1545.605	1545.675	1545.741	1545.810	1545.870						
GROUND LEVELS ON CL		1544.656	1545.043	1545.180	1545.233	1545.286	1545.347	1545.353	1545.371	1545.302	1545.371	1545.496	1545.610	1545.675	1545.716	1545.810	1545.891	1545.945	1545.991	1546.061						
SUPERELEVATION	LEFT / RIGHT																									
HORIZONTAL ALIGNMENT			DIRECTION 339°46'25"							DIRECTION 359°43'20"							DIRECTION 359°43'20"				CURVE R=51.0m I=347°01'50"			DIRECTION 334°20'20"		
DISTANCE (m)		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	179						

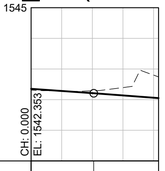
ROAD_15 (UNNAMED)



SCALES:
HORIZONTAL 1:1000
VERTICAL 1:100
DATUM 1545.000

VERTICAL PROFILE GRADES			0.759%							
FINAL DESIGN ROAD LEVELS	LEFT EDGE (2.75m)	1545.611	1545.687	1545.763	1545.839	1545.914	1545.997	1546.078	1546.152	1546.218	1546.279	
	CENTRE LINE (CL)	1545.666	1545.742	1545.818	1545.894	1545.969	1546.045	1546.121	1546.197	1546.273	1546.334	
	RIGHT EDGE (2.75m)	1545.611	1545.687	1545.763	1545.839	1545.914	1545.991	1546.066	1546.142	1546.218	1546.279	
GROUND LEVELS ON CL		1545.724	1545.936	1545.882	1545.950	1546.017	1545.958	1546.067	1546.244	1546.320	1546.396	
SUPERELEVATION	LEFT / RIGHT											
HORIZONTAL ALIGNMENT			DIRECTION 359°45'30"					CURVE R=17.0m I=18°56'10"		DIRECTION 38°06'40"		
DISTANCE (m)		0	10	20	30	40	50	60	70	80	88	

ROAD_21 (UNNAMED)



SCALES:
HORIZONTAL 1:1000
VERTICAL 1:100
DATUM 1540.000

VERTICAL PROFILE GRADES			-0.709%																-0.743%							
FINAL DESIGN ROAD LEVELS	LEFT EDGE (2.75m)	1542.408	1542.337	1542.266	1542.192	1542.118	1542.043	1541.968	1541.893	1541.818	1541.743	1541.668	1541.593	1541.518	1541.443	1541.368	1541.293	1541.218	1541.143	1541.068	1540.993	1540.918	1540.843	1540.768	1540.693	1540.618
	CENTRE LINE (CL)	1542.353	1542.282	1542.211	1542.137	1542.063	1541.988	1541.913	1541.838	1541.763	1541.688	1541.613	1541.538	1541.463	1541.388	1541.313	1541.238	1541.163	1541.088	1541.013	1540.938	1540.863	1540.788	1540.713	1540.638	1540.563
	RIGHT EDGE (2.75m)	1542.298	1542.227	1542.156	1542.082	1542.008	1541.933	1541.858	1541.783	1541.708	1541.633	1541.558	1541.483	1541.408	1541.333	1541.258	1541.183	1541.108	1541.033	1540.958	1540.883	1540.808	1540.733	1540.658	1540.583	1540.508
GROUND LEVELS ON CL		1542.312	1542.274	1542.288	1542.393	1542.502	1542.611	1542.720	1542.829	1542.938	1543.047	1543.156	1543.265	1543.374	1543.483	1543.592	1543.701	1543.810	1543.919	1544.028	1544.137	1544.246	1544.355	1544.464	1544.573	1544.682
SUPERELEVATION	LEFT / RIGHT																									
HORIZONTAL ALIGNMENT			DIRECTION 333°21'10"																CURVE R=17.0m I=346°39'50"							DIRECTION 13°38'30"
DISTANCE (m)		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

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

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WEBSITE: www.ktnconsulting.co.za

KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT: PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT: ROAD LAYOUT AND LONG SECTIONS

CONTRACT No. :
PROJECT No. : 2005B
SCALE : N.T.S
DATE : NOVEMBER 2022

PROJECT STATUS: ○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

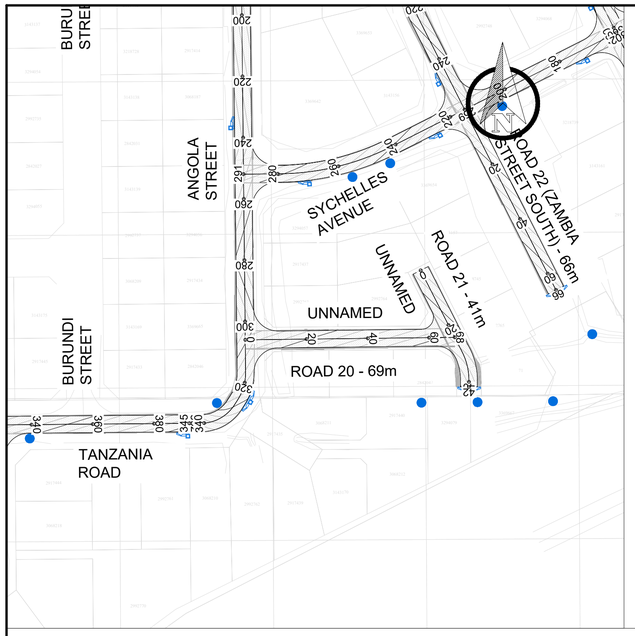
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

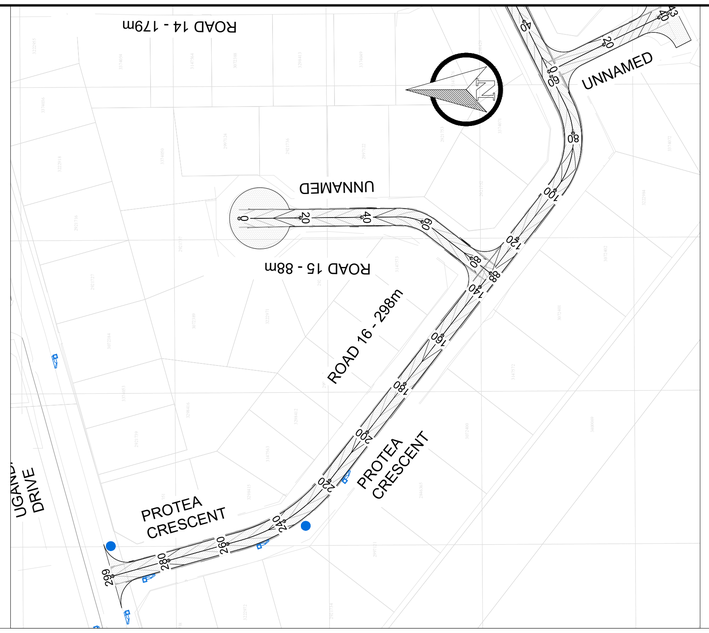
INSPECTOR OF WORKS:
SIGNATURE | DATE

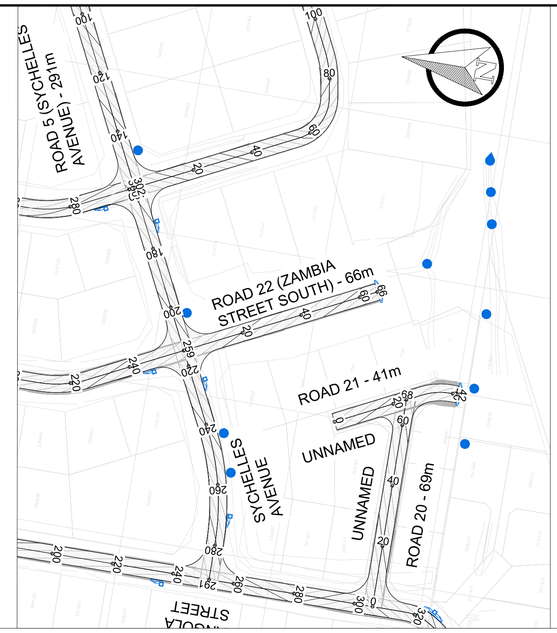
REMARKS:

ORIGINAL PAPER SIZE: A1

DRAWING NO.: 2005B-004LS08
SHEET NO.: 1 OF 1
VERSION: 0

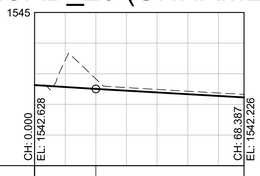






ROAD_20 (UNNAMED)

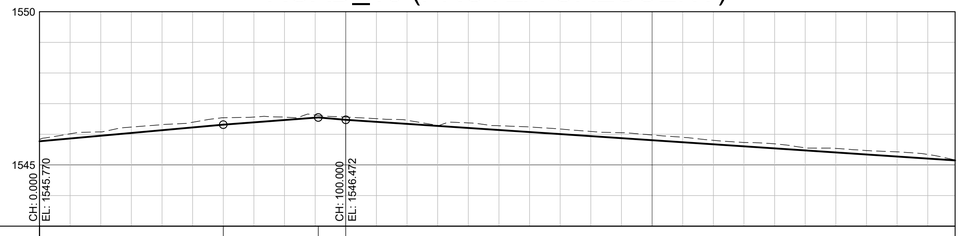
SCALES:
HORIZONTAL 1:1000
VERTICAL 1:100
DATUM 1540.000



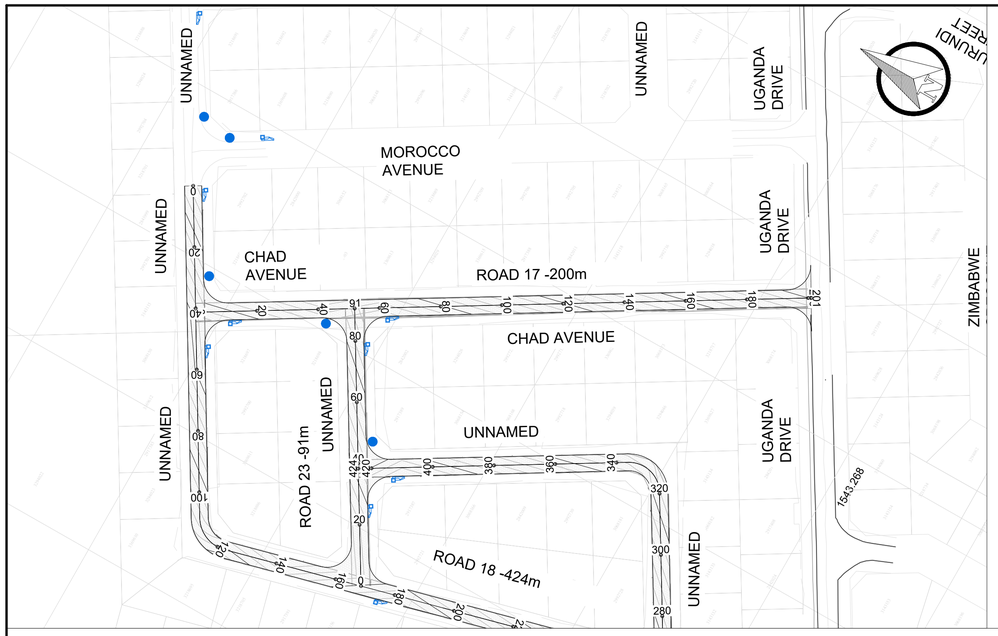
VERTICAL PROFILE GRADES			-0.626%			-0.572%			
FINAL DESIGN ROAD LEVELS	LEFT EDGE (2.75m)	1542.683	1542.621	1542.558	1542.501	1542.444	1542.386	1542.329	1542.281
	CENTRE LINE (CL)	1542.628	1542.566	1542.503	1542.446	1542.389	1542.331	1542.274	1542.226
	RIGHT EDGE (2.75m)	1542.573	1542.511	1542.448	1542.391	1542.334	1542.276	1542.219	1542.171
GROUND LEVELS ON CL		1542.642	1543.443	1542.832	1542.547	1542.486	1542.429	1542.372	1542.324
SUPERELEVATION	LEFT ····· RIGHT — —								
HORIZONTAL ALIGNMENT		DIRECTION 269°39'10"							
DISTANCE (m)		0	10	20	30	40	50	60	68

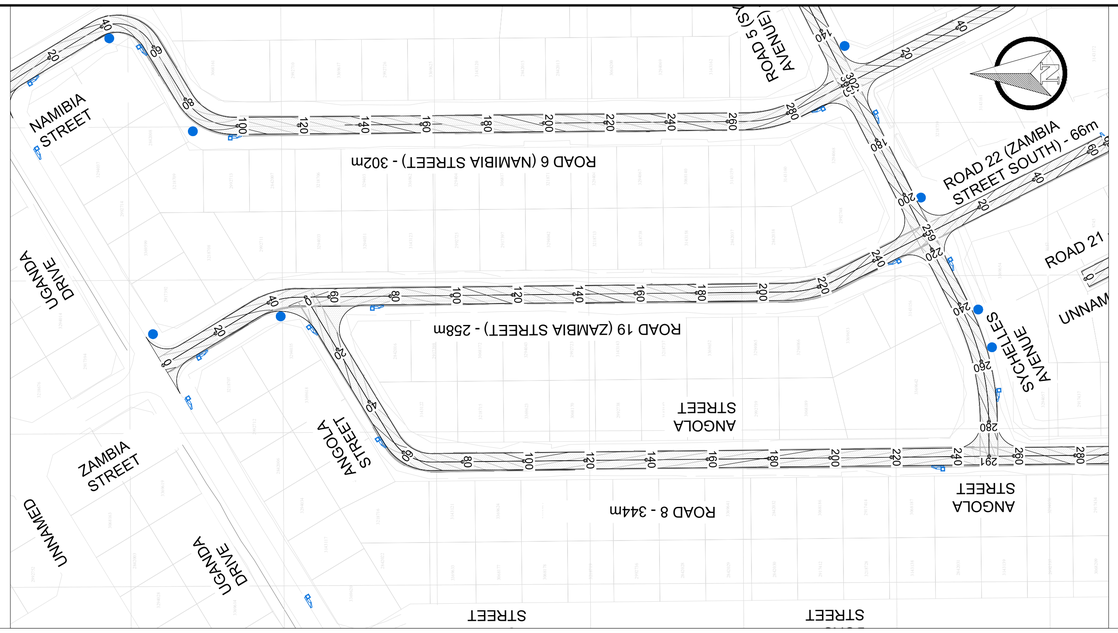
ROAD_16 (PROTEA CRESCENT)

SCALES:
HORIZONTAL 1:1000
VERTICAL 1:100
DATUM 1543.000

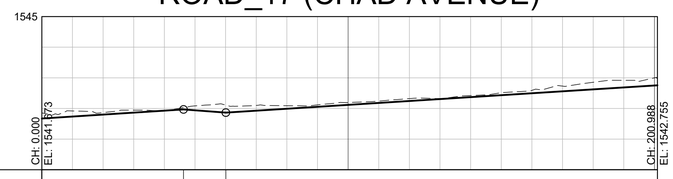


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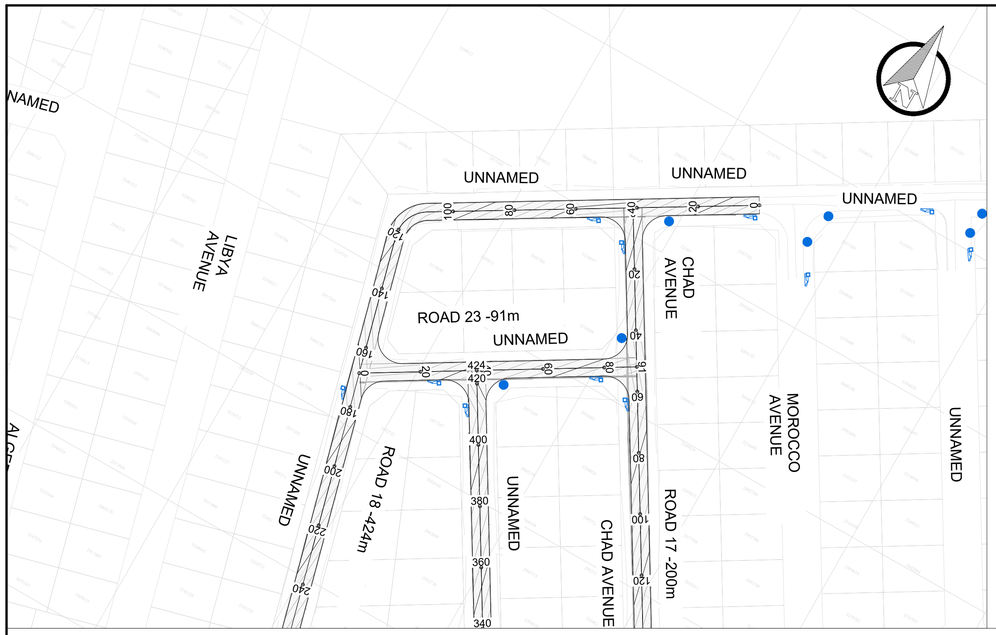


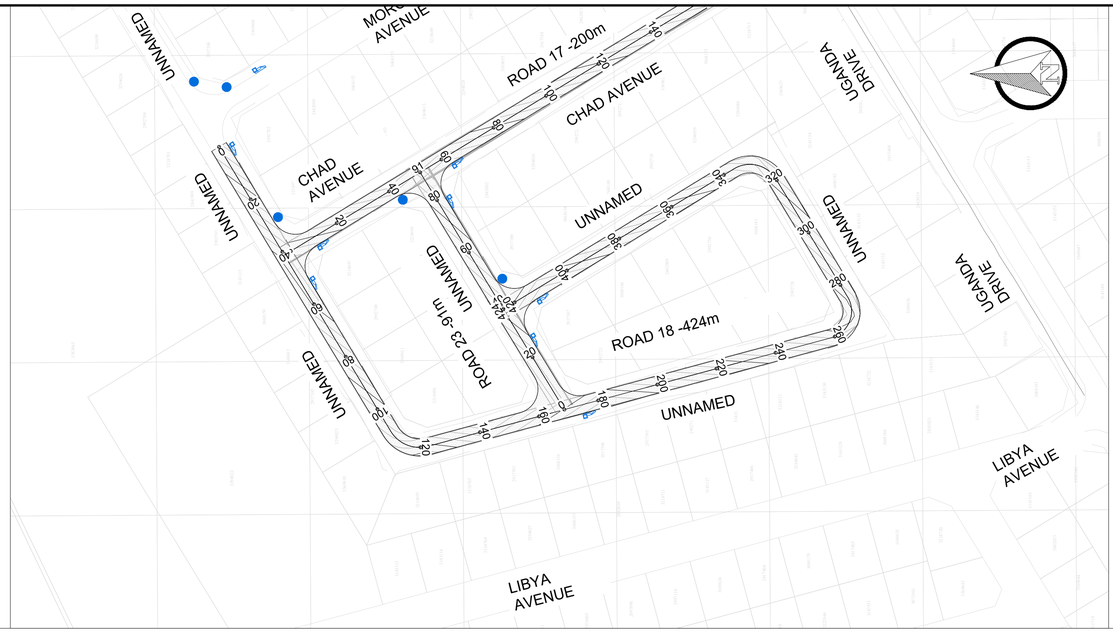
ROAD_17 (CHAD AVENUE)



SCALES:
HORIZONTAL 1:1000
VERTICAL 1:100
DATUM 1540.000

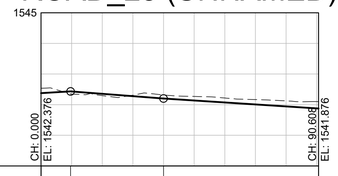
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ROAD_23 (UNNAMED)

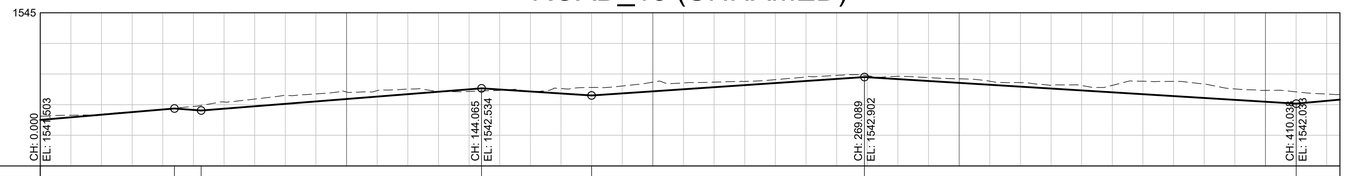
SCALES:
HORIZONTAL 1:1000
VERTICAL 1:100
DATUM 1540.000



VERTICAL PROFILE GRADES			0.589%		-0.761%			-0.644%			
FINAL DESIGN ROAD LEVELS	LEFT EDGE (2.75m)	1542.431	1542.420	1542.409	1542.333	1542.257	1542.192	1542.128	1542.064	1541.999	1541.935
	CENTRE LINE (CL)	1542.376	1542.430	1542.354	1542.278	1542.202	1542.137	1542.073	1542.009	1541.944	1541.880
	RIGHT EDGE (2.75m)	1542.321	1542.310	1542.299	1542.223	1542.147	1542.082	1542.018	1541.954	1541.889	1541.825
GROUND LEVELS ON CL		1542.536	1542.346	1542.296	1542.309	1542.318	1542.269	1542.218	1542.166	1542.124	1542.090
SUPERELEVATION	LEFT ····· RIGHT — —										
HORIZONTAL ALIGNMENT			DIRECTION 239°01'00"				DIRECTION 239°01'00"				
DISTANCE (m)		0	10	20	30	40	50	60	70	80	90

ROAD_18 (UNNAMED)

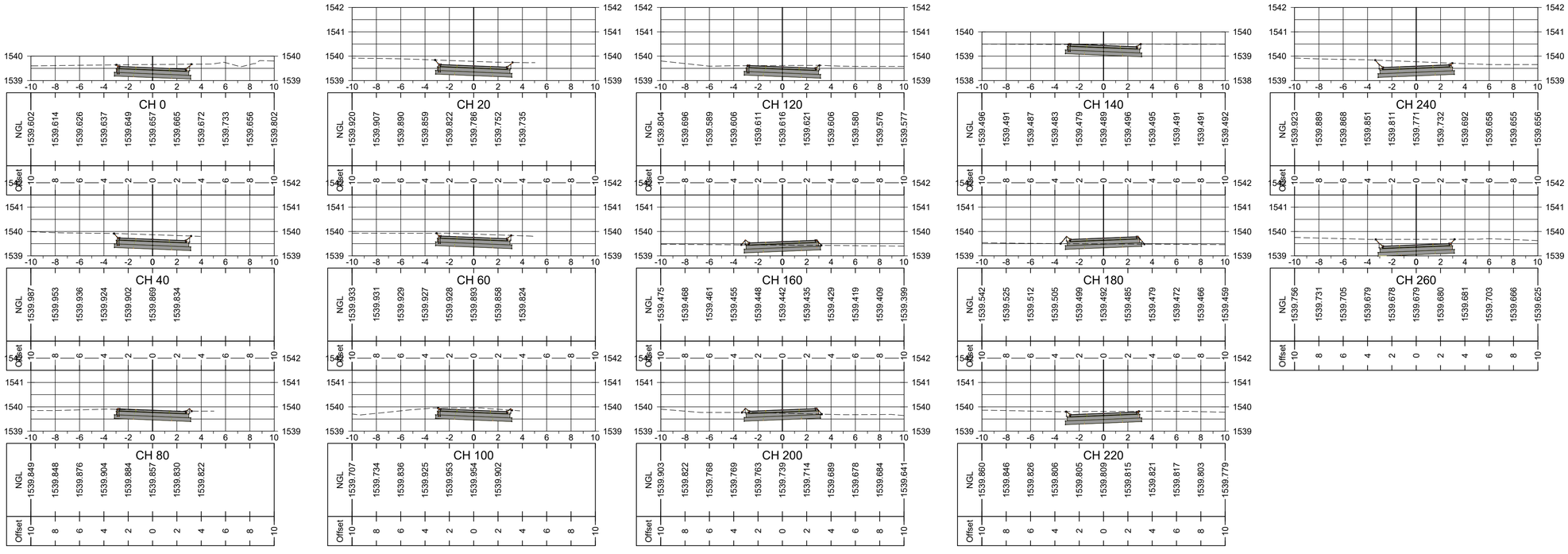
SCALES:
HORIZONTAL 1:1000
VERTICAL 1:100
DATUM 1540.000



VERTICAL PROFILE GRADES			0.850%		-0.743%		0.790%		-0.647%		0.674%
FINAL DESIGN ROAD LEVELS	LEFT EDGE (2.75m)	1541.567	1541.652	1541.737	1541.822	1541.907	1541.921	1541.934	1542.013	1542.092	1542.171
	CENTRE LINE (CL)	1541.503	1541.588	1541.673	1541.758	1541.843	1541.829	1541.869	1541.948	1542.027	1542.106
	RIGHT EDGE (2.75m)	1541.677	1541.762	1541.847	1541.932	1542.017	1542.031	1542.044	1542.123	1542.202	1542.281
GROUND LEVELS ON CL		1541.622	1541.656	1541.691	1541.766	1541.844	1541.941	1542.089	1542.182	1542.305	1542.351
SUPERELEVATION	LEFT ····· RIGHT — —										
HORIZONTAL ALIGNMENT			DIRECTION 59°11'30"				DIRECTION 59°11'30"				
DISTANCE (m)		0	10	20	30	40	50	60	70	80	90

| | | | | | | | | | | |





AMENDMENTS				
NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

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WEBSITE: www.ktnconsulting.co.za

KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE
DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
ROAD LAYOUT AND CROSS SECTIONS

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

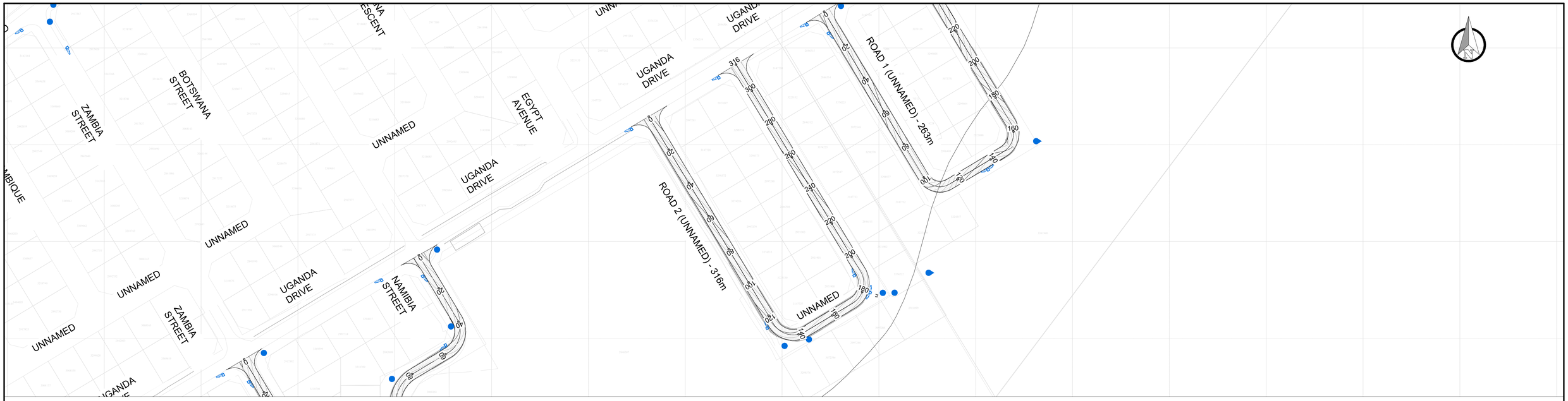
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

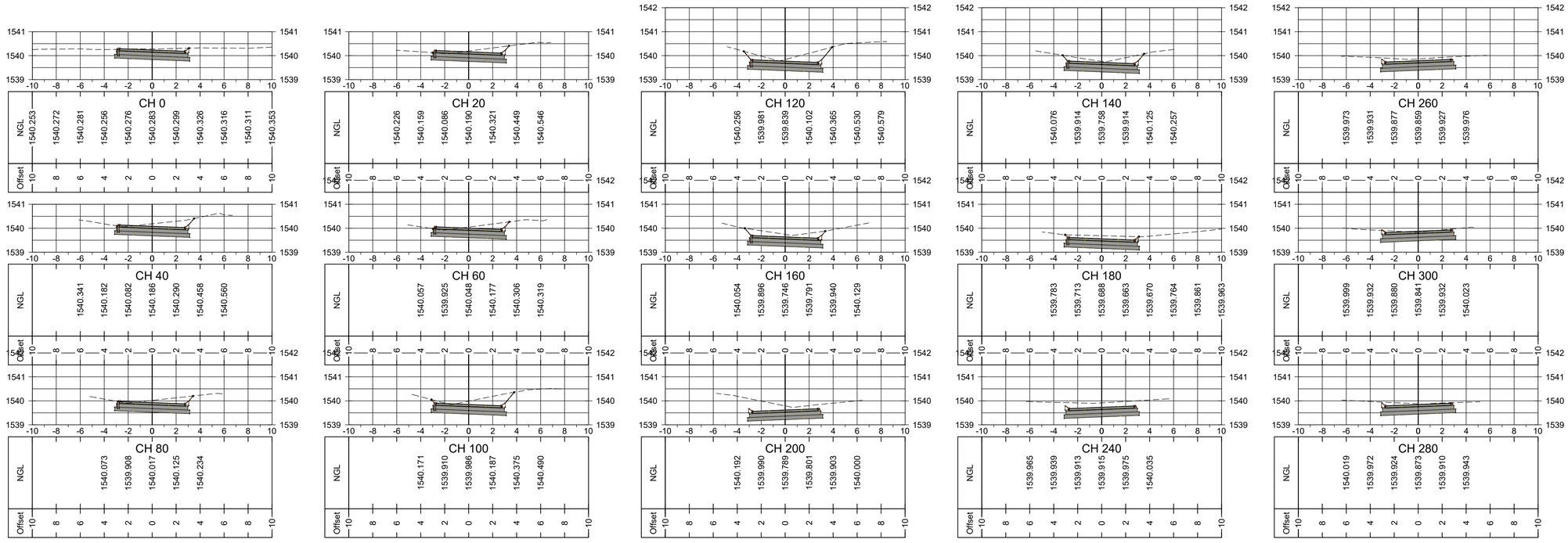
INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-004X01	1 OF 1	0





AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS

KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
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ROADS AND STORMWATER
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DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
ROAD LAYOUT AND CROSS SECTIONS

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

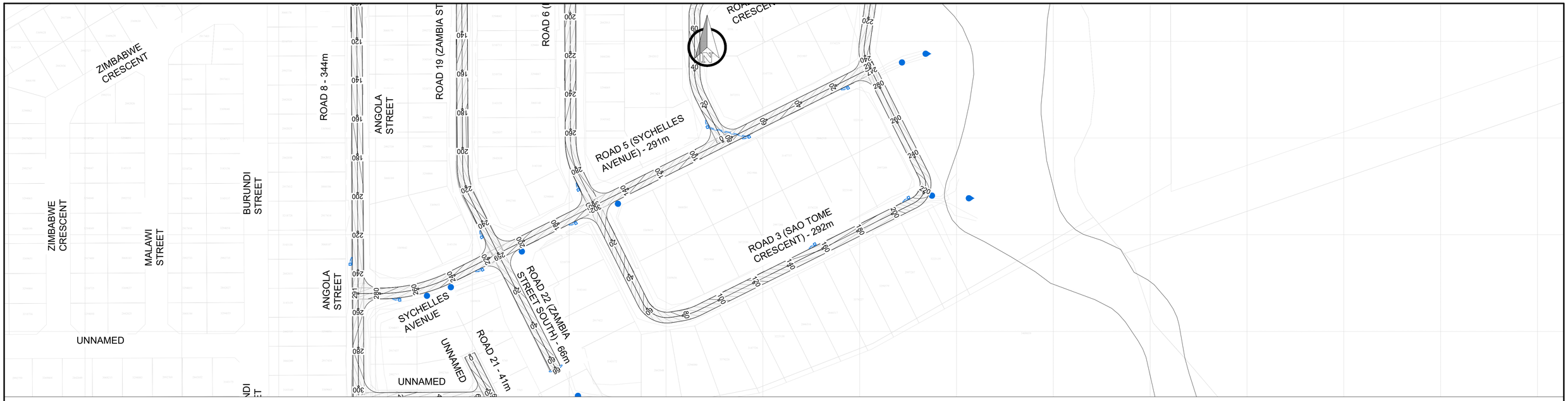
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

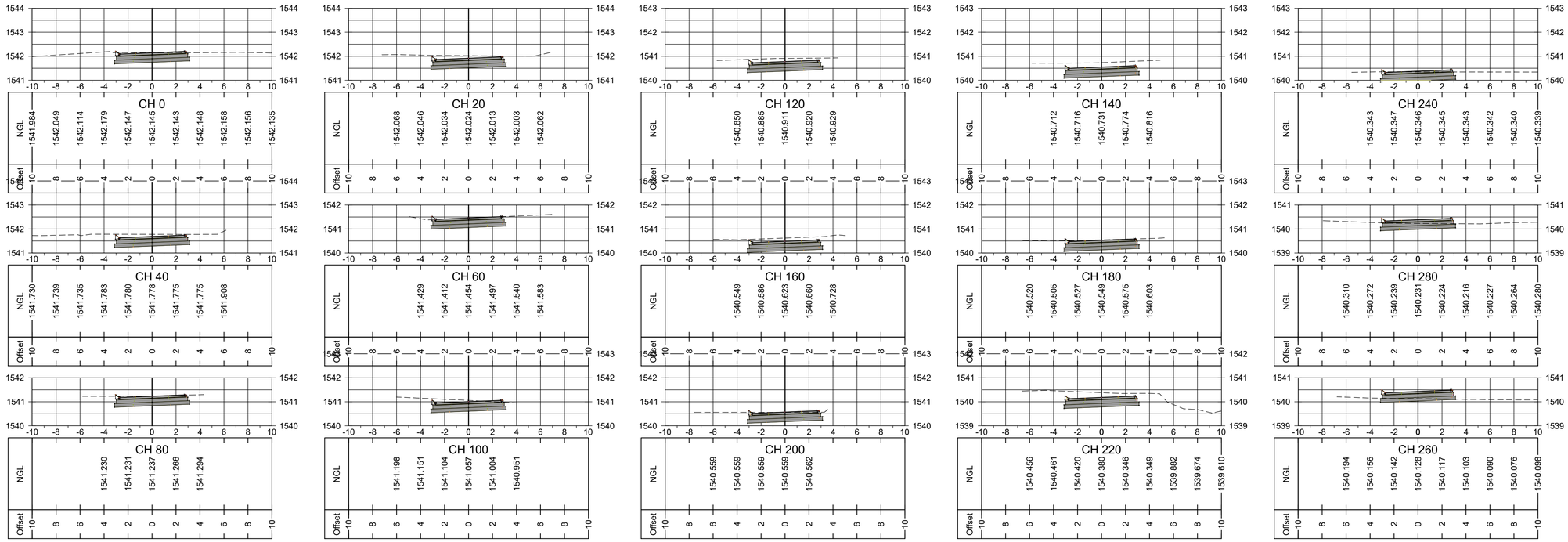
INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-004X02	1 OF 1	0





AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS

KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

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KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
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DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
ROAD LAYOUT AND CROSS SECTIONS

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

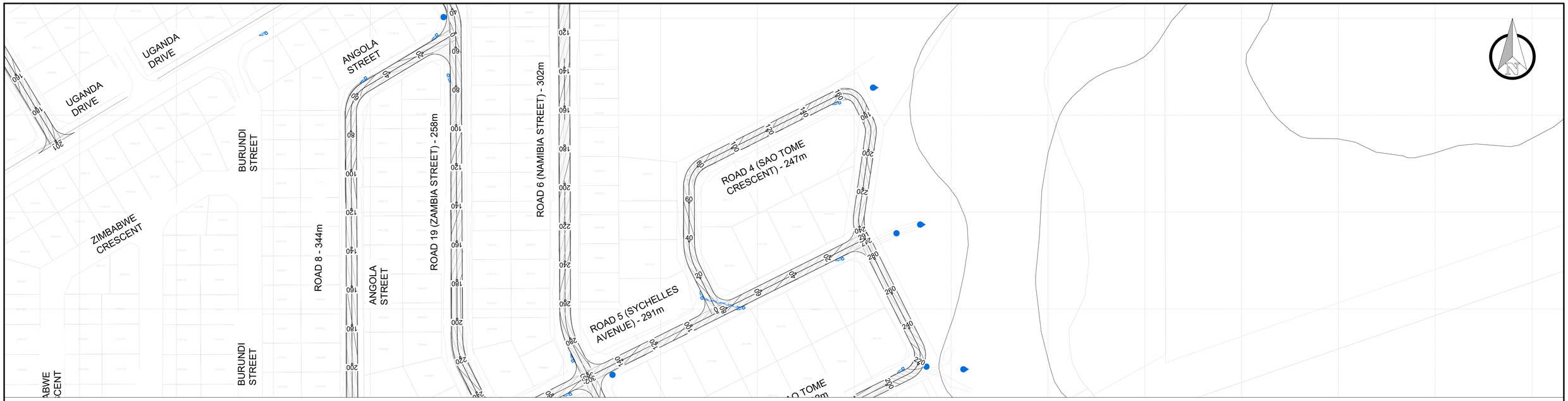
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

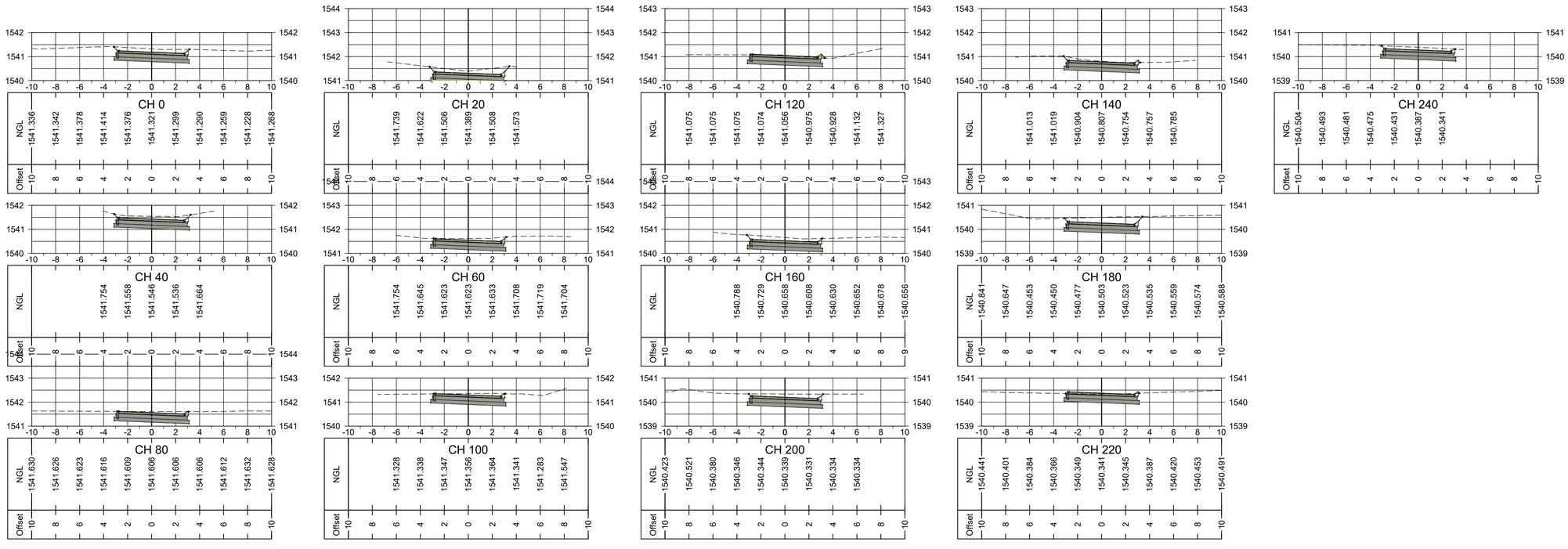
INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-004X03	1 OF 1	0





AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
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EMAIL: KTN@KTNCONSULTING.CO.ZA
WEBSITE: www.ktnconsulting.co.za

KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

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DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
ROAD LAYOUT AND CROSS SECTIONS

CONTRACT No. :
PROJECT No. : 2005B
SCALE : N.T.S
DATE : NOVEMBER 2022

PROJECT STATUS
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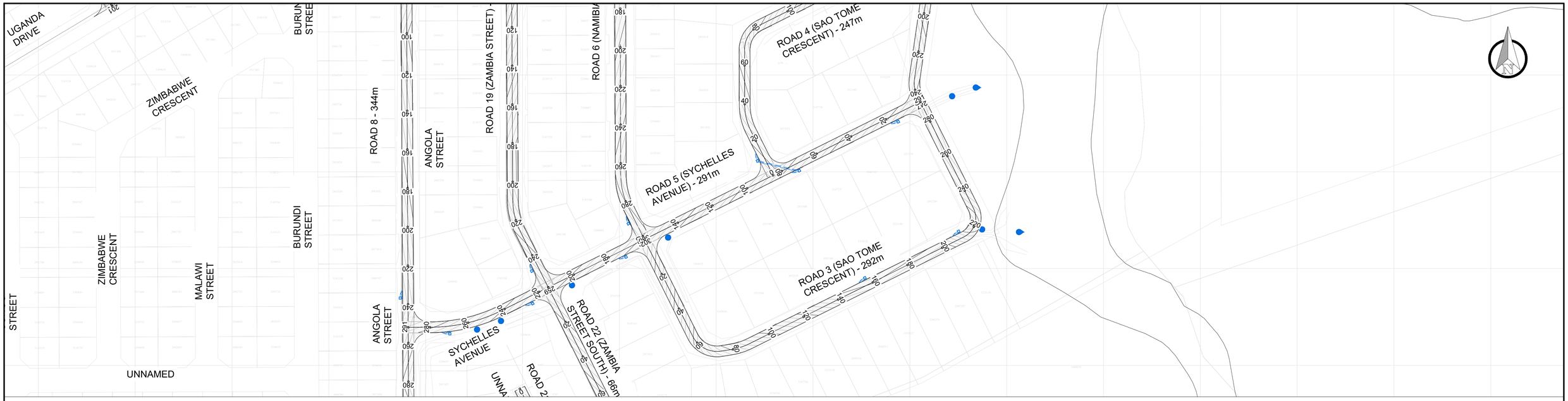
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

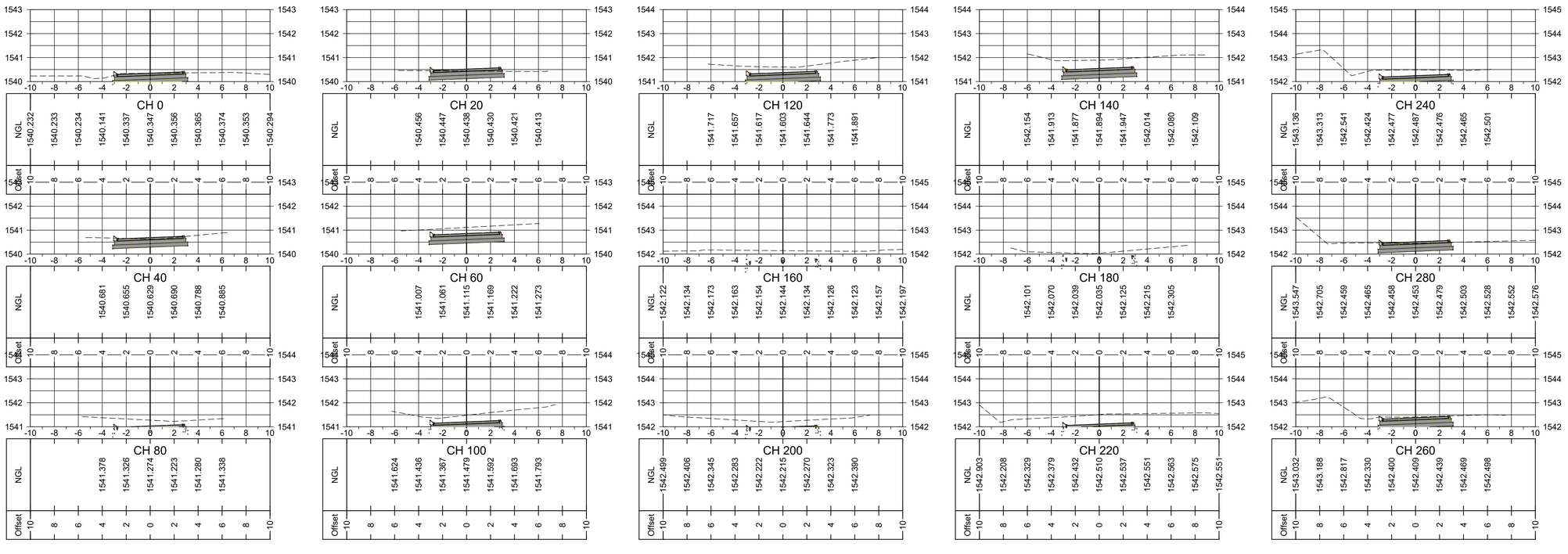
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REMARKS:

ORIGINAL PAPER SIZE: A1

DRAWING NO.: 2005B-004X04
SHEET NO.: 1 OF 1
VERSION: 0





AMENDMENTS

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CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
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SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
ROAD LAYOUT AND CROSS SECTIONS

CONTRACT No. :
PROJECT No. : 2005B
SCALE : N.T.S
DATE : NOVEMBER 2022

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

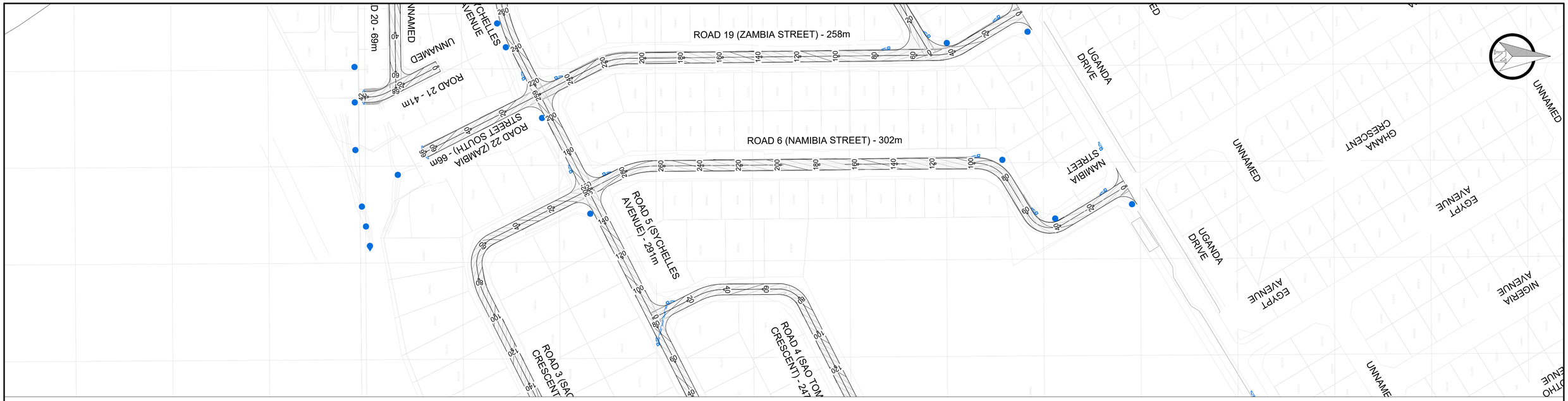
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

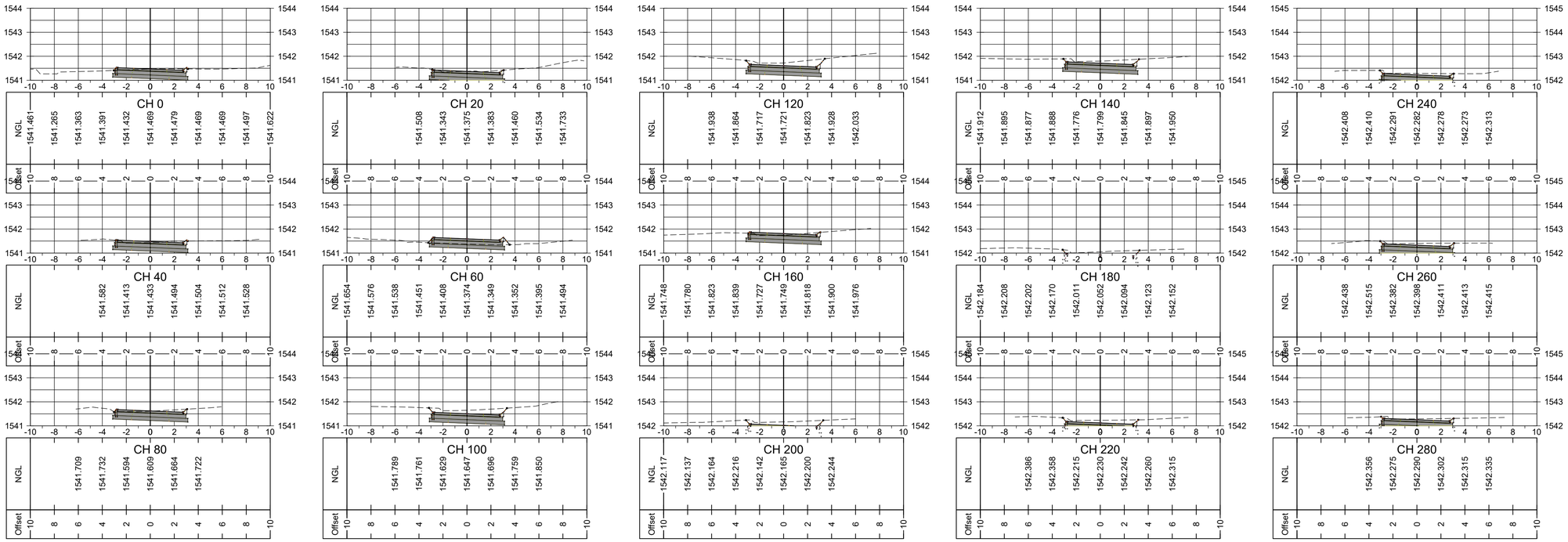
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REMARKS:

ORIGINAL PAPER SIZE: A1

DRAWING NO. 2005B-004X05
SHEET NO: 1 OF 1
VERSION: 0





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LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
ROAD LAYOUT AND CROSS SECTIONS

CONTRACT No. :
PROJECT No. : 2005B
SCALE : N.T.S
DATE : NOVEMBER 2022

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

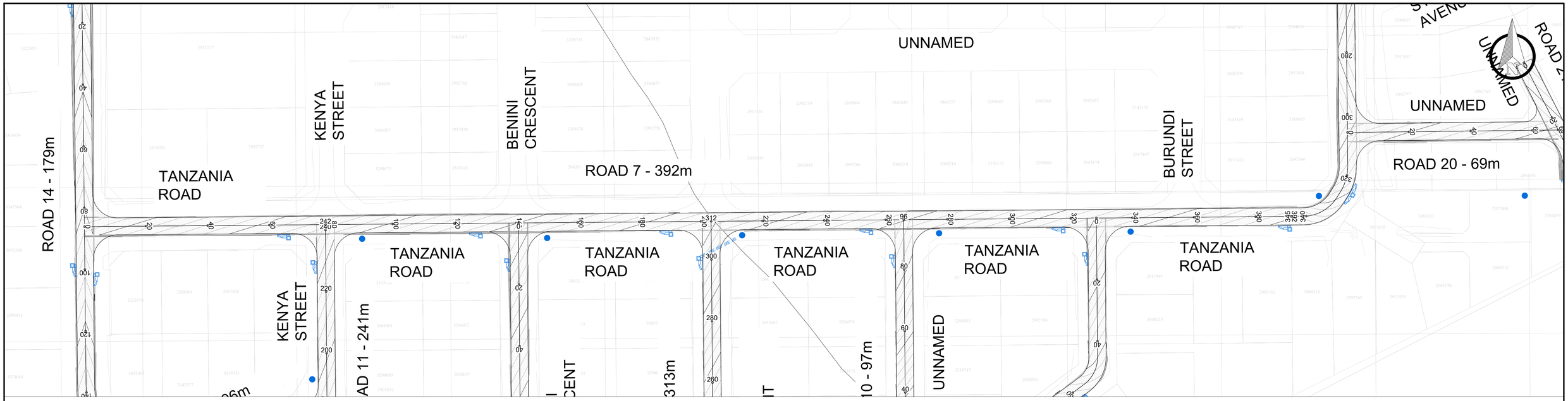
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INITIALS AND SURNAME SIGNATURE & PR NUMBER DATE

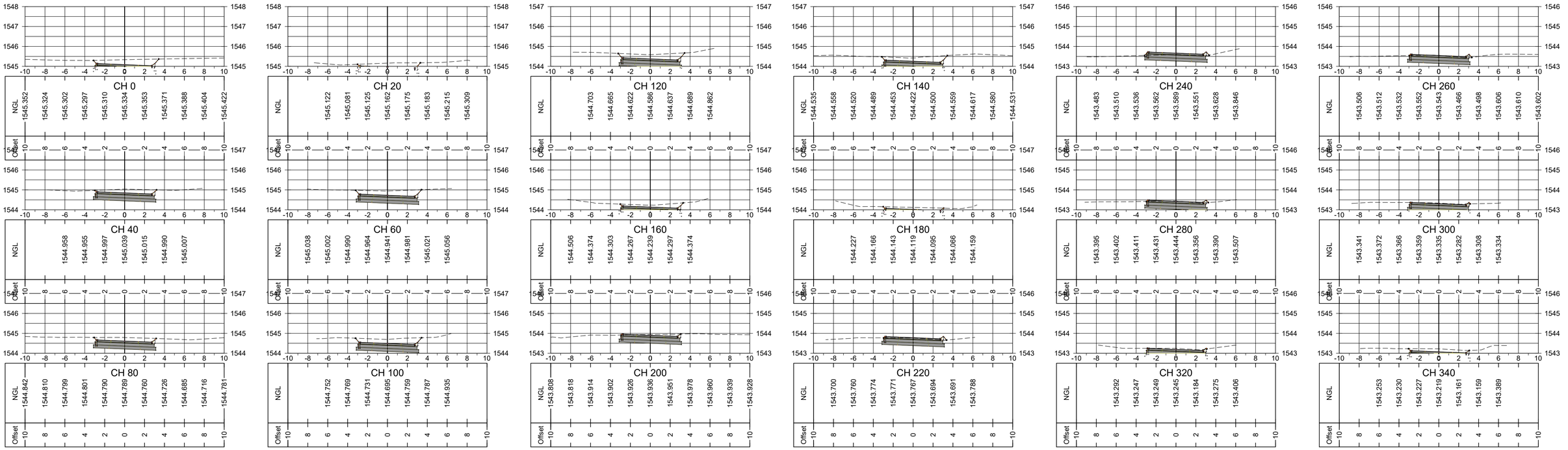
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REMARKS:

ORIGINAL PAPER SIZE: A1

DRAWING NO.: 2005B-004X06
SHEET NO.: 1 OF 1
VERSION: 0





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KTN CONSULTING ENGINEERS & PROJECT MANAGERS

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CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
ROAD LAYOUT AND CROSS SECTIONS

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

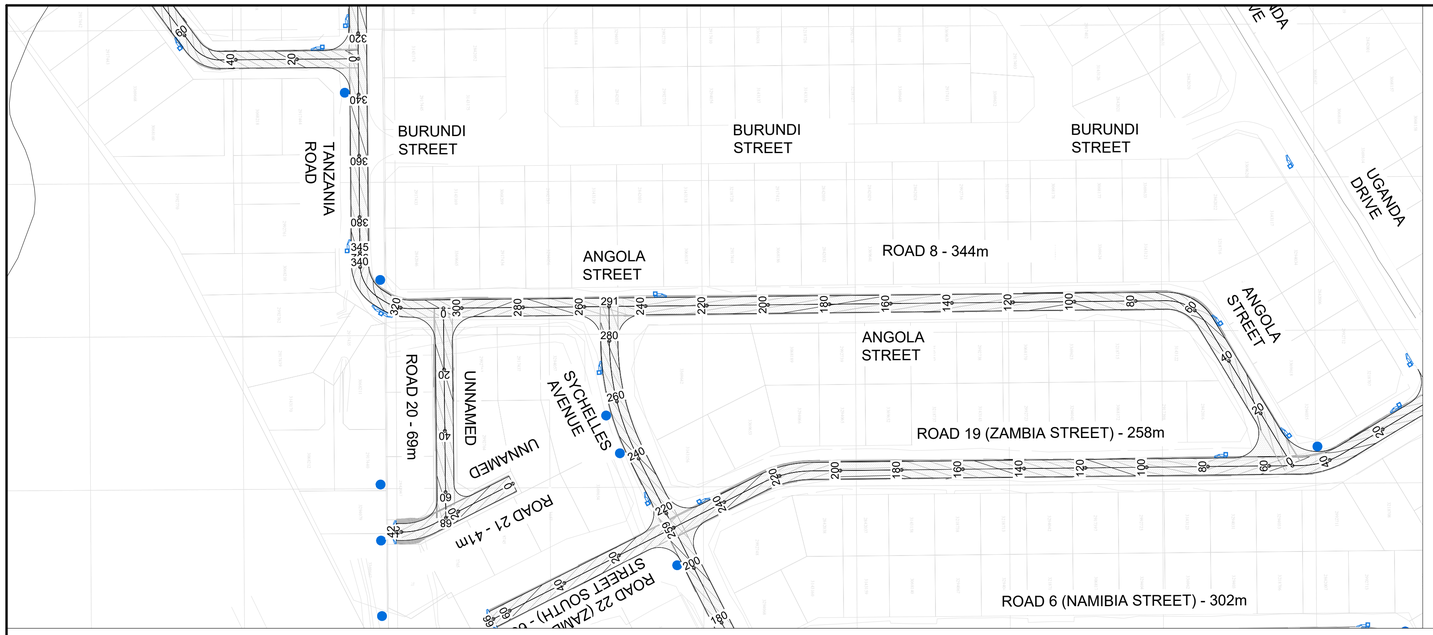
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

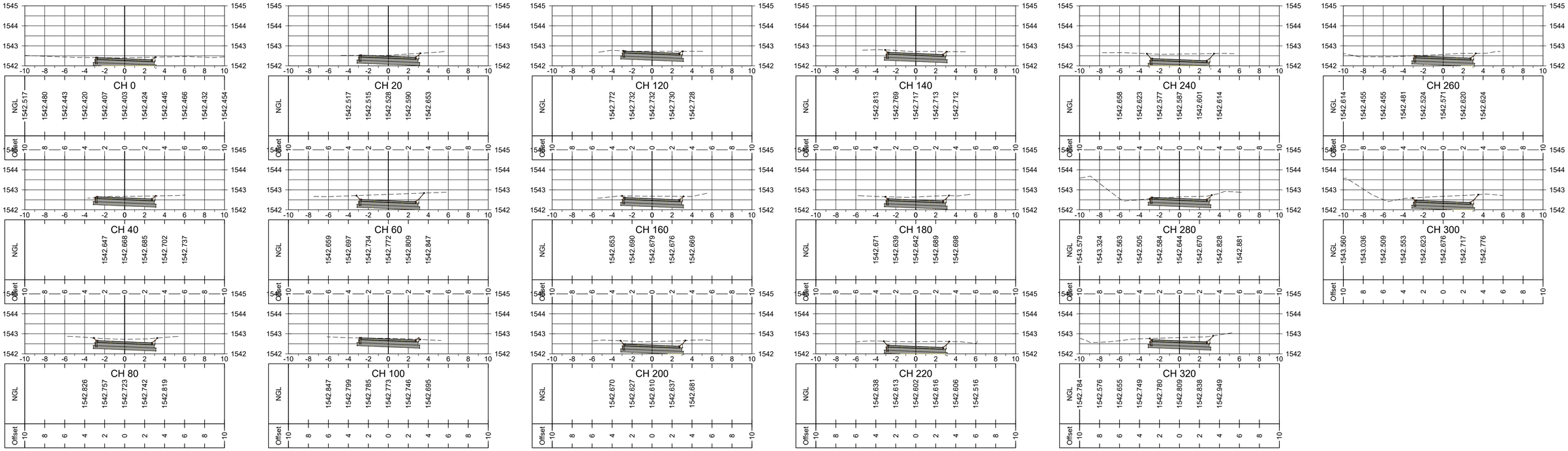
INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

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	2005B	N.T.S	NOVEMBER 2022	2005B-004X07	1 OF 1	0





AMENDMENTS

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ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

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CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
ROAD LAYOUT AND CROSS SECTIONS

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

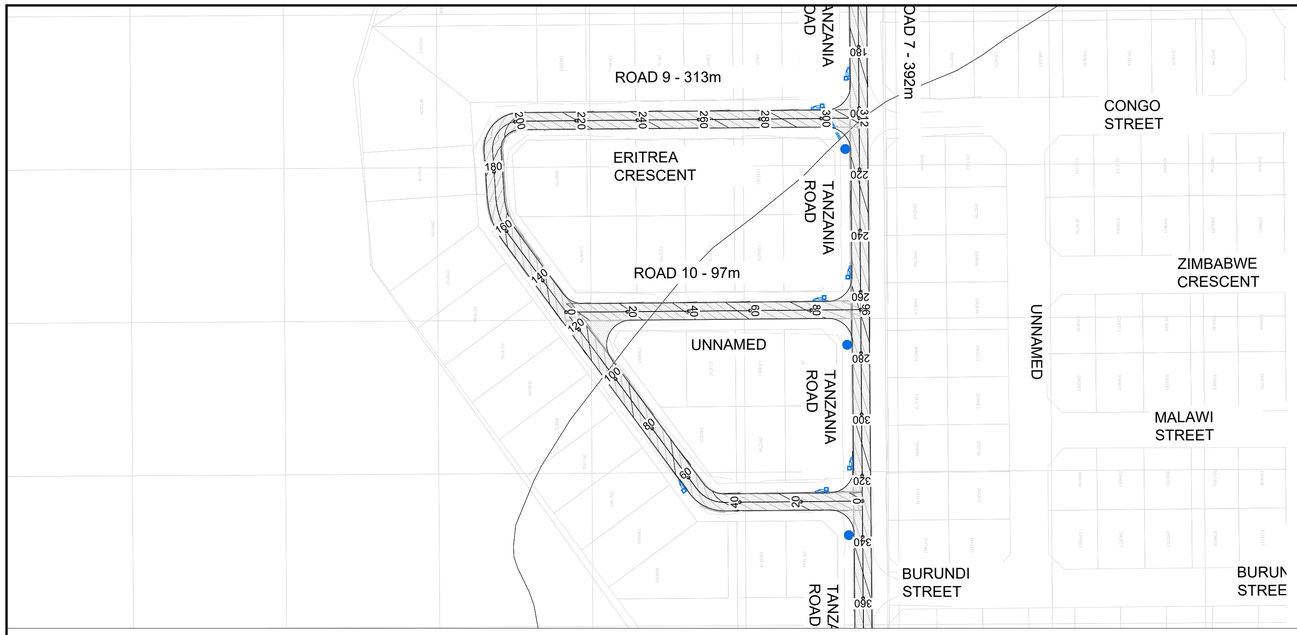
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INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

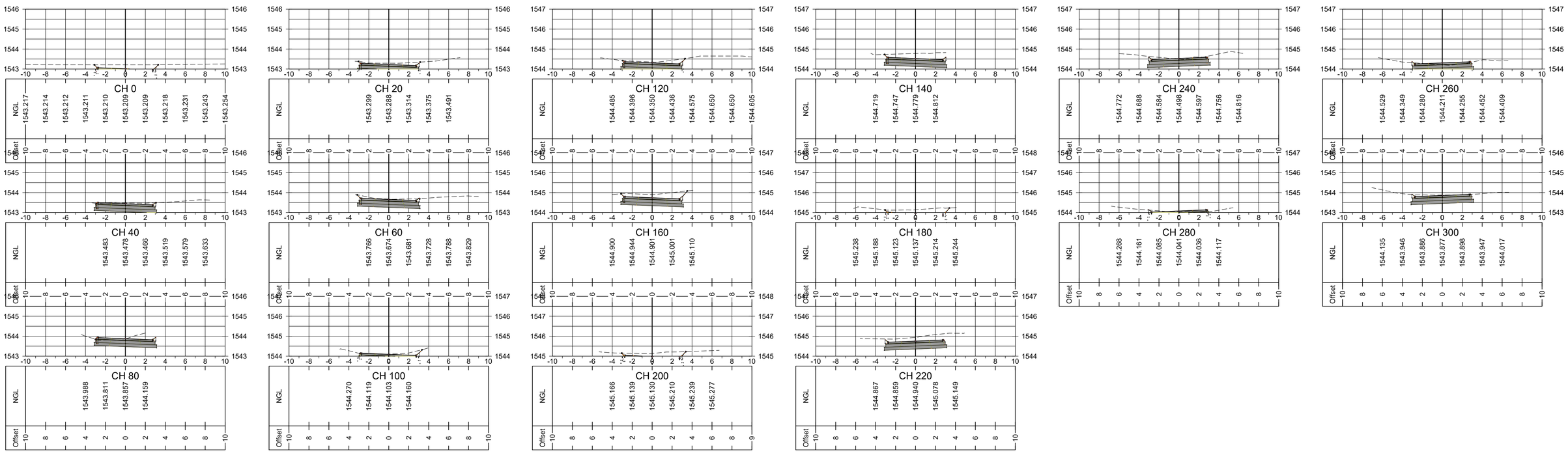
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REMARKS:

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	2005B	N.T.S	NOVEMBER 2022	2005B-004X08	1 OF 1	0





AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
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BUILDING 27, SUITE F9
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EMAIL: KTN@KTNCONSULTING.CO.ZA
WEBSITE: www.ktnconsulting.co.za

ROADS AND STORMWATER
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SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

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VICTOR KHANYE LOCAL MUNCIPALITY

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DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K.MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
ROAD LAYOUT AND CROSS SECTIONS

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :
	2005B	N.T.S	NOVEMBER 2022

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

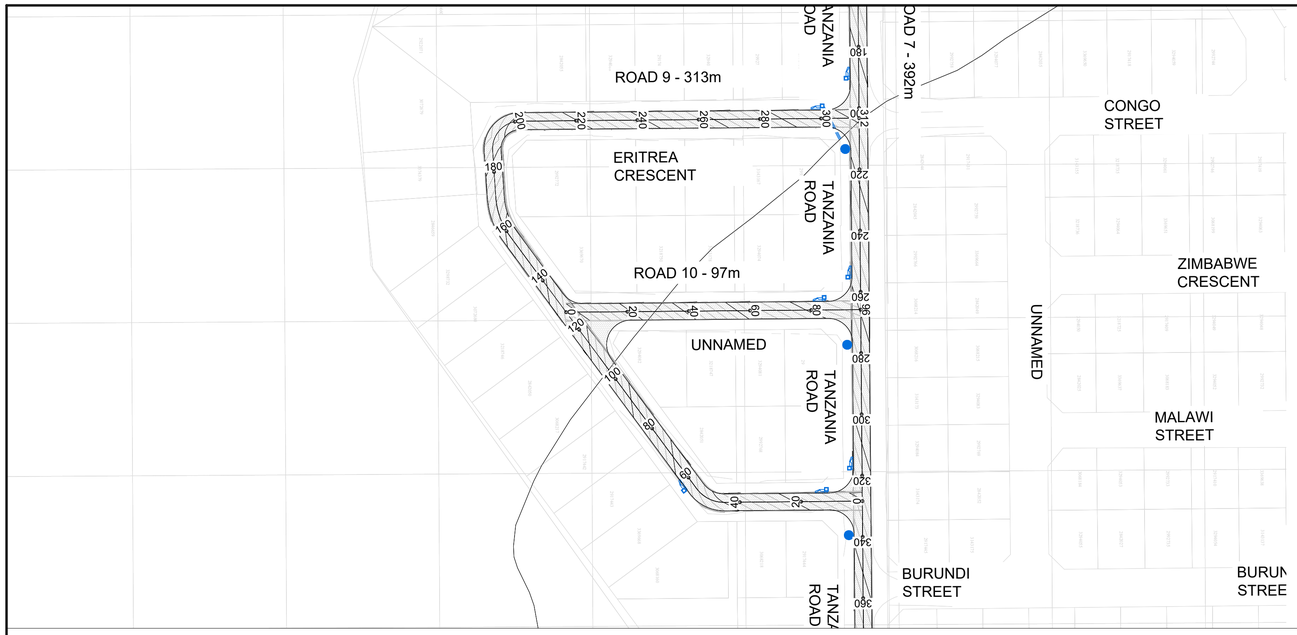
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME SIGNATURE & PR NUMBER DATE

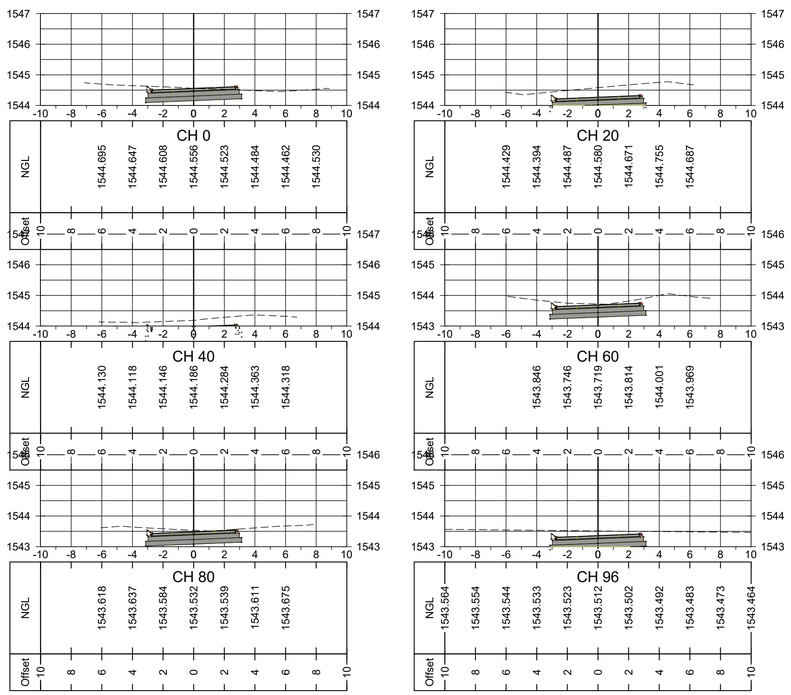
INSPECTOR OF WORKS:
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REMARKS:

ORIGINAL PAPER SIZE: A1

DRAWING NO. 2005B-004X09
SHEET NO: 1 OF 1
VERSION: 0





AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
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ROADS AND STORMWATER
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SIGN WHEN APPLICABLE

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SCALE: N.T.S

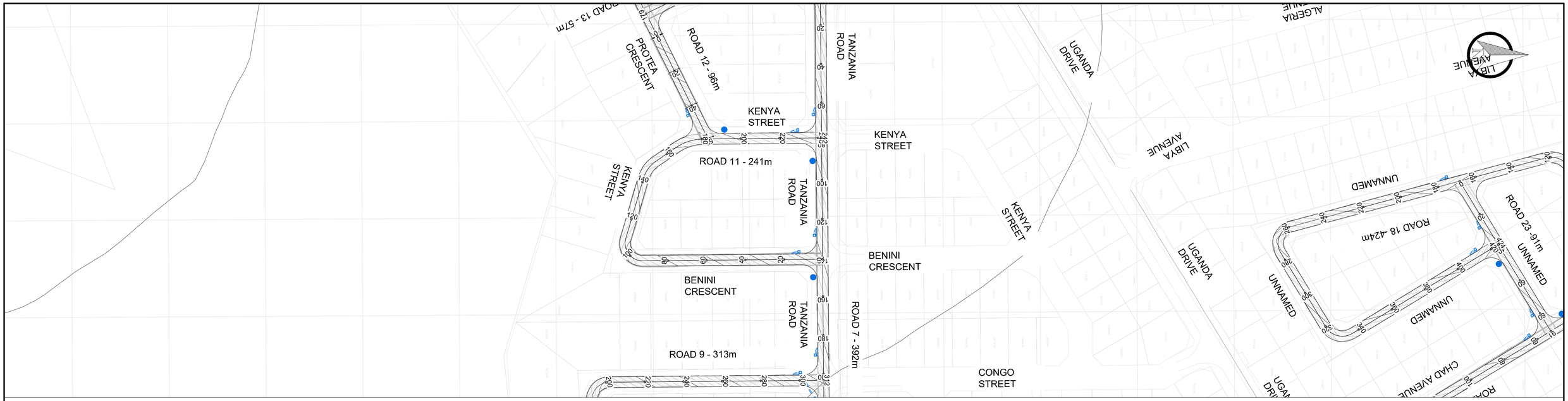
LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

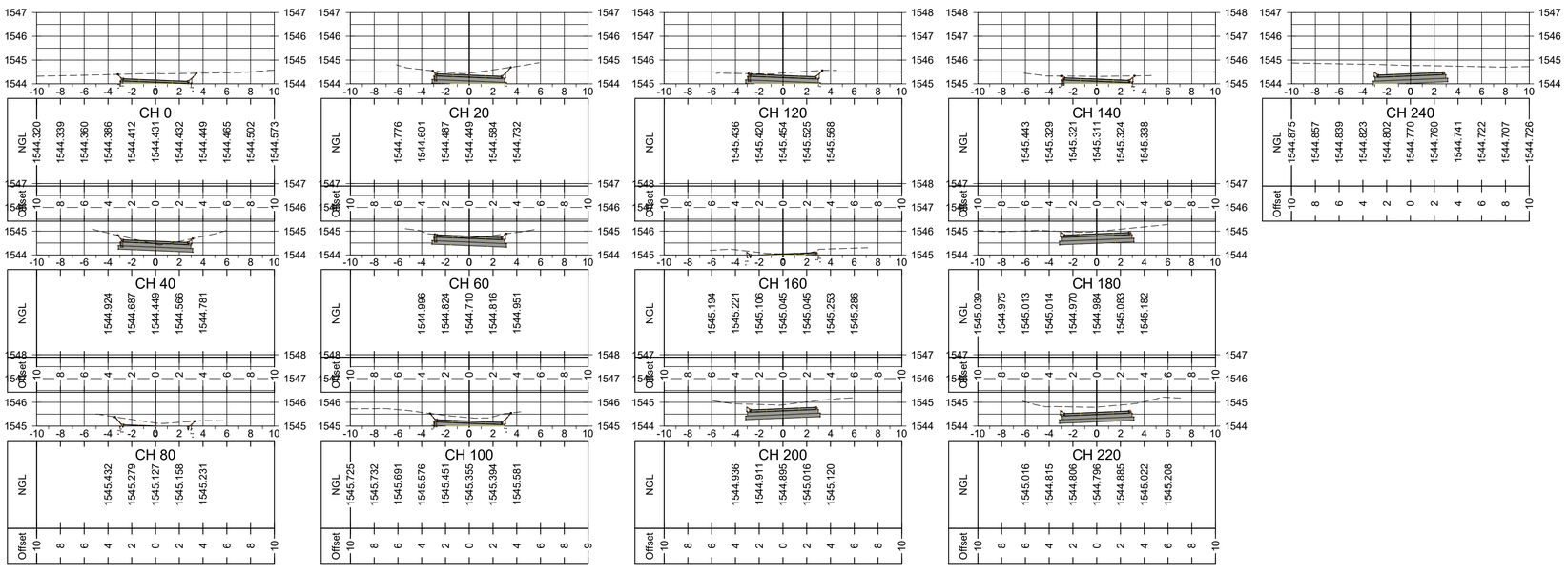
DESCRIPTION OF PROJECT
ROAD LAYOUT AND CROSS SECTIONS

PROJECT STATUS: ○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

PROJECT ENGINEER: K. MAYAYISE (INITIALS AND SURNAME / SIGNATURE & PR NUMBER / DATE)
INSPECTOR OF WORKS: (SIGNATURE / DATE)
REMARKS:
ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-004X10	1 OF 1	0





AMENDMENTS				
NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
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SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
ROAD LAYOUT AND CROSS SECTIONS

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

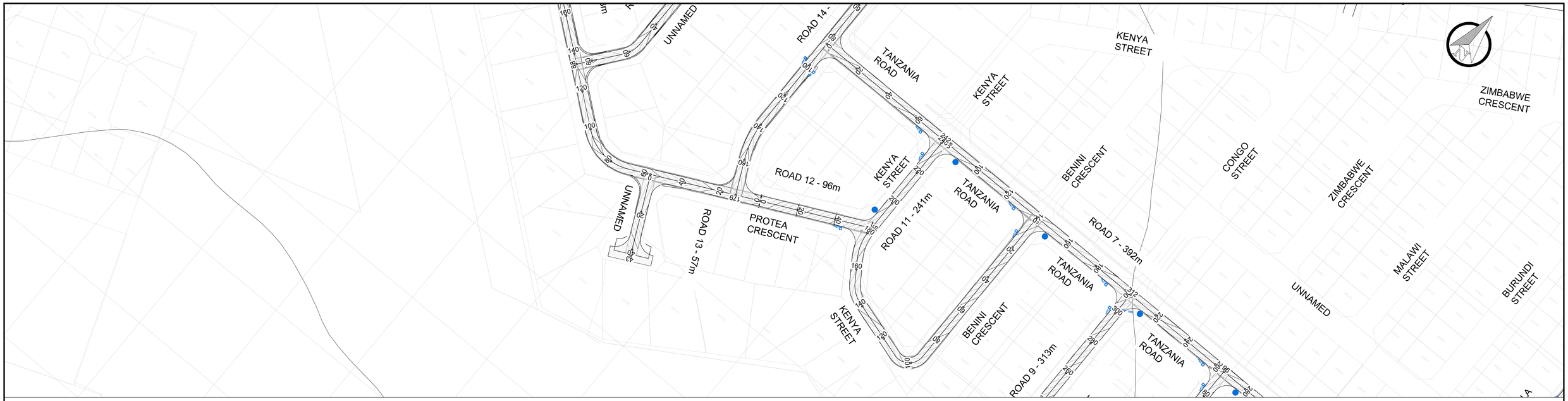
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

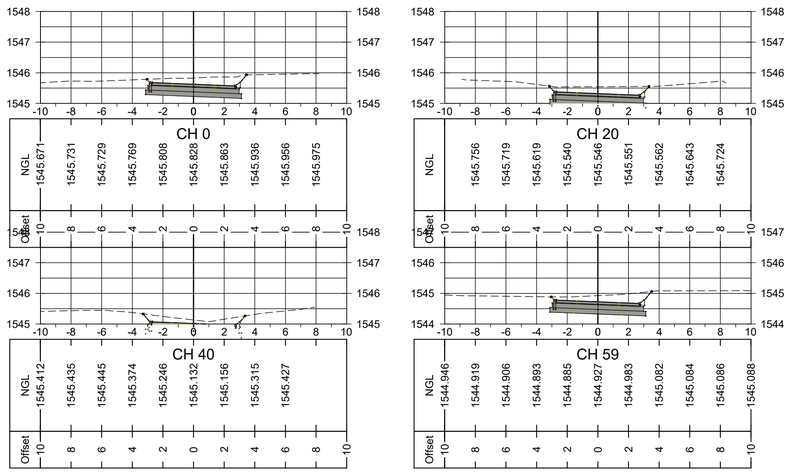
INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

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	2005B	N.T.S	NOVEMBER 2022	2005B-004X11	1 OF 1	0





AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS

KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
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SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
ROAD LAYOUT AND CROSS SECTIONS

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

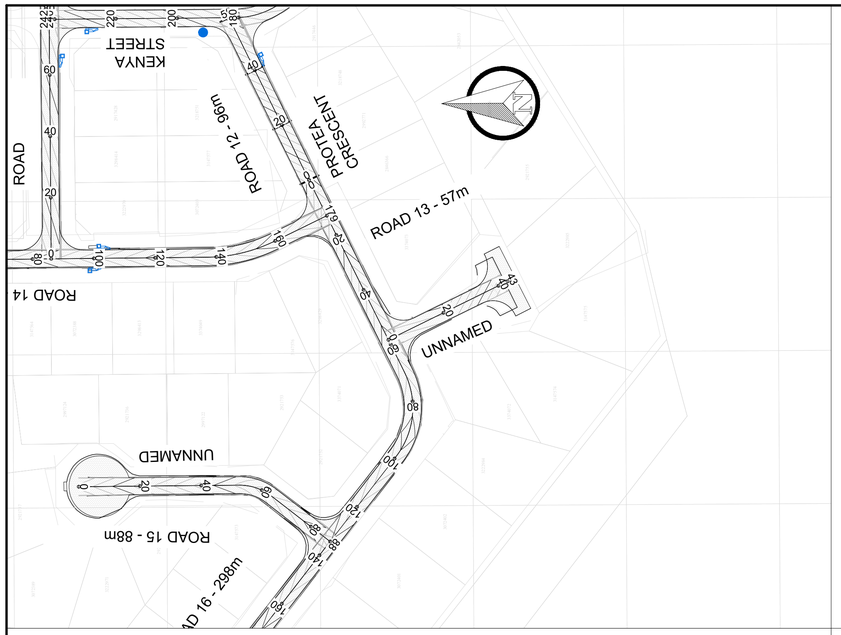
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

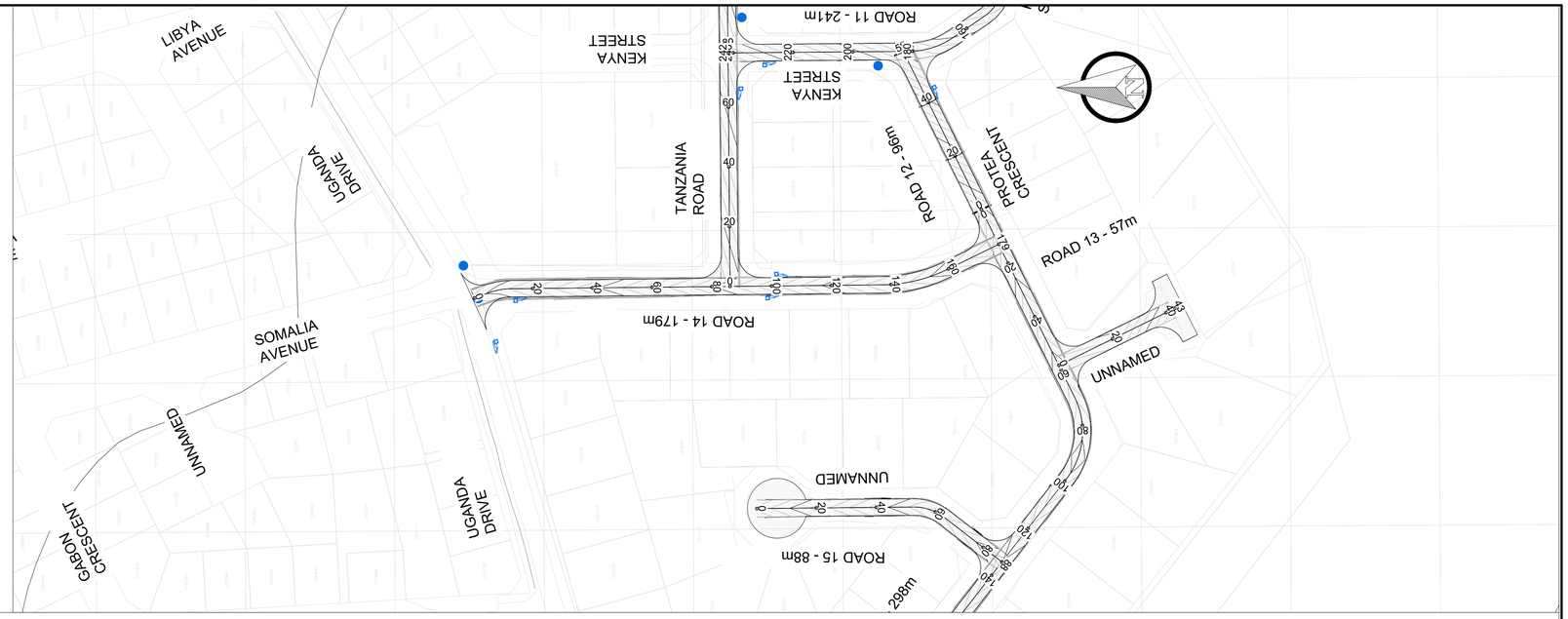
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SIGNATURE | DATE

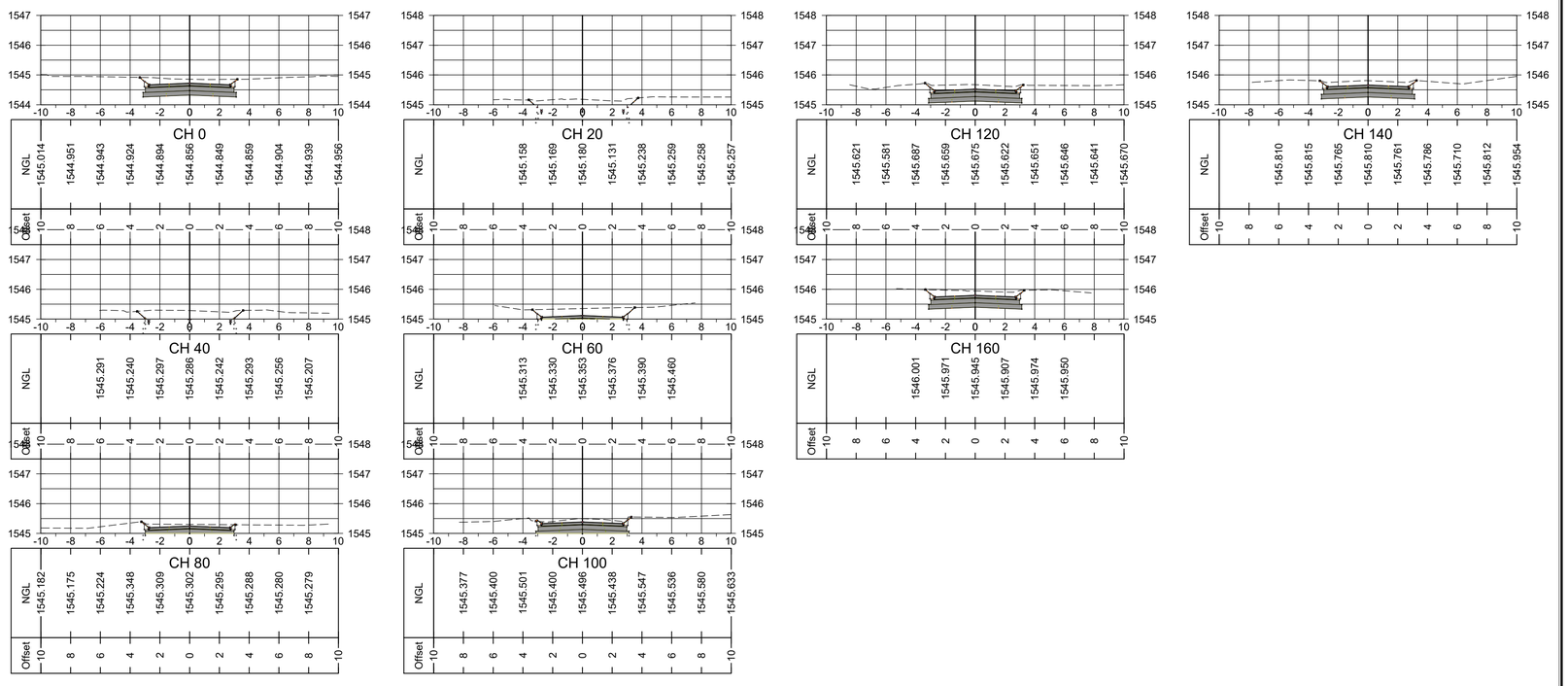
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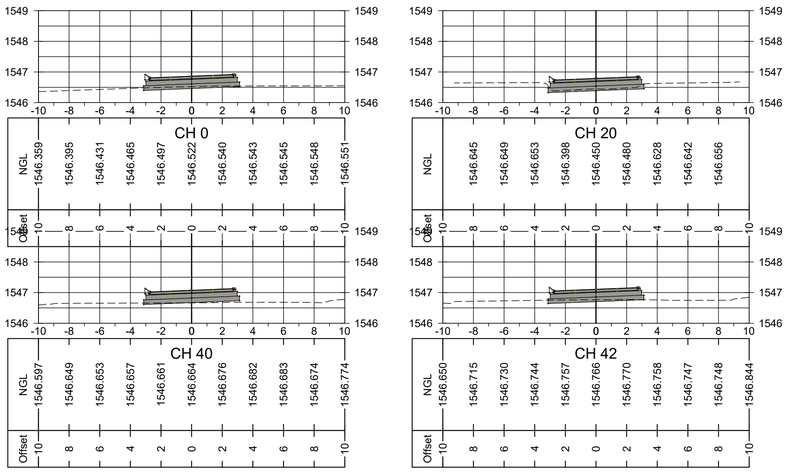
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CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-004X12	1 OF 1	0









AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
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WEBSITE: www.ktnconsulting.co.za

KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE
DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

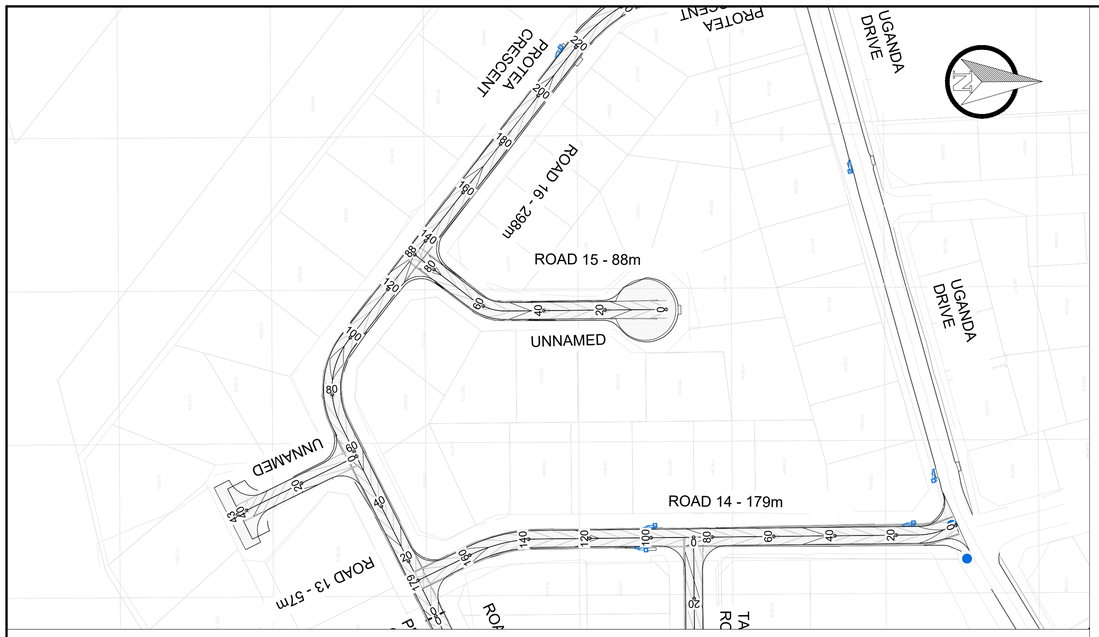
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ROAD LAYOUT AND CROSS SECTIONS

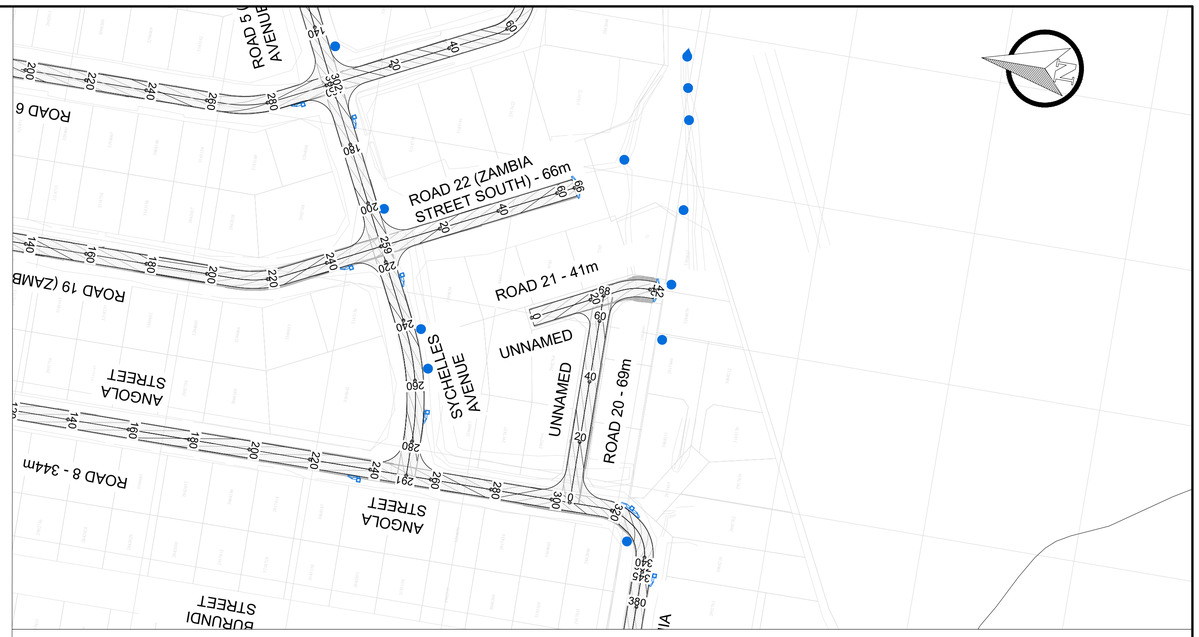
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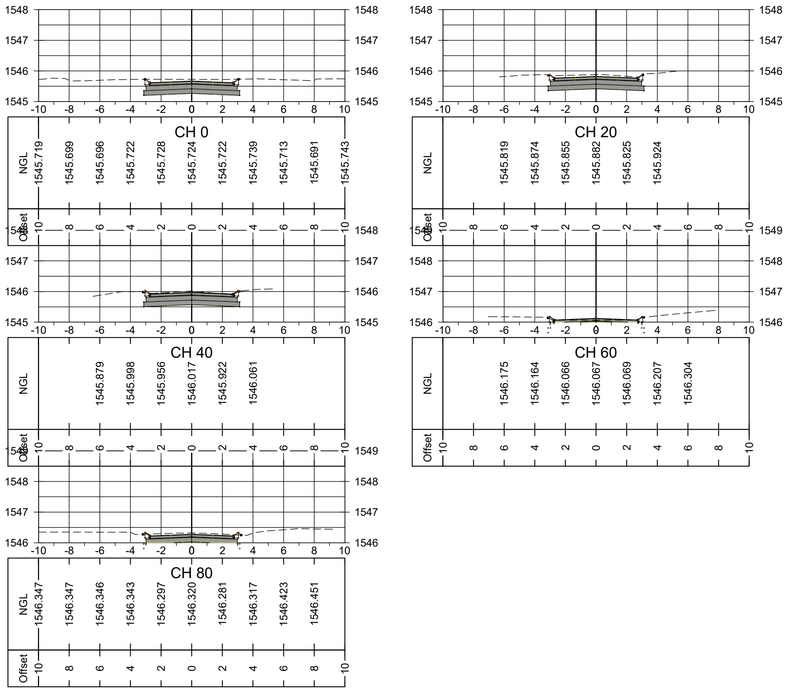
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE
INSPECTOR OF WORKS:
SIGNATURE | DATE
REMARKS:

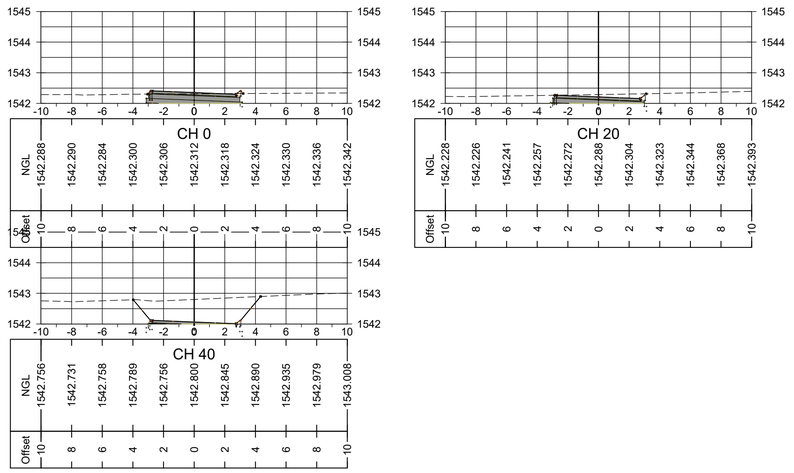
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	2005B	N.T.S	NOVEMBER 2022	A1

DRAWING NO.	SHEET NO:	VERSION:
2005B-004X13_14	1 OF 1	0









AMENDMENTS				
NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
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SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
ROAD LAYOUT AND CROSS SECTIONS

CONTRACT No.: | PROJECT No.: 2005B | SCALE: N.T.S | DATE: NOVEMBER 2022

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

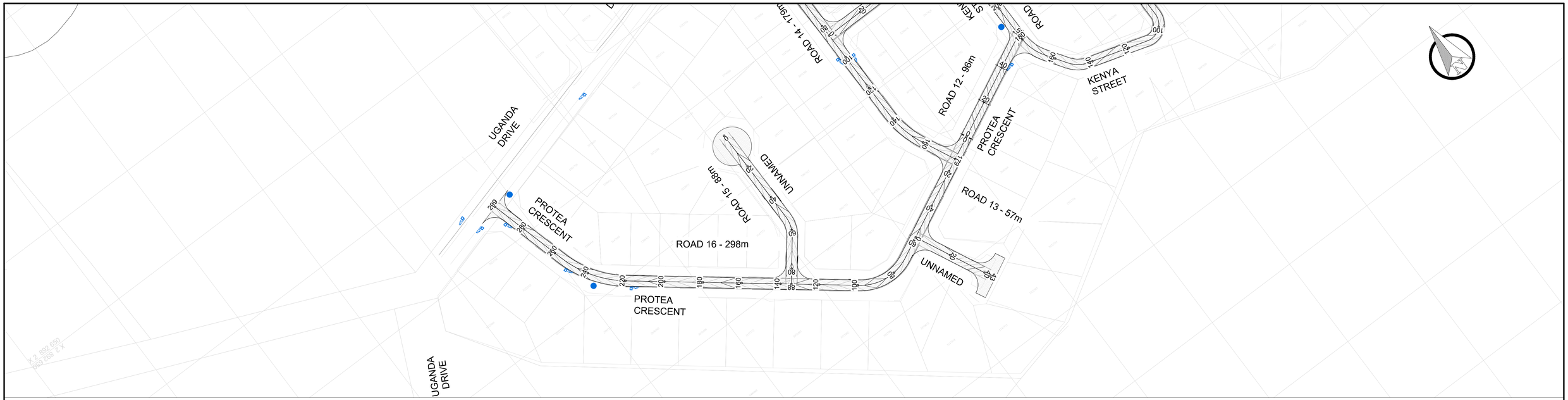
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

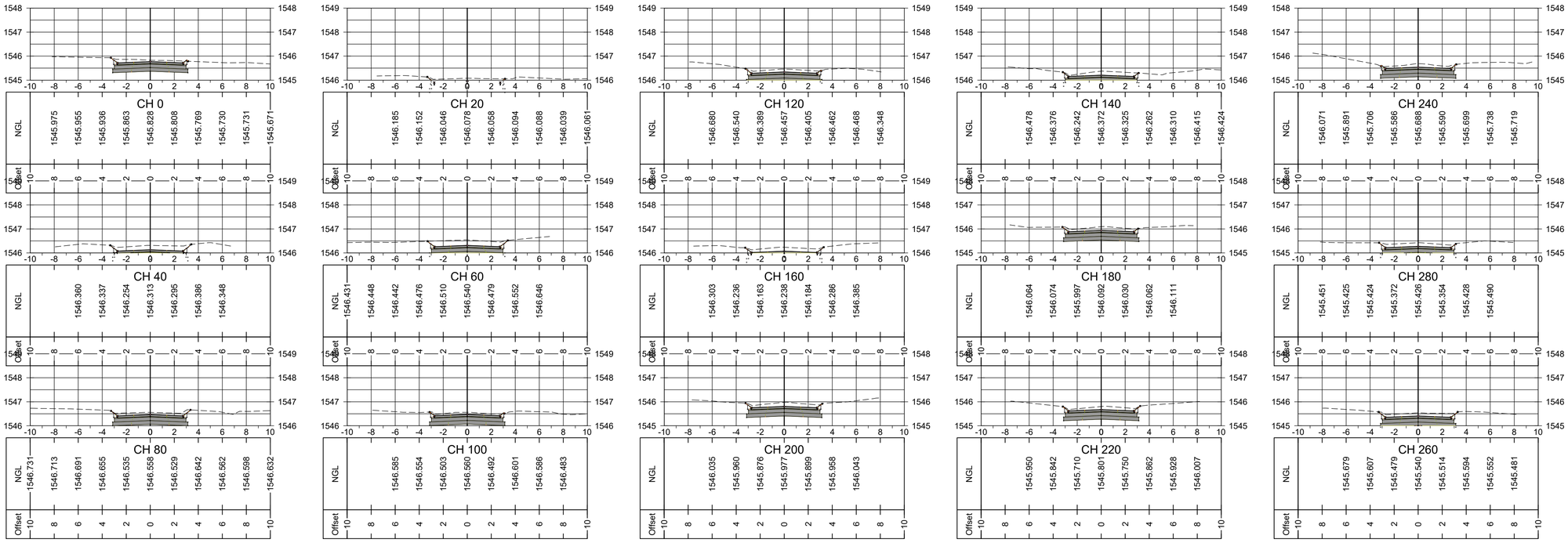
INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

DRAWING NO.: 2005B-004X15_21
SHEET NO.: 1 OF 1
VERSION: 0





AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
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CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
ROAD LAYOUT AND CROSS SECTIONS

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

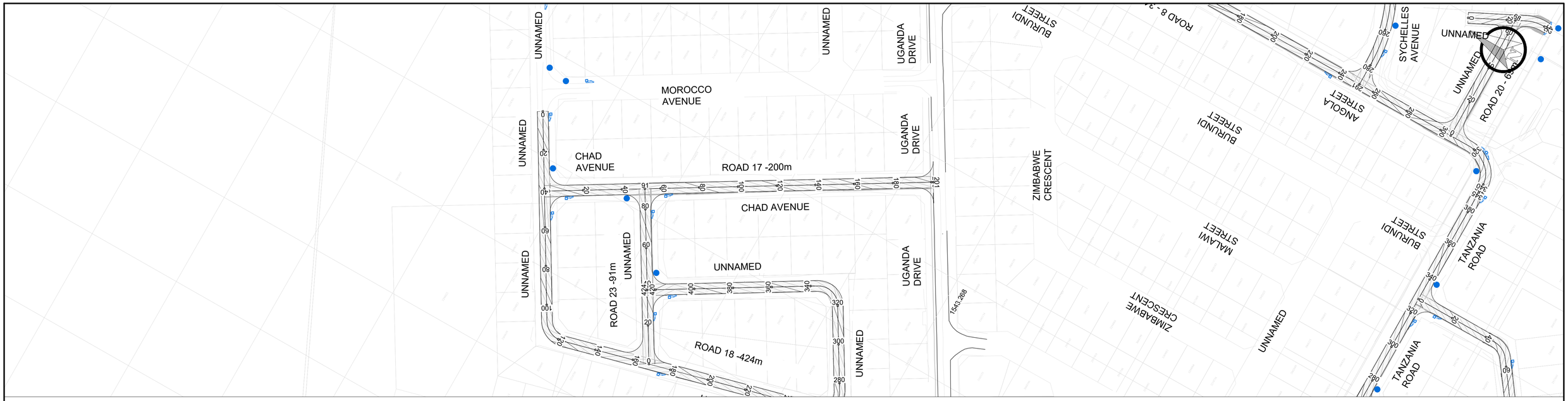
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

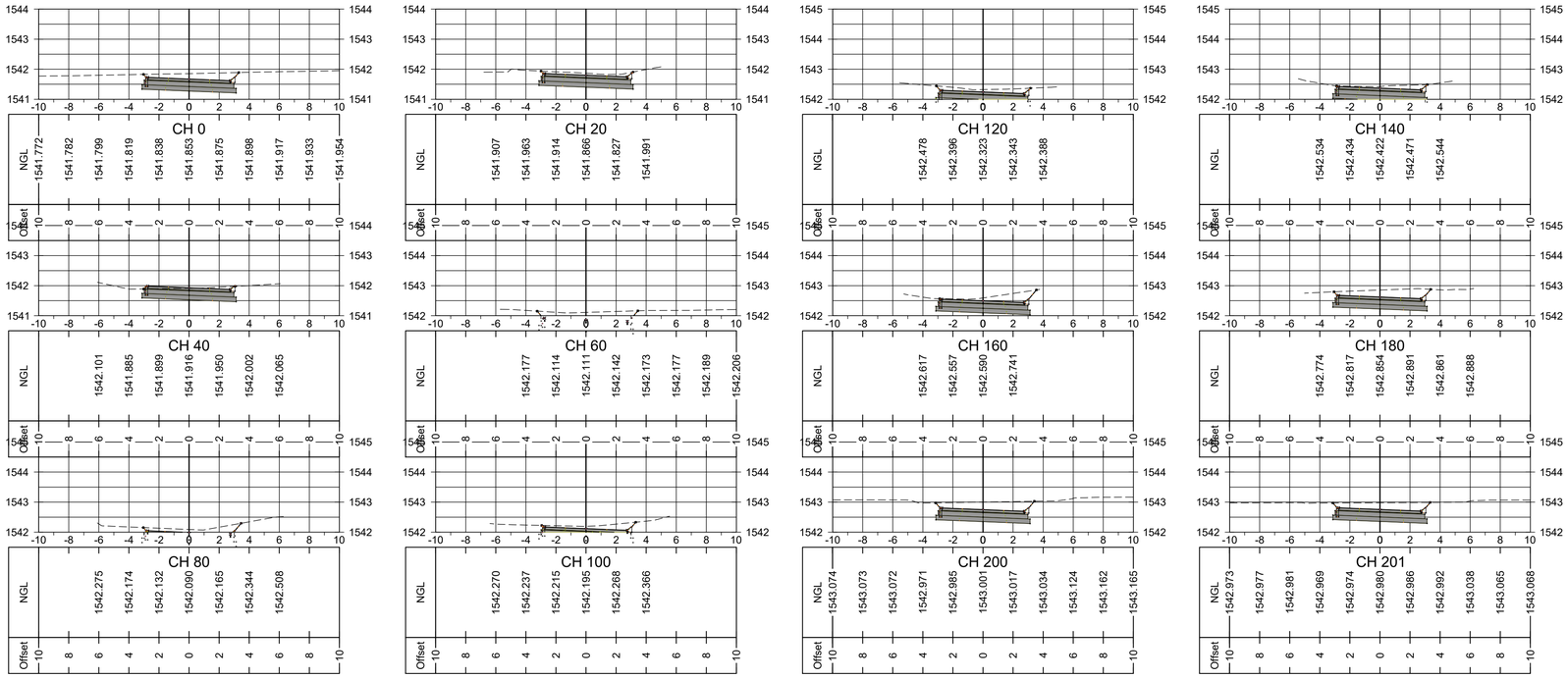
INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

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	2005B	N.T.S	NOVEMBER 2022	2005B-004X16	1 OF 1	0





AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
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SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
ROAD LAYOUT AND CROSS SECTIONS

PROJECT STATUS
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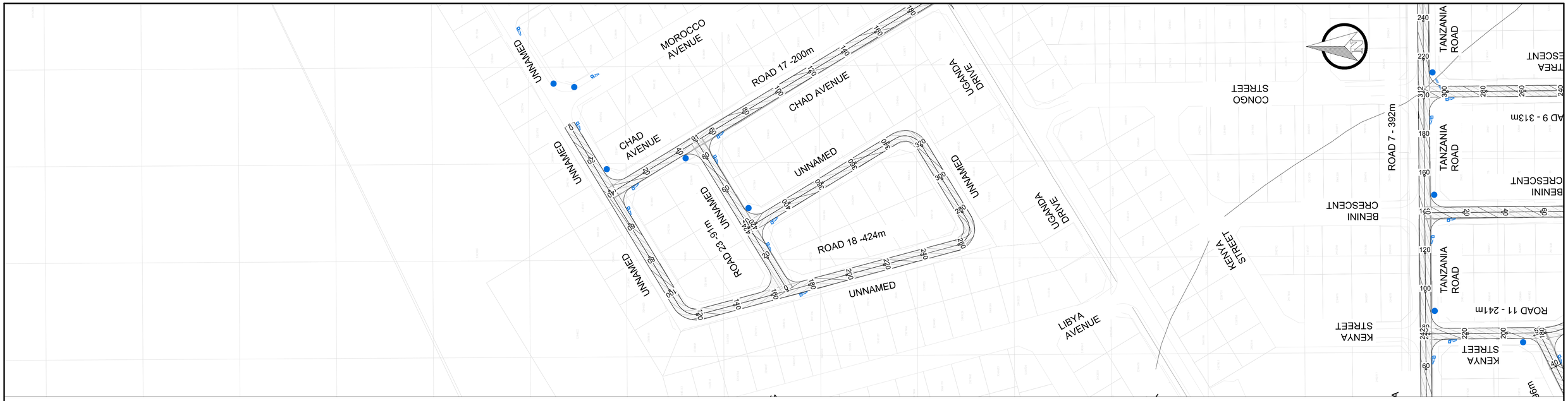
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

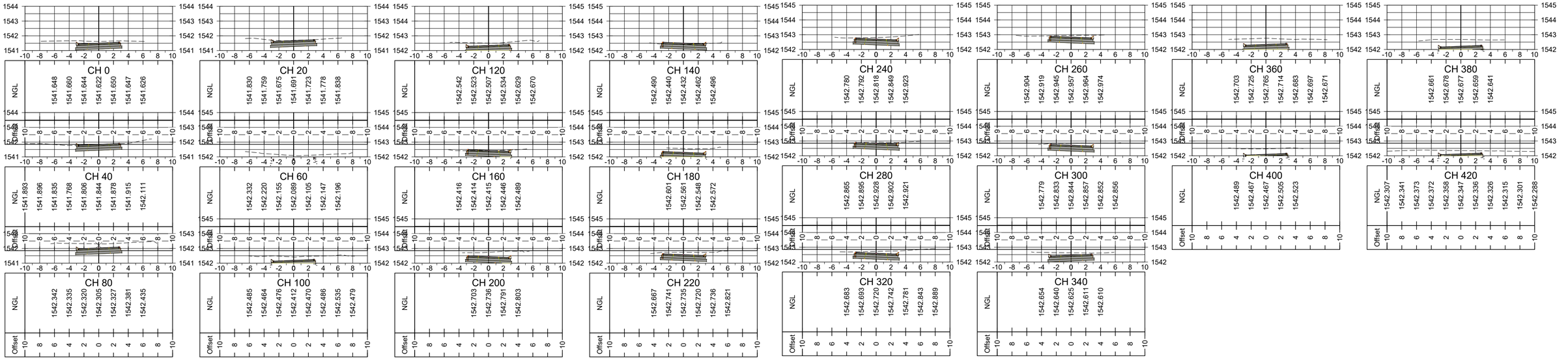
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REMARKS:

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	2005B	N.T.S	NOVEMBER 2022	2005B-004X17	1 OF 1	0





AMENDMENTS				
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CONSULTANT DETAILS
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ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ...
SIGNATURE DATE

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SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
ROAD LAYOUT AND CROSS SECTIONS

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :
	2005B	N.T.S	NOVEMBER 2022

PROJECT STATUS
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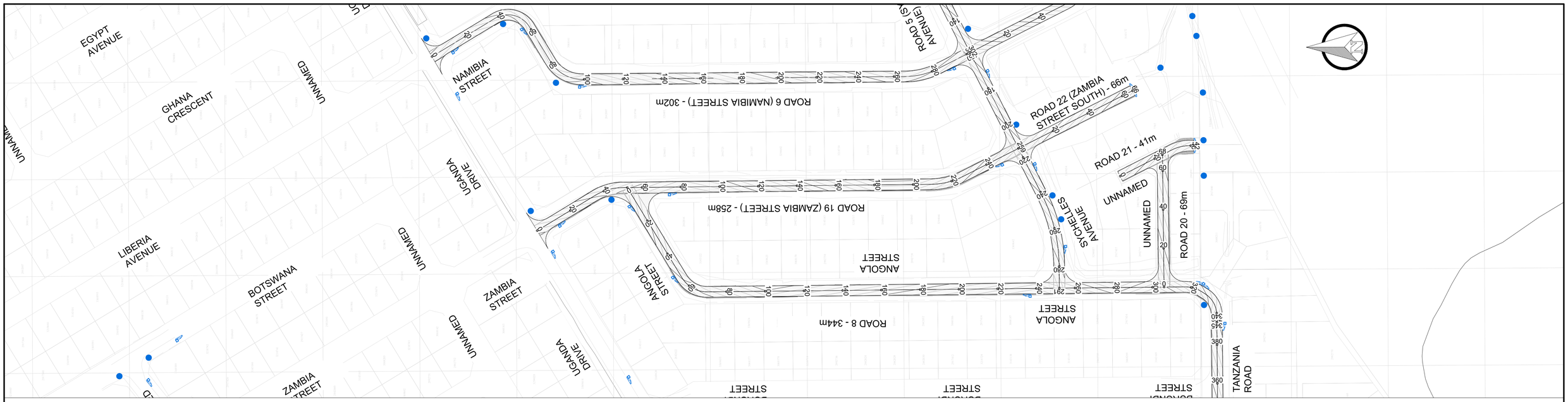
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

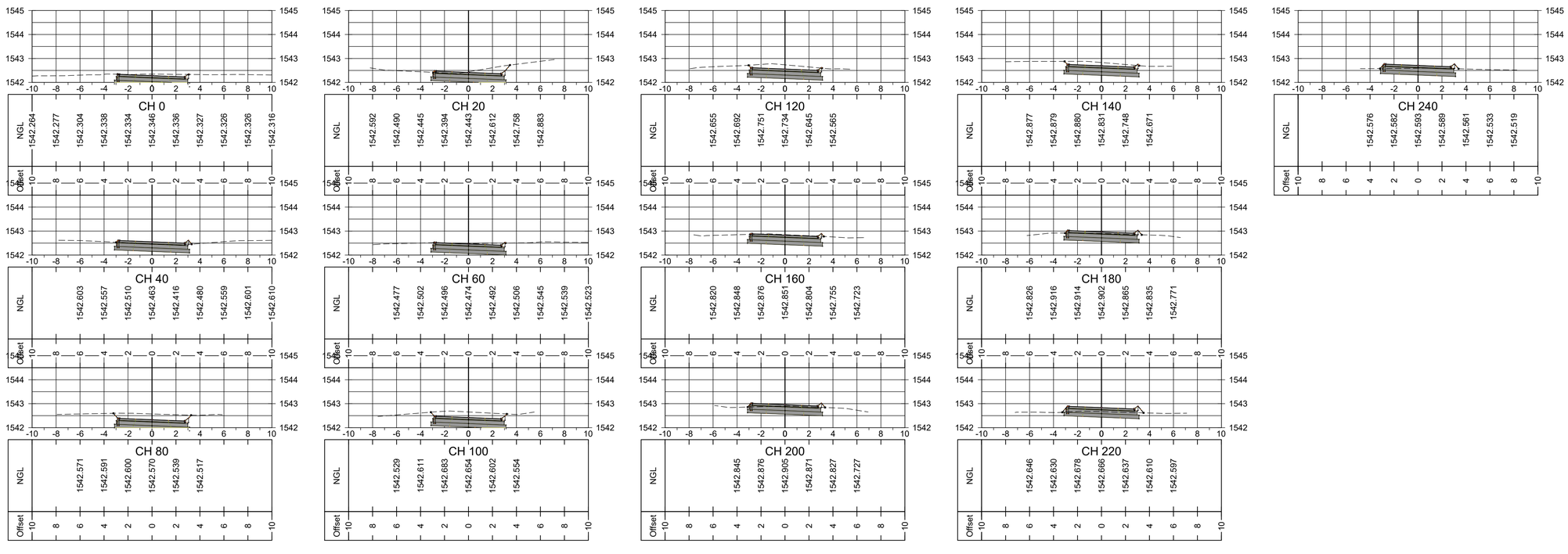
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REMARKS:

ORIGINAL PAPER SIZE: A1

DRAWING NO.: 2005B-004X18
SHEET NO: 1 OF 1
VERSION: 0





AMENDMENTS

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CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
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KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

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CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
ROAD LAYOUT AND CROSS SECTIONS

CONTRACT No. :
PROJECT No. : 2005B
SCALE : N.T.S
DATE : NOVEMBER 2022

PROJECT STATUS
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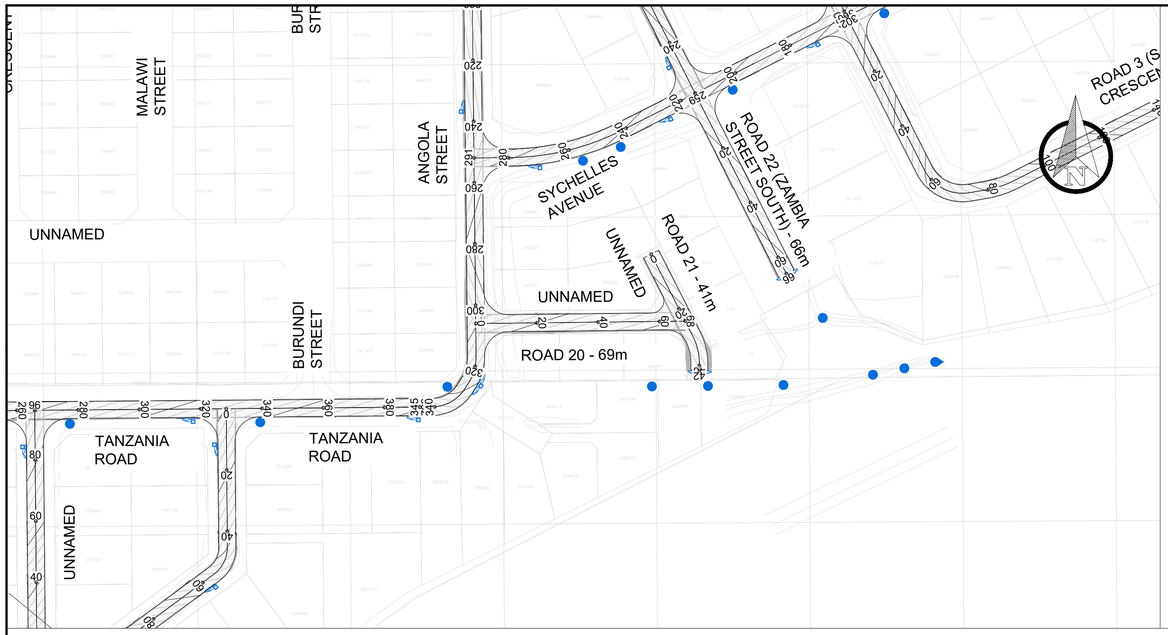
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

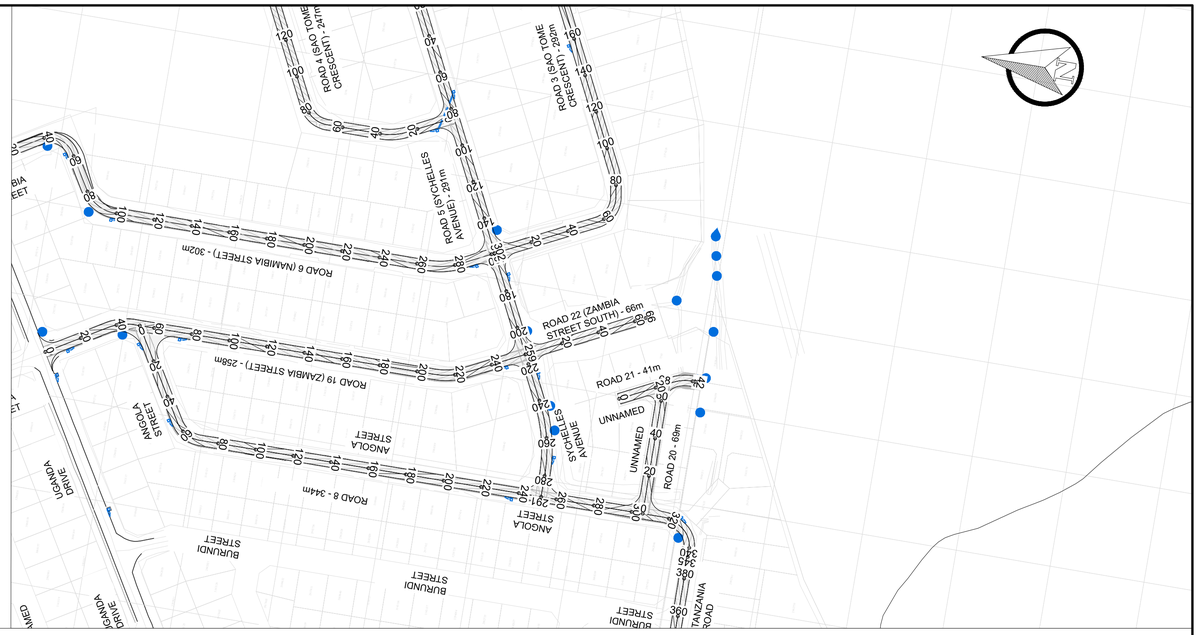
INSPECTOR OF WORKS:
SIGNATURE | DATE

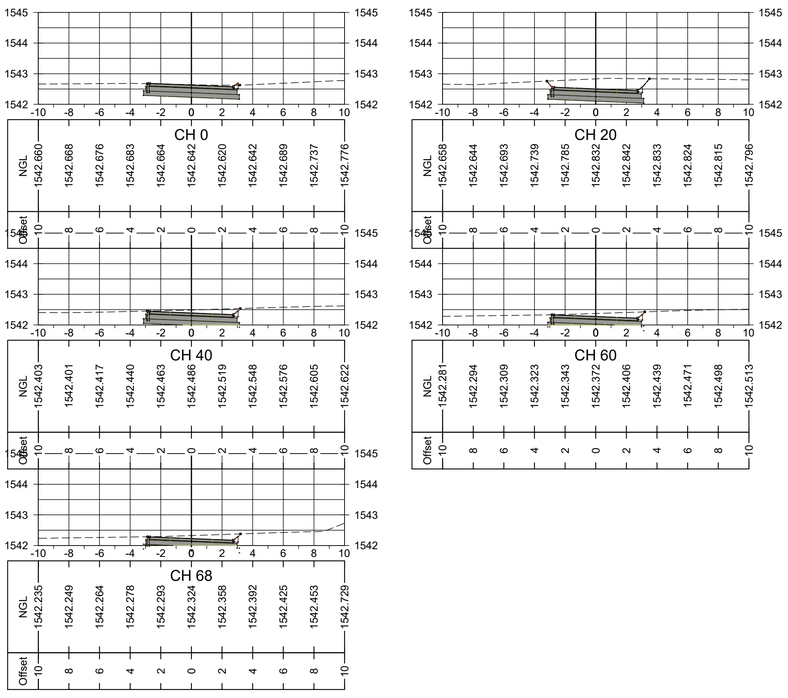
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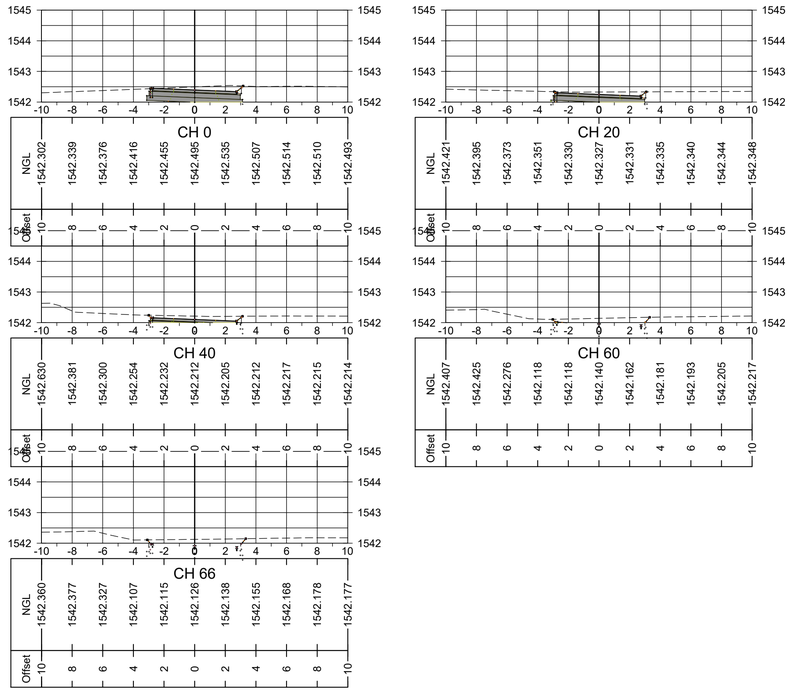
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DRAWING NO. 2005B-004X19
SHEET NO: 1 OF 1
VERSION: 0









AMENDMENTS				
NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
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ROADS AND STORMWATER
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DIRECTOR: ... SIGNATURE ____ DATE ____

VICTOR KHANYE LOCAL MUNCIPALITY

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DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
ROAD LAYOUT AND CROSS SECTIONS

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

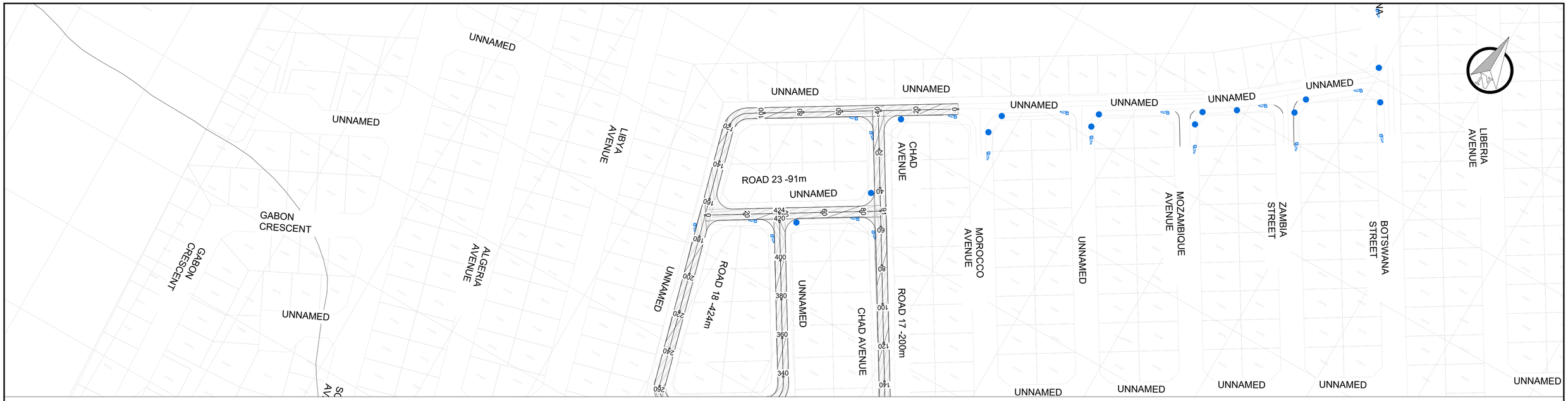
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

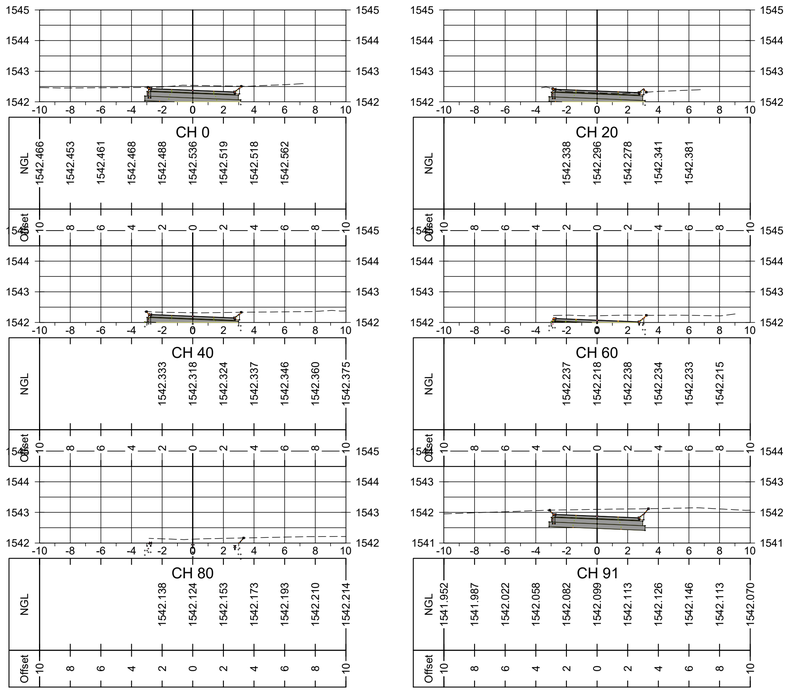
INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION
	2005B	N.T.S	NOVEMBER 2022	2005B-004X20_22	1 OF 1	0





AMENDMENTS

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CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
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ROADS AND STORMWATER
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SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

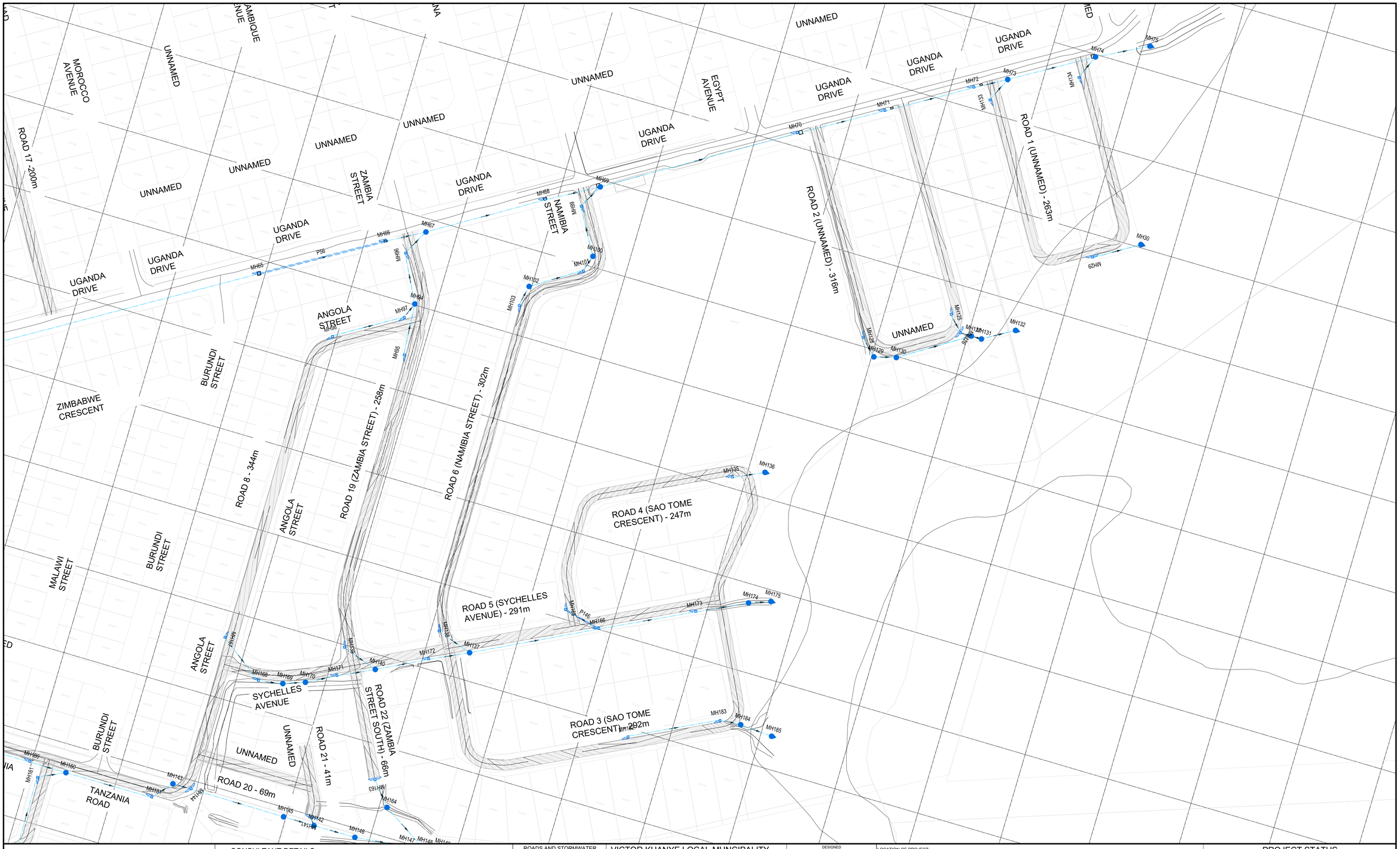
DESCRIPTION OF PROJECT
ROAD LAYOUT AND CROSS SECTIONS

CONTRACT No. :
PROJECT No. : 2005B
SCALE : N.T.S
DATE : NOVEMBER 2022

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

PROJECT ENGINEER: K. MAYAYISE — INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE
INSPECTOR OF WORKS: SIGNATURE | DATE
REMARKS:
ORIGINAL PAPER SIZE: A1

DRAWING NO. 2005B-004X23
SHEET NO: 1 OF 1
VERSION: 0



AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS

KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
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ROADS AND STORMWATER
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SCALE: N.T.S

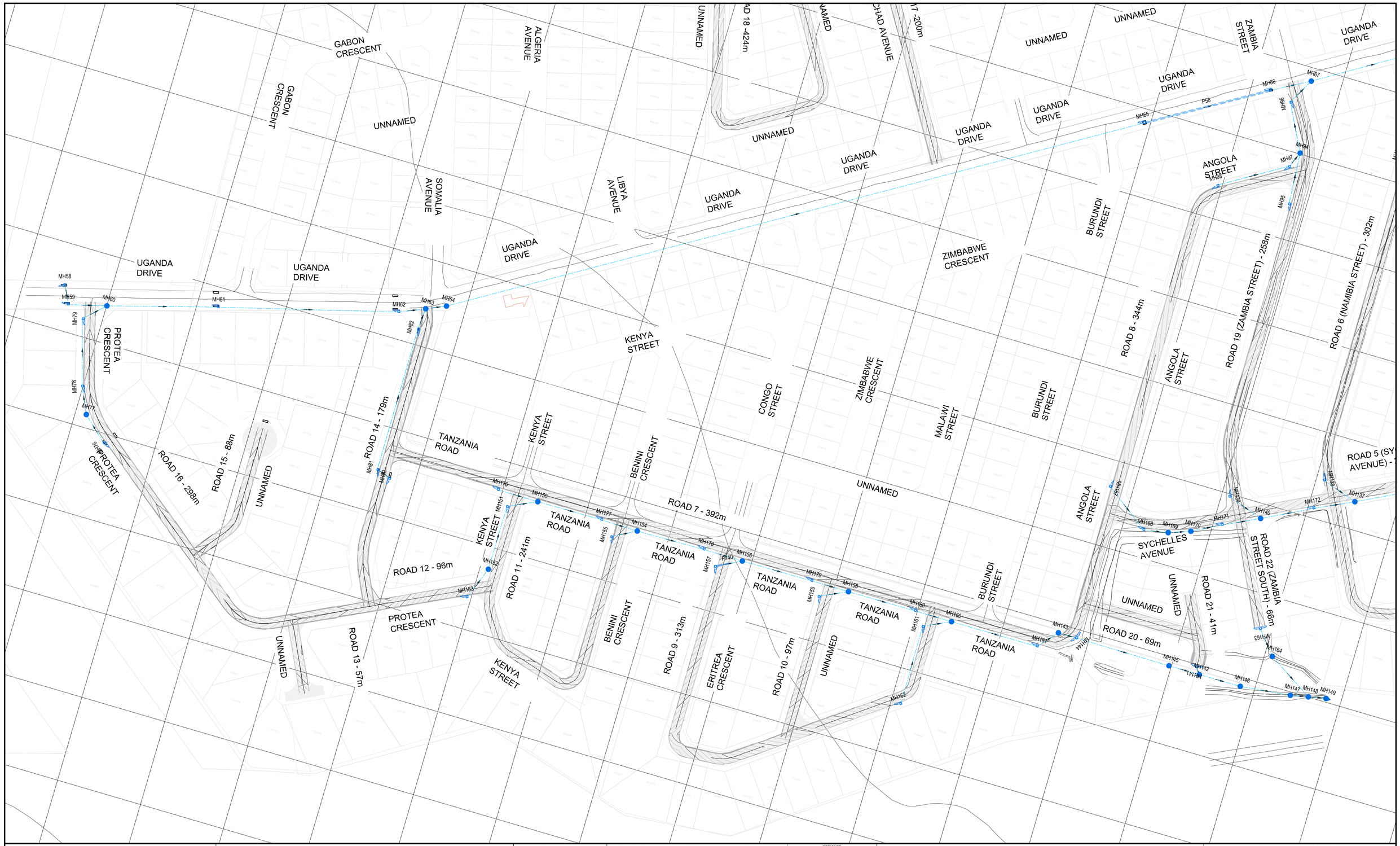
LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER NETWORK LAYOUT PLAN

PROJECT STATUS: ○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

PROJECT ENGINEER: K. MAYAYISE (INITIALS AND SURNAME) (SIGNATURE & PR NUMBER) (DATE)
INSPECTOR OF WORKS: (SIGNATURE) (DATE)
REMARKS:
ORIGINAL PAPER SIZE: A1

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	2005B	N.T.S	NOVEMBER 2022	2005B-005LP01	1 OF 1	0



AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS

KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

TELL NO.: +27 (0) 805 0981
FAX NO.: +27 (0) 11 604 0039
EMAIL: KTN@KTNCONSULTING.CO.ZA
WEBSITE: www.ktnconsulting.co.za

KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER NETWORK LAYOUT PLAN

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

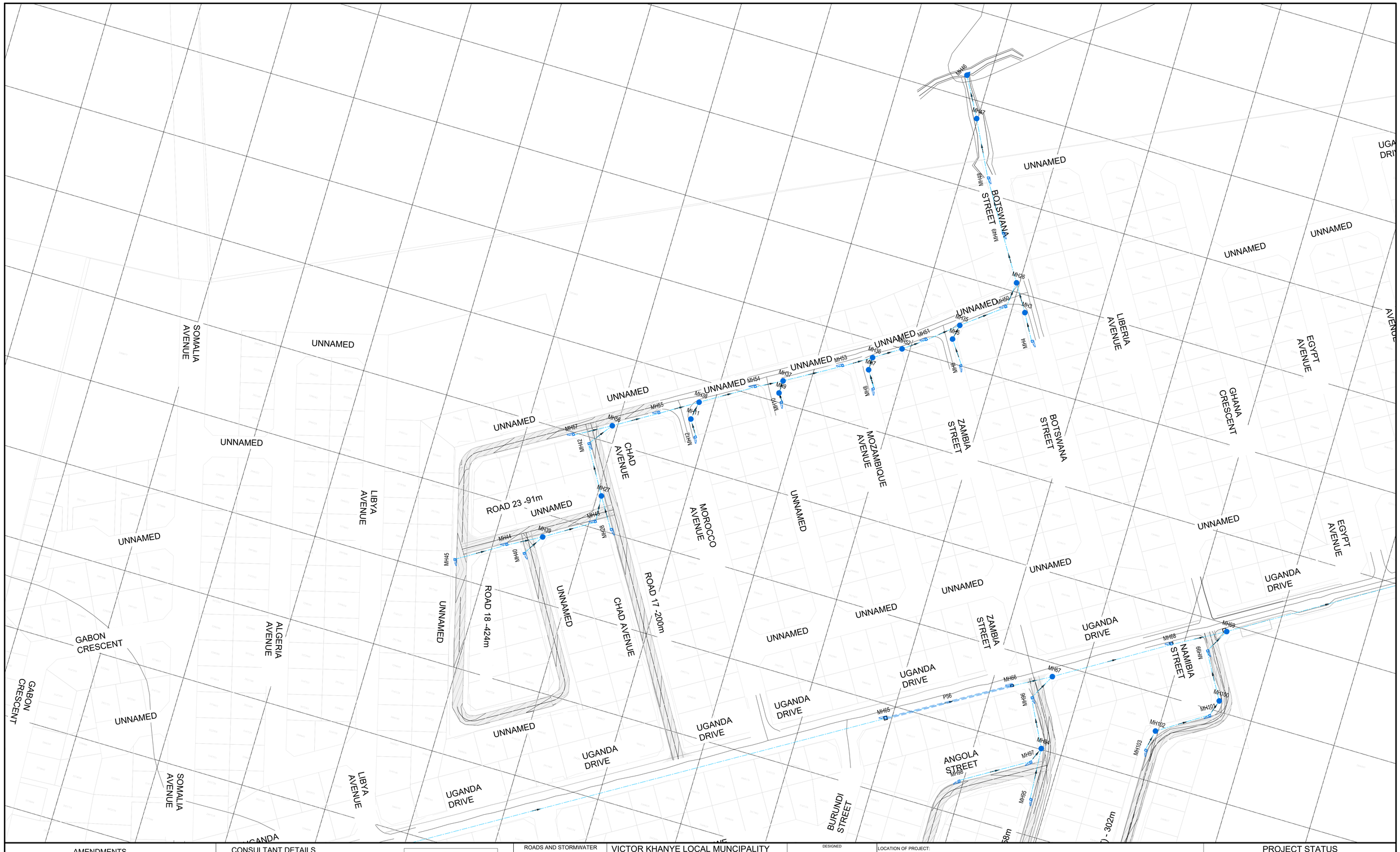
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME SIGNATURE & PR NUMBER DATE

INSPECTOR OF WORKS:
SIGNATURE DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LP01	1 OF 1	0



AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
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CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

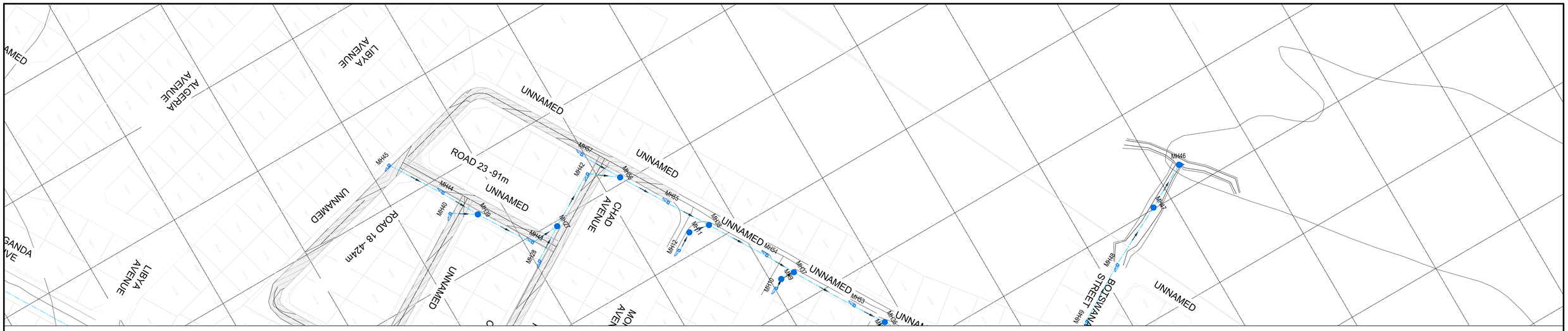
LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

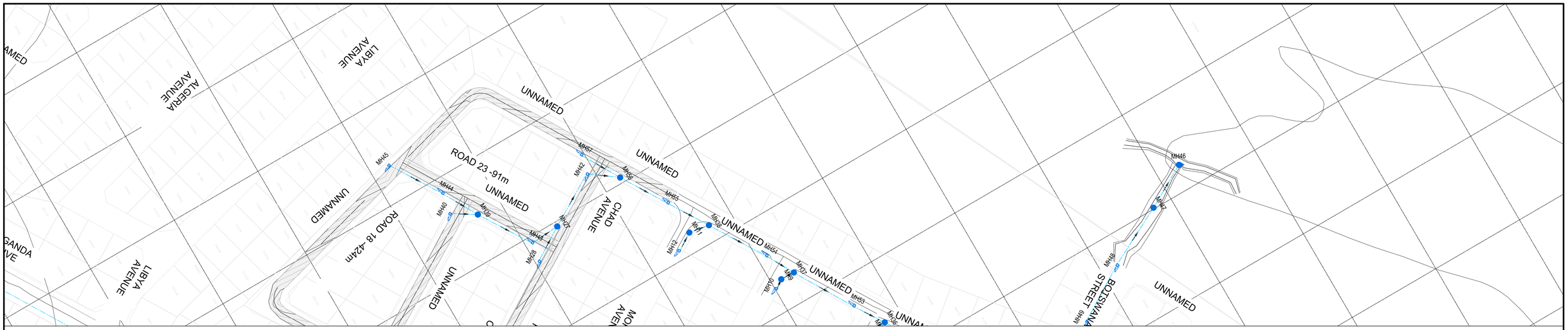
DESCRIPTION OF PROJECT
STORMWATER NETWORK LAYOUT PLAN

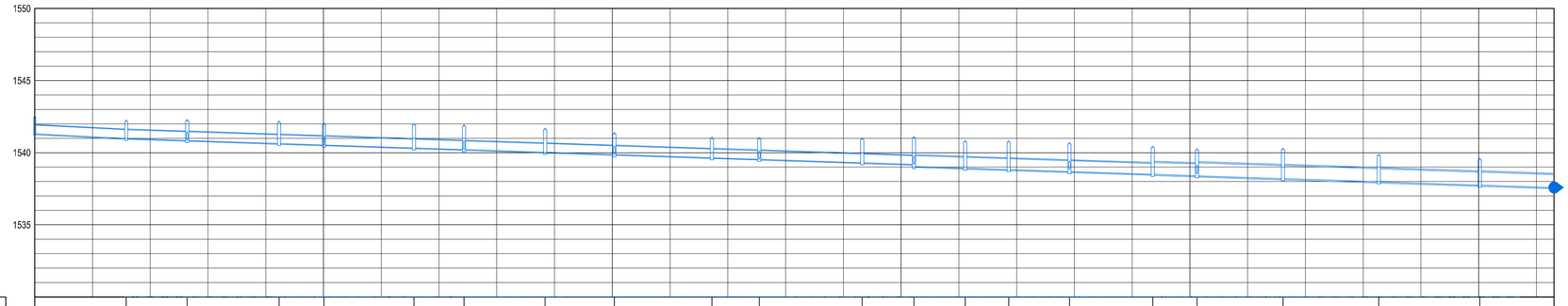
PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

PROJECT ENGINEER: K. MAYAYISE (INITIALS AND SURNAME / SIGNATURE & PR NUMBER / DATE)
INSPECTOR OF WORKS: (SIGNATURE / DATE)
REMARKS:
ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LP01	1 OF 1	0


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ROAD 23 -91m
UNNAMED
ROAD 18 424m
UNNAMED
UNNAMED
UNNAMED



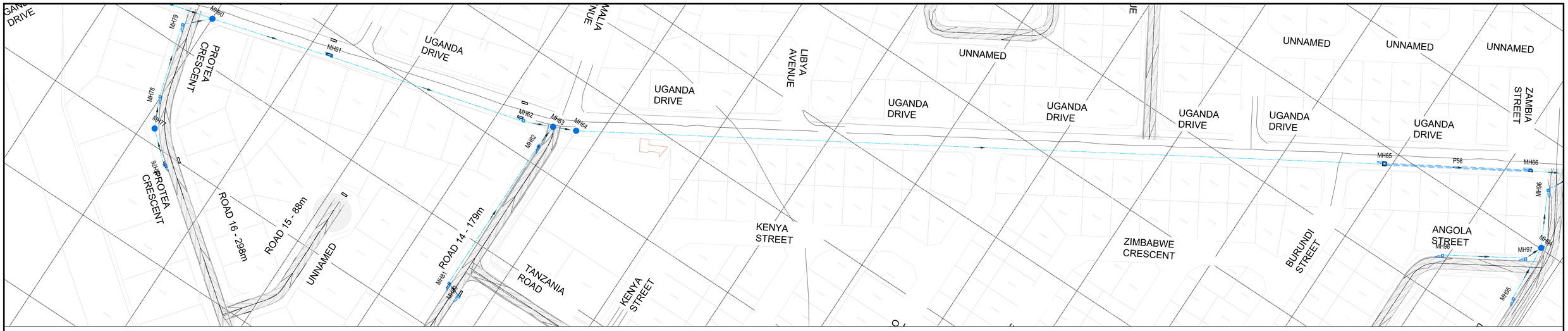


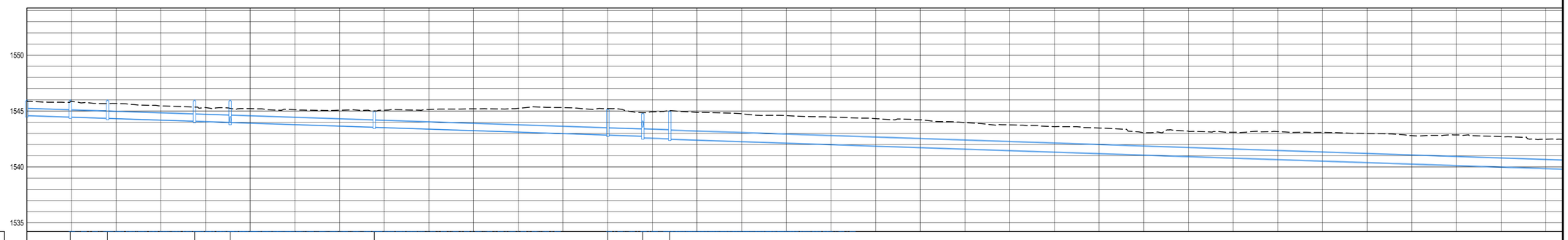
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EGL — · — · —
HGL · · · · · · ·

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1530.000

| | | |



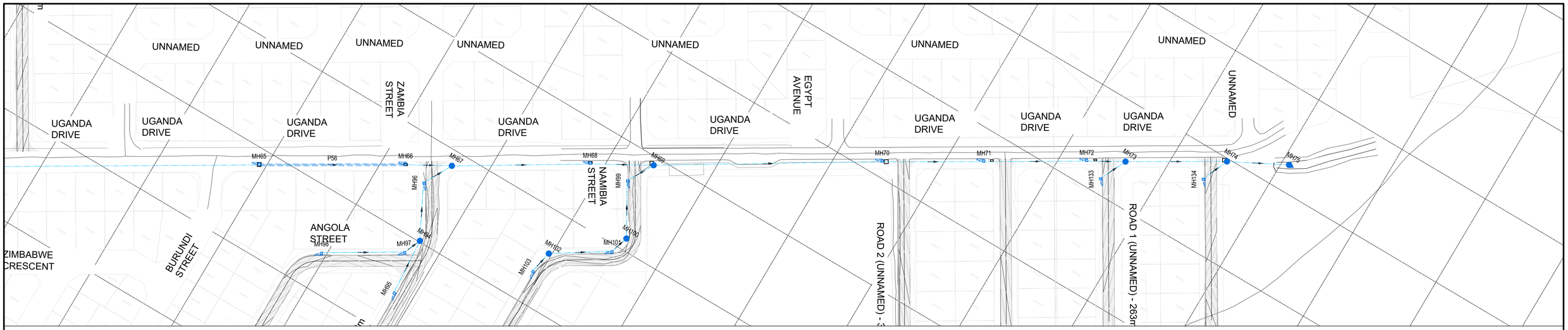


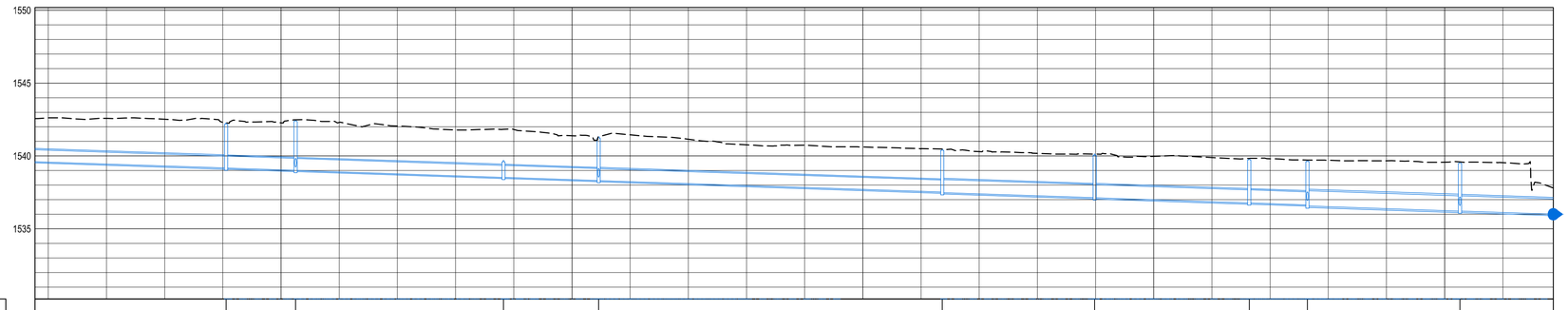
NGL – – – – –
EGL — · — · —
HGL ·····

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1534.220

| | | |





NGL – – – – –
EGL –·–·–·–
HGL ·····

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1530.185

		MH66	MH67	MH68	MH69	MH70	MH71	MH72	MH73	MH74	MH75
REFERENCE		Ø825 100D	Ø825 100D	Ø825 100D	Ø825 100D	Ø825 100D	Ø900 100D	Ø900 100D	Ø900 100D	Ø1050 100D	Ø1050 100D
DISTANCE (m)	705.484	781.119	804.989	876.470	909.187	1027.303	1079.685	1132.829	1152.848	1205.243	1237.346
GROUND LEVEL		1542.272	1542.488	1541.829	1541.315	1540.467	1540.127	1539.833	1539.721	1539.586	1537.803
PIPE INVERT LEVEL		1539.669 1539.169	1539.009 1538.009	1538.530 1538.530	1538.311 1538.311	1537.519 1537.462	1537.131 1537.131	1536.775 1536.775	1536.641 1536.566	1536.215 1536.215	1535.999
SLOPE / LENGTH		0.67% 1:149.3 75.63m	0.67% 1:149.3 23.87m	0.67% 1:149.3 71.48m	0.67% 1:149.3 32.72m	0.67% 1:149.3 118.12m	0.67% 1:149.3 52.38m	0.67% 1:149.3 53.14m	0.67% 1:149.3 20.02m	0.67% 1:149.3 52.39m	0.67% 1:149.3 32.10m
HYDRAULICS	DESIGN Q(m3/s) V(m/s)										
	MAX. (0.8D) Q(m3/s) V(m/s)										

LONGSECTION MH76 - MH75 1
FROM 715.410 TO 1237.346

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

TELL NO.: +27 (0) 805 0981
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WEBSITE: www.ktnconsulting.co.za

KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

CONTRACT No. :
PROJECT No. : 2005B
SCALE : N.T.S
DATE : NOVEMBER 2022

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

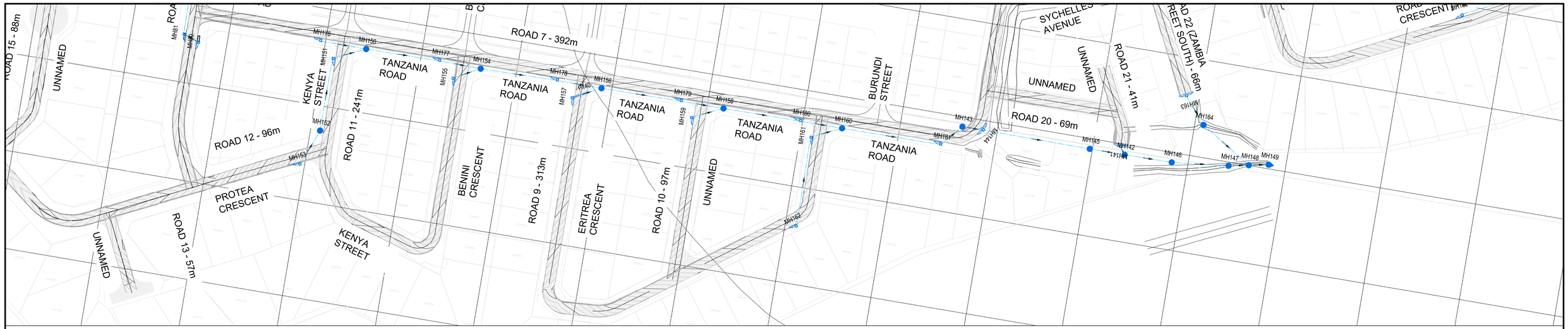
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

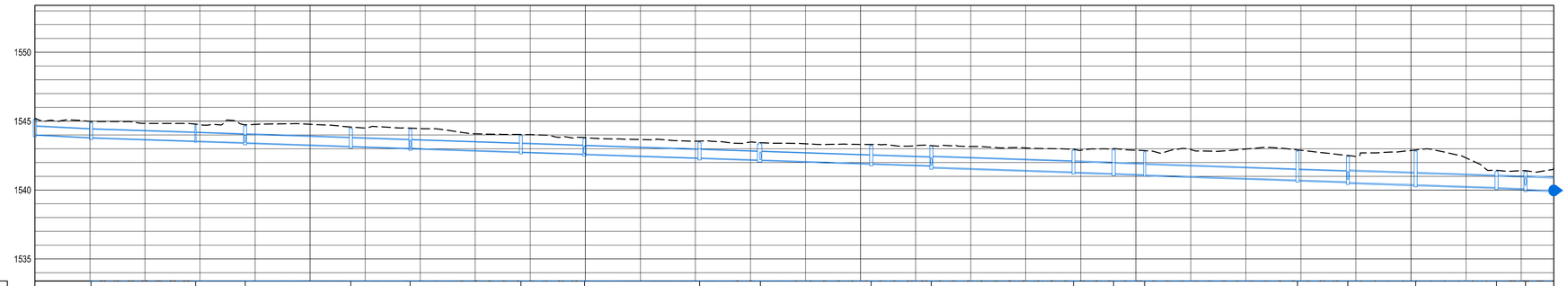
INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

DRAWING NO. 2005B-005LS01
SHEET NO: 1 OF 1
VERSION: 0





NGL – – – – –
EGL — · — · —
HGL ·····

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1533.403

			MH153	Ø600 100D	MH152	Ø600 100D	MH151	Ø600 100D	MH150	Ø600 100D	MH177	Ø600 100D	MH154	Ø600 100D	MH178	Ø600 100D	MH156	Ø600 100D	MH179	Ø600 100D	MH158	Ø600 100D	MH180	Ø600 100D	MH160	Ø750 100D	MH161	Ø750 100D	MH143	Ø750 100D	MH144	Ø750 100D	MH145	Ø750 100D	MH142	Ø825 100D	MH146	Ø825 100D	MH147	Ø825 100D	MH148	Ø900 100D	MH149
REFERENCE																																									
DISTANCE (m)			0.000		20.396		58.392		76.373		114.796		136.414		176.582		199.676		241.488		263.981		303.858		325.720		377.345		391.967		403.199		468.751		477.052		501.689		531.099		541.590		551.848
GROUND LEVEL			1545.215		1544.970		1544.791		1544.734		1544.579		1544.492		1544.031		1543.805		1543.552		1543.440		1543.305		1543.224		1542.969		1543.004		1542.855		1542.913		1542.504		1542.909		1541.438		1541.411		1541.591
PIPE INVERT LEVEL			1544.017		1543.813	1543.813		1543.559	1543.559	1543.438	1543.438		1543.181	1543.181	1543.036	1543.036		1542.767	1542.767	1542.612	1542.612		1542.332	1542.332		1542.184	1542.184		1541.914	1541.914		1541.768	1541.658		1541.312	1541.302		1541.204	1541.197		1541.121	1541.088		1540.726	1540.721		1540.599	1540.551		1540.386	1540.386		1540.189	1540.178		1540.107	1540.040		1539.971
SLOPE / LENGTH					1.00% 1:100.0 20.40m		0.67% 1:149.3 37.96m		0.67% 1:149.3 18.02m		0.67% 1:149.3 38.42m		0.67% 1:149.3 21.62m		0.67% 1:149.3 40.17m		0.67% 1:149.3 23.09m		0.67% 1:149.3 41.81m		0.67% 1:149.3 22.09m		0.67% 1:149.3 40.28m		0.67% 1:149.3 21.86m		0.67% 1:149.3 51.62m		0.67% 1:149.3 14.62m		0.67% 1:149.3 11.23m		0.67% 1:149.3 55.55m		0.67% 1:149.3 18.30m		0.67% 1:149.3 24.64m		0.67% 1:149.3 29.41m		0.67% 1:149.3 10.49m		0.67% 1:149.3 10.26m
HYDRAULICS	DESIGN	Q(m3/s) V(m/s)																																						
	MAX. (0.8D)	Q(m3/s) V(m/s)																																						

LONGSECTION MH153 - MH149
FROM 0.000 TO 551.848

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

TELL NO.: +27 (0) 805 0981
FAX NO.: +27 (0) 11 604 0039
EMAIL: KTN@KTNCONSULTING.CO.ZA
WEBSITE: www.ktnconsulting.co.za

KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE
DEPARTMENT
P.O BOX 6
DELMAS
2210

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DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

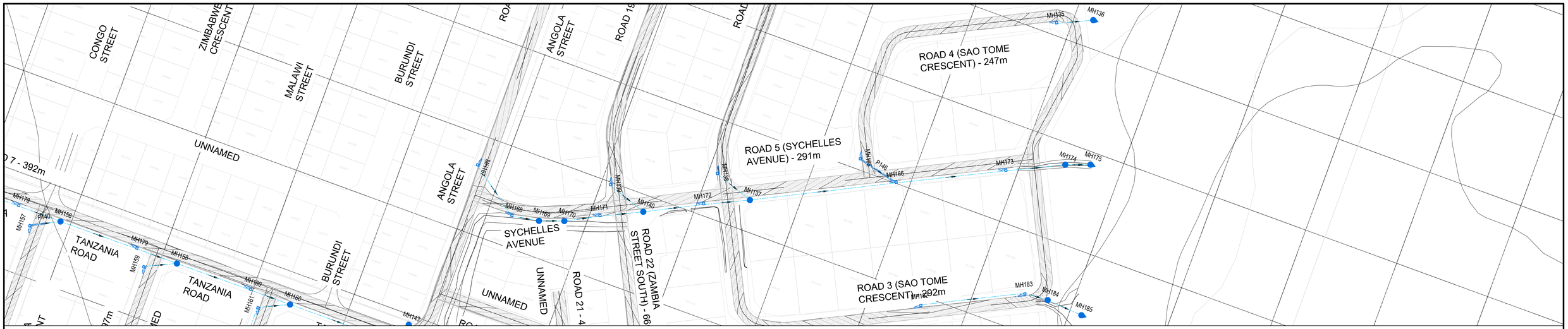
DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

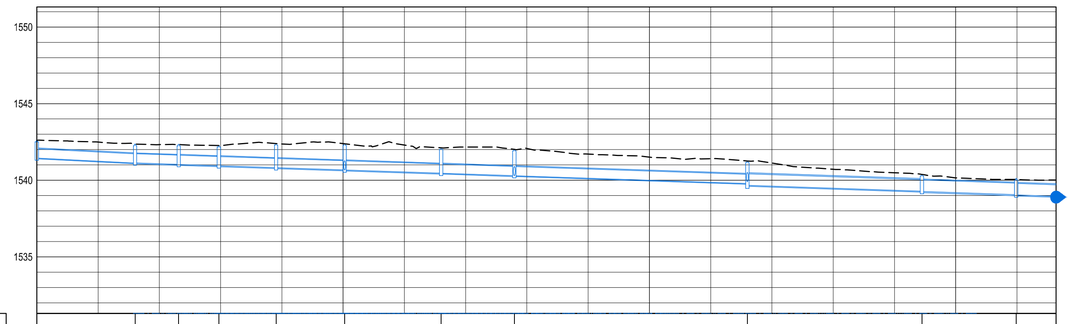
CONTRACT No. :
PROJECT No. : 2005B
SCALE : N.T.S
DATE : NOVEMBER 2022

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME SIGNATURE & PR NUMBER DATE
INSPECTOR OF WORKS:
SIGNATURE DATE
REMARKS:
ORIGINAL PAPER SIZE: A1

DRAWING NO. 2005B-005LS01
SHEET NO: 1 OF 1
VERSION: 0



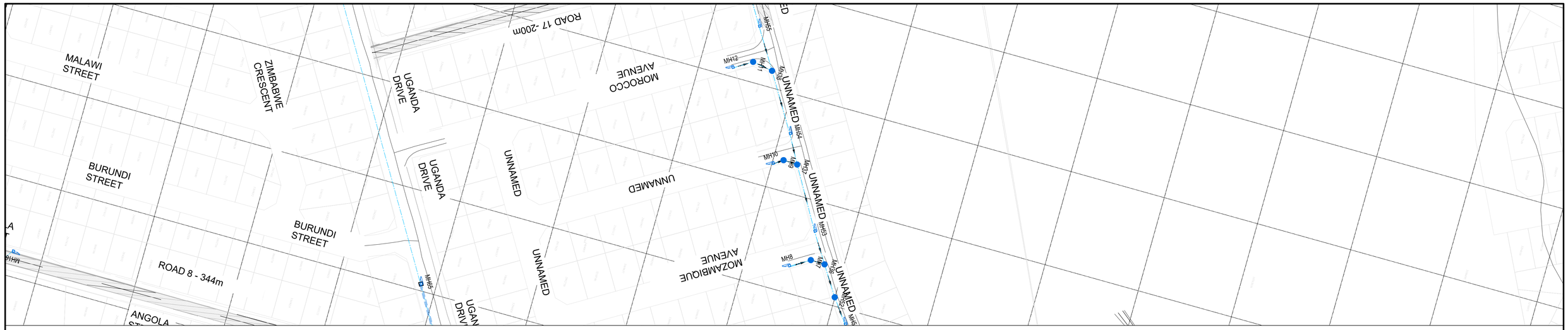


NGL – – – – –
EGL —·—·—
HGL ·····

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1531.309

| | | |





NGL – – – – –
EGL — · — · —
HGL · · · · · · · · · · · ·

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1530.000

REFERENCE		
DISTANCE (m)		
GROUND LEVEL		
PIPE INVERT LEVEL		
SLOPE / LENGTH		
HYDRAULICS	DESIGN	Q(m3/s) V(m/s)
	MAX. (0.8D)	Q(m3/s) V(m/s)

MH10	Ø900	Ø900	Ø900
	1000	1000	1000
0.000	5.459	12.871	
1541.249	1541.300	1541.170	
	1539.892		
	1539.841		
	1539.543		
	2.78%	8.02%	
	135.0	124.9	
	5.46m	9.41m	

LONGSECTION MH10 - MH37
FROM 0.000 TO 13.997

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

TELL NO.: +27 (0) 805 0981
FAX NO.: +27 (0) 11 604 0039
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WEBSITE: www.ktnconsulting.co.za

KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

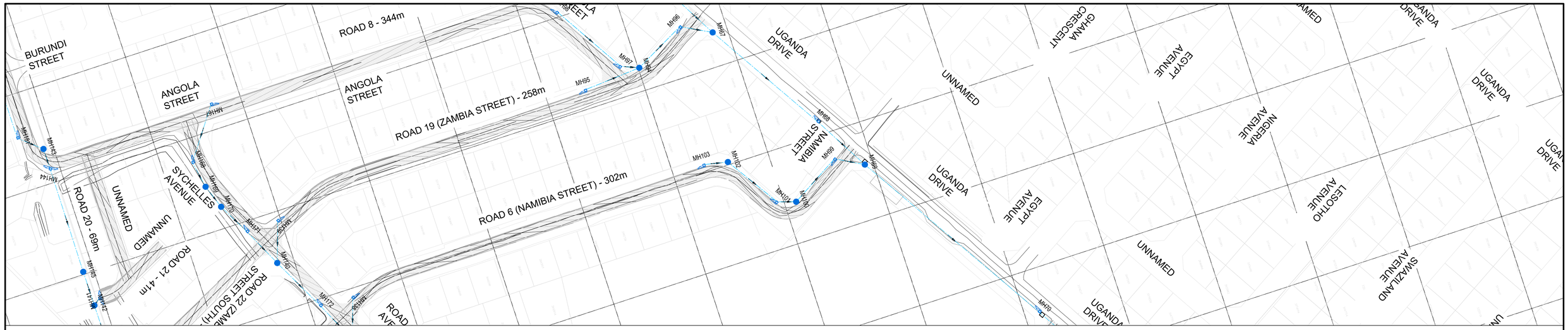
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

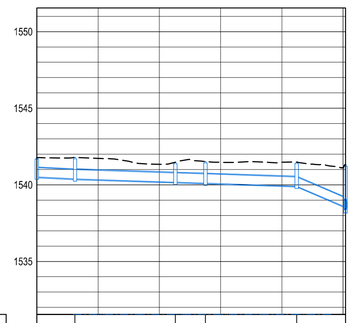
INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0



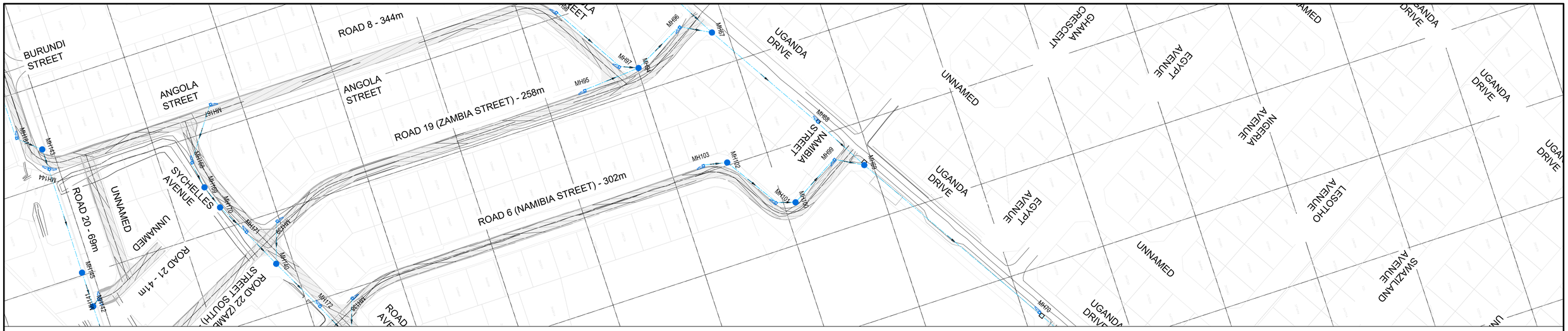


NGL – – – – –
EGL — · — · —
HGL · · · · · · · · · · · ·

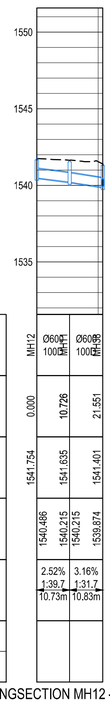
SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1531.544

| | | |


BURUNDI STREET
ANGOLA STREET
ANGOLA STREET
ROAD 8 - 344m
ROAD 19 (ZAMBIA STREET) - 258m
ROAD 6 (NAMIBIA STREET) - 302m
ROAD 20 - 69m
ROAD 21 - 41m
UNNAMED
UNNAMED
SYCHELLES AVENUE
ROAD 22 (ZAMBIA STREET SOUTH)
NAMIBIA STREET
UGANDA DRIVE
UNNAMED
GHANA CRESCENT
EGYPT AVENUE
NIGERIA AVENUE
LESOTHO AVENUE
SWAZILAND AVENUE
MH103
MH102
MH101
MH100
MH99
MH69
MH70
MH71
MH72
MH73
MH144
MH145
MH146
MH147
MH148
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MH182
MH183





NGL – – – – –
EGL — · — · —
HGL · · · · · · · · · · · ·

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1531.578

REFERENCE	MH12	Ø600 CONC 100DIA	Ø600 CONC 100DIA	MH38
DISTANCE (m)	0.000	10.726	21.551	
GROUND LEVEL	1541.754	1541.635	1541.401	
PIPE INVERT LEVEL	1540.486	1540.215	1539.874	
SLOPE / LENGTH		2.52% 1:39.7 10.73m	3.16% 1:31.7 10.83m	
HYDRAULICS DESIGN Q(m3/s)				
HYDRAULICS DESIGN V(m/s)				
HYDRAULICS MAX. (0.8D) Q(m3/s)				
HYDRAULICS MAX. (0.8D) V(m/s)				

LONGSECTION MH12 - MH38 1
FROM 0.000 TO 21.551

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

TELL NO.: +27 (0) 805 0981
FAX NO.: +27 (0) 11 604 0039
EMAIL: KTN@KTNCONSULTING.CO.ZA
WEBSITE: www.ktnconsulting.co.za

KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

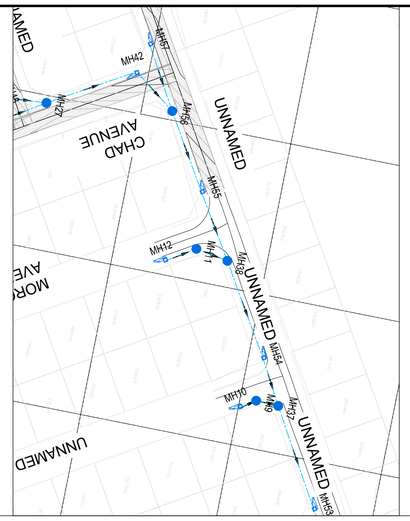
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

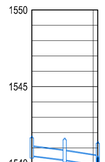
INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





NGL – – – – –
EGL — · — · —
HGL · · · · · · · · · · · ·

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1530.000

REFERENCE		MH12	MH38
DISTANCE (m)		0.000	10.726 / 21.551
GROUND LEVEL		1541.754	1541.635 / 1541.401
PIPE INVERT LEVEL		1540.486	1540.215 / 1540.215 / 1539.874
SLOPE / LENGTH			2.52% / 3.16% 1:39.7 / 1:31.7 10.73m / 10.83m
HYDRAULICS	DESIGN Q(m3/s)		
	DESIGN V(m/s)		
	MAX. (0.8D) Q(m3/s)		
	MAX. (0.8D) V(m/s)		

Ø600 CONC 100D

LONGSECTION MH12 - MH38
FROM 0.000 TO 21.551

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

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KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

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VICTOR KHANYE LOCAL MUNCIPALITY

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DEPARTMENT
P.O BOX 6
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2210

TEL NO: 013 665 6000
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DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

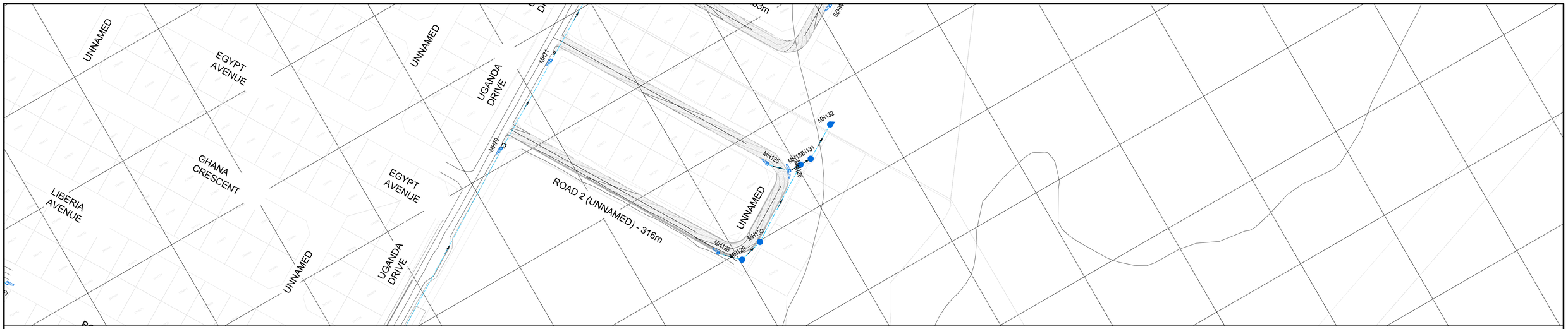
LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

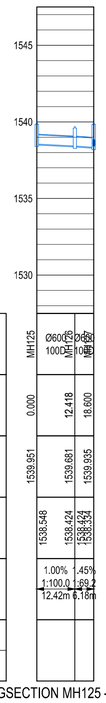
DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

PROJECT ENGINEER: K. MAYAYISE (INITIALS AND SURNAME / SIGNATURE & PR NUMBER / DATE)
INSPECTOR OF WORKS: (SIGNATURE / DATE)
REMARKS:
ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





NGL – – – – –
EGL — · — · —
HGL · · · · · · · · · · · ·

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1527.500

REFERENCE			MH125	MH127 1
DISTANCE (m)			0.000	18.600
GROUND LEVEL			1539.951	1539.935
PIPE INVERT LEVEL			1538.548	1538.424
SLOPE / LENGTH				1.00% 1:100.0 12.42m	1.45% 1:69.2 6.18m
HYDRAULICS	DESIGN	Q(m3/s) V(m/s)		
	MAX. (0.8D)	Q(m3/s) V(m/s)		

Ø600RCP 100D

LONGSECTION MH125 - MH127 1
FROM 0.000 TO 18.600

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

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KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

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VICTOR KHANYE LOCAL MUNCIPALITY

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2210

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DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

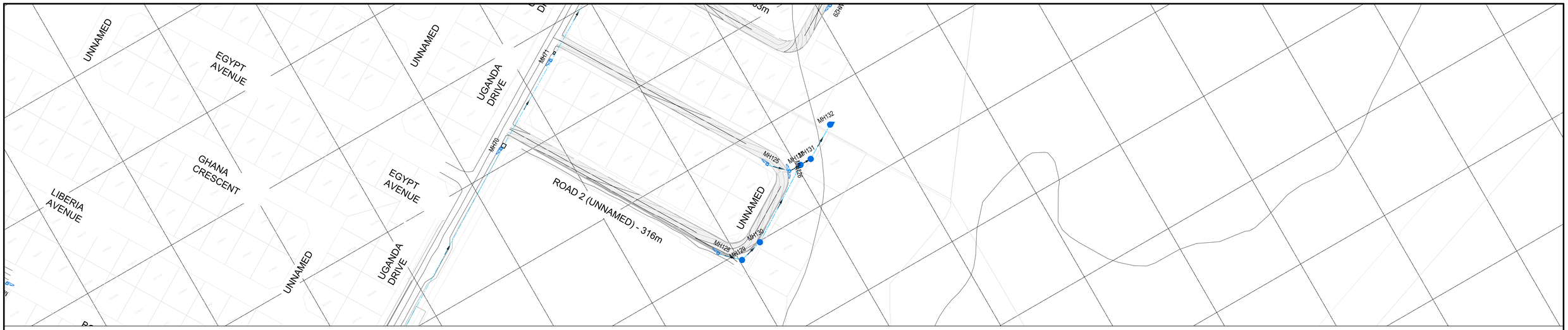
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME SIGNATURE & PR NUMBER DATE

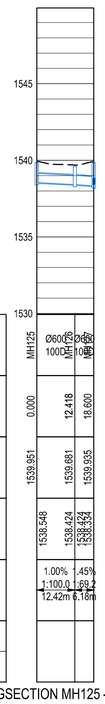
INSPECTOR OF WORKS:
SIGNATURE DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





NGL – – – – –
EGL — · — · —
HGL · · · · · · · · · · · ·

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1529.943

REFERENCE		MH125	Ø600RCP 100DIA	MH126
DISTANCE (m)		0.000	12.418	18.600
GROUND LEVEL		1539.951	1539.681	1539.935
PIPE INVERT LEVEL		1538.548	1538.424	1538.424
SLOPE / LENGTH			1.00% 1:100.0 12.42m	45% 1:69.2 6.18m
HYDRAULICS	DESIGN Q(m3/s) V(m/s)			
	MAX. (0.8D) Q(m3/s) V(m/s)			

LONGSECTION MH125 - MH127 2
FROM 0.000 TO 18.600

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

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KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY

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P.O BOX 6
DELMAS
2210

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EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

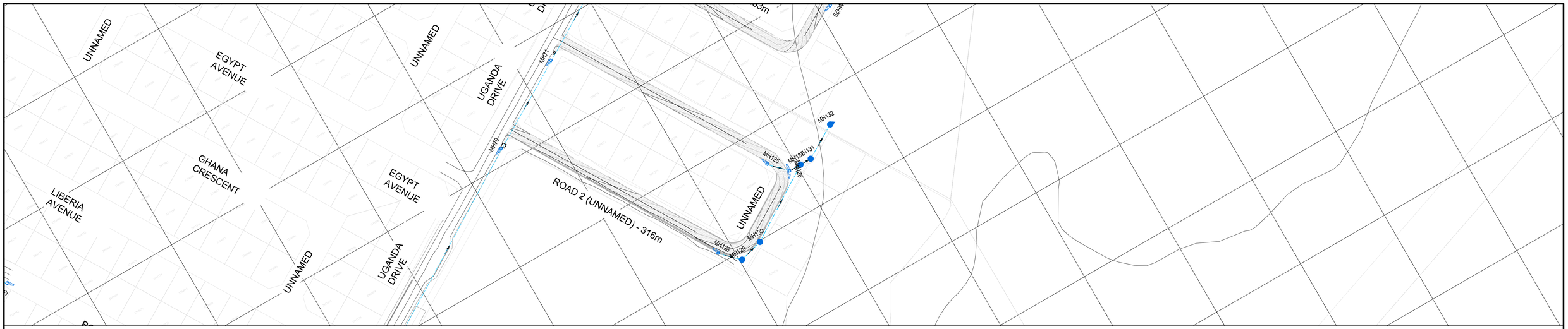
LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

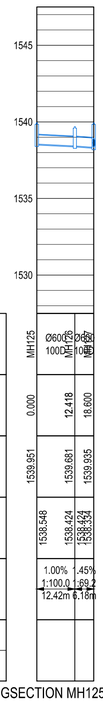
DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

PROJECT ENGINEER: K. MAYAYISE (INITIALS AND SURNAME / SIGNATURE & PR NUMBER / DATE)
INSPECTOR OF WORKS: (SIGNATURE / DATE)
REMARKS:
ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





NGL – – – – –
EGL —·—·—
HGL ·····

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1527.500

REFERENCE			MH125	
DISTANCE (m)			0.000	12.418
GROUND LEVEL			1539.951	1538.681
PIPE INVERT LEVEL			1538.548	1538.424
SLOPE / LENGTH				1.00% 1:100.0 12.42m
HYDRAULICS	DESIGN	Q(m3/s) V(m/s)		
	MAX. (0.8D)	Q(m3/s) V(m/s)		

Ø600CONC 100DIA	
MH127	
18.600	
1539.935	
1538.324	
1538.224	
1.45% 6.18m	

LONGSECTION MH125 - MH127
FROM 0.000 TO 18.600

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

TELL NO.: +27 (0) 805 0981
FAX NO.: +27 (0) 11 604 0039
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WEBSITE: www.ktnconsulting.co.za

KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE
DEPARTMENT
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DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

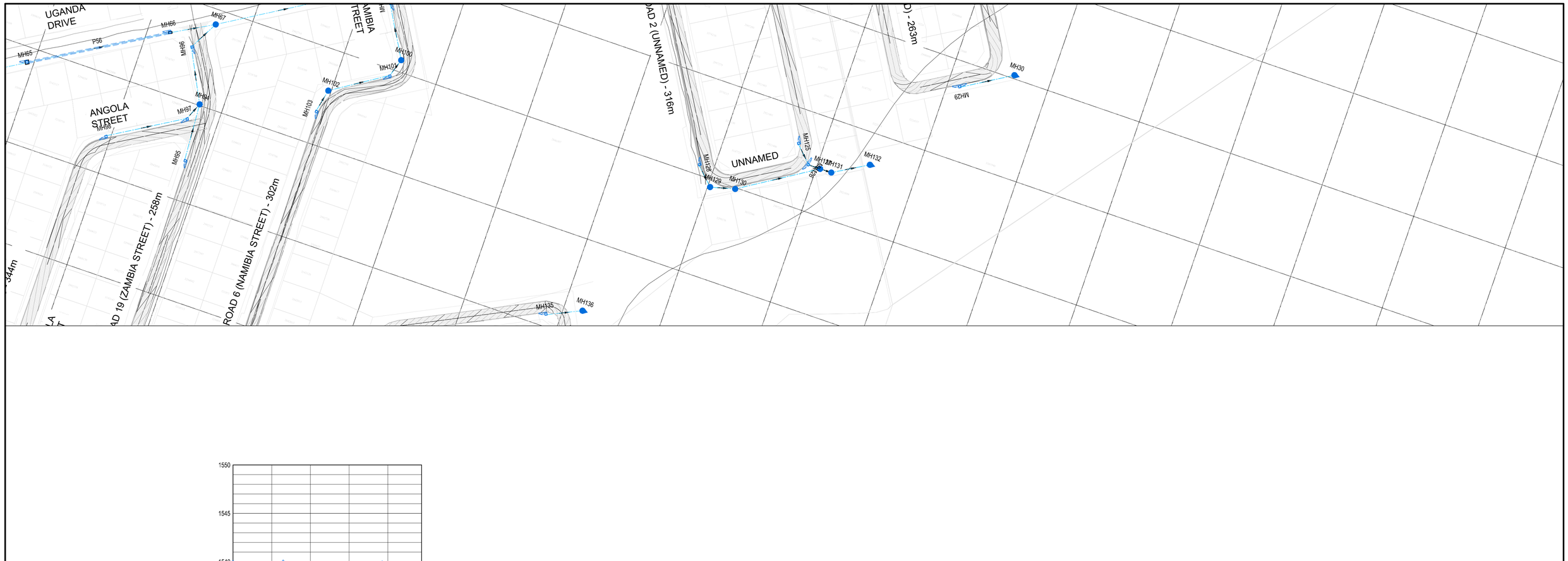
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME SIGNATURE & PR NUMBER DATE

INSPECTOR OF WORKS:
SIGNATURE DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

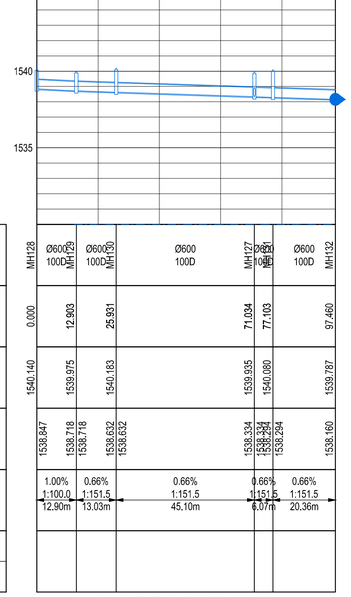
CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0



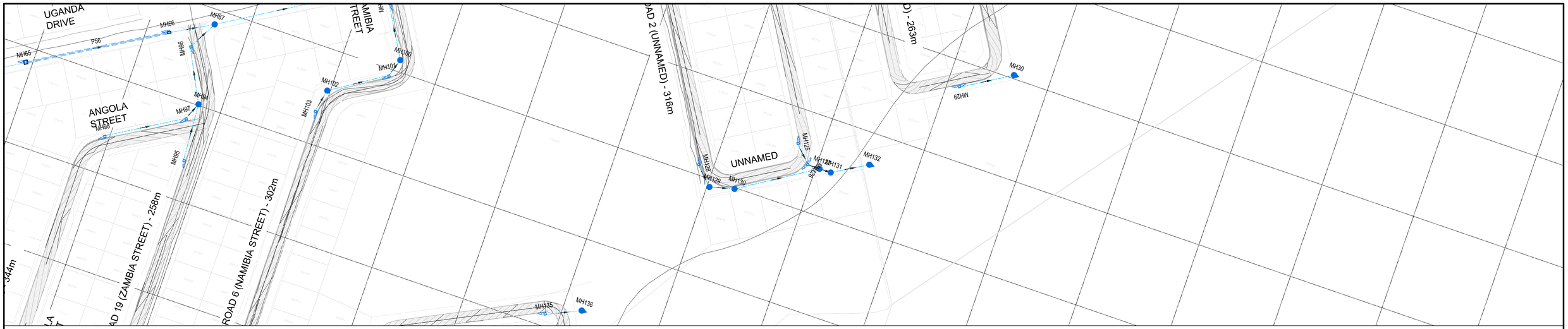
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EGL — · — · —
HGL · · · · · · · · · · · ·

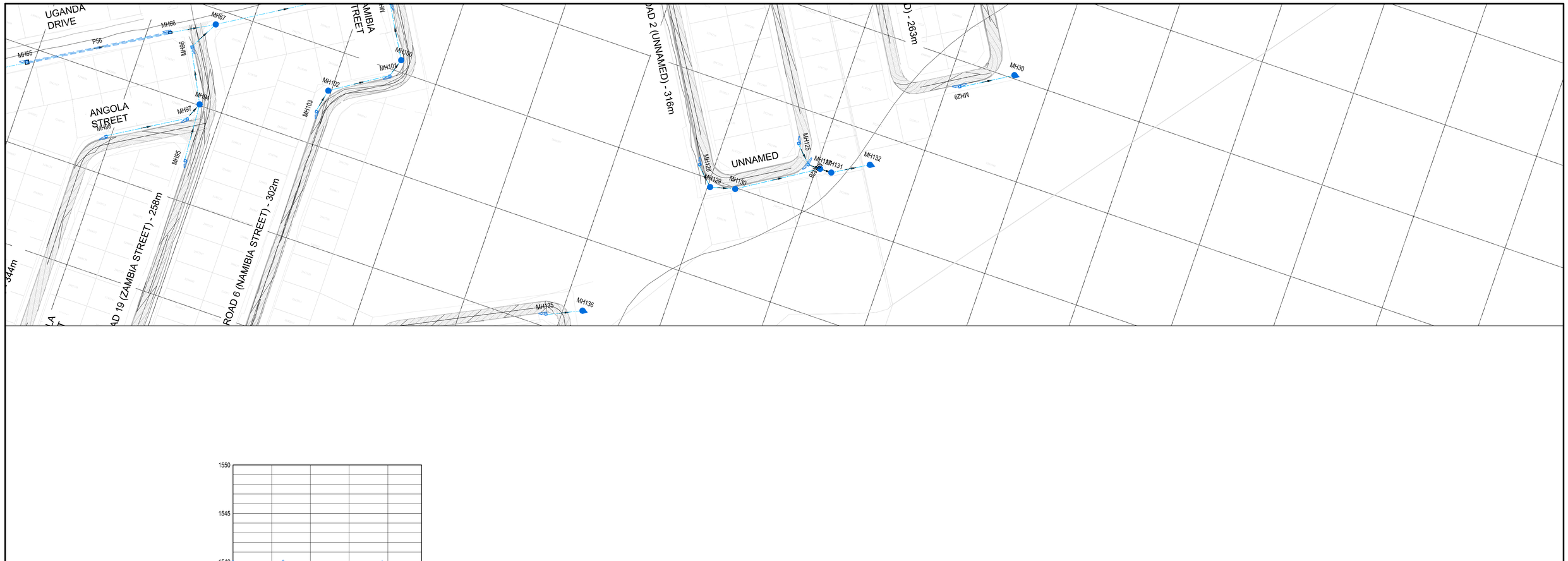
SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1530.000



| | | |


UGANDA DRIVE
ANGOLA STREET
NAMIBIA STREET
UNNAMED
ROAD 19 (ZAMBIA STREET) - 258m
ROAD 6 (NAMIBIA STREET) - 302m
ROAD 2 (UNNAMED) - 316m
ROAD (UNNAMED) - 263m
MH65
MH66
MH67
MH68
MH69
MH70
MH71
MH72
MH73
MH74
MH75
MH76
MH77
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MH102
MH103
MH104



NGL – – – – –
EGL — · — · —
HGL · · · · · · · · · · · ·

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1530.000

		MH128	Ø600 100D MH129	Ø600 100D MH130	Ø600 100D	MH127	Ø600 100D MH131	Ø600 100D MH132
REFERENCE								
DISTANCE (m)		0.000	12.903	25.951		71.034	77.103	97.460
GROUND LEVEL		1540.140	1539.975	1540.183		1539.935	1540.080	1539.787
PIPE INVERT LEVEL		1538.847	1538.718	1538.632	1538.632	1538.334	1538.284	1538.160
SLOPE / LENGTH		1.00% 1:100.0 12.90m	0.66% 1:151.5 13.03m		0.66% 1:151.5 45.10m	0.66% 1:151.5 6.07m		0.66% 1:151.5 20.36m
HYDRAULICS	DESIGN Q(m3/s) V(m/s)							
	MAX. (0.8D) Q(m3/s) V(m/s)							

LONGSECTION MH128 - MH132
FROM 0.000 TO 97.460

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

TELL NO.: +27 (0) 805 0981
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WEBSITE: www.ktnconsulting.co.za

KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

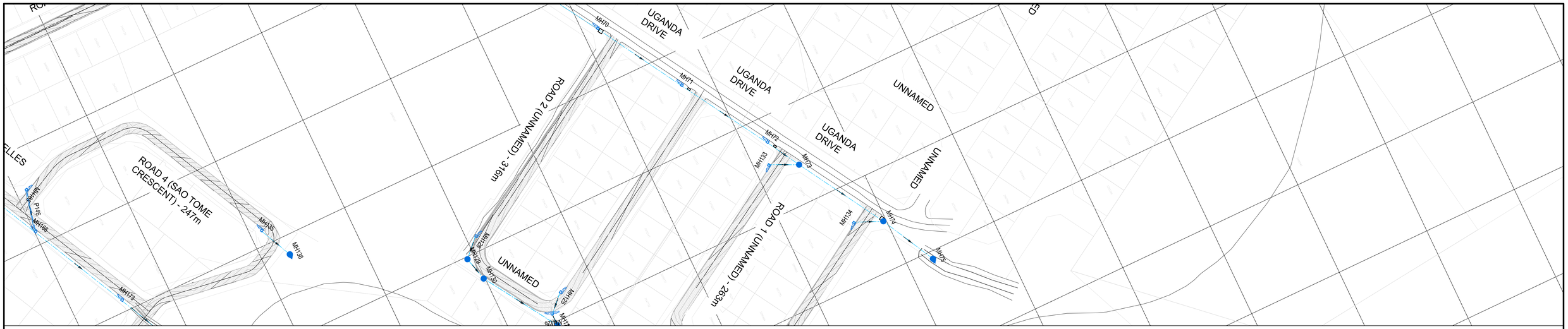
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

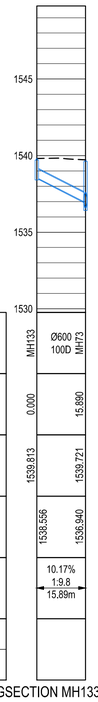
INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





NGL – – – – –
EGL —·—·—·—
HGL ·····

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1529.767

REFERENCE		MH133	Ø600 100D MH73
DISTANCE (m)		0.000	15.890
GROUND LEVEL		1539.813	1539.721
PIPE INVERT LEVEL		1538.556	1536.940
SLOPE / LENGTH			10.17% 1.9.8 15.89m
HYDRAULICS	DESIGN Q(m3/s) V(m/s)		
	MAX. (0.8D) Q(m3/s) V(m/s)		

LONGSECTION MH133 - MH73 1
FROM 0.000 TO 15.890

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

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KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

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VICTOR KHANYE LOCAL MUNCIPALITY

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DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

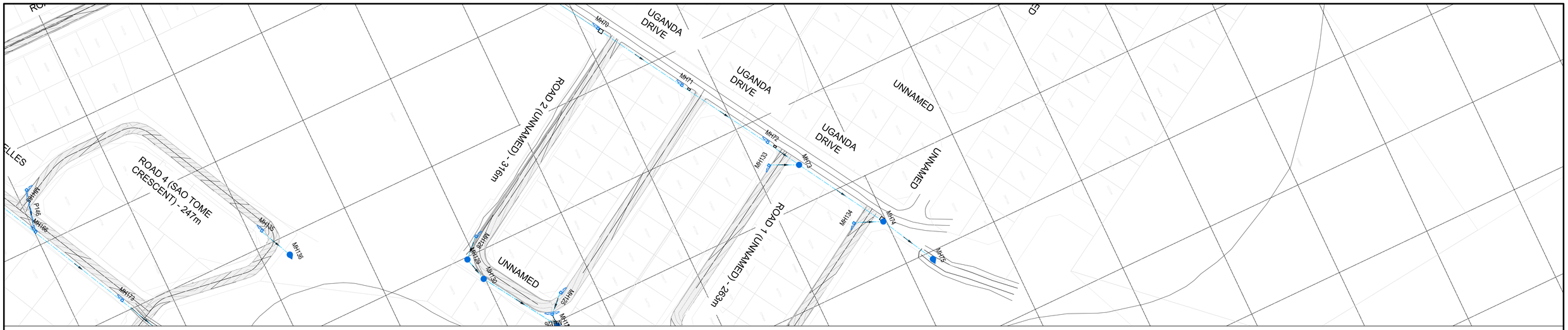
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME SIGNATURE & PR NUMBER DATE

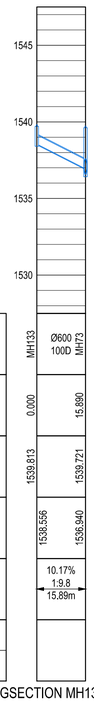
INSPECTOR OF WORKS:
SIGNATURE DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





NGL – – – – –
EGL —·—·—·—
HGL ·····

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1527.500

REFERENCE			MH133	Ø600 100D MH73
DISTANCE (m)			0.000	15.890
GROUND LEVEL			1539.813	1539.721
PIPE INVERT LEVEL			1538.556	1536.940
SLOPE / LENGTH				10.17% 1:9.8 15.89m
HYDRAULICS	DESIGN	Q(m3/s) V(m/s)		
	MAX. (0.8D)	Q(m3/s) V(m/s)		

LONGSECTION MH133 - MH73
FROM 0.000 TO 15.890

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

TELL NO.: +27 (0) 805 0981
FAX NO.: +27 (0) 11 604 0039
EMAIL: KTN@KTNCONSULTING.CO.ZA
WEBSITE: www.ktnconsulting.co.za

KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY
TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

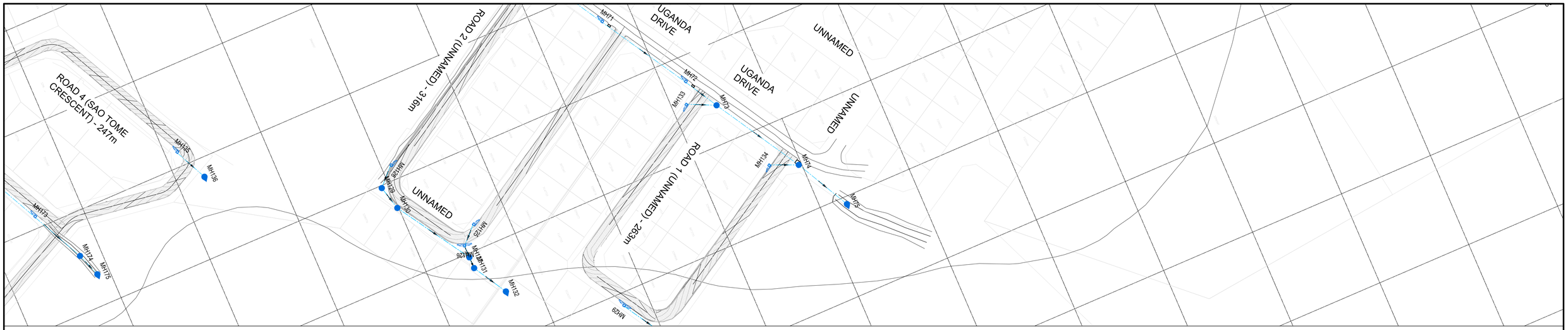
LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

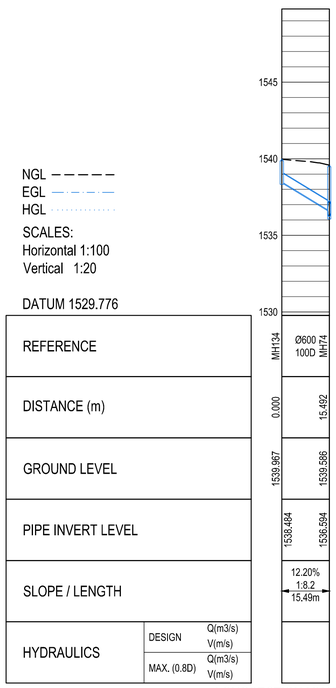
DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

PROJECT ENGINEER: K. MAYAYISE (INITIALS AND SURNAME) (SIGNATURE & PR NUMBER) (DATE)
INSPECTOR OF WORKS: (SIGNATURE) (DATE)
REMARKS:
ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





LONGSECTION MH134 - MH74 1
FROM 0.000 TO 15.492

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

TELL NO.: +27 (0) 805 0981
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ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE
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TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

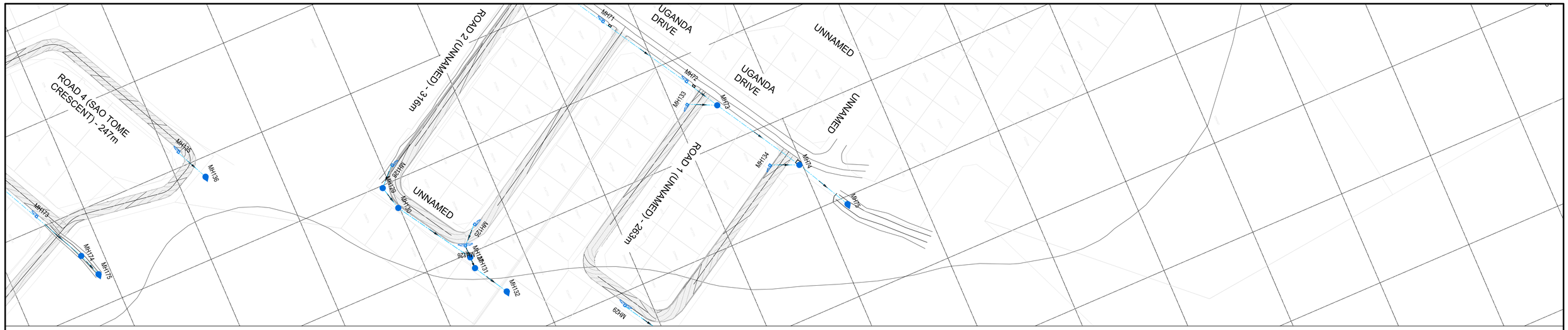
DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

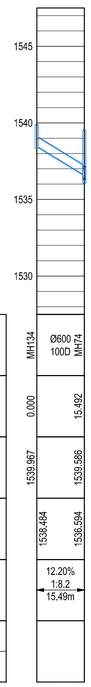
LOCATION OF PROJECT: PAVING OF ROADS IN DELPARK, DELMAS
DESCRIPTION OF PROJECT: STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

PROJECT ENGINEER: K. MAYAYISE (INITIALS AND SURNAME / SIGNATURE & PR NUMBER / DATE)
INSPECTOR OF WORKS: (SIGNATURE / DATE)
REMARKS:
ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





NGL – – – – –
EGL — · — · —
HGL · · · · · · · · · ·

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1527.500

REFERENCE			MH134	Ø600 100D MH74
DISTANCE (m)			0.000	15.492
GROUND LEVEL			1539.967	1539.586
PIPE INVERT LEVEL			1538.484	1536.594
SLOPE / LENGTH			12.20% 1:8.2 15.49m	
HYDRAULICS	DESIGN	Q(m3/s) V(m/s)		
	MAX. (0.8D)	Q(m3/s) V(m/s)		

LONGSECTION MH134 - MH74
FROM 0.000 TO 15.492

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

TELL NO.: +27 (0) 805 0981
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ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

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VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

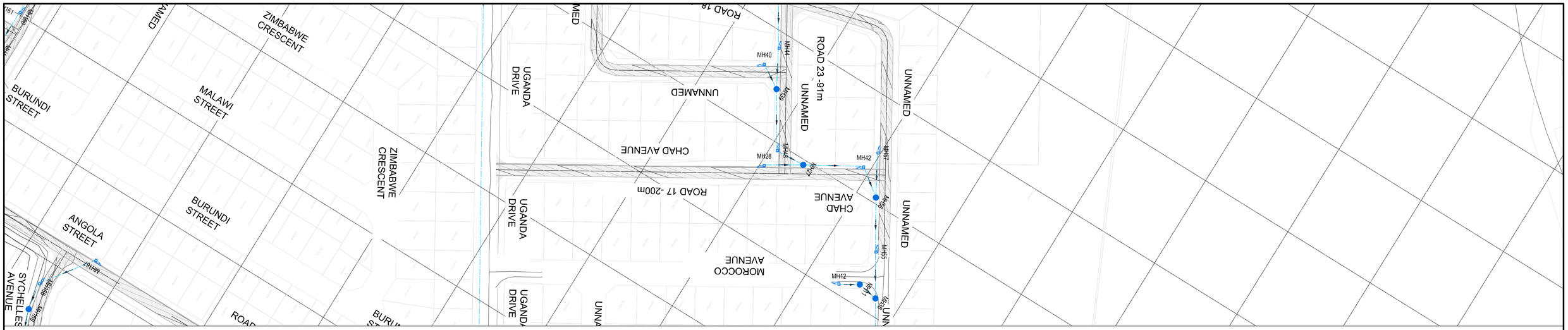
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME SIGNATURE & PR NUMBER DATE

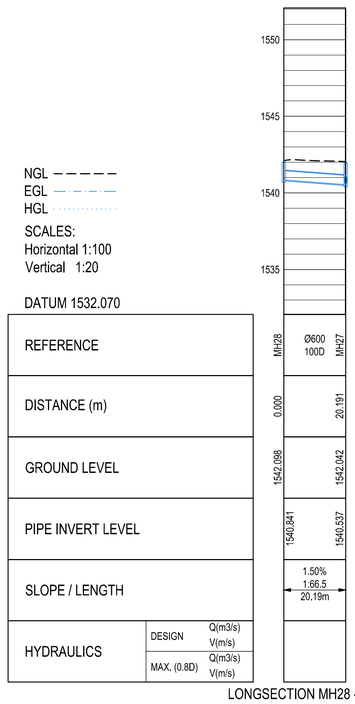
INSPECTOR OF WORKS:
SIGNATURE DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1532.070

REFERENCE			MH28	Ø600 100D MH27
DISTANCE (m)			0.000	20.191
GROUND LEVEL			1542.098	1542.042
PIPE INVERT LEVEL			1540.841	1540.537
SLOPE / LENGTH				1.50% 1:66.5 20.19m
HYDRAULICS	DESIGN	Q(m3/s) V(m/s)		
	MAX. (0.8D)	Q(m3/s) V(m/s)		

LONGSECTION MH28 - MH27 1
FROM 0.000 TO 20.191

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

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WEBSITE: www.ktnconsulting.co.za

KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

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DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

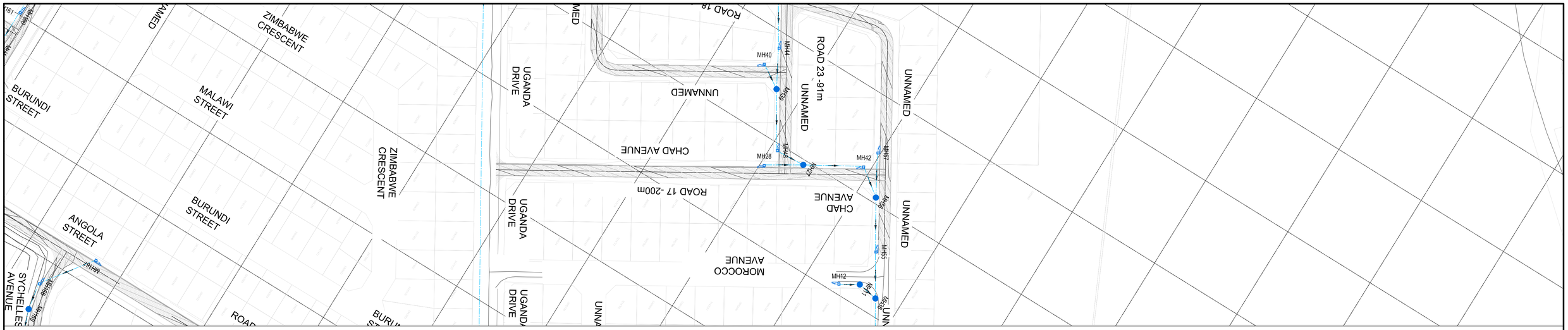
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

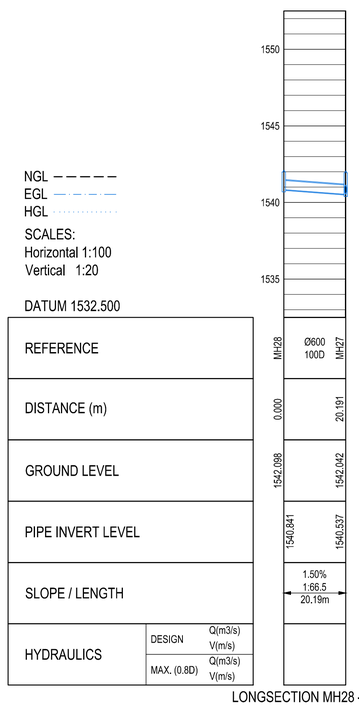
INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1532.500

REFERENCE			MH28	Ø600 100D MH27
DISTANCE (m)			0.000	20.191
GROUND LEVEL			1542.098	1542.042
PIPE INVERT LEVEL			1540.841	1540.537
SLOPE / LENGTH				1.50% 1:66.5 20.19m
HYDRAULICS	DESIGN	Q(m3/s) V(m/s)		
	MAX. (0.8D)	Q(m3/s) V(m/s)		

LONGSECTION MH28 - MH27
FROM 0.000 TO 20.191

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

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KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

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VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
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DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

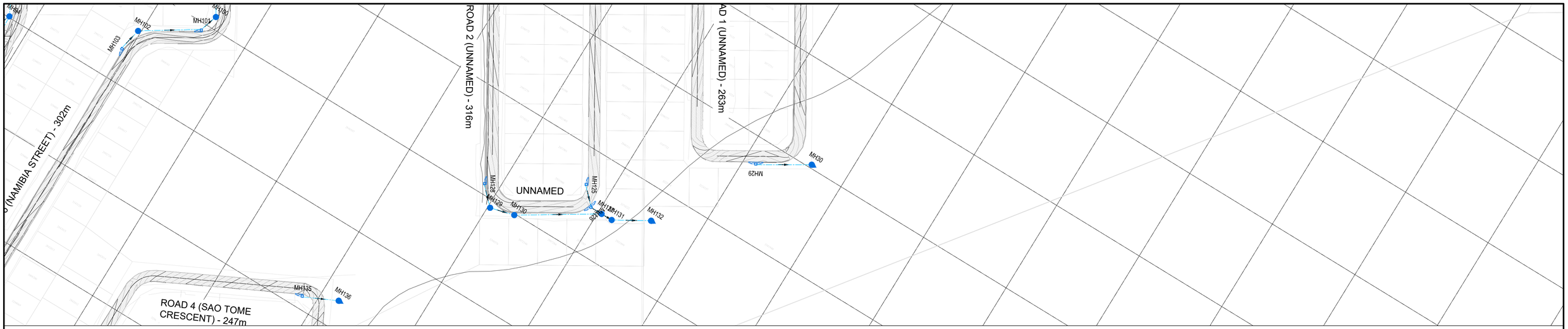
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

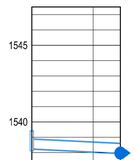
INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





NGL – – – – –
EGL — · — · —
HGL · · · · · · · · · ·

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1527.500

REFERENCE			MH29	Ø600 100D MH30
DISTANCE (m)			0.000	28.880
GROUND LEVEL			1539.510	1539.393
PIPE INVERT LEVEL			1538.253	1537.964
SLOPE / LENGTH				1.00% 1:100.0 28.88m
HYDRAULICS	DESIGN	Q(m3/s) V(m/s)		
	MAX. (0.8D)	Q(m3/s) V(m/s)		

LONGSECTION MH29 - MH30 1
FROM 0.000 TO 28.880

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

TELL NO.: +27 (0) 805 0981
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KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

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VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE
DEPARTMENT
P.O BOX 6
DELMAS
2210

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DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

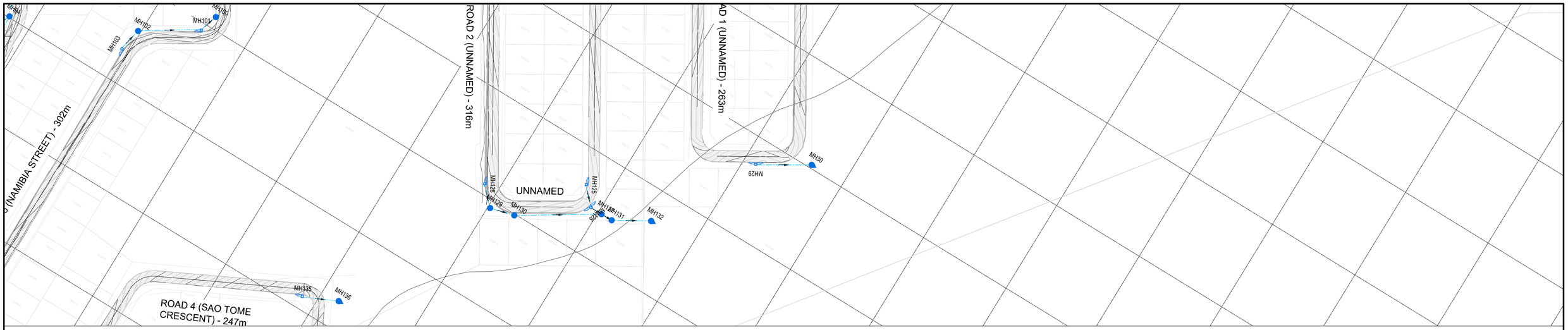
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

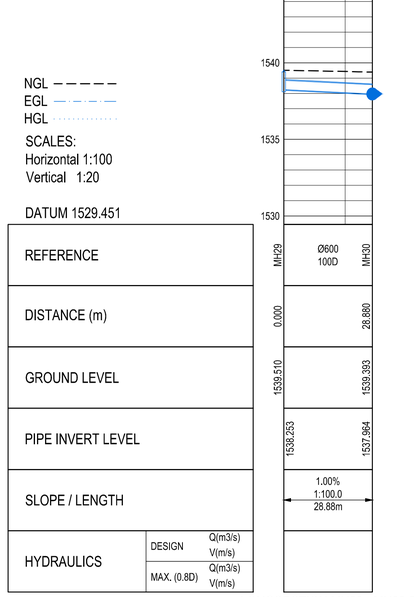
INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





LONGSECTION MH29 - MH30 2
FROM 0.000 TO 28.880

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

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KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

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VICTOR KHANYE LOCAL MUNCIPALITY

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2210

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DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

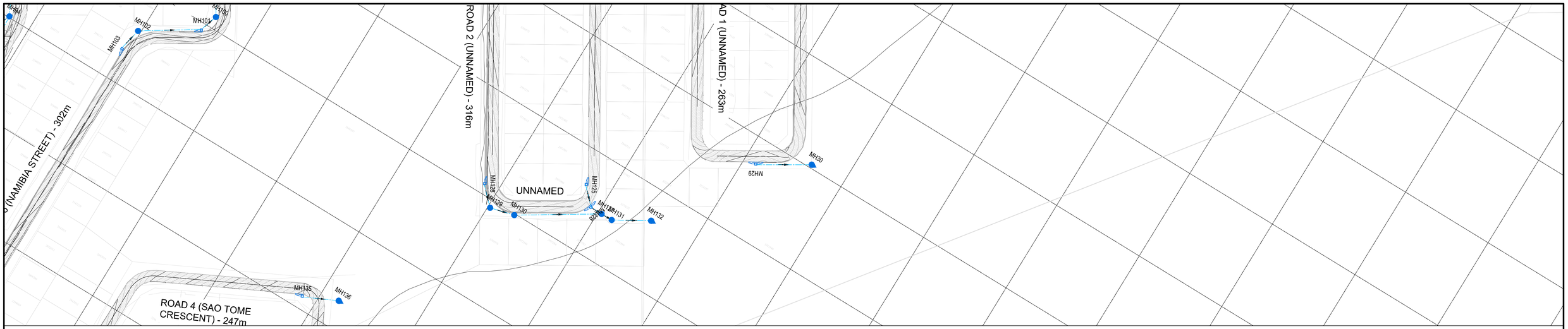
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

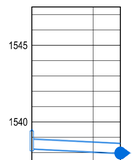
INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





NGL – – – – –
EGL — · — · —
HGL · · · · · · · · · · · ·

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1527.500

REFERENCE			MH29	Ø600 100D MH30
DISTANCE (m)			0.000	28.880
GROUND LEVEL			1539.510	1539.393
PIPE INVERT LEVEL			1538.253	1537.964
SLOPE / LENGTH				1.00% 1:100.0 28.88m
HYDRAULICS	DESIGN	Q(m3/s) V(m/s)		
	MAX. (0.8D)	Q(m3/s) V(m/s)		

LONGSECTION MH29 - MH30
FROM 0.000 TO 28.880

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

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ROADS AND STORMWATER
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SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

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VICTOR KHANYE LOCAL MUNCIPALITY

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DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

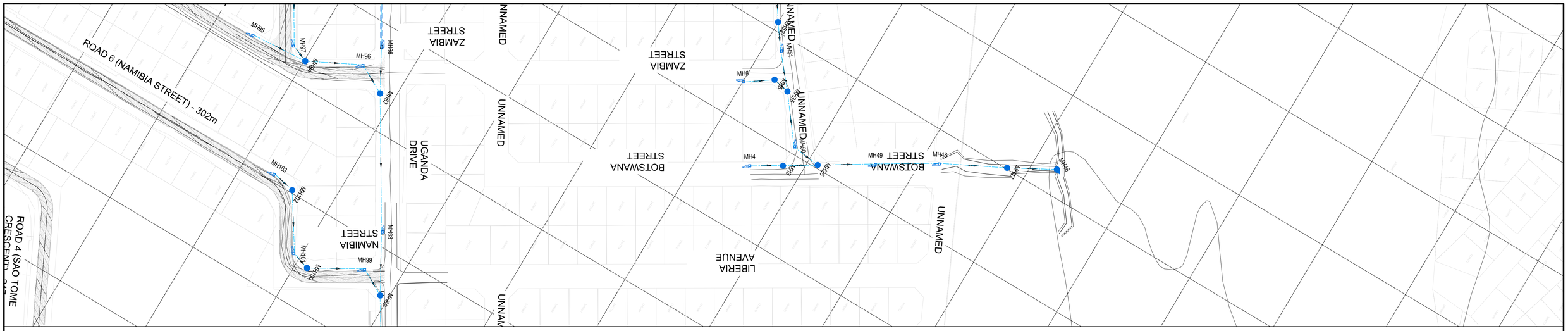
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

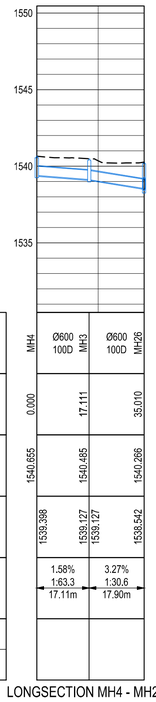
INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





NGL – – – – –
EGL — · — · —
HGL · · · · · · · · · · · ·

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1530.460

REFERENCE			MH4	Ø600 100D MH3	Ø600 100D MH26
DISTANCE (m)			0.000	17.111	35.010
GROUND LEVEL			1540.655	1540.485	1540.266
PIPE INVERT LEVEL			1533.386	1539.127 1539.127	1538.542
SLOPE / LENGTH				1.58% 1:63.3 17.11m	3.27% 1:30.6 17.90m
HYDRAULICS	DESIGN	Q(m3/s) V(m/s)			
	MAX. (0.8D)	Q(m3/s) V(m/s)			

LONGSECTION MH4 - MH26 1
FROM 0.000 TO 35.010

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

TELL NO.: +27 (0) 805 0981
FAX NO.: +27 (0) 11 604 0039
EMAIL: KTN@KTNCONSULTING.CO.ZA
WEBSITE: www.ktnconsulting.co.za

KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

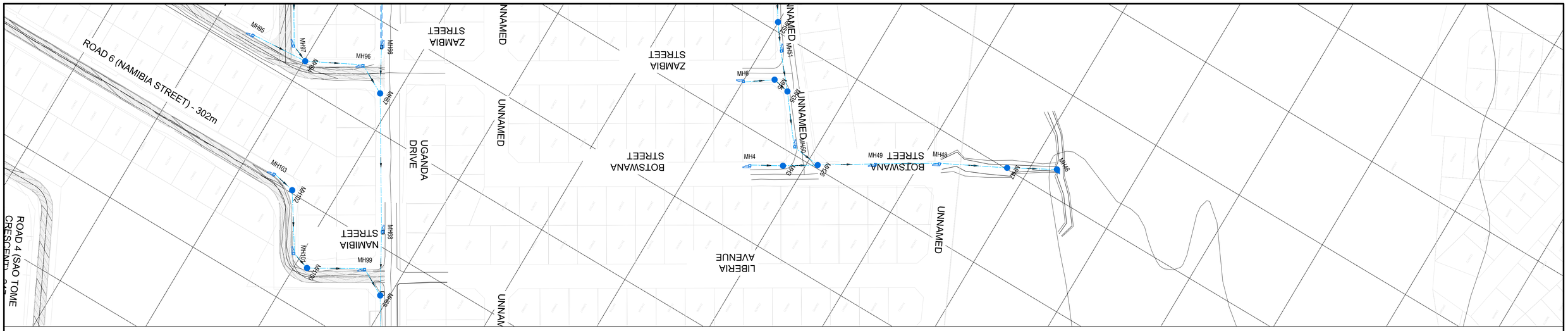
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

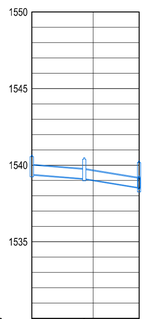
INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





NGL – – – – –
EGL — · — · —
HGL · · · · · · · · · · · ·

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1530.000

REFERENCE			MH4	Ø600 100D MH3	Ø600 100D MH26
DISTANCE (m)			0.000	17.111	35.010
GROUND LEVEL			1540.855	1540.485	1540.266
PIPE INVERT LEVEL			1533.386	1539.127 1539.127	1538.542
SLOPE / LENGTH				1.58% 1:63.3 17.11m	3.27% 1:30.6 17.90m
HYDRAULICS	DESIGN	Q(m3/s) V(m/s)			
	MAX. (0.8D)	Q(m3/s) V(m/s)			

LONGSECTION MH4 - MH26
FROM 0.000 TO 35.010

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

TELL NO.: +27 (0) 805 0981
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WEBSITE: www.ktnconsulting.co.za

KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

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VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

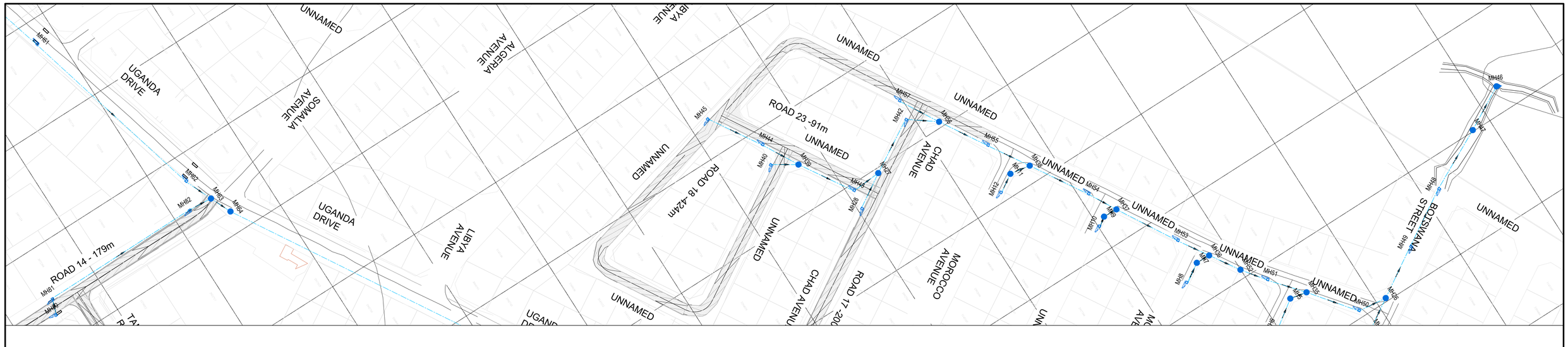
LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

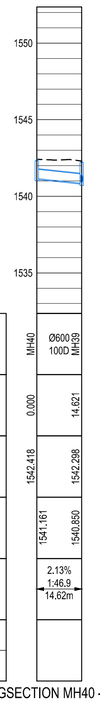
DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

PROJECT ENGINEER: K. MAYAYISE (INITIALS AND SURNAME / SIGNATURE & PR NUMBER / DATE)
INSPECTOR OF WORKS: (SIGNATURE / DATE)
REMARKS:
ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





NGL – – – – –
EGL — · — · —
HGL · · · · · · · · · · ·

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1532.358

REFERENCE		
DISTANCE (m)		
GROUND LEVEL		
PIPE INVERT LEVEL		
SLOPE / LENGTH		
HYDRAULICS	DESIGN	Q(m3/s) V(m/s)
	MAX. (0.8D)	Q(m3/s) V(m/s)

LONGSECTION MH40 - MH39 1
FROM 0.000 TO 14.621

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

TELL NO.: +27 (0) 805 0981
FAX NO.: +27 (0) 11 604 0039
EMAIL: KTN@KTNCONSULTING.CO.ZA
WEBSITE: www.ktnconsulting.co.za

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY
TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

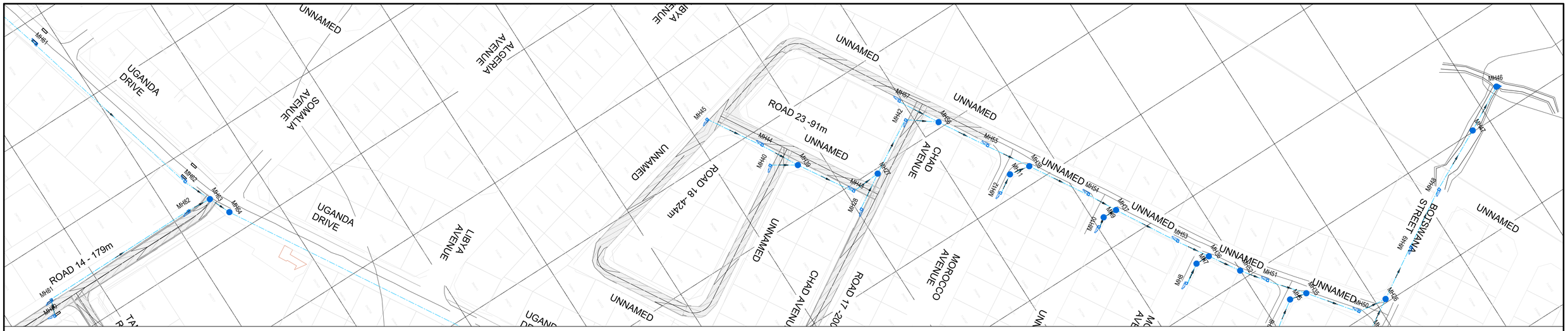
DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

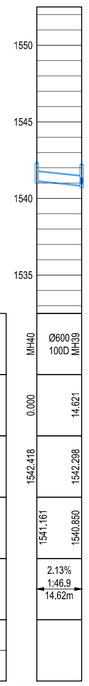
CONTRACT No. :	PROJECT No. :	SCALE :	DATE :
	2005B	N.T.S	NOVEMBER 2022

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

PROJECT ENGINEER: K. MAYAYISE (INITIALS AND SURNAME) (SIGNATURE & PR NUMBER) (DATE)
INSPECTOR OF WORKS: (SIGNATURE) (DATE)
REMARKS:
ORIGINAL PAPER SIZE: A1

DRAWING NO. 2005B-005LS01
SHEET NO: 1 OF 1
VERSION: 0





NGL – – – – –
EGL — · — · —
HGL .....

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1532.500

REFERENCE			MH40	Ø600 100D MH39
DISTANCE (m)			0.000	14.621
GROUND LEVEL			1542.418	1542.298
PIPE INVERT LEVEL			1541.161	1540.850
SLOPE / LENGTH				2.13% 1:46.9 14.62m
HYDRAULICS	DESIGN	Q(m3/s) V(m/s)		
	MAX. (0.8D)	Q(m3/s) V(m/s)		

LONGSECTION MH40 - MH39
FROM 0.000 TO 14.621

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

TELL NO.: +27 (0) 805 0981
FAX NO.: +27 (0) 11 604 0039
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WEBSITE: www.ktnconsulting.co.za

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

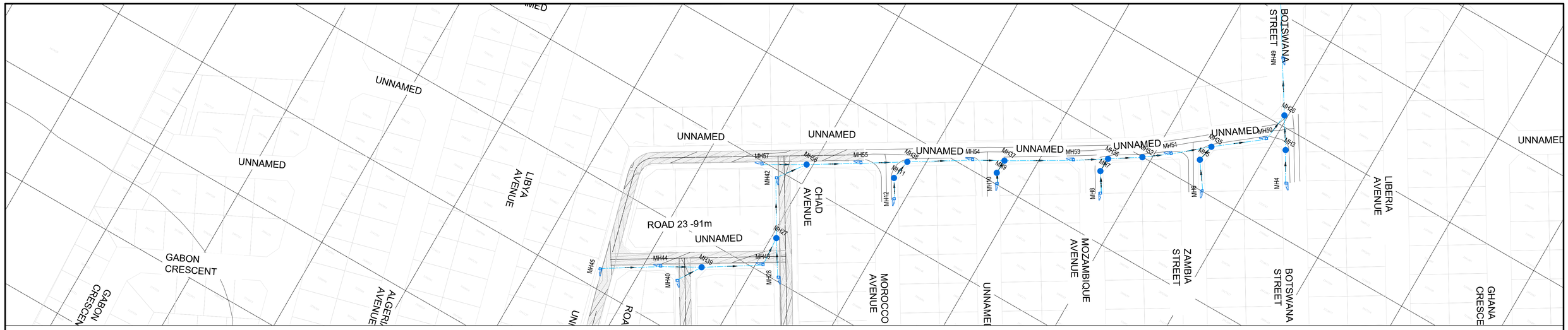
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME SIGNATURE & PR NUMBER DATE

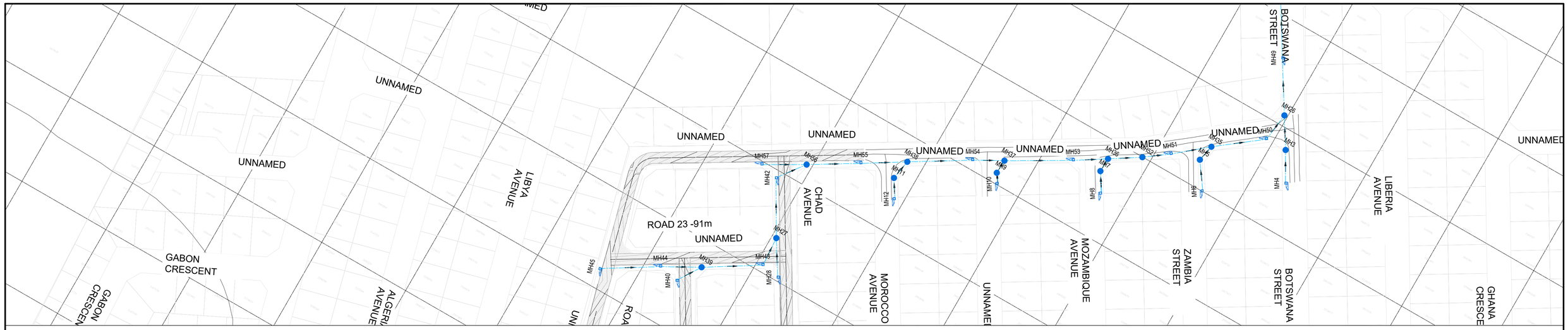
INSPECTOR OF WORKS:
SIGNATURE DATE

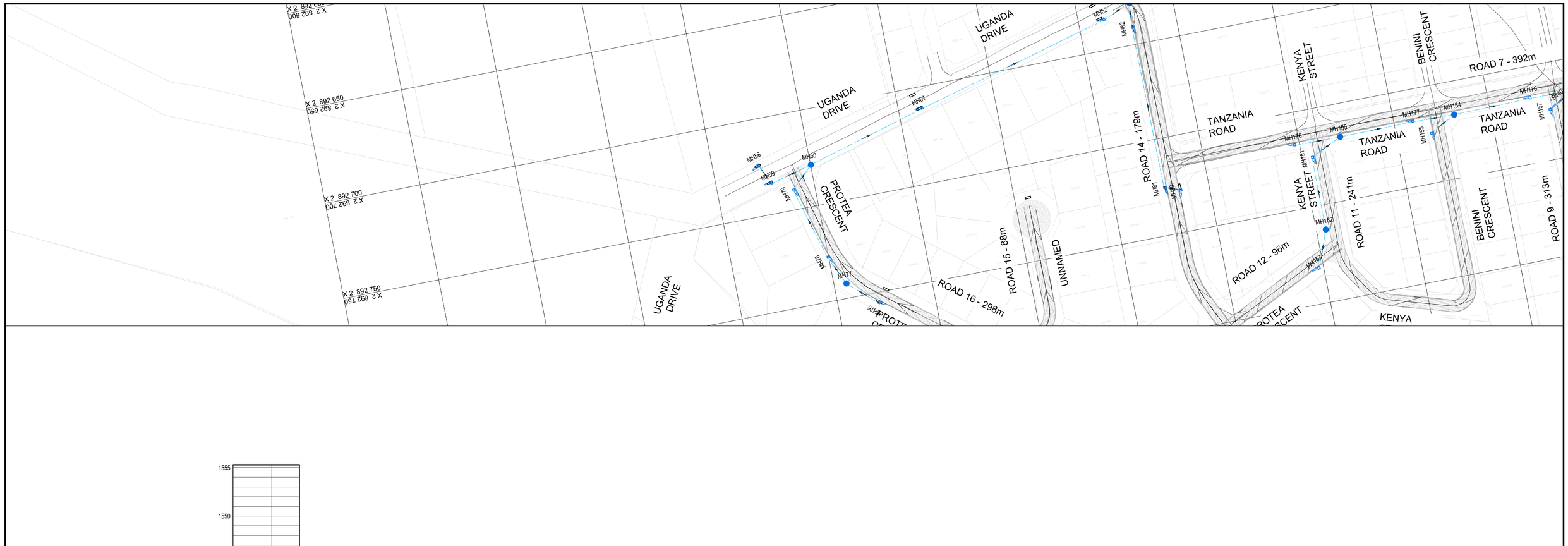
REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0


UNNAMED
UNNAMED
UNNAMED


UNNAMED
UNNAMED
UNNAMED



NGL – – – – –
EGL — · — · —
HGL · · · · · · · · · · · ·

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1535.263

		MH58	MH59	MH60
REFERENCE			Ø600 100D	Ø600 100D
DISTANCE (m)		0.000	12.087	34.438
GROUND LEVEL		1545.284	1545.376	1545.241
PIPE INVERT LEVEL		1544.159	1544.078	1543.928
SLOPE / LENGTH			0.67% 1:149.3 12.09m	0.67% 1:149.3 22.35m
HYDRAULICS	DESIGN Q(m3/s) V(m/s)			
	MAX. (0.8D) Q(m3/s) V(m/s)			

LONGSECTION MH58 - MH60 1
FROM 0.000 TO 34.438

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

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WEBSITE: www.ktnconsulting.co.za

KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

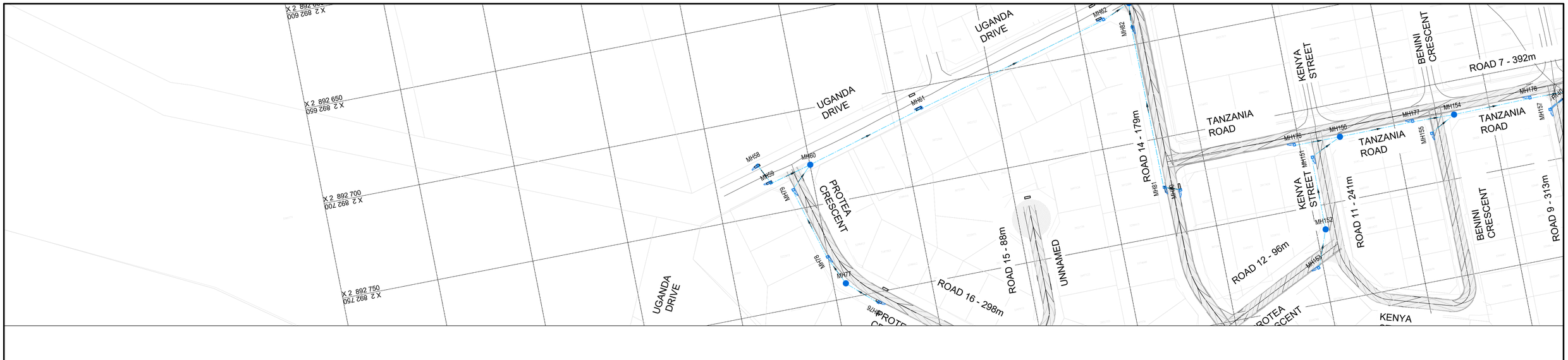
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

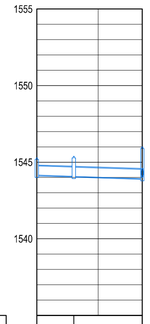
INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





NGL – – – – –
EGL — · — · —
HGL · · · · · · · · · · · ·

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1535.000

			MH58		MH59		MH60
REFERENCE				Ø600 100D		Ø600 100D	
DISTANCE (m)			0.000		12.087		34.438
GROUND LEVEL			1545.284		1545.376		1545.241
PIPE INVERT LEVEL			1544.159		1544.078		1543.928
SLOPE / LENGTH				0.67% 1:149.3 12.09m		0.67% 1:149.3 22.35m	
HYDRAULICS	DESIGN	Q(m3/s)					
		V(m/s)					
	MAX. (0.8D)	Q(m3/s)					
		V(m/s)					

LONGSECTION MH58 - MH60
FROM 0.000 TO 34.438

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
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CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

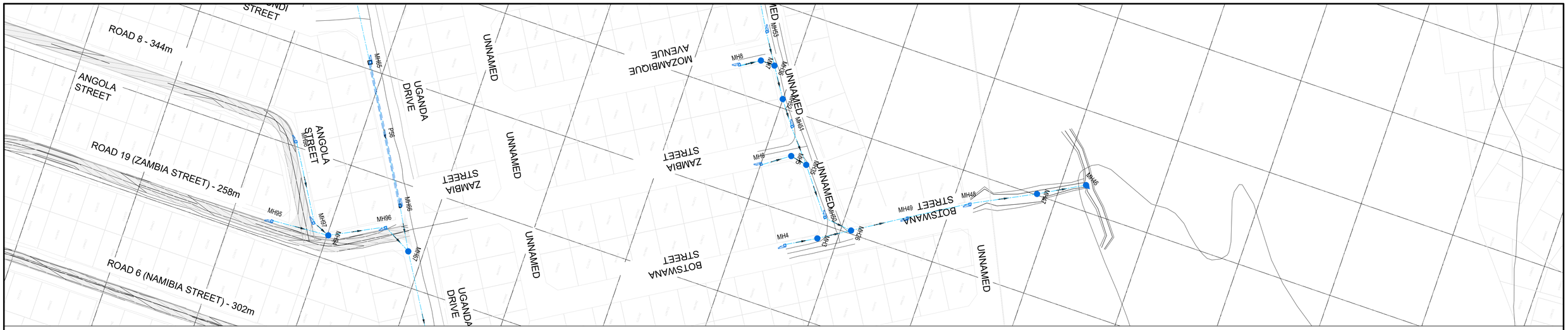
LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

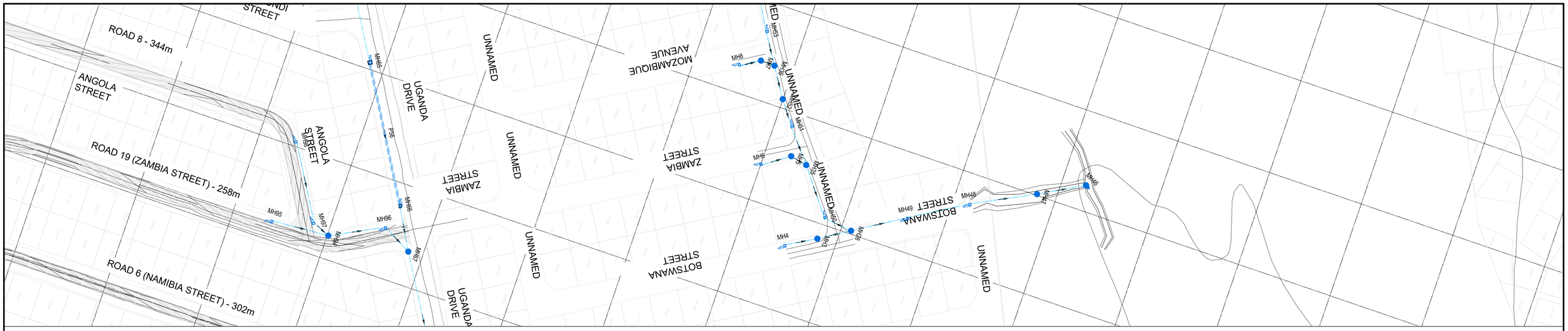
DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

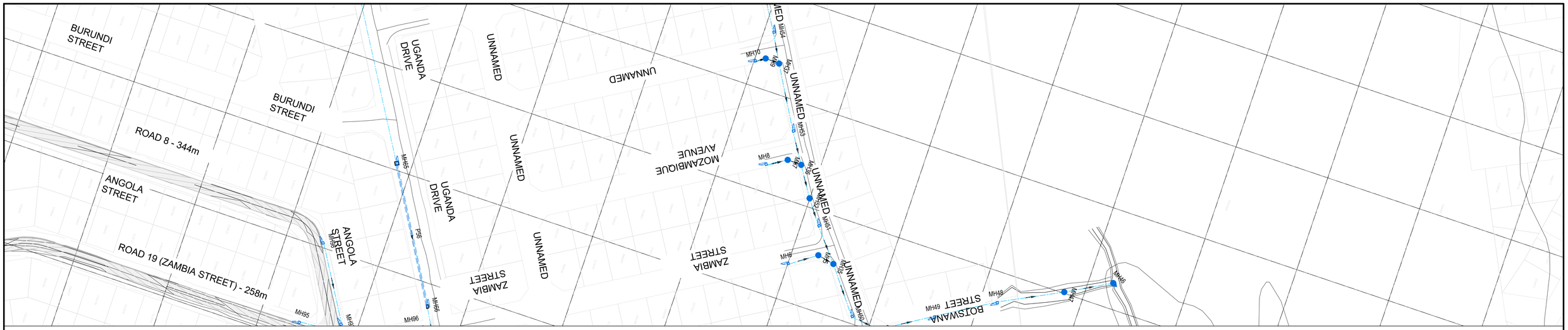
PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

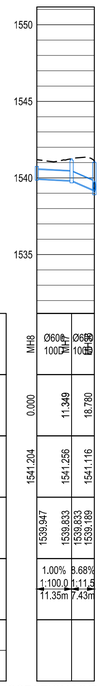
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE
INSPECTOR OF WORKS:
SIGNATURE | DATE
REMARKS:
ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0


ROAD 8 - 344m
ANGOLA STREET
ROAD 19 (ZAMBIA STREET) - 258m
ROAD 6 (NAMIBIA STREET) - 302m
UGANDA DRIVE
UNNAMED
ZAMBIA STREET
MOZAMBIQUE AVENUE
BOTSWANA STREET
MH95
MH96
MH97
MH98
MH99
MH100
MH101
MH102
MH103
MH104
MH105
MH106
MH107
MH108
MH109
MH110
MH111
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MH126
MH127
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MH129
MH130
MH131
MH132
MH133
MH134


ROAD 8 - 344m
ROAD 19 (ZAMBIA STREET) - 258m
ROAD 6 (NAMIBIA STREET) - 302m
ANGOLA STREET
UGANDA DRIVE
UNNAMED
ZAMBIA STREET
MOZAMBIQUE AVENUE
BOTSWANA STREET
MH95
MH96
MH97
MH98
MH99
MH100
MH101
MH102
MH103
MH104
MH105
MH106
MH107
MH108
MH109
MH110
MH111
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MH113
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MH125
MH126
MH127
MH128
MH129
MH130
MH131
MH132
MH133
MH134





SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1531.160

REFERENCE			MH8	Ø600 100Ø	Ø600 100Ø
DISTANCE (m)			0.000	11.349	18.780
GROUND LEVEL			1541.204	1541.256	1541.116
PIPE INVERT LEVEL				1539.947	1539.833 1539.833	1539.189
SLOPE / LENGTH					1.00% 1:100.0 11.35m	8.68% 1:11.5 7.43m
HYDRAULICS	DESIGN	Q(m3/s) V(m/s)			
	MAX. (0.8D)	Q(m3/s) V(m/s)			

LONGSECTION MH8 - MH36 1
FROM 0.000 TO 18.780

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

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WEBSITE: www.ktnconsulting.co.za

KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE
DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

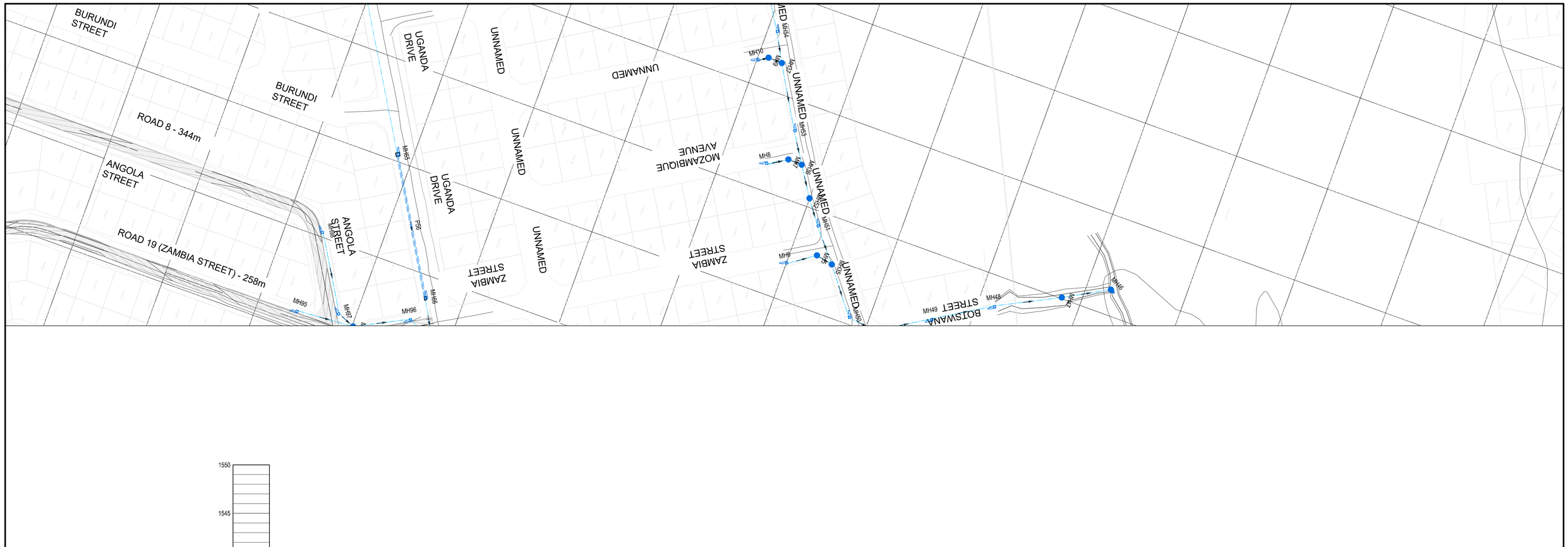
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

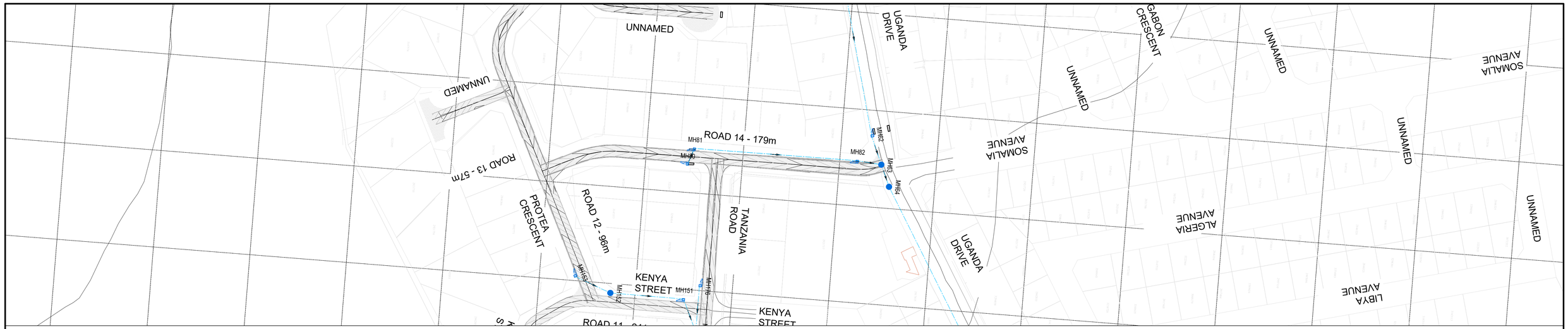
INSPECTOR OF WORKS:
SIGNATURE | DATE

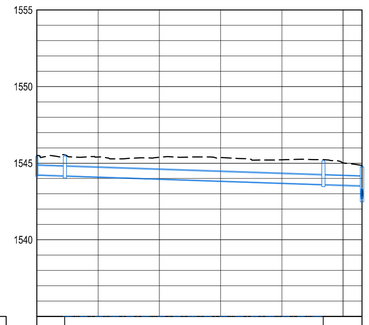
REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0


BURUNDI STREET
BURUNDI STREET
ROAD 8 - 344m
ANGOLA STREET
ROAD 19 (ZAMBIA STREET) - 258m
ANGOLA STREET
UGANDA DRIVE
UGANDA DRIVE
UNNAMED
UNNAMED
UNNAMED
UNNAMED
MOZAMBIQUE AVENUE
ZAMBIA STREET
ZAMBIA STREET
UNNAMED
UNNAMED
BOTSWANA STREET
MH95
MH96
MH97
MH98
MH65
P56
MH8
MH9
MH10
MH48
MH49
MH50
MH51
MH52
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MH67
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NGL – – – – –
EGL — · — · —
HGL · · · · · · · · · · · ·

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1535.000

REFERENCE		MH80	Ø600 100D	MH82	Ø600 100D
DISTANCE (m)		0.000	9.162	93.557	106.144
GROUND LEVEL		1545.504	1545.545	1545.226	1544.851
PIPE INVERT LEVEL		1544.247	1544.185 1544.185	1543.620 1543.620	1543.535
SLOPE / LENGTH		0.67% 1:149.3 9.16m	0.67% 1:149.3 84.39m		0.67% 1:149.3 12.59m
HYDRAULICS	DESIGN Q(m3/s) V(m/s)				
	MAX. (0.8D) Q(m3/s) V(m/s)				

LONGSECTION MH80 - MH63 1
FROM 0.000 TO 106.144

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
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KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

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VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
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DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

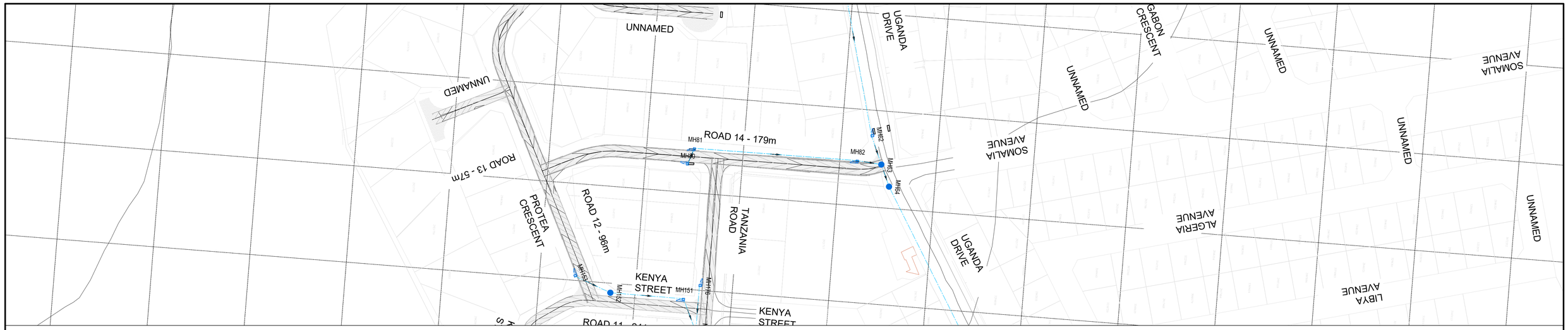
LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

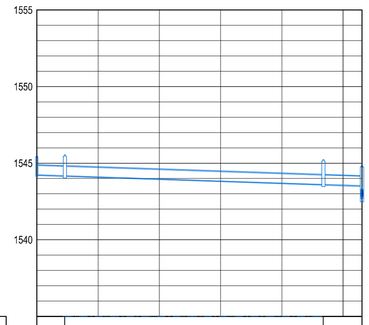
DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE
INSPECTOR OF WORKS:
SIGNATURE | DATE
REMARKS:
ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





NGL – – – – –
EGL — · — · —
HGL · · · · · · · · · · · ·

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1535.000

REFERENCE		MH80	Ø600 100D		MH82	Ø600 100D	MH83
DISTANCE (m)		0.000	9.162		93.557	106.144	
GROUND LEVEL		1545.504	1545.545		1545.226	1544.851	
PIPE INVERT LEVEL		1544.247	1544.185	1544.185	1543.620	1543.620	1543.535
SLOPE / LENGTH		0.67% 1:149.3 9.16m		0.67% 1:149.3 84.39m		0.67% 1:149.3 12.59m	
HYDRAULICS	DESIGN Q(m3/s) V(m/s)						
	MAX. (0.8D) Q(m3/s) V(m/s)						

LONGSECTION MH80 - MH63
FROM 0.000 TO 106.144

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
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CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

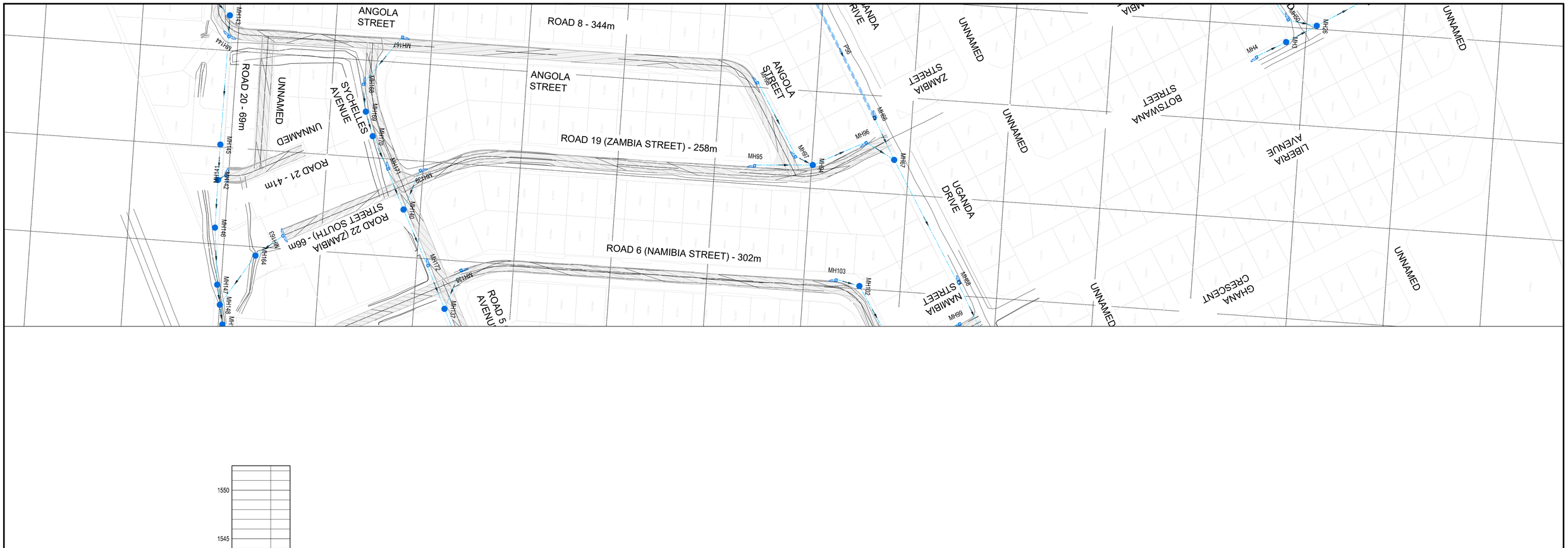
LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE
INSPECTOR OF WORKS:
SIGNATURE | DATE
REMARKS:
ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0



NGL – – – – –
EGL —·—·—
HGL ·····

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1532.523

REFERENCE		MH95	Ø600 100D MH94
DISTANCE (m)		0.000	30.011
GROUND LEVEL		1542.545	1542.502
PIPE INVERT LEVEL		1541.288	1540.985
SLOPE / LENGTH			1.01% 1:99.2 30.01m
HYDRAULICS	DESIGN Q(m3/s) V(m/s)		
	MAX. (0.8D) Q(m3/s) V(m/s)		

LONGSECTION MH95 - MH94 1
FROM 0.000 TO 30.011

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
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KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

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VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
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TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
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DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

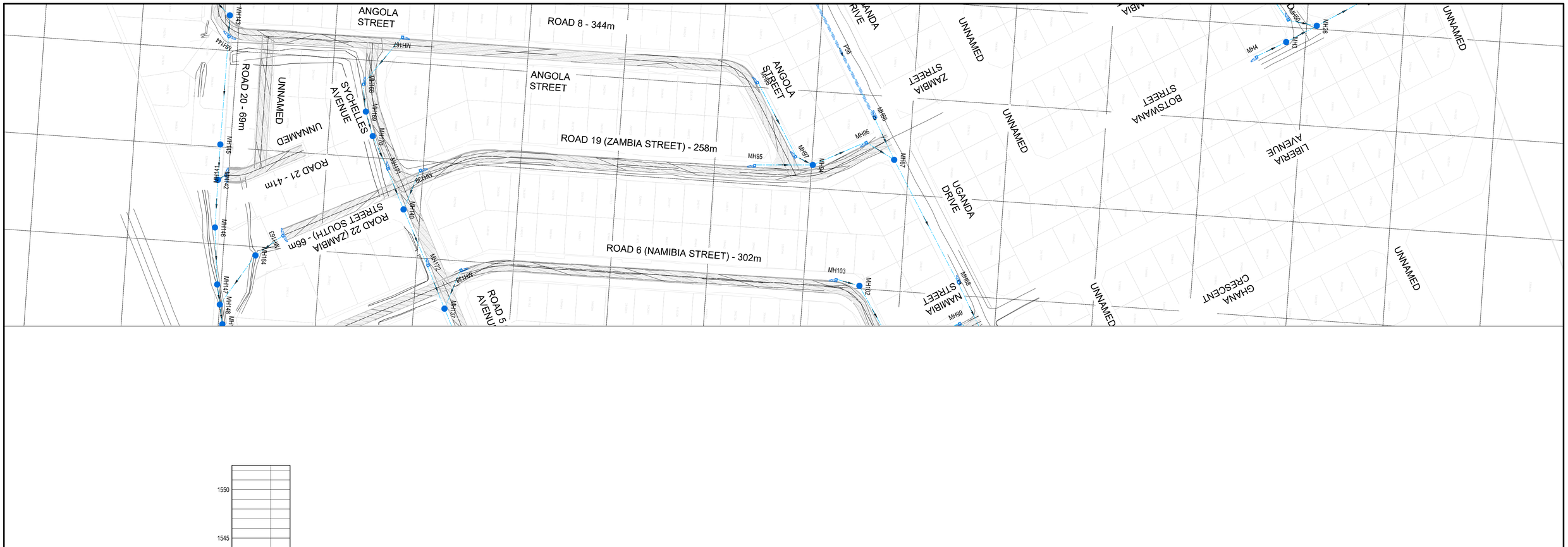
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0



NGL – – – – –
EGL — · — · —
HGL · · · · · · · · · · · ·

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1532.500

REFERENCE	MH95	Ø600 100D	MH94
DISTANCE (m)	0.000		30.011
GROUND LEVEL	1542.545		1542.502
PIPE INVERT LEVEL	1541.288		1540.985
SLOPE / LENGTH		1.01% 1:99.2 30.01m	
HYDRAULICS	DESIGN Q(m3/s) V(m/s)		
	MAX. (0.8D) Q(m3/s) V(m/s)		

LONGSECTION MH95 - MH94
FROM 0.000 TO 30.011

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
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WEBSITE: www.ktnconsulting.co.za

KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

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VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

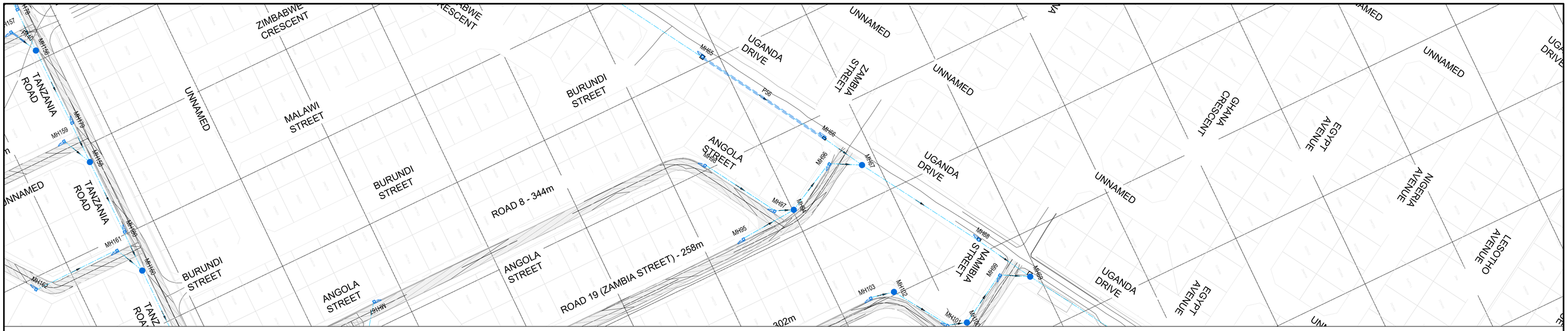
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

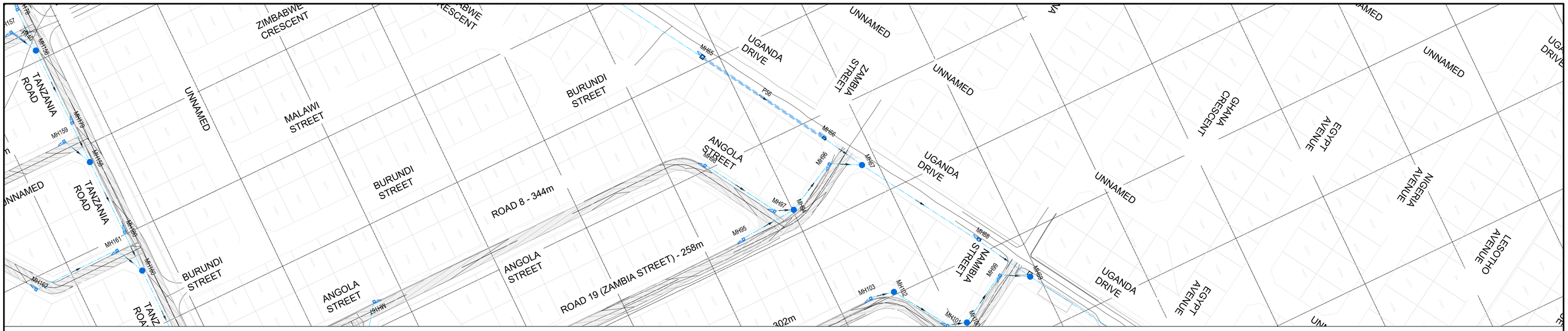
INSPECTOR OF WORKS:
SIGNATURE | DATE

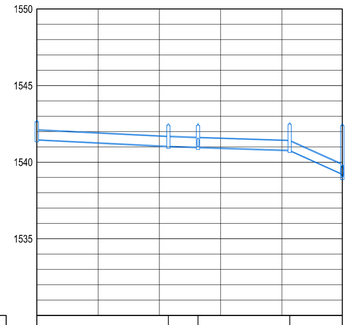
REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0


ZIMBABWE CRESCENT
UNNAMED
TANZANIA ROAD
MALAWI STREET
BURUNDI STREET
ANGOLA STREET
UGANDA DRIVE
ZAMBIA STREET
NAMIBIA STREET
GHANA CRESCENT
EGYPT AVENUE
NIGERIA AVENUE
LESOTHO AVENUE
ROAD 8 - 344m
ROAD 19 (ZAMBIA STREET) - 258m
MH159
MH158
MH161
MH160
MH162
MH95
MH96
MH97
MH98
MH99
MH100
MH101
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NGL – – – – –
EGL —·—·—
HGL ·····

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1530.000

			MH98		MH97		MH96		MH67
REFERENCE				Ø600 100D		Ø600 100D		Ø600 100D	
DISTANCE (m)			0.000		42.943	52.634		82.557	99.744
GROUND LEVEL			1542.738		1542.495	1542.502		1542.561	1542.488
PIPE INVERT LEVEL			1541.479		1541.049	1541.049	1540.985	1540.788	1540.788	1539.236
SLOPE / LENGTH				1.00% 1:100.0 42.94m		0.66% 1:151.5 9.69m	0.66% 1:151.5 29.92m		9.03% 1:11.1 17.19m
HYDRAULICS	DESIGN	Q(m3/s) V(m/s)							
	MAX. (0.8D)	Q(m3/s) V(m/s)							

LONGSECTION MH98 - MH67
FROM 0.000 TO 99.744

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
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KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

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VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE
DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
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DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

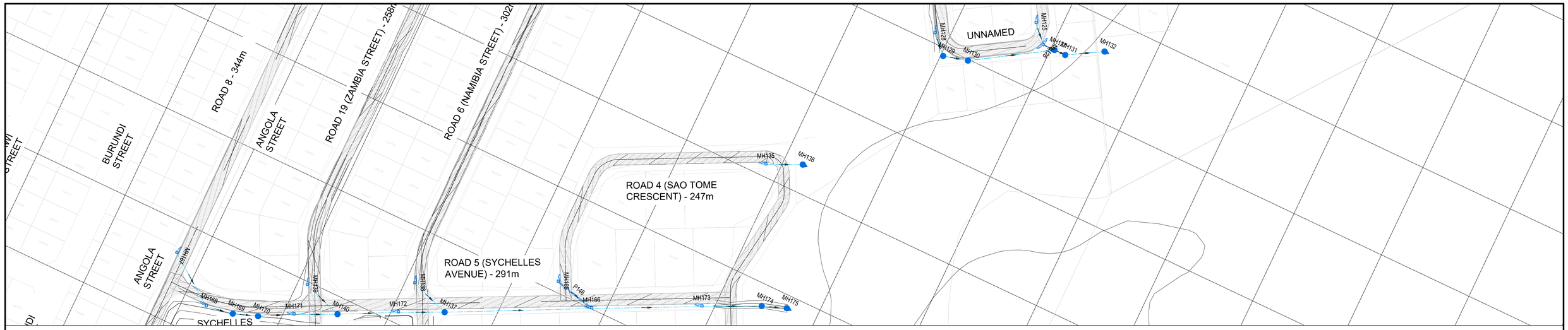
LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

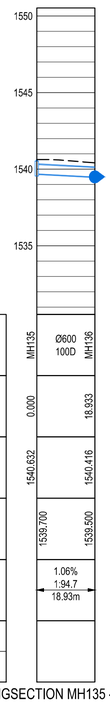
DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

PROJECT ENGINEER: K. MAYAYISE (INITIALS AND SURNAME) (SIGNATURE & PR NUMBER) (DATE)
INSPECTOR OF WORKS: (SIGNATURE) (DATE)
REMARKS:
ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





NGL – – – – –
EGL — · — · —
HGL · · · · · · · · · · · ·

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1530.524

		MH135	MH136
REFERENCE			Ø600 100D
DISTANCE (m)		0.000	18.933
GROUND LEVEL		1540.632	1540.416
PIPE INVERT LEVEL		1533.700	1538.500
SLOPE / LENGTH			1.06% 1:94.7 18.93m
HYDRAULICS	DESIGN Q(m3/s) V(m/s)		
	MAX. (0.8D) Q(m3/s) V(m/s)		

LONGSECTION MH135 - MH136
FROM 0.000 TO 18.933

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

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ROADS AND STORMWATER
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DIRECTOR: ... SIGNATURE DATE

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DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

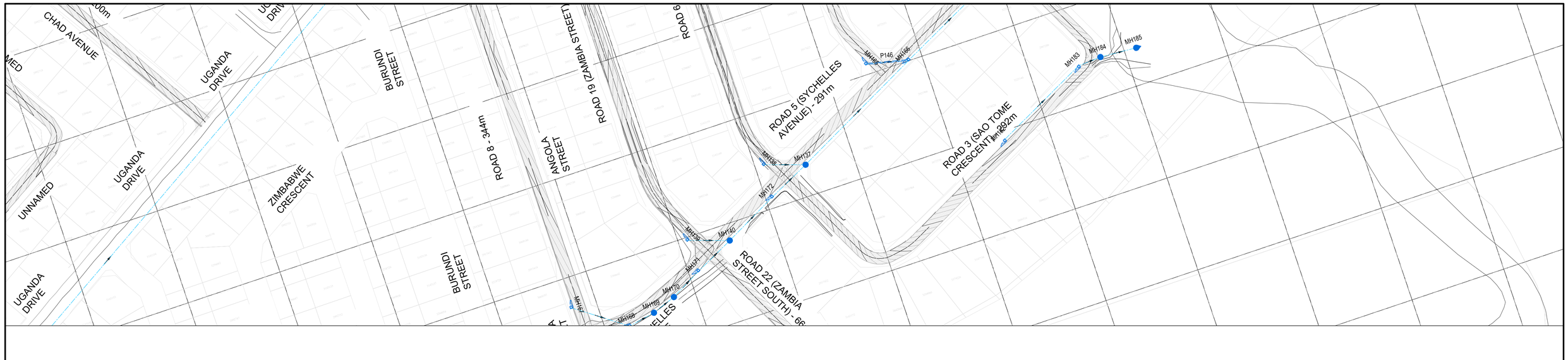
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

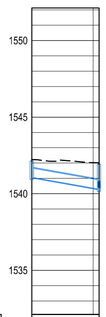
INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





NGL – – – – –
EGL — · — · —
HGL · · · · · · · · · · · ·

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1532.123

REFERENCE		MH138	Ø600 100D MH137
DISTANCE (m)		0.000	21.934
GROUND LEVEL		1542.231	1542.015
PIPE INVERT LEVEL		1541.074	1540.298
SLOPE / LENGTH			3.54% 1:28.2 21.93m
HYDRAULICS	DESIGN Q(m3/s) V(m/s)		
	MAX. (0.8D) Q(m3/s) V(m/s)		

LONGSECTION MH138 - MH137
FROM 0.000 TO 21.934

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

TELL NO.: +27 (0) 805 0981
FAX NO.: +27 (0) 11 604 0039
EMAIL: KTN@KTNCONSULTING.CO.ZA
WEBSITE: www.ktnconsulting.co.za

KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

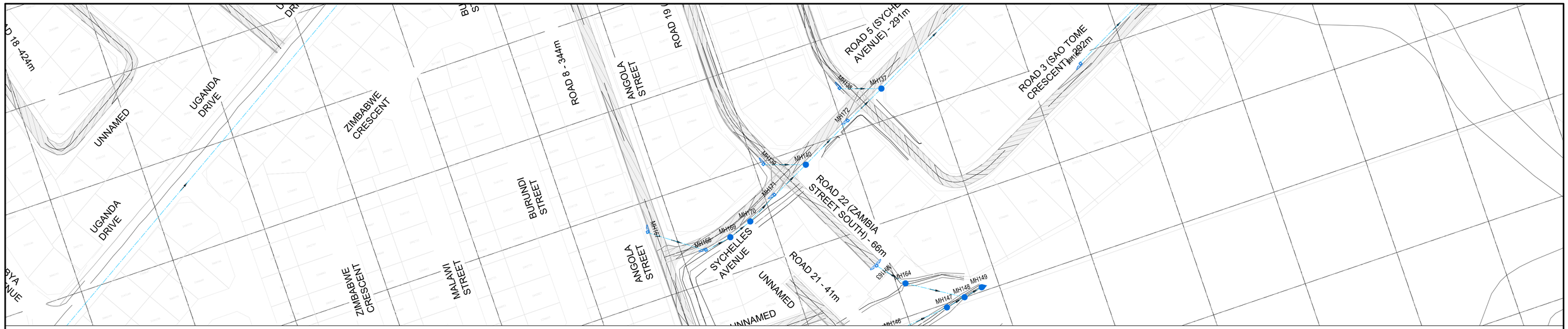
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

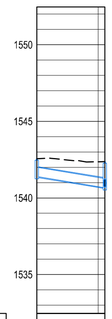
INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





NGL – – – – –
EGL — · — · —
HGL · · · · · · · · · · · ·

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1532.465

REFERENCE		MH139	Ø600 100D MH140
DISTANCE (m)		0.000	22.208
GROUND LEVEL		1542.554	1542.376
PIPE INVERT LEVEL		1541.397	1540.669
SLOPE / LENGTH			3.28% 1:30.5 22.21m
HYDRAULICS	DESIGN Q(m3/s) V(m/s)		
	MAX. (0.8D) Q(m3/s) V(m/s)		

LONGSECTION MH139 - MH140
FROM 0.000 TO 22.208

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

TELL NO.: +27 (0) 805 0981
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WEBSITE: www.ktnconsulting.co.za

KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

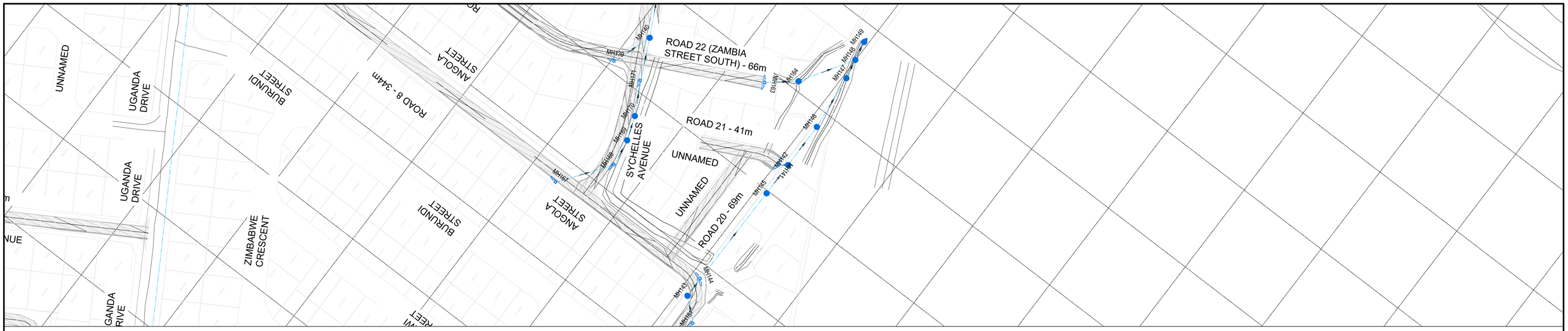
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME SIGNATURE & PR NUMBER DATE

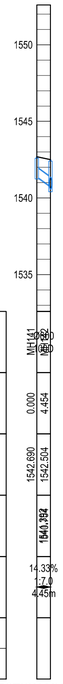
INSPECTOR OF WORKS:
SIGNATURE DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





NGL – – – – –
EGL —·—·—
HGL ·····

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1532.597

REFERENCE		
DISTANCE (m)		
GROUND LEVEL		
PIPE INVERT LEVEL		
SLOPE / LENGTH		
HYDRAULICS	DESIGN	Q(m3/s) V(m/s)
	MAX. (0.8D)	Q(m3/s) V(m/s)

LONGSECTION MH141 - MH142
FROM 0.000 TO 4.454

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

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KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

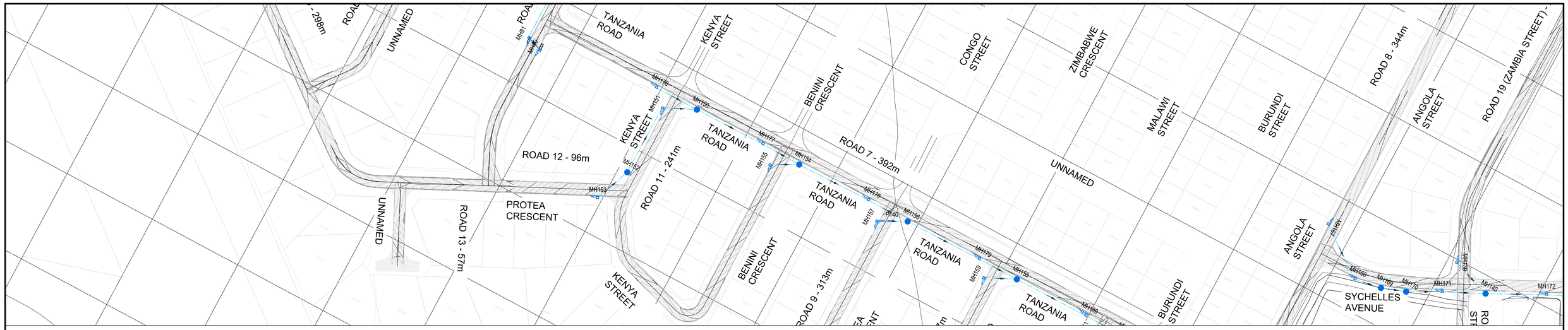
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME SIGNATURE & PR NUMBER DATE

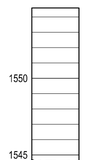
INSPECTOR OF WORKS:
SIGNATURE DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





NGL – – – – –
EGL — · — · —
HGL · · · · · · · · · · · ·

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1534.589

REFERENCE		MH155	MH154
DISTANCE (m)		0.000	15.377
GROUND LEVEL		1544.685	1544.492
PIPE INVERT LEVEL		1543.489	1543.036
SLOPE / LENGTH			2.94% 1:34.0 15.38m
HYDRAULICS	DESIGN Q(m3/s) V(m/s)		
	MAX. (0.8D) Q(m3/s) V(m/s)		

Ø600 1000D

LONGSECTION MH155 - MH154
FROM 0.000 TO 15.377

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
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52 BEKKER ROAD, MIDRAND.

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WEBSITE: www.ktnconsulting.co.za

KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

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VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

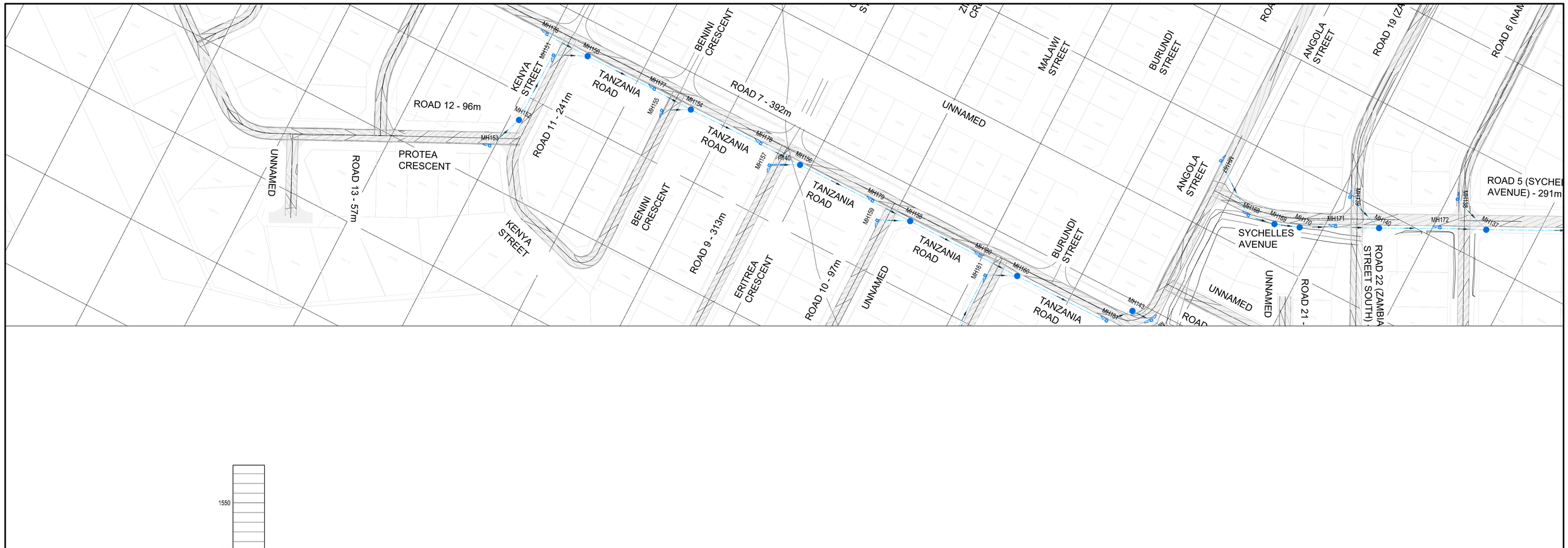
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

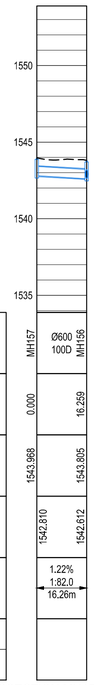
INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





NGL – – – – –
EGL —·—·—
HGL ·····

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1533.887

REFERENCE		MH157	Ø600 100D MH156
DISTANCE (m)		0.000	16.259
GROUND LEVEL		1543.868	1543.805
PIPE INVERT LEVEL		1542.810	1542.612
SLOPE / LENGTH			1.22% 1:82.0 16.26m
HYDRAULICS	DESIGN Q(m3/s) V(m/s)		
	MAX. (0.8D) Q(m3/s) V(m/s)		

LONGSECTION MH157 - MH156
FROM 0.000 TO 16.259

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

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EMAIL: KTN@KTNCONSULTING.CO.ZA
WEBSITE: www.ktnconsulting.co.za

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

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VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

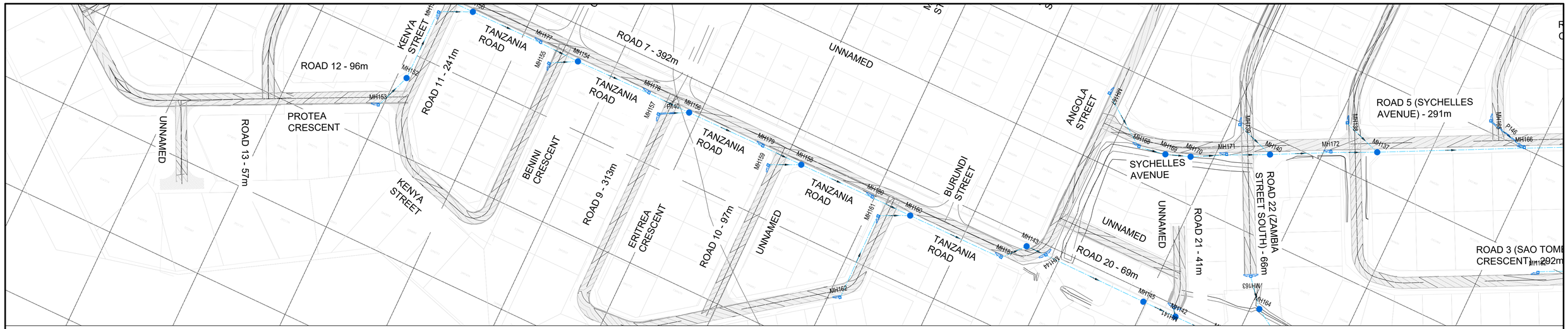
LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

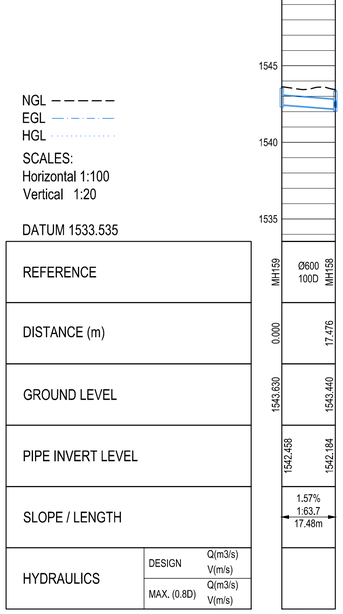
DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME SIGNATURE & PR NUMBER DATE
INSPECTOR OF WORKS:
SIGNATURE DATE
REMARKS:
ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





LONGSECTION MH159 - MH158
FROM 0.000 TO 17.476

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

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ROADS AND STORMWATER
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VICTOR KHANYE LOCAL MUNCIPALITY
TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
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2210

TEL NO: 013 665 6000
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DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

PROJECT ENGINEER: K. MAYAYISE (INITIALS AND SURNAME / SIGNATURE & PR NUMBER / DATE)
INSPECTOR OF WORKS: (SIGNATURE / DATE)
REMARKS:
ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0



NGL – – – – –
EGL — · — · —
HGL · · · · · · · · · · · ·

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1532.500

			MH162		MH161		MH160
REFERENCE				Ø600 100D		Ø600 100D	
DISTANCE (m)			0.000		46.759		63.695
GROUND LEVEL			???		1543.334		1543.224
PIPE INVERT LEVEL			1542.601		1542.107	1542.113	1541.771
SLOPE / LENGTH				1.06% 1:94.7 46.76m		2.02% 1:49.6 16.94m	
HYDRAULICS	DESIGN	Q(m3/s) V(m/s)					
	MAX. (0.8D)	Q(m3/s) V(m/s)					

LONGSECTION MH162 - MH160
FROM 0.000 TO 63.695

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

TELL NO.: +27 (0) 805 0981
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KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
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DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

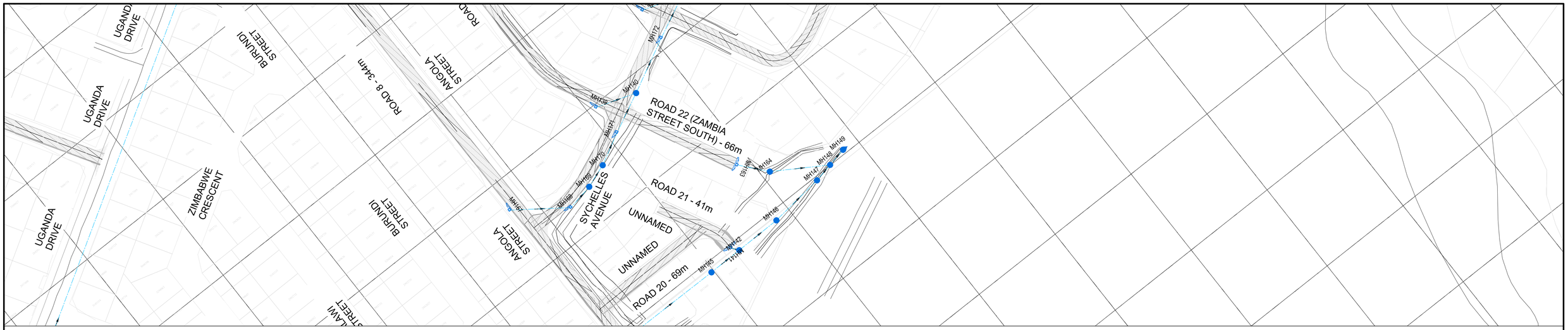
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME SIGNATURE & PR NUMBER DATE

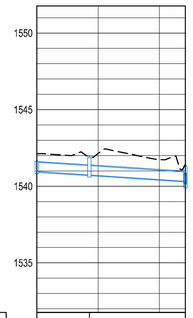
INSPECTOR OF WORKS:
SIGNATURE DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





NGL – – – – –
EGL —·—·—·—
HGL ·····

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1531.768

REFERENCE		MH163	Ø600 100D MH164	Ø600 100D MH148
DISTANCE (m)		0.000	17.139	48.469
GROUND LEVEL		1542.124	1541.965	1541.411
PIPE INVERT LEVEL		1540.967	1540.747 1540.747	1540.333
SLOPE / LENGTH			1.29% 1:77.8 17.14m	1.32% 1:75.6 31.33m
HYDRAULICS	DESIGN Q(m3/s) V(m/s)			
	MAX. (0.8D) Q(m3/s) V(m/s)			

LONGSECTION MH163 - MH148
FROM 0.000 TO 48.469

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

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KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
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SIGN WHEN APPLICABLE

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DESIGNED: PH VAN DER WESTHUIZEN
DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

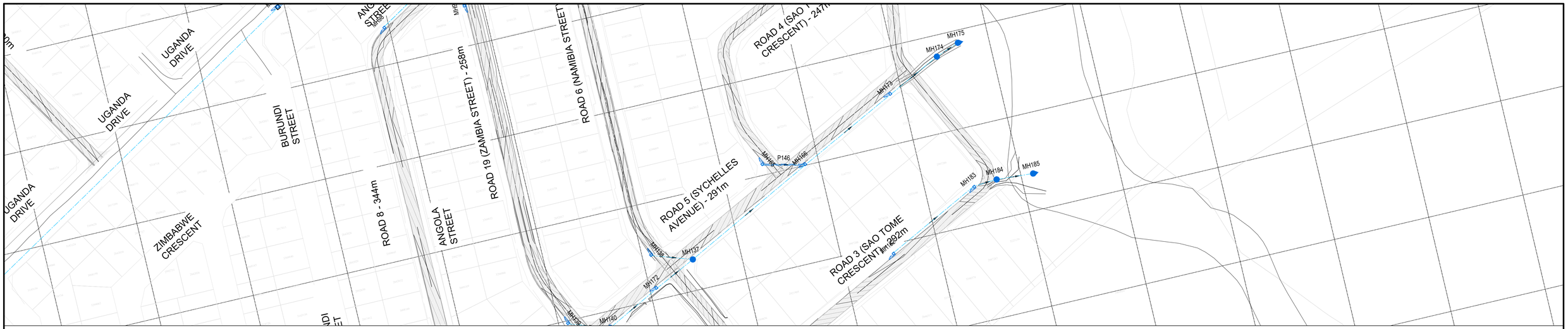
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

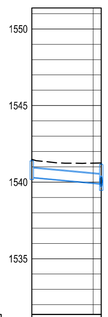
INSPECTOR OF WORKS:
SIGNATURE | DATE

REMARKS:

ORIGINAL PAPER SIZE: A1

CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





NGL – – – – –
EGL — · — · —
HGL · · · · · · · · · · · ·

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1531.369

REFERENCE		MH165	Ø600 100D MH166
DISTANCE (m)		0.000	22.632
GROUND LEVEL		1541.482	1541.256
PIPE INVERT LEVEL		1540.325	1539.908
SLOPE / LENGTH			1.85% 1:54.2 22.63m
HYDRAULICS	DESIGN Q(m3/s) V(m/s)		
	MAX. (0.8D) Q(m3/s) V(m/s)		

LONGSECTION MH165 - MH166
FROM 0.000 TO 22.632

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
BUILDING 27, SUITE F9
52 BEKKER ROAD, MIDRAND.

TELL NO.: +27 (0) 805 0981
FAX NO.: +27 (0) 11 604 0039
EMAIL: KTN@KTNCONSULTING.CO.ZA
WEBSITE: www.ktnconsulting.co.za

KTN CONSULTING ENGINEERS & PROJECT MANAGERS

ROADS AND STORMWATER
For Municipal Approval
SIGN WHEN APPLICABLE

DIRECTOR: ... SIGNATURE DATE

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DIRECTOR: ... SIGNATURE DATE

VICTOR KHANYE LOCAL MUNCIPALITY

TECHNICAL SERVICE DEPARTMENT
P.O BOX 6
DELMAS
2210

TEL NO: 013 665 6000
EMAIL: SECMM@VICTORKHANYELM.GOV.ZA

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DRAWING CHECKED BY: K MAYAYISE
DRAWN: PH VAN DER WESTHUIZEN
CIVIL DRAUGHTING CHECKED BY: PH V/D WESTHUIZEN
SCALE: N.T.S

LOCATION OF PROJECT:
PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
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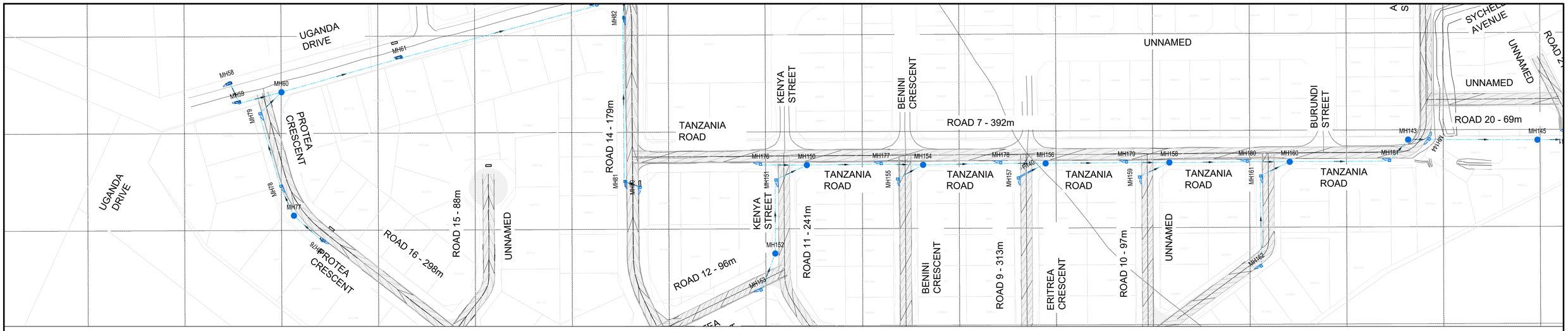
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

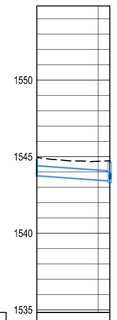
INSPECTOR OF WORKS:
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CONTRACT No. :	PROJECT No. :	SCALE :	DATE :	DRAWING NO.	SHEET NO:	VERSION:
	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





NGL – – – – –
EGL — · — · —
HGL · · · · · · · · · · · ·

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1534.837

REFERENCE			MH176	Ø600 100D MH150
DISTANCE (m)			0.000	23.858
GROUND LEVEL			1544.939	1544.734
PIPE INVERT LEVEL			1543.762	1543.438
SLOPE / LENGTH				1.44% 1:69.3 23.86m
HYDRAULICS	DESIGN	Q(m3/s) V(m/s)		
	MAX. (0.8D)	Q(m3/s) V(m/s)		

LONGSECTION MH176 - MH150
FROM 0.000 TO 23.858

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

CONSULTANT DETAILS
KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
THORNHILL OFFICE PARK,
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52 BEKKER ROAD, MIDRAND.

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PAVING OF ROADS IN DELPARK, DELMAS

DESCRIPTION OF PROJECT
STORMWATER LONGSECTION

PROJECT STATUS
○ CONCEPT DRAWING ● TENDER DRAWING ○ APPROVED FOR CONSTRUCTION DRAWING ○ ASBUILT DRAWING

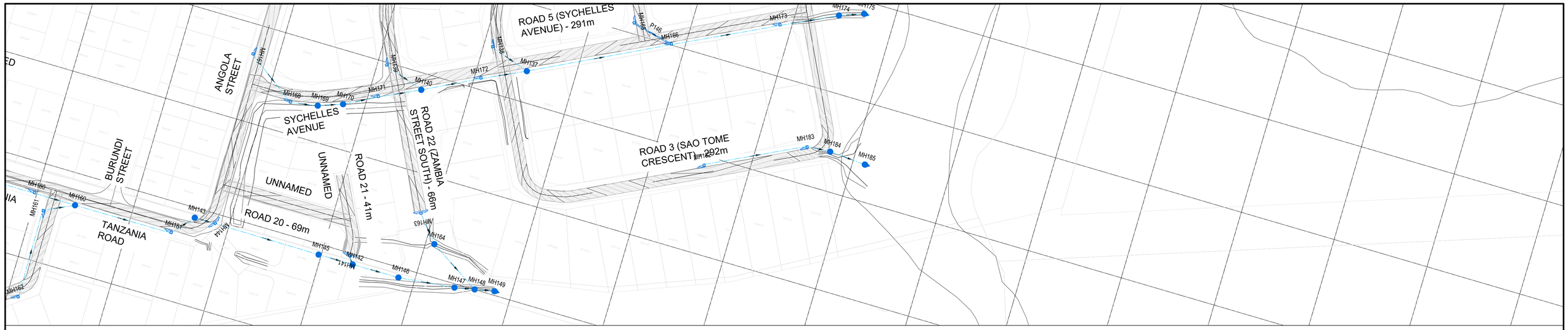
PROJECT ENGINEER: K. MAYAYISE
INITIALS AND SURNAME SIGNATURE & PR NUMBER DATE

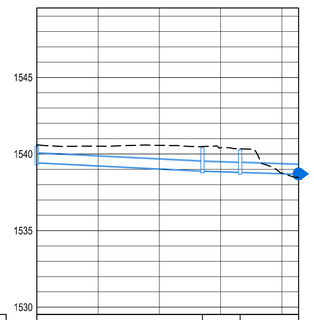
INSPECTOR OF WORKS:
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	2005B	N.T.S	NOVEMBER 2022	2005B-005LS01	1 OF 1	0





NGL – – – – –
EGL — · — · —
HGL · · · · · · · · · · · ·

SCALES:
Horizontal 1:100
Vertical 1:20

DATUM 1529.533

REFERENCE		MH182	Ø600 100D	MH183	Ø600 100D MH184 Ø600 100D MH185
DISTANCE (m)		0.000		54.085	66.363 85.452
GROUND LEVEL		1540.607		1540.467	1540.349 1538.459
PIPE INVERT LEVEL		1539.450		1538.909	1538.909 1538.826 1538.830 1538.702
SLOPE / LENGTH			1.00% 1:100.0 54.08m		0.67% 1:149.3 12.28m 0.67% 1:149.3 19.09m
HYDRAULICS	DESIGN Q(m3/s) V(m/s)				
	MAX. (0.8D) Q(m3/s) V(m/s)				

LONGSECTION MH182 - MH185
FROM 0.000 TO 85.452

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

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KTN CONSULTING ENGINEERS AND PROJECT MANAGERS
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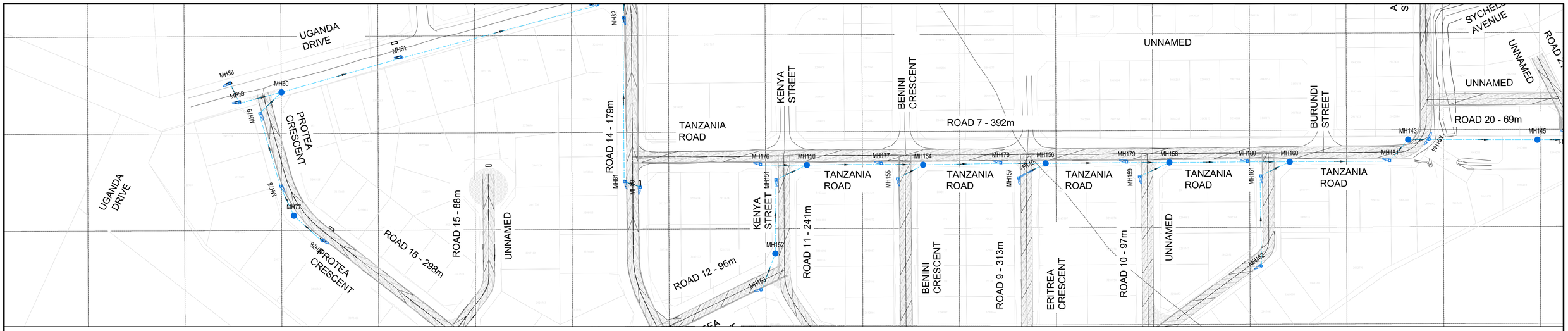
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INITIALS AND SURNAME | SIGNATURE & PR NUMBER | DATE

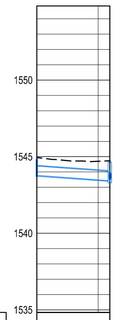
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LONGSECTION MH176 - MH150
FROM 0.000 TO 23.858

AMENDMENTS

NR.	DATE	APPROVED	DESCRIPTION	PAR.

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